Maintenance Manual

PANTUM

WWW.PANTUM.COM

Pantum CM9700、CM9100、M9700、M9100 Series Service Manual

Color Multi-function laser printer



Please read this manual before maintaining

Version: V1.5

Pantum Color Multi-function Laser Printer

Service Manual

Suitable Model： M97/M97**/CM91**/CM91****(“*”stands for any number and letter)**



Version change history

Version	Time	Modified contents
V1.0	Nov.5, 2022	New Service Manual
V1.1	May.16.2023	Add wiring diagram
V1.2	Feb.21.2024	Update Service mode
V1.3	Jul.3.2025	Update error code
V1.4	Jul.31.2025	Add trouble code
V1.5	Oct.14.2025	Delete redundant content

Table of Contents

1.PERIODICAL MAINTENANCE 5
Periodical maintenance procedure 5
Periodical maintenance procedure CPT910X 25
Periodical maintenance procedure CPT910U 26
Periodical maintenance procedure PF910U/PF910X 28
Periodical maintenance procedure PF910 33
2.DISASSEMBLY/REASSEMBLY 35
Disassembly/reassembly procedure (Boards) 69
Disassembly/reassembly procedure (Motors) 81
Disassembly/reassembly procedure (Clutches) 98
Disassembly/reassembly procedure (Fans) 101
Disassembly/reassembly procedure (etc.) 111
Option 117
Disassembly/reassembly parts list 117
Disassembly/reassembly procedure (CPT910X) 125
Disassembly/reassembly procedure (PF910) 145
Disassembly/reassembly procedure (PF910U/PF910X) 156
3.ADJUSTMENT/SETTING 185
ADJUSTMENT ITEM LIST 185
SERVICE MODE 188
State Confirmation 200
MECHANICAL ADJUSTMENT 202
MECHANICAL ADJUSTMENT CPT910 206
MECHANICAL ADJUSTMENT CPT910X 207
MECHANICAL ADJUSTMENT CPT910U 209
MECHANICAL ADJUSTMENT PF910U 211
4. TROUBLESHOOTING 213
TROUBLE CODE 213
TROUBLES THAT DO NOT DISPLAY THE TROUBLE CODE 277
IMAGE QUALITY PROBLEM 279
5. PARTS/CONNECTOR LAYOUT DRAWING 316
PARTS LAYOUT DRAWING 316
6.THEORY OF OPERATION 334
INTERFACE SECTION 334
SCANNER SECTION 338
WRITE SECTION (PH SECTION) 344
PHOTO CONDUCTOR SECTION ..... 错误！未定义书签。
DEVELOPING SECTION 347
TONER SUPPLY SECTION 353
1ST TRANSFER SECTION 362
2ND TRANSFER SECTION 369
TONER COLLECTING SECTION 375
PAPER FEED SECTION (MANUAL BYPASS TRAY) 380
PAPER FEED SECTION 386
REGISTRATION SECTION 401
FUSING SECTION (CM9105DN/M9105DN) 407
FUSING SECTION (CM9705DN/M9705) 418
PAPER EXIT/REVERSE SECTION 430
DUPLEX SECTION 433
POWER SUPPLY SECTION 438
THEORY OF OPERATION PC-110/PC-210/CPT910 450
THEORY OF OPERATION PC-410/CPT910X 458
THEORY OF OPERATION PF910/PK-519 466

1.PERIODICAL MAINTENANCE

Periodical maintenance procedure

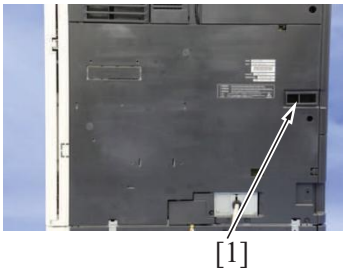
NOTE
The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.

Housing section

Replacing the toner filter

Procedure

Squeeze the hooks and remove the toner filter [1].



To reinstall, reverse the order of removal.

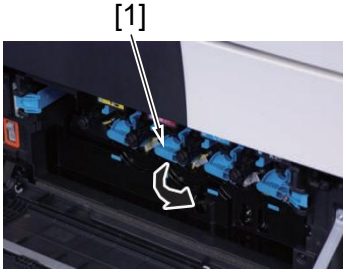
Photo conductor section

Replacing the drum unit

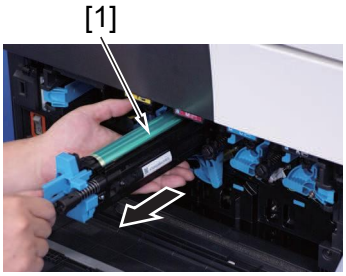
Removal procedure

Open the lower front door.
Remove the waste toner box.
Replacing the waste toner box

Turn the drum unit lock lever [1] and release the lock.

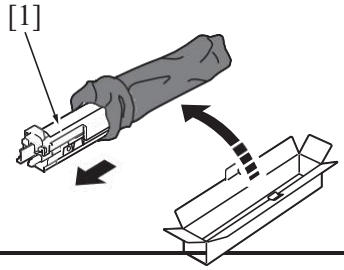


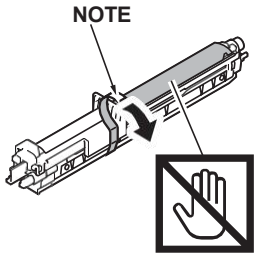
Pull the drum unit [1] to you and remove it from the machine.



Reinstall procedure

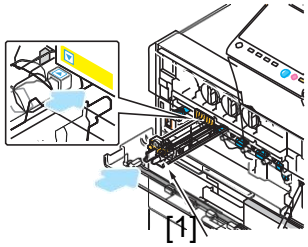
Remove the drum unit [1] from its package.
Remove the drum unit [1] from the plastic bag.



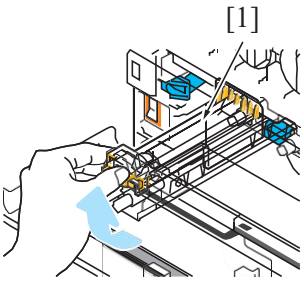


Peel off the tape [1].

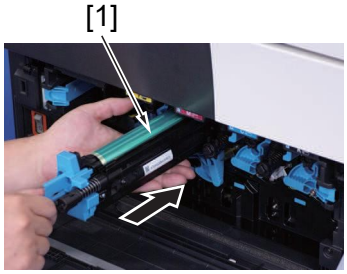
Do not hold the drum unit by the upper part. Holding it by the upper part can cause scratches on the surface of the photo conductor, resulting in the deterioration of image quality.



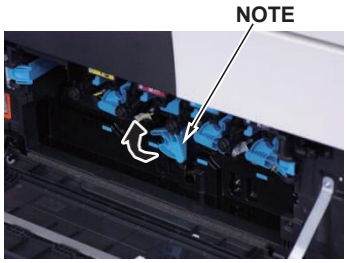
Put the label. (Drum Unit/Y, M, C only)
Align the "▲" mark on the drum unit with the "▼" mark on the machine and insert the drum unit [1] into the machine.



Remove the photo conductor protective sheet [1].



Completely insert the drum unit [1].



Turn the drum unit lock lever [1] and lock the drum unit.

If the lock lever is hard to rotate, turn the lever while pushing the drum unit to the rear.

Reinstall the waste toner box.
Close the lower front door.

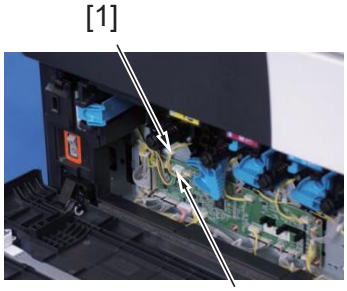
Developing section

Replacing the developing unit

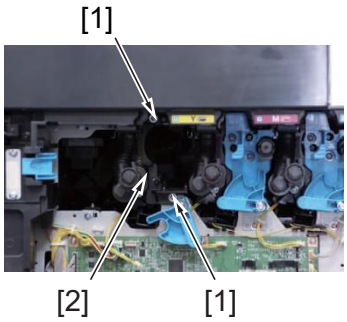
Procedure

Open the lower front door.
Remove the waste toner box.
Replacing the waste toner box

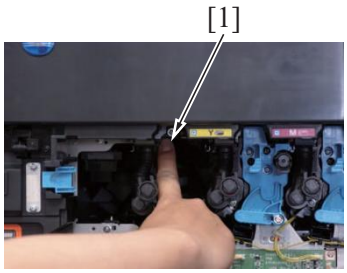
Remove the front lower cover.
G.1.2.9 Front lower cover
Remove the drum unit/Y.
Replacing the drum unit



Remove the harness from the wire saddle [1], and disconnect the connector [2].



Remove two screws [1], and remove the developing unit [2].



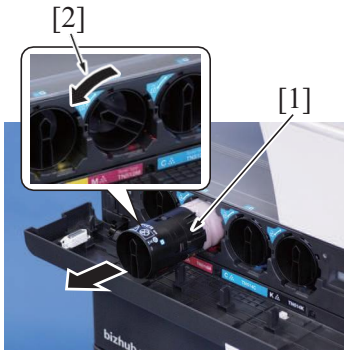
To reinstall, reverse the order of removal.
NOTE
To install two screws in the developing unit, press the position [1] with your finger as shown in the illustration.

Toner supply section

Replacing the toner cartridge

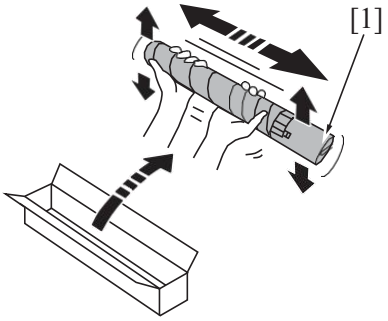
Removal procedure

Open the upper front door.



Turn the toner cartridge [1] in the direction [2] as shown in the illustration to release the lock.
Remove the toner cartridge [1].

Reinstall procedure



Remove the new toner cartridge [1] from its packaging, and the shake the cartridge side to side 5 to 10 times.

NOTE

Shake the toner cartridge well.

If shaking is not enough, that may cause trouble.

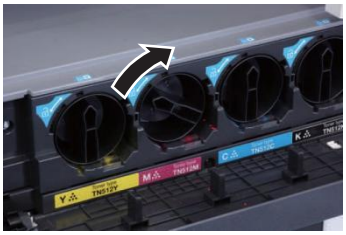


Insert the toner cartridge [1] into the machine.

NOTE

Make sure that the toner cartridge is the same color as the label in the cartridge compartment.

Make sure that the blue label position of the toner cartridge is matched with the one of the machine side.



Completely insert the toner cartridge into the machine and turn it in the direction as shown in the illustration in order to fix the toner cartridge.

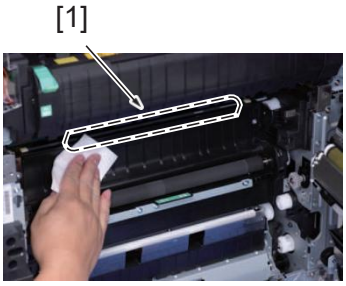
1st transfer section

Cleaning of the image transfer entrance guide

Procedure

Remove the transfer belt unit.

Replacing the transfer belt unit



Wipe the image transfer entrance guide [1] clean of spilled toner and dirt using a cleaning pad with water or alcohol.

Cleaning of the IDC sensor window

(1) Procedure

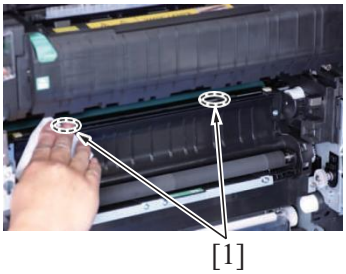
Remove the transfer belt unit.

Replacing the transfer belt unit

Wipe out the IDC sensor window [1].

NOTE

Do not wipe out with any solvents or alcohols.

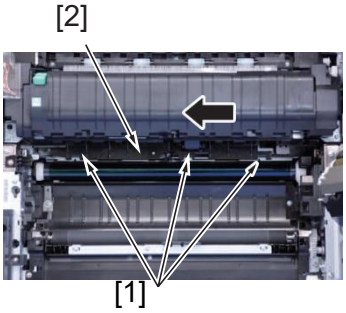


Replacing the transfer belt unit

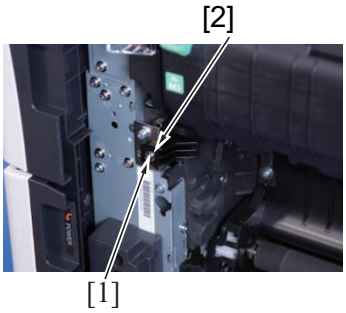
Removal procedure

1. Open the right door and the regist unit.

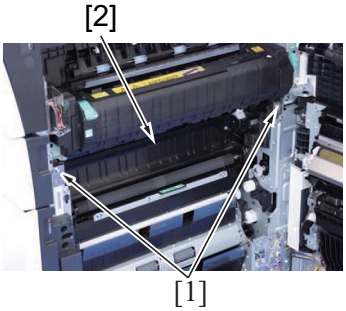
2. Release three tabs [1], and remove the 2nd transfer paper winding prevention guide [2].



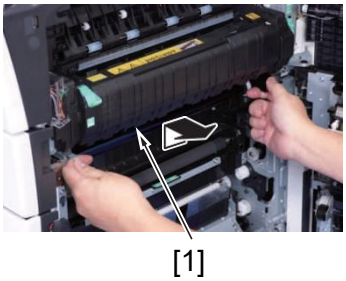
3. Remove the screw [1], and remove the stopper [2].

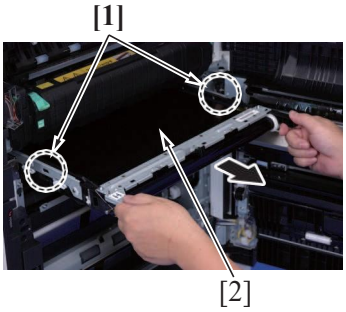


4. Remove two screws [1] and unlock the transfer belt unit [2].



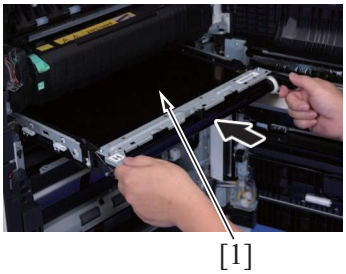
5. Hold the both sides and lift it to take out the transfer belt unit [1] a little.



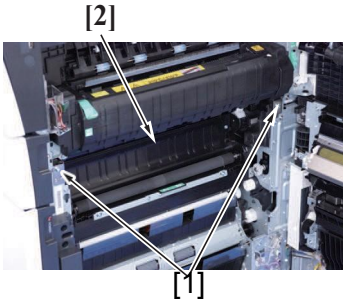


6. Hold the position [1] and remove the transfer belt unit [2].
   NOTE
   - **Do not touch the surface of the transfer belt unit.**
   - **Cover the transfer belt unit with something such shade cloth to protect its surface from dust or foreign matter.**
   - **If accidentally touched the surface of the transfer belt, lightly wipe it using the Hydro-wipe (65AA-99##). Do not clean with alcohol or water.**

Reinstall procedure



1. Insert the transfer belt unit [1].
   NOTE
   - **Insert the transfer belt unit with care not to allow its docking gear to be damaged by hitting it against the rail or associated part.**
   - **Do not touch the surface of the transfer belt unit.**
   - **Cover the transfer belt unit with something such shade cloth to protect its surface from dust or foreign matter.**
   - **If accidentally touched the surface of the transfer belt, lightly wipe it using the Hydro-wipe (65AA-99##). Do not clean with alcohol or water.**



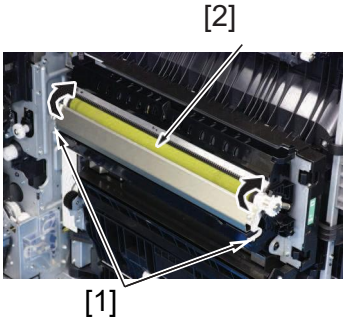
2. Install the transfer belt unit [2] with two screws [1].
   NOTE
   - **Make sure to also replace the transfer roller unit, and toner filter bundled with the transfer belt unit.**
3. Install the 2nd transfer paper winding prevention guide.
4. To reinstall, reverse the order of removal.
5. Turn ON the main power switch.

2nd transfer/separation section

Replacing the transfer roller unit

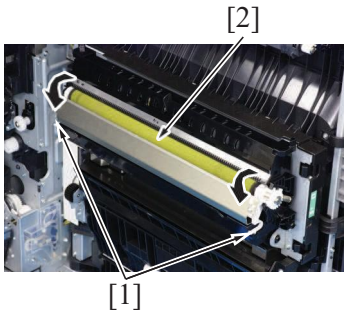
(1) Removal procedure

1. Open the right door.



2. Unlock the lock levers [1] of the transfer roller unit (at two places).
3. Holding onto the lock levers [1] (at two places), remove the transfer roller unit [2].

(2) Reinstall procedure



1. Holding onto the lock levers [1] (at two places), mount the new transfer roller unit [2].
2. Lock the lock levers [1] (at two places).

NOTE

- **Make sure that the levers are locked in position both at front and rear.**

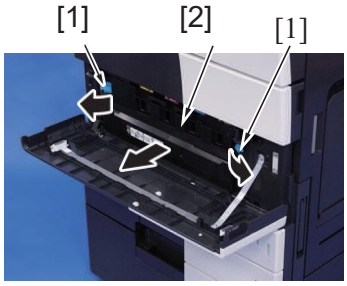
3. Close the right door.

Toner collection section

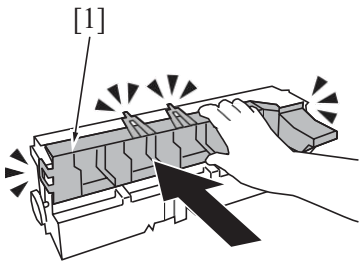
Replacing the waste toner box

(1) Removal procedure

1. Open the lower front door.



2. Unhook the waste toner box fixing levers [1] and remove the waste toner box [2].



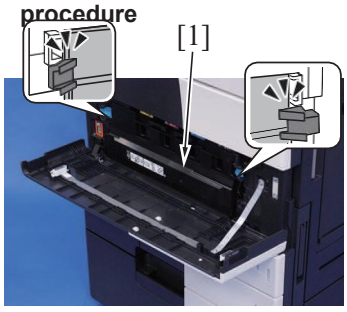
3. Take out the cap [1] from the new waste toner box package, and attach it to the old waste toner box.

NOTE

- **After removing the Waste Toner Box, quickly install the cap. If the Waste Toner Box is tilted, waste toner may spill.**

4. Clean the surface around the waste toner collecting port.
   Cleaning of the area around the waste toner collecting port

(2) Reinstall procedure



1. Remove the brand new waste toner box from its package and remove the packing material.
2. Set the waste toner box [1].

3. Close the lower front door.

Cleaning of the area around the waste toner collecting port

(1) Procedure

1. Remove the waste toner box.
   Replacing the waste toner box

2. Wipe the areas around the waste toner collecting port clean of spilled toner and dirt using a cleaning pad with water or alcohol.

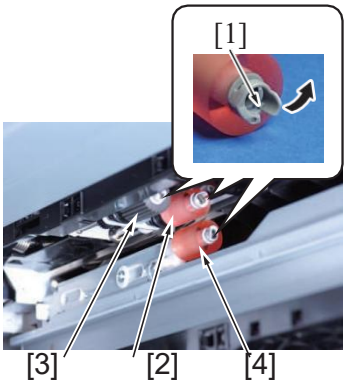


Document feed section

Replacing the tray 1 feed roller, tray 1 pick-up roller, tray 1 separation roller

(1) Procedure

1. Open the right door.
2. Remove the tray 1.
   G.1.2.22 Tray 1
3. Remove the tray 2.
   G.1.2.23 Tray 2

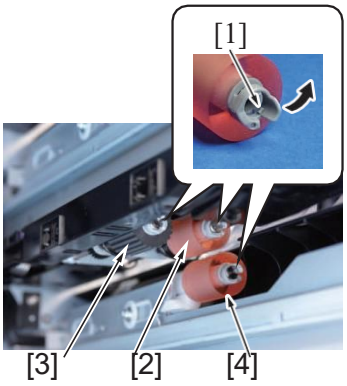


4. Release the tab [1], and remove the tray 1 feed roller [2].
5. Release the tab [1], and remove the tray 1 pick-up roller [3].
6. Release the tab [1], and remove the tray 1 separation roller [4].
7. To reinstall, reverse the order of removal.

Replacing the tray 2 feed roller, tray 2 pick-up roller, tray 2 separation roller

(1) Procedure

1. Open the right door.
2. Remove the tray 1.
   G.1.2.22 Tray 1
3. Remove the tray 2.
   G.1.2.23 Tray 2



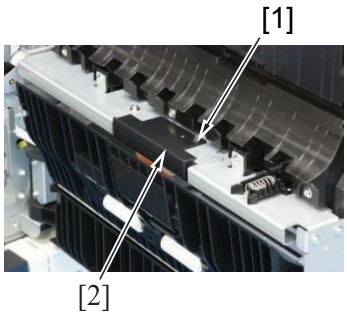
4. Release the tab [1], and remove the tray 2 feed roller [2].
5. Release the tab [1], and remove the tray 2 pick-up roller [3].
6. Release the tab [1], and remove the tray 2 separation roller [4].
7. To reinstall, reverse the order of removal.

Replacing the manual bypass tray feed roller, manual bypass tray separation roller assy

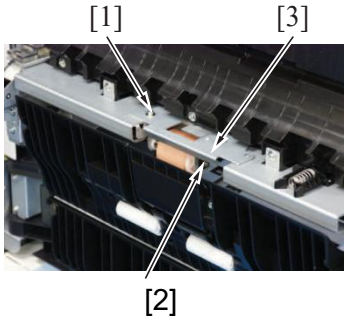
(1) Procedure

1. Open the right door.
2. Open the registration unit.

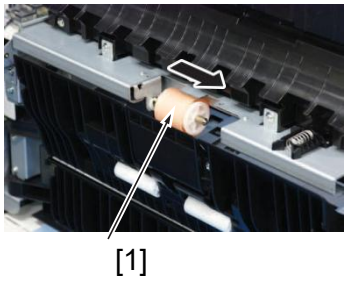
3. Remove the screw [1], and remove the feed roller cover [2].



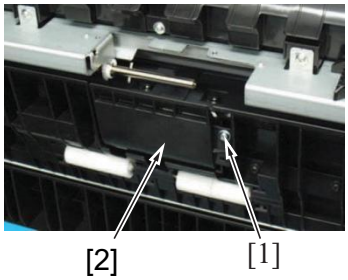
4. Remove the screw [1], and remove the bushing [2] and the metal plate [3].



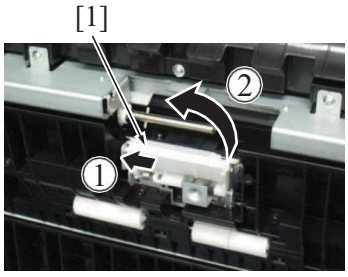
5. Remove the manual bypass tray feed roller [1].

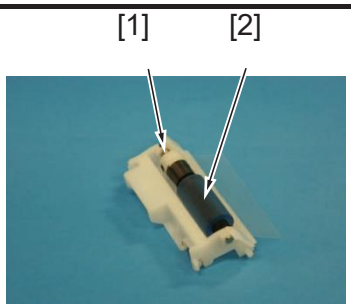


6. Remove the screw [1], and remove the cover [2].



7. Remove the manual bypass tray separation roller unit [1].





8. Remoe the C-ring [1], and remove the manual bypass tray separation roller assy [2].

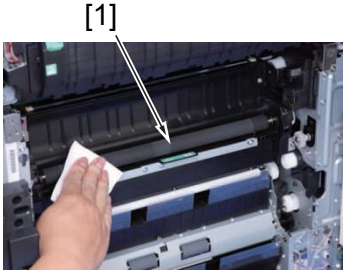
9. To reinstall, reverse the order of removal.

Registration section

Cleaning of the registration roller

(1) Procedure

1. Open the right door.



2. Using a cleaning pad with alcohol, wipe the registration roller [1] clean of dirt.

Fusing section

Replacing the fusing unit (CM9705DN/M9705)

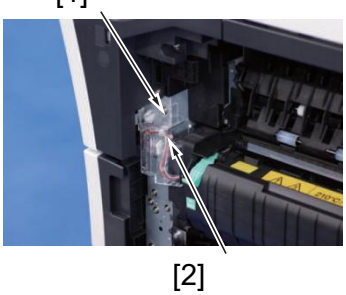
⚠CAUTION

- **The temperature gets high in the vicinity of the fusing unit. You may get burned when you come into contact with the area.**

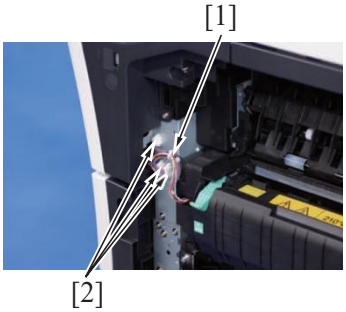
  Before replacement operations, make sure that more than 20 minutes have elapsed since the main power switch was turned off.

(1) Procedure

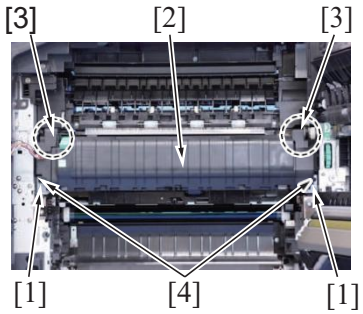
1. Open the right door.



2. Remove the screw [1], and remove the connector protective cover [2].



3. Remove the harness from the wire saddle [1].
4. Disconnect three connectors [2].



5. Remove two screws [1], and remove the fusing unit [2].
   NOTE
   - **When removing the fusing unit, hold the parts [3] shown on the picture so that it would not fall.**
   - **If the fusing unit is difficult to remove, the main power switch was likely turned off while the fusing pressure roller was engaged. To release the fusing pressure roller, turn on the main power switch, wait for the device to warm up, and then turn off the main power switch again.**
   - **When installing the fusing unit, make sure that the set pin [4] is inserted in the fusing unit.**

6. Clean the IH coil unit.
7. To reinstall, reverse the order of removal.

Replacing the fusing unit (CM9105DN/M9105DN)

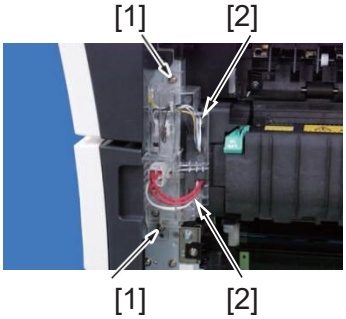
⚠CAUTION

- **The temperature gets high in the vicinity of the fusing unit. You may get burned when you come into contact with the area.**

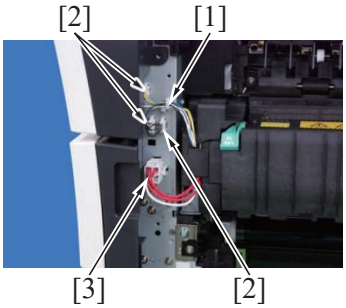
  Before replacement operations, make sure that more than 20 minutes have elapsed since the main power switch was turned off.

(2) Procedure

1. Open the right door.



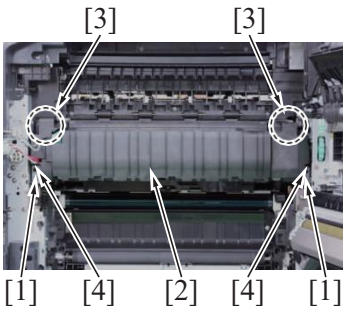
2. Remove the screw [1] each, and remove two connector protective covers [2].



3. Remove the harness from the wire saddle [1].
4. Disconnect three connectors [2].
5. Disconnect the connector [3].

NOTE

- **When removing the connector [3], press the claw to release the lock, then remove it.**



6. Remove two screws [1], and remove the fusing unit [2].

NOTE

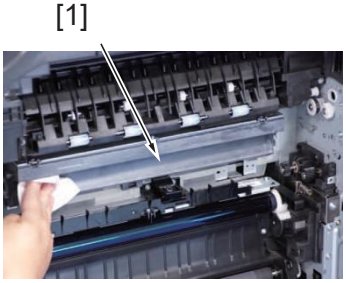
- **When removing the fusing unit, hold the parts [3] shown on the picture so that it would not fall.**
- **When installing the fusing unit, make sure that the set pin [4] is inserted in the fusing unit.**

7. To reinstall, reverse the order of removal.

Cleaning of the IH coil (CM9705DN/M9705)

Procedure

1. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)



2. Use a cleaning pad dampened with alcohol to clean the IH coil [1].

NOTE

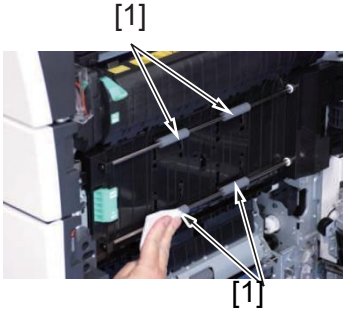
- **Do not touch or contaminate the heating roller temperature sensor while cleaning the IH coil. If the heating roller temperature sensor is moved, damaged, or contaminated, the heating roller temperature sensor may not detect the heating roller temperature correctly, which would cause the P-32 warning code or other trouble codes to appear.**

Duplex section

Cleaning of the duplex transport rollers

Procedure

1. Open the right door.
2. Open the registration unit.



3. Using a cleaning pad with water or alcohol, wipe the duplex transport rollers [1] clean of dirt.

Periodical maintenance procedure DF-704

NOTE

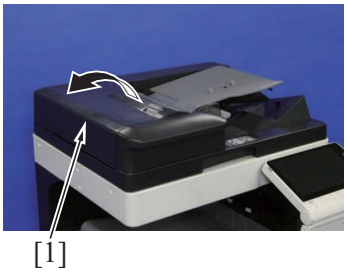
- **The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.**

Take-up section

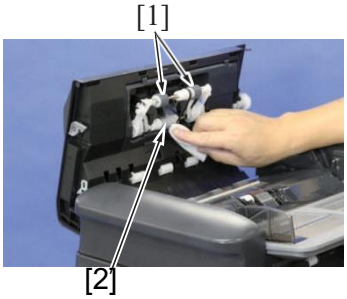
Cleaning of the pick-up roller/feed roller

(1) Procedure

1. Open the left cover [1].



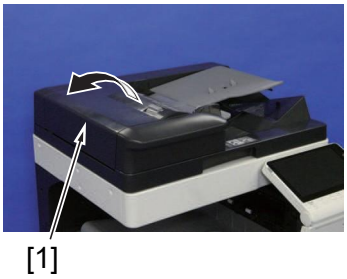
2. Using a cleaning pad with alcohol, wipe the pick-up roller [1] / feed roller [2] clean of dirt.



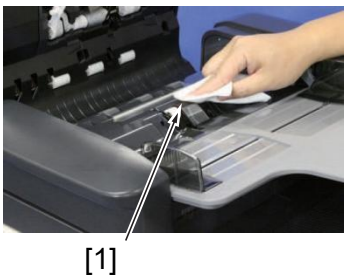
Cleaning of the separation roller

(1) Procedure

1. Open the left cover [1].



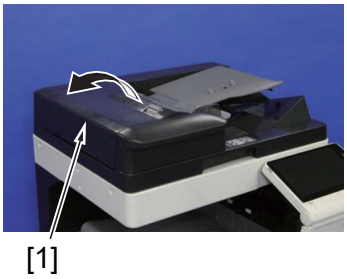
2. Using a cleaning pad with alcohol, wipe the separation roller [1] clean of dirt.



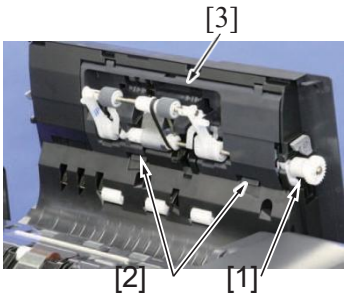
Replacing the paper feed assy.

(1) Procedure

1. Open the left cover [1].



2. Release the lock [1].
3. Release the two tabs [2], and remove the paper feed assy. [3].



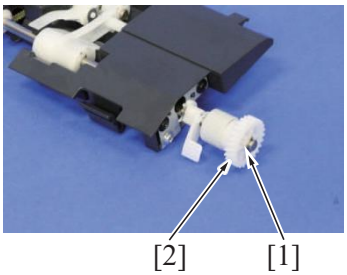
4. To reinstall, reverse the order of removal.

Replacing the pick-up roller/feed roller

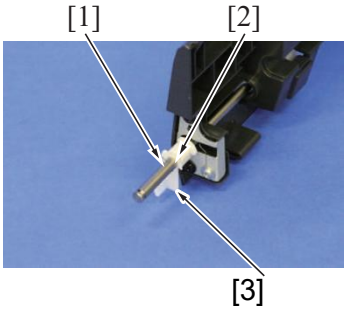
(1) Procedure

1. Remove the paper feed assy..
   Replacing the paper feed assy.

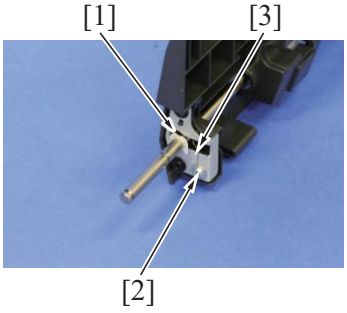
2. Remove the E-ring [1] and the gear assy [2].
   NOTE
   - **When reinstalling the gear assy [2], push the gear assy [2] into position while rotating it.**

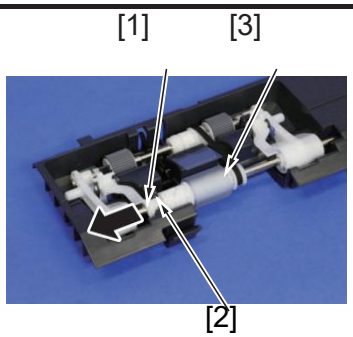


3. Remove the pin [1].
   NOTE
   - **Be careful not to lose the pin [1].**
4. Remove the C-clip [2], and remove the lever [3].

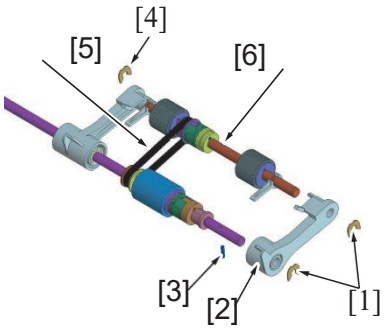


5. Remove the C-clip [1].
6. Remove the screw [2], and remove the spring [3].



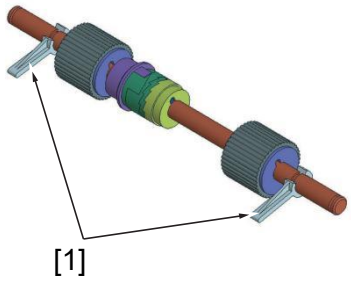


7. Remove the C-clip [1] and slide the bushing [2] in the direction of the arrow.
8. Remove the pick-up roller/feed roller assy [3].

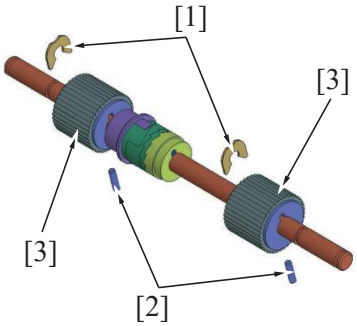


9. Remove two C-rings [1].
10. Remove the arm [2] and the pin [3].
NOTE
- **Be careful not to lose the pin [3].**

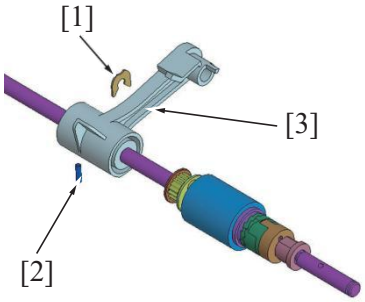
11. Remove the C-ring [4] and the belt [5], and remove the pick-up roller assy [6].



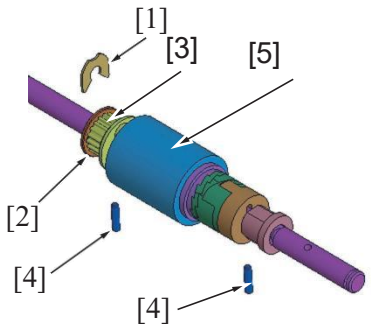
12. Remove two levers [1].



13. Remove two C-rings [1] and two pins [2], and remove two pick-up rollers [3].
NOTE
- **Be careful not to lose the pin [2].**



14. Remove the C-ring [1] and the pin [2], and remove the arm [3].
NOTE
- **Be careful not to lose the pin [2].**



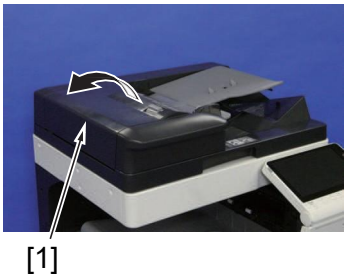
15. Remove the C-ring [1], the pulley [2] and the gear [3].
16. Remove two pins [4], and remove the feed roller [5].
NOTE
- **Be careful not to lose the pin [4].**

17. To reinstall, reverse the order of removal.

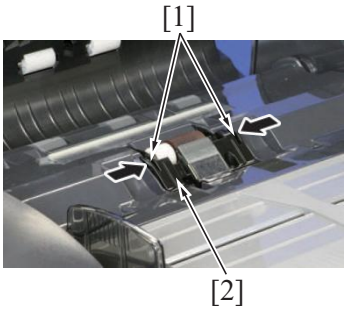
Replacing the separation roller assy

(1) Procedure

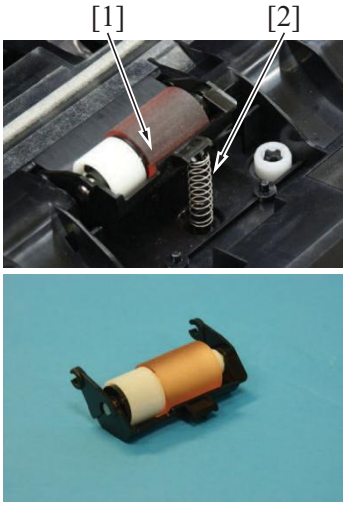
1. Open the left cover [1].



2. Grip both sides [1] of the holder and remove the cover [2].



3. Remove the separation roller assy [1].
NOTE
- **Do not lose the spring [2] at the lower part of the separation roller assy [1].**



4. To reinstall, reverse the order of removal.

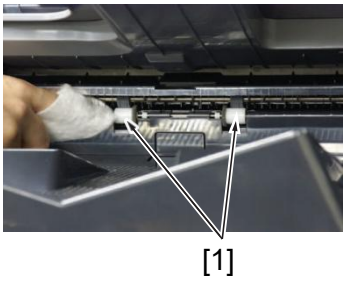
Transport section

Cleaning of the miscellaneous rolls

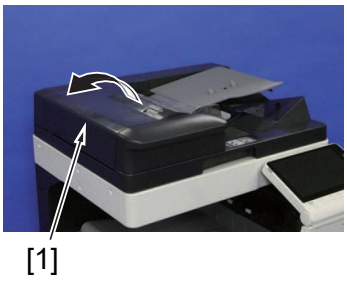
(1) Procedure

1. Lift up the document feed tray.

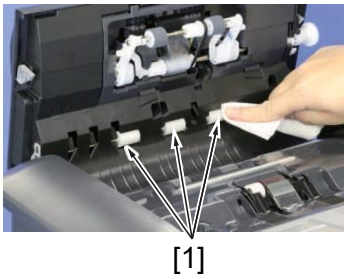
2. Using a cleaning pad dampened with alcohol, wipe the roll [1].



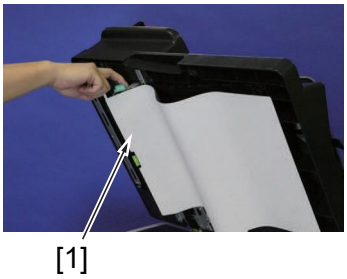
3. Open the left cover [1].



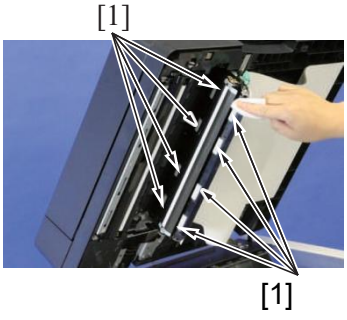
4. Using a cleaning pad dampened with alcohol, wipe the roll [1].



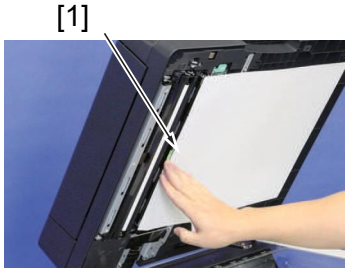
5. Open the opening and closing guide [1].



6. Using a cleaning pad dampened with alcohol, wipe the roll [1].



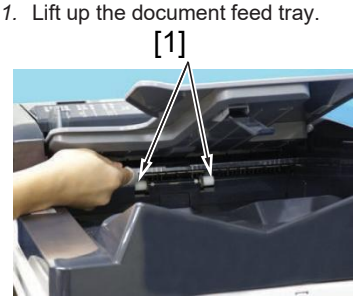
7. Close the opening and closing guide [1].



Cleaning of the miscellaneous rollers

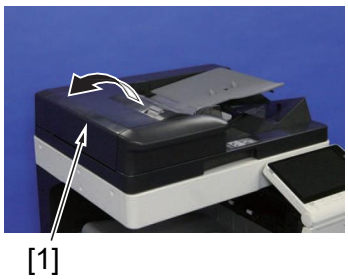
(1) Procedure

1. Lift up the document feed tray.

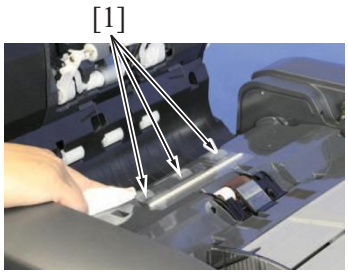


2. Using a cleaning pad dampened with alcohol, wipe the roller [1].

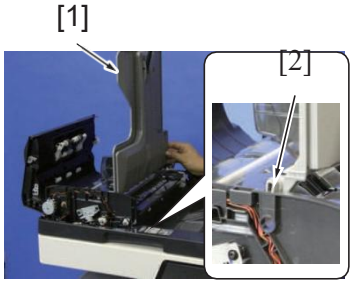
3. Open the left cover [1].



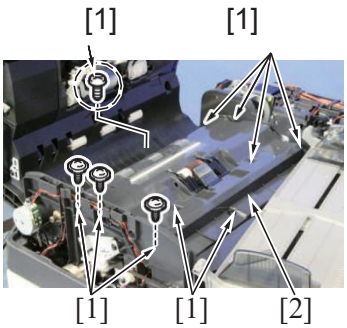
4. Using a cleaning pad dampened with alcohol, wipe the roller [1].



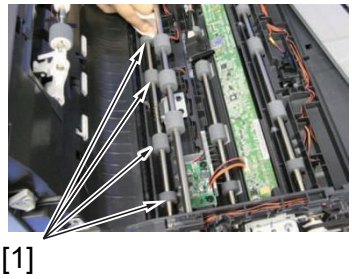
5. Remove the front cover.
   G.2.2.1 Front cover (DF-704)
6. Remove the rear cover.
   G.2.2.2 Rear cover (DF-704)



7. Lift up the document feed tray [1].
8. Remove the claw [2] at the front side, and set the document feed tray [1] off the working area.



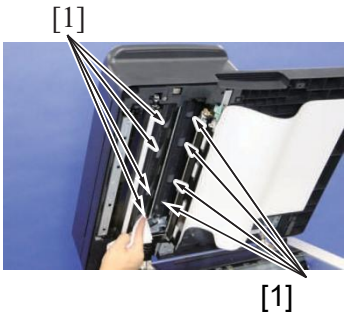
9. Remove 10 screws [1], and remove the transport guide [2].
NOTE
- **Use care when mounting the screw [1] in the dashed circle (one on the left when looking from the front) since it is different from other nine screws [1].**



10. Using a cleaning pad dampened with alcohol, wipe the roller [1].

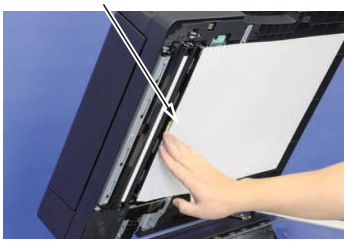


11. Open the opening and closing guide [1].



12. Using a cleaning pad dampened with alcohol, wipe the roller [1].

13. Close the opening and closing guide [1].

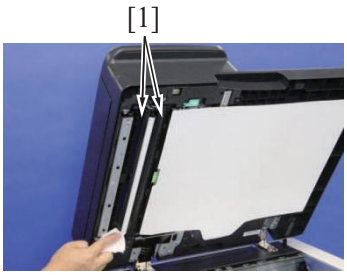


Scanning section

Cleaning of the front side scanning guide

(1) Procedure

1. Open the dual scan document feeder.



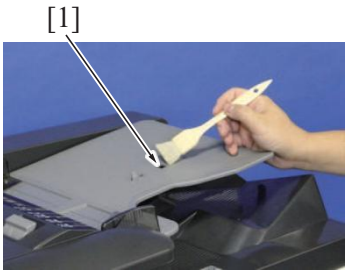
2. Using a cleaning pad dampened with alcohol, wipe the front side scanning guide [1] clean of dirt.

NOTE

- **Be careful not to damage the sheet.**

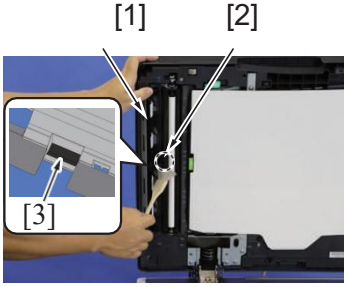
Cleaning of the reflective sensor section

(1) Procedure



1. Clean the sensor [1] using a brush or other similar tools.

2. Open the dual scan document feeder.



3. Open the document reading front guide [1], and clean the sensor [2] and the reflective part [3] using a brush or other similar tools.

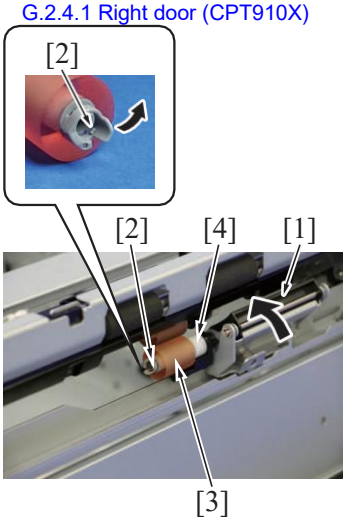
Periodical maintenance procedure CPT910X

Paper feed section

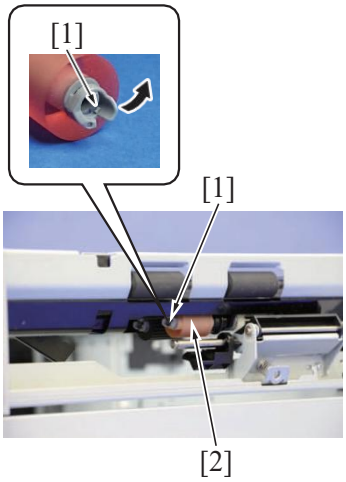
Replacing the feed roller, pick-up roller, separation roller

(1) Procedure

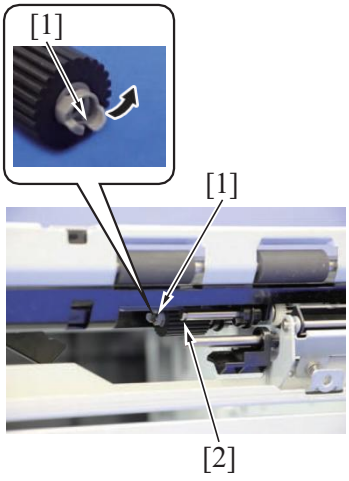
1. Slide out the paper feed tray.
2. Remove the right door.
   G.2.4.1 Right door (CPT910X)



3. While pushing down the separation roller assy [1] and unlocking the claw [2], remove the separation roller [3].
   NOTE
   - **When replacing the separation roller, replace the torque limiter [4] at the same time.**



4. While unlocking the claw [1], remove the feed roller [2].



5. While unlocking the claw [1], remove the pick-up roller [2].

6. To reinstall, reverse the order of removal.

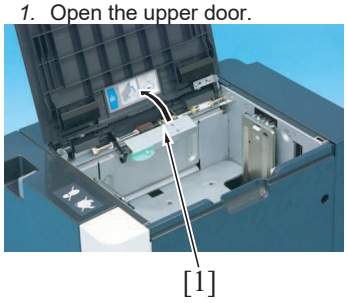
Periodical maintenance procedure CPT910U

Paper feed section

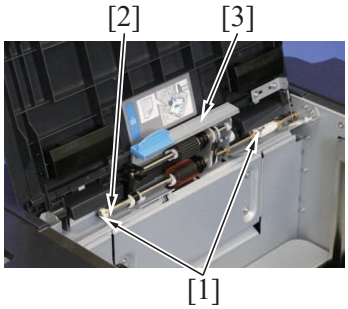
Replacing the pick-up roller

(1) Procedure

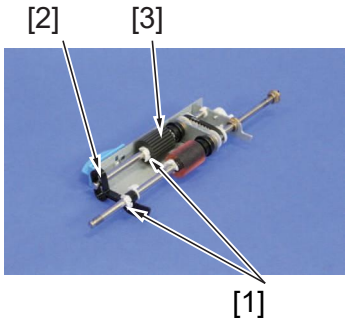
1. Open the upper door.



2. Move the feed roller assy [1] up.



3. Remove two C-clips [1], the bushing [2] and remove the feed roller assy [3].



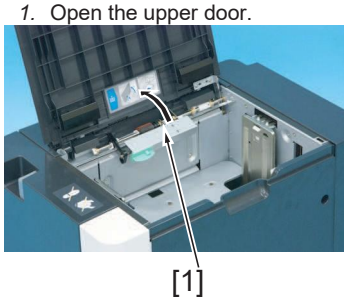
4. Remove two C-clips [1], the actuator [2] and remove the pick-up roller [3].

5. To reinstall, reverse the order of removal.

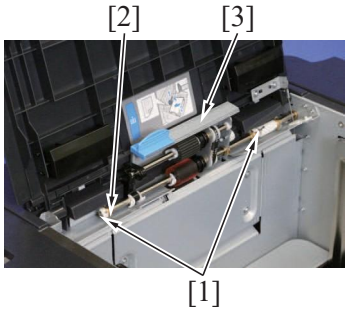
Replacing the feed roller

(1) Procedure

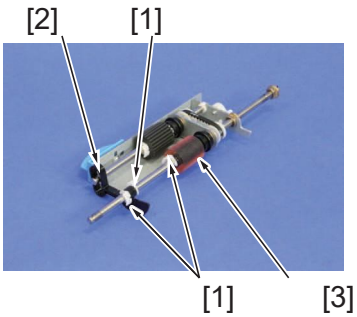
1. Open the upper door.



2. Move the feed roller assy [1] up.



3. Remove two C-clips [1], the bushing [2] and remove the feed roller assy [3].



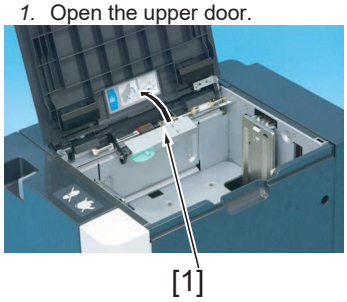
4. Remove three C-clips [1], the actuator [2] and remove the feed roller [3].

5. To reinstall, reverse the order of removal.

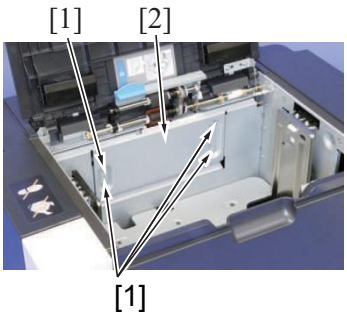
Replacing the separation roller

(1) Procedure

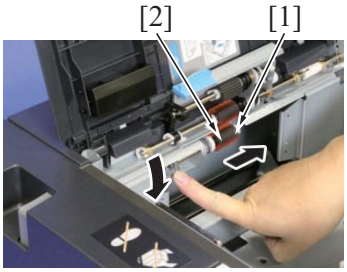
1. Open the upper door.



2. Move the feed roller assy [1] up.



3. Remove four screws [1], and remove the plate [2].



4. Remove the C-clip [1] while pressing the separation roller down to remove the separation roller [2].

5. To reinstall, reverse the order of removal.

Periodical maintenance procedure PF910U/PF910X

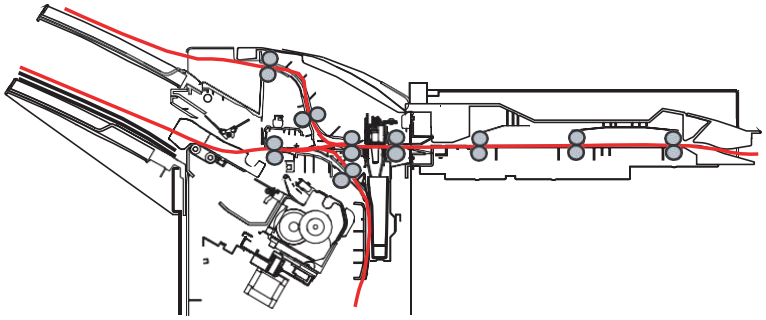
NOTE

- **The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.**

Paper exit section

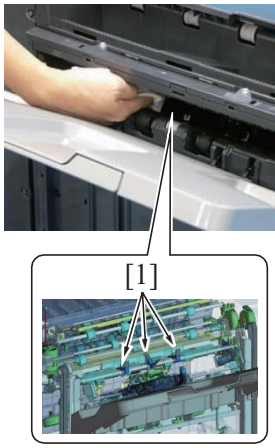
Cleaning procedure for each rollers/each rolls

(1) Cleaning point



Cleaning the paddles

(1) Procedure



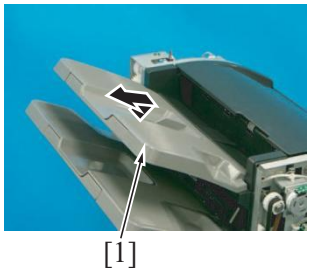
1. Using a cleaning pad dampened with alcohol, wipe the paddle [1].

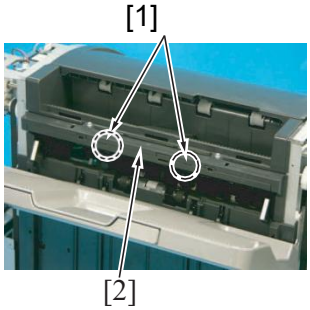
Replacing the paddle units

(1) Procedure

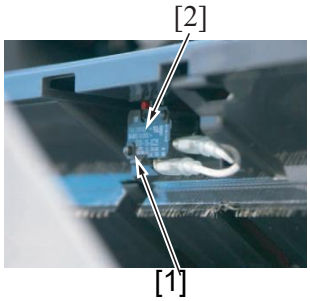
1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the front door of the finisher.
   G.2.8.2 Front door (PF910U/PF910X)
3. Remove the front upper cover of the finisher.
   G.2.8.3 Front upper cover (PF910U/PF910X)
4. Remove the rear cover of the finisher.
   G.2.8.1 Rear cover (PF910U/PF910X)

5. Remove the paper exit tray [1].

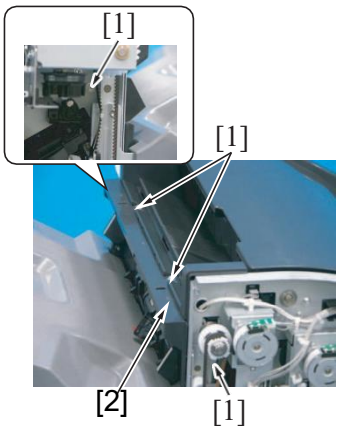




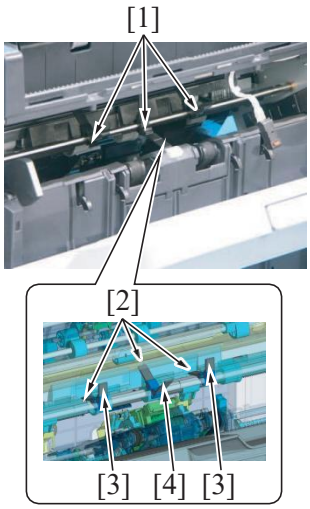
6. Remove two tabs [1], and remove the cover [2].



7. Release the tab [1], and remove the main tray upper position detect switch [2].



8. Remove four screws [1], and remove the cover [2].

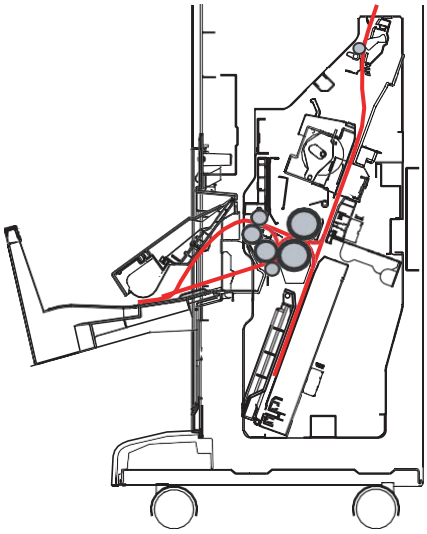


9. Remove three paddle units [1].
NOTE
- **When reinstalling the paddle units, be careful not to attach them at an incorrect location or in an incorrect orientation. Length: [4] > [2] > [3]**

10. To reinstall, reverse the order of removal.

Cleaning procedure for each rollers/each rolls

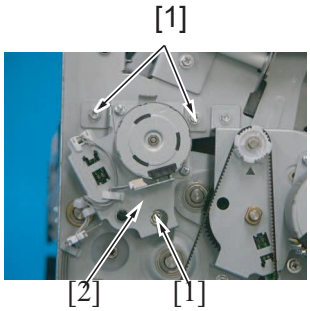
(1) Cleaning point



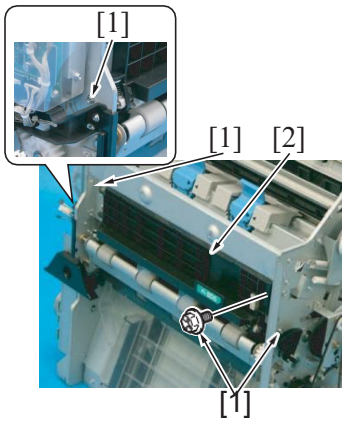
Cleaning the upper paddle

(1) Procedure

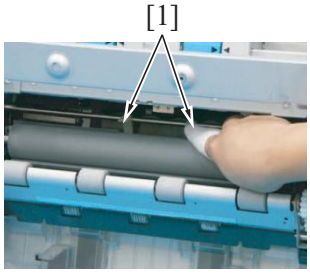
1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)



3. Remove three screws [1], and remove the tri-fold guide motor assy [2].



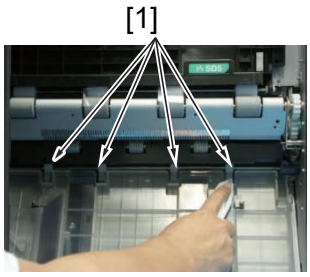
4. Remove four screws [1], and remove the conveyance assy [2].



5. Using a cleaning pad dampened with alcohol, wipe the paddle [1].

Cleaning the lower paddle

(1) Procedure



1. Using a cleaning pad dampened with alcohol, wipe the paddle [1].

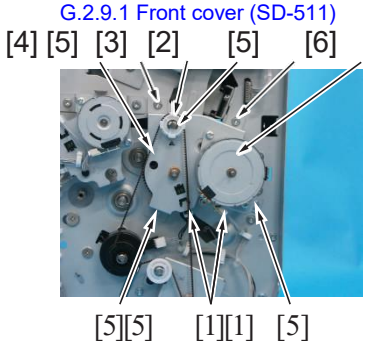
Replacing the upper paddle assy

(1) Periodically replacing parts/cycle

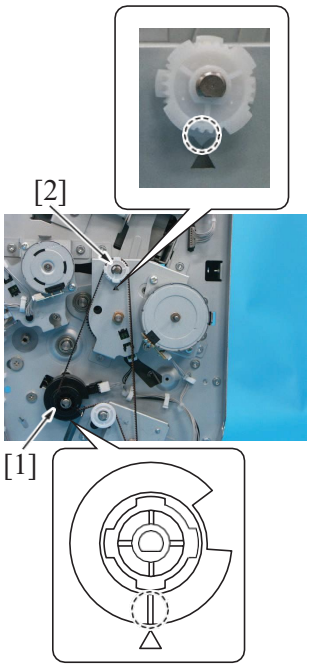
- Upper paddle assy: Every 2,000,000 counts

(2) Procedure

1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)

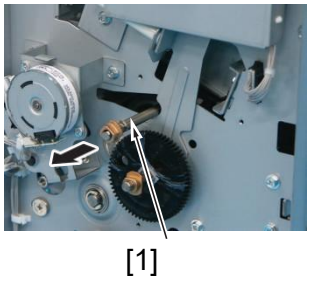


3. Disconnect two connectors [1].
4. Remove the E-ring [2].
5. Remove the gear [3] and the belt [4].
6. Remove four screws [5], and remove the center fold guide motor assy [6].

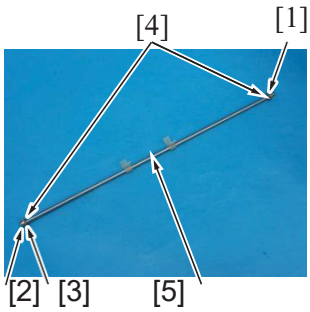


7. **NOTE**
   - **When reinstalling the belt, align the portions of the gear [1] and the gear [2] indicated in the illustration with the triangular marking on the metal plate. Then, install the belt.**

8. Remove the upper paddle assy [1].



9. Remove the bushing [1].
10. Remove the E-ring [2], and remove the bushing [3].
11. Remove two E-rings [4].
12. Replace the upper paddle assy [5].

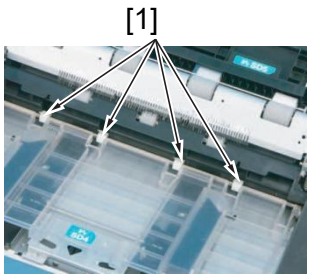


13. To reinstall, reverse the order of removal.

Replacing the lower paddle unit

(1) Procedure

1. Remove four lower paddle units [1].



Periodical maintenance procedure PF910

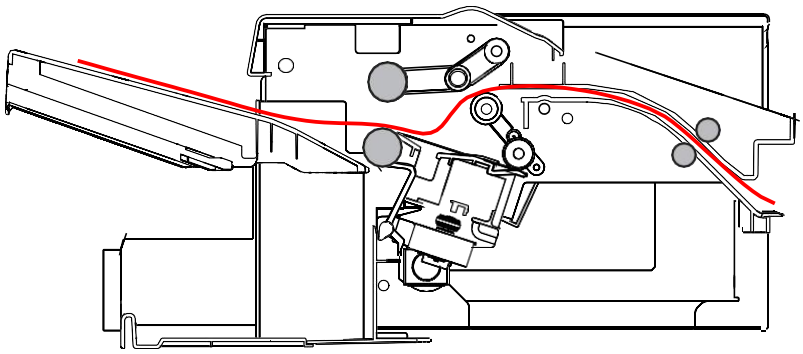
NOTE

- **The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.**

Paper exit section

Cleaning procedure for each parts

(1) Cleaning point



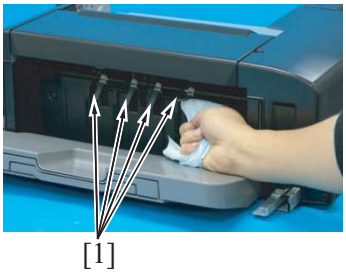
NOTE

- **Do not clean the alignment roller F/R.**

Cleaning the paper exit paddle

(1) Procedure

1. Using a cleaning pad dampened with alcohol, wipe the paper exit paddle [1].

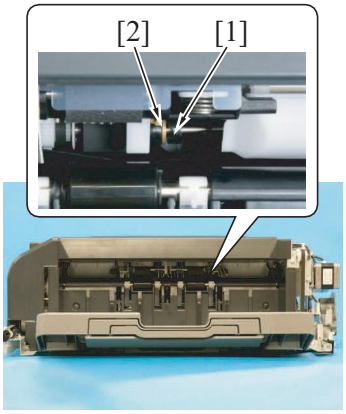


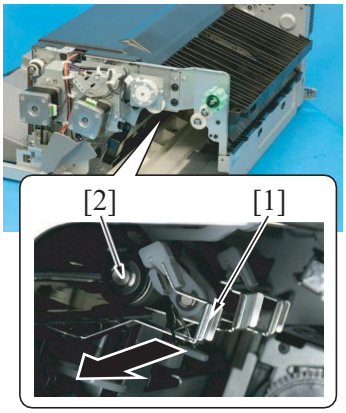
Alignment section

Replacing the alignment roller assy F/R

(1) Removal procedure

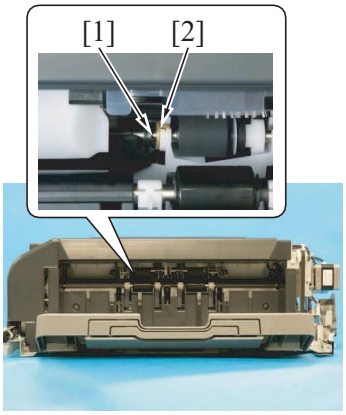
1. Remove the front cover.
   Front cover (PF910)
2. Remove the C-clip [1].
3. Move the bushing [2] to the right.





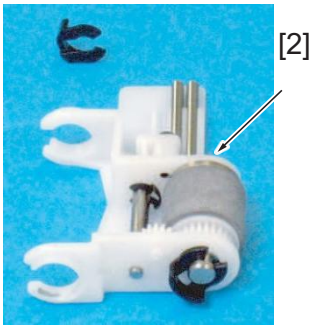
4. Pull the paper stopper [1] and remove the alignment roller assy /F [2].

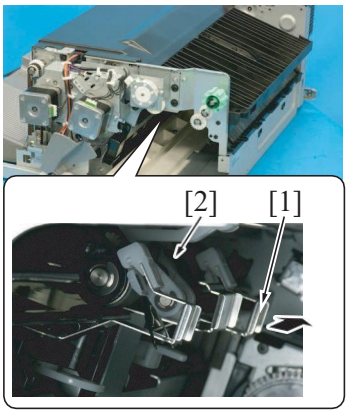




5. Remove the C-clip [1].
6. Move the bushing [2] to the left.

7. Press the paper stopper [1] to the rear and remove the alignment roller assy /R [2].





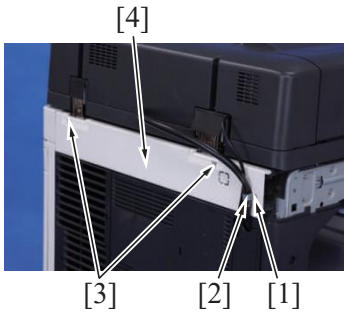
8. To reinstall, reverse the order of removal.

2.DISASSEMBLY/REASSEMBLY

Disassembly/reassembly procedure (Exterior parts)

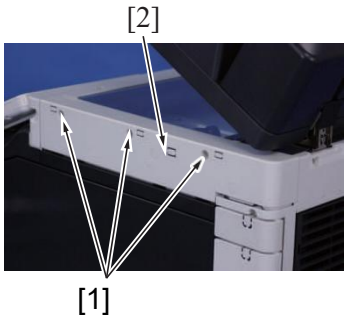
Scanner rear cover

1. Remove the scanner left cover.
   G.1.2.4 Scanner left cover



2. Remove the screw [1], and remove the clamp [2].
3. Remove two screws [3], and remove the scanner rear cover [4].
4. To reinstall, reverse the order of removal.

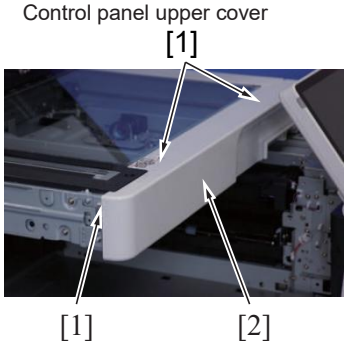
Scanner right cover



1. Remove three screws [1], and remove the scanner right cover [2].
2. To reinstall, reverse the order of removal.

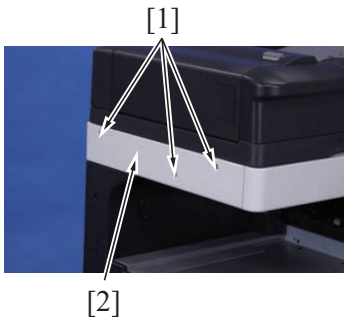
Scanner front cover

3. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
4. Remove the control panel left cover.
   Control panel left cover
5. Remove the control panel right cover.
   Control panel right cover
6. Remove the control panel upper cover.
   Control panel upper cover



5. Remove three screws [1], and remove the scanner front cover [2].
6. To reinstall, reverse the order of removal.

Scanner left cover

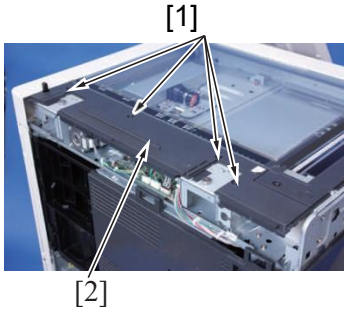


1. Remove three screws [1], and remove the scanner left cover [2].
2. To reinstall, reverse the order of removal.

Scanner upper rear cover

7. Remove the dual scan document feeder.
   Dual scan document feeder
8. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
9. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover

4. Remove four screws [1], and remove the scanner upper rear cover [2].

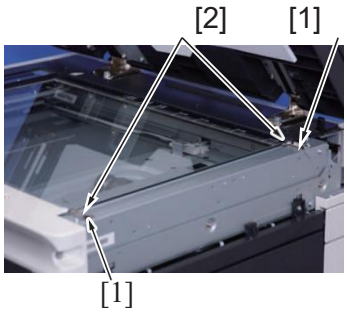


5. To reinstall, reverse the order of removal.

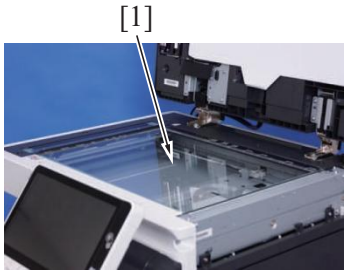
Original glass

1. Remove the scanner right cover.
   G.1.2.2 Scanner right cover

2. Remove two screws [1], and remove two original glass fixing brackets [2].



3. Remove the original glass [1].

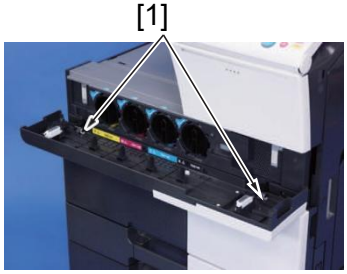


4. To reinstall, reverse the order of removal.

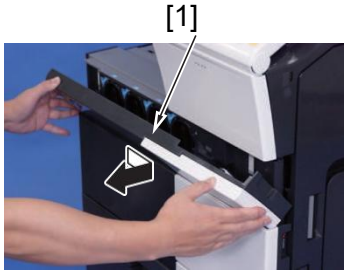
Upper front door

5. Open the upper front door.

6. Remove two C-clips [1].



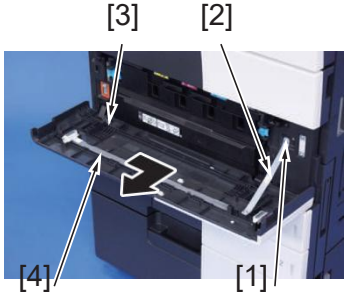
7. Partially close the upper front door [1] and the slide it to the right to remove.



8. To reinstall, reverse the order of removal.

Lower front door

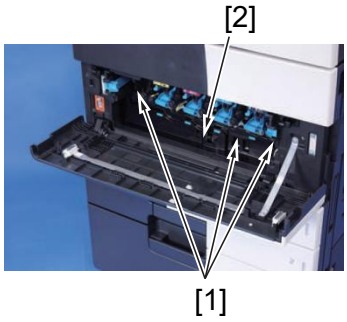
1. Open the lower front door.



2. Remove the screw [1], and remove the stopper [2].
3. Remove the C-clip [3].
4. Slide the lower front door [4] to the right to remove.
5. To reinstall, reverse the order of removal.

Front lower cover

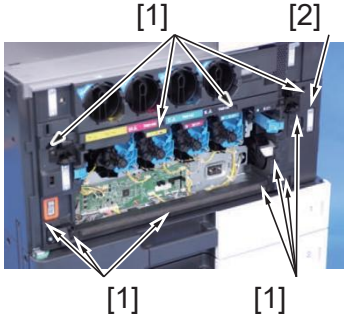
6. Remove the waste toner box.
   Replacing the waste toner box



2. Remove three screws [1], and remove the front lower cover [2].
3. To reinstall, reverse the order of removal.

Front cover

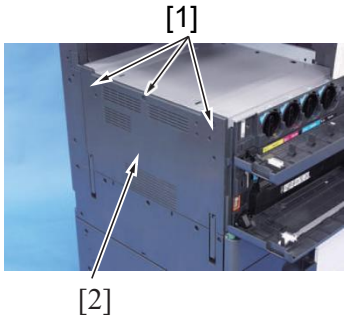
7. Remove the upper front door.
   G.1.2.7 Upper front door
8. Remove the lower front door.
   G.1.2.8 Lower front door
9. Remove the waste toner box.
   Replacing the waste toner box
10. Remove the front lower cover.
    G.1.2.9 Front lower cover



11. Remove 11 screws [1], and remove the front cover [2].
12. To reinstall, reverse the order of removal.

Left cover

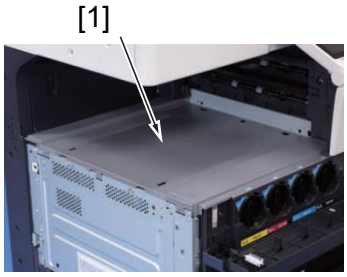
1. Open the upper front door.
2. Open the lower front door.



3. Remove three screws [1], and remove the left cover [2].
4. To reinstall, reverse the order of removal.

Exit cover

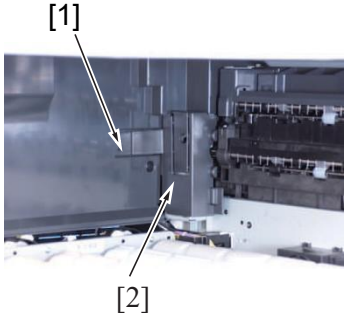
1. Open the upper front door.
2. Open the lower front door.
3. Remove the left cover.
   G.1.2.11 Left cover



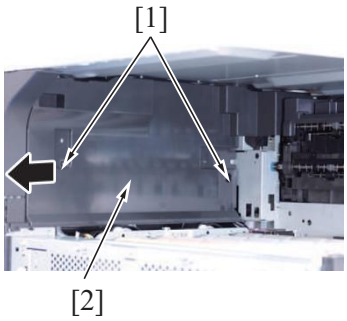
4. Remove the exit cover [1].
5. To reinstall, reverse the order of removal.

Output rear cover

1. Remove the left cover.
   G.1.2.11 Left cover
2. Remove the exit cover.
   G.1.2.12 Exit cover



3. Remove the screw [1], and remove the cover [2].

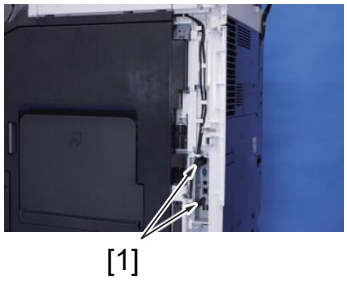


4. Remove two screws [1], and slide the output rear cover [2] to the left to remove.
5. To reinstall, reverse the order of removal.

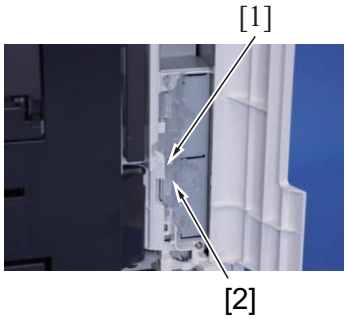
Rear right cover

1. Open the right rear cover.

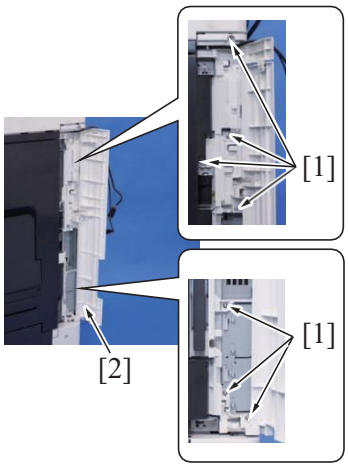
2. Disconnect two connectors [1], and remove the harness from the harness guide.



3. Remove the screw [1], and remove the connector cover [2].



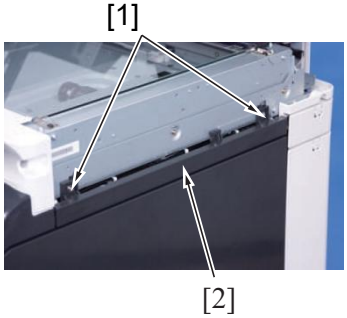
4. Remove seven screws [1], and remove the right rear cover [2] as clearing the harness.



5. To reinstall, reverse the order of removal.

Upper right cover

1. Remove the scanner right cover.
   G.1.2.2 Scanner right cover

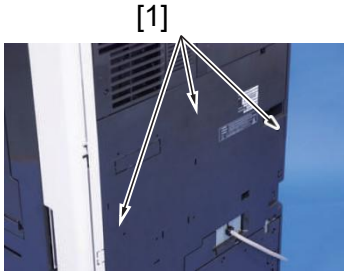


2. Remove two screws [1], and remove the upper right cover [2].

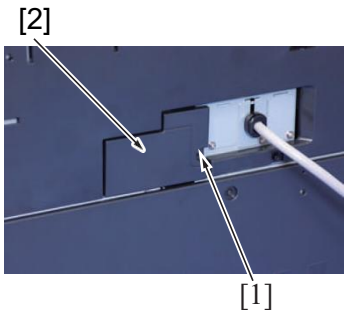
3. To reinstall, reverse the order of removal.

Lower rear cover

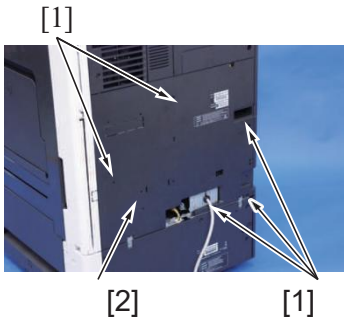
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter



3. Remove three caps [1].



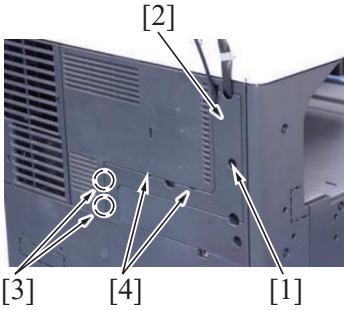
4. Remove the screw [1], and remove the cover [2].



5. Remove five screws [1], and remove the lower rear cover [2].

6. To reinstall, reverse the order of removal.

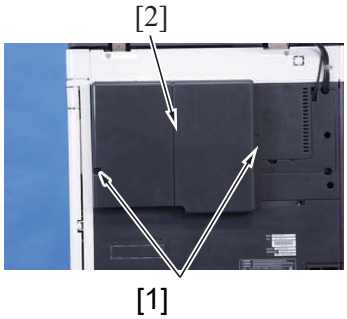
DF cable cover



1. Remove the screw [1], and remove the DF cable cover [2].
NOTE
- **When mounting the cover, insert two claws [3] into the holes on the main unit cover first. Then fit two claws [4] into the holes.**
- **Be careful not to pinch the harness.**

2. To reinstall, reverse the order of removal.

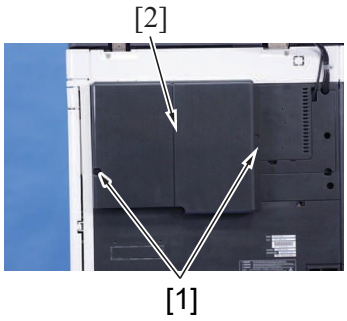
Duct cover/1



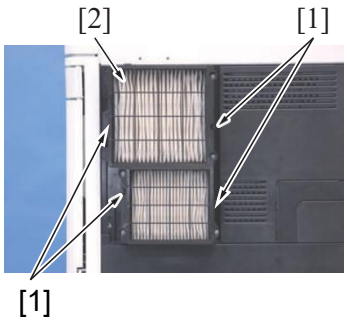
1. Remove two screws [1], and remove the duct cover [2].

2. To reinstall, reverse the order of removal.

Duct cover/2, filter assy



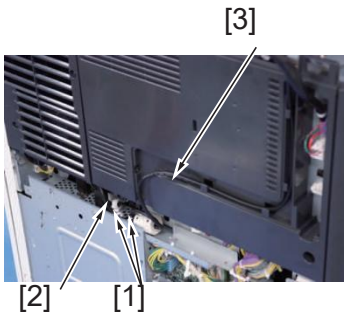
1. Remove two screws [1], and remove the duct cover [2].



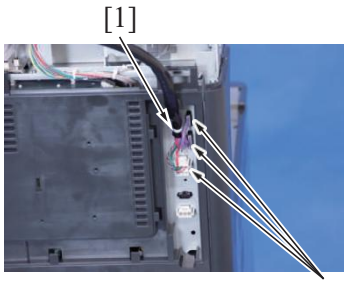
2. Remove four screws [1], and remove the filter assy [2].
3. To reinstall, reverse the order of removal.

Upper rear cover

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover

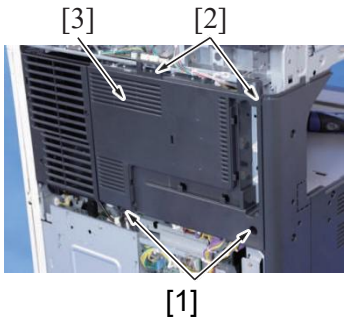


7. Remove the cable from two wire saddles [1], and disconnect the connector [2].
8. Disconnect the cable [3], then remove the cable from the cable guide.



9. Remove the cable tie [1], and disconnect three connectors [2].

[2]



10. Remove two screws [1] and two tabs [2], and remove the upper rear cover [3].

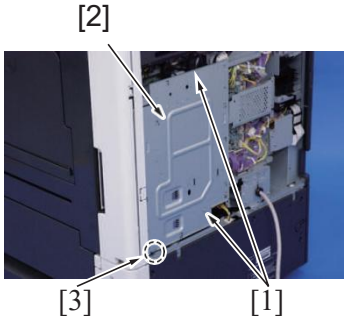
11. To reinstall, reverse the order of removal.

Protective shield

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy

2. Remove the toner filter.
Replacing the toner filter

3. Remove the lower rear cover.
G.1.2.16 Lower rear cover



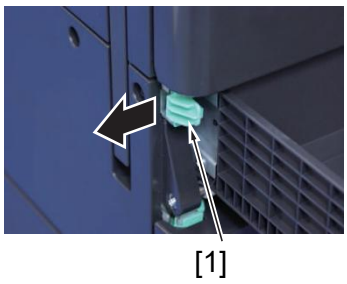
4. Remove two screws [1], and remove the protective shield [2].
NOTE
- **When installing the protective shield, first engage the lower left tab [3].**

5. To reinstall, reverse the order of removal.

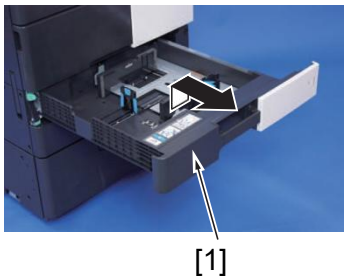
Tray 1

1. Slide out the tray 1 and unload paper from it.

2. Unlock the stopper [1].



3. Hold up the tray 1 [1] to remove it.

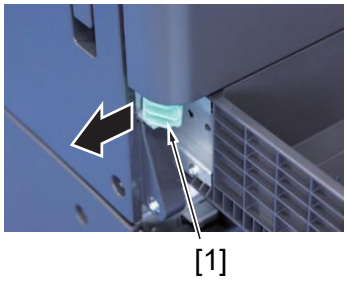


4. To reinstall, reverse the order of removal.

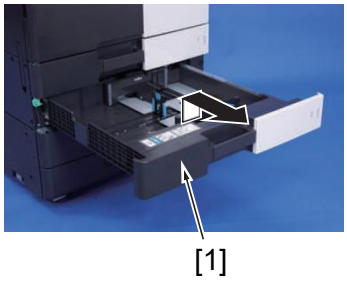
Tray 2

1. Slide out the tray 2 and unload paper from it.

2. Unlock the stopper [1].



3. Hold up the tray 2 [1] to remove it.



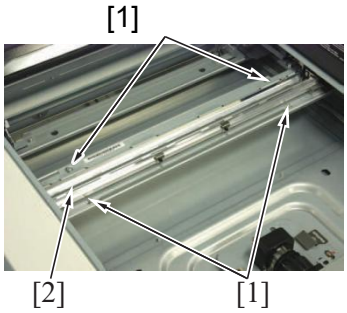
4. To reinstall, reverse the order of removal.

Disassembly/reassembly procedure (Units)

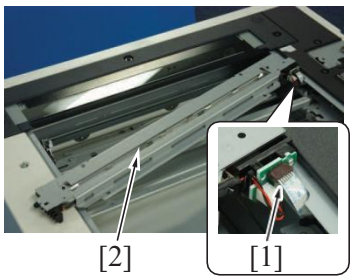
LED exposure unit

1. Remove the scanner right cover.
   G.1.2.2 Scanner right cover
2. Remove the original glass.
   G.1.2.6 Original glass

3. Remove four screws [1] from the LED exposure unit [2].



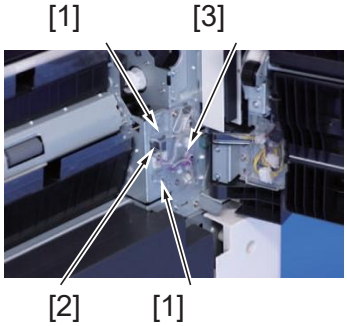
4. Disconnect the flat cable [1], and remove the LED exposure unit [2].



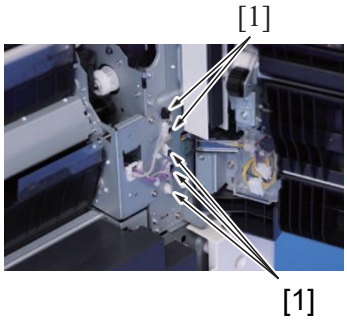
5. To reinstall, reverse the order of removal.
   NOTE
   - **When replacing the LED exposure unit with a brand-new one, peel the protective film from the unit after attaching it.**

Paper feed unit

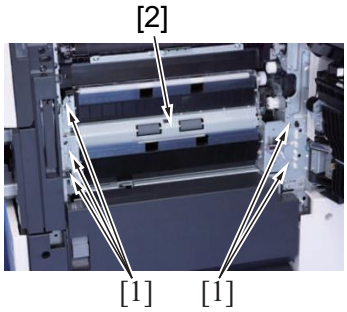
1. Slide out the tray 1 and tray 2.
2. Open the right door.



3. Remove two screws [1] and the tab [2], and remove the connector cover [3].



4. Disconnect five connectors [1].



5. Remove five screws [1], and remove the paper feed unit [2].

6. To reinstall, reverse the order of removal.

PH unit

⚠CAUTION

- Do not supply power with the write unit (PH unit) shifted from the specified mounting position.

  The laser light can enter your eye, leading to a risk of loss of eyesight.

⚠CAUTION

- Do not disassemble or adjust the write unit (PH unit) incorporating a laser.

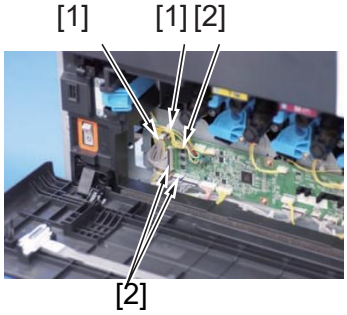
  The laser light can enter your eye, leading to a risk of loss of eyesight.

(1) Removal procedure

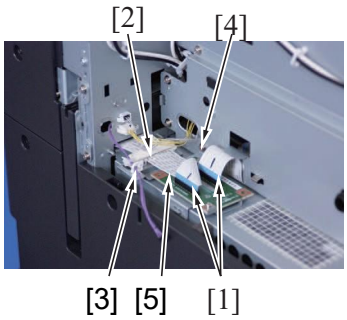
1. Remove the waste toner box.

Replacing the waste toner box

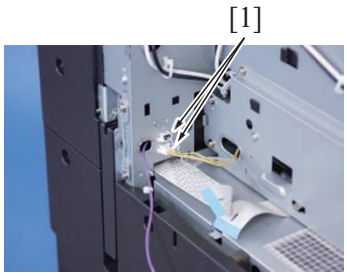
2. Remove the front lower cover.
   G.1.2.9 Front lower cover
3. Remove the left cover.
   G.1.2.11 Left cover
4. Remove the exit cover.
   G.1.2.12 Exit cover
5. Remove the DC power supply.
   G.1.4.2 DC power supply (DCPU)



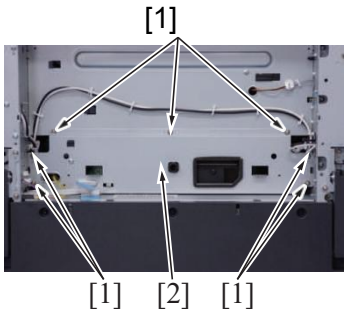
6. Remove the harness from two wire saddles [1].
7. Disconnect three connectors [2] on the front side board.



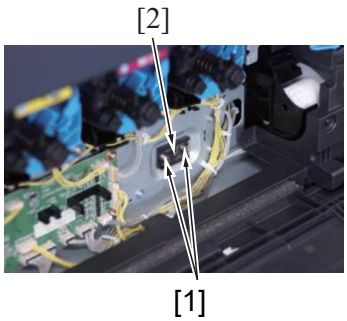
8. Disconnect two flat cables [1].
9. Remove the flat cable from the flat cable clamp [2].
10. Remove the harness from the wire saddle [3].
11. Remove the screw [4], and remove the board assy [5].



12. Disconnect two connectors [1].

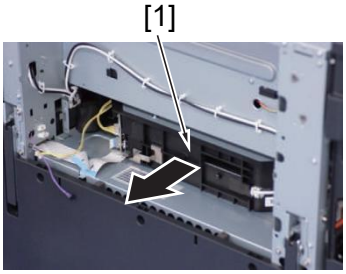


13. Remove seven screws [1], and remove the metal plate [2].



14. Remove two screws [1], and remove the set pin [2] for the PH unit.

15. Remove the PH unit [1].

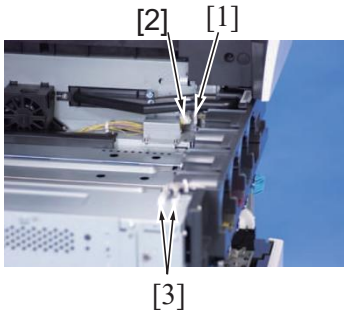


16. To reinstall, reverse the order of removal.

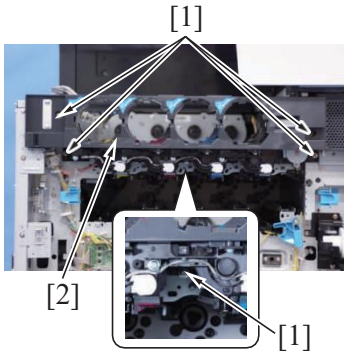
Sub hopper unit

1. Remove the upper front door.
   G.1.2.7 Upper front door
2. Remove the lower front door.
   G.1.2.8 Lower front door
3. Remove the waste toner box.
   Replacing the waste toner box
4. Remove the front lower cover.
   G.1.2.9 Front lower cover
5. Remove the front cover.
   G.1.2.10 Front cover
6. Remove the toner cartridge.
   Replacing the toner cartridge
7. Remove the drum unit.
   Replacing the drum unit
8. Remove the developing unit.
   Replacing the developing unit
9. Remove the exit cover.
   G.1.2.12 Exit cover

10. Remove the harness from the wire saddle [1], and disconnect the connector [2].
11. Disconnect two connectors [3].



12. Remove five screws [1], and remove the sub hopper unit [2].

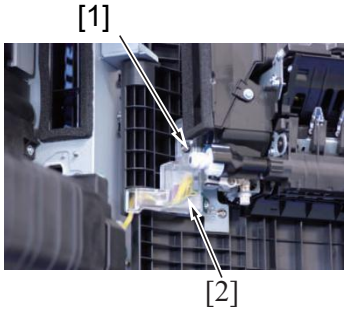


13. To reinstall, reverse the order of removal.

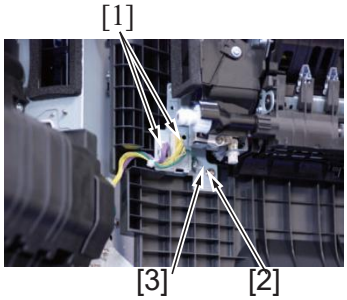
Right door unit

1. Remove the rear right cover.
   G.1.2.14 Rear right cover
2. Open the right door.
3. Open the registration unit.

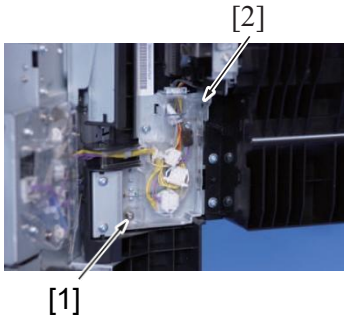
4. Remove the screw [1], and remove the connector cover/1 [2].



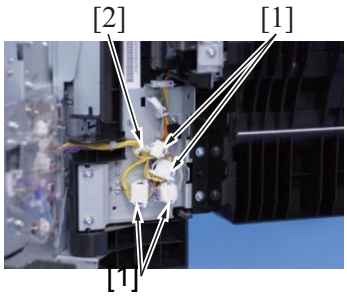
5. Disconnect two connectors [1].
6. Remove the screw [2], and remove the ground terminal [3].



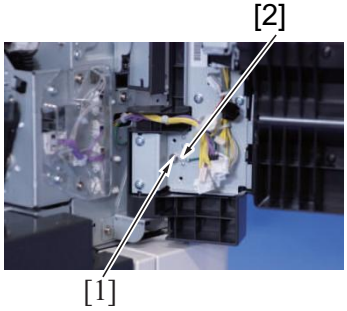
7. Remove the screw [1], and remove the connector cover/2 [2].



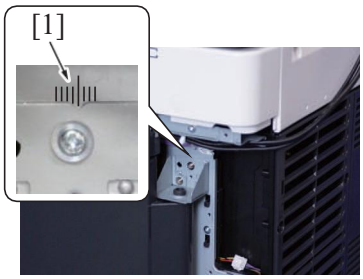
8. Disconnect four connectors [1], and remove the harness from the wire saddle [2].



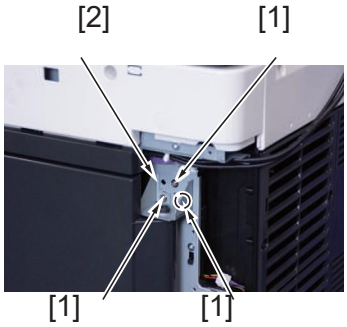
9. Remove the screw [1], and remove the ground terminal [2].



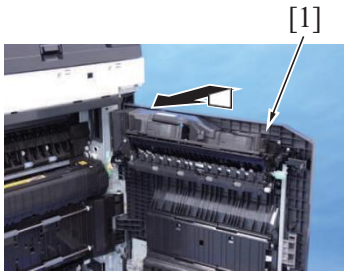
10. Close the right door.



11. Draw the gauge line to the hinge mounting part [1] along the cutout of the hinge on the frame of the main body.



12. Remove three screws [1], and remove the hinge (upper section) [2].
13. Open the right door and then open the registration unit.



14. Hold up the right door unit [1] to remove it.

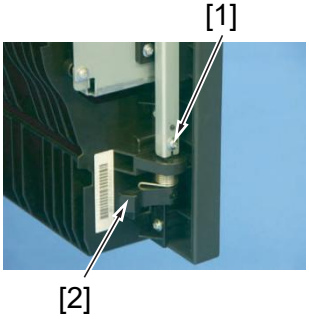
15. To reinstall, reverse the order of removal.

NOTE

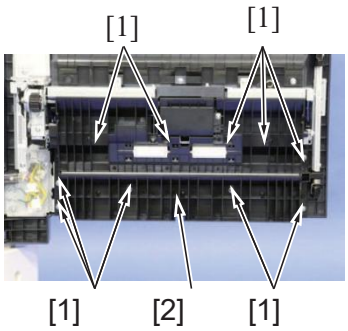
- **When installing the right door unit, align it with the guide lines drawn on the scales indicated on the machine frame. Open and close the right door to check for any interference and correct if necessary.**

Manual bypass tray unit

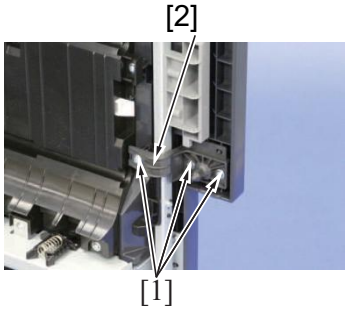
1. Open the right door.
2. Open the registration unit.



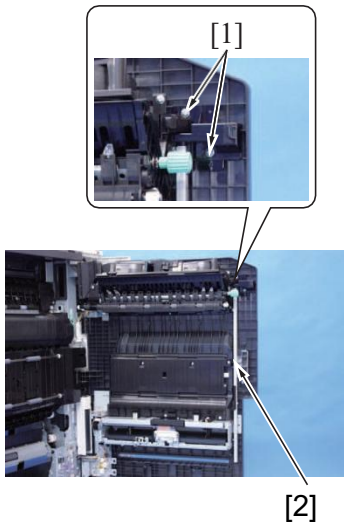
3. Remove the screw [1], and remove the shaft holder/1 [2].



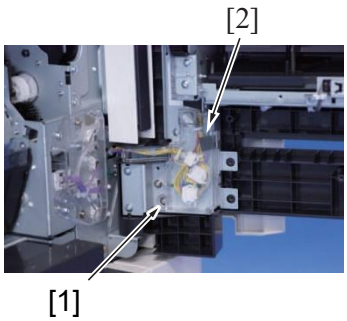
4. Remove 10 screws [1], and remove the vertical transport roll assy [2].



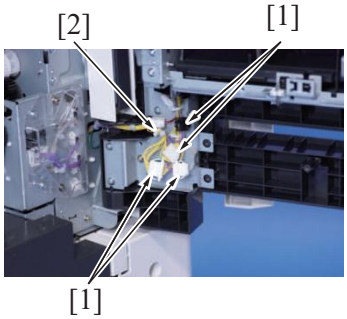
5. Remove three screws [1], and remove the shaft holder/2 [2].



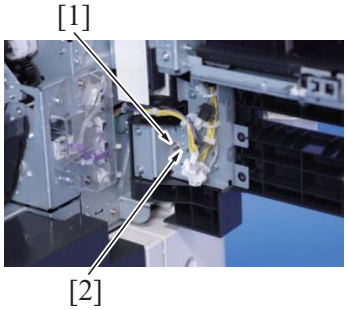
6. Remove two screws [1], and remove the right door lever assy [2].



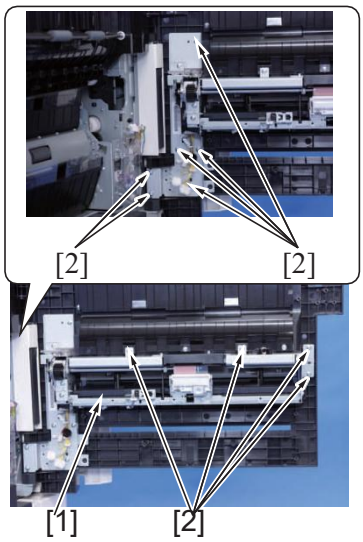
7. Remove the screw [1], and remove the connector cover [2].



8. Disconnect four connectors [1], and remove the harness from the wire saddle [2].

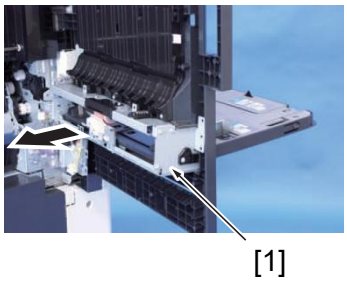


9. Remove the screw [1], and remove the ground terminal [2].



10. Remove 10 screws [2] of the manual bypass tray unit [1].

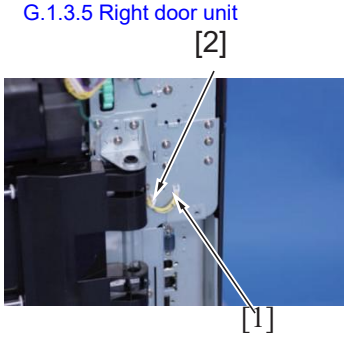
11. Remove the manual bypass tray unit [1].



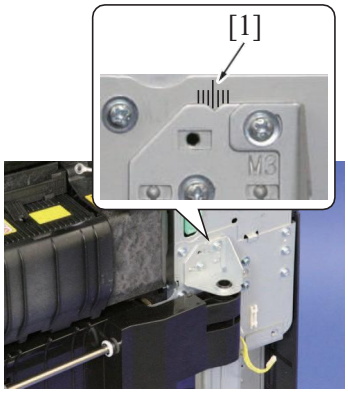
12. To reinstall, reverse the order of removal.

Regist unit

1. Remove the right door unit.
G.1.3.5 Right door unit

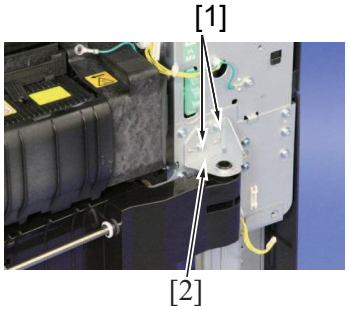


2. Disconnect the connector [1], and remove the harness from the wire saddle [2].

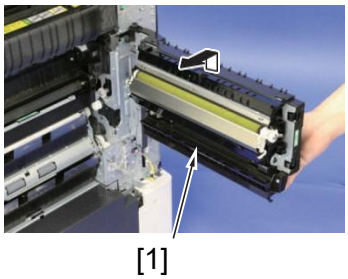


3. Draw the gauge line to the hinge mounting part [1] along the cutout of the hinge on the frame of the main body.

4. Remove two screws [1], and remove the hinge [2].



5. Hold up the regist unit [1] to remove it.

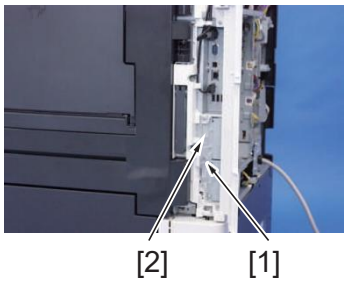


6. To reinstall, reverse the order of removal.

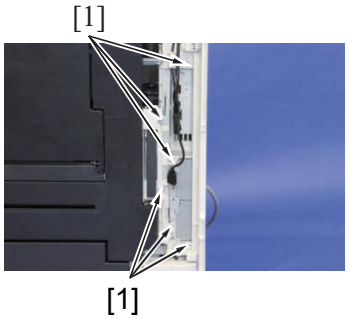
How to open the PWB box/1

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the protective shield.
   G.1.2.21 Protective shield

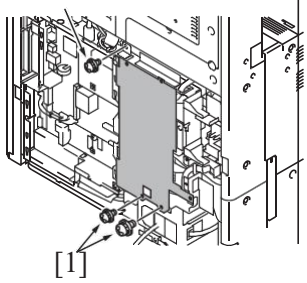
5. Disconnect all connectors from the PWB box/1 side panel.
6. Remove the screw [1], and remove the connector cover [2].



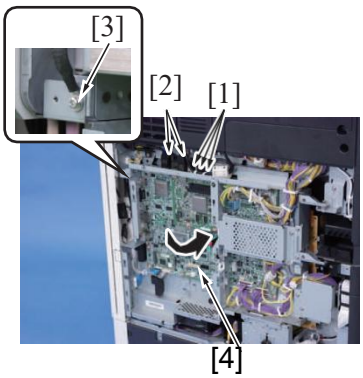
7. Remove six screws [1] from the PWB box/1 side panel.



[1]



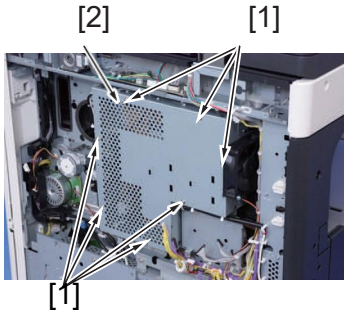
8. Remove three screws [1] from the PWB box/1.



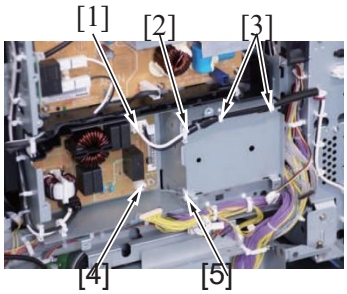
9. Remove the cable from three wire saddles [1].
10. Disconnect two connectors [2].
11. Remove the screw [3], and open the PWB box /1 [4].

PWB box/2 (CM9705DN/M9705)

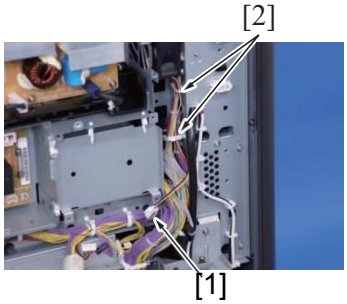
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)



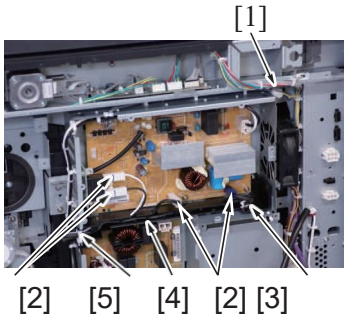
9. Remove seven screws [1], and remove the IH power supply protective shield [2].



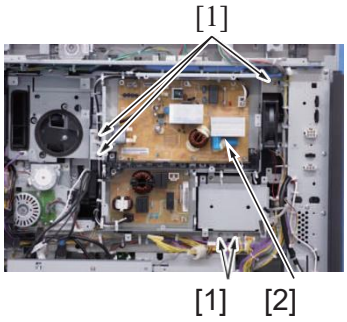
10. Disconnect the connector [1], and remove the harness from the edge cover [2] and two wire saddles [3].
11. Disconnect the connector [4], and remove the harness from the edge cover [5].



12. Disconnect the connector [1], and remove the harness from two wire saddles [2].



13. Disconnect the connector [1].
14. Remove four solderless terminals [2].
15. Remove the harness from the wire saddle [3].
16. Remove the harness from the harness guide [4] and edge cover [5].

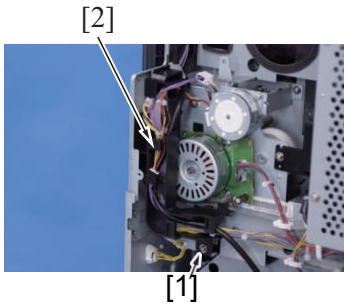


17. Remove five screws [1], and remove two board boxes [2].

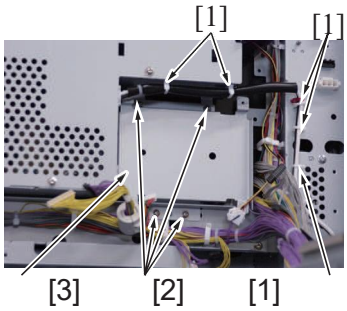
18. To reinstall, reverse the order of removal.

Main drive unit

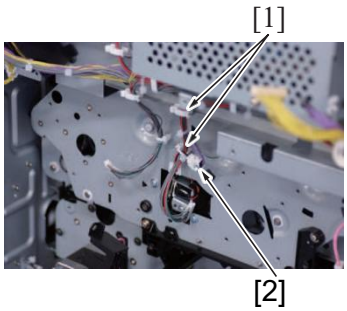
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
9. Remove the protective shield.
   G.1.2.21 Protective shield
10. Open the PWB box.
    G.1.3.8 How to open the PWB box/1
11. Remove the high voltage unit.
    G.1.4.7 High voltage unit (HV)
12. Remove the expansion control board.
    G.1.4.8 Expansion control board (EXCB)
13. Remove the registration motor.
    G.1.5.21 Registration motor (M24) (CM9705DN/M9705)
14. Remove the ADU transport motor 2.
    G.1.5.24 ADU transport motor2 (M26)
15. Remove the transport motor.
    G.1.5.1 Transport motor (M1)
16. Remove the PC motor.
    G.1.5.2 PC motor (M2)
17. Remove the developing motor.
    G.1.5.18 Developing motor (M21)



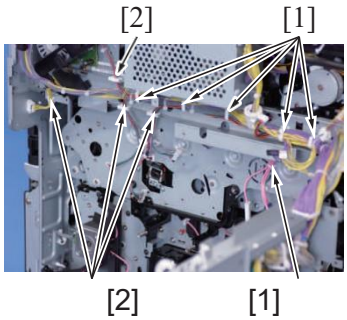
18. Remove the screw [1].
19. Remove the harness guide [2] as clearing the harness.



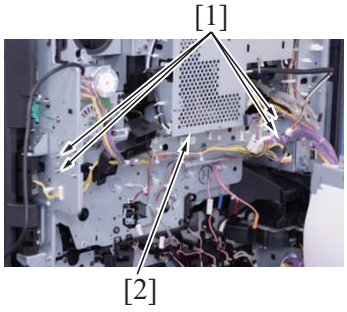
20. Remove the cable from five wire saddles [1].
21. Remove four screws [2], and remove the plate [3].



22. Remove the harness from two wire saddles [1].
23. Disconnect the connector [2].

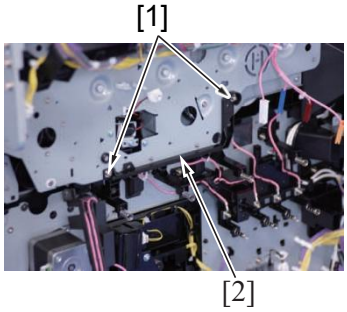


24. Remove the harness from six wire saddles [1] and four edge covers [2].



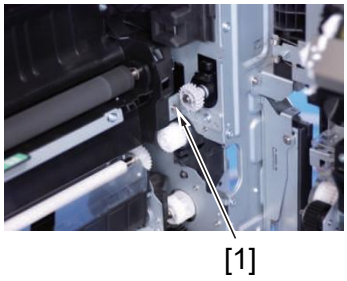
25. Remove four screws [1].
26. Remove the reinforcing plate [2] as clearing the harness.

27. Remove two screws [1], and remove the bracket [2].

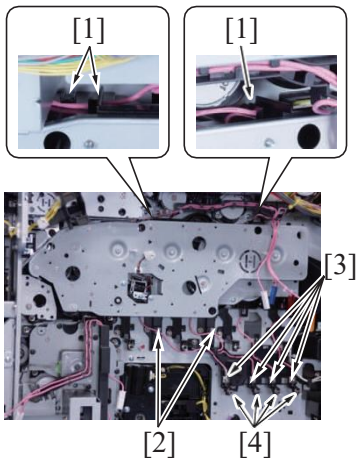


28. Open the right door.

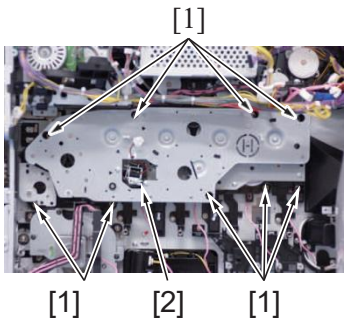
29. Remove the screw [1].



30. Remove the harness from three harness guides [1].
31. Remove the harness from two wire saddles [2].
32. Remove four screws [3], and remove the harness from the harness guide.
NOTE
- **Make sure not to lose the spring [4].**



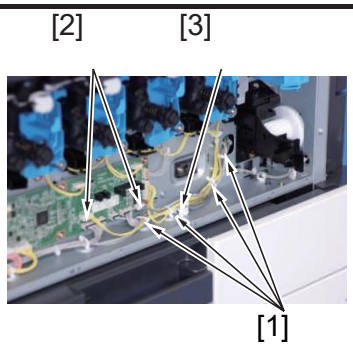
33. Remove nine screws [1], and remove the main drive unit [2].



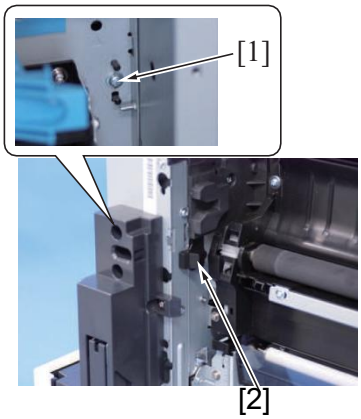
34. To reinstall, reverse the order of removal.

Transport unit

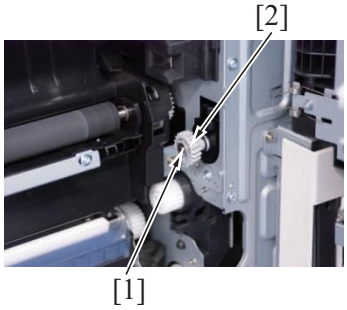
1. Remove the transfer belt unit.
   Replacing the transfer belt unit
2. Remove the upper front door.
   G.1.2.7 Upper front door
3. Remove the lower front door.
   G.1.2.8 Lower front door
4. Remove the waste toner box.
   Replacing the waste toner box
5. Remove the front lower cover.
   G.1.2.9 Front lower cover
6. Remove the front cover.
   G.1.2.10 Front cover



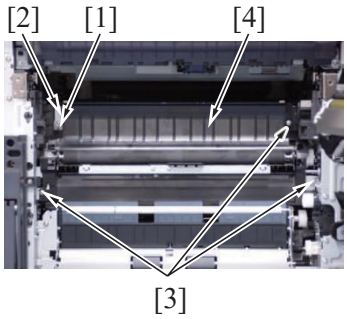
7. Remove the harness from four wire saddles [1].
8. Disconnect two connectors (CN8, CN11) [2] on the front side board.
9. Disconnect the connector [3].
10. Open the right door.



11. Remove the screw [1], and remove the stopper [2].



12. Remove the E-ring [1], and remove the gear [2].



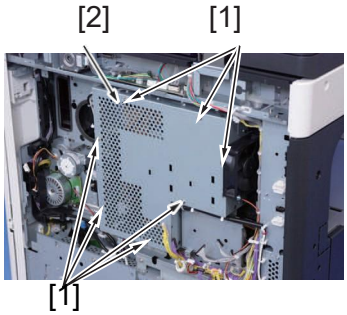
13. Remove the screw [1], and remove the plate spring [2].
14. Remove three screws [3], and remove the transport unit [4].
    NOTE
    - **When removing the transport unit [4], be careful not to damage or deform the guide sheet of the tray 1 paper feed unit.**

15. To reinstall, reverse the order of removal.

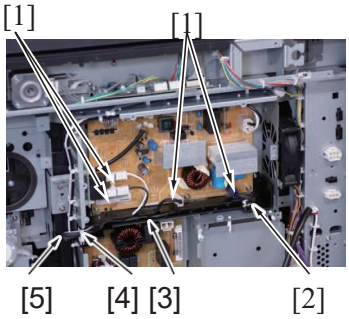
IH coil (IHC) (CM9705DN/M9705)

1. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)
2. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
3. Remove the toner filter.
   Replacing the toner filter
4. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
5. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
6. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
7. Remove the DF cable cover.
   G.1.2.17 DF cable cover
8. Remove the upper rear cover.
   G.1.2.20 Upper rear cover

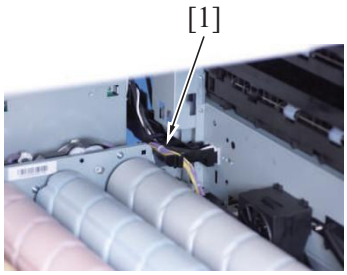
9. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
10. Remove the left cover.
    G.1.2.11 Left cover
11. Remove the exit cover.
    G.1.2.12 Exit cover
12. Remove the output rear cover.
    G.1.2.13 Output rear cover



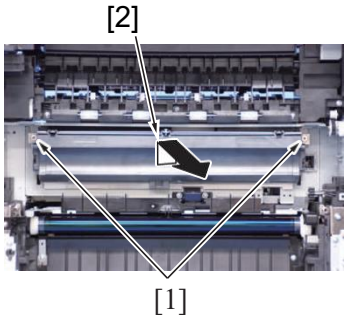
13. Remove seven screws [1], and remove the IH power supply protective shield [2].



14. Remove four solderless terminals [1].
15. Remove the harness from the wire saddle [2].
16. Remove the harness from the harness guide [3] and edge cover [4].
17. Remove the harness from the harness guide [5].



18. Remove the harness from the harness guide [1].



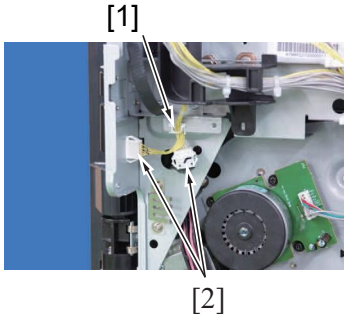
19. Remove two screws [1].
20. Remove the bracket in accordance with the procedure in the figure of the IH coil [2].
21. Remove the IH coil [2] while pulling the harness loose.

22. To reinstall, reverse the order of removal.

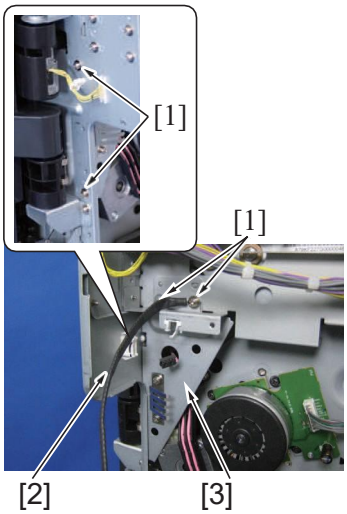
Fusing drive unit (CM9705DN/M9705)

1. Remove the rear right cover.
   G.1.2.14 Rear right cover
2. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)
3. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
4. Remove the toner filter.
   Replacing the toner filter
5. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
6. Remove the scanner left cover.
   G.1.2.4 Scanner left cover

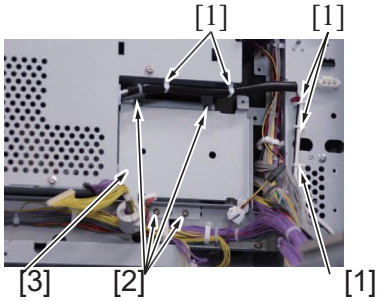
7. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
8. Remove the DF cable cover.
   G.1.2.17 DF cable cover
9. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
10. Remove the paper cooling fan assy.
    Paper cooling fan (FM8)
11. Remove the protective shield.
    G.1.2.21 Protective shield
12. Open the PWB box/1.
    G.1.3.8 How to open the PWB box/1
13. Remove the left cover.
    G.1.2.11 Left cover
14. Remove the exit cover.
    G.1.2.12 Exit cover
15. Remove the output rear cover.
    G.1.2.13 Output rear cover
16. Remove the expansion control board.
    G.1.4.8 Expansion control board (EXCB)
17. Remove the fusing motor.
    G.1.5.3 Fusing motor (M3)
18. Remove the fusing pressure motor.
    G.1.5.15 Fusing pressure motor (M11)



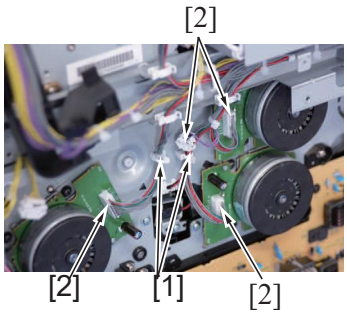
19. Remove the harness from the edge cover [1], and disconnect two connectors [2].



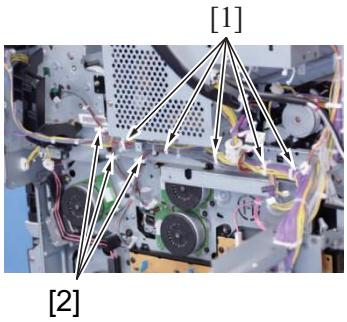
20. Remove four screws [1], the ground terminal [2], and remove the plate [3].



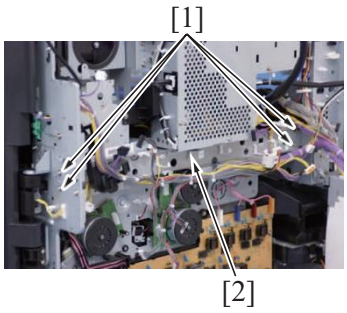
21. Remove the cable from five saddles [1].
22. Remove four screws [2], and remove the plate [3].



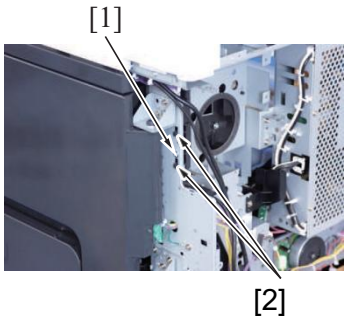
23. Remove the harness from two wire saddles [1].
24. Disconnect four connectors [2].



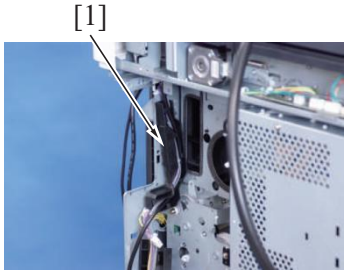
25. Remove the harness from five wire saddles [1] and three edge covers [2].



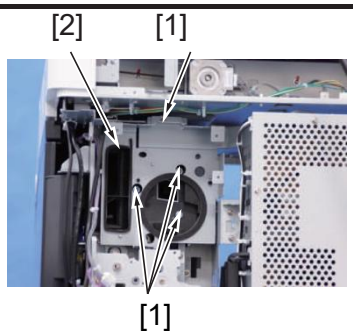
26. Remove four screws [1].
27. Remove the reinforcing plate [2] as clearing the harness.



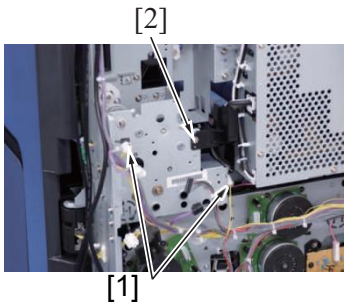
28. Remove the screw [1], and remove two tabs [2].



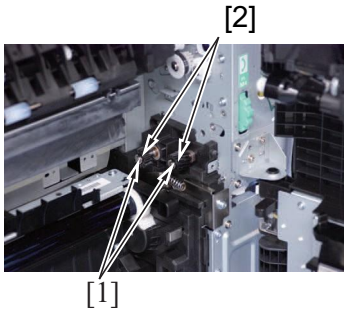
29. Remove the harness guide [1] while avoiding the harness.



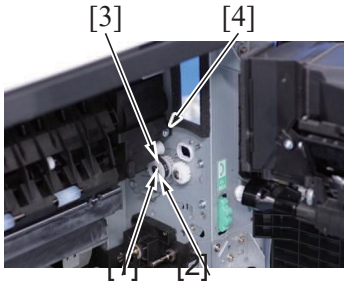
30. Remove four screws [1], and remove the duct assy [2].



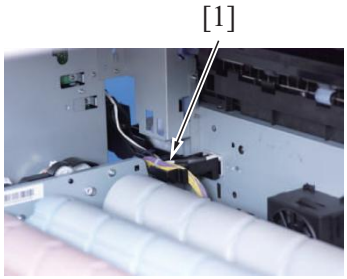
31. Disconnect two connectors [1].
32. Remove the screw [2].



33. Remove two E-rings [1], and remove two gears [2].

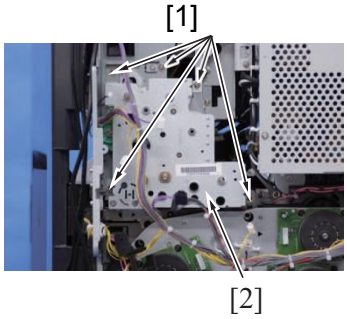


34. Remove the E-ring [1], and remove the flange [2].
35. Remove the belt [3] from the gear.
36. Remove the screw [4].



37. Remove the harness from the harness guide [1].

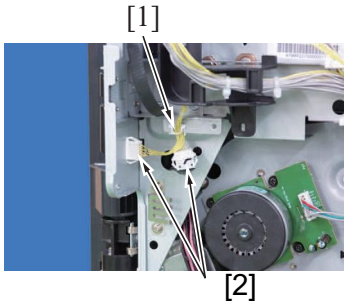
38. Remove five screws [1], and remove the fusing drive unit [2].



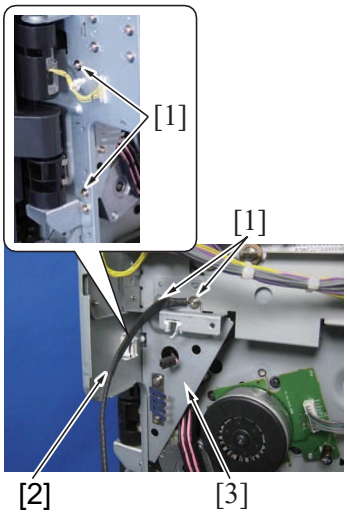
39. To reinstall, reverse the order of removal.

Fusing drive unit (CM9105DN/M9105DN)

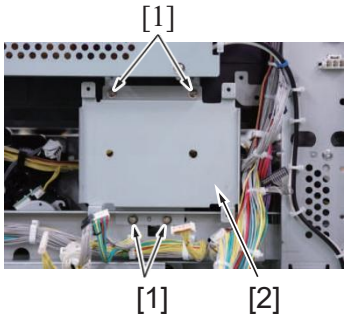
1. Remove the rear right cover.
   G.1.2.14 Rear right cover
2. Remove the fusing unit.
   Replacing the fusing unit (CM9105DN/M9105DN)
3. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
4. Remove the toner filter.
   Replacing the toner filter
5. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
6. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
7. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
8. Remove the DF cable cover.
   G.1.2.17 DF cable cover
9. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
10. Remove the paper cooling fan assy.
    G.1.7.7 Paper cooling fan (FM8)
11. Remove the toner cartridge cooling fan assy.
    G.1.7.5 Toner cartridge cooling fan (FM4) (CM9105DN/M9105DN)
12. Remove the protective shield.
    G.1.2.21 Protective shield
13. Open the PWB box/1.
    G.1.3.8 How to open the PWB box/1
14. Remove the expansion control board.
    G.1.4.8 Expansion control board (EXCB)
15. Remove the fusing motor.
    G.1.5.3 Fusing motor (M3)
16. Remove the fusing pressure motor.
    G.1.5.15 Fusing pressure motor (M11)



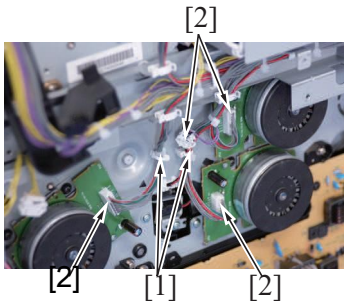
17. Remove the harness from the edge cover [1], and disconnect two connectors [2].



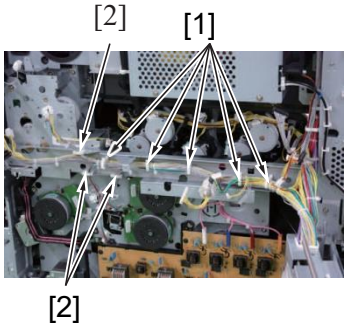
18. Remove four screws [1], the ground terminal [2], and remove the plate [3].



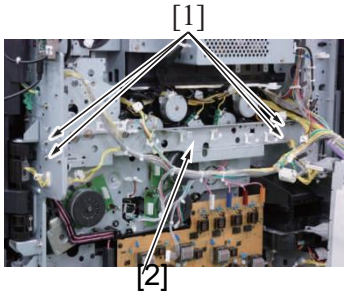
19. Remove four screws [1], and remove the plate [2].



20. Remove the harness from two wire saddles [1].
21. Disconnect four connectors [2].

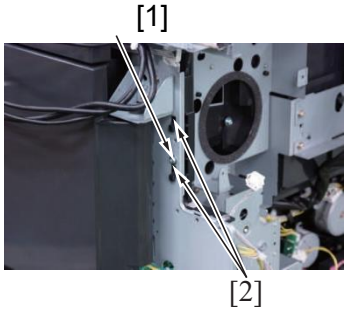


22. Remove the harness from five wire saddles [1] and three edge covers [2].

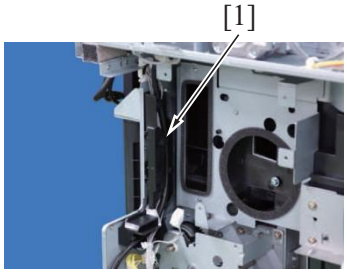


23. Remove four screws [1].
24. Remove the reinforcing plate [2] as clearing the harness.

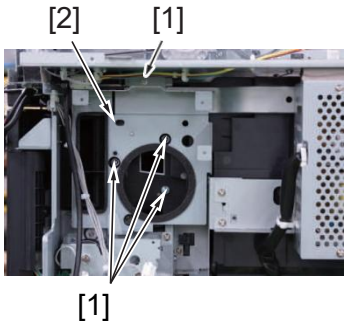
25. Remove the screw [1], and remove two tabs [2].



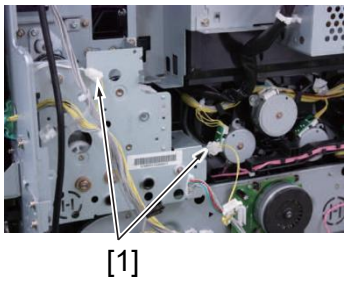
26. Remove the harness guide [1] while avoiding the harness.



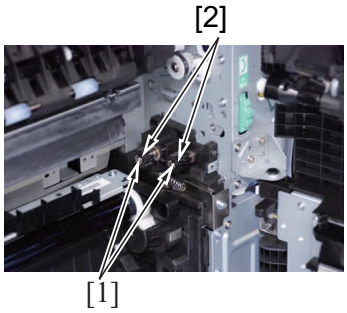
27. Remove four screws [1], and remove the duct assy [2].

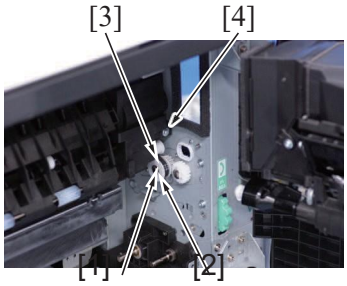


28. Disconnect two connectors [1].

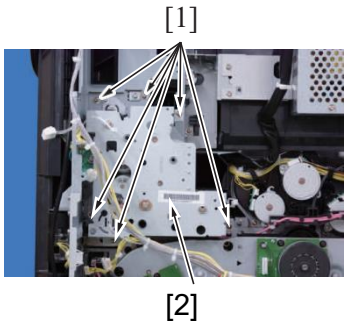


29. Remove two E-rings [1], and remove two gears [2].





30. Remove the E-ring [1], and remove the flange [2].
31. Remove the belt [3] from the gear.
32. Remove the screw [4].

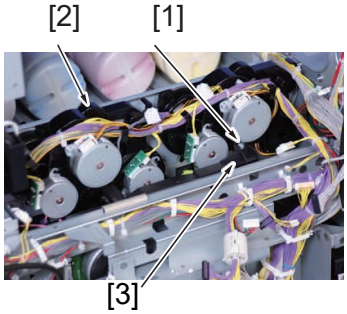


33. Remove six screws [1], and remove the fusing drive unit [2].

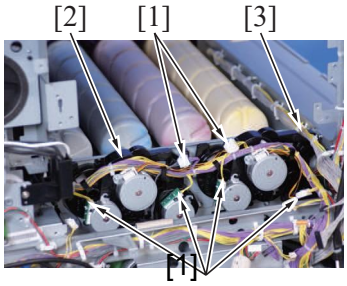
34. To reinstall, reverse the order of removal.

Hopper drive unit (CM9705DN/M9705)

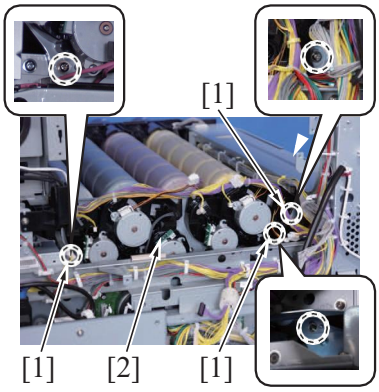
1. Slide out the toner bottle.
2. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
3. Remove the toner filter.
   Replacing the toner filter
4. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
5. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
6. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
7. Remove the DF cable cover.
   G.1.2.17 DF cable cover
8. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
9. Remove the paper cooling fan assy.
   Paper cooling fan (FM8)
10. Remove the board box/2.
    G.1.3.9 PWB box/2 (CM9705DN/M9705)
11. Remove the left cover.
    G.1.2.11 Left cover
12. Remove the exit cover.
    G.1.2.12 Exit cover
13. Remove the output rear cover.
    G.1.2.13 Output rear cover



14. Remove the screw [1], and remove the harness guide [3] from the hopper drive unit [2].



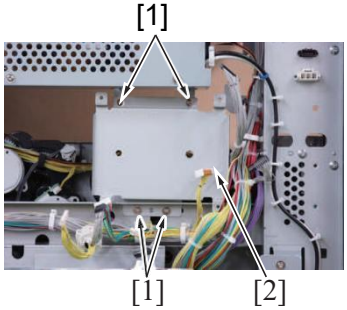
15. Disconnect six connectors [1], and remove the harness from all harness guides in the hopper drive unit [2].
16. Remove the harness from the wire saddle [3].



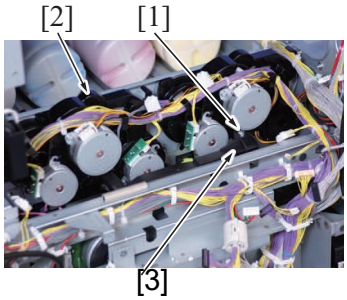
17. Remove three screws [1], and remove the hopper drive unit [2].
18. To reinstall, reverse the order of removal.

Hopper drive unit (CM9105DN/M9105DN)

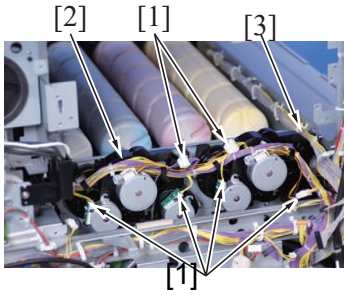
1. Slide out the toner bottle.
2. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
3. Remove the toner filter.
   Replacing the toner filter
4. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
5. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
6. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
7. Remove the DF cable cover.
   G.1.2.17 DF cable cover
8. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
9. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
10. Remove the toner cartridge cooling fan.
    G.1.7.5 Toner cartridge cooling fan (FM4) (CM9105DN/M9105DN)
11. Remove the left cover.
    G.1.2.11 Left cover
12. Remove the exit cover.
    G.1.2.12 Exit cover
13. Remove the output rear cover.
    G.1.2.13 Output rear cover
14. Remove the expansion control board.
    G.1.4.8 Expansion control board (EXCB)



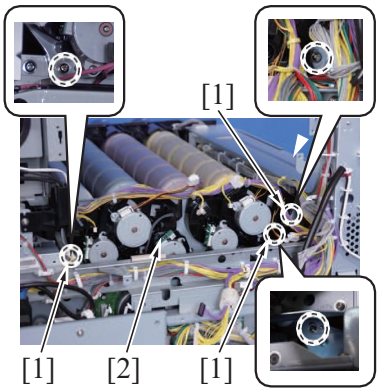
15. Remove four screws [1], and remove the plate [2].



16. Remove the screw [1], and remove the harness guide [3] from the hopper drive unit [2].



17. Disconnect six connectors [1], and remove the harness from all harness guides of hopper drive unit [2].
18. Remove the harness from the wire saddle [3].

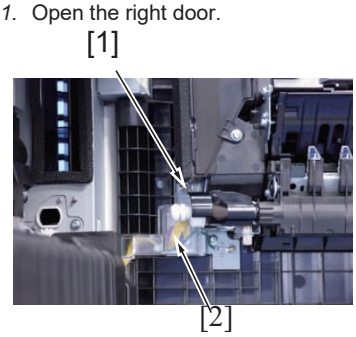


19. Remove three screws [3], and remove the hopper drive unit [2].

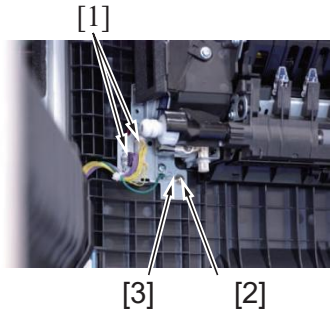
20. To reinstall, reverse the order of removal.

ADU transport unit

1. Open the right door.

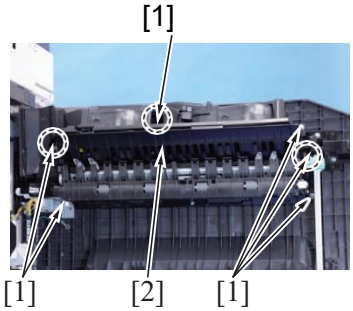


2. Remove the screw [1], and remove the connector cover [2].



3. Disconnect two connectors [1].
4. Remove the screw [2], and remove the ground terminal [3].

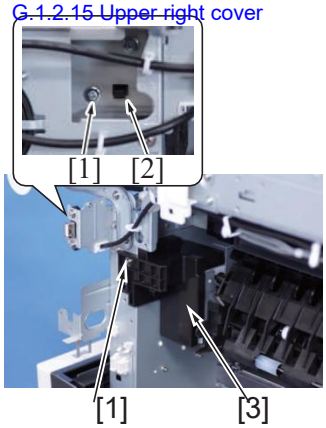
5. Remove six screws [1], and remove the ADU transport unit [2].



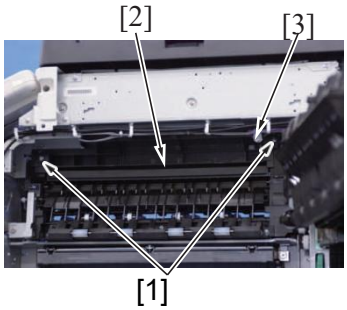
6. To reinstall, reverse the order of removal.

Paper exit unit

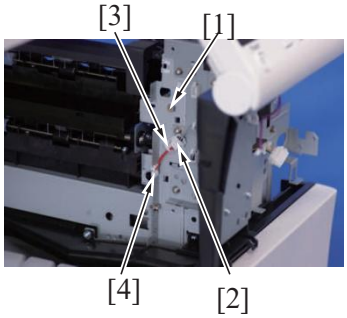
1. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)
   Replacing the fusing unit (CM9105DN/M9105DN)
2. Remove the control panel left cover.
   Control panel left cover
3. Remove the control panel right cover.
   Control panel right cover
4. Remove the control panel front cover.
   Control panel front cover
5. Remove the upper right cover.
   G.1.2.15 Upper right cover



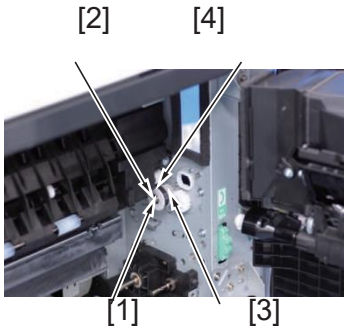
6. Remove two screws [1] and the tab [2], and remove the cover [3].



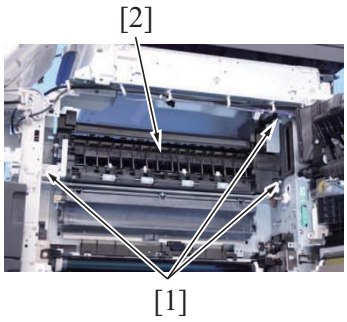
7. Remove two screws [1], and remove the cover [2].
8. Disconnect the connector [3].



9. Remove the screw [1].
10. Disconnect the connector [2], and remove the harness from the wire saddle [3] and the edge cover [4].



11. Remove the E-ring [1], and remove the flange [2].
12. Remove the belt [4] from the gear [3], and remove the gear [3].



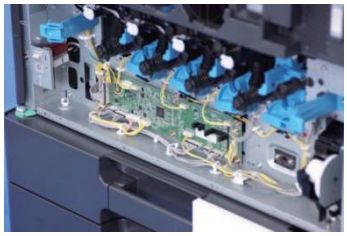
13. Remove three screws [1], and remove the exit unit [2].

14. To reinstall, reverse the order of removal.

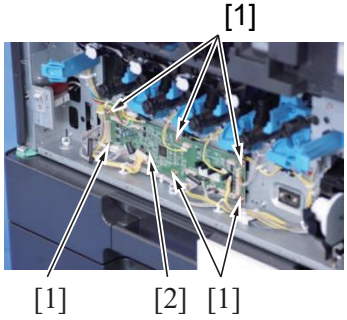
Disassembly/reassembly procedure (Boards)

Front side board (FRB)

1. Remove the front lower cover.
G.1.2.9 Front lower cover



2. Disconnect all connectors on the front side board.

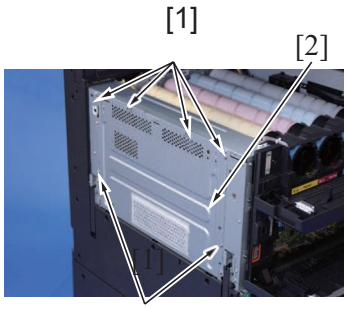


3. Remove six screws [1], and remove the front side board [2].

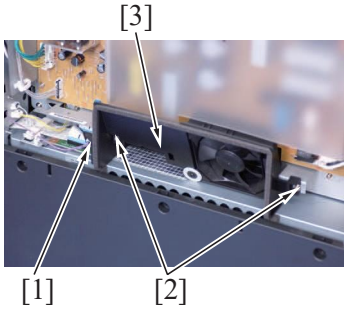
4. To reinstall, reverse the order of removal.

DC power supply (DCPU)

1. Remove the left cover.
G.1.2.11 Left cover
2. Remove the exit cover.
G.1.2.12 Exit cover

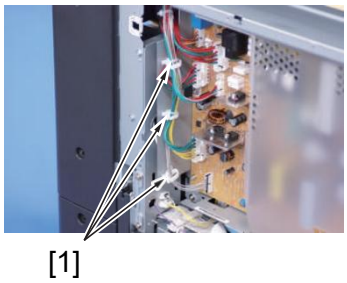


3. Remove six screws [1], and remove the DC power supply protective shield [2].

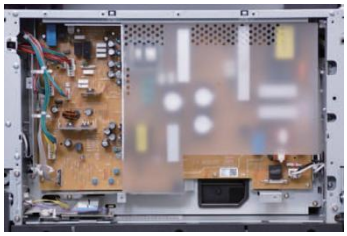


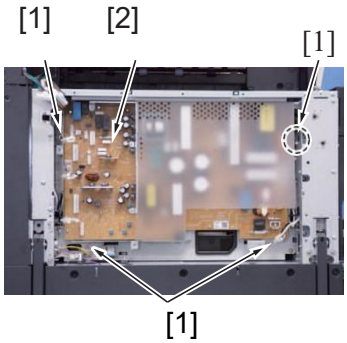
4. Disconnect the connector [1].
5. Remove two screws [2], and remove the power supply cooling fan assy [3].

6. Remove the harness from three wire saddles [1].



7. Disconnect all connectors on the DC power supply.



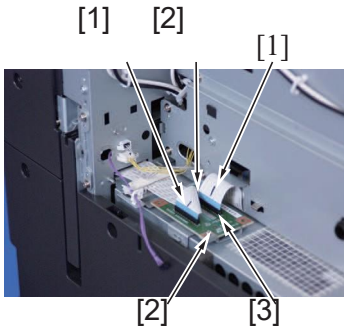


8. Remove four screws [1], and remove the DC power supply [2].

9. To reinstall, reverse the order of removal.

PH relay board (PHRYB)

1. Remove the left cover.
   G.1.2.11 Left cover



2. Disconnect two flat cables [1].
3. Remove two screws [2], and remove the PH relay board [3].

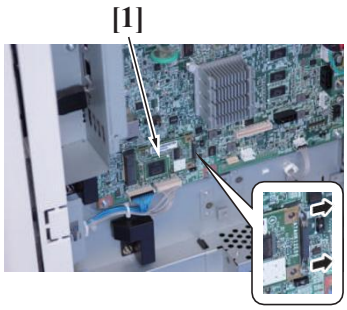
4. To reinstall, reverse the order of removal.

eMMC board (eMMC)

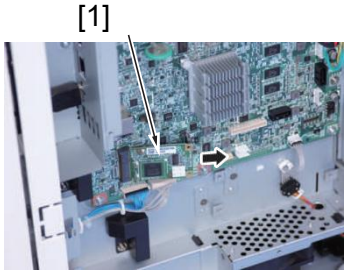
NOTE

- **Never use the combination of the used eMMC board removed from another machine and the original MFP board. This combination causes corruption of stored data.**
  Note that the combination of the original eMMC board and the used MFP board removed from another machine also causes the same problem.

5. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
6. Remove the toner filter.
   Replacing the toner filter
7. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
8. Remove the protective shield.
   G.1.2.21 Protective shield



9. Release the lock of the eMMC board [1].
   NOTE
   - **Be careful not to drop the eMMC board.**



10. Remove the eMMC board [1].

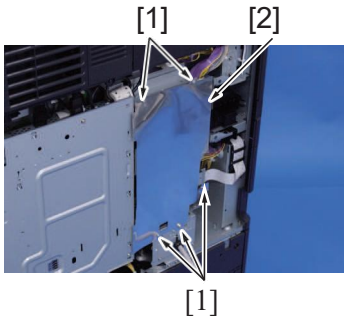
11. To reinstall, reverse the order of removal.

MFP board (MFPB)

NOTE

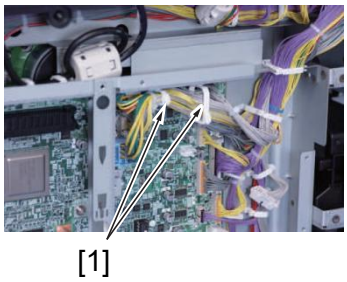
- **Never use the combination of the used MFP board removed from another machine and the original eMMC board or EEPROM. This combination causes corruption of stored data. Note that the combination of the original MFP board and the used eMMC board or EEPROM removed from another machine also causes the same problem.**
- **Do not replace the MFP board and the eMMC board or EEPROM with new ones at the same time.**

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover

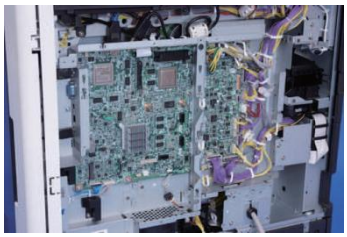


4. Remove five screws [1], and remove the aluminum sheet [2].

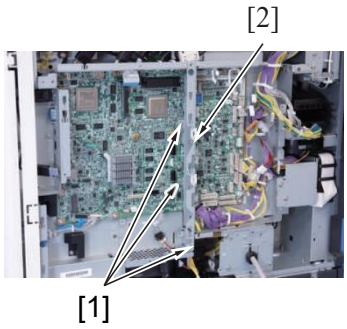
5. Remove the protective shield.
   G.1.2.21 Protective shield
6. Remove the hard disk.
   Hard disk (A)
7. Remove the eMMC board.
   G.1.4.4 eMMC board (eMMC)
8. Remove the image processing board.
   Dual scan image processing board (DSIPB)



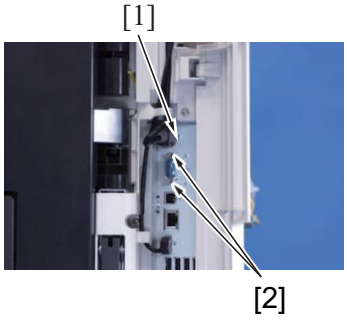
9. Remove the harness from two wire saddles [1].



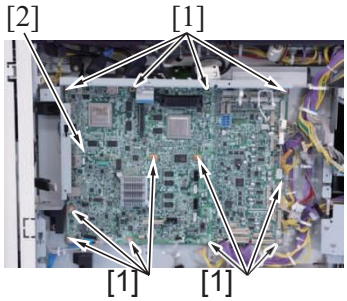
10. Remove all connectors and flat cables on the MFP board.



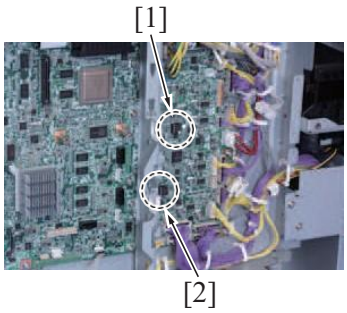
11. Remove three screws [1], and remove the plate [2].



12. Remove the screw [1] and two bolts [2] of the MFP board side panel.

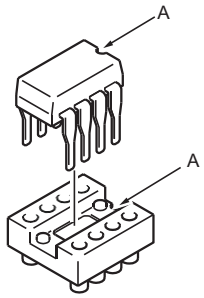


13. Remove 12 screws [1], and remove the MFP board [2].
14. To reinstall, reverse the order of removal.



15. **NOTE**

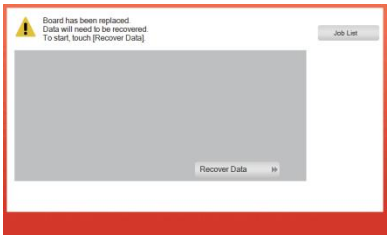
- **After replacing the MFP board (MFPB), transfer EEPROM/1 and EEPROM/2.**
- **Mark the EEPROMs to before replacing. Mark the EEPROMs to distinguish old from new, and mark EEPROM/1 and EEPROM/2 to distinguish from each other.**
- **Marks should be helpful to making easy distinction regardless of the style of them.**
- **When replacing EEPROM/1 [1], EEPROM/2 [2], replace them one at a time to prevent a mix-up in the device positions.**
- **When mounting EEPROM , align the notches (indicated by "A" in the illustration).**



16. Enter the model information after replacing the MFP board.
Entering the machine type information
17. Turn OFF the main power switch.
18. Wait ten seconds and then turn on the main power switch.
19. Install the firmware.
Procedure
20. Turn OFF the main power switch, and remove the USB memory.
21. Wait 10 seconds, turn ON the main power switch and wait 2 minutes until boot up the machine completely.



22. Wait until [Recover Data] [1] appears. (MFP will reboot maximum 2 times by itself, it may take 5 minutes.)



23. Touch [Recover Data] and [Yes].
24. Turn OFF the main power switch, wait 10 seconds, then turn ON the main power switch, after "Turn the main switch OFF and ON." message is appeared.

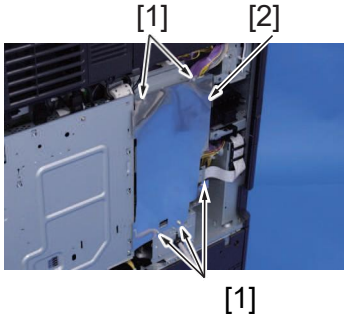
EEPROM/1, EEPROM/2

NOTE

- **Never use the combination of the used EEPROM removed from another machine and the original MFP board. This combination causes corruption of stored data.**
  Note that the combination of the original EEPROM and the used MFP board removed from another machine also causes the same problem.

- **Always replace the EEPROM/1 and EEPROM/2 as a set.**
  Replace them one at a time to prevent a mix-up between new and old and the device positions.

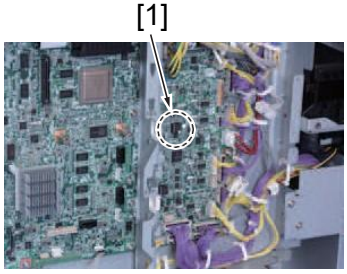
4. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
5. Remove the toner filter.
   Replacing the toner filter
6. Remove the lower rear cover.
   G.1.2.16 Lower rear cover



7. Remove five screws [1], and remove the aluminum sheet [2].

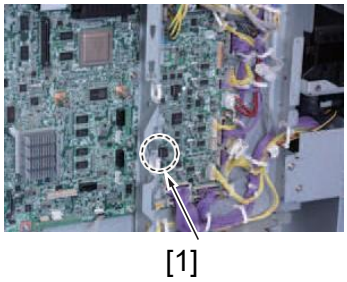
8. Mark the EEPROM/1.
   NOTE
   - **Mark the EEPROMs to distinguish old from new, and mark EEPROM/1 and EEPROM/2 to distinguish from each other.**
   - **Marks should be helpful to making easy distinction regardless of the style of them.**

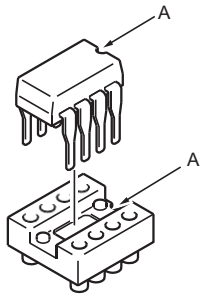
9. Remove the EEPROM/1 [1].



10. Mark the EEPROM/2.
    NOTE
    - **Mark the EEPROMs to distinguish old from new, and mark EEPROM/1 and EEPROM/2 to distinguish from each other.**
    - **Marks should be helpful to making easy distinction regardless of the style of them.**

11. Remove the EEPROM/2 [1].





9. To reinstall, reverse the order of removal.
   NOTE
   - **When mounting EEPROM , align the notches (indicated by “A” in the illustration).**

   NOTE
   Since the counter will be cleared when the EEPROM is replaced with a new one, replace the following parts with new ones.
   When the transfer belt unit and the fusing unit have been replaced with new ones, perform [New Release**] in the service mode. When the transfer roller has been replaced with a new one, perform [**Counter clear**].**
   - **Developing unit/Y,M,C,K**
   - **Drum unit/Y,M,C,K**
   - **Toner cartridge/Y,M,C,K**
   - **Transfer belt unit**
   - **Fusing unit**
   - **Transfer roller**
   - **Feed roller, pick-up roller, separation roller (including options)**

   NOTE
   - **When the new EEPROM is installed, the error message: "License management error occurred." is displayed. Conduct the i-Option recovery operation.**

10. Open the lower front door and turn on the main power supply switch.
11. Enter the Service Mode. Make individual adjustments shown in Table 1: Readjustment item in the order listed, using the machine maintenance list and the adjustment lists that were output at the time of main body installation and maintenance.
    NOTE
    - **Ensure the front lower door is opened.**

    NOTE
    - **Conduct the readjustment of the above adjustment items before the starting the initial warm-up operation after replacing the EEPROMs.**
12. Turn off the main power switch.
13. Turn on the main power switch and close the front door. Check to see that warm-up and image stabilization operations are completed normally.
14. Enter the Service Mode again. Make individual adjustments shown in Table 2: Readjustment item in the order listed, using the machine management list and the adjustment lists that were output at the time of main body installation and maintenance.

Table 1: Readjustment item

Adjustment items	Service mode readjustment items			Ref. Page
1	Machine	Color Registration Adjustment	Cyan	I.2.1.8 Color Registration Adjustment
2			Magenta	
3			Yellow	
4	Imaging Process Adjustment	Image Background Adj		I.2.2.3 Image Background Adj
5		Max Image Density Adj		I.2.2.2 Max Image Density Adj
6		Grad/Dev AC Bias V Selection		I.2.2.11 Grad/Dev AC Bias V Selection
7	System 1	Change Warm Up Time		Warm-up
8	Imaging Process Adjustment	Charge AC Output fine adjustment		I.2.2.9 Charge AC Output fine adjustment
9	System 2	Unit Change	Warning Display	Unit Change

Table 2: Readjustment item

Adjustment items	Service mode readjustment items			Ref. Page
1	Machine	Manual Bypass Tray Width Adj		I.2.1.11 Manual Bypass Tray Width Adj
2		Printer Reg. Loop Adj.		I.2.1.7 Printer Reg. Loop Adj.
3		Fusing Temperature		I.2.1.2 Fusing Temperature
4	Finisher	FS-FN Adjustment		Finisher
5	Machine	Printer Area	Paper Feed Direction Adj.	I.2.1.5 (5) Paper Feed Direction Adj.
6		Fusing Transport Speed		I.2.1.3 Fusing Transport Speed
7		Printer Area	Printer Image Centering Side 1	I.2.1.5 (2) Printer Image Centering Side 1
8			Prt. Image Center. Side 2 (Dup)	I.2.1.5 (4) Prt. Image Center. Side 2 (Dup)
9			Leading Edge Adjustment	I.2.1.5 (1) Leading Edge Adjustment
10			Leading Edge Adj. Side 2 (Duplex)	I.2.1.5 (3) Leading Edge Adj. Side 2 (Duplex)
11			Tray Printing Position: Tip	I.2.1.5 (6) Tray Printing Position: Tip
12	Imaging Process Adjustment	Transfer Voltage Fine Adj	2nd Transfer Adj.	I.2.2.8 (2) 2nd Transfer Adj.
13			Primary transfer adj.	I.2.2.8 (1) Primary transfer adj.

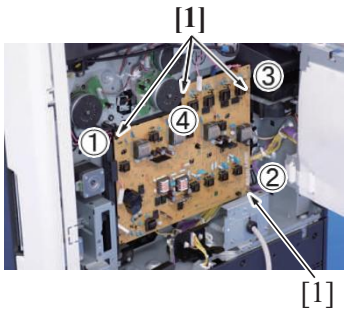
1.4.4 High voltage unit (HV)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Open the PWB box/1.
   G.1.3.8 How to open the PWB box/1

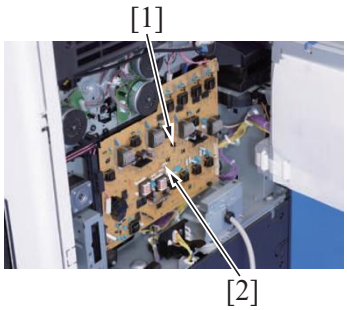
5. Disconnect all connectors and solderless terminals on the high voltage unit.



6. Remove four screws [1] of the high voltage unit.
NOTE
- **When installing the high voltage unit, tighten the screws in the order shown in the illustration.**



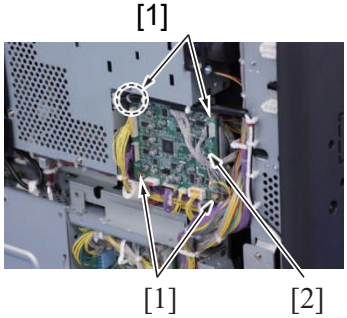
7. Unhook the tab [1], and remove the high voltage unit [2].
NOTE
- **When mounting the high voltage unit, the terminal contact point must be contacted without fail. The claw also must be firmly hooked.**



8. To reinstall, reverse the order of removal.

Expansion control board (EXCB)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover

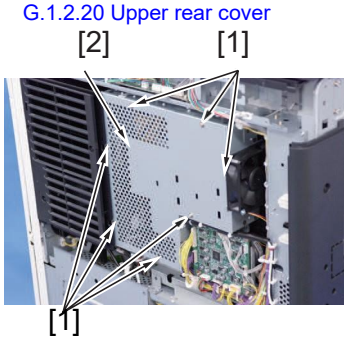


8. Remove all connectors from the board.
9. Remove four screws [1], and remove the expansion control board [2].
10. To reinstall, reverse the order of removal.

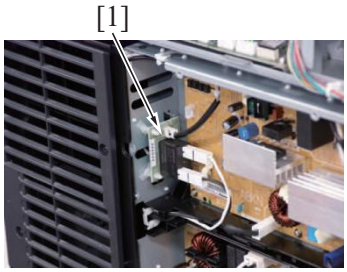
IH magnetic erasing board (IHMEB) (CM9705DN/M9705)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy

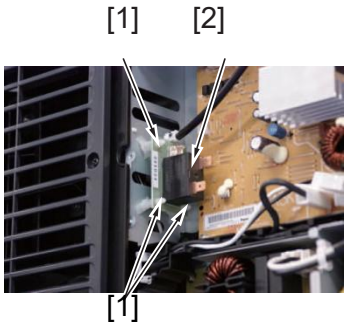
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover



8. Remove seven screws [1], and remove the IH power supply protective shield [2].



9. Disconnect all solderless terminals and connector from the IH magnetic erasing board [1].

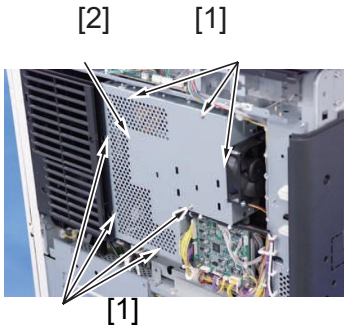


10. Remove three board supports [1], and remove the IH magnetic erasing board [2].

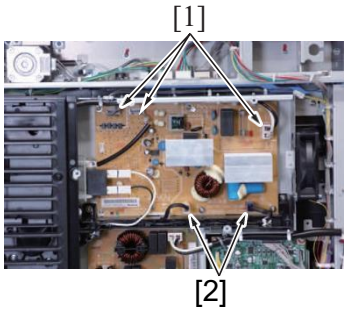
11. To reinstall, reverse the order of removal.

IH power supply unit (IHPU)

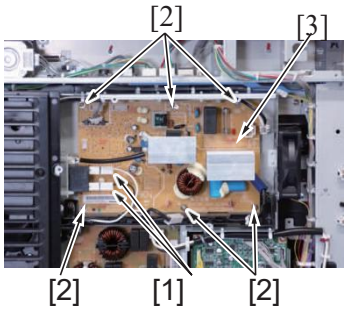
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover



8. Remove seven screws [1], and remove the IH power supply protective shield [2].



9. Disconnect three connectors [1].
10. Remove two solderless terminals [2].

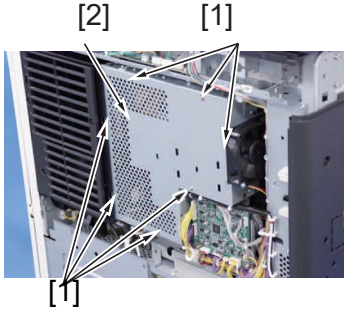


11. Remove two solderless terminals [1].
12. Remove six screws [2], and remove the IH power supply [3].

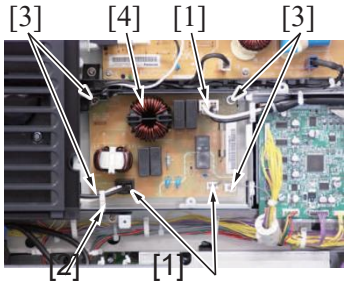
13. To reinstall, reverse the order of removal.

NF board (NFB) (CM9705DN/M9705)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover



8. Remove seven screws [1], and remove the IH power supply protective shield [2].



9. Disconnect three connectors [1].
10. Remove the harness from the wire saddle [2].
11. Remove four screws [3], and remove the NF board [4].

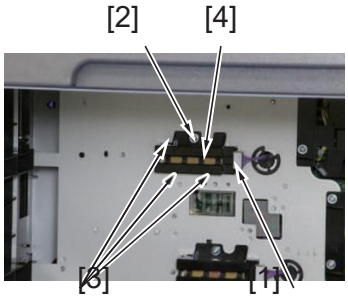
12. To reinstall, reverse the order of removal.

Tray 1 FD paper size board (FDPSB/1), tray 2 FD paper size board (FDPSB/2)

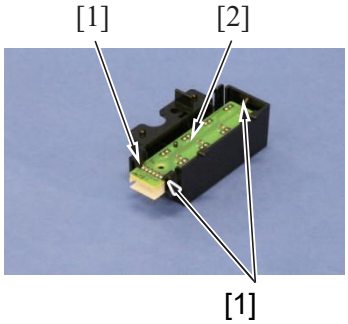
NOTE

- **The tray 1 FD paper size board and the tray 2 FD paper size board are of the same form and mechanism. This procedure shows the steps taken for the tray 1 FD paper size board.**

1. Remove the tray 1.
   G.1.2.22 Tray 1
2. Remove the tray 2.
   G.1.2.23 Tray 2



3. Disconnect the connector [1].
4. Remove the screw [2] and three tabs [3], and remove the tray 1 FD paper size board assy [4].



5. Remove three tabs [1], and remove the Tray 1 FD paper size board [2].

6. To reinstall, reverse the order of removal.

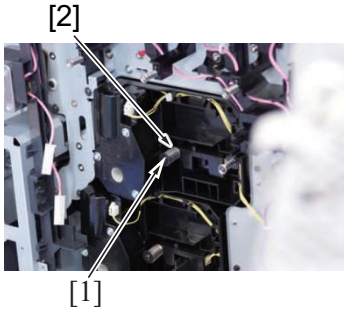
Tray 1 CD paper size board (CDPSB/1), tray 2 CD paper size board (CDPSB/2)

NOTE

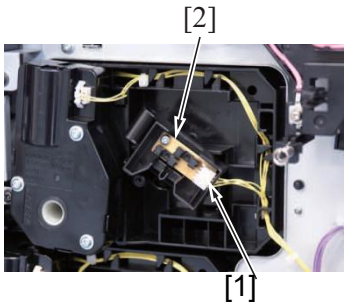
- **The tray 1 CD paper size board and the tray 2 CD paper size board are of the same form and mechanism. This procedure shows the steps taken for the tray 1 CD paper size board.**

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the protective shield.
   G.1.2.21 Protective shield
5. Open the PWB box.
   G.1.3.8 How to open the PWB box/1
6. Remove the high voltage unit.
   G.1.4.7 High voltage unit (HV)
7. Slide out the tray 1.

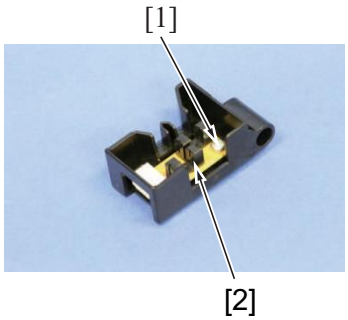
8. Remove screw [1] and spring [2].



9. Remove the connector [1], and remove the tray 1 CD paper size board assy [2].



10. Remove the screw [1], and remove the tray 1 CD paper size board [2].

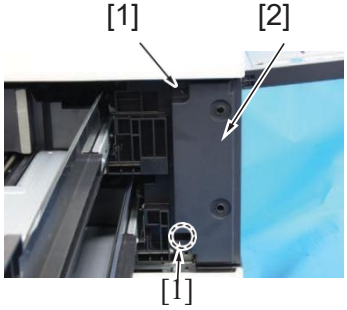


11. To reinstall, reverse the order of removal.

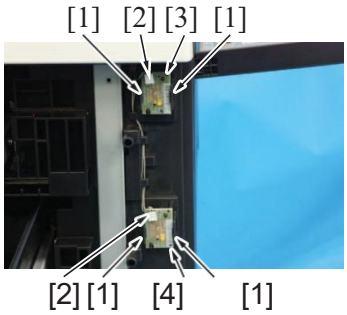
Tray 1 empty indicator board (PEIB/1), tray 2 empty indicator board (PEIB/2)

1. Slide out the tray 1 and the tray 2.

2. Remove two screws [1], and remove the tray right cover [2].



3. Unhook four tabs [1]. Disconnect two connectors [2], and remove the tray 1 empty indicator board [3] and the tray 2 empty indicator board [4].



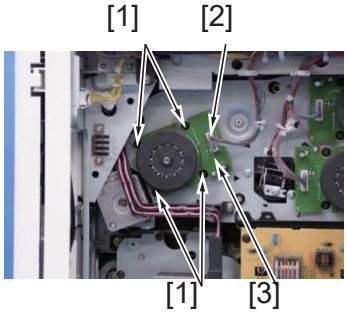
4. To reinstall, reverse the order of removal.

Disassembly/reassembly procedure (Motors)

Transport motor (M1)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1

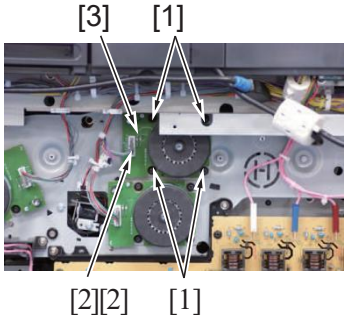
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the protective shield.
G.1.2.21 Protective shield
5. Open the PWB box.
G.1.3.8 How to open the PWB box/1



6. Remove four screws [1]. Disconnect the connector [2], and remove the transport motor [3].
7. To reinstall, reverse the order of removal.

PC motor (M2)

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the protective shield.
G.1.2.21 Protective shield
5. Open the PWB box.
G.1.3.8 How to open the PWB box/1

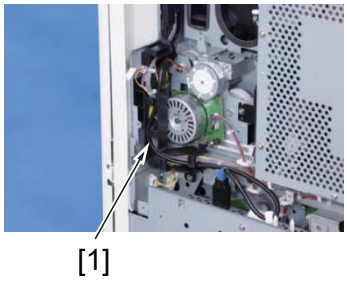


6. Remove four screws [1]. Disconnect the connector [2], and remove the PC motor [3].
7. To reinstall, reverse the order of removal.

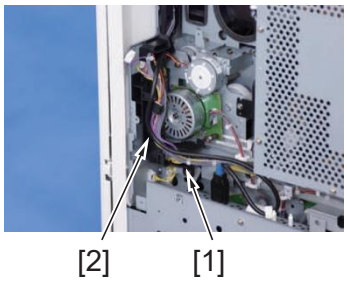
Fusing motor (M3)

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
G.1.2.17 DF cable cover
7. Remove the upper rear cover.
G.1.2.20 Upper rear cover
8. Remove the paper cooling fan.
G.1.7.7 Paper cooling fan (FM8)

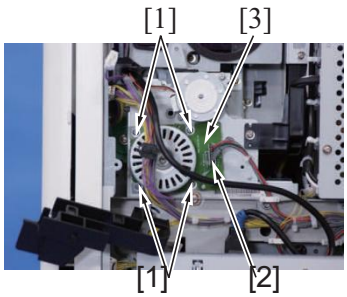
9. Remove the harness from the harness guide [1].



10. Remove the screw [1], and remove the harness guide [2].



11. Remove four screws [1]. Disconnect the connector [2], and remove the fusing motor [3].

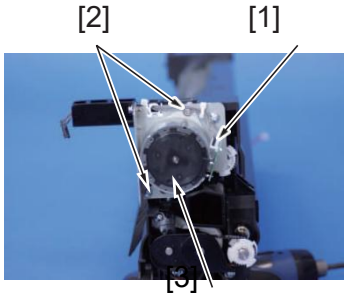


12. To reinstall, reverse the order of removal.

Switchback motor (M4)

1. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)
   Replacing the fusing unit (CM9105DN/M9105DN)
2. Remove the control panel left cover.
   Control panel left cover
3. Remove the control panel right cover.
   Control panel right cover
4. Remove the control panel front cover.
   Control panel front cover
5. Remove the upper right cover.
   G.1.2.15 Upper right cover
6. Remove the paper exit unit.
   G.1.3.18 Paper exit unit

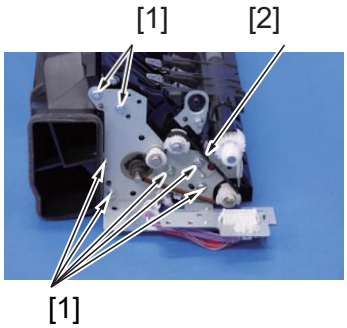
7. Disconnect the connector [1].
8. Remove two screws [2], and remove the switchback motor [3].



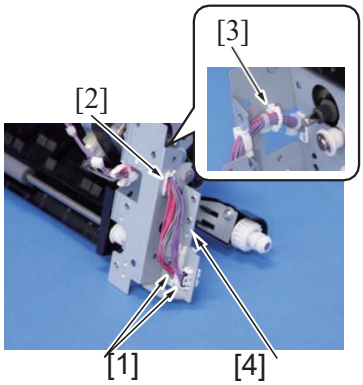
9. To reinstall, reverse the order of removal.

ADU transport motor1 (M5)

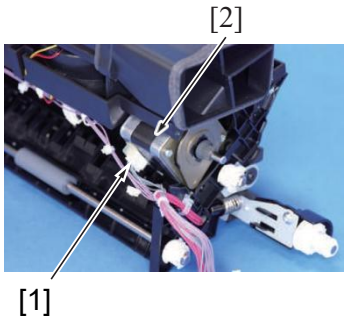
1. Remove the ADU transport unit.
   G.1.3.17 ADU transport unit
2. Remove the soaking roller pressure solenoid.
   G.1.8.5 Soaking roller pressure solenoid (SD5) (CM9705DN/M9705)



3. Remove seven screws [1], and remove the belt [2].



4. Disconnect two connectors [1], and remove the harness from the edge cover [2] and the wire saddle [3].
5. Remove the plate [4].

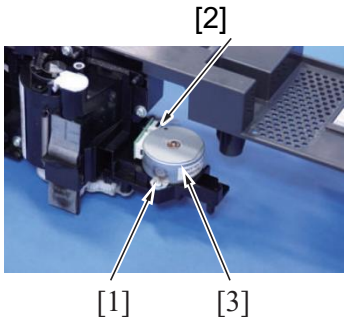


6. Disconnect the connector [1], and remove the ADU transport motor [2].

7. To reinstall, reverse the order of removal.

Toner supply motor/K (M6)

1. Remove the upper front door.
   G.1.2.7 Upper front door
2. Remove the lower front door.
   G.1.2.8 Lower front door
3. Remove the waste toner box.
   Replacing the waste toner box
4. Remove the front lower cover.
   G.1.2.9 Front lower cover
5. Remove the front cover.
   G.1.2.10 Front cover
6. Remove the toner cartridge.
   Replacing the toner cartridge
7. Remove the drum unit.
   Replacing the drum unit
8. Remove the developing unit.
   Replacing the developing unit
9. Remove the exit cover.
   G.1.2.12 Exit cover
10. Remove the sub hopper unit.
    G.1.3.4 Sub hopper unit

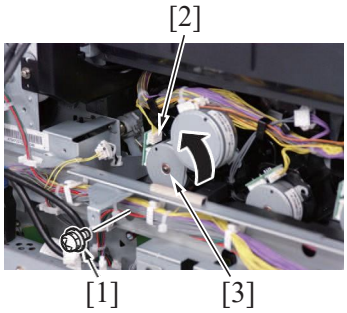


11. Remove the screw [1]. Disconnect the connector [2] and then remove the toner supply motor/K [3].

12. To reinstall, reverse the order of removal.

Toner supply motor/C (M7) (CM9705DN/M9705)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
9. Remove the board box/2.
   G.1.3.9 PWB box/2 (CM9705DN/M9705)

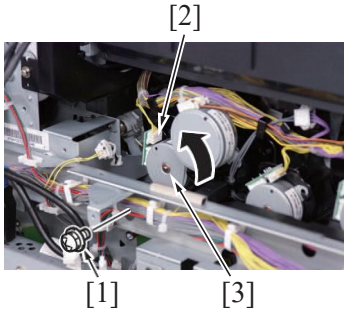


10. Remove the screw [1]. Disconnect the connector [2], and remove the toner supply motor/C [3].
    NOTE
    - **When removing the toner supply motor/C [3], make sure to turn it in the direction shown in the illustration.**

11. To reinstall, reverse the order of removal.

Toner supply motor/C (M7) (CM9105DN/M9105DN)

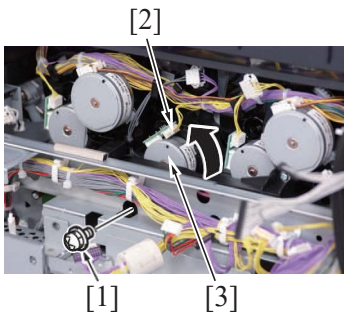
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
9. Remove the toner cartridge cooling fan assy.
   G.1.7.5 Toner cartridge cooling fan (FM4) (CM9105DN/M9105DN)



11. To reinstall, reverse the order of removal.

Toner supply motor/M (M8) (CM9705DN/M9705)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
9. Remove the board box/2.
   G.1.3.9 PWB box/2 (CM9705DN/M9705)



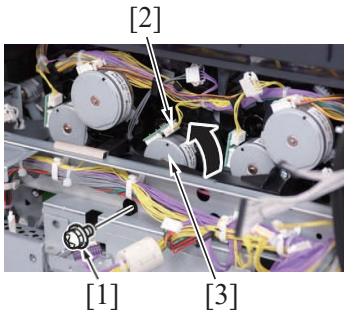
11. To reinstall, reverse the order of removal.

Toner supply motor/M (M8) (CM9105DN/M9105DN)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
9. Remove the toner cartridge cooling fan assy.
   G.1.7.5 Toner cartridge cooling fan (FM4) (CM9105DN/M9105DN)

10. Remove the screw [1]. Disconnect the connector [2], and remove the toner supply motor/C [3].
    NOTE
    - **When removing the toner supply motor/C [3], make sure to turn it in the direction shown in the illustration.**

10. Remove the screw [1]. Disconnect the connector [2], and remove the toner supply motor/M [3].
    NOTE
    - **When removing the toner supply motor/M [3], make sure to turn it in the direction shown in the illustration.**

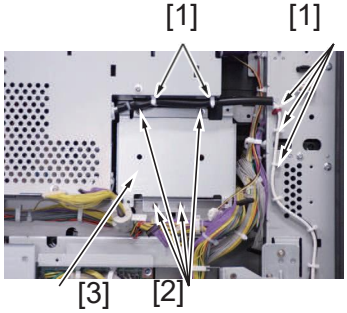


10. Remove the screw [1]. Disconnect the connector [2], and remove the toner supply motor/M [3].
NOTE
- **When removing the toner supply motor/M [3], make sure to turn it in the direction shown in the illustration.**

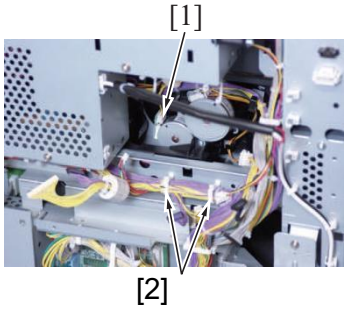
11. To reinstall, reverse the order of removal.

Toner supply motor/Y (M9) (CM9705DN/M9705)

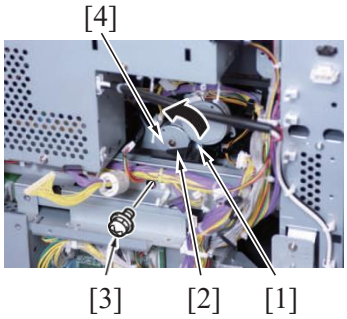
1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
G.1.2.17 DF cable cover
7. Remove the upper rear cover.
G.1.2.20 Upper rear cover
8. Remove the expansion control board.
G.1.4.8 Expansion control board (EXCB)



9. Remove the cable from five wire saddles [1].
10. Remove four screws [2], and remove the plate [3].



11. Disconnect the connector [1].
12. Remove the harness from two wire saddles [2].



13. Remove the screw [1]. Remove the screw [3] while moving the harness guide [2] up and then remove the toner supply motor/Y [4].
NOTE
- **When removing the toner supply motor/Y [4], make sure to turn it in the direction shown in the illustration.**

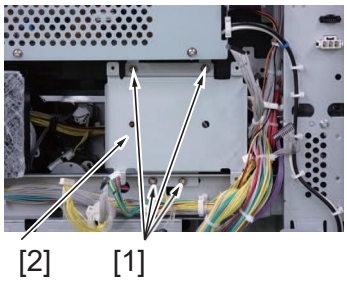
14. To reinstall, reverse the order of removal.

Toner supply motor/Y (M9) (CM9105DN/M9105DN)

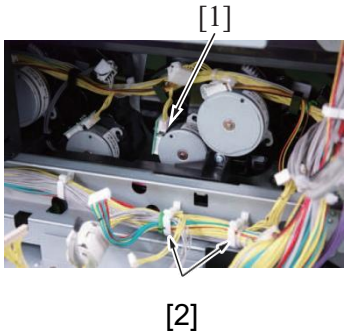
1. Remove the duct cover.

G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
G.1.2.17 DF cable cover
7. Remove the upper rear cover.
G.1.2.20 Upper rear cover
8. Remove the expansion control board.
G.1.4.8 Expansion control board (EXCB)

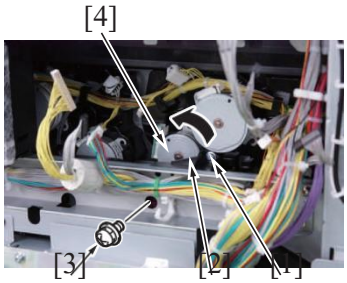
9. Remove four screws [1], and remove the plate [2].



10. Disconnect the connector [1].
11. Remove the harness from two wire saddles [2].



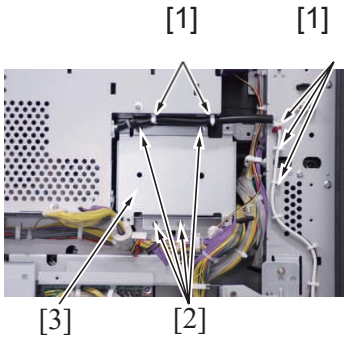
12. Remove the screw [1]. Remove the screw [3] while moving the harness guide [2] up and then remove the toner supply motor/Y [4].
NOTE
- **When removing the toner supply motor/Y [4], make sure to turn it in the direction shown in the illustration.**



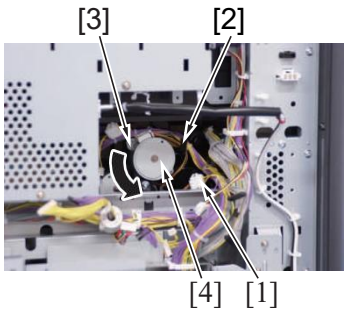
13. To reinstall, reverse the order of removal.

Toner cartridge motor/Y,M (M10) (CM9705DN/M9705)

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
G.1.2.17 DF cable cover
7. Remove the upper rear cover.
G.1.2.20 Upper rear cover
8. Remove the expansion control board.
G.1.4.8 Expansion control board (EXCB)



9. Remove the cable from five wire saddles [1].
10. Remove four screws [2], and remove the plate [3].



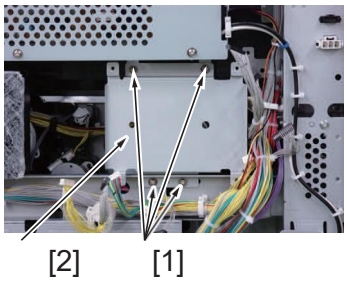
11. Disconnect the connector [1], and remove the harness from the harness guide [2].
12. Remove the screw [3], and remove the toner cartridge motor/YM [4].
NOTE
- **When removing the toner cartridge motor/YM [4], make sure to turn it in the direction as illustrated in the figure.**

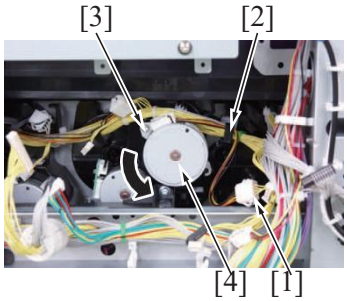
13. To reinstall, reverse the order of removal.

Toner cartridge motor/Y,M (M10) (CM9105DN/M9105DN)

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
G.1.2.17 DF cable cover
7. Remove the upper rear cover.
G.1.2.20 Upper rear cover
8. Remove the expansion control board.
G.1.4.8 Expansion control board (EXCB)

9. Remove four screws [1], and remove the plate [2].





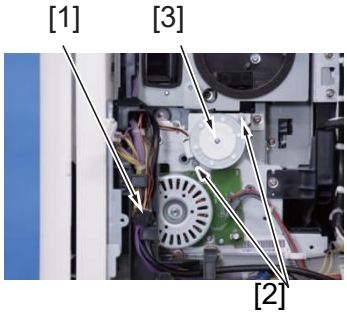
10. Disconnect the connector [1], and remove the harness from the harness guide [2].
11. Remove the screw [3], and remove the toner cartridge motor/YM [4].
NOTE
- **When removing the toner cartridge motor/YM [4], make sure to turn it in the direction as illustrated in the figure.**

12. To reinstall, reverse the order of removal.

Fusing pressure motor (M11)

1. Remove the duct cover.

G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
G.1.2.17 DF cable cover
7. Remove the upper rear cover.
G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
G.1.7.7 Paper cooling fan (FM8)

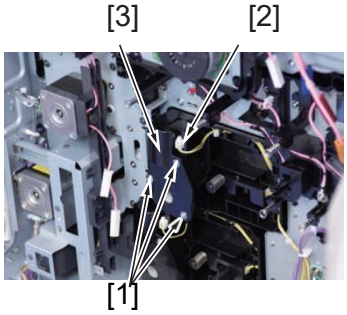


9. Disconnect the connector [1], and remove the harness from the harness guide.
10. Remove two screws [2], and remove the fusing pressure motor [3].

11. To reinstall, reverse the order of removal.

Tray 1 lift-up motor (M12)

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the protective shield.
G.1.2.21 Protective shield
5. Open the PWB box.
G.1.3.8 How to open the PWB box/1
6. Remove the high voltage unit.
G.1.4.7 High voltage unit (HV)
7. Slide out the tray 1.

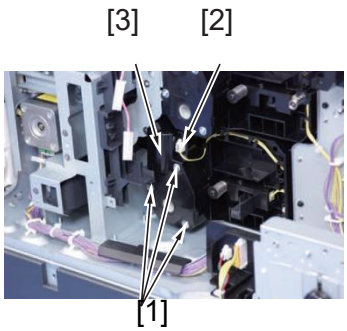


8. Remove three screws [1]. Disconnect the connector [2], and remove the tray 1 lift-up motor [3].

9. To reinstall, reverse the order of removal.

Tray 2 lift-up motor (M13)

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Remove the protective shield.
G.1.2.21 Protective shield
5. Open the PWB box.
G.1.3.8 How to open the PWB box/1
6. Remove the high voltage unit.
G.1.4.7 High voltage unit (HV)
7. Slide out the tray 2.

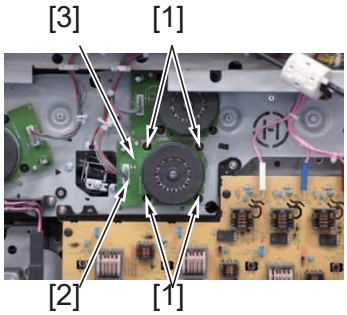


8. Remove three screws [1]. Disconnect the connector [2], and remove the tray 2 lift-up motor [3].

9. To reinstall, reverse the order of removal.

Developing motor (M21)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the protective shield.
   G.1.2.21 Protective shield
5. Open the PWB box/1.
   G.1.3.8 How to open the PWB box/1

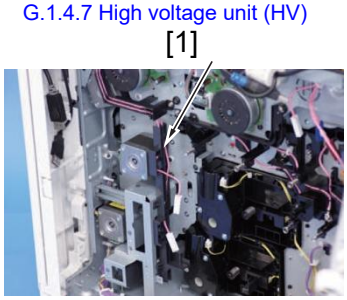


6. Remove four screws [1]. Disconnect the connector [2], and remove the developing motor [3].

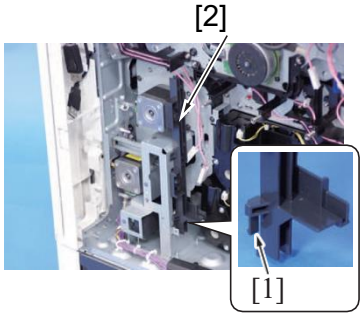
7. To reinstall, reverse the order of removal.

Paper feed motor (M22)

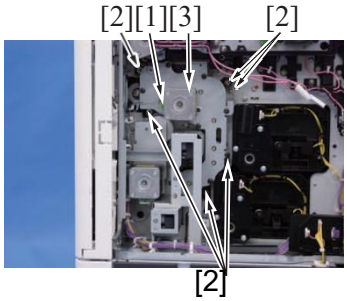
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the protective shield.
   G.1.2.21 Protective shield
5. Open the PWB box.
   G.1.3.8 How to open the PWB box/1
6. Remove the high voltage unit.
   G.1.4.7 High voltage unit (HV)



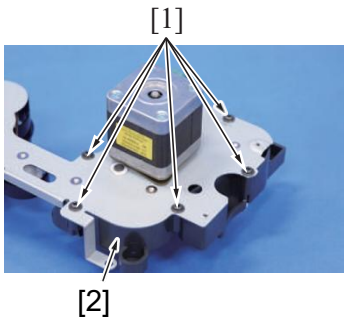
7. Remove the cable from the cable guide [1].



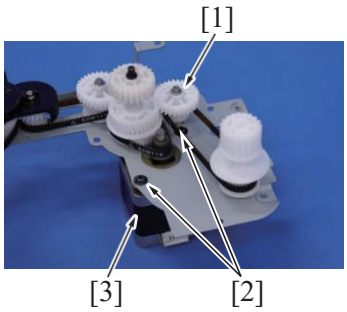
8. Release the tab [1] and remove the cable guide [2].



9. Disconnect the connector [1].
10. Remove six screws [2], and remove the paper feed motor [3].



11. Remove five screws [1], and remove the cover [2].

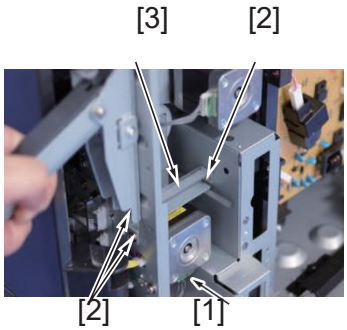


12. Remove the gear [1].
13. Remove two screws [2], and remove the paper feed motor [3].

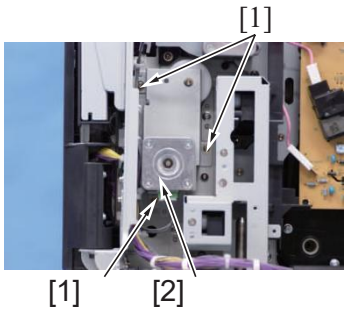
14. To reinstall, reverse the order of removal.

Tray 2 vertical transport motor (M23)

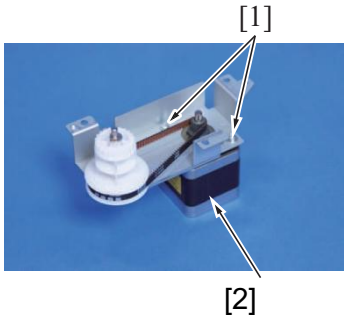
1. Remove the rear right cover.
   G.1.2.14 Rear right cover
2. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
3. Remove the toner filter.
   Replacing the toner filter
4. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
5. Remove the protective shield.
   G.1.2.21 Protective shield
6. Open the PWB box.
   G.1.3.8 How to open the PWB box/1



7. Disconnect the connector [1].
8. Remove three screws [2], and remove the plate [3].



9. Remove three screws [1], and remove the tray 2 vertical transport motor assy [2].

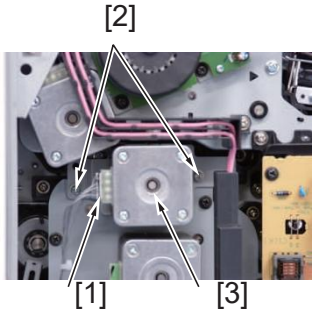


10. Remove two screws [1], and remove the tray 2 vertical transport motor [2].

11. To reinstall, reverse the order of removal.

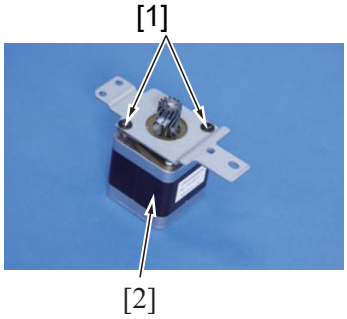
Registration motor (M24) (CM9705DN/M9705)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the protective shield.
   G.1.2.21 Protective shield
5. Open the PWB box/1.
   G.1.3.8 How to open the PWB box/1



6. Disconnect the connector [1].
7. Remove two screws [2], and remove the registration motor assy [3].

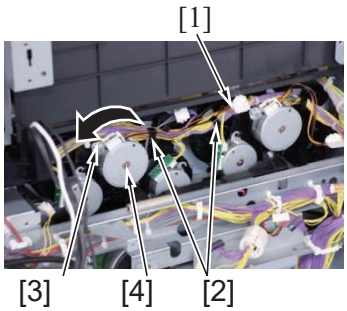
8. Remove two screws [1], and remove the registration motor [2].



9. To reinstall, reverse the order of removal.

Toner cartridge motor/C,K (M25) (CM9705DN/M9705)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
9. Remove the board box/2.
   G.1.3.9 PWB box/2 (CM9705DN/M9705)

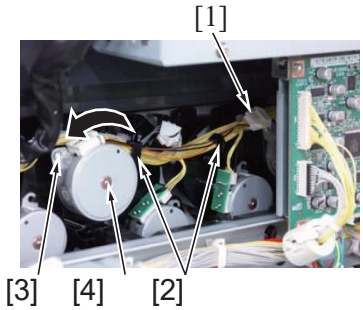


10. Disconnect the connector [1], and remove the harness from two harness guides [2].
11. Remove the screw [3], and remove the toner cartridge motor/CK [4].
    NOTE
    - **When removing the toner cartridge motor/CK [4], make sure to turn it in the direction as illustrated in the figure.**

12. To reinstall, reverse the order of removal.

Toner cartridge motor/C,K (M25) (CM9105DN/M9105DN)

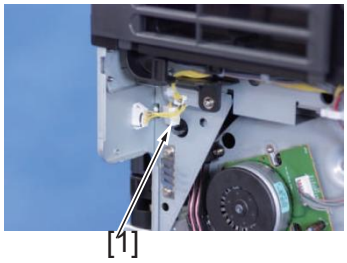
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)
9. Remove the toner cartridge cooling fan assy.
   G.1.7.5 Toner cartridge cooling fan (FM4) (CM9105DN/M9105DN)



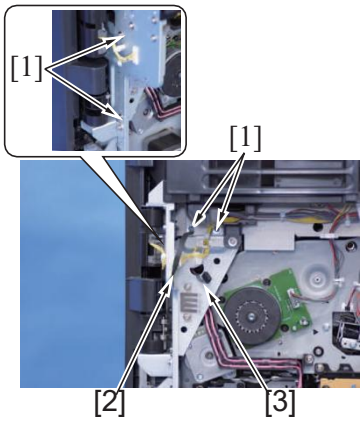
12. To reinstall, reverse the order of removal.

ADU transport motor2 (M26)

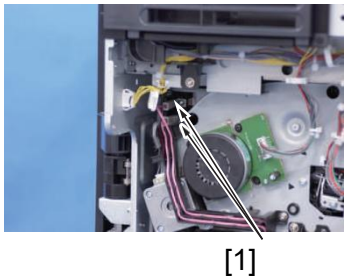
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the protective shield.
   G.1.2.21 Protective shield
5. Open the PWB box/1.
   G.1.3.8 How to open the PWB box/1



6. Disconnect the connector [1].

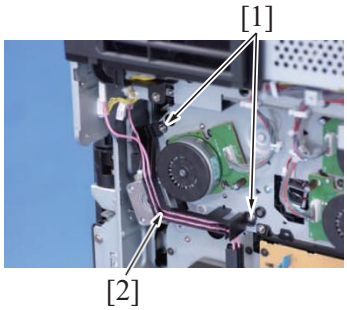


7. Remove four screws [1], ground terminal [2], and remove the plate [3].

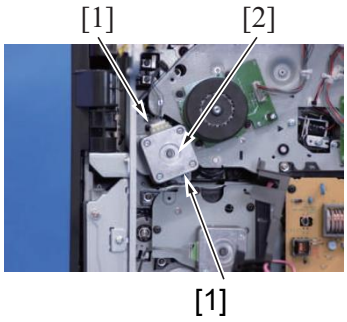


8. Remove two solderless terminals [1].

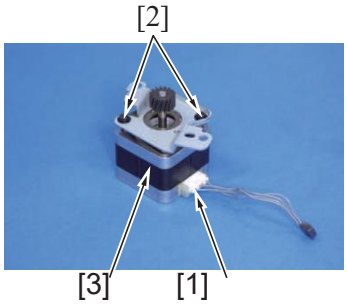
10. Disconnect the connector [1], and remove the harness from two harness guides [2].
11. Remove the screw [3], and remove the toner cartridge motor/CK [4].
    NOTE
    - **When removing the toner cartridge motor/CK [4], make sure to turn it in the direction as illustrated in the figure.**



9. Remove two screws [1], and remove the harness guide [2].



10. Remove two screws [1], and remove the ADU transport motor 2 assy [2].



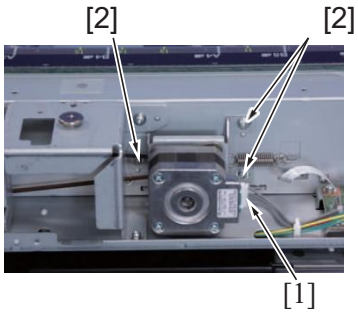
11. Disconnect the connector [1].
12. Remove two screws [2], and remove the ADU transport motor 2 [3].

13. To reinstall, reverse the order of removal.

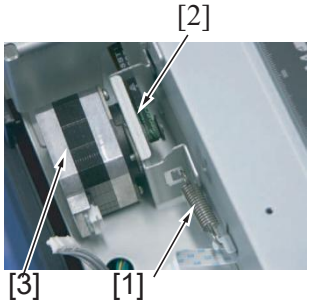
Scanner motor (M201)

(1) Removal procedure

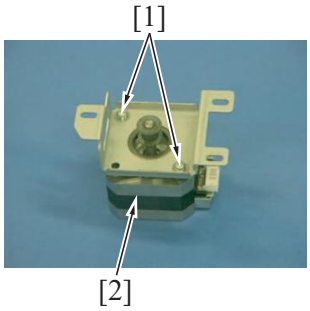
1. Remove the dual scan document feeder.
   Dual scan document feeder
2. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
3. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
4. Remove the scanner upper rear cover.
   G.1.2.5 Scanner upper rear cover
5. Remove the scanner right cover.
   G.1.2.2 Scanner right cover



6. Disconnect the connector [1], and remove three screws [2].

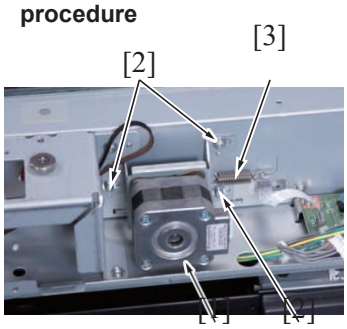


7. Remove the spring [1] and the belt [2], and remove the scanner motor assy [3].

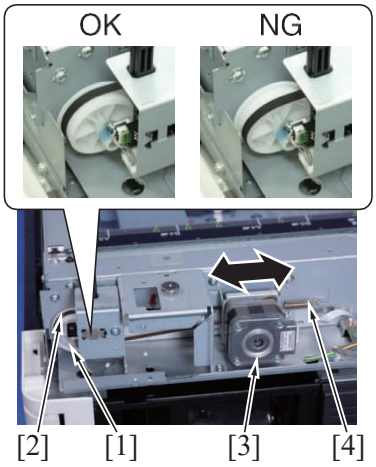


8. Remove two screws [1], and remove the scanner motor [2].

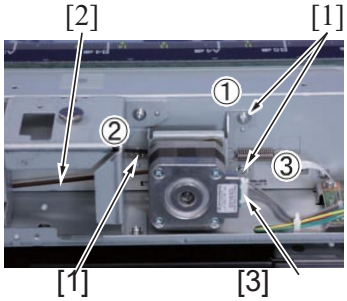
(2) Reinstall procedure



1. Attach the spring [3] to the scanner motor assy [1].
2. Temporarily secure the scanner motor assy [1] with three screws [2].
   NOTE
   - **The screws [2] should be temporarily tightened to a degree that the position of the motor can be adjusted by the spring force.**
   - **When installing the scanner motor, make sure that the scanner motor is disconnected with the connector.**



3. Attach the drive belt [2] to the pulley [1] and the gear of scanner motor.
4. Move the scanner motor assy [3] in the direction shown in the illustration for two to three times, then make sure that it runs smoothly.
   NOTE
   - **Make sure that the drive belt [2] is properly kept tight by the spring [4] force.**
   - **If the deflection or tension of the drive belt [2] is excessive, the scanner unit does not work correctly. This may result in trouble.**
   - **Make sure that the drive belt [2] is attached to the pulley [1] correctly.**

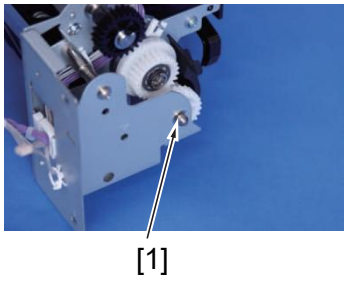


5. Tighten three screws [1] in the order shown in the illustration to fix the scanner motor assy.
   NOTE
   - **When tightening the screw [1], make sure that the scanner motor assy is not touched.**
   - **After securing the scanner motor assy, check again that the deflection and tension of the drive belt [2] are not excessive.**
6. Connect the connector [3] to the scanner motor.

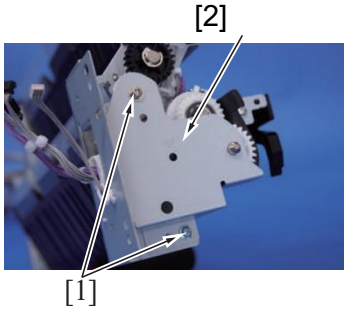
Disassembly/reassembly procedure (Clutches)

Tray 2 paper feed clutch (CL1)

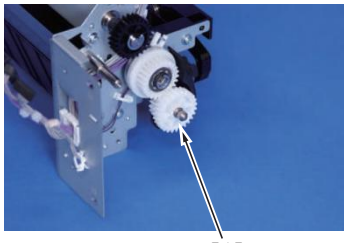
1. Remove the paper feed unit.
   G.1.3.2 Paper feed unit



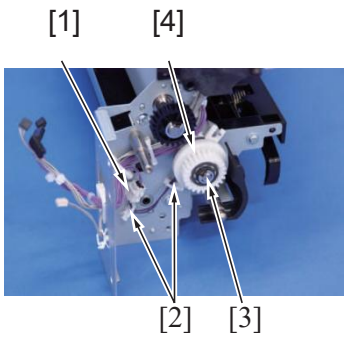
2. Remove the E-ring [1].



3. Remove two screws [1], and remove the gear cover [2].



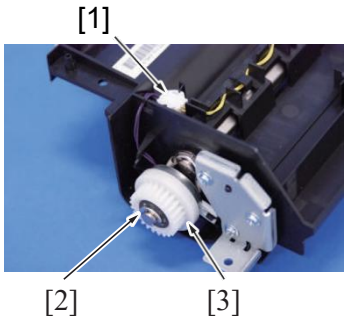
4. Remove the gear [1].



5. Disconnect the connector [1], and remove the harness from two wire saddles [2].
6. Remove the E-ring [3], and remove the tray 2 paper feed clutch [4].
   NOTE
   - **When mounting the tray 2 paper feed clutch [2], set the convex part of the stopper into the concave part of the tray 2 paper feed clutch.**
7. To reinstall, reverse the order of removal.

Registration clutch (CL4)

1. Remove the waste toner box.
   Replacing the waste toner box
2. Remove the transfer belt unit.
   Replacing the transfer belt unit
3. Remove the upper front door.
   G.1.2.7 Upper front door
4. Remove the lower front door.
   G.1.2.8 Lower front door
5. Remove the front lower cover.
   G.1.2.9 Front lower cover
6. Remove the front cover.
   G.1.2.10 Front cover
7. Remove the transport unit.
   G.1.3.11 Transport unit

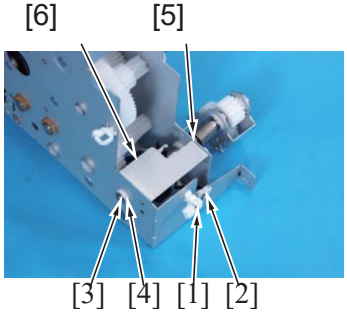


8. Remove the E-ring [2]. Disconnect the connector [1], and remove the registration clutch [3].
   NOTE
   - **When mounting the registration clutch, set the convex part of the stopper into the concave part of the registration clutch [3].**

9. To reinstall, reverse the order of removal.

1st transfer pressure clutch (CL5)

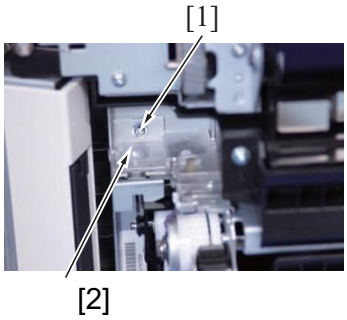
1. Remove the fusing drive unit.
   G.1.3.13 Fusing drive unit (CM9705DN/M9705)
   G.1.3.14 Fusing drive unit (CM9105DN/M9105DN)



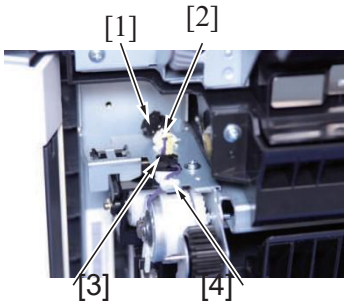
2. Remove the harness from the wire saddle [1] and the edge cover [2].
3. Remove the E-ring [3] and the bushing [4], and remove the 1st transfer pressure clutch [6] while pulling out the shaft [5].
   NOTE
   - **When mounting the 1st transfer pressure clutch [6], set the convex part of the stopper into the concave part of the 1st transfer pressure clutch.**

4. To reinstall, reverse the order of removal.

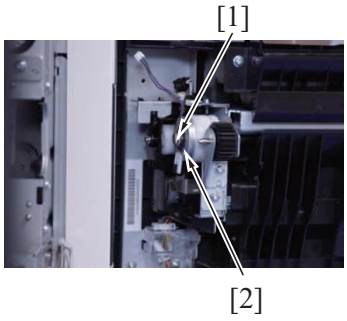
Bypass paper feed clutch (CL7)



1. Remove the screw [1], and remove the connector cover [2].



2. Disconnect the connector [1], and remove the harness from the wire saddle [2], harness guide [3], and edge cover [4].

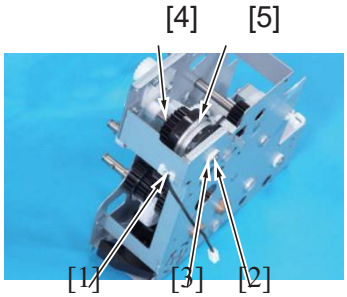


3. Remove the E-ring [1], and remove the bypass paper feed clutch [2].
   NOTE
   - **When mounting the bypass paper feed clutch, set the convex part of the stopper into the concave part of the bypass paper feed clutch [2].**

4. To reinstall, reverse the order of removal.

Paper exit clutch (CL8)

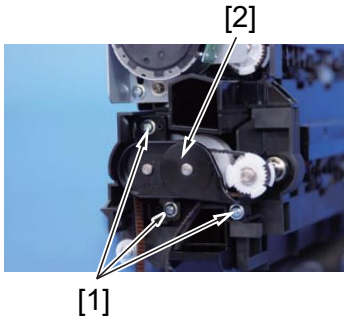
1. Remove the fusing drive unit.
   G.1.3.13 Fusing drive unit (CM9705DN/M9705)
   G.1.3.14 Fusing drive unit (CM9105DN/M9105DN)



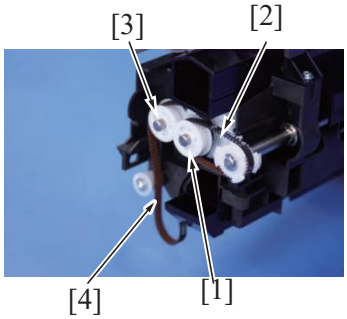
2. Remove the harness from the edge cover [1].
3. Remove the E-ring [2] and the bushing [3], and remove the paper exit clutch [5] while pulling out the shaft [4].
   NOTE
   - **When mounting the paper exit clutch, set the convex part of the stopper into the concave part of the paper exit clutch [5].**
4. To reinstall, reverse the order of removal.

Paper exit deceleration clutch (CL9)

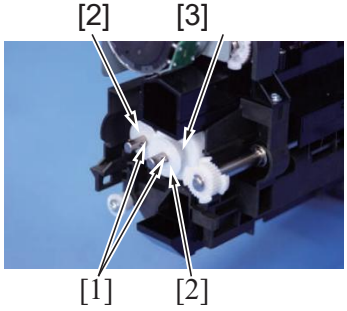
1. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)
   Replacing the fusing unit (CM9105DN/M9105DN)
2. Remove the control panel left cover.
   Control panel left cover
3. Remove the control panel right cover.
   Control panel right cover
4. Remove the control panel front cover.
   Control panel front cover
5. Remove the upper right cover.
   G.1.2.15 Upper right cover
6. Remove the paper exit unit.
   G.1.3.18 Paper exit unit



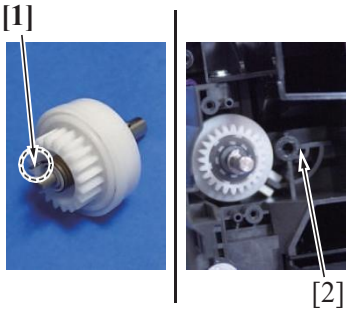
7. Remove three screws [1] and remove the cover [2].



8. Remove the gear [1], and remove the belt [2].
9. Remove the gear [3], and remove the belt [4].

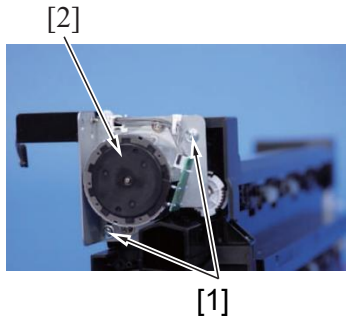


10. Remove two pins [1] and two flanges [2], and then remove the gear [3].

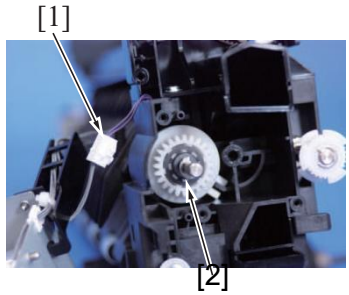


11. **NOTE**

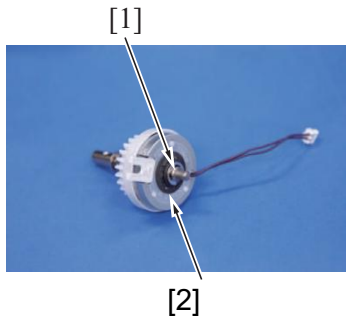
- **When installing the gear, align the raised area of the spring [1] with the hole in the frame [2].**



12. Remove two screws [1], and remove the switchback motor assy [2].



13. Disconnect the connector [1], and remove the paper exit deceleration clutch assy [2].



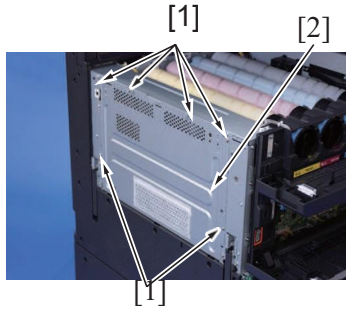
14. Remove the E-ring [1], and remove the clutch [2].

15. To reinstall, reverse the order of removal.

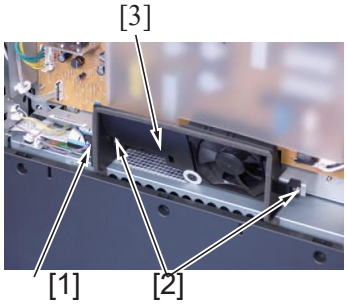
Disassembly/reassembly procedure (Fans)

Power supply cooling fan (FM1)

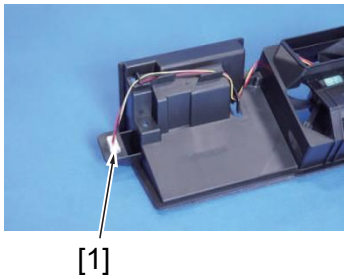
1. Remove the left cover.
   G.1.2.11 Left cover
2. Remove the exit cover.
   G.1.2.12 Exit cover



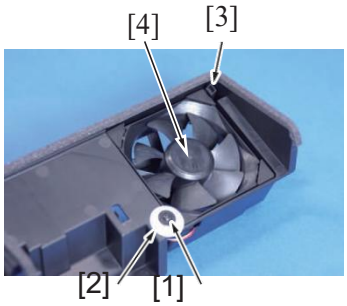
3. Remove six screws [1], and remove the DC power supply protective shield [2].



4. Disconnect the connector [1].
5. Remove two screws [2], and remove the power supply cooling fan assy [3].



6. Disconnect the connector [1], and remove the harness from the harness guide.

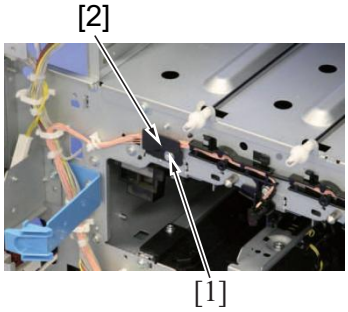


7. Remove the screw [1], and remove the retainer plate [2].
8. Remove the tab [3], and remove the power supply cooling fan [4].
9. To reinstall, reverse the order of removal.

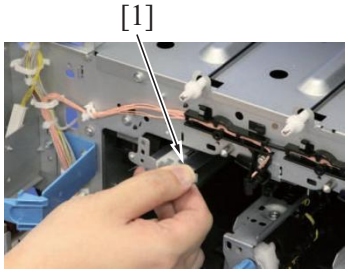
Transfer belt cleaner cooling fan (FM2)

1. Remove the left cover.
   G.1.2.11 Left cover
2. Remove the exit cover.
   G.1.2.12 Exit cover
3. Remove the DC power supply.
   G.1.4.2 DC power supply (DCPU)
4. Remove the upper front door.
   G.1.2.7 Upper front door
5. Remove the lower front door.
   G.1.2.8 Lower front door
6. Remove the waste toner box.
   Replacing the waste toner box
7. Remove the front lower cover.
   G.1.2.9 Front lower cover
8. Remove the front cover.
   G.1.2.10 Front cover
9. Remove the toner cartridge/Y,M,C,K.
   Replacing the toner cartridge
10. Remove the drum unit/Y,M,C,K.
    Replacing the drum unit
11. Remove the developing unit.
    Replacing the developing unit
12. Remove the transfer belt unit.
    Replacing the transfer belt unit
13. Remove the sub hopper unit.
    G.1.3.4 Sub hopper unit

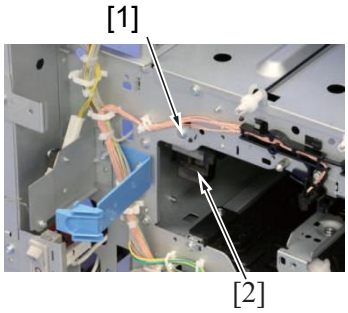
14. Remove the screw [1], and remove the harness guide [2].



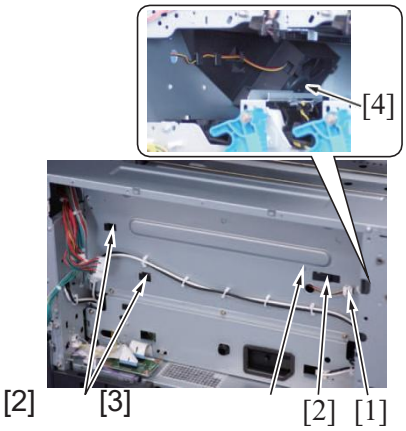
15. Remove the rail [1].



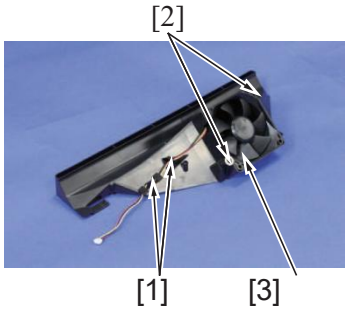
16. Remove the screw [1], and remove the waste toner pipe [2].



17. Remove the connector [1], and release three tabs [2].
18. Remove the screw [3], and remove the transfer belt cleaner cooling fan assy [4].



19. Remove the harness from harness guide [1].
20. Remove two screws [2], and remove the transfer belt cleaner cooling fan [3].



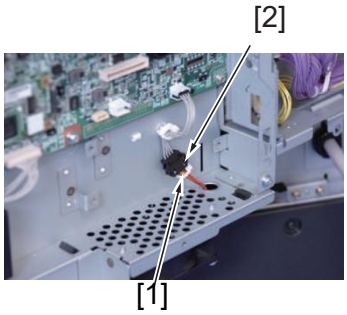
21. To reinstall, reverse the order of removal.

Rear side cooling fan (FM3)

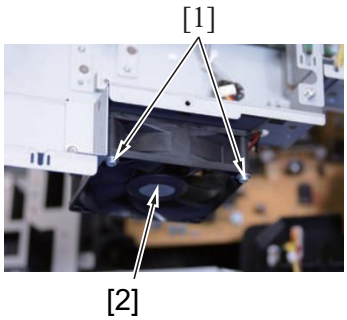
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.

Replacing the toner filter

3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Open the PWB box/1.
   G.1.3.8 How to open the PWB box/1



5. Remove the harness from the wire saddle [1], and disconnect the connector [2].

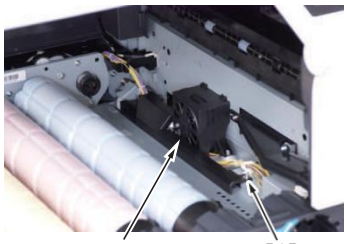


6. Remove two screws [1], and remove the rear side cooling fan [2].

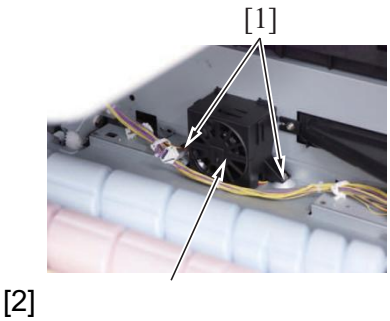
7. To reinstall, reverse the order of removal.

Toner cartridge cooling fan (FM4) (CM9705DN/M9705)

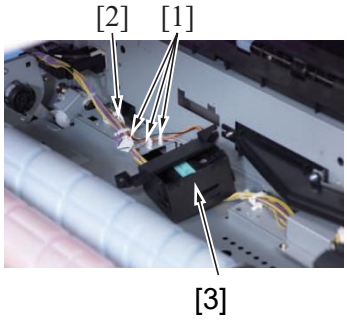
1. Remove the toner cartridge/K.
   Replacing the toner cartridge
2. Remove the left cover.
   G.1.2.11 Left cover
3. Remove the exit cover.
   G.1.2.12 Exit cover



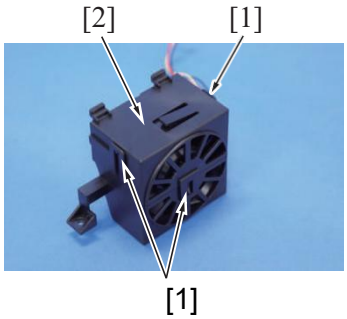
4. Remove the screw [1], and remove the cover [2].



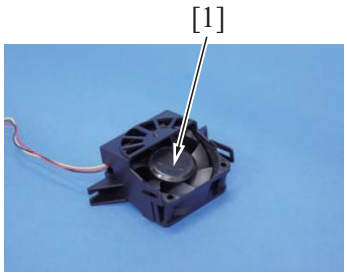
5. Remove two screws [1], and remove the toner cartridge cooling fan assy [2].



6. Remove the harness from three wire saddles [1].
7. Disconnect the connector [2], and remove the toner cartridge cooling fan assy [3].



8. Remove three tabs [1], and remove the cover [2].

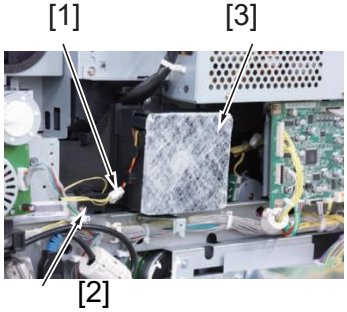


9. Remove the toner cartridge cooling fan [1].

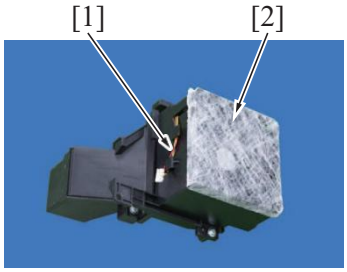
10. To reinstall, reverse the order of removal.

Toner cartridge cooling fan (FM4) (CM9105DN/M9105DN)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the paper cooling fan assy.
   G.1.7.7 Paper cooling fan (FM8)



9. Disconnect the connector [1].
10. Remove the screw [2], and remove the toner cartridge cooling fan assy [3].

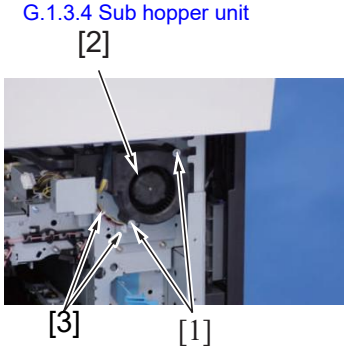


11. Remove the harness from the harness guide [1].
12. Remove the filter [2], and remove the toner cartridge cooling fan [2].

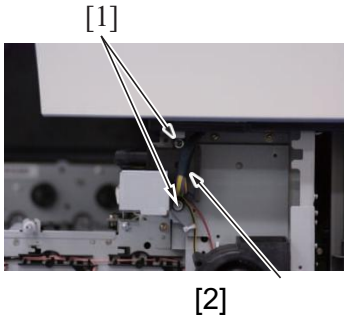
13. To reinstall, reverse the order of removal.

IH coil cooling fan (FM7)

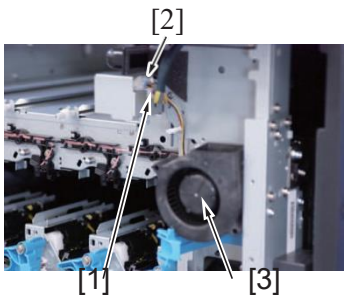
1. Remove the upper front door.
   G.1.2.7 Upper front door
2. Remove the lower front door.
   G.1.2.8 Lower front door
3. Remove the waste toner box.
   Replacing the waste toner box
4. Remove the front lower cover.
   G.1.2.9 Front lower cover
5. Remove the front cover.
   G.1.2.10 Front cover
6. Remove the toner cartridge.
   Replacing the toner cartridge
7. Remove the drum unit.
   Replacing the drum unit
8. Remove the developing unit.
   Replacing the developing unit
9. Remove the exit cover.
   G.1.2.12 Exit cover
10. Remove the sub hopper drive unit.
    G.1.3.4 Sub hopper unit



11. Remove two screws [1], and remove the IH coil cooling fan [2].
12. Remove the harness from two wire saddles [3].



13. Remove two screws [1], and remove the duct [2].

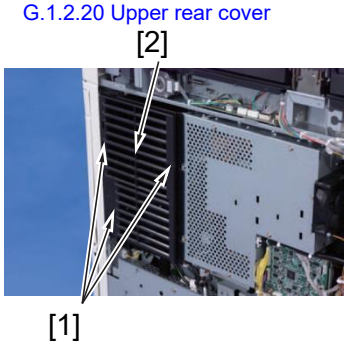


14. Remove the harness from the edge cover [1].
15. Disconnect the connector [2], and remove the IH coil cooling fan [3].

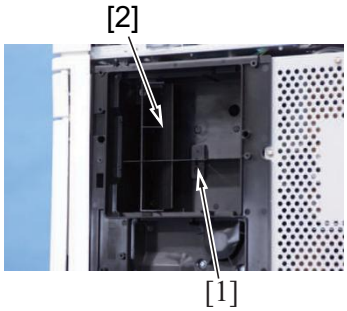
16. To reinstall, reverse the order of removal.

Paper cooling fan (FM8)

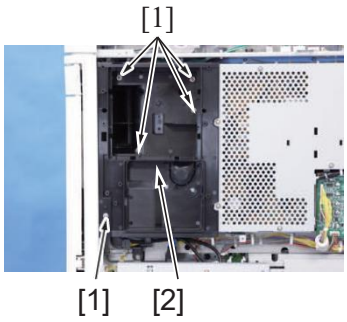
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover



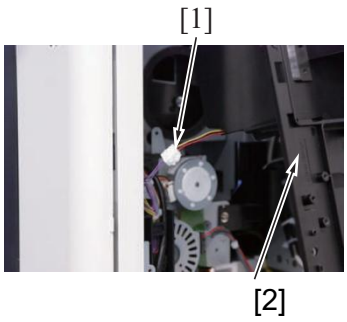
8. Remove three screws [1], and remove the louver [3].



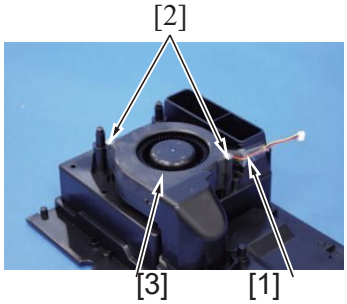
9. Remove the screw [1], and remove the duct [2].



10. Remove five screws [1], and remove the paper cooling fan assy [2].



11. Disconnect the connector [1], and remove the paper cooling fan assy [2].

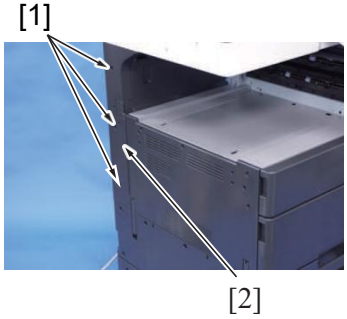


12. Peel off the tape [1].
13. Remove two screws [2], and remove the paper cooling fan [3].

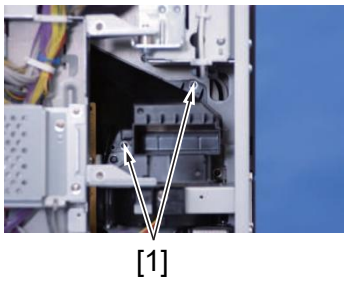
14. To reinstall, reverse the order of removal.

Toner suction fan (FM11)

1. Remove the duct cover.
G.1.2.18 Duct cover/1
G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
Replacing the toner filter
3. Remove the lower rear cover.
G.1.2.16 Lower rear cover
4. Open the PWB box /1.
G.1.3.8 How to open the PWB box/1
5. Remove the high voltage unit.
G.1.4.7 High voltage unit (HV)

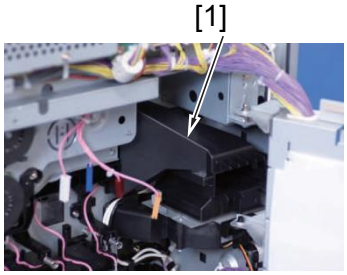


6. Remove three screws [1], and remove the cover [2].



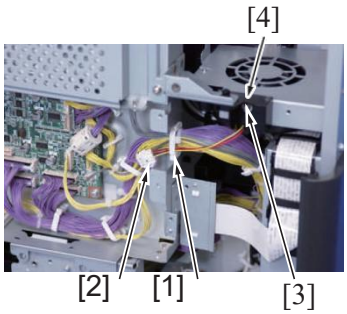
7. Remove two screws [1].

8. Open the PWB box.

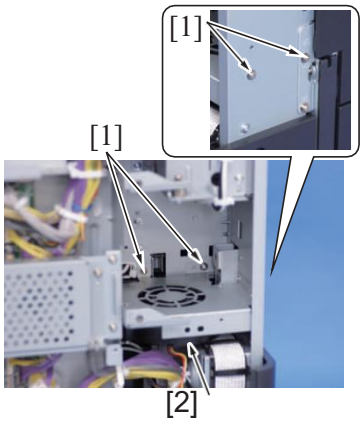


9. Remove the duct [1].

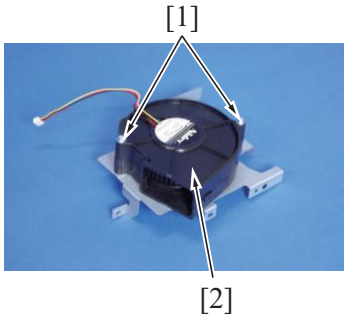
10. Close the PWB box.



11. Remove the harness from the edge cover [1], and disconnect the connector [2].
12. Remove the screw [3], and remove the board box [4].



13. Remove four screws [1], and remove the toner suction fan assy [2].



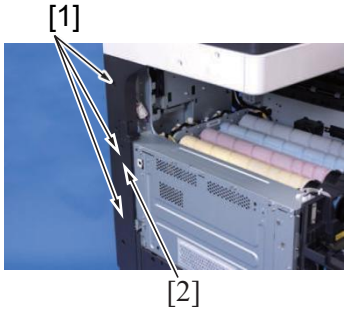
14. Remove two screws [1], and remove the toner suction fan [2].

15. To reinstall, reverse the order of removal.

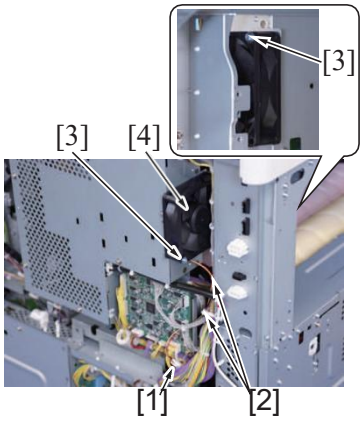
Fusing power supply cooling fan (FM12)

1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the scanner left cover.
   G.1.2.4 Scanner left cover
5. Remove the scanner rear cover.
   G.1.2.1 Scanner rear cover
6. Remove the DF cable cover.
   G.1.2.17 DF cable cover
7. Remove the upper rear cover.
   G.1.2.20 Upper rear cover
8. Remove the left cover.
   G.1.2.11 Left cover
9. Remove the exit cover.
   G.1.2.12 Exit cover
10. Remove the output rear cover.
    G.1.2.13 Output rear cover

11. Remove three screws [1], and remove the cover [2].



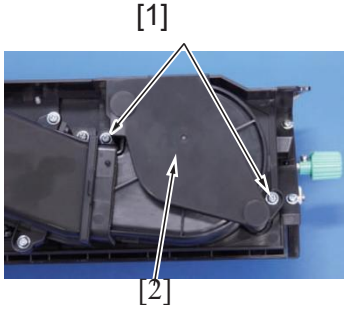
12. Disconnect the connector [1], and remove the harness from two wire saddles [2].
13. Remove two screws [3], and remove the fusing power supply cooling fan [4].



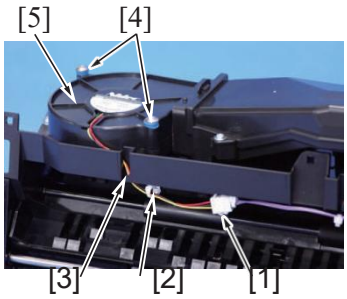
14. To reinstall, reverse the order of removal.

UFP exhaust fan1 (FM17)

1. Remove the ADU transport unit.
   G.1.3.17 ADU transport unit



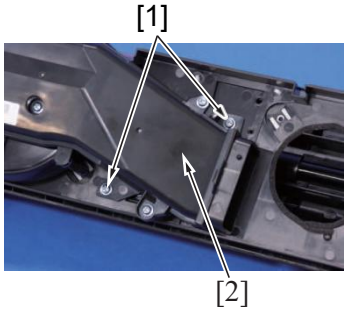
2. Remove two screws [1], and remove the cover [2].



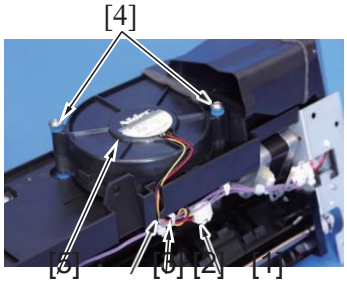
3. Disconnect the connector [1], and remove the harness from the wire saddle [2] and harness guide [3].
4. Remove two screws [4], and remove the UFP exhaust fan 1 [5].
5. To reinstall, reverse the order of removal.

UFP exhaust fan2 (FM18)

1. Remove the ADU transport unit.
   G.1.3.17 ADU transport unit
2. Remove the UFP exhaust fan 1.
   G.1.7.10 UFP exhaust fan1 (FM17)



3. Remove two screws [1], and remove the duct [2].



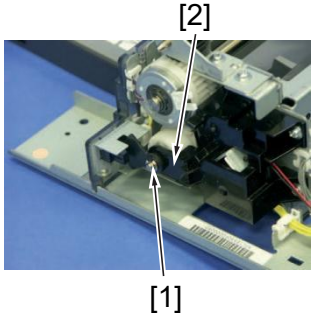
4. Disconnect the connector [1], and remove the harness from the wire saddle [2] and harness guide [3].
5. Remove two screws [4], and remove the UFP exhaust fan 2 [5].

6. To reinstall, reverse the order of removal.

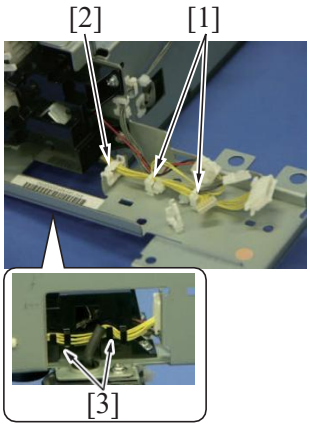
Disassembly/reassembly procedure (etc.)

Bypass pick-up solenoid (SD1)

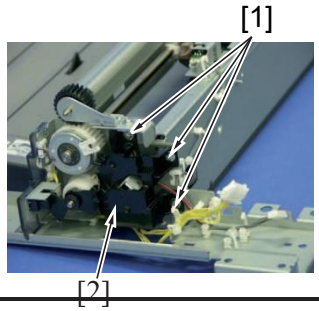
1. Remove the manual bypass tray unit.
G.1.3.6 Manual bypass tray unit



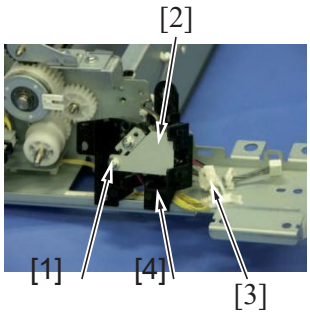
2. Remove the E-ring [1], and remove the actuator [2].



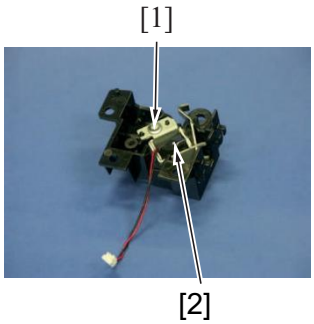
3. Remove the harness from two wire saddles [1] and the edge cover [2].
4. Remove the harness from two harness guides [3].



5. Remove three screws [1], and remove the solenoid cover [2].



6. Remove the screw [1], and remove the cover [2].
7. Disconnect the connector [3], and remove the bypass pick-up solenoid assy [4].

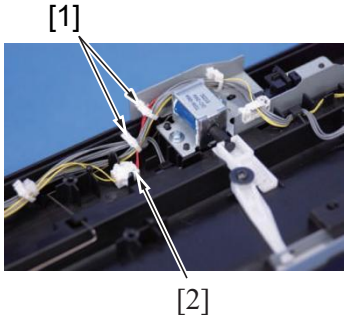


8. Remove the screw [1], and remove the bypass pick-up solenoid [2].

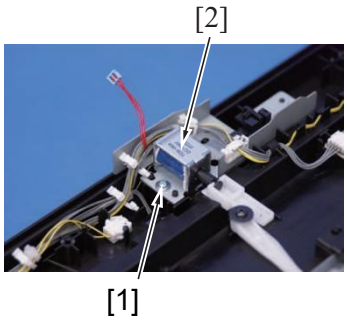
9. To reinstall, reverse the order of removal.

IDC sensor shutter solenoid (SD2)

1. Remove the transport unit.
   G.1.3.11 Transport unit



2. Remove the harness from two wire saddles [1], and disconnect the connector [2].

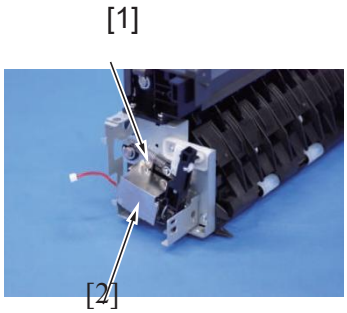


3. Remove the screw [1], and remove the IDC sensor shutter solenoid [2].

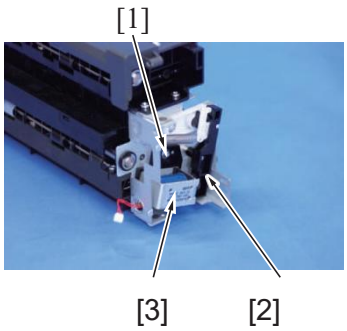
4. To reinstall, reverse the order of removal.

Gate switch solenoid (SD3)

1. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)
   Replacing the fusing unit (CM9105DN/M9105DN)
2. Remove the control panel left cover.
   Control panel left cover
3. Remove the control panel right cover.
   Control panel right cover
4. Remove the control panel front cover.
   Control panel front cover
5. Remove the upper right cover.
   G.1.2.15 Upper right cover
6. Remove the paper exit unit.
   G.1.3.18 Paper exit unit



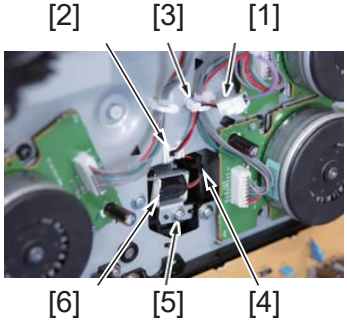
7. Remove the screw [1], and remove the cover [2].



8. Remove the screw [1].
9. Remove the gate switch solenoid [3] as clearing the actuator [2].
10. To reinstall, reverse the order of removal.

Developing solenoid (SD4)

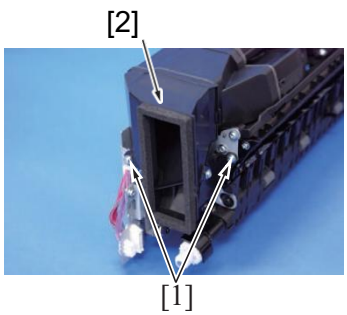
1. Remove the duct cover.
   G.1.2.18 Duct cover/1
   G.1.2.19 Duct cover/2, filter assy
2. Remove the toner filter.
   Replacing the toner filter
3. Remove the lower rear cover.
   G.1.2.16 Lower rear cover
4. Remove the protective shield.
   G.1.2.21 Protective shield
5. Open the PWB box.
   G.1.3.8 How to open the PWB box/1
6. Remove the high voltage unit.
   G.1.4.7 High voltage unit (HV)



7. Disconnect the connector [1], and remove the harness from the edge cover [2] and the wire saddle [3].
8. Remove the harness from the harness guide [4].
9. Remove the screw [5], and remove the developing solenoid [6].
10. To reinstall, reverse the order of removal.

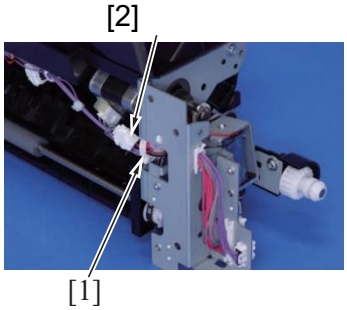
Soaking roller pressure solenoid (SD5) (CM9705DN/M9705)

1. Remove the ADU transport unit.
   G.1.3.17 ADU transport unit

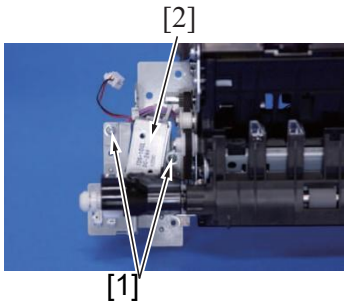


2. Remove two screws [1], and remove the duct [2].

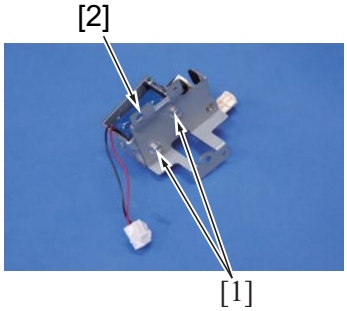
3. Remove the harness from the edge cover [1], and disconnect the connector [2].



4. Remove two screws [1], and remove the soaking roller pressure solenoid assy [2].



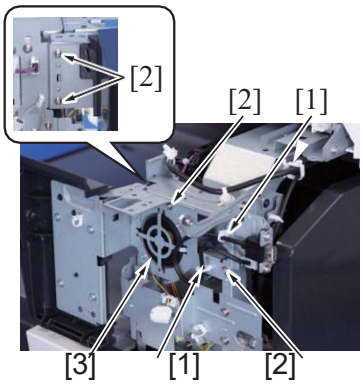
5. Remove two screws [1], and remove the soaking roller pressure solenoid [2].



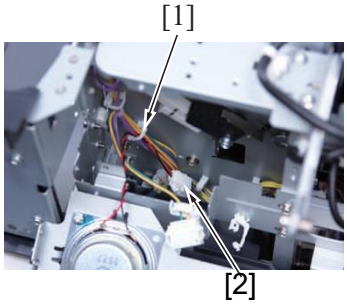
6. To reinstall, reverse the order of removal.

FAX speaker (SP1)

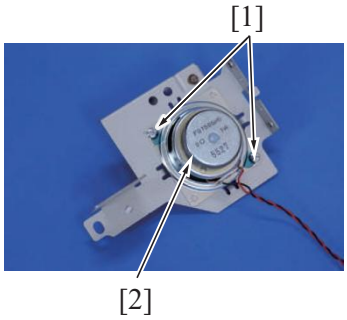
1. Remove the control panel left cover.
   Control panel left cover
2. Remove the control panel right cover.
   Control panel right cover
3. Remove the control panel upper cover.
   Control panel upper cover
4. Remove the control panel front cover.
   Control panel front cover
5. Remove the control panel unit.
   Control panel unit



6. Remove the cable from two wire saddles [1].
7. Remove four screws [2], and remove the FAX speaker assy [3].



8. Remove the harness from the wire saddle [1], and disconnect the connector [2].

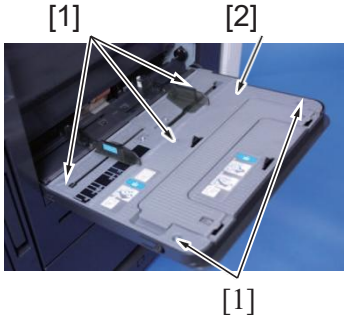


9. Remove two screws [1], and remove the FAX speaker [2].

10. To reinstall, reverse the order of removal.

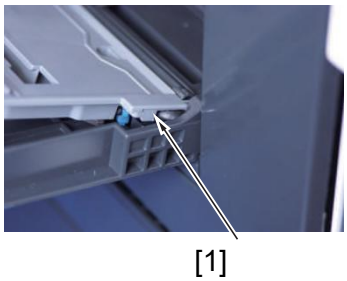
Bypass CD paper size VR (VR1)

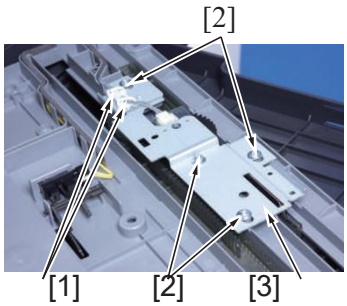
1. Open the bypass tray.



2. Remove five screws [1], and remove the cover [2].

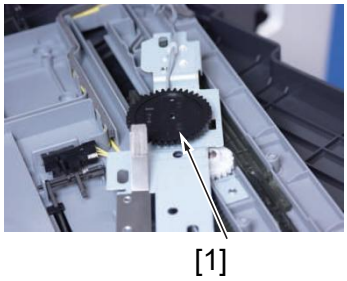
3. Remove the harness from the harness guide [1].



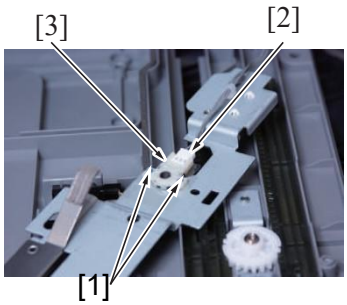


4. Remove the harness from two wire saddles [1].
5. Remove four screws [2], and remove the bypass CD paper size VR assy [3].

6. Remove the gear [1].



7. Remove two screws [1].
8. Disconnect the connector [2], and remove the bypass CD paper size VR [3].



9. To reinstall, reverse the order of removal.

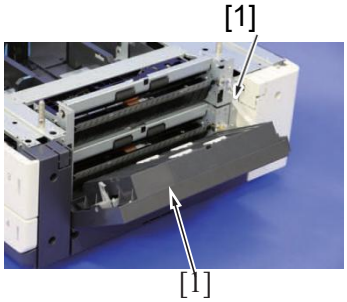
Option

Disassembly/reassembly parts list

Disassembly/reassembly procedure (CPT910)

Right door (CPT910)

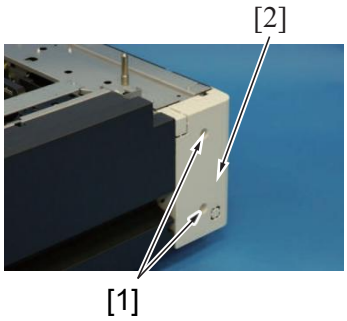
1. Open the right door.



2. Remove the screw [1], and remove the right door [2].

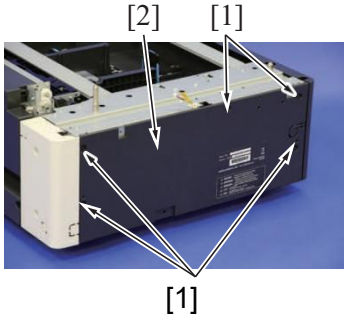
3. To reinstall, reverse the order of removal.

Rear right cover (CPT910)



1. Remove two screws [1], and remove the rear right cover [2].
2. To reinstall, reverse the order of removal.

Rear cover (CPT910)



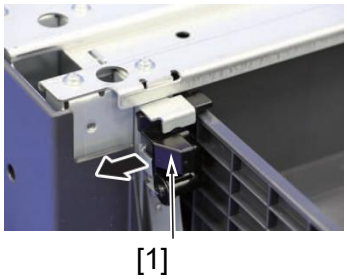
1. Remove five screws [1], and remove the rear cover [2].
2. To reinstall, reverse the order of removal.

Tray 3, tray 4 (CPT910)

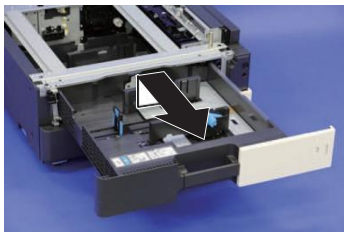
NOTE

- **The tray 3 and the tray 4 are of the same form and mechanism. This procedure shows the steps taken for the tray 3.**

1. Slide out the tray 3, and remove the paper.
2. Shift the stopper [1] to the left.



3. Hold up the tray 3 to remove it.



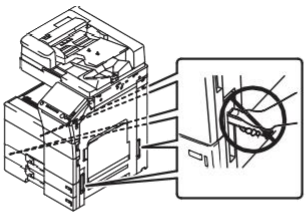
4. To reinstall, reverse the order of removal.

Paper feed cabinet (CPT910)

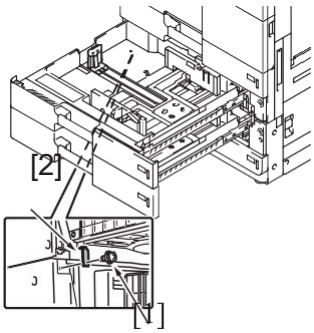
⚠CAUTION

- When holding the transportation handles, be careful not to catch your fingers in the main body.



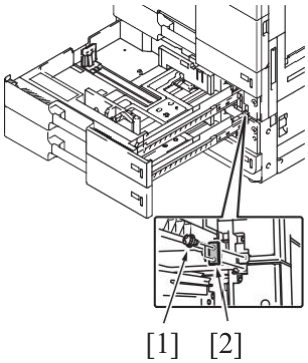


1. Slide out the tray 2 and tray 3.

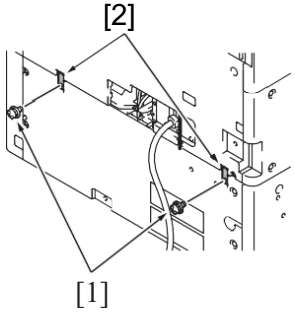


2. Remove the screw [1], and remove the fixing bracket [2].

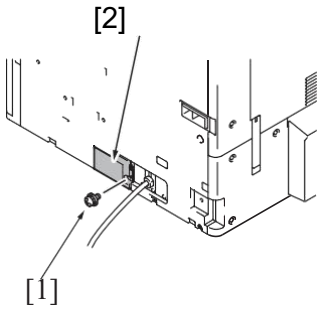
3. Remove two screws [1], and remove the fixing bracket [2].



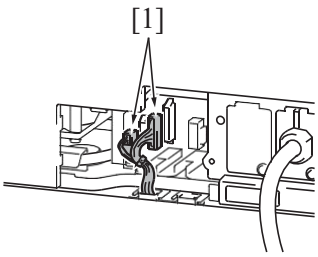
4. Slide the tray 2 and tray 3 back in.



5. Remove two screws [1], and remove two fixing brackets [2].

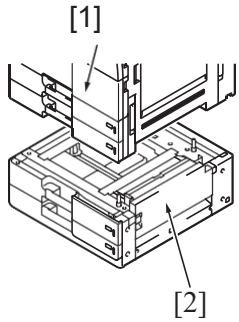


6. Remove the screw [1], and remove the rear under cover [2].



7. Disconnect two connectors [1].

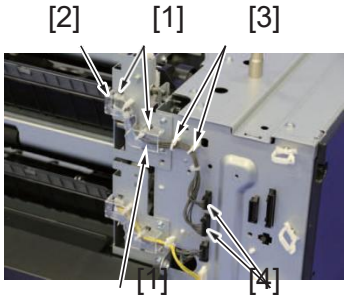
8. Pull out the transportation handles.



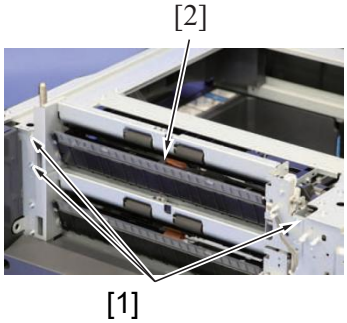
9. Hold the transportation handles at the right and left of the main body, and lift the main body [1] and then remove the paper feed cabinet [2].
NOTE
- **When transporting or moving the main body, assign adequate number of persons.**

Tray 3 paper feed unit (CPT910)

1. Remove the right door.
G.2.3.1 Right door (CPT910)
2. Remove the rear right cover.
G.2.3.2 Rear right cover (CPT910)
3. Slide out the tray 3.



4. Remove three tabs [1], and remove the harness cover [2].
5. Remove the harness from two wire saddles [3].
6. Disconnect two connectors [4].

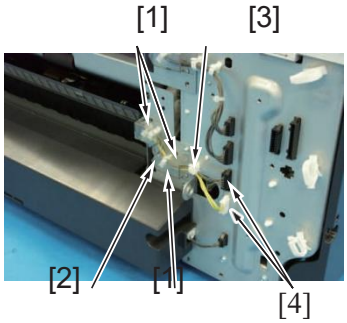


7. Remove three screws [1], and remove the tray 3 paper feed unit [2].

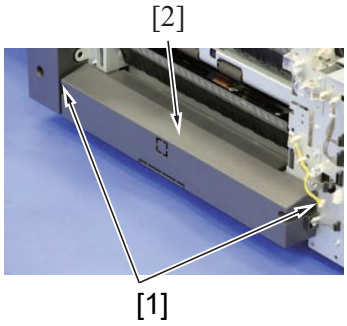
8. To reinstall, reverse the order of removal.

Tray 4 paper feed unit (PC-215)

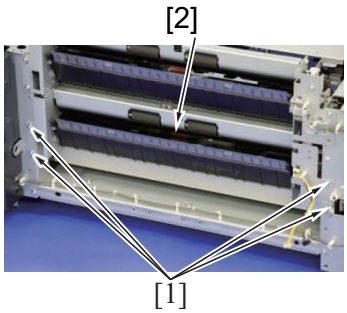
1. Remove the right door.
   G.2.3.1 Right door (CPT910)
2. Remove the rear right cover.
   G.2.3.2 Rear right cover (CPT910)
3. Slide out the tray 4.



4. Remove three tabs [1], and remove the harness cover [2].
5. Remove the harness from the wire saddle [3].
6. Disconnect two connectors [4].



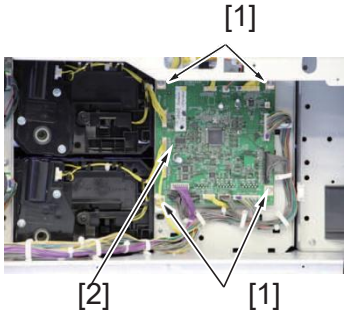
7. Remove two screws [1], and remove the cover [2].



8. Remove four screws [1], and remove the tray 4 paper feed unit [2].
9. To reinstall, reverse the order of removal.

PC control board (PCCB) (CPT910)

1. Remove the rear cover.
   G.2.3.3 Rear cover (CPT910)



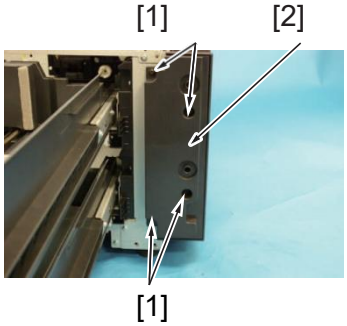
2. Disconnect all connectors on the PC control board.
3. Remove four screws [1], and remove the PC control board [2].
4. To reinstall, reverse the order of removal.

Tray 3 paper empty indicator board (PEIB/3), tray 4 paper empty indicator board (PEIB/4) (CPT910)

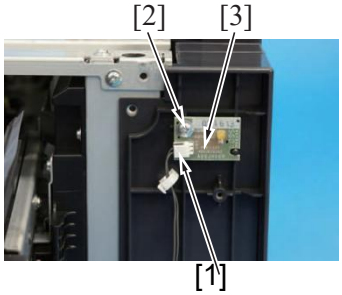
NOTE

- **The tray 3 paper empty indicator board and the tray 4 paper empty indicator board are of the same form and mechanism. This procedure shows the steps taken for the tray 3 paper empty indicator board.**

1. Slide out the tray 3.
2. Slide out the tray 4.



3. Remove four screws [1], and remove the right front cover [2].



4. Disconnect the connector [1].
5. Remove the screw [2], and remove the tray 3 paper empty indicator board [3].

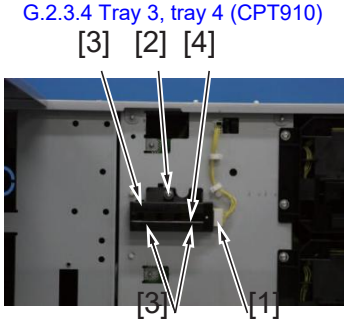
6. To reinstall, reverse the order of removal.

Tray 3 FD paper size board (FDPSB/3), tray 4 FD paper size board (FDPSB/4) (CPT910)

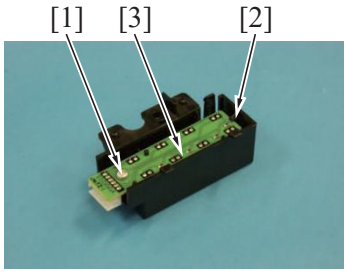
NOTE

- **The tray 3 FD paper size board and the tray 4 FD paper size board are of the same form and mechanism. This procedure shows the steps taken for the tray 3 FD paper size board.**

1. Remove the tray 3.
   G.2.3.4 Tray 3, tray 4 (CPT910)
2. Remove the tray 4.
   G.2.3.4 Tray 3, tray 4 (CPT910)



3. Disconnect the connector [1].
4. Remove the screw [2] and three tabs [3], and remove the tray 3 FD paper size board assy [4].



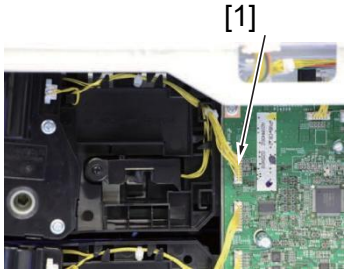
5. Remove the screw [1] and the tab [2], and remove the tray 3 FD paper size board [3].

6. To reinstall, reverse the order of removal.

Tray 3 CD paper size board (CDPSB/3) (CPT910)

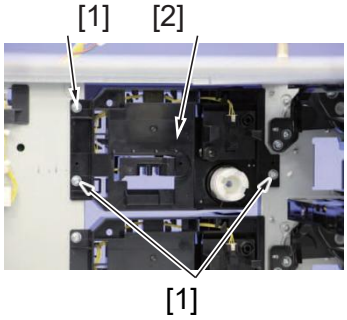
1. Remove the rear cover.
   G.2.3.3 Rear cover (CPT910)

2. Disconnect the connector [1] on the PC control board.

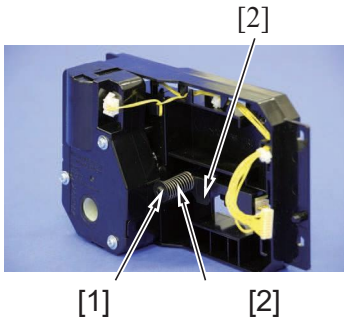


3. Remove the tray 3.
G.2.3.4 Tray 3, tray 4 (CPT910)
4. Remove the tray 4.
G.2.3.4 Tray 3, tray 4 (CPT910)

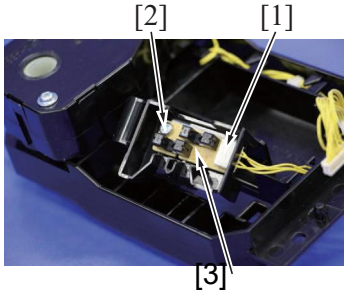
5. Remove three screws [1], and remove the tray 3 lift-up motor assy [2].



6. Remove the screw [1], spring [2], and tray 3 CD paper size board assy [3].



7. Disconnect the connector [1].
8. Remove the screw [2], and remove the tray 3 CD paper size board [3].

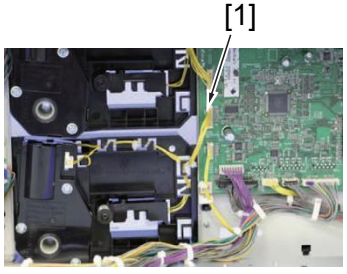


9. To reinstall, reverse the order of removal.

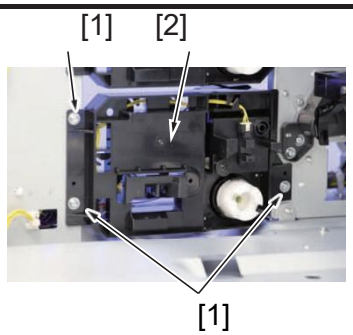
Tray 4 CD paper size board (CDPSB/4) (PC-215)

1. Remove the rear cover.
G.2.3.3 Rear cover (CPT910)

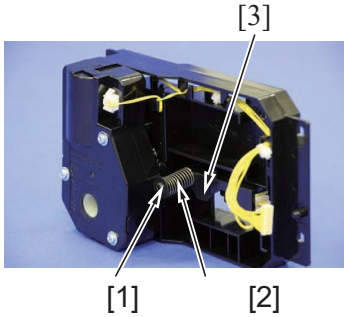
2. Disconnect the connector [1] on the PC control board.



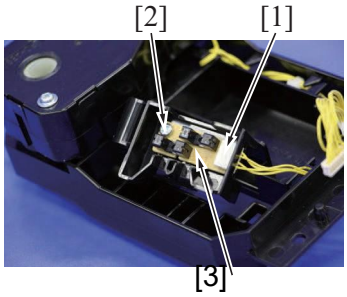
3. Remove the tray 3 and tray 4.
G.2.3.4 Tray 3, tray 4 (CPT910)



4. Remove three screws [1], and remove the tray 4 lift-up motor assy [2].



5. Remove the screw [1], spring [2], and tray 4 CD paper size board assy [3].



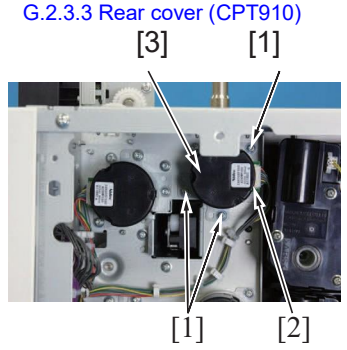
6. Disconnect the connector [1].
7. Remove the screw [2], and remove the tray 4 CD paper size board [3].
8. To reinstall, reverse the order of removal.

Tray 3 paper feed motor (M111), tray 4 paper feed motor (M121) (CPT910)

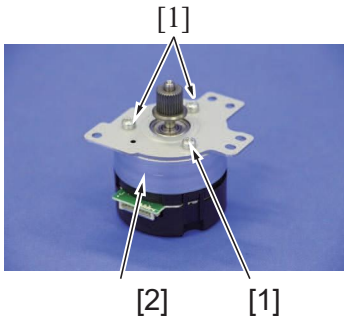
NOTE

- **The tray 3 paper feed motor and the tray 4 paper feed motor are of the same form and mechanism. This procedure shows the steps taken for the tray 3 paper feed motor.**

1. Remove the rear cover.
   G.2.3.3 Rear cover (CPT910)



2. Remove three screws [1].
3. Disconnect the connector [2], and remove the tray 3 paper feed motor assy [3].
   NOTE
   - **When mounting the tray 3 paper feed motor assy, use care not to forget to set the belt to the gear.**



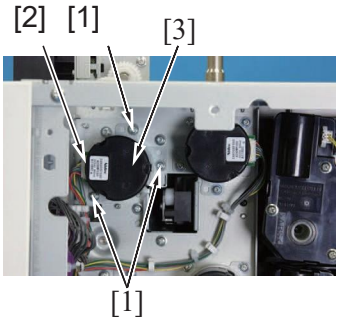
4. Remove three screws [1], and remove the tray 3 paper feed motor [2].
5. To reinstall, reverse the order of removal.

Tray 3 vertical transport motor (M112), tray 4 vertical transport motor (M122) (CPT910)

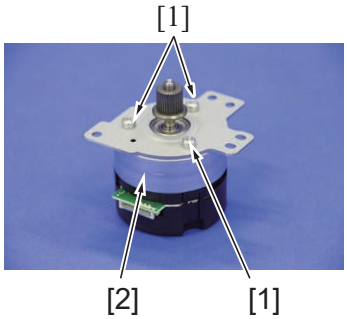
NOTE

- **The tray 3 vertical transport motor and the tray 4 vertical transport motor are of the same form and mechanism. This procedure shows the steps taken for the tray 3 vertical transport motor.**

1. Remove the rear cover.
   G.2.3.3 Rear cover (CPT910)



2. Remove three screws [1].
3. Disconnect the connector [2], and remove the tray 3 vertical transport motor assy [3].
   NOTE
   - **When mounting the tray 3 vertical transport motor assy, use care not to forget to set the belt to the gear.**



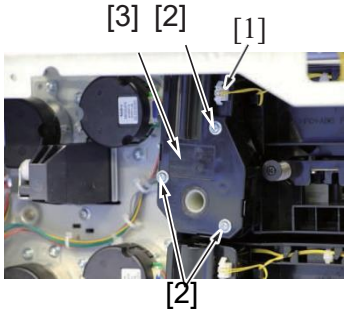
4. Remove three screws [1], and remove the tray 3 vertical transport motor [2].
5. To reinstall, reverse the order of removal.

Tray 3 lift-up motor (M113), tray 4 lift-up motor (M123) (CPT910)

NOTE

- **The tray 3 lift-up motor and the tray 4 lift-up motor are of the same form and mechanism. This procedure shows the steps taken for the tray 3 lift-up motor.**

1. Remove the rear cover.
   G.2.3.3 Rear cover (CPT910)

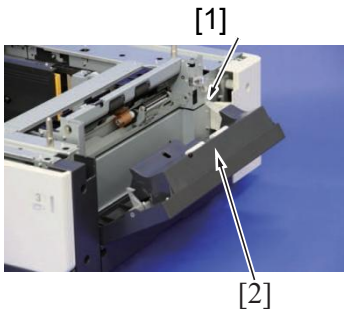


2. Disconnect the connector [1].
3. Remove three screws [2], and remove the tray 3 lift-up motor [3].
4. To reinstall, reverse the order of removal.

Disassembly/reassembly procedure (CPT910X)

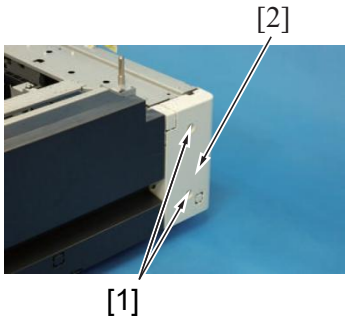
Right door (CPT910X)

1. Open the right door.



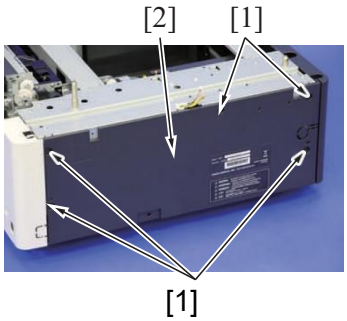
2. Remove the screw [1], and remove the right door [2].
3. To reinstall, reverse the order of removal.

Rear right cover (CPT910X)



1. Remove two screws [1], and remove the rear right cover [2].
2. To reinstall, reverse the order of removal.

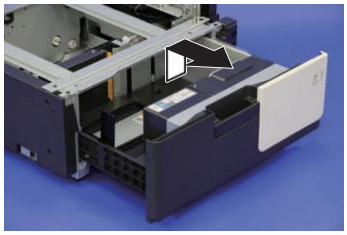
Rear cover (CPT910X)



1. Remove five screws [1], and remove the rear cover [2].
2. To reinstall, reverse the order of removal.

Paper feed tray (CPT910X)

1. Slide out the paper feed tray, and remove the paper.

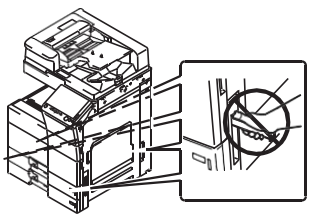


2. Hold up the paper feed tray to remove it.
3. To reinstall, reverse the order of removal.

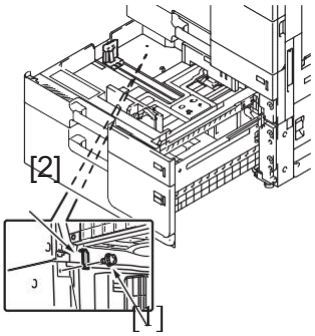
Paper feed cabinet (CPT910X)

⚠CAUTION

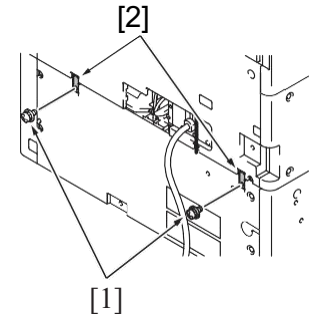
- When holding the transportation handles, be careful not to catch your fingers in the main body.



4. Slide out the tray 2 and tray 3.



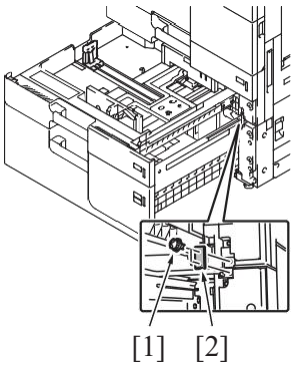
4. Slide the tray 2 and tray 3 back in.



8. Pull out the transportation handles.

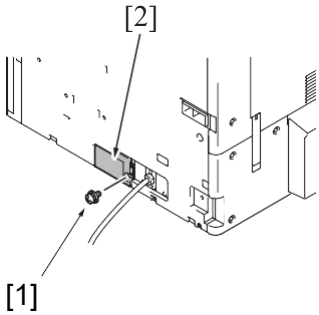
5. Remove the screw [1], and remove the fixing bracket [2].

3. Remove two screws [1], and remove the fixing bracket [2].

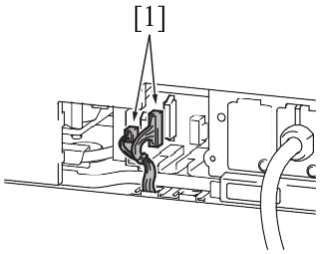


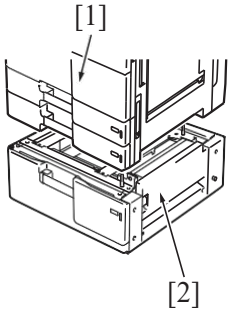
5. Remove two screws [1], and remove two fixing brackets [2].

6. Remove the screw [1], and remove the rear under cover [2].



7. Disconnect two connectors [1].

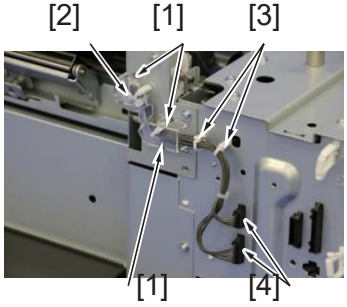




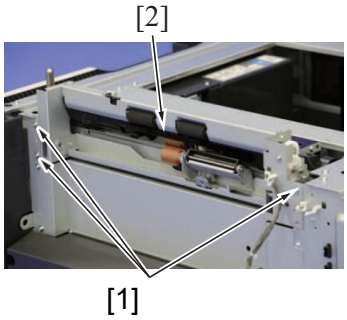
9. Hold the transportation handles at the right and left of the main body, and lift the main body [1] and then remove the paper feed cabinet [2].
   NOTE
   - **When transporting or moving the main body, assign adequate number of persons.**

Paper feed unit (CPT910X)

1. Remove the right door.
   G.2.4.1 Right door (CPT910X)
2. Remove the rear right cover.
   G.2.4.2 Rear right cover (CPT910X)
3. Slide out the paper feed tray.



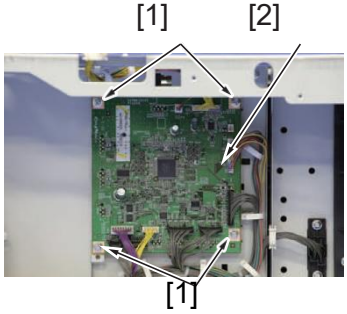
4. Remove three tabs [1], and remove the harness cover [2].
5. Remove the harness from two wire saddles [3].
6. Disconnect two connectors [4].



7. Remove three screws [1], and remove the paper feed unit [2].
8. To reinstall, reverse the order of removal.

PC control board (PCCB) (CPT910X)

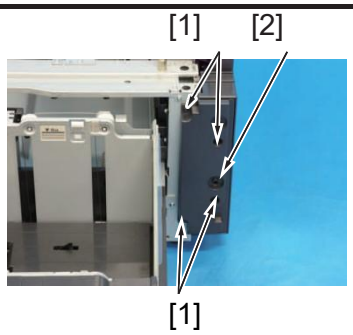
1. Remove the rear cover.
   G.2.4.3 Rear cover (CPT910X)



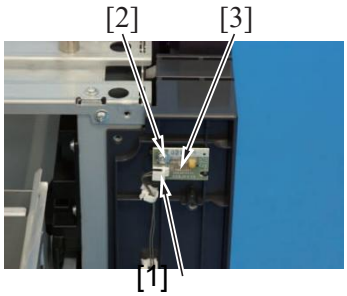
2. Disconnect all connectors on the PC control board.
3. Remove four screws [1], and remove the PC control board [2].
4. To reinstall, reverse the order of removal.

Tray 3 paper empty indicator board (PEIB/3) (CPT910X)

1. Slide out the paper feed tray.



2. Remove four screws [1], and remove the right front cover [2].

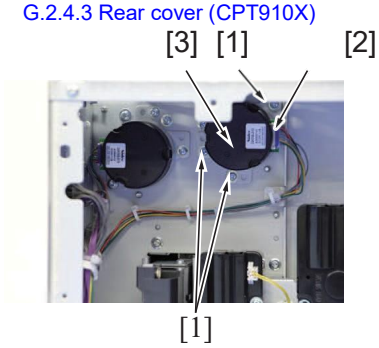


3. Disconnect the connector [1].
4. Remove the screw [2], and remove the tray 3 paper empty indicator board [3].

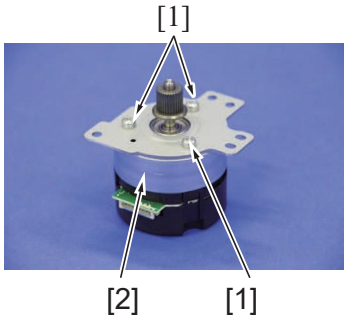
5. To reinstall, reverse the order of removal.

Paper feed motor (M131) (CPT910X)

1. Remove the rear cover.
   G.2.4.3 Rear cover (CPT910X)



2. Remove three screws [1].
3. Disconnect the connector [2], and remove the paper feed motor assy [3].
   NOTE
   - **When mounting the paper feed motor assy, use care not to forget to set the belt to the gear.**

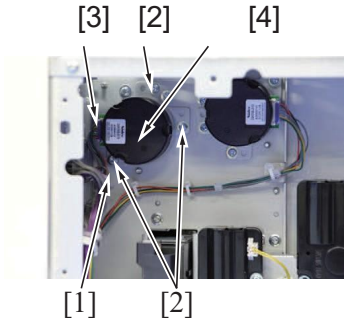


4. Remove three screws [1], and remove the paper feed motor [2].

5. To reinstall, reverse the order of removal.

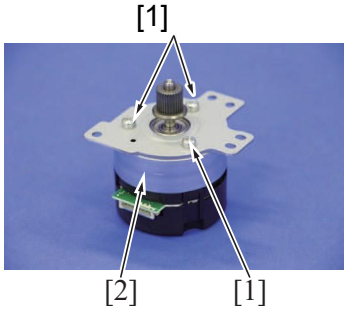
Vertical transport motor (M132) (CPT910X)

1. Remove the rear cover.
   G.2.4.3 Rear cover (CPT910X)



2. Remove the harness from the wire saddle [1].
3. Remove three screws [2].
4. Disconnect the connector [3], and remove the vertical transport motor assy [4].
   NOTE
   - **When mounting the vertical transport motor assy, use care not to forget to set the belt to the gear.**

5. Remove three screws [1], and remove the vertical transport motor [2].

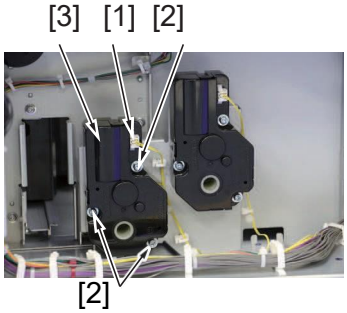


6. To reinstall, reverse the order of removal.

Elevator motor (M134) (CPT910X)

1. Slide out the paper feed tray.
2. Remove the rear cover.
   G.2.4.3 Rear cover (CPT910X)

3. Disconnect the connector [1].
4. Remove three screws [2], and remove the elevator motor [3].

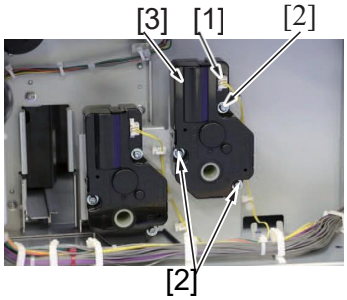


5. To reinstall, reverse the order of removal.

Shifter motor (M133) (CPT910X)

1. Slide out the paper feed tray.
2. Remove the rear cover.
   G.2.4.3 Rear cover (CPT910X)

3. Disconnect the connector [1].
4. Remove three screws [2], and remove the shifter motor [3].

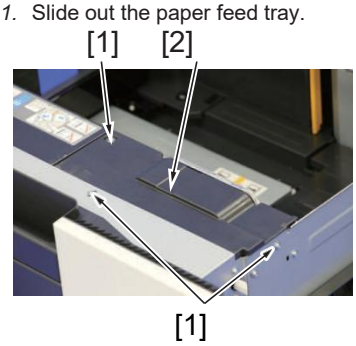


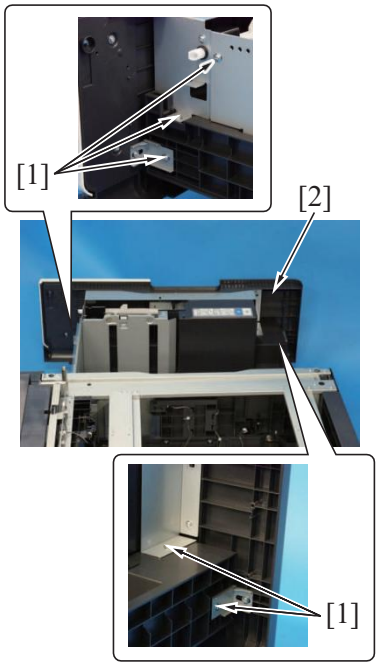
5. To reinstall, reverse the order of removal.

Wire (CPT910X)

1. Slide out the paper feed tray.

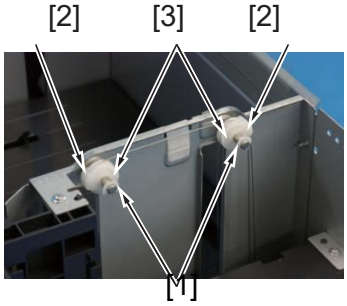
2. Remove three screws [1], and remove the cover [2].



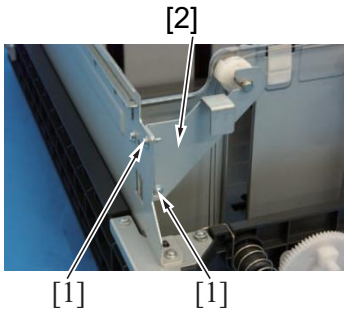


3. Remove five screws [1], and remove the front cover assy [2].

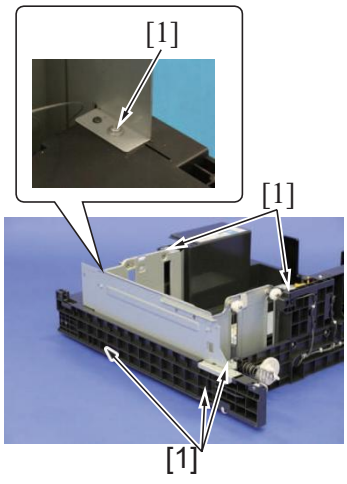
4. Remove the paper feed tray.
G.2.4.4 Paper feed tray (CPT910X)



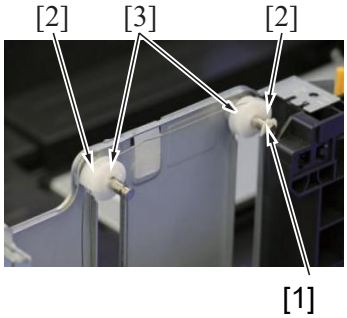
5. Remove two C-rings [1].
6. Remove two pulley covers [2].
7. Remove two pulleys [3].



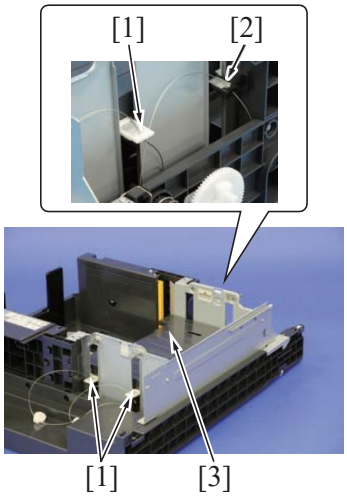
8. Remove two screws [1], and remove the metal plate [2].



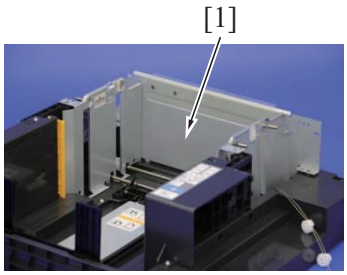
9. Remove six screws [1] of the right paper guide plate.



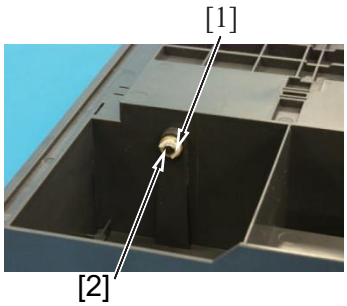
10. Remove the C-ring [1].
11. Remove two pulley covers [2].
12. Remove two pulleys [3].



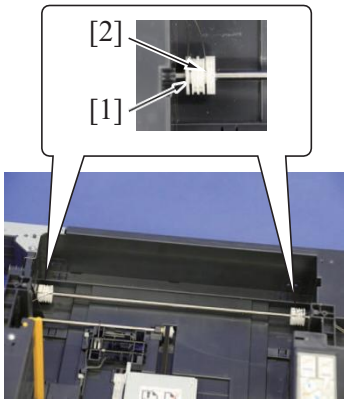
13. Remove three cable holding jigs (white) [1] and the cable holding jig (black) [2], and remove the main tray [3].
NOTE
- **Use care not to bend the wires.**



14. Remove the right paper guide plate assy [1].



15. Turn the tray upside down.
16. Remove the C-ring [1] and the bushing [2].



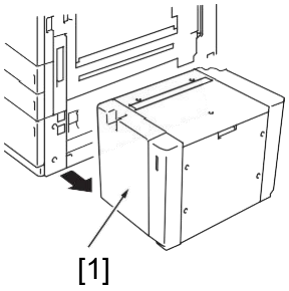
17. Turn the tray back to the original status.
18. Remove two C-rings [1] and two wire pulleys [2].
19. Remove the wire from the wire pulley [2].
NOTE
- **Take care not to lose the pin.**
- **When reinstalling the wire pulley [2], check that the direction of the wire coming from both wire pulleys are the same.**

20. To reinstall, reverse the order of removal.

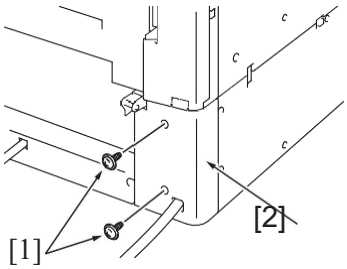
Disassembly/reassembly procedure (CPT910U)

Large capacity unit (CPT910U)

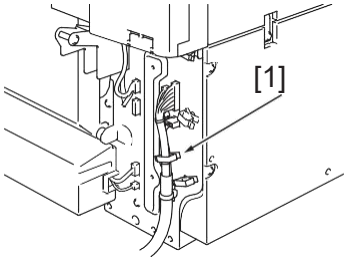
1. Remove the large capacity unit [1] from the main body.



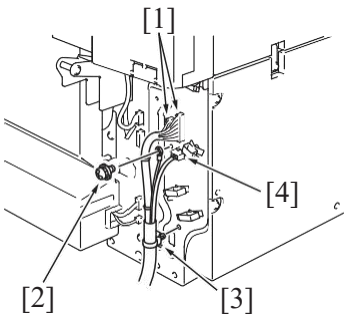
2. Remove the two screws [1], and remove the cover [2].



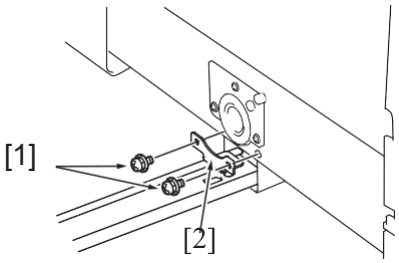
3. Remove the harness from the wire saddle [1].



4. Disconnect two connector [1], the screw on the earth wire [2], and the cord clamp [3].
   NOTE
   - **When the optional transformer kit TK-101 is installed, disconnect the connector [4].**



5. Remove two screws [1] and remove the mounting plate [2].

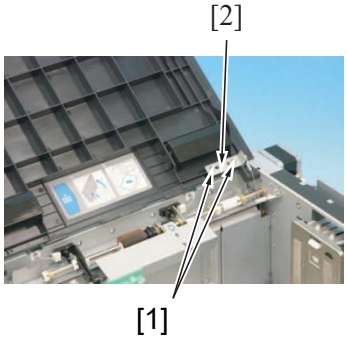


6. To reinstall, reverse the order of removal.

Upper door (CPT910U)

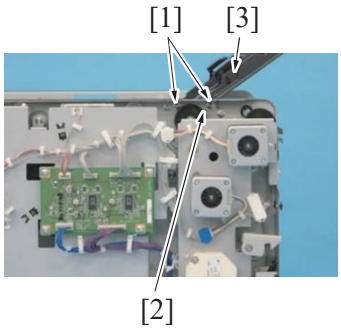
1. Remove the right cover.
   G.2.5.3 Right cover (CPT910U)
2. Remove the front cover.
   G.2.5.4 Front cover (CPT910U)
3. Remove the rear cover.
   G.2.5.5 Rear cover (CPT910U)
4. Remove the feed cover.
   G.2.5.6 Feed cover (CPT910U)

5. Open the upper door.



6. Remove two screws [1] and remove the fixed sheet metal [2].

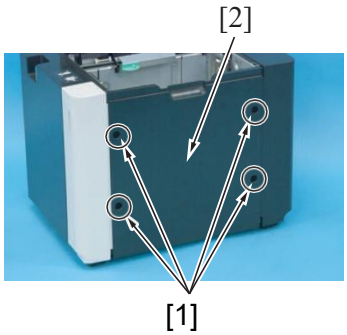
7. Remove two screws [1], the sheet metal [2] and remove the upper door [3].



8. To reinstall, reverse the order of removal.

Right cover (CPT910U)

1. Open the upper door.



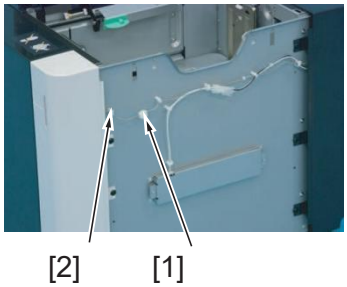
2. Remove four screws [1] and remove the right cover [2].

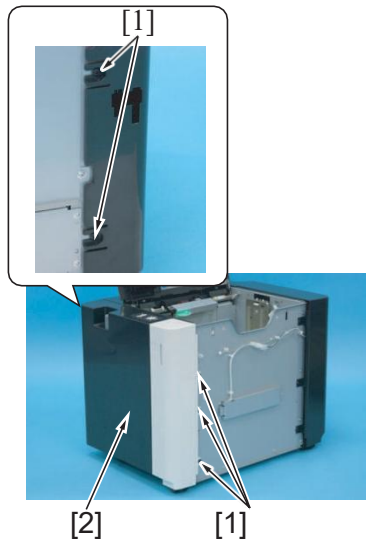
3. To reinstall, reverse the order of removal.

Front cover (CPT910U)

1. Remove the right cover.
G.2.5.3 Right cover (CPT910U)

2. Disconnect the connector [1], and remove the harness from the wire saddle [2].



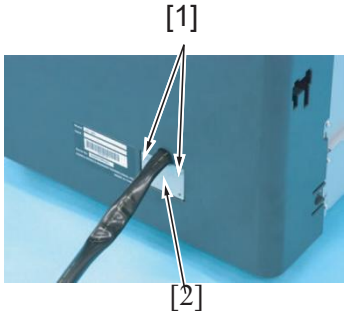


3. Loosen five screws [1] and remove the front cover [2].

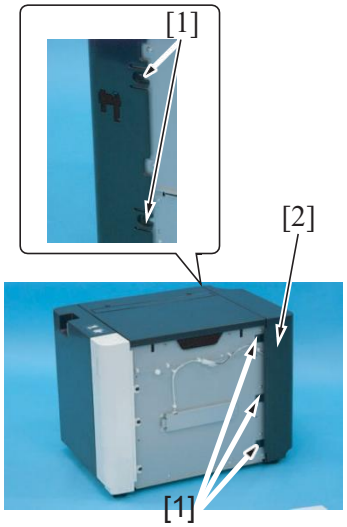
4. To reinstall, reverse the order of removal.

Rear cover (CPT910U)

1. Remove the right cover.
   G.2.5.3 Right cover (CPT910U)



2. Remove two screws [1] and remove the plate [2].

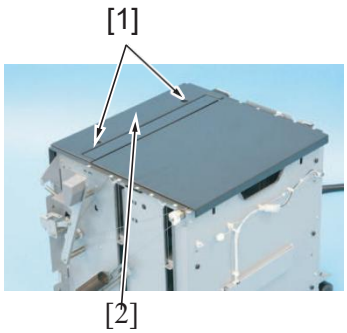


3. Loosen five screws [1] and remove the rear cover [2].

4. To reinstall, reverse the order of removal.

Feed cover (CPT910U)

2. Remove the right cover.
   G.2.5.3 Right cover (CPT910U)
3. Remove the front cover.
   G.2.5.4 Front cover (CPT910U)
4. Remove the rear cover.
   G.2.5.5 Rear cover (CPT910U)



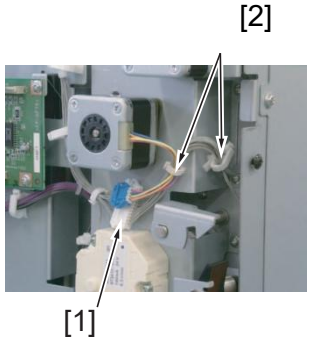
4. Remove two screws [1] and remove the feed cover [2].

5. To reinstall, reverse the order of removal.

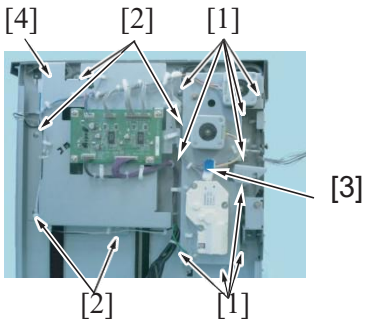
Lift wire (CPT910U)

(1) Removal

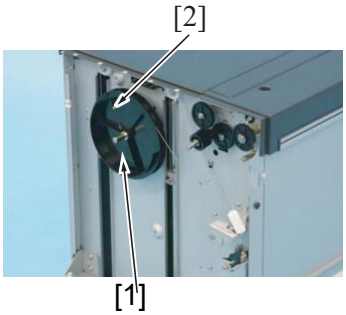
1. Remove the right cover.
   G.2.5.3 Right cover (CPT910U)
2. Remove the front cover.
   G.2.5.4 Front cover (CPT910U)
3. Remove the rear cover.
   G.2.5.5 Rear cover (CPT910U)



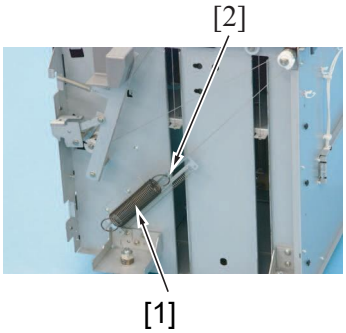
4. Remove the harness from the connector [1] and two wire saddles [2] on the rear side.



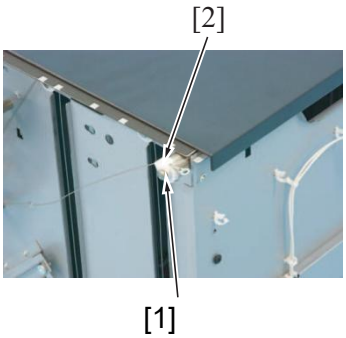
5. Remove nine screws [1] and five screws [2] to remove the motor assy [3] and the drive board assy [4].



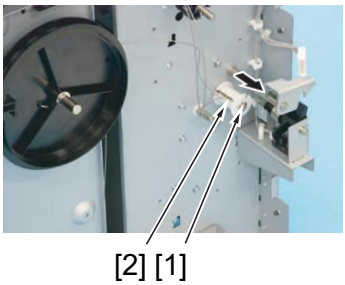
6. Remove the lift wire/L [2] from the rotation plate [1].



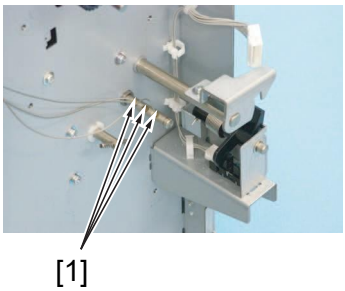
7. Remove the auxiliary wire [2] from the spring [1] on the front side.



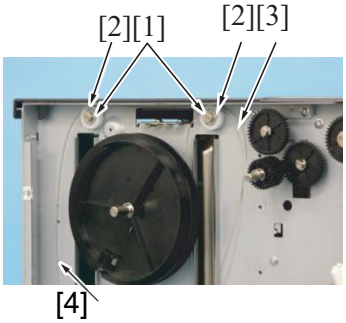
8. Remove the E-ring [1] on the front side to remove the wire holding jig [2].



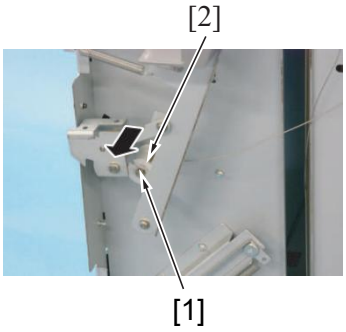
9. Remove the E-ring [1] on the rear side to remove the driving pulley [2].



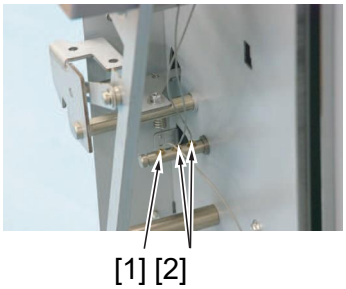
10. Pull out three lift wires [1].



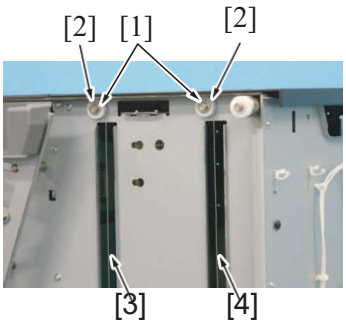
11. Remove two E-rings [1] and two wire pulleys [2] to remove the lift wire/S [3] and the lift wire/L [4].



12. Remove the E-ring [1] on the front side to remove the driving pulley [2].

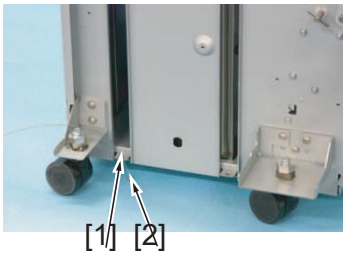


13. Pull out the auxiliary wire [1] and two lift wires [2].

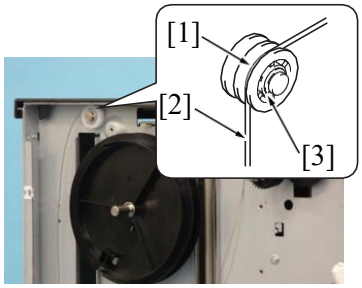


14. Remove two E-rings [1] and two wire pulleys [2] to remove the lift wire/S [3] and the lift wire/L [4].

(2) Mounting

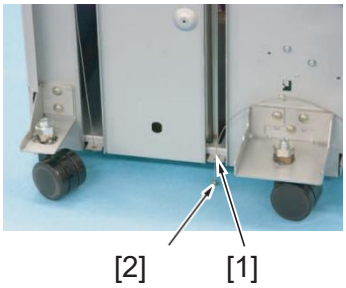


1. Insert the lift wire/L [2] to the left hole [1] on the rear face.

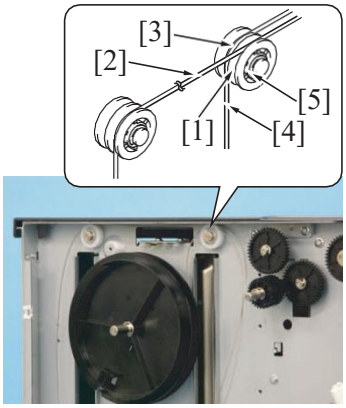


2. Set the lift wire/L [2] to the near side groove [1] on the wire pulley, and secure it with the E-ring [3].

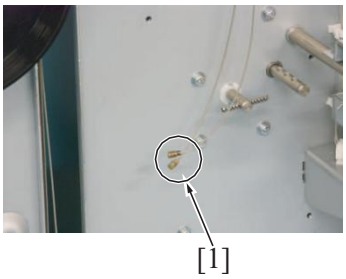
3. Insert the lift wire/S [2] to the right hole [1] on the rear face.



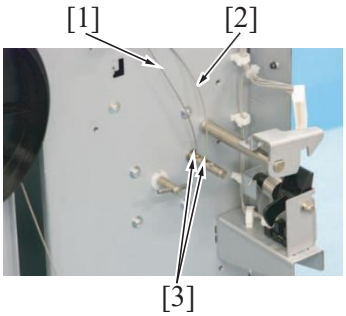
4. Set the lift wire/L [2] to the near side groove [1] on the wire pulley, and set the lift wire/S [4] to the far side groove [3] and secure them with the E-ring [5].



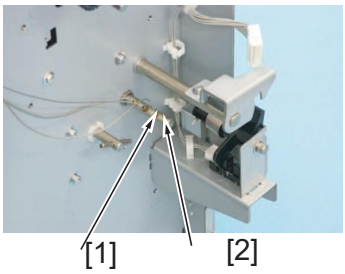
5. **NOTE**
   - **They are properly fixed if both edges of the wire [1] are at the same position.**



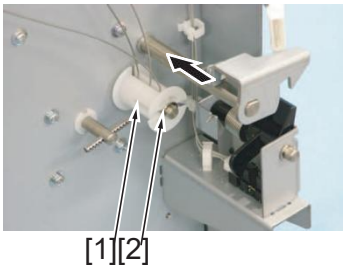
6. Take the edges of the lift wire/S [1] and the lift wire/L [2] and set them to the holes on the shaft [3].



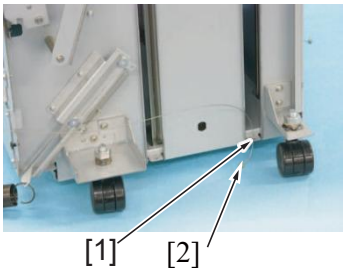
7. Take the edge of the lift wire/L [1] and set it to the hole on the shaft [2].



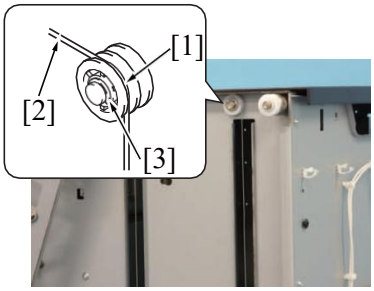
8. Mount the driving pulley [1] and secure it with the E-ring [2].



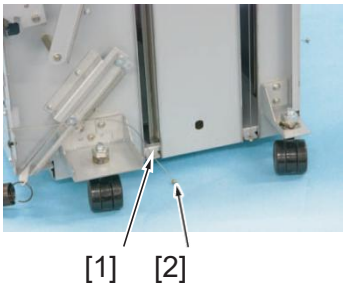
9. Insert the lift wire/L [2] to the right hole [1] on the front face.



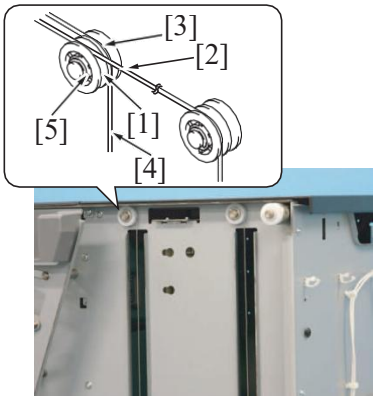
10. Set the lift wire/L [2] to the near side groove [1] on the wire pulley and secure it with the E-ring [3].



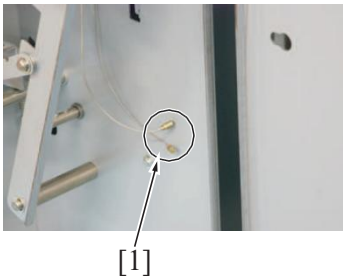
11. Insert the lift wire/S [2] to the left hole [1] on the front face.



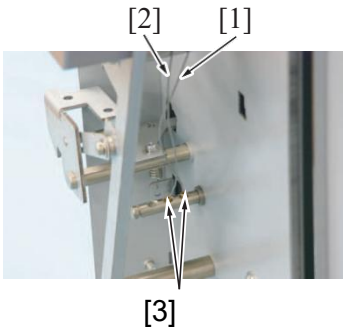
12. Set the lift wire/L [2] to the near side groove [1] on the wire pulley, and set the lift wire/S [4] to the far side groove [3] and secure them with the E-ring [5].



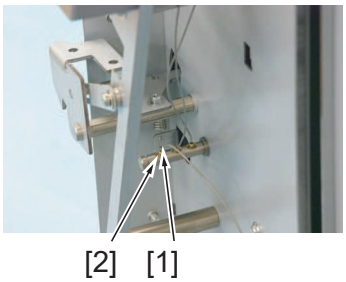
13. **NOTE**
- **They are properly fixed if both edges of the wire [1] are placed at the same position.**



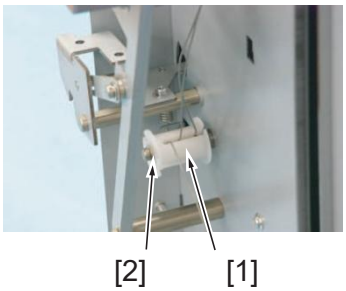
14. Take the edges of the lift wire/S [1] and the lift wire/L [2] to set them to the holes on the shaft [3].



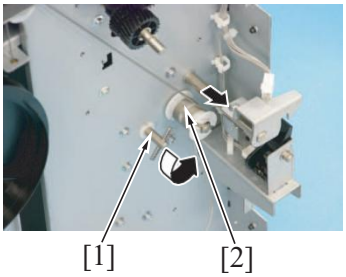
15. Take the edge of the auxiliary wire [1] and set it to the hole on the shaft [2].



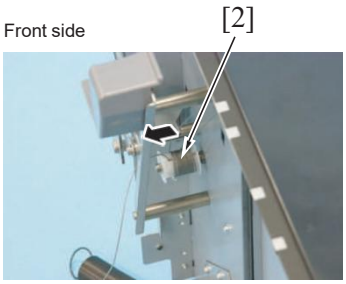
16. Mount the driving pulley [1] and secure it with the E-ring [2].



Rear side



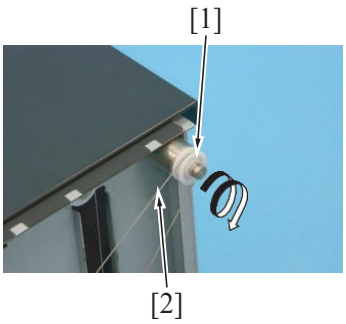
Front side



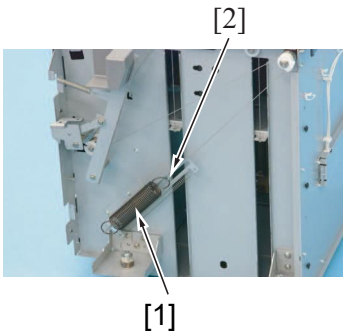
17. Wind the wire to the pulley [2] as rotating the lift up shaft [1] on the rear face counterclockwise and moving the tray assy to the upper end.

NOTE

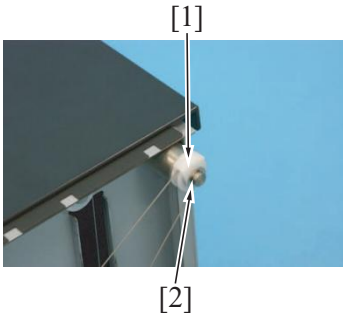
- **Wind the wire to the direction shown by the arrow.**



18. When the wire is wound with the tray assy being at the up end, wind the auxiliary wire [2] to the wire pulley [1] clockwise once.

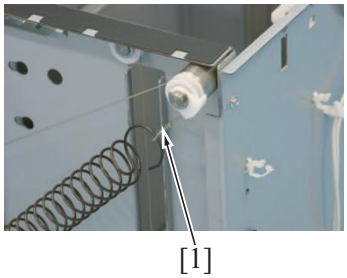


19. Set the auxiliary wire [1] on the front face to the hook of the slide spring [2].

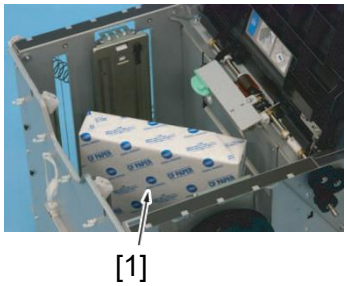


20. Mount the wire holding jig [1] and secure it with the E-ring [2].

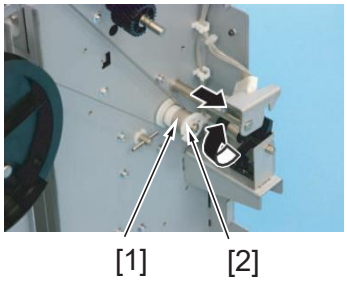
21. **NOTE**
- **Check to make sure that the wire hook [1] is at the position shown on the picture when the tray assy is at the lower end.**



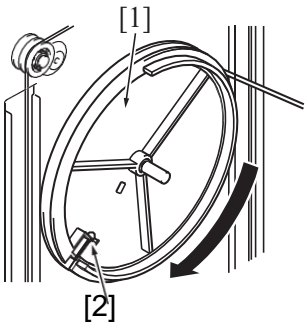
22. Place a weight such as a package of paper, etc. [1] to move the tray assy down to the lower end.



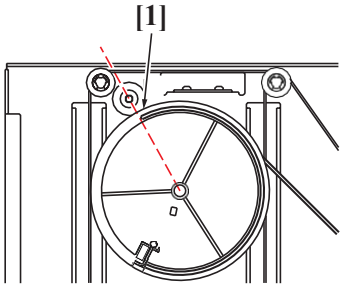
23. Wrap the lift wire/L [2] on the driving pulley [1] on the rear face clockwise seven times.



24. Turn the rotation plate [1] one and a half times clockwise from the position where the plate holds the tension, to set the lift wire/L [2].



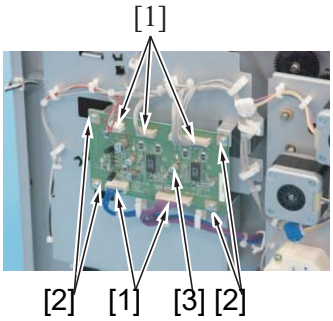
25. **NOTE**
- **The rib edge [1] of the rotation plate must be around the dotted lines as shown in the picture when the tray assy is at the lowest level.**



26. For the rest of the procedure for mounting, take the reverse steps from disassembling.

LU drive board (LUDB) (CPT910U)

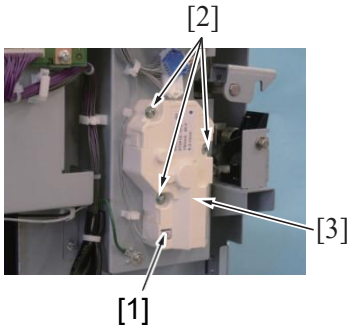
1. Remove the right cover.
   G.2.5.3 Right cover (CPT910U)
2. Remove the rear cover.
   G.2.5.5 Rear cover (CPT910U)



3. Disconnect five connectors [1], remove four screws [2] and remove the LU drive board [3].

LU lift-up motor (M1) (CPT910U)

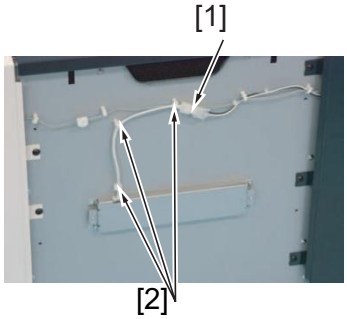
1. Remove the right cover.
   G.2.5.3 Right cover (CPT910U)
2. Remove the rear cover.
   G.2.5.5 Rear cover (CPT910U)



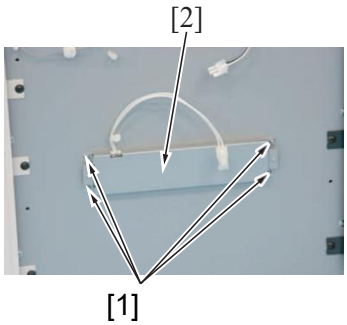
3. Disconnect the connector [1], remove two screws [2] and remove the LU lift-up motor [3].
4. To reinstall, reverse the order of removal.

Dehumidification heater (DH) (CPT910U)

1. Remove the right cover.
   G.2.5.3 Right cover (CPT910U)



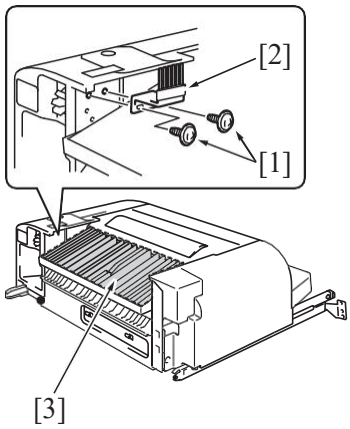
2. Remove the harness from the connector [1] and three wire saddles [2].



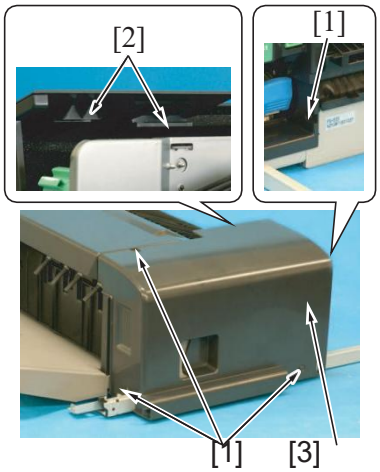
3. Remove four screws [1] and remove the dehumidification heater [2].

Disassembly/reassembly procedure (PF910)

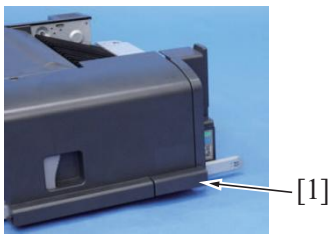
Front cover (PF910)



1. Remove two screws [1] and remove the antistatic brush [2].
   NOTE
   - **Make sure not to deform the brush by touching it.**
   - **Make sure not to touch the upper surface of the transport unit [3] as it damages the guide plates.**



2. Remove four screws [1] and two tabs [2], and remove the front cover [3].

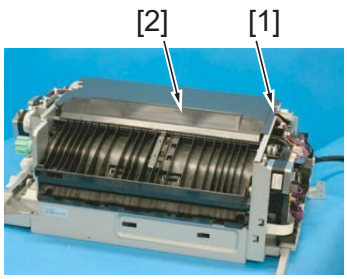


3. **NOTE**
   - **When the punch kit (PK-519) is installed, the cover [1] should be removed.**

4. To reinstall, reverse the order of removal.

Upper cover (PF910)

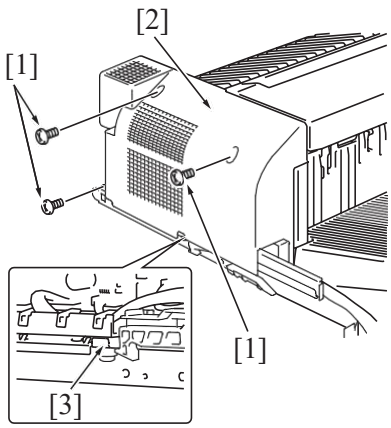
1. Remove the front cover.
   G.2.6.1 Front cover (PF910)
2. Remove the rear cover.
   G.2.6.3 Rear cover (PF910)



3. Remove the screw [1], and remove the cover [2].

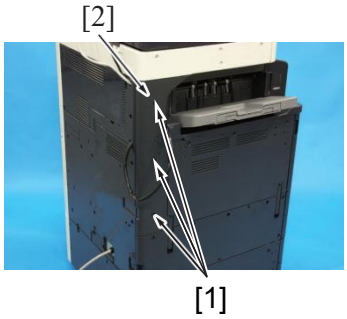
4. To reinstall, reverse the order of removal.

Rear cover (PF910)

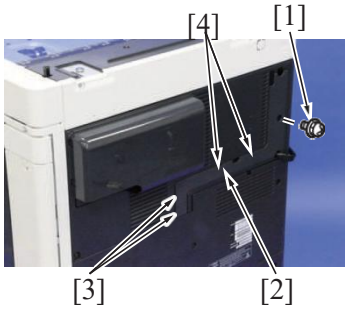


1. Remove three screws [1], and remove the rear cover [2].
   NOTE
   - **When mounting the rear cover, hook the tab [3] on the plate to the rear cover.**
2. To reinstall, reverse the order of removal.

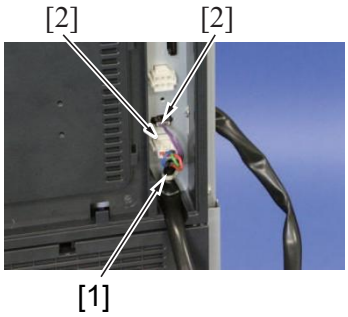
Finisher (PF910)



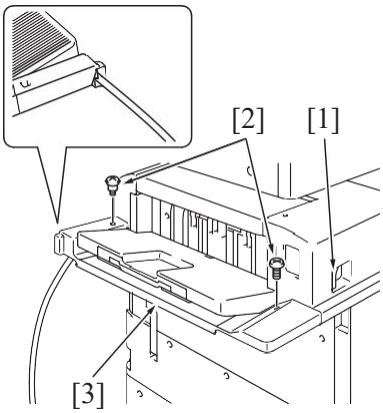
1. Remove three screws [1], and remove the rear left cover [2] of the main body.



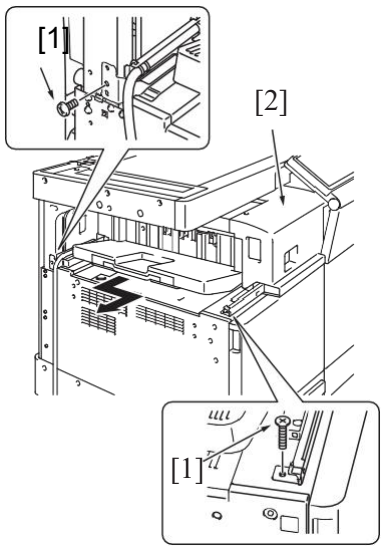
2. Remove the screw [1], and remove the cover [2].
   NOTE
   - **When mounting the cover, insert two claws [3] into the holes on the main unit cover first. Then fit two claws [4] into the holes.**
   - **Be careful not to pinch the harness.**



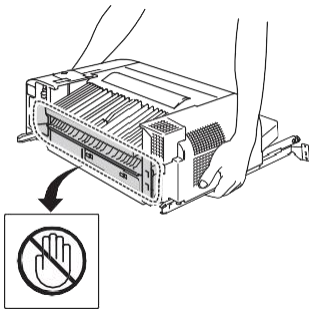
3. Remove the cable tie [1], and disconnect two connectors [2].



4. Slide the finisher by pulling the lever [1].
5. Remove two screws [2], and remove the cover [3].
NOTE
- **When mounting the cover, make the finisher's cable come out from the cover at the position shown in the illustration.**

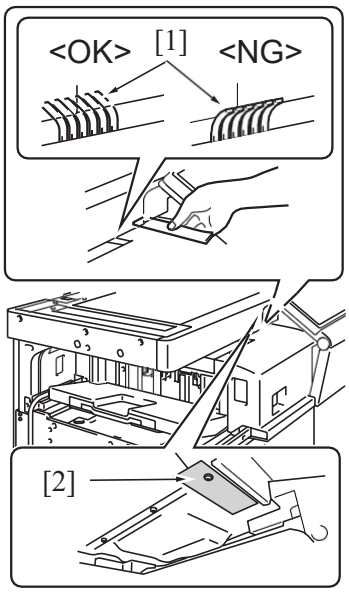


6. Remove two screws [1], and remove the finisher [2] from the main body.



7. **NOTE**
- **When carrying the finisher, be sure to hold the finisher by the sides as shown in the illustration.**

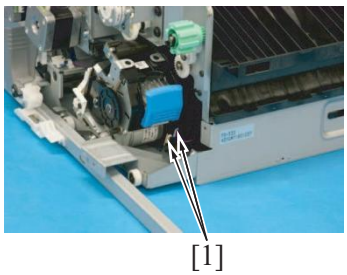
8. To reinstall, reverse the order of removal.



9. **NOTE**
   - **After mounting the finisher to the main body, press the antistatic brush [1] toward the rear using a rule or the like.**
   - **Make sure that brush [1] touches the aluminum sheet [2] affixed to the bottom of the scanner unit.**

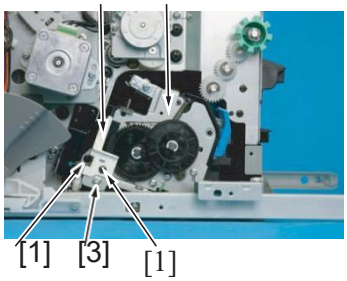
Stapler unit (PF910)

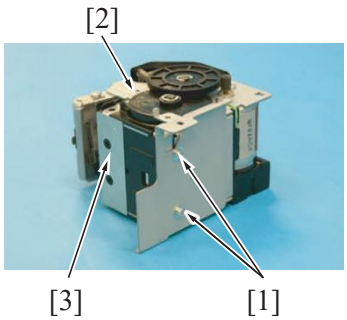
1. Remove the front cover.
   G.2.6.1 Front cover (PF910)



2. Disconnect two connectors [1].

3. Remove two screws [1], and remove the cover [2].
4. Remove the screw [3], and remove the stapler unit assy [4].

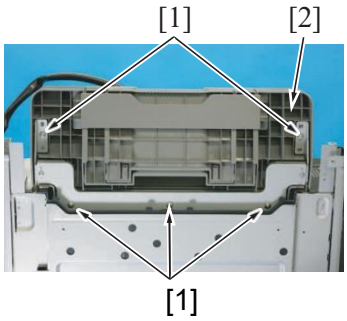




5. Remove two screws [1], and remove the stapler unit [2].
   NOTE
   - **When replacing the stapler unit, attach the guide [3] to the stapler unit.**

6. To reinstall, reverse the order of removal.

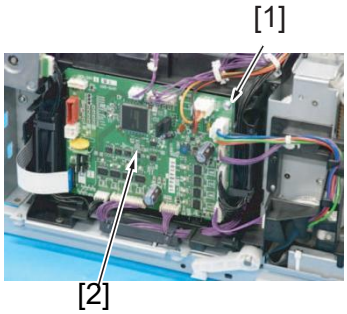
Paper exit tray unit (PF910)



1. Remove five screws [1], and remove the paper exit tray unit [2].
2. To reinstall, reverse the order of removal.

FS control board (FSCB) (PF910)

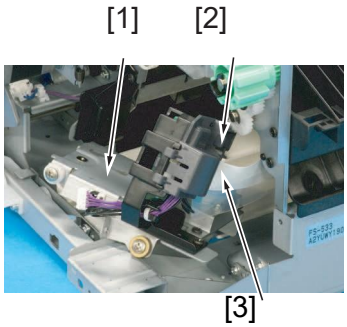
1. Remove the rear cover.
   G.2.6.3 Rear cover (PF910)



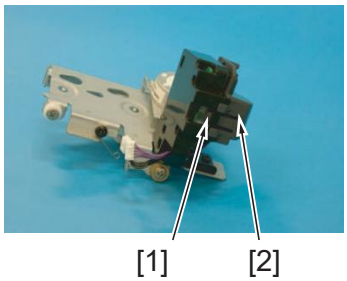
2. Remove all connectors from the board.
3. Remove the screw [1], and remove the FS control board [2].
4. To reinstall, reverse the order of removal.
5. Install the firmware.

Stapler relay board (STREYB) (PF910)

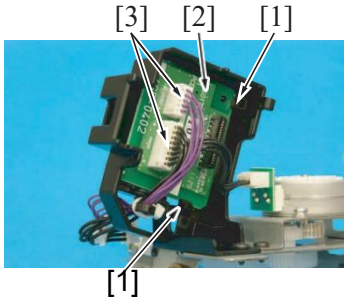
1. Remove the front cover.
   G.2.6.1 Front cover (PF910)
2. Remove the stapler unit.
   G.2.6.5 Stapler unit (PF910)



3. Pull out the stapler drive assy [1].
4. Release the lock [2] of the board cover, and remove the flat cable [3].



5. Unhook the tab [1], and remove the board cover [2].

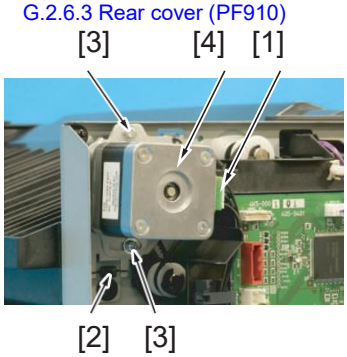


6. Unhook two tabs [1], and remove the stapler relay board [2].
7. Disconnect two connectors [3].

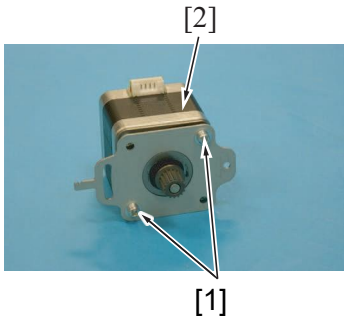
8. To reinstall, reverse the order of removal.

Paper conveyance motor (M101) (PF910)

1. Remove the rear cover.
G.2.6.3 Rear cover (PF910)



2. Disconnect the connector [1].
3. Remove the spring [2].
4. Remove two screws [3], and remove the paper conveyance motor assy [4].

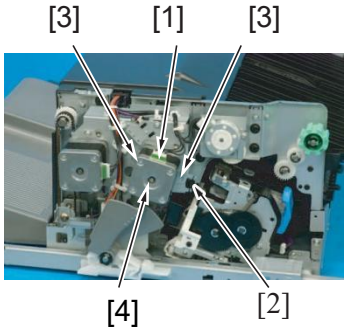


5. Remove two screws [1], and remove the paper conveyance motor [2].

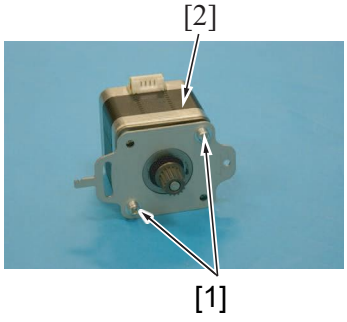
6. To reinstall, reverse the order of removal.

Paper exit motor (M102) (PF910)

1. Remove the front cover.
G.2.6.1 Front cover (PF910)



2. Disconnect the connector [1].
3. Remove the spring [2].
4. Remove two screws [3], and remove the paper exit motor assy [4].

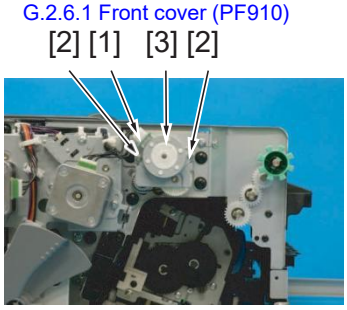


5. Remove two screws [1], and remove the paper exit motor [2].

6. To reinstall, reverse the order of removal.

Alignment roller motor (M103) (PF910)

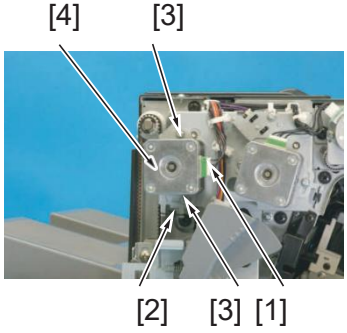
1. Remove the front cover.
   G.2.6.1 Front cover (PF910)



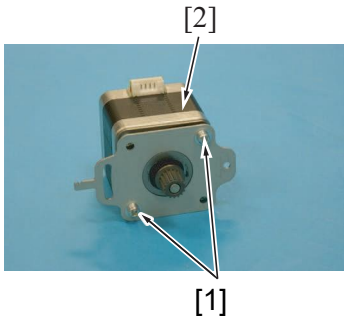
2. Disconnect the connector [1].
3. Remove two screws [2], and remove the alignment roller motor [3].
4. To reinstall, reverse the order of removal.

Exit roller lift up motor (M104) (PF910)

1. Remove the front cover.
   G.2.6.1 Front cover (PF910)



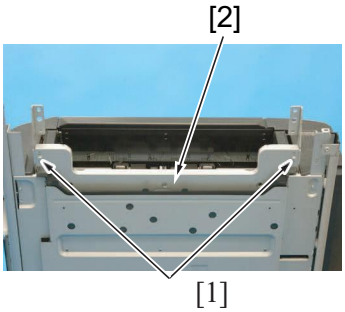
2. Disconnect the connector [1].
3. Remove the spring [2].
4. Remove two screws [3], and remove the exit roller lift up motor assy [4].
5. Remove two screws [1], and remove the exit roller lift up motor [2].



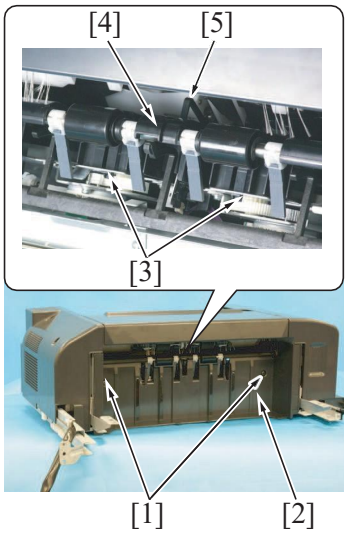
6. To reinstall, reverse the order of removal.

Alignment motor/F (M105), Alignment motor/R (M106) (PF910)

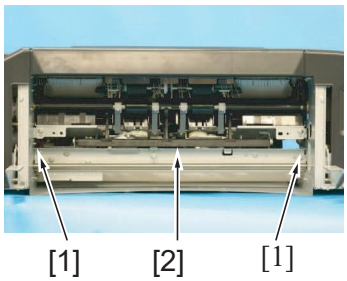
1. Remove the paper exit tray unit.
   G.2.6.6 Paper exit tray unit (PF910)



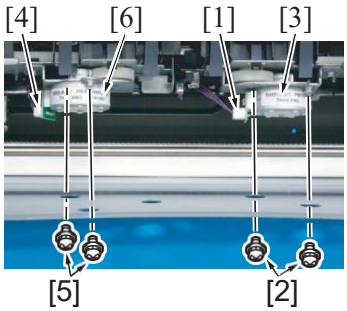
2. Remove two screws [1], and remove the plate [2].



3. Remove two screws [1], and remove the cover [2].
NOTE
- **When removing the cover [2], two claws [3] may come off and the alignment tray [4] may come up. This may cause the alignment tray to contact the actuator [5] and cause malfunction of the actuator.**
- **When mounting the cover [2], make sure two claws [3] are attached to the plate.**



4. Remove two screws [1], and pull out the paper surface detect solenoid assy [2].

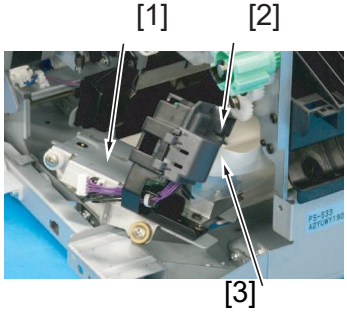


5. Disconnect the connector [1], remove two screws [2], and remove the alignment motor/F [3].
6. Disconnect the connector [4], remove two screws [5], and remove the alignment motor/R [6].

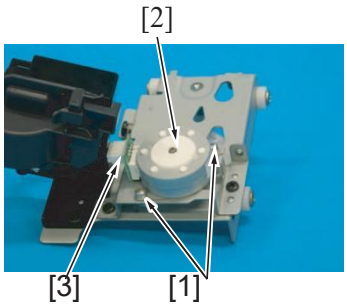
7. To reinstall, reverse the order of removal.

Stapler movement motor (M107) (PF910)

1. Remove the front cover.
G.2.6.1 Front cover (PF910)
2. Remove the stapler unit.
G.2.6.5 Stapler unit (PF910)



3. Pull out the stapler drive assy [1].
4. Release the lock [2] of the board cover, and remove the flat cable [3].

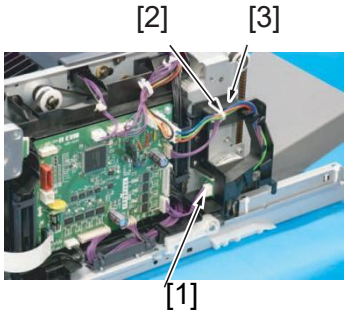


5. Remove two screws [1], and remove the stapler movement motor [2].
6. Disconnect the connector [3].

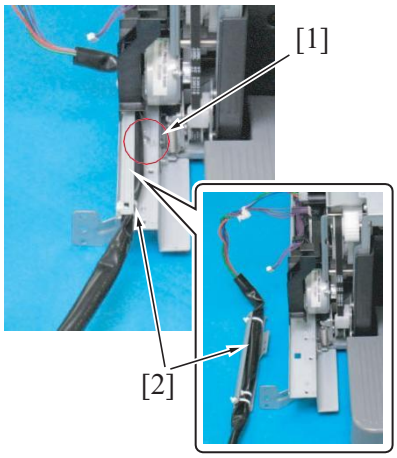
7. To reinstall, reverse the order of removal.

Tray lift up motor (M109) (PF910)

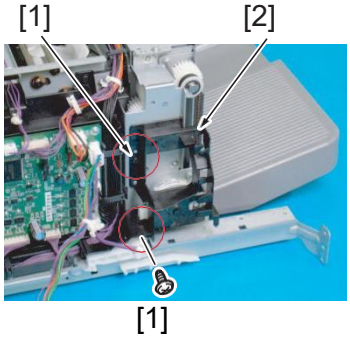
1. Remove the rear cover.
G.2.6.3 Rear cover (PF910)



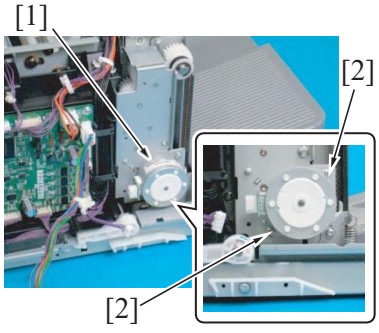
2. Disconnect the connector [1].
3. Remove the harness tie [2] and harness from the harness guide [3].



4. Remove the screw [1], and remove the finisher's cable [2].



5. Remove two screws [1], and remove the harness guide [2].



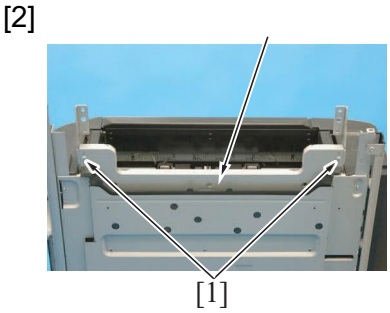
6. Remove two screws [2], and remove the tray lift up motor [1].

7. To reinstall, reverse the order of removal.

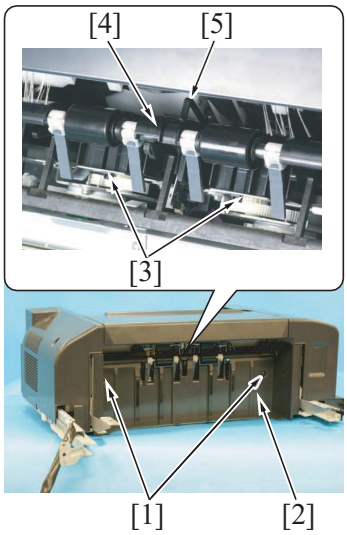
Paper surface detect solenoid (SD101) (PF910)

1. Remove the paper exit tray unit.
   G.2.6.6 Paper exit tray unit (PF910)

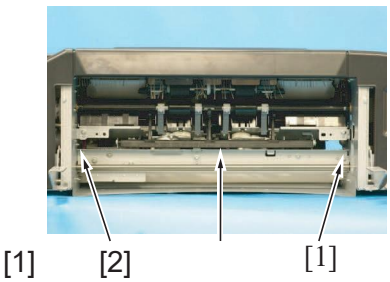
2. Remove two screws [1], and remove the plate [2].



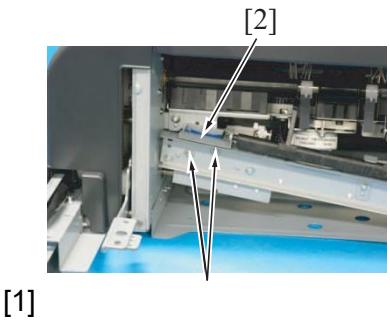
3. Remove two screws [1], and remove the cover [2].
   NOTE
   - **When removing the cover [2], two claws [3] may come off and the alignment tray [4] may come up. This may cause the alignment tray to contact the actuator [5] and cause malfunction of the actuator.**
   - **When mounting the cover [2], make sure two claws [3] are attached to the plate.**

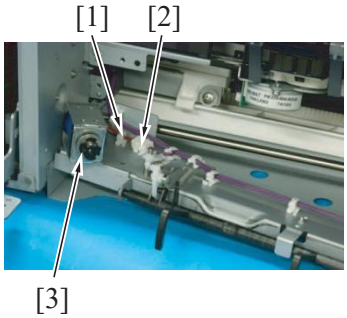


4. Remove two screws [1], and pull out the paper surface detect solenoid assy [2].



5. Remove two screws [1], and pull out the paper surface detect solenoid [2].



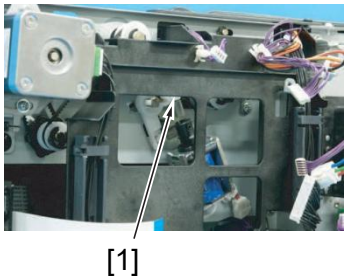


6. Remove the harness from wire saddle [1], and disconnect the connector [2] and remove the paper surface detect solenoid [3].

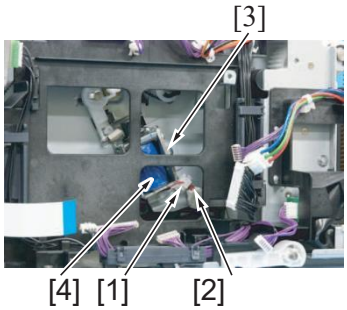
7. To reinstall, reverse the order of removal.

Batch solenoid (SD102) (PF910)

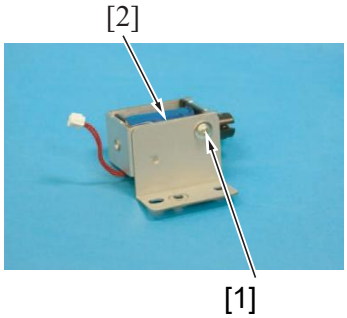
1. Remove the rear cover.
   G.2.6.3 Rear cover (PF910)
2. Remove the FS control board.
   G.2.6.7 FS control board (FSCB) (PF910)



3. Remove the spring [1].



4. Remove the harness from the wire saddle [1].
5. Disconnect the connector [2].
6. Remove the screw [3], and remove the batch solenoid assy [4].



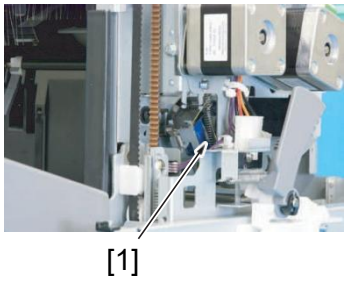
7. Remove the screw [1], and remove the batch solenoid [2].

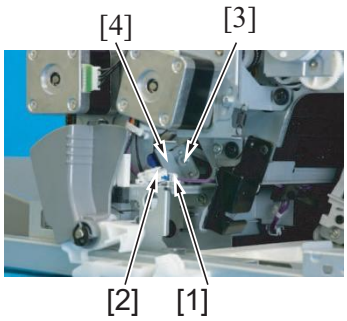
8. To reinstall, reverse the order of removal.

Paper exit roller solenoid (SD103) (PF910)

1. Remove the front cover.
   G.2.6.1 Front cover (PF910)

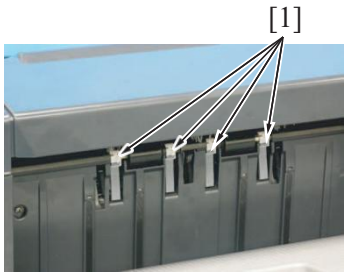
2. Remove the spring [1].





3. Remove the harness from the wire saddle [1].
4. Disconnect the connector [2].
5. Remove the screw [3], and remove the paper exit roller solenoid [4].
6. To reinstall, reverse the order of removal.

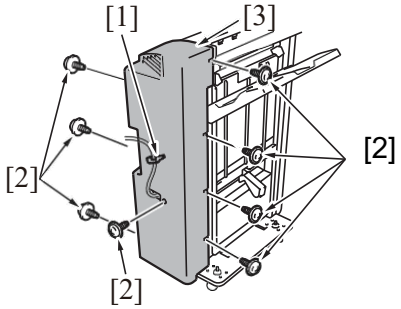
Paper exit paddle (PF910)



1. Pull the knobs [1] to remove the exit paddle.
2. To reinstall, reverse the order of removal.

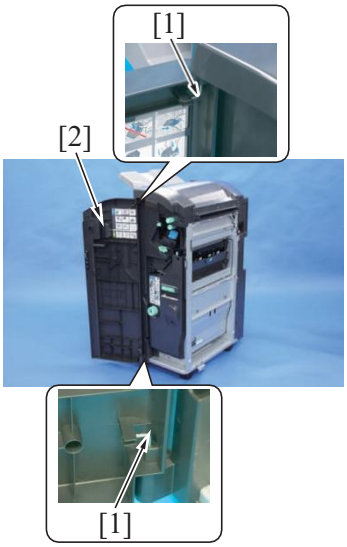
Disassembly/reassembly procedure (PF910U/PF910X)

Rear cover (PF910U/PF910X)



1. Remove the harness from the wire saddle [1].
2. Remove eight screws [2], and remove the rear cover [3].
3. To reinstall, reverse the order of removal.

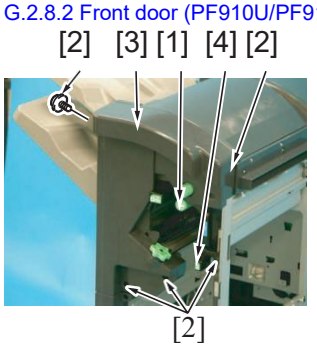
Front door (PF910U/PF910X)



1. Remove the upper and lower stoppers [1], and remove the front door [2].
2. To reinstall, reverse the order of removal.

Front upper cover (PF910U/PF910X)

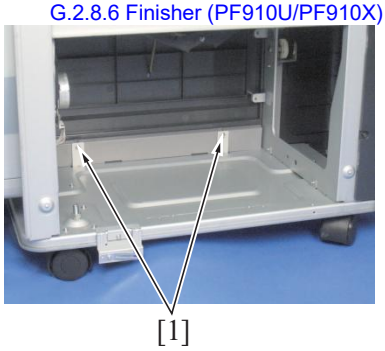
1. Remove the front door.
   G.2.8.2 Front door (PF910U/PF910X)



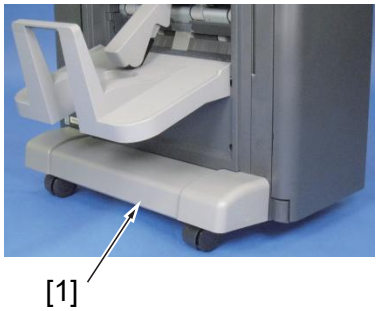
2. Remove the dial (FS5) [1].
3. Remove five screws [2], and remove the front upper cover [3].
   NOTE
   - **When the saddle unit is attached, move the guide plate [4] and then remove the front upper cover.**
4. To reinstall, reverse the order of removal.

Left lower cover (PF910U/PF910X)

1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)



2. Remove two screws [1].
   NOTE
   - **If the saddle unit is installed, pull out the saddle unit, and then remove two screws [1].**



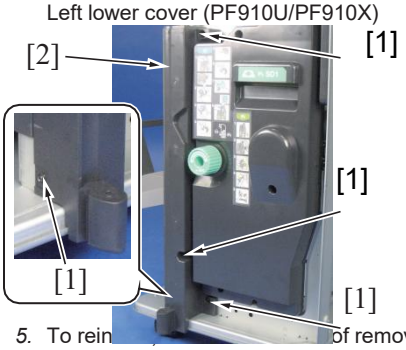
3. Remove the left lower cover [1].
4. To reinstall, reverse the order of removal.

Front lower cover (PF910U/PF910X)

1. Remove the front door.

G.2.8.2 Front door (PF910U/PF910X)

2. Remove the front upper cover.
   G.2.8.3 Front upper cover (PF910U/PF910X)
3. Remove the left lower cover.
   Left lower cover (PF910U/PF910X)

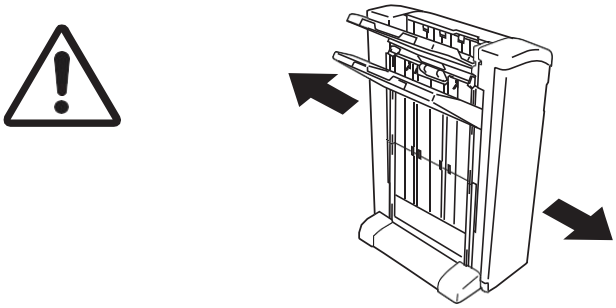


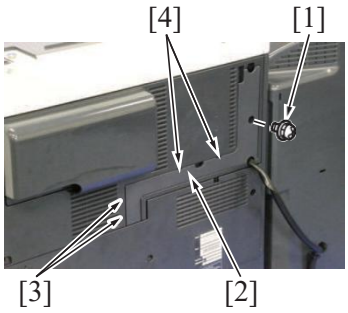
4. Remove four screws [1], and remove the front lower cover [2].
5. To rein of removal.

Finisher (PF910U/PF910X)

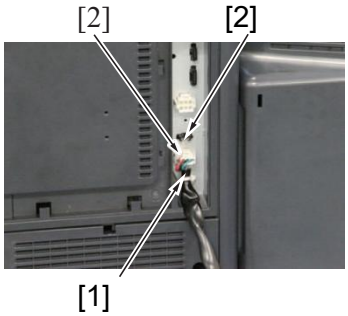
⚠CAUTION

- When transporting the finisher, make sure to push it to the direction as shown in the illustration. (to prevent turnover during transportation)

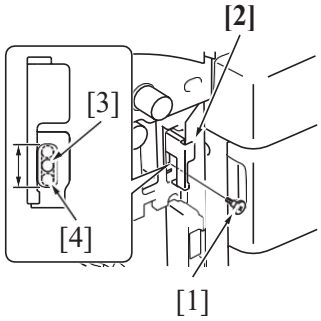




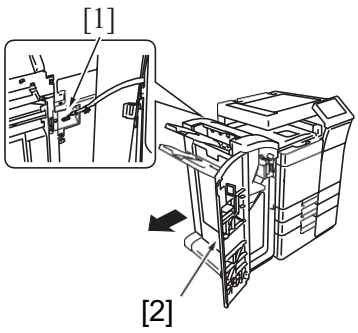
6. Remove the screw [1], and remove the cover [2].
   NOTE
   - **When mounting the cover, insert two claws [3] into the holes on the main unit cover first. Then fit two claws [4] into the holes.**
   - **Be careful not to pinch the harness.**



2. Remove the cable tie [1], and disconnect two connectors [2].
3. Open the front door.



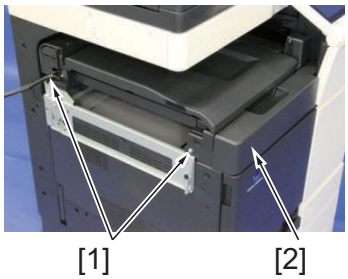
4. Remove the screw [1], and pull out the lever [2].
   NOTE
   - **At the time of the finisher installation, make sure that the screw hole [3] locates within the scope of the mounting hole of the lever [4].**



5. Disconnect the connector [1].
6. Remove the finisher [2] from the main body.
7. To reinstall, reverse the order of removal.

Relay unit (RU-513)

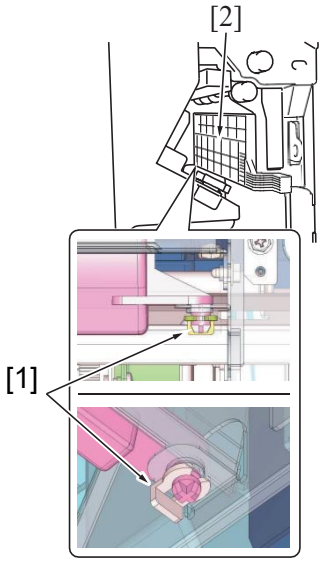
1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)



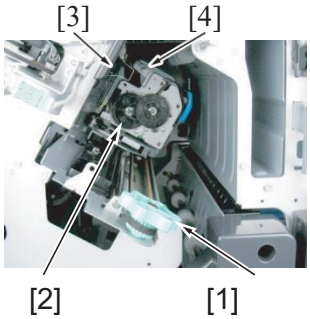
2. Remove two screws [1], and remove the RU transport unit [2].
3. To reinstall, reverse the order of removal.

Stapler unit (PF910U/PF910X)

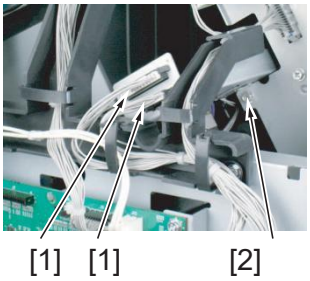
1. Open the front door.
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)



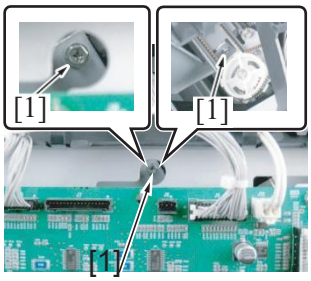
3. When the saddle unit is attached, remove the C-clip [1], and remove the guide plate [2].



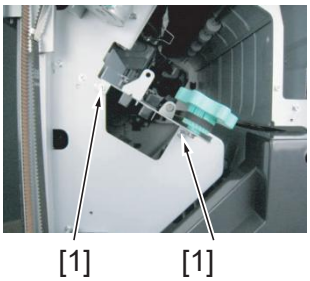
4. Rotate the stapler transfer dial [1] until the stapler [2] has been moved to the location shown in the figure (the location where the back-end stopper [3] does not interact with the clincher staple arm [4]).



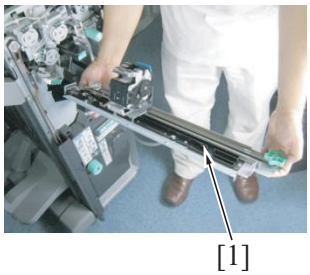
5. Disconnect two connectors [1] from the back of the finisher.
6. Remove the screw [2].



7. Remove the screw [1].

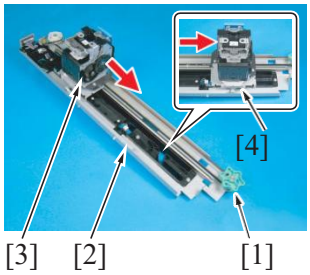


8. Remove two screws [1] from the front of the finisher.

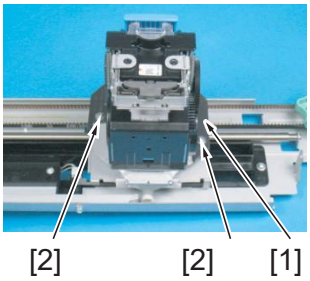


9. Remove the stapler assy [1] from the finisher.
NOTE
- **While removing the stapler assy [1], be careful not to hit the stapler against the finisher frame.**

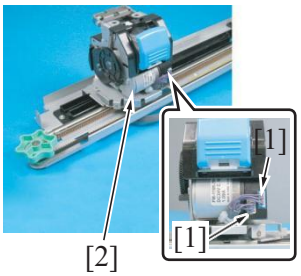
10. Put the stapler assy [2] on a stable workbench.
11. Rotate the stapler transfer dial [1] until the stapler unit [3] has been moved to the near side [4].



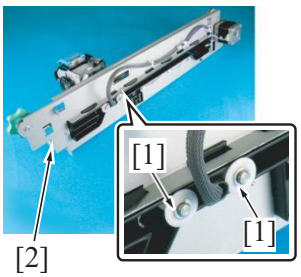
12. Remove two screws [2], and remove the cover [1].



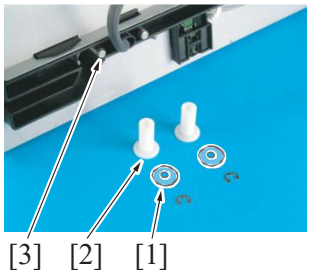
13. Disconnect two connectors [1] of the stapler unit [2].



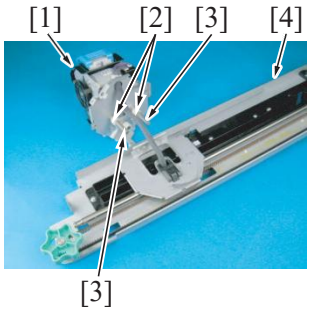
14. Flip the stapler assy [2] over.
15. Remove two E-rings [1] from the guide shafts.



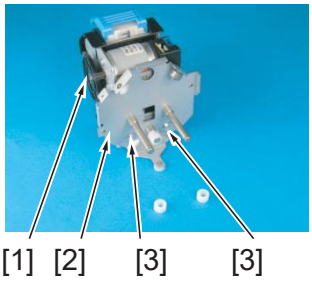
16. Remove the clear spacers [1] and white rollers [2] on both shafts [3].
NOTE
- **Be careful not to lose the clear spacers.**



17. Slowly remove the stapler unit [1] from the stapler assy [4].
18. Remove the white rollers [2] on both shafts [3].
NOTE
- **Ensure that the harness does not get damaged in the process.**
- **Be careful not to lose the white rollers.**



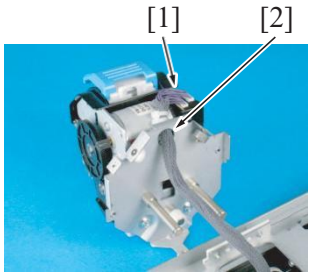
19. Remove two screws [3] of the stapler unit, and remove the stapler base plate [2] from the stapler unit [1].



20. To reinstall, reverse the order of removal.

NOTE

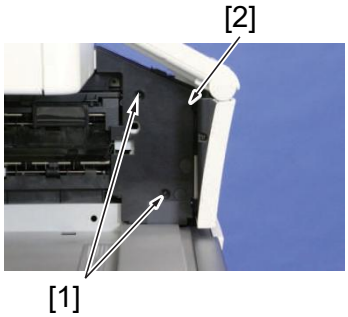
- **When installing the stapler unit, ensure that the two connectors [1] removed in the process 13 are put through the hole in the base plate [2] and connected to the stapler unit before attaching the base plate.**



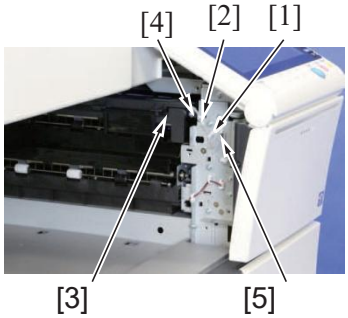
Sensor unit (PF910U/PF910X)

1. Remove the horizontal transport unit.
G.2.8.7 Relay unit (RU-513)

2. Remove two screws [1], and remove the control panel left cover/1 [2].



3. Remove the harness from the wire saddle [1] and the edge cover [2].
4. Disconnect the connector [3].
5. Remove the screw [4], and remove the sensor unit [5].

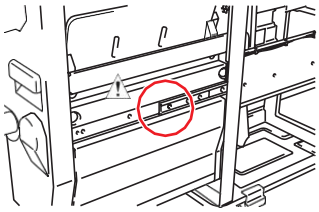


6. To reinstall, reverse the order of removal.

Saddle unit (PF910U)

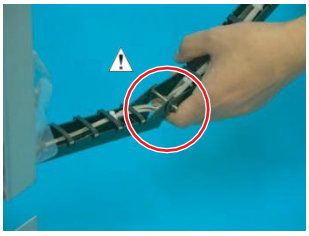
⚠CAUTION

- Be careful not to catch your finger in the edge of the rail when mounting the saddle unit on the right rail for the saddle unit installation.

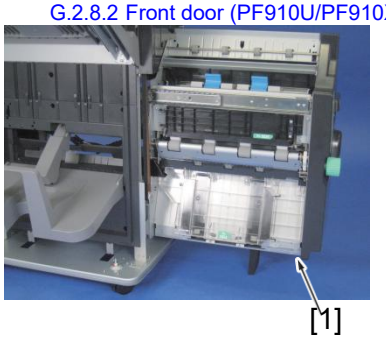


⚠CAUTION

- Be careful not to jam your finger in the connecting section of the pantograph



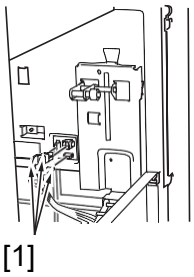
2. Remove the finisher.
   G.2.8.6 Finisher (PF910U/PF910X)
3. Remove the front door of the finisher.
   G.2.8.2 Front door (PF910U/PF910X)



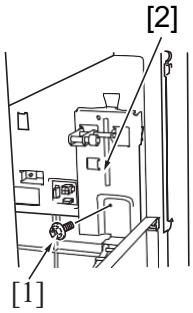
4. Pull out the saddle unit [1].

5. Remove the left lower cover.
   Left lower cover (PF910U/PF910X)
6. Remove the front upper cover.
   G.2.8.3 Front upper cover (PF910U/PF910X)
7. Remove the front lower cover.
   G.2.8.5 Front lower cover (PF910U/PF910X)

8. Disconnect three connectors [1].

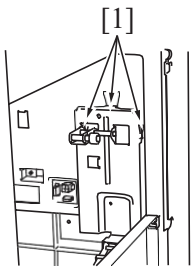


9. Remove the screw [1], and remove the pantograph [2].

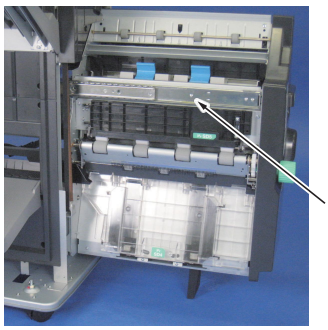


9. **NOTE**

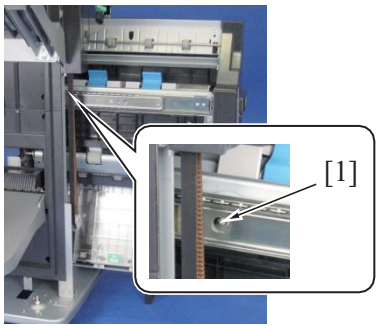
- **For installation of the pantograph, insert three hooks [1] on the pantograph of the saddle unit into the back holes inside the finisher.**



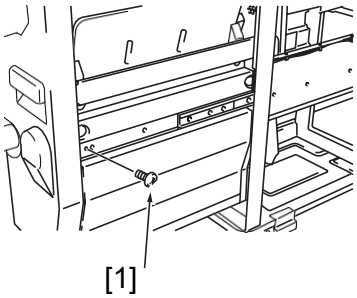
10. Remove the screw [1].



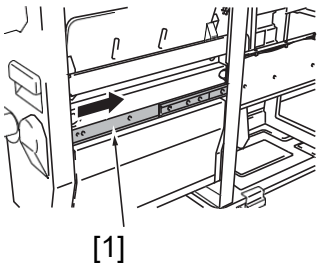
11. Push back the saddle unit into the position of the illustration, and then remove the screw [1].



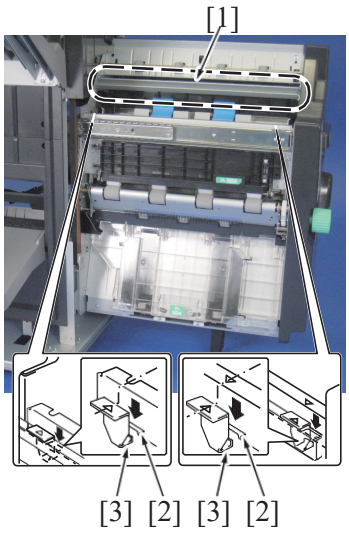
12. Pull out the saddle unit, and then remove the screw [1].



13. Insert the rail [1] on the right side into the finisher.



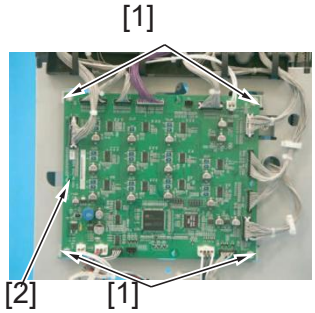
14. Grip the portion as shown in the illustration [1] to raise the saddle unit and take it out.
NOTE
- **For installation of the saddle unit, insert two hooks on the left rail [3] into the two holes of the saddle unit [2].**



15. To reinstall, reverse the order of removal.

FS control board (FSCB) (PF910U/PF910X)

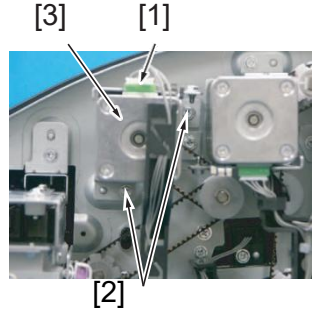
1. Remove the finisher from the main body.
G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
G.2.8.1 Rear cover (PF910U/PF910X)



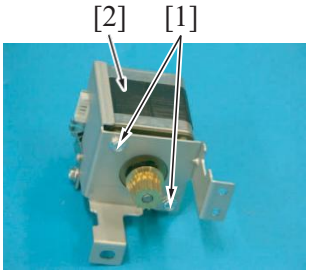
3. Remove all connectors from the board.
4. Remove four screws [1], and remove the FS control board [2].
5. To reinstall, reverse the order of removal.

FNS entry transport motor (M2) (PF910U/PF910X)

1. Remove the finisher from the main body.
G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
G.2.8.1 Rear cover (PF910U/PF910X)



3. Disconnect the connector [1].
4. Remove two screws [2], and remove the FNS entry transport motor assy [3].

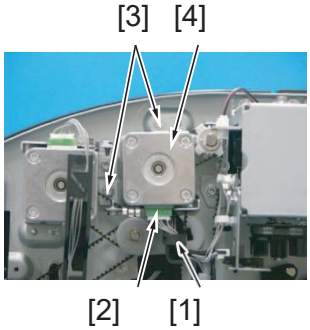


5. Remove two screws [1], and remove the FNS entry transport motor [2].

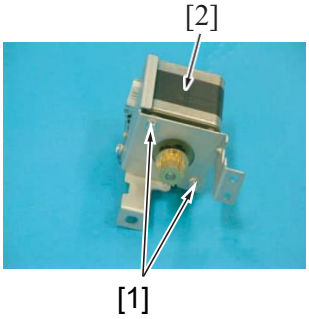
6. To reinstall, reverse the order of removal.

FNS discharge motor (M3) (PF910U/PF910X)

1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)



3. Remove the harness from the wire saddle [1], and disconnect the connector [2].
4. Remove two screws [3], and remove the FNS discharge motor assy [4].

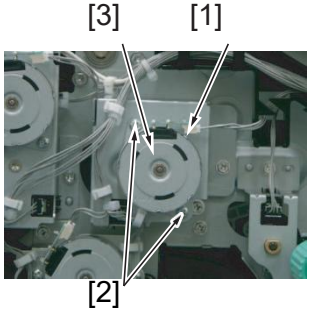


5. Remove two screws [1], and remove the FNS discharge motor [2].

6. To reinstall, reverse the order of removal.

Receiving roller retraction motor (M4) (PF910U/PF910X)

1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the front door.
   G.2.8.2 Front door (PF910U/PF910X)
3. Remove the front upper cover.
   G.2.8.3 Front upper cover (PF910U/PF910X)



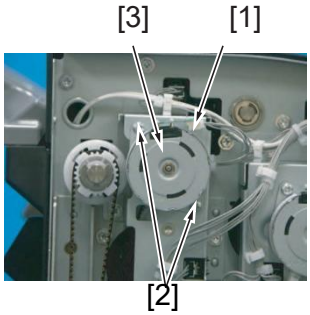
4. Disconnect the connector [1].
5. Remove two screws [2], and remove the receiving roller retraction motor [3].

6. To reinstall, reverse the order of removal.

FNS paddle motor (M5) (PF910U/PF910X)

1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the front door.
   G.2.8.2 Front door (PF910U/PF910X)

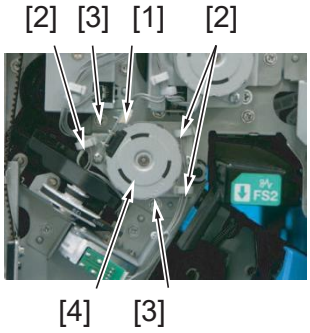
3. Remove the front upper cover.
G.2.8.3 Front upper cover (PF910U/PF910X)



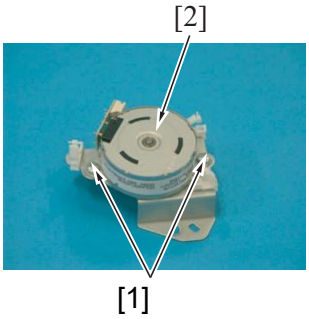
4. Disconnect the connector [1].
5. Remove two screws [2], and remove the FNS paddle motor [3].
6. To reinstall, reverse the order of removal.

Trailing edge stopper motor (M6) (PF910U/PF910X)

1. Remove the finisher from the main body.
G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the front door.
G.2.8.2 Front door (PF910U/PF910X)
3. Remove the front upper cover.
G.2.8.3 Front upper cover (PF910U/PF910X)



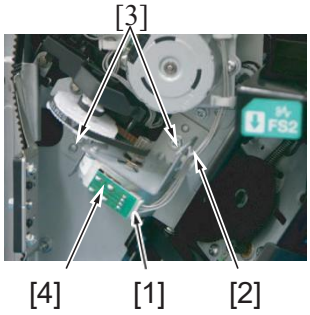
4. Disconnect the connector [1].
5. Remove the harness from three wire saddles [2].
6. Remove two screws [3], and remove the trailing edge stopper motor assy [4].
7. Remove two screws [1], and remove the trailing edge stopper motor [2].



8. To reinstall, reverse the order of removal.

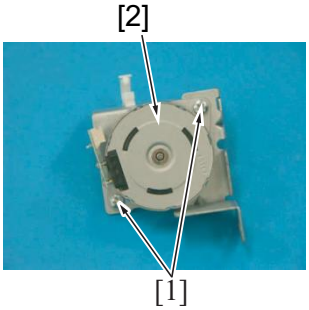
Alignment motor/front (M7) (PF910U/PF910X)

1. Remove the finisher from the main body.
G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the front door.
G.2.8.2 Front door (PF910U/PF910X)
3. Remove the front upper cover.
G.2.8.3 Front upper cover (PF910U/PF910X)



4. Disconnect the connector [1].
5. Remove the harness from the wire saddle [2].
6. Remove two screws [3], and remove the alignment motor/front assy [4].

7. Remove two screws [1], and remove the alignment motor/front [2].

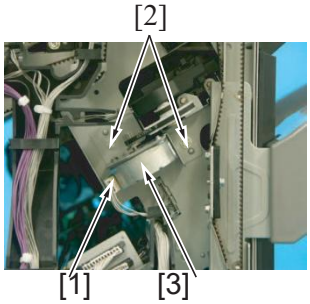


8. To reinstall, reverse the order of removal.

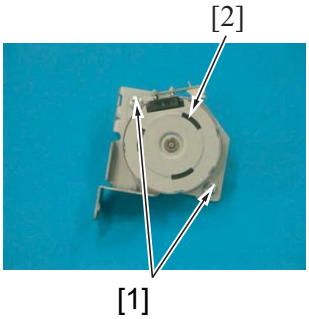
Alignment motor/rear (M8) (PF910U/PF910X)

1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)

3. Disconnect the connector [1].
4. Remove two screws [2], and remove the alignment motor/rear assy [3].



5. Remove two screws [1], and remove the alignment motor/rear [2].

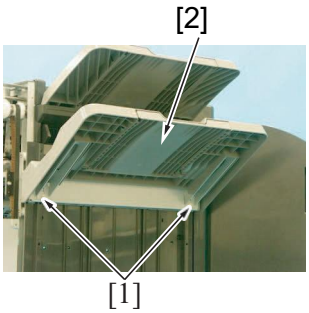


6. To reinstall, reverse the order of removal.

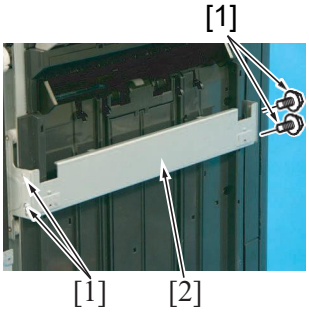
Pre-eject drive motor (M9) (PF910U/PF910X)

1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)
3. When the saddle unit is attached, open the front door and pull out the saddle unit.

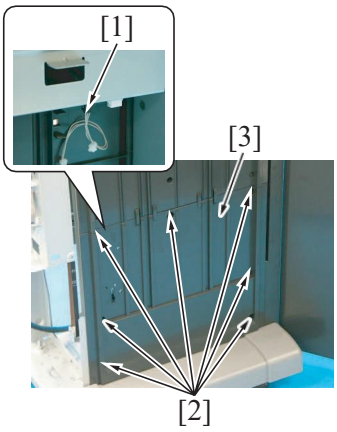
4. Remove two screws [1], and remove the exit tray [2].



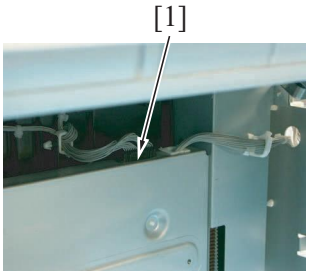
5. Remove four screws [1], and remove the plate [2].



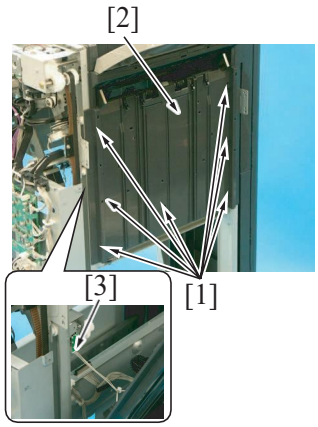
6. Disconnect the connector [1].
7. Remove seven screws [2], and remove the left lower cover [3].
NOTE
- **When the saddle unit is attached, disconnect two connectors.**



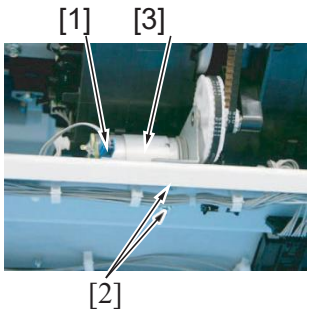
8. Disconnect the connector [1].

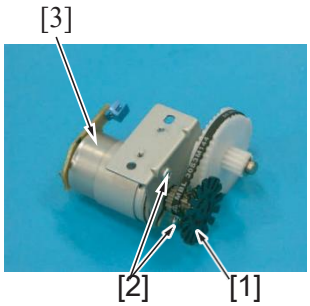


9. Remove seven screws [1], and remove the left upper cover [2].
10. Disconnect the connector [3].



11. Disconnect the connector [1].
12. Remove two screws [2], and remove the pre-eject drive motor assy [3].

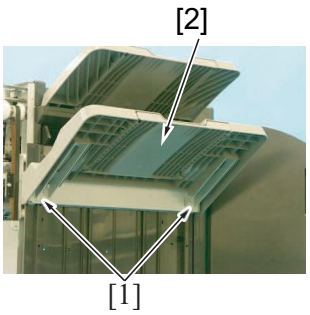




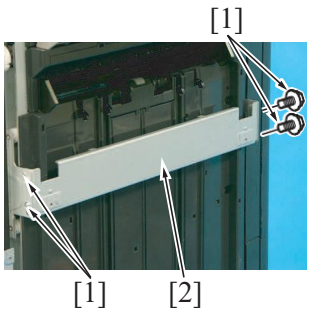
13. Remove the rotating disk [1].
14. Remove two screws [2], and remove the pre-eject drive motor [3].
15. To reinstall, reverse the order of removal.

Bundle eject motor (M10) (PF910U/PF910X)

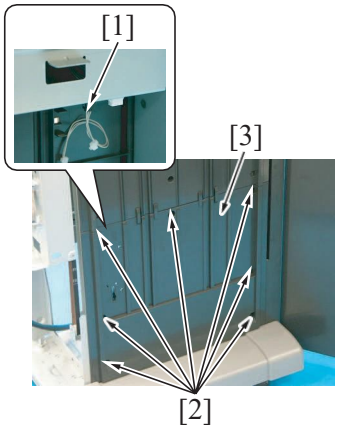
1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)
3. When the saddle unit is attached, open the front door and pull out the saddle unit.



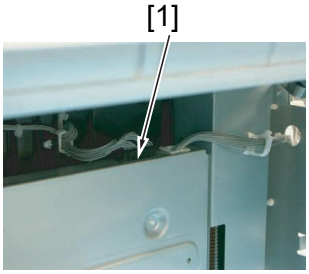
4. Remove two screws [1], and remove the exit tray [2].



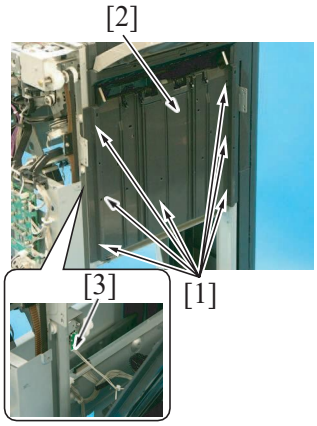
5. Remove four screws [1], and remove the plate [2].



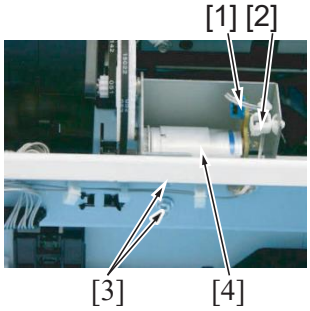
6. Disconnect the connector [1].
7. Remove seven screws [2], and remove the left lower cover [3].
   NOTE
   - **When the saddle unit is attached, disconnect two connectors.**



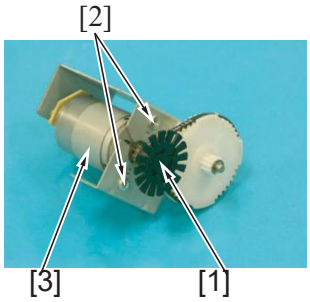
8. Disconnect the connector [1].



9. Remove seven screws [1], and remove the left upper cover [2].
10. Disconnect the connector [3].



11. Disconnect the connector [1], and remove the harness from the wire saddle [2].
12. Remove two screws [3], and remove the bundle eject motor assy [4].

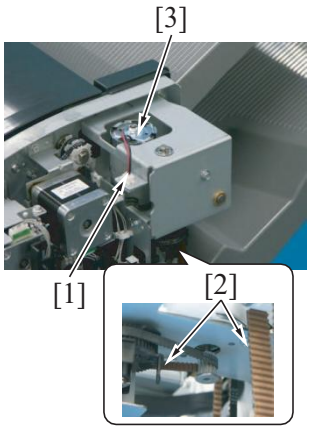


13. Remove the rotating disk [1].
14. Remove two screws [2], and remove the bundle eject motor [3].

15. To reinstall, reverse the order of removal.

Main tray up/down motor (M11) (PF910U/PF910X)

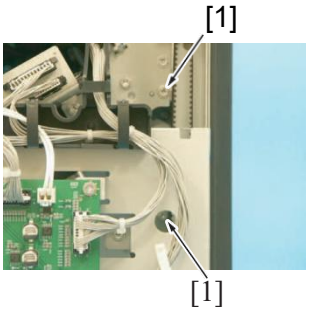
1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)



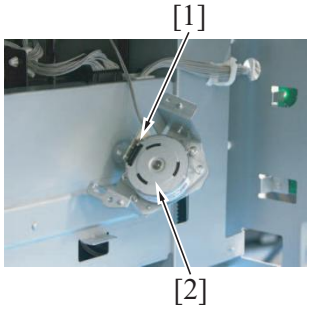
3. Disconnect the connector [1].
4. Remove two screws [2], and remove the main tray up/down motor [3].
5. To reinstall, reverse the order of removal.

Paper receiving control motor (M12) (PF910U/PF910X)

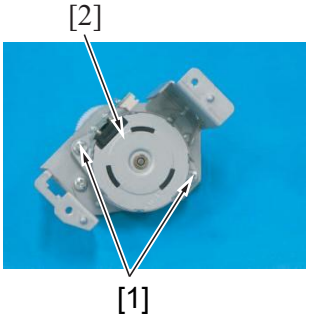
1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)
3. When the saddle unit is attached, open the front door and pull out the saddle unit.



4. Remove two screws [1].



5. Disconnect the connector [1], and remove the paper receiving control motor assy [2].

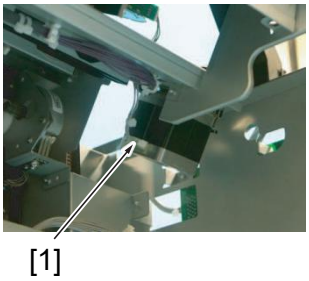


6. Remove two screws [1], and remove the paper receiving control motor [2].
7. To reinstall, reverse the order of removal.

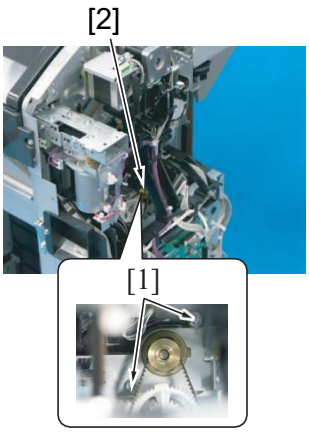
Side stapler movement motor (M13) (PF910U/PF910X)

1. Remove the finisher from the main body.
   G.2.8.6 Finisher (PF910U/PF910X)
2. Remove the rear cover.
   G.2.8.1 Rear cover (PF910U/PF910X)
3. When the saddle unit is attached, open the front door and pull out the saddle unit.

4. Disconnect the connector [1].



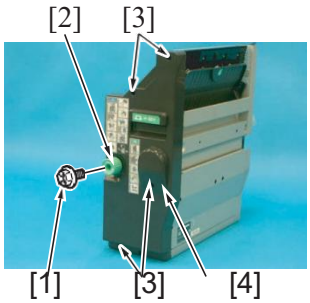
5. Remove two screws [1], and remove the side stapler movement motor [2].



6. To reinstall, reverse the order of removal.

Disassembly/reassembly procedure (SD-511)

Front cover (SD-511)



1. Remove the screw [1], and remove the jam clearing dial [2].
2. Remove four screws [3], and remove the front cover [4].

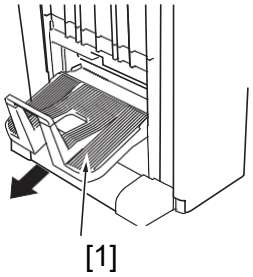
3. To reinstall, reverse the order of removal.

Paper exit tray (SD-511)



1. Remove the pin [1], and remove the exit lever [2].

2. Remove the paper exit tray [1].

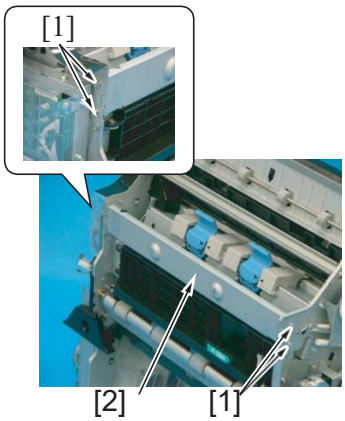


3. To reinstall, reverse the order of removal.

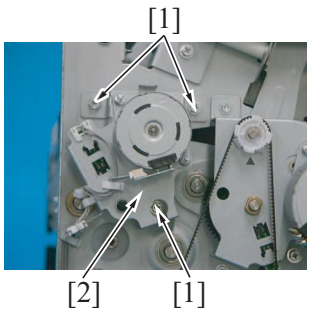
Staple unit (SD-511)

1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)

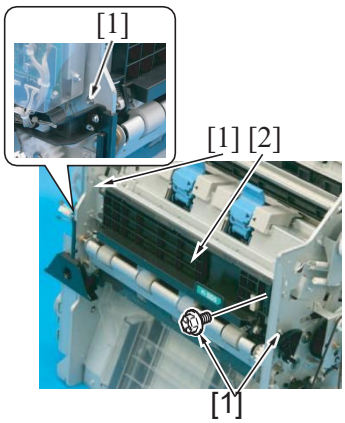
3. Remove four screws [1], and remove the plate [2].

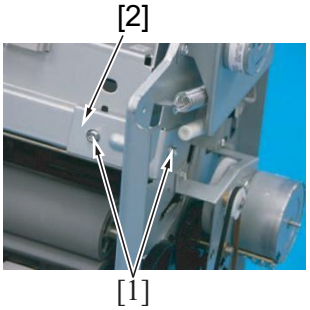


4. Remove three screws [1], and remove the tri-folding guide motor assy [2].

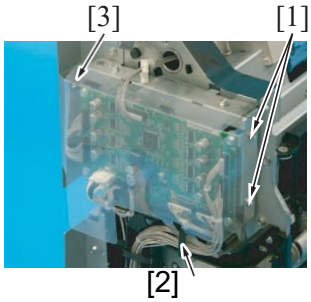


5. Remove four screws [1], and remove the conveyance assy [2].

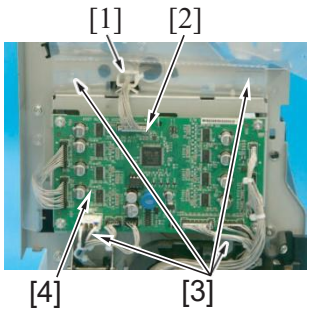




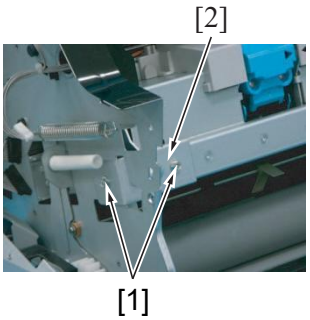
6. Remove two screws [1], and remove the plate [2].



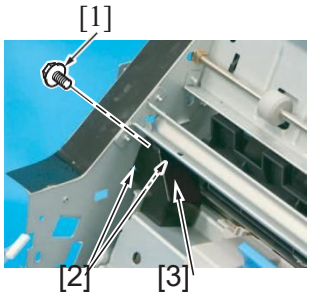
7. Remove two screws [1].
8. Detach the board support film [3] from the harness guide tabs [2].



9. Remove the harness from the wire saddle [1].
10. Disconnect the connector [2].
11. Remove four screws [3], and remove the SD drive board assy [4].

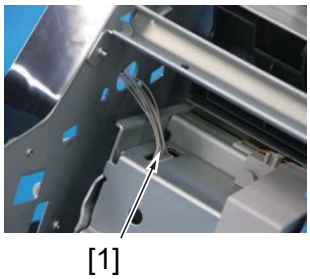


12. Remove two screws [1], and remove the plate [2].

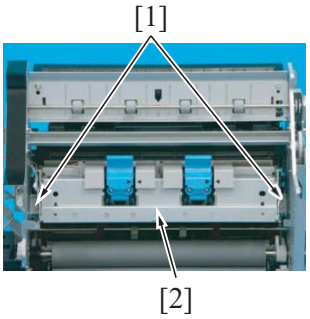


13. Remove the screw [1].
14. Release two tabs [2], and remove the cover [3].

15. Disconnect the connector [1].



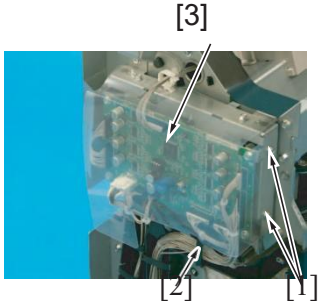
16. Remove two screws [1], and remove the staple unit [2].



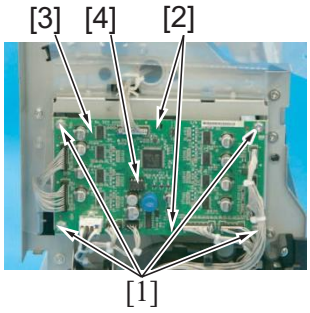
17. To reinstall, reverse the order of removal.

SD drive board (SDDB) (SD-511)

1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)



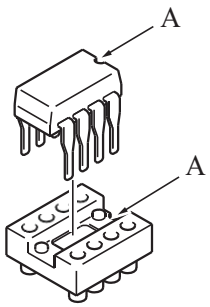
2. Remove two screws [1].
3. Remove the board support film [3] from the harness guide [2].



4. Disconnect all the connectors from the board.
5. Remove four screws [1].
6. Detach the SD drive board [3] from the two tabs [2].

NOTE

- **When the SD drive board (SDDB) has been replaced, be sure to remount EEPROM (U3) [4].**
  Remove EEPROM (U3) [4] from the old SD drive board and mount it on the new SD drive board.



7. **NOTE**
   - **When mounting EEPROM (U3), align the notches (indicated by “A” in the illustration).**

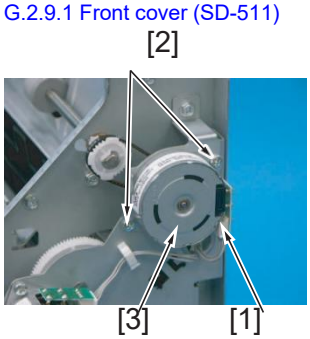
8. To reinstall, reverse the order of removal.

NOTE

- **After replacing the SD drive board, be sure to install the latest firmware.**

SD transport motor (M1) (SD-511)

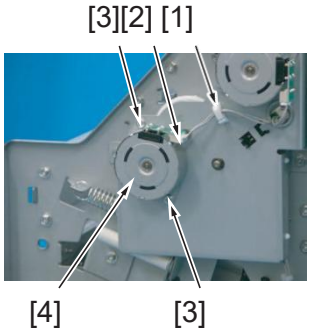
1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)



3. Disconnect the connector [1].
4. Remove two screws [2], and remove the SD transport motor [3].
5. To reinstall, reverse the order of removal.

Paper discharge control motor (M2) (SD-511)

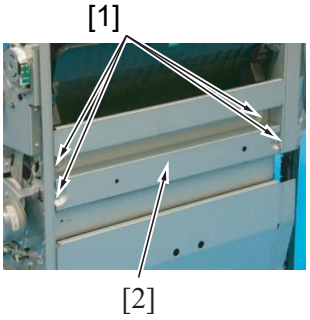
1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)



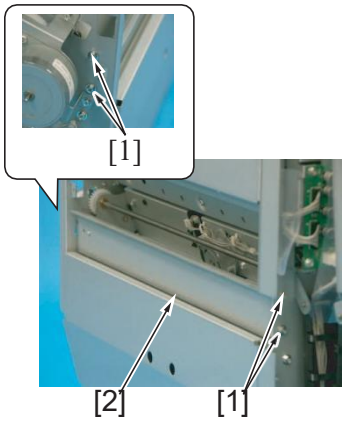
3. Remove the harness from the wire saddle [1], and disconnect the connector [2].
4. Remove two screws [3], and remove the paper discharge control motor [4].
5. To reinstall, reverse the order of removal.

Alignment motor (M3) (SD-511)

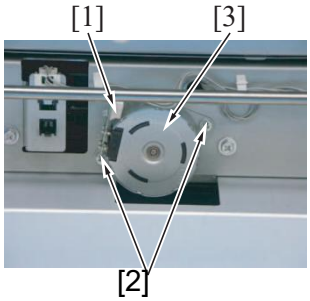
1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)



3. Remove four screws [1], and remove the plate [2].



4. Remove four screws [1], and remove the plate [2].

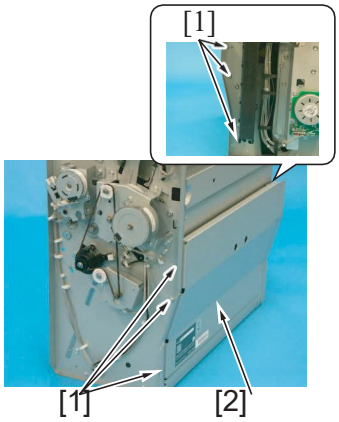


5. Disconnect the connector [1].
6. Remove two screws [2], and remove the alignment motor [3].

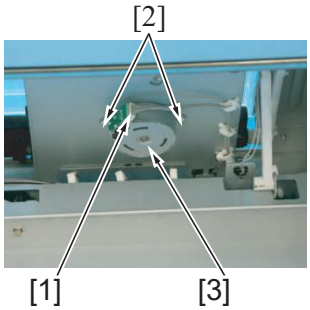
7. To reinstall, reverse the order of removal.

Stopper drive motor (M4) (SD-511)

1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)



3. Remove six screws [1], and remove the plate [2].

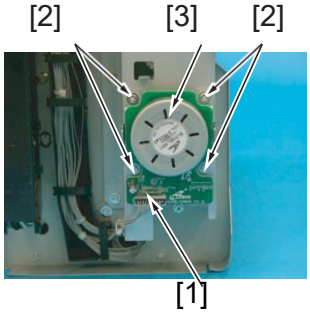


4. Disconnect the connector [1].
5. Remove two screws [2], and remove the stopper drive motor [3].

6. To reinstall, reverse the order of removal.

Center fold roller motor (M5) (SD-511)

1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)

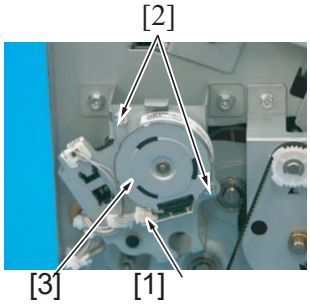


2. Disconnect the connector [1].
3. Remove four screws [2], and remove the center fold roller motor [3].

4. To reinstall, reverse the order of removal.

Tri-folding guide motor (M6) (SD-511)

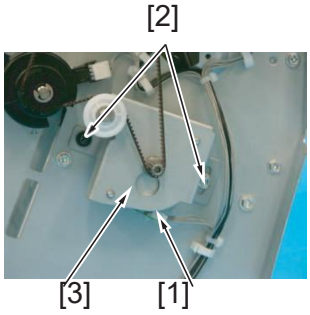
1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)



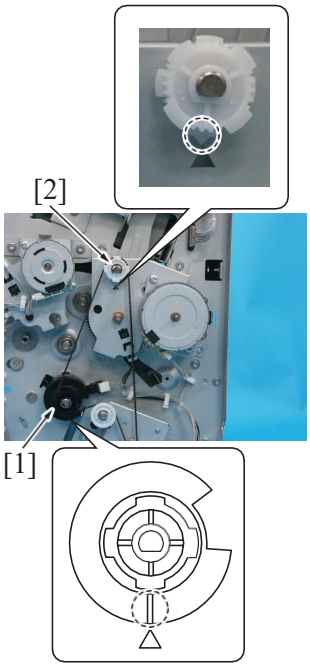
3. Disconnect the connector [1].
4. Remove two screws [2], and remove the tri-folding guide motor [3].
5. To reinstall, reverse the order of removal.

SD paddle motor (M7) (SD-511)

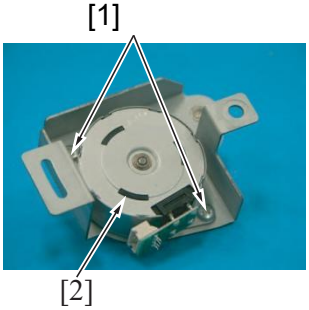
1. Remove the saddle unit.
   G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
   G.2.9.1 Front cover (SD-511)



3. Disconnect the connector [1].
4. Remove two screws [2], and remove the SD paddle motor assy [3].



5. **NOTE**
   - **When reinstalling the belt, align the portions of the gear [1] and the gear [2] indicated in the illustration with the triangular marking on the metal plate. Then, install the belt.**

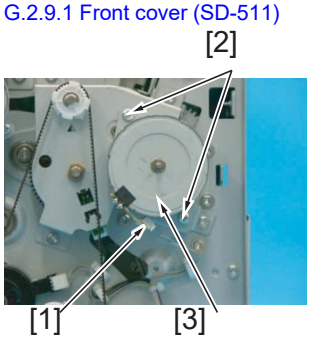


6. Remove two screws [1], and remove the SD paddle motor [2].
7. To reinstall, reverse the order of removal.

Center fold guide motor (M8) (SD-511)

1. Remove the saddle unit.

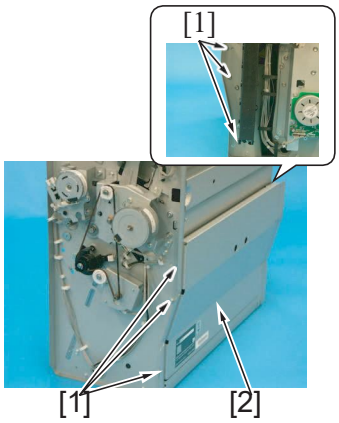
G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
G.2.9.1 Front cover (SD-511)



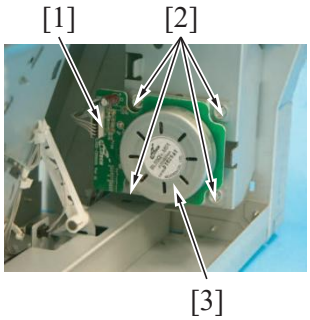
3. Disconnect the connector [1].
4. Remove two screws [2], and remove the center fold guide motor [3].
5. To reinstall, reverse the order of removal.

Center fold knife motor (M9) (SD-511)

1. Remove the saddle unit.
G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
G.2.9.1 Front cover (SD-511)



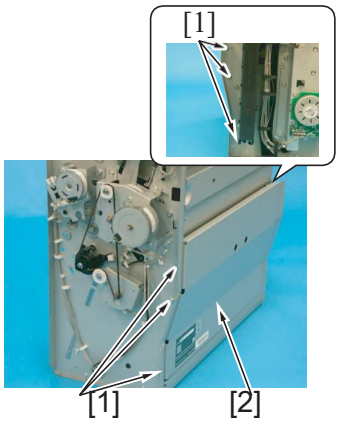
3. Remove six screws [1], and remove the plate [2].



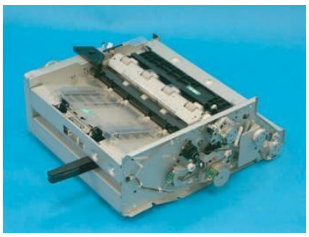
4. Disconnect the connector [1].
5. Remove four screws [2], and remove the center fold knife motor [3].
6. To reinstall, reverse the order of removal.

Stopper solenoid (SD1) (SD-511)

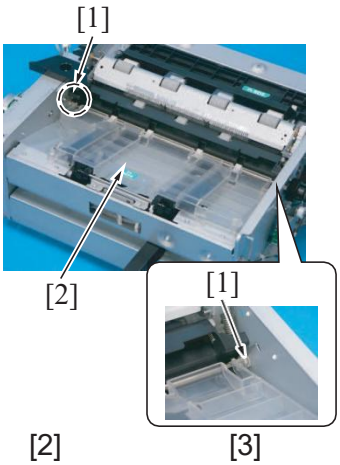
1. Remove the saddle unit.
G.2.8.10 Saddle unit (FS-534SD)
2. Remove the front cover.
G.2.9.1 Front cover (SD-511)



3. Remove six screws [1], and remove the plate [2].

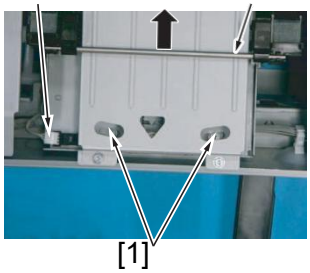


4. Place the saddle unit as shown in the illustration.

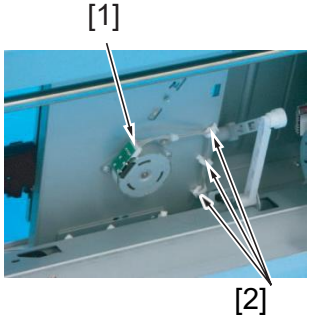


5. Remove two stoppers [1], and remove the guide plate [2].

6. Slide the lever unit [3] upward.
7. Remove two screws [1], and disconnect the connector [2].

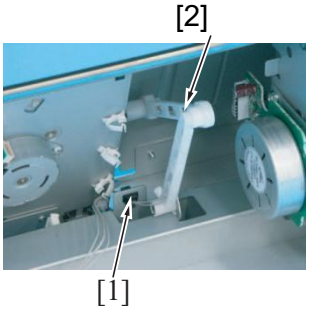


8. Raise the saddle unit.

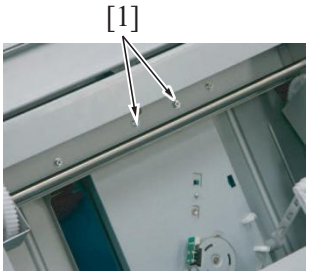


9. Disconnect the connector [1], and remove the harness from three wire saddles [2].

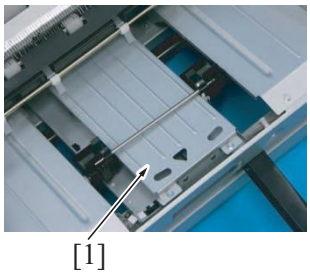
10. Disconnect the connector [1], and remove the drive lever [2].



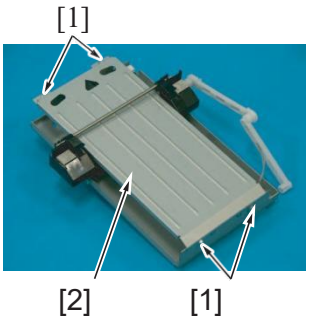
11. Remove two screws [1].



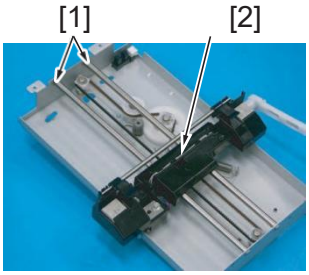
12. Remove the guide plate assy [1].
NOTE
- **When reinstalling the guide plate assy, perform mechanical adjustment.**
  I.10.1.1 Half-fold skew adjustment

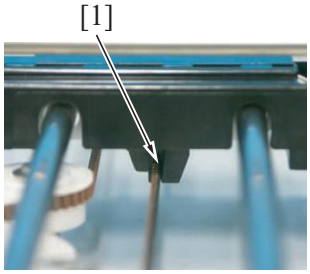


13. Remove four screws [1], and remove the plate [2].



14. Remove two E-rings [1], and remove the stopper guide [2].

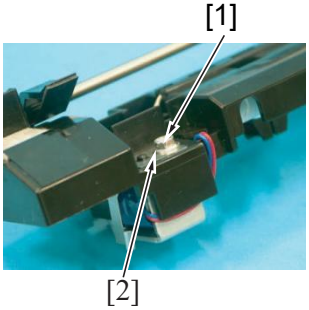




15. **NOTE**

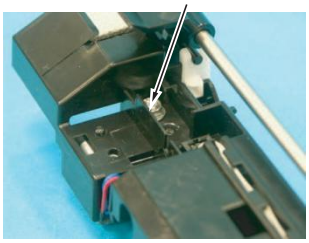
- **When reinstalling the stopper guide, fit the belt into the stopper guide groove [1].**

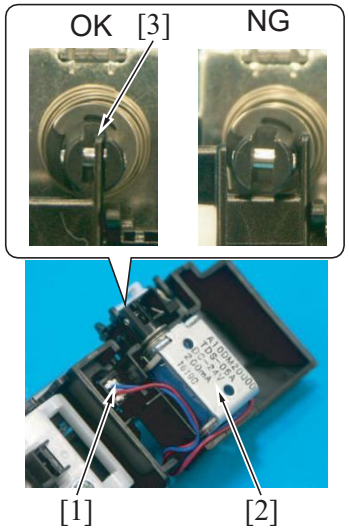
16. Remove the screw [1], and remove the plate [2].



17. Remove the screw [1].

[1]





19. To reinstall, reverse the order of removal.

18. Disconnect the connector [1], and remove the stopper solenoid [2].
NOTE
- **When reinstalling the stopper solenoid, fit its tip into the place [3] shown in the illustration.**

3.ADJUSTMENT/SETTING

ADJUSTMENT ITEM LIST

Replace feed roller, pick-up roller, separation roller (tray 1, tray 2)

Replacement part/Service job	Adjustment/setting items	Procedure
Replace feed roller, pick-up roller, separation roller (tray 1, tray 2)	[Service Mode] / [Counter] / [Life] / [Counter Clear]	1

Replace feed roller, separation roller assy (manual bypass tray)

Replacement part/Service job	Adjustment/setting items	Procedure
Replace feed roller, separation roller assy	[Service Mode] / [Counter] / [Life] / [Counter Clear]	1

Install LCT (Built-in)

Replacement part/Service job	Adjustment/setting items	Procedure
Install LCT (Built-in)	[Service Mode] / [System2] / [LCT (Built-in) Size Settings]	1
	[Service Mode] / [Machine] / [Printer Area] / [Printer Image Centering Side 1]	2
	[Service Mode] / [Machine] / [Printer Area] / [Prt. Image Center. Side 2 (Dup)]	3
	[Service Mode] / [Machine] / [Printer Area] / [Tray Printing Position: Tip]	4

Replace CCD board

Replacement part/Service job	Adjustment/setting items	Procedure
Replace CCD board	[Service Mode] / [System2] / [CCD Calibration]	1
	[Service Mode] / [System2] / [Line Mag Setting]	2
	[Service Mode] / [Machine] / [Printer Area] / [Paper Feed Direction Adj.]	3
	[Service Mode] / [Machine] / [Scan Area] / [Main Scan Zoom Adj.]	4
	[Service Mode] / [Machine] / [Scan Area] / [Scanner Image Side Edge]	5
	[Service Mode] / [Machine] / [Scan Area] / [Image Position: Leading Edge]	6

Replace developing unit

Replacement part/Service job	Adjustment/setting items	Procedure
Replace developing unit	[Service Mode] / [Imaging Process Adjustment] / [Gradation Adjust]	1

Replace drum unit

Replacement part/Service job	Adjustment/setting items	Procedure
Replace drum unit	[Service Mode] / [Imaging Process Adjustment] / [Gradation Adjust]	1

Replace transfer belt unit

Replacement part/Service job	Adjustment/setting items	Procedure
Replace transfer belt unit	[Service Mode] / [Counter] / [Life] / [New Release]	1
	[Service Mode] / [Imaging Process Adjustment] / [Gradation Adjust]	2

Replace fusing unit

Replacement part/Service job	Adjustment/setting items	Procedure
Replace fusing unit	[Service Mode] / [Counter] / [Life] / [New Release]	1

Replace PH unit

Replacement part/Service job	Adjustment/setting items	Procedure
Replace PH unit	[Service Mode] / [Machine] / [Print Head Skew Adj.] / [Print Head Skew Reset]	1
	[Service Mode] / [Machine] / [Printer Area] / [Leading Edge Adjustment]	2
	[Service Mode] / [Machine] / [Printer Area] / [Printer Image Centering Side 1]	3

Replace original size detection sensor

Replacement part/Service job	Adjustment/setting items	Procedure
Replace original size detection sensor	Installation of original size sensor	1

	[Service Mode] / [State Confirmation] / [Sensor Check]	2

Replace scanner motor

Replacement part/Service job	Adjustment/setting items	Procedure
Replace scanner motor	Scanner motor belt adjustment	1

Replace scanner home sensor

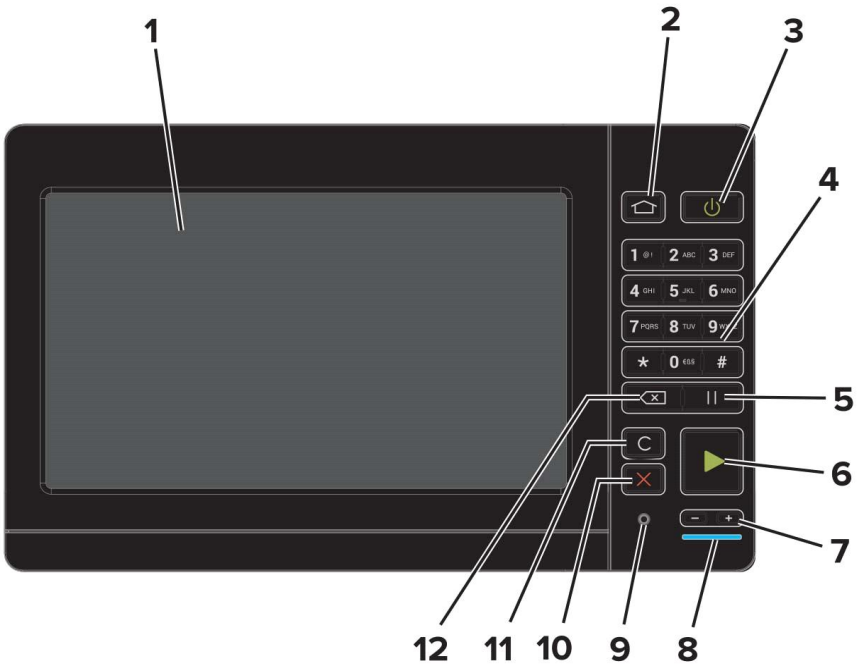
Replacement part/Service job	Adjustment/setting items	Procedure
Replace scanner home sensor	[Service Mode] / [Machine] / [Scan Area] / [Image Position: Leading Edge]	1

Replace MFP board

Replacement part/Service job	Adjustment/setting items	Procedure
Replace MFP board	• Entering the machine type information	1
	Installing the firmware	2
	Restore (backup) data	3
	[Service Mode] / [Imaging Process Adjustment] / [Gradation Adjust]	4

SERVICE MODE

Control board



	Name	Function
1	Display	• Check printer messages and consumables status. • Set up and operate the printer.
2	“Home” Button	• Jump to the home screen.
3	“Power” Button	• Turn the printer on or off. • Note: Press and hold the power button for five seconds to turn off the printer. • Set the printer to “Sleep” or “Hibernate” mode. • Wake the printer from “Sleep” or “Hibernate” mode.
4	Keyboard	• Enter a number or symbol in the input field.
5	Pause Button	• Put the dial pause in the fax number.
6	Start Button	• Start the task, depending on the mode selected.
7	Volume Button	• Adjust the volume of headphones or speakers.
8	Indicator light	• Check the status of the printer.
9	Headphone or speaker port	• Connect headphone or speaker.
10	Stop or cancel button	• Stop current task.

11	Clear All or reset button	• Reset a function, such as copying, faxing, or scanning, to default Settings.
12	Backspace button	• Move the cursor back in the input field and remove a character.

Description of power switches and indicators

Indicator light	Printer Status
Close	The printer is powered off or in Sleep mode.
Blue	The printer is ready or processing data.
Red	The printer requires user intervention.

Power button light	Printer Status
Close	The printer is powered off, ready, or processing data.
The amber light is on	The printer is in "sleep" mode.
The amber lights flicker	The printer is in hibernation mode.

Service mode

This chapter mainly introduces the service mode.(The service mode need to be concealed to avoid the incorrect modification, press “**36” to enter the service mode).

Service mode include: Print quality test, Paper path test, Printer diagnostic adjustment, Stapler diagnostic,

Snanner diagnostic and so on.

Print quality test

Print a pre-set quality test page to check the print quality of the page under the printer's current Settings. Print quality test page for "A4 color print comprehensive Test version". Please make sure that the carton is properly placed with A4 long-sided paper and that the carton is inserted before testing.

Paper path test

The printer carries out continuous paper transfer tests, only paper walking, and does not print image. After the paper is drawn from the specified paper tray, it passes through the single-side printer paper path and finally exits the paper from the outlet. The paper path test action is not performed when the specified paper tray is out of paper or not inserted and the printer has an error. Please make sure that the specified paper tray is properly placed with standard size paper and the box is inserted before starting the paper path test.

After the paper path test starts, you can manually stop the test or automatically stop the test when the engine detects an error or the tray lacks paper. After the test is stopped, the test will not automatically continue even after the error is recovered. You need to restart the test.

Paper tray: Paper box 1/2/3/4, large capacity paper box, multi-function paper tray.

When the stapler is not installed, paper exits from the standard outlet. When the stapler is installed, paper exits from the paper receiving rack 2.

Printer diagnostic adjustment

1. Fusing Temperature adjustment

Use

- To adjust individually the temperature of the heating roller for each type of paper, thereby coping with varying fusing performance under changing environmental conditions.
- When fusing performance is poor, or wax streak or offset occurs when the type of paper is changed or environmental conditions change.
- Use when the curling of the paper due to the paper type or environmental change occurred, or when the paper jam, as well as stapling or folding position error occurred due to the curling of the paper.
- By setting the temperature higher (+), gloss of print can be improved.
- By setting the temperature lower (-), exit roller mark can be reduced.

Description

- Increasing the temperature can improve the gloss of the print, and reducing the temperature can reduce the roll marks.

DPI	Paper type	Adjustment range
600	Normal paper	-4~2
	Thick paper1	-4~2
	Thick paper2	-4~2
	Thick paper3	-4~2
	Thick paper4	-4~2
	Postcard	-4~2
	Transparent film paper	-4~2
	Envelope	-4~2
	Recycled paper	-4~2
1200	Normal paper	-4~2
	Thick paper1	-4~2
	Thick paper2	-4~2
	Thick paper3	-4~2
	Thick paper4	-4~2
	Postcard	-4~2
	Transparent film paper	-4~2
	Envelope	-4~2
	Recycled paper	-4~2

Note: The setting range is 5℃

2. Fusing Transport Speed adjustment

Use

- To adjust the speed of the fusing motor so as to match the fusing speed with transport speed.
- Brush effect or blurred image is evident as a result of changes in environmental conditions or degraded durability.

DPI	Paper type	Adjustment range
600	Normal paper	-20~20
	Thick paper1/2	-20~20
	Thick paper3/4	-20~20
1200	All paper	-20~20

3. Sensor test

Use

- Displays the state of the sensor and switch inputs while the machine remains stationary.
- Resolve faults when faults occur or paper jams occur.

The sensor is displayed as follows:

Panel display	Part/signal name	Operating features/Panel display	
		1	0
Paper feed tray 1			
Tray 1 Set Sensor	Tray 1 Set Sensor	Set	Out of position
Paper empty	Tray 1 paper empty sensor	Paper not present	Paper present
Paper Near Empty	Tray 1 paper near empty sensor	Near empty	Other than near empty
Paper feed	Tray 1 paper feed sensor	Paper present	Paper not present
Upper Limit of Lift-up	Tray 1 upper limit sensor	At raised position	Not at raised position
Paper feed tray 2			
Tray 2 Set Sensor	Tray 2 Set Sensor	Set	Out of position
Paper empty	Tray 2 paper empty sensor	Paper not present	Paper present
Paper Near Empty	Tray 2 paper near empty sensor	Near empty	Other than near empty
Vertical transport	Tray 2 vertical transport sensor	Paper present	Paper not present
Paper feed	Tray 2 paper feed sensor	Paper present	Paper not present
Upper Limit of Lift-up	Tray 2 upper limit sensor	At raised position	Not at raised position
Paper feed tray 3			
Tray 3 Set Sensor	Tray 3 Set Sensor	Set	Out of position
Paper empty	Tray 3 paper empty sensor	Paper not present	Paper present
Paper Near Empty	Tray 3 paper near empty sensor	Near empty	Not near empty
Vertical transport	Tray 3 vertical transport sensor	Paper present	Paper not present
Paper feed	Tray 3 paper feed sensor	Paper present	Paper not present
Upper Limit of Lift-up	Tray 3 upper limit sensor	At raised position	Not at raised position
Paper feed tray 4			
Tray 4 Set Sensor	Tray 4 Set Sensor	Set	Out of position
Paper empty	Tray 4 paper empty sensor	Paper not present	Paper present
Paper Near Empty	Tray 4 paper near empty sensor	Near empty	Not near empty
Vertical transport	Tray 4 vertical transport sensor	Paper present	Paper not present
Paper feed	Tray 4 paper feed sensor	Paper present	Paper not present
Upper Limit of Lift-up	Tray 4 upper limit sensor	At raised position	Not at raised position
Manual			
Bypass Length Sensor 1	Bypass FD paper size sensor/1	Paper present	Paper not present
Bypass Length Sensor 2	Bypass FD paper size sensor/2	Paper present	Paper not present
Push up Position	Bypass lift-up position sensor	Paper feed position	Standby position
Paper empty	Bypass paper empty sensor	Paper not present	Paper present
Paper passage transportation			
Reg. roller front sensor	Registration sensor1	Paper present	Paper not present
Paper exit	Paper exit sensor	Paper present	Paper not present
Fusing Loop Detect	Fusing loop sensor	Loop present	Loop not present
Registration sensor2	Registration sensor2	Paper present	Paper not present
Large capacity carton			
detection	identification signal	Set	Unset
Tray set sensor	LU set sensor	Set	Out of position
Upper limit sensor	LU upper limit sensor	At raised position (Blocked)	Not at raised position (Unblocked)
Paper Feed	LU paper feed sensor	Paper present	Paper not present
paper empty	LU paper empty sensor	Paper not present	Paper present
Paper Near Empty 1	LU near empty sensor /1	Near empty	Unblocked
Paper Near Empty 2	LU near empty sensor /2	Near empty	Unblocked
Upper Door	LU door switch	Close	Open
Duplex			
Paper passage 1	ADU paper passage sensor/1	Paper present	Paper not present
Paper passage 2	ADU paper passage sensor/2	Paper present	Paper not present
Transfer belt			
Retraction	1st transfer pressure sensor	Not released	Released
Waste Toner			
Waste Toner Box Set	Waste toner box set sensor	Set	Out of position
Waste Toner full	Waste toner full sensor	Blocked	Unblocked
Fusing			
Roller Retraction	Fusing pressure home sensor	Not released	Released
Loop Amount Detecting	Loop Amount Detecting Sensor	With loop	Without loop

4. Print Margin

(1) Leading Edge Adjustment(Top margin)

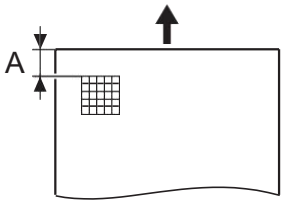
Use

- To vary the print start position in the sub scan direction for each of different paper types. (to adjust the timing where paper is sent out from the registration roller)
- Although the adjustment is made on the manual bypass tray, the adjusted values are reflected to each paper tray.
- The PH unit has been replaced.
- The paper type has been changed.
- The print image deviates in the sub scan direction.
- A faint image occurs on the leading edge of the image.

Paper type	Adjustment range
Tray1	-15~15
Tray2	-15~15
Tray3	-15~15
Tray4	-15~15
Large capacity tray	-15~15
Multifunctional paper feeder	-15~15
Duplex print	-15~15

Note: The setting range is 2

Setting range



(2) Printer Image Centering Side 1(Left margin)

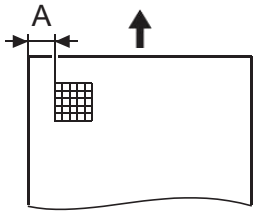
Use

- To vary the print start position in the main scan direction for each paper source.
- The PH unit has been replaced.
- A paper feed unit has been added.
- The print image deviates in the main scan direction.

Paper type	Adjustment range
Tray1	-15~15
Tray2	-15~15
Tray3	-15~15
Tray4	-15~15
Large capacity tray	-15~15
Multifunctional paper feeder	-15~15
Duplex print	-15~15

Note: The setting range is 2

Setting range



5. Paper Feed Direction Adjustment

Use

- To synchronize the paper transport speed with the image writing speed.
- [Sub Scan Zoom Adj.] becomes necessary.
- The print image on the copy distorts (stretched, shrunk).
- When the print image on the copy is stretched in the sub scan direction.

Paper type	Adjustment range
Normal paper	-7~7
Thin paper1/Thin paper2	-7~7
Thin paper3	-7~7
Thin paper4/Envelope	-7~7

6. Print alignment amplitude adjustment

Use

- Adjust the length of the wave formed on the paper before the registration roller.
- When the paper is skewed.
- When a paper feeding error occurs.

DPI	Paper Feed source	Paper type	Adjustment range
600	Tray1	Normal paper	-11~7
		Thin paper1/2	-11~7
		Thin paper3/4	-11~7
	Tray2/3/4/Large capacity tray	Normal paper	-11~7
		Thin paper1/2	-11~7
		Thin paper3/4	-11~7
	Multifunctional paper feeder	Normal paper	-10~8(H)/-11~7(L)
		Thin paper1/2	-10~8(H)/-11~7(L)
		Thin paper3/4	-10~8(H)/-11~7(L)
	Duplex	Normal paper	-9~10(H)/-12~8(L)
		Thin paper1/2	-9~10(H)/-12~8(L)
		Thin paper3/4	-9~10(H)/-12~8(L)
1200	Tray1		-11~7
	Tray2/3/4/Large capacity tray		-11~7
	Multifunctional paper feeder		-10~8(H)/-11~7(L)
	Duplex		-9~10(H)/-12~8(L)

Note: Multi-function and duplex separation High speed machine (H) and low speed machine (L).

7. Color Registration Adjustment

Use

- To adjust color shift if there is any when comparing the original with copy of the plain or thick paper.
- To correct any color shift.

Color	Direction	Range
Cyan	Main scan direction(All paper type)	-6~6
	Sub-scan direction(Normal paper/glossy paper)	-6~6
Magenta	Main scan direction(All paper type)	-6~6
	Sub-scan direction(Normal paper/glossy paper)	-6~6
Yellow	Main scan direction(All paper type)	-6~6
	Sub-scan direction(Normal paper/glossy paper)	-6~6

8. Print Head Skew Adj.

(1) Print Head Skew Adj.

Use

- To display the default position of the skew correction motor.
- In this machine, it is not unable to enter the adjusting value.

Color	Initial value
Yellow	624~1218
Cyan	624~1218
Magenta	624~1218

(2) Print Head Skew Reset

Use

- Returns the skew correction motor to the default position and clear the backup copies of the cumulative skew amount.
- To be used when the backup position information of settings in the machine is lost due to operations such as replacement of the EEPROM.
- After addressing the malfunction code P-14 and completing an action to the problem, perform this function.
- Use this function when the current skew correction motor's position becomes unavailable due to the skew adjustment interrupted by the door being opened or the main power switch being turned OFF.

NOTE

- **After the print head skew reset is complete, be sure to perform [Initialize + Image Stabilization].**

9. LD adjustment

(1) LD Timing Adj.

NOTE

- **It is not used on CM9105DN/M9105DN.**

Use

- It displays the emission delay value between two laser diode.
- This setting is made after the PH unit is replaced.
- This adjustment is made when the backup of information on position settings is lost.

Color	Adjustment range
Cyan	-265~265
Magenta	-265~265
Yellow	-265~265
Black	-265~265

(2) LD 1/2 Balance Adj.

NOTE

- **It is not used on CM9105DN/M9105DN.**

(a) Use

- This function adjusts the LD lightness balance between the two LDs to correct the difference of LD lightness between the LDs.
- This setting is made after the PH unit or eMMC board is replaced.
- This adjustment is made to prevent uneven density in highlighted halftone area processed with error diffusion being caused by inappropriate laser intensity.
- To eliminate the differences in light intensity between LD1 and LD2, adjust the light intensity of LD2 to that of LD1 (the light intensity of LD1 is fixed).

Color	Adjustment range
Cyan	-10~10
Magenta	-10~10
Yellow	-10~10
Black	-10~10

(3) LD Light Width Adjustment

Use

- To fine-adjust the light-emitting time of the laser that is scanned by the polygon motor.
- Use when the reproducibility of thin line is reduced.

NOTE

- **Adjustment value of this setting will be reflected by the image stabilization control.**

Setting range

- 0 to +6 (Step: 1)

Item	Adjustment range
LD Light Width	0~6

10.Stabilizer

(1) Stabilization Only

Use

- The image stabilization sequence is carried out without clearing the historical data of image stabilization control.
- Use if an image problem persists even after gradation adjustment has been executed.
- When [Max Image Density Adj] and [Image Background Adj] of Service Mode are changed.

(2) Initialize+Image Stabilization

Use

- To carry out an image stabilization sequence after the historical data of image stabilization control has been initialized.
- Use if an image problem persists even after [Gradation Adjustment] has been executed.
- Use if tone reproduction and maximum density are faulty even after image stabilization has been executed.
- When color shift correction is needed again after the machine maintenance.
- After executing the print head skew reset.

(3) Max Image Density Adj

Use

- To adjust gradation, color, and image density to target reproduction levels by varying the maximum amount of toner sticking to paper through auxiliary manual fine-adjustment of gamma of each color after gradation adjust.
- An image quality problem is not corrected even after gradation adjust has been run.

Setting range

- -10 to +10 (step: 1 *)

  *: 1 step corresponds to 0.03 in density difference.

	Color	Adjustment range
Print	Cyan	-10~10
	Magenta	-10~10
	Yellow	-10~10
	Black	-10~10
Duplicate	Cyan	-10~10
	Magenta	-10~10
	Yellow	-10~10
	Black	-10~10

NOTE

- **If the setting value has been changed, be sure to run an image stabilization sequence to make valid the new value.**

(4) Image Background Adj

Use

- To adjust the highlight portion (fog level) to the target reproduction level by making an auxiliary manual fine-adjustment of γ of each color after gradation adjust.
- Use when a foggy background occurs due to a printer problem.

Setting range

- -5 to +5 (step: 1*)

*: 1 step corresponds to 10 V.

Color	Adjustment range
Cyan	-5~5
Magenta	-5~5
Yellow	-5~5
Black	-5~5

NOTE

- **If the setting value has been changed, be sure to run an image stabilization sequence to make valid the new value.**

(5) Paper Separation Adjustment

Use

- By changing the period between the activation of the registration roller and the 2nd image transfer output, the paper separation position can be adjusted for the 1st and 2nd sides of paper.
- To ensure proper balance between paper separating and image transferring performances by varying the paper separation position applied for duplex printing of thin paper (52 to 59 g/m ^{2}) in hot and humid conditions.

Setting range

- -10 mm to +10 mm (step: 0.1 mm)

Paper	Adjustment range
Front	-100~100
Back	-100~100

(6) Monochrome Density Adjustment

Use

- To fine-adjust the density of the printed image for a black print.
- To vary the density of the printed image of a black print.

Setting range

- -2 to +2 (step: 1)

(7) Removable Voltage Adjust

Use

- To allow the basic charge neutralizing voltage to be adjusted.
- To prevent separation failure (jam, paper conveyance failure) that may occur when paper other than recommended one is used by adjusting the neutralization voltage to the one that suits the type of paper the user uses.

Setting range

- -3 to +3 (Step: 1*)
  *1: step is equivalent to 500 V.

Front and back of paper	Range
Front	-3~3
Back	-3~3

NOTE

- **Select [Auto] at each paper type to automatically control the neutralization voltage without using the neutralization voltage setting value.**

(8) TCR Level Setting

Use

- To adjust the T/C control level when an abnormal image density occurs as a result of a change in the amount of charge of toner and carrier due to an environmental change.
- Use when T/C changes due to changes in environmental conditions of the user site.

Setting range

- -3 to +3 (1 step in positive (+) direction: 0.5 % increase, 1 step in negative (-) direction: 0.5 % decrease, Center value 0 corresponds to 6.5 % T/C ratio.)

Color	Range
Cyan	-3~3
Magenta	-3~3
Yellow	-3~3
Black	-3~3

(9) Transfer Voltage Fine Adj

(a) Primary transfer adj.

Use

- Adjust the output value for the 1st image transfer voltage.
- To use when white spots appeared.

Setting range

- -8 to +7 (step: 1 *)
  - *1: step is equivalent to 1μA.

Color	Range
Cyan	-8~7
Magenta	-8~7
Yellow	-8~7
Black	-8~7

NOTE

- **Photo conductor memory may occur by taking measure to white spots occurred by increasing the 1st image transfer voltage to adjust it.**
- **Check the image on the test pattern or the color chart when adjusting.**

(b) 2nd Transfer Adj.

Use

- Adjust the 2nd image transfer output (ATVC) on the 1st page and the 2nd page for each paper type.
- To use when the transfer failure occurs.
- Pressing the [AUTO] key down activates the 2nd image transfer amperage upper and lower limit control. In this case, the machine uses the voltage determined by the auto transfer voltage control and the 2nd image transfer voltage fine adj value does not take effect.

Setting item

600dpi - Front	Plain - Color, Normal Paper - Black, Normal Paper - Glossy, Thin Paper - Color, Thin Paper - Black, Thick1 - Color, Thick Paper1 - Black, Thick1+ - Color, Thick Paper1+ - Black, Thick2, Thick3, Thick4, Post., Envelope, OHP Film, Banner Thick1+, Banner Thick2, Banner Thick3
600dpi - Back	Plain - Color, Normal Paper - Black, Thin Paper - Color, Thin Paper - Black, Thick1, Thick1+, Thick2, Thick3, Thick4, Post.
1200dpi - Front	Plain - Color, Normal Paper - Black, Thin Paper - Color, Thin Paper - Black, Thick1 - Color, Thick Paper1 - Black, Thick1+ - Color, Thick Paper1+ - Black, Thick2, Thick3, Thick4, Post., Envelope, OHP Film
1200dpi - Back	Plain - Color, Normal Paper - Black, Thin Paper - Color, Thin Paper – Black, Thick1, Thick1+, Thick2, Thick3, Thick4, Post.,

Setting range

- -8 to +7 (step: 1 *)
  - *: 1 step is equivalent to 100 V.

DPI		Paper type	Range
600	Front	Normal Paper(Color)	-8~7
		Normal Paper（Black）	-8~7
		Thick paper1（Color）	-8~7
		Thick paper1（Black）	-8~7
		Thick paper2（Color）	-8~7
		Thick paper2（Black）	-8~7
		Thick paper3	-8~7
		Thick paper4	-8~7
		Postcard	-8~7
		Envelope	-8~7
		Banner（Thick2）	-8~7
		Banner（Thick3）	-8~7
		Banner（Thick4）	-8~7
		OHP Film	-8~7
		Normal Paper1	-8~7
	Back	Normal Paper(Color)	-8~7
		Normal Paper（Black）	-8~7
		Thick paper1	-8~7
		Thick paper2	-8~7
		Thick paper3	-8~7
		Thick paper4	-8~7
		Postcard	-8~7
1200	Front	Normal Paper(Color)	-8~7
		Normal Paper（Black）	-8~7
		Thick paper1（Color）	-8~7
		Thick paper1（Black）	-8~7
		Thick paper2（Color）	-8~7
		Thick paper2（Black）	-8~7
		Thick paper3	-8~7
		Thick paper4	-8~7
		Postcard	-8~7
		Envelope	-8~7
		OHP Film	-8~7
	Back(Double side)	Normal Paper(Color)	-8~7
		Normal Paper（Black）	-8~7
		Thick paper1	-8~7
		Thick paper2	-8~7
		Thick paper3	-8~7
		Thick paper4	-8~7
		Postcard	-8~7

NOTE

- **To automatically control the 2nd image transfer output without using the 2nd image transfer voltage fine adj value, press [Auto].**

Charge AC Output fine adjustment

Use

- Adjusts the charging AC voltage applied to the charge roller.
- Adjusts the voltage when there are image problems (fogging, white spots, etc).
- Increases the setting when there are image problems (fogging, white spots, etc).

Color	Range
Cyan	-12~8
Magenta	-12~8
Yellow	-12~8
Black	-12~8

Manual Toner Add

(1) Manual Toner Add

Use

- To adjust the set T/C level by replenishing an auxiliary supply of toner when a low ID occurs due to a lowered T/C after large numbers of prints have been made of originals having a high image density.
- When there is a drop in T/C ratio.

Toner Cartridge
Cyan
Magenta
Yellow
Black
Toner bucket filling and mixing

New part confirmation

Use

Because some printer assy. cannot automatically recognize new products, you need to manually issue instructions after replacing new parts to notify the engine that new part have been installed.

Developing unit
Tansfer belt

Trouble Reset

Use

Manually issue commands to the engine to clear certain faults.

Stapler diagnostic

Motor test

Use

Activate the motor and check whether the motor works.

Paper Transfer Motor
Paper Entrance Motor
Paper Exit Motor
Paper Alignment Plate Motor(Front)
Main Tray Up/Down Motor
Paper Alignment Plate Motor(Rear)
Side Stopper Guide Motor
Paper Exit Belt Motor
Exit Roller Retraction Motor
Tail Edge Holding Plate Motor
Side Stapler Movement Motor
Pre-Exit Drive Motor
Punch Drive Motor
Paddle Motor
Output Tray Change Motor

Snanner diagnostic

Sensor test

Use

Sensor Name	Control panel display	
	1	0
document size detection sensor 1	ON	OFF
document size detection sensor 2	ON	OFF
home position sensor	ON	OFF
DF shading apparatus home position sensor	ON	OFF
document cover 0-degrees sensor	ON	OFF
document cover 20-degrees sensor	ON	OFF

Paper feed test

Use

Scanner starts paper feed test,If the ADF has paper, the paper is preferentially fed from the ADF. If the ADF has no paper, it will scan from the plate and count once after scanning one piece of paper.

Event log

Use

Print detailed log information recorded by the machine.

MECHANICAL ADJUSTMENT

Document feed section

Centering adjustment of the tray 1/2

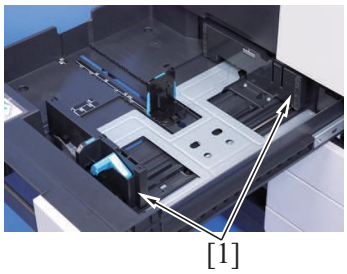
(1) Purpose

This adjustment must be made in the following case:

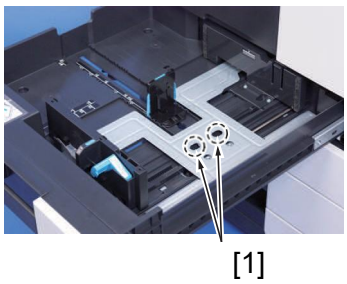
- When an image printed on a copy is displaced from the correct position with the use of the tray1/2.

(2) Procedure

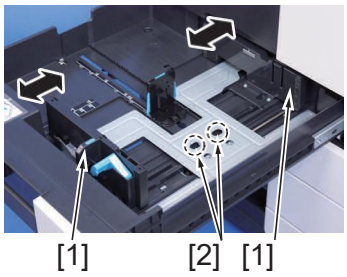
1. Make a test print and check the amount of misalignment.
2. Pull out the tray where this adjustment is made.
3. Stretch the paper guides [1] to the maximum size position.



4. Loosen two screws [1].



5. Move the paper guides [1] complete according to the amount of the mis-centering you checked in step 1 and adjust the center position of it.
6. Tighten two screws [2].
7. Make another test print and check the amount of misalignment.



Pick-up pressure adjustment of the tray 1/2

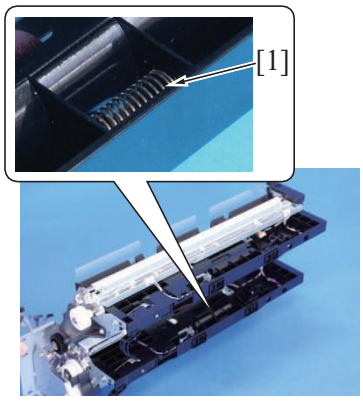
(1) Purpose

This adjustment must be made in the following case:

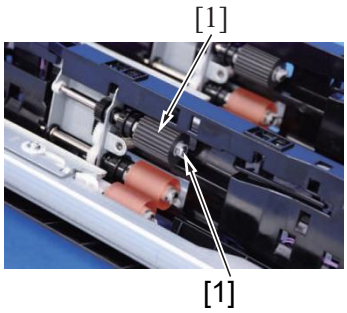
- When paper jam occurs while thin paper (52 g/m^2) is fed.

(2) Procedure

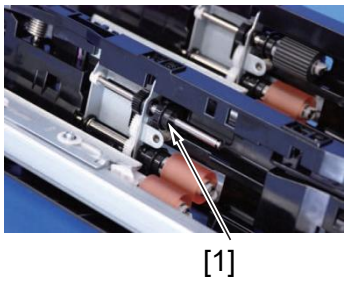
1. Remove the paper feed unit.
   G.1.3.2 Paper feed unit



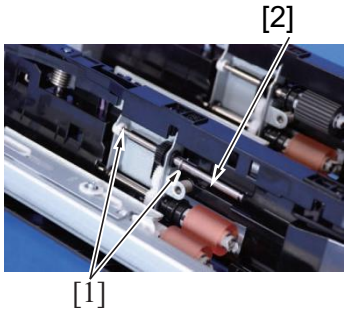
2. Remove the spring [1] stored for replacement from the paper feed unit.



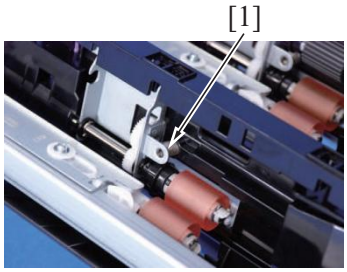
3. Release the tab [1], and remove the tray 2 pick-up roller [2].



4. Remove the bushing [1].



5. Remove two E-rings [1], and remove the shaft [2] of the pick-up roller.



6. Remove the spring [1] and replace it with the replacement spring prepared in step 2.
   NOTE
   - **The pick-up pressure of the tray 1 can be adjusted by replacing the spring of the tray 1 paper feed unit with the replacement spring prepared in step 2.**

7. To reinstall, reverse the order of removal.
8. Make a test print to check whether paper is fed properly.

Separator roller pressure adjustment of the bypass tray

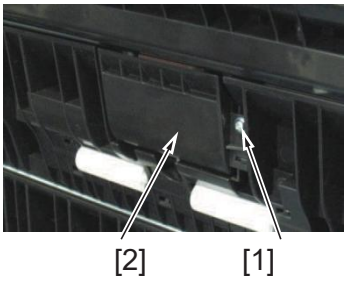
(1) Purpose

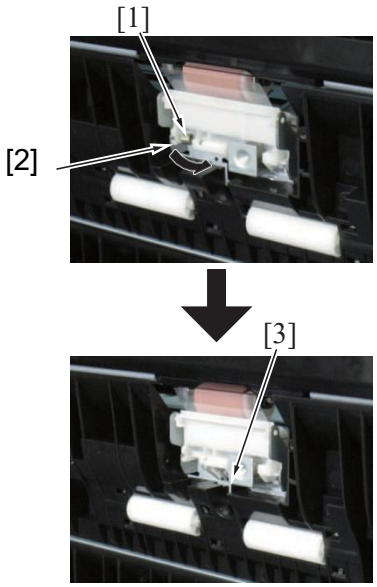
This adjustment must be made in the following case:

- When paper jam occurs with a specific type of thick paper (300 g/m^2) is fed.

(2) Procedure

1. Open the right door.
2. Remove the screw [1], and remove the cover [2].





3. Hold the edge of the spring [1] with a plier, etc, to pull it off the hook part [2].
4. Hook the edge of the removed spring to the hook part [3] shown on the illustration.
5. Make a test print to check whether paper is fed properly.
6. When returning the pressure to the original status, return the hook of the spring in reverse steps.

Adjustment of the bypass CD paper size VR

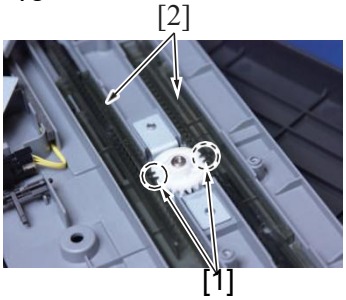
(1) Purpose

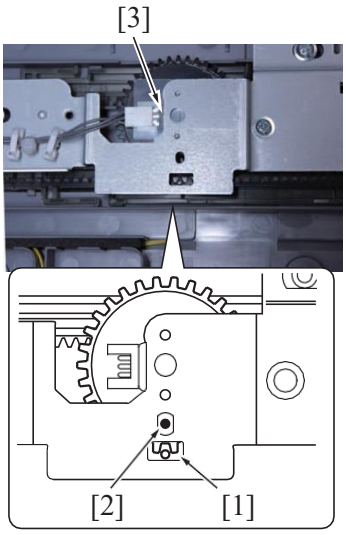
This adjustment must be made in the following case:

- The bypass CD paper size VR has been removed.

(2) Procedure

1. Align the match mark [1] on the bypass guide rack gear with the groove on the gear rim at two places and install two bypass guide rack gears [2].





2. When installing the bypass CD paper size VR assy [3], make sure that the alignment mark [1] on the bypass guide rack gear and the gear hole [2] on the bypass CD paper size VR assy are placed in a straight line.
3. Secure the bypass CD paper size VR assy with four screws.

4. After the bypass CD paper size VR base has been mounted, check that the lever of the bypass CD paper size VR moves smoothly in a manner operatively connected to the bypass guide.

Fusing section

Adjusting the parallelism of the fusing unit path

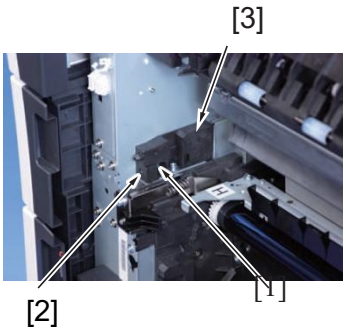
(1) Purpose

This adjustment must be made in the following case:

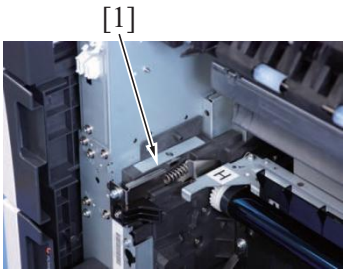
- When the second transfer paper feed path and the fusing section path are not parallel and caused wrinkles on the paper.

(2) Procedure

1. Remove the fusing unit.
   Replacing the fusing unit (CM9705DN/M9705)
   Replacing the fusing unit (CM9105DN/M9105DN)



2. Remove the screw [1] for the fusing unit positioning material.
3. Remove the screw [2], and remove the fusing unit positioning material [3].



4. 0.6 mm adjusting shim plate [1] is installed as the standard status. Add or reduce the number of shims to adjust the parallelism.
   - Removing the standard adjusting shim plate: The fusing unit mounting position (front side) will move down by 0.6 mm.
   - Adding one adjusting shim plate: The fusing mounting position (front side) will move up by 0.6mm.

5. To reinstall, reverse the order of removal.
6. Make a test print to check whether paper is fed properly.

MECHANICAL ADJUSTMENT CPT910

Paper reference position

Purpose

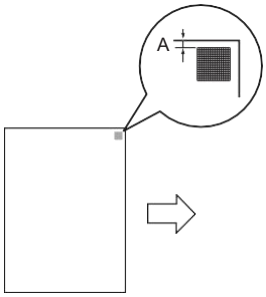
This adjustment must be made in the following case:

- When the PH unit has been replaced.
- When the image on the print is offset in the main scan direction.
- When adjustment in [Service Mode] -> [Machine] -> [Printer Area] -> [Printer Image Centering Side 1] does not resolve a problem.

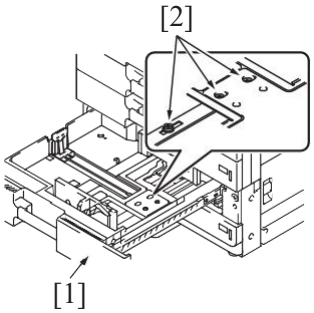
NOTE

- **When optional finisher FS-536, FS-536SD, FS-537, or FS-537SD is installed, mechanical adjustment is necessary before adjustment [Printer Image Centering Side 1].**

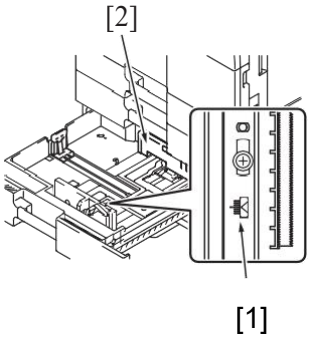
Procedure



1. Measure the width of printed reference line A. Target: 3.0 mm ± 1.0 mm



2. Slide out the tray [1] and unload paper from it.
3. Loosen three screws [2] at the center of the paper lifting plate.



4. Watching the graduations [1] provided in the drawer, move the paper width guide [2] in the rear.
   - If width A is greater than the target, move the paper width guide toward the front.
   - If width A is smaller than the target, move the paper width guide toward the rear.
5. Tighten three screws which have been loosened.
6. Perform another test print and check the reference deviation.

MECHANICAL ADJUSTMENT CPT910X

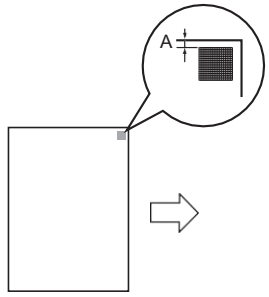
Paper reference position

Purpose

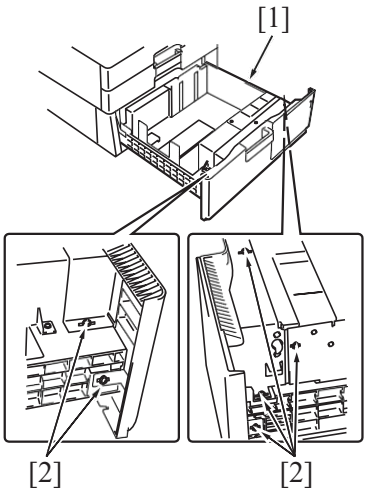
This adjustment must be made in the following case:

- When the PH unit has been replaced.
- When the image on the print is offset in the main scan direction.
- When adjustment in [Service Mode] -> [Machine] -> [Printer Area] -> [Printer Image Centering Side 1] does not resolve a problem.
  NOTE
  - **When optional finisher FS-536, FS-536SD, FS-537, or FS-537SD is installed, mechanical adjustment is necessary before adjustment [Printer Image Centering Side 1].**

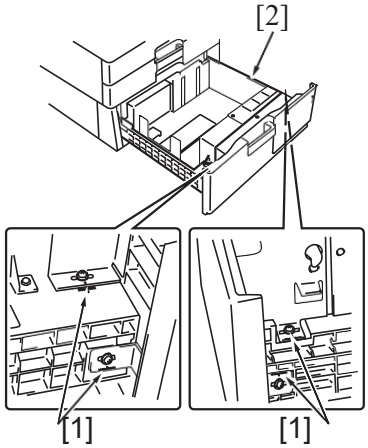
Procedure



1. Measure the width of printed reference line A. Target: 3.0 mm ± 1.0 mm



2. Slide out the paper feed tray [1] and unload paper from it.
3. Loosen six screws [2].

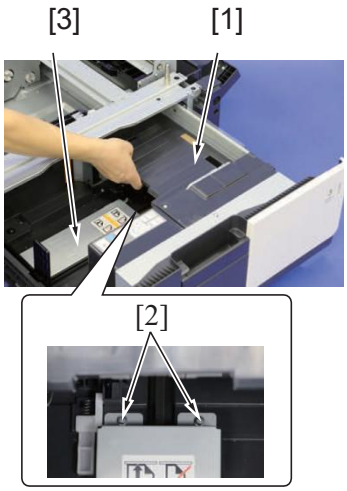


4. Watching the graduations [1] provided near the screws, move the front cover assy [2].
   - If width A is greater than the target, move the front cover assy toward the rear.
   - If width A is smaller than the target, move the front cover assy toward the front.
5. Tighten six screws which have been loosened.
6. Perform another test print and check the reference deviation.

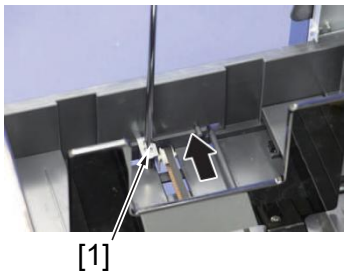
Shifter movement timing belt adjustment

Procedure

1. Slide out the paper feed tray.



2. While raising the main tray [1], and remove two screws [2] that hold the shift tray in position.
   NOTE
   - **When reinstalling, use caution because the wire of the main tray [1] comes off easily.**
3. Remove the shift tray [3].



4. Move the sifter.
5. Loosen the tension pulley assy fixing screw [1] and move it in the direction of the arrow.
6. After moving the shifter, tighten the tension pulley assy fixing screw [1].

MECHANICAL ADJUSTMENT CPT910U

Paper feed section

Centering adjustment of the LCT

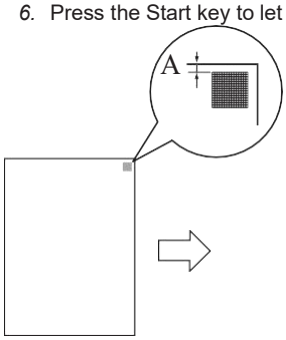
(1) Purpose

This adjustment must be made in the following case:

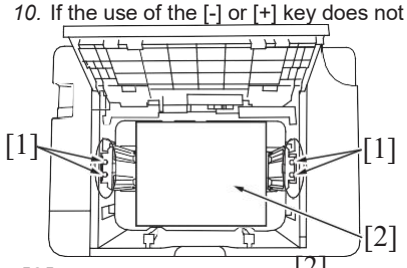
- When adjustment in [Service Mode] -> [Machine] -> [Printer Area] -> [Printer Image Centering Side 1] does not resolve a problem.

(2) Procedure

1. Call the Service Mode to the screen.
2. Touch [Machine].
3. Touch [Printer Area].
4. Touch [Centering].
5. Touch [LCT].
6. Press the Start key to let the machine produce a test print.



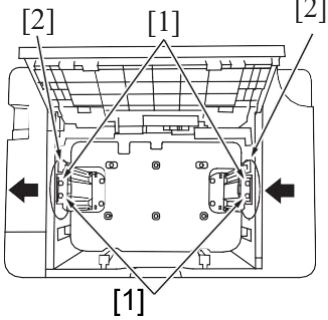
7. Measure the width of printed reference line A. Target A: 3.0 mm ± 1.0 mm
8. If the measured width A falls outside the target, enter the correction value using the [-] or [+] key.
9. Produce another test print and check to see if width A falls within the target.
10. If the use of the [-] or [+] key does not allow the measurement to fall within the target, perform the following steps.



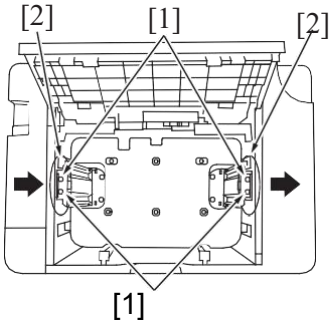
11. Open the upper door on LCT to loosen four screws [1].

NOTE

- **During adjustment, in order to keep the same distance between the paper guide side plates, place a sheet of paper [2] between the paper guide side plates with 1.0 mm apart from each of the plates.**



12. When the width A is larger than the target. Move the paper guide side plates [2] leftward and tighten four loosened screws [1].



13. When the width A is smaller than the target. Move the paper guide side plates [2] rightward and tighten four loosened screws [1].
14. Load paper and let the machine produce another test print. Then, check width A.
15. Make the adjustment until width A falls within the target.

Pick-up roller load adjustment of the LCT

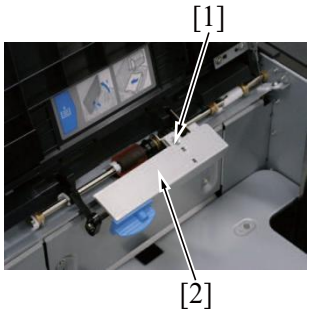
(1) Purpose

This adjustment must be made in the following case:

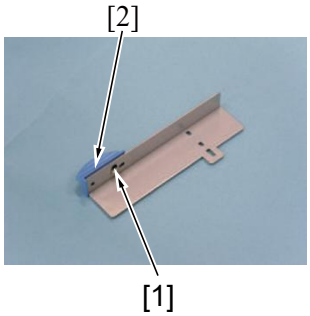
- Incase a no feed jam occurs frequently, perform the pick-up roller load adjustment.

(2) Procedure

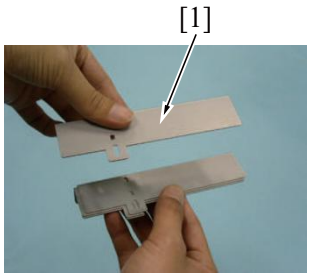
1. Open the upper door.



2. Remove the screw (M3 x 8 mm: V116 0308 03) [1] and remove the paper assist plate assy [2].



3. Remove the screw [1] and remove the assist handle [2].



4. Add one more paper assist plate (A03N 5604 ##) [1] to the original ones.
   NOTE
   - **Up to four paper assist plates can be added. (Standard: three)**

5. Reinstall the assist handle that was removed in step 3, securing it with the screw.
6. Reinstall the paper assist plate assy with a new screw (M3 X 10 mm). The screw removed in step 2 (M3 X 8 mm) cannot be used to reinstall the assy.
7. Close the upper door.
8. Perform copying/printing to check whether the no feed or the double feed occurs or not.

MECHANICAL ADJUSTMENT PF910U

Paper exit section

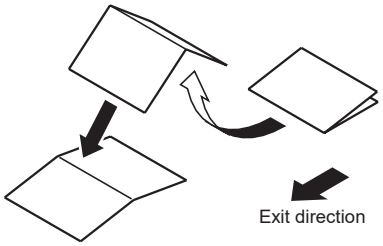
Half-fold skew adjustment

(1) Purpose

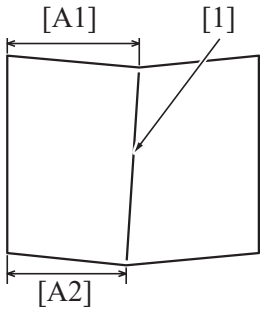
This adjustment must be made in the following case:

- Fold line goes off the tolerance in the half-fold mode.
- When reinstalling the guide plate assy, perform mechanical adjustment.

(2) Procedure

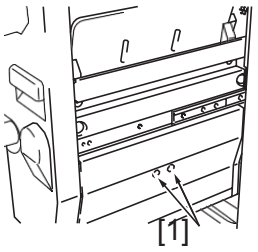


1. Make a copy in the half-fold mode.
2. Unfold the paper that exits the machine and lay the paper with the ridge facing up.

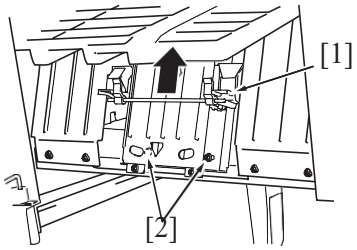


3. Confirm the skew of the fold line [1] of the output copy sample (Widths of A1 and A2)
   Target: A1-A2=±1.0 mm
4. In case the figure exceeds the above mentioned target, follow the adjustment procedures below.

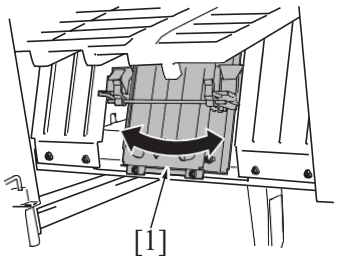
5. Open the front door of the finisher.
6. Pull the saddle unit.



7. Loosen two screws [1].

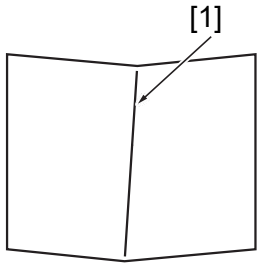


8. Slide the lever unit [1] upward.
9. Loosen two screws [2].



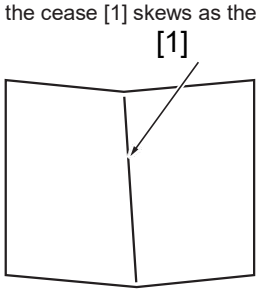
10. Incline the guide plate assy [1] forward or backward according to the deviation of the crease.

In case the cease [1] skews as the right side:



- In case the cease [1] skews as the right side:
  Incline the guide plate assy backward.

In case the cease [1] skews as the left side:



- In case the cease [1] skews as the left side:
  Incline the guide plate assy forward.

11. Make the copy sample again to confirm the cease skew.
12. Reinstall the above parts following the removal steps in reverse.

4. TROUBLESHOOTING

TROUBLE CODE

List of the trouble code (CM9705DN/M9705/CM9105DN/M9105DN)

Code	Item	Rank	Maintenance method
00-02	Paper feed communication error	C	C0002
01-06	Tray 3/transfer LCT paper feed motor's turning at abnormal timing (When PC-115, PC-215, or CPT910X is installed)	B	C0106
01-08	Tray 4 paper feed motor's turning at abnormal timing (When PC-215 is installed)	B	C0108
01-09	Tray 4 vertical transport motor's turning at abnormal timing (When PC-215 is installed)	B	C0109
02-02	Tray 1 feeder up/down abnormality	B	C0202
02-04	Tray 2 feeder up/down abnormality	B	C0204
02-06	Tray 3 feeder up/down abnormality (When PC-115 or PC-215 is installed)	B	C0206
02-08	Tray 4 feeder up/down abnormality (When PC-215 is installed)	B	C0208
02-10	Transfer LCT lift failure (When CPT910X is installed)	B	C0210
02-11	Manual feed up/down abnormality	B	C0211
02-14	Transfer LCT shift failure (When CPT910X is installed)	B	C0214
02-16	External LCT up/down abnormality (When LU-207 or LU-302 is installed)	B	C0216
10-04	Finisher communication error (Engine detection) (When PF910, FS-536, FS-536SD, FS-537, FS-537SD, or JS-506 is installed)	C	C1004
10-81	SD communication error (Finisher detection) (When FS-536SD or FS-537SD is installed)	C	C1081
11-02	Main tray up/down motor's drive malfunction (When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1102
11-03	Alignment motor/front's drive malfunction (When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1103
11-05	Bundle eject motor's drive malfunction (When FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1105
11-06	Stapler movement motor's drive malfunction (When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1106
11-09	Side stapler motor's drive malfunction (When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1109
11-12	Stapler motor's malfunction (When FS-536SD or FS-537SD is installed)	B	C1112
11-13	Stopper drive motor's malfunction (When FS-536SD or FS-537SD is installed)	B	C1113
11-14	Alignment motor's drive malfunction (When FS-536SD or FS-537SD is installed)	B	C1114
11-15	Center fold knife motor's malfunction (When FS-536SD or FS-537SD is installed)	B	C1115

Code	Item	Rank	Maintenance method
11-32	Punch drive motor's malfunction (When PF910+PK-519, FS-536+PK-520, FS-536SD+PK-520, FS-537+PK-523, or FS-537SD +PK-523 is installed)	B	C1132
11-40	Alignment motor/rear's drive malfunction (When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1140
11-41	FNS paddle motor's drive malfunction (When FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1141
11-44	Pre-eject drive motor's drive malfunction (When FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1144
11-45	Trail edge stopper motor's drive malfunction (When FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1145
11-56	SD paddle motor's malfunction (When FS-536SD or FS-537SD is installed)	B	C1156
11-84	Paper receiving control motor's drive malfunction (When FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C1184
11-95	Paper discharge control motor's malfunction (When FS-536SD or FS-537SD is installed)	B	C1195
11-96	Center fold guide motor's malfunction (When FS-536SD or FS-537SD is installed)	B	C1196
11-97	Tri-folding guide motor's malfunction (When FS-536SD or FS-537SD is installed)	B	C1197
11-A1	Exit roller pressure/ retraction malfunction (When PF910 is installed)	B	C11A1
11-A2	Receiving roller retraction motor's drive malfunction (When FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C11A2
11-E1	Paper exit switching drive malfunction (When FS-536, FS-536SD, FS-537, or FS-537SD is installed)	B	C11E1
14-02	FS nonvolatile memory error (When PF910 is installed)	C	C1402
21-52	Transfer belt fault at initial position return	B	C2152
21-53	Transfer belt spacing fault at K pressure switching	B	C2153
21-54	Transfer belt contact fault at all pressure switching	B	C2154
21-55	Transfer belt contact fault after K pressure established	B	C2155
21-56	Transfer belt spacing fault after all pressure established	B	C2156
22-53	PC motor's failure to turn	B	C2253
22-54	PC motor's turning at abnormal timing	B	C2254
22-55	Developing motor's failure to turn	B	C2255
22-56	Developing motor's turning at abnormal timing	B	C2256
23-50	Toner suction fan's failure to turn	B	C2350
23-55	Transfer belt cleaner cooling fan's failure to turn	B	C2355
24-11	Developing unit/C new article release	B	C2411
24-12	Developing unit/M new article release	B	C2412
24-13	Developing unit/Y new article release	B	C2413
24-14	Developing unit/K new article release	B	C2414
25-51	Abnormally low toner density detected cyan TCR sensor	B	C2551
25-52	Abnormally high toner density detected cyan TCR sensor	B	C2552
25-53	Abnormally low toner density detected magenta TCR sensor	B	C2553

Code	Item	Rank	Maintenance method
25-54	Abnormally high toner density detected magenta TCR sensor	B	C2554
25-55	Abnormally low toner density detected yellow TCR sensor	B	C2555
25-56	Abnormally high toner density detected yellow TCR sensor	B	C2556
25-57	Abnormally low toner density detected black TCR sensor	B	C2557
25-58	Abnormally high toner density detected black TCR sensor	B	C2558
25-59	Cyan TCR sensor adjustment failure	B	C2559
25-5A	Magenta TCR sensor adjustment failure	B	C255A
25-5B	Yellow TCR sensor adjustment failure	B	C255B
25-5C	Black TCR sensor adjustment failure	B	C255C
25-61	Cyan TCR sensor failure	B	C2561
25-62	Magenta TCR sensor failure	B	C2562
25-63	Yellow TCR sensor failure	B	C2563
25-64	Black TCR sensor failure	B	C2564
26-50	Main backup media access error 1	C	C2650
2A-11	Drum unit/C new release failure	B	C2A11
2A-12	Drum unit/M new release failure	B	C2A12
2A-13	Drum unit/Y new release failure	B	C2A13
2A-14	Drum unit/K new release failure	B	C2A14
2A-21	Toner cartridge/C new release failure	C	C2A21
2A-22	Toner cartridge/M new release failure	C	C2A22
2A-23	Toner cartridge/Y new release failure	C	C2A23
2A-24	Toner cartridge/K new release failure	C	C2A24
31-01	Pressure roller pressure failure	B	C3101
31-02	Heating roller failure to turn (CM9705DN/M9705)	A	C3102
31-03	Pressure roller release failure	B	C3103
32-01	Fusing motor's failure to turn	B	C3201
32-02	Fusing motor's turning at abnormal timing	B	C3202
33-02	Paper cooling fan's failure to turn	B	C3302
34-25	Fusing warm-up trouble	A	C3425
37-22	Fusing abnormally high temperature detection (Edge of the heating roller)	A	C3722
37-25	Fusing abnormally high temperature detection (Main of the heating roller)	A	C3725
37-26	Fusing abnormally high temperature detection (Center of the heating roller)	A	C3726
37-32	Fusing abnormally high temperature detection hard protector (Edge of the heating roller) (CM9705DN/M9705)	A	C3732
37-36	Fusing abnormally high temperature detection hard protector (Middle of the heating roller)	A	C3736
37-37	Fusing abnormally high temperature detection hard protector (Center of the heating roller) (CM9705DN/M9705)	A	C3737
37-38	Fusing abnormally high temperature detection hard protector (Center of the heating roller) (CM9705DN/M9705)	A	C3738
38-22	Fusing abnormally low temperature detection (Edge of the heating roller) (CM9705DN/M9705)	A	C3822
38-25	Fusing abnormally low temperature detection (Main of the heating roller)	A	C3825
39-22	Fusing sensor wire breaks detection (Edge of the heating roller)	A	C3922
39-25	Fusing sensor wire breaks detection (Main of the heating roller)	A	C3925
39-26	Fusing sensor wire breaks detection (Center of the heating roller)	A	C3926
39-2A	Heating roller temperature sensor contamination (Main of the heating roller)	C	C392A
39-2B	Fusing sensor wire breaks detection (Difference of temperature)	A	C392B
3B-02	IH malfunction (CPU) (CM9705DN/M9705)	A	C3B02
3B-03	IH malfunction (monitor) (CM9705DN/M9705)	A	C3B03
3B-07	IH input power error	A	C3B07

Code	Item	Rank	Maintenance method
3B-08	IH input voltage error	B	C3B08
3B-09	IH communication error	C	C3B09
40-A1	Mechanical controller sub-CPU communication error	C	C40A1
40-A2	Mechanical controller PF communication data error	C	C40A2
40-A3	Mechanical controller PF transmission timeout	C	C40A3
40-A4	Mechanical controller PF communication pulse error	C	C40A4
41-01	Polygon motor's rotation trouble	B	C4101
45-01	Laser malfunction	B	C4501
51-02	Transport motor's failure to turn	B	C5102
51-03	Transport motor's turning at abnormal timing	B	C5103
53-04	Fusing power supply cooling fan’s failure to turn (CM9705DN/M9705)	B	C5304
53-06	IH coil cooling fan’s failure to turn (CM9705DN/M9705)	B	C5306
53-51	Power supply cooling fan motor's failure to turn	B	C5351
53-55	Toner cartridge cooling fan's failure to turn	B	C5355
53-60	Clean unit fan's failure to turn (When CU-102 is installed)	B	C5360
53-61	UFP exhaust cooling fan's failure to turn	C	C5361
56-01	Engine control malfunction	C	C5601
56-03	Front side board communication error	C	C5603
56-05	Engine communication data error	C	C5605
56-06	Engine transmission timeout	C	C5606
56-10	PH LD drive communication error	C	C5610
0x0146(06-05)	Drive system home sensor malfunction	B	C6102
61-03	Slider over running	B	C6103
0x00F8(38-03)	Back side cleaning home sensor abnormality (initial)	B	C6104
0x0138(38-04)	Back side cleaning home sensor abnormality (normal)	B	C6105
0x0073(33-01)	CCD clamp/gain adjustment failure	B	C6751
0x00B3(33-02)	ASIC clock input error (front side)	C	C6752
0x01F8(38-07)	ASIC clock input error (back side)	C	C6753
0x0178(38-05)	CIS clamp adjustment failure	B	C6754
0x01B8(38-06)	CIS gain adjustment failure	B	C6755
0x00F3 (33-03)	CCD power-supply voltage malfunction	C	C6756
0x0054(14-01)	Scanner sequence trouble 1	C	C6F01
0x0002	Before reading pressure welding alienation mechanism trouble	B	C8101
0x0200	Glass cleaning mechanism trouble	B	C8107
0x0001	Cooling fan motor's trouble	B	C8302
0x0004(04-00)	Exposure LED lighting failure	B	C9401
0x0044(04-01)	Exposure LED lighting abnormally	B	C9402
0x0078(38-01)	CIS LED lighting failure	B	C9403
0x00B8(38-02)	CIS LED lighting abnormally	B	C9404
0xFFFF/0 XFFFE	ADF initialization timeout (The cable issue between data board and engine board)	C	Replace the cable and restart printer
C1-55	Finisher ROM error (When PF910 is installed)	C	/
C1-5B	Flash ROM error (saddle) (When FS-536SD or FS-537SD is installed)	C	/
C1-63	ROM contents error (PRT)	C	/
D7-01	Mechanical controller flash ROM writing error	C	/
D7-02	Mechanical controller flash ROM device error	C	/
D7-03	FW download communication fault	C	/
D7-04	Finisher Flash ROM device error (When PF910,PF910X, PF910U is installed)	C	/
D7-05	Mechanical controller sub-CPU flash ROM device error	C	/
D7-06	Mechanical controller sub-CPU flash ROM error	C	/

C0###

C0002

(1) Contents

Trouble type	C0002: Paper feed communication error
Rank	C
Trouble detection condition	When the MFP board (MFPB) is receiving data, a communication error is detected.
Trouble isolation	-
Relevant electrical parts	• MFP board (MFPB) • PC control board (PCCB)

(2) Procedure

1. Turn OFF the main power switch, disconnect and then connect the power cord. Wait for 10 sec. or more after connect the power cord, and turn ON the main power switch.
2. Correct or replace the harness connection between the main body and the paper feed cabinet if faulty.
3. Rewrite the firmware.
4. Replace PCCB. (CPT910 / CPT910X)
5. Replace MFPB.

C0106

(1) Contents

Trouble type	C0106: Tray 3/transfer LCT paper feed motor's turning at abnormal timing (When PC-115, PC-215, or CPT910X is installed)
Rank	B
Trouble detection condition	• The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning. • The motor lock signal remains LOW for a predetermined continuous period of time while the motor remains stationary.
Trouble isolation	-
Relevant electrical parts	<When PC-115 or PC-215 is installed> • Tray 3 paper feed motor (M111) • PC control board (PCCB)
	<When CPT910X is installed> • Paper feed motor (M131) • PC control board (PCCB)

(2) Procedure

(a) When PC-115 or PC-215 is installed

1. Check the connector between M111-PCCB CN5 for proper connection and correct as necessary.
2. Check the connector of M111 for proper drive coupling and correct as necessary.
3. M111 operation check
   - Control signal: PCCB CN5-5 (CW/CCW)
   - Location of electrical component: CPT910 4-C
4. Replace M111.
5. Replace PCCB.

NOTICE
- Link to the wiring diagram (PC-115)
- Link to the wiring diagram (PC-215)

(b) When CPT910X is installed

1. Check the connector between M131-PCCB CN5 for proper connection and correct as necessary.
2. Check the connector of M131 for proper drive coupling and correct as necessary.
3. M131 operation check
   - Control signal: PCCB CN5-5 (CW/CCW)
   - Location of electrical component: CPT910X 4-J
4. Replace M131.
5. Replace PCCB.

NOTICE
- Link to the wiring diagram (CPT910X)

C0108

(1) Contents

Trouble type	C0108: Tray 4 paper feed motor's turning at abnormal timing (When PC-215 is installed)
Rank	B
Trouble detection condition	• The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning. • The motor lock signal remains LOW for a predetermined continuous period of time while the motor remains stationary.
Trouble isolation	-
Relevant electrical parts	• Tray 4 paper feed motor (M121) • PC control board (PCCB)

(2) Procedure

1. Check the connector between M121-PCCB CN9C for proper connection and correct as necessary.
2. Check the connector of M121 for proper drive coupling and correct as necessary.
3. M121 operation check
   - Control signal: PCCB CN9C-5 (CW/CCW)
   - Location of electrical component: PC-215 6-K
4. Replace M121.
5. Replace PCCB.

NOTICE
- Link to the wiring diagram (PC-215)

C0109

(1) Contents

Trouble type	C0109: Tray 4 vertical transport motor's turning at abnormal timing (When PC-215 is installed)
Rank	B
Trouble detection condition	• The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning. • The motor lock signal remains LOW for a predetermined continuous period of time while the motor remains stationary.
Trouble isolation	-
Relevant electrical parts	• Tray 4 vertical transport motor (M122) • PC control board (PCCB)

(2) Procedure

1. Check the connector between M122-PCCB CN9C for proper connection and correct as necessary.

2. Check the connector of M122 for proper drive coupling and correct as necessary.
3. M122 operation check
   - Control signal: PCCB CN9C-13 (CW/CCW)
   - Location of electrical component: PC-215 6-K
4. Replace M122.
5. Replace PCCB.

NOTICE
- Link to the wiring diagram (PC-215)

C0202

(1) Contents

Trouble type	C0202: Tray 1 feeder up/down abnormality
Rank	B
Trouble detection condition	The tray 1 upper limit sensor (PS25) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-up operation for the drawer began.
Trouble isolation	Tray 1
Relevant electrical parts	• Tray 1 lift-up motor (M12) • Tray 1 upper limit sensor (PS25) • MFP board (MFPB)

(2) Procedure

1. Remove thetray and check to see if a piece of paper is not left inside the machine.
2. Check the connector between M12-MFPB CN27E for proper connection and correct as necessary.
3. Check the connector of M12 for proper drive coupling and correct as necessary.
4. Check the connector between PS25-relay CN30-MFPB CN34E for proper connection and correct as necessary.
5. PS25 I/O check, sensor check
   - Control signal: MFPB CN34E<B>-3 (ON)
   - Location of electrical component: 27-J
6. M12 operation check
   - Control signal: MFPB CN27E-5 (M12_24V)
   - Location of electrical component: 19-J
7. Replace M12.
8. MFPB F1E conduction check
9. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C0204

(1) Contents

Trouble type	C0204: Tray 2 feeder up/down abnormality
Rank	B
Trouble detection condition	The tray 2 upper limit sensor (PS22) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-up operation for the drawer began.
Trouble isolation	Tray 2
Relevant electrical parts	• Tray 2 lift-up motor (M13) • Tray 2 upper limit sensor (PS22) • MFP board (MFPB)

(2) Procedure

1. Remove the tray and check to see if a piece of paper is not left inside the machine.
2. Check the connector between M13-MFPB CN32E for proper connection and correct as necessary.
3. Check the connector of M13 for proper drive coupling and correct as necessary.
4. Check the connector between PS22-relay CN40-MFPB CN34E for proper connection and correct as necessary.
5. PS22 I/O check, sensor check
   - Control signal: MFPB CN34E<A>-9 (ON)
   - Location of electrical component: 26-J
6. M13 operation check
   - Control signal: MFPB CN32E-5 (M13_24V)
   - Location of electrical component: 20-J
7. Replace M13.
8. MFPB F1E conduction check
9. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C0206

(1) Contents

Trouble type	C0206: Tray 3 feeder up/down abnormality (When PC-115 or PC-215 is installed)
Rank	B

Trouble detection condition	The tray 3 upper limit sensor (PS116) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-up operation for the drawer began.
Trouble isolation	Tray 3
Relevant electrical parts	• Tray 3 lift-up motor (M113) • Tray 3 upper limit sensor (PS116) • PC control board (PCCB) • MFP board (MFPB)

(2) Procedure

1. Remove the tray and check to see if a piece of paper is not left inside the machine.
2. Check the connector between M113-PCCB CN6C for proper connection and correct as necessary.
3. Check the connector of M113 for proper drive coupling and correct as necessary.
4. Check the connector between PS116-relay CN24-PCCB CN4 for proper connection and correct as necessary.
5. PS116 I/O check, sensor check
   - Control signal: PCCB CN4-3 (ON)
   - Location of electrical component: CPT910 7-C
6. M113 operation check
   - Control signal: PCCB CN6C-8 to 9
   - Location of electrical component: CPT910 2-C
7. Replace M113.
8. Replace PCCB.
9. MFPB F1E conduction check
10. Replace MFPB.

NOTICE
- Link to the wiring diagram (PC-115)
- Link to the wiring diagram (PC-215)

C0208

(1) Contents

Trouble type	C0208: Tray 4 feeder up/down abnormality (When PC-215 is installed)
Rank	B
Trouble detection condition	The tray 4 upper limit sensor (PS126) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-up operation for the drawer began.
Trouble isolation	Tray 4
Relevant electrical parts	• Tray 4 lift-up motor (M123) • Tray 4 upper limit sensor (PS126) • PC control board (PCCB) • MFP board (MFPB)

(2) Procedure

1. Remove thetray and check to see if a piece of paper is not left inside the machine.
2. Check the connector between M123-PCCB CN8C for proper connection and correct as necessary.
3. Check the connector of M123 for proper drive coupling and correct as necessary.
4. Check the connector between PS126-relay CN47-PCCB CN7C for proper connection and correct as necessary.
5. PS126 I/O check, sensor check
   - Control signal: PCCB CN7C-3 (ON)
   - Location of electrical component: PC-215 8-K
6. M123 operation check
   - Control signal: PCCB CN8C-8 to 9
   - Location of electrical component: PC-215 5-K
7. Replace M123.
8. Replace PCCB.
9. MFPB F1E conduction check
10. Replace MFPB.

NOTICE
- Link to the wiring diagram (PC-215)

C0210

(1) Contents

Trouble type	C0210: Transfer LCT lift failure (When CPT910X is installed)
Rank	B
Trouble detection condition	• The main tray upper limit sensor (PS136) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-up operation for the drawer began. • The shifter stop / lower limit position sensor (PS138) is not turned OFF (unblocked) even after the set period of time has elapsed after the paper lift-up operation for the drawer began. • The main tray upper limit sensor (PS136) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-up operating. • The main tray upper limit sensor (PS136) is not turned OFF (unblocked) even after the set period of time has elapsed after the paper lift-down operation began. • The shifter stop / lower limit position sensor (PS138) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-down operation began.

Trouble isolation	LCT
Relevant electrical parts	• Main tray upper limit sensor (PS136) • Shifter stop / lower limit position sensor (PS138) • Elevator motor (M134) • PC control board (PCCB)

(2) Procedure

1. Remove the tray and check to see if a piece of paper is not left inside the machine.
2. Check the connector between M134-PCCB CN10L for proper connection and correct as necessary.
3. Check the connector of M134 for proper drive coupling and correct as necessary.
4. Check the connector between PS136-relay CN1-PCCB CN4 for proper connection and correct as necessary.
5. Check the connector between PS138-relay CN16-PCCB CN14L for proper connection and correct as necessary.
6. PS136 I/O check, sensor check
   - Control signal: PCCB CN4-3 (ON)
   - Location of electrical component: CPT910X 8-J
7. PS138 I/O check, sensor check
   - Control signal: PCCB CN14L-6 (ON)
   - Location of electrical component: CPT910X 3-J
8. M134 operation check
   - Control signal: PCCB CN10L-1 to 2
   - Location of electrical component: CPT910X 6-J
9. Replace M134.
10. MFPB F1E conduction check
11. Replace PCCB.

NOTICE
- Link to the wiring diagram (CPT910X)

C0211

(1) Contents

Trouble type	C0211: Manual feed up/down abnormality
Rank	B
Trouble detection condition	• The bypass lift-up position sensor (PS26) is not turned OFF (unblock) even after the transport motor (M1) rotates for a given period of time after the position is switched from stand by position at lift-up plate to the feed position. • The bypass lift-up position sensor (PS26) is not turned ON (blocked) even after the transport motor (M1) rotates for a given period of time after the position is switched from stand by position at lift-up plate to the feed position.
Trouble isolation	Manual
Relevant electrical parts	• Transport motor (M1) • Bypass pick-up solenoid (SD1) • Bypass lift-up position sensor (PS26) • MFP board (MFPB)

(2) Procedure

1. Check the connector between M1-MFPB CN14E for proper connection and correct as necessary.
2. Check the connector of M1 for proper drive coupling and correct as necessary.
3. Check the connector between PS26-relay CN19-MFPB CN19E for proper connection and correct as necessary.
4. Check the connector between SD1-relay CN21-relay CN19-MFPB CN19E for proper connection and correct as necessary.
5. PS26 I/O check, sensor check
   - Control signal: MFPB CN19E-13 (ON)
   - Location of electrical component: 22-J
6. SD1 operation check
   - Control signal: MFPB CN19E-9 (SD1_24V)
   - Location of electrical component: 22-J
7. M1 operation check
   - Control signal: MFPB CN41E-3 (REM), MFPB CN14E-6 (LOCK)
   - Location of electrical component: 1-C
8. Replace M1.
9. MFPB ICP3E conduction check
10. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C0214

(1) Contents

Trouble type	C0214: Transfer LCT shift failure (When CPT910X is installed)
Rank	B
Trouble detection condition	• The shifter stop / lower limit position sensor (PS138) is not turned ON (blocked) even after the set period of time has elapsed after the shift operation began (shift to the right). • The shifter home sensor (PS139) is not turned OFF (unblocked) even after the set period of time has elapsed after the shift operation began (shift to the right).

	• The shifter stop / lower limit position sensor (PS138) is not turned OFF (unblocked) even after the set period of time has elapsed after the return operation began (shift to the left). • The shifter home sensor (PS139) is not turned ON (blocked) even after the set period of time has elapsed after the return operation began (shift to the left).
Trouble isolation	LCT
Relevant electrical parts	• Shifter stop / lower limit position sensor (PS138) • Shifter home sensor (PS139) • Shifter motor (M133) • PC control board (PCCB)

(2) Procedure

1. Remove thetray and check to see if a piece of paper is not left inside the machine.
2. Check the connector between M133-PCCB CN10L for proper connection and correct as necessary.
3. Check the connector of M133 for proper drive coupling and correct as necessary.
4. Check the connector between PS138-relay CN16-PCCB CN14L for proper connection and correct as necessary.
5. Check the connector between PS139-relay CN16-PCCB CN14L for proper connection and correct as necessary.
6. PS138 I/O check, sensor check
   - Control signal: PCCB CN14L-6 (ON)
   - Location of electrical component: CPT910X 3-J
7. PS139 I/O check, sensor check
   - Control signal: PCCB CN14L-3 (ON)
   - Location of electrical component: CPT910X 4-J
8. M133 operation check
   - Control signal: PCCB CN10L-3 to 4
   - Location of electrical component: CPT910X 5-J
9. Replace M133.
10. Replace PCCB.

NOTICE
- Link to the wiring diagram (CPT910X)

C0216

(1) Contents

Trouble type	C0216: External LCT up/down abnormality (When LU-207 or LU-302 is installed)
Rank	B
Trouble detection condition	The LU upper limit sensor (PS2) is not turned ON (blocked) even after the set period of time has elapsed after the paper lift-up operation for the drawer began.
Trouble isolation	LCT
Relevant electrical parts	• LU upper limit sensor (PS2) • LU lift-up motor (M1) • LU drive board (LUDB)

(2) Procedure

1. Check the connector between M1-LUDB CN3 for proper connection and correct as necessary.
2. Check the connector of M1 for proper drive coupling and correct as necessary.
3. Check the connector between PS2-relay CN406 (LU-207), Cn3 (LU-302)-LUDB CN5 for proper connection and correct as necessary.
4. PS2 I/O check, sensor check
   - Control signal: LUDB CN5-3 (ON)
   - Location of electrical component: LU-207/LU-302 4-G
5. M1 operation check
   - Control signal: LUDB CN3-4 (ON)
   - Location of electrical component: LU-207/LU-302 3-G
6. Replace M1. (LU-207 / LU-302)
7. Replace LUDB. (LU-207 / LU-302)

NOTICE
- Link to the wiring diagram (LU-207)
- Link to the wiring diagram (LU-302)

C1###

C1004, C1014

(1) Contents

Trouble type	• C1004: Finisher communication error (Engine detection) • C1014: Finisher communication error (Finisher detection)	
Rank	C	
Trouble detection condition	<When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed>	When a communication error is detected between the MFP board (MFPB) and the FS control board (FSCB).
	<When JS-506 is installed>	When a communication error is detected between the MFP board (MFPB) and the JS control board (JSCB).
Trouble isolation	-	

Relevant electrical parts	<When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed>	• FS control board (FSCB) • MFP board (MFPB)
	<When JS-506 is installed>	JS control board (JSCB)

(2) Procedure

(a) When PF910, FS-536, FS-536SD, FS-537, or FS-537SD is installed

1. Turn OFF the main power switch, disconnect and then connect the power cord. Wait for 10 sec. or more after connect the power cord, and turn ON the main power switch.
2. Rewrite the firmware.
3. Replace FSCB. (PF910 / FS-536/FS-536SD / FS-537/FS-537SD)
4. PKCB ICP1 conduction check.
5. PIDB ICP1 conduction check.
6. Replace MFPB.

(b) When JS-506 is installed

1. Turn OFF the main power switch, disconnect and then connect the power cord. Wait for 10 sec. or more after connect the power cord, and turn ON the main power switch.
2. Rewrite the firmware.
3. Replace JSCB.

C1081, C1082

(1) Contents

Trouble type	• C1081: SD communication error (Finisher detection) • C1082: SD communication error (SD detection)	
Rank	C	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	When a communication error is detected between the FS control board (FSCB) and the SD control board (SDCB).
Trouble isolation	Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	• SD control board (SDCB) • FS control board (FSCB)	

(2) Procedure

1. Turn OFF the main power switch, disconnect and then connect the power cord. Wait for 10 sec. or more after connect the power cord, and turn ON the main power switch.
2. Rewrite the firmware.
3. Replace SDCB. (FS-536/FS-536SD / FS-537/FS-537SD)
4. Replace FSCB. (FS-536/FS-536SD / FS-537/FS-537SD)

C1102

(1) Contents

Trouble type	C1102: Main tray up/down motor's drive malfunction	
Rank	B	
Trouble detection condition	<When PF910 is installed>	• While the exit tray is being lifted, the paper exit tray home sensor (PS107) is not turned OFF (unblocked) after the set period of time has elapsed after the tray lift up motor (M109) is turned ON. • While the exit tray is being lowered, the paper exit tray home sensor (PS107) is not turned ON (blocked) after the set period of time has elapsed after the tray lift up motor (M109) is turned ON.
Trouble isolation	-	
Relevant electrical parts	<When PF910 is installed>	• Tray lift up motor (M109) • Paper exit tray home sensor (PS107) • FS control board (FSCB)

(2) Procedure

(a) When PF910 is installed

1. Check the connector between M109-FSCB CN108 for proper connection and correct as necessary.
2. Check the connector of M109 for proper drive coupling, and correct as necessary.
3. Check the connector between PS107-FSCB CN110 for proper connection and correct as necessary.
4. PS107 I/O check, sensor check
   - Control signal: FSCB CN110
   - Location of electrical component: PF910 7-D to E
5. M109 operation check
   - Control signal: FSCB CN108
   - Location of electrical component: PF910 10-E
6. Replace M109.
7. FSCB CP109 conduction check
8. Replace FSCB.

NOTICE
- Link to the wiring diagram (PF910)

C1103

(1) Contents

Trouble type	C1103: Alignment motor/front's drive malfunction	
Rank	B	
Trouble detection condition	<When PF910 is installed>	• The alignment plate home sensor/F (PS108) is not turned OFF (unblocked) after the set period of time has elapsed after the plate drive starts from the home position. • The alignment plate home sensor/F (PS108) is not turned ON (blocked) after the set period of time has elapsed after the alignment motor/F (M105) is turned ON to return the plate to the home position.
	<When FS-536 or FS-536SD is installed>	• The alignment plate/F home sensor (PS12) is not turned OFF (unblocked) after the set period of time has elapsed after the plate drive starts from the home position. • The alignment plate/F home sensor (PS12) is not turned ON (blocked) after the set period of time has elapsed after the alignment motor/front (M7) is turned ON to return the plate to the home position. • The alignment plate/F does not reach the specified position within the set period of time.
	<When FS-537 or FS-537SD is installed>	• The alignment plate/F home sensor (PS9) is not turned OFF (unblocked) after the set period of time has elapsed after the plate drive starts from the home position. • The alignment plate/F home sensor (PS9) is not turned ON (blocked) after the set period of time has elapsed after the alignment motor/front (M14) is turned ON to return the plate to the home position. • The alignment plate/F does not reach the specified position within the set period of time.
Trouble isolation	-	
Relevant electrical parts	<When PF910 is installed>	• Alignment motor/F (M105) • Alignment plate home sensor/F (PS108) • FS control board (FSCB)

	<When FS-536 or FS-536SD is installed>	• Alignment motor/front (M7) • Alignment plate/F home sensor (PS12) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• Alignment motor/front (M14) • Alignment plate/F home sensor (PS9) • FS control board (FSCB)

(2) Procedure

(a) When PF910 is installed

1. Check the connector between M105-FSCB CN102 for proper connection and correct as necessary.
2. Check the connector of M105 for proper drive coupling, and correct as necessary.
3. Check the connector between PS108-FSCB CN102 for proper connection and correct as necessary.
4. PS108 I/O check, sensor check
   - Control signal: FSCB CN102
   - Location of electrical component: PF910 7-J
5. M105 operation check
   - Control signal: FSCB CN102
   - Location of electrical component: PF910 7-J
6. Replace M105.
7. FSCB CP105 conduction check
8. Replace FSCB

NOTICE
- Link to the wiring diagram (PF910)

(b) When FS-536 or FS-536SD is installed

1. Check the connector between M7-FSCB J4 for proper connection and correct as necessary.
2. Check the connector of M7 for proper drive coupling and correct as necessary.
3. Check the connector between PS12-FSCB J4 for proper connection and correct as necessary.
4. PS12 I/O check, sensor check
   - Control signal: FSCB J4<B>-4 (ON)
   - Location of electrical component: FS-536/FS-536SD 15-C
5. M7 operation check
   - Control signal: FSCB J4<A>-5 to 8
   - Location of electrical component: FS-536/FS-536SD 14-C
6. Replace M7.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

(c) When FS-537 or FS-537SD is installed

1. Check the connector between M14-relay CN5-FSCB J18 for proper connection and correct as necessary.
2. Check the connector of M14 for proper drive coupling and correct as necessary.
3. Check the connector between PS9-relay CN5-FSCB J18 for proper connection and correct as necessary.
4. PS9 I/O check, sensor check
   - Control signal: FSCB J18-10 (ON)
   - Location of electrical component: FS-537/FS-537SD 6-D
5. M14 operation check
   - Control signal: FSCB J18-1 to 4
   - Location of electrical component: FS-537/FS-537SD 6-D
6. Replace M14.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-537/FS-537SD)

C1105

(1) Contents

Trouble type	C1105: Bundle eject motor's drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536 or FS-536SD is installed>	• The gripper home position sensor (PS18) is not turned ON (unblocked) even after the set period of time has elapsed after the gripper position detection sensor (PS19) turns OFF (block). • The gripper position detection sensor (PS19) is not turned OFF (blocked) even after the set period of time has elapsed after PS19 turns ON (unblock). • The gripper position detection sensor (PS19) is not turned ON (unblocked) even after the set period of time has elapsed after the gripper home position sensor (PS18) turns OFF (block). • The gripper home position sensor (PS18) is not turned OFF (blocked) even after the set period of time has elapsed after the bundle eject motor (M10) is energized. • The gripper home position sensor (PS18) and the gripper position detection sensor (PS19) is turned ON (unblocked) at the same time.

	<When FS-537 or FS-537SD is installed>	The gripper home position sensor (PS3) is not turned OFF (blocked) or ON (unblocked) even after the set period of time has elapsed after the bundle eject motor (M1) is turned ON.
Trouble isolation	-	
Relevant electrical parts	<When FS-536 or FS-536SD is installed>	• Bundle eject motor (M10) • Gripper home position sensor (PS18) • Gripper position detection sensor (PS19) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• Bundle eject motor (M1) • Gripper home position sensor (PS3) • FS control board (FSCB)

(2) Procedure

(a) When FS-536 or FS-536SD is installed

1. Check the connector between M10-relay CN7<A>-FSCB J13 for proper connection, and correct as necessary.
2. Check the connector of M10 for proper drive coupling, and correct as necessary.
3. Check the connector between PS18-relay CN7<A>-FSCB J13 for proper connection, and correct as necessary.
4. Check the connector between PS19-relay CN7<B>-FSCB J12 for proper connection and correct as necessary.
5. PS18 I/O check, sensor check
   - Control signal: FSCB J13-13 (ON)
   - Location of electrical component: FS-536/FS-536SD 8-C
6. PS19 I/O check, sensor check
   - Control signal: FSCB J12-3 (ON)
   - Location of electrical component: FS-536/FS-536SD 7-C
7. M10 operation check
   - Control signal: FSCB J13-1 to 2
   - Location of electrical component: FS-536/FS-536SD 9-C
8. Replace M10.
9. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

(b) When FS-537 or FS-537SD is installed

1. Check the connector between M1-relay CN1<A>-FSCB J22 for proper connection and correct as necessary.
2. Check the connector of M1 for proper drive coupling and correct as necessary.
3. Check the connector between PS3-relay CN1<A>-FSCB J22 for proper connection and correct as necessary.
4. PS3 I/O check, sensor check
   - Control signal: FSCB J22<A>-13 (ON)
   - Location of electrical component: FS-537/FS-537SD 2-D
5. M1 operation check
   - Control signal: FSCB J22<A>-1 to 2
   - Location of electrical component: FS-537/FS-537SD 1-D
6. Replace M1.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-537/FS-537SD)

C1106

(1) Contents

Trouble type	C1106: Stapler movement motor’s malfunction	
Rank	B	
Trouble detection condition	<When PF910 is installed>	• The stapler home sensor (PS110) is not turned OFF (unblocked) after the laps of given time after it started operating from the home position. • The stapler home sensor (PS110) is not turned ON (blocked) after the laps of give time after the stapler movement motor (M107) turned ON when it returned to the home position.
Trouble isolation	Staple	
Relevant electrical parts	<When PF910 is installed>	• Stapler movement motor (M107) • Stapler home sensor (PS110) • Stapler relay board (STREYB) • FS control board (FSCB)

(2) Procedure

(a) When PF910 is installed

1. Check the connector between M107-STREYB CN123 for proper connection, and correct as necessary.
2. Check the connector of M107 for proper drive coupling, and correct as necessary.
3. Check the connector between PS110-FSCB CN110 for proper connection, and correct as necessary.
4. PS110 I/O check, sensor check
   - Control signal: FSCB CN110
   - Location of electrical component: PF910 8-D to E
5. M107 operation check
   - Control signal: STREYB CN123-5 to 8
   - Location of electrical component: PF910 5-L
6. Replace M107.
7. Replace STREYB.
8. FSCB CP107 conduction check
9. Replace FSCB.

NOTICE
- Link to the wiring diagram (PF910)

C1109

(1) Contents

Trouble type	C1109: Stapler motor’s drive malfunction	
Rank	B	
Trouble detection condition	<When PF910 is installed>	The stapler home sensor (PS110) is not turned ON (blocked) even after the set period of time has elapsed after the stapler motor turned ON.
Trouble isolation	Staple	
Relevant electrical parts	<When PF910 is installed>	• Stapler home sensor (PS110) • Stapler unit • Stapler relay board (STREYB) • FS control board (FSCB)

(2) Procedure

(a) When PF910 is installed

1. Check the connector between the stapler unit-STREYB CN122, CN123 for proper connection and correct as necessary.
2. Check the connector of the stapler unit for proper drive coupling and correct as necessary.
3. Check the connector between PS110-FSCB CN110 for proper connection and correct as necessary.
4. PS110 I/O check, sensor check
   - Control signal: FSCB CN110
   - Location of electrical component: PF910 8-D to E
5. Replace the stapler unit.
6. Replace STREYB.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (PF910)

C1112

(1) Contents

Trouble type	C1112: Stapler motor's malfunction
Rank	B

Trouble detection condition	<When FS-536SD or FS-537SD is installed>	• The stapler home sensor is not turned ON even after the set period of time has elapsed while the stapler motor is energized. • The stapler home sensor is not turned OFF even after the set period of time has elapsed after the stapler home sensor is turned ON.
Trouble isolation	• Staple • Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• Staple unit • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between the staple unit-SDCB J4 for proper connection and correct as necessary.
2. Check the connector of the staple unit for proper drive coupling and correct as necessary.
3. Replace the staple unit. (FS-536SD / FS-537SD)
4. Replace SDCB. (FS-536SD / FS-537SD)
5. Replace FSCB. (FS-536SD / FS-537SD)

C1113

(1) Contents

Trouble type	C1113: Stopper drive motor's malfunction	
Rank	B	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	The stopper home sensor (PS6) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the stopper drive motor (M4) is turned ON.
Trouble isolation	• Staple • Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• Stopper drive motor (M4) • Stopper home sensor (PS6) • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M4-SDCB J10 for proper connection and correct as necessary.
2. Check the connector of M4 for proper drive coupling and correct as necessary.
3. Check the connector between PS6-SDCB J10 for proper connection and correct as necessary.
4. PS6 I/O check, sensor check
   - Control signal: SDCB J10-5 (ON)
   - Location of electrical component: FS-536/FS-536SD 2-P, FS-537/FS-537SD 2-P
5. M4 operation check
   - Control signal: SDCB J10-6 to 9
   - Location of electrical component: FS-536SD 2-P, FS-537SD 1-P
6. Replace M4. (FS-536SD / FS-537SD)
7. Replace SDCB. (FS-536SD / FS-537SD)
8. Replace FSCB. (FS-536SD / FS-537SD)

NOTICE

- Link to the wiring diagram (FS-536/FS-536SD)
- Link to the wiring diagram (FS-537/FS-537SD)

C1114

(1) Contents

Trouble type	C1114: Alignment motor’s drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	The alignment home sensor (PS4) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the alignment motor (M3) is turned ON.
Trouble isolation	Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• Alignment motor (M3) • Alignment home sensor (PS4) • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M3-relay CN26 (FS-536SD), CN29 (FS-537SD)-SDCB J7 for proper connection and correct as necessary.
2. Check the connector of M3 for proper drive coupling and correct as necessary.
3. Check the connector between PS4-relay CN26 (FS-536SD), CN29 (FS-537SD)-SDCB J7 for proper connection and correct as necessary.
4. PS4 I/O check, sensor check
   - Control signal: SDCB J7-6 (ON)
   - Location of electrical component: FS-536/FS-536SD 6-P, FS-537/FS-537SD 5-P
5. M3 operation check
   - Control signal: SDCB J7-7 to 10
   - Location of electrical component: FS-536/FS-536SD 6-P, FS-537/FS-537SD 5-P
6. Replace M3. (FS-536SD / FS-537SD)
7. Replace SDCB. (FS-536SD / FS-537SD)
8. Replace FSCB. (FS-536SD / FS-537SD)

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)
- Link to the wiring diagram (FS-537/FS-537SD)

C1115

(1) Contents

Trouble type	C1115: Center fold knife motor's malfunction	
Rank	B	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	The center fold knife home sensor (PS8) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the center fold knife motor (M9) is turned ON.
Trouble isolation	Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• Center fold knife motor (M9) • Center fold knife home sensor (PS8) • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M9-SDCB J11 for proper connection and correct as necessary.
2. Check the connector of M9 for proper drive coupling and correct as necessary.
3. Check the connector between PS8-relay CN26 (FS-536SD), CN29 (FS-537SD)-SDCB J7 for proper connection and correct as necessary.
4. PS8 I/O check, sensor check
   - Control signal: SDCB J7-3 (ON)
   - Location of electrical component: FS-536/FS-536SD 7-P, FS-537/FS-537SD 6-P
5. M9 operation check
   - Control signal: SDCB J11-11 to 20
   - Location of electrical component: FS-536/FS-536SD 2-L, FS-537/FS-537SD 1-K
6. Replace M9. (FS-536SD / FS-537SD)
7. Replace SDCB. (FS-536SD / FS-537SD)
8. Replace FSCB. (FS-536SD / FS-537SD)

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)
- Link to the wiring diagram (FS-537/FS-537SD)

C1132

(1) Contents

Trouble type	C1132: Punch drive motor's drive malfunction	
Rank	B	
Trouble detection condition	<When PF910+PK-519 is installed>	• The puncher drive cam sensor (PS203) or puncher home sensor (PS204) is not turned ON (blocked) or OFF (unblocked) even after the set period of time has elapsed while the punch motor (M201) is energized. • The punch motor sensor (PS202) is not turned ON when the punch motor (M201) driven. • The holes with other marketing area is set in [Service Mode] -> [Finisher] -> [Punch option setting].
	<When FS-536+PK-520 or FS-536SD+PK-520 is installed>	The punch home sensor (PS1) is not turned ON (unblocked) or OFF (blocked) even after the set period of time has elapsed while the punch drive motor (M1) is energized.
	<When FS-537+PK-523 or FS-537SD+PK-523 is installed>	The PK punch home sensor/2 (PS301) is not turned ON (unblocked) or OFF (blocked) even after the set period of time has elapsed while the punch drive motor (M301) is energized.
Trouble isolation	-	
Relevant electrical parts	<When PF910+PK-519 is installed>	• Punch motor (M201) • Punch motor sensor (PS202) • Puncher drive cam sensor (PS203) • Puncher home sensor (PS204) • PK control board (PKCB) • FS control board (FSCB)
	<When FS-536+PK-520 or FS-536SD+PK-520 is installed>	• Punch drive motor (M1) • Punch home sensor (PS1) • FS control board (FSCB)
	<When FS-537+PK-523 or FS-537SD+PK-523 is installed>	• Punch drive motor (M301) • PK punch home sensor/2 (PS301) • Punch control board (PKCB) • FS control board (FSCB)

(2) Procedure

(a) When PF910+PK-519 is installed

1. Check the number of the holes in [Service Mode] -> [Finisher] -> [Punch option setting].
2. Check the connector between M201-PKCB CN203 for proper connection and correct as necessary.
3. Check the connector of M201 for proper drive coupling and correct as necessary.
4. Check the connector between PS202-PKCB CN204 for proper connection and correct as necessary.
5. Check the connector between PS203-PKCB CN204 for proper connection and correct as necessary.
6. Check the connector between PS204-PKCB CN204 for proper connection and correct as necessary.
7. PS202 I/O check, sensor check
   - Control signal: PKCB CN204
   - Location of electrical component: PF910 (PK-519) 5-C
8. PS203 I/O check, sensor check
   - Control signal: PKCB CN204
   - Location of electrical component: PF910 (PK-519) 6-C
9. PS204 I/O check, sensor check
   - Control signal: PKCB CN204
   - Location of electrical component: PF910 (PK-519) 6-C
10. M201 operation check
    - Control signal: PKCB CN203-1 to 2
    - Location of electrical component: PF910 (PK-519) 4-C
11. Replace M201.
12. PKCB F201 conduction check
13. Replace PKCB.
14. Replace FSCB.

NOTICE
- Link to the wiring diagram (PF910)

(b) When FS-536+PK-520 or FS-536SD+PK-520 is installed

1. Check the connector between M1-relay CN351-FSCB J7 for proper connection and correct as necessary.
2. Check the connector of M1 for proper drive coupling and correct as necessary.
3. Check the connector between PS1-FSCB J7 for proper connection and correct as necessary.
4. PS1 I/O check, sensor check
   - Control signal: FSCB J7-5 (ON)
   - Location of electrical component: FS-536/FS-536SD 13-K
5. M1 operation check
   - Control signal: FSCB J7-7 to 8
   - Location of electrical component: FS-536/FS-536SD 13-K

6. Replace M1.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

(c) When FS-537+PK-523 or FS-537SD+PK-523 is installed

1. Check the connector between M301-relay CN351-PKCB CN35 for proper connection and correct as necessary.
2. Check the connector of M301 for proper drive coupling and correct as necessary.
3. Check the connector between PS301-PKCB CN36 for proper connection and correct as necessary.
4. PS301 I/O check, sensor check
   - Control signal: PKCB CN36-5 (ON)
   - Location of electrical component: PK-523 3-C
5. M301 operation check
   - Control signal: PKCB CN35-1 to 3
   - Location of electrical component: PK-523 2-C
6. Replace M301.
7. Replace PKCB.
8. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-537/FS-537SD)

C1140

(1) Contents

Trouble type	C1140: Alignment motor/rear's drive malfunction	
Rank	B	
Trouble detection condition	<When PF910 is installed>	• The alignment plate home sensor/R (PS109) is not turned OFF (unblocked) after the set period of time has elapsed after the plate drive starts from the home position. • The alignment plate home sensor/R (PS109) is not turned ON (blocked) after the set period of time has elapsed while the alignment motor/R (M106) is energized when the plate returns to the home position.
Trouble isolation	-	
Relevant electrical parts	<When PF910 is installed>	• Alignment motor/R (M106) • Alignment plate home sensor/R (PS109) • FS control board (FSCB)

(2) Procedure

(a) When PF910 is installed

1. Check the connector between M106-FSCB CN102 for proper connection and correct as necessary.
2. Check the connector of M106 for proper drive coupling and correct as necessary.
3. Check the connector between PS109-FSCB CN102 for proper connection and correct as necessary.
4. PS109 I/O check, sensor check
   - Control signal: FSCB CN102
   - Location of electrical component: PF910 7-J
5. M106 operation check
   - Control signal: FSCB CN102
   - Location of electrical component: PF910 8-J
6. Replace M106
7. FSCB CP105 conduction check
8. Replace FSCB

NOTICE

- Link to the wiring diagram (PF910)

C1141

(1) Contents

Trouble type	C1141: FNS paddle motor's drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536 or FS-536SD is installed>	The upper paddle home position detection sensor (PS14) is not turned OFF (blocked) or ON (unblocked) even after the set period of time has elapsed while the FNS paddle motor (M5) is turning.
	<When FS-537 or FS-537SD is installed>	The paddle home sensor (PS25) is not turned OFF (blocked) or ON (unblocked) even after the set period of time has elapsed while the FNS paddle motor (M9) is turning.
Trouble isolation	Staple	
Relevant electrical parts	<When FS-536 or FS-536SD is installed>	• FNS paddle motor (M5) • Upper paddle home position detection sensor (PS14) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• FNS paddle motor (M9) • Paddle home sensor (PS25) • FS control board (FSCB)

(2) Procedure

(a) When FS-536 or FS-536SD is installed

1. Check the connector between M5-FSCB J4 for proper connection and correct as necessary.
2. Check the connector of M5 for proper drive coupling and correct as necessary.
3. Check the connector between PS14-FSCB J4 for proper connection and correct as necessary.
4. PS14 I/O check, sensor check
   - Control signal: FSCB J4<B>-7 (ON)
   - Location of electrical component: FS-536/FS-536SD 15-C
5. M5 operation check
   - Control signal: FSCB J4<A>-9 to 12
   - Location of electrical component: FS-536/FS-536SD 14-C
6. Replace M5.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

(b) When FS-537 or FS-537SD is installed

1. Check the connector between M9-relay CN13<B>-FSCB J14 for proper connection and correct as necessary.
2. Check the connector of M9 for proper drive coupling and correct as necessary.
3. Check the connector between PS25-relay CN13<B>-FSCB J14 for proper connection and correct as necessary.
4. PS25 I/O check, sensor check
   - Control signal: FSCB J14<B>-10 (ON)
   - Location of electrical component: FS-537/FS-537SD 16-K to L
5. M9 operation check
   - Control signal: FSCB J14<B>-4 to 7
   - Location of electrical component: FS-537/FS-537SD 17-K to L
6. Replace M9.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-537/FS-537SD)

C1144

(1) Contents

Trouble type	C1144: Pre-eject drive motor's drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536 or FS-536SD is installed>	• The pre-eject home sensor (PS21) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the pre-eject drive motor (M9) is turned ON. • The pre-eject away sensor (PS22) is not turned ON (blocked) or OFF (unblocked) even after the set period of time has elapsed after the pre-eject drive motor (M9) is turned ON.
	<When FS-537 or FS-537SD is installed>	The trail edge stopper home sensor (PS31) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the pre-eject drive motor (M2) is turned ON.
Trouble isolation	-	
Relevant electrical parts	<When FS-536 or FS-536SD is installed>	• Pre-eject drive motor (M9) • Pre-eject home sensor (PS21) • Pre-eject away sensor (PS22) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• Pre-eject drive motor (M2) • Trail edge stopper home sensor (PS31) • FS control board (FSCB)

(2) Procedure

(a) When FS-536 or FS-536SD is installed

1. Check the connector between M9-relay CN7<A>-FSCB J13 for proper connection, and correct as necessary.
2. Check the connector of M9 for proper drive coupling and correct as necessary.
3. Check the connector between PS21-relay CN8-relay CN7<B>-FSCB J12 for proper connection, and correct as necessary.
4. Check the connector between PS22-relay CN8-relay CN7<B>-FSCB J12 for proper connection, and correct as necessary.
5. PS21 I/O check, sensor check
   - Control signal: FSCB J12-6 (ON)
   - Location of electrical component: FS-536/FS-536SD 7-C
6. PS22 I/O check, sensor check
   - Control signal: FSCB J12-9 (ON)
   - Location of electrical component: FS-536/FS-536SD 7-C
7. M9 operation check
   - Control signal: FSCB J13-3 to 4
   - Location of electrical component: FS-536/FS-536SD 9-C
8. Replace M9.
9. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

(b) When FS-537 or FS-537SD is installed

1. Check the connector between M2-relay CN1<A>-FSCB J22 for proper connection and correct as necessary.
2. Check the connector of M2 for proper drive coupling and correct as necessary.
3. Check the connector between PS31-relay CN2-relay CN1<B>-FSCB J22 for proper connection, and correct as necessary.
4. PS31 I/O check, sensor check
   - Control signal: FSCB J22<B>-13
   - Location of electrical component: FS-537/FS-537SD 3-D
5. M2 operation check
   - Control signal: FSCB J22<A>-3 to 4
   - Location of electrical component: FS-537/FS-537SD 1-D
6. Replace M2.
7. Replace FSCB.

NOTICE

- Link to the wiring diagram (FS-537/FS-537SD)

C1145

(1) Contents

Trouble type	C1145: Trailing edge stopper motor's drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536 or FS-536SD is installed>	The trailing edge stopper home position detection sensor (PS20) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the trailing edge stopper motor (M6) is turned ON.
	<When FS-537 or FS-537SD is installed>	The trail edge stopper sensor/F (PS10) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the trail edge stopper motor/F (M12) is turned ON.
Trouble isolation	Staple	
Relevant electrical parts	<When FS-536 or FS-536SD is installed>	• Trailing edge stopper motor (M6) • Trailing edge stopper home position detection sensor (PS20) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• Trail edge stopper motor/F (M12) • Trail edge stopper sensor/F (PS10) • FS control board (FSCB)

(2) Procedure

(a) When FS-536 or FS-536SD is installed

1. Check the connector between M6-FSCB J5 for proper connection and correct as necessary.
2. Check the connector of M6 for proper drive coupling and correct as necessary.
3. Check the connector between PS20-relay CN19-FSCB J5 for proper connection and correct as necessary.
4. PS20 I/O check, sensor check
   - Control signal: FSCB J5-9 (ON)
   - Location of electrical component: FS-536/FS-536SD 15-K
5. M6 operation check
   - Control signal: FSCB J5-13 to 16
   - Location of electrical component: FS-536/FS-536SD 15-K
6. Replace M6.
7. Replace FSCB.

NOTICE

- Link to the wiring diagram (FS-536/FS-536SD)

(b) When FS-537 or FS-537SD is installed

1. Check the connector between M12-relay CN5-FSCB J18 for proper connection and correct as necessary.
2. Check the connector of M12 for proper drive coupling and correct as necessary.
3. Check the connector between PS10-relay CN5-FSCB J18 for proper connection and correct as necessary.
4. PS10 I/O check, sensor check
   - Control signal: FSCB J18-13 (ON)
   - Location of electrical component: FS-537/FS-537SD 6 to 7-D
5. M12 operation check
   - Control signal: FSCB J18-14 to 17
   - Location of electrical component: FS-537/FS-537SD 7-D
6. Replace M12.
7. Replace FSCB.

NOTICE

- Link to the wiring diagram (FS-537/FS-537SD)

C1156

(1) Contents

Trouble type	C1156: SD paddle motor's malfunction	
Rank	B	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	The paddle home sensor (PS5) is not turned OFF (blocked) or ON (unblocked) even after the set period of time has elapsed while the SD paddle motor (M7) is turning.
Trouble isolation	Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• SD paddle motor (M7) • Paddle home sensor (PS5) • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M7-SDCB J8 for proper connection and correct as necessary.
2. Check the connector of M7 for proper drive coupling and correct as necessary.
3. Check the connector between PS5-SDCB J8 for proper connection and correct as necessary.
4. PS5 I/O check, sensor check
   - Control signal: SDCB J8-3 (ON)
   - Location of electrical component: FS-536/FS-536SD 4-P, FS-537/FS-537SD 3-P
5. M7 operation check
   - Control signal: SDCB J8-4 to 7
   - Location of electrical component: FS-536/FS-536SD 4-P, FS-537/FS-537SD 3-P
6. Replace M7. (FS-536SD / FS-537SD)
7. Replace SDCB. (FS-536SD / FS-537SD)
8. Replace FSCB. (FS-536SD / FS-537SD)

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)
- Link to the wiring diagram (FS-537/FS-537SD)

C1184

(1) Contents

Trouble type	C1184: Paper receiving control motor's drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536 or FS-536SD is installed>	The paper delivery control sensor (PS28) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed while the paper receiving control motor (M12) is energized.
	<When FS-537 or FS-537SD is installed>	The paper delivery control sensor (PS11) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed while the paper receiving control motor (M15) is energized.
Trouble isolation	-	
Relevant electrical parts	<When FS-536 or FS-536SD is installed>	• Paper receiving control motor (M12) • Paper delivery control sensor (PS28) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• Paper receiving control motor (M15) • Paper delivery control sensor (PS11) • FS control board (FSCB)

(2) Procedure

When FS-536 or FS-536SD is installed

1. Check the connector between M12-relay CN1-FSCB J14 for proper connection and correct as necessary.
2. Check the connector of M12 for proper drive coupling and correct as necessary.
3. Check the connector between PS28-relay CN1-FSCB J14 for proper connection and correct as necessary.
4. PS28 I/O check, sensor check
   - Control signal: FSCB J14<B>-3 (ON)
   - Location of electrical component: FS-536/FS-536SD 2 to 3-C
5. M12 operation check
   - Control signal: FSCB J14<A>-9 to 12
   - Location of electrical component: FS-536/FS-536SD 2-C
6. Replace M12.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

When FS-537 or FS-537SD is installed

1. Check the connector between M15-FSCB J19 for proper connection and correct as necessary.
2. Check the connector of M15 for proper drive coupling and correct as necessary.
3. Check the connector between PS11-relay CN10<A>-FSCB J20 for proper connection and correct as necessary.

4. PS11 I/O check, sensor check
   - Control signal: FSCB J20<A>-3 (ON)
   - Location of electrical component: FS-537/FS-537SD 10-D
5. M15 operation check
   - Control signal: FSCB J19-1 to 4
   - Location of electrical component: FS-537/FS-537SD 10-D
6. Replace M15.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-537/FS-537SD)

C1195

(1) Contents

Trouble type	C1195: Paper discharge control motor's malfunction	
Rank	B	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	The curl cover detection sensor (PS2) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the paper discharge control motor (M2) is turned ON.
Trouble isolation	Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• Paper discharge control motor (M2) • Curl cover detection sensor (PS2) • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M2-relay CN22 (FS-536SD), CN25 (FS-537SD)-relay CN21 (FS-536SD), CN26 (FS-537SD)-SDCB J5 for proper connection and correct as necessary.
2. Check the connector of M2 for proper drive coupling and correct as necessary.
3. Check the connector between PS2-relay CN22 (FS-536SD), CN25 (FS-537SD)-relay CN21 (FS-536SD), CN26 (FS-537SD)-SDCB J5 for proper connection and correct as necessary.
4. PS2 I/O check, sensor check
   - Control signal: SDCB J5-3 (ON)
   - Location of electrical component: FS-536/FS-536SD 4-L, FS-537/FS-537SD 3-K
5. M2 operation check
   - Control signal: SDCB J5-4 to 7
   - Location of electrical component: FS-536/FS-536SD 4-L, FS-537/FS-537SD 3-K
6. Replace M2. (FS-536SD / FS-537SD)
7. Replace SDCB. (FS-536SD / FS-537SD)
8. Replace FSCB. (FS-536SD / FS-537SD)

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)
- Link to the wiring diagram (FS-537/FS-537SD)

C1196

(1) Contents

Trouble type	C1196: Center fold guide motor’s malfunction	
Rank	B	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	The guide home sensor (PS7) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the center fold guide motor (M6) is turned ON.
Trouble isolation	Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• Center fold guide motor (M6) • Guide home sensor (PS7) • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M6-SDCB J9 for proper connection and correct as necessary.
2. Check the connector of M6 for proper drive coupling and correct as necessary.
3. Check the connector between PS7-SDCB J9 for proper connection and correct as necessary.
4. PS7 I/O check, sensor check
   - Control signal: SDCB J9-6 (ON)
   - Location of electrical component: FS-536/FS-536SD 5-P, FS-537/FS-537SD 4-P
5. M6 operation check
   - Control signal: SDCB J9-7 to 10
   - Location of electrical component: FS-536/FS-536SD 4-P, FS-537/FS-537SD 4-P
6. Replace M6. (FS-536SD / FS-537SD)
7. Replace SDCB. (FS-536SD / FS-537SD)
8. Replace FSCB. (FS-536SD / FS-537SD)

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)
- Link to the wiring diagram (FS-537/FS-537SD)

C1197

(1) Contents

Trouble type	C1197: Tri-folding guide motor’s malfunction	
Rank	B	
Trouble detection condition	<When FS-536SD or FS-537SD is installed>	The tri-folding gate home sensor (PS11) is not turned OFF (blocked) or ON (unblocked) even after the set period of time has elapsed while the tri-folding guide motor (M8) is energized.

Trouble isolation	Center Stapling/Half-Fold/Tri-Fold	
Relevant electrical parts	<When FS-536SD or FS-537SD is installed>	• Tri-folding guide motor (M8) • Tri-folding gate home sensor (PS11) • SD control board (SDCB) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M8-SDCB J8 for proper connection and correct as necessary.
2. Check the connector of M8 for proper drive coupling and correct as necessary.
3. Check the connector between PS11-SDCB J8 for proper connection and correct as necessary.
4. PS11 I/O check, sensor check
   - Control signal: SDCB J8-10 (ON)
   - Location of electrical component: FS-536/FS-536SD 3-P, FS-537/FS-537SD 3-P
5. M8 operation check
   - Control signal: SDCB J8-11 to 14
   - Location of electrical component: FS-536/FS-536SD 3-P, FS-537/FS-537SD 2-P
6. Replace M8. (FS-536SD / FS-537SD)
7. Replace SDCB. (FS-536SD / FS-537SD)
8. Replace FSCB. (FS-536SD / FS-537SD)

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)
- Link to the wiring diagram (FS-537/FS-537SD)

C11A1

(1) Contents

Trouble type	C11A1: Exit roller pressure/ retraction malfunction (When PF910 is installed)	
Rank	B	
Trouble detection condition	<When PF910 is installed>	The pick up roller position sensor (PS105) is not turned ON (blocked) or OFF (unblocked) even after the set period of time has elapsed after the exit roller lift up motor (M104) is turned ON.
Trouble isolation	-	
Relevant electrical parts	<When PF910 is installed>	• Exit roller lift up motor (M104) • Pick up roller position sensor (PS105) • FS control board (FSCB)

(2) Procedure

1. Check the connector between M104-FSCB CN109 for proper connection and correct as necessary.
2. Check the connector of M104 for proper drive coupling and correct as necessary.
3. Check the connector between PS105-FSCB CN110 for proper connection and correct as necessary.
4. PS105 I/O check, sensor check
   - Control signal: FSCB CN110
   - Location of electrical component: PF910 7-D to E
5. M104 operation check
   - Control signal: FSCB CN109
   - Location of electrical component: PF910 9-D to E
6. Replace M104.
7. FSCB CP104 conduction check
8. Replace FSCB.

NOTICE
- Link to the wiring diagram (PF910)

C11A2

(1) Contents

Trouble type	C11A2: Receiving roller retraction motor's drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536 or FS-536SD is installed>	The receiving roller retraction sensor (PS11) is not turned OFF (blocked) or ON (unblocked) even after the set period of time has elapsed after the receiving roller retraction motor (M4) is turned ON.
	<When FS-537 or FS-537SD is installed>	The receiving roller retraction sensor (PS22) is not turned OFF (blocked) or ON (unblocked) even after the set period of time has elapsed after the receiving roller retraction motor (M10) is turned ON.
Trouble isolation	-	
Relevant electrical parts	<When FS-536 or FS-536SD is installed>	• Receiving roller retraction motor (M4) • Receiving roller retraction sensor (PS11) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• Receiving roller retraction motor (M10) • Receiving roller retraction sensor (PS22) • FS control board (FSCB)

(2) Procedure

(a) When FS-536 or FS-536SD is installed

1. Check the connector between M4-FSCB J4 for proper connection and correct as necessary.
2. Check the connector of M4 for proper drive coupling and correct as necessary.
3. Check the connector between PS11-FSCB J4 for proper connection and correct as necessary.
4. PS11 I/O check, sensor check
   - Control signal: FSCB J4<B>-16 (ON)
   - Location of electrical component: FS-536/FS-536SD 16-C
5. M4 operation check
   - Control signal: FSCB J4<A>-1 to 4
   - Location of electrical component: FS-536/FS-536SD 13-C
6. Replace M4.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

(b) When FS-537 or FS-537SD is installed

1. Check the connector between M10-FSCB J12 for proper connection and correct as necessary.
2. Check the connector of M10 for proper drive coupling, and correct as necessary.
3. Check the connector between PS22-FSCB J12 for proper connection and correct as necessary.
4. PS22 I/O check, sensor check
   - Control signal: FSCB J12<B>-7 (ON)
   - Location of electrical component: FS-537/FS-537SD 17-D
5. M10 operation check
   - Control signal: FSCB J12<B>-1 to 4
   - Location of electrical component: FS-537/FS-537SD 17-D
6. Replace M10.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-537/FS-537SD)

C11E1

(1) Contents

Trouble type	C11E1: Paper exit switching drive malfunction	
Rank	B	
Trouble detection condition	<When FS-536 or FS-536SD is installed>	The exchange folded paper output sensor (PS30) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the FNS entry transport motor (M2) is turned ON.
	<When FS-537 or FS-537SD is installed>	The route change gate home sensor (PS21) is not turned OFF (unblocked) or ON (blocked) even after the set period of time has elapsed after the route change gate motor (M4) is turned ON.
Trouble isolation	-	
Relevant electrical parts	<When FS-536 or FS-536SD is installed>	• FNS entry transport motor (M2) • Exchange folded paper output sensor (PS30) • FS control board (FSCB)
	<When FS-537 or FS-537SD is installed>	• Route change gate motor (M4) • Route change gate home sensor (PS21) • FS control board (FSCB)

(2) Procedure

(a) When FS-536 or FS-536SD is installed

1. Check the connector between M2-FSCB J9 for proper connection and correct as necessary.
2. Check the connector of M2 for proper drive coupling and correct as necessary.
3. Check the connector between PS30-FSCB J4 for proper connection and correct as necessary.
4. PS30 I/O check, sensor check
   - Control signal: FSCB J4<A>-15 (ON)
   - Location of electrical component: FS-536/FS-536SD 14-C

5. M2 operation check
   - Control signal: FSCB J9<A>-1 to 4
   - Location of electrical component: FS-536/FS-536SD 12-C
6. Replace M2.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-536/FS-536SD)

(b) When FS-537 or FS-537SD is installed

1. Check the connector between M4-FSCB J12 for proper connection and correct as necessary.
2. Check the connector of M4 for proper drive coupling and correct as necessary.
3. Check the connector between PS21-FSCB J12 for proper connection and correct as necessary.
4. PS21 I/O check, sensor check
   - Control signal: FSCB J12<B>-12 (ON)
   - Location of electrical component: FS-537/FS-537SD 18-D
5. M4 operation check
   - Control signal: FSCB J21<B>-8 to 9
   - Location of electrical component: FS-537/FS-537SD 18-D
6. Replace M4.
7. Replace FSCB.

NOTICE
- Link to the wiring diagram (FS-537/FS-537SD)

C1402

(1) Contents

Trouble type	C1402: FS nonvolatile memory error (When PF910 is installed)
Rank	C
Trouble detection condition	When the main power switch is turned ON, malfunctioning of the nonvolatile memory on the FS control board (FSCB) is detected.
Trouble isolation	-
Relevant electrical parts	FS control board (FSCB)

(2) Procedure

1. Turn OFF the main power switch, disconnect and then connect the power cord. Wait for 10 sec. or more after connect the power cord, and turn ON the main power switch.
2. Rewrite the firmware.
3. Replace FSCB.

C2###

C2152, C2153, C2154, C2155, C2156

(1) Contents

Trouble type	• C2152: Transfer belt fault at initial position return • C2153: Transfer belt spacing fault at K pressure switching • C2154: Transfer belt contact fault at all pressure switching • C2155: Transfer belt contact fault after K pressure established • C2156: Transfer belt spacing fault after all pressure established
Rank	B
Trouble detection condition	• C2152: The 1st transfer pressure sensor (PS39) is unable to detect "switch from retraction to pressure" or "switch from pressure to retraction" within a given period time after the 1st transfer pressure clutch (CL5) has stared engagement during an initial position return. • C2153: The 1st transfer pressure sensor (PS39) does not detect “switch from pressure to retraction” within a given period time after 1st transfer pressure clutch (CL5) has stared engagement. • C2154: The 1st transfer pressure sensor (PS39) does not detect “switch from retraction to pressure” within a given period time after 1st transfer pressure clutch (CL5) has stared engagement. • C2155: The 1st transfer pressure sensor (PS39) is blocked after the lamps of given time after the 1st transfer pressure clutch (CL5) turned OFF when the release operation is finished. • C2156: The 1st transfer pressure sensor (PS39) is unblocked after the laps of given time after the 1st transfer pressure clutch (CL5) turned OFF when the pressing operation is finished.
Trouble isolation	-
Relevant electrical parts	• Fusing motor (M3) • 1st transfer pressure clutch (CL5) • 1st transfer pressure sensor (PS39) • Expansion control board (EXCB) • MFP board (MFPB)

(2) Procedure

1. Check the connector between M3-MFPB CN14E for proper connection and correct as necessary.

2. Check the connector of M3 for proper drive coupling and correct as necessary.
3. Check the connector between PS39-relay CN113-MFPB CN15E for proper connection and correct as necessary.
4. Check the connector between CL5-relay CN118-EXCB CN8 for proper connection and correct as necessary.
5. PS39 I/O check, sensor check
   - Control signal: MFPB CN15E<B>-10 (ON)
   - Location of electrical component: CM9705DN/M9705/ CM9105DN/M9105DN 21-C
6. CL5 operation check
   - Control signal: EXCB CN8<A>-4 (CL5_REM)
   - Location of electrical component: 25-T
7. M3 operation check
   - Control signal: MFPB CN14E-9 (REM), MFPB CN14E-12 (LOCK)
   - Location of electrical component: 2-C
8. Replace M3.
9. Replace EXCB.
10. MFPB F6E conduction check

11. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C2253, C2254

(1) Contents

Trouble type	• C2253: PC motor's failure to turn • C2254: PC motor's turning at abnormal timing
Rank	B
Trouble detection condition	• C2253: The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning. • C2254: The motor lock signal remains LOW for a predetermined continuous period of time while the motor remains stationary.
Trouble isolation	-
Relevant electrical parts	• PC motor (M2) • MFP board (MFPB)

(2) Procedure

1. Check the connector between M2-MFPB CN23E for proper connection and correct as necessary.
2. Check the connector of M2 for proper drive coupling and correct as necessary.
3. M2 operation check
   - Control signal: MFPB CN23E-13 (REM), MFPB CN23E-16 (LOCK)
   - Location of electrical component: CM9705DN/M9705 3-C, CM9105DN/M9105DN 6-C
4. Replace M2.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C2255, C2256

(1) Contents

Trouble type	• C2255: Developing motor's failure to turn • C2256: Developing motor's turning at abnormal timing
Rank	B
Trouble detection condition	• C2255: The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning. • C2256: The motor lock signal remains LOW for a predetermined continuous period of time while the motor remains stationary.
Trouble isolation	-
Relevant electrical parts	• Developing motor (M21) • MFP board (MFPB)

(2) Procedure

1. Check the connector between M21-MFPB CN23E for proper connection and correct as necessary.
2. Check the connector of M21 for proper drive coupling and correct as necessary.
3. M21 operation check
   - Control signal: MFPB CN23E-5 (REM), MFPB CN23E-8 (LOCK)
   - Location of electrical component: CM9705DN/M9705 3-C, CM9105DN/M9105DN 5-C
4. Replace M21.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C2350

(1) Contents

Trouble type	C2350: Toner suction fan's failure to turn
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• Toner suction fan (FM11) • MFP board (MFPB)

(2) Procedure

1. Check the connector between FM11-relay CN62-MFPB CN31E for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM11 operation check
   - Control signal: MFPB CN31E<A>-12 (REM), MFPB CN31E<A>-14 (LOCK)
   - Location of electrical component: 24-J

4. Replace FM11.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C2355

(1) Contents

Trouble type	C2355: Transfer belt cleaner cooling fan's failure to turn
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• Transfer belt cleaner cooling fan (FM2) • Expansion control board (EXCB)

(2) Procedure

1. Check the connector between FM2-relay CN115-EXCB CN5 for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM2 operation check
   - Control signal: EXCB CN5-1 (REM), EXCB CN5-3 (LOCK)
   - Location of electrical component: 28-P
4. Replace FM2.
5. MFPB F6E conduction check
6. Replace EXCB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C2411, C2412, C2413, C2414

(1) Contents

Trouble type	• C2411: Developing unit/C new article release • C2412: Developing unit/M new article release • C2413: Developing unit/Y new article release • C2414: Developing unit/K new article release
Rank	B
Trouble detection condition	The status with the new unit is not cleared after the new developing unit is set.
Trouble isolation	-
Relevant electrical parts	• Developing unit/C,M,Y,K • Front side board (FRB) • MFP board (MFPB)

(2) Procedure

1. Reinstall the developing unit.
2. Check the connector between the developing unit-FRB CN13 (C2414), CN14 (C2411), CN15 (C2412), CN16 (C2413) for proper connection and correct as necessary.
3. Check the connector between FRB CN1, CN3-MFPB CN4E, CN5E for proper connection and correct as necessary.
4. Replace the developing unit.
5. Replace FRB.
6. Replace MFPB.

C2551, C2553, C2555, C2557

(1) Contents

Trouble type	• C2551: Abnormally low toner density detected cyan TCR sensor • C2553: Abnormally low toner density detected magenta TCR sensor • C2555: Abnormally low toner density detected yellow TCR sensor • C2557: Abnormally low toner density detected black TCR sensor
Rank	B
Trouble detection condition	When sampling data is determined in TC ratio calculation control, TCR sensor output is higher than a predetermined value for a predetermined number of times in a row even though there is toner in the sub hopper.
Trouble isolation	-
Relevant electrical parts	• Developing unit/C,M,Y,K • Toner cartridge/C,M,Y,K • Toner empty sensor/Y (PS34) • Toner empty sensor/M (PS33) • Toner empty sensor/C (PS32) • Toner empty sensor/K (PS31) • Toner cartridge motor/Y,M (M10) • Toner cartridge motor/C,K (M25) • Toner supply motor/Y (M9) • Toner supply motor/M (M8) • Toner supply motor/C (M7) • Toner supply motor/K (M6) • Expansion control board (EXCB) • Front side board (FRB) • MFP board (MFPB)

(2) Procedure

1. Perform image troubleshooting procedure if image density is low.
2. Reinstall the developing unit.
3. Reinstall the toner cartridge.
4. Check the connector between the developing unit-FRB CN13 (C2557), CN14 (C2551), CN15 (C2553), CN16 (C2555) for proper connection and correct as necessary.
5. Check the connector between FRB CN1, CN3-MFPB CN4E, CN5E for proper connection and correct as necessary.
6. M10, M25 operation check
   - Control signal: MFPB CN28E-8 to 11 (M10), CN28E-4 to 7 (M25)
   - Location of electrical component: 12-C (M10), 11-C (M25)
7. M6, M7, M8, M9 operation check
   - Control signal: EXCB CN3-4 to 7 (M6), CN3-8 to 11 (M7), CN3-12 to 15 (M8), CN3-16 to 19 (M9)
   - Location of electrical component: 25-T (M8, M9), 26-T (M6, M7)
8. If the toner empty sensor and its surroundings inside the sub hopper are dirtied with toner, clean them.
9. Replace the developing unit.
10. Replace FRB.
11. Replace EXCB.
12. MFPB F6E conduction check
13. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C2552, C2554, C2556, C2558

(1) Contents

Trouble type	• C2552: Abnormally high toner density detected cyan TCR sensor • C2554: Abnormally high toner density detected magenta TCR sensor • C2556: Abnormally high toner density detected yellow TCR sensor • C2558: Abnormally high toner density detected black TCR sensor
Rank	B
Trouble detection condition	The TC ratio of the toner determined by the toner replenishment control is detected to be the predetermined value or over for consecutive times.
Trouble isolation	-
Relevant electrical parts	• Developing unit/C,M,Y,K • Toner cartridge/C,M,Y,K • Front side board (FRB) • MFP board (MFPB)

(2) Procedure

1. Reinstall the developing unit.
2. Reinstall the toner cartridge.
3. Check the connector between the developing unit-FRB CN13 (C2558), CN14 (C2552), CN15 (C2554), CN16 (C2556) for proper connection and correct as necessary.
4. Check the connector between FRB CN1, CN3-MFPB CN4E, CN5E for proper connection and correct as necessary.
5. Replace the developing unit.

6. Replace FRB.
7. Replace MFPB.

C2559, C255A, C255B, C255C

(1) Contents

Trouble type	• C2559: Cyan TCR sensor adjustment failure • C255A: Magenta TCR sensor adjustment failure • C255B: Yellow TCR sensor adjustment failure • C255C: Black TCR sensor adjustment failure
Rank	B
Trouble detection condition	TCR sensor automatic adjustment does not function properly, failing to adjust to an appropriate value.
Trouble isolation	-
Relevant electrical parts	• Developing unit/C,M,Y,K • Toner cartridge motor/Y,M (M10) • Toner cartridge motor/C,K (M25) • Toner supply motor/Y (M9) • Toner supply motor/M (M8) • Toner supply motor/C (M7) • Toner supply motor/K (M6) • Expansion control board (EXCB) • Front side board (FRB) • MFP board (MFPB)

(2) Procedure

1. Reinstall the developing unit.
2. Check the connector between the developing unit-FRB CN13 (C255C), CN14 (C2559), CN15 (C255A), CN16 (C255B) for proper connection and correct as necessary.
3. Check the connector between FRB CN1, CN3-MFPB CN4E, CN5E for proper connection and correct as necessary.
4. M10, M25 operation check
   - Control signal: MFPB CN28E-8 to 11 (M10), CN28E-4 to 7 (M25)
   - Location of electrical component: 12-C (M10), 11-C (M25)
5. M6, M7, M8, M9 operation check
   - Control signal: EXCB CN3-4 to 7 (M6), CN3-8 to 11 (M7), CN3-12 to 15 (M8), CN3-16 to 19 (M9)
   - Location of electrical component: 15-C (M7, M8), 16-C (M9)
6. Replace the developing unit.
7. Replace FRB.
8. Replace EXCB.
9. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C2561, C2562, C2563, C2564

(1) Contents

Trouble type	• C2561: Cyan TCR sensor failure • C2562: Magenta TCR sensor failure • C2563: Yellow TCR sensor failure • C2564: Black TCR sensor failure
Rank	B
Trouble detection condition	• Alarm signals for each TCR sensor is detected more than the predetermined number of times. • This detection is used for detecting disconnection of TCR sensor connector.
Trouble isolation	-
Relevant electrical parts	• Developing unit/C,M,Y,K • Front side board (FRB) • MFP board (MFPB)

(2) Procedure

1. Reinstall the developing unit.
2. Check the connector between the developing unit-FRB CN13 (C2564), CN14 (C2561), CN15 (C2562), CN16 (C2563) for proper connection and correct as necessary.
3. Check the connector between FRB CN1, CN3-MFPB CN4E, CN5E for proper connection and correct as necessary.
4. Replace the developing unit.
5. Replace FRB.
6. Replace MFPB.

C2650, C265B

(1) Contents

Trouble type	• C2650: Main backup media access error 1 • C265B: Main backup media access error 2
Rank	C
Trouble detection condition	• The re-written data, which has been read out, checked and founded as error, is read out again and found as error. • The error was found when reading out the counter value. • The main body detects that the EEPROM is not mounted.
Trouble isolation	-
Relevant electrical parts	• C2650: EEPROM1 (EEPROM/1) • C265B: EEPROM2 (EEPROM/2) • MFP board (MFPB)

(2) Procedure

1. Make sure that EEPROM/1 and EEPROM/2 are mounted in their respective correct positions.
2. Check to see if the EEPROM is mounted in a reverse direction.
3. Check the connector from MFPB to EEPROM for proper connection and correct as necessary.
4. Replace MFPB.
5. Replace EEPROM/1 and EEPROM/2.
   1. Replace the current EEPROM with a new one.
   2. Replace the following components with new ones.
   When the transfer belt unit and the fusing unit have been replaced with new ones, perform [New Release] in the service mode. When the transfer roller has been replaced with a new one, perform [Counter clear].
   - Developing unit/Y,M,C,K
   - Drum unit/Y,M,C,K
   - Toner cartridge/Y,M,C,K
   - Transfer belt unit
   - Fusing unit
   - Transfer roller

- Feed roller, pick-up roller, separation roller (including options)

3. Turn ON the main power switch and check to see that warm-up is started. Make sure that malfunction codes other than C2650 or improper IU/TC placement is not detected.
4. Make the specified readjustments.

6. If the above actions do not solve the problem, contact KM.

C2A11, C2A12, C2A13, C2A14

(1) Contents

Trouble type	• C2A11: Drum unit/C new release failure • C2A12: Drum unit/M new release failure • C2A13: Drum unit/Y new release failure • C2A14: Drum unit/K new release failure
Rank	B
Trouble detection condition	The status with the new unit is not cleared after the new drum unit is set.
Trouble isolation	-
Relevant electrical parts	• Drum unit/C,M,Y,K • Front side board (FRB) • MFP board (MFPB)

(2) Procedure

1. Clean the connection between the drum unit and the main body if dirty.
2. Reinstall the drum unit.
3. Check the connector between the drum unit-FRB CN12 for proper connection and correct as necessary.
4. Check the connector between FRB CN1, CN3-MFPB CN4E, CN5E for proper connection and correct as necessary.
5. Replace the drum unit.
6. Replace FRB.
7. Replace MFPB.

C2A21, C2A22, C2A23, C2A24

(1) Contents

Trouble type	• C2A21: Toner cartridge/C new release failure • C2A22: Toner cartridge/M new release failure • C2A23: Toner cartridge/Y new release failure • C2A24: Toner cartridge/K new release failure
Rank	C
Trouble detection condition	The status with the new unit is not cleared after the new toner cartridge is set.
Trouble isolation	-
Relevant electrical parts	• Toner cartridge/ C,M,Y,K • Expansion control board (EXCB)

(2) Procedure

1. Clean the connection between the toner cartridge and the main body if dirty.
2. Check the connector between the toner cartridge-relay CN79-EXCB CN5 for proper connection and correct as necessary.
3. Reinstall the toner cartridge.
4. Check the harness for proper connection and correct as necessary.
5. Replace the toner cartridge.
6. Replace EXCB.

C3###

C3101, C3103

(1) Contents

Trouble type	• C3101: Pressure roller pressure failure • C3103: Pressure roller release failure
Rank	B
Trouble detection condition	C3101: • The encoder pulse does not change even after the lapse of a predetermined period of time after the fusing pressure motor (M11) has started rotating during pressure by the pressure roller. • The fusing pressure home sensor (PS38) is not blocked even after the lapse of a predetermined period of time after the fusing pressure motor (M11) has started rotating during pressure by the pressure roller.
	C3103: • The encoder pulse does not change even after the lapse of a predetermined period of time after the fusing pressure motor (M11) has started rotating during retraction of the pressure roller. • The fusing pressure home sensor (PS38) is not unblocked even after the lapse of a predetermined period of time after the fusing pressure motor (M11) has started rotating during retraction of the pressure roller.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • Fusing pressure motor (M11) • Fusing pressure home sensor (PS38) • MFP board (MFPB)

(2) Procedure

1. Check the connector between M11-relay CN112-MFPB CN15E for proper connection and correct as necessary.
2. Check the connector between the fusing unit-relay CN96-MFPB CN22E for proper connection and correct as necessary. (CM9705DN/M9705)
3. Check the connector between the fusing unit-relay CN104-MFPB CN12E for proper connection and correct as necessary. (CM9105DN/M9105DN)
4. PS38 I/O check, sensor check
   - Control signal: CM9705DN/M9705, CM9105DN/M9105DN MFPB CN12E-12 (ON)
   - Location of electrical component: CM9705DN/M9705/ CM9105DN/M9105DN 24-C
5. M11 operation check
   - Control signal: MFPB CN15E<A>-7 to 10
   - Location of electrical component: CM9705DN/M9705/ CM9105DN/M9105DN 19-C
6. Replace M11.
7. Replace the fusing unit. (CM9705DN/M9705/ CM9105DN/M9105DN)
8. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C3102

(1) Contents

Trouble type	C3102: Heating roller failure to turn (CM9705DN/M9705)
Rank	A
Trouble detection condition	The hard latch signal from one or both of the heating roller rotation latch detection 1 and the heating roller rotation latch detection 2 is turned ON.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • Heating roller rotation sensor (PS37) • Fusing motor (M3) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for proper installation and correct as necessary.
2. Check the connector between M3-MFPB CN14E for proper connection and correct as necessary.
3. Check the connector of M3 for proper drive coupling and correct as necessary.
4. Check the connector between the fusing unit-relay CN100-MFPB CN13E for proper connection and correct as necessary.
5. PS37 I/O check, sensor check
   - Control signal: MFPB CN13E-3 (ON)
   - Location of electrical component: 23-C
6. M3 operation check
   - Control signal: MFPB CN14E-9 (REM), MFPB CN14E-12 (LOCK)
   - Location of electrical component: 2-C
7. Replace M3.
8. Replace the fusing unit. (CM9705DN/M9705/ CM9105DN/M9105DN)
9. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C3201, C3202

(1) Contents

Trouble type	• C3201: Fusing motor's failure to turn • C3202: Fusing motor's turning at abnormal timing
Rank	B
Trouble detection condition	• C3201: The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning. • C3202: The motor lock signal remains LOW for a predetermined continuous period of time while the motor remains stationary.
Trouble isolation	-
Relevant electrical parts	• Fusing motor (M3) • MFP board (MFPB)

(2) Procedure

1. Check the connector between M3-MFPB CN14E for proper connection and correct as necessary.
2. Check the loading status of the fusing unit drive, and correct the error as necessary.
3. M3 operation check
   - Control signal: MFPB CN14E-9 (REM), MFPB CN14E-12 (LOCK)
   - Location of electrical component: 2-C
4. Replace M3.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C3302

(1) Contents

Trouble type	C3302: Paper cooling fan's failure to turn
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• Paper cooling fan (FM8) • MFP board (MFPB)

(2) Procedure

1. Check the connector between FM8-relay CN106-MFPB CN15E for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM8 operation check
   - Control signal: MFPB CN15E<A>-13 (REM), MFPB CN15E<A>-15 (LOCK)
   - Location of electrical component: CM9705DN/M9705/CM9105DN/M9105DN 20-C
4. Replace FM8.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C3425

(1) Contents

Trouble type	C3425: Fusing warm-up trouble
Rank	A
Trouble detection condition	CM9705DN/M9705 • Detected temperature of the heating roller temperature sensor1 (TEMS/1) does not go up a given range of temperature even after a lapse of given period of time at warm up. • The temperature detected by the heating roller temperature sensor1 (TEMS/1) does not shift from the pre-standby state or the post-print color printing-enable wait state even after the lapse of a predetermined period of time after the completion of warm-up.
	CM9105DN/M9105DN • Detected temperature of the heating roller thermistor1 (TH1) does not go up a given range of temperature even after a lapse of given period of time at warm up. • The temperature detected by the heating roller thermistor1 (TH1) does not shift from the pre-standby state or the post-print color printing-enable wait state even after the lapse of a predetermined period of time after the completion of warm-up.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • CM9705DN/M9705: Heating roller temperature sensor1 (TEMS/1) • CM9105DN/M9105DN: Heating roller thermistor1 (TH1) • DC power supply (DCPU) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit, DCPU, and MFPB for proper connection and correct or change as necessary.
4. Replace the fusing unit. (CM9705DN/M9705/CM9105DN/M9105DN)
5. Replace MFPB.
6. Replace DCPU.

C3722, C3725, C3726

(1) Contents

Trouble type	• C3722: Fusing abnormally high temperature detection (Edge of the heating roller) • C3725: Fusing abnormally high temperature detection (Main of the heating roller) • C3726: Fusing abnormally high temperature detection (Center of the heating roller)
Rank	A
Trouble detection condition	• C3722: Detected temperature of the heating roller temperature sensor2 (TEMS/2) or heating roller thermistor1 (TH1) goes beyond a given temperature for a given period of time consecutively. • C3725: Detected temperature of the heating roller temperature sensor1 (TEMS/1) or heating roller thermistor1 (TH1) goes beyond a given temperature for a given period of time consecutively. • C3726: Detected temperature of the heating roller thermistor2 (TH2) goes beyond a given temperature for a given period of time consecutively.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • C3722 (CM9705DN/M9705): Heating roller temperature sensor2 (TEMS/2) • C3722 (CM9105DN/M9105DN): Heating roller thermistor1 (TH1) • C3725 (CM9705DN/M9705): Heating roller temperature sensor1 (TEMS/1) • C3725 (CM9105DN/M9105DN): Heating roller thermistor1 (TH1) • C3726: Heating roller thermistor2 (TH2) • IH power supply (IHPU) (CM9705DN/M9705 only) • Fusing power supply (FUPU) (CM9105DN/M9105DN only) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary. (CM9705DN/M9705)
4. Check the fusing unit-MFPB CN12E for proper connection and correct or change as necessary. (CM9105DN/M9105DN)
5. Check the connector between TEMS/1-relay CN109-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)
6. Check the connector between TEMS/2-relay CN138-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)
7. Replace the fusing unit. (CM9705DN/M9705/ CM9105DN/M9105DN)
8. Replace IHPU. (CM9705DN/M9705only)
9. Replace FUPU. (CM9105DN/M9105DN only)
10. Replace MFPB.

C3732, C3736, C3737, C3738, C3739

(1) Contents

Trouble type	• C3732: Fusing abnormally high temperature detection hard protector (Edge of the heating roller) (CM9705DN/M9705) • C3736: Fusing abnormally high temperature detection hard protector (Middle of the heating roller) • C3737: Fusing abnormally high temperature detection hard protector (Center of the heating roller) (CM9705DN/M9705) • C3738: Fusing abnormally high temperature detection hard protector (Middle of the heating roller) (CM9705DN/M9705) • C3739: Fusing abnormally high temperature detection hard protector (Edge of the heating roller) (CM9105DN/M9105DN)
Rank	A
Trouble detection condition	• C3732: An abnormally high temperature is detected on the hard protector circuit (edge of the heating roller). • C3736: An abnormally high temperature is detected on the hard protector circuit (middle of the heating roller). • C3737: An abnormally high temperature is detected on the hard protector circuit (center of the heating roller). • C3738: An abnormally high temperature is detected on the hard protector circuit (center of the heating roller). • C3739: An abnormally high temperature is detected on the hard protector circuit (edge of the heating roller).
Trouble isolation	-
Relevant electrical parts	• Fusing unit • C3732: Heating roller temperature sensor2 (TEMS/2) • C3736: Heating roller thermistor2 (TH2) • C3737: Heating roller temperature sensor1 (TEMS/1) • C3738: Heating roller thermistor3 (TH3) • C3739: Heating roller thermistor1 (TH1) • IH power supply (IHPU) (CM9705DN/M9705 only) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary. (CM9705DN/M9705)
4. Check the fusing unit-MFPB CN12E for proper connection and correct or change as necessary. (CM9105DN/M9105DN)
5. Check the connector between TEMS/1-relay CN109-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)
6. Check the connector between TEMS/2-relay CN138-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)

7. Replace the fusing unit. (CM9705DN/M9705/ CM9105DN/M9105DN)
8. Replace IHPU. (CM9705DN/M9705 only)
9. Replace MFPB.

C3822, C3825, C3826

(1) Contents

Trouble type	• C3822: Fusing abnormally low temperature detection (Edge of the heating roller) (CM9705DN/M9705) • C3825: Fusing abnormally low temperature detection (Main of the heating roller) • C3826: Fusing abnormally low temperature detection (Center of the heating roller) (CM9105DN/M9105DN)
Rank	A
Trouble detection condition	• C3822: The heating roller temperature sensor2 (TEMS/2) continues to detect a temperature lower than a predetermined one for a predetermined period of time. • C3825: The heating roller temperature sensor1 (TEMS/1) or heating roller thermistor1 (TH1) continues to detect a temperature lower than a predetermined one for a predetermined period of time. • C3826: The heating roller thermistor/2 (TH2) continues to detect a temperature lower than a predetermined one for a predetermined period of time.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • C3822: Heating roller temperature sensor2 (TEMS/2) • C3825 (CM9705DN/M9705): Heating roller temperature sensor1 (TEMS/1) • C3825 (CM9105DN/M9105DN): Heating roller thermistor1 (TH1) • C3826: Heating roller thermistor/2 (TH2) • IH power supply (IHPU) (CM9705DN/M9705only) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary. (CM9705DN/M9705)
4. Check the fusing unit-MFPB CN12E for proper connection and correct or change as necessary. (CM9105DN/M9105DN)
5. Check the connector between TEMS/1-relay CN109-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)
6. Check the connector between TEMS/2-relay CN138-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)
7. Replace the fusing unit. (CM9705DN/M9705 / CM9105DN/M9105DN)
8. Replace IHPU. (CM9705DN/M9705only)
9. MFPB F12E conduction check
10. Replace MFPB.

C3922, C3925, C3926

(1) Contents

Trouble type	• C3922: Fusing sensor wire breaks detection (Edge of the heating roller) • C3925: Fusing sensor wire breaks detection (Main of the heating roller) • C3926: Fusing sensor wire breaks detection (Center of the heating roller)
Rank	A
Trouble detection condition	• C3922: After a predetermined period of time after the warm-up stage is started, the heating roller temperature sensor2 (TEMS/2) or heating roller thermistor1 (TH1) voltage does not decrease by predetermined steps (temperature rise) within a predetermined period of time. • C3925: After a predetermined period of time after the warm-up stage is started, the heating roller temperature sensor1 (TEMS/1) voltage does not increase by predetermined steps (temperature rise) within a predetermined period of time. • C3926: After a predetermined period of time after the warm-up stage is started, the heating roller thermistor2 (TH2) voltage does not decrease by predetermined steps (temperature rise) within a predetermined period of time.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • C3922 (CM9705DN/M9705): Heating roller temperature sensor2 (TEMS/2) • C3922 (CM9105DN/M9105DN): Heating roller thermistor1 (TH1) • C3925 (CM9705DN/M9705): Heating roller temperature sensor1 (TEMS/1) • C3925 (CM9105DN/M9105DN): Heating roller thermistor1 (TH1) • C3926: Heating roller thermistor2 (TH2) • IH power supply (IHPU) (CM9705DN/M9705/CM9105DN/M9105DN only) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary. (CM9705DN/M9705)
4. Check the fusing unit-MFPB CN12E for proper connection and correct or change as necessary. (CM9105DN/M9105DN)
5. Check the connector between TEMS/1-relay CN109-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)
6. Check the connector between TEMS/2-relay CN138-MFPB CN15E for proper connection and correct as necessary. (CM9705DN/M9705)
7. Replace the fusing unit. (CM9705DN/M9705CM9105DN/M9105DN)

8. Replace IHPU. (CM9705DN/M9705)

9. MFPB F12E conduction check
10. Replace MFPB.

C392A

(1) Contents

Trouble type	C392A: Heating roller temperature sensor contamination (Main of the heating roller)
Rank	C
Trouble detection condition	During waiting after a predetermined period of time after the warm-up stage terminates, the temperature detected by the heating roller thermostat3 (TH3) exceeds that detected by the heating roller temperature sensor1 (TEMS/1) above a predetermined temperature, and this state continues for a predetermined period of time.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • Heating roller temperature sensor1 (TEMS/1) • Heating roller thermistor3 (TH3) • MFP board (MFPB)

(2) Procedure

1. Wipe the TEMS/1 clean of dirt if any.
   <Cleaning procedure>
   - Clear away a dirt or a foreign object on the sensor with a cotton swab.
   - When a dirt is left even if you cleaned the sensor by above procedure, clear away a dirt or a foreign object on the sensor using a cotton swab dampened with the alcohol. And, wipe off the sensor with a dry cotton swab afterwards.
2. Check the TEMS/1 for installed position and proper connector connection.
3. Check the connection of the fusing unit.
4. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary.
5. Check the connector between TEMS/1-relay CN109-MFPB CN15E for proper connection and correct as necessary.
6. Replace the fusing unit.
7. Replace MFPB.

C392B

(1) Contents

Trouble type	C392B: Fusing sensor wire breaks detection (Difference of temperature)
Rank	A
Trouble detection condition	The difference between the temperature corrected by the heating roller thermistor1 (TH1) and the temperature detected by the heating roller thermistor2 (TH2) exceeds a predetermined value.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • Heating roller thermistor1 (TH1) • Heating roller thermistor2 (TH2) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary. (CM9705DN/M9705)
4. Check the fusing unit-MFPB CN12E for proper connection and correct or change as necessary. (CM9105DN/M9105DN)
5. Replace the fusing unit. (CM9705DN/M9705/ CM9105DN/M9105DN)
6. Replace MFPB.

C3B02, C3B03

(1) Contents

Trouble type	• C3B02: IH malfunction (CPU) (CM9705DN/M9705) • C3B03: IH malfunction (monitor) (CM9705DN/M9705)
Rank	A
Trouble detection condition	• C3B02: A failure in communication with the fusing CPU continues for a predetermined period of time. • C3B03: Though the IH heater is OFF, mechanically, the ON status is detected. (Malfunction of IH heater operation)
Trouble isolation	-
Relevant electrical parts	• Fusing unit • IH coil (IHC) • IH power supply (IHPU) • IH magnetic erasing board (IHMEB) • NF board (NFB) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary.
4. Check the connector between MFPB CN13E-NFB CN3 for proper connection and correct as necessary.
5. Check the connector between NFB CN2-IHPU CN1 for proper connection and correct as necessary.
6. Check the connector between IHPU-IHC for proper connection and correct as necessary.
7. Check the connector between IHC-IHMEB for proper connection and correct as necessary.
8. Replace the fusing unit.
9. Replace IHC.
10. Replace IHPU.
11. Replace IHMEB.
12. Replace MFPB.
13. Replace NFB.

C3B07, C3B08

(1) Contents

Trouble type	• C3B07: IH input power error • C3B08: IH input voltage error
Rank	C3B07: A C3B08: B
Trouble detection condition	C3B07: • While the IH heater was ON, input power stayed at the high voltage power detection value or over for more than the predetermined period of time. • While the IH heater was ON, input power was at the low power detection value or under for more than the predetermined period of time. • While the IH heater was ON, input power was at the high voltage detection value or over for more than the predetermined period of time. • While the IH heater was ON, input power was below the low voltage detection value or under for more than the predetermined period of time. • While the IH heater was ON, inverter power stayed at the upper limit value or over for more than the predetermined period of time. • While the IH heater was ON, output voltage halt was detected.
	C3B08: • While the IH heater was ON, input power was at the high voltage detection value or over for more than the predetermined period of time. • While the IH heater was ON, input voltage was at the low power detection value or under for more than the predetermined period of time.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • IH coil (IHC) • IH power supply (IHPU) • NF board (NFB) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary.
3. Check the connector between NFB CN2-IHPU CN1 for proper connection and correct as necessary.
4. Check the connector between IHPU CN8-MFPB CN3E for proper connection and correct as necessary.
5. Check the marketing area of the fusing unit. If the marketing area is incorrect, replace the fusing unit for proper marketing area.
6. Check the marketing area of IHPU. If the marketing area is incorrect, replace IHPU for proper marketing area.
7. Replace IHC.
8. Replace IHPU.
9. Replace MFPB.
10. Replace NFB.

C3B09

(1) Contents

Trouble type	C3B09: IH communication error
Rank	C
Trouble detection condition	No signal has been received from the fusing CPU a predetermined number of consecutive times.
Trouble isolation	-
Relevant electrical parts	• Fusing unit • IH coil (IHC) • IH power supply (IHPU) • IH magnetic erasing board (IHMEB) • NF board (NFB) • MFP board (MFPB)

(2) Procedure

1. Check the fusing unit for correct installation (whether it is secured in position).
2. Check the open/close operation of the right door.
3. Check the fusing unit-MFPB CN22E for proper connection and correct or change as necessary.

4. Check the connector between MFPB CN13E-NFB CN3 for proper connection and correct as necessary.
5. Check the connector between NFB CN2-IHPU CN1 for proper connection and correct as necessary.
6. Check the connector between IHPU-IHC for proper connection and correct as necessary.
7. Check the connector between IHC-IHMEB for proper connection and correct as necessary.
8. Replace the fusing unit.
9. Replace IHC.
10. Replace IHPU.
11. Replace IHMEB.
12. Replace MFPB.
13. Replace NFB.

C4###

C40A1, C40A2, C40A3, C40A4, C40C3, C40C5

(1) Contents

Trouble type	• C40A1: Mechanical controller sub-CPU communication error • C40A2: Mechanical controller PF communication data error • C40A3: Mechanical controller PF transmission timeout • C40A4: Mechanical controller PF communication pulse error • C40C3: CTL PDF transmission timeout 1 • C40C5: CTL PDF transmission timeout 2
Rank	C
Trouble detection condition	A CPU communication error is detected.
Trouble isolation	-
Relevant electrical parts	MFP board (MFPB)

(2) Procedure

1. Turn OFF the main power switch, disconnect and then connect the power cord. Wait for 10 sec. or more after connect the power cord, and turn ON the main power switch.
2. Rewrite the firmware.
3. Replace MFPB.

C4101

(1) Contents

Trouble type	C4101: Polygon motor's rotation trouble
Rank	B
Trouble detection condition	• The polygon motor fails to turn stably even after the lapse of a given period of time after activating and changing rotation speed the polygon motor. • Motor lock signal detects HIGH for a given period time consecutively during the polygon motor is rotating.
Trouble isolation	-
Relevant electrical parts	• PH unit • Front side board (FRB) • MFP board (MFPB)

(2) Procedure

1. Check the connector between the PH unit-FRB CN5 for proper connection and correct as necessary. (CM9705DN/M9705/CM9105DN/M9105DN)
2. Replace the PH unit.
3. FRB fuse conduction check
4. Replace FRB.
5. Replace MFPB.

C4501

(1) Contents

Trouble type	C4501: Laser malfunction
Rank	B
Trouble detection condition	• SOS signal is not detected even after the lapse of a given period of time after starting the laser output. • SOS signal is not detected for a given period of time during printing or IDC sensor adjustment.
Trouble isolation	-
Relevant electrical parts	• PH unit • MFP board (MFPB)

(2) Procedure

1. Check the connector between the PH unit-relay CN63-MFPB CN20E for proper connection and correct as necessary.
2. Replace the PH unit. Replace MFPB.

C5###

C5102, C5103

(1) Contents

Trouble type	• C5102: Transport motor's failure to turn • C5103: Transport motor's turning at abnormal timing
Rank	B
Trouble detection condition	• C5102: The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning. • C5103: The motor lock signal remains LOW for a predetermined continuous period of time while the motor remains stationary.
Trouble isolation	-
Relevant electrical parts	• Transport motor (M1) • MFP board (MFPB)

(2) Procedure

1. Check the connector between M1-MFPB CN14E for proper connection and correct as necessary.
2. Check the loading status of the transfer belt drive, and correct the error as necessary.
3. M1 operation check
   - Control signal: MFPB CN14E-3 (REM), MFPB CN14E-6 (LOCK)
   - Location of electrical component: 1-C
4. Replace M1.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C5304

(1) Contents

Trouble type	C5304: Fusing power supply cooling fan’s failure to turn (CM9705DN/M9705)
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• Fusing power supply cooling fan (FM12) • MFP board (MFPB)

(2) Procedure

1. Check the connector between FM12-relay CN146-MFPB CN15E for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM12 operation check
   - Control signal: MFPB CN15E<A>-16 (REM), MFPB CN15E<A>-18 (LOCK)
   - Location of electrical component: CM9705DN/M9705/CM9105DN/M9105DN 20-C
4. Replace FM12.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C5306

(1) Contents

Trouble type	C5306: IH coil cooling fan’s failure to turn (CM9705DN/M9705)
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• IH coil cooling fan (FM7) • Expansion control board (EXCB) • MFP board (MFPB)

(2) Procedure

1. Check the connector between FM7-relay CN77-EXCB CN3 for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM7 operation check
   - Control signal: EXCB CN3-1 (REM), EXCB CN3-3 (LOCK)
   - Location of electrical component: 26-T
4. Replace FM7.
5. Replace EXCB.
6. MFPB F6E conduction check
7. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C5351

(1) Contents

Trouble type	C5351: Power supply cooling fan's failure to turn
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• Power supply cooling fan (FM1) • MFP board (MFPB)

(2) Procedure

1. Check the connector between FM1-relay CN26-MFPB CN31E for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM1 operation check
   - Control signal: MFPB CN31E<A>-9 (REM), MFPB CN31E<A>-11 (LOCK)
   - Location of electrical component: 23-J
4. Replace FM1.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C5355

(1) Contents

Trouble type	C5355: Toner cartridge cooling fan's failure to turn
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• Toner cartridge cooling fan (FM4) • Expansion control board (EXCB) • MFP board (MFPB)

(2) Procedure

(a) CM9705DN/M9705

1. Check the connector between FM4-relay CN78-EXCB CN10 for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM4 operation check
   - Control signal: EXCB CN10-1 (REM), EXCB CN10-3 (LOCK)
   - Location of electrical component: 27-T
4. Replace FM4.
5. Replace EXCB.
6. MFPB F6E or F8E conduction check
7. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

(b) CM9105DN/M9105DN

1. Check the connector between FM4-relay CN111-MFPB CN16E for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM4 operation check
   - Control signal: MFPB CN16E-2 (REM), MFPB CN16E-3 (LOCK)
   - Location of electrical component: 26-C
4. Replace FM4.
5. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C5360

(1) Contents

Trouble type	C5360: Clean unit fan's failure to turn (When CU-102 is installed)
Rank	B
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• Exhaust fan1 (FM14) • Exhaust fan2 (FM15) • Clean unit drive board (CUDB) • MFP board (MFPB)

(2) Procedure

1. Check the connector between CUDB CN1-MFPB CN29E for proper connection and correct as necessary.
2. Check the connector between FM14-relay CN200-CUDB CN2 for proper connection and correct as necessary.
3. Check the connector between FM15-relay CN201-CUDB CN3 for proper connection and correct as necessary.
4. Check the fan for possible overload and correct as necessary.
5. FM14 operation check
   - Load check: Check code42, Multi code 9
   - Control signal: CUDB CN2-1 (REM), CUDB CN2-3 (LOCK)
   - Location of electrical component: 15-K
6. FM15 operation check
   - Load check: Check code42, Multi code 9
   - Control signal: CUDB CN3-1 (REM), CUDB CN3-3 (LOCK)
   - Location of electrical component: 15-K
7. Replace the defective fan. (FM14 / FM15)
8. Replace CUDB.
9. MFPB F3E conduction check
10. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C5361

(1) Contents

Trouble type	C5361: UFP exhaust fan's failure to turn
Rank	C
Trouble detection condition	The fan lock signal remains HIGH for a predetermined continuous period of time while the fan is turning.
Trouble isolation	-
Relevant electrical parts	• UFP exhaust fan1 (FM17) • UFP exhaust fan2 (FM18) (CM9705DN/M9705 only) • Expansion control board (EXCB) • MFP board (MFPB)

(2) Procedure

1. Check the connector between FM17-relay CN801-relay CN823-EXCB CN9 for proper connection and correct as necessary.
2. Check the connector between FM18-relay CN802-relay CN823-EXCB CN9 for proper connection and correct as necessary.
3. Check the fan for possible overload and correct as necessary.
4. FM17 operation check
   - Control signal: MFPB CN9-4 (LOCK), MFPB CN9-6 (REM)
   - Location of electrical component: 25-P.
5. FM18 operation check
   - Control signal: MFPB CN9-7 (LOCK), MFPB CN9-8 (REM)
   - Location of electrical component: 24-P
6. Replace FM17.
7. Replace FM18.
8. Replace MFPB.

NOTICE
- Link to the wiring diagram (CM9705DN/M9705/CM9105DN/M9105DN)

C5601

(1) Contents

Trouble type	C5601: Engine control malfunction
Rank	C
Trouble detection condition	Engine control malfunction is detected with port monitor control.
Trouble isolation	-
Relevant electrical parts	MFP board (MFPB)

(2) Procedure

1. Check the connectors on MFPB for proper connection and correct as necessary.
2. Rewrite the firmware.
3. Replace MFPB.

C5603

(1) Contents

Trouble type	C5603: Front side board communication error
Rank	C
Trouble detection condition	Communication error is detected in front side board.

Trouble isolation	-
Relevant electrical parts	• Front side board (FRB) • PH unit • MFP board (MFPB)

(2) Procedure

1. Reboot the machine.
2. Check the connector between FRB CN5-PH unit for proper connection and correct as necessary.
3. Check the connector between FRB CN2-MFPB CN8E for proper connection and correct as necessary.
4. Replace FRB.
5. Replace the PH unit.
6. MFPB F10E conduction check
7. Replace MFPB.

C5605, C5606

(1) Contents

Trouble type	• C5605: Engine communication data error • C5606: Engine transmission timeout
Rank	C
Trouble detection condition	A communication error is detected between CPUs.
Trouble isolation	-
Relevant electrical parts	MFP board (MFPB)

(2) Procedure

1. Turn OFF the main power switch, disconnect and then connect the power cord. Wait for 10 sec. or more after connect the power cord, and turn ON the main power switch.
2. Rewrite the firmware.
3. MFPB F10E conduction check
4. Replace MFPB.

C5610

(1) Contents

Trouble type	C5610: PH LD drive communication error
Rank	C
Trouble detection condition	LD drive write data and read data disagree with each other a predetermined number of consecutive times.
Trouble isolation	-
Relevant electrical parts	• Front side board (FRB) • PH unit • MFP board (MFPB)

(2) Procedure

1. Reboot the machine.
2. Check the connector between FRB CN5-PH unit for proper connection and correct as necessary.
3. Check the connector between FRB CN2-MFPB CN8E for proper connection and correct as necessary.
4. Replace FRB.
5. Replace the PH unit.
6. Replace MFPB.

C6###

C6102, C6103

(1) Contents

Trouble type	• C6102: Drive system home sensor malfunction • C6103: Slider over running
Rank	B
Trouble detection condition	C6102: • The scanner home sensor (PS201) is unable to detect the scanner located at its home position. • The scanner home sensor (PS201) is unable to detect a scanner even when the scanner motor (M201) has been driven to move the scanner over the maximum travelling distance. • The scanner home sensor (PS201) detects the scanner when the scanner has moved the maximum travelling distance from the position, at which it blocks the scanner home sensor (PS201).
	C6103: The scanner home sensor (PS201) detects the scanner at its home position during a period of time that begins with the time when a prescan command and a scan preparation command are executed and ends when a home return command is executed.
Trouble isolation	Scanner
Relevant electrical parts	• Scanner home sensor (PS201) • Scanner motor (M201) • Scanner drive board (SCDB) • MFP board (MFPB)

(2) Procedure

1. Correct or change the scanner drive (pulley, gear, belt) if it is faulty.
2. Correct the scanner motor set screw if loose.
3. Adjust [Image Position: Leading Edge] and [Sub Scan Zoom Adj.].
4. Check the connector between M201-SCDB CN4 for proper connection and correct as necessary.
5. Check the connector between PS201-SCDB CN6 for proper connection and correct as necessary.
6. Check the connector between SCDB CN2-MFPB CN6E for proper connection and correct as necessary. (CM9705DN/M9705/CM9105DN/M9105DN)
7. PS201 I/O check, sensor check
   - Control signal: SCDB CN6-3 (ON)
   - Location of electrical component: 22-P
8. M201 operation check
   - Control signal: SCDB CN4-1 to 4
   - Location of electrical component: 22-P
9. Replace SCDB.
10. Replace MFPB.

NOTICE
- Link to the wiring diagram

C6104, C6105

(1) Contents

Trouble type	• C6104: Back side cleaning home sensor abnormality (initial) • C6105: Back side cleaning home sensor abnormality (normal)
Rank	B
Trouble detection condition	C6104: • The back side cleaning home sensor (PS9) does not change from H to L even after the lapse of a given period of time after the home position detecting operation is started at the initial operation. • The back side cleaning home sensor (PS9) does not change from H to L even after the lapse of a given period of time after the home position detecting operation is started at the initial operation.
	C6105: At the time of operation other than the initial operation, the back side cleaning home sensor (PS9) error is detected.
Trouble isolation	Scanner
Relevant electrical parts	• Back side cleaning home sensor (PS9) • Back side cleaning motor (M7) • DF control board (DFCB)

(2) Procedure

1. Check the connector between M7-DFCB CN14 for proper connection and correct as necessary.
2. Check the connector of M7 for proper drive coupling and correct as necessary.
3. Check the connector between PS9-relay CN121-DFCB CN18 for proper connection and correct as necessary.
4. PS9 I/O check, sensor check
   - Control signal: DFCB CN18-6 (ON)
   - Location of electrical component: 3 to 4-C
5. M7 operation check
   - Control signal: DFCB CN14-6 to 9
   - Location of electrical component: 6-C
6. Replace M7.
7. DFCB ICP4 or ICP8 conduction check.
8. Replace DFCB.

NOTICE

- Link to the wiring diagram (Dual scan document feeder)

C6751

(1) Contents

Trouble type	C6751: CCD gain adjustment failure
Rank	B
Trouble detection condition	• The adjustment value is 0 or 255 during a CCD clamp adjustment. • The peak value of the output data is 64 or less during a CCD gain adjustment.
Trouble isolation	Scanner
Relevant electrical parts	• LED exposure unit • CCD board (CCDB) • MFP board (MFPB)

(2) Procedure

1. Check the connector between CCDB PJ3-MFPB CN9 for proper connection and correct as necessary. (CM9705DN/M9705/CM9105DN/M9105DN)
2. Check for possible extraneous light and correct as necessary.
3. Clean the lens, mirrors, CCD surface, and shading sheet if dirty.
4. Correct reflective mirror of the scanner if faulty, or change scanner mirror.
5. Replace CCDB.
6. Replace MFPB.

C6752

(1) Contents

Trouble type	C6752: ASIC clock input error (front side)
Rank	C
Trouble detection condition	When starting the machine, verification on reading and writing the predetermined value for image processing ASIC on CCD board (CCDB) was conducted, and verification failure was detected.
Trouble isolation	-
Relevant electrical parts	• CCD board (CCDB) • MFP board (MFPB)

(2) Procedure

1. Correct the harness connection of CCDB if faulty.
2. Replace CCDB.
3. Replace MFPB.

C6753

(1) Contents

Trouble type	C6753: ASIC clock input error (back side)
Rank	C
Trouble detection condition	When starting the machine, verification on reading and writing the predetermined value for image processing ASIC on dual scan image processing board was conducted, and verification failure was detected.
Trouble isolation	-
Relevant electrical parts	• CIS module (CIS) • Dual scan image processing board (DSIPB) • MFP board (MFPB)

(2) Procedure

1. Correct the harness connection between CIS J101-DSIPB CN2 if faulty.
2. Correct the harness connection between DSIPB CN1-MFPB CN24 if faulty.
3. Replace CIS.
4. Replace DSIPB.
5. Replace MFPB.

C6754, C6755

(1) Contents

Trouble type	• C6754: CIS clamp adjustment failure • C6755: CIS gain adjustment failure
Rank	B
Trouble detection condition	• C6754: After the gain adjustment is performed at the start-up, the CIS clamp adjustment value is too high or too low. • C6755: After the gain adjustment is performed at the start-up, the peak value of the output data is lower than a given value.
Trouble isolation	Scanner
Relevant electrical parts	• CIS module (CIS) • Dual scan image processing board (DSIPB) • DF power supply (DFPU) • MFP board (MFPB)

(2) Procedure

1. Correct the harness connection between CIS J101-DSIPB CN2 if faulty.
2. Correct the harness connection between CIS J102-DFPU CN2 if faulty.
3. Check for possible extraneous light and correct as necessary.
4. Clean the back side reading glass and the shading sheet if dirty.
5. Replace CIS.
6. DFPU ICP1 conduction check.

7. Replace DFPU.
8. Replace DSIPB.
9. Replace MFPB.

C6756

(1) Contents

Trouble type	C6756: CCD power-supply voltage malfunction
Rank	C
Trouble detection condition	Power is not supplied to CCD after the lapse of a given period of time after the main power switch or power key is turned ON or the machine recovers from the sleep mode.
Trouble isolation	-
Relevant electrical parts	• CCD board (CCDB) • Scanner drive board (SCDB) • DC power supply (DCPU)

(2) Procedure

1. Correct the harness connection between CCDB PJ5-SCDB CN5 if faulty.
2. Correct the harness connection between SCDB CN1-DCPU CN005 if faulty.
3. Replace CCDB.
4. Replace SCDB.
5. Replace DCPU.

C6F01, C6F02, C6F03, C6F04, C6F05, C6F07, C6F08, C6F09, C6F0A, C6FFDC, C6FDD

(1) Contents

Trouble type	• C6F01: Scanner sequence trouble 1 • C6F02: Scanner sequence trouble 2 • C6F03: Scanner sequence trouble 3 • C6F04: Scanner sequence trouble 4 • C6F05: Scanner sequence trouble 5 • C6F06: Scanner sequence trouble 6 • C6F07: Scanner sequence trouble 7 • C6F08: Scanner sequence trouble 8 • C6F09: Scanner sequence trouble 9 • C6F0A: Scanner sequence trouble 10 • C6FDC: Scanner sequence trouble DC • C6FDD: Scanner sequence trouble DD
Rank	• CF6F01 to C6F0A: C • C6FDC, C6FDD: B
Trouble detection condition	The original transport interval becomes shorter than the predetermined value due to an original transport control error in original reading in DF.
Trouble isolation	Scanner
Relevant electrical parts	• MFP board (MFPB) • DF control board (DFCB)

(2) Procedure

1. Correct the harness connection between main body and DF if faulty.
2. Replace DFCB. (DF-629 / DF-704 / Dual scan document feeder)
3. Replace MFPB.

C8###

C8101

(1) Contents

Trouble type	C8101: Before reading pressure welding alienation mechanism trouble
Rank	B
Trouble detection condition	• During a pressure motion being performed, the before read sensor (PS6) output does not change from H to L. • During a retraction motion being performed, the before read sensor (PS6) output does not change from L to H.
Trouble isolation	DF
Relevant electrical parts	• Reading roller pressure/retraction motor (M6) • Before read sensor (PS6) • DF control board (DFCB)

(2) Procedure

1. Check the connector between M6-relay CN118-DFCB CN4 for proper connection and correct as necessary.
2. Check the connector of M6 for proper drive coupling and correct as necessary.
3. Check the connector between PS6-relay CN120-DFCB CN11 for proper connection and correct as necessary.
4. PS6 I/O check, sensor check
    - Control signal: DFCB CN11-2 (ON)
    - Location of electrical component: DF 1-C
5. M6 operation check
    - Control signal: DFCB CN4-1 to 2
    - Location of electrical component: DF 10-C
6. Replace M6.
7. DFCB ICP9 conduction check.
8. Replace DFCB.

NOTICE
- Link to the wiring diagram (Dual scan document feeder)

C8107

(1) Contents

Trouble type	C8107: Glass cleaning mechanism trouble
Rank	B
Trouble detection condition	The front side cleaning home sensor (PS18) is not turned ON (unblocked) even after the set period of time has elapsed after the front side cleaning motor (M8) turned ON.
Trouble isolation	DF
Relevant electrical parts	• Front side cleaning motor (M8) • Front side cleaning home sensor (PS18) • DF control board (DFCB)

(2) Procedure

1. Check the connector between M8-DFCB CN14 for proper connection and correct as necessary.
2. Check the connector between PS18-DFCB CN18 for proper connection and correct as necessary.
3. Check the connector of M8 for proper drive coupling and correct as necessary.
4. PS18 I/O check, sensor check
   - Control signal: DFCB CN18-3 (ON)
   - Location of electrical component: DF 3-C
5. M8 operation check
   - Control signal: DFCB CN14-1 to 4
   - Location of electrical component: DF 6-C
6. Replace M8.
7. DFCB ICP8 conduction check.
8. Replace DFCB.

NOTICE
- Link to the wiring diagram (Dual scan document feeder)

C8302

(1) Contents

Trouble type	C8302: Cooling fan motor's failure
Rank	B
Trouble detection condition	The motor lock signal remains HIGH for a predetermined continuous period of time while the motor is turning.
Trouble isolation	DF
Relevant electrical parts	• Cooling fan motor (FM) • DF control board (DFCB)

(2) Procedure

1. Check the connector between FM-relay CN115-DFCB CN19 for proper connection and correct as necessary.
2. Check the fan for possible overload and correct as necessary.
3. FM operation check
   - Control signal: DFCB CN19-3 (LOCK)
   - Location of electrical component: DF 4-C
4. Replace FM.
5. DFCB ICP10 conduction check.
6. Replace DFCB.

NOTICE
- Link to the wiring diagram (Dual scan document feeder)

1. MFDB/1 operation check
   - Control signal: SCB CN104
   - Location of electrical component: DF 11-L
2. MFDB/2 operation check
   - Control signal: SCB CN103
   - Location of electrical component: DF 10-J
3. Replace SCB.
4. Replace DFCB.

NOTICE
- Link to the wiring diagram (Dual scan document feeder)

C9###

C9401, C9402

(1) Contents

Trouble type	• C9401: Exposure LED lighting failure • C9402: Exposure LED lighting abnormally
Rank	B
Trouble detection condition	• C9401: The output from the CCD sensor is a predetermined value or less during CCD sensor gain adjustment. • C9402: The average output value of the CCD sensor with the scanner at its standby position is a predetermined value or more at the end of a scan job.
Trouble isolation	Scanner
Relevant electrical parts	• LED exposure unit • Flat cable (LED exposure unit) • CCD board (CCDB) • Scanner drive board (SCDB) • MFP board (MFPB)

(2) Procedure

1. Correct the harness connection between SCDB CN3-LU201 if faulty.
2. Check the connector between SCDB CN2-MFPB CN6E for proper connection and correct as necessary.
3. Check the connector between CCDB PJ3-MFPB CN9 for proper connection and correct as necessary.
4. Replace the LED exposure unit.
5. Replace CCDB.
6. Replace SCDB.
7. Replace MFPB.

C9403, C9404

(1) Contents

Trouble type	• C9403: CIS LED lighting failure • C9404: CIS LED lighting abnormally
Rank	B
Trouble detection condition	• C9403: At the CIS gain adjustment, the machine detected that the output of the CIS LED is lower than the specified value. • C9404: After a scan job is completed, the machine detected that the average output of the CIS LED is greater than the specified value.
Trouble isolation	Scanner
Relevant electrical parts	• CIS module (CIS) • DF power supply (DFPU) • Dual scan image processing board (DSIPB) • MFP board (MFPB)

(2) Procedure

1. Correct the harness connection between CIS J101-DSIPB CN2 if faulty.
2. Correct the harness connection between CIS J102-DFPU CN2 if faulty.
3. Replace CIS.
4. DFPU ICP1 conduction check.
5. Replace DFPU.
6. Replace DSIPB.
7. Replace MFPB.

0X0146(06-05)

1. Inspect or replace the scanner drive assembly (pulley, gears, belt)

2. Check for loose screws on the scanner motor

3. Adjust [Image Position: Edge]

4. Verify proper connection between M201 and scanner drive board CN4 connector. Reconnect if necessary

5. Verify proper connection between PS201 and scanner drive board CN6 connector. Reconnect if necessary

6. Verify proper connection between scanner drive board CN2 and MFP board CN12E connector. Reconnect if necessary

7. Verify proper connection between scanner drive board CN2 and MFP board CN6E connector. Reconnect if necessary

8. Check PS201 I/O sensor

Control signal: Scanner drive board CN6-3 (ON)

Location: Electrical diagram 22-P

9. Perform M201 operational check

Control signals: Scanner drive board CN4-1 to CN4-4

Location: Electrical diagram 22-P

10. Replace scanner drive board

11. Replace MFP board

0X00F8(38-03)/0X0138(38-04)

1. Verify proper connection at M7-DFCB CN14 connector. Reseat if necessary

2. Verify proper connection at M7 drive clutch connector. Reseat if necessary

3. Verify proper connection between cleaning sensor PS9-relay CN121 and DF control board CN18. Reseat if necessary

4. Perform PS9 I/O check and sensor inspection

5. Control signal: DFCB CN18-6 (ON)

Location: Electrical diagram 3 to 4-C

Conduct M7 operational test

Control signals: DFCB CN14-6 to CN14-9

Location: Electrical diagram 6-C

6. Replace M7

7. Perform continuity check on DFCB ICP4 or ICP8

8. Replace DF Control Board (DFCB)

PS9： Rear Cleaning Sensor
M7： Rear Cleaning Motor
DFCB：DF Control Board*

0X0073(33-01)

1. Verify proper connection between CCDB CN3 and MFPB CN1. Reseat if necessary
2.Verify proper connection between CCDB PJ3 and MFPB CN9. Reseat if necessary
3.Check for abnormal ambient light interference
4.Clean lens, CCD surface, and light shield
5.Inspect or replace scanner mirror
6.Replace CCD Control Board (CCDB)
7.Replace MFP Board (MFPB)

0X00B3(33-02)

1. Inspect CCD board wiring harness for abnormalities
2. Replace CCD board
3. Replace MFP board

0X01F8(38-07)

1. Inspect CIS J101 to DSIPB CN2 wiring harness for abnormalitie
2. Inspect DSIPB CN1 to MFPB CN24 wiring harness for abnormalities
3. Replace Contact Image Sensor (CIS)
4. Replace Duplex Scanner Image Processor Board (DSIPB)

5. Replace MFP Board (MFPB)

DSIPB: Duplex Scanner Image Processor Board

MFPB: Multifunction Peripheral Board

0X0178(38-05)/0X01B8(38-06)

1. Inspect CIS J101 to DSIPB CN2 wiring harness for abnormalities
2. Inspect CIS J102 to DFPU CN2 wiring harness for abnormalities
3. Check for excessive ambient light ingress. Remediate if necessary
4. Clean platen glass and light shield
5. Replace Contact Image Sensor (CIS)
6. Perform continuity check on DFPU ICP1
7. Replace DF Power Unit (DFPU)
8. Replace Duplex Scanner Image Processor Board (DSIPB)
9. Replace MFP Board (MFPB)

DSIPB: Duplex Scanner Image Processor Board
DFPU: DF Power Unit
MFPB: Multifunction Peripheral Board

0X00F3(33-03)

1. Inspect CCD board CN5 to scanner drive board CN5 harness for abnormalities
2. Inspect CCD board PJ5 to scanner drive board CN5 harness for abnormalities
3. Inspect scanner drive board CN1 to DCPU CN5 harness for abnormalities
4. Inspect SCDB CN1 to DCPU CN005 harness for abnormalities
5. Replace CCD Control Board (CCDB)
6. Replace Scanner Drive Board (SCDB)
7. Replace DC Power Unit (DCPU)

CCDB: CCD Control Board
SCDB: Scanner Drive Board
DCPU: DC Power Unit

0X0054(14-01)

1. Inspect main-DF interconnect harness for abnormalities
2. Replace DF Control Board (DFCB)
3. Replace MFP Board

0X0002

1. Verify proper connection at M6-relay CN118 to DFCB CN4. Reseat if necessary
2. Verify proper connection at M6 drive clutch connector. Reseat if necessary
3. Verify proper connection between PS6-relay CN120 and DFCB CN11. Reseat if necessary
4. Perform PS6 I/O and sensor inspection
Control signal: DFCB CN11-2 (ON)
Location: Electrical diagram DF 1-C

5.Conduct M6 operational test

Control signals: DFCB CN4-1 to CN4-2
Location: Electrical diagram DF 10-C

6.Replace M6 drive motor
7.Perform continuity check on DFCB ICP9
8.Replace DF Control Board (DFCB)

0X0200

1. Verify proper connection at M8-DFCB CN14 connector. Reseat if necessary
2. Verify proper connection at PS18-DFCB CN18 connector. Reseat if necessary
3. Verify proper connection at M8 drive clutch connector. Reseat if necessary
4. Perform PS18 I/O and sensor inspection
5. Control signal: DFCB CN18-3 (ON)

Location: Electrical diagram DF 3-C
Conduct M8 operational test
Control signals: DFCB CN14-1 to CN14-4
Location: Electrical diagram DF 6-C

6. Replace Front Cleaning Motor (M8)
7. Perform continuity check on DFCB ICP8
8. Replace DF Control Board (DFCB)

*Components:
M8 = Front Cleaning Motor
PS18 = Front Cleaning Sensor
DFCB = DF Control Board*

0X0001

1. Verify proper connection between FM-relay CN115 and DFCB CN19. Reseat if necessary
2. Check for fan overload condition. Remediate if necessary
3. Perform FM operational test
4. Replace Cooling Fan Motor (FM)
5. Check continuity on DFCB ICP10
6. Replace DF Control Board (DFCB)

0X0004(04-00)/0X0044(04-01)

1. Inspect scanner drive board CN3 to LU201 harness for abnormalities

2. Verify proper connection between scanner drive board CN2 and MFP board CN12E. Reseat if necessary

3. Verify proper connection between scanner drive board CN2 and MFP board CN6E. Reseat if necessary

4. Verify proper connection between CCD board CN3 and MFP board CN1. Reseat if necessary

5. Verify proper connection between CCD board PJ3 and MFP board CN9. Reseat if necessary

6. Replace LED array

7. Replace CCD Board

8. Replace Scanner Drive Board (SCDB)

9. Replace MFP Board (MFPB)

0XFFFF/0XFFFE

1. Reseat white FFC between Data Board and Engine Board

2. Power cycle device

3. If error persists: Replace FFC cable and power cycle

0X0078(38-01)/0X00B8(38-02)

1. Inspect CIS J101 to DSIPB CN2 harness for abnormalities
2. Inspect CIS J102 to DFPU CN2 harness for abnormalities
3. Replace Contact Image Sensor (CIS)
4. Perform continuity check on DFPU ICP1
5. Replace DF Power Unit (DFPU)
6. Replace Duplex Scanner Image Processor Board (DSIPB)
7. Replace MFP Board (MFPB)

0X0020(20-00)

1. Replace CPU Board
2.Replace Data Board

Printer Internal Error 13

1. Manually power cycle printer
2. Replace Data Board

TROUBLES THAT DO NOT DISPLAY THE TROUBLE CODE

Machine is not energized at all (DCPU operation check)

Contents

Trouble type	Machine is not energized at all
Rank	-
Trouble detection condition	-
Trouble isolation	-
Relevant electrical parts	• Main power switch (SW1) • MFP board (MFPB) • DC power supply (DCPU)

Procedure

Step	Check item	Location of electrical component	Result	Action
1	Is a power voltage supplied across CN1-1 and 2 on DCPU?	15-S	NO	Check the WIRING from the wall outlet to SW1 to CN1.
2	Are the fuses on DCPU conducting?	-	NO	Replace DCPU.
3	Is DC5 V being output from CN6-5 on DCPU?	17-S	NO	Replace DCPU.
4	Is DC24 V being output to CN7-3 on DCPU?	18-S	NO	• Check the WIRING from the wall MFPB to DCPU. • Replace DCPU. • Replace MFPB.
5	The LED on MFPB is blinking?	-	NO	Replace MFPB.
6	Is DC24 V being output to CN7-1 on DCPU?	18-S	NO	Replace DCPU.

Fusing heaters do not operate

Contents

Trouble type	Fusing heaters do not operate
Rank	-
Trouble detection condition	-
Trouble isolation	-
Relevant electrical parts	• Main power switch (SW1) • Right door switch (SW3) • DC power supply (DCPU) • MFP board (MFPB) • Fusing unit

Procedure

Step	Check item	Location of electrical component	Result	Action
1	Is a power voltage supplied across CN8-5 on DCPU? During this time, the right door should be closed.	15 to 16-Q	NO	Check wiring from power outlet to SW1 to CN8 to SW3.
2	Is the power source voltage applied across MFPB CN13E-4, 6 (CM9705DN/M9705), MFPB CN12E-6, 9 (CM9105DN/M9105DN)?	23 to 24-C	YES	Replace the fusing unit.
			NO	Replace DCPU. Replace MFPB.

PF910

(1) Procedure

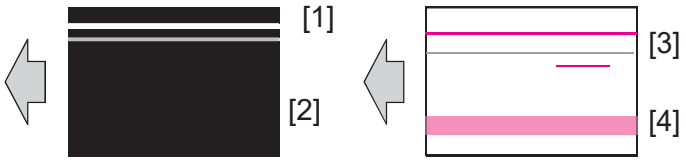
Step	Check item	Location of electrical component	Result	Action
1	Is DC24 V being applied to CN1FN?	17-I	NO	Malfunction in finisher.
2	Is DC24 V being output to CN4-5 on DCPU?	18-R	NO	Check wiring from DCPU to finisher.
3	Is the fuse on DCPU conducting?	-	YES	Replace DCPU.
			NO	Malfunction in finisher.

IMAGE QUALITY PROBLEM

White line 1, White band 1, Color line 1, Color band 1

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1]	White line	[2]	White band
[3]	Color line	[4]	Color band

(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Write section	Sharp white line or colored line is blurry.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe .

Step	Section	Check item for the faulty color	Result	Action for the faulty color
				Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	There is a positive contact between the electrostatic charger application terminals and the high voltage unit connection terminals.	NO	Clean or correct the terminal.
4	Developing section	There is a positive contact between the developing bias application terminals and the high voltage unit connection terminals (Y: B4; M: B3; C: B2; K: B1).	NO	Clean or correct the terminal.
5	Photo conductor section	Scratches on photo conductor.	YES	• Clean. • Replace the drum unit.
6	Photo conductor section	Toner line or dirt on photo conductor. (improper cleaning)	YES	Replace the drum unit.
7	1st transfer section	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
8	1st transfer section	Scratches or dirt on 1st transfer roller.	YES	• Clean. • Replace the transfer belt unit.
9	Developing section	Toner bristles not even on the developing roller, resulting in a line or band.	YES	Replace the developing unit.
			NO	Replace the PH unit.

(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper path	There is dirty or foreign matter on paper path.	YES	Check or clean the paper path including the duplex section.
2	Transfer belt unit	Lines that can be removed by cleaning are evident on the transfer belt. (improper cleaning)	YES	• Check or clean the cleaning blade. • Replace the transfer belt unit.
3	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
4	Transfer belt unit	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
5	2nd transfer section	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.

Step	Section	Check item	Result	Action
6	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
7	Fusing unit	There is dirty or foreign matter on paper path of fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)
8	Fusing unit	Scratches on belt and roller in fusing unit.	YES	Replace the fusing unit.
			NO	• Replace the high voltage unit. • Replace the MFP board.

(5) Scanner troubleshooting procedure

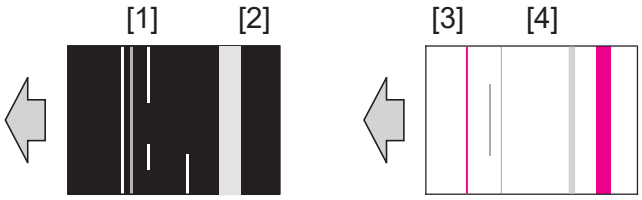
Step	Section	Check item	Result	Action
1	Original	Original is damaged or dirty.	YES	Change the original.
2	When original glass is being used	A fault occurs in the image read through the original glass.	YES	Go to step 6.
3	When DF is being used: 1st side	A fault occurs in the image read from the 1st side while DF is being used.	YES	Go to step 12.
4	When DF-629 is being used: 2nd side	A fault occurs in the image read from the 2nd side while DF-629 is being used.	YES	Go to step 12.
5	DF-704 or dual scan document feeder is being used: 2nd side	A fault occurs in the image read from the 2nd side while DF-704 or dual scan document feeder is being used.	YES	Go to step 20.
Main body side_original glass				
6	DF side_ Original pad	Original pad of DF is dirty.	YES	Clean.
7	Original glass	Original glass is dirty.	YES	Clean.
8	Shading sheet	Shading sheet is dirty.	YES	Clean.
9	Parts along scanning path	Mirror, lens, light guide or reflectors is dirty.	YES	Clean.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
Main body side_DF original reading section				
10	Main body side_reading section	Document reading glass of main body is dirty.	YES	Clean.
11	DF side_ document reading glass cleaning brush	Document reading glass cleaning brush of DF is dirty.	YES	Clean.
12	Main body side_shading sheet	Shading sheet of main body is dirty.	YES	Clean.

Step	Section	Check item	Result	Action
13	Parts along scanning path	Mirror, lens, light guide or reflectors is dirty.	YES	Clean.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
DF-704 or dual scan document feeder side_original reading section				
14	CIS glass cleaning	CIS glass is dirty.	YES	Clean.
15	CIS reading section	CIS reading section is dirty.	YES	Clean.
16	CIS cleaning brush	CIS cleaning brush is dirty.	YES	Clean.
17	Shading sheet	Shading sheet is dirty.	YES	Clean.
18	Scanning section	CIS reading section is dirty.	YES	Clean.
			NO	Replace the CIS module.

White line 2, White band 2, Color line 2, Color band 2

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1]	White line	[2]	White band
[3]	Color line	[4]	Color band

(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Write section	Sharp white line or colored line is blurry.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	There is a positive contact between the electrostatic charger application terminals and the high voltage unit connection terminals.	NO	Clean or correct the terminal.
4	Developing section	There is a positive contact between the developing bias application terminals and the high voltage unit connection terminals (Y: B4; M: B3; C: B2; K: B1).	NO	Clean or correct the terminal.
5	Photo conductor section	Scratches on photo conductor.	YES	• Clean. • Replace the drum unit.
6	Photo conductor section	Toner line or dirt on photo conductor. (improper cleaning)	YES	Replace the drum unit.
7	1st transfer section	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
8	1st transfer section	Scratches or dirt on 1st transfer roller.	YES	• Clean. • Replace the transfer belt unit.
9	Developing section	Toner bristles not even on the developing roller, resulting in a line or band.	YES	Replace developing unit.
			NO	Replace the PH unit.

(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper path	There is dirty or foreign matter on paper path.	YES	Check or clean the paper path including the duplex section.
2	Transfer belt unit	Lines that can be removed by cleaning are evident on the transfer belt. (improper cleaning)	YES	• Check or clean the cleaning blade. • Replace the transfer belt unit.
3	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
4	Transfer belt unit	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
5	2nd transfer section	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.

Step	Section	Check item	Result	Action
6	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
7	Fusing unit	Dirt or foreign matter on paper path or separation claw of the fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)
8	Fusing unit	Scratches on belt and roller in fusing unit.	YES	Replace the fusing unit.
			NO	• Replace the high voltage unit. • Replace the MFP board.

(5) Scanner troubleshooting procedure

Step	Section	Check item	Result	Action
1	Original	Original is damaged or dirty.	YES	Change the original.
2	When original glass is being used	Original glass or original pad is dirty.	YES	Clean.
			NO	Replace the CCD unit.
3	• When DF is being used: 1st side	Original reading glass or original reading glass cleaning brush is dirty.	YES	Clean.
			NO	Replace the CCD unit.
4	DF-704 or dual scan document feeder is being used: 2nd side	CIS glass or CIS cleaning brush is dirty.	YES	Clean.
			NO	Replace the CIS module.

Uneven density 1

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.





(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.

Step	Section	Check item	Result	Action
3	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	High image density original	Uneven density in sub scan direction occurs at a pitch of 40 mm to 50 mm when a multi-copy cycle is run using an original with high image density (50% or more).	YES	Feed 10 to 20 blank sheets of paper with no originals placed, as the developing unit fails to keep up with a high demand for toner.
2	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
3	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
4	Photo conductor section	Dirt, scratches, or foreign matter on the photo conductor.	YES	• Clean. • Replace the drum unit.
5	1st transfer section	Dirt, scratches, or foreign matter on the 1st transfer roller.	YES	• Clean. • Replace the transfer belt unit.
6	1st transfer section	Faulty pressure/retraction operation of the 1st transfer roller.	YES	• Correct or replace the drive system. • Replace the transfer belt unit.
7	Developing section	Toper hopper operates improperly or contains foreign matter.	YES	• Correct or remove. • Replace the hopper drive unit.
8	Developing section	Toner bristles not even on the developing roller, resulting in a line or band.	YES	Replace the developing unit.
			NO	• Replace the PH unit. • Replace the high voltage unit.

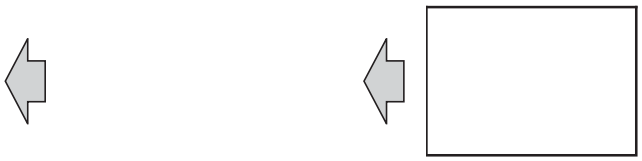
(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper path	There is dirty or foreign matter on paper path.	YES	Check and clean the paper path including the duplex section.
2	Transfer belt unit	Lines that can be removed by cleaning are evident on the transfer belt. (improper cleaning)	YES	• Check and clean the cleaning blade. • Replace the transfer belt unit.
3	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
4	Transfer belt unit	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
5	Transfer belt unit	Transfer belt rotates faultily.	YES	Replace the transfer belt unit.
6	2ND TRANSFER SECTION	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.
7	2nd transfer section	Faulty pressure/retraction operation of the 2nd transfer roller.	YES	• Correct. • Replace the transfer roller unit.
8	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
9	Fusing unit	There is dirty or foreign matter on paper path of fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)
10	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] , and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the fusing unit. • Replace the high voltage unit. • Replace the MFP board.

Uneven density 2

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.

Step	Section	Check item	Result	Action
3	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	Dirt, scratches, or foreign matter on the photo conductor.	YES	• Clean. • Replace the drum unit.
4	Photo conductor section	Photo conductor drives faultily.	YES	• Correct. • Replace the drum unit.
5	1st transfer section	Scratches or dirt on 1st transfer roller.	YES	• Clean. • Replace the transfer belt unit.
6	Developing section	Toner bristles not even on the developing roller, resulting in a line or band.	YES	Replace the developing unit.
			NO	• Replace the PH unit. • Replace the high voltage unit.

(4) 4-color troubleshooting procedure

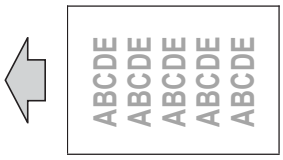
Step	Section	Check item	Result	Action
1	Paper path	There is dirty or foreign matter on paper path.	YES	Check and clean the paper path including the duplex section.
2	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
3	Transfer belt unit	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
4	Transfer belt unit	Transfer belt rotates faultily.	YES	• Correct. • Replace the transfer belt unit.

Step	Section	Check item	Result	Action
5	2nd transfer section	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.
6	2nd transfer section	Faulty pressure/retraction operation of the 2nd transfer roller.	YES	• Correct. • Replace the transfer roller unit.
7	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
8	Fusing unit	There is dirty or foreign matter on paper path of fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)
9	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] , and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the fusing unit. • Replace the high voltage unit. • Replace the MFP board.

Faint image, low image density (ID lowering)

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Malfunction code	The maintenance call mark is displayed on the panel.	YES	Perform the relevant troubleshooting procedure corresponding to the malfunction code.
2	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
3	Damp paper	Paper is damp.	YES	Change paper to one just unwrapped from its package.
4	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.
5	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	There is a positive contact between the electrostatic charger application terminals and the high voltage unit connection terminals.	NO	Clean or correct the terminal.
4	Developing section	There is a positive contact between the developing bias application terminals and the high voltage unit connection terminals (Y: B4; M: B3; C: B2; K: B1).	NO	Clean or correct the terminal.
5	Hopper drive unit section	Faulty connector connection between the toner supply motor (M6 to M9) and MFP board (CN16E, CN30E).	YES	Reconnect the connector.
6	Hopper drive unit section	Faulty in the drive of sub hopper.	YES	• Correct. • Replace the hopper drive unit.
7	Service Mode -> Max Image Density Adj	Select [Service Mode] -> [Imaging Process Adjustment] - > [Max Image Density Adj] and make the necessary adjustment, and the image trouble is eliminated.	NO	Go to the next step.
8	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] , and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the drum unit. • Replace the developing unit. • Replace the PH unit. • Replace the high voltage unit. • Replace the MFP board.

(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Transfer belt unit	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
2	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
3	Service Mode -> Max Image Density Adj	Select [Service Mode] -> [Imaging Process Adjustment] - > [Max Image Density Adj] and make the necessary adjustment, and the image trouble is eliminated.	NO	Go to the next step.

Step	Section	Check item	Result	Action
4	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the transfer belt unit. • Replace the high voltage unit. • Replace the MFP board.

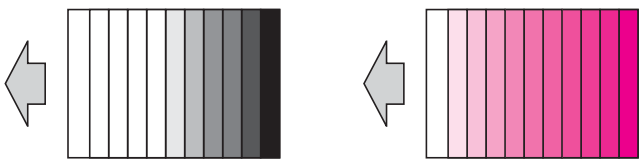
(5) Scanner troubleshooting procedure

Step	Section	Check item	Result	Action
1	Original Type	Select [Copy setting] -> [Original Type] and change the setting, and the image trouble is eliminated.	YES	Correct the setting.
2	When original glass is being used	Original glass or original pad is dirty.	YES	Clean.
3	Parts along scanning path	Mirror, lens, light guide or reflectors is dirty.	YES	Clean.
4	Main body side_shading sheet	Shading sheet of main body is dirty.	YES	Clean.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
5	When DF is being used: 1st side	Original reading glass or original reading glass cleaning brush is dirty.	YES	Clean.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
6	DF-704 or dual scan document feeder is being used: 2nd side	• Shading correction surface of DF-704 or dual scan document feeder is dirty. • CIS glass or CIS cleaning brush is dirty.	YES	Clean.
			NO	Replace the CIS module.

Gradation reproduction failure

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Troubleshooting procedure

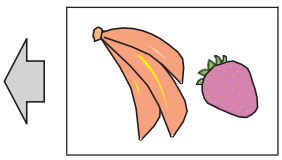
Step	Section	Check item	Result	Action
1	Malfunction code	The maintenance call mark is displayed on the panel.	YES	Perform the relevant troubleshooting procedure corresponding to the malfunction code.
2	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.

Step	Section	Check item	Result	Action
3	Write section	Dirt or foreign matter on the dust-proof glass of the PH of the color which is responsible for the abnormal image.	YES	Clean the PH window.
4	Charging section	Foreign matter on charging roller of the color which is responsible for the abnormal image.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
5	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.
6	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.
7	Service Mode -> Max Image Density Adj	Select [Service Mode] -> [Imaging Process Adjustment] - > [Max Image Density Adj] and make the necessary adjustment, and the image trouble is eliminated.	NO	Go to the next step.
8	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the drum unit that is responsible for the abnormal image. • Replace the developing unit that is responsible for the abnormal image. • Replace the PH unit. • Replace the high voltage unit. • Replace the MFP board.

Color reproducibility error

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Troubleshooting procedure

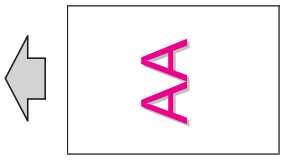
Step	Section	Check item	Result	Action
1	Damp paper	Paper is damp.	YES	Change paper to one just unwrapped from its package.
2	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.

Step	Section	Check item	Result	Action
3	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
4	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
5	Transfer belt unit	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
6	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
7	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.
8	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.
9	Service Mode -> Max Image Density Adj	Select [Service Mode] -> [Imaging Process Adjustment] - > [Max Image Density Adj] and make the necessary adjustment, and the image trouble is eliminated.	NO	Go to the next step.
10	Connector connection	Faulty connector connection the high voltage unit (CN1, CN2) and MFP board (CN22E, CN36E).	YES	Reconnect the connector.
11	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the transfer belt unit. • Replace the high voltage unit. • Replace the MFP board.

Incorrect color image registration

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Malfunction code	The maintenance call mark is displayed on the panel.	YES	Perform the relevant troubleshooting procedure corresponding to the malfunction code.
2	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
3	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) Engine troubleshooting procedure

Step	Section	Check item	Result	Action
1	Incorrect color registration evident at the trailing edge of the printed image	Select [Service Mode] -> [Machine] -> [Trail Edge Color Alignment Adj] and the image trouble is eliminated.	NO	Go to the next step.
2	Connector connection	Faulty connector connection the MFP board (CN18) and PH relay board (CN1, CN2).	YES	Reconnect the connector.
3	Service Mode -> Color Registration Adjustment	Select [Service Mode] -> [Machine] -> [Color Registration Adjustment] and the image trouble is eliminated.	NO	Go to the next step.
4	Service Mode -> Print Head Skew Reset	Select [Service Mode] -> [Machine] -> [Print Hear Skew Adj.] -> [Print Head Skew Reset] and the image trouble is eliminated.	NO	Go to the next step.
5	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the PH unit. • Replace the MFP board.

(4) Scanner troubleshooting procedure

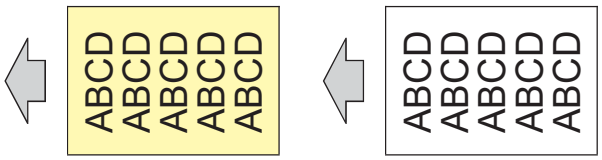
Step	Section	Check item	Result	Action
1	Original	Original contains incorrect color registration.	YES	Change the original.
2	Original Type	Select [Copy setting] -> [Original Type] and change the setting, and the image trouble is eliminated.	NO	Go to the next step.
3	When DF is being used	DF does not lie flat.	YES	• Adjust the DF height. (DF-704 / DF-629 / Dual scan document feeder) • Replace DF if it is deformed or hinges are broken.
4	Scanner rails	Foreign matter on scanner rails.	YES	Clean and apply lubricant. *
5	When original glass is being used	Scanner moves smoothly.	YES	Replace the CCD unit.
			NO	• Adjust the scanner motor drive belt. • Replace the scanner motor. • Replace the scanner drive board.

Step	Section	Check item	Result	Action
6	When DF-704 or dual scan document feeder is being used: Paper path	There is dirty on paper path or roller of DF-704 or dual scan document feeder.	YES	Clean.
			NO	Replace the CIS module.

Foggy background

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Malfunction code	The maintenance call mark is displayed on the panel.	YES	Perform the relevant troubleshooting procedure corresponding to the malfunction code.
2	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
3	Damp paper	Paper is damp.	YES	Change paper to one just unwrapped from its package.
4	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.
5	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	There is a positive contact between the electrostatic charger application terminals and the high voltage unit connection terminals.	NO	Clean or correct the terminal.
4	Developing section	There is a positive contact between the developing bias application terminals and the high voltage unit connection terminals (Y: B4; M: B3; C: B2; K: B1).	NO	Clean or correct the terminal.
5	Service Mode -> TCR data	Select [Service Mode] -> [State Confirmation] -> [Level History 1] and the measured value is correct. TCR-C, TCR-M, TCR-Y, TCR-K: normal value 5 to 8 %	NO	Select [Service Mode] -> [Imaging Process Adjustment] -> [Manual Toner Add] and perform the function.
6	Service Mode -> Max Image Density Adj	Select [Service Mode] -> [Imaging Process Adjustment] - > [Max Image Density Adj] and make the necessary adjustment, and the image trouble is eliminated.	NO	Go to the next step.
7	Connector connection	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the high voltage unit (CN1, CN2), MFP board (CN6, CN30E, CN33E) and PH relay board (CN1, CN2).	YES	Reconnect the connector.
8	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the drum unit. • Replace the PH unit. • Replace the high voltage unit.

(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Transfer belt unit	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
2	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
3	Service Mode -> Max Image Density Adj	Select [Service Mode] -> [Imaging Process Adjustment] - > [Max Image Density Adj] and make the necessary adjustment, and the image trouble is eliminated.	NO	Go to the next step.
4	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the transfer belt unit. • Replace the high voltage unit. • Replace the MFP board.

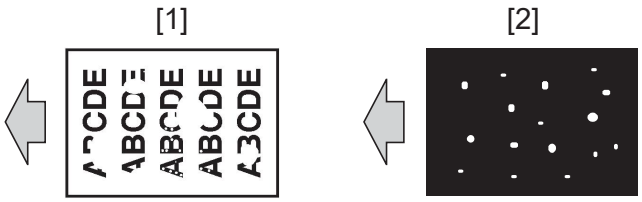
(5) Scanner troubleshooting procedure

Step	Section	Check item	Result	Action
1	Original	Original is damaged or dirty.	YES	Change the original.
2	Original Type	Select [Copy setting] -> [Original Type] and change the setting, and the image trouble is eliminated.	NO	Go to the next step.
3	Basic -> Density	Change the density setting, and the image trouble is eliminated.	NO	Go to the next step.
4	When DF is being used	DF does not lie flat.	YES	• Adjust the DF height. (DF-704 Dual scan document feeder) • Replace DF if it is deformed or hinges are broken.
5	When original glass is being used	Original glass or original pad is dirty.	YES	Clean.
6	Parts along scanning path	Mirror, lens, light guide or reflectors is dirty.	YES	Clean.
7	Main body side_shading sheet	Shading sheet of main body is dirty.	YES	Clean.
8	• When DF is being used: 1st side	Original reading glass or original reading glass cleaning brush is dirty.	YES	Clean.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
9	DF-704 or dual scan document feeder is being used: 2nd side	• Shading correction surface of DF-704 or dual scan document feeder is dirty. • CIS glass or CIS cleaning brush is dirty.	YES	Clean.
			NO	Replace the CIS module.

Void areas, White spots

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1]	Void areas	[2]	White spots

(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Use in areas with low atmospheric pressure	Select [Service Mode] -> [Imaging Process Adjustment] -> [Grad/Dev AC Bias V Selection] and change the setting to [ON]. This eliminates the trouble.	NO	Change the setting to [OFF] and go to the next step.
3	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.
4	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.
5	Service Mode -> Charge AC Output fine adjustment	The white spots is eliminated when [Service Mode] -> [Imaging Process Adjustment] -> [Charge AC Output fine adjustment] are selected and the setting value is increased.	NO	Return the setting value to the original one and go to the next step.

Step	Section	Check item	Result	Action
6	Service Mode -> Primary transfer adj.	Select [Service Mode] -> [Imaging Process Adjustment] -> [Transfer Voltage Fine Adj] -> [Primary transfer adj.] and the image trouble is eliminated. * Decrease the setting value for white dots.	NO	Return the setting value to the original one and go to the next step.
7	Service Mode -> 2nd transfer adj.	Select [Service Mode] -> [Imaging Process Adjustment] -> [Transfer Voltage Fine Adj] -> [2nd Transfer Adj.] and the image trouble is eliminated. * Increase or decrease the setting value to find a specific value at which the trouble is eliminated.	NO	Return the setting value to the original one and go to the next step.
8	Service Mode -> TCR Level	Select [Service Mode] -> [Imaging Process Adjustment] -> [TCR level] and set the adjustment value of all colors to "+3". Next, select [Service Mode] -> [Imaging Process Adjustment] -> [Manual Toner Add], select all colors, and press the start key. (This starts a toner replenishing sequence.) Then, select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and perform the function. Then, select [Service Mode] -> [Imaging Process Adjustment] -> [Transfer Voltage Fine Adj.] -> [2nd Transfer Adj.], perform the function, and the image trouble is eliminated. * Increase or decrease the setting value to find a specific value at which the trouble is eliminated.	NO	Return the setting value to the original one and go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	Dirt, scratches, or foreign matter on the photo conductor.	YES	• Clean. • Replace the drum unit.
4	Photo conductor section	There is a positive contact between the electrostatic charger application terminals and the high voltage unit connection terminals.	NO	Clean or correct the terminal.
5	Developing section	Toner bristles not even on the developing roller, resulting in a void area.	YES	Replace the developing unit.
6	1st transfer section	There is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.

Step	Section	Check item for the faulty color	Result	Action for the faulty color
7	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the drum unit. • Replace the PH unit. • Replace the high voltage unit.

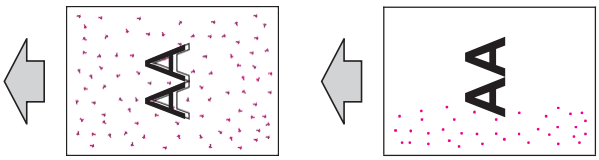
(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
2	2nd transfer section	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.
3	Paper path	There is dirty or foreign matter on paper path.	YES	Check and clean the paper path including the duplex section.
4	Connector connection	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the high voltage unit (CN1, CN2) and MFP board (CN30E, CN33E).	YES	Reconnect the connector.
5	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	Replace the high voltage unit.

Color spot

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	IDC sensor	• IDC sensor is dirty. • IDC sensor shutter does not operate properly.	YES	• Clean. • Clean or correct the IDC sensor shutter.
3	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

Step	Section	Check item	Result	Action
4	Service Mode -> Gradation Adjust	Select [Service Mode] -> [Imaging Process Adjustment] -> [Gradation Adjust] and the image trouble is eliminated.	NO	Go to the next step.
5	Service Mode -> Charge AC Output fine adjustment	Fine colored dots evident on the left-hand side with respect to the paper feeding direction. Or fine color spots are evident on a particular portion in the paper. The color spots are reduced when [Service Mode] -> [Imaging Process Adjustment] -> [Charge AC Output fine adjustment] are selected and the setting value is increased.	NO	Return the setting value to the original one and go to the next step.
6	Service Mode -> Primary transfer adj.	Select [Service Mode] -> [Imaging Process Adjustment] -> [Transfer Voltage Fine Adj] and the image trouble is eliminated. * Decrease the setting value for color spots.	NO	Return the setting value to the original one and go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	Dirt, scratches, or foreign matter on the photo conductor.	YES	• Clean. • Replace the drum unit.
4	Photo conductor section	There is a positive contact between the electrostatic charger application terminals and the high voltage unit connection terminals.	NO	Clean or correct the terminal.
5	Developing section	There is a positive contact between the developing bias application terminals and the high voltage unit connection terminals (Y: B4; M: B3; C: B2; K: B1).	NO	Clean or correct the terminal.
6	Connector connection	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the high voltage unit (CN1, CN2), MFP board (CN6, CN30E, CN33E) and PH relay board (CN1, CN2).	YES	Reconnect the connector.
7	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the drum unit. • Replace the PH unit. • Replace the high voltage unit.

(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean.

Step	Section	Check item	Result	Action
				• Replace the transfer belt unit.
2	2nd transfer section	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.
3	Paper path	There is dirty or foreign matter on paper path.	YES	Check or clean the paper path including the duplex section.
4	Connector connection	Faulty connector connection the high voltage unit (CN1, CN2) and MFP board (CN22E, CN36E).	YES	Reconnect the connector.
5	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	Replace the high voltage unit.

(5) Scanner troubleshooting procedure

Step	Section	Check item	Result	Action
1	Original	Original is damaged or dirty.	YES	Change the original.
2	Original Type	Select [Copy setting] -> [Original Type] and change the setting, and the image trouble is eliminated.	YES	Correct the setting.
3	When original glass is being used	Original glass or original pad is dirty.	YES	Clean.
			NO	Replace the CCD unit.
4	• When DF is being used: 1st side	Original reading glass or original reading glass cleaning brush is dirty.	YES	Clean.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
5	DF-704 or dual scan document feeder is being used: 2nd side	CIS glass or CIS cleaning brush is dirty.	YES	Clean.
			NO	Replace the CIS module.

Blurred image

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Damp paper	Paper is damp.	YES	Change paper to one just unwrapped from its package.
2	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
3	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) Engine troubleshooting procedure

Step	Section	Check item	Result	Action
1	Write section	Dirt or foreign matter on the dust-proof glass of the PH of the color which is responsible for the abnormal image.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller of the color which is responsible for the abnormal image.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe . Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	Dirt or foreign matter on the photo conductor of the PH of the color which is responsible for the abnormal image.	YES	• Clean. • Replace the drum unit.
			NO	Replace the PH unit.

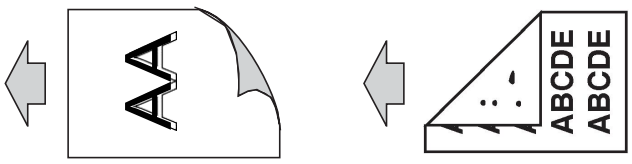
(4) Scanner troubleshooting procedure

Step	Section	Check item	Result	Action
1	Original	Original is folded, bent, or raised.	YES	Change the original.
2	Original Type	Select [Copy setting] -> [Original Type] and change the setting, and the image trouble is eliminated.	YES	Correct the setting.
3	When original glass is being used	Original glass tilts.	YES	Corrected to the correct position.
4	Parts along scanning path	Mirror, lens, light guide or reflectors is dirty.	YES	Clean.
5	When DF is being used	DF does not lie flat.	YES	• Adjust the DF height. (DF-704 Dual scan document feeder) • Replace DF if it is deformed or hinges are broken.
6	• When DF is being used: 1st side	Document reading glass tilts.	YES	Corrected to the correct position.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
7	DF-704 or dual scan document feeder is being used: 2nd side	CIS glass or CIS cleaning brush is tilted.	YES	Corrected to the correct position.
			NO	Replace the CIS module.

Back marking

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



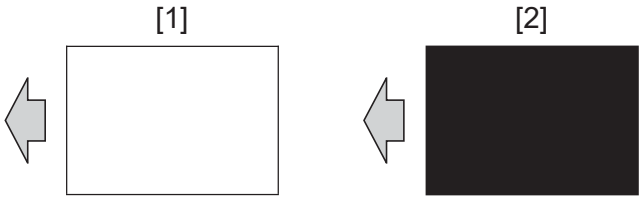
(2) Troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Paper path	There is dirty or foreign matter on paper path.	YES	Check and clean the paper path including the duplex section.
3	2nd transfer section	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.
4	Fusing unit	There is dirty or foreign matter on paper path of fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)
5	Fusing unit	Scratches on belt and roller in fusing unit.	YES	Replace the fusing unit.
			NO	Replace the high voltage unit.

Blank copy, Black copy

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1] Blank copy	[2] Black copy

(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) Engine troubleshooting procedure

Step	Section	Check item	Result	Action
1	2nd transfer section	There is a positive contact between the application terminals of the 2nd transfer and the connection terminals (T2, E) and ground terminal of the high voltage unit.	NO	Clean or correct the terminal.
2	Transfer belt unit	With the color of toner responsible for the abnormal image, there is a positive contact between the transfer belt application terminals and the high voltage unit connection terminals (Y: T1-4; M: T1-3; C: T1-2; K: T1-1).	NO	Clean or correct the terminal.
3	Photo conductor section	The drum unit of the color of toner responsible for the abnormal image is installed properly.	NO	Reinstall.
4	Photo conductor section	With the color of toner responsible for the abnormal image, there is a positive contact between the drum charge corona bias application terminals and the high voltage unit connection terminals.	NO	Clean or correct the terminal.

Step	Section	Check item	Result	Action
5	Developing section	With the color of toner responsible for the abnormal image, there is a positive contact between the developing bias application terminals and the high voltage unit connection terminals (Y: B4; M: B3; C: B2; K: B1).	NO	Clean or correct the terminal.
6	Connector connection	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the high voltage unit (CN1, CN2) and MFP board (CN30E, CN33E).	YES	Reconnect the connector.
7	Write section	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the MFP board (CN6) and PH relay board (CN1, CN2).	YES	Reconnect the connector.

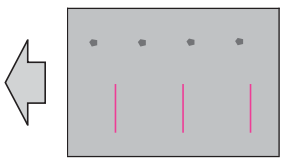
(4) Scanner troubleshooting procedure

Step	Section	Check item	Result	Action
1	Black copy: Scanner section	Foreign matter on scanner rails. Faulty the drive shaft and pulley shaft.	YES	Clean and apply lubricant. *1 *2
2		Scanner moves smoothly.	NO	• Adjust the scanner motor drive belt. • Replace the scanner motor. • Replace the scanner drive board.
3	• When original glass is being used • When DF is being used: 1st side	None of the terminal pins of the connection cable between the CCD board (CN3 or PJ3) and the MFP board (CN1) is bent and a positive connection is made.	NO	Reconnect the connector.
4	DF-704 or dual scan document feeder is being used: 2nd side	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the DF power supply (CN1), relay connector (CN117), main body connection section (CN46) and DC power supply (CN004).	YES	Reconnect the connector.
5	DF-704 or dual scan document feeder is being used: 2nd side	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the CIS module (J101), dual scan image processing board (CN2, CN1) and MFP board (CN24).	YES	Reconnect the connector.
6	DF-704 or dual scan document feeder is being used: 2nd side	Replace the connection cable between the CIS module and the MFP board. This eliminates the trouble.	YES	Replace the connection cable.

Uneven pitch

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action

1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) 1-color troubleshooting procedure

Step	Section	Check item for the faulty color	Result	Action for the faulty color
1	Uneven pitch at 94 mm interval	Dirt, scratches, or foreign matter on the photo conductor.	YES	• Clean. • Replace the drum unit.

Step	Section	Check item for the faulty color	Result	Action for the faulty color
2	Uneven pitch at 28 mm interval	Dirt, scratches, or foreign matter on the developing roller.	YES	• Clean. • Replace the developing unit.
3	Write section	Dirt or foreign matter on the dust-proof glass of the PH.	YES	Clean the PH window.
4	Charging section	Foreign matter on charging roller.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe. Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
5	Connector connection	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the high voltage unit (CN1, CN2) and MFP board (CN30E, CN33E).	NO	• Replace the high voltage unit. • Replace the MFP board.

(4) 4-color troubleshooting procedure

Step	Section	Check item	Result	Action
1	Uneven pitch	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
2	Uneven pitch at 64 mm interval	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.
3	Uneven pitch at 157 mm interval	Dirt, scratches, or foreign matter on the fusing belt.	YES	• Clean. • Replace the fusing unit.
4	Uneven pitch at 94 mm interval	Dirt, scratches, or foreign matter on the fusing pressure roller.	YES	• Clean. • Replace the fusing unit.
5	Paper path	There is dirty or foreign matter on paper path.	YES	Check or clean the paper path including the duplex section.
			NO	• Replace the transfer belt unit. • Replace the high voltage unit. • Replace the MFP board.

Uneven gloss, Rough gloss

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



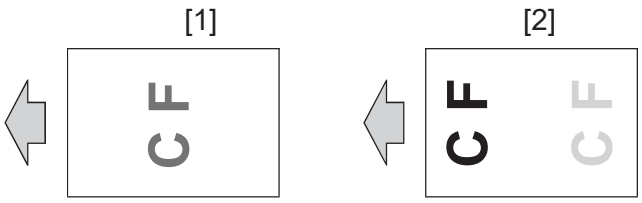
(2) Troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Service Mode-> Fusing Temperature	Select [Service Mode] -> [Machine] -> [Fusing Temperature] and lower the fusing temperature, and the image trouble is eliminated.	NO	Return the fusing temperature to the original one and go to the next step.
3	Exit tray front roller, Exit roller	Faulty pressure operation of the exit tray front roller or exit roller.	YES	Correct.
4	Fusing unit	There is dirty or foreign matter on paper path of fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)
5	Fusing unit	Scratches on belt and roller in fusing unit.	YES	Replace the fusing unit.
			NO	Replace the power supply of fusing.

Poor fusing performance, Offset

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1] Poor fusing performance	[2] Offset

(2) Troubleshooting procedure

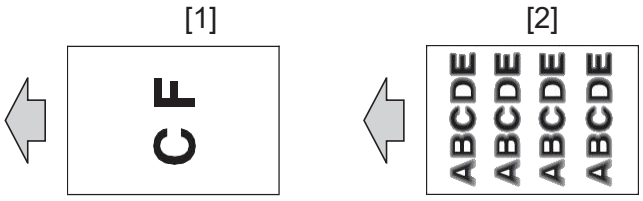
Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Service Mode -> Fusing Temperature	Select [Service Mode] -> [Machine] -> [Fusing Temperature] and make the necessary adjustment, and the image trouble is eliminated. * Poor fusing performance: Decrease the setting value * Offset: Increase the setting value	NO	Return the setting value to the original one and go to the next step.
3	Fusing unit	There is dirty or foreign matter on paper path of fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)

Step	Section	Check item	Result	Action
4	Fusing unit	Scratches on belt and roller in fusing unit.	YES	Replace the fusing unit.
			NO	Replace the power supply of fusing.

Brush effect, Image bleeding

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1]	Brush effect	[2]	Image bleeding

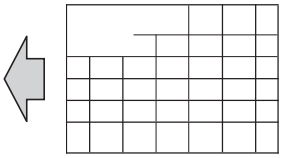
(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
2	Damp paper	Paper is damp.	YES	Change paper to one just unwrapped from its package.
3	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.
4	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
5	2nd transfer section	Dirt or foreign matter on the 2nd transfer roller.	YES	• Remove the foreign matter. • Replace the transfer roller unit.
6	Service Mode -> Fusing Temperature	Select [Service Mode] -> [Machine] -> [Fusing Temperature] and make the necessary adjustment, and the image trouble is eliminated. * Increase or decrease the setting value	NO	Return the setting value to the original one and go to the next step.
7	Service Mode -> Fusing Transport Speed	Select [Service Mode] -> [Machine] -> [Fusing Transport Speed] and make the necessary adjustment, and the image trouble is eliminated. * Brush effect: Increase or decrease the setting value * Image bleeding: Decrease the setting value	NO	Return the setting value to the original one and go to the next step.
8	Fusing unit	There is dirty or foreign matter on paper path of fusing unit.	YES	Clean. (Disassembling the fusing unit is prohibited.)
9	Fusing unit	Scratches on belt and roller in fusing unit.	YES	Replace the fusing unit.
			NO	Replace the power supply of fusing.

Blurred fine lines

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Damp paper	Paper is damp.	YES	Change paper to one just unwrapped from its package.
2	Paper Setting	The paper to be used for printing does not match the paper type and size of paper setting selected on the machine.	YES	Make the paper setting again on the machine.
3	Unclear thin line in main scan direction	Select [Service Mode] -> [Machine] -> [LD adjustment] -> [LD Light Width Adjustment] and the image trouble is eliminated.	NO	Return the setting value to the original one and go to the next step.
4	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

(3) Engine troubleshooting procedure

Step	Section	Check item	Result	Action
1	Write section	Dirt or foreign matter on the dust-proof glass of the PH of the color which is responsible for the abnormal image.	YES	Clean the PH window.
2	Charging section	Foreign matter on charging roller of the color which is responsible for the abnormal image.	YES	Lightly wipe the surface clean of foreign matter using hydro-wipe Note: Do not apply a strong force to the surface of the charging roller, as doing so can damage the surface.
3	Photo conductor section	Dirt or foreign matter on the photo conductor of the PH of the color which is responsible for the abnormal image.	YES	• Clean. • Replace the drum unit.
4	Transfer belt unit	Dirt, scratches, or foreign matter on the transfer belt.	YES	• Clean. • Replace the transfer belt unit.
			NO	Replace the PH unit.

(4) Scanner troubleshooting procedure

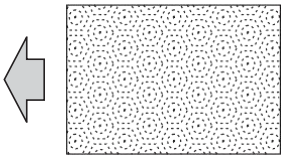
Step	Section	Check item	Result	Action
1	Original	Original is folded, bent, or raised.	YES	Change the original.
2	Original Type	Select [Copy setting] -> [Original Type] and change the setting, and the image trouble is eliminated.	YES	Correct the setting.
3	When original glass is being used	Original glass tilts.	YES	Corrected to the correct position.

Step	Section	Check item	Result	Action
4	When DF is being used	DF does not lie flat.	YES	• Adjust the DF height. (DF-704 Dual scan document feeder) • Replace DF if it is deformed or hinges are broken.
5	• When DF is being used: 1st side	Document reading glass tilts.	YES	Corrected to the correct position.
			NO	• Replace the LED exposure unit. • Replace the CCD unit.
6	DF-704 or dual scan document feeder is being used: 2nd side	CIS glass or CIS cleaning brush is tilted.	YES	Corrected to the correct position.
			NO	Replace the CIS module.

Moire

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



(2) Initial troubleshooting procedure

Step	Section	Check item	Result	Action
1	Original	Original is damaged or dirty.	YES	Change the original.
2	Original direction	Change the direction in which the original is placed. This eliminates moire.	YES	Change the original direction.
3	Service Mode -> Stabilizer	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Stabilization Only] and the image trouble is eliminated.	NO	Go to the next step.

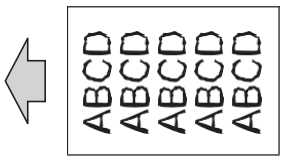
(3) Engine troubleshooting procedure

Step	Section	Check item	Result	Action
1	Service Mode -> Paper Feed Direction Adj.	Select [Service Mode] -> [Machine] -> [Printer Area] -> [Paper Feed Direction Adj.] and make the necessary adjustment, and the image trouble is eliminated.	NO	Go to the next step.
2	Service Mode -> Initialize + Image Stabilization	Select [Service Mode] -> [Imaging Process Adjustment] -> [Stabilizer] -> [Initialize + Image Stabilization] and [Gradation Adjust], and the image trouble is eliminated.	YES	Readjust.
			NO	• Replace the PH unit. • Replace the MFP board.

Distorted image

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



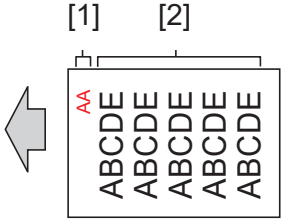
(2) Troubleshooting procedure

Step	Section	Check item	Result	Action
1	Installation state	Machine not installed on a flat site.	YES	Install the machine horizontally.
2	When original glass is being used	Original glass not installed properly.	YES	Corrected to the correct position.
			NO	Replace the CCD unit.
3	• When DF is being used: Distortion on 1st side	CCD board not installed properly.	YES	Corrected to the correct position.
			NO	Replace the CCD unit.
4	DF-704 or dual scan document feeder is being used: Distortion on 2nd side	CIS module not installed properly.	YES	Corrected to the correct position.
			NO	Replace the CIS module.

ACS malfunction

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1]	Color original section	[2]	Black and white original section

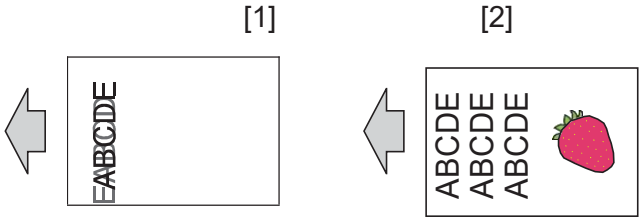
(2) Troubleshooting procedure

Procedure	Section	Check item	Result	Action
1	Original Type	Select [Copy setting] -> [Original Type] and change the setting, and the image trouble is eliminated.	YES	Correct the setting.
2	Original direction	Change the direction in which the original is placed. This eliminates the trouble.	YES	Change the original direction.

Abnormal image

(1) Typical faulty images

The arrow in the exemplary image troubles indicates the paper feeding direction.



[1]	Data on the previous page	[2]	Data on the next page

(2) Troubleshooting procedure

Step	Section	Check item	Result	Action
1	When original glass is being used When DF is being used: 1st side	None of the terminal pins of the connection cable between the CCD board (CN3 or PJ3) and the MFP board (CN1) is bent and a positive connection is made.	NO	Reconnect the connector.
2	When original glass is being used When DF is being used: 1st side	Replace the connection cable between the CCD board and the MFP board. This eliminates the trouble.	YES	Replace the connection cable.
			NO	• Replace the CCD unit. • Replace the MFP board.
3	DF-704 or dual scan document feeder is being used: 2nd side	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the DF power supply (CN1), relay connector (CN117), main body connection section (CN46) and DC power supply (CN004).	YES	Reconnect the connector.
4	DF-704 or dual scan document feeder is being used: 2nd side	CM9705DN/M9705/CM9105DN/M9105DN: Faulty connector connection the CIS module (J101), dual scan image processing board (CN2, CN1) and MFP board (CN24).	YES	Reconnect the connector.
5	DF-704 or dual scan document feeder is being used: 2nd side	Replace the connection cable between the CIS module and the dual scan image processing board. This eliminates the trouble.	YES	Replace the connection cable.

IC PROTECTOR

Outline

- To increase product safety, this MFP has an IC protector (ICP) installed in each board. ICP is a component that protects IC. If the amount of the current supplied to the electrical parts such as motor exceeds the set level, ICP trips to protect IC from over current.
  The following list contains ICP installed in each board, related devices, and symptoms that occur when ICP trips.

IC protector list

(1) MFP board

ICP No.	Symbol	Target part name	When ICP trips	
			Symptom in each load	Trouble code and others
F1E	-	LCC, cabinet	No operation	C0202, C0204, C0206, C0208, C0210
			Misfeed at transport section	-
F2E	SD2	IDC sensor shutter solenoid	Image stabilization abnormally terminated	-
	CL4 *1	Registration clutch	Misfeed at transport section	-
	EL/Y	Erase LED/Y	Faulty image	-
	EL/M	Erase LED/M	Faulty image	-
	EL/C	Erase LED/C	Faulty image	-
	EL/K	Erase LED /K	Faulty image	-
	TCT *2	Total counter	Not count	-
	KCT	Key counter	Not count	-
	CL9	Paper exit deceleration clutch	Tray paper misaligned	-
F3E	-	Clean unit (CU-102)	Clean unit fan's failure to turn	C5360
F6E	FM7 *3	IH coil cooling fan	IH coil cooling fan’s failure to turn	C5306
	FM2	Transfer belt cleaner cooling fan	Transfer belt cleaner cooling fan's failure to turn	C2355
	CL5	1st transfer pressure clutch	Transfer belt fault at initial position return	C2152
	CL8	Paper exit clutch	Misfeed at exit section	-
	FM4 *3	Toner cartridge cooling fan	Toner cartridge cooling fan's failure to turn	C5355
	FM17	UFP exhaust fan1	Fan’s failure to turn	C5307
	FM18 *3	UFP exhaust fan2	Fan’s failure to turn	C5307
	M9	Toner supply motor/Y	Abnormally low toner density detected yellow TCR sensor	C2555
	M8	Toner supply motor/M	Abnormally low toner density detected magenta TCR sensor	C2553
	M7	Toner supply motor/C	Abnormally low toner density detected cyan TCR sensor	C2551
	M6	Toner supply motor/K	Abnormally low toner density detected black TCR sensor	C2557
F7E	HV	High voltage unit	Faulty image	-
F8E	FM4 *4	Toner cartridge cooling fan	Toner cartridge cooling fan's failure to turn	C5355
F9E	USBHB	USB hub board	No operation	-
F11E	-	DF	Unable to be detected	-
	-	Scanner unit	Control panel operation failure	-
	DCPU	DC power supply	Unable to output from the 24V system	-
	SW2	Front door switch	Unable to detect open/closed door	-
	SW3	Right door switch	Unable to detect open/closed door	-
	NFB *3	NF board	Unable to supply the IH power source with AC	-
	FUPU *4	Fusing power supply	Unable to supply the heater with AC	-
F12E	-	Cabinet	Misfeed at LU paper feed section	-
	TEMS/1 *3	Heating roller temperature sensor1	Fusing abnormally low temperature detection (Main of the heating roller)	C3825
			Fusing sensor wire breaks detection (Main of the heating roller)	C3925
	TEMS/2 *5	Heating roller temperature sensor2	Fusing sensor wire breaks detection (Edge of the heating roller)	C3922
F15E	SW2	Front door switch	Unable to detect open/closed door	-
	SW3	Right door switch	Unable to detect open/closed door	-

ICP No.	Symbol	Target part name	When ICP trips	
			Symptom in each load	Trouble code and others
	NFB *3	NF board	Unable to supply the IH power source with AC	-
	FUPU *4	Fusing power supply	Unable to supply the heater with AC	-

- *1: CM9105DN/M9105DN only
- *2: Japan model only
- *3: CM9705DN/M9705/ only
- *4: CM9105DN/M9105DN only
- *5: CM9705DN/M9705 only

(2) Front side board

ICP No.	Symbol	Target part name	When ICP trips	
			Symptom in each load	Trouble code and others
ICP1	M15	Skew correction motor/C	No operation	-
	M16	Skew correction motor/M		
	M17	Skew correction motor/Y		

(3) Expansion control board

ICP No.	Symbol	Target part name	When ICP trips	
			Symptom in each load	Trouble code and others
ICP2	-	TB new detection board	Unable to detect new article	-

(1) CIS power supply

ICP No.	Symbol	Target part name	When ICP trips	
			Symptom in each load	Trouble code and others
F1	-	DC to DC converter input section 12V line	CIS LED lighting failure	C9403
F2	-	DC to DC converter input section 5V line	CIS LED lighting failure	C9403

PF910

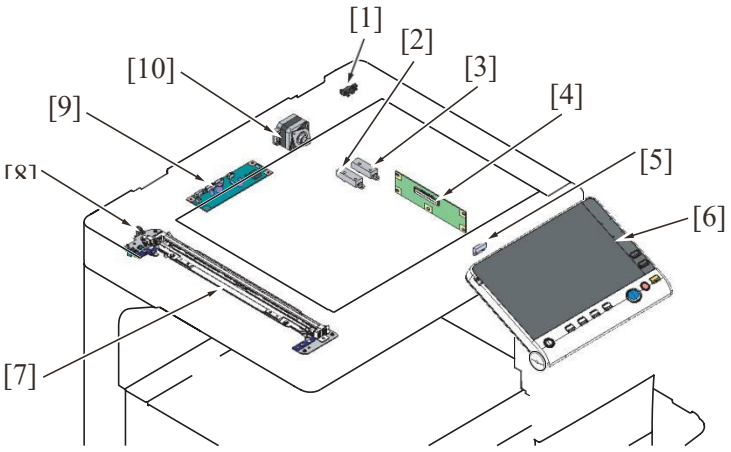
(1) FS control board

ICP No.	Symbol	Target part name	When ICP trips	
			Symptom in each load	Trouble code and others
F1	-	All ICs and actuators	No operation (Due to no power supply to CPU, FS connection not detected)	-
CP1	-	DC to DC converter input section 5V line	No operation (Due to no power supply to CPU, FS connection not detected)	-
CP2	-	Regulator	No operation (Due to no power supply to CPU, FS connection not detected)	-
CP3	-	DC to DC converter input section 24V line	No operation (Due to no power supply to CPU, FS connection not detected)	-
CP21	SD101	Paper surface detect solenoid	No operation	-
CP22	SD102	Batch solenoid	No operation	-
CP23	SD103	Paper exit roller solenoid	No operation	-
CP101	M101	Paper conveyance motor	Misfeed at transport section	-
CP102	M102	Paper exit motor	Misfeed at transport section	-
CP103	M103	Alignment roller motor	Misfeed at transport section	-
CP104	M104	Exit roller lift up motor	Exit roller pressure/ retraction malfunction	C11A1
CP105	M105	Alignment motor/F	Alignment plate motor/F malfunction	C1103
	M106	Alignment motor/R	Alignment plate motor/R malfunction	C1140
CP107	M107	Stapler movement motor	Stapler movement motor malfunction	C1106
CP109	M109	Tray lift up motor	Main tray up/down motor drive malfunction	C1102

5. PARTS/CONNECTOR LAYOUT DRAWING

PARTS LAYOUT DRAWING

Scanner section

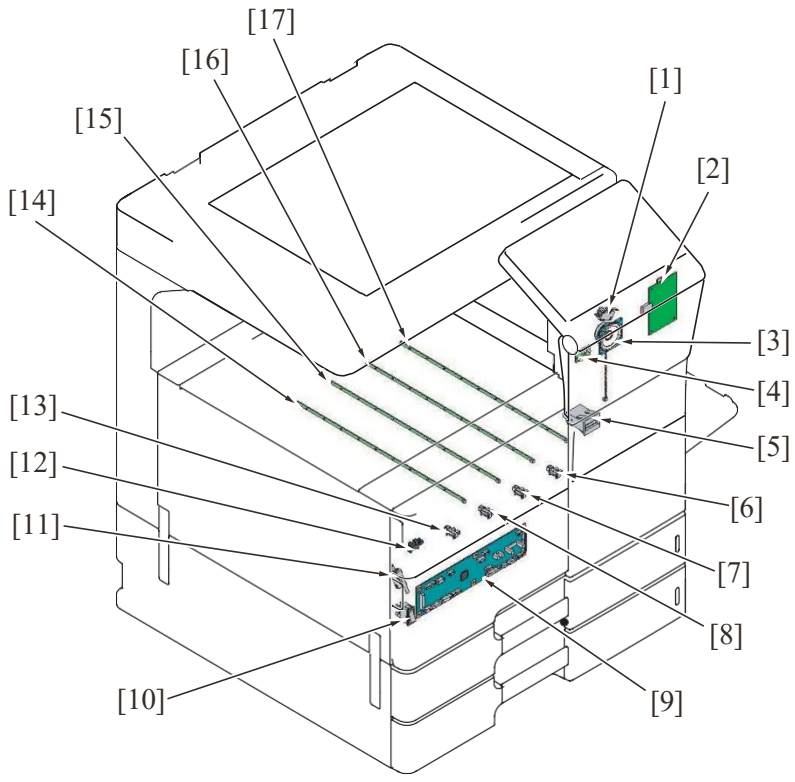


[1]	Angle sensor (PS202)	[2]	Original size sensor1 (PS204)
[3]	Original size sensor2 (PS205) *	[4]	CCD board (CCDB)
[5]	Original cover sensor (RS201)	[6]	Control panel unit
[7]	LED exposure unit (LU201)	[8]	Scanner home sensor (PS201)
[9]	Scanner drive board (SCDB)	[10]	Scanner motor (M201)

*: Excluding Japan models

Front side section

(1) Board/switch/sensor/others

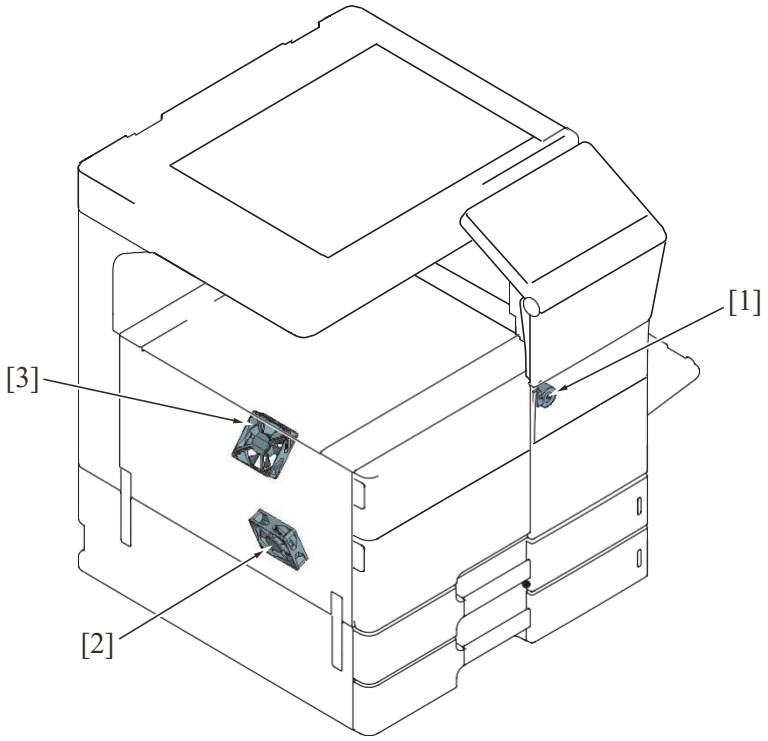


[1]	Right door switch (SW3)	[2]	USB board (USBB)
[3]	FAX speaker (SP1)	[4]	Machine condition monitor board (MCMB)

[5]	Total counter (TCT) *	[6]	Toner empty sensor/K (PS31)
[7]	Toner empty sensor/C (PS32)	[8]	Toner empty sensor/M (PS33)
[9]	Front side board (FRB)	[10]	Main power switch (SW1)
[11]	Front door switch (SW2)	[12]	Front upper door sensor (PS43)
[13]	Toner empty sensor/Y (PS34)	[14]	Erase LED/Y (EL/Y)
[15]	Erase LED/M (EL/M)	[16]	Erase LED/C (EL/C)
[17]	Erase LED/K (EL/K)	-	-

*: Japan only

(2) Load

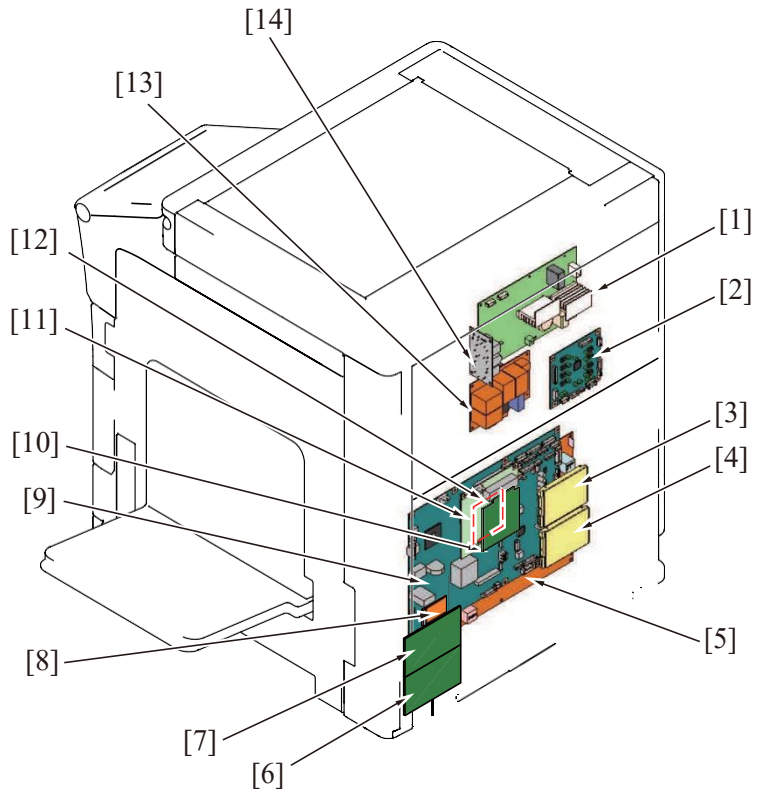


[1]	Toner supply motor/K (M6)	[2]	Power supply cooling fan (FM1)
[3]	Transfer belt cleaner cooling fan (FM2)	-	-

Back side

(1) Board

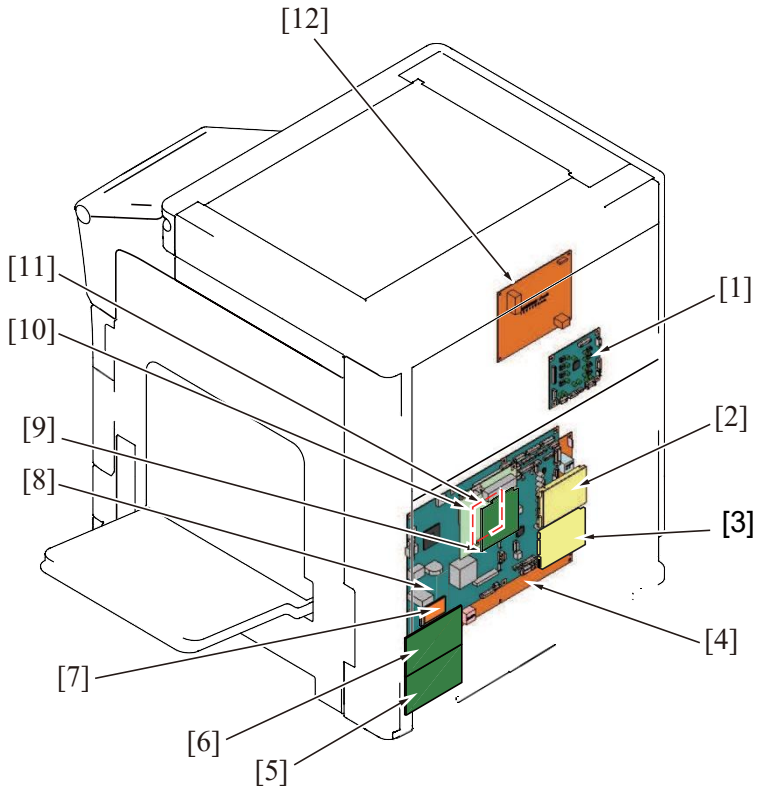
(a) CM9705DN/M9705



[1]	IH power supply (IHPU)	[2]	Expansion control board (EXCB)
[3]	Hard disk (A) (HDD (A))	[4]	Hard disk (B) (HDD (B)) *
[5]	High voltage unit (HV)	[6]	Fax board/1 (FAXB/1) *
[7]	Fax board/2 (FAXB/2) *	[8]	eMMC board (eMMC)
[9]	MFP board (MFPB)	[10]	DSC board/2 (DSCB/2) *
[11]	Dual scan image processing board (DSIPB)	[12]	DSC board/1 (DSCB/1) *
[13]	NF board (NFB)	[14]	IH magnetic erasing board (IHMEB)

*: Option

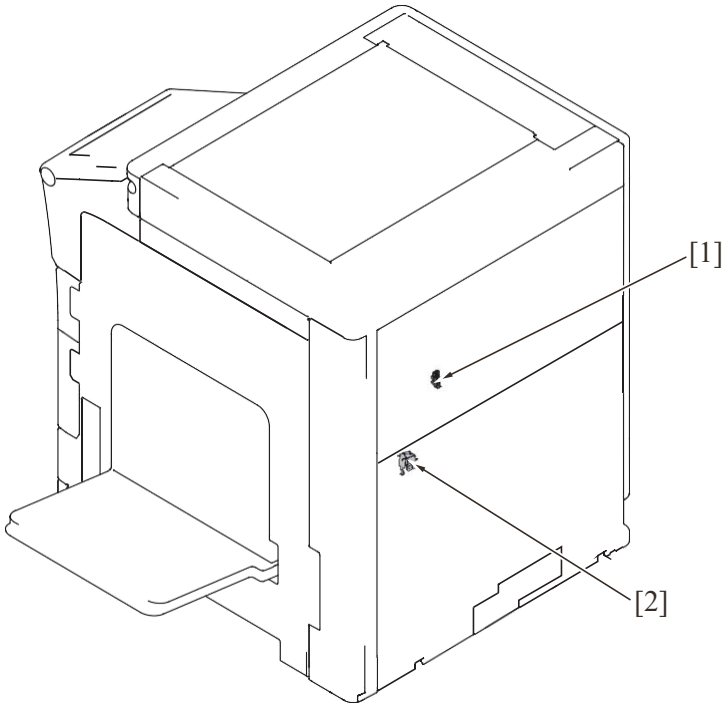
(b) CM9105DN/M9105DN



[1]	Expansion control board (EXCB)	[2]	Hard disk (A) (HDD (A))
[3]	Hard disk (B) (HDD (B)) *	[4]	High voltage unit (HV)
[5]	Fax board/1 (FAXB/1) *	[6]	Fax board/2 (FAXB/2) *
[7]	eMMC board (eMMC)	[8]	MFP board (MFPB)
[9]	DSC board/2 (DSCB/2) *	[10]	Dual scan image processing board (DSIPB)
[11]	DSC board/1 (DSCB/1) *	[12]	Fusing power supply (FUPU)

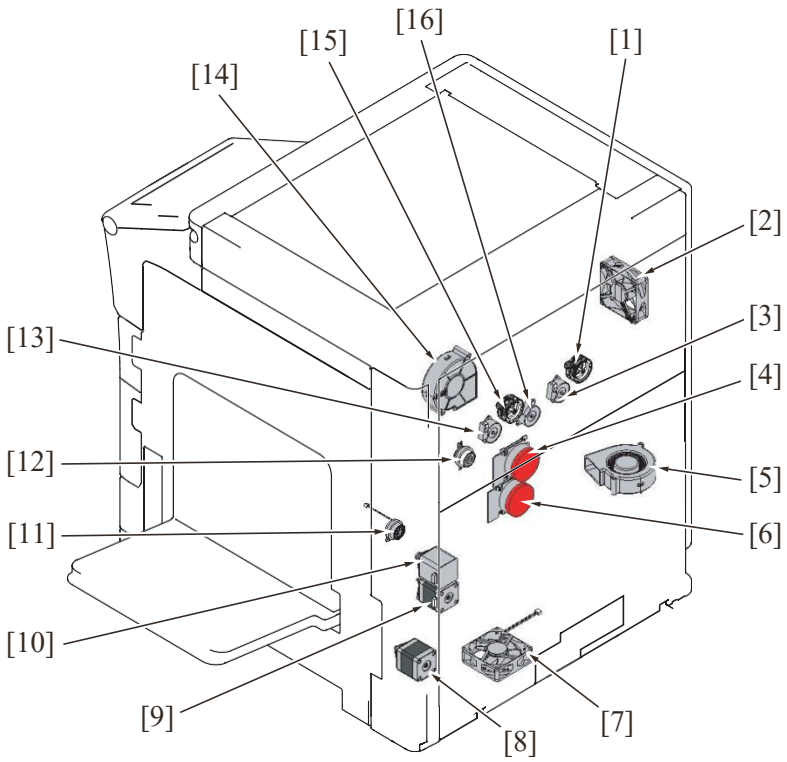
*: Option

(2) Switch/sensor/others



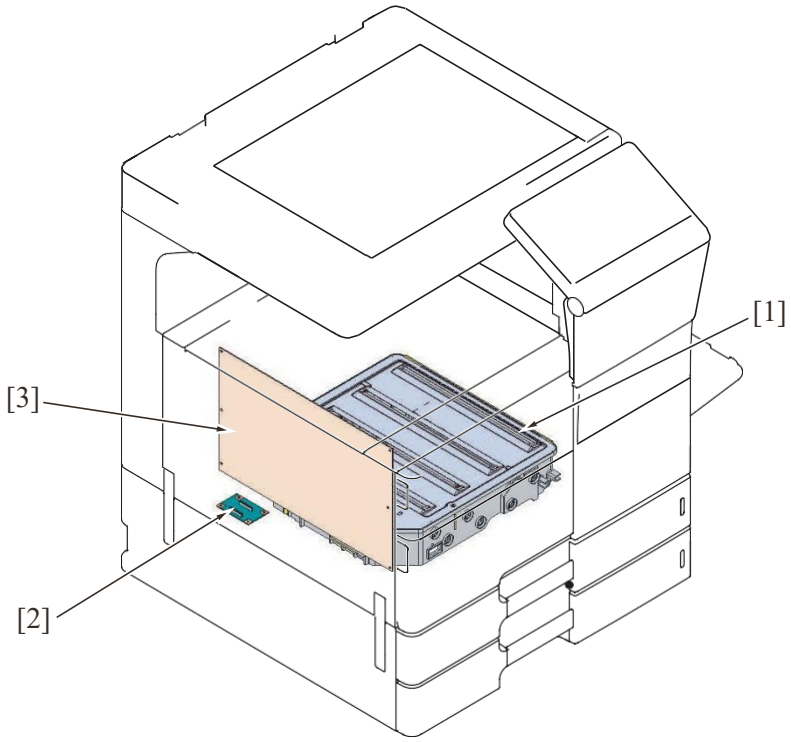
[1]	1st transfer pressure sensor (PS39)	[2]	Developing solenoid (SD4)

(3) Load



[1]	Toner Cartridge Motor/Y, M (M10)	[2]	Fusing power supply cooling fan (FM12)
[3]	Toner supply motor/Y (M9)	[4]	PC motor (M2)
[5]	Toner suction fan (FM11)	[6]	Developing motor (M21)
[7]	Rear side cooling fan (FM3)	[8]	Tray2 vertical transport motor (M23)
[9]	Paper feed motor (M22)	[10]	Registration motor (M24)*1
[11]	Registration clutch (CL4)*2	[12]	1st transfer pressure clutch (CL5)
[13]	Toner supply motor/C (M7)	[14]	Paper cooling fan (FM8)
[15]	Toner cartridge motor/C, K (M25)	[16]	Toner supply motor/M (M8)

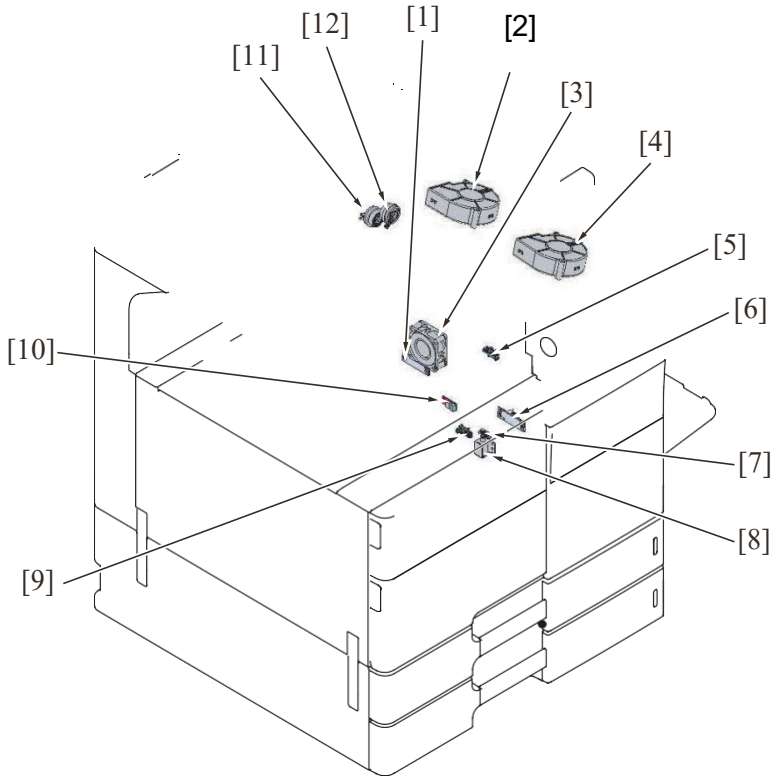
*1: CM9705DN/M9705 only
*2: CM9105DN/M9105DN only



Left side

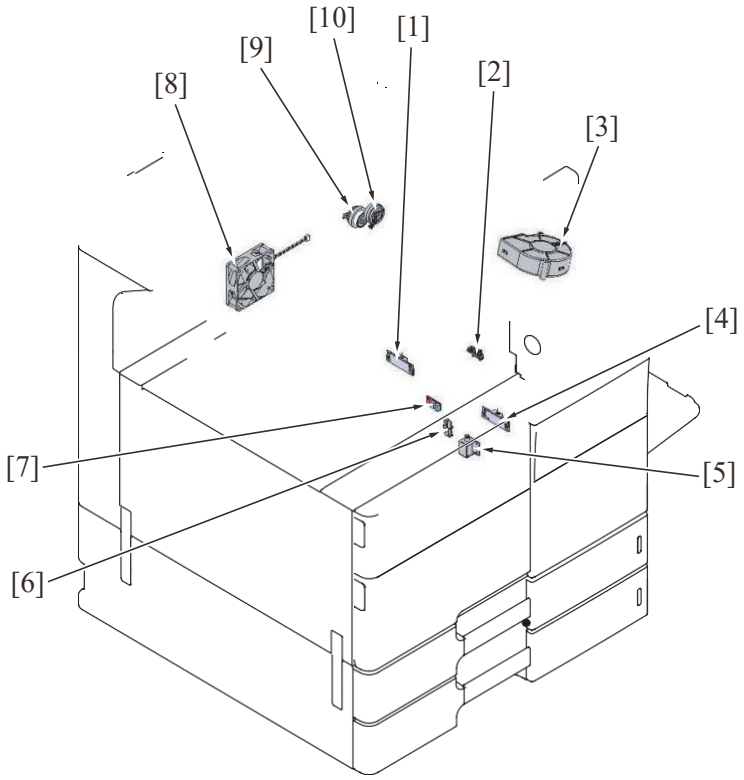
[1]	PH unit	[2]	PH relay board (PHRYB)
[3]	DC power supply (DCPU)	-	-

Right side (1)
CM9705DN/M97
05



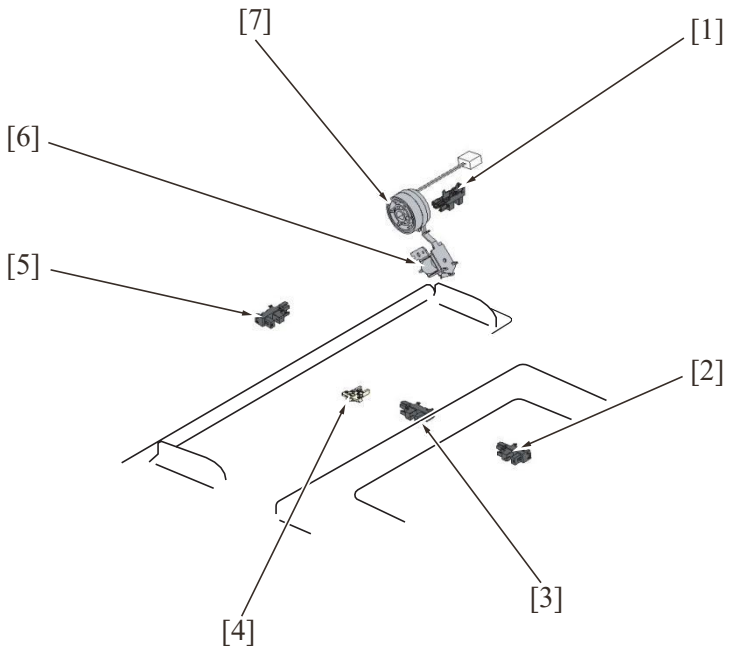
[1]	IDC sensor/Rr (IDCS/Rr)	[2]	UFP exhaust fan2 (FM18)
[3]	Toner cartridge cooling fan (FM4)	[4]	UFP exhaust fan1 (FM17)
[5]	Fusing loop sensor (PS2)	[6]	IDC sensor/Fr (IDCS/Fr)
[7]	Registration sensor2 (PS72)	[8]	IDC sensor shutter solenoid (SD2)
[9]	Registration sensor1 (PS1)	[10]	Temperature/humidity sensor (TEM/HUMS)
[11]	Paper exit clutch (CL8)	[12]	Paper exit deceleration clutch (CL9)

(2) CM9105DN/M9105DN



[1]	IDC sensor/Rr (IDCS/Rr)	[2]	Fusing loop sensor (PS2)
[3]	UFP exhaust fan1 (FM17)	[4]	IDC sensor/Fr (IDCS/Fr)
[5]	IDC sensor shutter solenoid (SD2)	[6]	Registration sensor1 (PS1)
[7]	Temperature/humidity sensor (TEM/HUMS)	[8]	Toner cartridge cooling fan (FM4)
[9]	Paper exit clutch (CL8)	[10]	Paper exit deceleration clutch (CL9)

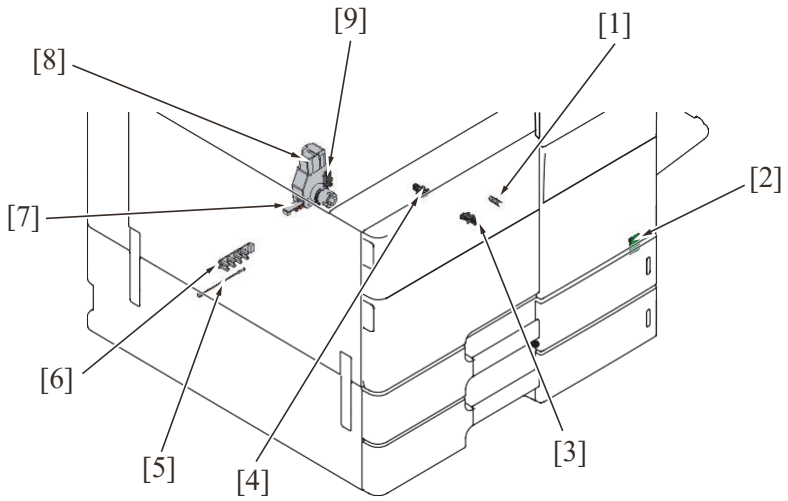
Manual bypass tray



[1]	Bypass lift-up position sensor (PS26)	[2]	Bypass FD paper size sensor2 (PS29)

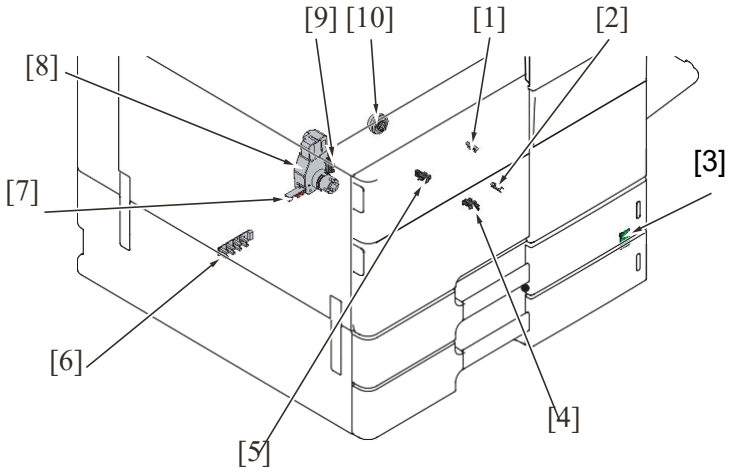
[3]	Bypass FD paper size sensor1 (PS28)	[4]	Bypass CD paper size VR (VR1)
[5]	Bypass paper empty sensor (PS27)	[6]	Bypass pick-up solenoid (SD1)
[7]	Bypass paper feed clutch (CL7)	-	-

Tray 1



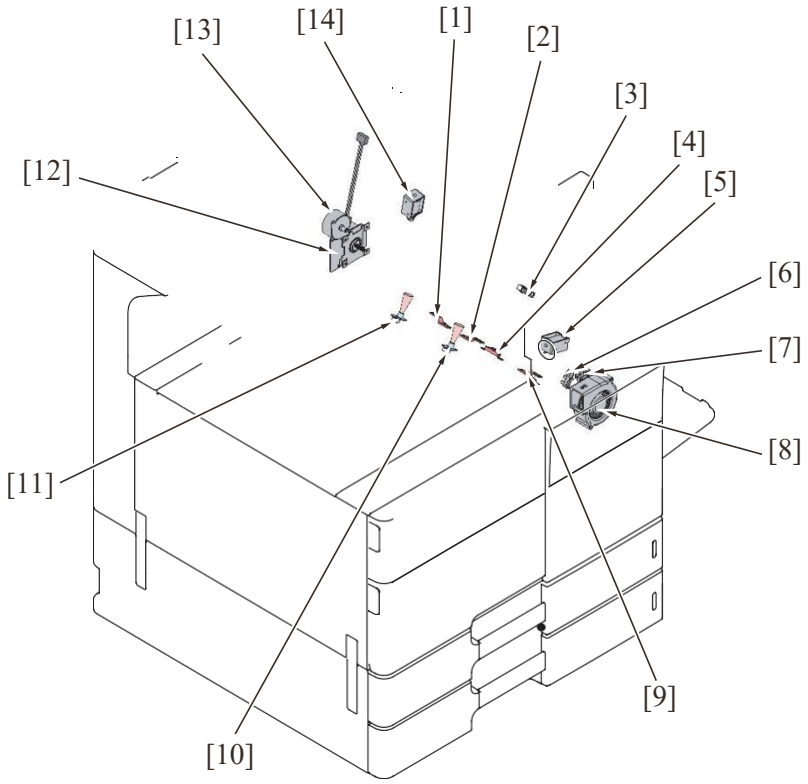
[1]	Tray1 paper feed sensor (PS23)	[2]	Tray1 empty indicator board (PEIB/1)
[3]	Tray1 paper empty sensor (PS24)	[4]	Tray1 upper limit sensor (PS25)
[5]	Paper temperature sensor (TH4)	[6]	Tray1 FD paper size board (FDPSB/1)
[7]	Tray1 CD paper size board (CDPSB/1)	[8]	Tray1 lift-up motor (M12)
[9]	Tray1 paper near empty sensor (PS11)	-	-

Tray 2



[1]	Tray2 vertical transport sensor (PS19)	[2]	Tray2 paper feed sensor (PS20)
[3]	Tray2 empty indicator board (PEIB/2)	[4]	Tray2 paper empty sensor (PS21)
[5]	Tray2 upper limit sensor (PS22)	[6]	Tray2 FD paper size board (FDPSB/2)
[7]	Tray2 CD paper size board (CDPSB/2)	[8]	Tray2 lift-up motor (M13)
[9]	Tray2 paper near empty sensor (PS12)	[10]	Tray2 paper feed clutch (CL1)

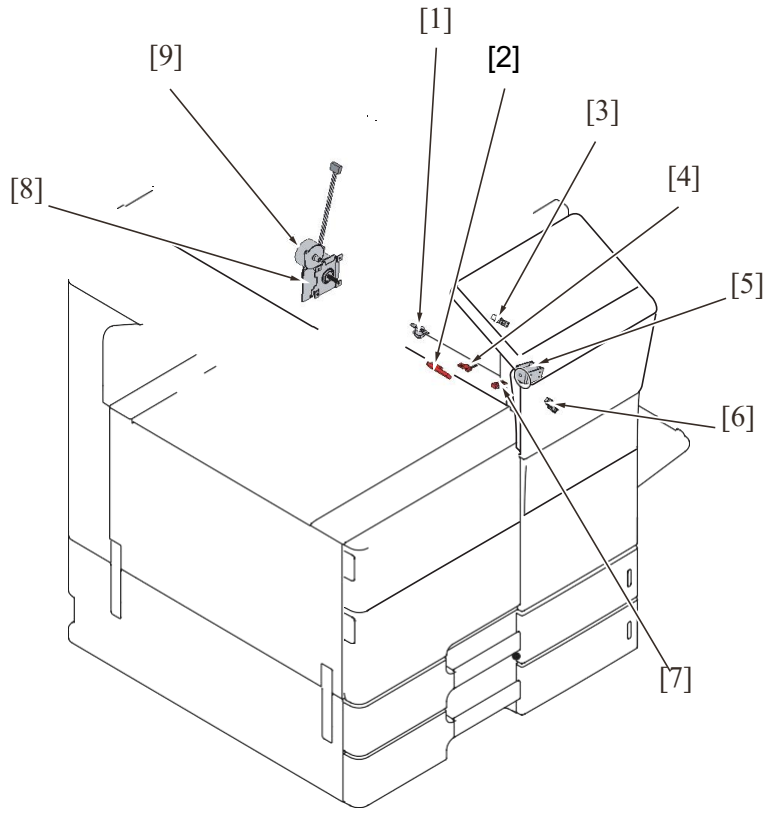
Fusing/paper exit section (1)
CM9705DN/M9705



[1]	Heating roller thermistor2 (TH2)	[2]	Heating roller thermistor3 (TH3)
[3]	Paper exit sensor (PS3)	[4]	Heating roller thermostat (TS1)
[5]	Gate switch solenoid (SD3)	[6]	Fusing pressure home sensor (PS38)
[7]	Heating roller rotation sensor (PS37)	[8]	IH coil cooling fan (FM7)
[9]	Heating roller thermistor1 (TH1)	[10]	Heating roller temperature sensor1 (TEMS/1)
[11]	Heating roller temperature sensor2 (TEMS)*	[12]	Fusing motor (M3)
[13]	Fusing pressure motor (M11)	[14]	Soaking roller pressure solenoid (SD5)

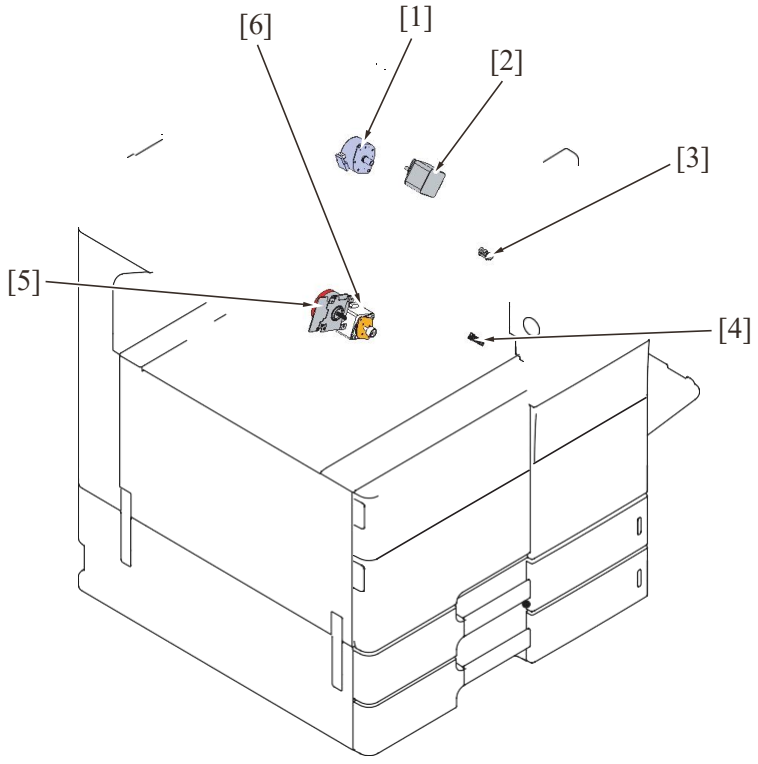
*: CM9705DN/M9705 only

(2) CM9105DN/M9105DN



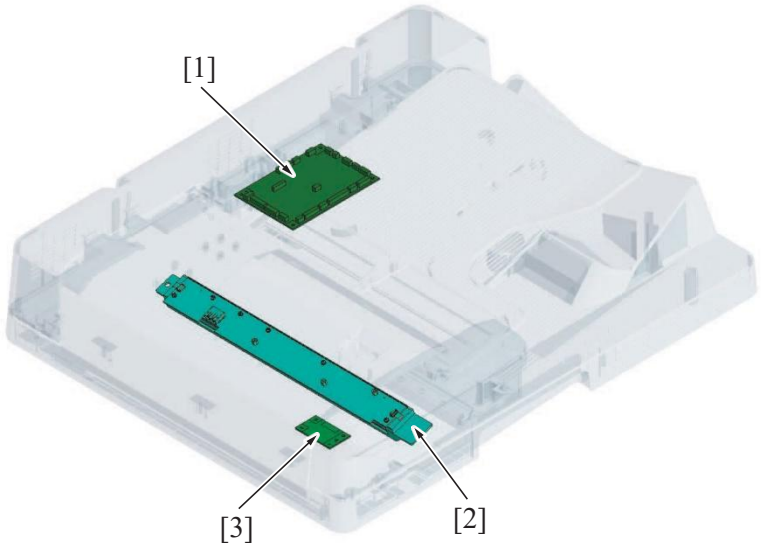
[1]	Heating roller thermostat (TS1)	[2]	Heating roller temperature sensor1 (TEMS/1)
[3]	Paper exit sensor (PS3)	[4]	Heating roller thermistor2 (TH2)
[5]	Gate switch solenoid (SD3)	[6]	Fusing pressure home sensor (PS38)
[7]	Heating roller thermistor1 (TH1)	[8]	Fusing motor (M3)
[9]	Fusing pressure motor (M11)	-	-

Duplex section

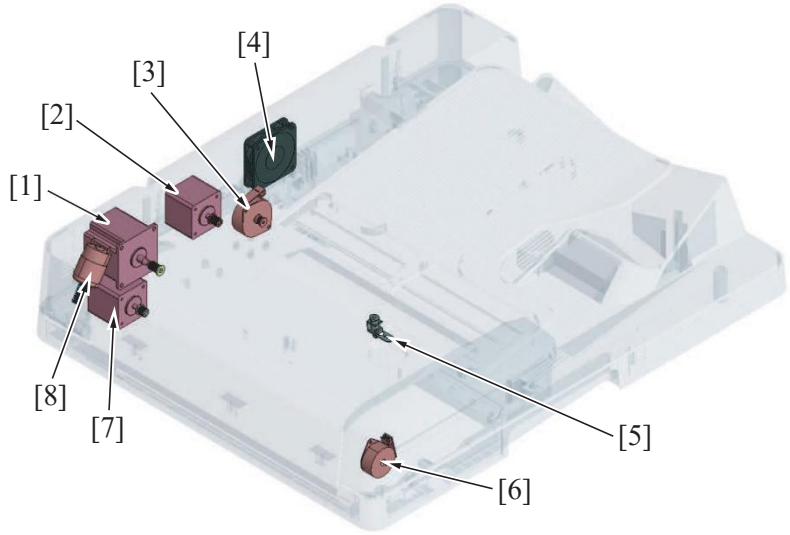


[1]	Switchback motor (M4)	[2]	ADU transport motor1 (M5)
[3]	ADU paper passage sensor1 (PS40)	[4]	ADU paper passage sensor2 (PS41)
[5]	Transport motor (M1)	[6]	ADU transport motor2 (M26)

DF-704/SP-501 (Option)

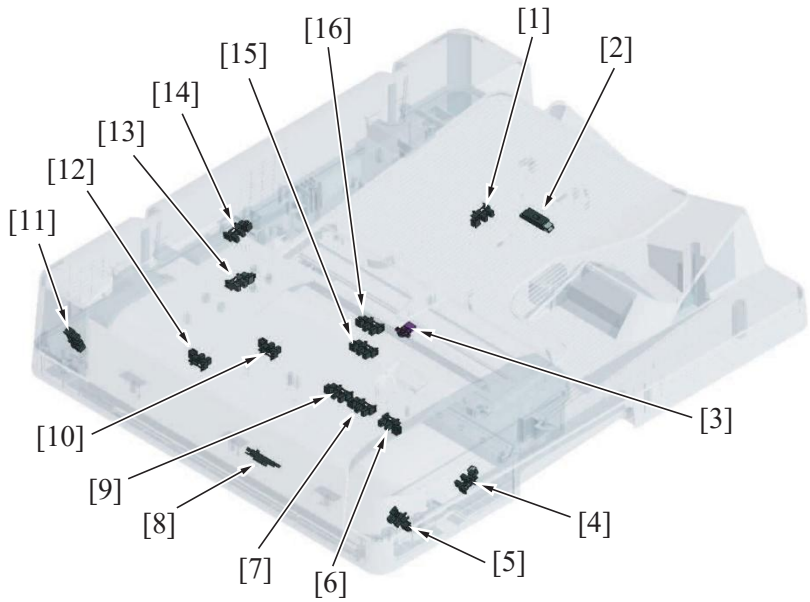


[1]	DF control board (DFCB)	[2]	CIS module (CIS)
[3]	CIS power supply (CISPU)	-	-



[1]	Document reading motor (M1)	[2]	Document feed motor (M2)
[3]	CIS cleaning motor (M5)	[4]	DF cooling fan motor (FM1)
[5]	Stamp solenoid (SD1) *	[6]	Document reading glass cleaning motor (M6)
[7]	Registration motor (M3)	[8]	Reading roller release motor (M4)

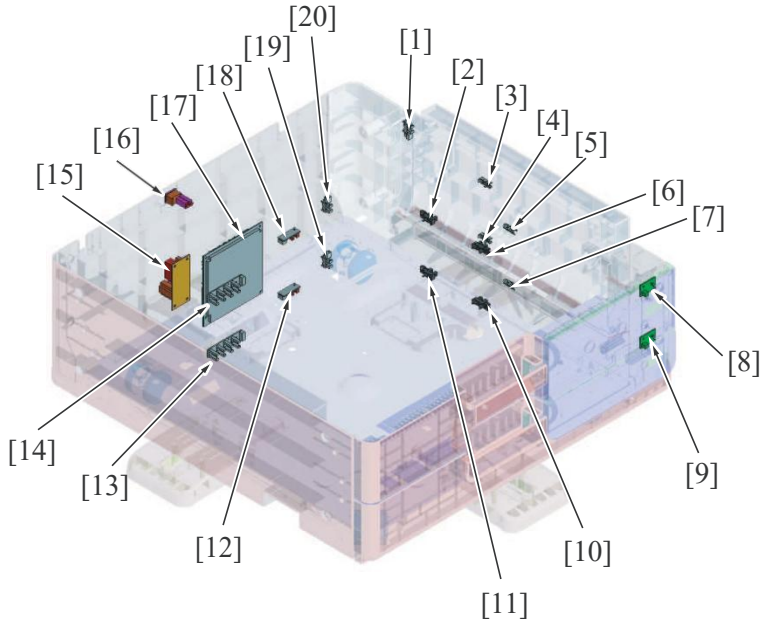
- * : Option



[1]	Document length sensor/1 (PS8)	[2]	Document length sensor/2 (PS9)
[3]	Document width size sensor (VR1)	[4]	CIS cover sensor (PS15)
[5]	Document reading glass cleaning sensor (PS13)	[6]	Mixed original sensor/3 (PS12)
[7]	Mixed original sensor/2 (PS11)	[8]	Document reading sensor (PS6)
[9]	Mixed original sensor/1 (PS10)	[10]	After separate sensor (PS2)
[11]	Reading roll position sensor (PS4)	[12]	Document registration sensor (PS3)
[13]	CIS cleaning sensor (PS7)	[14]	Upper door sensor (PS14)
[15]	Document exit sensor (PS5)	[16]	Document empty sensor (PS1)

CPT910 (Option)

Board/switch/sensor/others

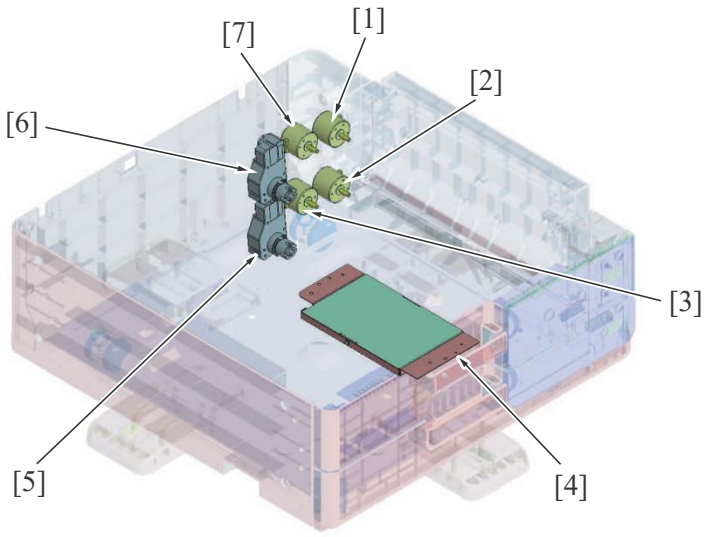


[1]	Right bottom door sensor (PS111)	[2]	Tray 3 upper limit sensor (PS116)
[3]	Tray 3 vertical transport sensor (PS113)	[4]	Tray 4 vertical transport sensor (PS123)
[5]	Tray 3 paper feed sensor (PS112)	[6]	Tray 3 paper empty sensor (PS114)
[7]	Tray 4 paper feed sensor (PS122)	[8]	Tray 3 paper empty indicator board (PEIB/3)
[9]	Tray 4 paper empty indicator board (PEIB/4)	[10]	Tray 4 paper empty sensor (PS124)
[11]	Tray 4 upper limit sensor (PS126)	[12]	Tray 4 CD paper size board (CDPSB/4)
[13]	Tray 4 FD paper size board (FDPSB/4)	[14]	Tray 3 FD paper size board (FDPSB/3)
[15]	Dehumidifier relay board (PCRYB) *	[16]	Dehumidification heater switch (SW4) *

[17]	PC control board (PCCB)	[18]	Tray 3 CD paper size board (CDPSB/3)
[19]	Tray 4 paper near empty sensor (PS125)	[20]	Tray 3 paper near empty sensor (PS115)

- *: Japan model only

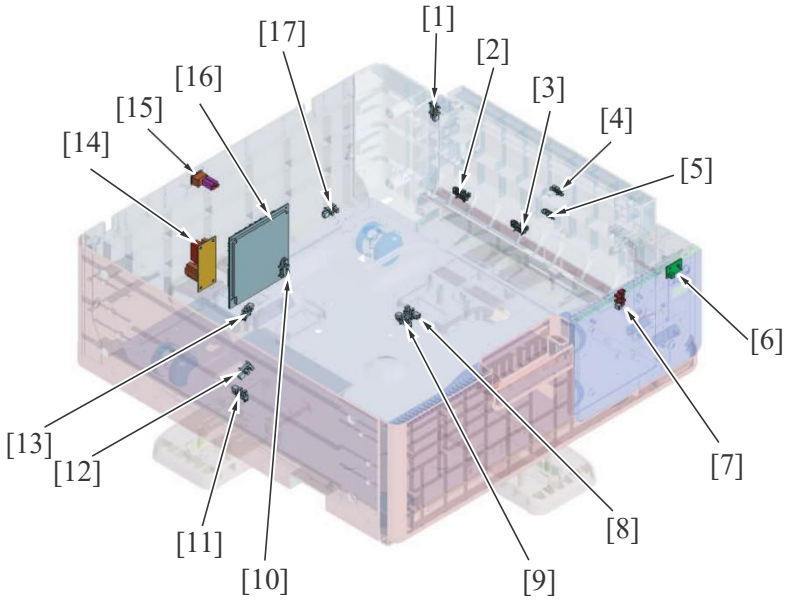
Load



[1]	Tray 3 vertical transport motor (M112)	[2]	Tray 4 vertical transport motor (M122)
[3]	Tray 4 paper feed motor (M121)	[4]	PC dehumidifier heater (DH111)
[5]	Tray 4 lift-up motor (M123)	[6]	Tray 3 lift-up motor (M113)
[7]	Tray 3 paper feed motor (M111)	-	-

CPT910X (Option)

Board/switch/sensor/others

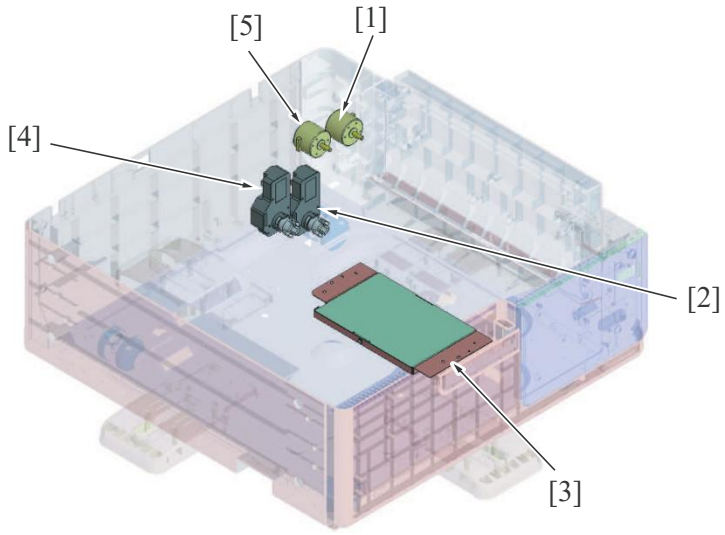


[1]	Right bottom door sensor (PS131)	[2]	Main tray upper limit sensor (PS136)
[3]	Main tray upper paper empty sensor (PS137)	[4]	Vertical transport sensor (PS133)
[5]	Paper feed sensor (PS132)	[6]	Tray 3 paper empty indicator board (PEIB/3)
[7]	Cassette set sensor (PS143)	[8]	Main tray paper empty sensor (PS134)
[9]	Shifter stop/lower limit position sensor (PS138)	[10]	Division board sensor (PS142)
[11]	Shifter home sensor (PS139)	[12]	Sub tray paper empty sensor (PS140)

[13]	Sub tray paper remaining amount sensor (PS141)	[14]	Dehumidifier relay board (PCRYB) *
[15]	Dehumidification heater switch (SW4) *	[16]	PC control board (PCCB)
[17]	Main tray paper near empty sensor (PS135)	-	-

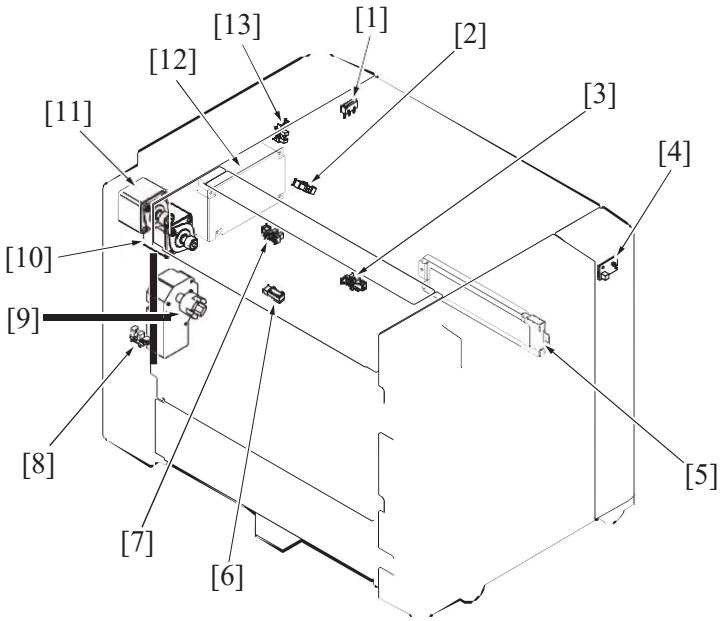
- *: Japan model only

Load



[1]	Vertical transport motor (M132)	[2]	Elevator motor (M134)
[3]	PC dehumidifier heater (DH111)	[4]	Shifter motor (M133)
[5]	Paper feed motor (M131)	-	-

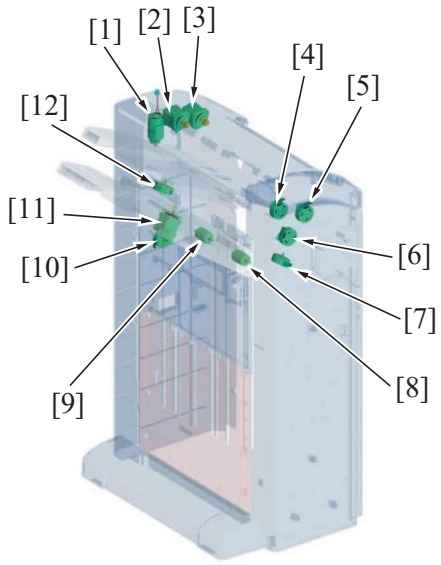
CPT910U (Option)



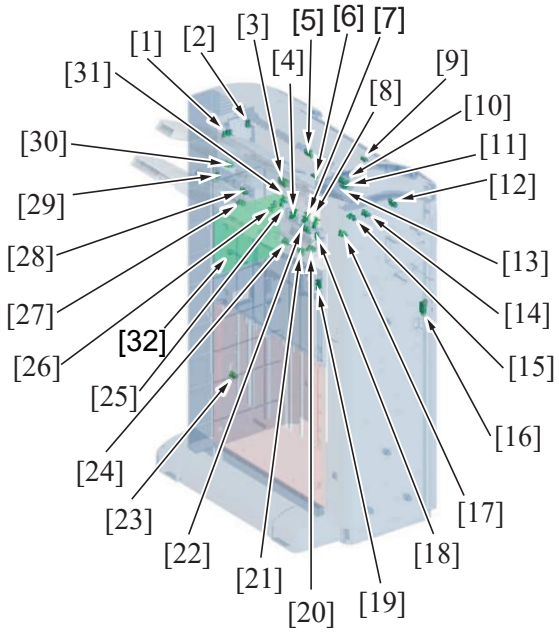
[1]	LU door switch (MS1)		[2]	LU near empty sensor/2 (PS6)
[3]	LU paper empty sensor (PS4)		[4]	Tray LED (LED)
[5]	Dehumidification heater (DH)		[6]	LU paper feed sensor (PS3)
[7]	LU upper limit sensor (PS2)		[8]	LU set sensor (PS1)
[9]	LU lift-up motor (M1)		[10]	LU paper feed motor (M2)
[11]	LU transport motor (M3)		[12]	LU drive board (LUDB)

[13]	LU near empty sensor/1 (PS5)		-	-

FS-534 (Option)

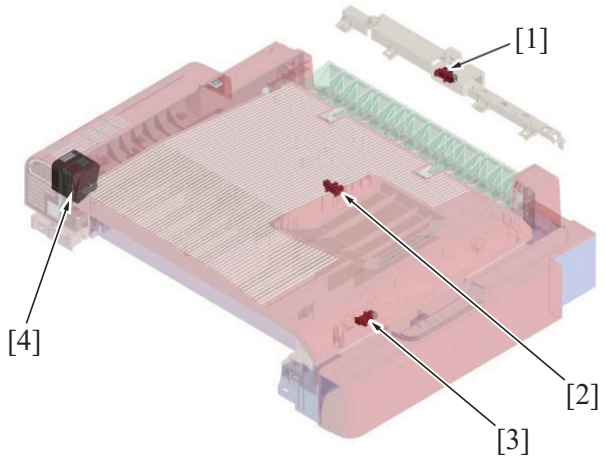


[1]	Main tray up/down motor (M11)	[2]	FNS discharge motor (M3)
[3]	FNS entry transport motor (M2)	[4]	FNS paddle motor (M5)
[5]	Receiving roller retraction motor (M4)	[6]	Trailing edge stopper motor (M6)
[7]	Alignment motor/Front (M7)	[8]	Bundle eject motor (M10)
[9]	Pre-eject drive motor (M9)	[10]	Paper receiving control motor (M12)
[11]	Side stapler movement motor (M13)	[12]	Alignment motor/Rear (M8)



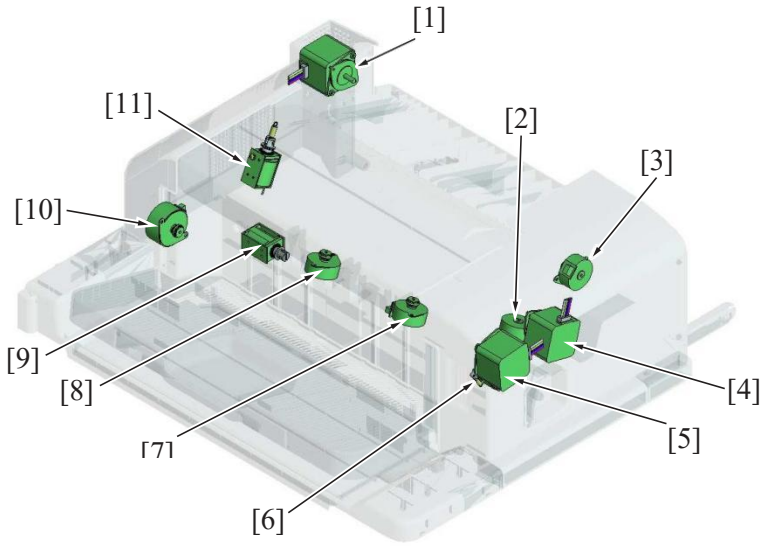
[1]	Stacker motor sensor (PS25)	[2]	Sub tray full detection sensor/out (PS9)
[3]	Main tray upper position detect switch (SW2)	[4]	Pre-eject away sensor (PS22)
[5]	Sub tray exit sensor (PS8)	[6]	Staple stacker paper detection sensor (PS31)
[7]	Pre-eject home sensor (PS21)	[8]	Trailing edge stopper home position detection sensor (PS20)
[9]	FNS entrance sensor (PS4)	[10]	Upper cover open/close detection sensor (PS32)
[11]	Sub tray full detection sensor/in (PS10)	[12]	Exchange folded paper output sensor (PS30)
[13]	Saddle exit sensor (PS5)	[14]	Receiving roller retraction sensor (PS11)
[15]	Upper paddle home position detection sensor (PS14)	[16]	Front door open detect switch (SW1)

[17]	Alignment plate/F home sensor (PS12)	[18]	Main tray upper sensor/in (PS7)
[19]	Paper delivery control sensor (PS28)	[20]	Stapler position sensor (Center) (PS24)
[21]	Gripper motor sensor (PS17)	[22]	Main tray upper position sensor/F (PS27)
[23]	Main tray full detection sensor (PS29)	[24]	Pre-eject encorder sensor (PS15)
[25]	Main tray exit sensor (PS16)	[26]	Gripper home position sensor (PS18)
[27]	Stapler home position sensor (Rear) (PS23)	[28]	Main tray upper position sensor/R (PS26)
[29]	Main tray upper sensor/out (PS6)	[30]	Alignment plate/R home sensor (PS13)
[31]	Gripper position detection sensor (PS19)	[32]	FS control board (FSCB)

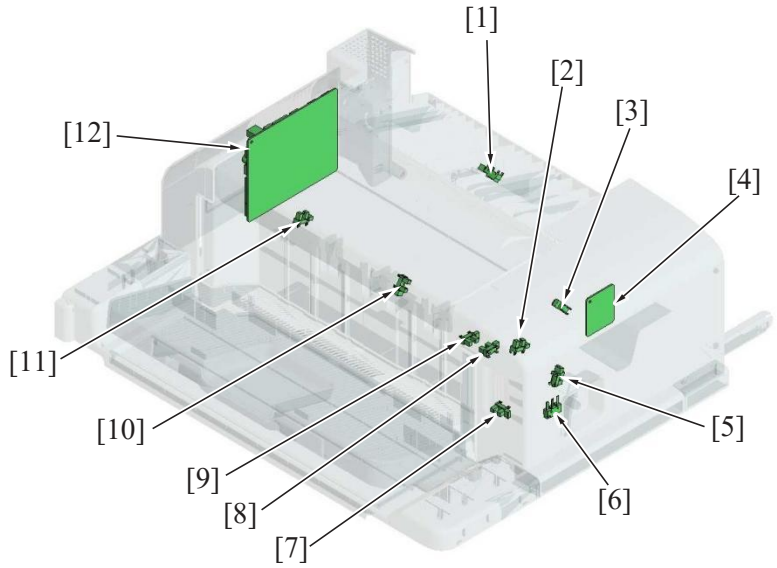


[1]	3rd exit tray full sensor (PS1)	[2]	RU entrance sensor (PS2)
[3]	RU cover open/close detection sensor (PS3)	[4]	RU transport motor (M1)

PF910 (Option)



[1]	Paper conveyance motor (M101)	[2]	Stapler movement motor (M107)
[3]	Alignment roller motor (M103)	[4]	Paper exit motor (M102)
[5]	Exit roller lift up motor (M104)	[6]	Paper exit roller solenoid (SD103)
[7]	Alignment motor/F (M105)	[8]	Alignment motor/R (M106)
[9]	Paper surface detect solenoid (SD101)	[10]	Tray lift up motor (M109)
[11]	Batch solenoid (SD102)	-	-



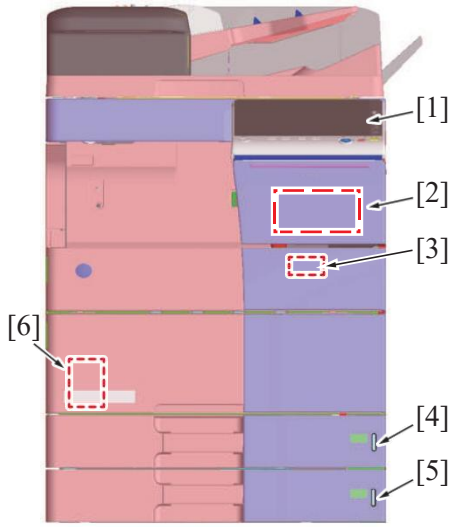
[1]	Paper feed sensor (PS101)	[2]	Alignment plate home sensor/F (PS108)
[3]	Pick up roller position sensor (PS105)	[4]	Stapler relay board (STREYB)
[5]	Stapler home sensor (PS110)	[6]	Finisher lock switch (SW1)
[7]	Paper exit tray home sensor (PS107)	[8]	Paper surface detect sensor/2 (PS104)
[9]	Paper weight lever sensor (PS103)	[10]	Paper surface detect sensor/1 (PS102)
[11]	Alignment plate home sensor/R (PS109)	[12]	FS control board (FSCB)

6.THEORY OF OPERATION

INTERFACE SECTION

Configuration

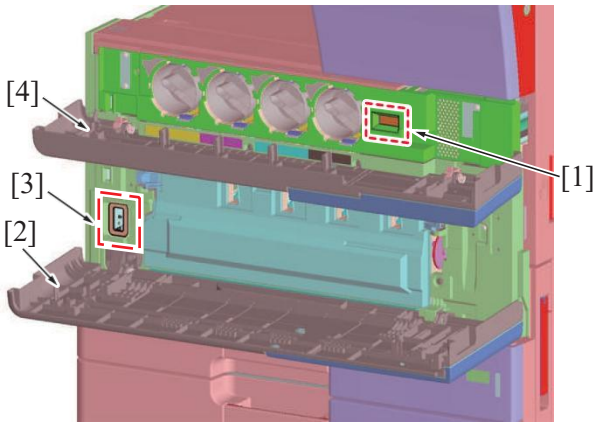
Front side



[1]	Control panel	[2]	IC card reading position *1
[3]	Total counter *2	[4]	Tray 1 paper remaining level display (Blinking: near empty, Lit up: empty)
[5]	Tray 2 paper remaining level display (Blinking: near empty, Lit up: empty)	[6]	Main power switch (SW1)

- *1: When an MFP main body is equipped with optional authentication unit AU-201/AU-201S and MK-735.
- *2: Japan model only

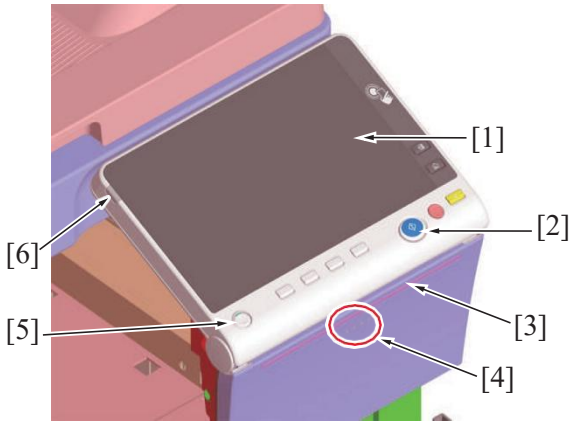
(1) Front door inside



[1]	Total counter *	[2]	Lower front door (open position)
[3]	Main power switch (SW1)	[4]	Upper front door (open position)

- *: Japan model only

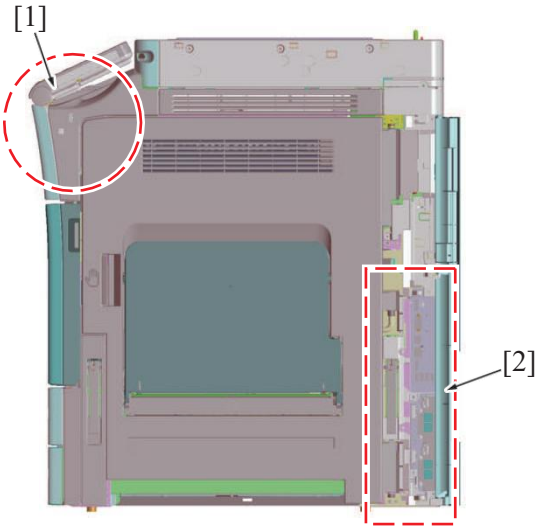
(2) Control panel section



[1]	Touch panel (10.1 inches)	[2]	Start key *
[3]	Operation status indicator section *	[4]	Data indicator *
[5]	Power key *	[6]	Warning status indicator section *

*: For details of the control state of lighting and blinking, refer to O THEORY OF OPERATION 23. INDICATOR FUNCTION.

Right side

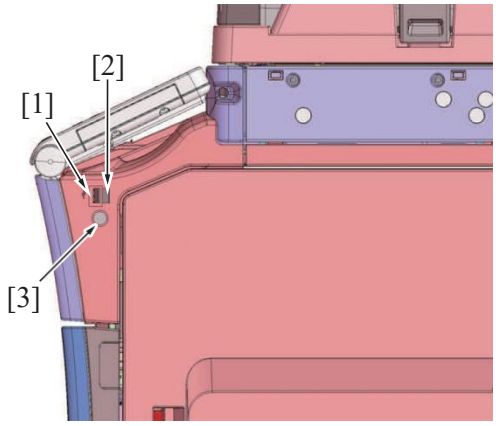


[1]	Front side	[2]	Rear lower side

(1) Front side

NOTE

- **USB port [2] is extended from the rear lower side USB port by the USB cable. If the USB cable extended from the rear lower side USB port is unplugged, the front side USB port is no longer operational.**

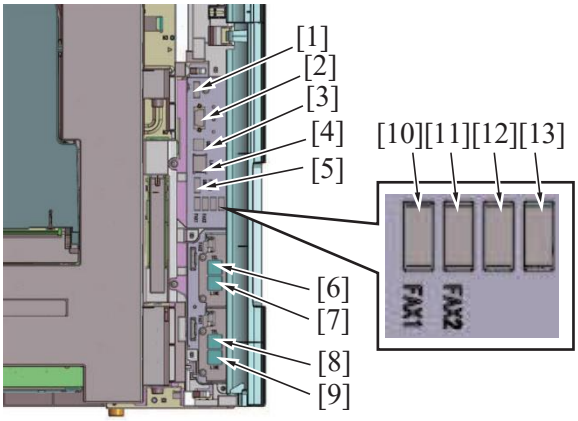


[1]	USB port (Type A, optional) *1	[2]	USB port (Type A, standard) *2

[3]	Voice guidance output terminal *1	-	-

- ***1: When local interface kit EK-608/EK-609 is mounted.**
- ***2: Do not use this port for connecting to an optional authentication unit; use the rear lower USB port.**

(2) Rear lower side



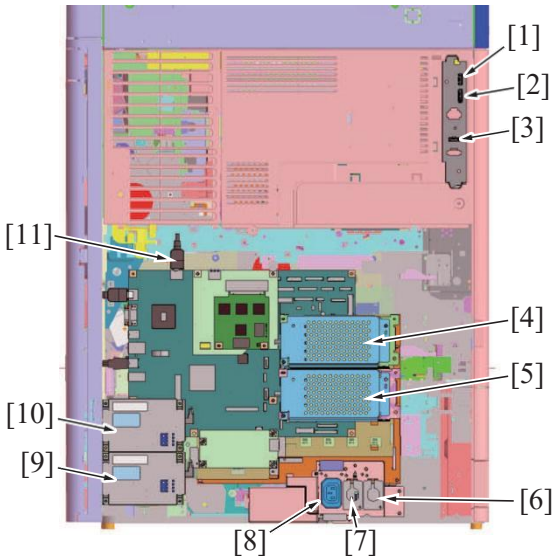
[1]	Control panel connection connector	[2]	Serial port (for CS remote care modem connection)
[3]	USB port (Type B) USB2.0/1.1	[4]	Network port (1000Base-T/100Base-TX/10Base-T)
[5]	USB extension port (USB extension cable to the USB board at the front side)	[6]	LINE port 2 (for telephone line 2) *2
[7]	TEL port 2 (not used)	[8]	LINE port 1 (for telephone main line) *1
[9]	TEL port 1 (for external telephone main line) *1	[10]	USB port (Type A, FK-514: Fax1, FK-515: Fax3/4) *1
[11]	USB port (Type A, FK-514: Fax2) *2	[12]	USB port (Type A: for Authentication Unit or Upgrade Kit) USB2.0/1.1
[13]	USB port (Type A: for Authentication Unit or Upgrade Kit) USB2.0/1.1	-	-

- *1: When only one optional FK-514 unit is mounted
- *2: When two optional FK-514 units are mounted

NOTE

- **If only one optional FK-514 is mounted, always mount it to the main line position (lower side).**

Rear side



[1]	Dual scan document feeder connection connector	[2]	Dual scan document feeder connection connector
[3]	Finisher connection connector	[4]	HDD (A)
[5]	HDD (B) *1	[6]	Dehumidification heater outlet
[7]	Power outlet (Japan/Taiwan/North America: Directly mounted type, Europe: Inlet type)	[8]	Power outlet (Japan/Taiwan: Directly mounted type, North America/Europe: Not applicable)
[9]	Fax Kit FK-514 (for main line) *2	[10]	Fax Kit FK-514 (for line 2) *2
[11]	Scanner connection connector (image signal)	-	-

- *1: Optional Hard Disk HD-524
- *2: Optional Fax Kit

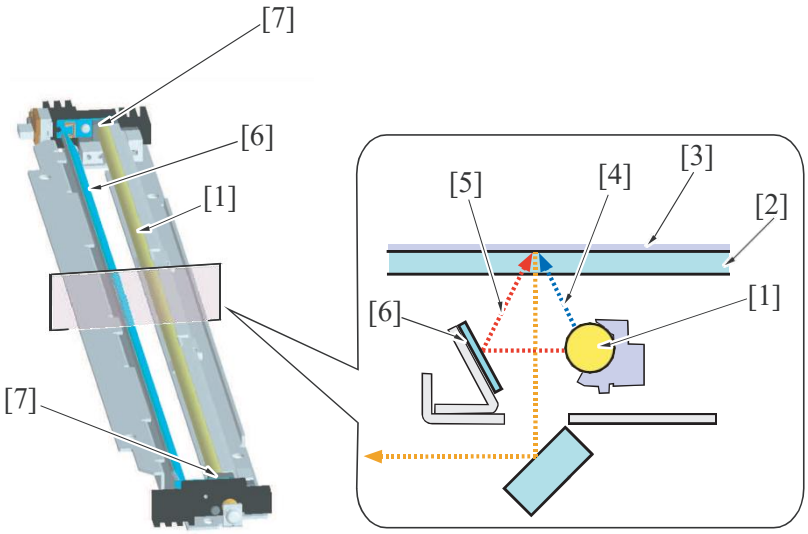
SCANNER SECTION

Operation

LED exposure unit

CM9705DN/M9705/CM9105DN/M9105DN

- LEDs (Light Emitting Diodes) are used for the light source of the scanner section for power saving.
- Each LED board on either side has one LED, so that two LEDs illuminate.
- Light emitted from the LED travels along the light guide.
- The original is irradiated with direct light that has traveled along the light guide and indirect light reflected from the reflector, which ensures that the original is exposed to steady, uniform light.

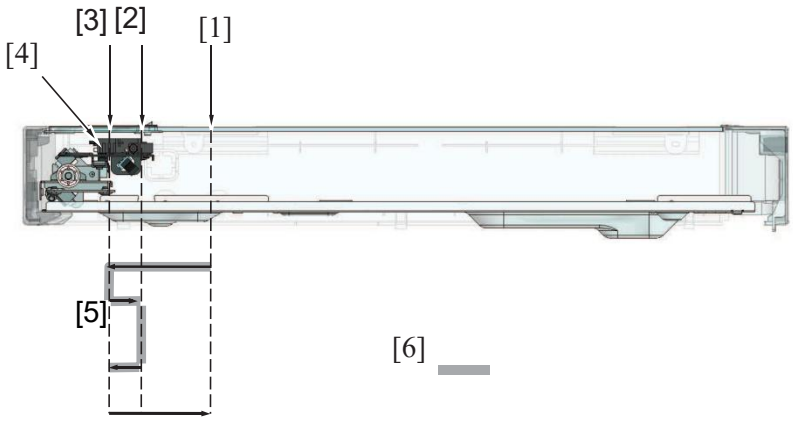


[1]	Light guide	[2]	Original glass
[3]	Original	[4]	Direct light
[5]	Indirect light	[6]	Reflector
[7]	LED board	-	-

When the power is ON

1. When the power is turned ON, the LED lights up.
2. The LED exposure unit moves to the home position.

3. The LED exposure unit moves from the home position to the shading position (under the shading correction sheet).
4. The gain value of the CCD sensor output voltage to R, G, and B is adjusted.
5. After adjusting the gain value, a shading correction is performed.
6. The LED exposure unit moves in the return direction and stops at the home position.
7. When the DF is raised for placement of the original, the LED exposure unit moves to the original size detection position.



[1]	Original size detection position	[2]	Shading position
[3]	Home position	[4]	LED exposure unit (LU201)
[5]	Shading correction	[6]	The LED turns ON

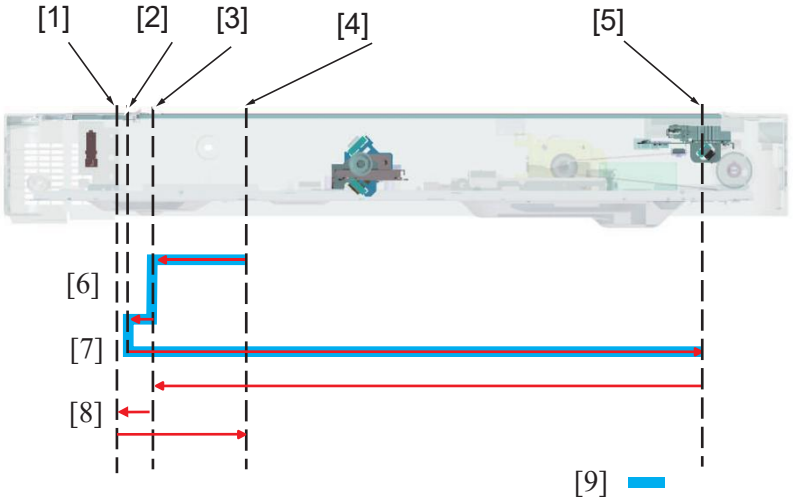
Control when the Start key is pressed

(1) Original scanning mode

- Original scanning mode has two types: Original cover mode and DF mode.

(a) Original cover mode

1. Turning the Start key ON will turn the LED ON.
2. The LED exposure unit moves in the return direction and stops at the shading position. At the shading position, the gain adjustment is made.
3. The LED exposure unit moves in the return direction and stops at the scan start position.
4. To start a scan, the LED exposure unit moves from the scan start position to the leading edge of an original while performing shading correction.
   The exposure unit will start reading the original image from the leading edge.
   The unit will finish reading the image at the trailing edge of the original.
5. The LED will turn OFF when the reading is complete.
6. The LED exposure unit returns from the position of the trailing edge of the original. At the shading position, it is determined that the LED is turned OFF.
   Then the LED exposure unit moves to the home position, and next moves to the original size detection position.
   It scans only once even for the color-copies, since R, G, and B data will all be memorized in one scanning.

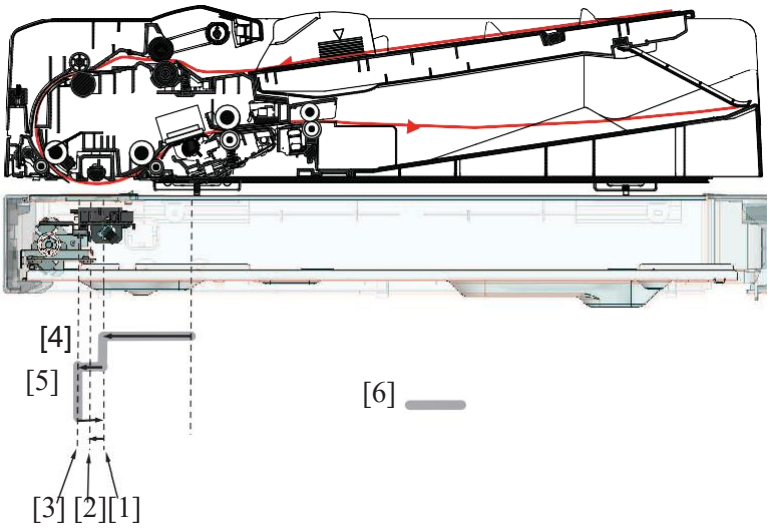


[1]	Home position	[2]	Scan start position
[3]	Shading position	[4]	Original size detection position
[5]	Trailing edge of the image	[6]	Gain adjustment

[7]	Read original	[8]	Return
[9]	The LED turns ON	-	-

(b) DF mode (DF-629: 1st side/2nd side, Dual scan document feeder/DF-704: 1 side)

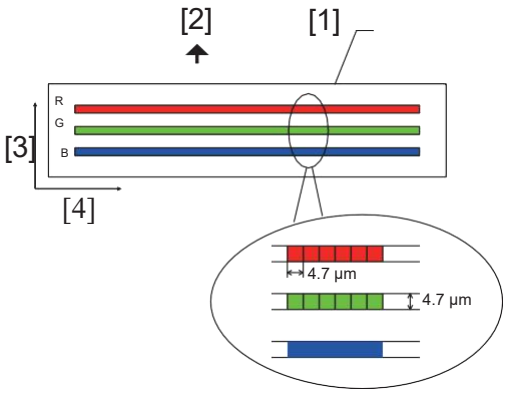
- The original fed by the document feeder will be read at the DF original glass for. The LED exposure unit will move to the reading position and stops. The original will be read as the paper is transferred.



[1]	Shading position	[2]	Home position
[3]	Original reading position	[4]	Shading correction
[5]	Read original	[6]	The LED turns ON

(2) Original scanning control

- The light reflected off the exposed original reaches the CCD sensor via the lens.
- The CCD sensor outputs an electric signal (analog) that varies according to the intensity of the light.
- One CCD sensor has a photo receiver that individually responds to each of the three primary colors of R, G, and B.
- The electric signal is converted to digital data for each of R, G, and B by the CCD board (CCDB), becoming individual digital signals.
- Analog-to-digital conversion is made according to an instruction given by the MFP board (MFPB).



[1]	CCD sensor	[2]	Scanning direction
[3]	Sub scanning direction	[4]	Main scanning direction

(a) Calibration

The following adjustment and correction (calibration) are made before the original is scanned, so that the image of the original can be adequately read. For details, see “Scanner section image processing block diagram”.

- Gain adjustment
- Shading correction

Original scanning area

- Original scanning areas vary depending on a scanning mode.

(1) Original cover mode

- Main scanning direction: Max. 297.0 mm (11 11/16 inches)
- Sub scanning direction: Max. 431.8 mm (17 inches)

(2) DF mode

(a) Scanning at 400 dpi or less

- Main scanning direction: Max. 297.0 mm (11 11/16 inches)
- Sub scanning direction: Max. 1,000.0 mm (39 3/8 inches) (FAX mode only)

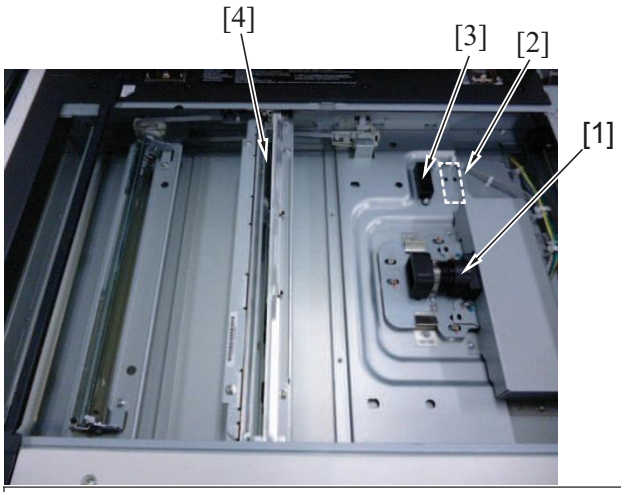
(b) Scanning at 600 dpi

- Main scanning direction: Max. 297.0 mm (11 11/16 inches)
- Sub scanning direction: Max. 432.0 mm (17 inches)

Original size detection control

(1) Detection method

- For the sub scanning (length) direction, the fixed reflective original size sensor (one beam) is used.
- For the main scanning (width) direction, the CCD is used.
- A standard original size is determined by the state of the original size sensor, either the activated or deactivated state, and the width detected by the CCD.
- For a custom size, the control sets a smallest possible standard size that is larger than the custom size in question to thereby prevent void image.



[1]	CCD unit	[2]	Original size sensor2 (PS205) *
[3]	Original size sensor1 (PS204)	[4]	LED exposure unit (LU201)

- *: Option

(2) Original size judgment

NOTE

- **Table 1 or 2 can be selected in the service mode.**

(a) Criterion (for China and countries using the metric)

Table1

Original size sensor		Main scanning width (mm)								
1 (PS204)	2 (PS205)	0 to 130.0	Up to 153.0	Up to 187.0	Up to 200.0	Up to 215.0	Up to 225.0	Up to 261.5	Up to 275.0	275.1 or over
OFF	-	No original	A5S	B5S	16K S	A4S	B5	B5	16K	A4
ON	-	A3	FLS	FLS	FLS	FLS	FLS	B4	8K	A3

Table2

Original size sensor		Main scanning width (mm)											
1 (PS204)	2 (PS205)	0 to 130.0	Up to 143.9	Up to 153.0	Up to 187.0	Up to 200.0	Up to 213.0	Up to 220.9	Up to 225.0	Up to 261.5	Up to 274.7	Up to 284.4	284.5 or over
OFF	OFF	No original	$5^1/_2$×$8^1/_2$ S	A5S	B5S	16K S	A4S	$8^1/_2$×11S	B5	B5	16K	$8^1/_2$×11	A4
ON	OFF	A3	FLS	FLS	FLS	FLS	FLS	FLS	FLS	B4	8K	11×17	A3
OFF	ON	A3	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	B4	B4	8K	11×17	A3
ON	ON	A3	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	B4	B4	8K	11×17	A3

(b) Criterion (for countries using inch)

Table1

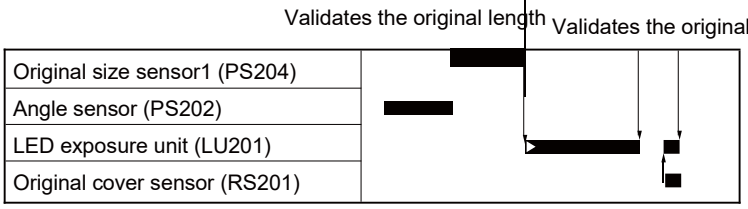
Original size sensor		Main scanning width (mm)			
1 (PS204)	2 (PS205)	0 to 130.0	Up to 144.7	Up to 220.9	221.0 or over
OFF	-	No original	$5^1/_2$×$8^1/_2$S	$8^1/_2$×11S	$8^1/_2$×11
ON	-	11×17	$8^1/_2$×14	$8^1/_2$×14	11×17

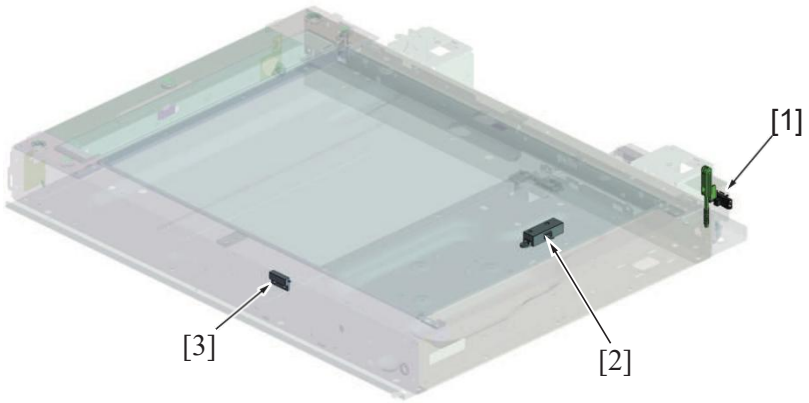
Table2

Original size sensor		Main scanning width (mm)									
1 (PS204)	2 (PS205)	0 to 130.0	Up to 143.9	Up to 153.0	Up to 187.0	Up to 213.0	Up to 220.9	Up to 225.0	Up to 262.0	Up to 284.4	284.5 or over
OFF	OFF	No original	$5^1/_2$×$8^1/_2$S	A5S	B5S	A4S	$8^1/_2$×11S	B5	B5	$8^1/_2$×11	A4
ON	OFF	A3	FLS	FLS	FLS	FLS	FLS	FLS	B4	11×17	A3
OFF	ON	A3	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	B4	B4	11×17	A3
OFF	ON	A3	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	$8^1/_2$×14	B4	B4	11×17	A3

(3) Detection timing

- The size in the sub scanning (length) direction is determined by the states of the original size sensors when the angle sensor is activated from the deactivated state.
- Detection is made twice for the main scanning (width) direction, one when the angle sensor is activated and the other when the original cover sensor is activated.
- The original size is reset when the original cover sensor is deactivated from activated state as a result of the DF being raised.





[1]	Angle sensor (PS202)	[2]	Original size sensor1 (PS204)
[3]	Original cover sensor (RS201)	-	-

Image processing

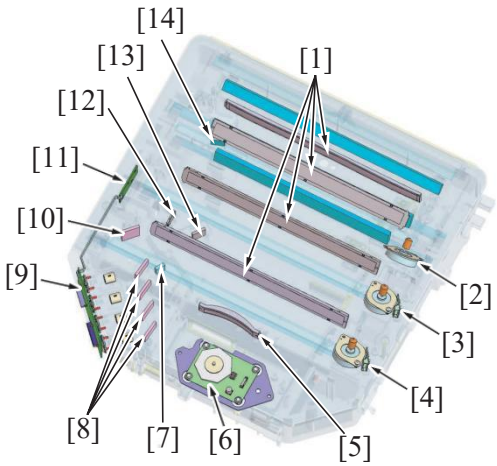
The 367 series image processing has uses the following processes. For details, see “Scanner section image processing block diagram”.

(1) Scanner section image processing block diagram

- Photoelectric conversion
- Analog-to-digital conversion

WRITE SECTION (PH SECTION)

Configuration



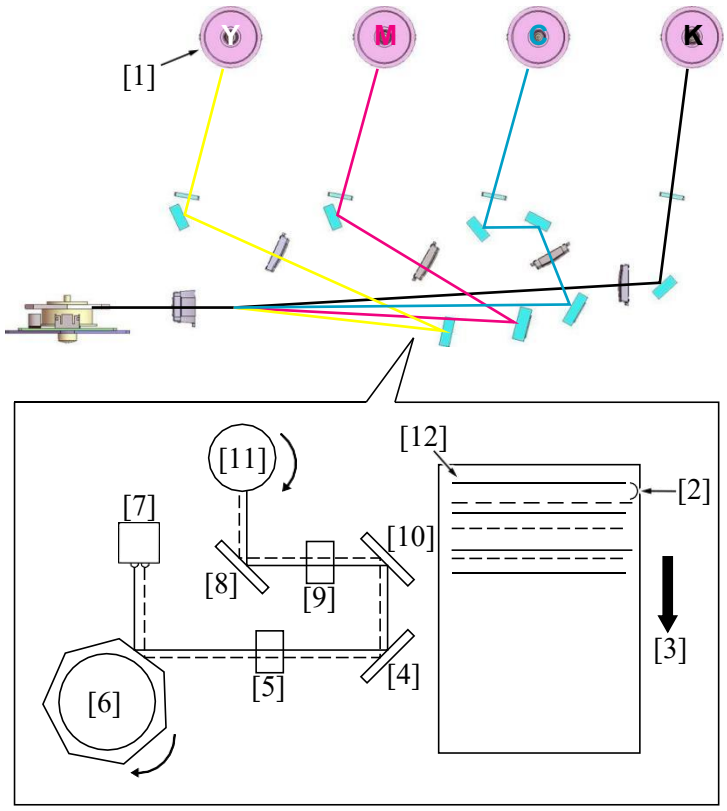
[1]	G2 lens	[2]	Skew correction motor/C (M15)
[3]	Skew correction motor/M (M16)	[4]	Skew correction motor/Y (M17)
[5]	G1 lens	[6]	Polygon motor (M14)
[7]	Cylindrical lens	[8]	Synthetic mirror/ Y,M,C,K
[9]	Laser drive board (LDDB)	[10]	Return mirror (light source)
[11]	Index board (INDEXB)	[12]	Index lens
[13]	Return mirror (Index)	[14]	Index mirror

Operation

Overview

- The surface of the photo conductor is irradiated with a laser light and an electrostatic latent image is thereby formed.
- The PH unit has a four color exposure unit single-piece configuration. A semiconductor laser is provided for each of four different colors. A single polygon motor is used to make a scan.
- The polygon mirror has seven faces.
- A rotating polygon mirror is irradiated with a laser light emitted from the laser diode on the laser drive board to let the laser light scan.
- CM9705DN/M9705 models are equipped with a 2-beam-array laser diode. With two laser beams emitted from these two elements arranged vertically, two lines are scanned through a single face of the polygon mirror.
- CM9105DN/M9105DN models are equipped with a single-beam-array laser diode. Single line is scanned through a single face of the polygon mirror.

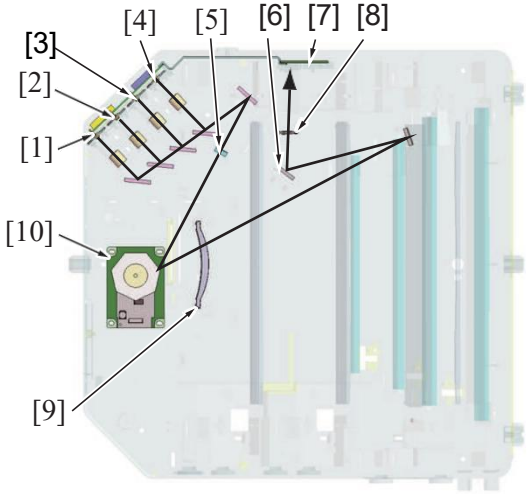
2-beam laser image view



[1]	Photo conductor Y	[2]	One line, two scan
[3]	Photo conductor rotation direction	[4]	Return mirror1
[5]	G1 lens	[6]	Polygon mirror
[7]	Laser diode	[8]	Return mirror3
[9]	G2 lens	[10]	Return mirror2
[11]	Photo conductor	[12]	Beam

Laser emission timing (1)

- After a print cycle has been started, when the stable rotation signals of photo conductor and polygon motor are detected, a laser ON signal is output from the MFP board.
- The laser ON signal causes each laser diode to turn ON and emit a laser beam.
- The K laser light that is irradiated to the index board after it passes through the return mirror (light source), cylindrical lens, polygon mirror, G1 lens, index mirror, return mirror (index), and index lens generates an index signal.
- This index signal has a function of keeping the same laser light emission timing per every one line in the main scanning direction.
- The index signal is generated with the K laser light only. The laser light emission timing for other colors is determined with reference to K.
- If the index signal is not detected within a predetermined period of time, the machine determines that it is a laser emission fault, displaying “trouble code: C4501 laser malfunction”.
- The machine continuously monitors the index signal. If the index signal cannot be detected at regular intervals, the machine determines that it is a laser emission fault, displaying “trouble code: C4501 laser malfunction”.



[1]	Laser diode/K (LD/K)	[2]	Laser diode/C (LD/C)
[3]	Laser diode/M (LD/M)	[4]	Laser diode/Y (LD/Y)
[5]	Cylindrical lens	[6]	Return mirror (Index)
[7]	Index board (INDEXB)	[8]	Index lens
[9]	G1 lens	[10]	Polygon motor (M14)

Skew adjustment/skew adjustment reset

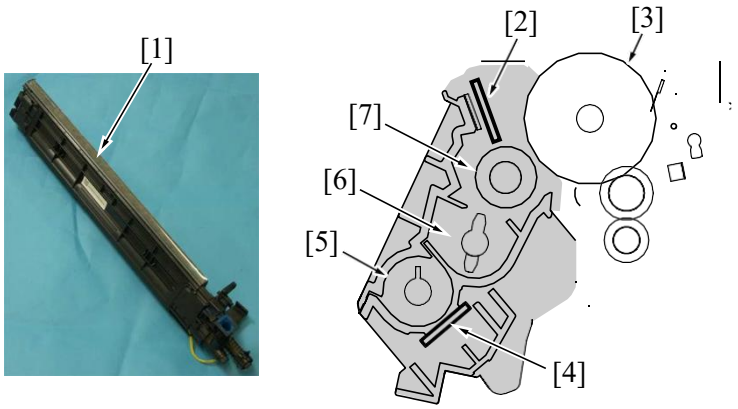
- There are cases where the “color skew correction control” cannot be executed for some reason. The machine provides functions that allow you to reset the “skew adjustment data” against these situations.

(1) Possible conditions and causes

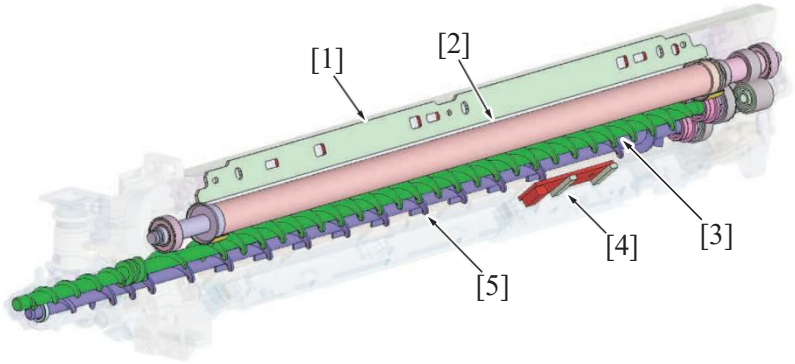
- The PH unit has been replaced with a new one.
- The alarm code “P-14: skew correction trouble” is displayed.
- A door is opened or the main power switch is turned OFF during color skew correction control, causing the skew correction sequence to be halted; as a result, the current position of the skew correction motor is unknown.

DEVELOPING SECTION

Configuration



[1]	Developing unit	[2]	Doctor blade
[3]	Photo conductor	[4]	TCR sensor
[5]	Toner supply screw 1	[6]	Toner supply screw 2
[7]	Developing roller	-	-

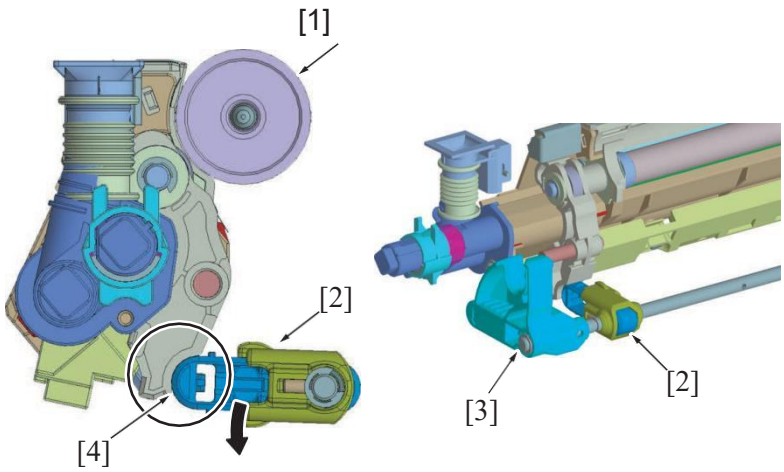


[1]	Doctor blade	[2]	Developing roller
[3]	Toner supply screw 2	[4]	TCR sensor
[5]	Toner supply screw 1	-	-

Operation

Developing unit pressure/releases mechanism

- A mechanism is provided that releases the developing unit from the PC drum to prevent the photo conductor from being damaged when the drum unit is to be removed.
- Rotating the release lever clockwise will cause the rib fixed to the lever to fit into the groove in the developing unit, so that the developing unit is pressed against the drum unit.
- Rotating the release lever counterclockwise will cause the rib fixed to the lever to leave the groove in the developing unit, so that the developing unit is released from the drum unit.



[1]	Photo conductor	[2]	Rib
[3]	Release lever	[4]	Groove

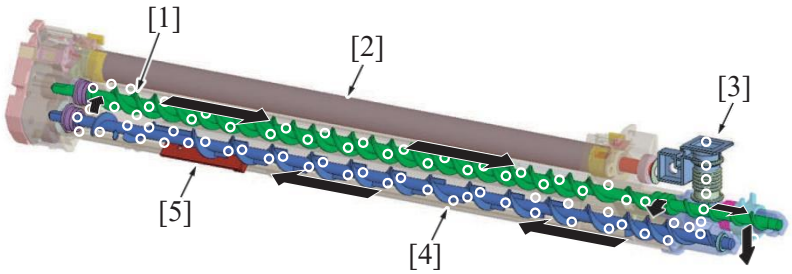
Developer flow

1. Toner replenished via the toner replenishing port located at the front side of the main body is fed to the toner supply screw 1.
2. The developer is conveyed toward the rear of the unit, while being agitated and electrically charged, by the toner supply screw 1.
3. The TCR sensor is equipped on the underside of the developing unit detects toner to carrier (T/C) ratio during this time. If the T/C ratio is lower than a predetermined value, toner is replenished.
4. The developer, fed to the rear of the developing unit, is conveyed further onto the toner supply screw 2.
5. The developer fed to the toner supply screw 2 is conveyed onto the developing roller because of the magnetic pole positioning of the developing roller.
6. The doctor blade then controls the height of the developer brush to ensure that the developer on the developing roller levels out.

7. Only the toner contained in the developer sticks to the electrostatic latent image on the surface of the photo conductor. The developer that is left on the developing roller is returned to the toner supply screw 2 by the magnetic pole positioning of the developing roller.
8. The part of the circulating developer is collected in the waste toner box through the toner collecting port located at the front side of the toner supply screw 2. The toner collecting port is provided with a shutter mechanism. Mounting the waste toner box pushes the shutter at the toner collecting port, opening the toner collecting port. Removing the waste toner box, on the other hand, closes the shutter and toner is thereby prevented from spilling from the toner collecting port. (For more details, see Auto refining developing system and Waste toner spillage prevention shutter.)

NOTE

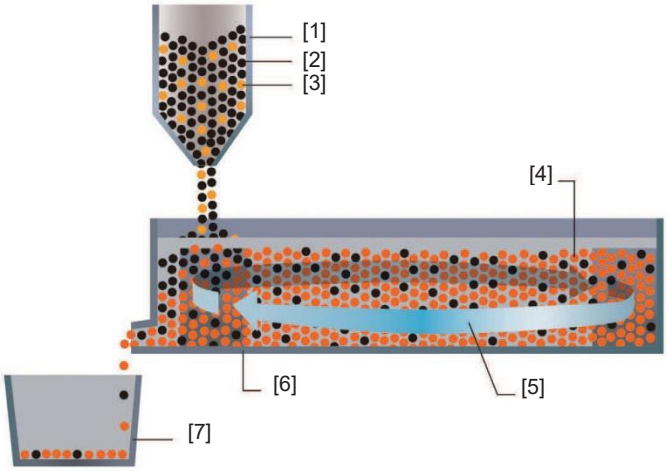
- **The toner replenishing port of the developing unit is not provided with a shutter mechanism. (The toner hopper section is equipped with a shutter.)**
- **When removing the developing unit, the developing unit must be held in a horizontal position with care not to allow toner to spill from the toner replenishing port.**



[1]	Toner supply screw 2	[2]	Developing roller
[3]	Toner replenishing port	[4]	Toner supply screw 1
[5]	TCR sensor	-	-

Auto refining developing system

- The developing unit/Y,M,C,K incorporates the auto refining developing system.
- The bottle of toner cartridge is packed with both toner and carrier and the developing unit is replenished with fresh carrier at the same time that it is replenished with toner.
- Excess carrier in the developing unit is discharged, thereby inhibiting carrier left in the developing unit from being deteriorated and maintaining stable image quality for an extended period of time.

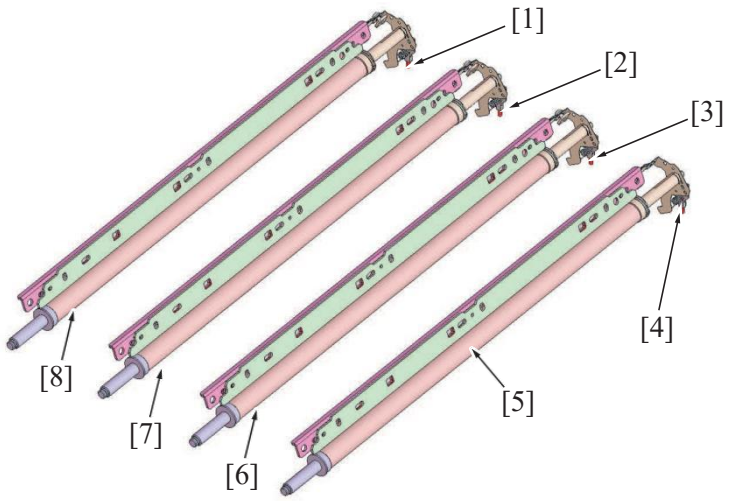


[1]	Toner bottle	[2]	Toner
[3]	New carrier	[4]	Low degree of deterioration of entire carrier
[5]	Circulation and agitation	[6]	Developing unit
[7]	Waste toner box	-	-

Developing bias

- The developing bias voltage (Vdc) is applied to the developing roller so that an adequate amount of toner is attracted onto the surface of the photo conductor.
- In addition to the negative DC component, AC voltage is applied during development to help toner to be attracted more easily to the surface of the photo conductor. This AC component is applied only while development is taking place. At any other timing, only the DC (-) Vdc is applied.
- The developing bias (Vdc) is supplied from high voltage unit.

- The developing bias voltage supplied from the high voltage unit is applied to the developing roller of each color of toner via the metal shaft of the developing drive gear.
- See "IMAGE FORMING CONTROL" for the timing to apply the bias voltage.



[1]	Developing bias voltage application terminal/Y	[2]	Developing bias voltage application terminal/M
[3]	Developing bias voltage application terminal/C	[4]	Developing bias voltage application terminal/K
[5]	Developing roller/K	[6]	Developing roller/C
[7]	Developing roller/M	[8]	Developing roller/Y

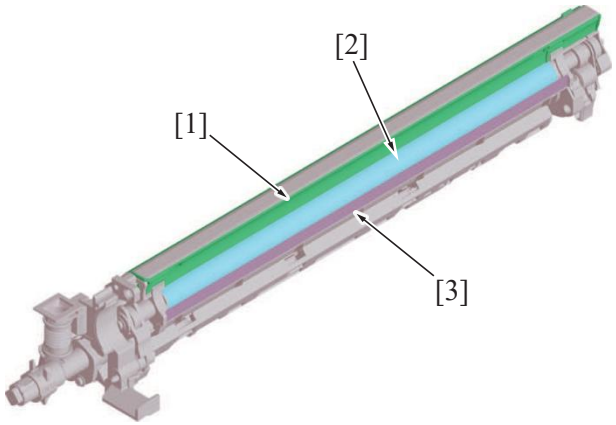
(1) Service Mode

(a) Grad/Dev AC Bias V Selection

- The “Grad/Dev AC Bias V” can be changed by changing the setting of “Imaging Process Adjustment/ Grad/Dev AC Bias V Selection” of the Service Mode. This provides development performance that responds to various types of environment of the users.
- Turning ON the “Grad/Dev AC Bias V Selection” allows the “Grad/Dev AC Bias V” to be decreased down to a voltage value lower than the ordinary specified value.
- With the ordinary specified value set for the “Grad/Dev AC Bias V” in low atmospheric pressure environments, such as at high altitudes, leak could occur, resulting in white dots. Leak, and thus white dots on the image, can be prevented from occurring by lowering the “Grad/Dev AC Bias V”.

Toner scattering prevention

- The toner scattering prevention plate and toner scattering prevention sheet are equipped in an area around the developing roller, functioning to prevent toner from scattering.



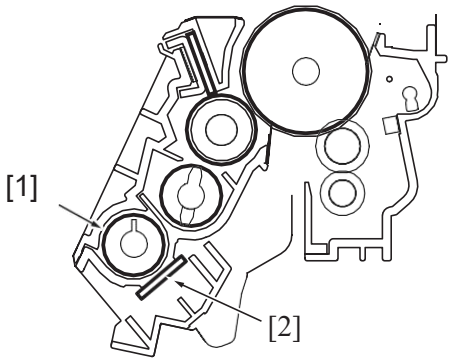
[1]	Toner scattering prevention plate	[2]	Developing roller
[3]	Toner scattering prevention sheet	-	-

Developing cooling

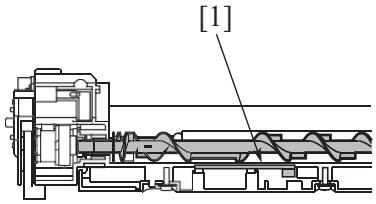
- The transfer belt cleaner cooling fan is provided to circulate air through the inside of the machine, so that the areas around the developing unit, drum unit, toner hopper, and the transfer belt unit can be cooled.
- See "FAN CONTROL" for air path and detailed information

Toner density control

- The TCR sensor is mounted on the underside of each of the developing sections. The TCR sensor for C, M, Y and K is a non-contact magnetic type. Each of these sensors detects toner-to-carrier ratio (TC) of the developer. The reading is used for determining the amount of toner supplied.
- Only when a new developing unit is installed in the machine, an automatic adjustment (calibration) is made of each of these TCR sensors. The automatic adjustment of TCR sensors cannot be done at your own discretion.
- The target TC ratio is 6.5 ± 1.5%.
- The magnetic permeability (powder density) of the carrier in the developer is measured to determine the TC ratio.
- The TCR sensor is integrated with the developing unit. When the TCR sensor is to be replaced with a new one, the entire developing unit must be replaced.
- For replenishment of toner to the developing unit, see “ O.6.3.4 Auxiliary toner replenishing control for toner hopper”.



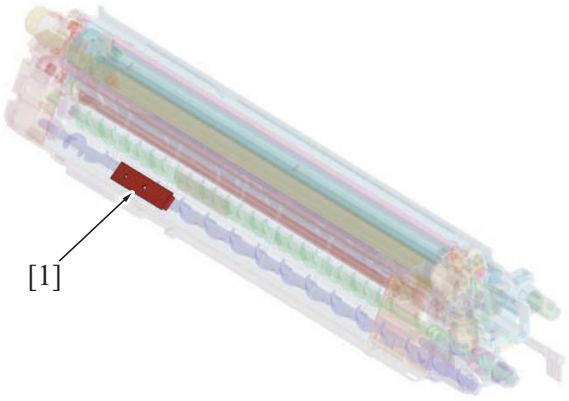
[1]	Toner supply screw 1	[2]	TCR sensor



[1]	TCR sensor	-	-

Developing unit detection

- The developing unit of each color of toner is provided with a TCR sensor. The sensor detects different states of the corresponding developing unit.



[1]	TCR sensor	-	-

(1) Unit mounting detection

- The TCR sensor detects the mounting condition of the developing unit.
- When developing unit is detected in the mounted condition, control now proceeds to the “new article detection control”.

(a) Detection timing

- The unit mounting detection control is performed under any of the following conditions:
  “The power switch is turned ON (with the front door and right door are closed)”
  “The front door or right door is opened and closed with the power switch in ON position”

(b) Operation when it is detected that no units are mounted

- The message “Developing Unit Installation Error” appears on the control panel and the machine prohibits initiation of any new print cycle. The message “Developing Unit Installation Error” disappears as soon as a developing unit is mounted.

(2) New article detection

- The TCR sensor detects whether the developing unit is new or not.

(a) Detection timing

- The new article detection control is performed if it is determined through the “unit mounting detection” control that the developing unit is correctly mounted in place.

(b) Operation when the developing unit is determined not to be new

- The new article detection control is terminated.

(c) Operation when the developing unit is determined to be new

- The TCR sensor automatic adjustment control (calibration) is performed.
- The image stabilization control is performed.
- The life counter of the developing unit is reset to zero.
- After the above controls are performed, the operation proceeds to the life detection control.
- The result of the new article detection is recorded in the eMMC board of the main body.
- The life counter is available for the developing unit of each color. The counter value is recorded in the eMMC board of the main body.

(3) New release disable mode

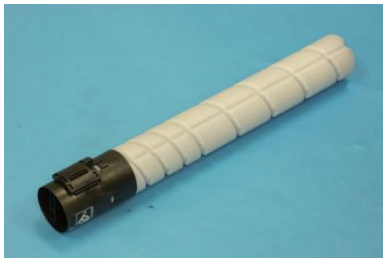
- The new article detection-disabled mode is used when a new developing unit is temporarily used for performing troubleshooting procedures of a machine.
- No new article detection control is performed for the developing unit when the new article detection-disabled mode is used.
- The new article detection-disabled mode should be used only for troubleshooting purposes.

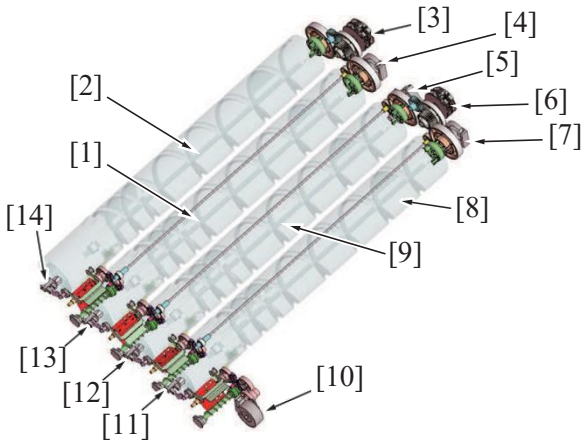
NOTE

- **See “Engine FW DipSW” for more detailed operating precautions.**

TONER SUPPLY SECTION

Configuration



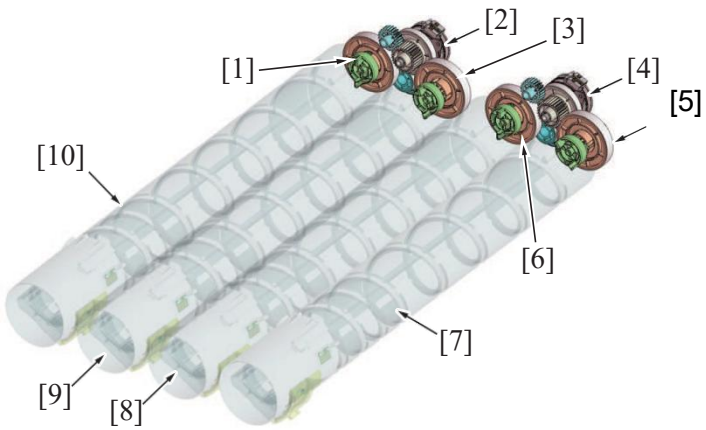


[1]	Toner cartridge/M	[2]	Toner cartridge/Y
[3]	Toner cartridge motor/Y,M (M10)	[4]	Toner supply motor/Y (M9)
[5]	Toner supply motor/M (M8)	[6]	Toner cartridge motor/C,K (M25)
[7]	Toner supply motor/C (M7)	[8]	Toner cartridge/K
[9]	Toner cartridge/C	[10]	Toner supply motor/K (M6)
[11]	Toner empty sensor/K (PS31)	[12]	Toner empty sensor/C (PS32)
[13]	Toner empty sensor/M (PS33)	[14]	Toner empty sensor/Y (PS34)

Drive

Toner cartridge drive

- The toner cartridge motor rotates to drive the toner cartridge. The interior of the toner cartridge is in spiral form. As the toner cartridge rotates, toner inside the toner cartridge is conveyed toward the toner replenishing port that is located at the front side. So that the toner hopper is replenished with the toner from the toner cartridge.
- The toner cartridge motor/Y,M drives the toner cartridge/Y,M; and the toner cartridge motor/C,K drives the toner cartridge/C,K. The toner cartridge drive is switched depending on the color and monochrome print applications.



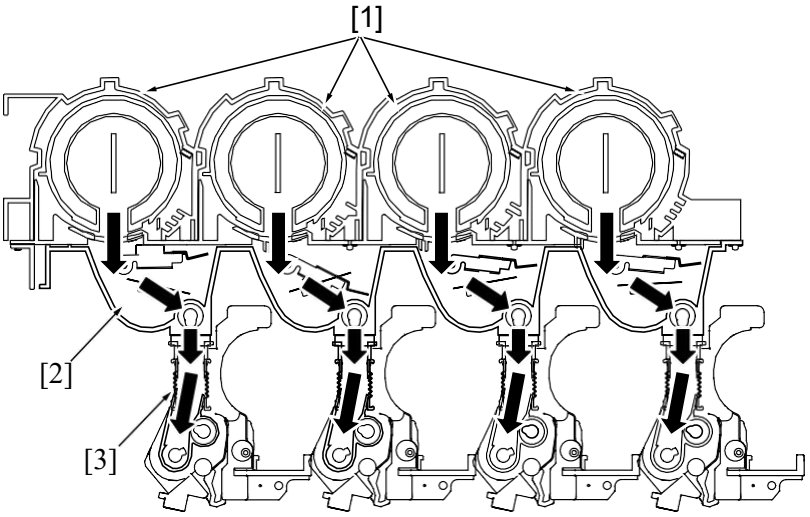
[1]	Toner cartridge drive gear/Y	[2]	Toner cartridge motor/Y,M (M10)
[3]	Toner cartridge drive gear/M	[4]	Toner cartridge motor/C,K (M25)
[5]	Toner cartridge drive gear/K	[6]	Toner cartridge drive gear/C

[7]	Toner cartridge/K	[8]	Toner cartridge/C
[9]	Toner cartridge/M	[10]	Toner cartridge/Y

Operation

Toner replenishing overview

- The toner replenishing mechanism in this machine has a two-step replenishing structure. One is replenishing the toner hopper with the toner from the toner cartridge. The other one is replenishing the developing unit with the toner from the toner hopper.
- The toner cartridge incorporates the auto refining developing system for all colors.
- The interior of the toner cartridge is packed with both toner and carrier. The developing unit is replenished with fresh carrier at the same time of replenishing the toner. Excess carrier in the developing unit is discharged, thereby inhibiting carrier left in the developing unit from being deteriorated and maintaining stable image quality for an extended period of time.
- For details of the auto refining developing system, see “ O.5.3.3 Auto refining developing system”.

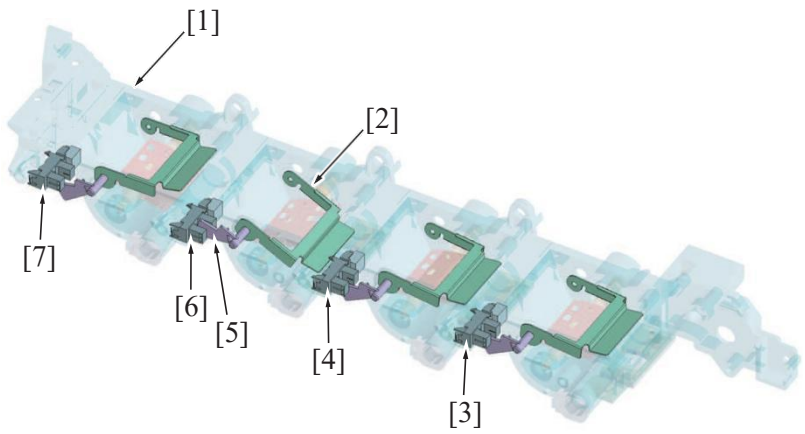


[1]	Toner cartridge	[2]	Toner hopper
[3]	Toner replenishing pipe	-	-

Toner replenishing from toner bottle to toner hopper

(1) Toner replenishing mechanism

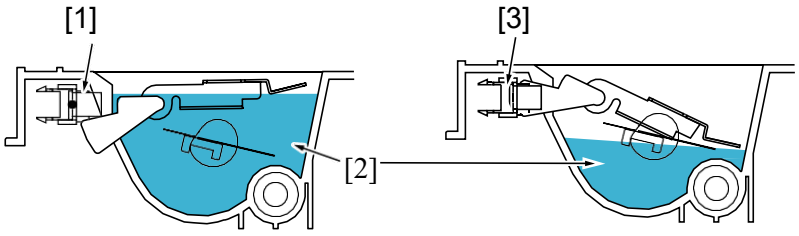
- The toner replenishing from the toner cartridge to the toner hopper is determined by unblocking and blocking the toner empty sensor.
- If the toner empty sensor is blocked a predetermined number of times, the machine determines that it is in a near empty condition. So that, the toner cartridge motor is energized and a toner replenishing sequence is started.
- The toner hopper for each color of toner is provided with a toner empty sensor.
- Each toner empty sensor is blocked or unblocked by an actuator dedicated to it. The detection plate is moved up and down by a cam that is mounted coaxially with the toner agitating blade. The actuator that is mounted on the detection plate is operatively associated with the up-and-down movement that is detected using the toner empty sensor.



[1]	Toner hopper	[2]	Detection plate
[3]	Toner empty sensor/K (PS31)	[4]	Toner empty sensor/C (PS32)
[5]	Actuator	[6]	Toner empty sensor/M (PS33)
[7]	Toner empty sensor/Y (PS34)	-	-

(2) Toner replenishing control

- The toner replenishing control is started when the drive of the toner cartridge motor is started.
- The output of the toner empty sensor is monitored for a predetermined period of time. If the toner empty sensor is turned ON from the OFF state, during the predetermined period of time, the machine determines that the “toner hopper runs out of toner (or there is only a small amount of toner left in the toner hopper)” and increments the near empty counter by one. Next, the toner cartridge motor is rotated for a predetermined period of time, so that toner is supplied from the toner cartridge to the toner hopper.
- If the toner empty sensor remains OFF, the machine determines that “toner is still available for use in the toner hopper”, resetting the near empty counter to zero.
- These operations are repeated. When the near empty counter reaches the predetermined value, the machine determines that the toner hopper is in the near empty condition.



[1]	Toner empty sensor: OFF	[2]	Toner
[3]	Toner empty sensor: ON	-	-

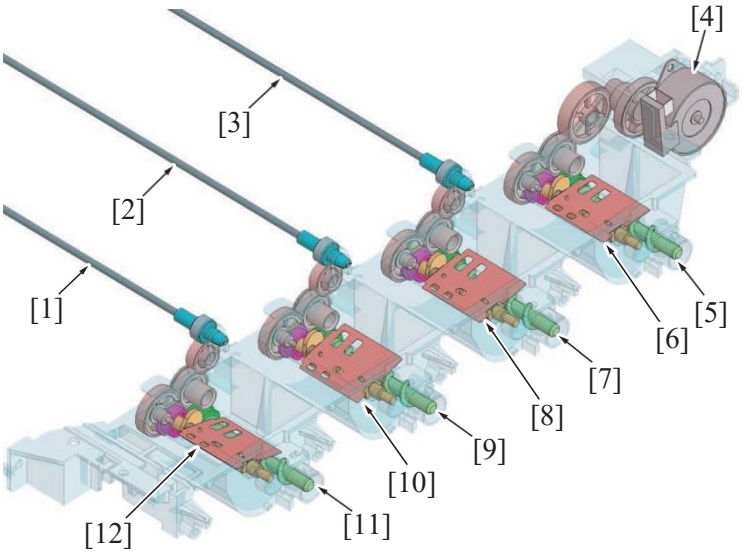
Toner replenishing from toner hopper to developing unit

(1) Toner replenishing control

- Control of replenishing the developing unit with toner from the toner hopper is performed only when the developing unit is driven.
- The toner replenishing time (the amount of toner supplied) during the toner replenishing control is determined based on the T/C ratio detected by the TCR sensor (noncontact magnetic type) disposed at the developing unit for each color of toner and the amount of toner to be consumed (estimated) for the image to be printed.
- If replenishing is interrupted by a paper misfeed, the front door opened or closed, or any similar event, the required replenishing time is carried forward to the next replenishing control sequence.
- For details of the TCR sensor, see “ O.5.3.7 Toner density control”.

(2) Toner replenishing mechanism

- Four toner supply motors drive the toner conveying screws and the toner agitating blades provided in the toner hoppers of four different colors of toner.
- The toner supply motor of each color drives the toner conveying screw and the toner agitating blade.
- The toner agitating blade rotates to agitate toner in the toner hopper.
- The toner conveying screw rotates to replenish the developing unit with toner.

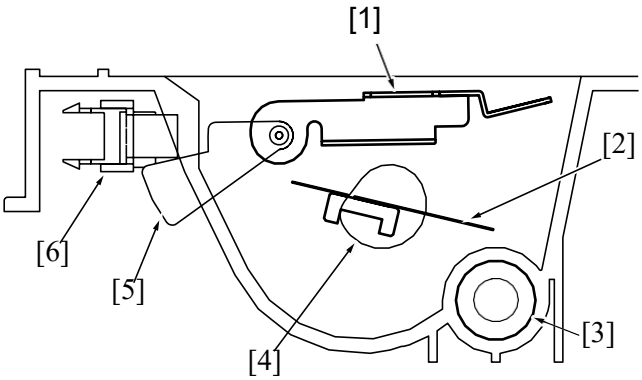


[1]	Drive from toner supply motor/Y	[2]	Drive from toner supply motor/M
[3]	Drive from toner supply motor/C	[4]	Toner supply motor/K (M6)
[5]	Toner conveying screw/K	[6]	Toner agitating blade/K
[7]	Toner conveying screw/C	[8]	Toner agitating blade/C
[9]	Toner conveying screw/M	[10]	Toner agitating blade/M
[11]	Toner conveying screw/Y	[12]	Toner agitating blade/Y

Toner agitating blade drive

1. Toner conveying screw is rotated by the driving of the toner supply motor.
2. The rotation of the toner conveying screw is transmitted to the toner agitating blade drive gear, which results in the toner agitating blade being rotated. The toner agitating blade rotates to agitate toner in the toner hopper.
3. The cam mounted coaxially with the toner agitating blade moves the detection plate and actuator up and down.

*: For details of the toner empty sensor, see “ O.6.3.9 Toner empty detection control”.



[1]	Detection plate	[2]	Toner agitating blade
[3]	Toner conveying screw	[4]	Cam (operatively connected to toner agitating blade shaft)
[5]	Actuator	[6]	Toner empty sensor

Auxiliary toner replenishing control for toner hopper

- If the amount of toner in the toner hopper is likely decreasing, control is performed to supply toner forcibly from the toner cartridge to the toner hopper.
- The machine prohibits initiation of any new print cycle while the auxiliary toner replenishing control is being executed.

(1) Toner hopper auxiliary toner replenishing control execution timing

- Rotate the toner cartridge motor for a predetermined time to supply toner from the toner cartridge to the toner hopper under one of the following conditions:
  “The toner replenishing menu is performed from the Service Mode”
  “The toner cartridge is replaced with a new one after a toner empty condition is detected in the toner cartridge (toner empty reset control is performed)"
  “The developing unit is replaced with a new one (developing unit new article detection control is performed)”
  “The toner replenishing menu is manually performed from the Service Mode”

(2) Toner hopper auxiliary toner replenishing control end timing

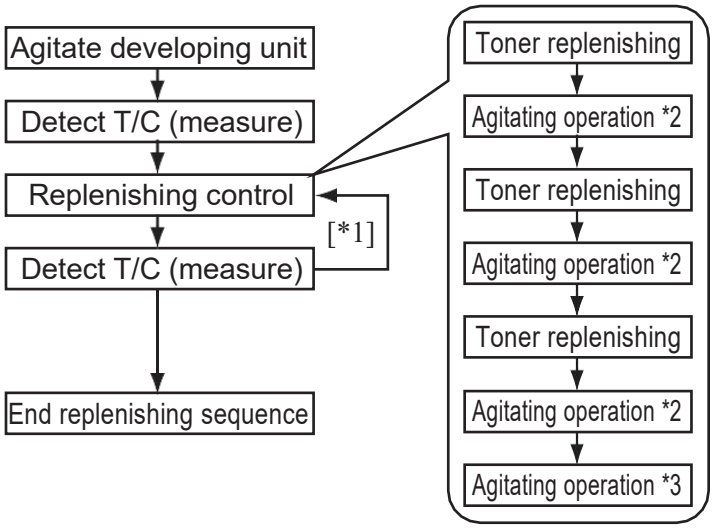
- The auxiliary toner replenishing control is terminated under any of the following conditions:
  “A predetermined period of time elapses after the toner cartridge motor has been energized”
  “The front door is opened and closed”
  “An error or malfunction occurs”
  “The machine enters the power save or sleep mode”

Auxiliary toner replenishing control for developing unit

- If the T/C ratio detected by the TCR sensor is equal to, or lower than, a predetermined value at the start of a print cycle, initiation of the print cycle is prohibited and the developing unit is replenished with toner from the toner hopper until the T/C value reaches the predetermined value. (for a period of about 5 min. maximum)
- The auxiliary toner replenishing control for developing unit is terminated as soon as the predetermined T/C ratio is recovered. It is also terminated if the auxiliary toner replenishing control for developing unit is repeated ten sets. Also, it will be terminated when a toner empty condition is detected in the toner cartridge.

(1) Operation flow

- When the auxiliary toner replenishing control is performed, the following operations will also be performed. Agitate the toner hopper, calculate the T/C ration with the TCR sensor for each color, and replenish toner from toner cartridge to the toner hopper are performed.
- The auxiliary toner replenishing control is performed for a maximum of about 5 min.



- *1: If a predetermined T/C is not reached, return to replenishing control. (a maximum of 10 times)
- *2: Agitate developing unit during replenishing
- *3: Agitate developing unit after replenishing

Toner spillage prevention shutter

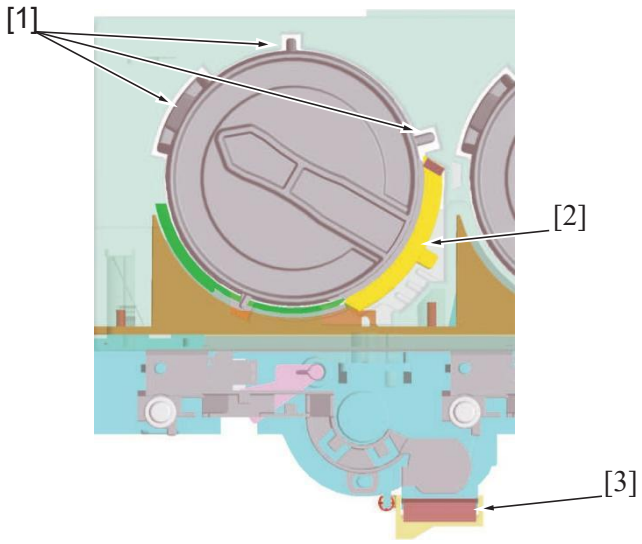
(1) Toner cartridge

(a) Mounting

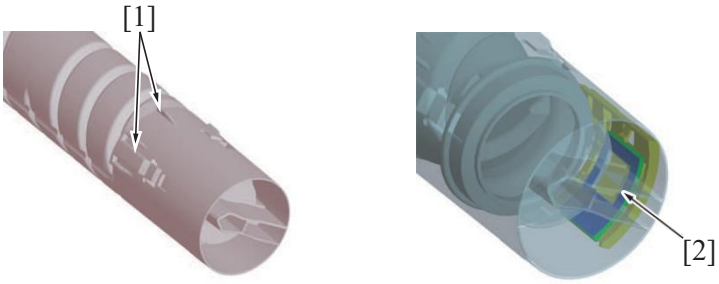
- The shutter of the toner replenishing port is opened when the handle of the toner cartridge is rotated clockwise to the toner replenishing position after the toner cartridge has been inserted into the toner cartridge mounting portion.
- The toner cartridge motor rotates to drive the toner cartridge.
- As the toner cartridge rotates, toner inside the toner cartridge is conveyed toward the toner replenishing port, so that the toner hopper is replenished with toner.

(b) Removal

- The shutter at the toner replenishing port must be closed when the toner cartridge is to be removed.
- Rotating the handle of the toner cartridge counterclockwise to the cartridge removal position closes the shutter of the toner replenishing port. The toner cartridge can be removed when the toner replenishing port of the toner cartridge is closed.



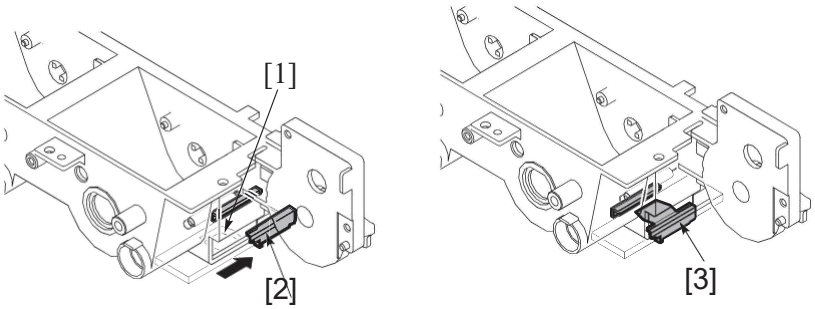
[1]	Toner cartridge positioning protrusion	[2]	Toner cartridge toner spillage prevention shutter
[3]	Toner hopper toner spillage prevention shutter	-	-



[1]	Toner cartridge positioning protrusion	[2]	Toner cartridge toner replenishing port (toner cartridge removal position)

(2) **Toner hopper**

- The toner replenishing port of the toner hopper of each color of toner is provided with a toner spillage prevention shutter that prevents toner from spilling during removal or reinstallation of the developing unit.
- Mounting the developing unit pushes the shutter at the toner replenishing port, opening the toner replenishing port. Removing the developing unit, on the other hand, closes the shutter and toner is thereby prevented from spilling from the toner replenishing port.



[1]	Toner replenishing port	[2]	Toner hopper toner spillage prevention shutter (opened: toner replenishing position)
[3]	Toner hopper toner spillage prevention shutter (closed: developing unit removal position)	-	-

Toner supply PPM control

NOTE

- **This control is available in CM9705DN/M9705 models only.**

- **The print speed is high during a consecutive printing of high-coverage original, and so toner may not be provided fast enough.**
- **To prevent insufficient supply of toner (density reduction), this control temporarily lengthens the interval during a consecutive printing at high coverage ratio to control the reduction of the toner density.**
- **This control will start when the coverage ratio exceeds approximately 80%, and 15 sheets has been printed consecutively.**
- **When the control starts, printing with an efficiency equivalent to CM9105DN/M9105DN model is executed.**
- **Efficiency returns to normal after toner density is restored.**

Front door mechanism

- The main power switch and total counter are mounted inside the front door.

(1) Front door locking mechanism

- The front door is provided with a locking mechanism.

(a) Unlocking the front door

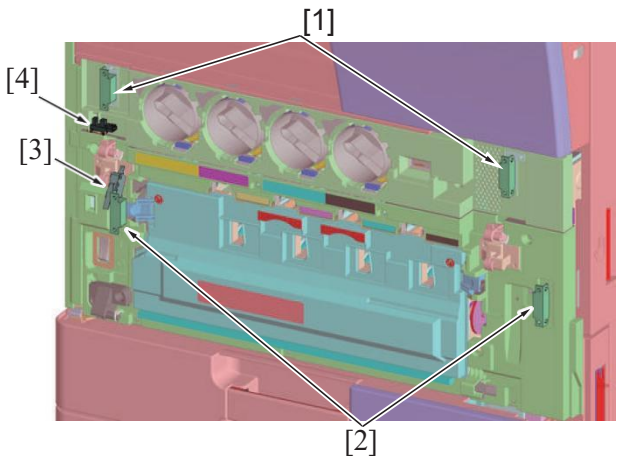
- Pulling the front door to the front will release the door lock magnets (two) provided at the upper portion of the front door.

(b) Locking the front door

- Close the front door. When the front door is closed in its correct position, the door lock magnets (two) provided at the upper portion of the front door lock the front door in place.
- The front door is provided with a protrusion that detects the correct mounting of the toner cartridge. It prevents operation of the machine, when the toner replenishing shutter of the toner cartridge is closed.

(2) Front door open/close detection mechanism

- The front door switch detects that the front door is opened or closed.
- When the front door is closed, the open/close detection protrusion provided at the upper portion on the left side of the front door presses the actuator of the front door switch. This turns ON the front door switch and the machine determines that the front door is closed.
- When the front door is opened, the front door switch actuator is released, which turns OFF the front door switch. The machine then determines that the front door is open and shows a message that prompts the operator to close the front door.
- When it is determined that the front door is open, use of all jobs but the fax reception job is prohibited. In addition, a paper misfeed results if the front door is opened during a print job.

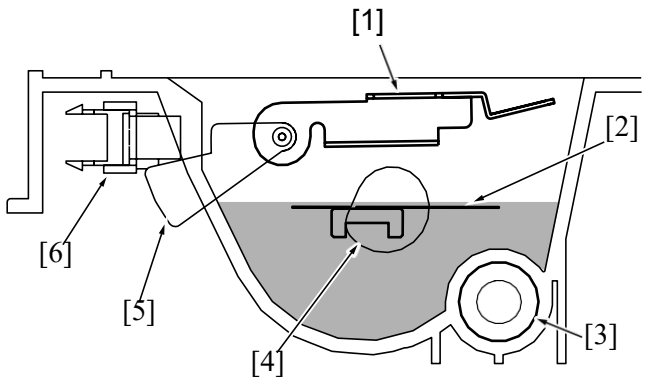


[1]	Upper door lock magnet	[2]	Lower door lock magnet
[3]	Front door switch (SW2)	[4]	Front upper door sensor (PS43)

Toner empty detection control

(1) Toner near empty detection

- The toner empty sensor provided for the toner hopper of each color of toner is used to determine the amount of toner still available for use in the toner hopper.
- The cam that is mounted coaxially with the detection plate moves up and down depending on the remaining amount of the toner. Thus, the toner empty sensor detects the condition.
- If the near empty counter exceeds 3 during control of replenishing the toner hopper with toner, a toner near empty condition is considered. As a result, it prompts to perform the toner empty control.
- For details of the toner replenishing control, see “ O.6.3.2 Toner replenishing from toner bottle to toner hopper”.



[1]	Detection plate	[2]	Toner agitating blade
[3]	Toner conveying screw	[4]	Cam (operatively connected to toner agitating blade shaft)
[5]	Actuator	[6]	Toner empty sensor

(a) Toner near empty detection timing

- The toner replenishing control is started when the drive of the toner supply motor is started.
- The output of the toner empty sensor is monitored for a predetermined period of time. If the toner empty sensor is turned ON from the OFF state, during the predetermined period of time, the machine determines that the “toner hopper runs out of toner (or there is only a small amount of toner left in the toner hopper)” and increments the near empty counter by one.
- If the toner empty sensor remains OFF, the machine determines that “toner is still available for use in the toner hopper”, resetting the near empty counter to zero.
- These operations are repeated. When the near empty counter reaches the predetermined value, the machine determines that the toner hopper is in the near empty condition. Then, it shows the message “Toner is low. Replace when indicated” on the control panel.

(2) Resetting the toner near empty and toner empty conditions

- Either the “auxiliary toner replenishing control for toner hopper” or “auxiliary toner replenishing control for developing unit” is performed (both may be performed in some cases) after a toner near empty condition and a toner empty condition have been detected.
- The toner near empty/empty display is reset when the control is normally terminated.
- Initiation of a new print cycle is prohibited during execution of the “auxiliary toner replenishing control for toner hopper” and “auxiliary toner replenishing control for developing unit”.
- See the relevant pages for more details of the “Auxiliary toner replenishing control for toner hopper” and “Auxiliary toner replenishing control for developing unit”.

List of controls

Control name	Parts to be controlled	Description
Auxiliary toner replenishing control for developing unit	Developing unit	Recovers the T/C ratio of the developer in the developing unit.
Auxiliary toner replenishing control for toner hopper	Toner hopper	Recovers the amount of toner in the toner hopper.

Condition	Toner in unit		Control to be executed	Printing after the end of the control
	Developing unit	Toner hopper		
Near empty	Available	Decreasing	Auxiliary toner replenishing control for toner hopper	Empty display is reset if the amount of toner in the toner hopper is recovered.
Empty 1	Available	Not available		Empty display stays put if the amount of toner in the toner hopper is not recovered.
Empty 2	Not available	Not available	Auxiliary toner replenishing control for toner hopper + auxiliary toner replenishing control for developing unit	Empty display is reset if the T/C ratio is recovered.
				Empty display stays put if the T/C ratio is not recovered.

(a) Toner empty condition resetting timing

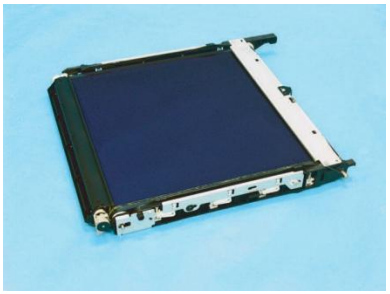
- The “auxiliary toner replenishing control for toner hopper” or “auxiliary toner replenishing control for developing unit” is executed under any of the following conditions after a toner near empty/toner empty condition has been detected:
  “The main power switch is turned ON”
  “Release in sub power off mode”
  “The lower front door is opened and closed”

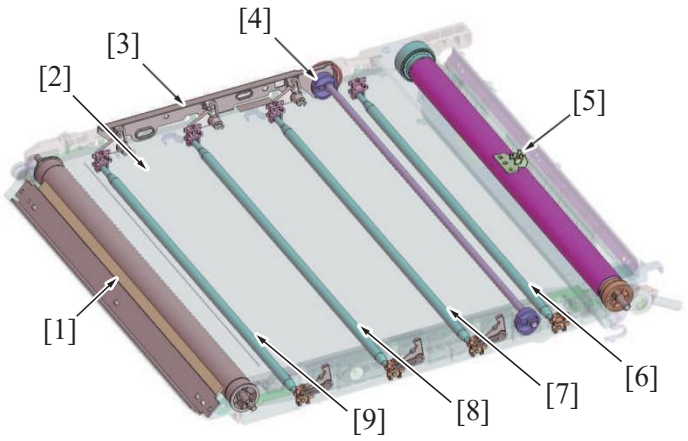
1ST TRANSFER SECTION

Configuration

NOTE

- **CM9705DN/M9705/CM9105DN/M9105DN transfer belt units have different cleaning blades. Make sure to use the transfer belt dedicated to your machine.**
- **To replace the transfer belt unit with a new one, confirm the model of machine at first. Then make sure to use the transfer belt unit dedicated to your machine.**





[1]	Cleaning blade	[2]	Transfer belt
[3]	1st transfer roller pressure mechanism	[4]	1st transfer roller pressure cam
[5]	Separation claw	[6]	1st transfer roller/K
[7]	1st transfer roller/C	[8]	1st transfer roller/M
[9]	1st transfer roller/Y	-	-

Operation

Transfer belt drive

- The transfer belt drive roller is rotated by the driving force of the transport motor.
- Rotation of the transfer belt causes the transfer belt driven roller to rotate. The drive transmission gear located at the transfer belt driven roller rotates the waste toner conveying screw of the cleaning mechanism.

1st transfer roller control

- Pressure mechanism is equipped for pressing the 1st transfer rollers (Y, M, C) to inside the transfer belt at the 1st transfer.
- The 1st transfer roller (K) does not have pressure retraction mechanism. The 1st transfer roller (K) always presses the transfer belt to the PC drum (K).
- The driving force of the fusing motor is transmitted to the fusing drive release gear and transfer belt retraction clutch, thereby pressing the 1st transfer roller. The fusing drive release gear is moved to the drive coupling position when the right door is closed, so that the driving force can be transmitted. For more details of the fusing drive release mechanism, see " O.13.3.1 Fusing drive release mechanism".

(1) 1st transfer roller pressure

- Rotation of the fusing motor is transmitted to the transfer belt retraction clutch via the fusing drive release gear.
- When the 1st transfer pressure clutch is turned ON, the rotation of the fusing motor is transmitted to the drive gear.
- Rotation of the drive gear rotates the pressure cam, so that the position of contact between the slide plate and the cam is varied.
- The 1st transfer roller pressure spring provided for the slide plate causes the slide plate to move to the pressure position. (Toward the transfer belt driven roller side.)
- The movement of the slide plate results in the 1st transfer roller drive arm being rotated. The rotation of the 1st transfer roller drive arm lowers the 1st transfer roller (Y, M, C), so that the transfer belt is pressed against the PC drum.
- When the slide plate moves to the pressure position, the leading edge of the slide plate pushes the actuator of the 1st transfer pressure sensor.
- The actuator blocks the 1st transfer pressure sensor and the slide plate movement is detected.
- The 1st transfer pressure clutch is turned OFF.

- The cam will stop rotating and the siding plate will stop.
- The 1st transfer roller (Y, M, and C) will stay being pressed.

Pressure/retraction control by print mode

- To extend the service life of the PC drum/Y, M, C, the transfer belt is retracted from the color PC drum in the black mode.
- In the black mode, the 1st transfer roller/Y, M, C is retracted and the color drum unit and color developing unit are stopped.
- The 1st transfer roller/K is pressed against the PC drum/K at all times in both black and color modes.

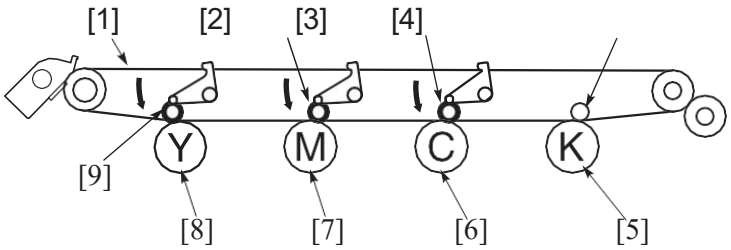
(1) Color mode

- In the color mode, the 1st transfer roller is where the PC drum is pressed against the transfer belt for all four colors of toner.

(2) Black mode

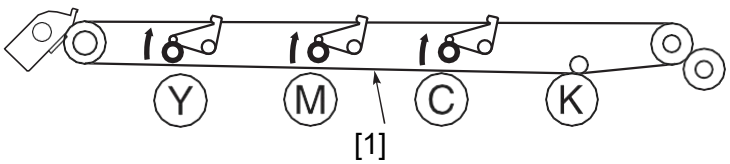
- In the black mode, the 1st transfer roller/Y, M, C is where the PC drum/Y, M, C leaves the transfer belt, while the 1st transfer roller/K is where the PC drum/K is pressed against the transfer belt. This allows the PC drum/Y, M, C to stop rotating in this mode.

Color mode



[1]	Transfer belt	[2]	1st transfer roller/M
[3]	1st transfer roller/C	[4]	1st transfer roller/K
[5]	Photo conductor/K	[6]	Photo conductor/C
[7]	Photo conductor/M	[8]	Photo conductor/Y
[9]	1st transfer roller/Y	-	-

Black mode



[1]	Transfer belt (retraction position)	-	-

(3) ACS mode

(a) ACS mode overview

- When making a copy, any desired copy mode can be selected from the control panel. (The default setting is the “auto color mode”.) The auto color mode is called the ACS (auto color selection) mode. (In PC print job, auto color as the setting item in the printer driver corresponds to the ACS.)
- In ACS mode, the machine analyzes the image data of the original scanned by the “scanner section” to determine whether the image data is colored or in black.
- Determining that it is a color original, the machine presses the 1st transfer roller and runs a color print job.
- Determining that it is a black original, the machine retracts the 1st transfer roller and runs a black print job.

(b) Control of 1st transfer roller in ACS mode

- The number of sheets of continuous series of black originals is counted when color originals are changed to black originals.
- Pressure of the 1st transfer roller is controlled according to the number of sheets of continuous series of black originals during a multi-print cycle, thereby achieving both high print productivity and extended service life of consumables.
- “Control of 1st transfer roller in ACS mode” is executed only when a copy is made with “Auto Color” selected from the control panel. It is not executed when “Full Color”, “Black”, “2 Color”, or “Single Color” is selected.
- The control is executed, for “PC print”, only if the print cycle is run with “Auto Color” selected from the printer driver screen. It is not executed when “Full Color” or “Grayscale” is selected.
- The 1st transfer roller/Y,M,C is in the pressed position (color mode) in its initial state.

NOTE

- **The control of 1st transfer roller in the ACS mode is enabled only after the number of sheets of continuous series of black originals has been counted. It is therefore not an effective control for a copy print job involving only one copy set/stack. The control is effectively operable for the following print jobs: Since on the first copy, the control can be performed only for where the original is read and counted.**
  “Copy print of the second copy set/stack and onward”
  “Copy print from a registered job”
  “PC print job”

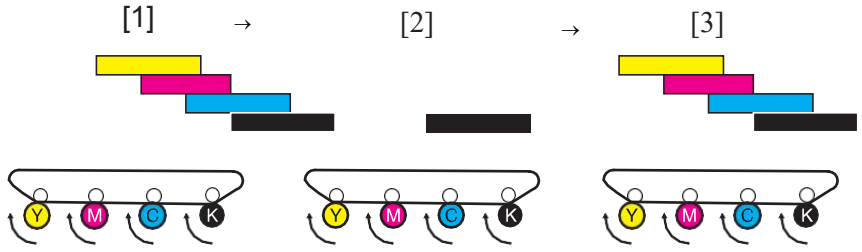
(c) When the number of multi-copies is as specified or under

- ACS control starts counting the number of multi-copies of the black original when switched from the color original to the black original.
- The black printing will start with color mode. (with the 1st transfer roller/Y,M,C being pressed) Developing or transfer does not take place with the developing unit (Y, M, C), but, since the transfer belt is pressed, the PC drum and the developing roller are rotated as the transfer belt rotates. An advantage during pressure the 1st transfer roller/Y,M,C is that the loss time related to print productivity that generates due to retraction of the 1st transfer roller can be reduced.

(d) When the number of multi-copies is as specified or over

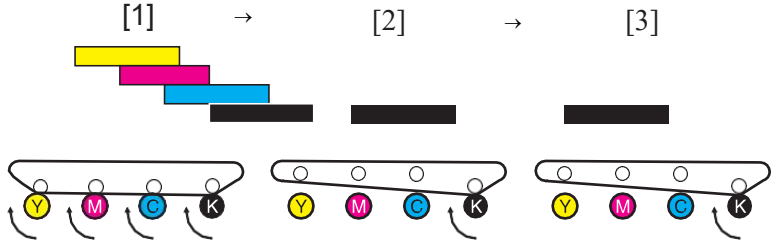
- The black printing will start when the color mode is complete and the 1st transfer roller/Y,M,C is retracted to be switched to the black mode. An advantage during retraction of the 1st transfer roller is that chance of the developing unit (Y, M, C) and drum unit (Y, M, C) being worn as a result of wasteful rotation can be reduced.

When printing in black with color mode (effecting black printing with the four PC drums rotating)



[1]	Color mode	[2]	Color mode
[3]	Color mode	-	-

Printing after switched to black mode



[1]	Color mode	[2]	Black mode
[3]	Black mode	-	-

(e) Black original specified values

- Number of multiple black originals during plain paper printing

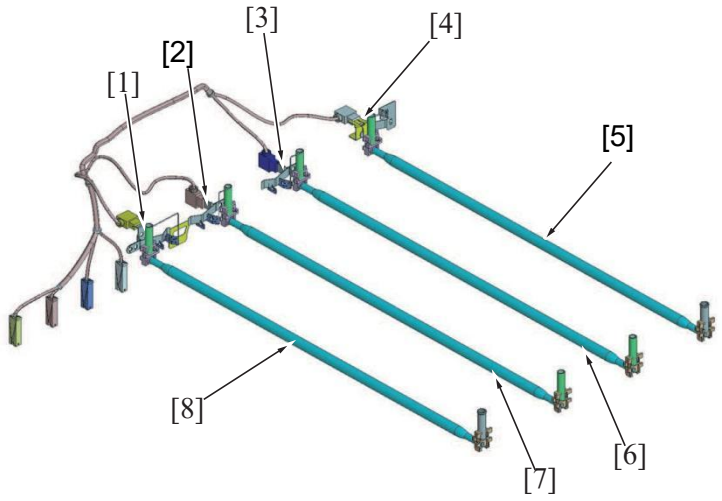
Paper length	Black printing in color mode	Black printing after switched to black mode
216 mm or less	4 sheets or less	5 sheets or more
Over 216 mm and up to 297 mm	2 sheets or less	3 sheets or more
Over 297 mm and up to 381 mm	2 sheets or less	3 sheets or more
Over 381 mm and up to 432 mm	2 sheets or less	3 sheets or more
Over 432 mm and up to 457 mm	2 sheets or less	3 sheets or more
Over 457 mm	Switched to black mode	

(4) ACS mode control change with the Engine FW DipSW

- By changing the Engine FW DipSW “25” setting from “OFF (default) ” to “ON”, you can change the pressure control of the 1st transfer rollers on the ACS mode.
- When “OFF” is selected, productivity has the priority and printing is conducted with the transfer belt being pressed onto the color photo conductors even when the specified quantity of black printing is included.
- When “ON“ is selected, black printing quantity threshold until switching to K press (release of color photo conductors) becomes smaller.
- This setting is to be used when the degradation control of the color photo conductors should have priority over printing productivity.

1st transfer control

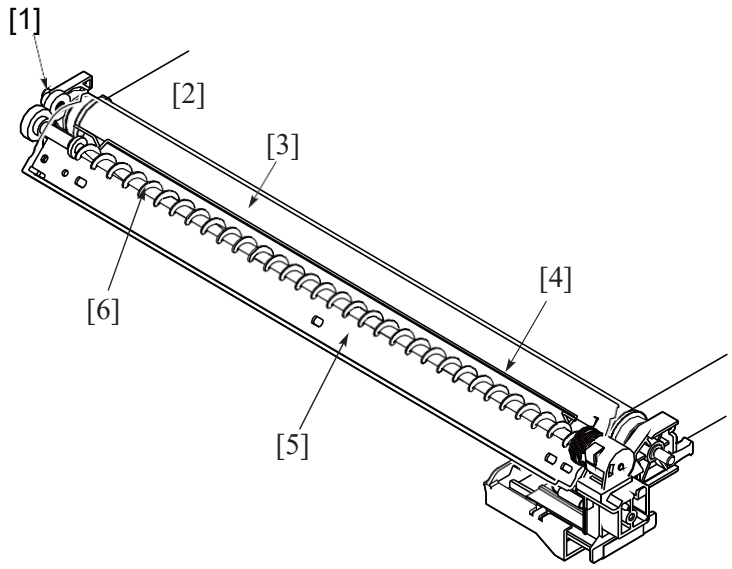
- To transfer the toner image formed on the surface of the PC drum onto the transfer belt, the transfer current supplied from the high voltage unit is applied to the 1st transfer roller of each color.



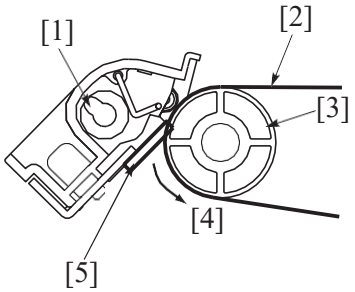
[1]	1st transfer current application terminal/Y	[2]	1st transfer current application terminal/M
[3]	1st transfer current application terminal/C	[4]	1st transfer current application terminal/K
[5]	1st transfer roller/K	[6]	1st transfer roller/C
[7]	1st transfer roller/M	[8]	1st transfer roller/Y

Transfer belt cleaning

- The toner image on the surface of the transfer belt is transferred onto the paper. (2nd transfer)
- Part of the toner image is left on the surface of the transfer belt after the 2nd transfer. A cleaning blade is provided on the transfer belt. It functions to remove the residual toner (waste toner).



[1]	Drive transmission gear	[2]	Transfer belt
[3]	Transfer belt driven roller	[4]	Caking-of-toner prevention blade
[5]	Cleaning blade	[6]	Toner collecting screw



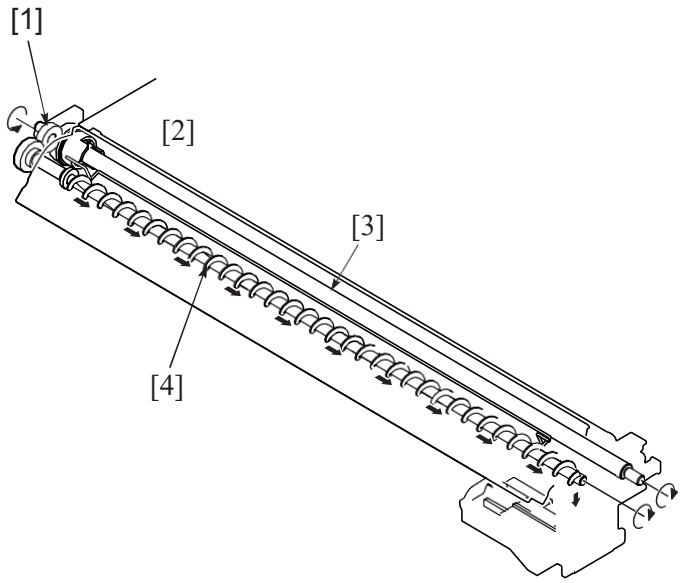
[1]	Toner collecting screw	[2]	Transfer belt
[3]	Transfer belt driven roller	[4]	Transfer belt rotative direction (forward rotation)
[5]	Cleaning blade	-	-

(1) Cleaning blade

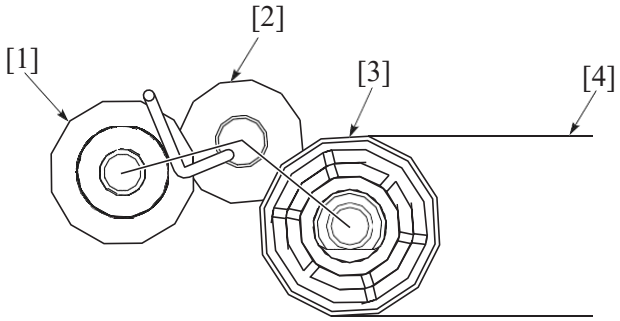
- The cleaning blade, of a fixed blade type, is pressed up against the surface of the transfer belt at all times. No cleaning blade retraction mechanism is provided.
- The waste toner on the surface of the transfer belt is scraped off as the transfer belt is rotated.

(2) Waste toner conveying/collecting mechanism

- Drive for the toner collecting screw comes from the transfer belt driven roller. (The toner collecting screw rotates in time with rotation of the transfer belt.)
- The rotation of the toner collecting screw conveys waste toner scraped off the surface of the transfer belt toward the front of the machine.
- There is a caking-of-toner prevention blade installed. It prevents waste toner from caking at the toner collecting screw portion.
- The waste toner is discharged through the toner collecting port into the waste toner box.
- The waste toner is disposed of when a waste toner box which is detected to be full of waste toner is replaced with a new one and the used waste toner box is discarded.



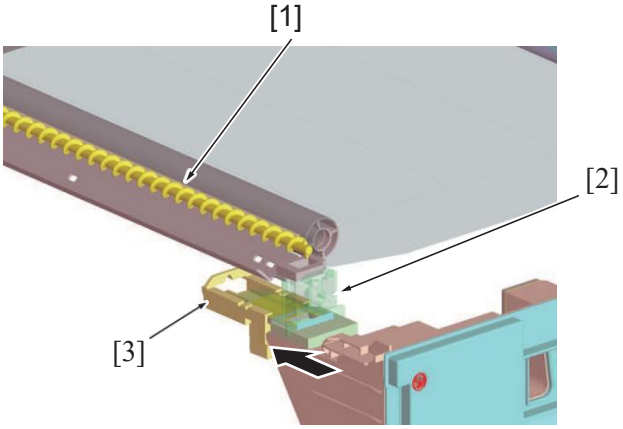
[1]	Drive connecting gear	[2]	Transfer belt
[3]	Transfer belt driven roller	[4]	Toner collecting screw



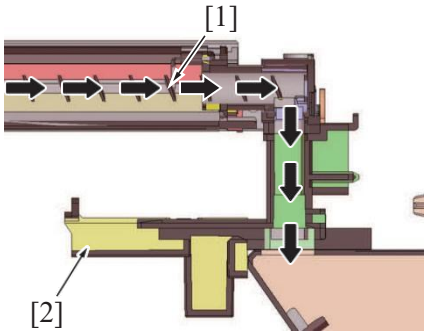
[1]	Toner collecting screw	[2]	Drive connecting gear
[3]	Transfer belt driven roller	[4]	Transfer belt

Waste toner spillage prevention shutter

- The toner collecting port is provided with a waste toner spillage prevention shutter that prevents waste toner from spilling during removal or reinstallation of the waste toner box.
- Mounting the waste toner box pushes the shutter at the toner collecting port, opening the toner collecting port. The shutter is closed by the waste toner box removal and prevents the toner spilling from the toner collecting port.



[1]	Toner collecting screw	[2]	Toner collecting port
[3]	Shutter	-	-



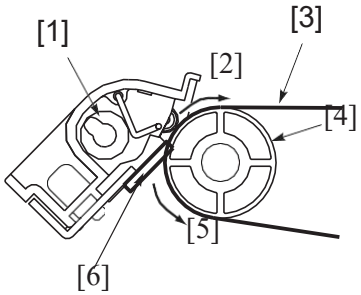
[1]	Toner collecting screw	[2]	Shutter (open)

Cleaning blade foreign matter removal control

- The transfer belt is rotated backward to a small extent and then rotated forward to remove foreign matter (dust, toner, etc.) wedged between the transfer belt and the edge of the cleaning blade.

(1) Operation timing

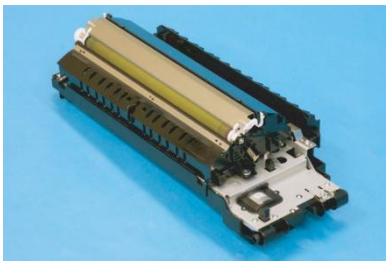
- The backward rotation control is provided at the completion of every print job.

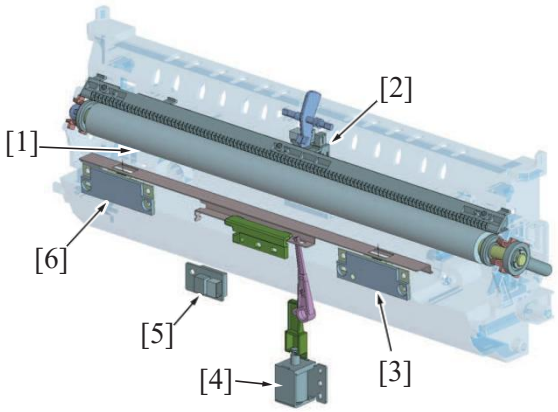


[1]	Toner collecting screw	[2]	Backward rotation
[3]	Transfer belt	[4]	Transfer belt driven roller
[5]	Forward rotation	[6]	Cleaning blade

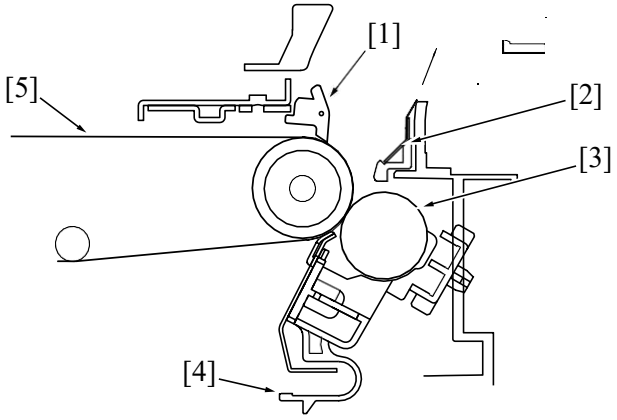
2ND TRANSFER SECTION

Configuration





[1]	2nd transfer roller	[2]	Fusing loop sensor (PS2)
[3]	IDC sensor/Fr (IDCS/Fr)	[4]	IDC sensor shutter solenoid (SD2)
[5]	Temperature/humidity sensor (TEM/HUMS)	[6]	IDC sensor/Rr (IDCS/Rr)

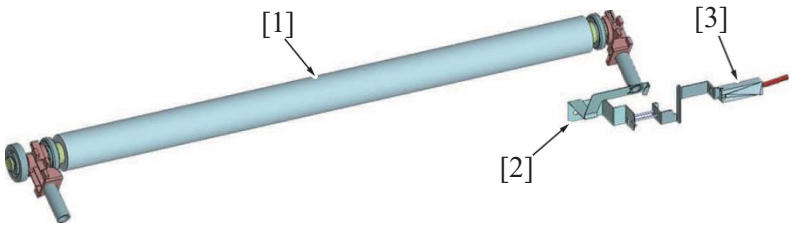


[1]	Separation claw	[2]	Charge neutralizing needle
[3]	2nd transfer roller	[4]	2nd transfer roller lock release lever
[5]	Transfer belt	-	-

Operation

2nd transfer control

- To transfer the toner image formed on the transfer belt onto the paper, the 2nd transfer voltage supplied from the high voltage unit is applied to the 2nd transfer roller.
- Resistance of the 2nd transfer roller changes with an environmental change, durability, and other factors. To maintain an optimum output voltage, fixed current is passed through the 2nd transfer roller and the voltage being outputted at that time is detected. An appropriate 2nd transfer voltage is determined based on the measured voltage and other information such as “type of paper used”, “temperature and humidity”, “color mode or black mode”, and “1-sided/2-sided”.



[1]	2nd transfer roller	[2]	2nd transfer voltage conductive plate
[3]	2nd transfer voltage application terminal	-	-

(1) Execution timing

- The 2nd transfer control is executed when a print job is received under any of the following conditions:
  “Main power switch is turned ON”
  “Power key is pushed”
  “The machine exits the sleep mode”
  “The threshold value of a change in machine interior temperature is exceeded.”

(2) 2nd transfer control during image stabilization control

- In this machine, the 2nd transfer roller does not have a retraction mechanism, so that the transfer belt and 2nd transfer roller are pressed up against each other at all times.
- During image stabilization control, a toner image for adjustment purpose is formed on the surface of the transfer belt. A negative voltage is therefore applied to the 2nd transfer roller during image stabilization control. The amount of toner sticking to the 2nd transfer roller is thereby reduced.

Control of toner application to 2nd transfer roller

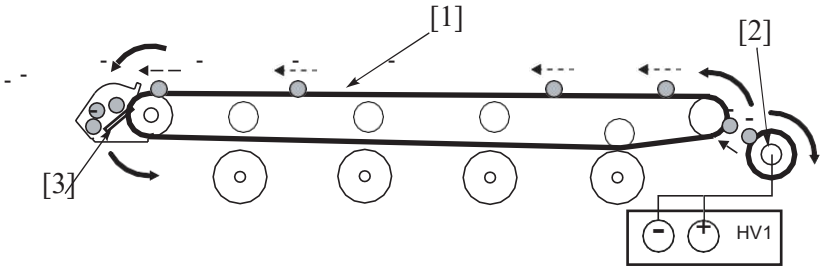
- In this machine, the 2nd transfer roller does not have a retraction mechanism, so that the transfer belt and 2nd transfer roller are pressed up against each other at all times.
- If a new 2nd transfer roller that has replaced an old one is left to stand idle for a long period of time, a substance contained in the new roller sticks to the surface of the transfer belt, which could result in noise in the print image.

- To prevent the substance contained in the 2nd transfer roller from sticking to the transfer belt, Y toner is applied to the surface of a new 2nd transfer roller at the time of replacement. (The Y toner image that corresponds to two complete revolutions of the transfer roller is formed on the surface of the transfer belt and is then transfer red onto the surface of the 2nd transfer roller.)
- The Y toner that is less noticeable is used for the toner to be applied, in consideration of back marking.

(1) Execution timing
- The control is executed when the life counter of the 2nd transfer roller in the service mode is reset to zero.

2nd transfer roller cleaning

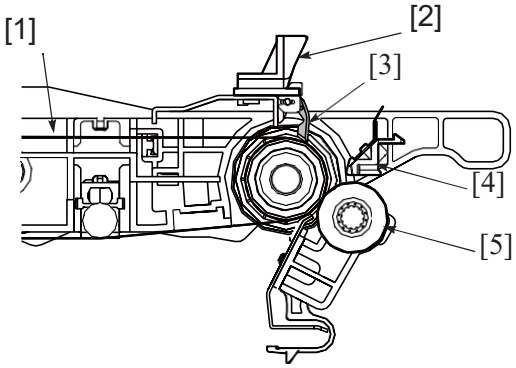
- In order to remove the remaining toner on the 2nd transfer roller, -/+ (DC) charge is applied alternately to transfer the remaining toner on the 2nd transfer roller to the transfer belt. (The number of times that electrical charge is applied to the 2nd transfer roller is different depending on each situation.)
- The cleaning blade then scrapes off the toner on the surface of the transfer belt.



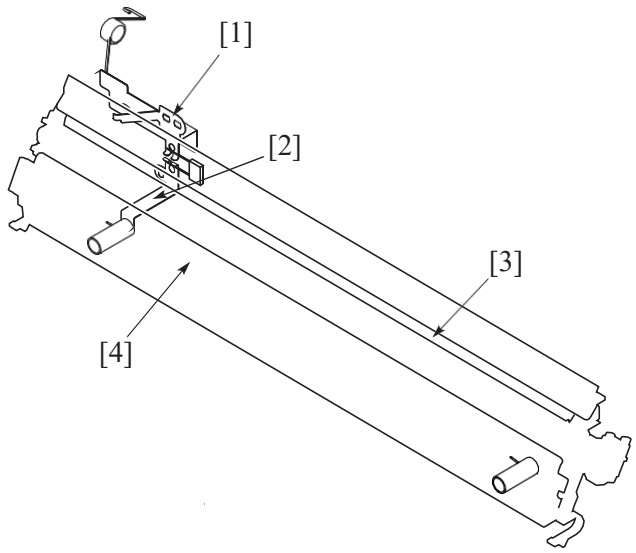
[1]	Transfer belt	[2]	2nd transfer roller
[3]	Cleaning blade	-	-

Charge neutralization and separation of paper

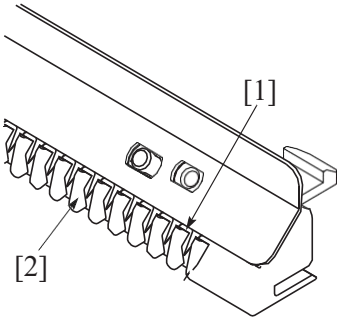
- To neutralize any residual potential on the paper which has undergone the 2nd transfer process, there is a charge neutralizing needle mounted on the guide plate after the 2nd transfer roller. There is a resin guide that prevents the electrode from directly contacting the paper.
- The residual potential neutralized by the charge neutralizing needle is grounded via a conductive plate.
- In order to separate the paper from the transfer belt without fail after the 2nd transfer, a separation claw is mounted (center one point.)



[1]	Transfer belt	[2]	Paper winding prevention guide
[3]	Separation claw	[4]	Charge neutralizing needle
[5]	2nd transfer roller	-	-



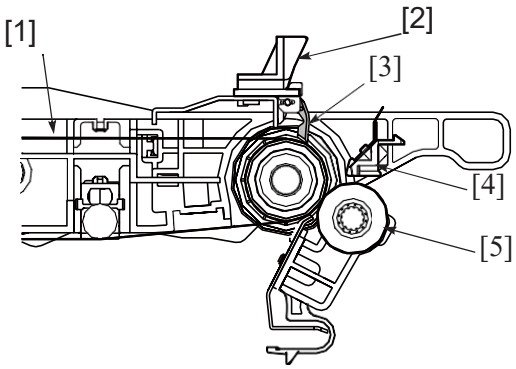
[1]	Charge neutralizing needle conductive plate (ground)	[2]	Transfer paper guide conductive plate (ground)
[3]	Charge neutralizing needle	[4]	Transfer paper guide



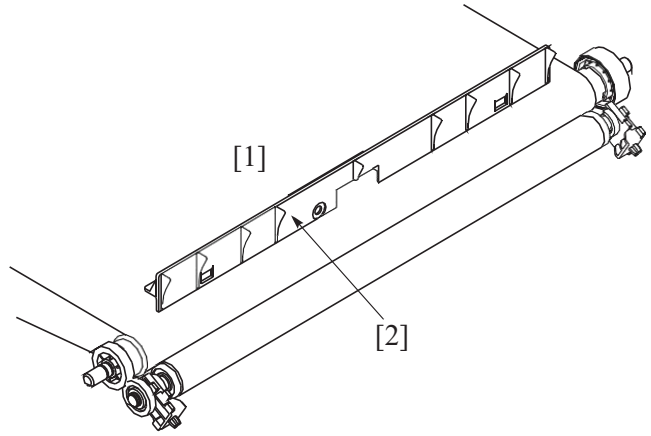
[1]	Charge neutralizing needle	[2]	Resin guide

Paper winding prevention guide

- The paper winding prevention guide prevents paper from being wound around the transfer belt again after its being separated from the transfer belt by the separation claw.



[1]	Transfer belt	[2]	Paper winding prevention guide
[3]	Separation claw	[4]	Charge neutralizing needle
[5]	2nd transfer roller	-	-

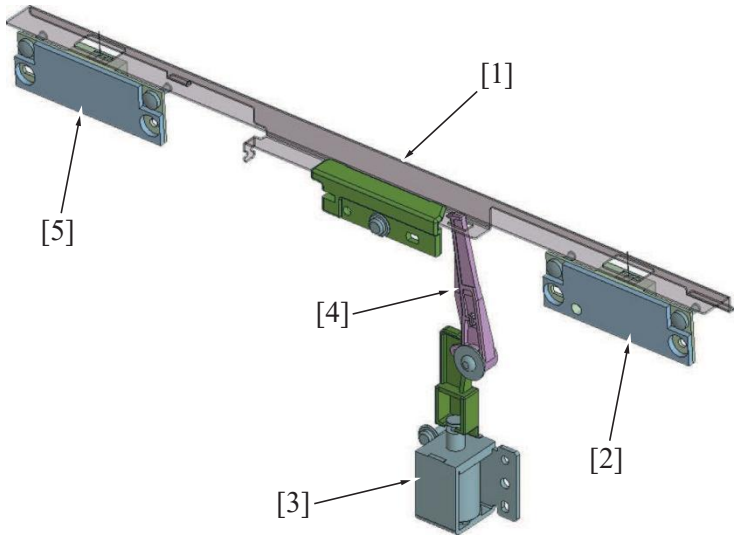


[1]	Transfer belt	[2]	Paper winding prevention guide

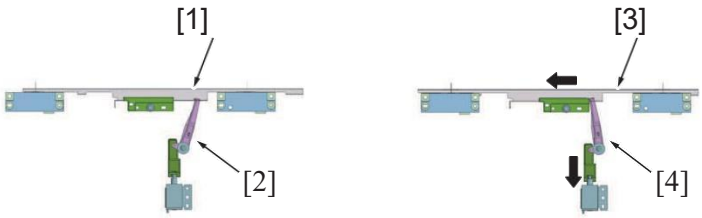
IDC sensor protection

- The IDC sensor can be contaminated with toner since it is located under the transfer belt. There is a shutter mechanism provided for the sensor to prevent it from being contaminated.
- The shutter is opened or closed by the IDC sensor shutter solenoid.

IDC sensor shutter solenoid (SD2)	Shutter
OFF	Closed
ON	Open



[1]	IDC sensor shutter (open position)	[2]	IDC sensor/Fr (IDCS/Fr)
[3]	IDC sensor shutter solenoid (SD2)	[4]	Actuator for shutter
[5]	IDC sensor/Rr (IDCS/Rr)	-	-



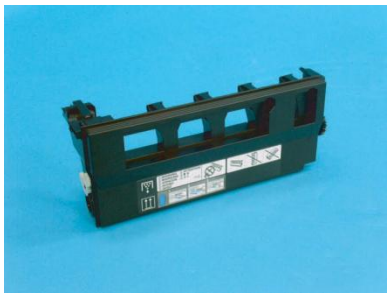
[1]	IDC sensor shutter (close position)	[2]	IDC sensor shutter solenoid: OFF
[3]	IDC sensor shutter (open position)	[4]	IDC sensor shutter solenoid: ON

2nd transfer roller new article detection

- The 2nd transfer roller (hereinafter referred to as the “transfer roller”) is not provided with any new article detection mechanism. If the transfer roller is replaced with a new one, therefore, “New Release” must be performed of the “Transfer Belt Unit” in [Counter] -> [Life] of the Service Mode. Performing “New Release” of the “Transfer Belt Unit” in life counter of the Service Mode will also reset the life counter of the transfer roller to zero.

TONER COLLECTING SECTION

Configuration



[2]

[1] [3]

[6]

[5]

[4]

[1]	Toner collecting screw (Transfer belt section)	[2]	Toner collecting screw (Drum unit/Y,M,C,K)
[3]	Toner collecting port (Drum unit/Y,M,C,K)	[4]	Toner collecting screw (Waste toner box)
[5]	Toner agitating blade	[6]	Toner supply screw (Developing unit)

Operation

Waste toner box drive mechanism

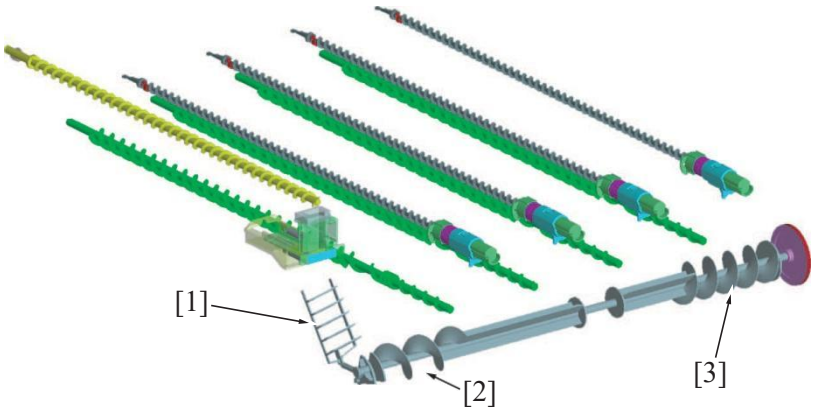
- The waste toner box is driven by the transport motor.
- The driving force of the transport motor is transmitted to the registration roller via the registration clutch. The drive coupling gear mounted coaxially with the registration roller drives the waste toner box.

(1) Execution timing

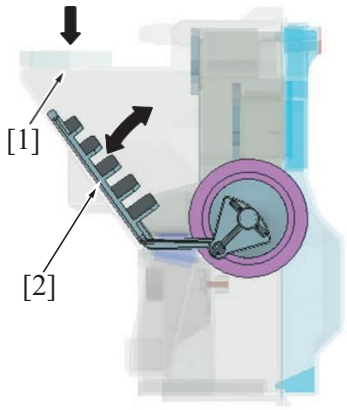
- The waste toner box rotates in synchronism with the registration roller. For details on registration roller, see registration control section.

Control of waste toner conveyance through waste toner box

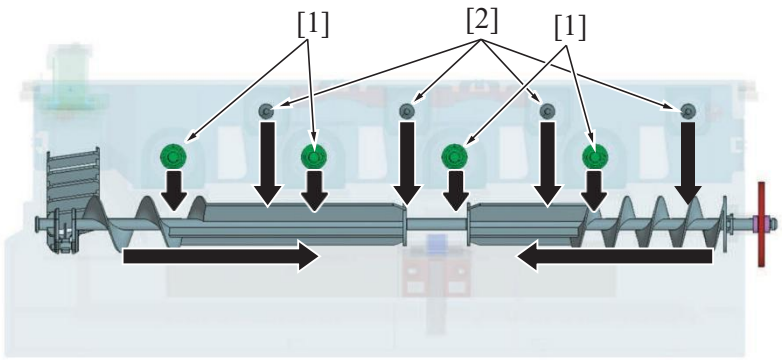
- Waste toner in the transfer belt unit and drum units, and excess toner in the developing unit are conveyed onto the waste toner box by the toner collecting screw.
- Waste toner and waste developer (waste carrier + waste toner) are collected through the toner collecting ports for the each units.
- The waste toner collecting port is provided with a toner agitating blade that prevents toner from stagnating.
- The toner agitating blade is moved up and down as the toner collecting screw rotates. * The toner collecting port for the developing unit is not provided with any toner agitating blade.
- Toner collecting screw 1 and toner collecting screw 2 (dedicated to the transfer belt toner collecting port) are installed in the waste toner box.
- The screws provided on toner collecting screw 1 function to convey waste toner stagnant in the box uniformly onto the central portion of the box.
- Toner collecting screw 2 functions to convey toner conveyed from the transfer belt unit uniformly onto the central portion of the box.
- There is a detection window for detecting a waste toner full condition provided at the central portion of the box. When the waste toner conveyed onto the central portion of the box exceeds a predetermined height, waste toner spills over the waste toner full condition detection section. For details, see “ O.9.3.4 Waste toner box full detection”.



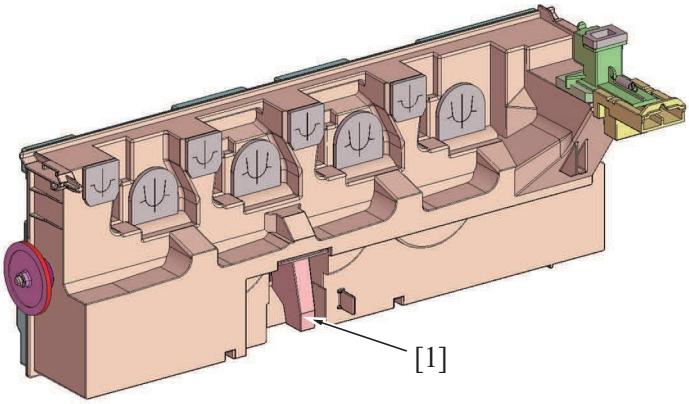
[1]	Toner agitating blade	[2]	Toner collecting screw 2 (dedicated to the transfer belt toner collecting port)
[3]	Toner collecting screw 1 (Waste toner box)	-	-



[1]	Toner collecting port (Transfer belt unit)	[2]	Toner agitating blade



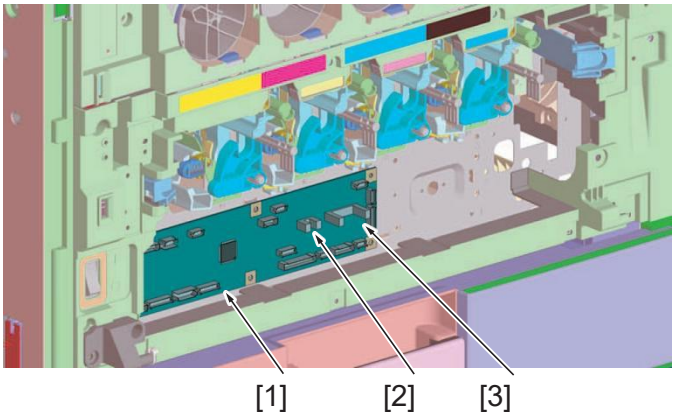
[1]	Toner collecting port (Developing unit)	[2]	Toner collecting port (Drum unit)



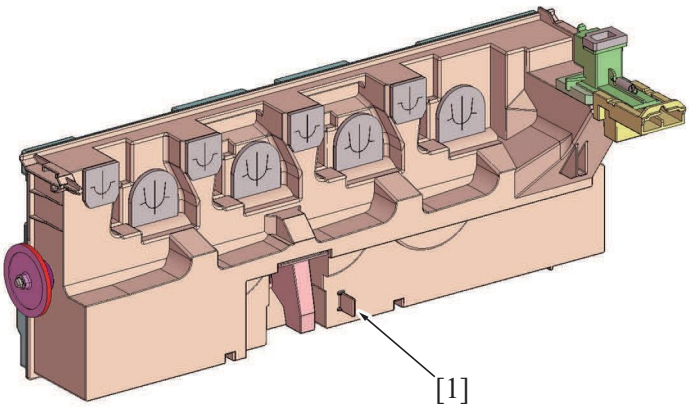
[1]	Waste toner full condition detection window	-	-

Waste toner box-in-position detection

- The waste toner box set sensor provided on the front side board detects mounting condition of the waste toner box. It prevents the machine from being operated with the waste toner box yet to be mounted in place.
- When the waste toner box is removed, the waste toner box set sensor is unblocked, which causes the machine to determine that the waste toner box is yet to be mounted.
- The machine, on determining that the waste toner box is yet to be mounted in place, prohibits initiation of a new print cycle.
- When the waste toner box is mounted, the waste toner box set sensor is blocked, which causes the machine to determine that the waste toner box is mounted in place.
- The machine, on determining that the waste toner box is mounted in place, resets the waste toner box yet-to-be-mounted display, enabling initiation of a new print cycle.



[1]	Front side board (FRB)	[2]	Waste toner box set sensor (PS100)
[3]	Waste toner full sensor (PS101)	-	-



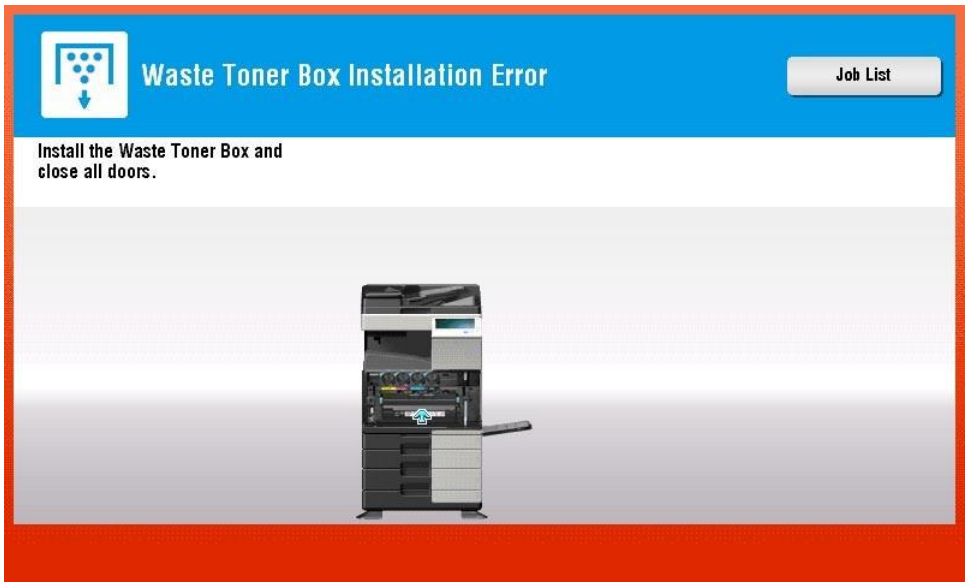
[1]	Waste toner box detection plate	-	-

(1) Execution timing

The waste toner box detection control is performed under any of the following conditions:

- "The power switch is turned ON"
- "The front door or right door is closed"

(2) Waste toner box yet-to-be-mounted display



Waste toner box full detection

- The waste toner full sensor provided on the front side board is used to determine the amount of waste toner accumulated in the waste toner box.

NOTE

- **For the life of the waste toner box, refer to Consumable/part replacement time .**

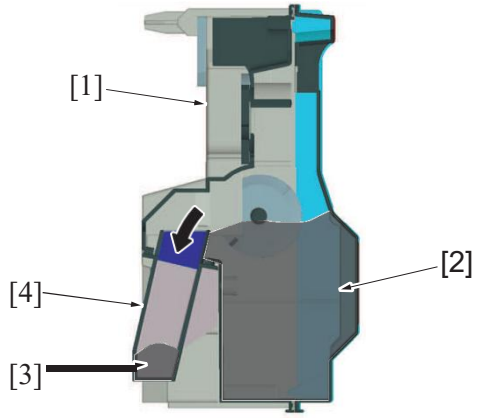
(1) Waste toner near-full

- The toner collecting screw provided in the waste toner box conveys waste toner in the box onto the central portion of the box. For details, see " O.9.3.2 Control of waste toner conveyance through waste toner box".
- A detection window for detecting a waste toner full condition is equipped at the central portion of the waste toner box. When the waste toner conveyed onto the central portion of the box exceeds a predetermined height, waste toner spills over the waste toner full condition detection section.
- The machine determines that there is a waste toner near-full condition, if the waste toner full sensor is blocked by the waste toner stagnant over the waste toner full condition detection section for a predetermined period of time or longer.

(a) Execution timing

The waste toner box near-full detection control is performed under any of the following conditions:

- "The machine determines that the waste toner box is mounted in place using the waste toner box set sensor."
- "During a print cycle"
- "During execution of image stabilization control"



[1]	Waste toner box	[2]	Waste toner
[3]	Waste toner	[4]	Waste toner full condition detection window

(2) Waste toner full condition

- When a waste toner near-full condition is detected, the “waste toner full detection counter” is incremented according to the image density information of the print image during each of subsequent print jobs.
- When the waste toner full detection counter reaches a threshold value, the machine determines that there is a waste toner full condition.

(a) Execution timing

The waste toner box full detection control is performed under any of the following conditions:

- “The machine determines that the waste toner box is mounted in place using the waste toner box set sensor.”
- “The waste toner full sensor detects a waste toner near-full condition.”
- “During a print cycle”
- “During execution of image stabilization control”

Waste toner box new article detection

- The waste toner box is not provided with any new article detection mechanism. Detection made by the waste toner full sensor is used for detecting a new waste toner box.
- When the waste toner full display appears, the existing waste toner box is replaced with a new one. When the waste toner full sensor remains unblocked for a predetermined period of time or more, the machine determines that the normal state is recovered (the old waste toner box is replaced with a new one).
- Determining that a new waste toner box has been mounted, the machine resets the waste toner full display, allowing the initiation of a new print cycle.

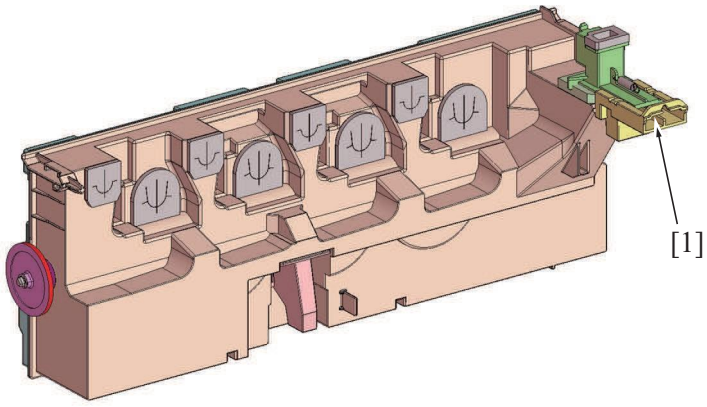
(1) Timing at which to reset the waste toner full display

The waste toner box full detection control is performed under any of the following conditions:

- “The waste toner full sensor detects a waste toner full condition.”
- “The power switch is turned ON”
- “The front door is closed”

Waste toner spillage prevention shutter

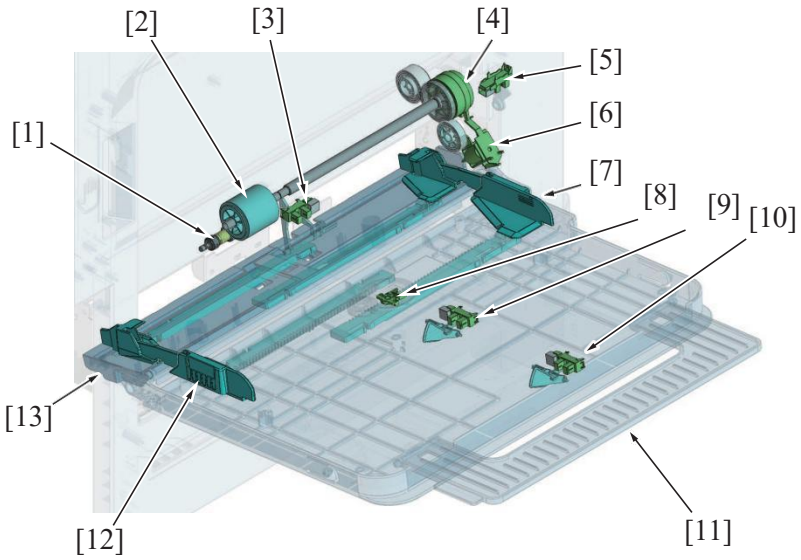
- The toner collecting port for the transfer belt unit is provided with a waste toner spillage prevention shutter that prevents waste toner that is transported from the transfer belt from spilling during removal or reinstallation of the waste toner box.
- Inserting the waste toner box into its mounting position pushes the shutter at toner collecting port of the waste toner box, thus opening the toner collecting port.
- Removing the waste toner box allows the shutter spring to close the shutter at the toner collecting port.



[1]	Toner collecting port	-	-

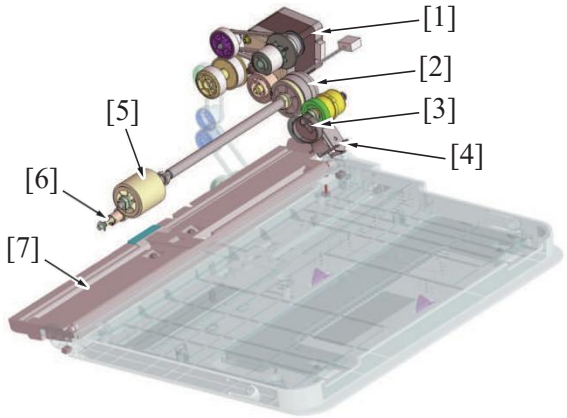
PAPER FEED SECTION (MANUAL BYPASS TRAY)

Configuration



[1]	Manual bypass tray separation roller	[2]	Manual bypass tray feed roller
[3]	Bypass paper empty sensor (PS27)	[4]	Bypass paper feed clutch (CL7)
[5]	Bypass lift-up position sensor (PS26)	[6]	Bypass pick-up solenoid (SD1)
[7]	Paper guide (rear side)	[8]	Bypass CD paper size VR (VR1)
[9]	Bypass FD paper size sensor1 (PS28)	[10]	Bypass FD paper size sensor2 (PS29)
[11]	Sub tray	[12]	Paper guide (front side)
[13]	Paper lift-up plate	-	-

Drive (CM9705DN/M9705/CM9105DN/M9105DN)



[1]	Paper feed motor (M22)	[2]	Bypass paper feed clutch (CL7)
[3]	Paper lift-up cam	[4]	Bypass pick-up solenoid (SD1)
[5]	Manual bypass tray feed roller	[6]	Manual bypass tray separation roller
[7]	Paper lift-up plate	-	-

Operation

Up/down control

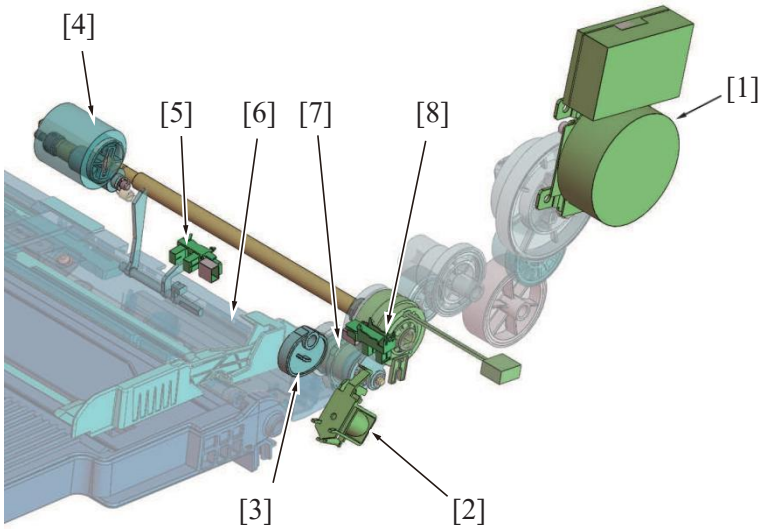
- The paper lift-up plate is moved up and down by the transport motor.

(1) Up operation

- The bypass pick-up solenoid is energized for a predetermined period of time during rotation of the transport motor. This unlocks the paper lift-up plate clutch and the driving force of the transport motor is transmitted to the paper lift-up cam.
- As the paper lift-up cam rotates, the paper lift-up plate which has so far been pushed down by the paper lift-up cam is raised to the paper feed position by the spring.

(2) Down operation

- The bypass pick-up solenoid is energized for a predetermined period of time during rotation of the transport motor. This rotates the paper lift-up cam, so that the cam pushes the paper lift-up plate down into its standby position.

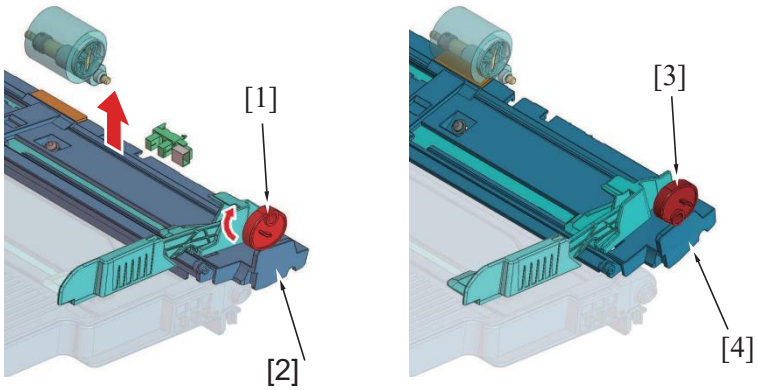


[1]	Transport motor (M1)	[2]	Bypass pick-up solenoid (SD1)
[3]	Paper lift-up cam	[4]	Manual bypass tray feed roller
[5]	Bypass paper empty sensor (PS27)	[6]	Paper lift-up plate
[7]	Paper lift-up plate clutch (mechanical)	[8]	Bypass lift-up position sensor (PS26)

(3) Operation timing

(a) Move to paper feed position (up)

- At the start of a manual bypass paper feed sequence, the paper lift-up plate is raised to the paper feed position.
- After the lapse of a predetermined period of time, the bypass pick-up solenoid is deenergized. The paper lift-up plate is stopped at the paper feed position.
- The actuator of bypass lift-up position sensor rotates in synchronism with the paper lift-up cam. When the paper lift-up plate is raised, the actuator rotates to thereby unblock the bypass lift-up position sensor. Then, the machine determines that the paper lift-up plate is raised to the paper feed position.
- If the bypass lift-up position sensor remains unblocked even after the bypass pick-up solenoid has been deenergized, the machine determines that the paper lift-up plate is at the paper feed position.
- As the paper level lowers during paper feed, the spring pushes up the paper lift-up plate, so that the paper stack is pushed up to the optimum paper feed position.



[1]	Paper lift-up cam (standby position)	[2]	Paper lift-up plate (standby position)
[3]	Paper lift-up cam (paper feed position)	[4]	Paper lift-up plate (paper feed position)

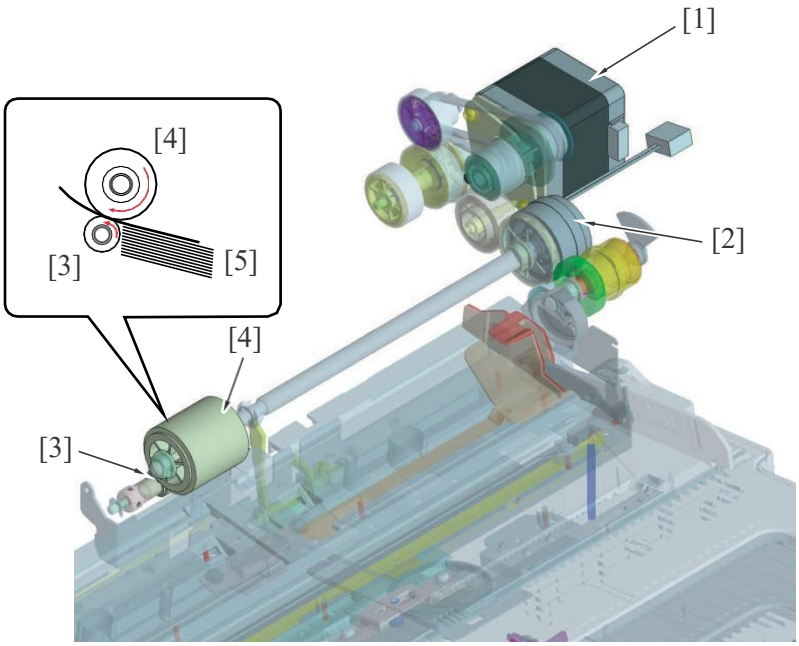
(b) Move to standby position (down)

- The paper lift-up plate is lowered if there is no print job that uses the manual bypass trays and the paper exit sensor detects a sheet of paper fed from the manual bypass tray.
- The paper lift-up plate is lowered if the above conditions are met even during execution of another job.
- If a bypass paper empty condition is detected at the paper feed position, the paper lift-up plate is lowered to the standby position.
- If a paper misfeed occurs, the paper lift-up plate is stopped at the paper feed position. When the transport motor rotates stably after the misfeed is cleared, the paper lift-up plate is lowered to the standby position.
- After the lapse of a predetermined period of time, the bypass pick-up solenoid is deenergized. The paper lift-up plate is stopped at the standby position. As the paper lift-up plate lowers, the bypass lift-up position sensor is blocked. The machine determines that the paper lift-up plate is at the standby position based on the fact that the bypass lift-up position sensor is blocked even after the bypass pick-up solenoid has been deenergized.

Paper feed control

(1) Pick-up control (CM9705DN/M9705/CM9105DN/M9105DN)

- Paper feed operations of the manual bypass tray are driven by the paper feed motor.
- The bypass pick-up solenoid is energized by a print start signal and the paper is raised to the paper feed position.
- After the paper is raised to the paper feed position, the bypass paper feed clutch is energized.
- When the bypass paper feed clutch is energized, the drive from the paper feed motor is transmitted to the manual bypass tray paper feed roller, so that the paper can be fed in.
- The manual bypass tray paper feed roller feeds the paper onto the registration roller.
- When the paper fed from the manual bypass tray is reached onto the registration roller, the bypass paper feed clutch is deenergized to stop the manual bypass tray paper feed roller from rotating.
- The bypass pick-up solenoid is energized and the paper is lowered to the standby position.
- If the registration sensor does not detect paper even after the lapse of a predetermined period of time, the machine determines that there is a paper misfeed at the manual bypass tray. Note, however, that the paper feed sequence is repeated a second time if a paper misfeed is detected. If the registration sensor is still unable to detect paper, the machine determines that there is a paper misfeed at the manual bypass tray. (Paper feed retry control)



[1]	Paper feed motor (M22)	[2]	Bypass paper feed clutch (CL7)
[3]	Manual bypass tray separation roller	[4]	Manual bypass tray feed roller
[5]	Paper	-	-

(2) Separation control

- The manual bypass tray separation roller is pressed up against, and driven by, the manual bypass tray feed roller. A torque limiter is equipped on the shaft of the manual bypass tray separator roller.
- The acting pressure of the manual bypass tray feed roller/manual bypass tray separation roller/torque limiter serves as the limit torque for preventing double feed.
- When there is no sheet of paper or only one sheet of paper between the manual bypass tray separation roller and manual bypass tray feed roller, the limit torque is exceeded and the manual bypass tray separation roller follows the rotation of the manual bypass tray paper feed roller.
- If there are two or more sheets of paper between the manual bypass tray separation roller and manual bypass tray feed roller, the limit torque is greater than the friction force of the paper, so that the manual bypass tray separation roller stops rotating.
- Because of the stationary manual bypass tray separation roller, the lower sheet of paper in contact with the manual bypass tray separation roller is not fed in, so that the first sheet of paper is properly separated from the second sheet of paper.

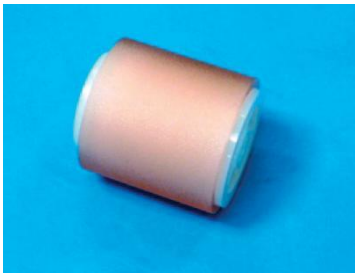
(3) Periodical replacement parts

- The manual bypass tray feed roller and manual bypass tray separation roller are periodical replacement parts. These two rollers must be replaced with new ones at the same time.
- Neither the manual bypass tray feed roller nor manual bypass tray separation roller is provided with a new article detection mechanism. When the two rollers are replaced with new ones, the “Manual Tray” counter must be reset to zero using [Counter] -> [Life] of the Service Mode.
- The number of times the manual bypass tray has been subjected to paper feed operations can be checked with the “Manual Tray” counter of the Service Mode.

Periodical replacement cycle	Paper feed operations 200,000 times

- For details of the applicable replacement procedures for the manual bypass tray feed roller and manual bypass tray separation roller and the Service Mode, see “Replacing the manual bypass tray feed roller, manual bypass tray separation roller assy”.

Manual bypass tray feed roller



Manual bypass tray separation roller assy

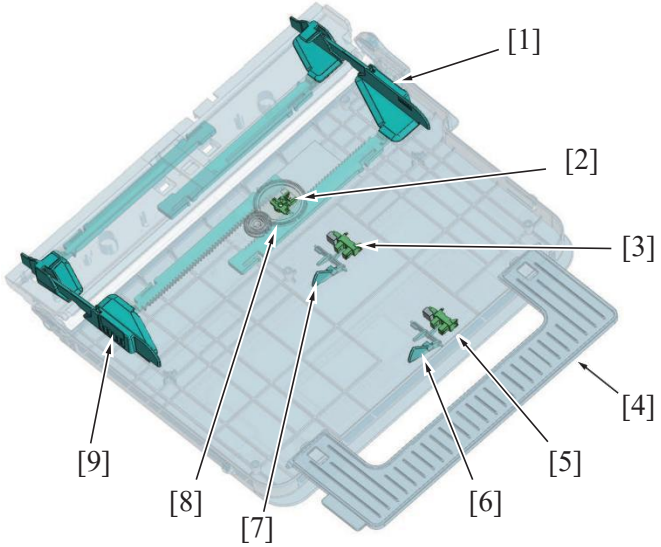


Paper size detection control

- The standard size of the paper loaded in the manual section is detected automatically by the combination of ON or OFF positions of the two bypass FD paper size sensors and the bypass CD paper size VR.
- The two bypass FD paper size sensors are mounted in positions at which they can detect length even with the sub tray closed.
- The size detection gear rotates by the moving of the paper guide. The bypass CD paper size VR mounted on the same axis as the size detection gear detects the paper width.
- The machine supports detection of SRA3 size.
- Irregular paper sizes and postcard can be used by entering the custom size.

NOTE

- **The paper guide has been extended to inhibit "paper skew" caused when the paper is fed and "paper jam due to paper skew".**



[1]	Paper guide (rear side)	[2]	Bypass CD paper size VR (VR1)
[3]	Bypass FD paper size sensor1 (PS28)	[4]	Sub tray
[5]	Bypass FD paper size sensor2 (PS29)	[6]	Actuator 2
[7]	Actuator 1	[8]	Size detection gear
[9]	Paper guide (front side)	-	-

(1) Sheet size determination

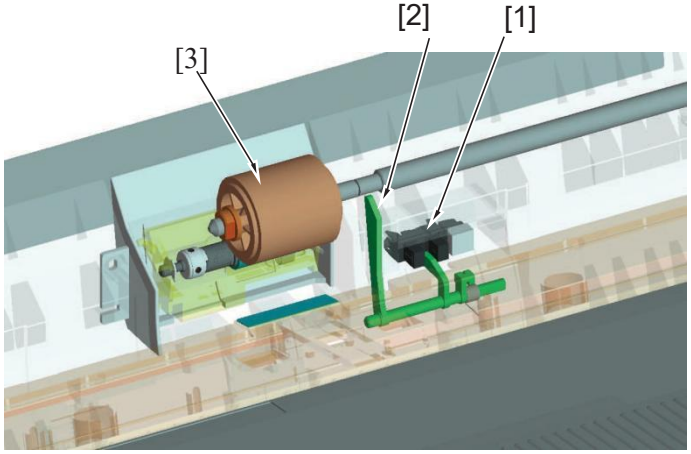
Paper size detected	Bypass FD paper size sensor1	Bypass FD paper size sensor2	Bypass CD paper size VR
			Unit: mm
A6S	OFF	OFF	Less than 115
B6S			115 to 144 inclusive
A5 *			196 to 225 inclusive *
Invoice (5 1/2 × 8 1/2) *			
B5 *			242 to 268 inclusive *
Executive (7 1/4 × 10 1/2) *			
A5S *	ON	OFF	133 to 164 inclusive *
Invoice S (5 1/2 × 8 1/2 S)*			
B5S *			169 to less than 196 *
Executive S (7 1/4 × 10 1/2 S) *			
A4S *			196 to 225 inclusive *
Letter S (8 1/2 x 11S) *			
Letter (8 1/2 × 11)			255 to less than 288

Paper size detected	Bypass FD paper size sensor1	Bypass FD paper size sensor2	Bypass CD paper size VR
			Unit: mm
A4			288 to 330 inclusive
Legal ($8^1/_2$ × 14)	ON	ON	201 to 231 inclusive
B4			242 to less than 268
Ledger (11 × 17)			268 to less than 288
A3			288 to less than 301
A3 wide (12 × 18)			301 to 312.5 inclusive
SRA3			Over 312.5 and up to 330

- *: When the area is in inches, the size is detected in inches; for other areas, A/B size is detected.

Paper empty detection control

- When the paper is loaded in the manual bypass tray, the paper empty detection actuator is pressed by the leading edge of the paper. The paper empty detection actuator is pressed to unblock the bypass paper empty sensor.
- When there is no paper on the manual tray, the paper empty detection actuator is raised. The paper empty detection actuator is returned to its original position to thereby block the bypass paper empty sensor.



[1]	Bypass paper empty sensor (PS27)	[2]	Actuator
[3]	Manual bypass tray feed roller	-	-

Paper separation pressure switching mechanism

- Paper misfeed may infrequently occur at use of 300g thick paper. (Paper separation pressure is too low for thick paper)
- Switch the pressure (paper separation pressure) of the manual separation roller pressing down on the feed roller to increase the paper separation pressure and reduce a paper misfeed.
- For details about the adjustment procedure, see Separator roller pressure adjustment of the bypass tray.

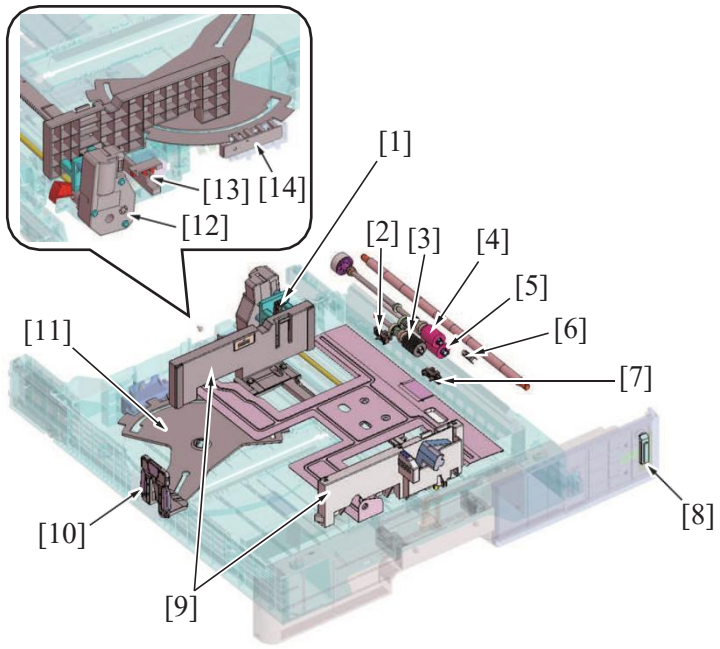
NOTE

- **It does not require to switch the paper separation pressure if paper misfeeds do not occur even at use of 300g thick paper.**
- **Use of plain paper under high-temperature, high-humidity environment after the paper separation pressure is switched may cause a paper misfeed infrequently. (Paper separation pressure is too high for plain paper)**

PAPER FEED SECTION

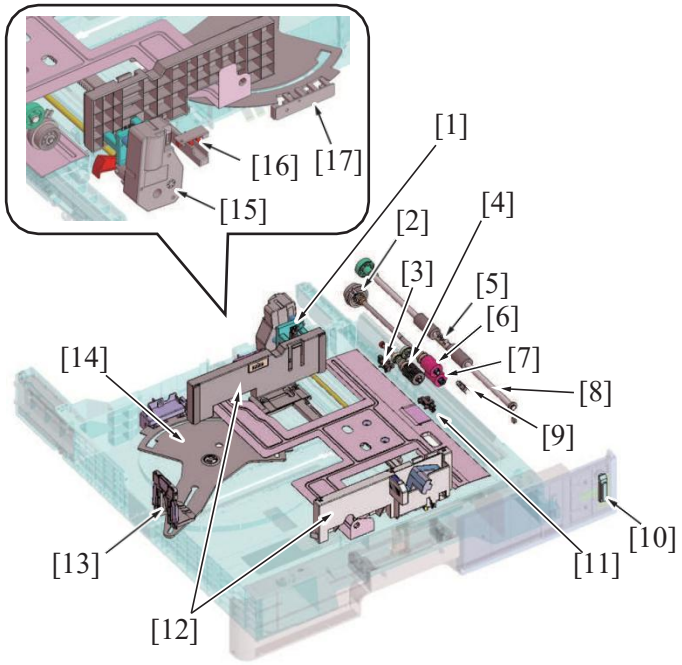
Configuration

Tray 1



[1]	Tray 1 paper near empty sensor (PS11)	[2]	Tray 1 upper limit sensor (PS25)
[3]	Tray 1 pick-up roller	[4]	Tray 1 feed roller
[5]	Tray 1 separation roller	[6]	Tray 1 paper feed sensor (PS23)
[7]	Tray 1 paper empty sensor (PS24)	[8]	Machine condition monitor window
[9]	Paper width guide	[10]	Paper length guide
[11]	Paper length detection plate	[12]	Tray 1 lift-up motor (M12)
[13]	Tray 1 CD paper size board (CDPSB/1)	[14]	Tray 1 FD paper size board (FDPSB/1)

Tray 2



[1]	Tray 2 paper near empty sensor (PS12)	[2]	Tray 2 paper feed clutch (CL1)
[3]	Tray 2 upper limit sensor (PS22)	[4]	Tray 2 pick-up roller
[5]	Tray 2 vertical transport sensor (PS19)	[6]	Tray 2 feed roller

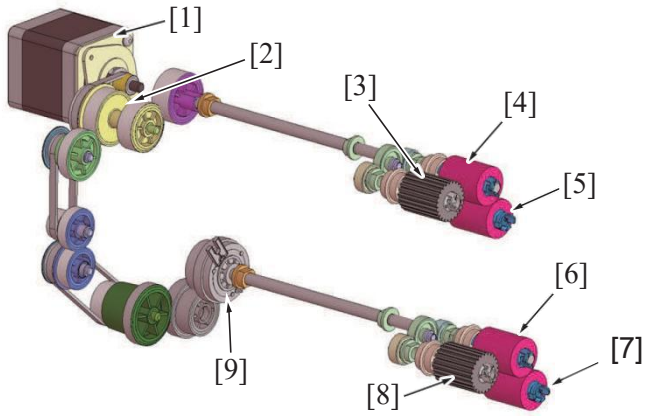
[7]	Tray 2 separation roller	[8]	Vertical transport roller

[9]	Tray 2 paper feed sensor (PS20)	[10]	Machine condition monitor window
[11]	Tray 2 paper empty sensor (PS21)	[12]	Paper width guide
[13]	Paper length guide	[14]	Paper length detection plate
[15]	Tray 2 lift-up motor (M13)	[16]	Tray 2 CD paper size board (CDPSB/2)
[17]	Tray 2 FD paper size board (FDPSB/2)	-	-

Drive

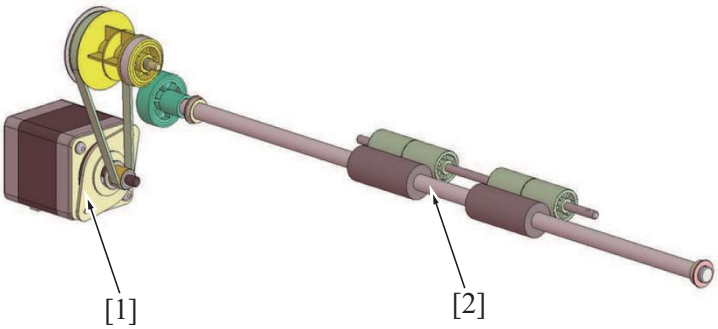
- Drive parts are arranged in the same way in tray 1 and tray 2. If the description that follows is not identified with tray 1 or tray 2, it is applicable to both tray 1 and tray 2 in terms of mechanism and control.
- Paper feed motor drives the tray 1 and tray 2 feed roller section.
- The drive section of each tray has a clutch that controls rotation of the paper feed roller section.
- Forward and reverse operation of the paper feed motor enables switching between drive of the tray 1 paper roller and tray 2 paper roller.
- The one-way clutch on the transport motor drive shaft switches drive modes.
- The tray 2 vertical transport motor drives the vertical transport motor.

Paper feed drive



[1]	Paper feed motor (M22)	[2]	One-way clutch
[3]	Tray 1 pick-up roller	[4]	Tray 1 feed roller
[5]	Tray 1 separation roller	[6]	Tray 2 feed roller
[7]	Tray 2 separation roller	[8]	Tray 2 pick-up roller
[9]	Tray 2 paper feed clutch (CL1)	-	-

Conveyance drive (tray 2)



[1]	Tray 2 vertical transport motor (M23)	[2]	Vertical transport roller

Operation

Up/down control

- Tray 1 and tray 2 are controlled in the same control procedure.

(1) Up operation

- The paper lift-up plate B is located under the paper lift-up plate A.
- The lift-up plate drive shaft of the tray 1/2 lift-up motor is connected to paper lift-up plate B.
- When the drive shaft of the tray 1/2 lift-up motor rotates, paper lift-up plate B raises paper lift-up plate A.

(2) Down operation

- When the tray is slid out of the machine, the coupling of tray 1/2 lift-up motor and the lift-up plate drive shaft are disconnected from each other.
- When the driving force of tray 1/2 lift-up motor is released from the lift-up plate drive shaft, the paper lift-up plate starts lowering by its own weight.

(3) Operation timing

(a) When the tray is slid in

- When the tray is slid into the machine, the sensor on the tray 1/2 FD paper size board is blocked. The machine then determines that the tray is slid into position.
- The paper lift-up plate is lowering when the tray is slid out, so that the tray 1/2 upper limit sensor is unblocked.
- Determining after tray insertion that the tray 1/2 upper limit sensor is unblocked, the machine lets the tray 1/2 lift-up motor rotate to start the up operation of the paper lift-up plate.
- When the paper stack is raised to a predetermined height after the up operation of the paper lift-up plate has been started, the tray 1/2 upper limit sensor is blocked.
- Determining that the tray 1/2 upper limit sensor is blocked, the machine stops the tray 1/2 lift-up motor to complete the up operation of the paper lift-up plate.
- Control is provided to make sure that only one tray performs the up operation at one time.
- If the tray is slid out during the up operation of the paper lift-up plate and accordingly the sensor on the tray 1/2 FD paper size board is unblocked, the up operation of the paper lift-up plate is terminated.

(b) During a print cycle

- When the amount of paper decreases as the unit keeps printing, the pick-up roller will gradually come down to unblock the tray 1/2 upper limit sensor. The tray 1/2 lift-up motor will rotate again to lift up the paper lift-up plate.

- When the tray 1/2 upper limit sensor is blocked, the tray 1/2 lift-up motor will stop to stop lift-up the paper lift-up plate.
- The sequence of these operations is repeated to keep constant the pressure between the pick-up roller and paper stack (paper take-up pressure) regardless of the amount of paper still available for use.

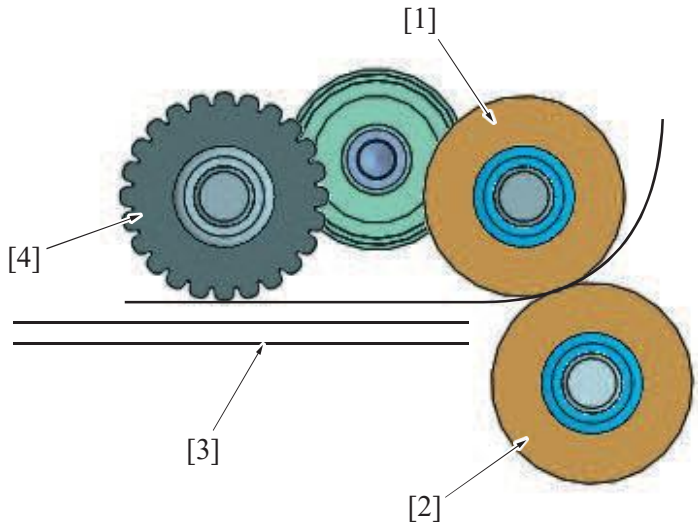
Paper feed control

(1) Pick-up control

- The paper feed motor turns ON when the predetermined amount of time elapses after the print start signal is input. Drive power transfers to tray 1 and tray 2 via forward and reverse operation of the paper feed motor.
- Drive power from the paper feed motor transfers to the tray 1 pick-up roller and feed roller when the paper feed motor is turned ON. Paper is picked up and fed by the rotation of the rollers.
- Drive power from the paper feed motor transfers to the tray 2 pick-up roller and feed roller when the tray 2 paper feed clutch is turned ON. Paper is picked up and fed by the rotation of the rollers.

(2) Separation control

- The separation roller is pressed up against the feed roller by the pressure of a spring and an acting pressure generated from torque of the torque limiter.
- The acting pressure of the feed roller, separation roller, and torque limiter serves as the limit torque for preventing double feed.
- When there is no sheet of paper or only one sheet of paper between the separation roller and feed roller, the limit torque is exceeded and the separation roller follows the rotation of the feed roller.
- If there are two or more sheets of paper between the separation roller and feed roller, the limit torque is greater than the friction force of the paper, so that the separation roller is not rotated.
- The separation roller causes the lower sheet of paper in contact with the separator roller to be pushed backward in the direction of the tray, so that the lower sheet of paper is properly separated.
- Only the upper paper contacting the feed roller is conveyed to the registration section.

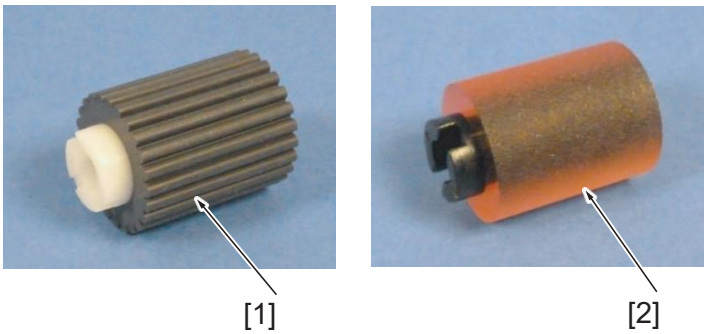


[1]	Feed roller	[2]	Separation roller
[3]	Paper	[4]	Pick-up roller

(3) Periodical replacement parts

- The pick-up roller, feed roller, and separation roller are periodical replacement parts. These three rollers must be replaced with new ones at the same time.
- None of the pick-up roller, feed roller, and separation roller is provided with a new article detection mechanism. When the three rollers are replaced with new ones, the “1st.” or “2nd.” counter must be reset from [Service Mode] -> [Counter] -> [Life].
- The number of times tray 1/tray 2 has been subjected to paper feed operations can be checked with the “1st./2nd.” counter of the Service Mode.

Periodical replacement cycle	Paper feed operations 300,000 times



[1]	Pick-up roller	[2]	Feed roller, Separation roller

- To improve exchangeability, the pick-up roller, feed roller, and separation roller are held in position on one side. At the time of replacement, remove the paper tray and release the claws on each roller to remove each of the three rollers.
- For details of the applicable replacement procedures for the pick-up roller, feed roller, and separation roller and the Service Mode, see “Replacing the tray 1 feed roller, tray 1 pick-up roller, tray 1 separation roller” and “Replacing the tray 2 feed roller, tray 2 pick-up roller, tray 2 separation roller.”

Paper feed retry control

- If the specified sensor is unable to detect the paper even after the lapse of a predetermined period of time after the start of the paper feed sequence, the machine determines that there is a paper misfeed. To reduce possibility of paper misfeed, if a paper misfeed is detected during a print job under the following conditions, the paper feed sequence is performed again (retry) only once. The feed roller is temporarily stopped, and is then turned again. A paper misfeed results if the specified sensor is still unable to detect the paper even after the paper feed retry sequence, the machine determines that there is a paper misfeed.

CM9705DN/M9705

Paper port	Paper feed retry control	Sensor name
Manual bypass tray	Only in black mode	Registration sensor
Tray 1	No retry control is performed.	
Tray 2	Only in black mode	Tray 2 vertical transport sensor
Tray 3 (Option: PC-115/215)		Tray 3 vertical transport sensor
Tray 4 (Option: PC-215)	Retry control is performed both in color and black mode.	Tray 4 vertical transport sensor
LCC (Option: CPT910X)	Only in black mode	LCT vertical transport sensor
LCT (Option: LU-302/LU-207)		LU paper feed sensor

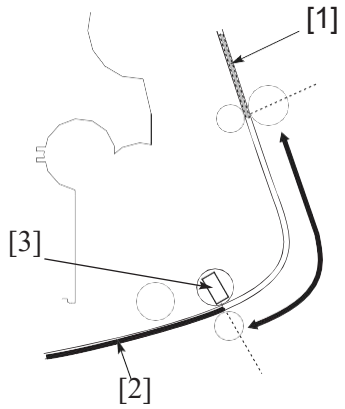
CM9105DN/M9105DN

Paper port	Paper feed retry control	Sensor name
Manual bypass tray	Only in black mode	Registration sensor
Tray 1	No retry control is performed.	
Tray 2	Only in black mode	Tray 2 vertical transport sensor
Tray 3 (Option: PC-115/215)		Tray 3 vertical transport sensor
Tray 4 (Option: PC-215)	Retry control is performed both in color and black mode.	Tray 4 vertical transport sensor
LCC (Option: CPT910X)		LCT vertical transport sensor
LCT (Option: LU-302/LU-207)	Only in black mode	LU paper feed sensor

Feed roller speed reduction control

- During multi-print cycles, the target printed pages number is maintained due to correction of the transport speed variations and a proper paper-to-paper distance.
- Measure the time that is taken from starting paper feed to the paper feed sensor ON. If the paper-to-paper distance is too narrow, the paper roller is decelerated for a predetermined time, so that a proper paper-to-paper distance can be achieved.
- Feed roller speed reduction control is implemented when paper is fed from the following paper trays.

Paper port	Controlled roller	Sensor name
Tray 1	Tray 1 feed roller	Tray 1 paper feed sensor
Tray 2	Tray 2 feed roller	Tray 2 paper feed sensor



[1]	Preceding sheet	[2]	Sheet of paper being controlled
[3]	Paper feed sensor	-	-

Vertical transport roller speed reduction control

- In the same manner as with the feed roller speed reduction control, control is performed to reduce the speed of the vertical transport roller during a multi-print cycle, thereby maintaining a proper paper-to-paper distance.
- Time it takes the vertical transport sensor to be activated after the start of a paper feed sequence is measured. If the distance between two sheets of paper is determined to be narrow, the vertical transport roller is decelerated for a predetermined period of time, so that a proper paper-to-paper distance can be achieved.

Vertical transport roller speed reduction control is implemented paper is fed from the following paper trays.
CM9705DN/M9705/CM9105DN/M9105DN

Paper port	Controlled roller	Sensor name
Tray 2	Tray 2 vertical transport roller	Tray 2 vertical transport sensor
Tray 3 (Option: PC-115/215)	Tray 3 vertical transport roller	Tray 3 vertical transport sensor
Tray 4 (Option: PC-215)	Tray 4 vertical transport roller	Tray 4 vertical transport sensor
LCC (Option: CPT910X)	LCT vertical transport roller	LCT vertical transport sensor
LCT (Option: LU-302/207)	LU roller	LU paper feed sensor

Paper transport control (CM9705DN/M9705/CM9105DN/M9105DN)

(1) Tray 1

- The tray 1 feed roller feeds the paper onto the registration roller.
- The tray 1 paper feed sensor located downstream of the tray 1 feed roller detects the paper fed from the feed roller.
- The paper feed motor turns OFF when the trailing edge of paper that is transported from the feed roller reaches the specified position upstream from the tray 1 feed roller. The pick-up roller and feed roller follow the movement of the paper, continuing rotating. The pick-up roller and feed roller stop rotating as soon as the paper moves past them.
- If the registration sensor is unable to detect paper even after the lapse of a predetermined period of time, the machine determines that there is a paper misfeed at tray 1.

(2) Tray 2

- The tray 2 feed roller feeds the paper onto the tray 2 vertical transport roller.
- The tray 2 paper feed sensor located downstream of the tray 2 feed roller detects the paper fed from the tray 2 feed roller.
- The paper feed motor and the tray 2 paper feed clutch are turned OFF when the tray 2 vertical transport sensor located downstream from the tray 2 vertical transport roller along the paper path detects the leading edge of the paper that is fed from the feed roller. The pick-up roller and feed roller follow the movement of the paper, continuing rotating. The pick-up roller and feed roller stop rotating as soon as the paper moves past them.
- If the tray 2 vertical transport sensor is unable to detect the leading edge of paper even after the lapse of a predetermined period of time, the machine determines that there is a paper misfeed at tray 2.

Downstream exit control during multi-print cycle

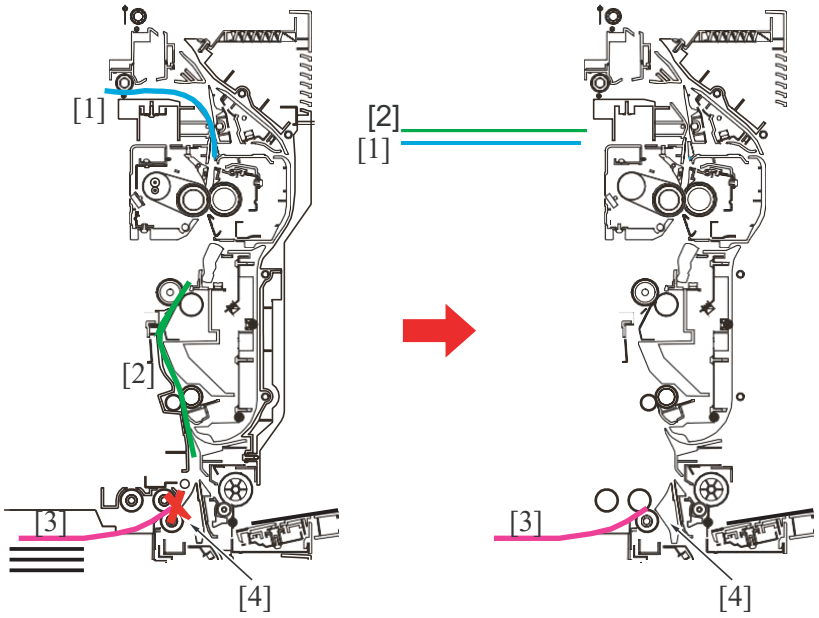
- When a paper jam in the paper feed section is detected, the print operation does not stop immediately. Paper that has been printed completely and paper that can be printed completely is discharged outside of the machine after being printed.
- Completely discharge printed paper to make jam removal easily and reduce paper consumption.

(1) Downstream exit control jams

Misfeed at tray 1 paper feed section	Misfeed at LCC (PC-410/PC415) paper feed section
Misfeed at tray 2 paper feed section	Misfeed at LCT (LU-207/LU-302) paper feed section
Misfeed at tray 3 paper feed section	Misfeed at manual bypass tray paper feed section
Misfeed at tray 4 paper feed section	Misfeed at vertical transport section

(2) 1-sided printing

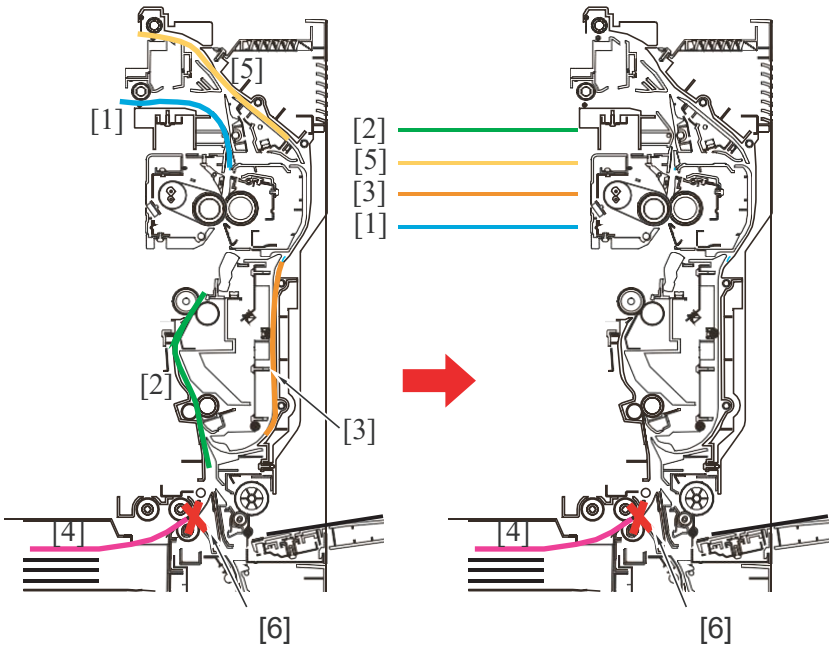
1. Stops the feeding of paper [3] where the jam occurred and the transport operation.
2. Exit paper [1].
3. Transfers, fuses image onto, and then discharges paper [2].



[1]	Sheet after a 1-sided image transfer	[2]	Sheet before a 1-sided image transfer
[3]	Jamming paper	[4]	Jamming

(3) 2-sided printing

1. Stops the feeding of paper [4] where the jam occurred and the transport operation.
2. Exit paper [1].
3. Transfer and fuse 2-side image onto, and then exit, sheets [3] and [5] located at the reverse/duplex section.
4. Performs 2-sided printing and discharges paper [3] in the pre-image transfer process.



[1]	Sheet after a 2-sided image transfer	[2]	Sheet before a 1-sided image transfer

[3]	Sheet after a 1-sided image transfer	[4]	Jamming paper
[5]	Sheet after a 1-sided image transfer	[6]	Jamming

Paper pick-up pressure switching mechanism

- A paper misfeed may infrequently occur, if lightweight 52 g recycled paper, or the like, is used under high temperature, high humidity environment. (Paper pick-up pressure is too high for the thin paper)
- Replacement of the pick spring that is mounted to paper feed unit 2 may lower the paper pick-up pressure and reduce the paper misfeed.
- For the replacement procedure, see "Pick-up pressure adjustment of the tray 1/2".

NOTE

- **Since the spring is available to the recommended thin paper (CS520), replacement is not required.**
- **At using plain paper under high-temperature, high-humidity environment or feeding thick paper after replacement of the pick-up spring, a paper misfeed may infrequently occur. (Paper pick-up pressure is too low for the thick paper)**

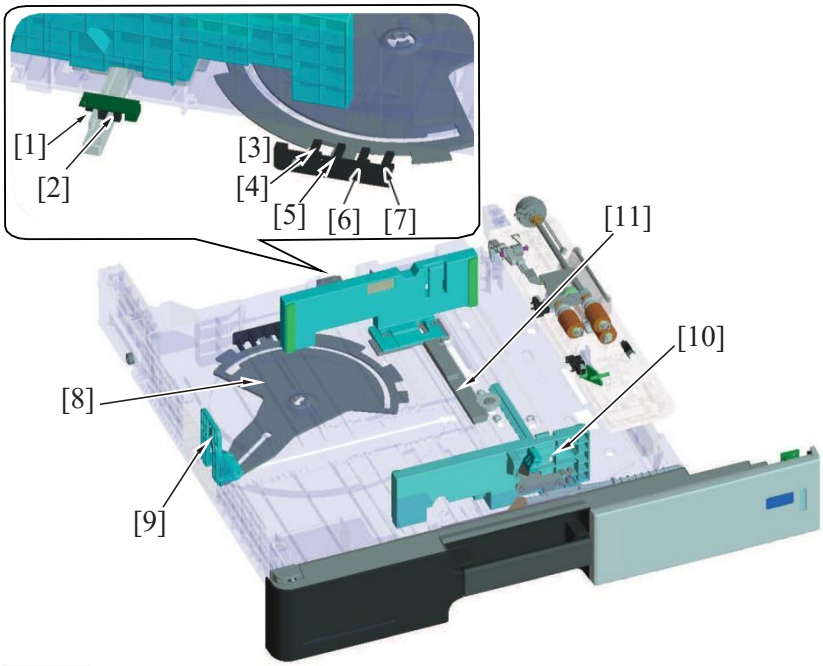
11.3.6 Paper size detection control

(1) Paper width detection (CD)

- The size in paper width is detected with the combination of ON/OFF the transmission type photosensors 1, 2 on the CD paper size board.
- The CD paper size sensor is unblocked or blocked according to the position of the paper width detection plate connected to the paper width guide plate.

(2) Paper length detection (FD)

- The size in paper length is detected with the combination of ON/OFF transmission type photosensors 1 to 4 on the FD paper size board.
- The FD paper sensor is unblocked or blocked by the paper length detection plate position connected to the paper length guide plate.
- The sensor on the FD paper size board also functions to detect whether the tray is mounted.



[1]	CD paper sensor2	[2]	CD paper sensor1
[3]	FD paper size board	[4]	FD paper sensor1
[5]	FD paper sensor2	[6]	FD paper sensor3
[7]	FD paper sensor4	[8]	Paper length detection plate
[9]	Paper length guide	[10]	Paper width guide
[11]	Paper width detection plate	-	-

(3) Sheet size determination

- The 2 CD paper size sensors detect the paper width, and the 4 FD paper size sensors detect the paper length. Paper size is determined with the combination of the above paper width and paper length.

Paper size	FD paper size board				CD paper size board	
	Sensor 4	Sensor 3	Sensor 2	Sensor 1	Sensor 2	Sensor 1
SRA3 (*1)	H	L	L	H	H	H
A3 Wide (*1)	H	L	L	H	L	H
A3	L	L	H	L	L	H
B4	L	H	H	H	L	H
A4S	H	H	L	L	L	L
A4	H	L	L	H	L	H

Paper size	FD paper size board				CD paper size board	
	Sensor 4	Sensor 3	Sensor 2	Sensor 1	Sensor 2	Sensor 1
B5S	L	H	H	L	L	L
B5	L	H	L	L	L	H
A5S (*2)	H	L	H	L	L	L
Invoice S (*2)	H	L	H	L	L	L
Ledger (11×17)	L	L	H	L	H	H
Legal (8 $^{1}/_{2}$x14)	L	H	H	H	L	L
Letter S (8$^{1}/_{2}$x11 S)	L	L	L	H	L	L
Letter (8$^{1}/_{2}$x11)	H	L	H	L	H	H
FLS S (*3)	H	H	H	H	L	L
8K S (270 mm x 390 mm)	L	H	L	H	H	H
16K (270 mm × 195 mm)	L	H	H	L	H	H

- *1: SRA3 and A3 Wide are support only from the tray 2 and the bypass tray.
- *2: For regions using inches, Invoice S size is detected. For other regions, A5S size is detected.
- FLS can be configured with one of the following paper sizes from Foolscap Size Setting in Service Mode.
  - 8 $^{1}/_{2}$×13 $^{1}/_{2}$, 8×13, 8 $^{1}/_{4}$×13, 8 $^{1}/_{2}$×13

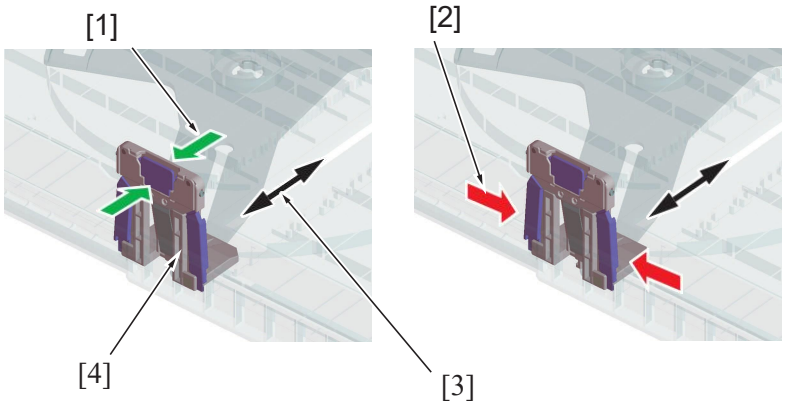
(a) Sensor states

Sensor	Physical state	
	HIGH signal	LOW signal
FD paper size board: sensor 1 to 4	Blocked	Unblocked
CD paper size board: sensor 1, 2		

Paper length guide operation mechanism

Two methods are provided to operate the paper length guide.

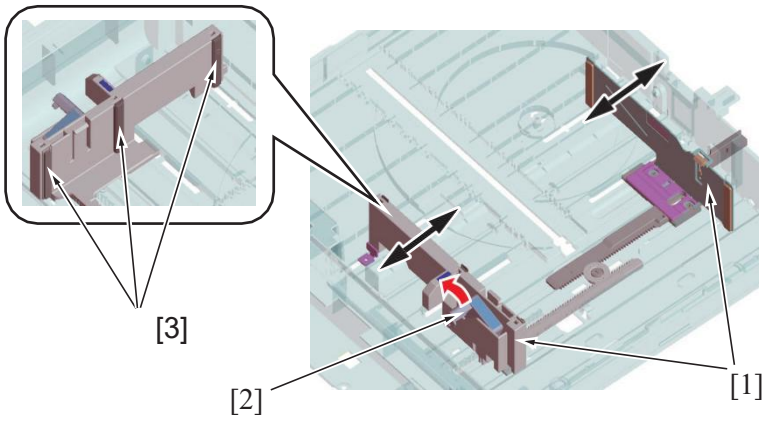
- Squeeze the paper length guide to operate it in the direction orthogonal to the direction of movement.
- Squeeze the paper length guide to operate it in the same direction as the direction of movement.



[1]	Squeeze in the same direction as the direction of movement	[2]	Squeeze in the direction orthogonal to the direction of movement
[3]	Movement direction of paper length guide	[4]	Paper length guide

Paper width guide

- A latching positioning method is used to prevent paper width guide misalignment due to shock that is generated during insertion of trays.
- Operating the lock lever releases the lock that is installed to the front side of the paper width guide. The paper width guide can then be moved.
- The front side paper width guide is equipped with a support guide. The support guide presses paper in the tray with spring force to reduce paper skew.



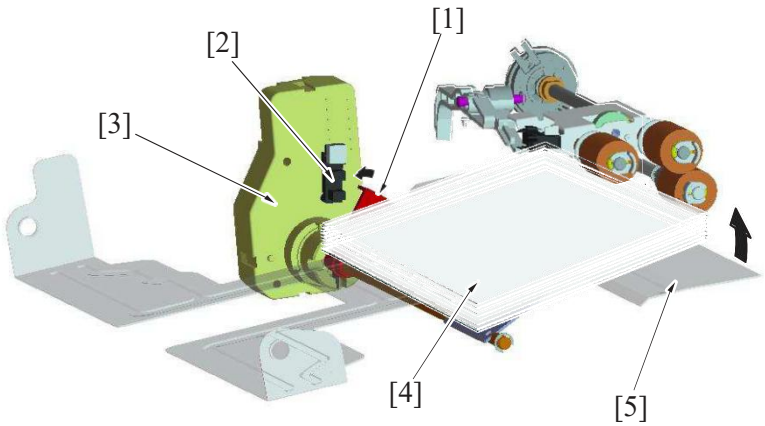
[1]	Paper width guide	[2]	Lock lever
[3]	Support guide	-	-

Remaining paper detection control

- The remaining paper detection control is performed under any of the following conditions:
  - “Tray 1/tray 2 is closed in position”
  - “The up/down control of the paper lift-up plate is completed”

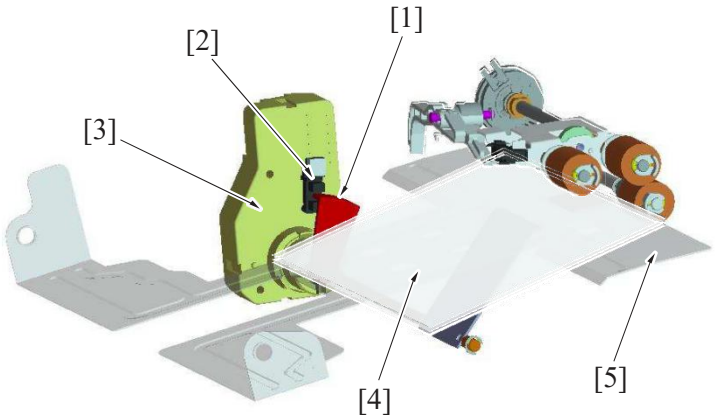
(1) Paper near-empty detection

- The tray 1/2 near empty sensor detects a paper near-empty condition of the tray.
- As paper is consumed, the paper lift-up plate is raised. This raises the near empty detection actuator provided at the lift-up plate drive shaft of the lift-up motor.
  When a sufficient amount of paper is loaded



- When the near empty detection actuator is raised to a position at which the tray 1/2 near empty sensor is blocked, the machine detects a near-empty condition.
  NOTE
  - **A near-empty condition is detected when the amount of paper still available for use becomes about 50 sheets.**

  Near empty condition

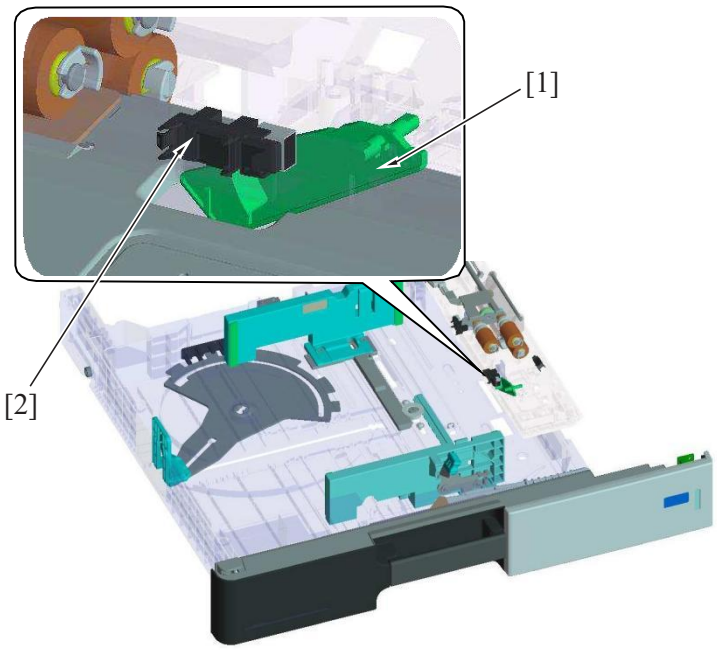


[1]	Actuator	[2]	Tray 1/2 paper near empty sensor (PS11/PS12)

[3]	Tray 1/2 lift-up motor (M12/M13)	[4]	Paper
[5]	Paper lift-up plate	-	-

(2) Paper empty detection

- Tray 1 and tray 2 use the same control system to detect a paper empty condition.
- A paper empty condition is detected by the tray 1/2 paper empty sensor.



[1]	Actuator	[2]	Tray 1/2 paper empty sensor (PS24/PS21)

Remaining paper level display

- The amount of remaining paper is indicated by the LED on the right side of each tray and by the screen of the control panel.
- The following shows how the level is displayed.

Tray condition	Empty	Near empty	Other statuses (Including during lift-up and no tray conditions)
LED	ON	Blinking/OFF *	OFF

*: LED turns OFF when Paper Remainder is set to Type 2: Service Mode -> System 1 -> Machine State LED Setting -> Paper Remainder.



[1]	Tray 1 empty indicator	[2]	Tray 2 empty indicator

Paper feed tray locking mechanism

- The paper feed tray is provided with a locking mechanism.

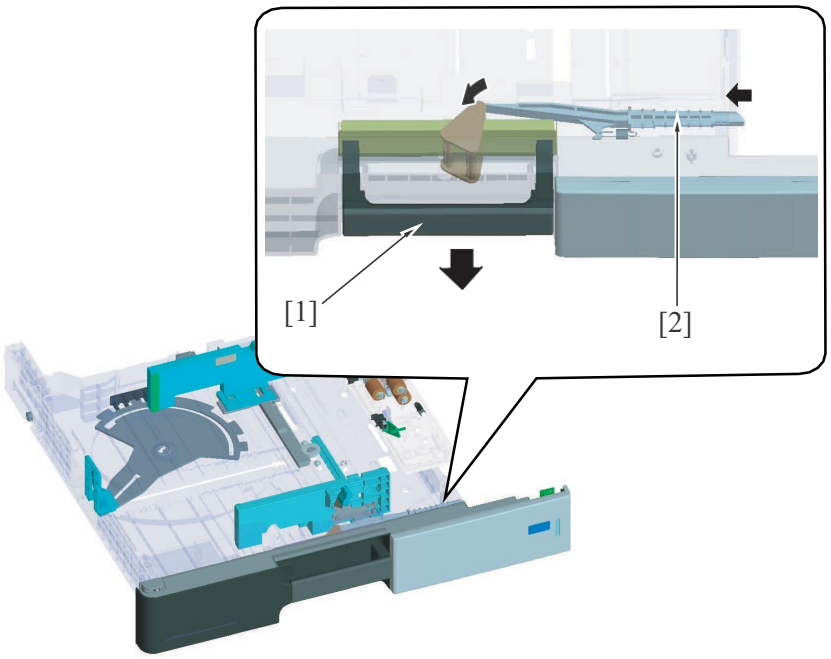
(1) Unlocking the paper feed tray

- With drawing the lever of the paper feed tray to the front will disengage the tray lock lever equipped on the right side of the paper feed tray.
- The paper feed tray can be pulled out of the machine by continuing pulling the lever with the tray lock lever disengaged.
- Rollers are provided for the right and left tray rails. They reduce the operating force required for sliding in/out the paper feed tray.

(2) Locking the paper feed tray

- Pushing the lever of the paper feed tray all the way toward the rear will allow the paper feed tray to be slid into the machine.

- When the paper feed tray is inserted all the way in place, the tray lock lever equipped on the right side of the paper feed tray locks the tray in place.
- To prevent false detection, the paper feed tray is equipped with a spring in the rear that pushes the tray back out if the tray is not inserted all the way in place.

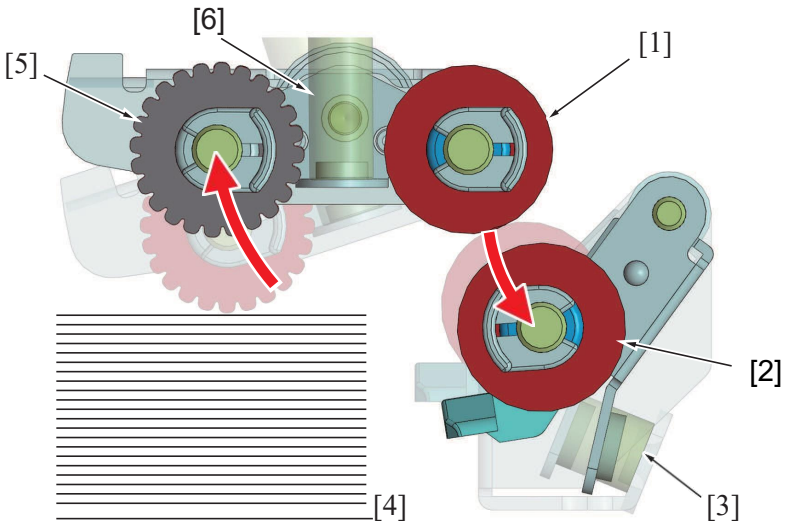


[1]	Lever of the paper feed tray	[2]	Lock lever

Roller retract mechanism

- When the paper feed tray is inserted or pulled out, there is a mechanism which retracts the pick-up roller and the separation roller.
- The pick-up roller retracts from the paper.
- The separation roller retracts from the feed roller.

Front view

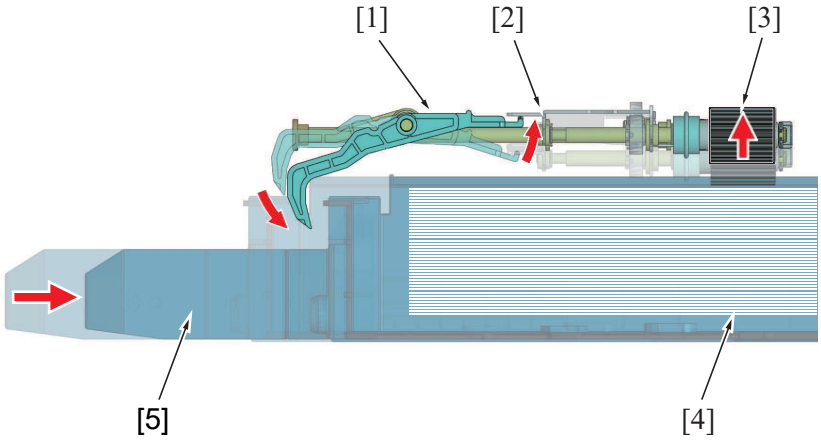


[1]	Feed roller	[2]	Separation roller
[3]	Separation roller pressure spring	[4]	Paper
[5]	Pick-up roller	[6]	Pick-up roller pressure spring

(1) Pick-up roller retract mechanism

- When the paper feed tray is inserted or pulled out, the pick-up roller prevents the paper from being damaged.
- The pick-up roller comes down through spring pressure when the paper feed tray is closed. When paper is placed, the roller is pressed against the paper surface. (Paper feed position)
- Released the paper feed tray lock, the roller lifting lever is also released and the pick-up roller holder is pushed up to the retracted position. It prevents the paper surface from being damaged even if the paper tray is pulled out.

Left side view

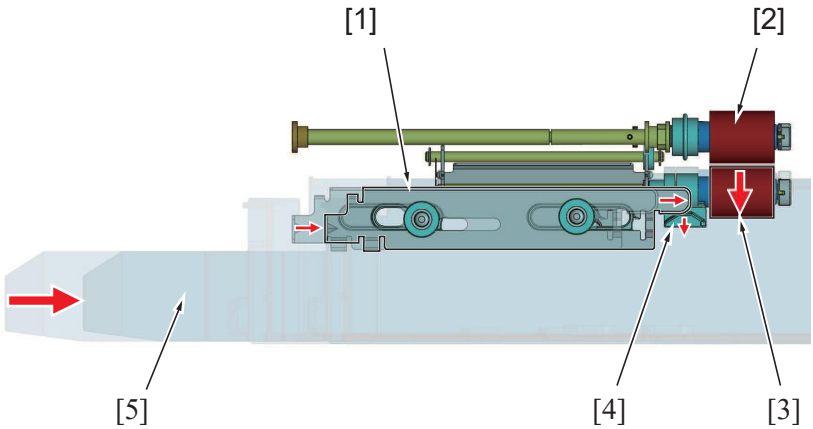


[1]	Roller lifting lever	[2]	Pick-up roller holder
[3]	Pick-up roller (retracted position)	[4]	Paper
[5]	Paper feed tray (lock released)	-	-

(2) Separation roller retract mechanism

- When a paper jam occurs and paper is caught between rollers where the feed roller is pressing the separation roller, paper will be left inside the machine through pulling out the paper feed tray. If you insert the paper feed tray in that state, the paper may get torn in pieces which may fall off and scatter inside the machine. It prevents paper from being torn or falling off through retracting the separation roller.
- The separation roller is pressed against the feed roller by spring pressure when the paper feed tray is closed. (Paper feed position)
- Release the paper tray lock, the roller pushdown lever is also released and the separation roller retract lever is pushed down to the retracted position. It releases the paper from the rollers even if it is jammed between the rollers.

Left side view



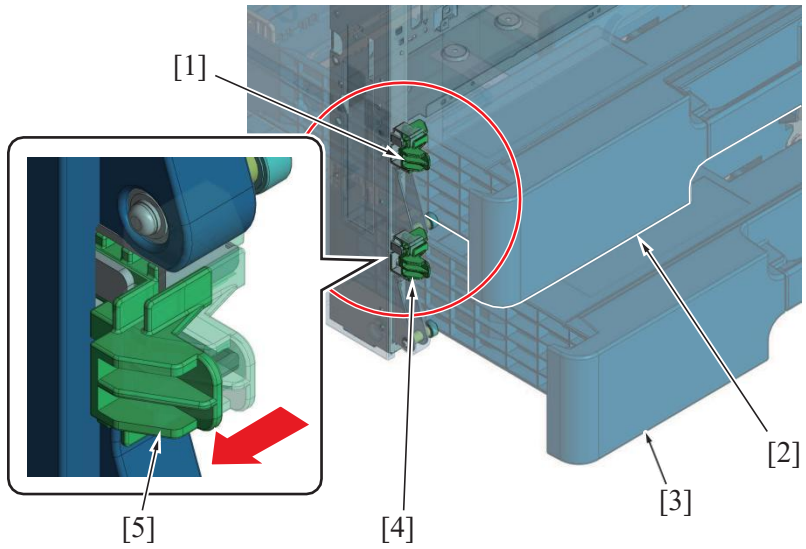
[1]	Roller pushdown lever	[2]	Feed roller
[3]	Separation roller (retracted position)	[4]	Separation roller retract lever
[5]	Paper feed tray (lock released)	-	-

Paper feed tray stopper release mechanism

- The paper feed tray is equipped with a stopper mechanism.
- When paper is placed, the stopper prevents the paper feed tray from falling off from the machine even if it is pulled out.
- The paper feed tray can be removed if paper is remained inside the machine at the time of handling a paper jam or a misfeed.

NOTE

- **The paper feed stopper release mechanism is mounted only on tray 1, tray 2, and optional PC-115/215.**
- **To remove trays 3 and 4 of optional PC-110/210, remove the paper feed stopper (1 screw).**



[1]	Tray 1 stopper	[2]	Tray 1
[3]	Tray 2	[4]	Tray 2 stopper
[5]	Tray stopper release	-	-

(1) Releasing the paper tray stopper

- Press the stopper on its left side, the stopper lock will be released.

(2) Locking the paper tray stopper

- Press the stopper on its right side, the stopper lock will be locked.

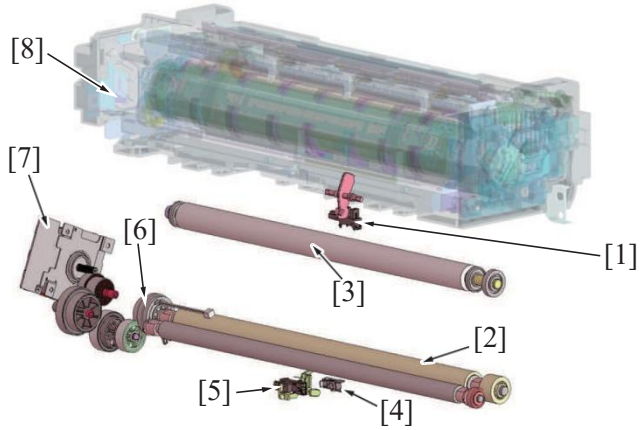
NOTE

- **A mechanism is provided to push and lock the stopper through closing the paper tray to its home position even if you forget to lock it. (Mechanism to prevent forgetting lock)**

REGISTRATION SECTION

Configuration

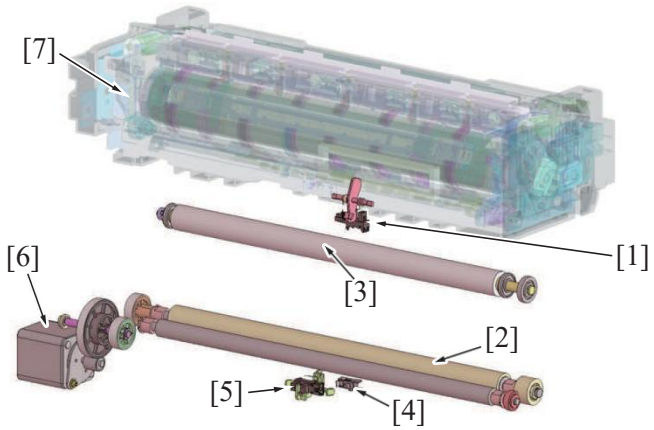
Configuration (CM9105DN/M9105DN)



[1]	Fusing loop sensor (PS2)	[2]	Registration roller
[3]	2nd transfer roller	[4]	Registration sensor2 (PS72) *
[5]	Registration sensor1 (PS1)	[6]	Registration clutch (CL4)
[7]	Transport motor (M1)	[8]	Fusing unit

- *: Only C558 is equipped with the registration sensor 2.

Configuration (CM9705DN/M9705)



[1]	Fusing loop sensor (PS2)	[2]	Registration roller
[3]	2nd transfer roller	[4]	Registration sensor2 (PS72)
[5]	Registration sensor1 (PS1)	[6]	Registration motor (M24)
[7]	Fusing unit	-	-

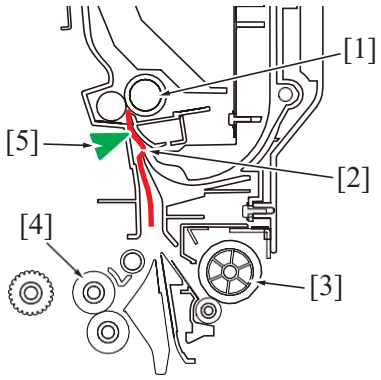
Operation

Registration control

- The transport motor and registration clutch controls rotation of the registration roller. Note that control in CM9705DN/M9705 models is provided by the registration motor.
- The paper will create a loop between the tray 1 paper feed roller (or tray 2 vertical transport roller or bypass paper feed roller) and the registration roller when the paper is being conveyed in order to correct the skew.
- Registration roller is controlled in order to synchronize the timing the unit starts writing the image and conveying paper.
- The amount of the loop of the paper can be adjusted in the [Service Mode] -> [Machine] -> [Printer Reg. Loop Adj.]. Changing the adjustment value will change the amount of loop in the paper.

(1) Operation

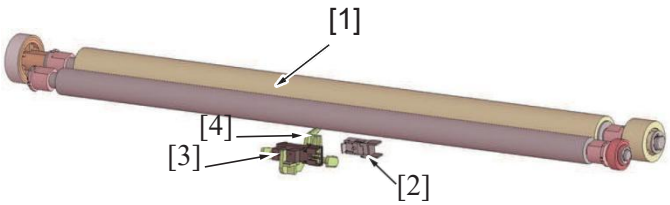
1. The paper is transported while the registration roller is stationary.
2. The registration sensor1 detects the leading edge of the paper, which is interpreted to mean that the paper has reached the registration roller.
3. A paper loop is formed thus skew in the paper is corrected.
4. The registration roller rotates to transport the paper.


[1]
[5]
[2]
[4]
[3]

[1]	Registration roller	[2]	Loop formation
[3]	Manual bypass tray feed roller	[4]	Tray 1 feed roller
[5]	Registration sensor1 (PS1)	-	-

(2) Paper trailing edge detection (CM9705DN/M9705)

- The registration sensor2 is provided to detect paper trailing edges.
- The registration sensor2 is a reflective optical sensor which detects paper using reflected light.
- The registration sensor1 (photosensor and actuator) is used to detect paper leading/trailing edges. However, paper detection accuracy decreases when the speed of paper transport is increased. The registration sensor2 has been provided to resolve this issue.
- The registration sensor1 and registration sensor2 can be used in combination to increase the paper transport detection accuracy and reduce the paper transport variability.

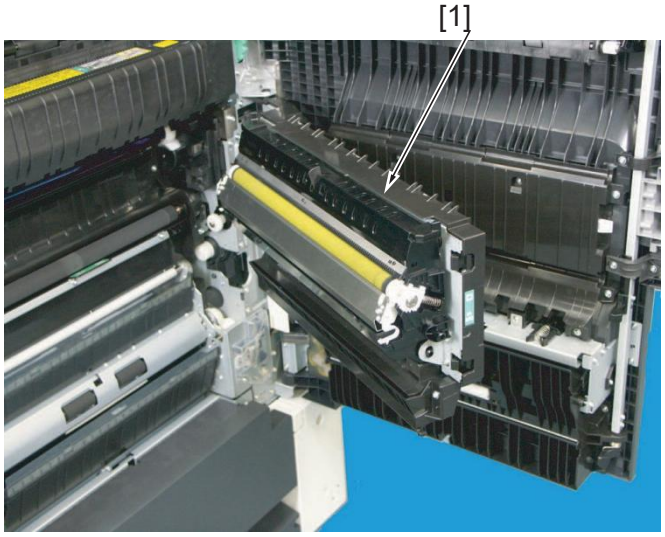


[1]	Registration roller	[2]	Registration sensor2
[3]	Registration sensor1	[4]	Registration sensor1 actuator

Right door mechanism

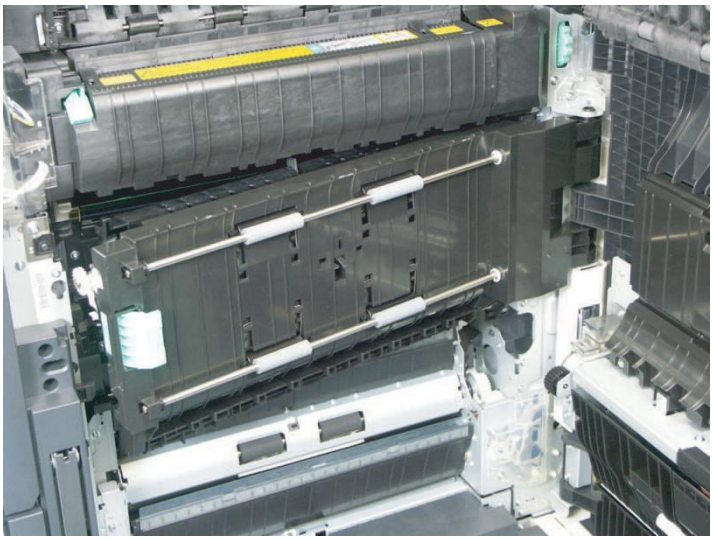
- The machine has the right door to enable easy access into the inside of the machine for clearing a paper misfeed or performing other service jobs.
- The right door is mounted with the mechanisms of the vertical transport section, paper feed section (manual bypass tray), and the duplex section. For detailed functions of the paper feed section (manual bypass tray) and the duplex section, see the corresponding chapters.
- The regist unit (2nd transfer section, registration section, and duplex section) is found inside the right door when opened.
- The regist unit is not provided with a locking mechanism or open/close detection mechanism. The locking mechanism and open/close detection mechanism provided for the right door are used also for the regist unit. For details of the regist unit, see Configuration, O.12.1.1 Configuration (CM9105DN/M9105DN), and O.12.1.2 Configuration (CM9705DN/M9705).

Regist unit (registration section/ 2nd transfer section)



[1]	Regist unit	-	-

Regist unit (duplex section)



(1) Right door locking mechanism

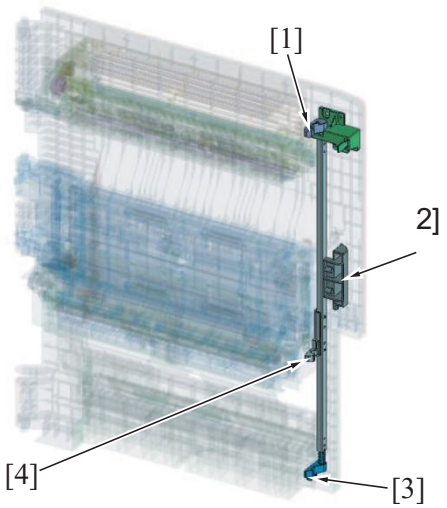
- The right door is provided with a locking mechanism.

(a) Unlocking the right door

- With drawing the lever of the right door to the front will disengage the door lock pawls (three) equipped at the front side of the right door.

(b) Locking the right door

- Close the regist unit and then close the right door. When the right door is closed in its correct position, the door lock pawls (three) equipped at the front side of the right door lock the right door in place.

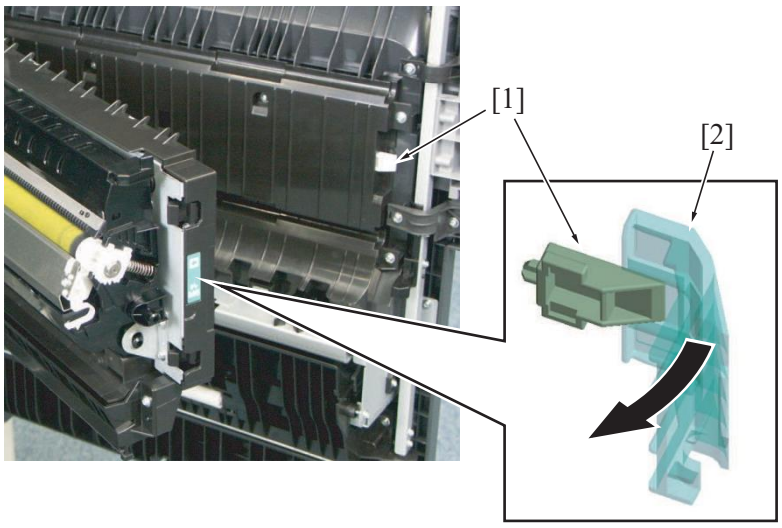


[1]	Door lock pawl (upper)	[2]	Right door lever
[3]	Door lock pawl (lower)	[4]	Door lock pawl (center)

(2) Regist unit lock mechanism

1. When the right door is opened, the regist unit that is left locked to the right door is also opened.

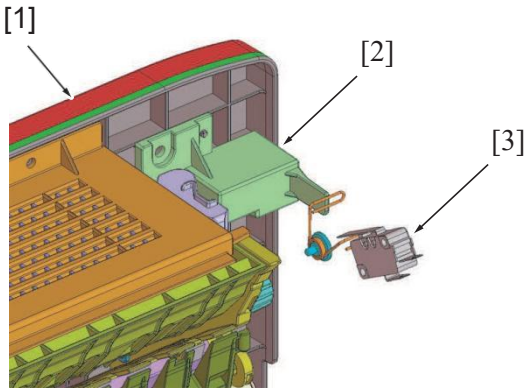
- The regist unit can be separated from the right door when the regist unit lever is disengaged from the door lock pawl equipped on the right door side.



[1]	Door lock pawl	[2]	Lever

(3) Right door open/close detection mechanism

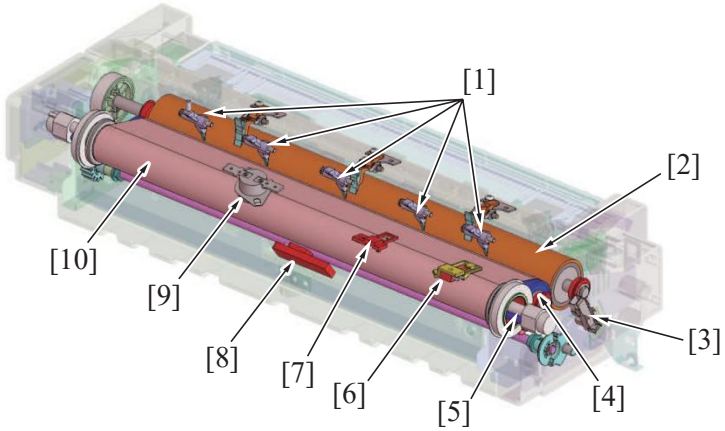
- The right door switch detects that the right door is opened or closed.
- When the right door is closed, the open/close detection plate equipped at an upper portion at the front of the right door presses the actuator of the right door switch. This turns ON the right door switch and the machine determines that the right door is closed.
- When the right door is opened, the actuator of the right door switch is released. This turns OFF the right door switch and the machine determines that the right door is opened, giving a message that prompts the operator to close the right door.
- On determining that the right door is open, the machine prohibits the use of all jobs but the fax reception job. A paper misfeed results if the right door is opened during a print cycle.



[1]	Right door	[2]	Open/Close detection plate
[3]	Right door switch (SW3)	-	-

FUSING SECTION (CM9105DN/M9105DN)

Configuration

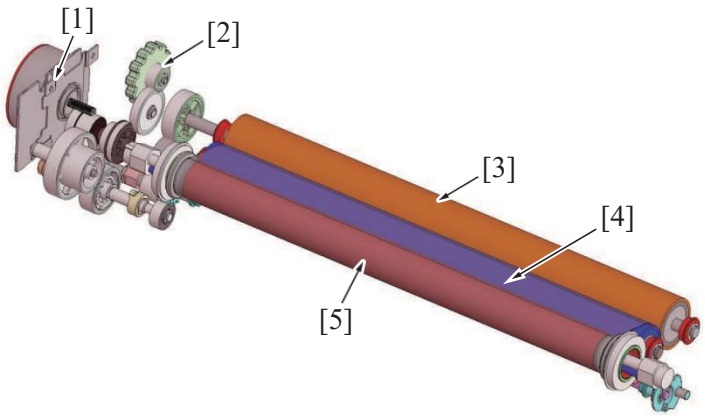


[1]	Paper separator claws (noncontact type)	[2]	Pressure roller
[3]	Fusing pressure home sensor (PS38)	[4]	Fusing roller
[5]	Fusing heater lamp assy	[6]	Heating roller thermistor1 (TH1)
[7]	Heating roller thermistor2 (TH2)	[8]	Heating roller temperature sensor (TEMS) *
[9]	Heating roller thermostat (TS1)	[10]	Fusing belt

- *: Equipped to C368/C308/C258 only

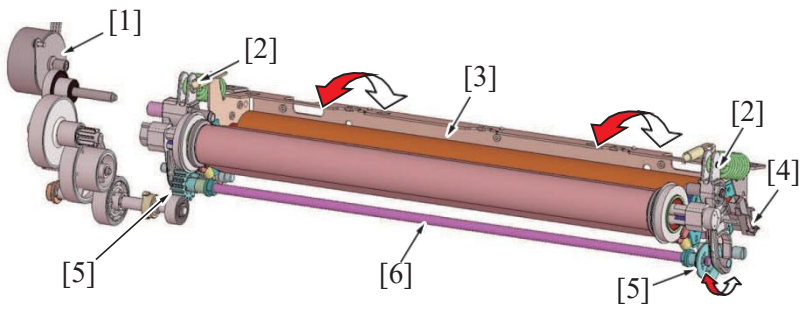
Drive

Fusing section roller drive



[1]	Fusing motor (M3)	[2]	Fusing drive release gear
[3]	Pressure roller	[4]	Fusing roller
[5]	Heating roller	-	-

Pressure roller pressure drive



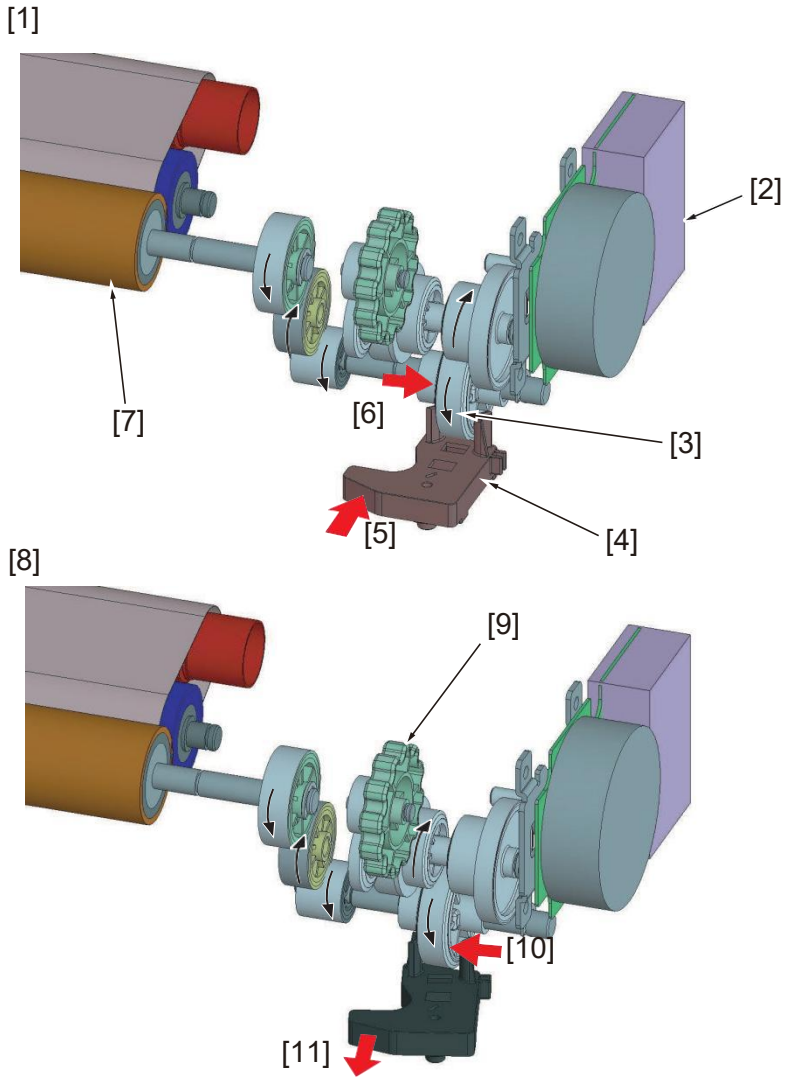
[1]	Fusing motor (M3)	[2]	Fusing lever
[3]	Fusing belt	[4]	Fusing pressure home sensor (PS38)

[5]	Pressure cam	[6]	Cam shaft

Operation

Fusing drive release mechanism

- At the fusing drive position, transmit the driving force of the fusing motor to the pressure roller by a fusing drive release gear.
- Opening the right door places the fusing drive release lever in the fusing drive release position.
- With the fusing drive release lever in the fusing drive release position, the fusing drive release gear is disconnected from the fusing motor and, instead, connected to the jam removal dial.
- If a paper misfeed occurs in the fusing section, opening the right door allows the jam removal dial to be used for removing the misfed paper.



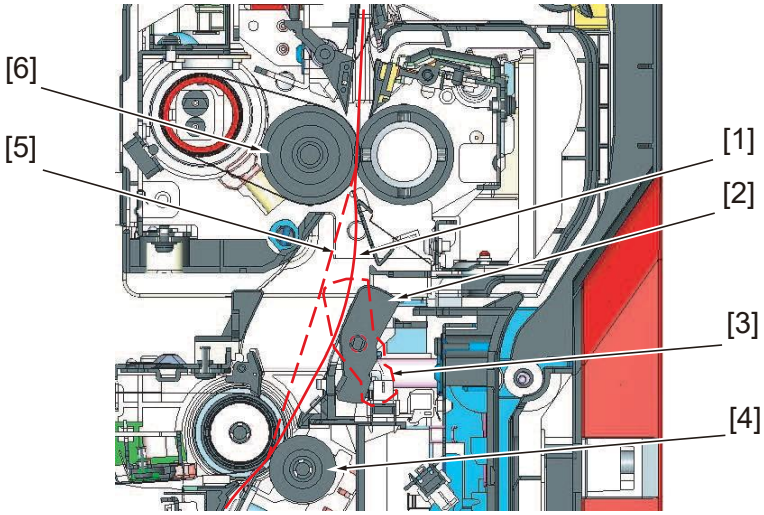
[1]	Fusing drive position	[2]	Fusing motor (M3)
[3]	Fusing drive release gear	[4]	Fusing drive release lever
[5]	Right door close position	[6]	Connected to fusing motor
[7]	Pressure roller	[8]	Fusing drive release position
[9]	Jam removal dial	[10]	Connected to jam removal dial
[11]	Right door open position	-	-

Fusing speed correction

(1) Fusing loop control

- To prevent double transferred images and brush effects that occur due to a difference in speed between paper transport during image transfer and fusing, a loop is formed in the paper between the 2nd transfer and fusing sections.
- The fusing loop sensor detects the length of the loop formed in the paper between the 2nd transfer section and the fusing roller.
- The fusing motor increases or decreases the fusing speed according to the length of loop in the paper, thereby ensuring that the length of loop falls within a predetermined range.

Fusing loop sensor	Loop amount	Fussing speed
Unblocking	Large	Speed-up
Blocking	Small	Slowdown



[1]	Loop length: large	[2]	Actuator
[3]	Fusing loop sensor (PS2)	[4]	2nd transfer roller
[5]	Loop length: small	[6]	Fusing roller

Operation timing

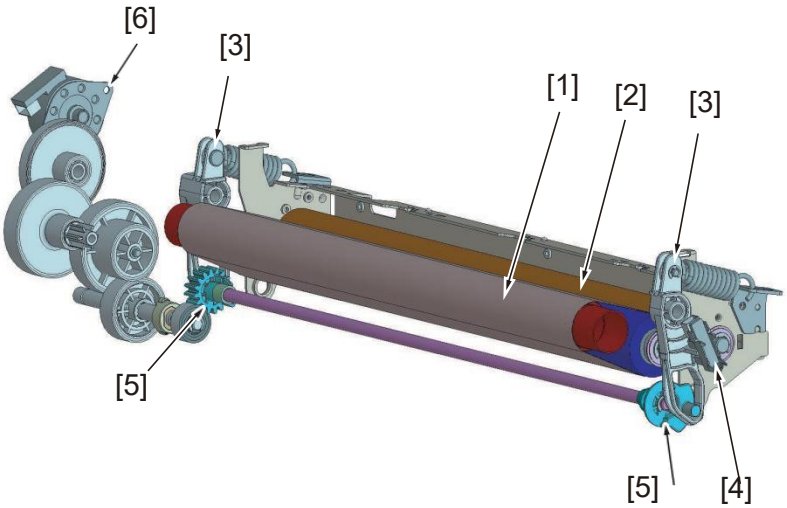
- It starts controlling when the front-edge of the paper reaches to the predetermined position before the fusing roller.
- The fusing speed is decelerated so that a loop is formed in the paper between the 2nd transfer roller and the fusing roller.
- When the paper loop amount is large, the fusing loop sensor is unblocked, and the fusing speed is increased.
- When the paper loop amount is small, the fusing loop sensor is blocked, and the fusing speed is decreased.
- The fusing speed is increased or decreased as necessary to make sure that the paper loop amount falls within a predetermined range, thereby absorbing a difference between the fusing speed and image transfer speed.
- The fusing loop control will finish after the trailing of the paper passes the 2nd transfer roller.

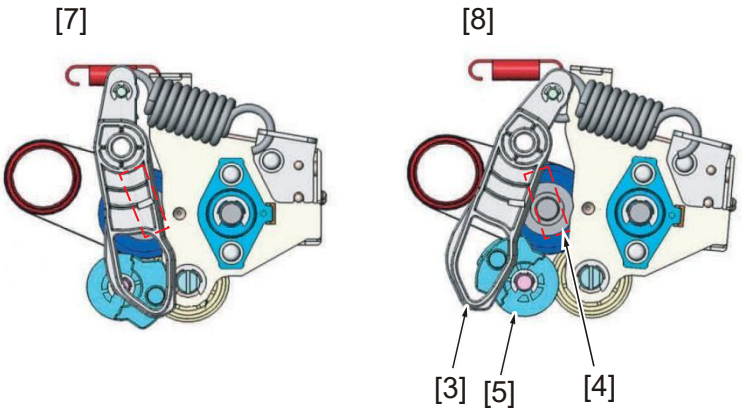
Fusing speed adjustment

- If double transferred images or brush effects occur due to inadequate paper loop before fusing, adjust the fusing speed using [Service Mode] -> [Machine] -> [Fusing transport speed].
- For detailed adjustment method, see “ I.2.1.3 Fusing Transport Speed”.

Fusing pressure/retraction control

- To maintain durability of the fusing belt, the fusing pressure roller is retracted *1 from the fusing belt during any time other than a print cycle. (The roller is, however, retracted during a print cycle using envelopes.)
  *1: The pressure roller does not completely retract from the fusing belt but is slightly pressed to the fusing belt.
- The fusing pressure roller is pressed against, and retracted from, the fusing belt by rotating the pressure cam through forward or backward rotation of the fusing pressure motor.
- The fusing pressure home sensor detects the pressure roller at its pressure position.
- The position at which the fusing pressure roller is retracted is controlled by the period of time (number of pulses) through which the fusing pressure motor is rotated.
- When there is no change in the output of the fusing pressure home sensor even after the lapse of a predetermined period of time after the fusing pressure motor has started rotating, the machine determines that there is a pressure/retraction fault and displays the “Trouble code C3101: Pressure roller separation failure” message or “Trouble code C3103: Pressure roller release failure” message.





[1]	Fusing belt	[2]	Pressure roller
[3]	Pressure lever	[4]	Fusing pressure home sensor (PS38)
[5]	Pressure cam	[6]	Fusing pressure motor (M11)
[7]	Pressure position	[8]	Release position

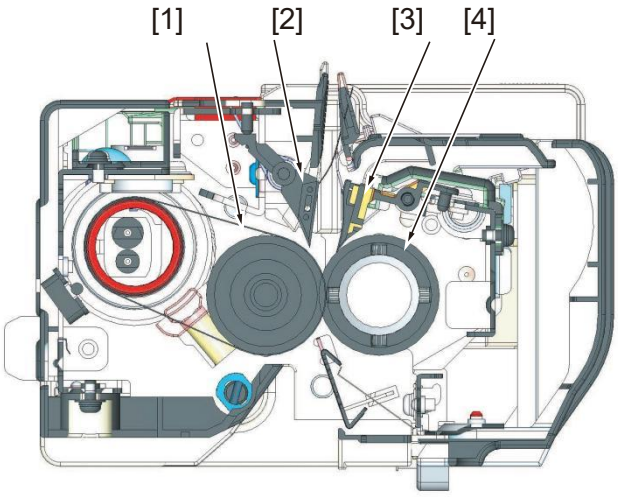
(1) Operation timing

Condition		Pressure roller position
Warm-up	At the start of a warm-up cycle	Pressure
Pre-standby	At the start of the pre-standby	Pressure
Standby	At the start of the standby	Retraction
Printing	For envelopes	Retraction
	For paper types other than envelopes	Pressure
When printing the multi jobs	When current printing is for other than envelopes and the next job is for the envelopes.	Pressure -> Retraction *1
	When current printing is for the envelopes and the next job is for other than envelopes.	Retraction -> Pressure *1
Energy save mode (lower power mode, sleep mode)		Retraction
When a malfunction or misfeed occurs		Retraction
When the fusing heater lamp is turned OFF (a door opened, a malfunction occurs, or other factors.)		Stop

- *1: Pressure/retraction will be conducted after the currently printed paper passes between the fusing belt and the pressure roller. The timing for the next paper to be fed will be delayed during the pressure/retraction and keep the certain period of time between feeding the papers.

Paper separation mechanism

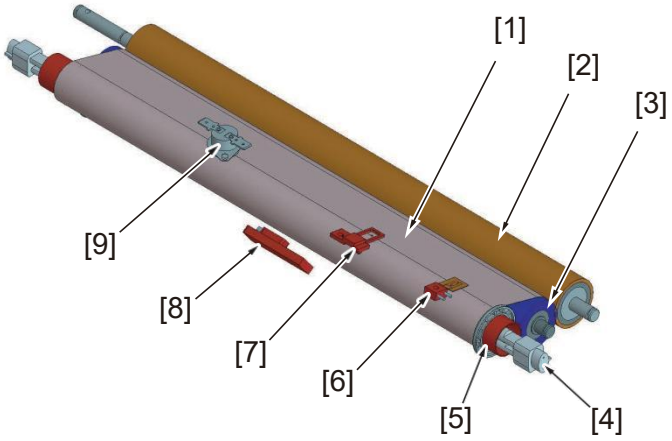
- Paper separator claws are provided on the fusing pressure roller side and the fusing belt side in order to separate the sheet of paper reliably after the fusing process.
- Three contact type paper separator claws are installed on the fusing pressure roller side.
- Five noncontact type paper separator claws are installed on the fusing belt side.



[1]	Fusing belt	[2]	Paper separator claws (noncontact type)
[3]	Paper separator claws (contact type)	[4]	Pressure roller

Fusing temperature control

- Fusing temperature control uses the heating roller temperature sensor and the heating roller thermistor that detect the surface temperature of the fusing belt to turn ON or OFF the fusing heater lamp as necessary.
  The fusing heater lamp when turned ON heats the fusing belt to a set temperature.

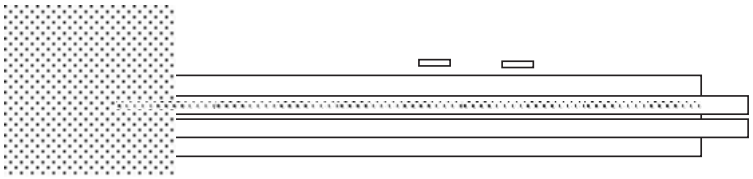


[1]	Fusing belt	[2]	Pressure roller
[3]	Fusing roller	[4]	Fusing heater lamp assy
[5]	Heating roller	[6]	Heating roller thermistor1 (TH1)
[7]	Heating roller thermistor2 (TH2)	[8]	Heating roller temperature sensor (TEMS) *
[9]	Heating roller thermostat (TS1)	-	-

- *: Equipped to C368/C308/C258 only

(2) Fusing heater lamp

- The heating roller contains a fusing heater lamp assy in it. The fusing heater lamp turns ON to generate heat, which heats the heating roller and fusing belt.
- The fusing heater lamp assy consists of two heaters, each having a unique heating range different from each other.
  - The fusing heater lamp1 (long) * uniformly heats the entire area of the heating roller.
    NOTE
    ▪ *: Only CM9105DN/M9105DN dedicated for Japan contains both the fusing heater lamp1 (long) (FH1) and the fusing heater lamp3 (long) (FH3).
  - The fusing heater lamp2 (short) heats only the central portion of the heating roller.
- The fusing heater lamp is turned ON or OFF according to the width of the paper and the surface temperature of the fusing belt.
  - For a paper width of 209 mm or less, the fusing heater lamp2 is used to heat the central portion.
  - For a paper width exceeding 209 mm, the surface temperature of the fusing belt is measured and the fusing heater lamp1 and the fusing heater lamp2 are alternately turned ON.

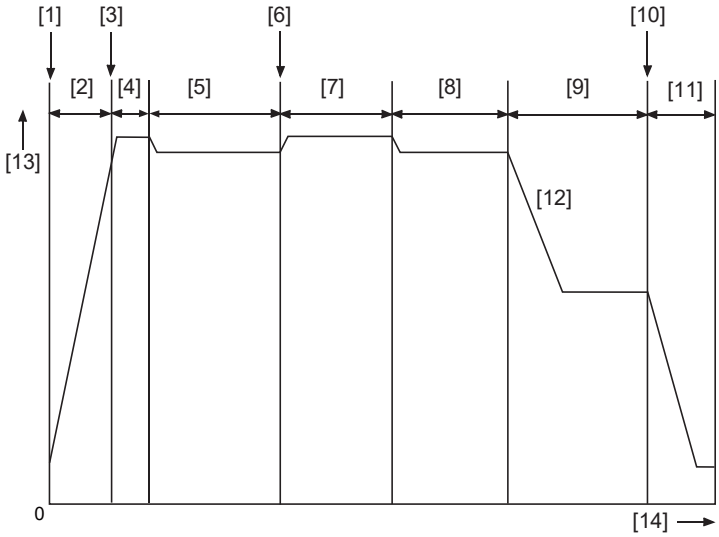


[1]	Front of machine	[2]	Fusing heater lamp1 (FH1)
[3]	Fusing heater lamp2 (FH2)	[4]	Rear of machine
[5]	Heating roller thermostat (TS1)	[6]	Heating roller temperature sensor (TEMS) *
[7]	Heating roller thermistor2 (TH2)	[8]	Heating roller thermistor1 (TH1)

- *: Equipped to C368/C308/C258 only

(3) Temperature control chart

* An example when a machine is warmed up under a normal ambient condition



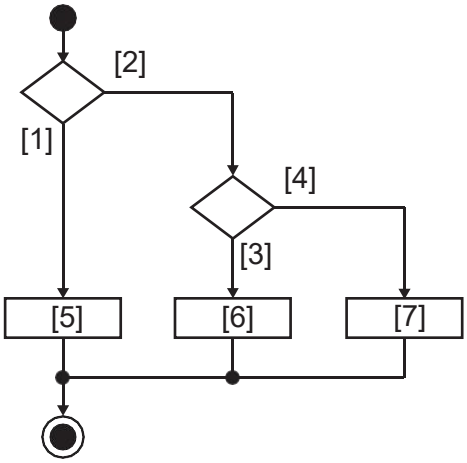
[1]	Main power switch ON	[2]	Warm-up control
[3]	Warm-up completed	[4]	Pre-standby control
[5]	Standby control (including a countermeasure against overshoot)	[6]	Print request
[7]	Print control	[8]	Standby
[9]	Low power mode	[10]	Entry in sleep mode
[11]	Sleep mode	[12]	Fusing belt temperature
[13]	Temperature	[14]	Time

(3) Fusing temperature control during warm-up

- To prevent image fixability from being degraded due to environmental changes when the main power switch is turned ON, three different warm-up modes are incorporated for fusing temperature control.
- The warm-up mode is performed “at low temperatures”, “at ordinary temperatures”, or “under high humidity condition”.
- In the warm-up mode under high humidity condition, the warm-up time is extended to prevent paper from curling and the difference in temperature between the fusing belt and fusing pressure roller is minimized.
- When the temperature of the fusing belt reaches the warm-up completion temperature, control is passed onto the pre-standby process.

Warm up mode	Environment	
	Machine interior temperature	Machine interior humidity (absolute humidity *1)
Warm-up at low temperatures	18 °C or less	Not judged by absolute humidity
Warm-up at ordinary temperatures	More than 18 °C to 32 °C or less	Less than a predetermined value
Warm-up under high humidity condition	More than 32 °C	Predetermined value or more

- *1: Absolute humidity: water content contained in the air (1 m3) as steam regardless of the temperature



[1]	Machine interior temperature 18 °C or less	[2]	Machine interior temperature exceeding 18 °C
[3]	Absolute humidity, specified value or more	[4]	Absolute humidity, less than the specified value
[5]	Warm-up at low temperatures	[6]	Warm-up under high humidity condition
[7]	Warm-up at ordinary temperatures	-	-

(4) Temperature control during pre-standby
- After the warm-up completion temperature is reached, control is then passed onto the pre-standby process.
- The temperature control in the pre-standby state turns ON or OFF the fusing heater lamp as necessary in order to maintain the fusing belt temperature at a level that enables printing.
- A print job, when received during the pre-standby state, can be started without waiting.

(5) Temperature control during stand-by
- If no print request is received after the temperature control in the pre-standby state is started, control is passed onto the standby process.
- The temperature control in the standby state maintains the fusing belt temperature at a level lower than the temperature that enables printing.
- The control is intended to shorten time it takes the temperature to reach the printable level when a print request is received.
- An overshoot preventive process may be performed before control is passed onto the temperature control in the standby state.
- The fusing motor repeats rotating (at low speed) and stopping for 30 minutes after the standby starts.
  After the 30-min. period, the fusing motor is deenergized.

(6) Temperature control during the print cycle

(a) Temperature control
- The machine enters a print state as it receives a print control and carries out a print cycle at a set temperature corresponding to the type of paper selected for the job.
- The fusing temperature is measured during the print cycle and temperature control suitable for the print condition is performed accordingly.

(7) Energy save mode
- The machine enters the energy save mode from any standby state to thereby reduce power consumption (TEC value).
- The energy save mode may be either the low power mode or sleep mode, whichever is enabled depending on the set conditions.

NOTE
TEC value (Typical Electricity Consumption):
- **Energy saving criteria for copiers and printers to comply with the Energy Start program.**
- **Power consumption (kWh) at the office assuming operation of a product for one week (5 working days + 2 holidays) is calculated from the print speed and power consumption of the product.**

(a) Temperature control during low power mode
- To reduce power consumption in the low power mode, the surface temperature of the fusing belt is made lower than the controlled temperature under “temperature control during the standby state”.
- In the low power mode, the printable temperature can be recovered within a period of time shorter than warm-up.

(b) Temperature control during sleep mode
- To reduce power consumption during the sleep mode, power to the fusing heater lamp is shut down to stop heating the fusing belt.
- If the fusing belt temperature is decreased to room temperature, the printable temperature can be recovered within the same period of time as that of warm-up.

(8) Fusing-related control
- The following types of control are available as they relate to fusing temperature:
- For detailed setting method, see each item.

(a) Service Mode
- [Machine/Fusing Temperature]
- [Machine/Heater Control Level].
- [System 1/Warmup]
- [System 2/Smart Fusing Control]

(b) Enhanced Security
- [Engine FW DipSW / No.5 Choice of high humidity circumstance]
- [Engine FW DipSW / No.13 Choice of securing fusibility]

Plain paper fusing temperature control

- Two different target temperatures control the printing on plain paper.

Basis weight	Specific controls
Plain paper (60g/m^2 - 70g/m^2)	The base weight is limited to 60g/m^2 - 70g/m^2. Power consumption (TEC value) is controlled through lowering the target temperature to lower than the normal fusing temperature.
Plain paper (60g/m^2 - 90g/m^2)	The normal target temperature controls the fusing temperature control of plain paper.

13.3.3 Smart fusing control

- Lower the target temperature as much as possible according to the information of each sheet of paper to control the fusing temperature adjustment. In this way, the power consumption (TEC value) is controlled.
- Smart fusing control is only performed when the execution conditions below are met.
- If these execution conditions are not met, the normal fusing temperature control is performed.
- Smart fusing control can also prohibit control execution from [Service Mode] -> [System 2] -> [Smart Fusing Control]. For details on how to configure the settings, see “Smart Fusing Control”.

Smart fusing control execution conditions

Function		Execution conditions
Temp-Inside		10 °C and above
Print mode		Only for PC printing, BOX printing, and direct printing (USB)*1
Basic Settings	Print zoom	Only 100%
	Paper type	Plain paper only
Layout	Combination	1 in 1 only
	Image shift	No
Cover sheet insertion	Cover sheet	No
	Back cover	No
	Inter sheet	No
	OHP interleave	No

Function		Execution conditions
	Booklet	No
Image quality	Select color	Black mode only
	Gloss mode	No
	Toner save (density 50%)	No
	Edge enhancement	No
	Negative-positive reversal	No
	Maximum black density	80% or more to 90% or less
	Line width	1.5pt or less
	Character decoration	Normal characters only*2
	Character size	16pt or less
	Image object	No
Stamp/page printing	No watermarks	No
	No overlay	No
	No copy security	No
	No header/footer	No
	No management number	No

- *1: Copies are not included in the control
- *2: Bold characters are not included in the control

Protection from abnormal temperatures

(1) First approach: software protection

- If the heating roller temperature sensor detects a predetermined temperature or more continuously, the temperature is determined to be abnormally high and a “trouble code C3725: Fusing abnormally high temperature detection (Main of the heating side)” will be displayed.
- If the heating roller thermistor1 detects a predetermined temperature or more continuously, the temperature is determined to be abnormally high and a “trouble code C3722: Fusing abnormally high temperature detection (Edge of the heating side)” will be displayed.
- If the heating roller thermistor2 detects a predetermined temperature or more continuously, the temperature is determined to be abnormally high and a “trouble code C3726: Fusing abnormally high temperature detection (Center of the heating side)” will be displayed.
- When the trouble code is displayed, printing will be prohibited.

(2) Second approach: hardware protection

- A different protection is provided when the CPU overruns, becoming unable to detect the malfunction of an abnormally high temperature. If the heating roller temperature sensor detects an abnormal temperature, the heater relay of the DC power supply is turned OFF through the MFP board. Power supply to the fusing heater lamp is then shut down.
- When the hardware circuit in the MFP board detects the heater relay being OFF, the temperature is judged to be abnormally high. Trouble code C3731: Fusing abnormally high temperature detection (Hard protector) will be displayed.
- Through these control procedures, the power supply to the heater lamps can be shut down before the thermostat is activated. It thereby suppresses damage to the fusing unit itself.

(3) Third approach: thermostat protection

- If detection of the abnormally high temperature through approaches 1 and 2 above is not possible due to a defective the heating roller temperature sensor, heating roller thermistor or other reason, the thermostat comes into play to shut down the power supply to the heater lamp.

Fusing PPM control

(4) PPM control

- To achieve the intended level of fixability of printed images, the PPM control reduces the number of printed pages per minute by widening the distance between sheets of paper.

PPM mode	Control execution conditions	Purpose	Specific controls	Print productivity *1
Low temperature environment mode	Room temperature at the start of the print cycle is 18°C or less	To achieve the intended level of fixability under low temperature environment	To prevent fixability from being degraded in a multi-print cycle, paper-to-paper distance is widened to thereby limit a decrease in the fusing temperature.	100%: default value 90% 80% 70% 60% 50%
High humidity environment mode *2	Environmental humidity at the start of the print cycle is a predetermined value or more	To suppress occurrence of paper curl under high humidity environment	Paper-to-paper distance is widened in a multi-print cycle run under high humidity environment so as to prevent paper from curling, thereby achieving a required fusing temperature.	100%: default value 70% 50%

PPM mode	Control execution conditions	Purpose	Specific controls	Print productivity *1
Paper curl suppression mode	“Mode 3” is selected for “Change Warm Up Time” of the service mode	To suppress occurrence of paper curl under conditions other than high humidity environment	Paper-to-paper distance is widened in a multi-print cycle run under any condition other than high humidity environment so as to prevent paper from curling, thereby achieving a required fusing temperature.	100%: default value 50%
Heating roller end temperature rise suppression mode	• Print request is received for paper with a paper width of 209 mm or less • Temperature of the heating roller ends becomes a predetermined value or more	To suppress inordinate rise in temperature on heating roller ends in a print cycle using paper of a small size	Paper-to-paper distance is widened in a multi-print cycle so as to prevent the temperature on ends of the heating roller from increasing, thereby promoting reduction in temperature.	100%: default value 90% 80% 70% 60% 50% 40% 30%
Reduced power supply mode	Only an insufficient power is supplied to the fusing heater lamp, resulting in a fusing temperature lower than a predetermined value	To achieve the intended level of fixability under low power supply condition	To prevent fixability from being degraded in a multi-print cycle, paper-to-paper distance is widened to thereby limit a decrease in the fusing temperature.	70%: default value 50%
Thin paper mode	“100%” is selected for “PPM Control Choice” of the service mode	To increase the print productivity of thin paper and recycled paper. To increase productivity during printing using thin paper. * The choice of 100% may result in paper curling.	Paper-to-paper distance is narrowed to thereby increase productivity.	100% 70%: default value *3

- *1: Exemplary calculation of print speed: If 36 ppm can be achieved at a print productivity of 100% on A4 plain paper, a change in print productivity to 90% results in 32.4 ppm.
- *2: Execution of the control for the high humidity environment mode can be prohibited when "No. 5 PPM control (high humidity environment mode) prohibited" is turned ON in [Service Mode] -> [Enhanced Security] -> [Engine FW DIP SW].
- *3: For recycled paper, the print productivity will be set to 70% when “Mode 3” is selected for warm-up choice. For thin paper, the print productivity will be set to 70% regardless of the mode setting for warm-up choice.

Fusing unit new article detection

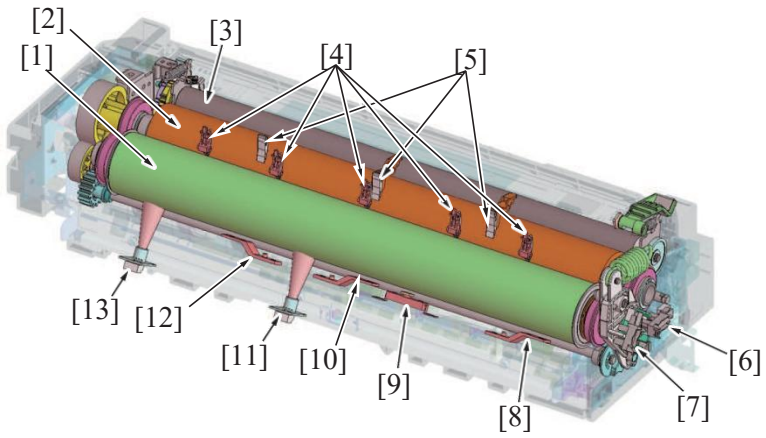
- The fusing unit is not provided with any new article detection mechanism. If the fusing unit is replaced with a new one, therefore, “New Release” of “Fusing Unit” must be performed in [Counter] -> [Life] of the Service Mode.

NOTE

- **For the life of the fusing unit, refer to Consumable/part replacement time.**

FUSING SECTION (CM9705DN/M9705)

Configuration

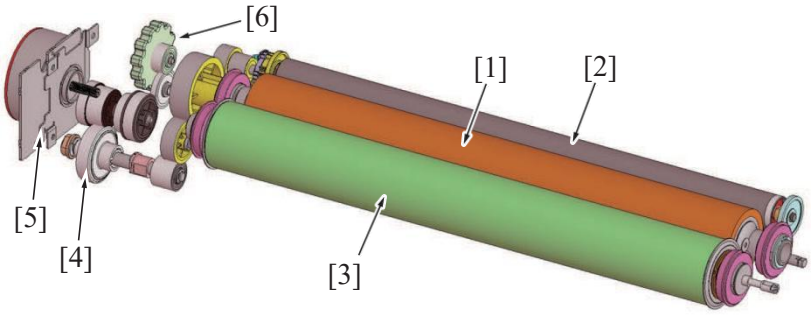


[1]	Heating roller assy	[2]	Fusing pressure roller
[3]	Soaking roller	[4]	Heating roller separation claw
[5]	Fusing pressure roller separation claw	[6]	Heating roller rotation sensor (PS37)
[7]	Fusing pressure home sensor (PS38)	[8]	Heating roller thermistor1 (TH1)
[9]	Heating roller thermostat (TS1)	[10]	Heating roller thermistor3 (TH3)
[11]	Heating roller temperature sensor1 (TEMS/1, Fixed at the main body)	[12]	Heating roller thermistor2 (TH2)
[13]	Heating roller temperature sensor2 (TEMS/2, Fixed at the main body)	-	-

- *: Equipped to CM9705DN/M9705 only

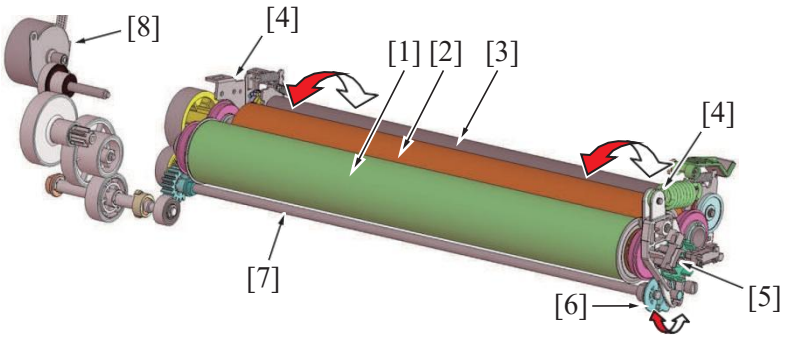
Drive

Fusing section roller drive



[1]	Fusing pressure roller	[2]	Soaking roller
[3]	Heating roller assy	[4]	Fusing drive release gear
[5]	Fusing motor (M3)	-	-

Fusing pressure roller pressure drive



[1]	Heating roller assy	[2]	Fusing pressure roller
[3]	Soaking roller	[4]	Pressure lever

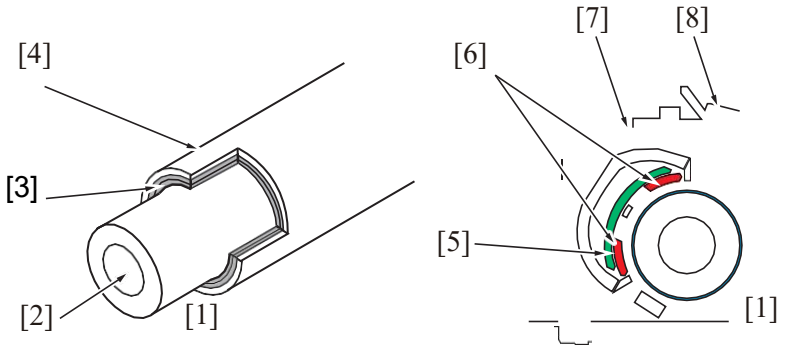
[5]	Fusing pressure home sensor (PS38)	[6]	Pressure cam
[7]	Cam shaft	[8]	Fusing pressure motor (M11)

Operation

Heating roller assy heating control

(1) Heating control

- The heating roller assy consists of the fusing belt (cylindrical shape) into which the fusing roller is inserted.
- The inside surface of the fusing belt is formed with Ni layer and Cu layer.
- The IH coil unit located beside the heating roller assy radiates magnetic flux to the fusing belt when energized.
- The IH coil unit consists of two different types of coil: main coil and demagnetization coil.
- The fusing belt is heated by the main coil. The demagnetization coil controls the heating zone.
- Ni layer and Cu layer of the fusing belt is the conducting layer in which eddy current is generated with magnetic flux. The eddy current generated in the conducting layer produces Joule heat to heat the heating roller.
- The main coil is provided only on one side of the heating roller assy, so that the heating roller generates heat from a local surface of the fusing belt close to the main coil. The heating roller assy is therefore rotated to ensure that the entire periphery of the roller is heated to an adequate temperature.
- The heating roller temperature sensor and heating roller thermistor1 to 3 measure the temperature of the fusing belt.



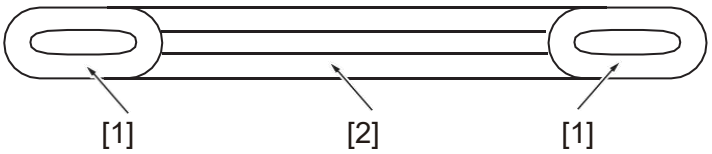
[1]	Heating roller assy	[2]	Fusing roller
[3]	Ni layer and Cu layer (coated back side)	[4]	Fusing belt
[5]	Demagnetization coil	[6]	Main coil
[7]	IH coil unit	[8]	Fusing unit

(2) Whole area heating control

- During printing, the whole area of the fusing belt is heated by the main coil.

(3) Center heating switch control

- The temperature on ends of the fusing belt is measured with the heating roller thermistor1.
- When the temperature of ends of the fusing belt exceeds a predetermined value during printing using paper of a small size or in the standby state, the demagnetization coil comes into play in inhibiting heating of roller ends and only the center portion of the roller is heated.
- When the demagnetization coil is energized, the magnetic flux from the main coil is cancelled by the repulsive magnetic flux induced from the demagnetization coil. When the magnetic flux at the ends of the roller is canceled, heating of the ends of the roller can be controlled.
- The IH coil unit is provided with one type of demagnetization coil.
- The ON/OFF control of the demagnetization coil is performed depending on the paper width (CD: main scanning length), the temperature on sides of the fusing belt, and the type of paper to be fed.

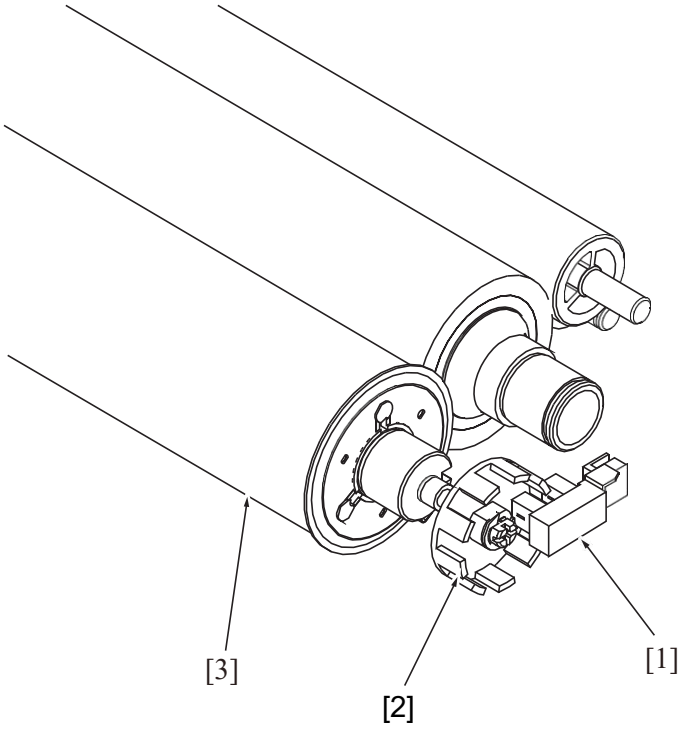


[1]	Demagnetization coil	[2]	Main coil

(4) Detection of rotation of the heating roller assy

- The heating roller assy is rotated while it is being heated to ensure that the entire periphery of the fusing belt reaches an adequate temperature.
- If the heating roller assy does not rotate while the IH coil unit (main coil) is energized, the temperature of the entire periphery of the fusing belt cannot be measured and thus proper temperature control cannot be provided. At this time, only the half surface of the fusing belt is heated. If the main coil is energized with the heating roller assy remaining stationary, the roller can be damaged.

- Rotation of the heating roller results in the cylinder actuator being rotated.
- As the heating roller rotation sensor alternates between unblocked and blocked states at regular intervals, the machine determines that the heating roller assy is rotating.
- If the heating roller rotation sensor remains unblocked or blocked for a predetermined period of time during printing, the machine determines that a paper misfeed occurs at the exit, displaying a corresponding message on the control panel.
- If the heating roller rotation sensor remains unblocked or blocked for a predetermined period of time during a warm-up cycle, standby state, or any other timing than a print cycle, the machine displays the malfunction code “C3102: Heating roller failure to turn” on the control panel.

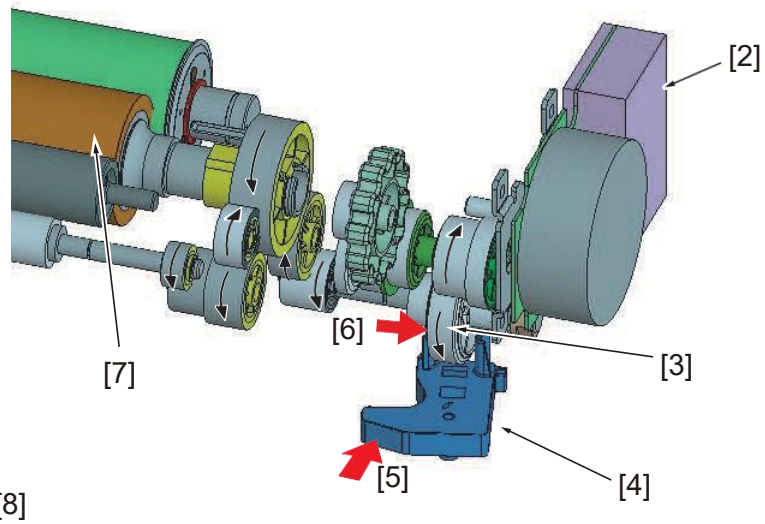


[1]	Heating roller rotation sensor (PS37)	[2]	Cylinder actuator
[3]	Heating roller assy	-	-

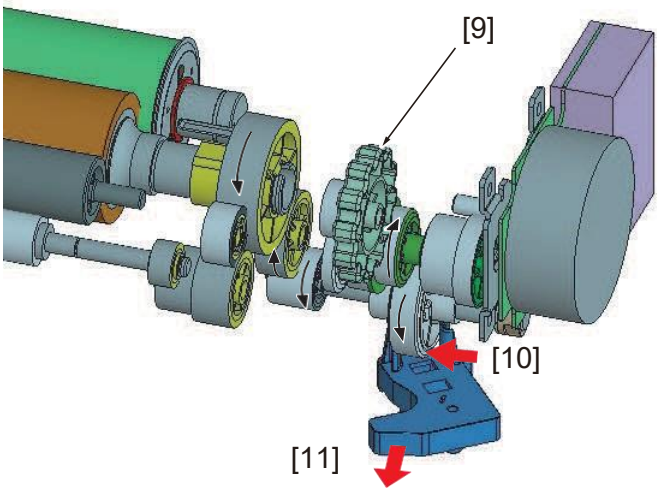
Fusing drive release mechanism

- At the fusing drive position, transmit the driving force of the fusing motor to the fusing pressure roller by a fusing drive release gear.
- Opening the right door places the fusing drive release lever in the fusing drive release position.
- With the fusing drive release lever in the fusing drive release position, the fusing drive release gear is disconnected from the fusing motor and, instead, connected to the jam removal dial.
- If a paper misfeed occurs in the fusing section, opening the right door allows the jam removal dial to be used for removing the misfed paper.

[1]



[8]



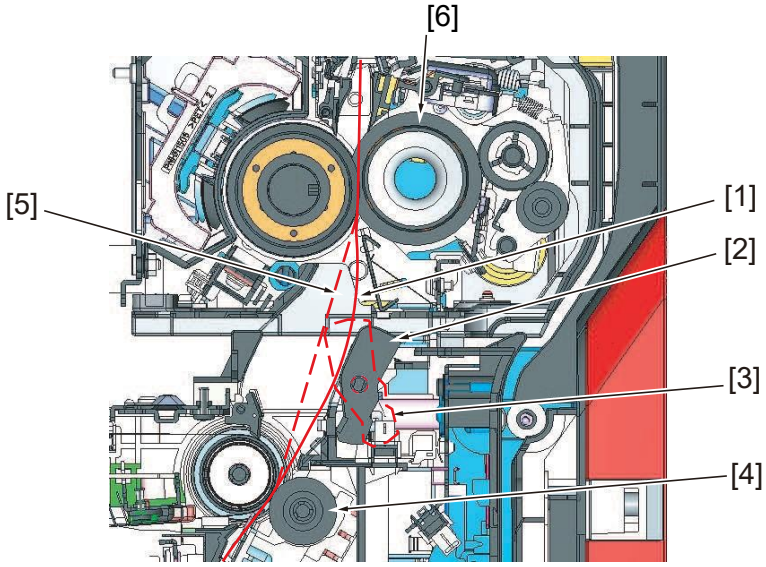
[1]	Fusing drive position	[2]	Fusing motor (M3)
[3]	Fusing drive release gear	[4]	Fusing drive release lever
[5]	Right door close position	[6]	Connected to fusing motor
[7]	Fusing pressure roller	[8]	Fusing drive release position
[9]	Jam removal dial	[10]	Connected to jam removal dial
[11]	Right door open position	-	-

Fusing speed correction

(1) Fusing loop control

- To prevent double transferred images and brush effects that occur due to a difference in speed between paper transport during image transfer and fusing, a loop is formed in the paper between the 2nd transfer and fusing sections.
- The fusing loop sensor detects the length of the loop formed in the paper between the 2nd transfer section and the fusing pressure roller.
- The fusing motor increases or decreases the fusing speed according to the length of loop in the paper, thereby ensuring that the length of loop falls within a predetermined range.

Fusing loop sensor	Loop amount	Fussing speed
Unblocking	Large	Speed-up
Blocking	Small	Slowdown



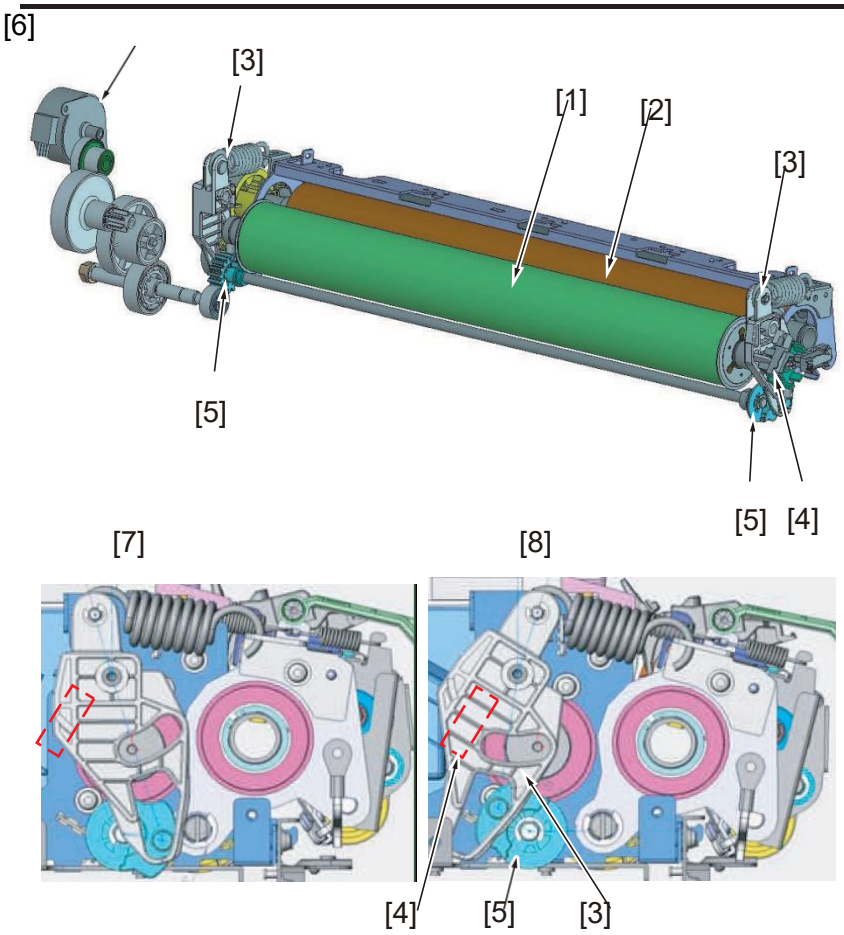
[1]	Loop amount: large	[2]	Actuator
[3]	Fusing loop sensor (PS2)	[4]	2nd transfer roller
[5]	Loop amount: small	[6]	Fusing pressure roller

Operation timing

- It starts controlling when the front-edge of the paper reaches to the predetermined position before the fusing roller.
- The fusing speed is decelerated so that a loop is formed in the paper between the 2nd transfer roller and the fusing roller.
- When the paper loop amount is large, the fusing loop sensor is unblocked, and the fusing speed is increased.
- When the paper loop amount is small, the fusing loop sensor is blocked, and the fusing speed is decreased.
- The fusing speed is increased or decreased as necessary to make sure that the paper loop amount falls within a predetermined range, thereby absorbing a difference between the fusing speed and image transfer speed.
- The fusing loop control will finish after the trailing of the paper passes the 2nd transfer roller.

Fusing pressure/retraction control

- To maintain durability of the fusing belt, the fusing pressure roller is retracted *1 from the fusing belt during any time other than a print cycle. (The roller is, however, retracted during a print cycle using envelopes.)
  *1: The fusing pressure roller does not completely retract from the fusing belt but is slightly pressed to the fusing belt.
- The fusing pressure roller is pressed against, and retracted from, the fusing belt by rotating the pressure cam through forward or backward rotation of the fusing pressure motor.
- The fusing pressure home sensor detects the fusing pressure roller at its pressure position.
- The position at which the fusing pressure roller is retracted is controlled by the period of time (number of pulses) through which the fusing pressure motor is rotated.
- When there is no change in the output of the fusing pressure home sensor even after the lapse of a predetermined period of time after the fusing pressure motor has started rotating, the machine determines that there is a pressure/retraction fault and displays the “Trouble code C3101: Fusing roller separation failure” message.



[1]	Fusing belt	[2]	Fusing pressure roller
[3]	Pressure lever	[4]	Fusing pressure home sensor (PS38)
[5]	Pressure cam	[6]	Fusing pressure motor (M11)
[7]	Pressure position	[8]	Release position

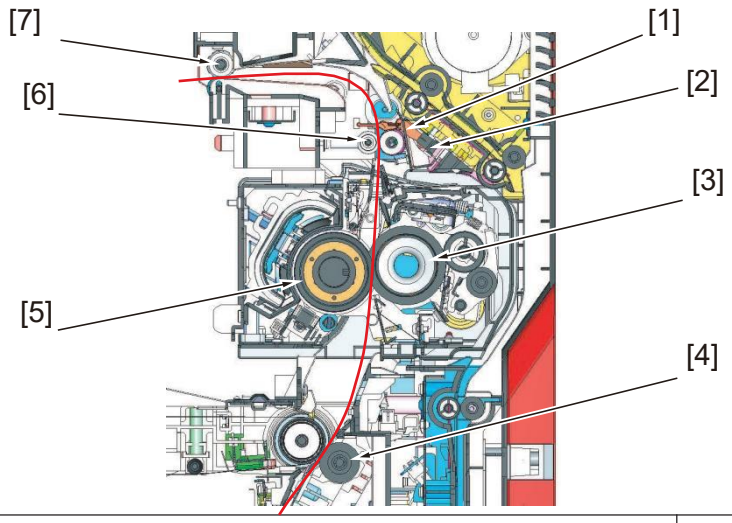
(1) Operation timing

Condition		Fusing pressure roller position
Warm-up	At the start of a warm-up cycle	Retraction and pressure (CM9705DN/M9705)
Pre-standby	At the start of the pre-standby	Pressure
Standby	At the start of the standby	Retraction
Printing	For envelopes	Retraction
	For paper types other than envelopes	Pressure
When printing the multi jobs	When current printing is for other than envelopes and the next job is for the envelopes.	Pressure -> Retraction *1
	When current printing is for the envelopes and the next job is for other than envelopes.	Retraction -> Pressure *1
Energy save mode (lower power mode, sleep mode)		Retraction
When a malfunction or misfeed occurs		Retraction
When the fusing heater lamp is turned OFF (a door opened, a malfunction occurs, or other factors.)		Stop

- *1: Pressure/retraction will be conducted after the currently printed paper passes between the fusing belt and the fusing pressure roller. The timing for the next paper to be fed will be delayed during the pressure/retraction and keep the certain period of time between feeding the papers.

Fusing paper transport control

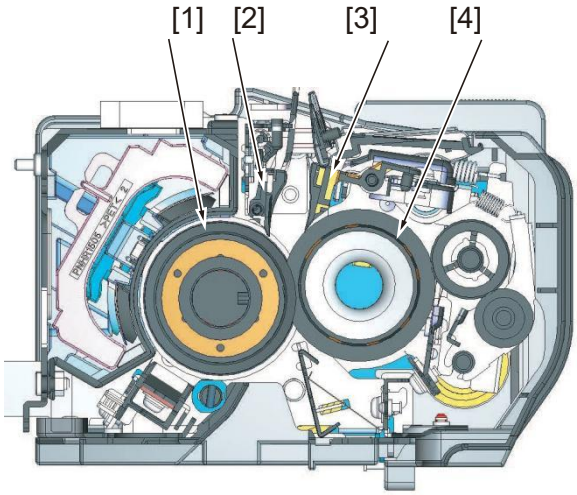
- The 2nd transfer roller transports paper onto the fusing unit.
- The fusing unit uses the fusing motor to drive the fusing pressure roller, thereby transporting paper onto the exit/reverse section.
- Fusing motor speed control is completed before the paper enters the fusing unit.
- The paper fed into the paper exit/reverse section is detected by the paper exit sensor before being transported by the paper exit roller.
- The fusing motor is deenergized after the last sheet of paper is fed into the finisher or out into the exit tray.



[1]	Actuator	[2]	Paper exit sensor (PS3)
[3]	Fusing pressure roller	[4]	2nd transfer roller
[5]	Fusing roller	[6]	Exit tray front roller
[7]	Exit roller	-	-

Paper separation mechanism

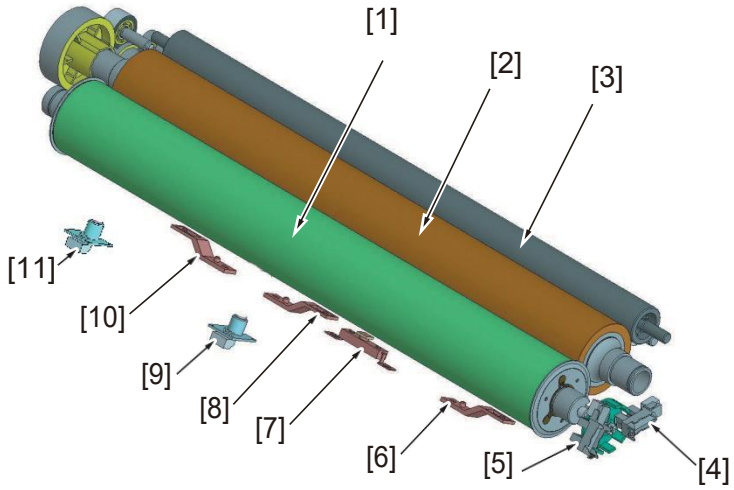
- Paper separator claws are provided on the fusing pressure roller side and the fusing belt side in order to separate the sheet of paper reliably after the fusing process.
- Three contact type paper separator claws are installed on the fusing pressure roller side.
- Five noncontact type paper separator claws are installed on the fusing belt side.



[1]	Fusing belt	[2]	Paper separator claws (noncontact type)
[3]	Paper separator claws (contact type)	[4]	Fusing pressure roller

Fusing temperature control

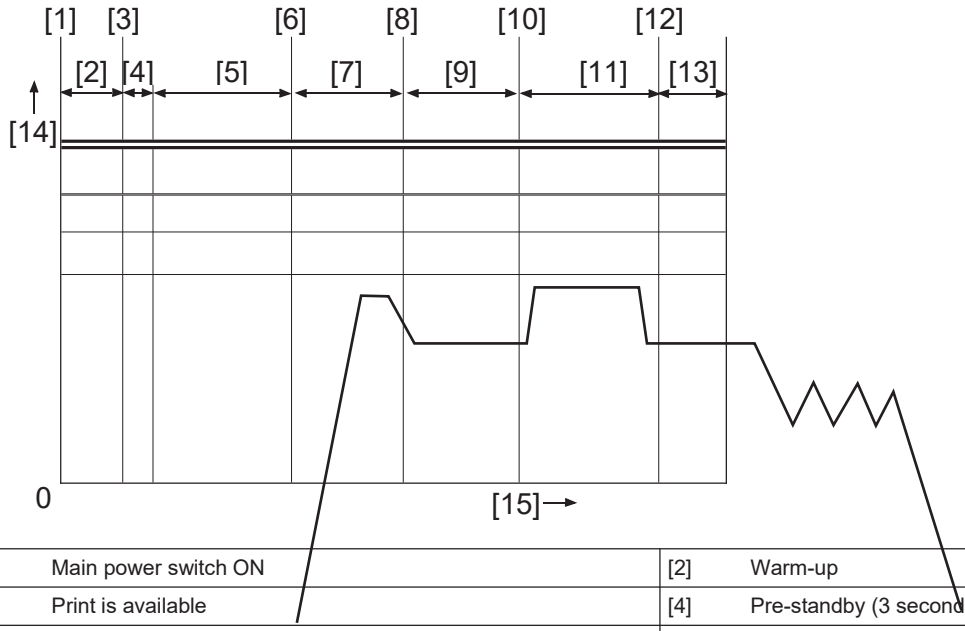
- The surface temperature of the fusing belt is detected to control the amount of the heat of the IH coil in order to maintain the appropriate fusing temperature.



[1]	Heating roller assy	[2]	Fusing pressure roller
[3]	Soaking roller	[4]	Heating roller rotation sensor (PS37)
[5]	Fusing pressure home sensor (PS38)	[6]	Heating roller thermistor1 (TH1)
[7]	Heating roller thermostat (TS1)	[8]	Heating roller thermistor3 (TH3)
[9]	Heating roller temperature sensor1 (TEMS/1) (Fixed at the main body)	[10]	Heating roller thermistor2 (TH2)
[11]	Heating roller temperature sensor2 (TEMS/2) (Fixed at the main body) *	-	-

- *: Equipped to CM9705DN/M9705 only

(1) Temperature control chart



[1]	Main power switch ON	[2]	Warm-up
[3]	Print is available	[4]	Pre-standby (3 seconds)
[5]	Standby	[6]	Start key ON
[7]	Printing (plain/color)	[8]	End of print
[9]	Standby	[10]	Start of low power mode
[11]	Low power mode	[12]	Start of sleep mode
[13]	Sleep mode	[14]	Temperature
[15]	Time	-	-

(2) IH coil control

- Electric energy of the IH coil is controlled so that the temperature of the fusing belt falls within a predetermined temperature range.
- The temperature of the fusing belt is measured with the heating roller temperature sensor to thereby determine a possible change in the temperature (increase or decrease).
- The following types of control are available for the control of the electric energy of the IH coil.

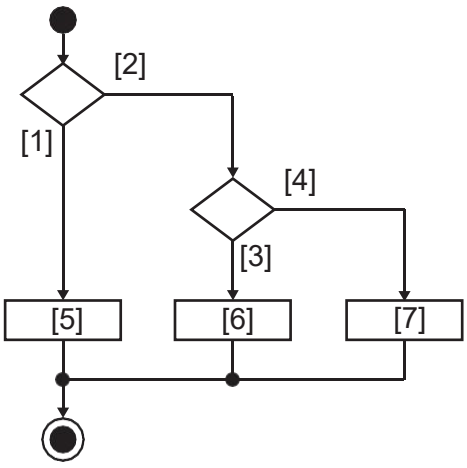
1. Fixed control: The electric energy of the IH coil is controlled with a predetermined value; the control is performed for temperature control during warm-up.
2. PID control: The electric energy of the IH coil is controlled through a combination of the P control, I control, and D control; Used for temperature control in the normal standby state, during a print cycle, and in the low power mode.
3. P control: The electric energy of the IH coil is controlled according to the difference between a target temperature and a detected temperature; used for temperature control in the printing, standby, low power, pre-standby state, and before printing.
4. I control: Temperature errors arising from individual variability in the IH coil and fusing unit are corrected; not to be performed individually.
5. D control: The electric energy of the IH coil is corrected to respond to sudden changes in temperature; not to be performed individually.

(3) Fusing temperature control during warm-up

- To prevent image fixability from being degraded due to environmental changes when the main power switch is turned ON, three different warm-up modes are incorporated for fusing temperature control.
- The warm-up mode is performed “at low temperatures”, “at ordinary temperatures”, or “under high humidity condition”.
- In the warm-up mode under high humidity condition, the warm-up time is extended to prevent paper from curling and the difference in temperature between the fusing belt and fusing pressure roller is minimized.
- When the temperature of the fusing belt reaches the warm-up completion temperature, control is passed onto the pre-standby process.
- Printing then starts if there is a print request. The system transitions to the pre-standby temperature control if there is no print request.
- If the fusing pressure roller is pressed, the fusing pressure motor turns on to release the fusing pressure roller.

Warm up mode	Environment	
	Paper temperature	Machine interior humidity (absolute humidity *1)
Warm-up at low temperatures	18 °C or less	Not judged by absolute humidity
Warm-up at ordinary temperatures	More than 18 °C	Less than a predetermined value
Warm-up under high humidity condition	More than 18 °C	Predetermined value or more

- *1: Absolute humidity: water content contained in the air (1 m 3) as steam regardless of the temperature



[1]	Machine interior paper temperature 18°C or less	[2]	Machine interior paper temperature exceeding 18°C
[3]	Absolute humidity, specified value or more	[4]	Absolute humidity, less than the specified value
[5]	Warm-up at low temperatures	[6]	Warm-up under high humidity condition
[7]	Warm-up at ordinary temperatures	-	-

(4) Temperature control during stand-by

- If no print request is received after the temperature control in the pre-standby state is started, control is passed onto the standby process.
- When a predetermined amount of time elapses after the pre-standby control starts, temperature control is performed through standby control.
- Within a specified time after standby temperature control starts, the target temperature is maintained for each mode in low-temperature, normal, and high-humid state.
- The standby temperature control ensures that the temperature of fusing belt in the standby state is not decreased.

* Counted period for standby control includes the printing time.

(5) Temperature control during the print cycle

- Temperature control is provided in order to keep optimum fusing performance with various factors, such as the type of paper, print mode, paper temperature*1, use of paper of small size, decreased temperature during paper passage, and warm-up carried out with a cool fusing unit.
  - *1: The paper temperature is used as data to control the fusing temperature. The paper temperature sensor that is installed in the paper feed section measures this temperature as the "Internal paper feed section temperature".

(6) Temperature control under low power mode

- The temperature of the fusing belt is decreased to thereby reduce power consumption during the low power mode.

- When the fusing pressure roller is in the pressed state, the fusing pressure motor turns ON to release the pressure.
- The heating roller assy is rotated by the fusing motor at the same time that the IH coil is energized and stopped when the IH coil is deenergized. The speed of the heating roller assy at this time is lower than that during a print cycle. The rotation speed at this time is lower than the rotation speed used for printing.
- When the temperature of the fusing belt is decreased to the starting temperature of the low power mode temperature control, the IH coil and the fusing motor are energized; when the temperature exceeds the ending temperature, the IH coil and the fusing motor are deenergized.
- During the low power mode, ON/OFF control is repeated between the starting and ending temperatures of the low power consumption control.

(7) Temperature control in sleep mode

- The main coil and demagnetization coil are deenergized to stop heating the fusing belt, thereby reducing power consumption in the sleep mode.
- When the fusing motor stops running, all rollers will stop rotating.
- Sleep mode includes two types of control, which is determined depending on the time that has elapsed since printing has completed. This control includes the engine ON sleep and the engine OFF sleep control.
- Engine ON sleep control is used when a sleep mode start instruction is received less than 1 minute after a printing has completed.
  - Any running fans continue driving, but fusing temperature control is stopped.
- Engine OFF sleep control is used when a sleep mode start instruction is received 1 minute or more after a printing has completed.
- In the sleep mode, the fusing belt temperature may be decreased down to room temperature because the fusing belt is not heated. A maximum time equivalent to the warm-up time may be required before the fusing belt temperature is increased to the print enable temperature from the room temperature.

Protection from abnormal temperatures

- The machine provides protection against abnormally high temperature of the fusing unit in the following three steps.

(1) Soft protection

- When the temperature higher than the control range at heating roller assy is detected more than 1 second, the temperature is judged to be abnormally high, and the trouble code appears.
- When the trouble code is displayed, printing will be prohibited.

Roller name	Sensor name: symbol	Trouble code	
Heating roller assy	Heating roller temperature sensor: TEMS	C3725	Fusing abnormally high temperature detection (Center of the heating side)
	Heating roller thermistor2: TH2	C3726	Fusing abnormally high temperature detection (Middle of the heating side)
	Heating roller thermistor1: TH1	C3722	Fusing abnormally high temperature detection (Edge of the heating side)

(2) Hard protection

- Next level is provided when the level 1 cannot detect due to CPU overrun.
- The heater relay, through the printer control board, is turned OFF in the second level operation to block the power supply to the IH coil.
- When the controlled temperature of heating roller assy is detected higher than the predetermined value, the temperature is judged to be abnormally high, and the trouble code appears.
- Through these control procedures, the power supply to the IH coil can be shut down before the thermostat is activated in the third level. It thereby suppresses damage to the fusing unit itself.

Roller name	Sensor name: symbol	Trouble code	
Heating roller assy	Heating roller temperature sensor: TEMS2	C3725	Fusing abnormally high temperature detection (Center of the heating side)
	Heating roller thermistor1: TH1		
	Heating roller thermistor2: TH2	C3726	Fusing abnormally high temperature detection (Middle of the heating side)
	Heating roller thermistor3: TH3	C3722	Fusing abnormally high temperature detection (Edge of the heating side)

(3) Excessive rise protection

- If the abnormal high temperature of soft protection/hard protection cannot be detected due to a faulty temperature sensor or thermistor, thermostat blocks the power supply to the IH coil.
- The thermostat rating is 210 degrees centigrade for the heating roller thermostat. The ratings do not, represent the actual surface temperature of the fusing belt, since the thermostats are installed in a non-contact with respect to heating roller assy.

IH power supply control

(1) IH power supply abnormal temperature detection

- The IH power supply unit includes a temperature fuse. This fuse prevents IH power supply troubles due to increased unit internal temperature.
- The IH power supply unit includes a thermistor for monitoring the unit internal temperature. Control starts to lower the temperature when the unit internal temperature has increased.
- Details of high temperature detection control

Fault name	Mode	Control contents	Code
High temperature 1	Printing	Productivity decreases from 100% to 50%.	Do Not Display
		Productivity returns to 100% when a temperature of 90 degree is detected for at least 30 seconds.	

Fault name	Mode	Control contents	Code	
	Standby	The rotation speed of the IH power supply cooling fan is increased from 50% to 100%.		
		The speed returns to 50% when a temperature of 90 degree is detected for at least 30 seconds.		
High temperature 2	All modes	A trouble code appears.	C3B02	IH malfunction (CPU)

(2) Abnormal power supply input detection

- The IH power supply unit reduces power to the IH coil when the voltage input into the IH power supply has decreased. When capacity of fusing cannot be maintained due to reduced IH coil power, PPM control is implemented to reduce print productivity from 100% to 40% in stages.
- The IH power supply unit displays a trouble code when the input power or voltage values are abnormal.

Fault name	Detection method	Control contents	Code	
Input power abnormal	Input current or power has exceeded the upper limit value.	A trouble code appears.	C3B07	IH input power error
	Input current or power has fallen below the lower limit value.			
Input voltage abnormal	The input voltage has exceeded the upper limit value.	A trouble code appears.	C3B08	IH input voltage error
	The input voltage has fallen below the lower limit value.			

Temperature sensor control

- A non-contact type thermopile sensor is used for heating roller temperature sensor (hereinafter referred to as “temperature sensor”). The temperature sensor detects the temperature of the fusing belt through infrared rays and controls the surface temperature.
- The temperature sensor is provided with a lens. For its structural reason, therefore, the temperature sensor can be dirtied by dew condensation formed or foreign matter deposited on the lens.
- The temperature sensor, if contaminated with dew drops or dirt on the lens, becomes unable to detect the temperature accurately, since the contaminants blocks the infrared rays that are otherwise detected by the sensor.
- If temperature control is provided under such conditions, the temperature sensor detects a temperature that is lower than the actual temperature of the fusing belt. Then, the fusing belt temperature is controlled based on a temperature higher than the target one.

(1) Detection of condensation on the heating roller temperature sensor

- The control of detection of condensation on the heating roller temperature sensor is to determine degradation of detection accuracy of the temperature sensor caused by condensation or dirt.
- When the difference in temperature between that detected by heating roller thermistor3 and that detected by heating roller temperature sensor is equal to, or more than, a specified value and that condition lasts for predetermined period of time or more, the machine determines that the heating roller temperature sensor lens has condensation on it.
- When condensation on the temperature sensor is detected and the control is switched to “alternative temperature control”, the machine displays the corresponding P code “P-32 Heating roller temperature sensor temperature detection failure” on the control panel.

(2) Detection of contamination on the heating roller temperature sensor

- The contamination detection control is to determine degradation of detection accuracy of the heating roller temperature sensor caused by contamination.
- The contamination detection control is performed only in the standby state. No control is provided during the alternative temperature control initiated by condensation of the temperature sensor.
- If contamination of the lens of the heating roller temperature sensor is detected, the machine displays the corresponding malfunction code “C-392A heating roller temperature sensor contamination (Main of the heating roller)” on the control panel. It then shuts down the circuit to the main coil and terminates fusing unit temperature control.
- If, after the start of the contamination detection control, the difference in temperature between that detected by heating roller thermistor3 and that detected by heating roller temperature sensor is equal to, or more than, a specified value and that condition lasts for 10 min. or more, the machine determines that the heating roller temperature sensor lens is contaminated.
- The contamination detection control is terminated if, at any timing within 10 min. after the contamination detection control has been started, the difference in temperature between that detected by heating roller thermistor/1 and that detected by heating roller temperature sensor is equal to, or less than, a specified value.
- The contamination detection control is terminated if the machine enters any mode other than the current one, including the warm-up or the low power mode as initiated by the start of a print cycle or restart.

(3) Heating roller alternative temperature control

- If condensation on the heating roller temperature sensor is detected, the heating roller temperature control is provided based on the temperature detected by the heating roller thermistor3, instead of that detected by the heating roller temperature sensor. This control is referred to as the heating roller alternative temperature control.
- When the control is switched to the alternative temperature control, the machine displays the corresponding P code “P-32 Heating roller temperature sensor temperature detection failure” on the control panel.
- If the difference in temperature between that detected by heating roller thermistor3 and that detected by heating roller temperature sensor becomes less than a specified value during the alternative temperature control, the machine determines that condensation on the heating roller temperature sensor has been eliminated and resumes the temperature control based on the temperature detected by the heating roller temperature sensor.
- If the difference in temperature between that detected by heating roller thermistor3 and that detected by heating roller temperature sensor is not improved even after the lapse of 10 min. after the alternative temperature control has been initiated, the machine determines that the cause is not condensation, but contamination, on the lens and terminates the alternative temperature control.

- If a print job is received during the alternative temperature control, control is performed according to the settings made in “Enhanced Security” of “Service Mode”. Reference: [Service Mode] -> [Enhanced Security] -> [Engine FW DipSW] -> [Switch No. 4/Fusing unit alternative temperature control]

(4) Sensor disconnection detection control

- If the temperature of the temperature sensor or thermistor fails to reach the specified temperature in the given period after the warm-up started, the sensor is judged to have disconnection, and the trouble code will appear.

Roller name	Sensor name: symbol	Trouble code	
Heating roller assy	Heating roller temperature sensor: TEMS	C3925	Fusing sensor wire breaks detection (Center of the heating side)
	Heating roller thermistor2: TH2	C3926	Fusing sensor wire breaks detection (Middle of the heating side)
	Heating roller thermistor1: TH1	C3922	Fusing sensor wire breaks detection (Edge of the heating side)

Fusing PPM control

(1) PPM control

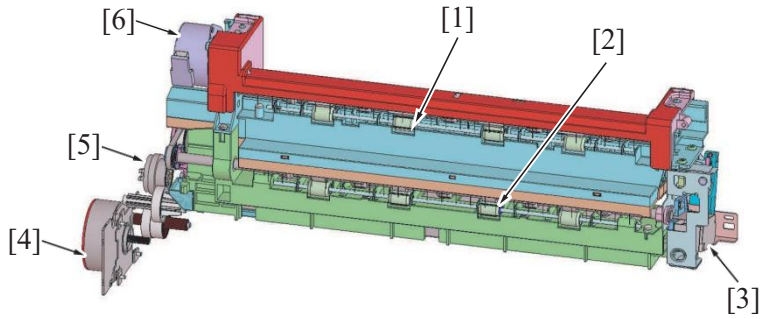
- To achieve the intended level of fixability of printed images, the PPM control reduces the number of printed pages per minute by widening the distance between sheets of paper.

PPM mode	Control execution conditions	Purpose	Specific controls	Print productivity *1
Low temperature environment mode	Room temperature at the start of the print cycle is 18°C or less	To achieve the intended level of fixability under low temperature environment	To prevent fixability from being degraded in a multi-print cycle, paper-to-paper distance is widened to thereby limit a decrease in the fusing temperature.	100% 90% 80% 70%: default value 60% 50%
High humidity environment mode *2	Environmental humidity at the start of the print cycle is a predetermined value or more	To suppress occurrence of paper curl under high humidity environment	Paper-to-paper distance is widened in a multi-print cycle run under high humidity environment so as to prevent paper from curling, thereby achieving a required fusing temperature.	100%: default value 70% 50%
Reduced power supply mode	Only an insufficient power is supplied to the IH coil, resulting in a fusing temperature lower than a predetermined value	To achieve the intended level of fixability under low power supply condition	To prevent fixability from being degraded in a multi-print cycle, paper-to-paper distance is widened to thereby limit a decrease in the fusing temperature.	70%: default value 50%
Thin paper mode	“100%” is selected for “PPM Control Choice” of the service mode	To increase the print productivity of thin paper and recycled paper. To increase productivity during printing using thin paper. * The choice of 100% may result in paper curling.	Paper-to-paper distance is narrowed to thereby increase productivity.	100% 70%: default value *4
Low-power Support Selection *3	Where the DipSW setting is set to "OFF" (prioritizing productivity)	To increase productivity when finishers are installed. The choice of 100% may result in warm up time lengthening.	Paper-to-paper distance is narrowed to thereby increase productivity.	100% 70%: default value

- *1: Exemplary calculation of print speed: If 55 ppm can be achieved at a print productivity of 100% on A4 plain paper, a change in print productivity to 90% results in 49.5 ppm.
- *2: Execution of the control for the high humidity environment mode can be prohibited when "No. 5 PPM control (high humidity environment mode) prohibited" is turned ON in [Service Mode] -> [Enhanced Security] -> [Engine FW DIP SW].
- *3: By setting the [Service Mode] -> [Security Selection] -> [Engine FW Dip SW] "No. 11: Low Power Support Selection" to "ON", the low power support selection can prohibit the execution of controls.
- *4: For recycled paper, the print productivity will be set to 70% when “Mode 3” is selected for warm-up choice. For thin paper, the print productivity will be set to 70% regardless of the mode setting for warm-up choice.

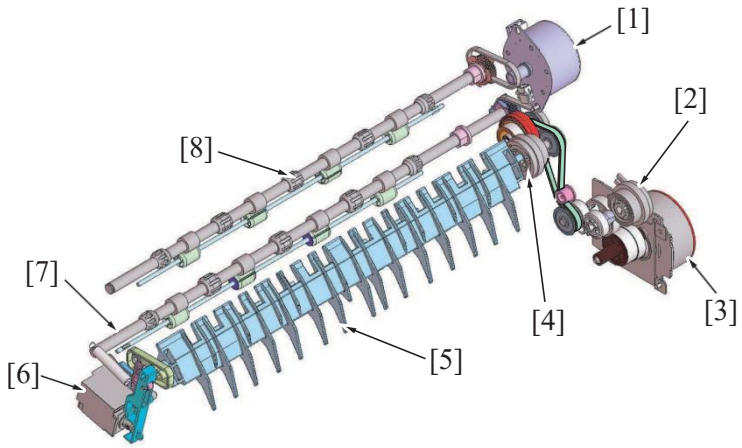
PAPER EXIT/REVERSE SECTION

Configuration



[1]	Reverse roller	[2]	Paper exit roller
[3]	Gate switch solenoid (SD3)	[4]	Fusing motor (M3)
[5]	Paper exit clutch (CL8)	[6]	Switchback motor (M4)

Drive (CM9705DN/M9705/CM9105DN/M9105DN)



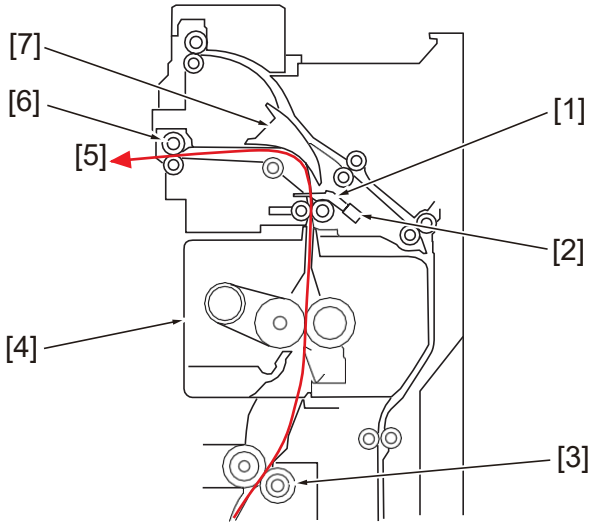
[1]	Switchback motor (M4)	[2]	Paper exit clutch (CL8)
[3]	Fusing motor (M3)	[4]	Paper exit deceleration clutch (CL9)
[5]	Paper exit/reverse switch gate	[6]	Gate switch solenoid (SD3)
[7]	Paper exit roller	[8]	Reverse roller

Operation

Transport control

(1) Paper exit by paper exit roller

- If the paper is fed out by way of the paper exit roller, the paper exit roller is rotated forward to transport the paper.
- The initial position of the paper exit/reverse switch gate establishes a paper path through the paper exit roller, so that its position is not changed.
- The paper exit roller is driven by controlling rotation of the fusing motor with the paper exit clutch.
- The paper exit clutch is energized at timing at which the leading edge of the paper enters the fusing unit.
- The paper exit clutch is deenergized when the paper is fed a predetermined distance after the paper exit roller after the paper exit sensor has detected the trailing edge of the paper.

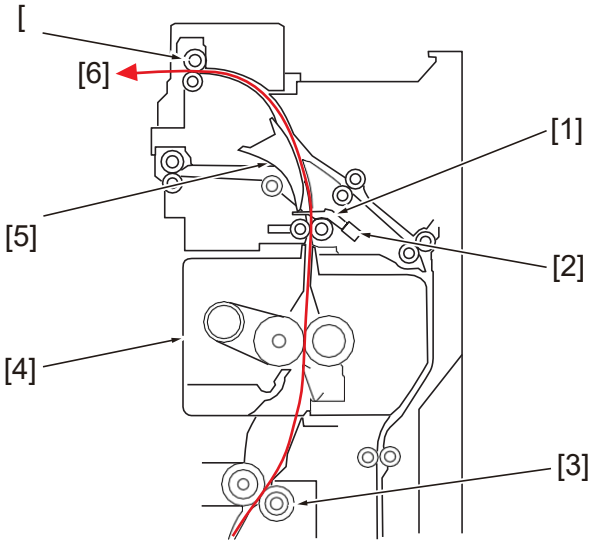


[1]	Actuator	[2]	Paper exit sensor (PS3)
[3]	2nd transfer roller	[4]	Fusing unit
[5]	Transported to paper exit tray or finisher	[6]	Paper exit roller
[7]	Paper exit/reverse switch gate: solenoid OFF position	-	-

(2) Paper exit by reverse roller

- The paper is fed from the reverse roller to the paper exit tray, only if RU-513/JS-506 capable of feeding paper out through the reverse roller is mounted.
- When the paper is to be fed out via the reverse roller, the switchback motor is rotated forward to thereby transport the paper.
- The gate switch solenoid is energized in order to establish a paper path through the reverse roller by changing the position of the paper exit/reverse switch gate.
- The reverse roller is started at timing at which the leading edge of the paper enters the paper exit/reverse section.
- The reverse roller is stopped when the paper is fed a predetermined distance after the reverse roller after the paper exit sensor has detected the trailing edge of the paper.

7]

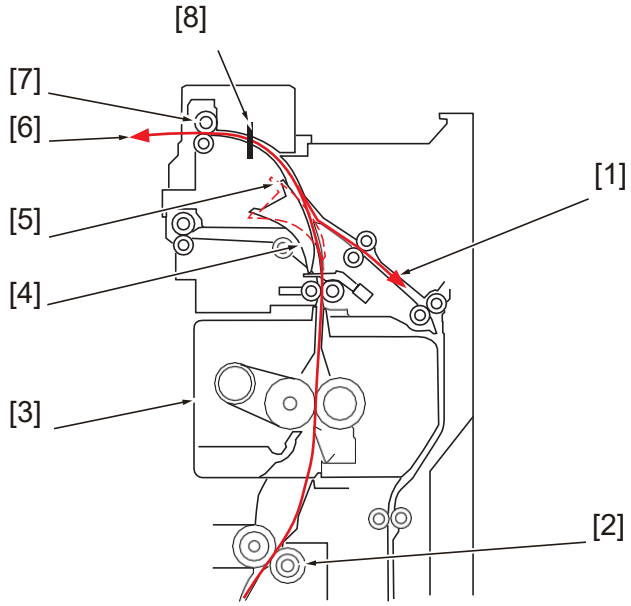


[1]	Actuator	[2]	Paper exit sensor (PS3)
[3]	2nd transfer roller	[4]	Fusing unit
[5]	Paper exit/reverse switch gate: solenoid ON position	[6]	Paper exit to paper exit tray
[7]	Reverse roller	-	-

(3) Duplex section transport

- When the paper is to be fed into the duplex section, the reverse roller is rotated forward to transport the paper to the reverse position and then rotated backward, thereby transporting the paper onto the duplex section.
- Until the paper is transported up to the reverse stop position, the gate switch solenoid is energized to place the paper exit/reverse switch gate in a position at which the paper path through the reverse roller is established.
- When the paper reaches the reverse stop position, the paper exit/reverse switch gate returns to its original position to thereby prevent the paper from moving backward into the fusing section.
- The reverse roller is started to rotate forward at timing at which the leading edge of the paper enters the paper exit/reverse section.

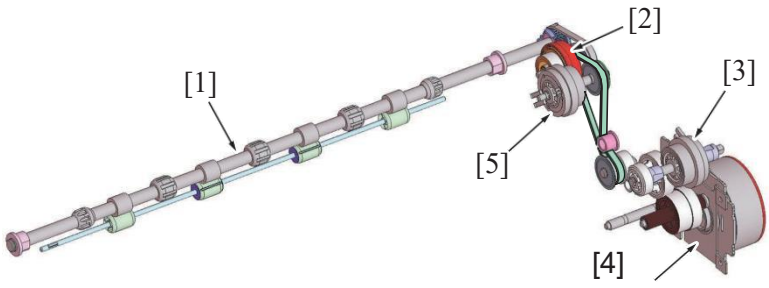
- The reverse roller is stopped from forward rotation at timing at which the paper reaches the reverse stop position after the paper exit sensor has detected the trailing edge of the paper.
- The reverse roller is started to rotate backward at timing at which the preceding paper moves past a predetermined position of the duplex section.
- The reverse roller is stopped from backward rotation at timing at which the trailing edge of the paper enters the duplex section.



[1]	Transporting to duplex section	[2]	2nd transfer roller
[3]	Fusing unit	[4]	Paper exit/reverse switch gate: solenoid ON position
[5]	Paper exit/reverse switch gate: solenoid OFF position	[6]	Transporting to reverse stop position
[7]	Reverse roller	[8]	Reverse stop position

Paper exit roller speed reduction control (CM9705DN/M9705/CM9105DN/M9105DN)

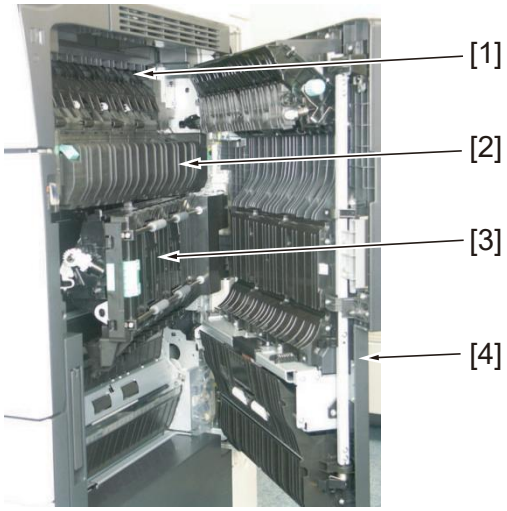
- If the discharge speed at the same speed as process speed is too fast, paper will be discharged forcefully and unevenly in the paper exit tray.
- Speed reduction control is implemented on the paper exit roller to prevent unevenness in paper.
- The fusing motor and paper exit clutch drives the transport roller. However, drive power is transferred to the reduction gear when paper exit deceleration clutch is turned ON in the drive state to reduce transport roller speed.
- The paper exit roller speed reduction control is performed only when normal paper is discharged.



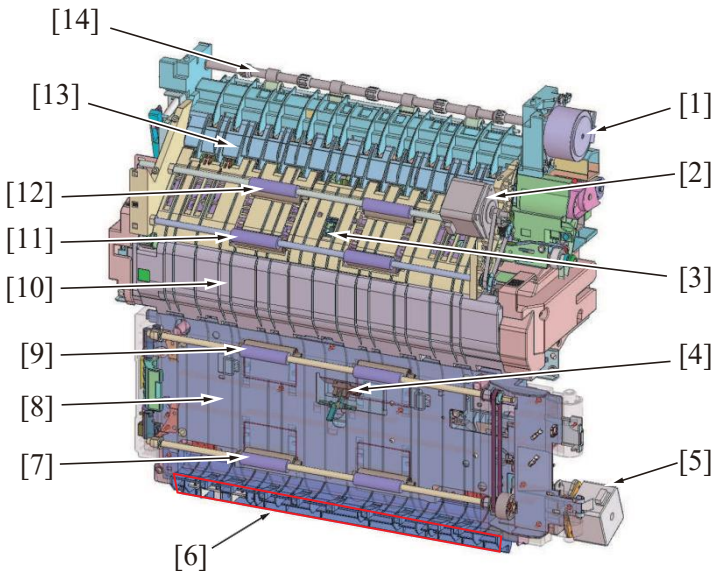
[1]	Paper exit roller	[2]	Reduction gear
[3]	Paper exit clutch (CL8)	[4]	Fusing motor (M3)
[5]	Paper exit deceleration clutch (CL9)	-	-

DUPLEX SECTION

Configuration

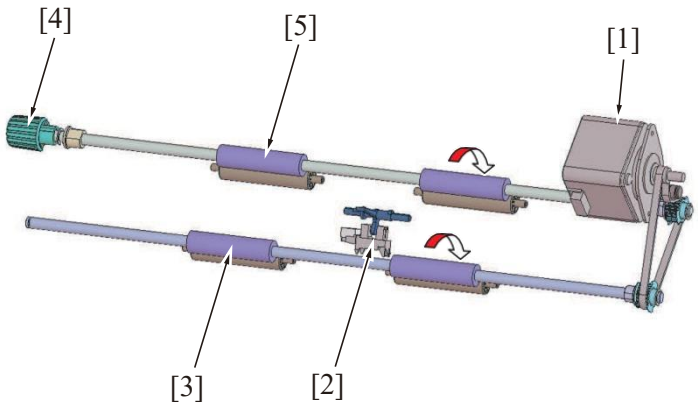


[1]	Paper exit/reverse switch gate	[2]	Fusing unit
[3]	Regist unit (Duplex section)	[4]	Right door

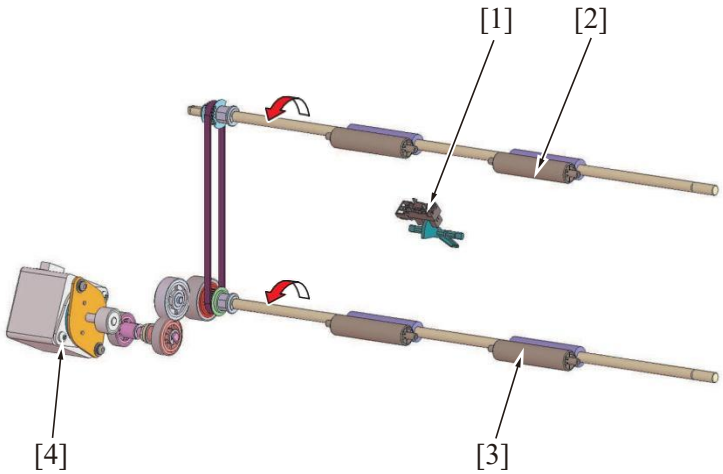


[1]	Switchback motor (M4)	[2]	ADU transport motor1 (M5)
[3]	ADU paper passage sensor1 (PS40)	[4]	ADU paper passage sensor2 (PS41)
[5]	ADU transport motor2 (M26)	[6]	Duplex pre-registration section
[7]	ADU transport roller 4	[8]	Regist unit (duplex section)
[9]	ADU transport roller 3	[10]	Fusing unit
[11]	ADU transport roller 2	[12]	ADU transport roller 1
[13]	Paper exit/reverse switch gate	[14]	Reverse roller

Drive (CM9705DN/M9705/CM9105DN/M9105DN)



[1]	ADU transport motor1 (M5)	[2]	ADU paper passage sensor1 (PS40)
[3]	ADU transport roller 2	[4]	Jam removal dial
[5]	ADU transport roller 1	-	-

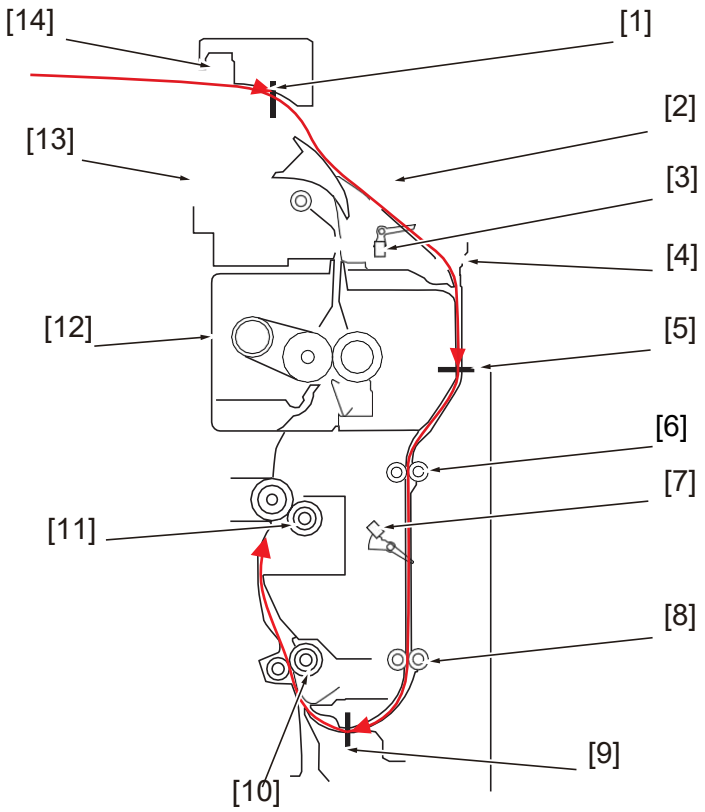


[1]	ADU paper passage sensor2 (PS41)	[2]	ADU transport roller 3
[3]	ADU transport roller 4	[4]	ADU transport motor2 (M26)

Operation

Paper transport control

- In duplex transportation, the paper transported from the reverse roller is transported to the internal duplex section by the ADU transport roller1 and ADU transport roller2.
- In duplex pre-registration, the paper is conveyed to the registration roller at the vertical transport section by the ADU transport roller3 and ADU transport roller4.



[1]	Stop position 1	[2]	ADU transport roller 1
[3]	ADU paper passage sensor1 (PS40)	[4]	ADU transport roller 2
[5]	Stop position 2	[6]	ADU transport roller 3
[7]	ADU paper passage sensor2 (PS41)	[8]	ADU transport roller 4
[9]	Stop position 3	[10]	Registration roller
[11]	2nd transfer roller	[12]	Fusing unit
[13]	Paper exit roller	[14]	Reverse roller

(1) Transport roller control

- The ADU transport motor drives the ADU transport roller1 and ADU transport roller2.
- The ADU transport motor2 drives the ADU transport roller3 and ADU transport roller4. (CM9705DN/M9705/CM9105DN/M9105DN)

(2) Paper entrance control (CM9705DN/M9705/CM9105DN/M9105DN)

- The switchback motor at the paper exit section is deenergized to stop transport of the paper temporarily (stop position 1). The switchback motor thereafter rotates in reverse to transport the paper into the duplex section.
- When the switchback motor starts reverse rotation, ADU transport motor1 is energized and ADU transport roller 1 and ADU transport roller 2 transports the paper.

- The ADU paper passage sensor1 located downstream of the ADU transport roller1 detects the leading edge of the paper transported to the duplex section.
- If a preceding sheet of paper being transported through the duplex section is yet to reach a predetermined position downstream of the registration roller, the ADU transport motor1 is deenergized to stop transport of the paper temporarily. (stop position 2)
- When the advanced sheet of paper moves past the specified position, ADU transport motor1 is energized to resume the transport of paper.
- If ADU paper passage sensor2 is unable to detect the leading edge of the paper even after the lapse of a predetermined period of time after ADU paper passage sensor1 has detected the leading edge of the paper, the machine determines that a paper misfeed occurs at the duplex transport part.
- When the leading edge of the paper reaches the specified position, ADU transport motor2 is energized and ADU transport roller 3 and ADU transport roller 4 transports paper.
- ADU paper passage sensor2 detects the leading edge of the paper.
- When the paper moves past ADU transport roller 4 and reaches the specified position, ADU transport motor2 is deenergized to stop the transport of the paper temporarily (stop position 3).

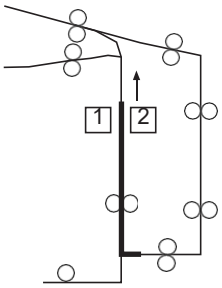
(3) Duplex paper feed control
- At predetermined paper feed timing, the ADU transport motor2 is energized to resume the transport of the paper. ADU transport motor1 is also energized if it has been deenergized. (CM9705DN/M9705/CM9105DN/M9105DN)
- The paper is fed from ADU transport roller 4 onto the registration roller at the vertical transport part.

Duplex circulation control

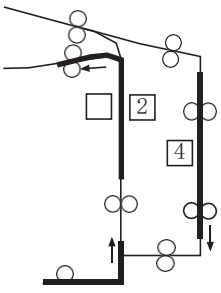
- The duplex circulation control is performed differently according to the length of the paper path direction.

Length of paper in the feed direction	Duplex circulation control
458 mm or less	One-sheet circulation operation
432 mm or less	Two-sheet circulation operation
216 mm or less	Three-sheet circulation operation

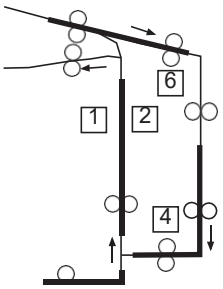
(1) One-sheet circulation operation
- After the second side is printed for each sheet, the paper is transported to the duplex pre-registration section. After the first side is printed, the paper is then discharged outside of the machine.



(2) Two-sheet circulation operation
- The sheet having the first side being printed and the sheet having the second side being printed are transported alternately.



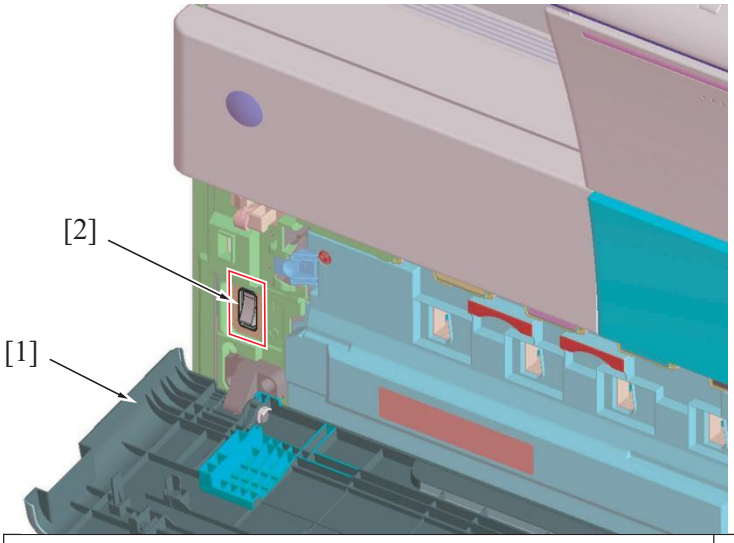
(3) Three-sheet circulation operation
- The sheet having the first side being printed and the sheet having the second side being printed are transported alternately. A third sheet is stored in the machine during printing the other sheets.


6
1
2
4

POWER SUPPLY SECTION

Main power switch

CM9705DN/M9705/CM9105DN/M9105DN



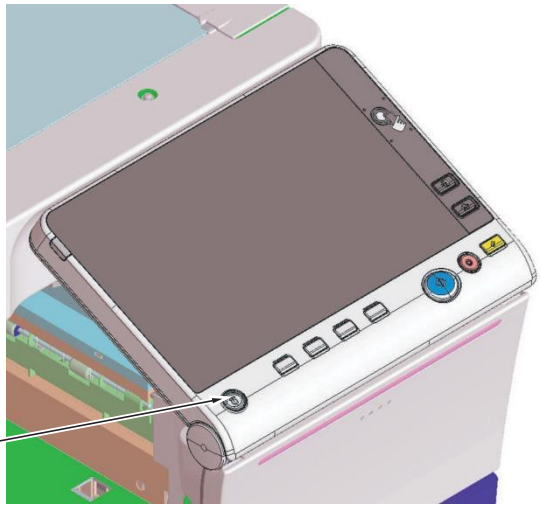
[1]	Lower front door (open position)	[2]	Main power switch

NOTE

- **To turn OFF and ON the main power switch, first turn OFF the main power switch and wait for 10 sec. or more before turning it ON again. If a setting value or values in the service mode are changed, it takes 10 sec. or more to incorporate the setting changes properly in the machine.**

Power key

Configuration



[1]	Power key	-	-

Operation

(1) Power key functions

- The power key offers two functions, serving as the power save button and the sub-power switch found in conventional models, depending on how long it is held down.
- In the default setting, holding down the power key for a short time sets the machine into the power save mode (low power mode) and holding it down for a long time sets the machine into the sub power OFF mode.
- The mode can be changed from the following: [Utility] -> [Administrator Settings] -> [System Settings] -> [Power Supply/Power Save Settings].

How long the power key is held down	Default setting	Settings changed by Administrator Settings
Short time	Low power mode *2	Sleep mode *2
		Sub power OFF mode *1
Long time	Sub power OFF mode	ErP auto power off mode *1

- *1: [Utility] -> [Administrator settings] -> [System Settings] -> [Power Supply/Power Save Settings] -> [Power Key Setting]
- *2: [Utility] -> [Administrator settings] -> [System Settings] -> [Power Supply/Power Save Settings] -> [Power Save Settings]

(2) Status in each mode

Mode		Condition	Power key LED	
Standby		All functions are ready to accept and ready to perform jobs.	Lit up blue	
Power save mode	Low power mode	• Power consumption is limited to a level lower than the standby state with the fusing temperature control minimized. • Reset when a job is received or the machine is operated.	Blinking in blue	
	Sleep mode *2 (Not reduce)	• Power consumption is reduced in low power mode. • Sensors that are used internally are operating.	Blinking in blue	
	Sleep mode *2 (Reduce)	• Power is supplied only to a portion of the MFP board required for receiving a job. • When an original is placed on the scanner, a job is received, or the machine is operated, the system wakes up.		
	Sleep mode *2 (High)	• Power is supplied only to a portion of the MFP board required for receiving a job. • Reset when a job is received or the machine is operated.		

Mode		Condition	Power key LED	
Sub power OFF mode	Sleep mode *3 (Not reduce)	• Power consumption is reduced in low power mode. • Sensors used internally are operating. • Wake-up time is shorter than when "Enabled or High" is selected. • The system wakes up when the sub power is turned on.	Lit up orange	
	Sleep mode *3 (Reduce)	• Power is supplied only to a portion of the MFP board required for receiving a job. • A job can be received, but printing is performed when power is turned ON. • Wake-up time is longer than when "Disabled" is selected.		
	Sleep mode *3 (High)	• Power is supplied only to the MFP board. • A job can be received, but printing is performed when power is turned ON. • Wake-up time is longer than when "Disabled" is selected. • Power is reduced when "Enabled" is selected.		
ErP auto power off mode		• Power consumption to the lowest level. • Reset only by the power key or the weekly timer setting. • No jobs can be received. *1 • The system can also wake up when this machine is equipped with optional upgrade kit UK-212 or UK-215.	Blinking in orange	

- *1: In ErP auto power OFF mode, this machine cannot receive data or faxes, and also it cannot scan or print an original.
- *2: The [Disabled], [Enabled], and [High] options are available from [Utility] -> [Administrator Settings] -> [System Settings] -> [Power Save Settings] -> [Power Consumption in Sleep Mode].
- *3: The [Disabled], [Enabled], and [High] options are available in sub power OFF mode from [Utility] -> [Administrator Settings] -> [System Settings] -> [Power Save Settings] -> [Power Consumption in Sleep Mode].

(3) Power supply

Power is supplied only to the following portions in the sleep mode and the sub power OFF mode.

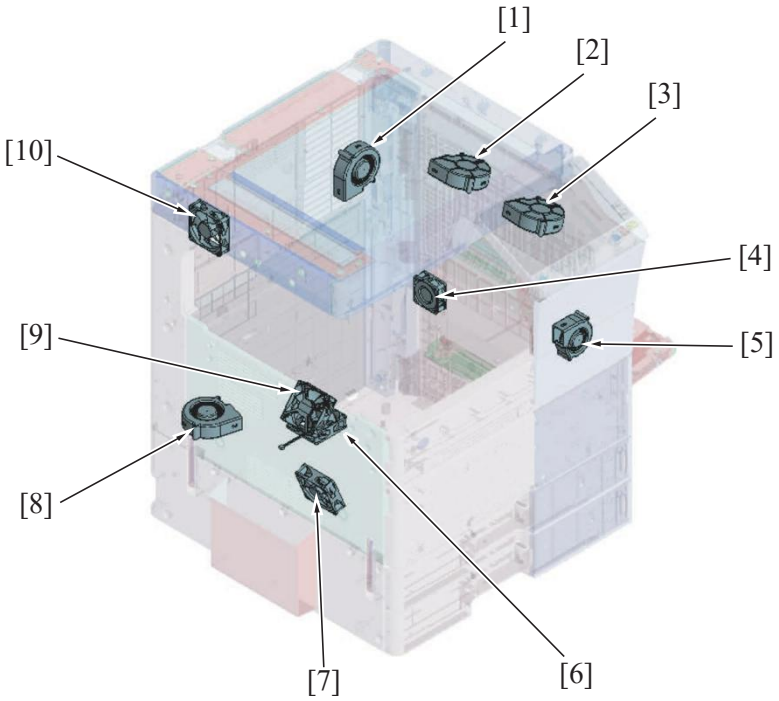
5.1V	• MFP controller • FAX CPU • HDD *2 • USB board
	• Angle sensor *1 • Original cover sensor *1 • Control panel key

- *1: No power is supplied when the following is selected: [Utility] -> [Administrator Settings] -> [System Settings] -> [Power Consumption in Sleep Mode] -> [High].
- *2: No power is supplied when either [Enabled] or [High] is selected from: [Utility] -> [Administrator Settings] -> [System Settings] -> [Power Consumption in Sleep Mode].

FAN CONTROL

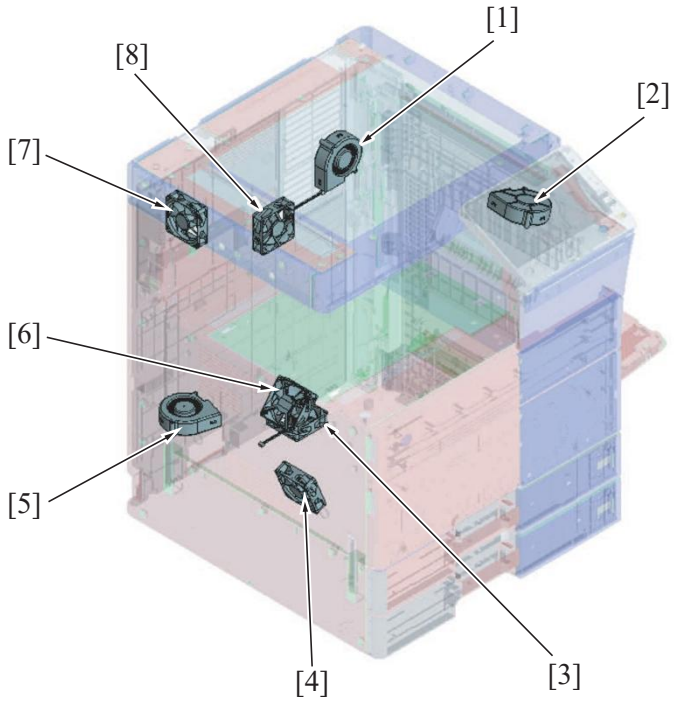
Configuration

CM9705DN/M9705



[1]	Paper cooling fan (FM8)	[2]	UFP exhaust fan2 (FM18)
[3]	UFP exhaust fan1 (FM17)	[4]	Toner cartridge cooling fan (FM4)
[5]	IH coil cooling fan (FM7)	[6]	Rear side cooling fan (FM3)
[7]	Power supply cooling fan (FM1)	[8]	Toner suction fan (FM11)
[9]	Transfer belt cleaner cooling fan (FM2)	[10]	Fusing power supply cooling fan (FM12)

CM9105DN/M9105DN



[1]	Paper cooling fan (FM8)	[2]	UFP exhaust fan1 (FM17)
[3]	Rear side cooling fan (FM3)	[4]	Power supply cooling fan (FM1)
[5]	Toner suction fan (FM11)	[6]	Transfer belt cleaner cooling fan (FM2)
[7]	Fusing power supply cooling fan (FM12)	[8]	Toner cartridge cooling fan (FM4)

Control

Motor name	Control	Control conditions (outline)
Power supply cooling fan (FM1)	Stop	• At paper-jam, in trouble, or when the door is open • When updating the firmware • In standby *2 • In low-power or sleep
	Full speed	• At warm-up • At initial operation, image stabilization, transfer cleaning, function *1 • When printing
Transfer belt cleaner cooling fan (FM2)	Stop	• Other than those below
	Full speed	• At warm-up • At initial operation, image stabilization, transfer cleaning, function *1 • When printing
Rear side cooling fan (FM3)	Stop	• Other than those below
	30% air flow relative to that of full speed	• At paper-jam, in trouble • At warm-up • In low-power • In standby
	Full speed	• When printing • At initial operation, image stabilization, transfer cleaning, function *1
Toner cartridge cooling fan (FM4)	Stop	• Other than those below
	Full speed	• When printing • At initial operation, image stabilization, transfer cleaning, function *1
IH coil cooling fan (FM7)	Stop	• Other than those below
	Half speed	• Standby • During warm-up • At initial operation, image stabilization, transfer cleaning, function *1 • In low-power or sleep
	Full speed	• When printing
Paper cooling fan (FM8) (CM9705DN/M9705)	Stop	• Other than those below
	Full speed	• During warm-up

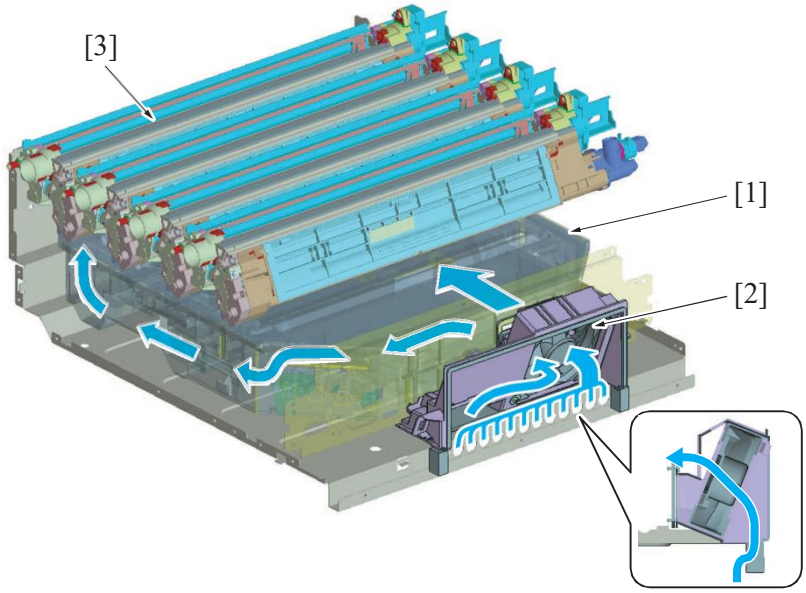
Motor name		Control	Control conditions (outline)
			• Printing • At initial operation, image stabilization, transfer cleaning, function *1
Paper cooling fan (FM8) (CM9105DN/M9105DN)	Not equipped with CU-102	Stop	• Other than those below
		Half speed	• Printing
	Equipped with CU-102	Stop	• Other than those below
		Full speed	• During warm-up • Printing • At initial operation, image stabilization, transfer cleaning, function *1
Toner suction fan (FM11)	CM9105DN/M9105DN	Stop	• Other than those below
		30% air flow relative to that of full speed	• Standby • During warm-up • Printing • In low-power or sleep • At paper-jam, in trouble
		Full speed	• At initial operation, image stabilization, transfer cleaning, function *1 • Print utilization exceeds a predetermined threshold • Internal temperature reaches a predetermined threshold
Fusing power supply cooling fan (FM12)		Stop	• Other than those below
		Full speed	• During warm-up • Printing • At initial operation, image stabilization, transfer cleaning, function *1
UFP exhaust fan1 (FM17) UFP exhaust fan1 (FM18) (CM9705DN/M9705)		Stop	• Other than those below
		Full speed	• During warm-up • Printing • At initial operation, image stabilization, transfer cleaning, function *1
UFP exhaust fan1 (FM17) (CM9105DN/M9105DN)	Not equipped with CU-102	Stop	• Other than those below
		Full speed	• Print utilization exceeds a predetermined threshold • Internal temperature reaches a predetermined threshold
	Equipped with CU-102	Stop	• Other than those below
		Full speed	• During warm-up • Printing • At initial operation, image stabilization, transfer cleaning, function *1

- *1: Some operations selected in the service mode (Paper path check etc.)
- *2: If the machine enters the “standby” state, the fan motor turns at full speed for predetermined time before stopping.
- *3: Half speed rotation after the lapse of the predetermined period of time of full speed rotation
- *4: Full speed rotation when optional CU-101 is mounted, even during warm-up.

Operation

Power supply cooling fan

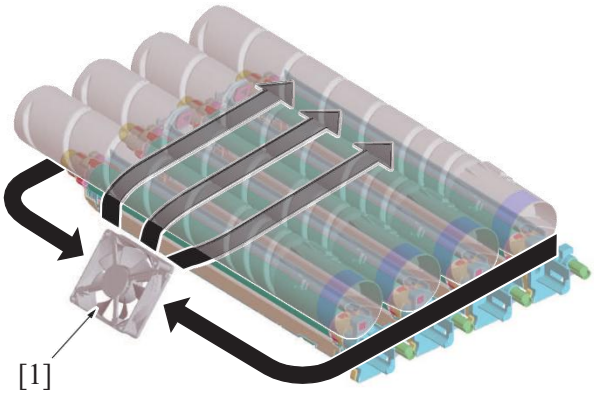
- Draws outside air into the inside of the machine to prevent the temperature around the DC power supply, PH section, developing/drum unit.
- Air is drawn from around the edges of the first paper cassette and sent to each unit via ducts.



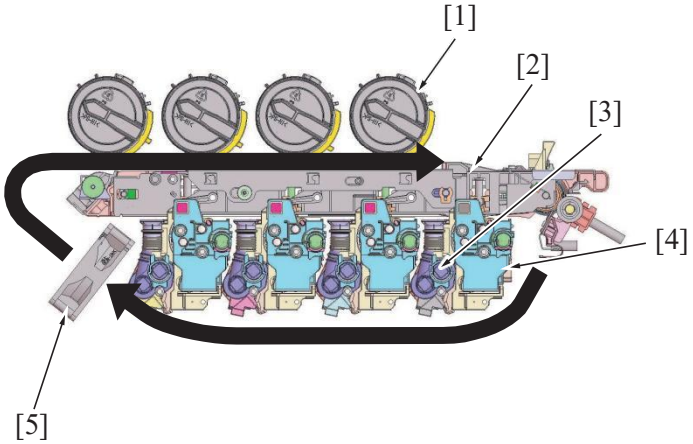
[1]	PH unit	[2]	Power supply cooling fan (FM1)
[3]	Drum/Developing unit	-	-

Transfer belt cleaner cooling fan

- The transfer belt cleaner cooling fan is provided to circulate air through the inside of the machine, so that the areas around the developing unit, drum unit, toner hopper, and the transfer belt unit can be cooled.
- Air around the developing unit and drum unit is drawn in.
- The air drawn in flows between the toner bottle and the transfer belt unit and is blown against the toner bottle/K.



[1]	Transfer belt cleaner cooling fan (FM2)	-	-

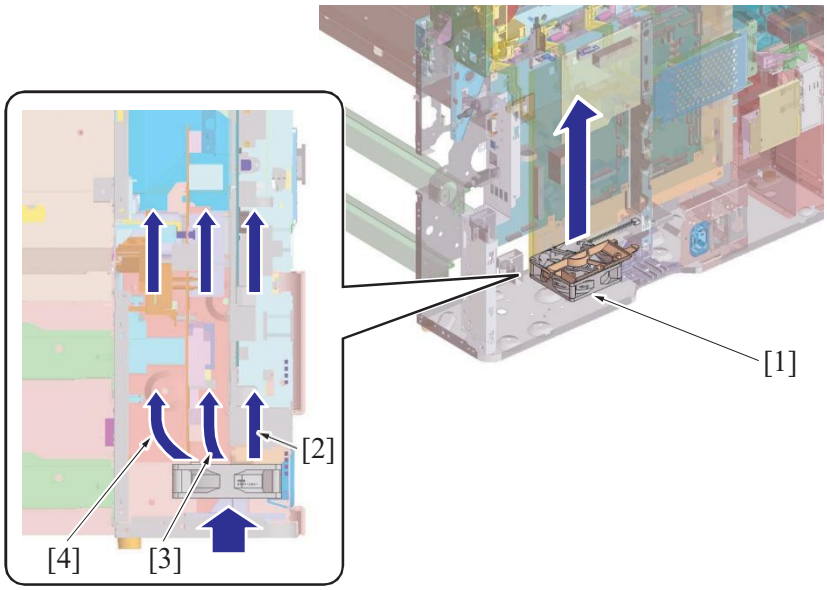


[1]	Toner cartridge/K	[2]	Transfer belt unit

[3]	Developing unit	[4]	Drum unit
[5]	Transfer belt cleaner cooling fan (FM2)	-	-

Rear side cooling fan

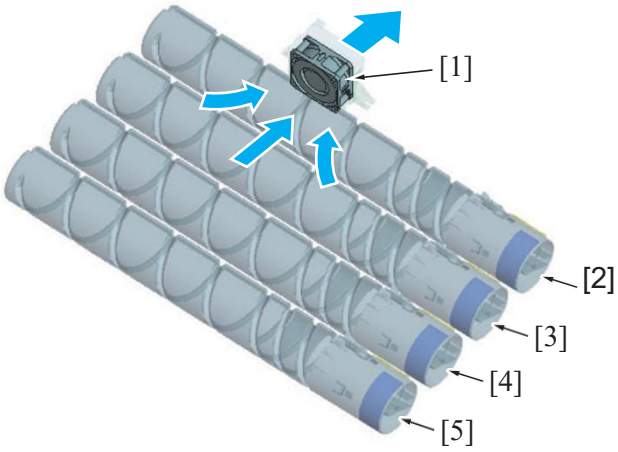
- Blows outside air against around the MFP board, high voltage unit, and drive unit to prevent the temperature of the board from rising.
- External air that is drawn from the bottom-rear of the main body and blown to cool the MFP board, high voltage unit, and drive units.



[1]	Rear side cooling fan (FM3)	[2]	Air to the MFP board
[3]	Air supplied to the high voltage unit	[4]	Air to drive units

Toner cartridge cooling fan (1)

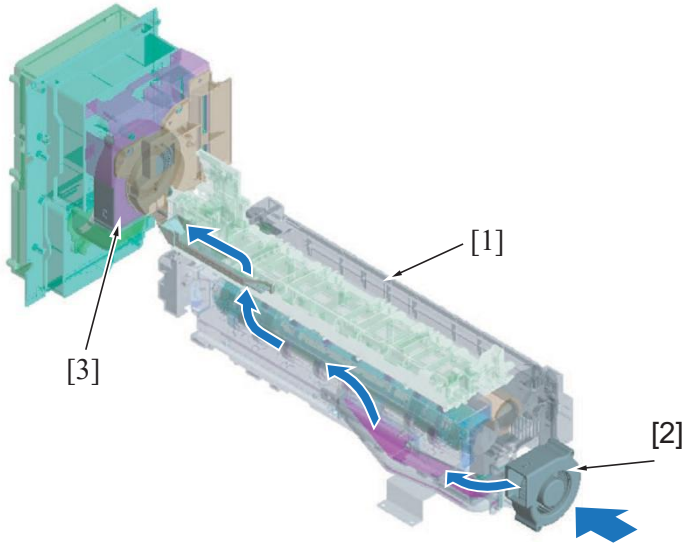
- The machine is equipped with a toner cartridge cooling fan to equipped cooling to the toner cartridge area and the fusing section.
- The toner cartridge cooling fan sucks air from the rear side of the main body and pushes it in between the fusing unit and the toner cartridge/K.
- Creation of air flow between the fusing unit and toner cartridge may make the heat generates from the fusing unit hardly reach the toner cartridge area. This structure limits the increase in temperature of the toner cartridge area.



[1]	Toner cartridge cooling fan (FM4)	[2]	Toner cartridge/K
[3]	Toner cartridge/C	[4]	Toner cartridge/M
[5]	Toner cartridge/Y	-	-

IH coil cooling fan (CM9705DN/M9705)

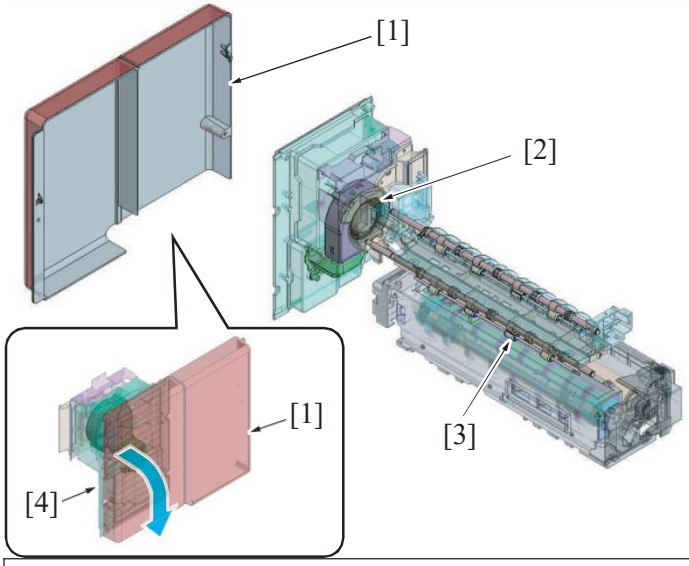
- An IH coil cooling fan is provided to cool the IH coil that heats the heating roller assy.
- Air is drawn from around the front cover of the main body and distributed inside the IH coil unit via the inlet duct.
- Hot air that has passed through the IH coil exhausts from the main body via the exhaust duct and paper cooling fan.



[1]	Fusing unit	[2]	IH coil cooling fan (FM7)
[3]	Paper cooling fan (FM8)	-	-

Paper cooling fan

- The paper cooling fan cools the paper after fusing and the paper exit/reverse section.
- The paper cooling fan sucks the warm air from the area of the paper exit/reverse section and discharges it out of the machine.
- The exhaust air is discharged externally from the main body rear side and is exhausted downward from the exhaust cover.

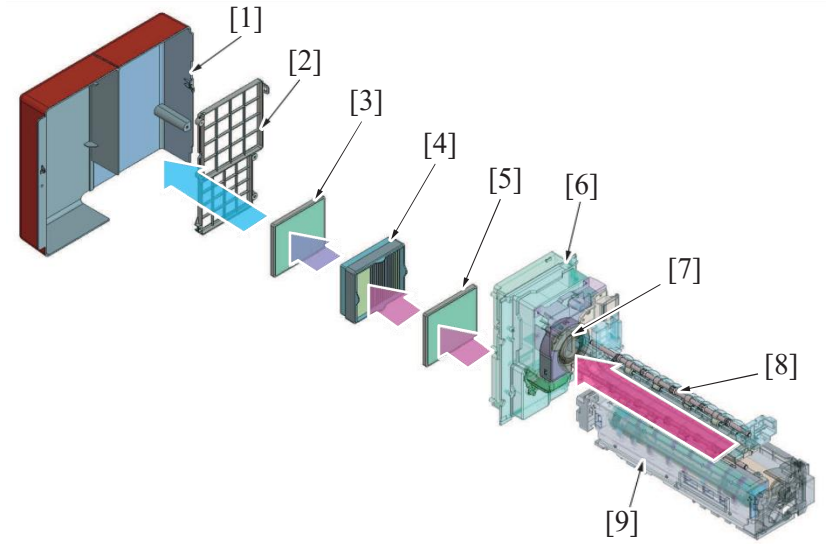


[1]	Exhaust cover	[2]	Paper cooling fan (FM8)
[3]	Paper exit/reverse section	[4]	Filter cover

- The paper cooling fan sucks ultrafine particles (UFPs) and odors that are generated from the fusing unit, and the filter in the rear side of the main body removes them.

NOTE

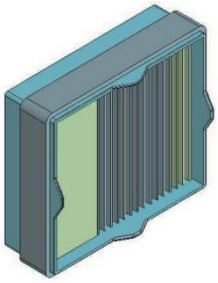
- **The UFP filter is fitted as standard equipment on models that are destined for Europe only.**
- **The deodorant filter is fitted as standard equipment on models that are destined for China only.**
- **The UFP and deodorant filters can be used together. When these filters are used together, the deodorant filter is mounted to the rear of the UFP filter.**



[1]	Exhaust cover	[2]	Filter cover
[3]	Deodorant filter	[4]	UFP filter
[5]	Deodorant filter	[6]	Upper rear cover
[7]	Paper cooling fan (FM8)	[8]	Paper exit/reverse section
[9]	Fusing unit	-	-

(a) UFP removal function

- The UFP filter removes UFPs in the air.

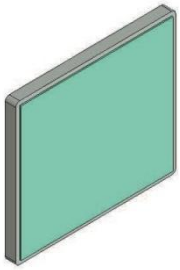


NOTE

- **The UFP filter does not requires a periodic replacement.**
- **A higher air cleaning performance can be achieved through installing optional clean unit CU-102.**

(b) Deodorization function

- The deodorant filter removes odors in the air.

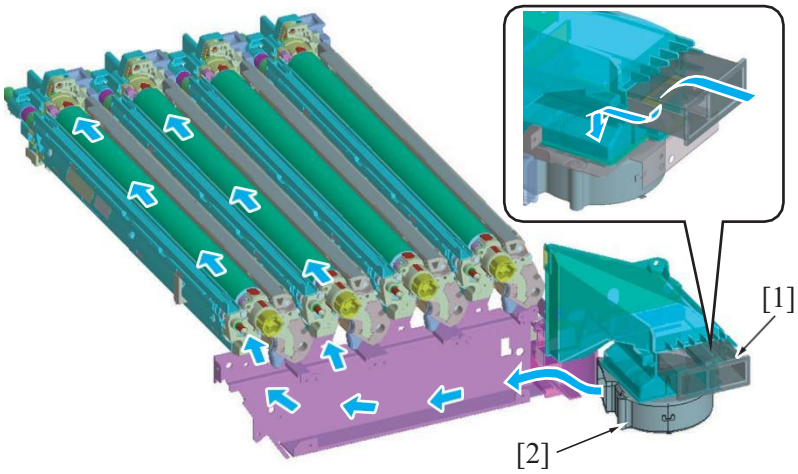


NOTE

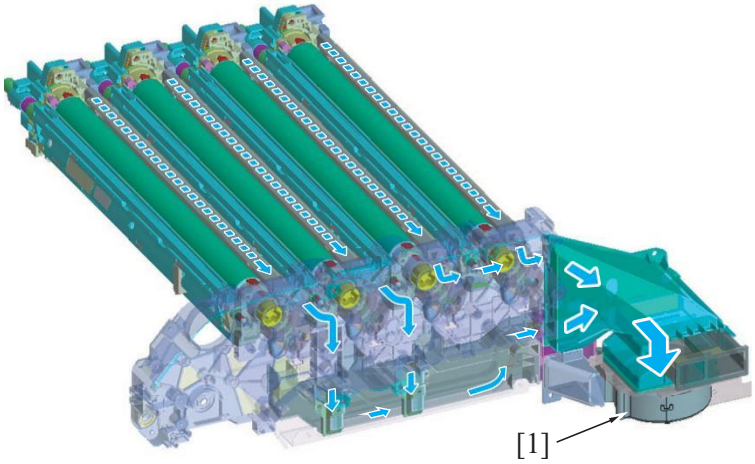
- **The deodorant filter does not requires a periodical replacement.**

Toner suction fan

- The toner suction fan draws the toner dust from the ends of the developer unit to prevent contamination of the machine.
- Air that is drawn in via the toner filter is blown into the machine via ducts to cool the drum unit and developing unit.
- Air is drawn and circulated throughout the machine for many different purposes.



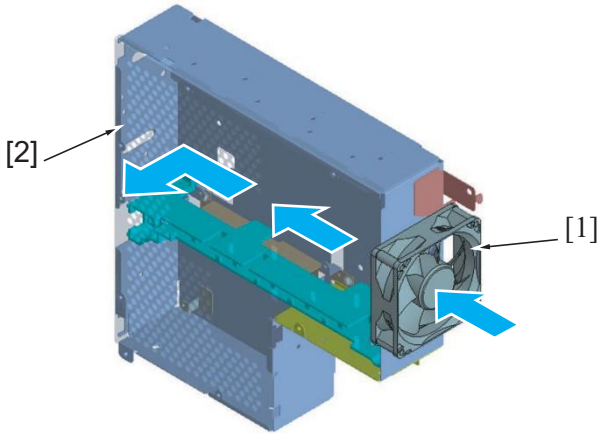
[1]	Toner filter	[2]	Toner suction fan (FM11)



[1]	Toner suction fan (FM11)	-	-

Fusing power supply cooling fan

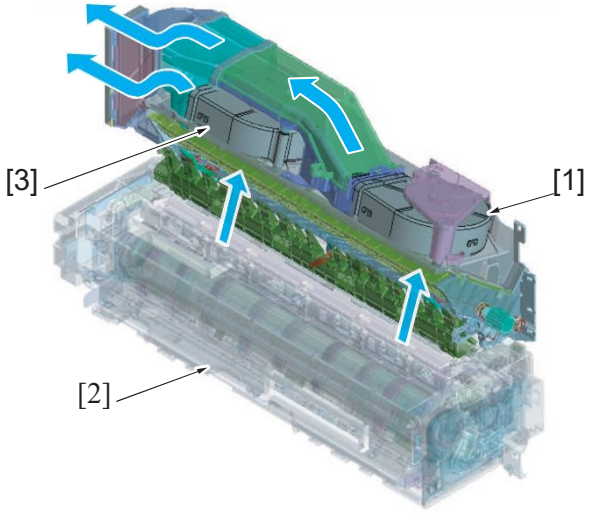
- The fusing power supply cooling fan is used to cool the fusing power supply and IH power supply.
- The fusing power supply cooling fan in the power supply box draws air from the sides of the main body. It blows this air to cool the power supply boards.



[1]	Fusing power supply cooling fan (FM12)	[2]	Fusing power supply/IH power supply box

UFP exhaust fan1, UFP exhaust fan2

- Air from the paper cooling fan and IH coil cooling fan is drawn with the UFP exhaust fan and exhausted outside of the machine. Heat around the fusing section and air around the reverse section are also drawn.
- CM9705DN/M9705 is equipped with two UFP exhaust fans.
- Air that is drawn with the UFP exhaust fan is discharged from the machine via the filter.

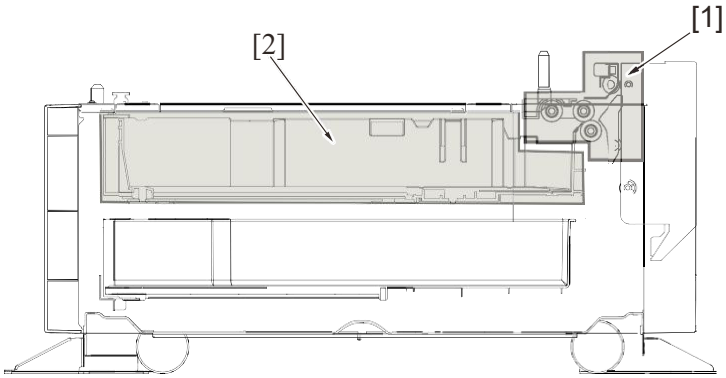


[1]	UFP exhaust fan1 (FM17)	[2]	Fusing unit
[3]	UFP exhaust fan2 (FM18)	-	-

THEORY OF OPERATION PC-110/PC-210/CPT910

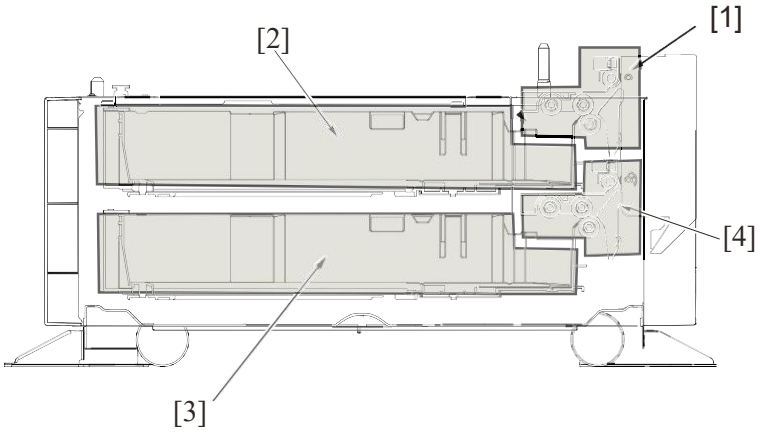
CONFIGURATION

PC-110/PC-115



[1]	Tray 3 paper feed section	[2]	Paper feed tray section (tray 3)

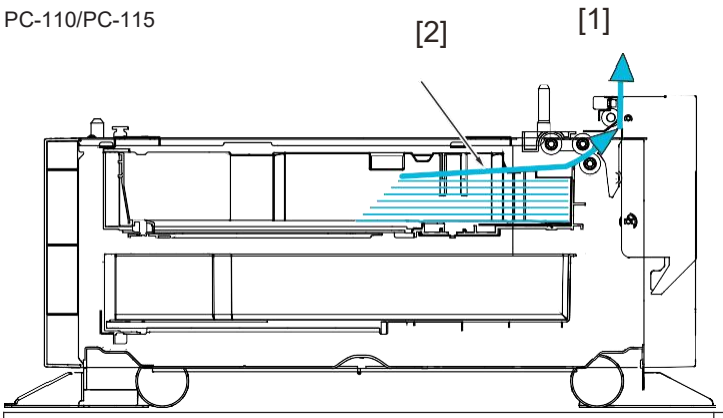
PC-210/PC-215



[1]	Tray 3 paper feed section	[2]	Paper feed tray section (tray 3)
[3]	Paper feed tray section (tray 4)	[4]	Tray 4 paper feed section

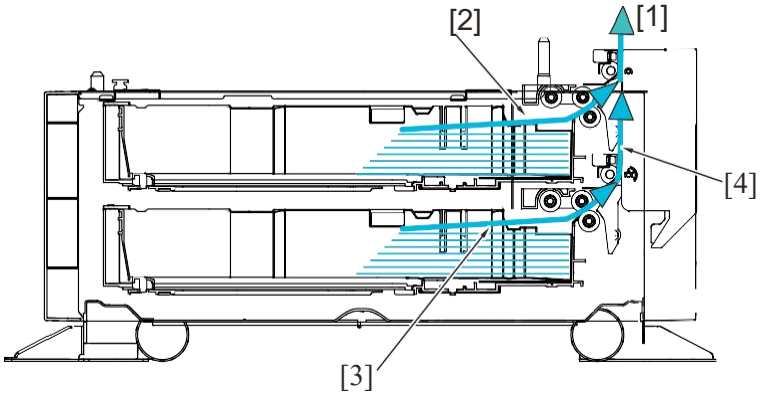
PAPER PATH

PC-110/PC-115



[1]	Transportation to main body	[2]	Paper feed from tray 3

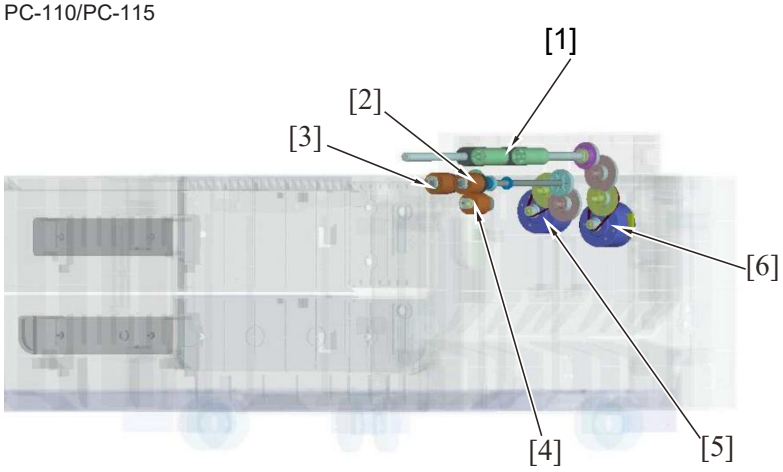
PC-210/PC-215



[1]	Transportation to main body	[2]	Paper feed from tray 3
[3]	Paper feed from tray 4	[4]	Vertical transport

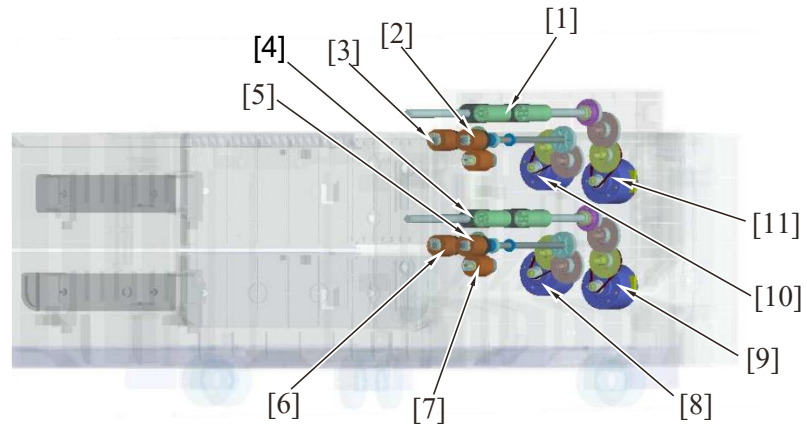
DRIVE

PC-110/PC-115



[1]	Tray 3 vertical transport roller	[2]	Tray 3 feed roller
[3]	Tray 3 pick-up roller	[4]	Tray 3 separation roller
[5]	Tray 3 paper feed motor (M111)	[6]	Tray 3 vertical transport motor (M112)

PC-210/PC-215



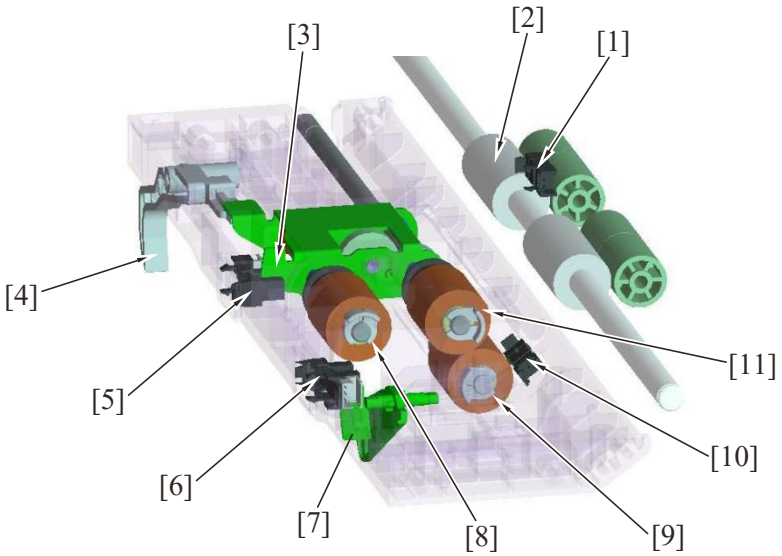
[1]	Tray 3 vertical transport roller	[2]	Tray 3 feed roller
[3]	Tray 3 pick-up roller	[4]	Tray 4 vertical transport roller
[5]	Tray 4 feed roller	[6]	Tray 4 pick-up roller
[7]	Tray 4 separation roller	[8]	Tray 4 paper feed motor (M121)
[9]	Tray 4 vertical transport motor (M122)	[10]	Tray 3 paper feed motor (M111)
[11]	Tray 3 vertical transport motor (M112)	-	-

OPERATION

Paper feed section

Paper feed drive mechanism

- Tray 3 has a paper feed drive mechanism having the same arrangement as that of tray 4. The paper feed drive mechanism is structured in the same manner as in tray 1 and tray 2 of the main body.
- Whereas operation is controlled using a clutch in tray 1 and tray 2, tray 3 and tray 4 incorporates a paper feed motor that drives the pick-up roller and feed roller to feed the paper.
- Then, the vertical transport motor transports the paper through the vertical transport section.
- The pick-up roller takes up sheets of paper and the feed roller and separation roller ensure that only one sheet of paper is separated and fed into the main body.
- When the drawer is slid in, the lever is pushed to lower the pick-up roller.
- The tray is raised to cause the paper to push the feed roller. This raises the upper limit detection actuator, so that the upper limit is detected.
- The paper empty sensor detects when paper in the drawer runs out.

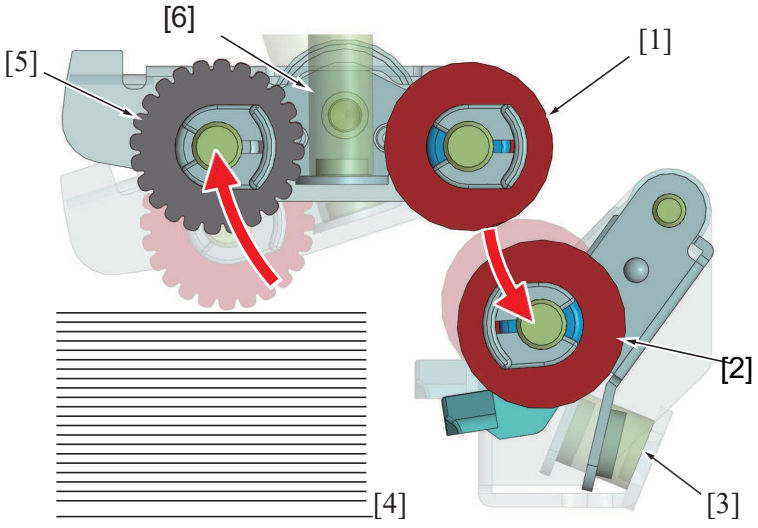


[1]	Tray 3/4 vertical transport sensor (PS113/PS123)	[2]	Vertical transport roller
[3]	Upper limit detection actuator	[4]	Lever
[5]	Tray 3/4 upper limit sensor (PS116/PS126)	[6]	Tray 3/4 paper empty sensor (PS114/PS124)
[7]	Empty detection actuator	[8]	Pick-up roller
[9]	Separation roller	[10]	Tray 3/4 paper feed sensor (PS112/PS122)
[11]	Feed roller	-	-

Roller retract mechanism

- When the paper feed tray is inserted or pulled out, there is a mechanism which retracts the pick-up roller and the separation roller.
- The pick-up roller retracts from the paper.
- The separation roller retracts from the feed roller.

Front view



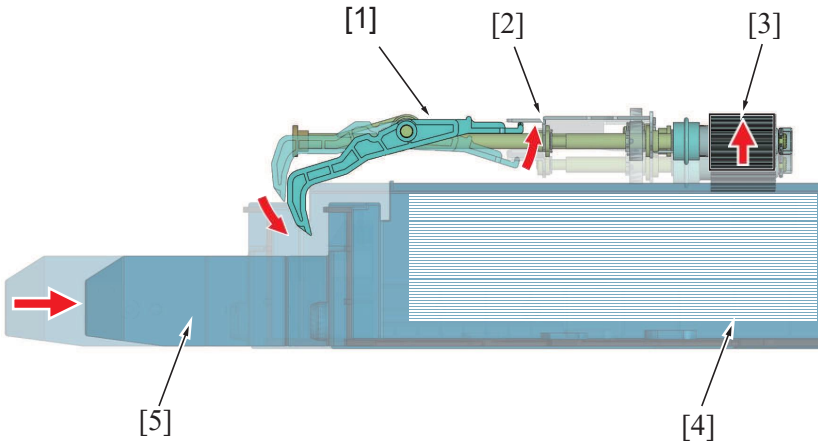
[1]	Feed roller	[2]	Separation roller
[3]	Separation roller pressure spring	[4]	Paper

[5]	Pick-up roller	[6]	Pick-up roller pressure spring

(1) Pick-up roller retract mechanism

- When the paper feed tray is inserted or pulled out, the pick-up roller prevents the paper from being damaged.
- The pick-up roller comes down through spring pressure when the paper feed tray is closed. When paper is placed, the roller is pressed against the paper surface. (Paper feed position)
- If the paper feed tray lock is released, the roller lifting lever is also released and the pick-up roller holder is pushed up to the retraction position. This structure prevents the paper surface from being damaged even if the paper feed tray is pulled out.

Left side view

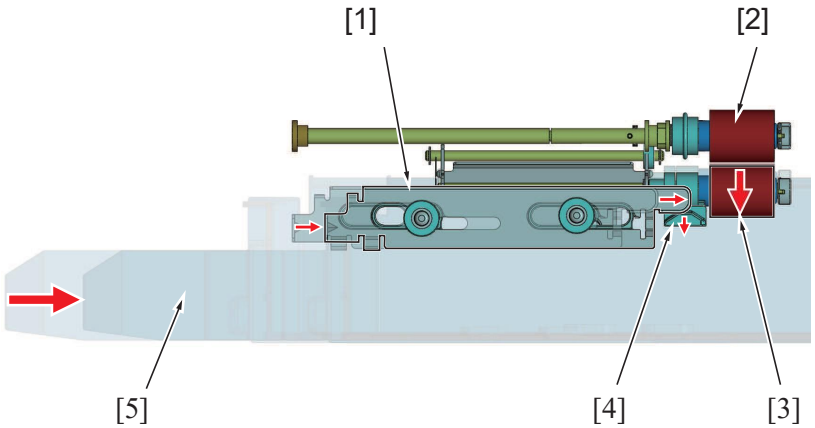


[1]	Roller lifting lever	[2]	Pick-up roller holder
[3]	Pick-up roller (retracted position)	[4]	Paper
[5]	Paper feed tray (lock released)	-	-

(2) Separation roller retract mechanism

- When a paper jam occurs and paper is caught between rollers where the feed roller is pressing the separation roller, paper will be left inside the machine through pulling out the paper feed tray. If you insert the paper feed tray in that state, the paper may get torn in pieces which may fall off and scatter inside the machine. It prevents paper from being torn or falling off through retracting the separation roller.
- The separation roller is pressed against the feed roller by spring pressure when the paper feed tray is closed. (Paper feed position)
- Release the paper feed tray lock, the roller pushdown lever is also released and the separation roller retract lever is pushed down to the retracting position. It releases the paper from the rollers even if it is jammed between the rollers.

Left side view



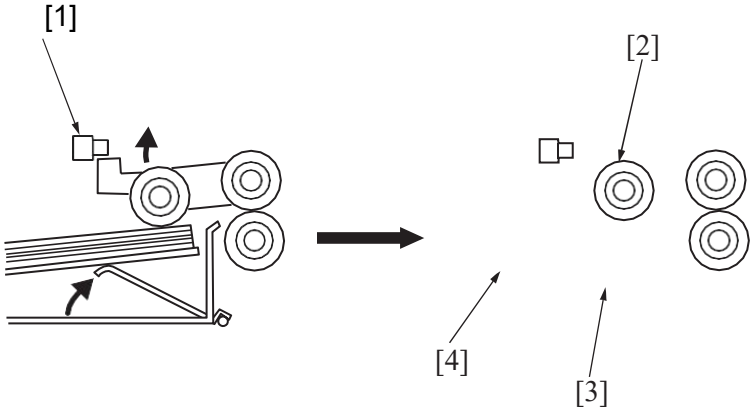
[1]	Roller pushdown lever	[2]	Feed roller
[3]	Separation roller (retract position)	[4]	Separation roller retract lever
[5]	Paper feed tray (lock released)	-	-

Paper lifting motion

- The FD paper size board of each tray detects whether the drawer is slid in or out.
- When the FD paper size board is activated, the lift-up motor is energized to thereby raise the paper lifting plate.
- The paper stack of the tray pushes up the pick-up roller.
- When the upper limit position is detected by the upper limit sensor, it stops raising the paper lifting plate.
- As paper is consumed during the print cycle and the pick-up roller is lowered, the lift-up motor is energized until the upper limit sensor is blocked again.

(1) When the drawer is slid in

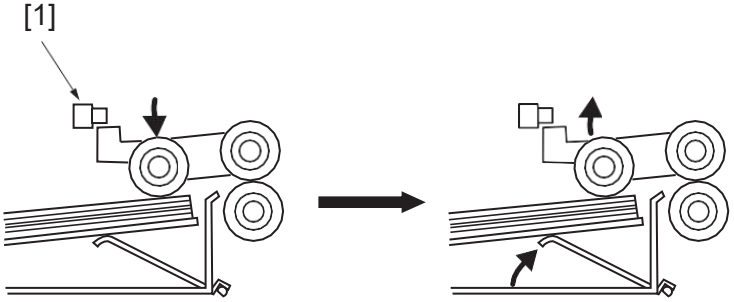
1. The paper lifting plate goes up and the top surface of the paper stack pushes up the pick-up roller.
2. The lifting motion stops as soon as the upper limit sensor detects the upper limit position.



[1]	Tray 3/4 upper limit sensor (PS116/PS126)	[2]	Pick-up roller
[3]	Paper lifting plate B	[4]	Paper lifting plate A

(2) During a print cycle

1. As the paper is consumed, the upper limit sensor is unblocked. Then the paper lifting plate goes up.

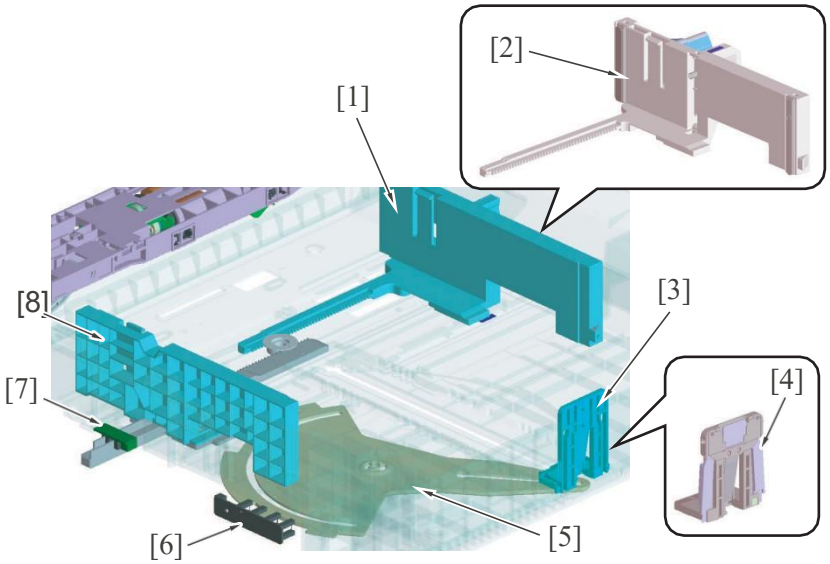


[1]	Tray 3/4 upper limit sensor (PS116/PS126)	-	-

Paper feed tray section

Paper size detection

- When the paper length guide of the drawer is moved, the circular paper length detection plate located on the bottom of the drawer turns.
- The paper length is detected by the lever that operates in conjunction with the paper length detection plate, and four paper length detection sensors on the FD paper size board.
- Moving the paper width guide plate activates or deactivates two paper width detection sensors on the CD paper size board through the cutout in the lever.
- The combination of the four paper length detection sensors and two paper width detection sensors that are either activated or deactivated, determines the size of the paper loaded in the drawer.
- The FD paper length detection sensor detects that the drawer is slid into position as it is slid in.



[1]	Paper width guide plate (front) (PC-110/C210)	[2]	Paper width guide plate (front) (CPT910)
[3]	Paper width guide plate (rear) (PC-110/C210)	[4]	Paper width guide plate (rear) (CPT910)
[5]	Tray 3/4 CD paper size board (CDPSB/3, CDPSB/4)	[6]	Tray 3/4 FD paper size board (FDPSB/3, FDPSB/4)

[7]	Paper length detection plate	[8]	Paper length guide

Paper feed tray locking mechanism

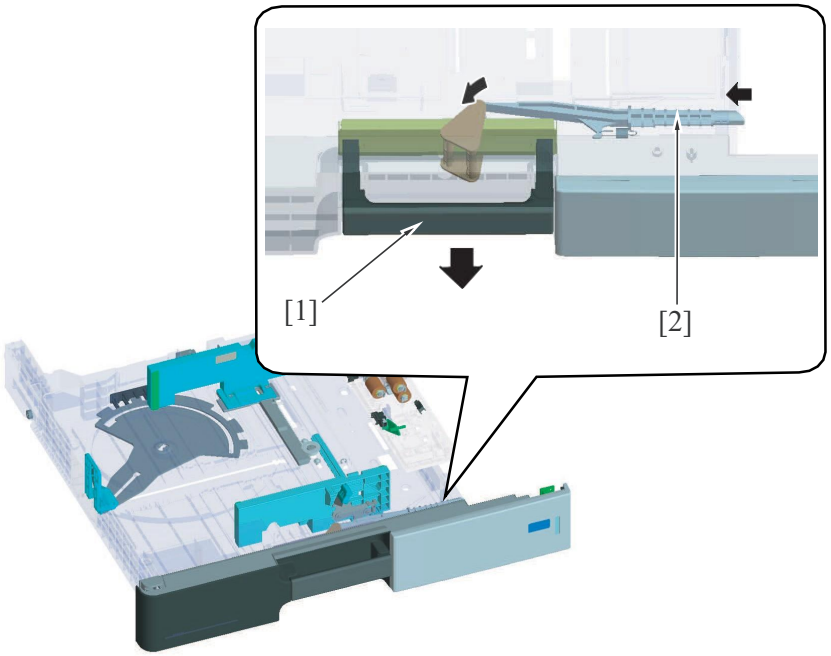
- The paper feed tray is provided with a locking mechanism.

(1) Unlocking the paper feed tray

- With drawing the lever of the paper feed tray to the front will disengage the tray lock lever equipped on the right side of the paper feed tray.
- The paper feed tray can be pulled out of the machine by continuing pulling the lever with the tray lock lever disengaged.
- Rollers are provided for the right and left tray rails. They reduce the operating force required for sliding in/out the paper feed tray.

(2) Locking the paper feed tray

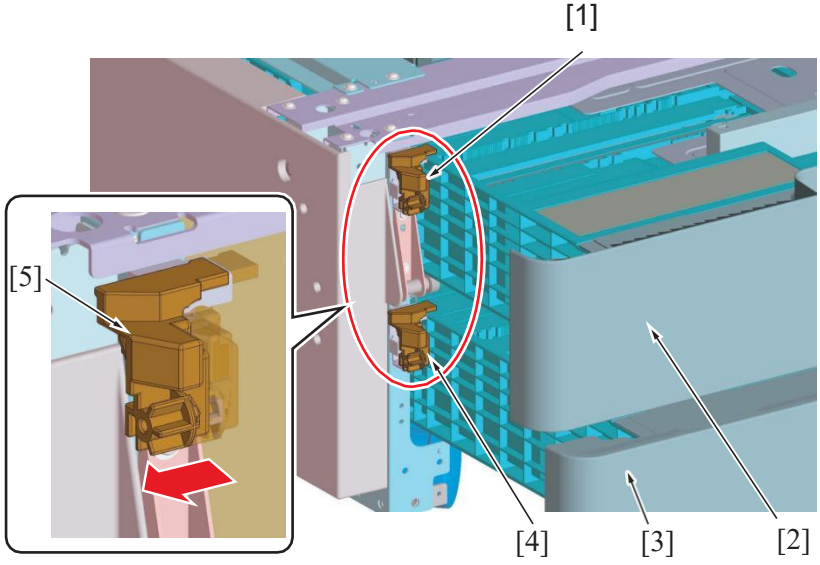
- Pushing the lever of the paper feed tray all the way toward the rear will allow the paper feed tray to be slid into the machine.
- When the paper feed tray is inserted all the way in place, the tray lock lever equipped on the right side of the paper feed tray locks the tray in place.
- To prevent false detection, the paper feed tray is equipped with a spring in the rear that pushes the tray back out if the tray is not inserted all the way in place.



[1]	Lever of the paper feed tray	[2]	Lock lever

Paper feed tray stopper release mechanism (CPT910)

- The paper feed tray is equipped with a stopper mechanism.
- When paper is placed, the stopper prevents the paper feed tray from falling off from the machine even if it is pulled out.
- The paper feed tray can be removed if paper is remained inside the machine at the time of handling a paper jam or a misfeed.



[1]	Tray 3 stopper	[2]	Tray 3

[3]	Tray 4	[4]	Tray 4 stopper
[5]	Tray stopper release	-	-

(1) Releasing the paper feed tray stopper

- Press the stopper on its left side, the stopper lock will be released.

(2) Locking the paper feed tray stopper

- Press the stopper on its right side, the stopper lock will be locked.

NOTE

- **A mechanism is provided to push and lock the stopper through closing the paper feed tray to its home position even if you forget to lock it. (Mechanism to prevent forgetting lock)**

Remaining paper display mechanism

- The amount of remaining paper is indicated by the LED on the right side of each tray and by the screen of the control panel.
- The estimate amount of paper for near empty is around 50 sheets.

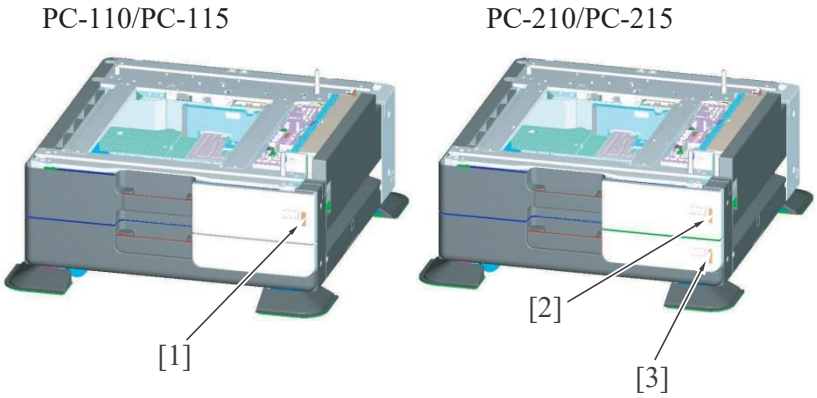
(1) Display state

Tray status	Empty	Near empty	Other status (During lifting-up and with tray not being set included)
LED status	Lit	OFF/Blink *	Unlit

NOTICE

- The near empty display may be OFF or Blink as set for within “Machine State LED Setting” of the service mode. (The default setting is OFF.)

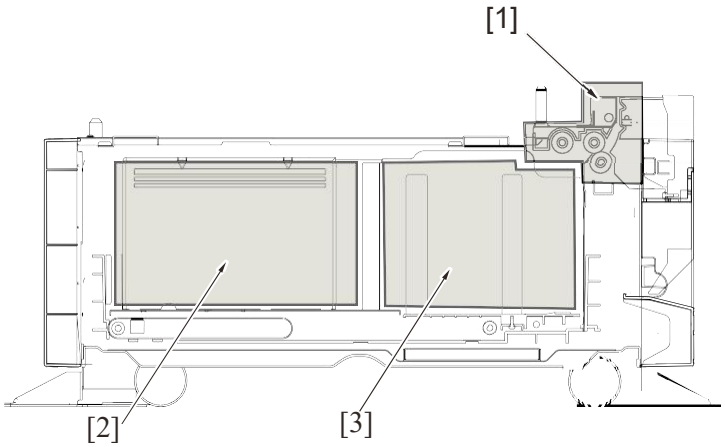
Tray paper remaining amount display LED



[1]	Tray 3 paper remaining amount display LED (PC-110/ PC-115)	[2]	Tray 3 paper remaining amount display LED (PC-210/ PC-215)
[3]	Tray 4 paper remaining amount display LED	-	-

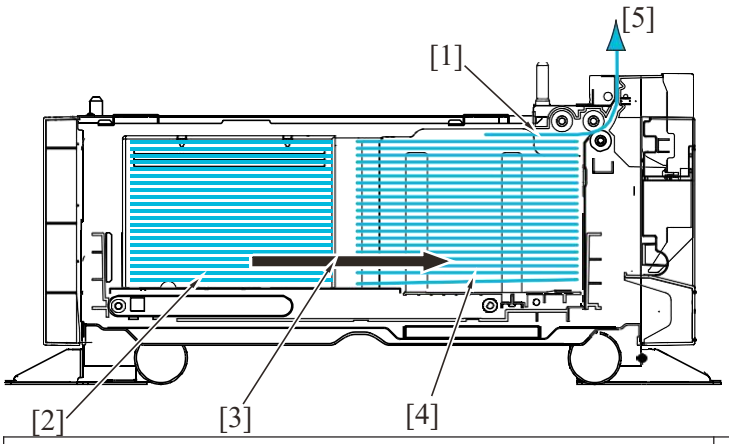
THEORY OF OPERATION PC-410/CPT910X

CONFIGURATION



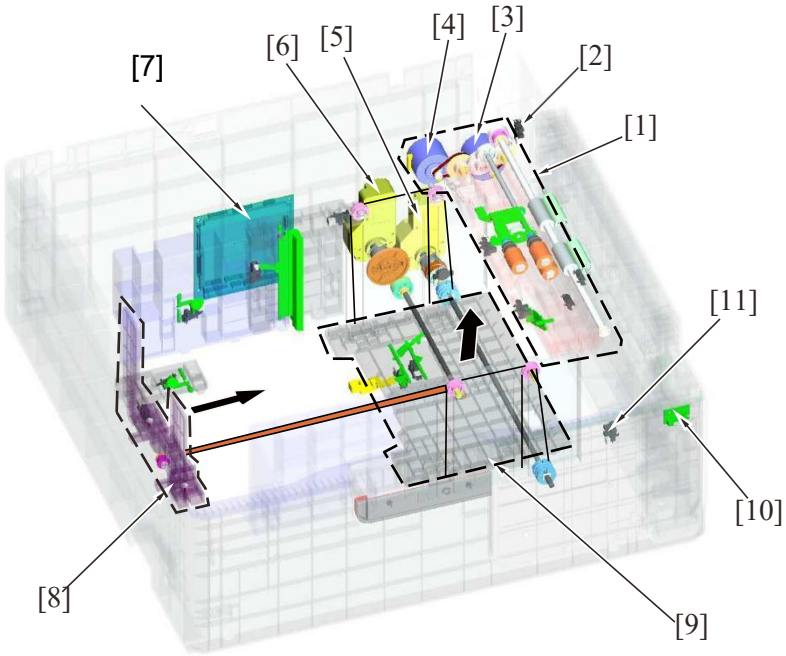
[1]	Paper feed section	[2]	Sub tray
[3]	Main tray	-	-

PAPER PATH



[1]	Paper feed from main tray	[2]	Sub tray
[3]	Move from the sub tray to the main tray	[4]	Main tray
[5]	Transportation to main body	-	-

DRIVE



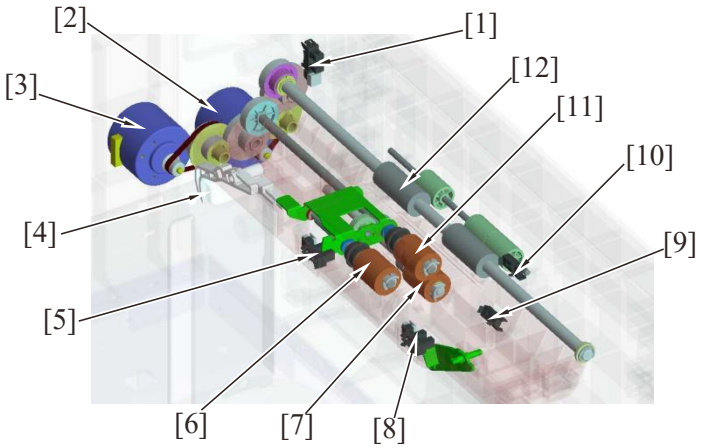
[1]	Paper feed section	[2]	Right bottom door sensor (PS131)
[3]	Vertical transport motor (M132)	[4]	Paper feed motor (M131)
[5]	Elevator motor (M134)	[6]	Shifter motor (M133)
[7]	PC control board (PCCB)	[8]	Shifter
[9]	Elevator tray	[10]	Tray 3 paper empty indicator board (PEIB/3)
[11]	Cassette set sensor (PS143)	-	-

OPERATION

Paper feed section

Paper feed drive mechanism

- The same paper feed drive mechanism as that found in PC-210/110 is incorporated.
- The paper feed motor drives the pick-up roller and feed roller to take up and feed a sheet of paper into the main body.
- Then, the vertical transport motor transports the paper through the vertical transport section.
- The pick-up roller takes up sheets of paper and the feed roller and separation roller ensure that only one sheet of paper is separated and fed into the main body.
- When the drawer is slid in, the lever is pushed to lower the pick-up roller.
- The tray is raised to cause the paper to push the feed roller. The tray is brought to a stop when the main tray upper limit sensor detects the upper limit.
- The main tray upper paper empty sensor detects whether paper is loaded on the main tray at the upper limit position.

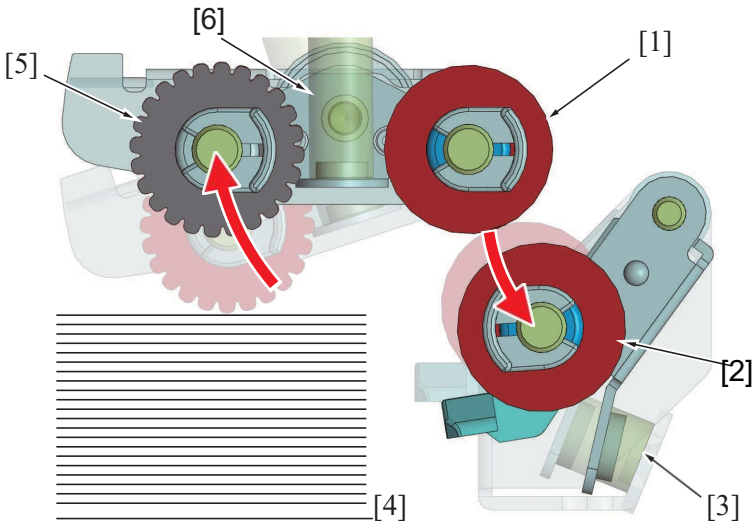


[1]	Right bottom door sensor (PS131)	[2]	Vertical transport motor (M132)
[3]	Paper feed motor (M131)	[4]	Lever
[5]	Main tray upper limit sensor (PS136)	[6]	Pick-up roller
[7]	Separation roller	[8]	Main tray upper paper empty sensor (PS137)
[9]	Paper feed sensor (PS132)	[10]	Vertical transport sensor (PS133)
[11]	Feed roller	[12]	Vertical transport roller

Roller retract mechanism

- When the paper tray is inserted or pulled out, there is a mechanism which retracts the pick-up roller and the separation roller.
- The pick-up roller retracts from the paper.
- The separation roller retracts from the feed roller.

Front view



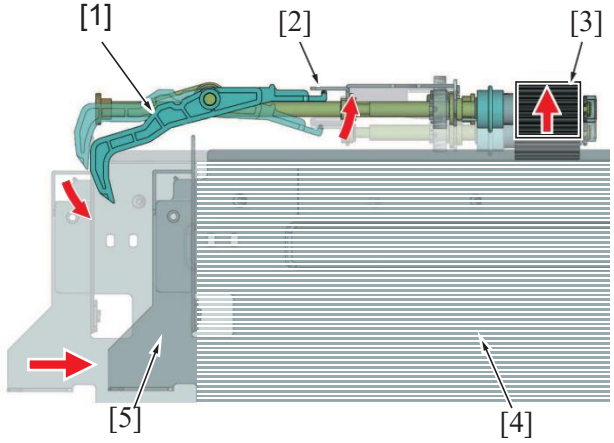
[1]	Feed roller	[2]	Separation roller
[3]	Separation roller pressure spring	[4]	Paper
[5]	Pick-up roller	[6]	Pick-up roller pressure spring

(1) Pick-up roller retract mechanism

- When the paper tray is inserted or pulled out, the pick-up roller prevents the paper from being damaged.

- The pick-up roller comes down through spring pressure when the paper tray is closed. When paper is placed, the roller is pressed against the paper surface. (Paper feed position)
- If the paper tray lock is released, the roller lifting lever is also released and the pick-up roller holder is pushed up to the retraction position. This structure prevents the paper surface from being damaged even if the paper tray is pulled out.

Left side view

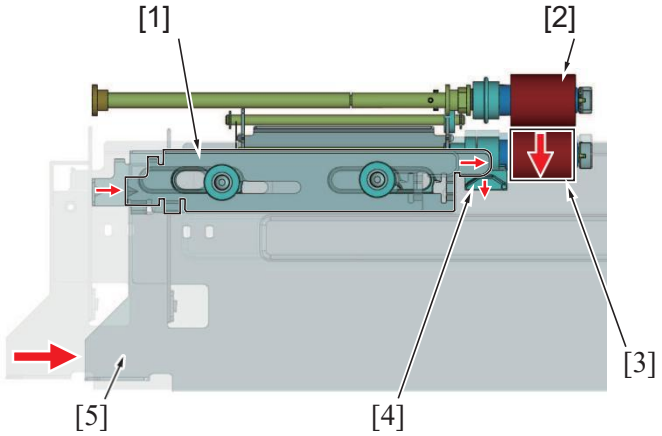


[1]	Roller lifting lever	[2]	Pick-up roller holder
[3]	Pick-up roller (retract position)	[4]	Paper
[5]	Paper tray (lock released)	-	-

(2) Separation roller retract mechanism

- When a paper jam occurs and paper is caught between rollers where the feed roller is pressing the separation roller, paper will be left inside the machine through pulling out the paper tray. If you insert the paper tray in that state, the paper may get torn in pieces which may fall off and scatter inside the machine. It prevents paper from being torn or falling off through retracting the separation roller.
- The separation roller is pressed against the feed roller by spring pressure when the paper tray is closed. (Paper feed position)
- Release the paper tray lock, the roller pushdown lever is also released and the separation roller retract lever is pushed down to the retracting position. It releases the paper from the rollers even if it is jammed between the rollers.

Left side view

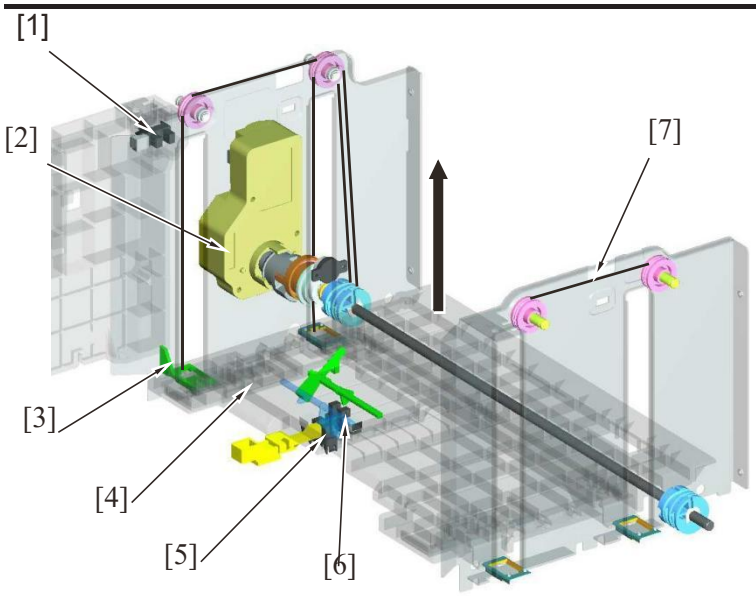


[1]	Roller pushdown lever	[2]	Feed roller
[3]	Separation roller (retract position)	[4]	Separation roller retract lever
[5]	Paper tray (lock released)	-	-

Main tray section

Main tray up / down mechanism

- The elevator tray is suspended by the cables at the front and rear.
- As the elevator motor turns forward or backward, the cables are wound to raise or lower the tray.
- The amount of paper left in the main tray is calculated using time for the lifting motion (period of time through which the elevator motor is kept energized).
- When the amount of paper becomes small, the near empty detection actuator blocks the main tray paper near empty sensor.
- When paper in the main tray runs out, the main tray paper empty sensor detects that condition and a descent motion of the main tray is started.
- The shifter stop/lower limit position sensor detects the main tray at its lower limit position.

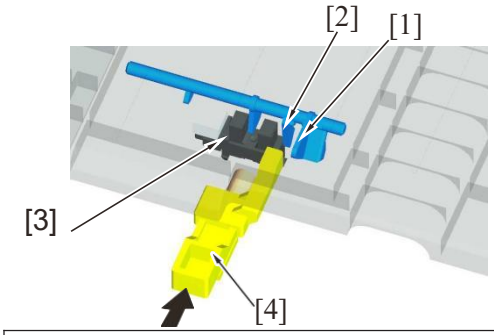


[1]	Main tray paper near empty sensor (PS135)	[2]	Elevator motor (M134)
[3]	Near empty detection actuator	[4]	Main tray
[5]	Shifter stop / lower limit position sensor (PS138)	[6]	Main tray paper empty sensor (PS134)
[7]	Wire	-	-

Main tray lower limit detection

(1) Main tray lower limit detection

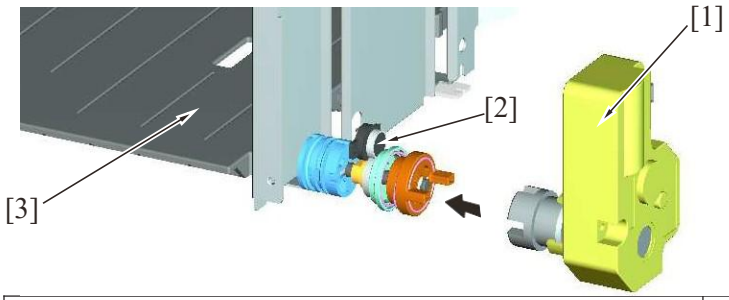
- If the sub tray is detected to be loaded with paper when paper on the main tray runs out, the descent motion of the main tray is started.
- The shifter stop/lower limit position sensor detects the lower limit position of the main tray.
- This sensor has two functions and detects also the stop position of the shifter.
- The shift stop position detection actuator portion detects the shifter stop position when it is pushed as a result of the lever being pushed by the shifter.



[1]	Lower limit detection actuator portion	[2]	Shifter stop position detection actuator portion
[3]	Shifter stop / lower limit position sensor (PS138)	[4]	Lever

(2) Main tray lower operation

- If the sub tray is detected to be not loaded with paper when paper on the main tray runs out, the descent motion of the main tray is not performed. The main tray is lowered when the drawer is slid out.
- When the drawer is slid out, the elevator motor is disengaged from the gear, so that the main tray lowers by its own weight.
- At this time, an effect of the damper connected to the gear prevents the main tray from lowering swiftly and ensures a slow descent motion.

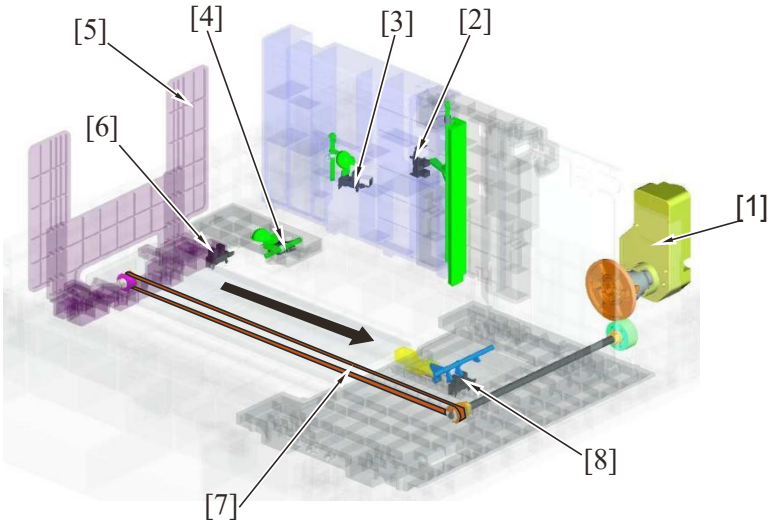


[1]	Elevator motor (M134)	[2]	Damper
[3]	Main tray	-	-

Sub tray section

Shifter drive mechanism

- If the main tray runs out of paper, while the sub tray is loaded with paper, the paper stack on the sub tray is moved to the main tray.
- The shifter motor drives the belt, which moves the shifter to thereby move the paper stack.
- The shifter moves to the position of the shifter stop/lower limit position sensor. Then, the shifter motor is rotated backward to return the shifter to, and stop it at, the position at which the shifter home sensor is blocked.

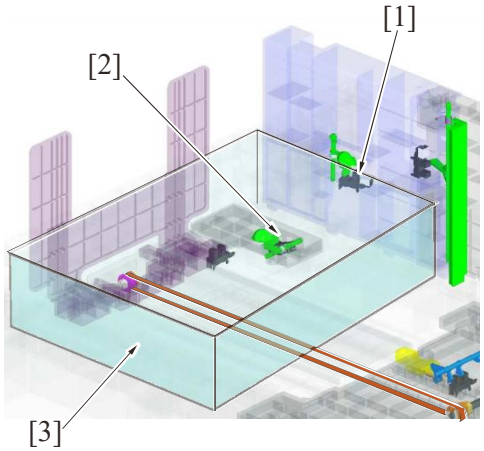


[1]	Shifter motor (M133)	[2]	Division board sensor (PS142)
[3]	Sub tray paper remaining amount sensor (PS141)	[4]	Sub tray paper empty sensor (PS140)
[5]	Shifter	[6]	Shifter home sensor (PS139)
[7]	Belt	[8]	Shifter stop / lower limit position sensor (PS138)

Sub tray paper remaining amount

- The amount of paper left on the sub tray, is detected by the combination of states of the sub tray paper remaining amount sensor and the sub tray paper empty sensor. The amount of paper left is detected at three different levels.
- Roughly speaking, the sub tray paper remaining amount sensor is deactivated from the activated state when the amount of paper left is about half the capacity of the tray.

Paper remaining amount	Sub tray paper remaining amount sensor	Sub tray paper empty sensor
Large	ON	ON
Small	OFF	ON
None	OFF	OFF



[1]	Sub tray paper remaining amount sensor (PS141)	[2]	Sub tray paper empty sensor (PS140)
[3]	Paper	-	-

Remaining paper amount displayed mechanism

- The amount of remaining paper is indicated by the LED on the right side of each tray and by the screen of the control panel.
- The estimate amount of paper for near empty is around 100 as 64 g/m^2 (17 lb) paper.

Display state

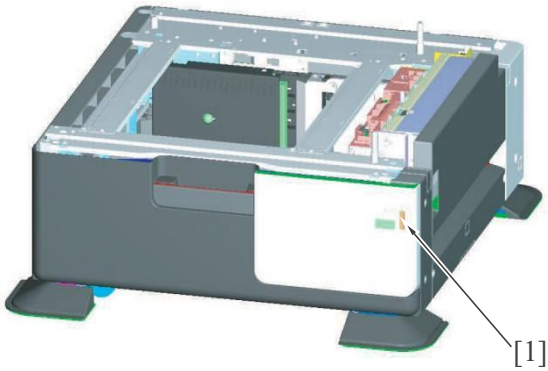
Tray status	Empty	Near empty	Other status

			(During lifting-up and with tray not being set included)
LED status	Lit	OFF/Blink *	Unlit

NOTICE

- The near empty display may be OFF or Blink as set for within “Machine State LED Setting” of the service mode. (The default setting is OFF.)
- The LED is OFF regardless of the amount of paper left in the tray in the energy save mode.

Tray paper remaining amount display LED



[1]	Tray paper remaining amount display LED	-	-

THEORY OF OPERATION PF910/PK-519

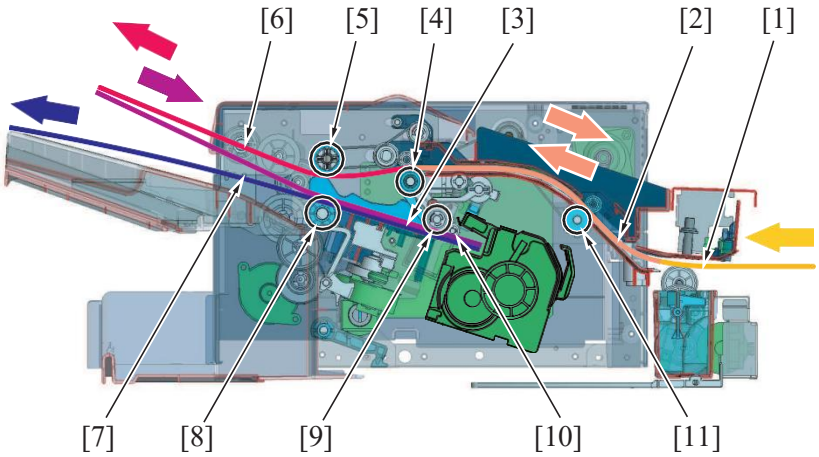
FINISHER OUTLINE

- Install the staple finisher PF910 to the MFP to enable the following functions. "Sort function, Sort offset function", "Group function, Group offset function", "Staple function" and "Sort staple function" can be added.
- The "Punch function" can be added by installing the optional function (Punch Kit PK-519).

Option	Summary of the additional functions
PK-519	Punch function

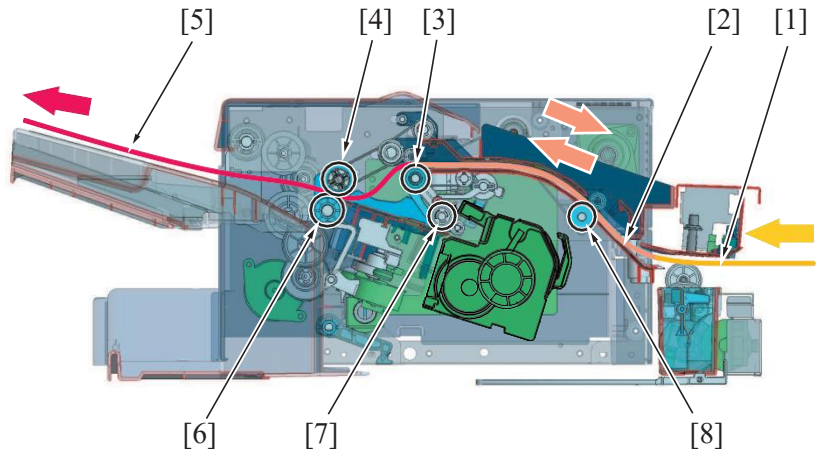
PAPER PATH

Sort offset mode/Group offset mode/Staple mode/Punch mode



[1]	Paper transport/Paper punching (punch mode)	[2]	Paper transport/Skew correction (punch mode)
[3]	Paper alignment (Sort/Sort offset mode, Group/Group offset mode, Staple mode)	[4]	Receiving roller
[5]	Paper exit roller/upper	[6]	Paper transport
[7]	Paper batch exit (Sort/Sort offset mode, Group/Group offset mode, Staple mode)	[8]	Paper exit roller/lower
[9]	Alignment roller	[10]	Staple (staple mode)
[11]	Paper conveyance roller	-	-

Non sort mode/Non group mode/Non staple mode/Sort mode/Group mode/Punch mode



[1]	Paper transport/Paper punching (punch mode)	[2]	Paper transport/Skew correction (punch mode)
[3]	Receiving roller	[4]	Paper exit roller/upper
[5]	Paper exit	[6]	Paper exit roller/lower
[7]	Alignment roller	[8]	Paper conveyance roller

CONFIGURATION

Section configuration

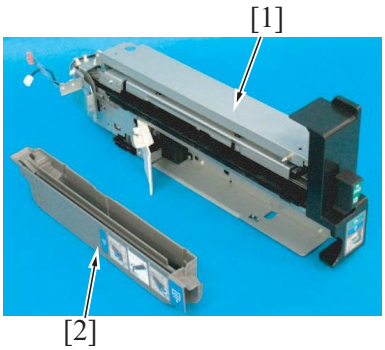
- The staple finisher PF910 has the finisher main unit that is installed on the paper exit section of the MFP.
- Slide out the finisher from the MFP for maintenance and other operations. Slide out the finisher main unit to access the finisher operation section and the punch kit. (only when the optional punch kit kit is installed)
- The staple finisher has the sort/group mechanism and the staple mechanism as standard. The optional punch kit PK-519 can be installed between the right face of the finisher and the paper exit section of the main body.

Exterior view

Finisher PF910



Punch kit PK-519

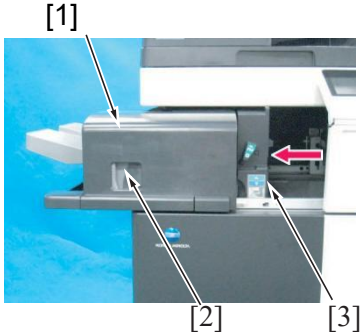


[1]	Punch kit PK-519	[2]	Punch dust box

PF910 + PK-519 installation diagram (installation example)

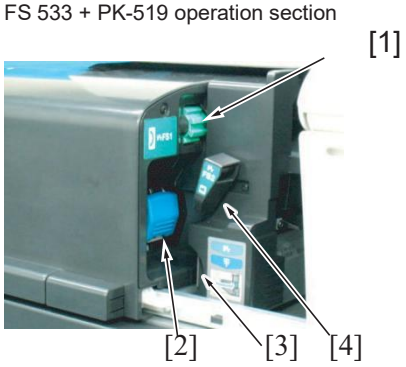


PF910 + PK-519 sliding state (installation example)



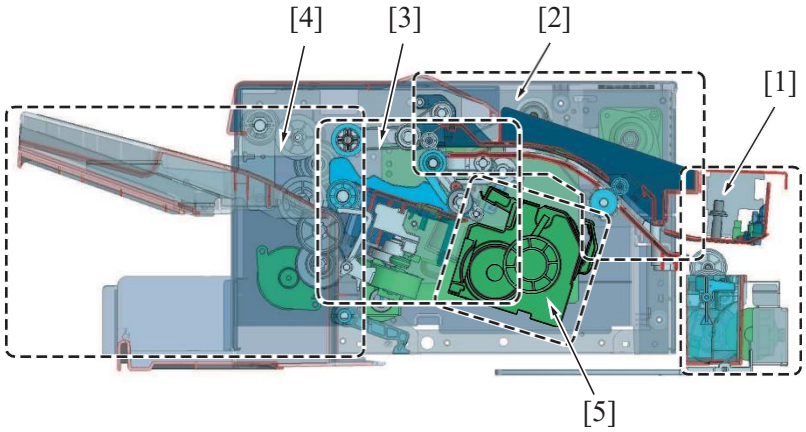
[1]	Finisher PF910	[2]	Finisher release lever
[3]	Punch kit PK-519	-	-

FS 533 + PK-519 operation section



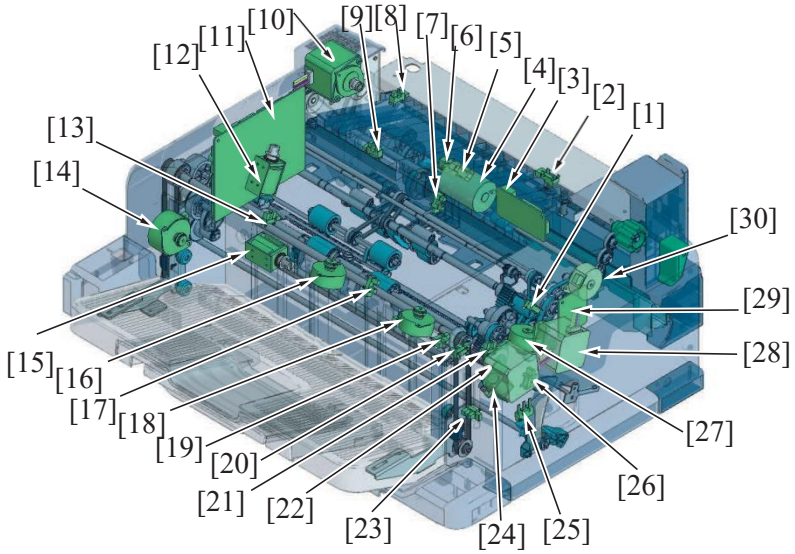
[1]	Jam removal dial	[2]	Staple cartridge
[3]	Punch dust box	[4]	Punch unit release lever

Section configuration



[1]	Punch section (only when punch kit PK-519 is installed)	[2]	Transport section
[3]	Alignment section	[4]	Receiving section
[5]	Staple section	-	-

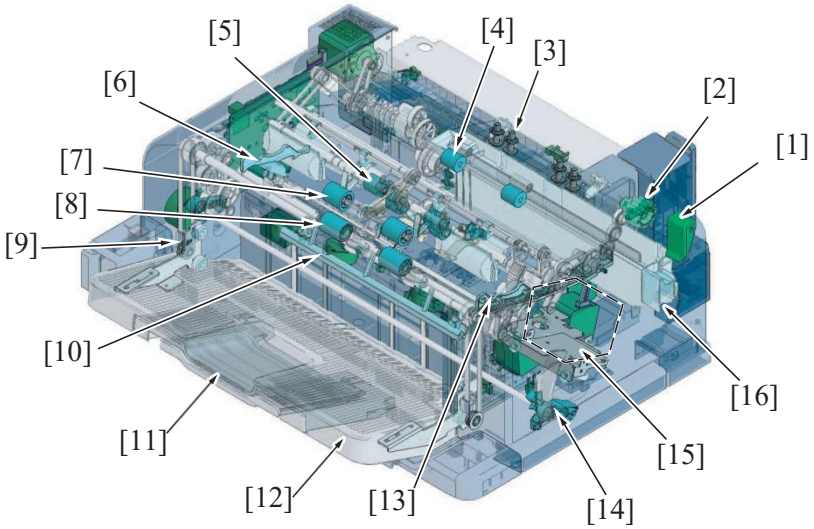
Electrical part configuration



[1]	Pick up roller position sensor (PS105)	[2]	Paper feed sensor (PS201): Punch kit
[3]	PK control board (PKCB): Punch kit	[4]	Punch motor (M201): Punch kit
[5]	Punch dust full sensor (PS205): Punch kit	[6]	Punch motor sensor (PS202): Punch kit
[7]	Paper feed sensor (PS101)	[8]	Puncher home sensor (PS204): Punch kit
[9]	Puncher drive cam sensor (PS203): Punch kit	[10]	Paper conveyance motor (M101)
[11]	FS control board (FSCB)	[12]	Batch solenoid (SD102)

[13]	Alignment plate home sensor/R (PS109)	[14]	Tray lift up motor (M109)
[15]	Paper surface detect solenoid (SD101)	[16]	Alignment motor/R (M106)
[17]	Paper surface detect sensor/1 (PS102)	[18]	Alignment motor/F (M105)
[19]	Paper weight lever sensor (PS103)	[20]	Paper surface detect sensor/2 (PS104)
[21]	Alignment plate home sensor/F (PS108)	[22]	Exit roller lift up motor (M104)
[23]	Paper exit tray home sensor (PS107)	[24]	Paper exit roller solenoid (SD103)
[25]	Finisher lock switch (SW1)	[26]	Stapler home sensor (PS110)
[27]	Stapler movement motor (M107)	[28]	Paper exit motor (M102)
[29]	Stapler relay board (STREYB)	[30]	Alignment roller motor (M103)

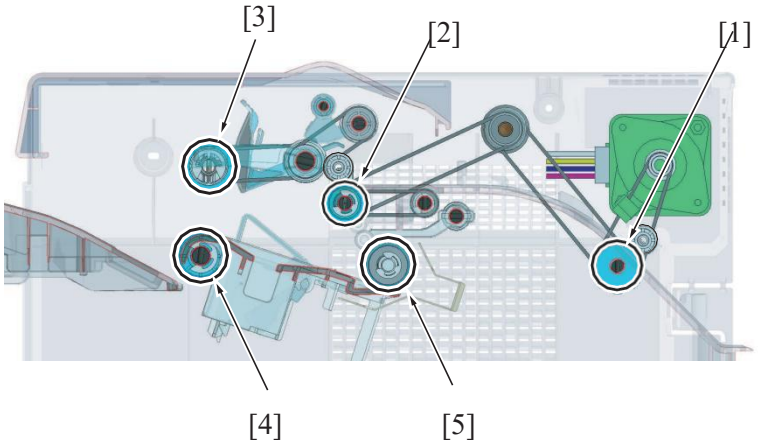
Main mechanical part configuration



[1]	Punch kit release lever: Punch kit	[2]	Jam removal dial
[3]	Puncher *: Punch kit	[4]	Paper conveyance roller
[5]	Receiving roller	[6]	Alignment plate/Rr
[7]	Paper exit roller/upper	[8]	Paper exit roller/lower
[9]	Tray lifter	[10]	Paper surface detect lever
[11]	Sub tray	[12]	Paper exit tray
[13]	Alignment plate/Fr	[14]	Finisher release lever
[15]	Stapler	[16]	Punch dust box

- *: The number of punchers differs depending on the type of the punch kit. For details, see “ PC.5.1.1 Punch kit type”.

Main roller configuration



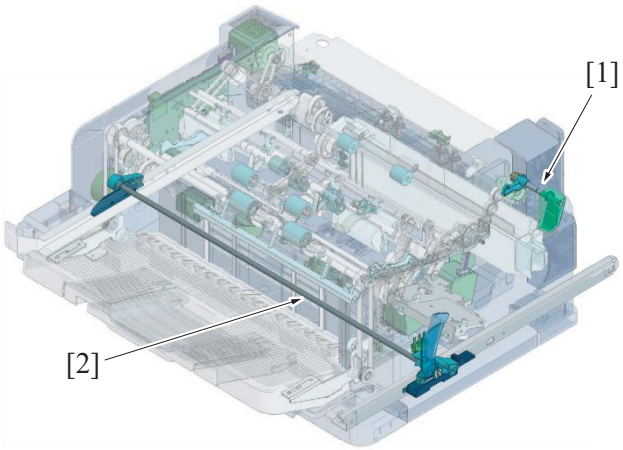
[1]	Paper conveyance roller	[2]	Receiving roller
[3]	Paper exit roller/upper	[4]	Paper exit roller/lower
[5]	Alignment roller	-	-

UNIT OPEN/CLOSE SECTION

Unit lock mechanism

- The finisher (PF910) and punch kit (PK-519) are provided in the each unit lock mechanism.

Overall view

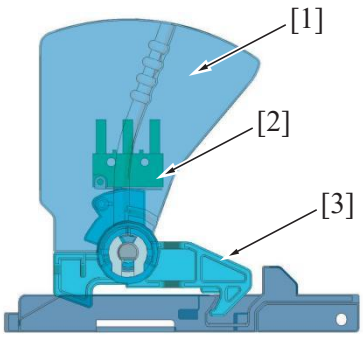


[1]	Punch unit lock mechanism	[2]	Finisher unit lock mechanism

Finisher unit lock mechanism

- Releasing the finisher release lever at the front side of the finisher releases the locking claws at the front and rear sides of the finisher from the finisher slide rail. The finisher and the MFP will be disconnected to enable the finisher to slide to the left.
- When the finisher is slid, the finisher lock switch turns off to detect that the finisher is opened.
- When the finisher is detected to be opened, the warning message will be displayed on the screen to inform that the unit is open. Following jobs will then be prohibited.
- Closing the finisher releases the warning screen to releases the job prohibition.

Front view



[1]	Finisher release lever	[2]	Finisher lock switch (SW1)
[3]	Lock claw	-	-

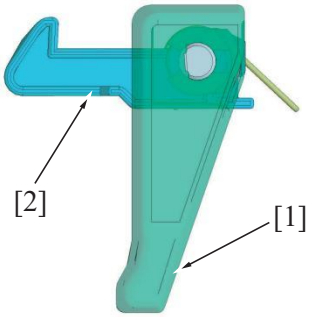
Punch unit lock mechanism (PK-519)

- When the finisher is opened, the release lever for the punch unit will be exposed. (only when the optional punch kit PK-519 is installed)
- The punch unit does not have a mechanism to detect open/close of the unit.

NOTE

- **The function to detect open/close of the punch unit is not installed since the finisher needs to be opened to open the punch unit.**

Front view

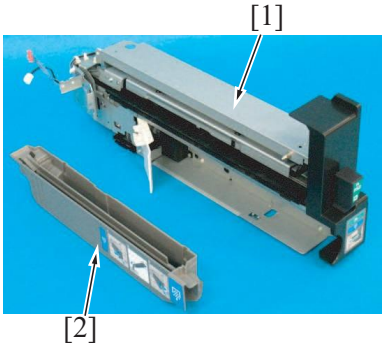


[1]	Punch unit release lever	[2]	Lock claw

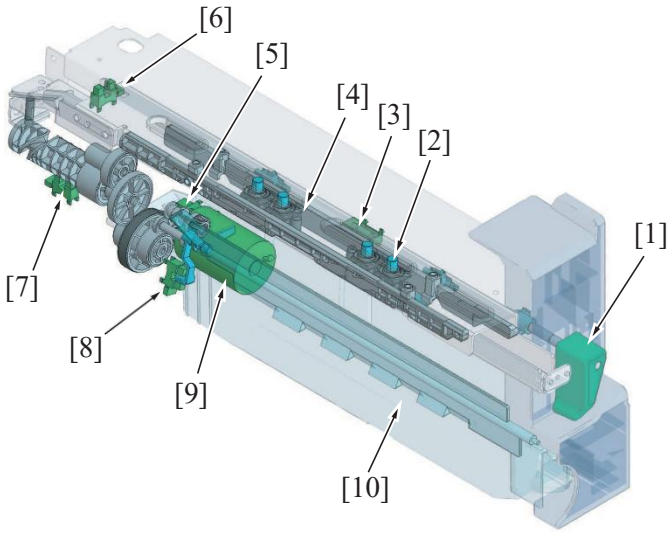
PUNCH SECTION (PK-519)

Configuration

- The punch function can be added to the finishing mode by installing the optional punch kit PK-519 to the finisher PF910.
- At the punch section, the paper that is transported from the MFP paper exit section is punched when it is fed into the finisher.
- When punching the holes on the paper, the paper transported to the transport section will be switch backed to the punch section to correct the paper skew before punching the holes. Punching is conducted paper by paper. The punched paper will be transported from the punch section to the transport section.
- When the number of punch holes is not commanded at "Finishing", the paper will be transported to inside the finisher without switchback of the paper and punching.
- 2 hole/3 hole punch kits as well as 2 hole/4 hole punch kits have mechanisms to switch the number of punch holes.
  NOTE
  - **2 holes punch kit and 4 holes punch kit do not have the function to switch the number of punch holes.**
  - **"Finishing" cannot be selected using a different punch kit. (Example: Three holes punch mode cannot be selected when the 4 holes punch kit is installed.)**
- Punch dust generated by punching is received in the punch dust box.



[1]	Punch unit	[2]	Punch dust box

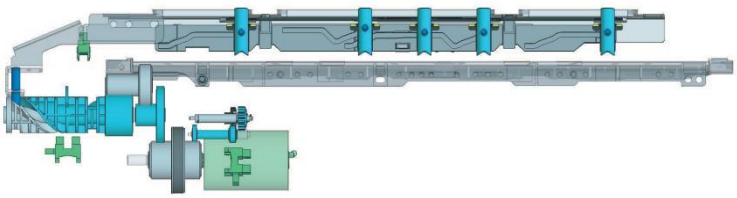


[1]	Punch unit release lever	[2]	Puncher *1
[3]	Paper feed sensor (PS201)	[4]	Puncher frame *2
[5]	Punch motor sensor (PS202)	[6]	Puncher home sensor (PS204)
[7]	Puncher drive cam sensor (PS203)	[8]	Punch dust full sensor (PS205)
[9]	Punch motor (M201)	[10]	Punch dust box

- *1: The number of the puncher is varied depending on the type of punch kit.
- *2: The shape of the puncher frame is varied depending on the type of punch kit.

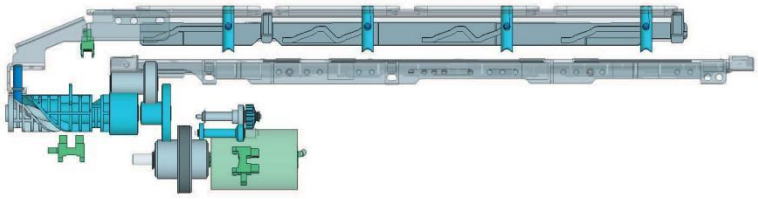
Punch kit type

2 holes/3 holes kit (Selectable the hole number)



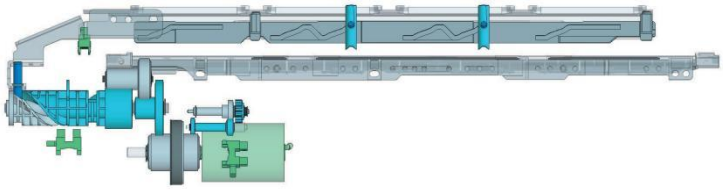
- **Attachable marketing area: Europe, US, Others 1-5**

2 holes/4 holes kit (Selectable the hole number)



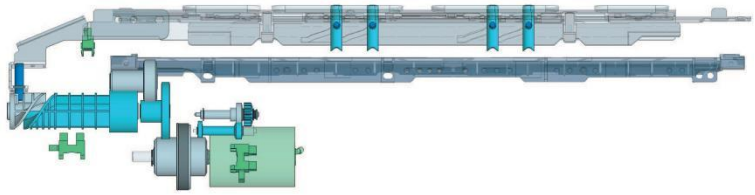
- **Attachable marketing area: Europe, US, Others 1-5**

2 holes punch kit



- **Attachable marketing area: Japan**

4 holes punch kit

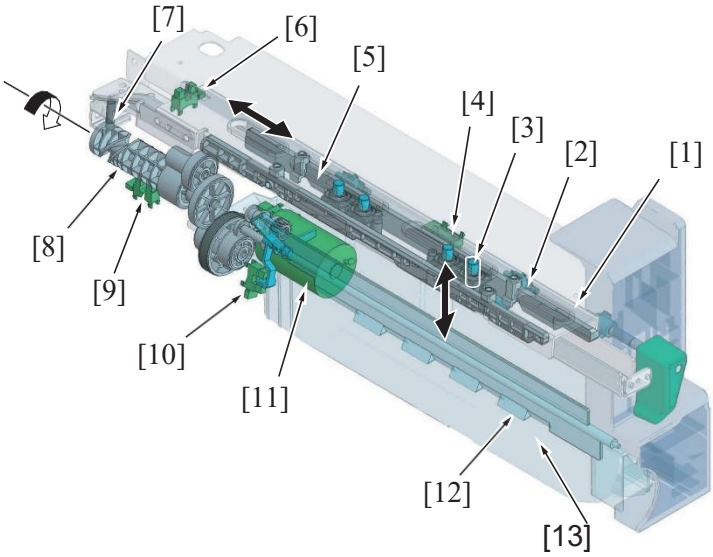


- **Attachable marketing area: Europe**

Drive

- The drive source for the punch section is a punch motor. It drives the puncher and the punch dust agitating blade.
- The puncher is driven via the puncher drive cam.
- The punch dust agitating blade is driven via the agitating blade drive connecting lever. The agitating blade drive connecting lever has the function to detect punch dust full.

Overall view



[1]	Puncher frame *1	[2]	Registration guide
[3]	Puncher *2	[4]	Paper feed sensor (PS201)
[5]	Slide came	[6]	Puncher home sensor (PS204)
[7]	Cam slide shaft	[8]	Puncher drive cam
[9]	Puncher drive cam sensor (PS203)	[10]	Punch dust full sensor (PS205)
[11]	Punch motor (M201)	[12]	Punch dust agitating blade
[13]	Punch dust box	-	-

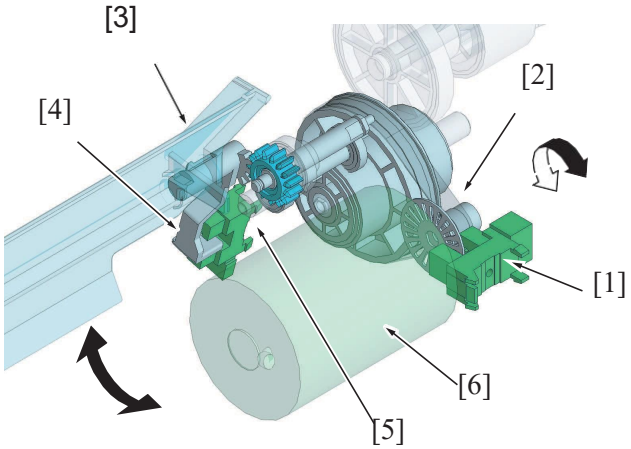
- *1: The shape of the puncher frame is varied depending on the type of punch kit.
- *2: The number of the puncher is varied depending on the type of punch kit.

NOTE

- **The illustration explains with an example for "2 holes/4 holes kit".**

- **The slide cam has a guide. With the shape of the guide and the difference shift value of the puncher frame, only the specified puncher can be moved down .**
- **The "2 holes kit" and the "4 holes kit" do not have the punch hole switching function.**

Enlarged view of the punch dust agitating blade drive section



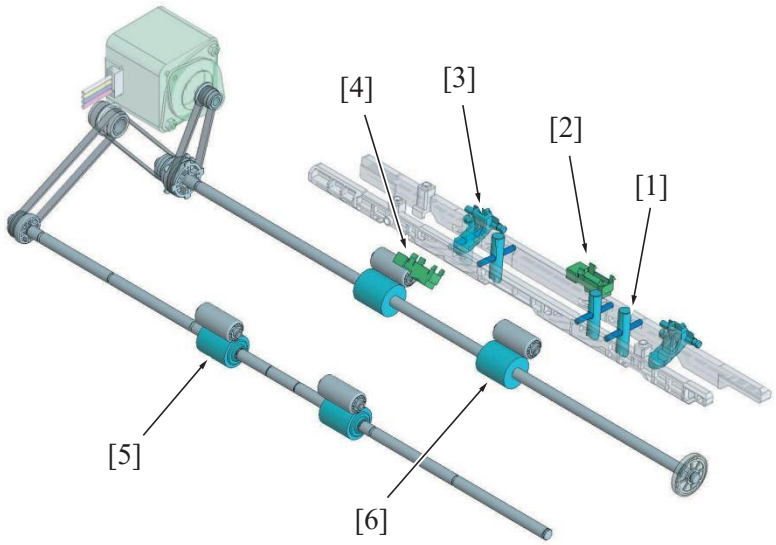
[1]	Punch motor sensor (PS202)	[2]	Encoder
[3]	Punch dust agitating blade	[4]	Punch dust agitating blade drive connecting lever
[5]	Punch dust full sensor (PS205)	[6]	Punch motor (M201)

Operation

Skew correction mechanism

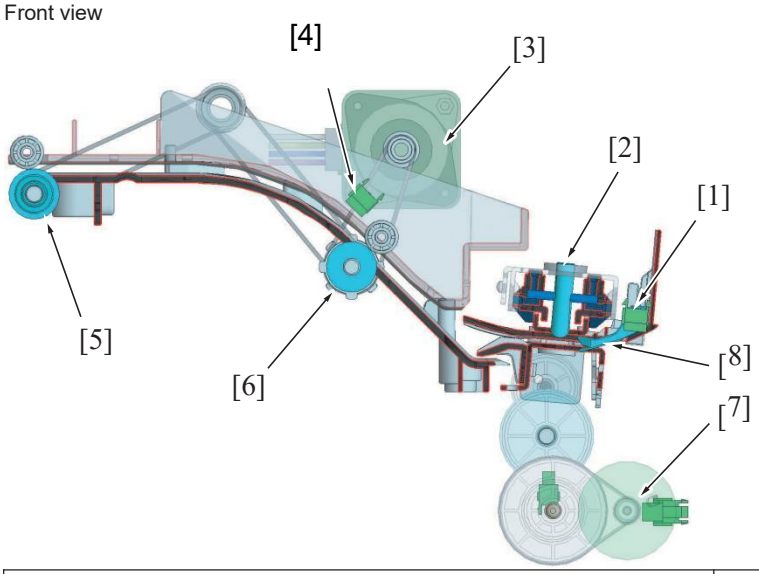
- When in punch mode, the paper is transported to the paper transport section of the finisher once and switchbacked to make the paper contact the registration guide. This process will correct the skew at the rear edge of the paper (tilt) to enable punching at the proper position.

Overall view



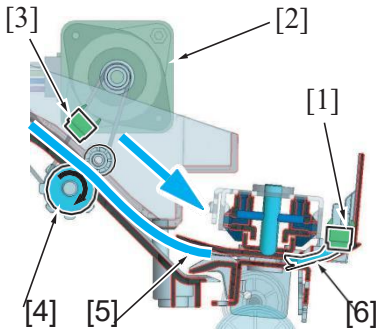
[1]	Puncher	[2]	Paper feed sensor (PS201)
[3]	Registration guide	[4]	Paper feed sensor (PS101)
[5]	Receiving roller	[6]	Paper conveyance roller

Front view

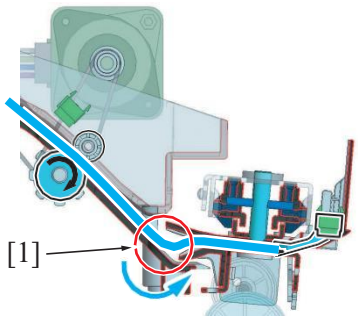


[1]	Paper feed sensor (PS201)	[2]	Puncher
[3]	Paper conveyance motor (M101)	[4]	Paper feed sensor (PS101)
[5]	Receiving roller	[6]	Paper conveyance roller
[7]	Punch motor (M201)	[8]	Registration guide

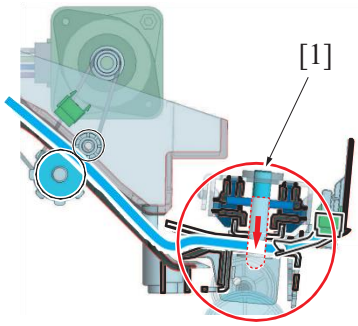
(1) Skew correction process



1. The paper conveyance motor [2] of the finisher will rotate forward, and the paper conveyance roller [4] will rotate forward. The paper will be transported for the punch section to the transport section.
2. The paper feed sensor [3] (PS101) will detect the front edge of the paper, and the paper feed sensor [1] (PS201) will detect the rear edge of the paper.
3. When the paper feed sensor [1] (PS201) detects the rear edge of the paper and the specified period of time has passed, the transportation motor will rotate in reverse direction.
4. The paper will be switchbacked [5] once, and the rear edge of the paper contacts the registration guide [6].



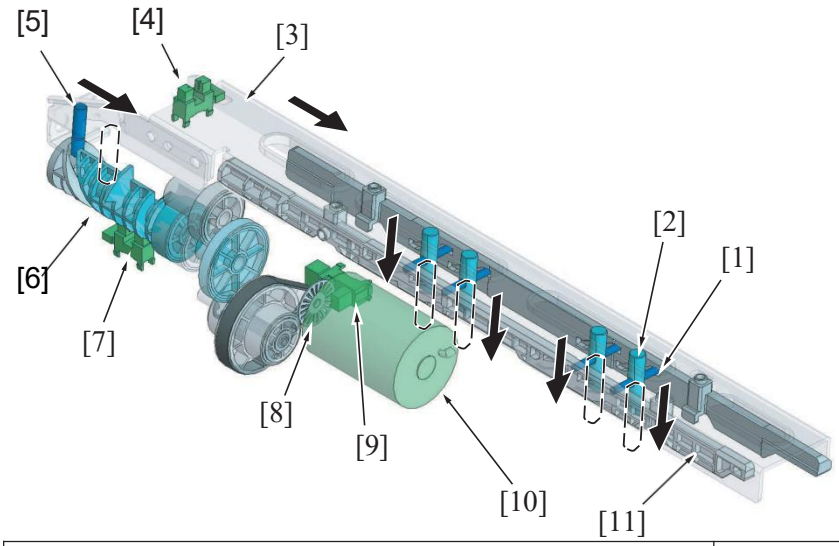
5. When the paper is switchbacked, the paper forms a loop [1] between the paper conveyance roller and the registration guide, and corrects the paper skew (tilt).
6. The paper feed sensor at the punch section detects the rear edge of the paper, and the paper conveyance motor stops after the specified period of time to stop the switchback of the paper.



7. The switchback of the paper stops, and the puncher [1] moves down to punch the hole on the paper.
8. After punching the hole, the conveyor motor rotates forward to transport the paper into the finisher.

Punch control

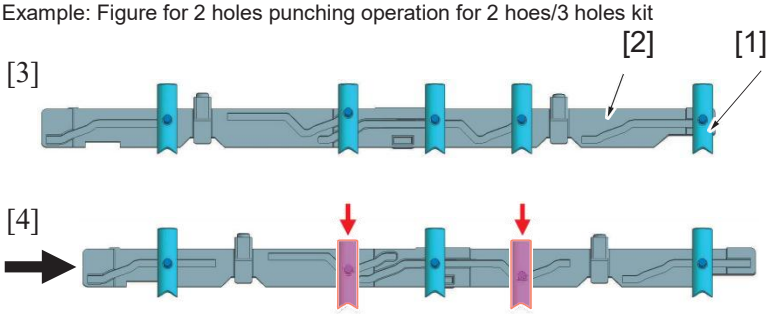
- The holes are punched on the paper by switchback of the paper into the punch unit and by moving the puncher up/down by the punch motor.



[1]	Puncher slide pin	[2]	Puncher
[3]	Puncher frame	[4]	Puncher home sensor (PS204)
[5]	Puncher frame slide pin	[6]	Puncher drive cam
[7]	Puncher drive cam sensor (PS203)	[8]	Encoder
[9]	Punch motor sensor (PS202)	[10]	Punch motor (M201)
[11]	Slide cam	-	-

(1) Paper punching process

1. The puncher frame waits at the home position to make the puncher waits at the upper position.
   Position of the puncher frame is detected by the puncher home sensor.
2. Paper feed sensor at the punch section detects the rear edge of the paper, and stops switchback of the paper after a specified period of time.
3. The punch motor rotates forward to rotate the puncher drive cam forward. The punch frame then will move towards the front side. When the puncher frame moves towards the front side, the slide cam moves the puncher down by its cam shape.
   The rotation value of the punch motor is detected by the number of times light shielding plate blocks the punch encoder sensor. The value the slide cam moves back and forth differs depending on the value the punch motor rotates. When the value the slide cam moves changes, the value of the puncher moves in vertical direction also changes. The position of the puncher is judged in process. The rotating position of the puncher driven cam is detected by the puncher drive cam sensor.
   Example: Figure for 2 holes punching operation for 2 hoes/3 holes kit



[1] Puncher
[2] Slide cam
[3] Puncher frame (home position)
[4] Puncher frame (Punching position)

4. When the puncher frame moves to the front side, the slide cam pushes the puncher down to punch the holes at the rear edge of the paper. (The holes are punched paper by paper.) The holes are judged to be punched according to the rotation value of the punch motor.
   NOTE
   - **The number of the punchers (number of the holes) differs depending on the type of the punch kit .**
   - **The number of the punch holes is switched according to the shift value of the puncher frame for the 2 holes/3 holes kit as well as 2 holes/4 holes kit.**
     For details, see " PC.5.3.3 Punch holes switch control".
5. When the holes are punched, the punch motor rotates in reverse direction, and the puncher drive cam rotates in reverse direction. This process leads the puncher frame to return to the home position to move the puncher up.

Punch holes switch control

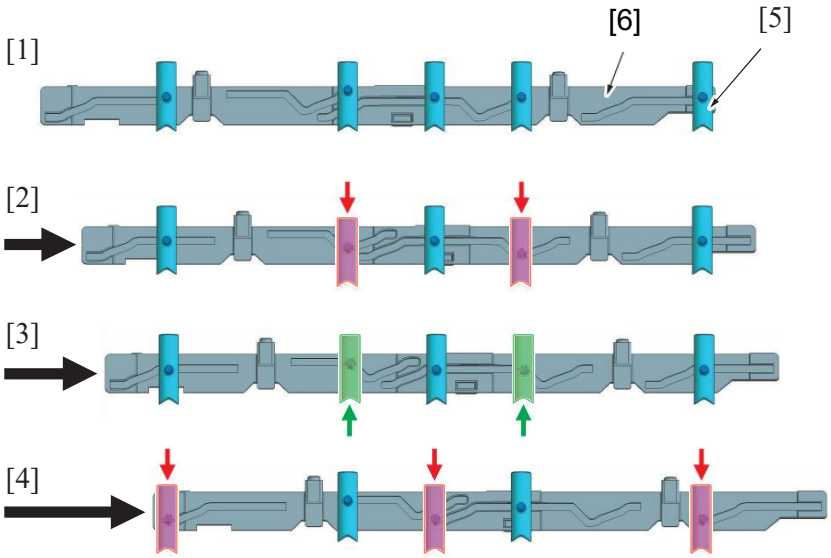
- 2 holes/3 holes punch kit as well as 2 holes/4 holes punch kit have mechanisms to switch the number of punch holes.

(1) Number of punch holes switch mechanism

- The slide cam has a guide. With the shape of the guide and the difference shift value of the puncher frame, only the specified puncher can be moved down.

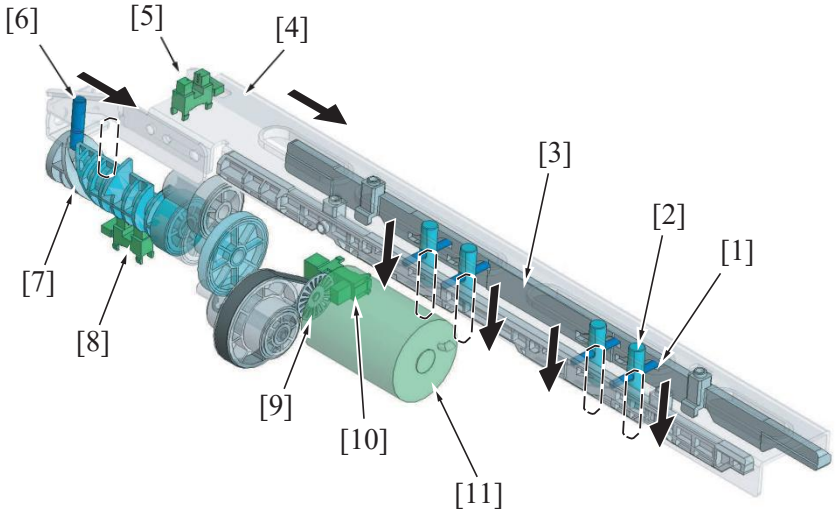
- The shift value of the puncher frame is judged by the rotation value of the punch motor. The rotation value of the punch motor is detected by the punch motor sensor.
- The number of the punch holes can be selected when selecting the punch mode.
  NOTE
  - **When the second type of punch hole (3 holes on the illustration) is selected, the puncher frame shifts to the waiting position 2 from the waiting position 1 (home position) and waits prior to the job.**
- The number of the puncher and the guide shape of the slide cam differ depending on the type of the punch kit.

Example: cross section of the 2 holes/3 holes kit



[1]	Waiting position 1 (home position)	[2]	Puncher frame shift value: Small (Example: 2 holes punching position)
[3]	Waiting position 2 (puncher frame shift value: medium)	[4]	Puncher frame shift value: Large (Example: 3 holes punching position)
[5]	Puncher	[6]	Slide cam

(2) Puncher frame position detect mechanism



[1]	Puncher slide pin	[2]	Puncher
[3]	Slide cam	[4]	Puncher frame
[5]	Puncher home sensor (PS204)	[6]	Puncher frame slide pin
[7]	Puncher drive cam	[8]	Puncher drive cam sensor (PS203)
[9]	Encoder	[10]	Punch motor sensor (PS202)
[11]	Punch motor (M201)	-	-

(a) Puncher position detect control

- The waiting position 1 (home position) and the waiting position 2 are judged by the assembly of the detecting result of the punch home sensor and the puncher drive cam sensor.

Puncher retract position	Puncher home sensor	Puncher drive cam sensor
Waiting position 1 (puncher retract position)	Blocked	1st light block

Puncher retract position	Puncher home sensor	Puncher drive cam sensor
Punching position 1 (Example: 2 holes punching)	Unblocked	1st light unblock
Waiting position 2 (puncher retract position)		2nd light block
Punching position 2 (Example: 3 holes punching)		2nd light unblock

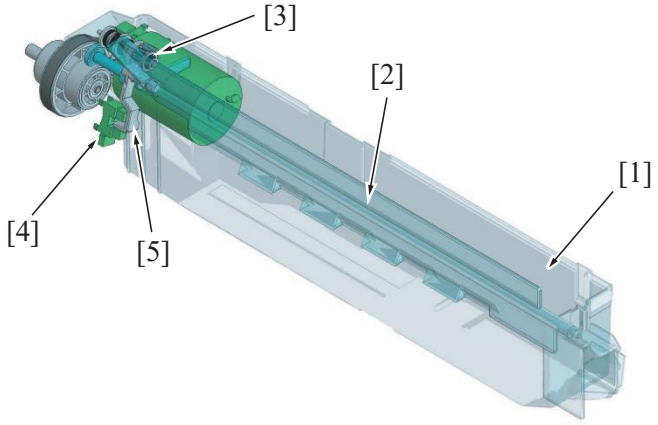
(b) Puncher shift value detect mechanism

- The shift value of the puncher frame is judged by the number of times the encoder blocks the punch motor sensor.

Punch dust full detection control

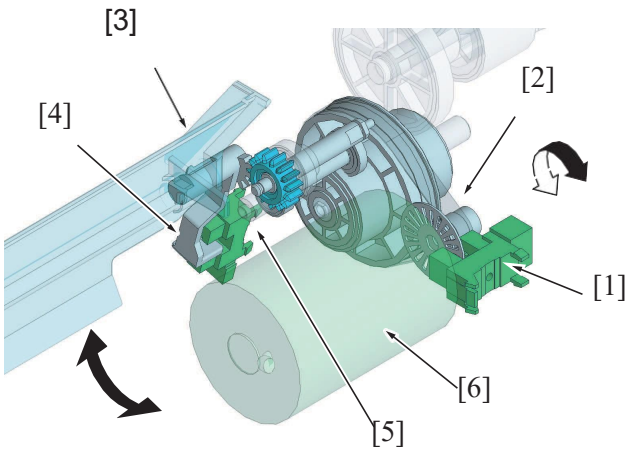
- The punch dust box section has the punch dust full sensor. When the job is commanded with the punch dust exceeding the specified value, a warning message for the punch dust full is displayed on the control panel.
- The punch dust full sensor detects the volume of the punch dust with the position of the agitating blade drive connecting lever.
- The punch dust full sensor also detects if the punch dust box is installed.
  If the punch dust box is not installed when the punch job is commanded, the warning message for the punch dust full will be displayed on the control panel.
- Even when the "punch dust full" is detected, printing is not prohibited. All the jobs except punch holes will be conducted until finished.

Punch dust box over view



[1]	Punch dust box	[2]	Punch dust agitating blade
[3]	Drive transmission gear	[4]	Punch dust full sensor (PS205)
[5]	Agitating blade drive connecting lever	-	-

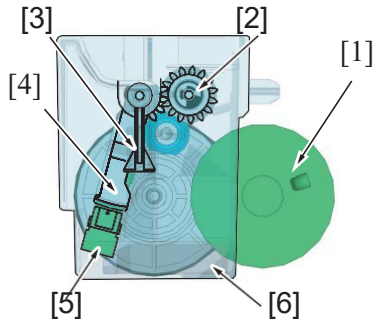
Enlarged view of the punch dust full sensor section



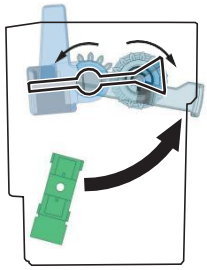
[1]	Punch motor sensor (PS202)	[2]	Encoder
[3]	Punch dust agitating blade	[4]	Agitating blade drive connecting lever
[5]	Punch dust full sensor (PS205)	[6]	Punch motor (M201)

(1) Punch dust full detect operation

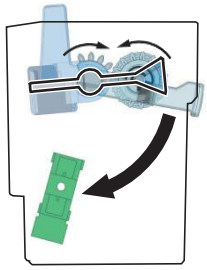
Punch dust agitating blade home position view



1. The drive transmission gear [2] stops while the punch motor [1] is in halt. The punch dust agitating blade [3] in the punch dust box [6] waits at the home position.
   The agitating blade drive connecting lever [4] blocks the punch dust full sensor [5] during that time.

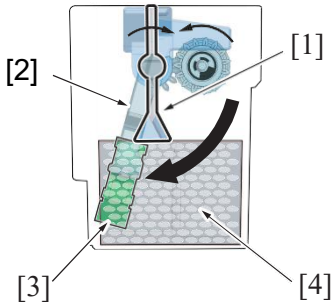


2. When the punch motor rotates forward, the drive transmission gear rotates forward.
3. When the drive transmission gear rotates forward, the agitating blade drive connecting lever rotates forward to rotate the punch dust agitating blade forward.
   When the agitating blade drive connecting lever rotates, the punch dust full sensor is unblocked.
   The punch dust agitating blade rotates to level the punch dust in the punch dust box.



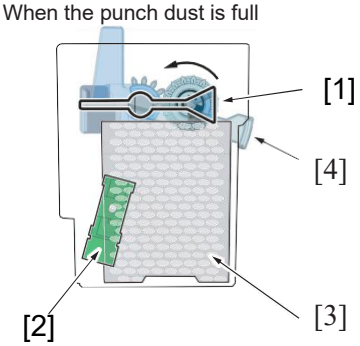
4. When punch holes is complete, the punch motor starts rotating in reverse direction.
   When the punch motor rotates in reverse direction, the punch dust agitating blade rotates in reverse direction and tries to return to the home position.

In normal operation



5. **NOTE**
   In normal operation:
   - **The agitating blade drive connecting lever [2] and the punch dust agitating blade [1] return to their home positions by the punch motor's drive force.**
   - **By the agitating blade drive connecting lever [2] returning to the home position, the punch dust full sensor [3] will block the light. The punch dust [4] then is judged not to be full.**

When the punch dust is full



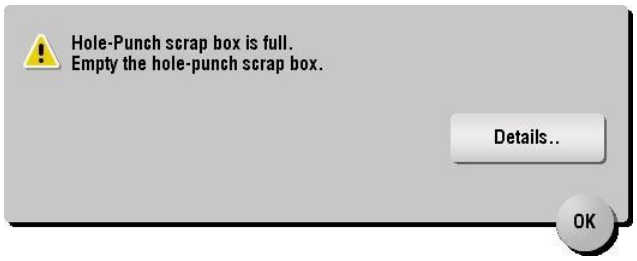
6. **NOTE**
   When the punch dust is full:
   - **The agitating blade drive connecting lever [4] and the punch dust agitating blade [1] cannot return to their home positions due to the punch dust [3].**
   - **The torque limiter function is installed to the drive transmission gear to prohibit transmission of the drive force more than specified.**
   - **With the agitating blade drive connecting lever [4] not returning to the home position, the punch dust full sensor [2] keeps being unblocked. When the transmission status is detected for 10 consecutive times during punching operation, the punch dust [3] is detected to be full to display the message warning that the punch dust is at full level.**

(a) Punch dust full message

Example of display



Example of display



NOTE

- **The display details and message text are changed when the JS-506 is installed to the MFP.**

(2) Punch dust box not installed detect control

1. When the punch dust box is installed, the agitating blade drive connecting lever waits at the home position. (blocks the punch dust full sensor)
2. When the punch dust box is removed, the punch dust full sensor is unblocked.
3. When the finisher is closed and the punch job is commanded with the above status, the punch dust box is detected as uninstalled. So that the message appears on the control panel to warn that the punch dust box is full.

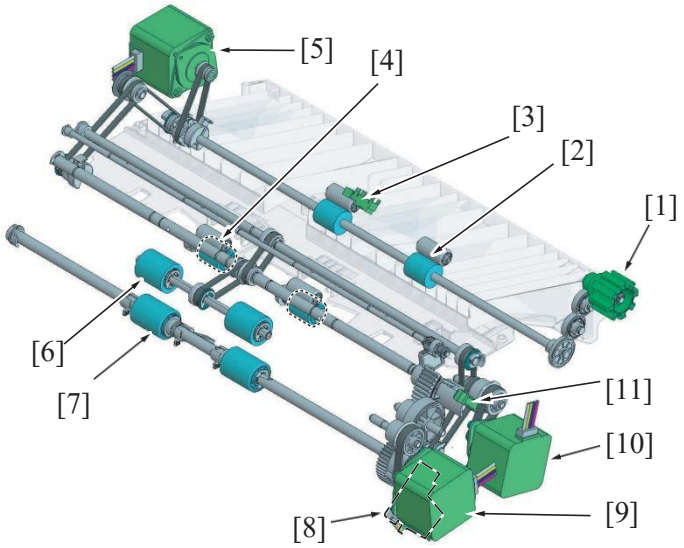
   NOTE

   - **Even when the "punch dust box not installed" is detected, printing is not prohibited. All other jobs except punching holes will be conducted and continued until finished.**
   - **Punching the holes to the paper will be conducted only when the punch dust box is installed.**

TRANSPORT SECTION

Configuration

- At the transport section, paper that is transported from the MFP paper exit section (punch section when a punch kit is installed) is transported into the finisher and alignment section.



[1]	Jam removal dial	[2]	Paper conveyance roller
[3]	Paper feed sensor (PS101)	[4]	Receiving roller
[5]	Paper conveyance motor (M101)	[6]	Paper exit roller/upper
[7]	Paper exit roller/lower	[8]	Paper exit roller solenoid (SD103)
[9]	Exit roller lift up motor (M104)	[10]	Paper exit motor (M102)
[11]	Pick up roller position sensor (PS105)	-	-

Drive

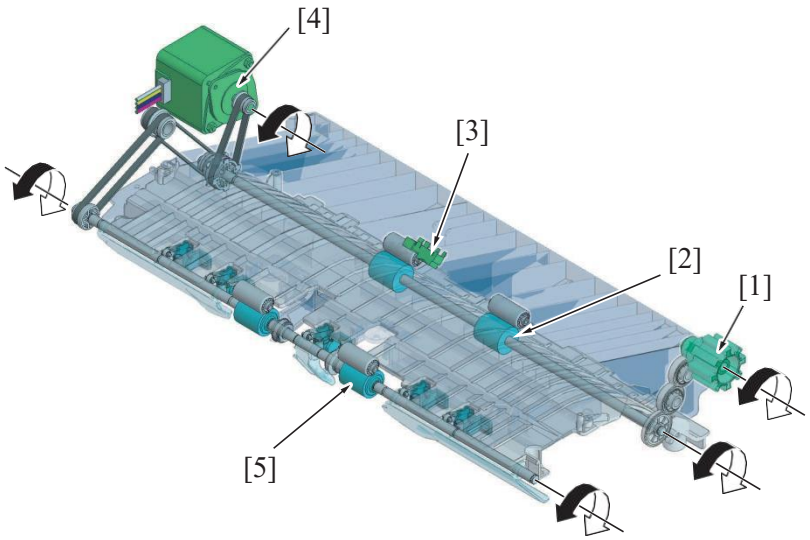
Drive outline

The driving source of the transport section is the paper conveyance motor, paper exit motor, and exit roller lift up motor, and the following parts are driven.

Section	Driving source	Driving parts	Function
Transport/ receiving roller section	Paper conveyance motor	• Paper conveyance roller • Receiving roller	• Transports the paper to inside the finisher • Transports the paper to the alignment section • Switchbacks the paper to the punching section (when in punch mode)
Paper exit roller section	Paper exit motor	• Paper exit roller/upper • Paper exit roller/lower • Paper exit paddle	• Rotates the paper exit roller/upper in reverse direction to transport the paper to the alignment tray (when in sort/group mode) • Rotates the paper exit roller/upper and the paper exit roller/lower in forward direction to exit the paper to the paper exit tray
	Exit roller lift up motor	• Paper exit roller/upper • Paper guide	• Moves the paper exit roller/upper and the paper guide up/down • Moves the paper exit roller/upper down to transport the paper to the alignment tray (when in sort/group mode) • Moves the paper exit roller/upper down to exit the paper to the paper exit tray

Paper conveyance/receiving roller section drive

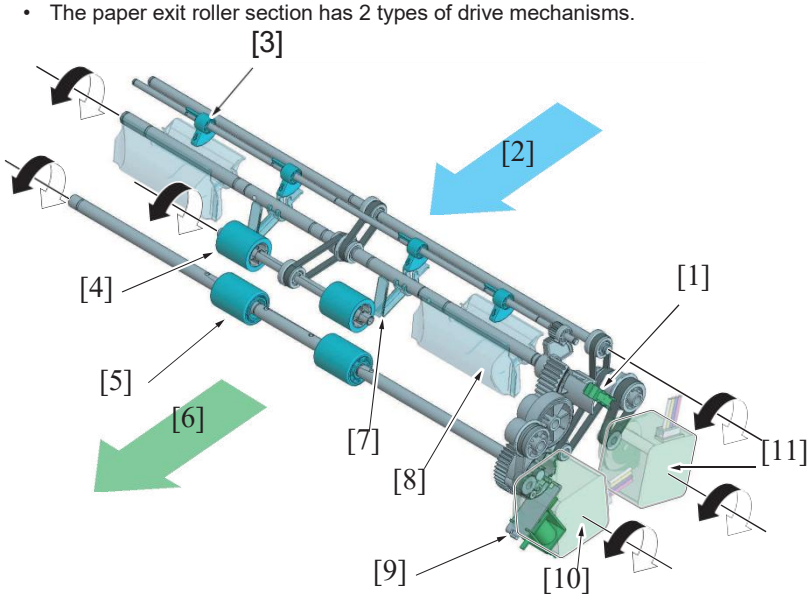
- The drive source for the paper conveyance and the receiving roller section is the paper conveyance motor which drives paper conveyance roller and the receiving roller.
- The paper conveyance roller and the receiving roller can be manually rotated (forward/reverse) by manually rotate the jam removal dial. This dial is to be used when the paper is clogged inside the finisher.



[1]	Jam removal dial	[2]	Paper conveyance roller
[3]	Paper feed sensor (PS101)	[4]	Paper conveyance motor (M101)
[5]	Receiving roller	-	-

Paper exit roller section drive

- The paper exit roller section has 2 types of drive mechanisms.



[1]	Pick up roller position sensor (PS105)	[2]	Direction of the transport (transport section)
[3]	Paper lift up cam	[4]	Paper exit roller/upper
[5]	Paper exit roller/lower	[6]	Direction of the paper exit (receive section)
[7]	Paper guide	[8]	Paper guide
[9]	Paper exit roller solenoid (SD103)	[10]	Exit roller lift up motor (M104)
[11]	Paper exit motor (M102)	-	-

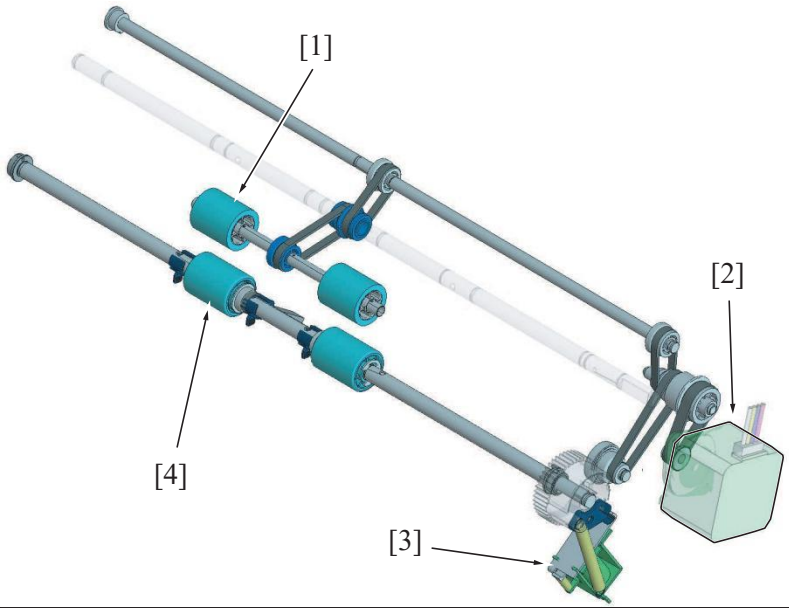
(1) Paper exit motor

- The paper exit motor drives the paper exit roller/upper and the paper exit roller/lower.
- The paper exit roller/upper is connected to the paper exit motor. Rotation of the paper exit motor rotates the paper exit roller/upper.
- The connection of the paper exit roller/lower and the paper exit motor is released while waiting. Turn on/off of the paper exit roller solenoid to connect the paper exit roller/lower drive gear and rotate (forward direction*) the paper exit roller/lower.

NOTE

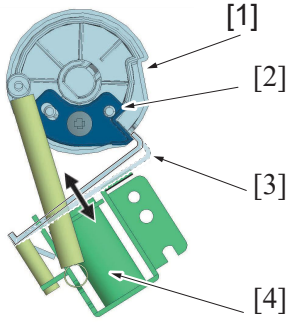
- ***: A torque limiter is installed to the paper exit roller/lower. Therefore, when the reverse rotation force of over the predetermined value is applied from the paper exit roller/upper which is pressed at the time of FD alignment , the paper exit roller/lower rotates in reverse direction as the paper exit roller/upper rotates.**

Paper exit motor drive view



[1]	Paper exit roller/upper	[2]	Paper exit motor (M102)
[3]	Paper exit roller solenoid (SD103)	[4]	Paper exit roller/lower

Paper exit roller/lower drive front view

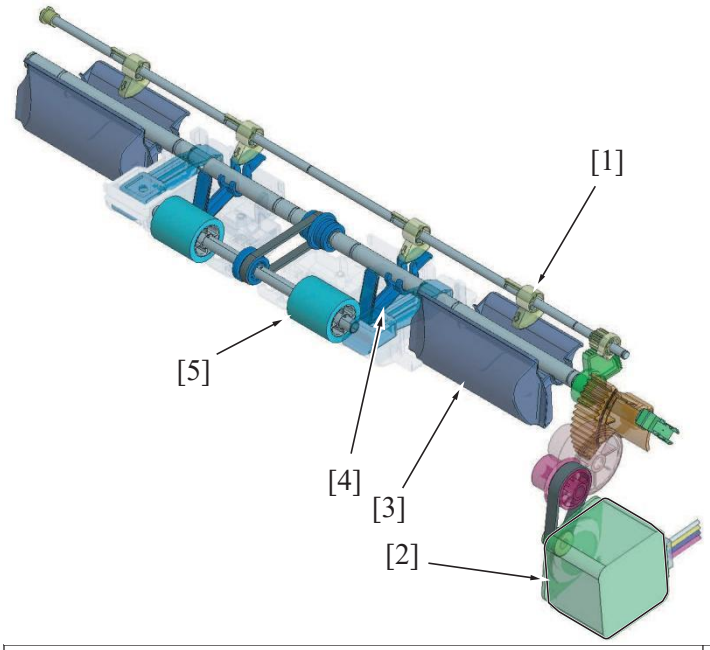


[1]	Paper exit roller/lower drive gear	[2]	Paper exit roller/lower drive gear lock plate
[3]	Rotation lock claw	[4]	Paper exit roller solenoid (SD103)

(2) Exit roller lift up motor

- The exit roller lift up motor drives the up/down operation of the paper exit roller/upper. It also drives the paper guide (2 points) and the paper guide (2 points). The paper exit roller/upper waits at the upper position. Rotation of the exit roller lift up motor moves the paper exit roller/lower down. (Drive source for rotating the paper exit roller/upper is the paper exit motor.)
- The exit roller lift up motor rotates the cam (4 points). When the cam rotates, the paper guide pushed up by the cam will be unlocked to move the paper guide down by its own weight.

Exit roller lift up motor drive view

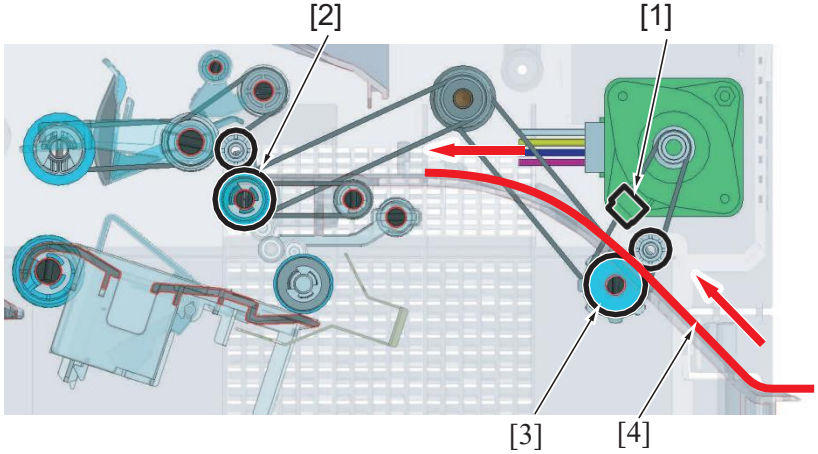


[1]	Cam	[2]	Exit roller lift up motor (M104)
[3]	Paper guide	[4]	Paper guide
[5]	Paper exit roller/upper	-	-

Operation

Paper conveyance/receiving roller section paper transport control

- The paper conveyance roller sends the paper that is transported from the MFP paper exit section (or from the punch section) to the receiving roller.
- The receiving roller sends the paper transported from the paper conveyance roller to the receiving section or the alignment section.
- The paper feed sensor detects the front edge and the rear edge of the paper. This will make the unit to detect the transportation and path of the paper.
- When in punch mode, the paper conveyance roller and the receiving roller rotate in reverse direction to switchback the paper and punch the holes at the punch section.
  When the holes are punched, the paper conveyance roller and the receiving roller rotate in forward direction to send the paper to the receiving section or to the alignment section.
  For details on punching operation, see “ PC.5.3.2 Punch control”.

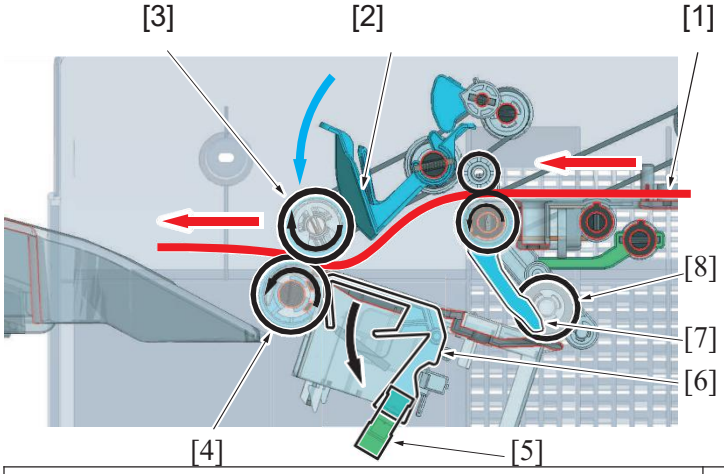


[1]	Paper feed sensor (PS101)	[2]	Receiving roller
[3]	Paper conveyance roller	[4]	Paper

Paper exit roller section paper transport control

(1) Non sort mode, Non group mode, Non staple mode, Sort mode, Group mode

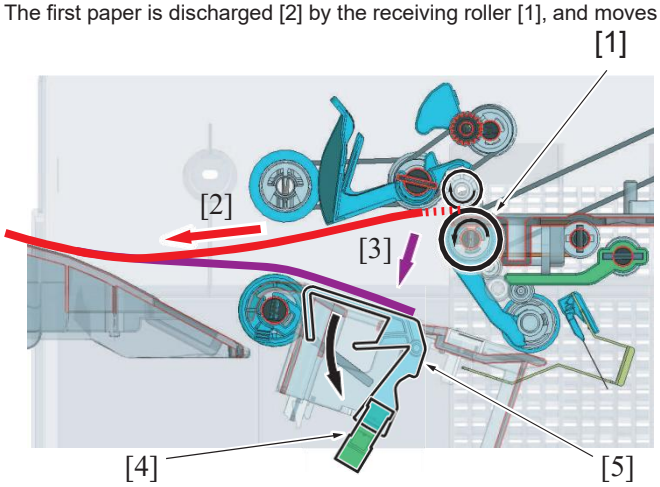
- The paper guide waits at the upper position by the cam. When the cam rotates by the exit roller lift up motor, the paper guide will be unlocked and moves down to the lower position. The paper sent from the transport section will be led to the exit roller by the paper guide.
- The paper exit roller/upper moves down to hold the paper from the transport section with the paper exit roller/lower to discharge it to the exit tray.
- The paper surface detect sensor/1 detects that the paper is discharged to the paper exit tray by the actuator being pushed down while the paper passes through and then returned to the original position.



[1]	Paper	[2]	Paper guide
[3]	Paper exit roller/upper	[4]	Paper exit roller/lower
[5]	Paper surface detect sensor/1 (PS102)	[6]	Paper surface detect sensor/1 actuator
[7]	Batch weight guide	[8]	Alignment roller

(2) Sort offset function mode, Group offset function mode, Staple mode

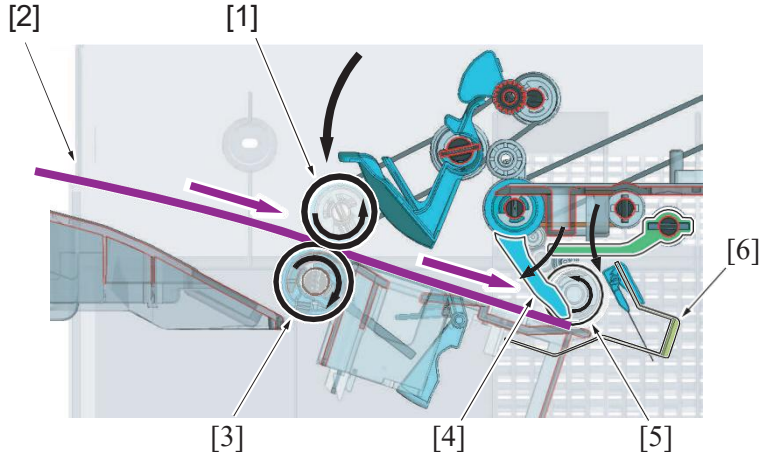
1. The paper exit roller/upper stops rotating at the upper position and waits.
   The paper exit roller/lower waits at the halt status.
2. The first paper is discharged [2] by the receiving roller [1], and moves down to the alignment tray by its own weight. [3]



NOTE

- **The paper surface detect sensor/1 [4] detects that the paper is discharged to the alignment tray when the actuator [5] is pressed down by the paper.**

3. The paper exit roller/upper [1] moves down to hold the first paper on the alignment tray [2] with the paper exit roller/lower [3] to rotate rollers* in reverse direction and transport the paper to the alignment roller [5].



NOTE

- ***: The paper exit roller/lower [3] rotates in reverse direction driven by the paper exit roller/upper [1].**

4. The paper exit roller/upper [1] moves up and stops rotating.
5. The alignment roller [5] contacts the rear edge of the paper to the alignment plate [6] to align the paper. (paper FD alignment)
6. The alignment plate moves back and forth to align right and left of the paper. (paper CD alignment)
7. The batch weight guide [4] moves down to hold the rear end [2] of the aligned paper.

For drive of the batch weight guide, see " PC.7.2.2 (3) Batch solenoid".

NOTE

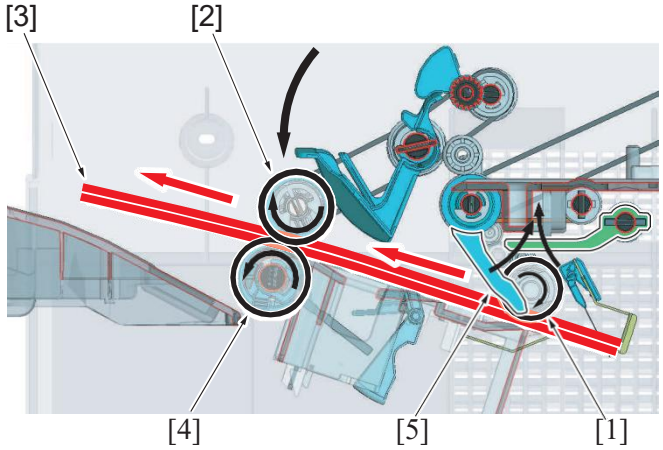
- **The batch weight guide [4] prevent the second paper and after to misalign the aligned paper [2]. For details, see " PC.7.3.2 Paper alignment control (paper FD alignment)".**

8. The second paper will be discharged over the first paper on the alignment tray.
9. The batch weight guide [4] moves up to release the rear end of the paper.
10. The paper exit roller/upper [1] moves down to hold the first and the second paper on the alignment tray with the paper exit roller/lower to rotate the paper exit roller/upper [1] in reverse direction, and transport it to the alignment roller [5] to align the rear edge of the paper.
11. The alignment plate moves back and forth to align the paper.

NOTE

- **The second paper and after will be transported in the same way.**
- **For details of the paper alignment control, see " PC.7.3.1 Paper alignment overview".**

12. When the last paper is aligned, the paper exit roller/upper [2] will move down to hold all the paper on the alignment tray [3] with the paper exit roller/lower [4].



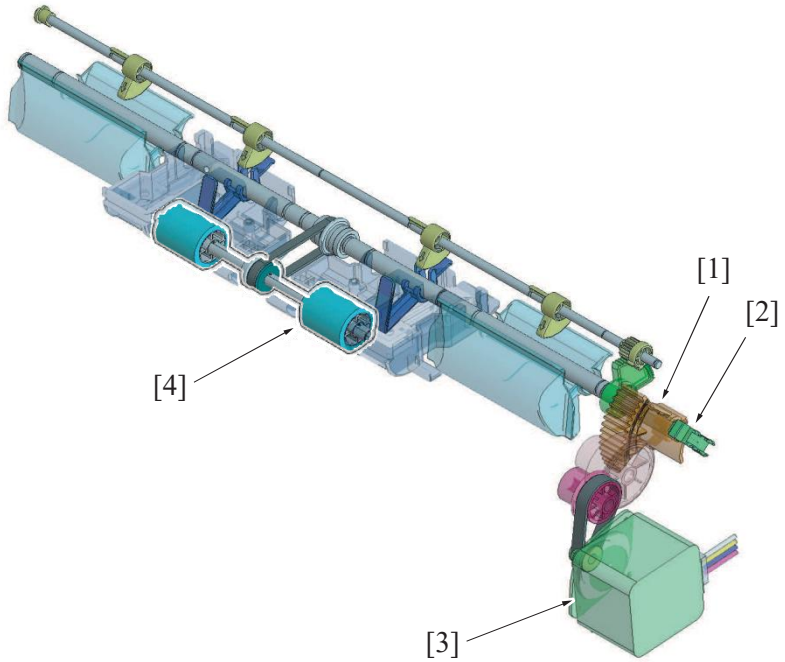
NOTE

- **When in staple mode, stapling is conducted after paper alignment is finished. For details on stapling control, see " PC.8.2.2 Stapling control".**
- **For control after the paper is discharged to the paper exit tray, refer to the receiving section .**

13. The batch weight guide [5] moves up to release the rear edge of the paper [2].
14. The paper exit roller/upper [2], paper exit roller/lower [4], and the alignment roller [1] rotate to discharge the paper [3] to the paper exit tray. (The paper exit roller/upper [2] and paper exit roller/lower [4] rotate in forward direction, and the alignment roller [1] rotates in reverse direction.)

Paper exit roller up/down control

The paper exit roller moves up/down when transporting the paper from the paper conveyance or receiving roller section to the receiving section or to the alignment section.



[1]	Exit roller lift up gear	[2]	Pick up roller position sensor (PS105)
[3]	Exit roller lift up motor (M104)	[4]	Paper exit roller/upper

(1) Lift up control in non-sort mode, non-group mode, non-staple mode, sort mode, and group mode

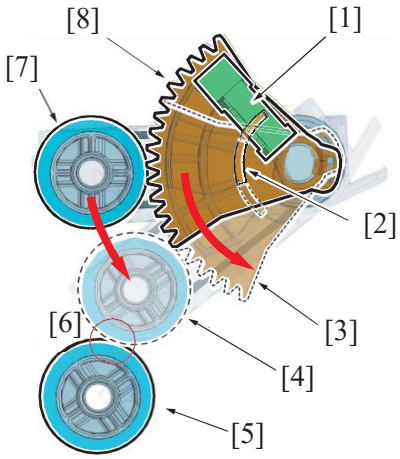
1. The paper exit roller/upper is moved down from the upper position (home position) to the lower position (press position) to hold the paper with the paper exit roller/upper and the paper exit roller/lower to rotate the roller forward and to discharge the paper to the paper exit tray.
2. The paper exit roller/upper moves up when the paper transportation is complete. (returns to the home position)

(2) Lift up control in sort offset mode, group offset mode, and staple mode

1. The paper exit roller/upper waits at the upper position (home position) and discharges the paper to the alignment tray.
2. The paper exit roller/upper moves down from the upper position to the lower position (press position).
3. The paper exit roller/upper rotates in reverse direction and sends the paper to the alignment section.

   NOTE
   - **When transporting the paper to the alignment section, only the paper exit roller/upper rotates in reverse direction.**
4. The paper is aligned in the alignment section. When the paper is being aligned, the paper exit roller/upper waits at the upper position.
5. When aligning and stapling are finished, the paper exit roller/upper moves down to hold the paper with the paper exit roller/upper and the paper exit roller/lower, and rotates the roller in forward direction to discharge the paper to the paper exit tray.
6. The paper exit roller/upper moves up when the paper transportation is complete. (returns to the home position)

(3) Paper exit roller position detect control



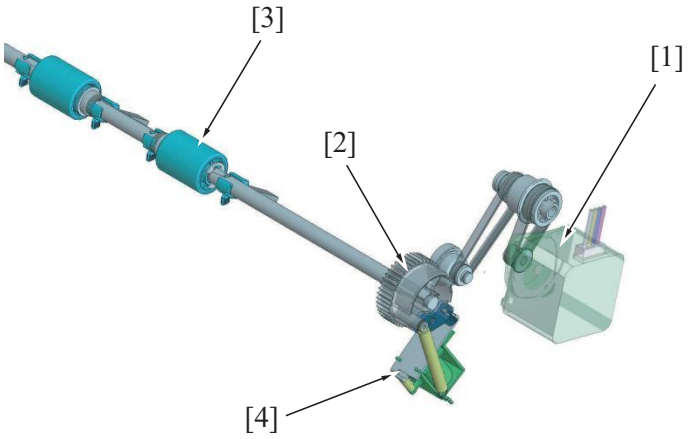
1. The paper exit roller/upper waits at the upper position [7]. (home position) The light shield plate [2] of the gear [8] installed on the lift up shaft for the paper exit roller/upper blocks the pick up roller position sensor [1] and detects that the paper exit roller/upper is at the home position [7].
2. When the exit roller lift up motor rotates, the gear on the exit roller lift up shaft rotates [3] to move the paper exit roller/upper [4] down to be pressed [6] to the paper exit roller/lower [5]. (Paper exit roller/upper at press position) When the gear [3] rotates, the light shield plate [2] also rotates to unblock the pick up roller position sensor [1]. This process detects that the paper exit roller/upper [4] position is at the press position.

Paper exit roller/upper position	Pick up roller position sensor
Upper position (home position)	Blocked
Lower position (pressure position)	Unblocked

Paper exit roller/lower drive connecting control

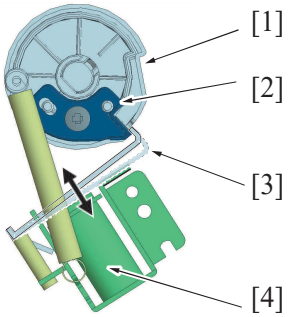
- It rotates the paper exit roller/lower when transporting the paper from the transport section to the receiving section or to the alignment section.
- The connection of the paper exit roller/lower and the paper exit motor is released by the paper exit roller solenoid when waiting. On/off of the paper exit roller solenoid connects the paper exit roller/lower to the paper exit motor, and rotates as the paper exit motor rotates. When the paper exit roller/lower and the paper paddle rotate one revolution clockwise (forward direction), the connection with the paper exit motor will be released and stop.

  NOTE
  - **For details of the paper weight paddle control, see " PC.9.3.1 Paper exit paddle control".**

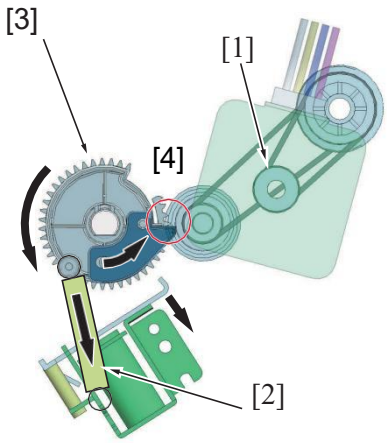


[1]	Paper exit motor (M102)	[2]	Paper exit roller/lower drive gear
[3]	Paper exit roller/lower	[4]	Paper exit roller solenoid (SD103)

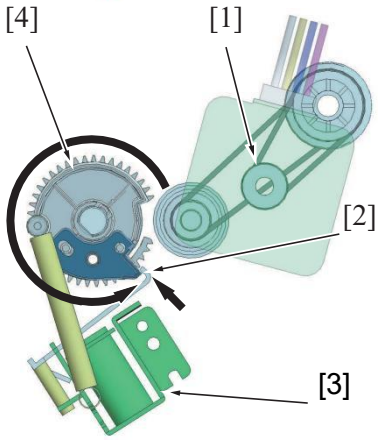
(1) Paper exit roller/lower drive connecting process



1. Connection of the paper exit roller/lower with the paper exit motor is released while waiting. On/off of the paper exit roller solenoid [4] operates the rotation lock claw [3] for the paper exit roller solenoid to release the lock plate [2] installed on the paper exit roller/lower drive gear [1].



2. By the paper exit roller/lower drive gear [3] being rotated by the spring force [2], it will be connected to the drive mechanism [4] of the paper exit motor [1]. This process transfers drive force to the paper exit roller/lower drive gear to rotate the paper exit roller/lower.



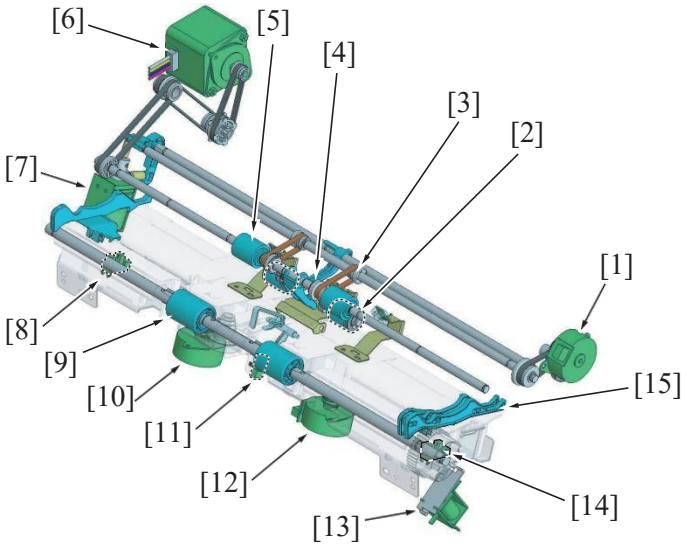
3. The paper exit roller/lower will be released from the paper exit motor [1] drive mechanism by the shape of the paper exit roller/lower drive gear [4] after rotating about one revolution. (Connection between the paper exit roller/lower and the paper exit motor [1] will be released.)

4. The paper exit roller/lower drive gear [4] will be locked to prohibit rotation by the rotation lock claw [2] of the paper exit roller solenoid [3]. (The paper exit roller/lower stops rotating.)

ALIGNMENT SECTION

Configuration

- In the alignment section, paper transported from the transport section is aligned and delivered to the paper exit tray.



[1]	Alignment roller motor (M103)	[2]	Alignment roller
[3]	Drive connecting belt	[4]	Batch weight guide
[5]	Receiving roller	[6]	Paper conveyance motor (M101)
[7]	Batch solenoid (SD102)	[8]	Alignment plate home sensor/R (PS109)
[9]	Paper exit roller/lower	[10]	Alignment motor/R (M106)
[11]	Paper surface detect sensor/1 (PS102)	[12]	Alignment motor/F (M105)
[13]	Paper exit roller solenoid (SD103)	[14]	Alignment plate home sensor/F (PS108)
[15]	Alignment plate/Fr	-	-

Drive

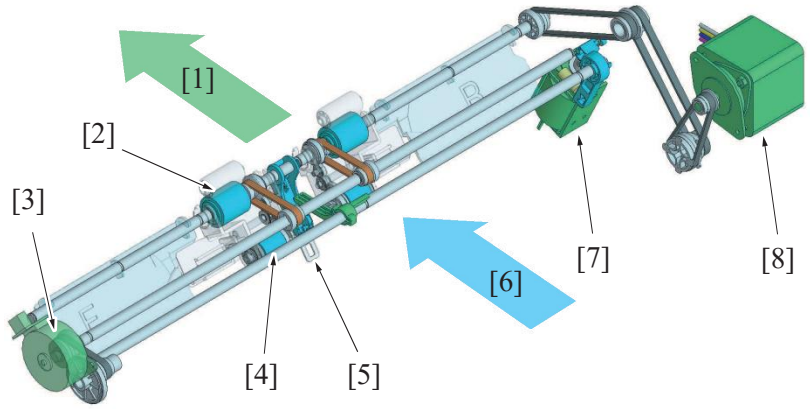
Drive outline

The driving source of the alignment section is the paper conveyance motor, alignment roller motor, batch solenoid, alignment motor, and paper exit motor, and the following parts are driven.

Section	Driving source	Driving parts	Function
Alignment roller section	Paper conveyance motor	Receiving roller	Transports paper to the alignment tray.
	Alignment roller motor	Alignment roller	• Switchbacks the paper to align the rear edge of the paper. (FD alignment operation) • The aligned paper will be discharged to the paper exit tray.
	Batch solenoid	Batch lever	It holds the rear edge of the paper on the alignment tray. It prevents the aligned paper to be misaligned by the paper that follows.
Alignment tray section	Alignment motor	Alignment plate/Fr	It moves the alignment plate/Fr forward and backward to align the paper. (CD alignment operation)
		Alignment plate/Rr	It moves the alignment/Rr forward and backward to align the paper. (CD alignment operation)
	Paper exit motor	Paper exit roller/upper	• It transports the paper to the alignment tray. (switchback) • Exits paper to the paper exit tray.
		Paper exit roller/lower	The paper is discharged to the paper exit tray.
		Paper exit paddle	

Alignment roller section

There are 3 types of drive mechanisms for the alignment roller section.



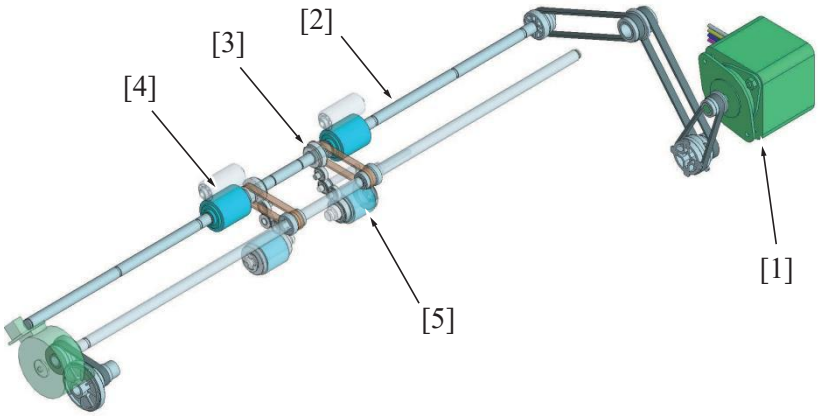
[1]	Direction of the paper exit (receive section)	[2]	Receiving roller
[3]	Alignment roller motor (M103)	[4]	Alignment roller
[5]	Paper weight guide	[6]	Direction of the paper transport (transport section)
[7]	Batch solenoid (SD102)	[8]	Paper conveyance motor (M101)

(1) Paper conveyance motor

- The receiving roller is driven by the paper conveyance motor.
- For details of the receiving roller drive, see "Paper conveyance/receiving roller section drive".
- The receiving roller is installed on the drive shaft for the receiving roller. It rotates by the drive force of the transport motor.

NOTE

- **The drive transmission pulley is not fixed to the receiving roller's drive shaft. Therefore, the alignment roller does not rotate even when the paper conveyance motor rotates.**



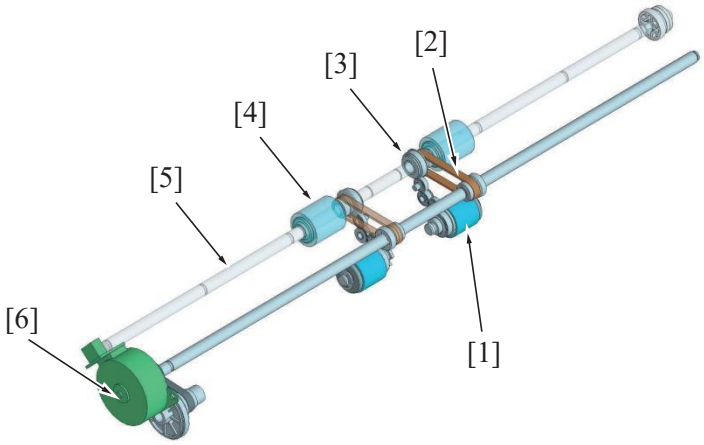
[1]	Paper conveyance motor (M101)	[2]	Receiving roller drive shaft
[3]	Drive connecting pulley	[4]	Receiving roller
[5]	Alignment roller	-	-

(2) Alignment roller motor

- The alignment roller is driven by the alignment roller motor.
- The alignment roller rotates by the drive force of the alignment roller motor through the drive transmission pulley on the drive shaft for the receiving roller.

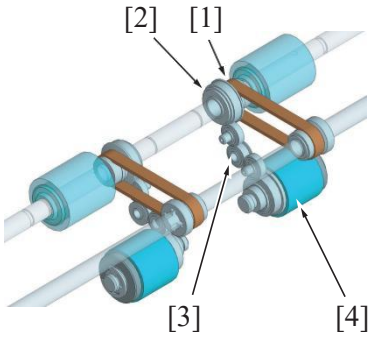
NOTE

- **The drive transmission pulley is not fixed to the receiving roller's drive shaft. Therefore, the receiving roller does not rotate even when the alignment roller motor rotates.**



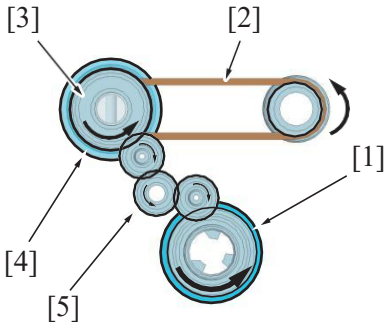
[1]	Alignment roller	[2]	Drive connecting belt
[3]	Drive connecting pulley	[4]	Receiving roller
[5]	Receiving roller drive shaft	[6]	Alignment roller motor (M103)

(a) Enlarged view of the alignment roller drive section



[1]	Drive connecting belt	[2]	Drive connecting pulley
[3]	Drive connecting gear	[4]	Alignment roller

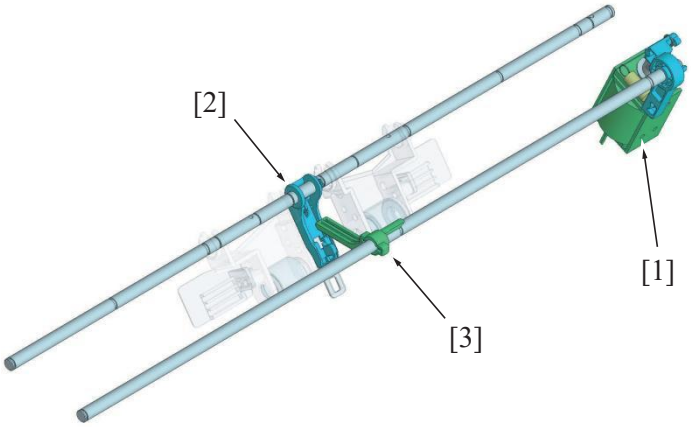
(b) Alignment roller drive section front view



[1]	Alignment roller	[2]	Drive connecting belt
[3]	Drive connecting pulley	[4]	Receiving roller
[5]	Drive connecting gear	-	-

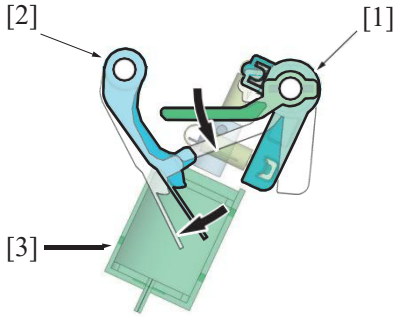
(3) Batch solenoid

- The batch lever is driven by the batch solenoid.
- The batch lever and the batch guide wait at the upper position by the spring force. (home positions)
- When the batch solenoid turns on, the drive shaft for the batch lever rotates to rotate the batch lever downward.
- The batch guide is pressed down by the batch lever moving downward.
- When the batch solenoid turns off, the drive shaft for the batch lever rotates by the spring force to return the batch lever and the batch guide to the upper position.



[1]	Batch solenoid (SD102)	[2]	Batch guide
[3]	Batch lever	-	-

(a) Batch guide drive section front view



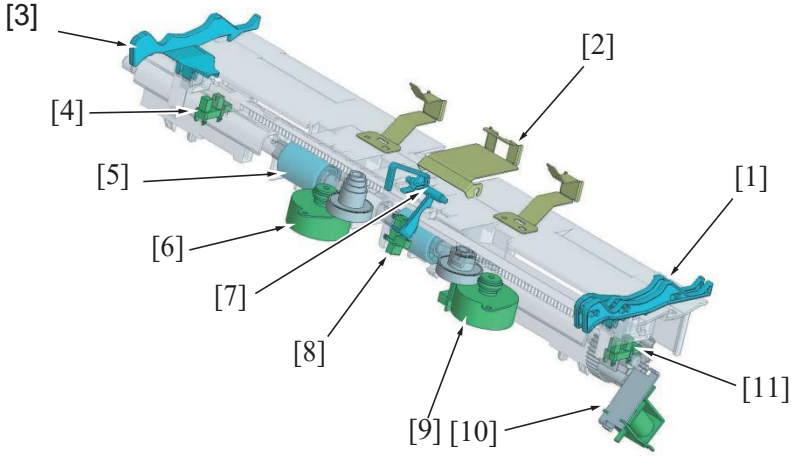
[1]	Batch lever	[2]	Batch guide
[3]	Batch solenoid (SD102)	-	-

Alignment tray section

- The alignment tray section has 2 types of drive mechanisms.

(1) Alignment motor

- The alignment motor drives the alignment plate back and forth.
- The alignment plate/Fr, and the alignment plate/Rr have individual alignment motors. This enables each alignment plate to independently move back and forth.



[1]	Alignment plate/Fr	[2]	Paper stopper
[3]	Alignment plate/Rr	[4]	Alignment plate home sensor/R (PS109)
[5]	Paper exit roller/lower	[6]	Alignment motor/R (M106)
[7]	Paper surface detect sensor/1 actuator	[8]	Paper surface detect sensor/1 (PS102)
[9]	Alignment motor/F (M105)	[10]	Paper exit roller solenoid (SD103)
[11]	Alignment plate home sensor/F (PS108)	-	-

(2) Paper exit motor

- The paper exit roller/lower is driven by the paper exit motor.
  For details of the paper exit roller/lower, see “Paper conveyance/receiving roller section drive” and “Paper exit roller/lower drive connecting process”.

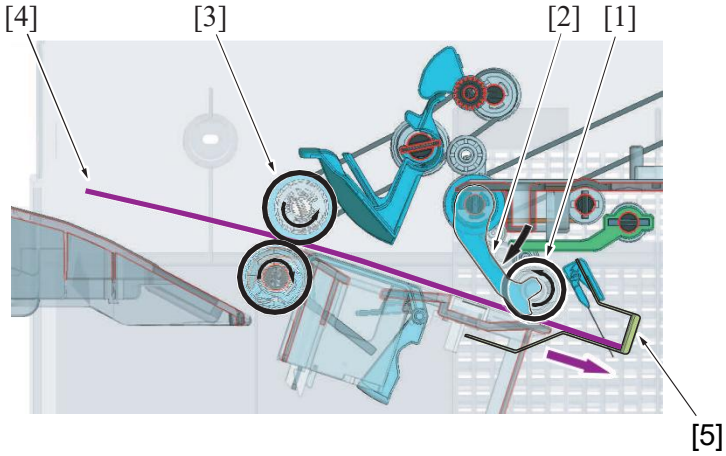
Operation

Paper alignment overview

- At the alignment section, the paper is aligned for the jobs in sort offset mode, group offset mode, and staple mode.
- The paper is discharged to the exit tray without being in alignment for non-sort mode, non-group mode, non-staple mode, sort mode, and group mode.
- When the paper is aligned, it is switchbacked to the alignment section individually. When alignment is finished, the paper or the batch is discharged to the paper exit tray.
- There are two types for paper alignment as described below.
  - Paper FD Alignment: The operation to align rear edge of the paper in transportation direction.
  - Paper CD Alignment: The operation to align both sides of the paper in the width direction.

Paper alignment control (paper FD alignment)

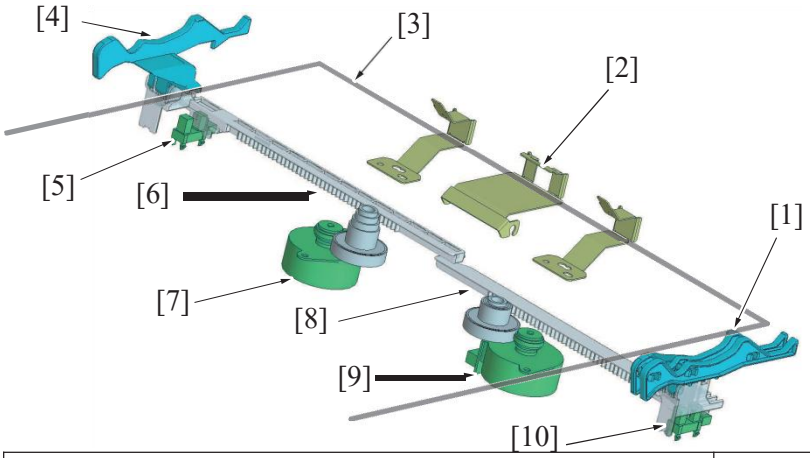
- The operation to align rear edge of the paper in transportation direction is called "paper FD alignment".
- The paper from the transport section will be transported to the alignment tray by the alignment roller. The rear edge of the paper then is aligned by contacting the rear edge of the paper to the paper stopper.
- The batch guide moves down to hold the rear edge of the aligned paper.
  NOTE
  - **It prevents the aligned paper from being jumbled from when the 2nd sheet of paper is discharged in the alignment tray.**
  - **The batch guide moves up when the next sheet of paper is transported to the alignment tray, as well as when the paper is discharged from the alignment tray to release the paper.**



[1]	Alignment roller	[2]	Batch guide
[3]	Paper exit roller/upper	[4]	Paper
[5]	Paper stopper	-	-

Paper alignment control (paper CD alignment)

- The operation to align both sides of the paper in the width direction is called "paper CD alignment".
- The paper from the transport section is transported to the alignment tray by the alignment roller. The paper is aligned by contacting the alignment plate/Fr and Rr to both sides (forward-backward direction) of the paper.
- The home position of the alignment plate is detected by the alignment plate home sensor. (alignment plate home sensor/F, R)



[1]	Alignment plate/Fr	[2]	Paper stopper
[3]	Paper	[4]	Alignment plate/Rr

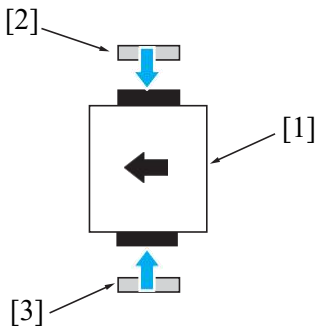
[5]	Alignment plate home sensor/R (PS109)	[6]	Slide gear/Rr
[7]	Alignment motor/R (M106)	[8]	Slide gear/Fr
[9]	Alignment motor/F (M105)	[10]	Alignment plate home sensor/F (PS108)

(1) Alignment plate control when in staple mode

- When the staple mode is commended, the alignment plate/Fr and the alignment plate/Rr shift according to the paper width. The paper is aligned by the alignment plates contacting from both front and rear sides.
- The above alignment operation will be conducted for the paper for every job to align the edges of the paper batch. When the alignment is finished, stapling process will be conducted.

NOTE

- **When printed in staple mode, paper batch will be stapled and be discharged to the paper exit tray without being shifted.**



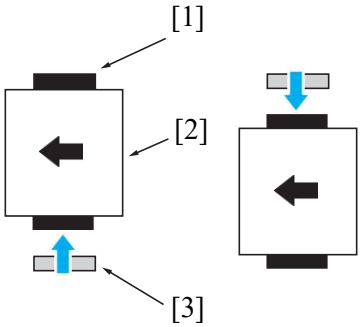
[1]	Paper	[2]	Alignment plate/Rr (shifting to the front side)
[3]	Alignment plate/Fr (shifting to the rear side)	-	-

(2) Alignment plate control for sort offset mode and group offset mode

- When commanding offset in sort mode or group mode, the alignment plate/Fr or the alignment plate/Rr presses the paper from one side to the far side (or front side) depending on the paper width. This process shifts the paper position.
- The paper batches will be sorted out by repeating the process above.

NOTE

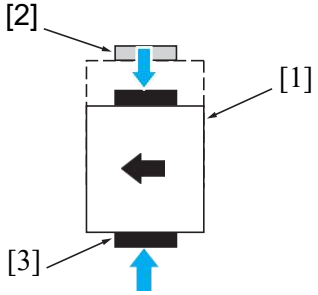
- **The offset value (shift value) of the paper is 30 mm.**
- **When "Offset" is not commanded in the sort mode or the group mode, only the sort print/group print will be conducted, and the paper will be discharged to the paper exit tray without being shifted.**



[1]	Alignment plate/Rr	[2]	Paper
[3]	Alignment plate/Fr	-	-

(a) Operation when shifting the paper to the front side

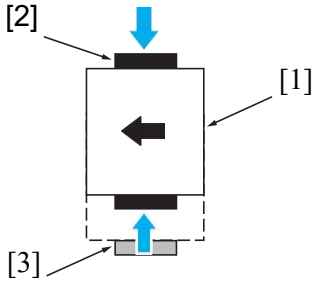
1. The alignment plate/Fr [3] will shift to the reference position at the front side. (The reference position differs depending on the paper size.)
2. The alignment plate/Rr [2] shifts according to the paper width. The paper [1] is pressed by the alignment plate/Rr [2] to be shifted to the front side.



(b) Operation when shifting the paper to the rear side

1. The alignment plate/Rr [2] will shift to the reference position at the rear side. (The reference position differs depending on the paper size.)

2. The alignment plate/Fr [3] shifts according to the paper width. The paper [1] is pressed by the alignment plate/Fr [3] to be shifted to the rear side.



(c) Paper receiving quantity

- When the quantity of the paper that is received into the alignment tray in sort offset mode or in group offset mode reaches the specified value, the paper batch in the alignment tray will be discharged to the paper exit tray.
  NOTE
  Sample process for sort out:
  1. When the job requires making of two sets with 10 sheets A4 size document in sort offset mode, the paper batch is discharged when the sheet quantity reached 5 for the first copy.
  2. The remaining 5 sheets will be aligned to be discharged with the same shift position. This will make 10 aligned and discharged sheets on the paper exit tray.
  3. Then the shift position will be changed from the 1st copy to sort out the 2nd copy.
  4. The process for the second copy leaves 2 sets with 10 sheets each on the exit tray.

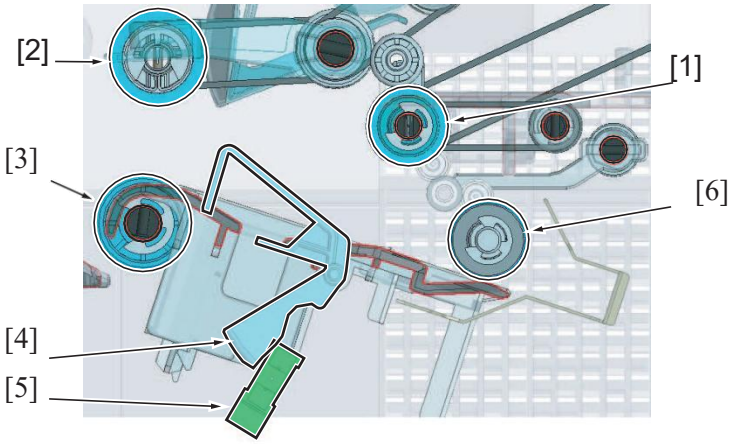
Maximum batch discharge quantity for sort out

Paper size	Paper type	
	• Thin paper (52 g/m2 to 59 g/m2) • Plan paper (60 g/m2 to 90 g/m2) • Recycled paper (52 g/m2 to 90 g/m2)	Thick paper (91 g/ m2 to 300 g/ m2)
216 mm or less	5 sheets	3 sheets
More than 216 mm	4 sheets	

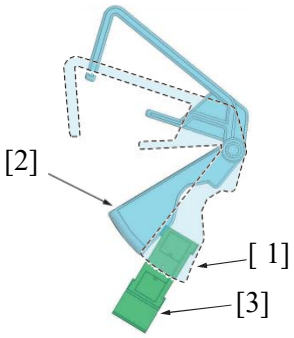
- When the "Paper load quantity" or "Paper load height" of the paper in the exit tray reaches to the specified value during sort offset mode or group offset mode, the exit tray is judged to be full.
  Amount of paper stacking
  NOTE
  - **The paper load height is detected by the paper level detection function.**
    For details, see " PC.9.3.3 Paper level detect control".

Alignment tray paper detect control

- The alignment tray has paper surface detect sensor/1, which detects the paper path and the paper receiving in the alignment tray.
- Paper surface detect sensor/1, detects that the paper is transported to the alignment tray by the actuator being pressed down by the paper which passes it.



[1]	Receiving roller	[2]	Paper exit roller/upper
[3]	Paper exit roller/lower	[4]	Paper surface detect sensor/1 actuator
[5]	Paper surface detect sensor/1 (PS102)	[6]	Alignment roller



[1]	Paper surface detect sensor/1 actuator: The paper is stored (blocked)	[2]	Paper surface detect sensor/1 actuator: Paper is not stored (unblocked)
[3]	Paper surface detect sensor/1 (PS102)	-	-

(1) When in non-sort mode, non-group mode, non-staple mode, sort mode, and group mode

- The paper surface detect sensor/1 detects that the paper is transported to the paper exit roller /lower by the actuator being pressed down by the paper which passes it.
- When the paper alignment is finished, the sensor detects that the paper is discharged to the exit tray by the actuator returned to the original position with the paper discharged from the alignment tray.

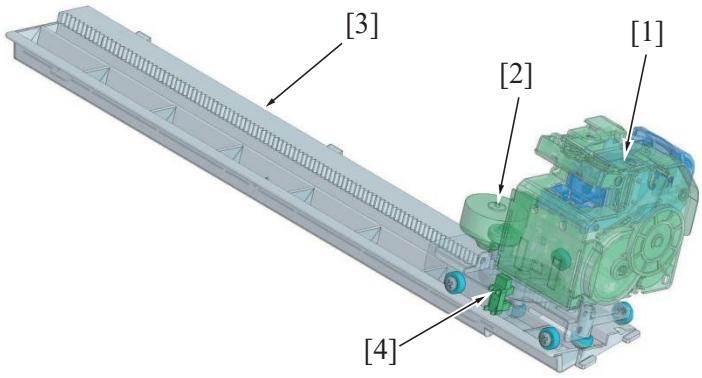
(2) When in sort offset mode, group offset mode, and staple mode

- The paper surface detect sensor/1 detects that the paper is stored to the alignment tray by the actuator being pressed down by the switchbacked paper.
- When the alignment is finished, the sensor detects that the paper is discharged to the exit tray by the actuator returned to the original position.

STAPLER SECTION

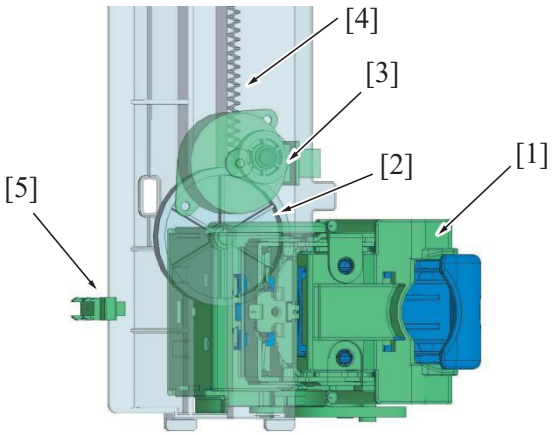
Configuration/Drive

- The stapler waits at the home position at the front side.
- The stapler movement motor moves the stapler.
- When the stapler movement motor installed on the stapler mounting table rotates, the drive connecting gear rotates.
  When the drive connecting gear rotates, the stapler mounting plate and the stapler, shifts back and forth along the slide gear.



[1]	Stapler	[2]	Stapler movement motor (M107)
[3]	Slide gear	[4]	Stapler home sensor (PS110)

Stapler drive section top view



[1]	Stapler unit	[2]	Stapler drive connecting gear
[3]	Stapler movement motor (M107)	[4]	Slide gear
[5]	Stapler home sensor (PS110)	-	

Operation

Stapler positioning control

- The home position of the stapler is detected by the stapler home sensor.
- When in corner staple mode, the stapler waits at the home position and staples when the paper alignment is finished.
- When in 2 points staple mode, the stapler shifts to the first stapling position to conduct stapling. Then the stapler shifts to the second stapling position to conduct stapling. When the stapling is finished, the stapler returns to the home position.
- The stapling position is controlled based on the number of pulses generated by the stapler movement motor. No position sensors are provided for the corner staple and two-point staple functions.

Stapling control

(1) Stapling operation

- The Stapling operation is driven by the stapler motor.
- In the stapling operation, the clincher staple arm is lowered by the stapler motor. The clincher staple arm presses the sheets. (This is called clamp operation.) Then a staple is pushed up by the staple arm from the stapler side. The staple is pressed through the sheets and bent from the clincher staple arm side, so that the sheets are fastened together.
- The stapler motor then lifts the clincher staple arm and lowers the staple arm to complete the stapling operation.
- The number of sheets that user wishes to staple are placed into the alignment tray and the stapling operation is performed. However, if the number exceeds the upper limit, the set of sheets is delivered to the exit tray without being stapled.

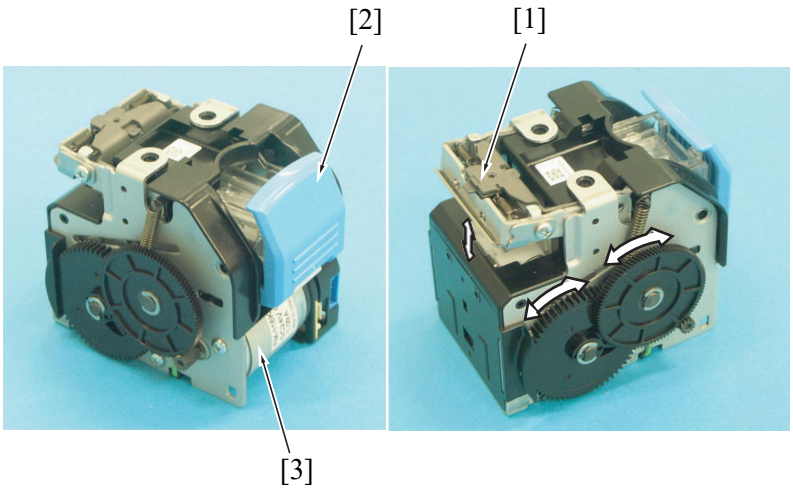
Maximum stapling quantity

Paper size	Maximum stapling quantity
A4S or less (small size)	50 sheets *

Paper size	Maximum stapling quantity
Foolscap or more (large size)	30 sheets

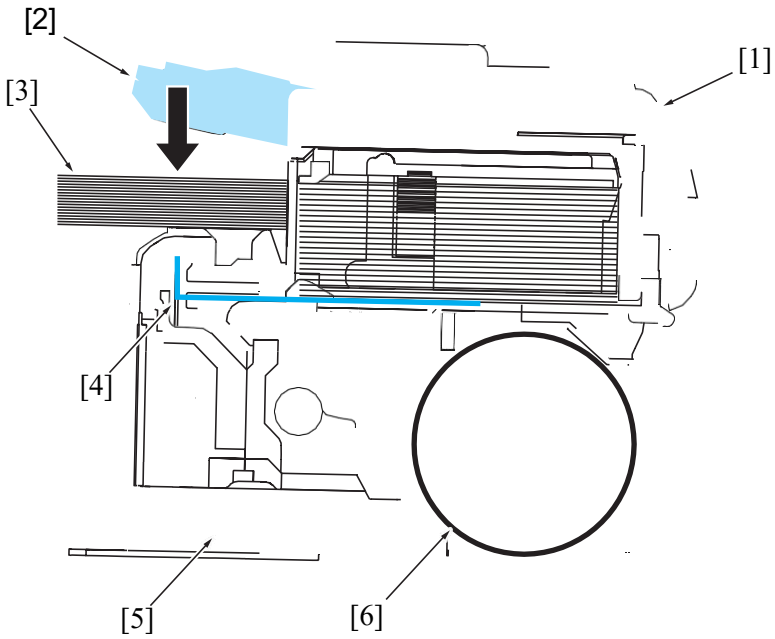
- *: When there are small size sheets and large size sheets with same width at the same time, they are judged as large size sheets, and the maximum staple quantity becomes 30.
  Example: When there are A4 LEF and A3 SEF, the maximum stapling quantity is 30.

Overall view



[1]	Clincher staple arm	[2]	Staple cartridge
[3]	Stapler motor	-	-

Front view

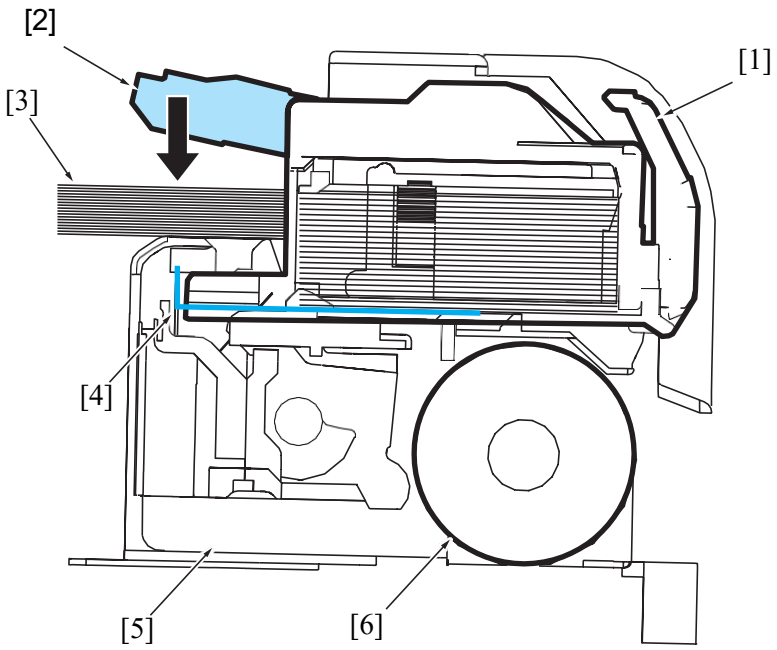


[1]	Staple cartridge	[2]	Clincher staple arm
[3]	Paper bunch	[4]	Staple sheet (staple)
[5]	Stapler	[6]	Stapler motor (M14)

Staple empty detection control

(1) Staple cartridge

- The stapler is provided with a staple cartridge used only for the stapler.
- To reload the stapler with staples, the staple cartridge is first loaded with staples (staple sheet type: 5000 staples) and then the cartridge is attached to the stapler.
  For information on how to load staplers, refer to the user's guide.

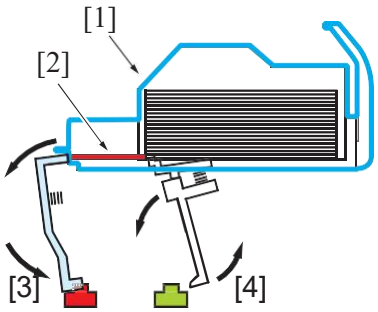


[1]	Staple cartridge	[2]	Clincher staple arm
[3]	Paper bunch	[4]	Staple sheet (staple)
[5]	Stapler	[6]	Stapler motor

(2) Staple empty detection mechanism

- The stapler includes the self-priming sensor and staple empty sensor to detect the status of the staple cartridge and staples.
- The staple cartridge is loaded with staple sheets, and a staple sheet is conveyed to the clinch position (staple position) from the lowest one.

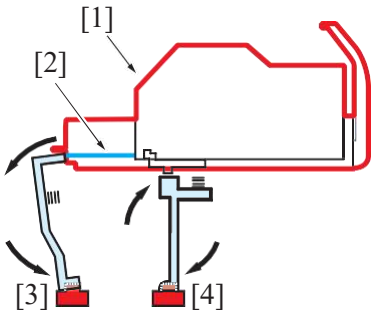
State where staple sheets are loaded



[1] Staple cartridge (loaded with staple sheets)
[2] Staple sheet fed from the cartridge
[3] Self-priming sensor (blocked)
[4] Staple empty sensor (unblocked)

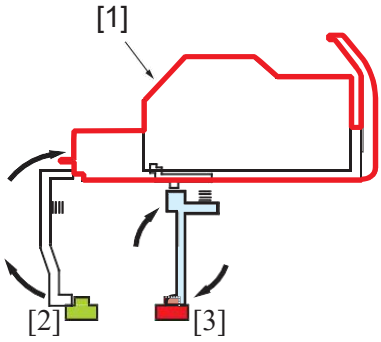
- While the staple cartridge is loaded, if the trailing edge of the last staple sheet in the cartridge passes the actuator of the staple empty sensor, the actuator is raised by the spring force.
- When the actuator is raised, the staple empty sensor is blocked and machine determines that the cartridge is empty. The control panel displays to warn of the staple empty message.

State where the last staple sheet is fed



[1] Staple cartridge (staple empty)
[2] Staple sheet (remainder)
[3] Self-priming sensor (blocked)
[4] Staple empty sensor (blocked)

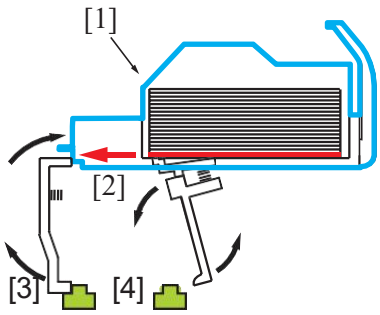
State where staple sheet runs out



[1] Staple cartridge (empty)
[2] Self-priming sensor (unblocked)
[3] Staple empty sensor (blocked)

- Even when the staple empty sensor detects the trailing edge of the last staple sheet, the staple sheet (staples: about 20) fed from the cartridge remains at the cartridge's front section. In this case, the actuator of the self prime sensor is pressed down by the leading edge of the staple sheet.
- If the actuator is pressed down, the self prime sensor is blocked and machine determines that the staple sheet is fed to the clinch position (staple position).
- Even when staple empty is detected, printing is not disabled. Paper is delivered without being stapled.
- After staple empty is detected, when the staple cartridge is loaded with staple sheets and the stapler is loaded with the cartridge, the actuator of the staple empty sensor is pressed down by the staple sheets.
- When the actuator is pressed down, the staple empty sensor is unblocked and staple empty condition is cleared. At this point, the staple empty sensor detects the staple sheets (unblocked). However, if the leading edge of the staple sheet cannot be detected by the self-priming sensor (unblocked), the clinch operation is repeated up to 20 times to feed the leading edge of the staple sheet to the position (clinch position) where it can be detected by the self-priming sensor.

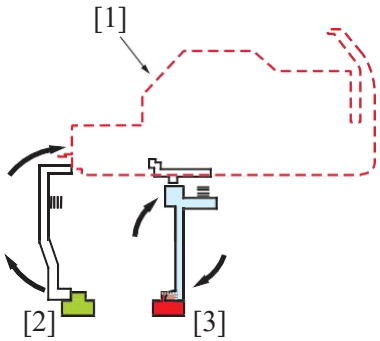
State where staple sheet runs out



[1] Staple cartridge (loaded with staple sheets)
[2] Staple sheet is fed by clinch operation
[3] Self-priming sensor (unblocked)
[4] Staple empty sensor (unblocked)

- If the self prime sensor cannot detect the leading edge of the staple sheet after clinch operations, machine determines that the staple sheet is not properly fed (staple sheet is not properly set) and the control panel displays to warn of the staple empty message.
- If the staple empty message appears even after staple sheets are loaded, check whether the staple sheets is properly set in the staple cartridge. If the cartridge is clogged with a staple sheet, clear the sheet.
- If staple empty occurs, the stapler stays at the stapler home position. (Position where staples can be supplied only by opening the front door)

(a) When the staple cartridge is not loaded



[1]	Staple cartridge (not mounted)	[2]	Self-priming sensor (unblocked)
[3]	Staple empty sensor (blocked)	-	-

- The actuator of the staple empty sensor is raised by the spring force. The staple empty sensor is blocked.
- If the staple empty message appears even after staple sheets are loaded, check whether the staple sheets is properly set in the staple cartridge. If the cartridge is clogged with a staple sheet, clear the sheet.
- The control panel displays to warn of the staple empty message.

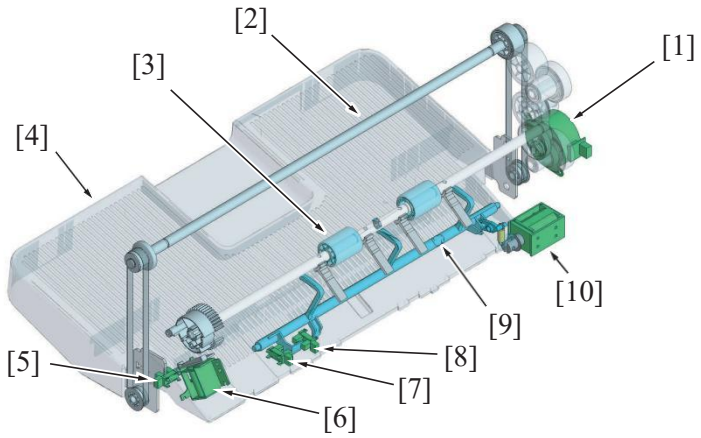
Clogged staple detection control

- Stapling operation is performed by lowering of the clincher staple arm and lifting of the staple arm.
- The staple arm position is detected by the stapler home sensor located in the stapler.
- The stapler determines that the stapling operation is completed if the staple arm returns to the home position within the specified time after the stapling operation. If the staple arm does not return to the home position after the specified time has passed, the machine determines that staple trouble has occurred and trouble code C1109 appears on the control panel.

RECEIVING SECTION

Configuration

- In the receiving section, paper transported into the finisher is placed into paper exit tray. The tray up/down mechanism moves the tray down depending on the amount of discharged paper, so that a maximum of 500 sheets can be stored. The tray also includes the mechanism for detecting the number of stacked sheets.



[1]	Tray lift up motor (M109)	[2]	Shaft
[3]	Paper exit roller/lower	[4]	Paper exit tray
[5]	Paper exit tray home sensor (PS107)	[6]	Paper exit roller solenoid (SD103)
[7]	Paper surface detect sensor/2 (PS104)	[8]	Paper weight lever sensor (PS103)
[9]	Paper surface detect lever	[10]	Paper surface detect solenoid (SD101)

Drive

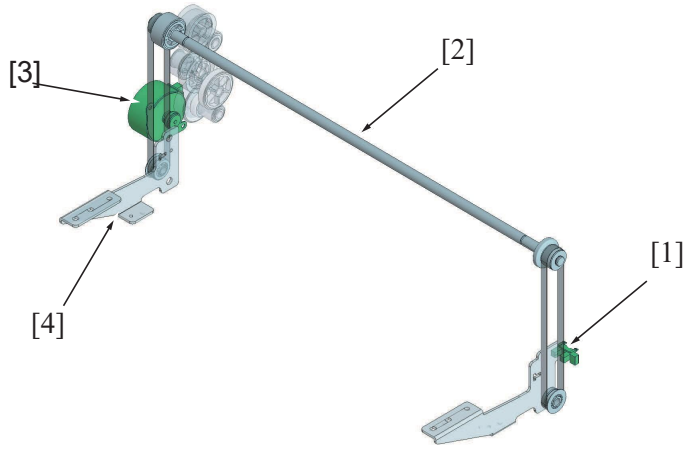
Drive outline

- The driving source of the receiving section is the tray lift up motor, paper surface detect solenoid, and paper exit motor. The following parts are driven.

Section	Driving source	Driving parts	Function
Tray lift up section	Tray lift up motor	Paper exit tray	The paper exit tray will be moved up/down according to the discharged paper load.
Paper level detect section	Paper surface detect solenoid	Paper surface detect lever	• The paper surface level detect lever is moved up/down to detect the paper load discharged to the paper exit tray. • For consecutive printing, the rear edge of the paper discharged to the paper exit tray will be held by the paper surface level detect lever. It prevents the discharged paper from being misaligned by the paper that follows.
Paper exit roller section	Paper exit motor	Paper exit roller/lower	The paper is discharged to the paper exit tray.
		Paper exit paddle	It rotates so that the rear edge of the paper which passed through the paper exit roller/lower will be held to be discharged to the paper exit tray/upper without fail.

Tray lift up section

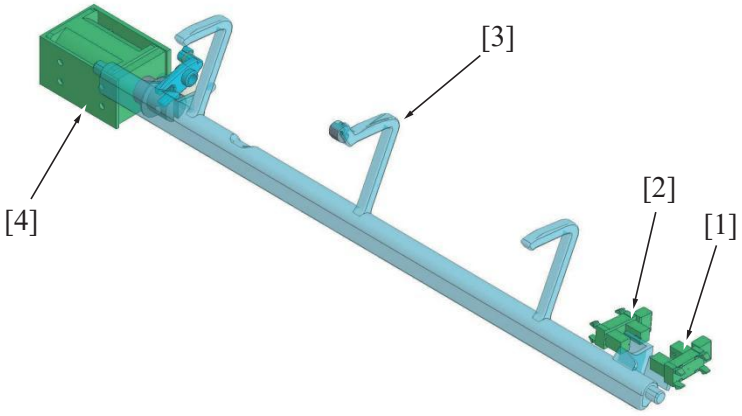
- The drive source is the tray lift up motor which moves the exit tray up/down.



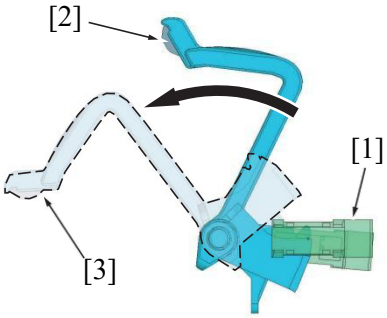
[1]	Paper exit tray home sensor (PS107)	[2]	Shaft
[3]	Tray lift up motor (M109)	[4]	Tray lifter

Paper level detect section

- The paper surface detect solenoid drives the paper surface level detect lever.
- The paper surface detect solenoid turns on to rotate the paper surface level detect lever downward.
- The paper surface detect solenoid turns off to allow the paper surface level detect lever to return to the upward position via spring force.



[1]	Paper surface detect sensor/2 (PS104)	[2]	Paper weight lever sensor (PS103)
[3]	Paper surface detect lever	[4]	Paper surface detect solenoid (SD101)

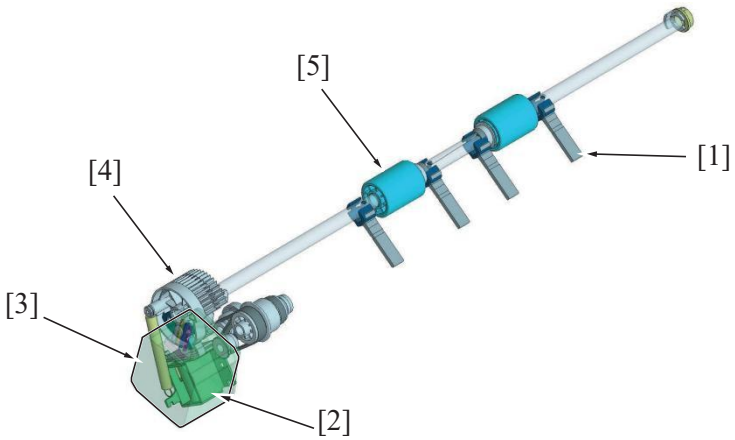


[1]	Paper surface detect sensor	[2]	Paper surface detect lever (upper position: when solenoid is turned OFF)
[3]	Paper surface detect lever (lower position: when solenoid is turned ON)	-	-

Paper exit roller section

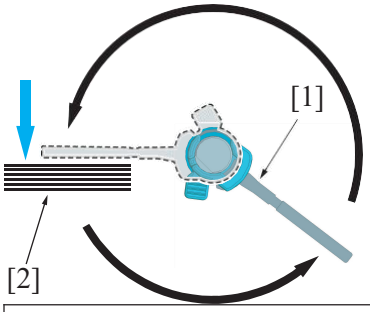
- The paper exit motor drives the paper exit roller/lower.
  For details of the paper exit roller/lower, see “Paper conveyance/receiving roller section drive” and “Paper exit roller/lower drive connecting process”.
- The paper exit paddle (4 points) on the drive shaft at the paper exit roller/lower, also rotates with the paper exit roller/lower.

(1) Overall view



[1]	Paper exit paddle	[2]	Paper exit roller solenoid (SD103)
[3]	Paper exit motor (M102)	[4]	Paper exit roller/lower drive gear
[5]	Paper exit roller/lower	-	-

(2) Paper press down paddle front view



[1]	Paper paddle (home position)	[2]	Paper on the paper exit tray

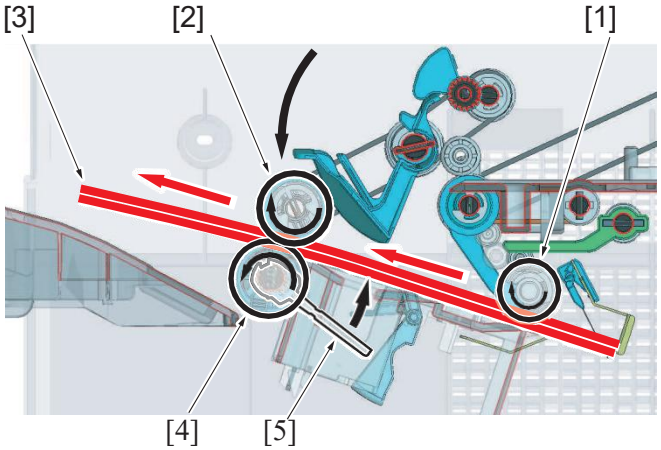
Operation

Paper exit paddle control

- There are paper exit paddles (4 points) installed on the paper exit roller/lower shaft. It rotates so that the paper exit paddle holds the rear edge of the paper when the paper passes through the paper exit roller/lower, and to discharge the paper to the paper exit tray without fail.

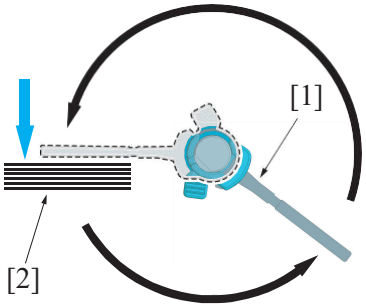
(1) Paper discharge process

1. When the last paper is aligned, the paper exit roller/upper moves down to hold all the paper on the alignment tray with the paper exit roller/lower and to discharge the paper to the paper exit tray with paper exit roller/upper, paper exit roller/lower and the alignment roller.



[1] Alignment roller
[2] Paper exit roller/upper
[3] Paper
[4] Paper exit roller/lower
[5] Paper exit paddle

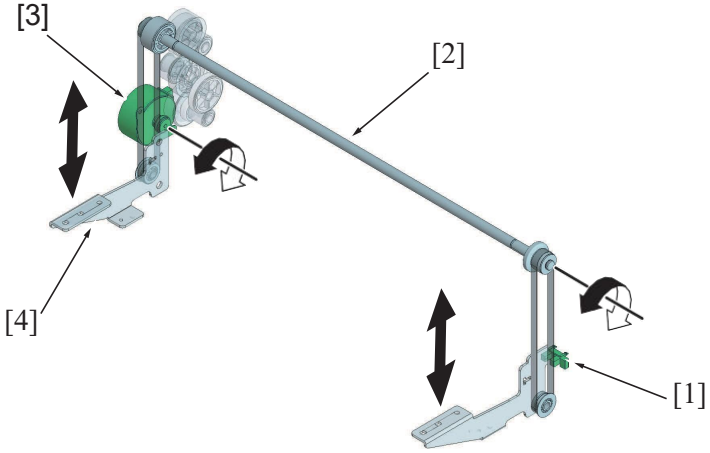
2. The paper exit paddle pushes out the rear edge of the paper which passed through the paper exit roller/lower to press the paper over the paper exit tray.
NOTE
   - **The paper exit paddle is installed on the paper exit roller/lower shaft. It rotates one revolution and stops as the exit roller/lower does.**
     For details of the paper exit roller/lower operation mechanism, see " PC.6.3.4 (1) Paper exit roller/lower drive connecting process".
3. The paper exit paddle presses the paper and returns to the home position.



[1] Paper exit paddle (home position)
[2] Paper on the paper exit tray
NOTE
   - **The paper exit paddle is made from soft rubber. It curves after discharging the paper to the paper exit tray to return to the home position inside the machine.**
4. After the paper exit paddle is retracted, the paper surface detect lever rotates to press the rear edge of the discharged paper.
For details of the paper surface detect lever operation mechanism, see " PC.9.3.3 Paper level detect control".

Paper exit tray lift up control

- The up/down motion of the paper exit tray is conducted by the tray lift up motor.
- When the tray lift up motor rotates forward, the tray drive belt rotates forward through the gear to lift up the paper exit tray.
- When the tray lift up motor rotates in a reverse direction, the tray drive belt rotates in a reverse direction through the gear to lower the paper exit tray.
- The paper exit tray home sensor detects the home position of the paper exit tray.
- The height of the paper exit tray is detected by the paper level detect mechanism. When a job is commanded, the paper surface detect lever operates to move the paper exit tray up/down according to the detected result.
  For details of the control, see “ PC.9.3.3 Paper level detect control”.



[1]	Paper exit tray home sensor (PS107)	[2]	Shaft
[3]	Tray lift up motor (M109)	[4]	Tray lifter

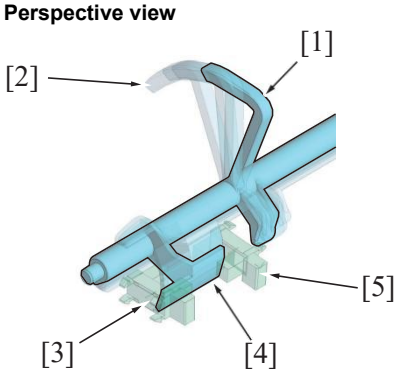
Paper level detect control

- The paper level is detected by the paper weight lever sensor and paper surface detect sensor/2. The height of the paper exit tray is controlled according to the detected result.
- The paper surface detect actuator rotates when the paper surface detect solenoid turns on, to hold the rear top face of the paper on the paper exit tray. The rotation value of the paper surface detect lever changes at this point, according to the paper load and the height of the paper exit tray.
- The paper weight lever sensor and paper surface detect sensor/2 are installed at different heights. (Paper weight lever sensor: high, paper surface detect sensor/2: low) The paper surface detect lever has two light shield plates with different lengths, which provides different detection result for each sensor with the rotation value found by the paper surface detect lever. The current paper level is judged according to the result so that the paper exit tray will be controlled to move up/down to the suitable height.
- The paper level is detected every time the paper is discharged to monitor the paper height. For consecutive printing, it also prevents discharged paper from being misaligned by the following paper being discharged.
- When the paper exit tray home sensor detects the exit tray while the paper exit tray is moving down, the paper exit tray is judged to be full and the warning message will be displayed on the control panel, informing that the paper exit tray is full.
- The paper surface detect lever moves down when the paper is removed from the paper exit tray. When the lever moves down, the paper is detected to be removed, and the paper exit tray full display will be released.

Paper level detect table

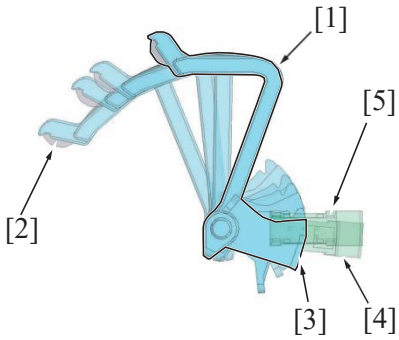
Paper surface detect sensor/2	Paper weight lever sensor	Paper level	Exit tray lift up control
Unblocked	Blocked	High	• The paper exit tray is at the higher position than the reference position. The tray lift up motor will be rotated in reverse direction and move the paper exit tray down to the reference position. • When the paper exit tray home sensor detects the paper exit tray while the paper exit tray is moving down, the exit tray is judged to be full, and the following printing job will be prohibited.
Blocked	Blocked		
Blocked	Unblocked	Reference position	• Reference position. The paper exit tray will not move up/down.
Unblocked	Unblocked	Low	• The paper exit tray is at the lower position than the reference position. The tray lift up motor will rotate to move the exit tray up to the reference position.

(1) Perspective view



[1]	Paper surface detect lever (Paper level: home position)	[2]	Paper surface detect lever (Paper level: low)
[3]	Paper surface detect sensor/2 (PS104) (Unblocked)	[4]	Light shield plate
[5]	Paper weight lever sensor (PS103) (Blocked)	-	-

(2) Front view



[1]	Paper surface detect lever (Paper level: home position)	[2]	Paper surface detect lever (Paper level: low)
[3]	Light shield plate	[4]	Paper surface detect sensor/2 (PS104) (Blocked)
[5]	Paper weight lever sensor (PS103) (Unblocked)	-	-

(3) Amount of paper stacking at the exit tray

- For details of the amount of paper stacking at the paper exit tray, see “C PRODUCT SPECIFICATIONS/PF910”.

PD THEORY OF OPERATION PF910U/PF910X/RU-513/PK-520

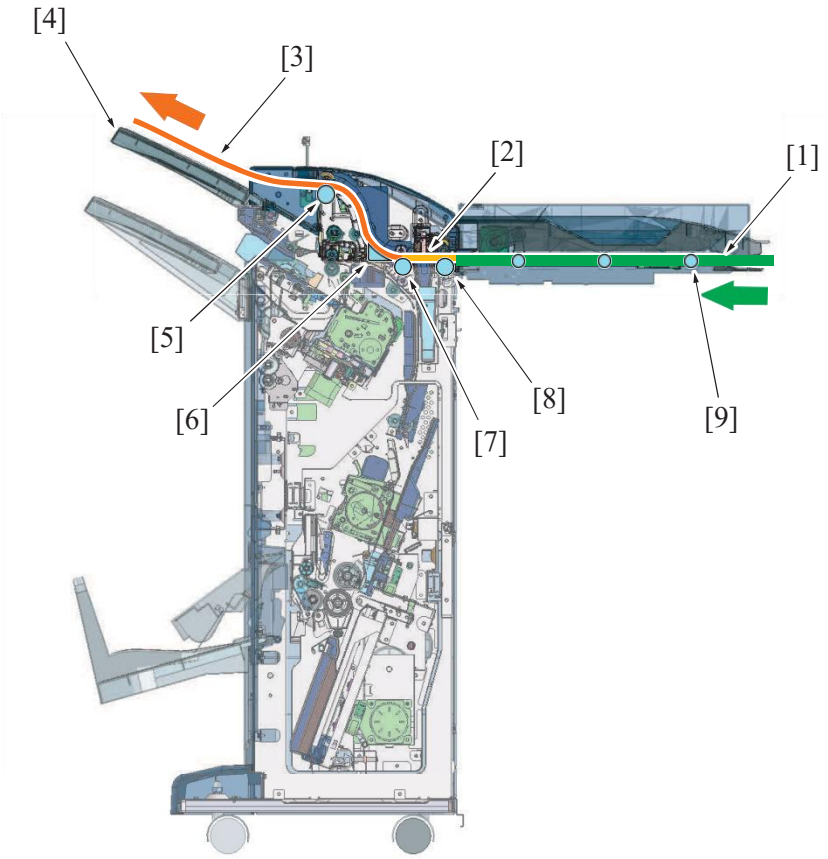
FINISHER OUTLINE

- Install the staple finisher FS-534 to the MFP enables the following functions. "Sort function, Sort offset function", "Group function, Group offset function", "Staple function", "Sort staple function", and "Large capacity receiving function".
- The "Punch function" can be added by installing the optional function (Punch Kit PK-520).
- On the staple finisher FS-534SD, "Saddle stitching function and Tri-folding function" is provided in addition to all functions that are provided on the staple finisher FS-534.

Option	Summary of the additional functions
RU-514	Connecting the MFP with the FS-534
PK-520	Punch function
FS-534SD	FS-534 + Folding function, Saddle stitching function, Tri-folding function

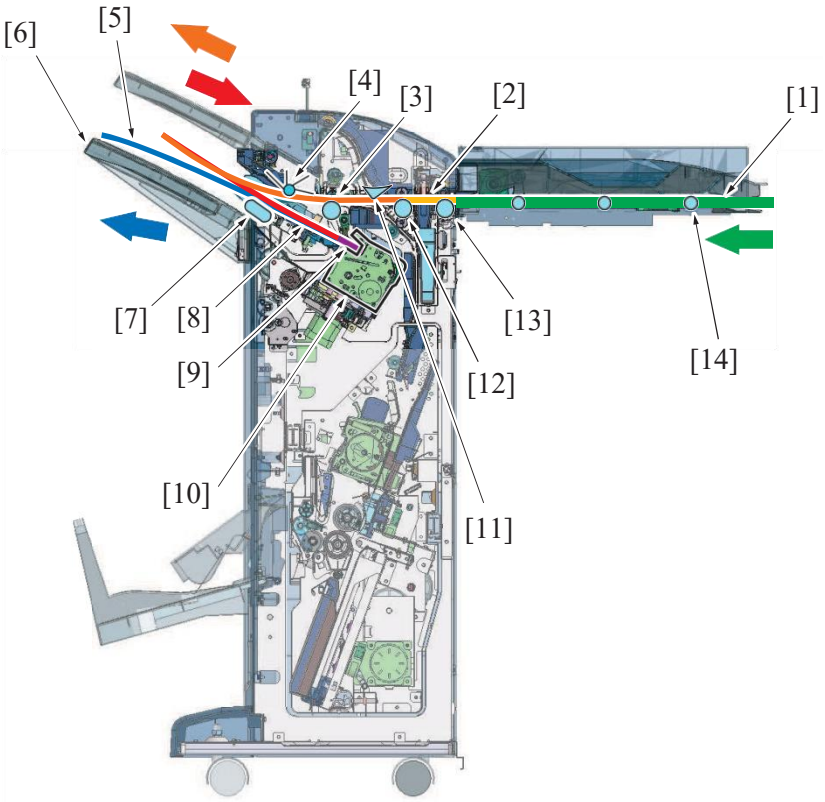
PAPER PATH

Sub tray



[1]	Paper feed (Paper path from the exit section of MFP)	[2]	Punching holes
[3]	Paper exit	[4]	Sub tray
[5]	Sub tray section exit roller	[6]	Paper path switching gate (lower position)
[7]	FNS section transport roller	[8]	FNS section paper feed roller
[9]	RU section horizontal transport roller	-	-

Main tray

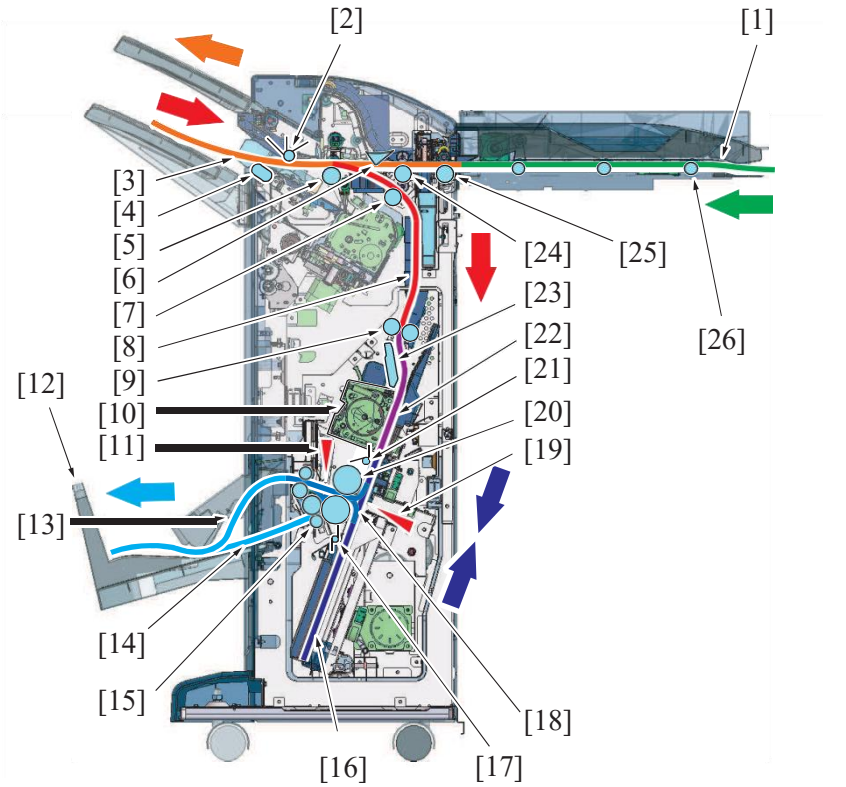


[1]	Paper feed (Paper path from the exit section of MFP)	[2]	Punching holes
[3]	Paper transport	[4]	Exit section upper paddle
[5]	Paper exit	[6]	Main tray
[7]	Exit section lower paddle	[8]	Paper alignment
[9]	Staple (staple mode)	[10]	Stapler
[11]	Paper path switching gate (upper position)	[12]	FNS section transport roller
[13]	FNS section paper feed roller	[14]	RU section horizontal transport roller

Saddle tray

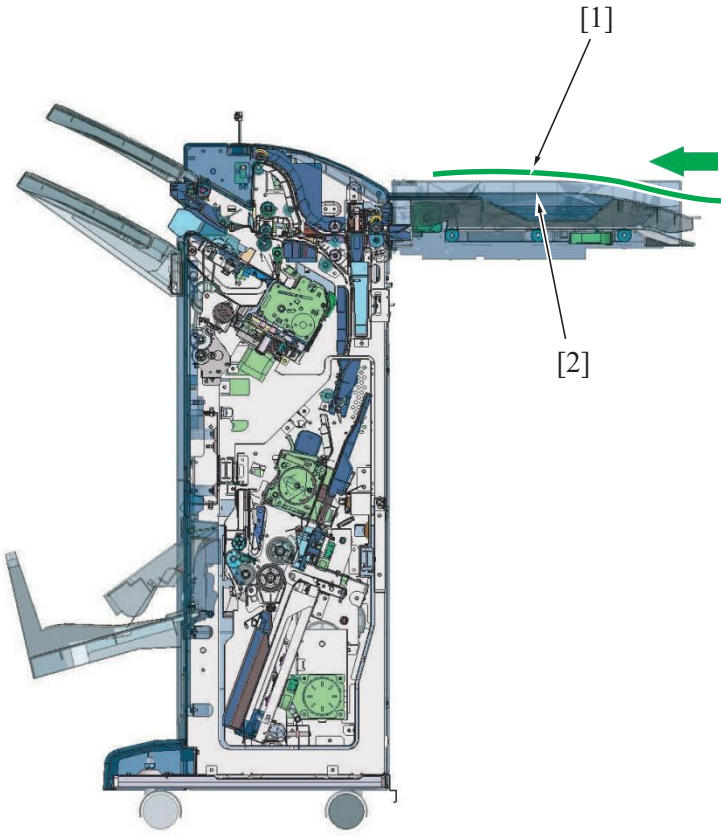
NOTE

- **FS-534SD only**



[1]	Paper feed (Paper path from the exit section of MFP)	[2]	Exit section upper paddle
[3]	Paper transport (switchback)	[4]	Exit section lower paddle
[5]	Receiving roller	[6]	Paper path switching gate (upper position)
[7]	FNS section exit roller	[8]	Paper vertical transport
[9]	Saddle section paper feed roller	[10]	Center stapler
[11]	Tri-folding knife	[12]	Saddle tray
[13]	Paper batch exit (center staple mode)	[14]	Paper batch exit (tri-folding mode)
[15]	Tri-folding roller	[16]	Paper alignment (FD)
[17]	Center folding section lower paddle	[18]	Paper fold (center folding, tri-folding)
[19]	Center fold knife	[20]	Center folding roller
[21]	Center folding section upper paddle	[22]	Paper alignment (CD), center staple
[23]	Curl cover	[24]	FNS section transport roller
[25]	FNS section paper feed roller	[26]	RU section horizontal transport roller

3rd tray



[1]	Paper exit	[2]	RU section (horizontal transport section): Relay unit RU-514

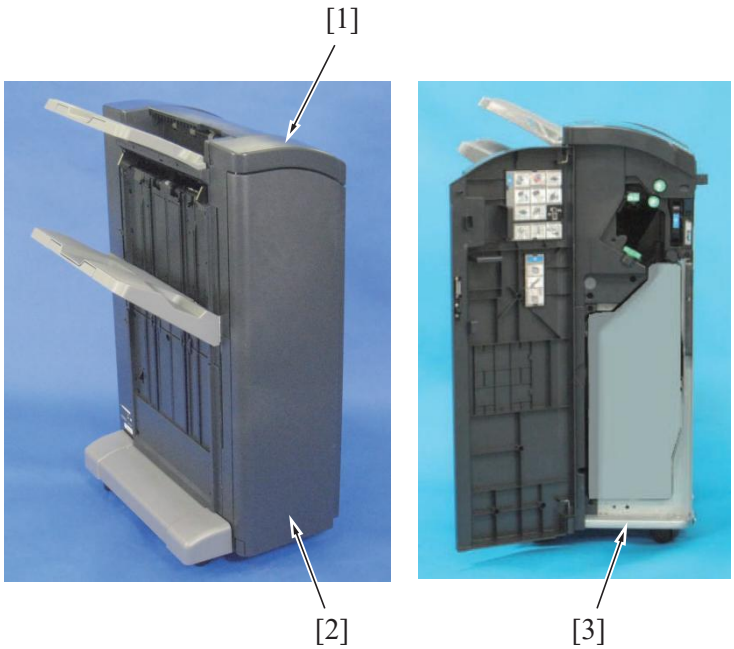
CONFIGURATION

Section configuration

- The staple finisher FS-534 is installed with the finisher main body being fixed on the left side of the MFP. At the time of maintenance, open and close the RU door, the upper door and front door on the finisher. A docking mechanism to slide the finisher from the MFP is not provided.
- The FS-534 comes standard with a sorting mechanism and a stapling mechanism.
- The FS-534SD includes folding function, saddle stitching function, and tri-folding function in addition to all of the functions of the FS-534.
- Also, the optional punch kit PK-520 and the saddle stitcher can be added to the FS-534/534SD.
- At maintenance of the FS-534SD saddle section, pull the saddle section frontward from the finisher.

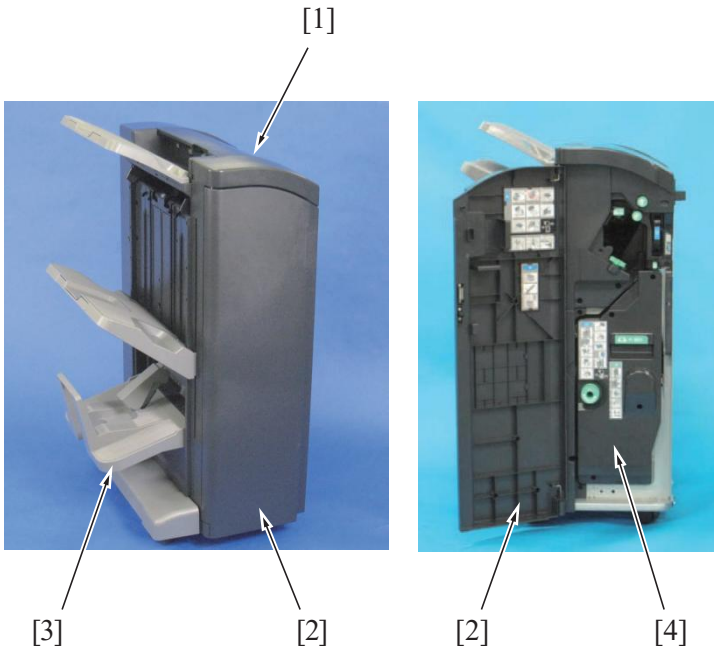
Exterior view (1)

FS-534



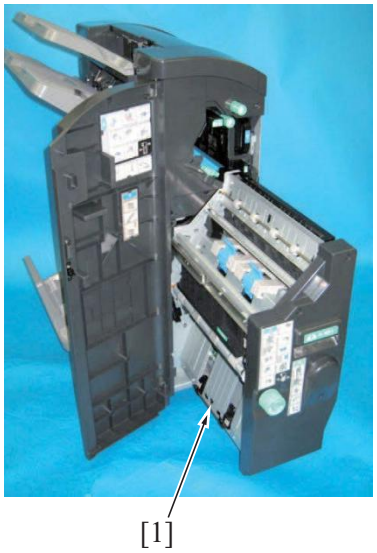
[1]	FS-534	[2]	Front door
[3]	Front door inside	-	-

(2) FS-534SD



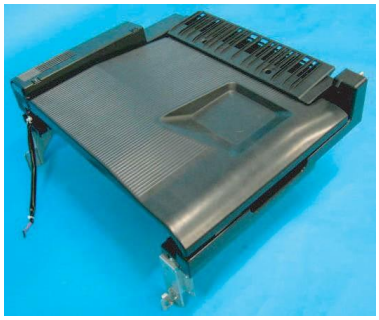
[1]	FS-534SD	[2]	Front door
[3]	Saddle tray section	[4]	Saddle section

(a) Saddle section

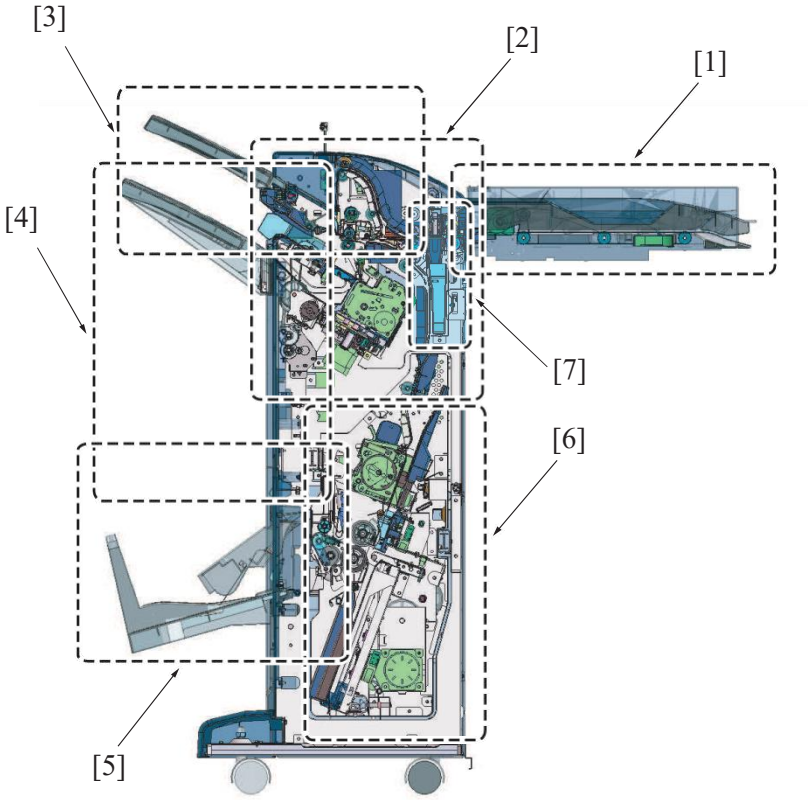


[1]	Saddle section slide status	-	-

(3) RU-514



3.1.1 Section configuration



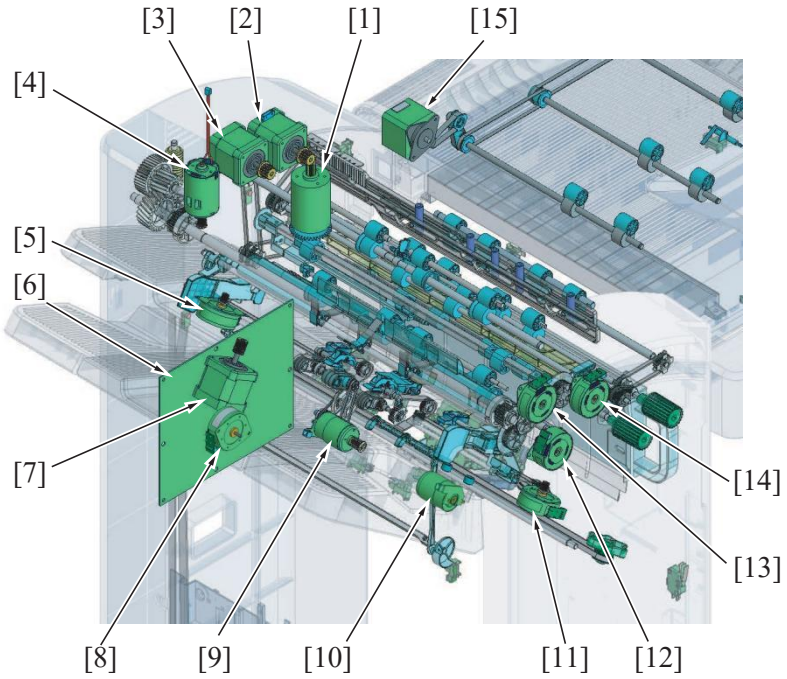
[1]	RU section (horizontal transport section): Relay unit RU-514	[2]	FNS section (finisher section)
[3]	Exit section (sub tray)	[4]	Exit section (main tray)

[5]	Saddle tray section (FS-534SD only)	[6]	Saddle section (FS-534SD only)
[7]	Punch section (only when the punch kit PK-520 is mounted)	-	-

Main electrical part configuration

Control board, motor

(1) RU section, Punch section, FNS section

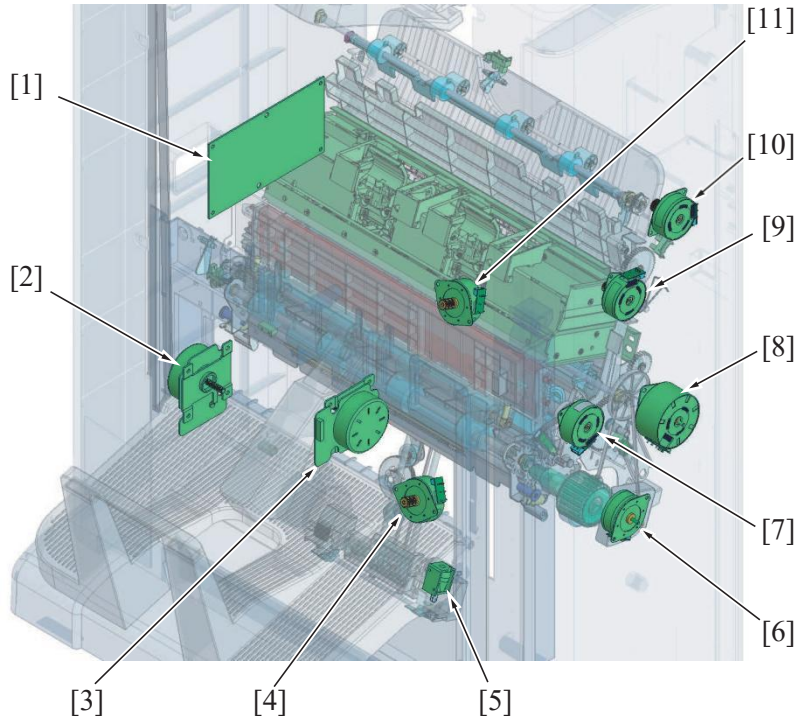


[1]	Punch drive motor (M1): Punch kit	[2]	FNS entry transport motor (M2)
[3]	FNS discharge motor (M3)	[4]	Main tray up/down motor (M11)
[5]	Alignment motor/Rear (M8)	[6]	FS control board (FSCB)
[7]	Side stapler movement motor (M13)	[8]	Paper receiving control motor (M12)
[9]	Pre-eject drive motor (M9)	[10]	Bundle eject motor (M10)
[11]	Alignment motor/Front (M7)	[12]	Trailing edge stopper motor (M6)
[13]	FNS paddle motor (M5)	[14]	Receiving roller retraction motor (M4)
[15]	RU transport motor (M1)	-	-

(2) Saddle section

NOTE

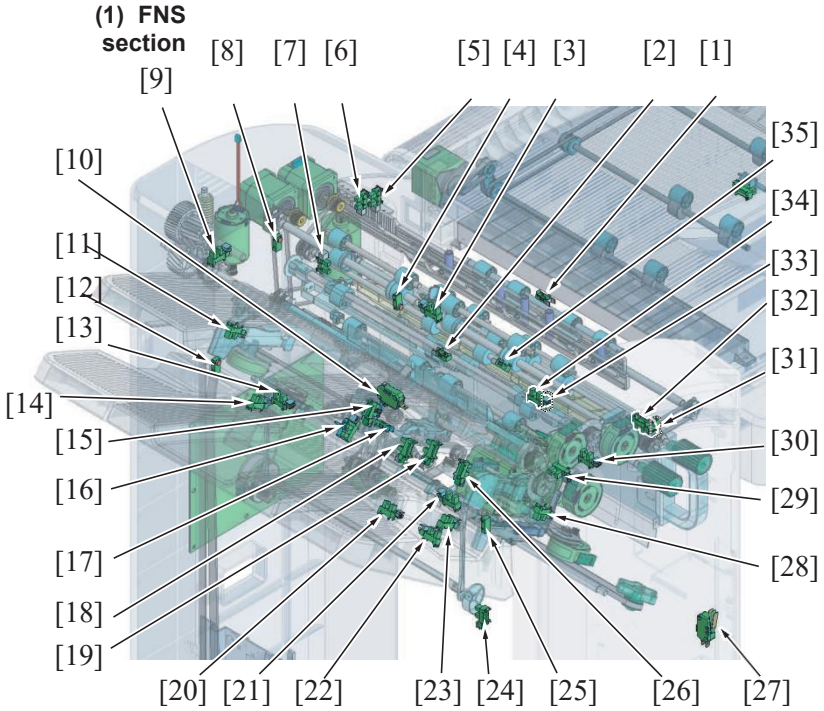
- **FS-534 only**



[1]	SD drive board (SDDB)	[2]	Center fold roller motor (M5)
[3]	Center fold knife motor (M9)	[4]	Stopper drive motor (M4)
[5]	Stopper solenoid (SD1)	[6]	SD paddle motor (M7)
[7]	Tri-folding guide motor (M6)	[8]	Center fold guide motor (M8)
[9]	Paper discharge control motor (M2)	[10]	SD transport motor (M1)
[11]	Alignment motor (M3)	-	-

Sensor

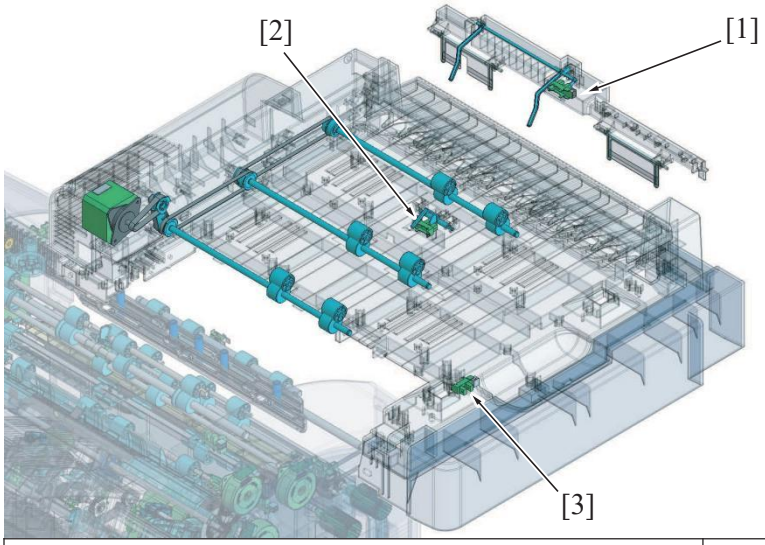
(1) FNS section



[1]	FNS entrance sensor (PS4)	[2]	Main tray exit sensor (PS16)
[3]	Sub tray exit sensor (PS8)	[4]	Punch dust full sensor/in (PS5): Punch kit
[5]	Punch home sensor (PS1): Punch kit	[6]	Punch position sensor (PS2): Punch kit
[7]	Punch motor sensor (PS3): Punch kit	[8]	Sub tray full detection sensor/out (PS9)
[9]	Stacker motor sensor (PS25)	[10]	Main tray upper position detect switch (SW2)
[11]	Alignment plate/R home sensor (PS13)	[12]	Main tray upper sensor/out (PS6)
[13]	Main tray upper position sensor/R (PS26)	[14]	Stapler home position sensor (Rear) (PS23)

[15]	Gripper position detection sensor (PS19)	[16]	Gripper home position sensor (PS18)
[17]	Staple stacker paper detection sensor (PS31)	[18]	Pre-eject away sensor (PS22)
[19]	Pre-eject home sensor (PS21)	[20]	Pre-eject encorder sensor (PS15)
[21]	Main tray upper position sensor/F (PS27)	[22]	Gripper motor sensor (PS17)
[23]	Stapler position sensor (Center) (PS24)	[24]	Paper delivery control sensor (PS28)
[25]	Main tray upper sensor (PS7)	[26]	Trailing edge stopper home position detection sensor (PS20)
[27]	Front door open detect switch (SW1)	[28]	Alignment plate/F home sensor (PS12)
[29]	Upper paddle home position detection sensor (PS14)	[30]	Receiving roller retraction sensor (PS11)
[31]	Punch dust full sensor/out (PS4): Punch kit	[32]	Exchange folded paper output sensor (PS30)
[33]	Sub tray full detection sensor/in (PS10)	[34]	Upper cover open/close detection sensor (PS32)
[35]	Saddle exit sensor (PS5)	-	-

(2) RU section (horizontal transport section)

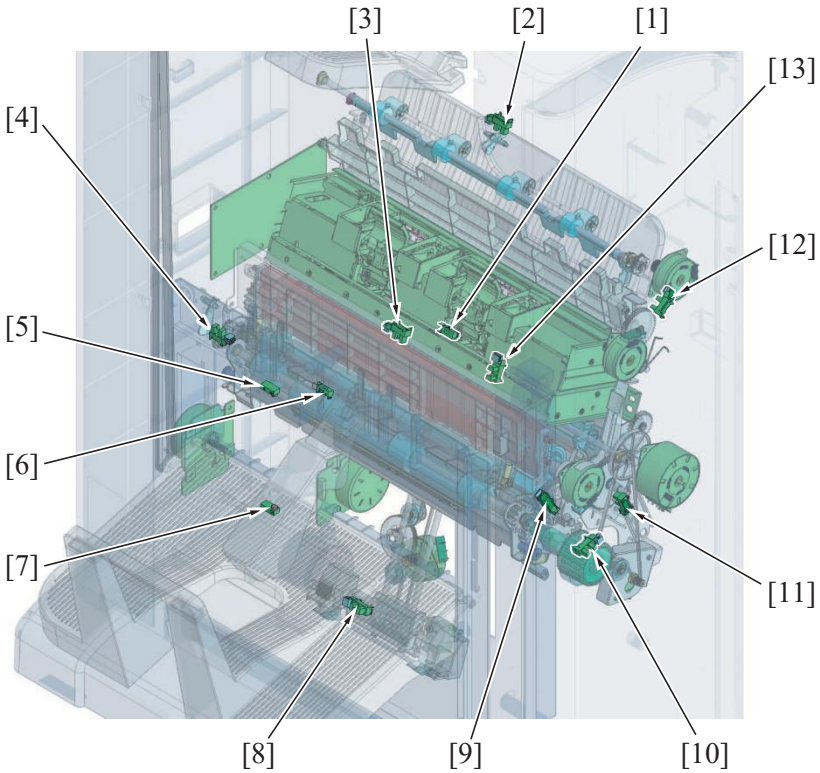


[1]	3rd exit tray full sensor (PS1)	[2]	RU entrance sensor (PS2)
[3]	RU cover open/close detection sensor (PS3)	-	-

(3) Saddle section

NOTE

- **FS-534SD only**

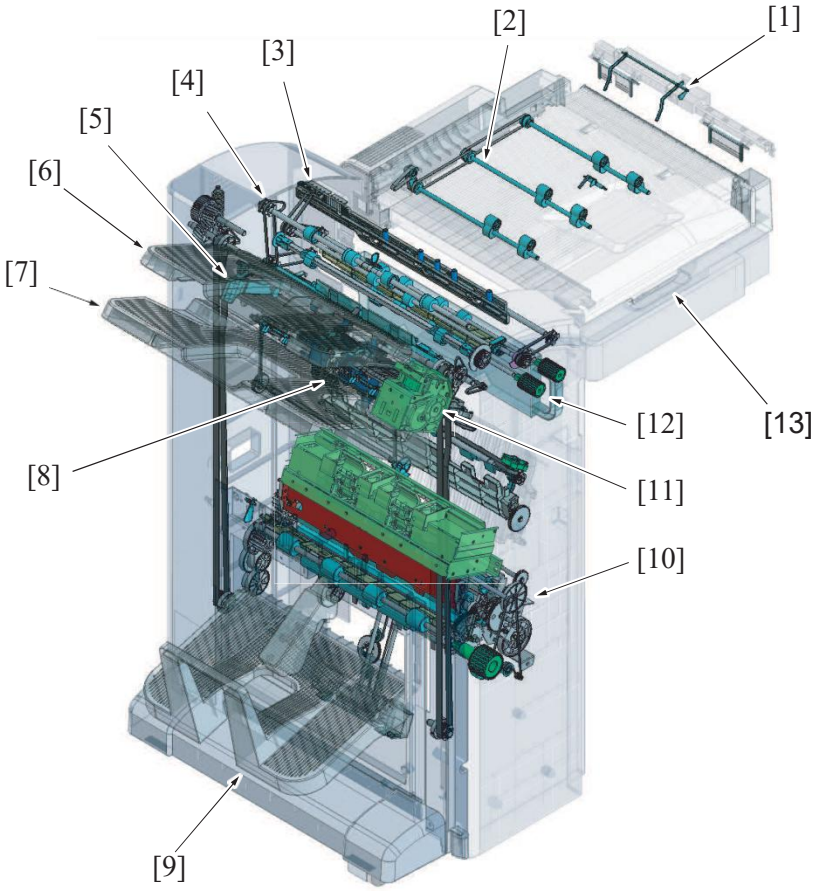


[1]	Center staple/fold stacker paper detect sensor (PS3)	[2]	SD entrance sensor (PS1)
[3]	Center fold knife home sensor (PS8)	[4]	Main tray full detection sensor (PS29) * : finisher
[5]	Booklet tray empty detection sensor/in (PS13)	[6]	Fold exit sensor (PS12)
[7]	Booklet tray empty detection sensor/out (PS14)	[8]	Stopper home sensor (PS6)
[9]	Tri-folding gate home sensor (PS11)	[10]	Paddle home sensor (PS5)
[11]	Guide home sensor (PS7)	[12]	Curl cover detection sensor (PS2)
[13]	Alignment home sensor (PS4)	-	-

- *: The position to install the main tray full detection sensor differs between the FS-534 and FS-534SD. (The main tray capacity for the FS-534 is 3,000 sheets. The capacity for the FS-534SD is 2,000 sheets.) The illustration shows the sensor position for the FS-534SD.

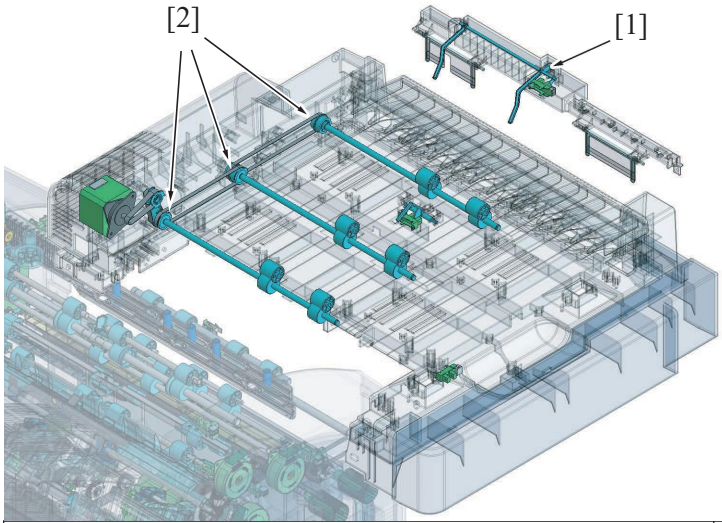
Main mechanical part configuration

Overall configuration



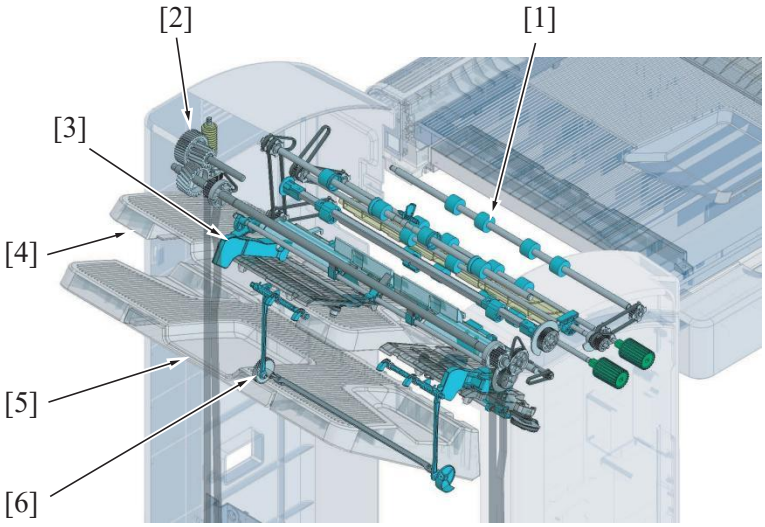
[1]	Exit tray full detection mechanism (when paper exit/ reverse section of the MFP is mounted)	[2]	RU section horizontal transport roller
[3]	Punch section: Punch kit PK-520	[4]	Paper feed/transport section
[5]	Alignment section	[6]	Sub tray
[7]	Main tray	[8]	Exit section
[9]	Saddle tray	[10]	Saddle section: Finisher FS-534SD only
[11]	Staple section	[12]	Punch dust box: Punch kit PK-520
[13]	RU section (horizontal transport section)	-	-

RU section (horizontal transport section)



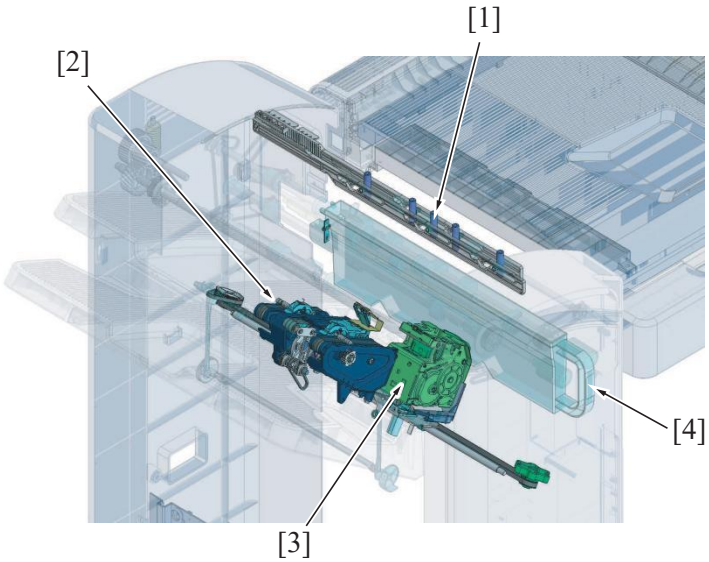
[1]	3rd exit tray full detection sensor actuator	[2]	RU section horizontal transport roller

Paper feed/transport section, Alignment section, Tray section



[1]	Paper feed/transport section	[2]	Main tray up/down section
[3]	Alignment section	[4]	Sub tray
[5]	Main tray	[6]	Main tray paper surface detection mechanism

Punch section, Staple section, Exit section



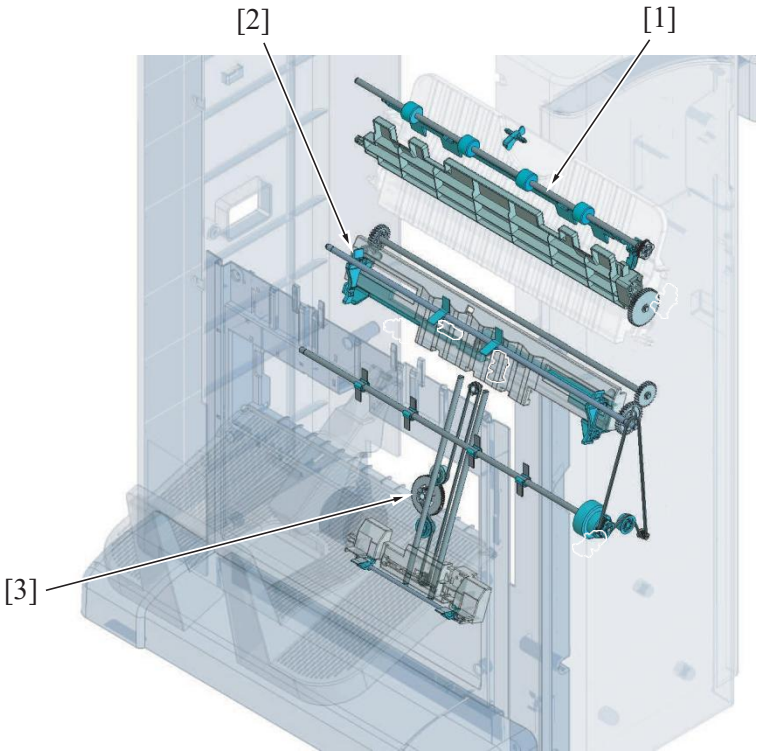
[1]	Punch section: Punch kit PK-520	[2]	Exit section
[3]	Staple section	[4]	Punch dust box: Punch kit PK-520

Saddle section

NOTE

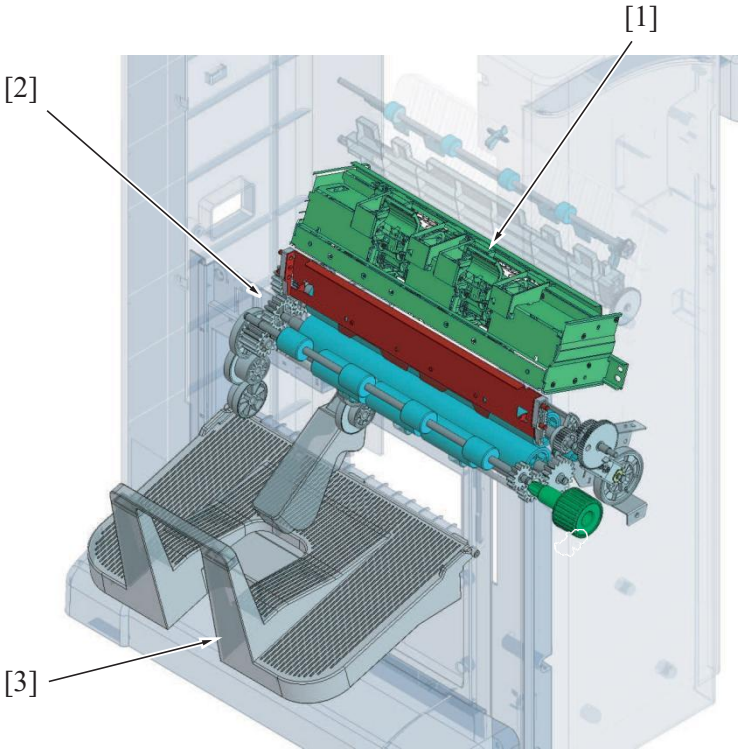
- **FS-534SD only**

(1) Alignment section



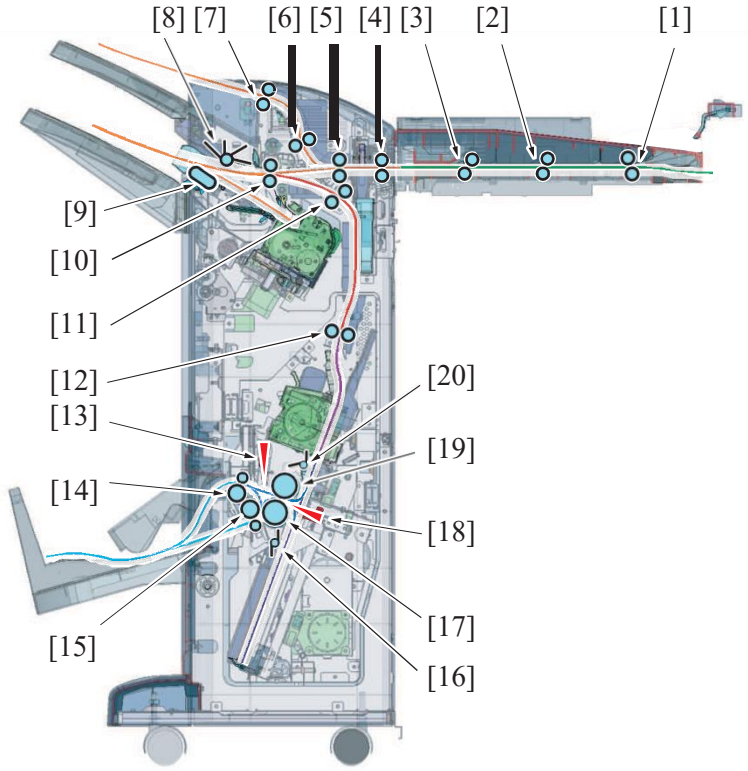
[1]	Saddle stitcher paper feed section	[2]	Center folding stacker CD alignment section
[3]	Center folding stacker FD alignment section	-	-

(2) Folding section



[1]	Center staple unit	[2]	Folding section (center folding section/tri-folding section)
[3]	Saddle tray	-	-

Main roller configuration



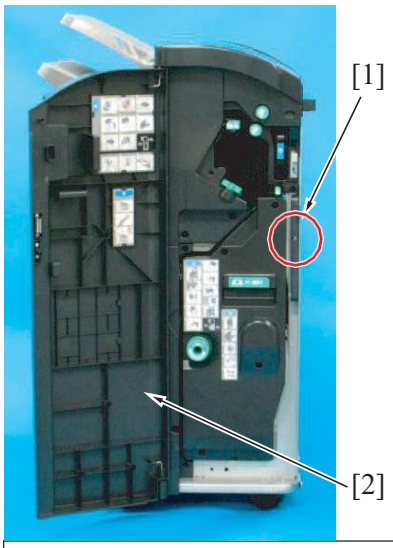
[1]	RU section horizontal transport roller/1	[2]	RU section horizontal transport roller/2
[3]	RU section paper feed roller/3	[4]	FNS section paper feed roller
[5]	FNS section transport roller	[6]	Sub tray section vertical transport roller
[7]	Sub tray section exit roller	[8]	Exit section upper paddle
[9]	Exit section lower paddle	[10]	Receiving roller
[11]	FNS section exit roller	[12]	Saddle section paper feed roller
[13]	Tri-folding knife	[14]	Saddle section exit roller
[15]	Tri-folding roller	[16]	Center folding section lower paddle
[17]	Center folding roller/2	[18]	Center folding knife
[19]	Center folding roller/1	[20]	Center folding section upper paddle

FNS SECTION

Door open/close detection mechanism

Front door open/close detection mechanism

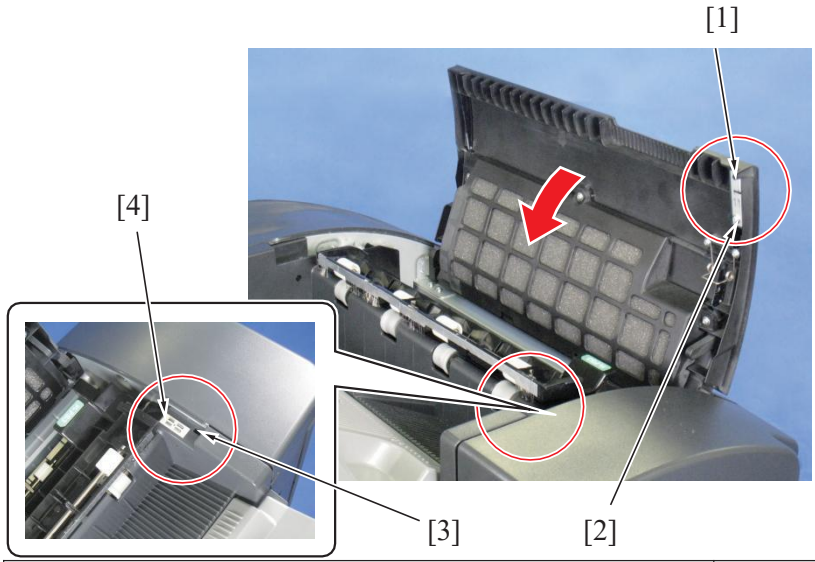
- The front door open detect switch installed at the front right of the FNS section detects open/close of the finisher's front door.
- Open the front door, the warning screen will display on the control panel. All the setting operations and jobs are disabled while the warning screen is displayed. The printing job is interrupted, and the paper being transported causes a paper misfeed. The warning screen can be cancelled by closing the door.



[1]	Front door open detect switch (SW1)	[2]	Front door

Upper door open/close detection mechanism

- The upper cover open/close detection sensor is installed at the front left of the FNS section to detect open/close of the finisher upper door.
- Open the upper door, the warning screen will display on the control panel. All the setting operations and jobs are disabled while the warning screen is displayed. The printing job is interrupted, and the paper being transported causes a paper misfeed. The warning screen can be cancelled by closing the door.

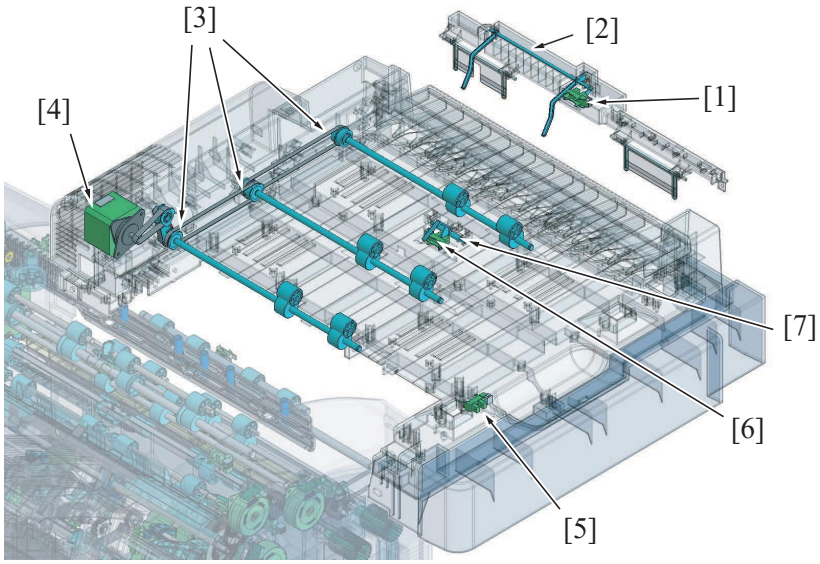


[1]	Upper door open/close detection lever	[2]	Upper door lock plate
[3]	Upper cover open/close detection sensor (PS32)	[4]	Upper door lock magnet

RU SECTION (RU-513)

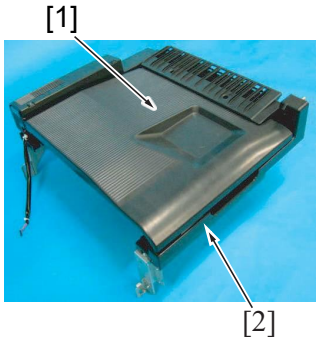
Configuration

- The RU section (horizontal transport section) transfers paper that is fed out from the MFP paper exit section to an optional finisher paper feed section.
- The RU door is installed at the upper part of the RU section. Access to the horizontal transport roller is enabled by opening the door upward. To be used for periodical cleaning of the roller and dealing with the paper misfeed at the RU section and other necessary operations.



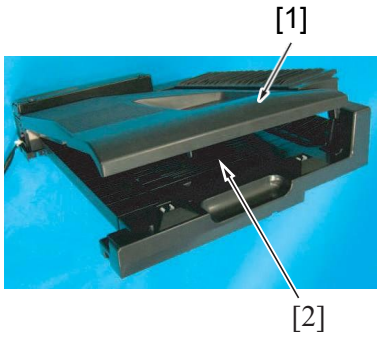
[1]	3rd exit tray full sensor (PS1): Exit section of MFP	[2]	3rd exit tray full sensor actuator: Exit section of MFP
[3]	RU section horizontal transport roller	[4]	RU transport motor (M1)
[5]	RU cover open/close detection sensor (PS3)	[6]	RU entrance sensor (PS2)
[7]	RU entrance sensor actuator	-	-

3rd tray on the RU section



[1]	3rd tray	[2]	Relay unit RU-513

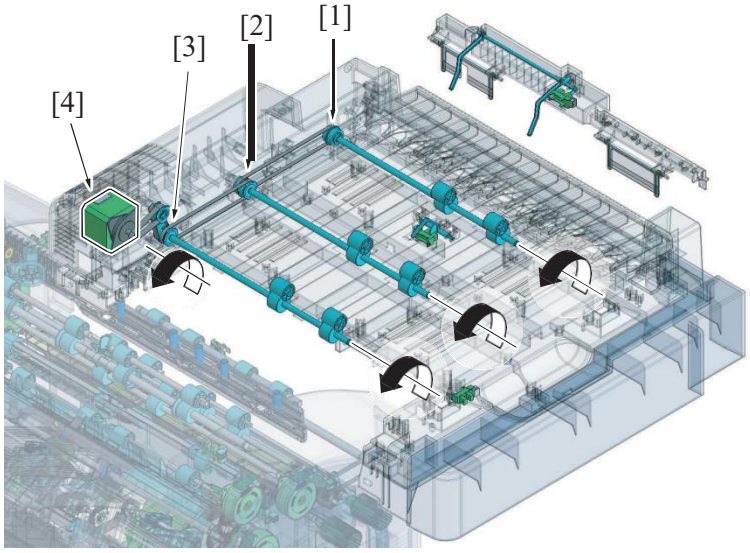
RU section door is opened



[1]	RU section door	[2]	Horizontal transport section

Drive

- The RU transport motor drives the RU section. It drives three RU section horizontal transport roller.
- The RU section horizontal transport roller is driven using the drive belt.



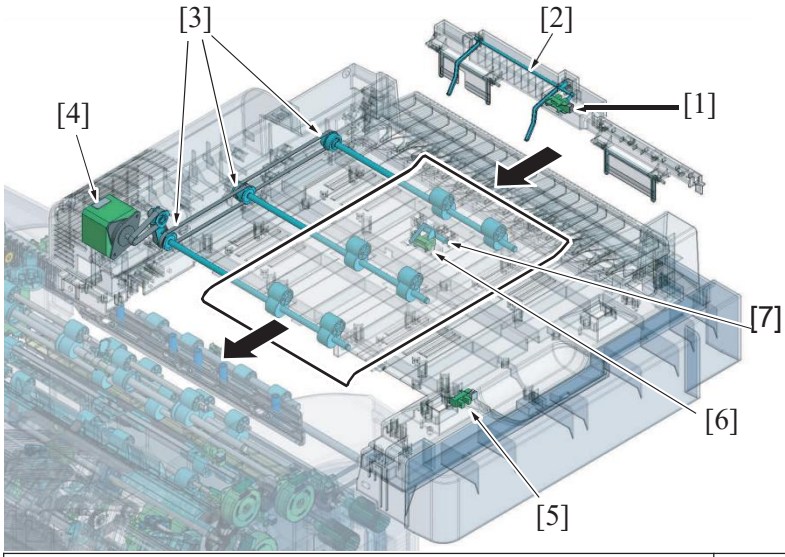
[1]	RU section horizontal transport roller/1	[2]	RU section horizontal transport roller/2
[3]	RU section horizontal transport roller/3	[4]	RU transport motor (M1)

Operation

Paper transport control

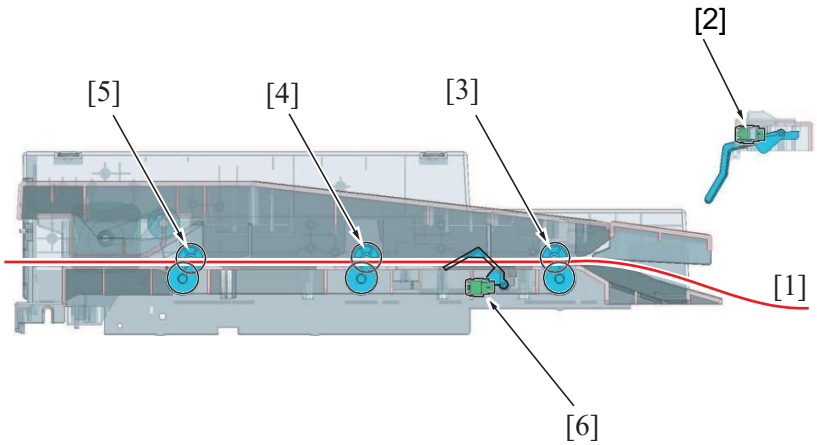
- It transports the paper that is discharged from the lower exit of the MFP paper exit section, to the RU section with the feed guide.
- It transports the paper to the FNS section, using three RU section horizontal transport rollers.
- The RU entrance sensor actuator is installed downstream of the paper path of the RU section horizontal transport roller/1, and the RU entrance sensor detects the paper transportation status.

Perspective view



[1]	3rd exit tray full sensor (PS1)	[2]	3rd exit tray full sensor actuator
[3]	RU section horizontal transport roller	[4]	RU transport motor (M1)
[5]	RU cover open/close detection sensor (PS3)	[6]	RU entrance sensor (PS2)
[7]	RU entrance sensor actuator	-	-

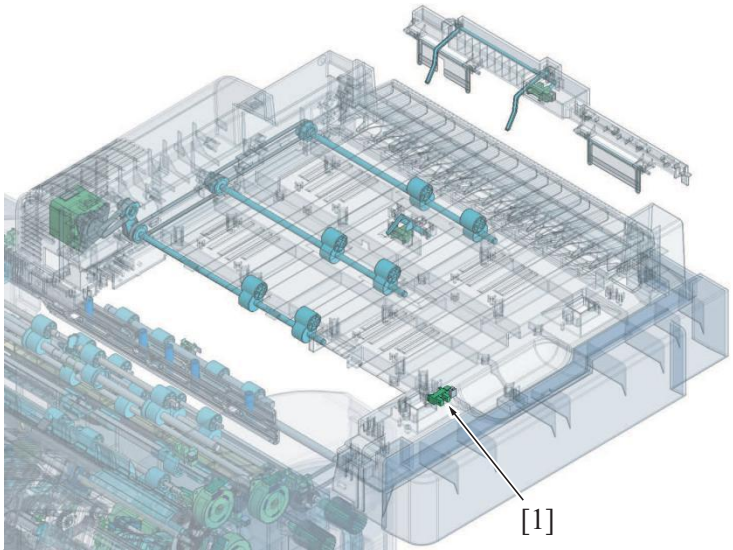
Front view



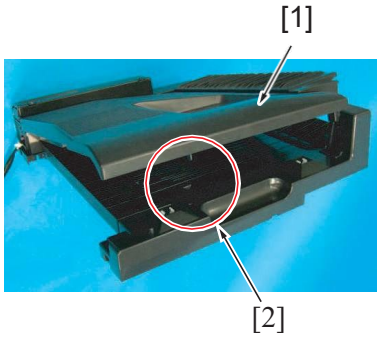
[1]	Paper	[2]	3rd exit tray full sensor (PS1)
[3]	RU section horizontal transport roller/1	[4]	RU section horizontal transport roller/2
[5]	RU section horizontal transport roller/3	[6]	RU entrance sensor (PS2)

RU section door open/close detection mechanism

- The RU cover open/close detection sensor installed at the front left of the RU section, detects open/close of the RU door.
- Opening the RU door, the warning screen will display on the control panel. All the setting operations and jobs are disabled while the warning screen is displayed. The printing job is interrupted, and the paper being transported causes paper misfeed. The warning screen can be cancelled by closing the door.



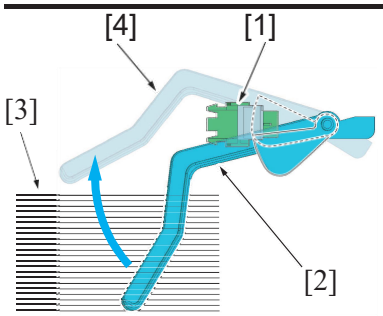
[1]	RU cover open/close detection sensor (PS3)	-	-



[1]	RU door	[2]	RU cover open/close detection sensor (PS3)

3rd exit tray full detection mechanism

- When a predetermined quantity of paper is discharged to the 3rd exit tray, the 3rd exit tray full sensor actuator will be pushed up by the discharged paper. When the actuator is pushed up to the predetermined position, the 3rd exit tray full sensor will be blocked by the actuator to detect the exit tray full.
- The 3rd tray full is detected, the warning screen will display on the control panel. All setting operations and jobs will be disabled when the warning message is displayed on the screen. The warning screen will be released by removing the paper on the 3rd exit tray.

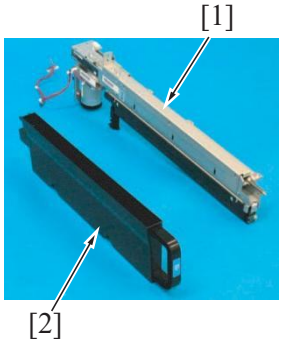


[1]	3rd exit tray full sensor (PS1)	[2]	3rd exit tray full sensor actuator (no paper)
[3]	Paper	[4]	3rd exit tray full sensor actuator (exit tray full)

PUNCH SECTION (PK-520)

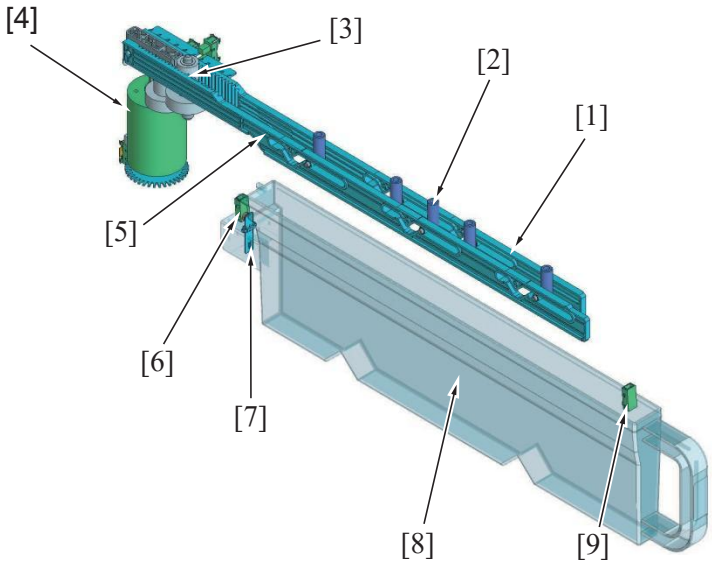
Configuration

- The punch function can be added to the finishing mode by installing the optional punch kit PK-520 to the finisher FS-534.
- At the punch section, the holes are punched at the trailing edge of the paper, transported from the RU section (horizontal transport section) when the paper is fed into the FNS section (finisher section). Holes are punched sheet by sheet.
- The punch kits for North America, Europe, and other market areas have the configuration to switch the number of punch holes.
  NOTE
  - **2-hole punch kits and 4-hole punch kits do not have the function to switch the number of punch holes.**
  - **"Finishing" cannot be selected using a different punch kit. (Example: The three-hole punch mode cannot be selected when the 4-hole punch kit is installed.)**
- Punch dust generated by punching is received in the punch dust box.
- The paper with punched holes is transported to the transport section from the punch section.
- When the punch holes are not specified at "Finishing", the paper is transported to the transport section from the FNS paper feed section without punching holes.

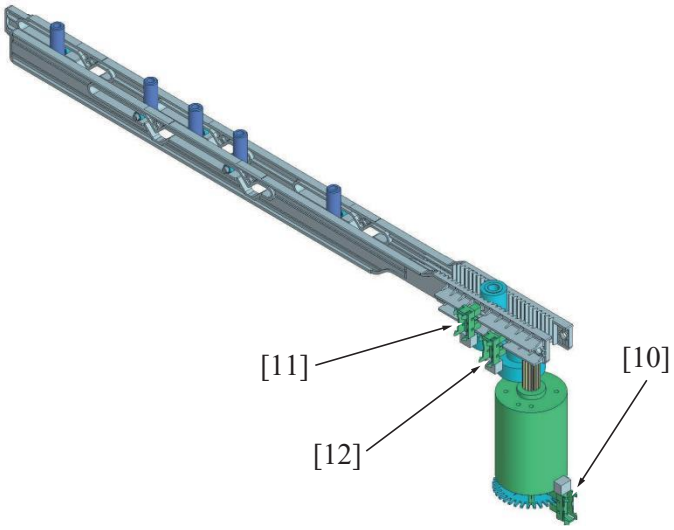


[1]	Punch unit	[2]	Punch dust box

Front view



Rear view

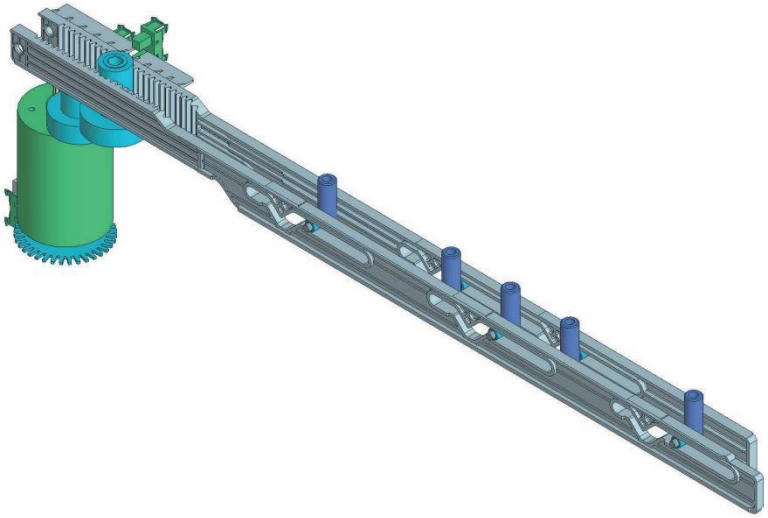


[1]	Puncher frame 1 *1	[2]	Puncher *2
[3]	Puncher drive gear	[4]	Punch drive motor (M1)
[5]	Puncher frame 2 *3	[6]	Punch dust full sensor/in (PS5)
[7]	Punch dust full sensor actuator	[8]	Punch dust box
[9]	Punch dust full sensor/out (PS4)	[10]	Punch motor sensor (PS3)
[11]	Punch home sensor (PS1)	[12]	Punch position sensor (PS2)

- *1: The shape of the puncher frame is varied depending on the type of punch kit.
- *2: The number of the puncher is varied depending on the type of punch kit.
- *3: The shape of the puncher frame is varied depending on the type of punch kit. 2 holes punch kit does not have the puncher frame 2.

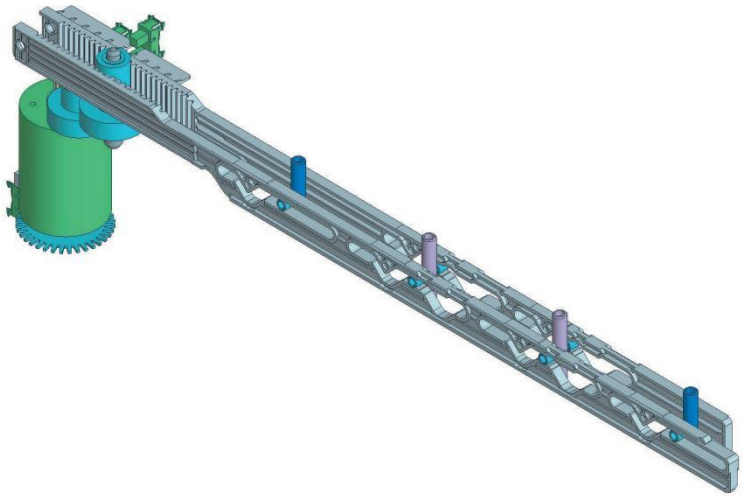
Punch kit type

2 holes/3 holes kit (Selectable the hole number)



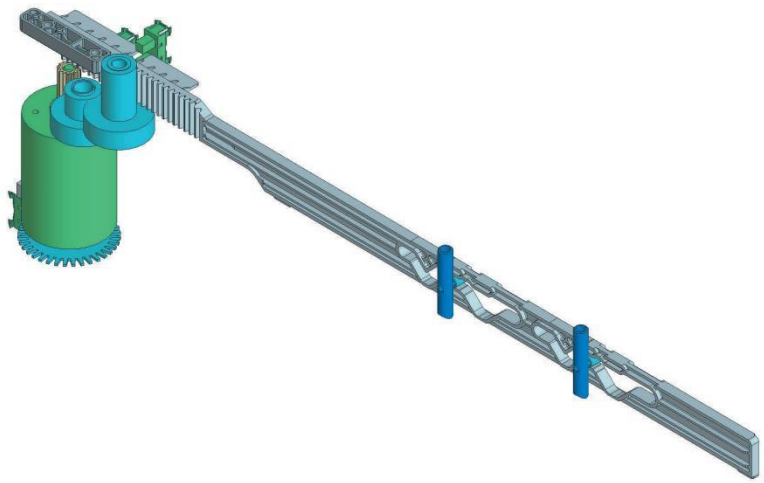
- Attachable marketing area: Europe, US, Others 1-5

2 holes/4 holes kit (Selectable the hole number)



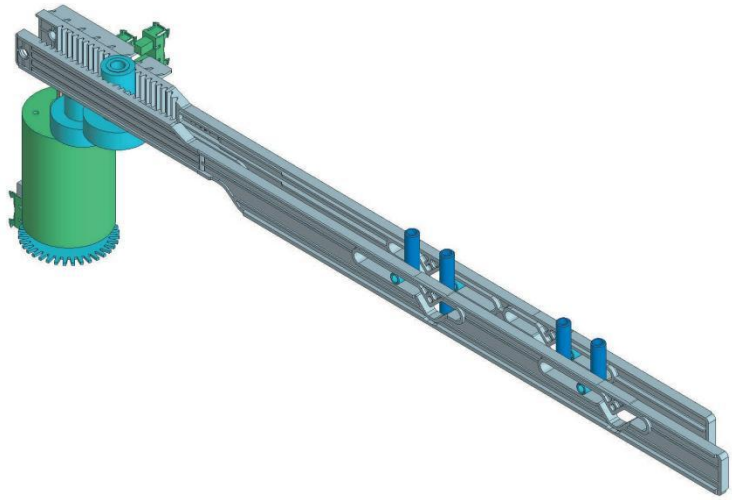
- Attachable marketing area: Europe, US, Others 1-5

2 holes punch kit



- Attachable marketing area: Japan

4 holes punch kit

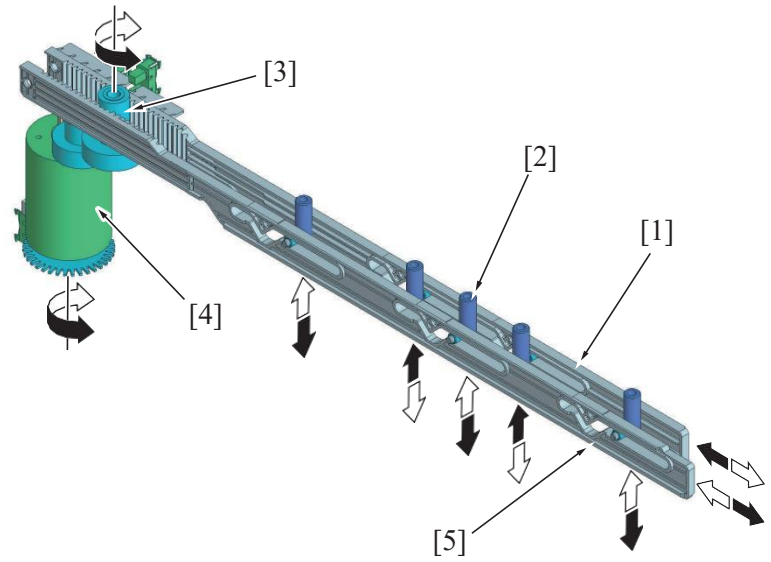


- Attachable marketing area: Europe

Drive

- The drive source for the punch section is the punch drive motor. The puncher frame is driven in forward/reverse direction by rotating the punch drive motor in forward/reverse direction.
- When the puncher frame moves in forward/reverse direction, the puncher moves up/down by the cam of the puncher frame to punch the holes on the paper.
- Puncher frame 1 and the puncher frame 2 have cams with different shapes. It enables the puncher to move up/down at different timings.
- When the puncher drive gear rotates clockwise, the puncher frame 1 shifts to the front side, and the puncher frame 2 shifts to the back side. When the puncher drive gear rotates counter-clockwise, the puncher frame 1 shifts to the back side, and the puncher frame 2 shifts to the front side. The puncher connected to the puncher frame then moves up/down with the cam. Switching the forward/reverse direction of the punch drive motor, switches the number of punch holes.

Front view



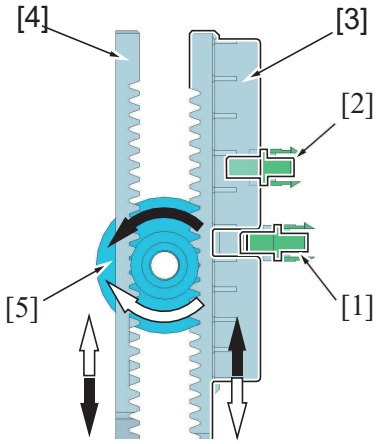
[1]	Puncher frame 1 *1	[2]	Puncher *2
[3]	Puncher drive gear	[4]	Punch drive motor (M1)
[5]	Puncher frame 2 *1	-	-

- *1: The shape of the puncher frame is varied depending on the type of punch kit.
- *2: The number of the puncher is varied depending on the type of punch kit.

NOTE

- **The illustration explains with an example for "2-holes/3-holes kit".**
- **With "2 holes/3 holes kit", the 2-holes puncher moves down when the puncher drive gear rotates clockwise. When the puncher drive gear rotates counter-clockwise, the 3-holes puncher moves down. The number of the punch holes is switched by the same configuration for "2-holes/4-holes kits".**
- **The "2-holes kit" and the "4-holes kit" do not have the punch hole switching function.**

Upper view

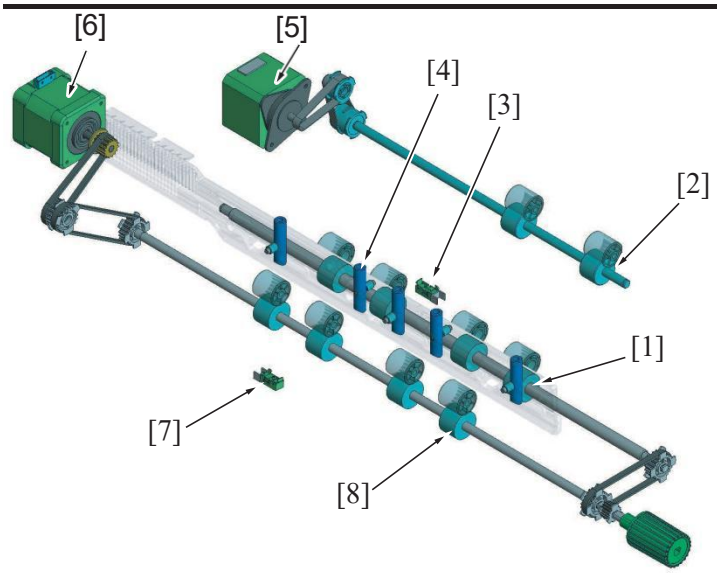


[1]	Punch home sensor (PS1)	[2]	Punch position sensor (PS2)
[3]	Puncher frame 1	[4]	Puncher frame 2
[5]	Puncher drive gear	-	-

Operation

Skew correction mechanism

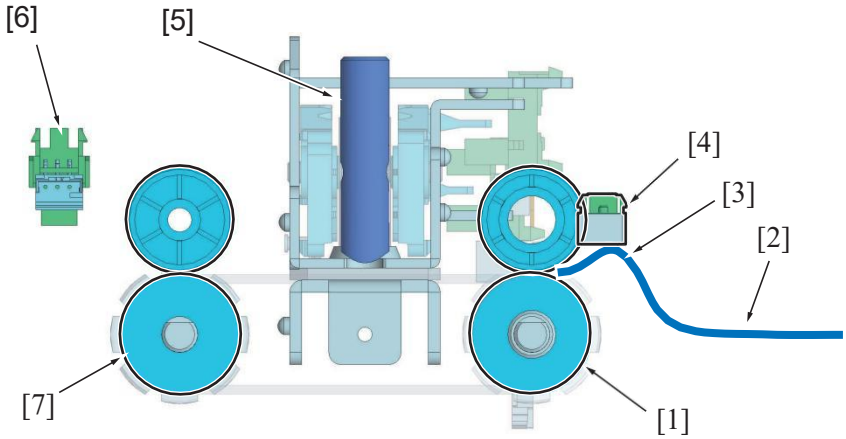
- When punching holes, punch resist loop is formed upstream of FNS section transport roller/1 to remove the skew of the paper.



[1]	FNS section paper feed roller	[2]	RU section horizontal transport roller/3
[3]	FNS entrance sensor (PS4)	[4]	Puncher
[5]	RU transport motor (M1)	[6]	FNS entry transport motor (M2)
[7]	Main tray exit sensor (PS16)	[8]	FNS section transport roller

Skew correction process

1. The paper is transported to the FNS section (finisher section) by the RU transport motor driving the RU section horizontal transport roller/3.
2. When the leading edge of the paper reaches to the FNS section paper feed roller, it is detected by the FNS entrance sensor.
3. The paper is pressed to the FNS section paper feed roller which is at a halt to form the loop at the leading edge of the paper to remove the skew of the paper.
4. The FNS entry transport motor is turned ON when the specified period of time has passed after the leading edge of the paper turns the FNS entrance sensor ON, to start rotating the FNS section paper feed roller and the FNS section transport roller.
5. The paper which skew is removed is transported to the punch section by the FNS section paper feed roller, and then stop the specified position.
6. The holes are punched by the puncher.
7. The punched paper is transported to inside the transport section by the FNS section transport roller.



[1]	FNS section paper feed roller	[2]	Paper
[3]	The resist loop is created at the leading edge of the paper	[4]	FNS entrance sensor (PS4)
[5]	Puncher	[6]	Main tray exit sensor (PS16)
[7]	FNS section transport roller	-	-

(1) Punch Regist Loop Size Adjustment function

- Then the punch holes tilt, punch resist value for the Service Mode can be adjusted to adjust the punch holes.
- Punch resist value (resist loop value) changes by changing the timing the FNS section paper feed roller starts rotating. Tilt of the punch holes can be adjusted by removing the skew of the paper at the resist loop.
- For details of the adjustment procedures, see “Service Mode/Finisher/FS-FN adjustment/Punch Registration Loop Adj.”

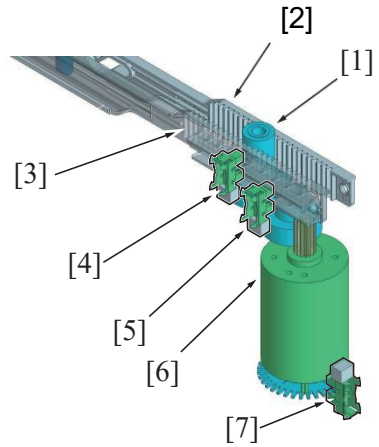
(a) Setting range

- -4.0 to +4.0

Puncher up/down status detection configuration

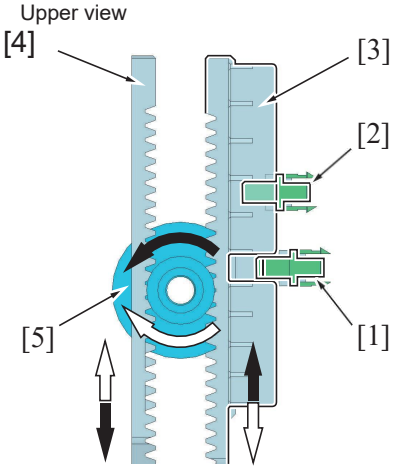
- When the puncher drive gear rotates clockwise, the puncher frame 1 shifts to the front side, and the puncher frame 2 shifts to the back side. When the puncher drive gear rotates counter-clockwise, the puncher frame 1 shifts to the back side, and the puncher frame 2 shifts to the front side. The puncher connected to the puncher frame then moves up/down with the cam. Switching the forward/reverse direction of the punch drive motor, switches the number of punch holes.
  PD.6.2 Drive
- Puncher frame 1 has two light-blocking plates to detect the position of the puncher frame.
- The punch drive motor has a round light-blocking plate and the puncher motor sensor on the same shaft to detect the rotation value (pulse) of the punch drive motor.
- The Up/down status of the puncher is detected by the coordination input from the puncher position sensor, punch home sensor, and the punch motor sensor.

Rear view



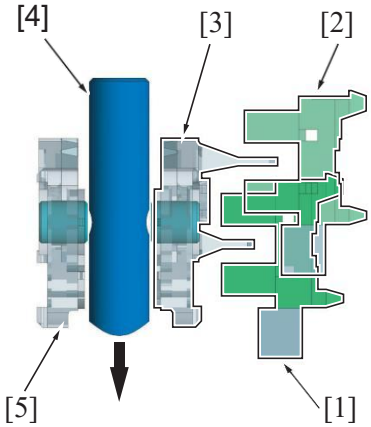
[1]	Puncher drive gear	[2]	Puncher frame 2
[3]	Puncher frame 1	[4]	Punch home sensor (PS1)
[5]	Punch position sensor (PS2)	[6]	Punch drive motor (M1)
[7]	Punch motor sensor (PS3)	-	-

Upper view



[1]	Punch home sensor (PS1)	[2]	Punch position sensor (PS2)
[3]	Puncher frame 1	[4]	Puncher frame 2
[5]	Puncher drive gear	-	-

Front view



[1]	Punch position sensor (PS2)	[2]	Punch home sensor (PS1)
[3]	Puncher frame 1	[4]	Puncher
[5]	Puncher frame 2	-	-

Punch operation noise suppression

(1) Sound-absorbing material for punching operation

- A sound-absorbing material is installed inside the finisher upper door.
- It absorbs noises that are generated during punch operation with the punch unit to suppress it from being leaked out of the machine.



[1]	Upper door	[2]	Sound-absorbing material*

- ***: The sound-absorbing material does not require to be replaced on a regular basis.**

(2) Punching operation noise suppression control

- The punching force of the punch motor is controlled in accordance with the thickness of the paper (paper weight).
- It suppresses noises that are generated during plain paper punching operation with the punch unit.
- Use 100% punching force for punching thick paper. Use 60% punching force for punching paper other than thick paper. Thus, it reduces the operation noise during paper punching.

NOTE

- **The punching operation noise reduction control can be disabled when the Engine FW DipSW switch No. 17 is turned to Off. For details on setting, see Engine FW DipSW .**

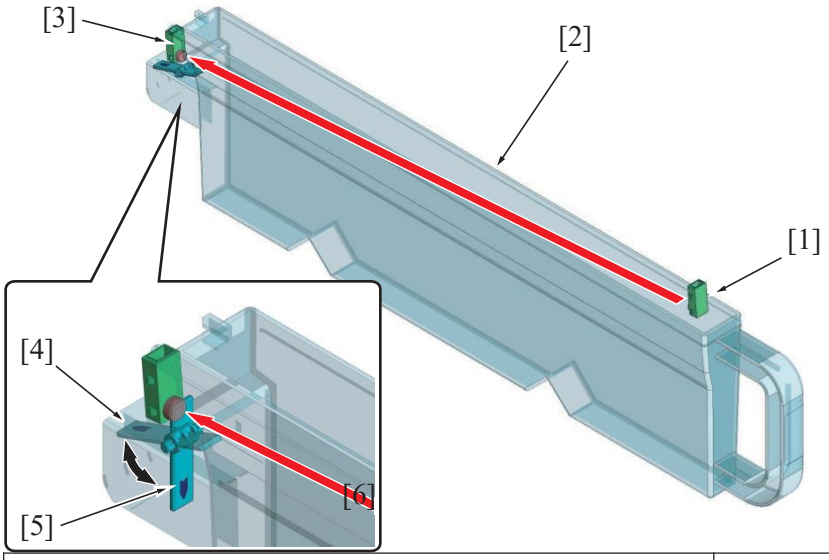
Punch dust box full detection mechanism

- Punch dust created by punching holes on the paper, is collected in the punch dust box.
- The punch unit has a sensor to detect a punch dust full condition at the front side (emission) and the back side (receiving). The sensor detects the status of the punch dust.
- When the punch dust is accumulated inside the punch dust box, the sensor light on punch dust full sensor/out side is interfered by the punch dust. The punch dust box is determined to be full when the sensor light is blocked. A message is displayed on the control panel to indicate a "punch dust full" condition when a punch dust box full is detected.

NOTE

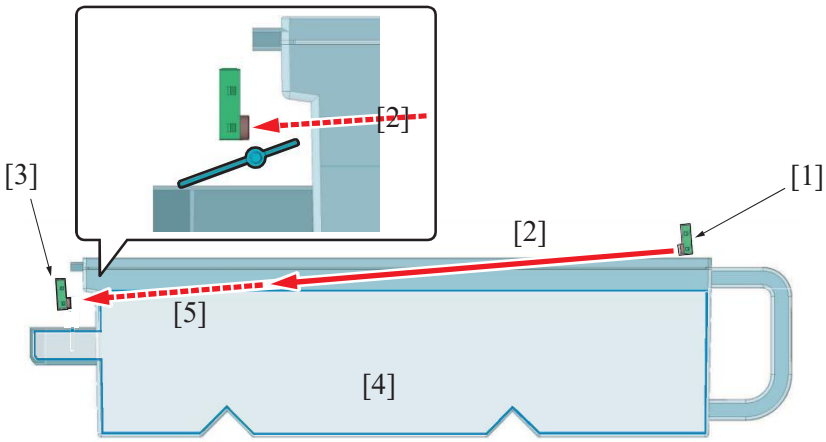
- **When the punch dust box is removed, the sensor light on punch dust full sensor/out side is blocked by the actuator on the punch unit. When the front door is closed is point and the punch job is set a message is displayed on the control panel to indicate a "Punch dust full" condition.**
- **When the empty punch dust box is installed, the sensor light blocked by the actuator, reaches punch dust full sensor/in, and the "punch dust full" message on the control panel disappears.**

Front view



[1]	Punch dust full sensor/out (PS4)	[2]	Punch dust box
[3]	Punch dust full sensor/in (PS5)	[4]	Actuator (Punch dust box is installed position)
[5]	Actuator (Punch dust box is not installed position)	[6]	Sensor light

Side view



[1]	Punch dust full sensor/out (PS4)	[2]	Sensor light
[3]	Punch dust full sensor/in (PS5)	[4]	Punch dust (full detection level)
[5]	Punch dust blocked the sensor light	-	-

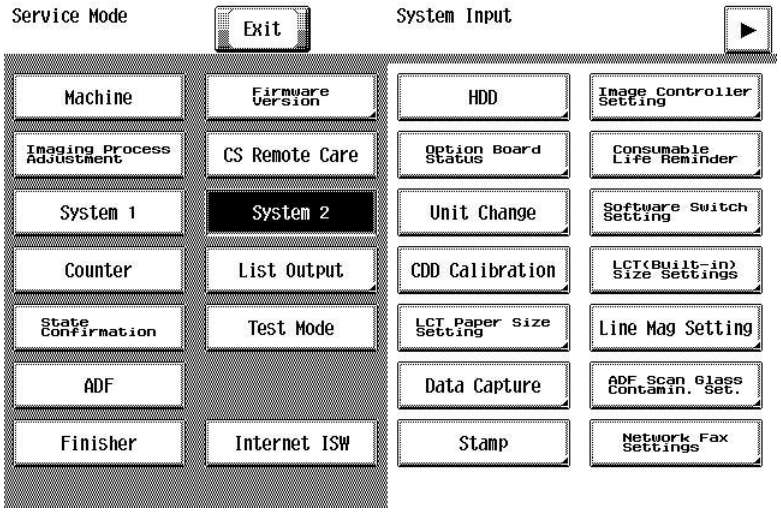
Punch dust full message: typical



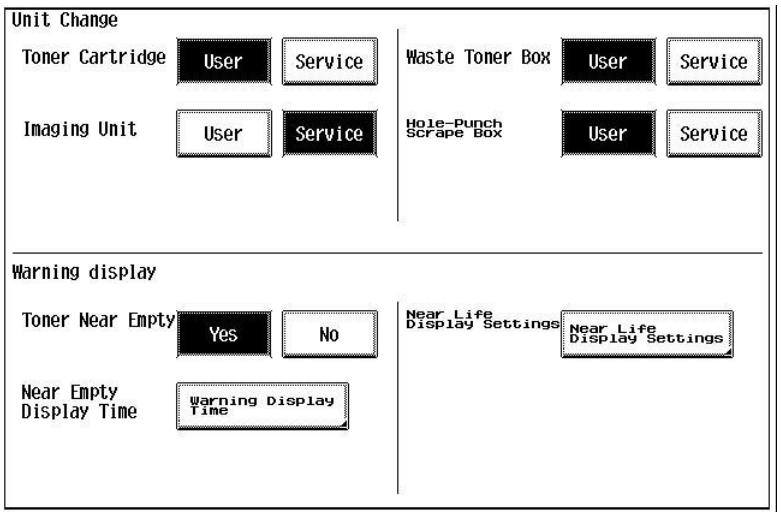
(1) Unit change function

- The screen to be displayed when a punch dust full is detected can be enabled or disabled in the “Unit Change” in the Service Mode.

Service Mode/System screen: typical



System 2/Unit Change screen: typical



NOTE

- **The Service Mode screen display, details, menus, and default settings may change when the FS-534 is installed to the MFP.**
- **For details of the Service Mode, see “Unit Change”.**

TRANSPORT SECTION

Configuration

Paper path

- The transport section transports the paper from the RU section (horizontal transport section) to the three paper paths within the FNS section (finisher section).

(1) Paper path to the sub tray

- The paper path switching gate, moves the paper transported from the RU section to the sub tray paper path to discharge the paper to the sub tray.

NOTE

- **The paper is directly discharged to the sub tray without passing through the alignment and exit sections. If "Sub Tray" is selected as exit tray for a print job, the offset option (sort/group/staple) is unavailable.**

(2) Paper path to the main tray

- The paper path switching gate moves the paper transported from the RU section to the main tray paper path. The paper passes through the alignment and exit sections, and then moves to the main tray.

(3) Paper path to the saddle section

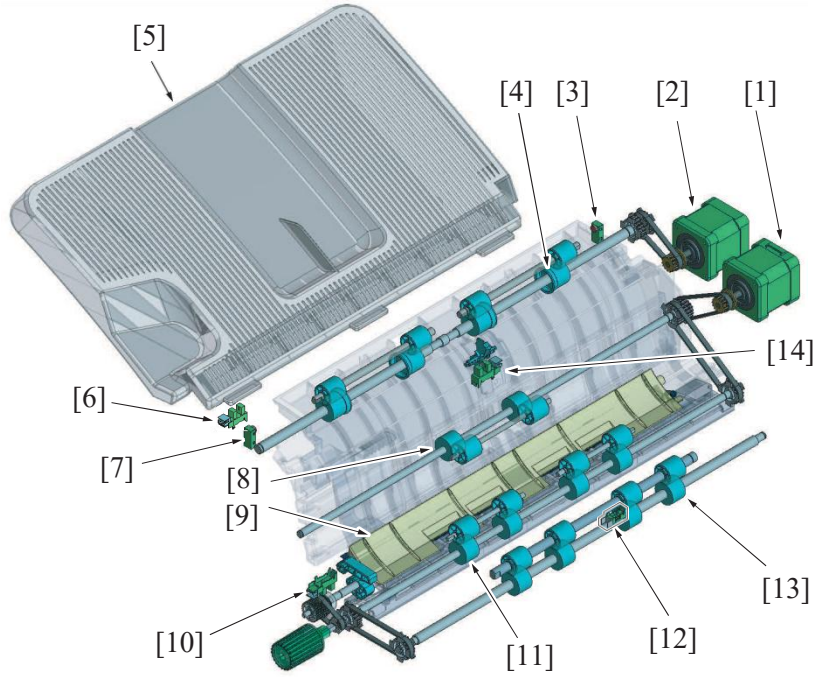
NOTE

- **FS-534SD only**

- The paper path switching gate moves the paper transported from the RU section to the main tray paper path. Switchback of the paper is done at the transport section and then the paper passes through the vertical transport section, and moves to the saddle section.

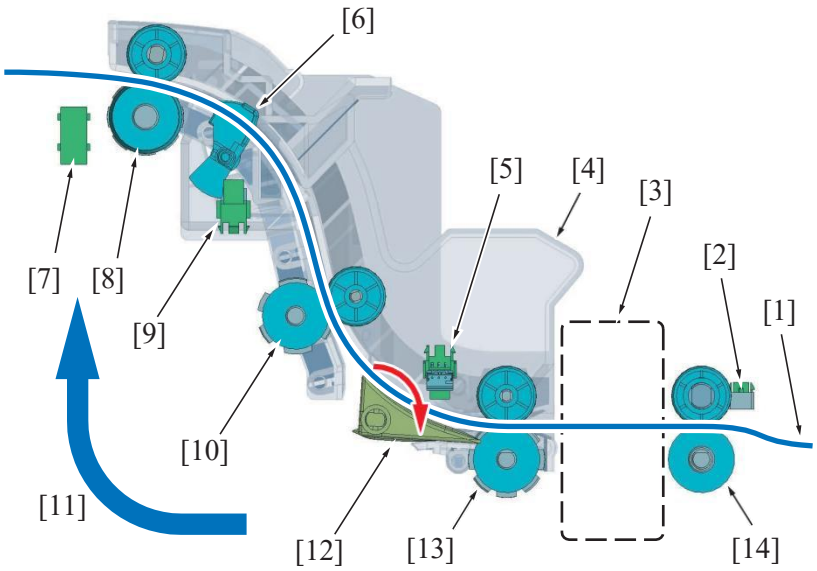
Paper feed section - sub tray section

Front perspective view



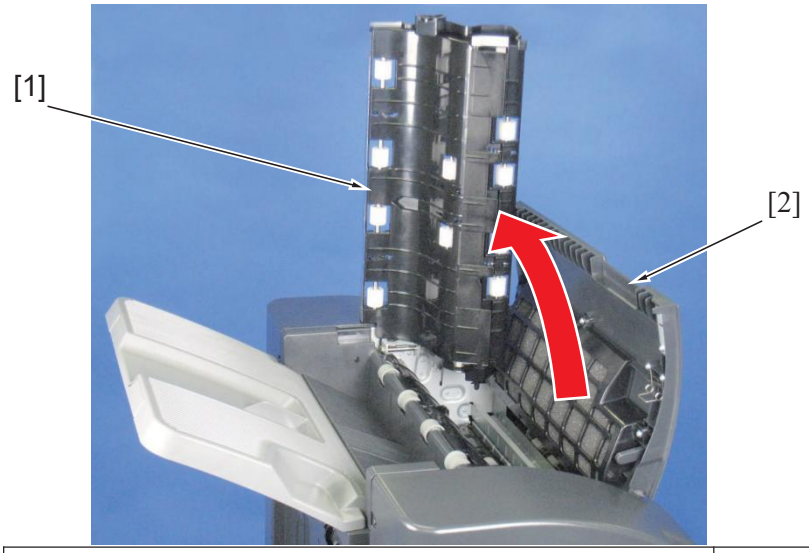
[1]	FNS entry transport motor (M2)	[2]	FNS discharge motor (M3)
[3]	Sub tray full detection sensor/out (PS9)	[4]	Sub tray section exit roller
[5]	Sub tray	[6]	Upper cover open/close detection sensor (PS32)
[7]	Sub tray full detection sensor/in (PS10)	[8]	Sub tray section vertical transport roller
[9]	Paper path switching gate	[10]	Exchange folded paper output sensor (PS30)
[11]	FNS section transport roller	[12]	FNS entrance sensor (PS4)
[13]	FNS section paper feed roller	[14]	Sub tray exit sensor (PS8)

Front view



[1]	Paper path	[2]	FNS entrance sensor (PS4)
[3]	Punch kit PK-520	[4]	Jam removal cover (sub tray transport route)
[5]	Exchange folded paper output sensor (PS30)	[6]	Sub tray exit sensor actuator
[7]	Sub tray full detection sensor	[8]	Sub tray section exit roller
[9]	Sub tray exit sensor (PS8)	[10]	Sub tray section vertical transport roller
[11]	Paper feeding direction	[12]	Paper path switching gate (lower position)
[13]	FNS section transport roller	[14]	FNS section paper feed roller

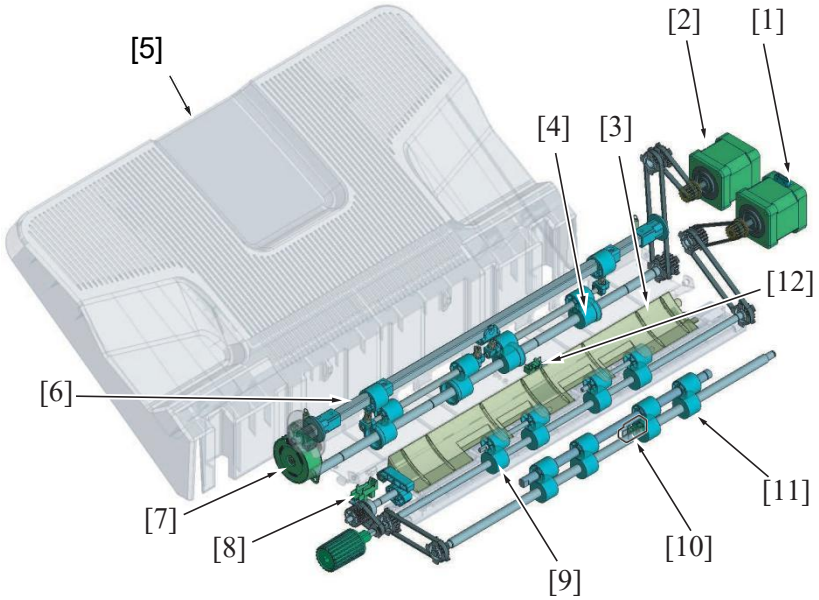
Exterior view



[1]	Jam removal cover	[2]	Upper door

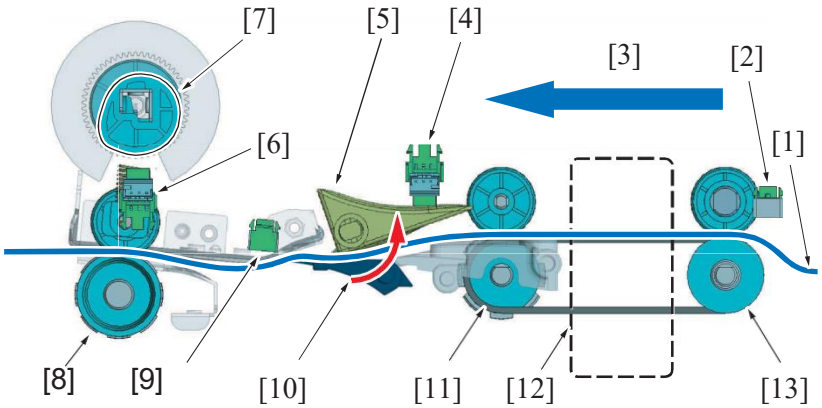
Paper feed section - main tray section

Front perspective view



[1]	FNS entry transport motor (M2)	[2]	FNS discharge motor (M3)
[3]	Paper path switching gate	[4]	Receiving roller
[5]	Main tray	[6]	Receiving roller pressure cam
[7]	Receiving roller retraction motor (M4)	[8]	Exchange folded paper output sensor (PS30)
[9]	FNS section transport roller	[10]	FNS entrance sensor (PS4)
[11]	FNS section paper feed roller	[12]	Main tray exit sensor (PS16)

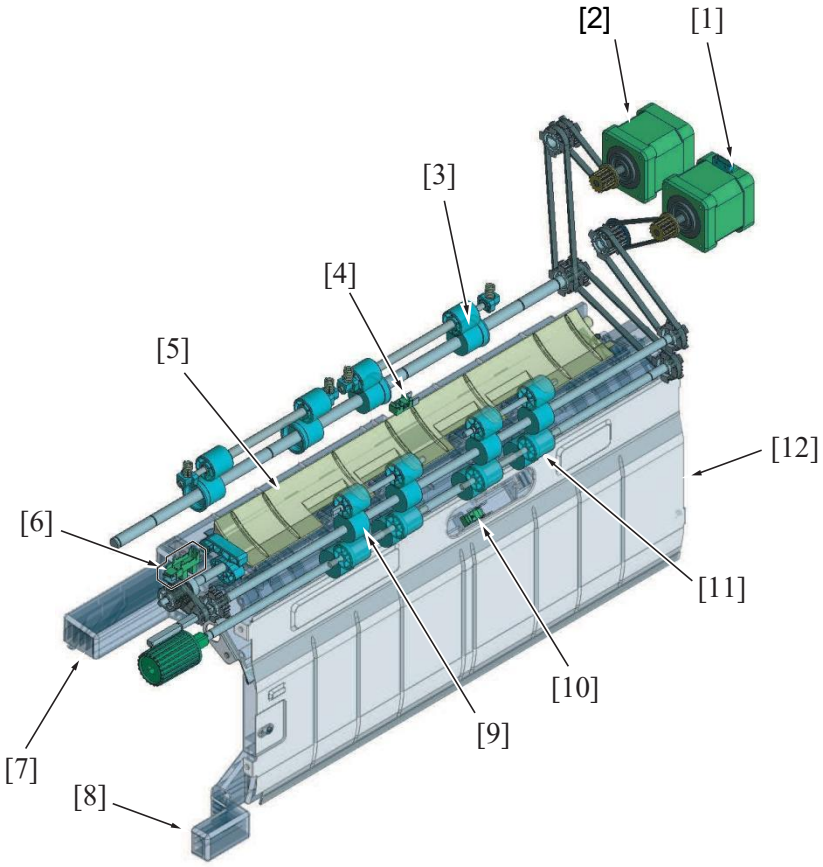
Front view



[1]	Paper path	[2]	FNS entrance sensor (PS4)
[3]	Paper feeding direction	[4]	Exchange folded paper output sensor (PS30)
[5]	Paper path switching gate (upper position)	[6]	Receiving roller retraction sensor (PS11)
[7]	Receiving roller pressure cam	[8]	Receiving roller
[9]	Main tray exit sensor (PS16)	[10]	Movable paper guide
[11]	FNS section transport roller	[12]	Punch kit PK-520
[13]	FNS section paper feed roller	-	-

Main tray section - saddle section

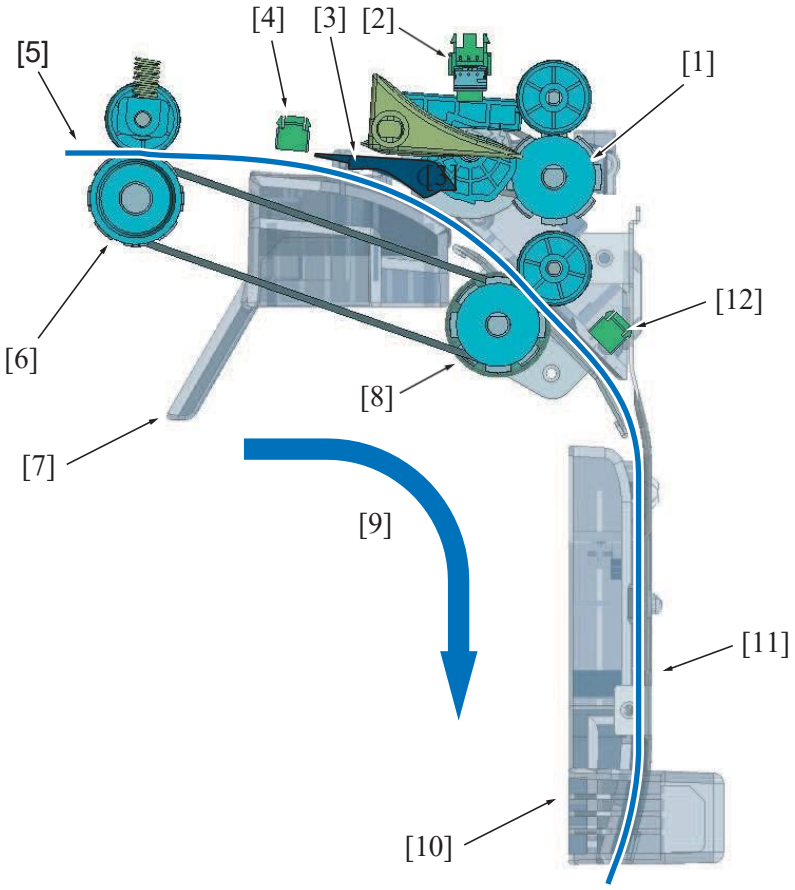
Front perspective view



[1]	FNS entry transport motor (M2)	[2]	FNS discharge motor (M3)
[3]	Receiving roller	[4]	Main tray exit sensor (PS16)
[5]	Paper path switching gate	[6]	Exchange folded paper output sensor (PS30)
[7]	Jam removal cover (horizontal transport section)	[8]	Jam removal cover (vertical transport section)*1
[9]	FNS section transport roller	[10]	Saddle exit sensor (PS5)
[11]	FNS section exit roller	[12]	FNS section vertical transport guide

- *1: FS-534SD only

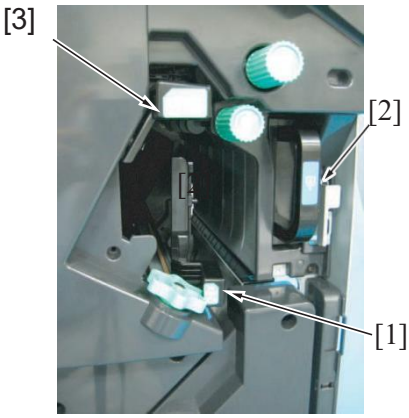
Front view



[1]	FNS section transport roller	[2]	Exchange folded paper output sensor (PS30)
[3]	Movable paper guide	[4]	Main tray exit sensor (PS16)
[5]	Paper path	[6]	Receiving roller
[7]	Jam removal cover (horizontal transport section)	[8]	FNS section exit roller
[9]	Paper feeding direction	[10]	Jam removal cover (vertical transport section)*1
[11]	FNS section vertical transport guide	[12]	Saddle exit sensor (PS5)

- *1: FS-534SD only

Exterior view



[1]	Jam removal cover (vertical transport section) (Open position)	[2]	Punch dust box *1
[3]	Jam removal cover (horizontal transport section) (Close position) *2	-	-

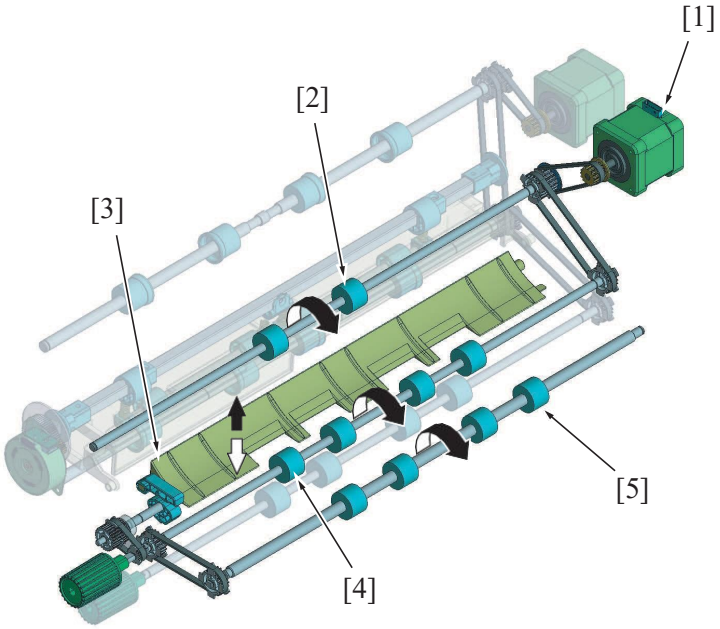
- *1: Only when the PK-520 is added to the finisher.
- *2: FS-534SD only

Drive

The driving source of the FNS section is the FNS entry transport motor, FNS discharge motor, and receiving roller retraction motor, and the following parts are driven.

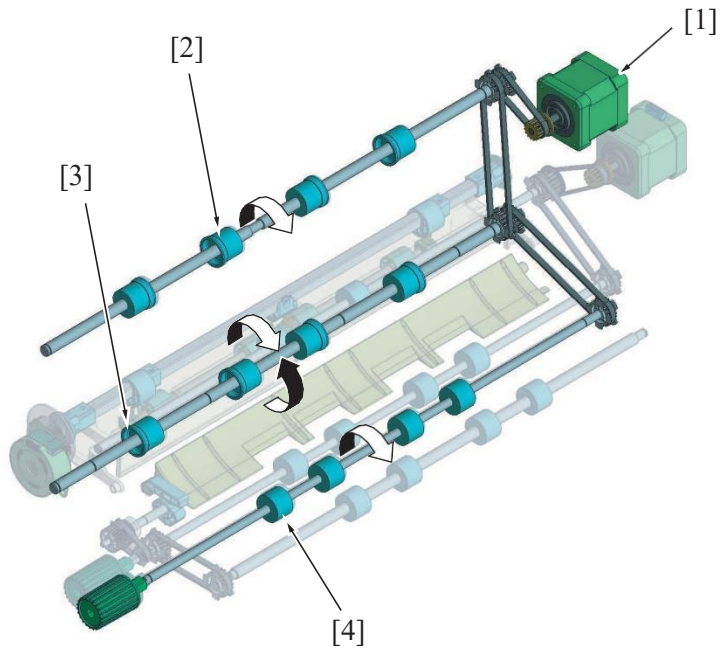
Driving source	Driving parts	Functions
FNS entry transport motor (M2)	FNS section paper feed roller	Feeds paper to the FNS section
	FNS section vertical transport roller	Transports paper to each paper path in the FNS section.
	Paper path switching gate	Switches paper path by the paper path switching gate up/down movement triggered by the cam.
	Sub tray section vertical transport roller	Transports paper to the sub tray section exit roller. (sub tray paper path)
FNS discharge motor (M3)	Sub tray section exit roller	Transports paper to the sub tray. (sub tray paper path)
	Receiving roller	• Normal rotation: Transports paper to alignment section. (main tray paper path) • Reverse rotation: Transports paper to the saddle section. (saddle section paper path)
	FNS section exit roller	Transports paper from the alignment section to the saddle section via the switchback. (saddle section paper path)
Receiving roller retraction motor (M4)	Receiving roller pressure roll	The receiving roller pressure roll is moved up/down by the cam. (main tray paper path) • When the pressure roll is lowered, the paper on the receiving roller is pressed against the receiving roller. When the receiving roller rotates in the normal direction, the paper is transported to the alignment section. When the receiving roller rotates reversely, the paper is switched back through the transport path to the saddle section. • When the pressure roll moves up, the paper on the receiving roller is released. The paper is not transported and brought into a standby state.

FNS entry transport motor



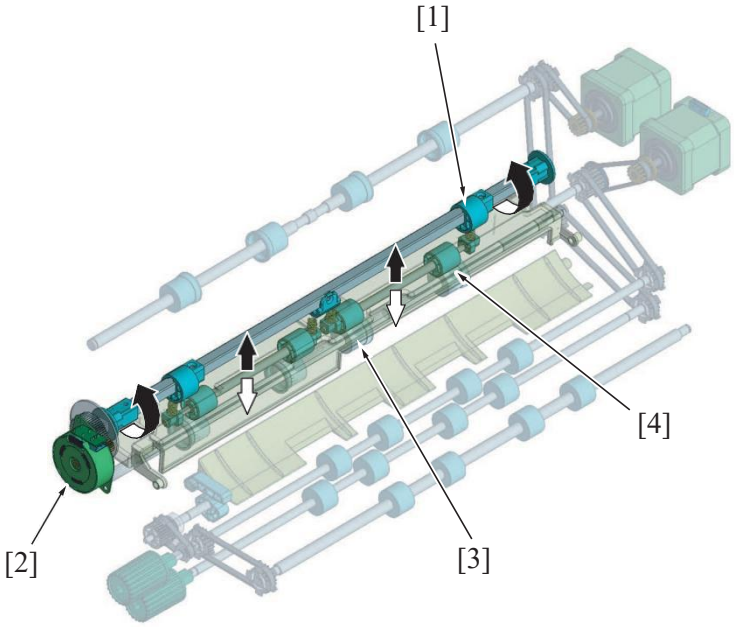
[1]	FNS entry transport motor (M2)	[2]	Sub tray section vertical transport roller
[3]	Paper path switching gate	[4]	FNS section transport roller
[5]	FNS section paper feed roller	-	-

FNS discharge motor



[1]	FNS discharge motor (M3)	[2]	Sub tray section exit roller
[3]	Receiving roller	[4]	FNS section exit roller

Receiving roller retraction motor



[1]	Receiving roller pressure cam	[2]	Receiving roller retraction motor (M4)
[3]	Receiving roller *	[4]	Receiving roller pressure roll

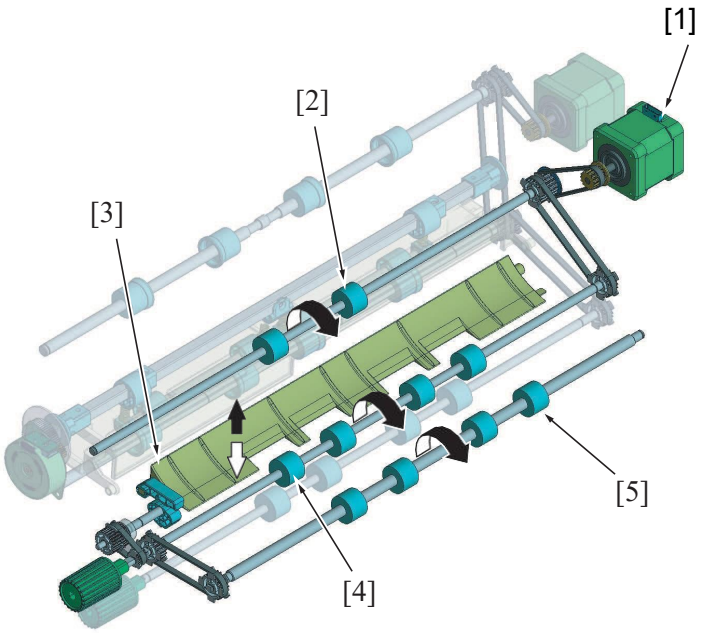
- *: The driving source of the receiving roller is the FNS discharge motor. The driving source of the receiving roller pressure roll is the receiving roller retraction motor.

Operation

Paper path switching mechanism

- Paper path is switched by the up/down operations of the paper path switching gate to transport paper to each tray or the saddle section.
- The up/down operations of the paper path switching gate is driven by the FNS entry transport motor.
- The position of the paper path switching gate is detected by the exchange folded paper output sensor.

Front perspective view

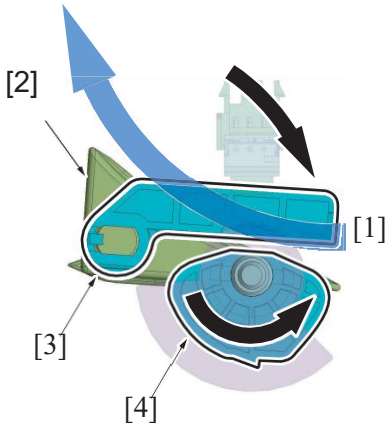


[1]	FNS entry transport motor (M2)	[2]	Sub tray section vertical transport roller
[3]	Paper path switching gate	[4]	FNS section transport roller
[5]	FNS section paper feed roller	-	-

(1) Gate lower position (paper path: sub tray)

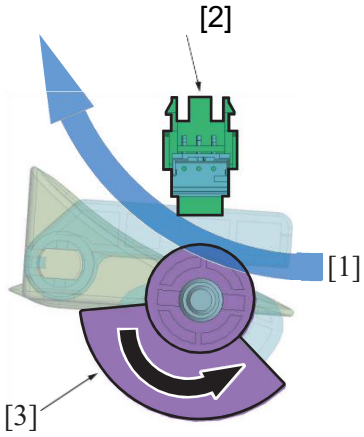
- When the cam rotates, the paper path switching gate moves down to block the paper path to the main tray. The paper passes on the top of the paper path switching gate and is transported to the sub tray.
- When the detection plate located on the shaft, on which the cam is located, rotates, the exchange folded paper output sensor is unblocked. This causes machine to determine that the gate is at the lower position.
- When the paper is transported through the sub tray paper path, the sub tray exit sensor located downstream of the paper path switching gate detects the paper conveyance.

Front view: Illustration on the relationship between the cam and paper path switching gate



[1]	Paper	[2]	Paper path switching gate (lower position)
[3]	Lever	[4]	Cam

Front view: Illustration on the relationship between the detection plate and the exchange folded paper output sensor

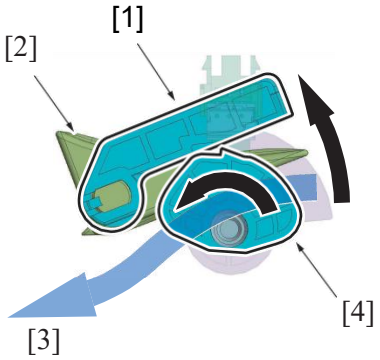


[1]	Paper	[2]	Exchange folded paper output sensor (PS30)
[3]	Detection plate	-	-

(2) Gate upper position (paper path: main tray)

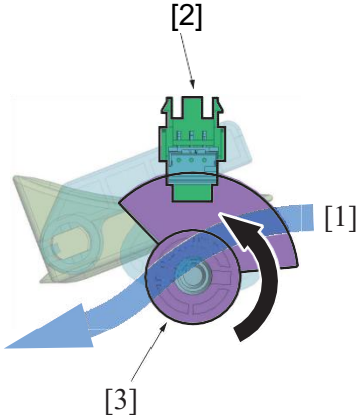
- When the cam rotates, the paper path switching gate moves up to block the paper path to the sub tray. The paper passes on the bottom of the paper path switching gate and is transported to the main tray.
- When the detection plate located on the shaft, on which the cam is located, rotates, the exchange folded paper output sensor is blocked. This causes machine to determine that the gate is at the upper position.
- When the paper is transported through the main tray paper path, the main tray exit sensor located downstream of the paper path switching gate detects the paper conveyance.

Front view: Illustration on the relationship between the cam and paper path switching gate



[1]	Lever	[2]	Paper path switching gate (upper position)
[3]	Paper	[4]	Cam

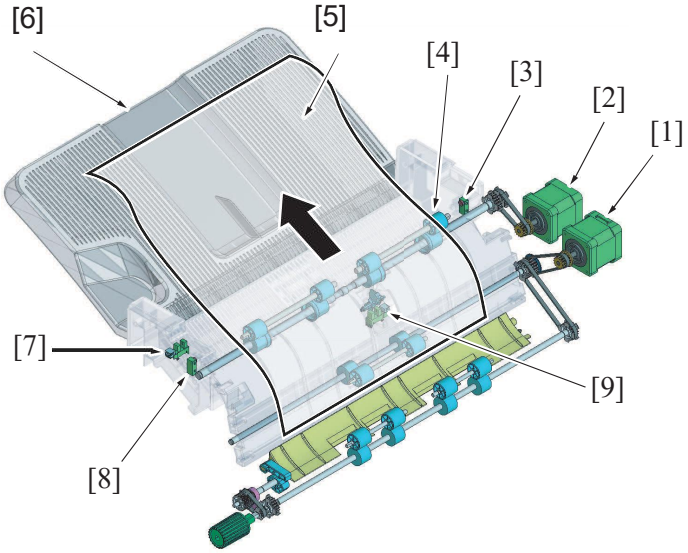
Front view: Illustration on the relationship between the detection plate and the exchange folded paper output sensor



[1]	Paper	[2]	Exchange folded paper output sensor (PS30)
[3]	Detection plate	-	-

Sub tray exit mechanism

- Paper transported from the RU section is discharged to the sub tray by the sub tray section exit roller, via the FNS section paper feed roller, FNS section transport roller, and sub tray section vertical transport roller.
- To transport paper to the sub tray, the paper path switching gate also operates.
- The sub tray section exit roller is driven by the FNS discharge motor.

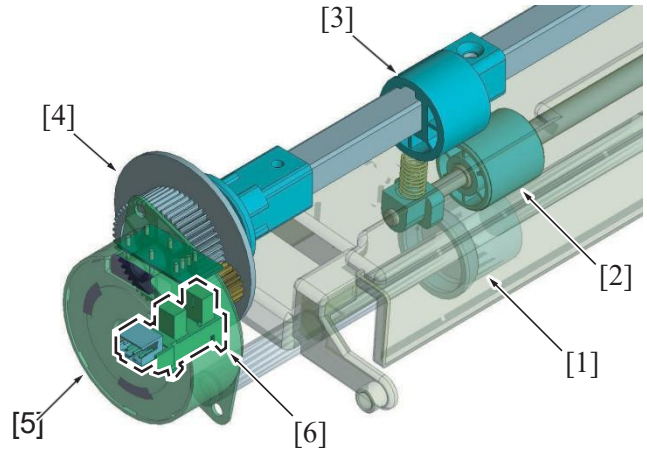


[1]	FNS entry transport motor (M2)	[2]	FNS discharge motor (M3)
[3]	Sub tray full detection sensor/out (PS9)	[4]	Sub tray section exit roller
[5]	Paper	[6]	Sub tray
[7]	Upper cover open/close detection sensor (PS32)	[8]	Sub tray full detection sensor/in (PS10)
[9]	Sub tray exit sensor (PS8)	-	-

Receiving roller section up/down function

- The up/down movement of the receiving roll, switches the timing of transporting the paper to the alignment section. (Buffer control)
- The up/down operations of the receiving roll are driven by the receiving roller retraction motor.
- The position of the receiving roll is detected by the receiving roller retraction sensor.

Front perspective view

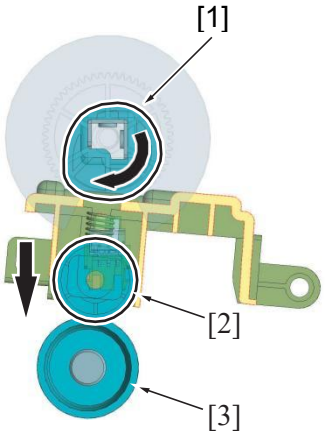


[1]	Receiving roller	[2]	Receiving roll
[3]	Receiving roller pressure cam	[4]	Detection plate
[5]	Receiving roller retraction motor (M4)	[6]	Receiving roller retraction sensor (PS11)

(1) Receiving roller: pressure position

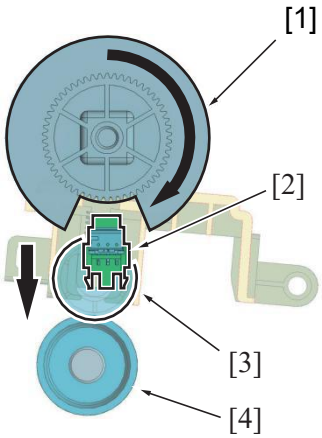
- When the cam rotates, the receiving roll is lowered and pressed against the receiving roller. The paper is transported to the alignment section by the receiving roller.
- When the detection plate located on the shaft, on which the cam is located, rotates, the receiving roller retraction sensor is unblocked. This causes machine to determine that the receiving roll moves down (pressed).

Front view: Illustration on the relationship between the cam and roll



[1]	Receiving roller pressure cam (pressure position)	[2]	Receiving roll (pressure position)
[3]	Receiving roller	-	-

Front view: Illustration on the relationship between the detection plate and sensor

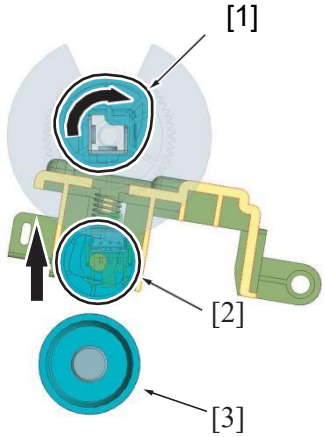


[1]	Detection plate (pressure position)	[2]	Receiving roller retraction sensor (PS11) (unblocked)
[3]	Receiving roll (pressure position)	[4]	Receiving roller

(2) Receiving roller: release position

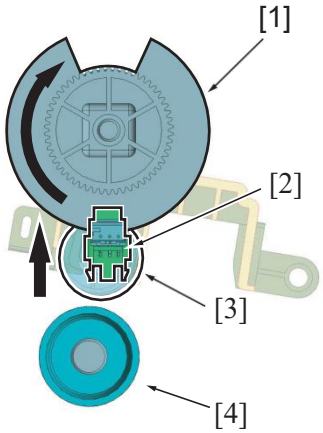
- The receiving roll is lifted by the cam and retracted from the receiving roller. The paper is brought to a standby state on the transport paper path.
- The detection plate located on the shaft, on which the cam is located, rotates and blocks the receiving roller retraction sensor. This causes machine to determine that the receiving roll moves up (retracted).

Front view: Illustration on the relationship between the cam and roll



[1]	Receiving roller pressure cam (release position)	[2]	Receiving roll (release position)
[3]	Receiving roller	-	-

Front view: Illustration on the relationship between the detection plate and sensor

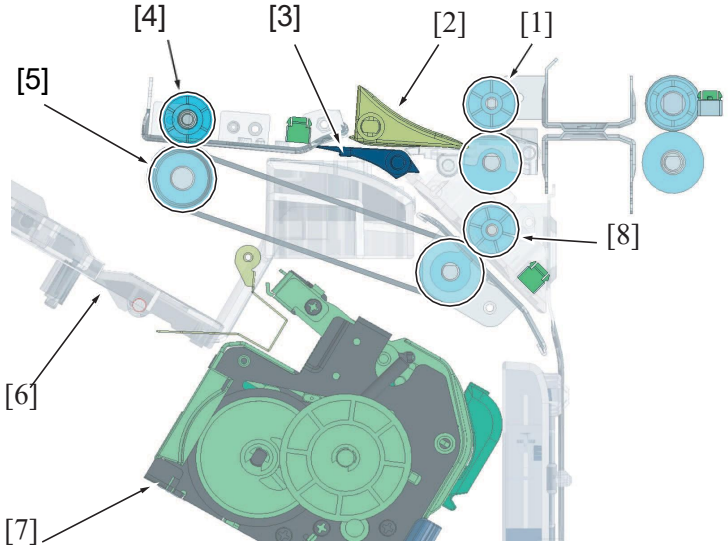


[1]	Detection plate (release position)	[2]	Receiving roller retraction sensor (PS11) (blocked)
[3]	Receiving roll (release position)	[4]	Receiving roller

Buffer control

- The receiving roller section up/down mechanism is provided to achieve high productivity, by eliminating the time loss for the next sheet of paper during the offset and staple operations.
- This allows handling a print job without reducing the paper transport speed even under the condition where the preceding sets of sheets are being aligned and stapled.

Front view

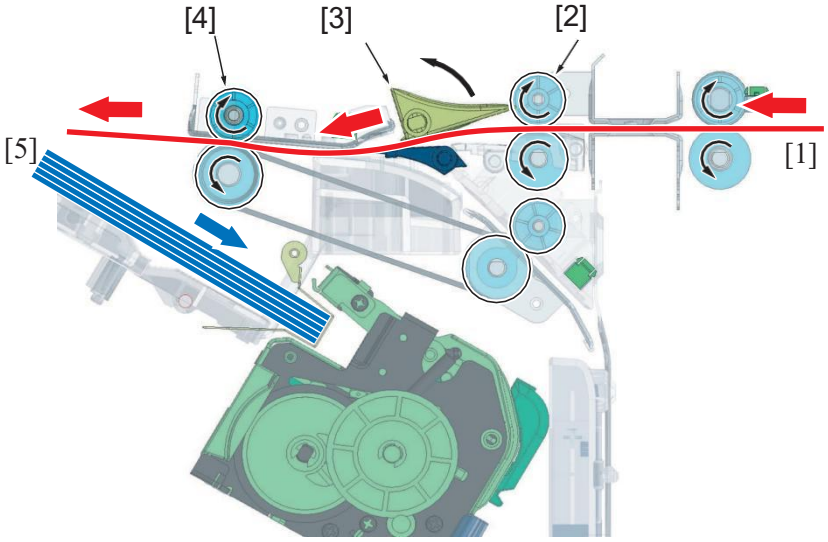


[1]	FNS section transport roller	[2]	Paper path switching gate
[3]	Movable paper guide	[4]	Receiving roll
[5]	Receiving roller	[6]	Alignment tray
[7]	Staple unit	[8]	FNS section exit roller

(1) Paper transport operation

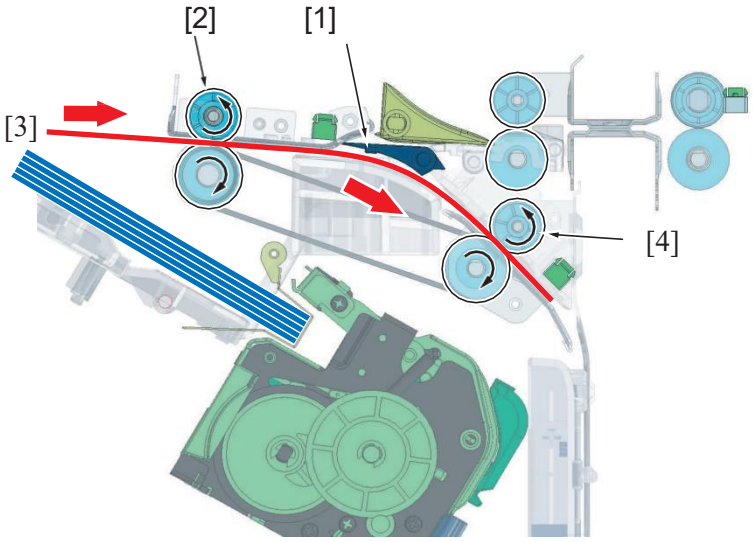
- The following explains the example of a print job where 5 sheets of paper is stapled together and 2 sets are output.

1. When the first set of paper passes, the receiving roll transports the paper to the alignment section without being lifted. The 5 sheets of the first set are aligned and then stapled.



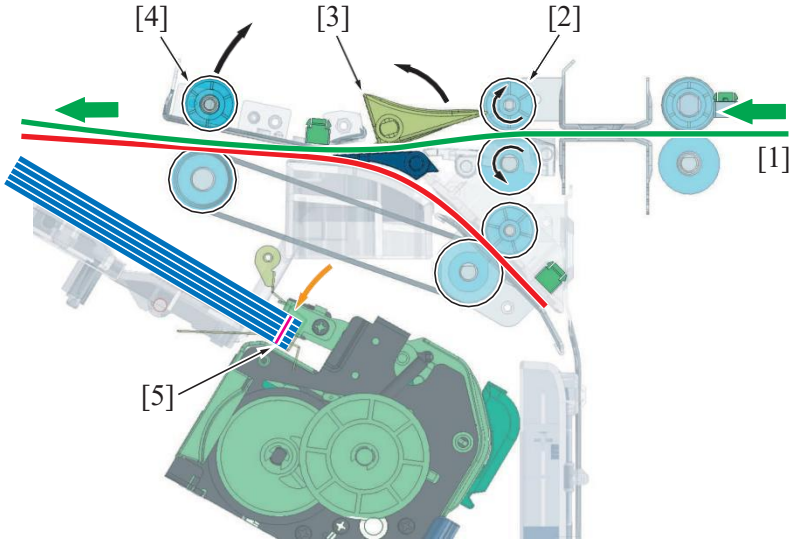
[1] First sheet in the second set
[2] FNS section transport roller (forward rotation)
[3] Paper path switching gate (upper position)
[4] Receiving roll (pressure, forward rotation)
[5] First set of sheets (transported to the alignment section)

2. While the first set of sheets is being aligned, the first sheet in the second set causes the receiving roller to rotate in the reverse direction when the trailing edge of the sheet passes the movable paper guide. This causes the first sheet to move on the switchback until its trailing edge reaches the path to the saddle section. (This operation is performed to avoid blocking the paper path for the second sheet.)



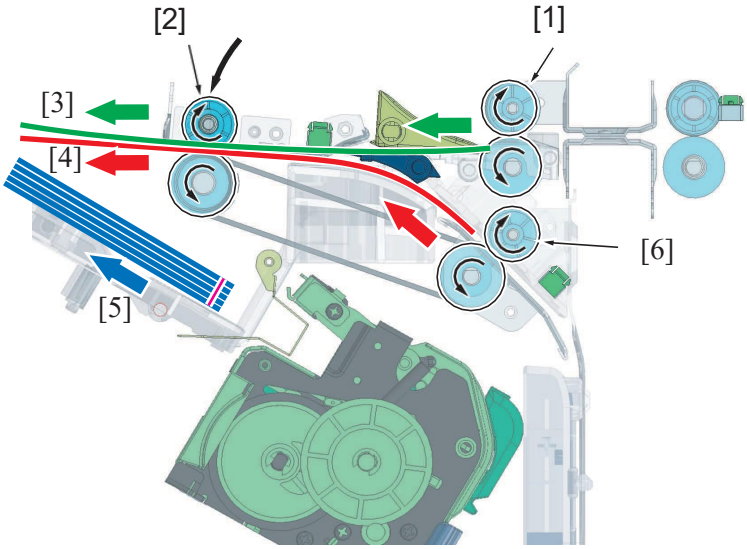
[1] Movable paper guide
[2] Receiving roll (pressure, reverse rotation)
[3] First sheet in the second set (switchback)
[4] FNS section exit roller (reverse rotation)

3. The receiving roll is lifted. The first sheet of paper that lost the force of being transported stays on the transport path.
4. While the first set is being stapled, the second sheet of the second set is transported and it is placed on the top of the first sheet of the second set.



[1] Second sheet of the second set
[2] FNS section transport roller (forward rotation)
[3] Paper path switching gate (upper position)
[4] Receiving roll (release, stop)
[5] First sheet (staple)

5. The receiving roll is lowered onto the 2nd set. Two sheets of the second set are discharged to the alignment section. (Paper transport time is reduced by moving multiple sheets in one paper transport operation.)
6. While the first and second sheets of the second set are transported to the alignment section, the stapled first set is discharged to the main tray.



[1] FNS section transport roller (forward rotation)
[2] Receiving roll (pressure, forward rotation)
[3] Second sheet of the second set
[4] First sheet in the second set
[5] First set of sheets
[6] FNS section exit roller (forward rotation)

7. The receiving roll is not lifted when the third to fifth sheets of the second set passes through the roller. These sheets are transported to the alignment section in the normal manner.
8. When the fifth sheet of the second set is transported to the alignment tray, the second set is stapled.
9. The operations described above are repeated when multiple staple jobs are performed.

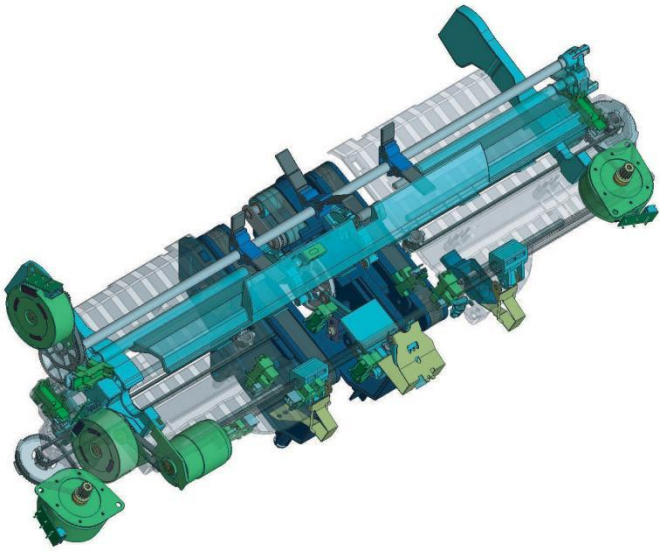
ALIGNMENT SECTION

Configuration

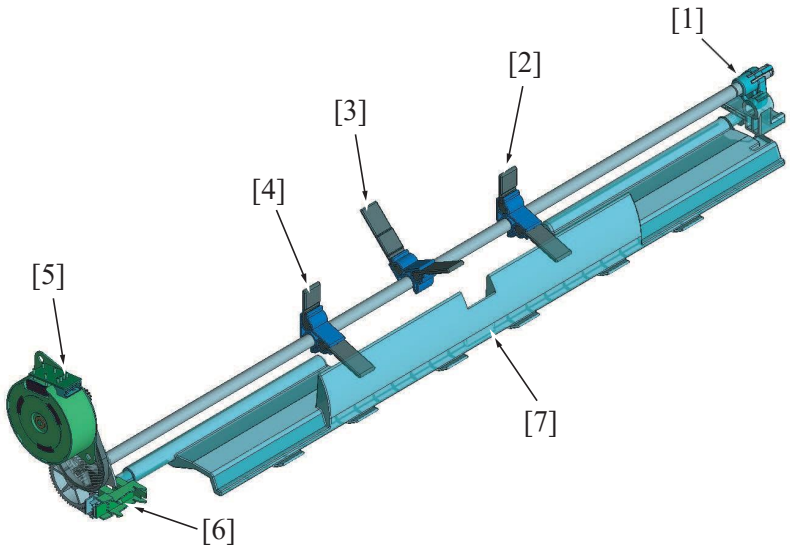
In the alignment section, paper transported from the transport section is aligned and discharged to the main tray.

1. Upper paddle section
   - Paper ejected from the receiving roller in the transport section is guided to the alignment section by the lowered paper guide.
   - The paper led to the alignment section will be switchbacked to the alignment tray by the upper paddle.
2. Exit section (Receiving operation)
   - The paper is switched back to the alignment tray by the lower paddle.
3. Stopper section
   - The paper that was switched back is aligned at its trailing edge by being pressed to the trailing edge stopper. (Paper alignment operation in FD)
   - If paper is stapled (2-point stapling), the stopper is retracted to the position where it does not interfere with the trailing edge stopper/F and trailing edge stopper/R.
4. Alignment tray section
   - When the first sheet is sent, the alignment plate is moved to the center to support the paper passing through the top of the plate. (Alignment plates are used as paper guide.)
   - If paper is not offset stacked, it is placed between the alignment plates so that both ends of the paper are aligned at the center position of the alignment tray. (Paper alignment operation in CD)
   - The paper gathered at the front or rear side on the alignment plate will be aligned on both sides of the paper. This process is repeated to sort out the paper. (CD alignment and shift operation of the paper)
5. Exit section (Exit operation)
   - The trailing edge stopper/C is shifted to press the paper out, and then the gripper receives the paper. The gripper then discharges the paper to the main tray.

Alignment section: Front perspective view



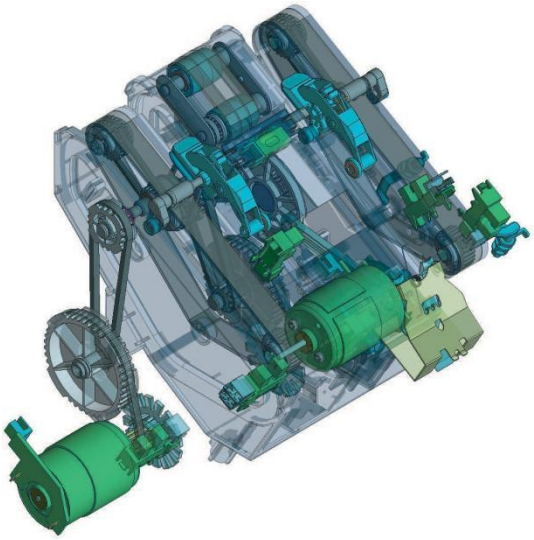
Upper paddle section



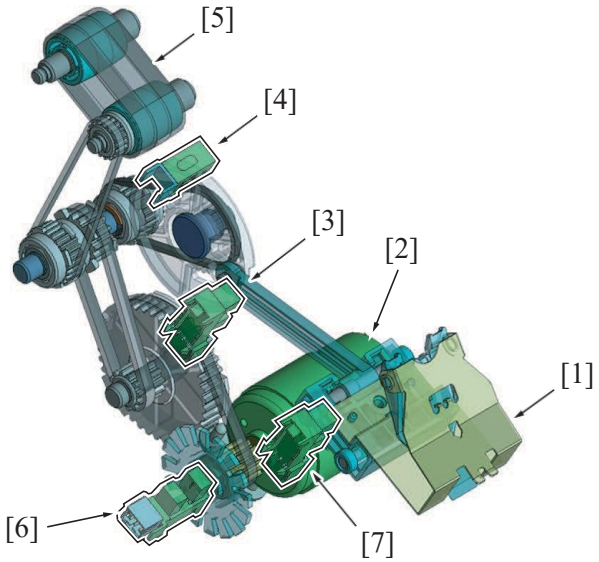
[1]	Cam	[2]	Upper paddle (rear)
[3]	Upper paddle (center)	[4]	Upper paddle (front)
[5]	FNS paddle motor (M5)	[6]	Upper paddle home position detection sensor (PS14)
[7]	Paper guide	-	-

Exit section

Exit section: Front perspective view

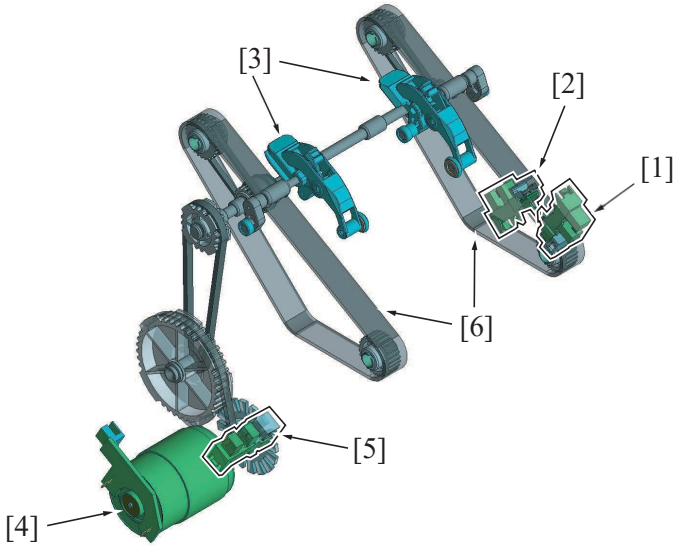


(1) Lower paddle section



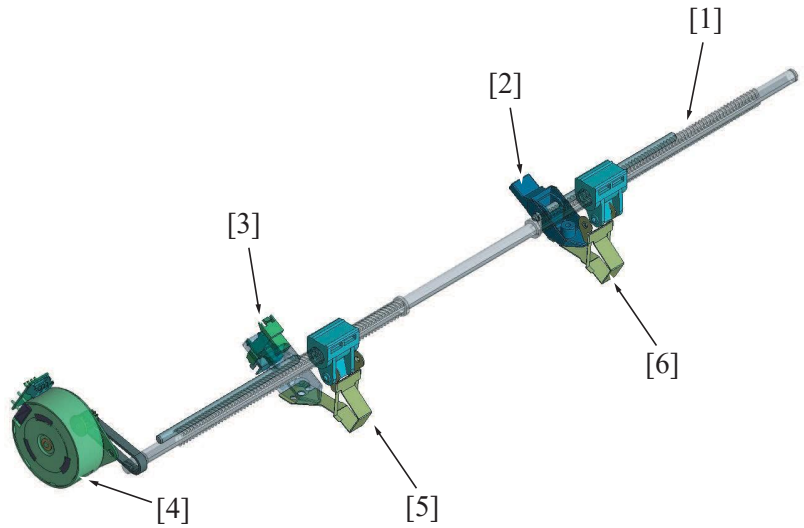
[1]	Trailing edge stopper/C	[2]	Pre-eject drive motor (M9)
[3]	Pre-eject away sensor (PS22)	[4]	Staple stacker paper detection sensor (PS31)
[5]	Lower paddle	[6]	Pre-eject encorder sensor (PS15)
[7]	Pre-eject home sensor (PS21)	-	-

(2) Gripper section



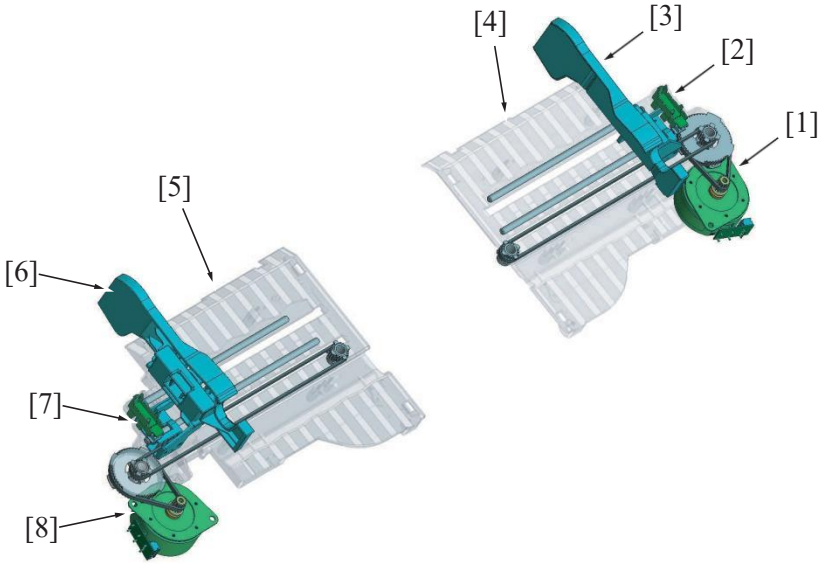
[1]	Gripper home position sensor (PS18)	[2]	Gripper position detection sensor (PS19)
[3]	Gripper	[4]	Bundle eject motor (M10)
[5]	Gripper motor sensor (PS17)	[6]	Paper transport belt

Stopper section (FD alignment section)



[1]	Stopper moving shaft	[2]	Holder
[3]	Trailing edge stopper home position detection sensor (PS20)	[4]	Trailing edge stopper motor (M6)
[5]	Trailing edge stopper/Fr	[6]	Trailing edge stopper/Rr

8.1.3 Alignment tray section (CD alignment section)



[1]	Alignment motor/Rear (M8)	[2]	Alignment plate/R home sensor (PS13)
[3]	Alignment plate/R	[4]	Alignment tray (rear)
[5]	Alignment tray (front)	[6]	Alignment plate/F
[7]	Alignment plate/F home sensor (PS12)	[8]	Alignment motor/Front (M7)

Drive

Drive outline

The driving source of the alignment section is the FNS paddle motor, pre-eject drive motor, bundle eject motor, trailing edge stopper motor, alignment motor, and the following parts are driven.

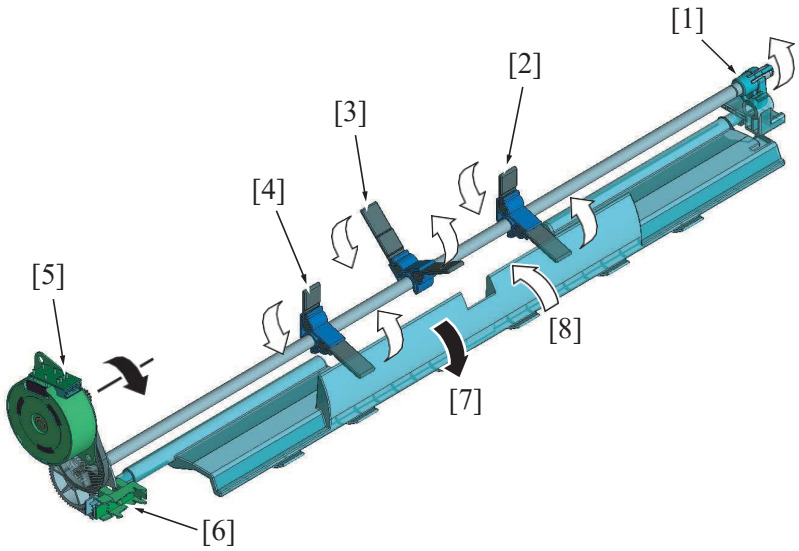
Driving source	Driving parts	Function
FNS paddle motor (M5)	Paper guide	Transports paper to the alignment tray.
	Upper paddle	Draws and drops paper to the alignment tray.
Pre-eject drive motor (M9)	Lower paddle	Presses paper against the stopper in the alignment tray.
	Trailing edge stopper/C	• Aligns the trailing edge of paper (Alignment operation in FD)

Driving source	Driving parts	Function
		• Pushes paper out to the main tray after alignment.
Bundle eject motor (M10)	Paper transport belt	Moves the gripper.
	Gripper	Grips the trailing edge of paper and discharges it to the main tray.
Trailing edge stopper motor (M6)	Trailing edge stopper /Fr	Moves the trailing edge stopper/Fr forward. It moves back and forth according to the paper width to keep the trailing edge of the paper batch at the front side.
	Trailing edge stopper /Rr	Moves the trailing edge stopper/Rr backward. It moves back and forth according to the paper width to keep the trailing edge of the paper batch at the back side.
Alignment motor/Front (M7)	Alignment plate/F	• Aligns both ends of paper (Alignment operation in CD) • Pushes paper to the front or rear. (Shift operation)
Alignment motor/Rear (M8)	Alignment plate/R	

Upper paddle section

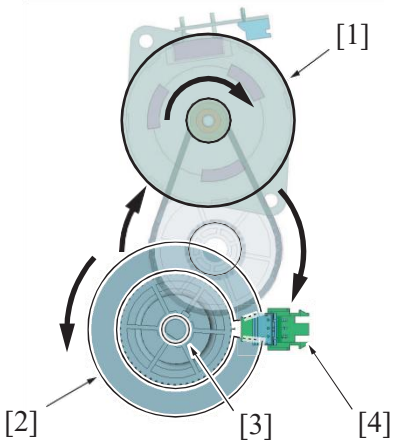
- When the FNS paddle motor rotates, the upper paddles (3 pieces) located on the upper paddle shaft, rotates to draw and drop the paper to the alignment tray.
- The cam located on the upper paddle shaft rotates to move the paper guide up and down.

Front perspective view



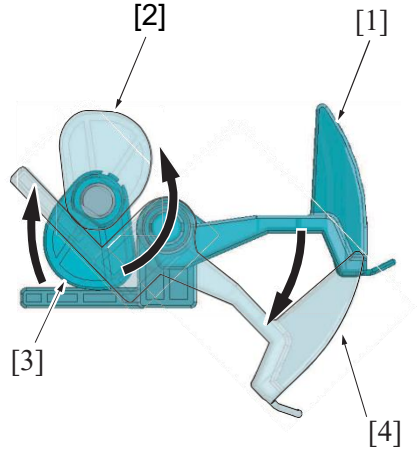
[1]	Cam	[2]	Upper paddle (rear)
[3]	Upper paddle (center)	[4]	Upper paddle (front)
[5]	FNS paddle motor (M5)	[6]	Upper paddle home position detection sensor (PS14)
[7]	Paper guide (move down)	[8]	Paper guide (move up)

Drive front view



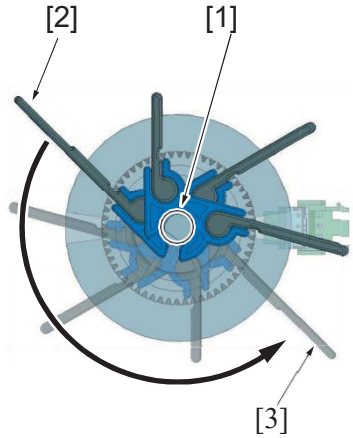
[1]	FNS paddle motor (M5)	[2]	Detection plate (home position)
[3]	Upper paddle turning shaft	[4]	Upper paddle home position detection sensor (PS14)

Paper guide front view



[1]	Paper guide (upper position: home position)	[2]	Cam (upper position)
[3]	Cam (lower position: home position)	[4]	Paper guide (lower position)

Upper paddle front view

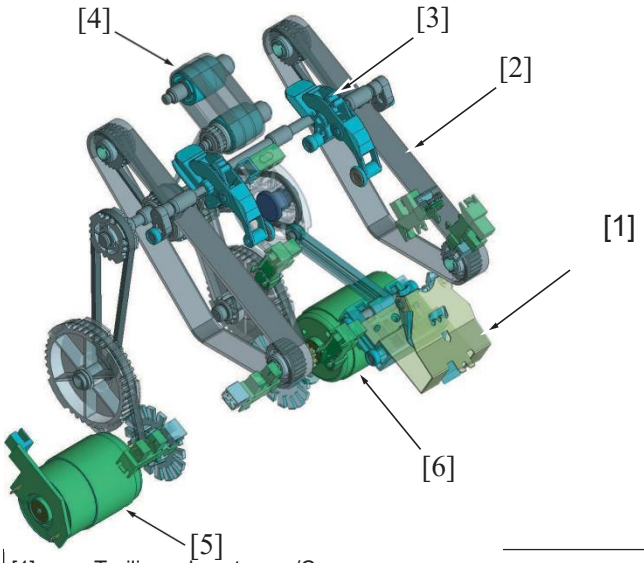


[1]	Upper paddle turning shaft	[2]	Upper paddle (upper position: home position)
[3]	Upper paddle (lower position: make a turn and return to home position.)	-	-

Exit section

- When the pre-eject drive motor rotates clockwise, the lower paddle rotates to press the paper against the trailing edge stopper.
- When the pre-eject drive motor rotates counterclockwise, the trailing edge stopper moves from the home position to the paper exit position to discharge paper to the main tray. When the drive gear makes a turn, the stopper moves from the paper exit position to the home position and is brought into a standby state.

Exit section: Front perspective view

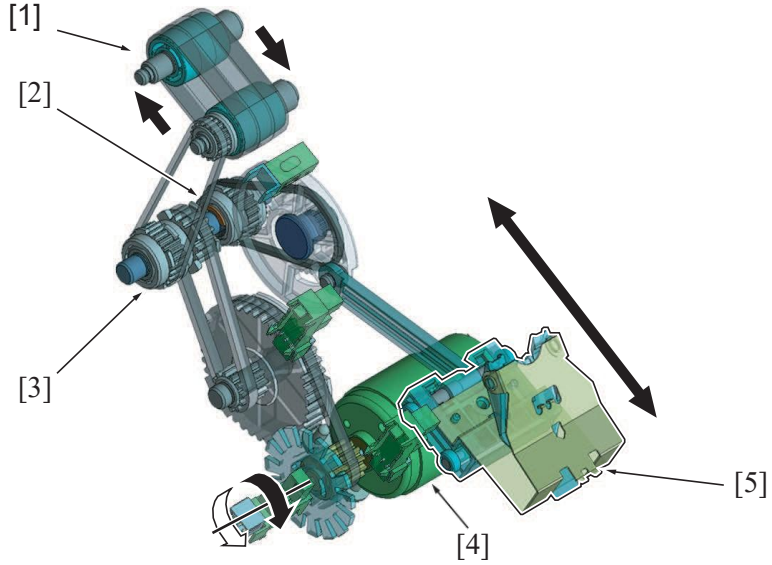


[1]	Trailing edge stopper/C	[2]	Paper transport belt

[3]	Gripper	[4]	Lower paddle
[5]	Bundle eject motor (M10)	[6]	Pre-eject drive motor (M9)

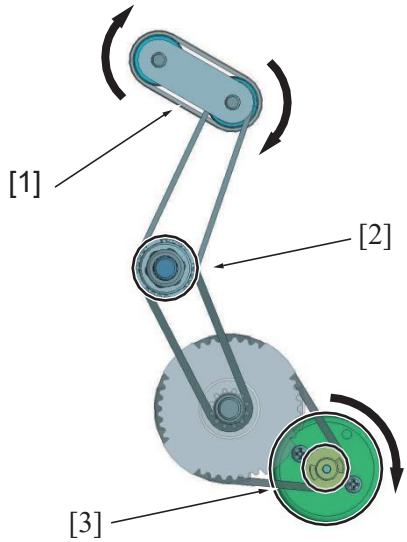
(1) Lower paddle section

Front perspective view



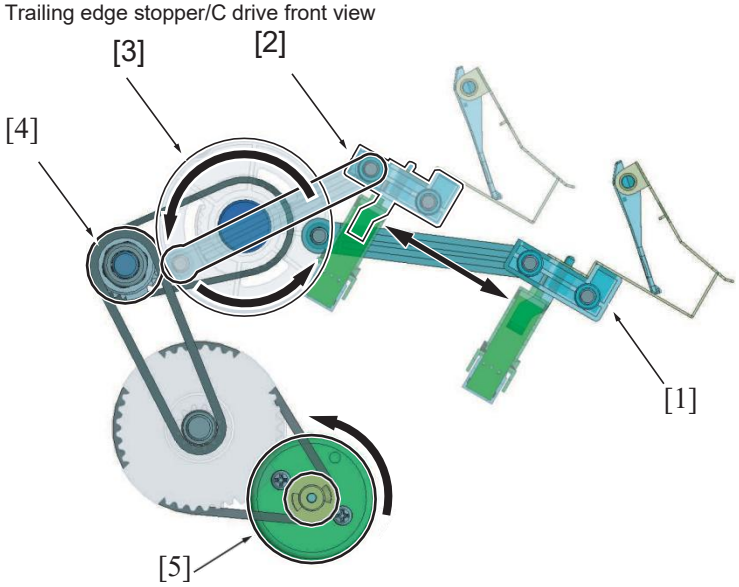
[1]	Lower paddle	[2]	One-way clutch (for trailing edge stopper/C driving)
[3]	One-way clutch (for stopper driving)	[4]	Pre-eject drive motor (M9)
[5]	Trailing edge stopper/C	-	-

Lower paddle drive front view



[1]	Lower paddle	[2]	One-way clutch (for lower paddle driving: transmit driving force only to clockwise rotation)
[3]	Pre-eject drive motor (M9): clockwise rotation	-	-

Trailing edge stopper/C drive front view

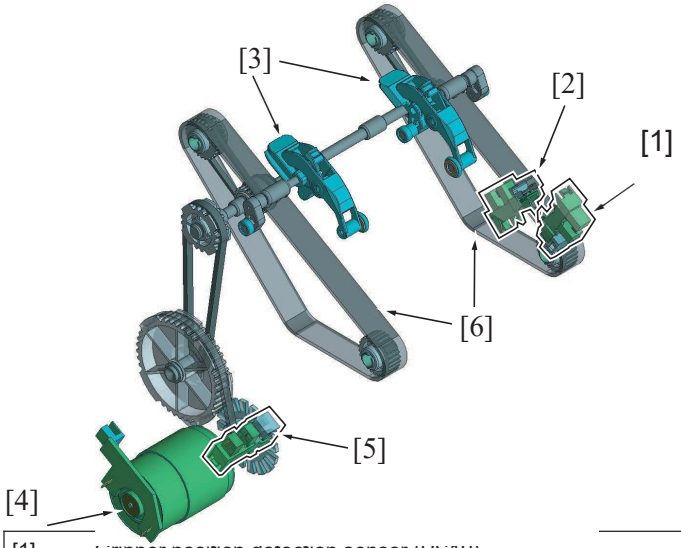


[1]	Trailing edge stopper/C (home position)	[2]	Trailing edge stopper/C (paper exit position)
[3]	Drive gear	[4]	One-way clutch (for trailing edge stopper driving: transmit driving force only to counterclockwise rotation)
[5]	Pre-eject drive motor (M9): counterclockwise rotation	-	-

(2) Gripper section

- The bundle eject motor rotates to turn the paper transport belt. This causes the gripper, fixed to the paper transport belt, to rotate.

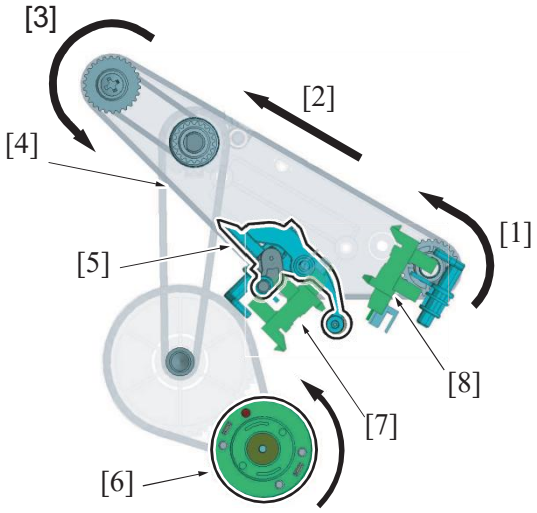
Front perspective view



[1]	Gripper position detection sensor (PS19)	[2]	Gripper home position sensor (PS18)
[3]	Gripper	[4]	Bundle eject motor (M10)
[5]	Gripper motor sensor (PS17)	[6]	Paper transport belt

- The gripper stays at the home position (inside the exit section). It rotates at the position [1] shown in the illustration to grip the trailing edge of paper and transport the paper while keeping the state [2]. The gripper rotates at the position [3] in the illustration to release the paper. When the paper transport belt makes a turn, the gripper returns to the home position [5] and is brought into a standby state.

Gripper drive front view

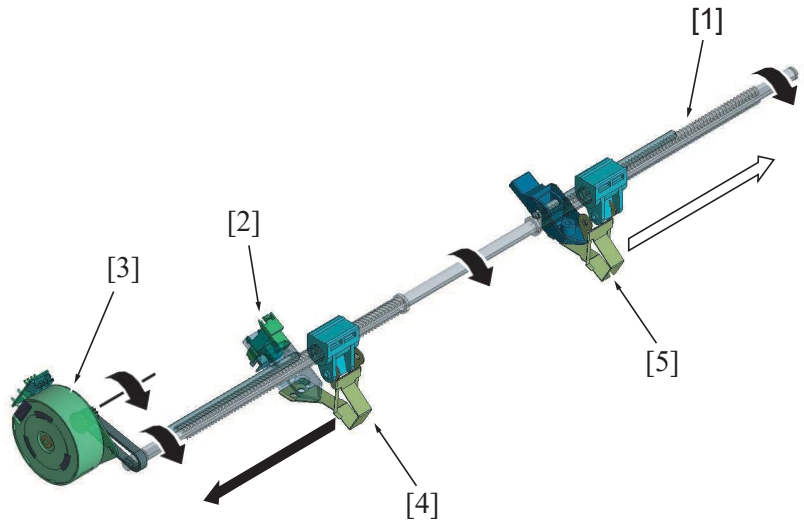


[1]	Gripper position (gripping the paper)	[2]	Gripper position (transporting the paper)
[3]	Gripper position (release the paper)	[4]	Paper transport belt
[5]	Gripper (home position)	[6]	Bundle eject motor (M10)
[7]	Gripper home position sensor (PS18)	[8]	Gripper position detection sensor (PS19)

Stopper section

- The shaft for stopper movement has a different spiral between the front and rear sides. This causes trailing edge stopper/Fr to move forward and trailing edge stopper/Rr to move backward when the trailing edge stopper motor rotates in the normal direction.
- Trailing edge stopper/F and the trailing edge stopper/R shift according to the paper width before starting a job, to hold the trailing edge of the paper.
- For 2-point staple jobs, the trailing edge stoppers/Fr and /Rr are retracted to the position where they do not interfere with the stapler.
- After the job is completed, the trailing edge stopper motor reverses the rotation to return the trailing edge stopper to the home position.

Front perspective view

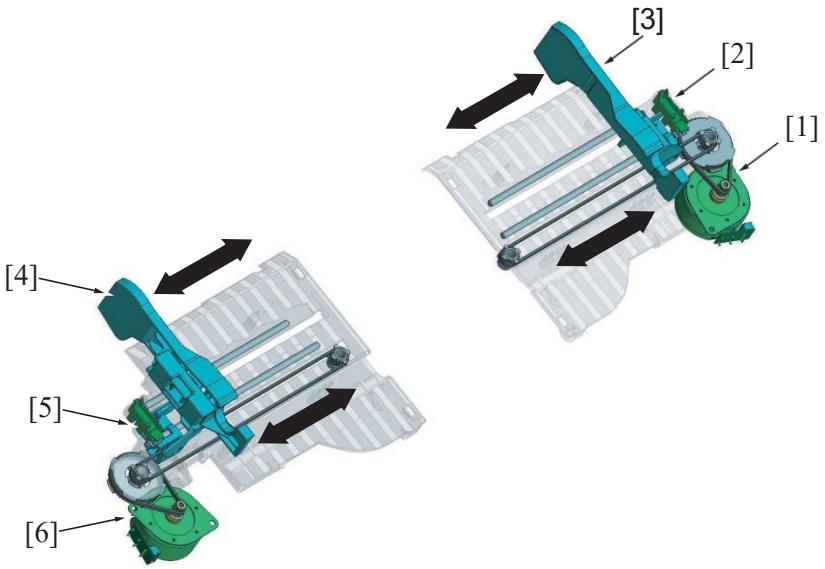


[1]	Stopper moving shaft	[2]	Trailing edge stopper home position detection sensor (PS20)
[3]	Trailing edge stopper motor (M6)	[4]	Trailing edge stopper/Fr: home position
[5]	Trailing edge stopper/Rr: home position	-	-

Alignment tray section

- The normal or reverse rotation of the alignment motor, allows the normal or reverse rotation of the drive belt. This causes the alignment plates to move forward or backward.
- Alignment plates/F and /R are each equipped with a drive motor, allowing them to operate independently. This enables paper alignment to the center, as well as paper shift to the front and rear.

Front perspective view



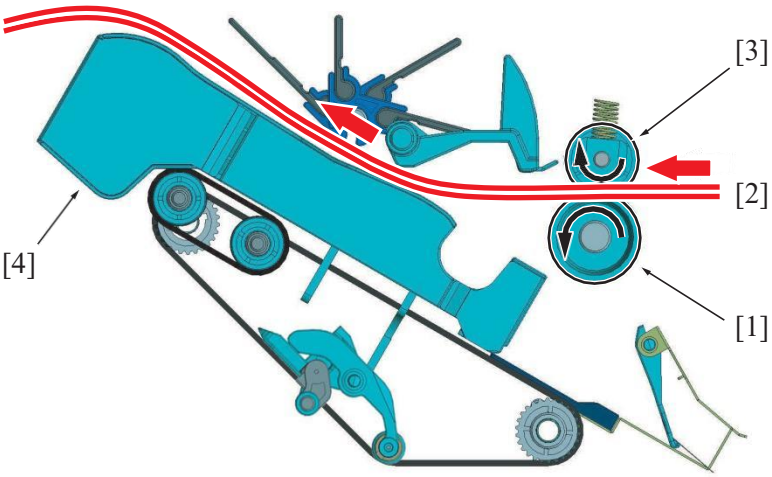
[1]	Alignment motor/Rear (M8)	[2]	Alignment plate/R home sensor (PS13)
[3]	Alignment plate /R: home position	[4]	Alignment plate /F: home position
[5]	Alignment plate/F home sensor (PS12)	[6]	Alignment motor/Front (M7)

Operation

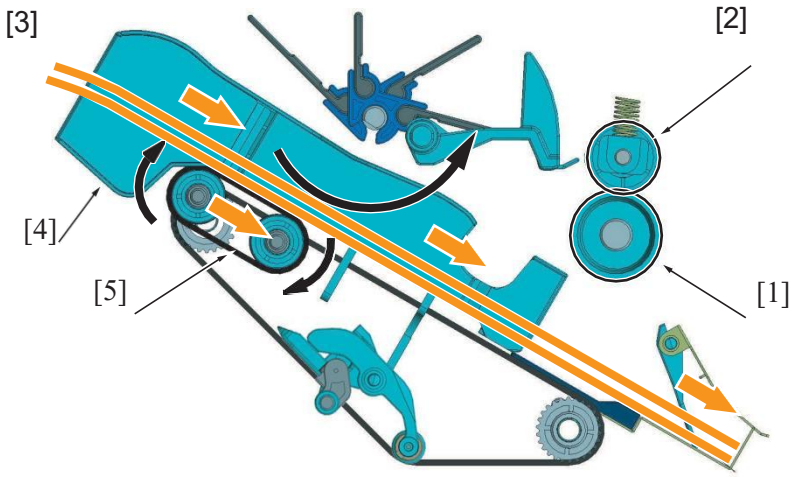
Paper transport control in alignment section

Paper transported to the alignment section, is conveyed and aligned with the following operations.

1. The receiving roller in the transport section ejects paper *1.
   NOTE
   - ***1: For plain paper, due to buffer control, the first and second sheets of paper are ejected at the same time. For other than plain paper, the first paper is ejected.**
     For details of the buffer control, see " PD.7.3.4 Buffer control".
   - **The description below explains the paper transport control for plain paper.**
2. The alignment plates/F and /R are moved to the center.
3. The first and second sheets are transported onto the top of the alignment plates.
   NOTE
   - **This is to prevent the leading edge of the sheets from touching the lower paddle and being folded.**

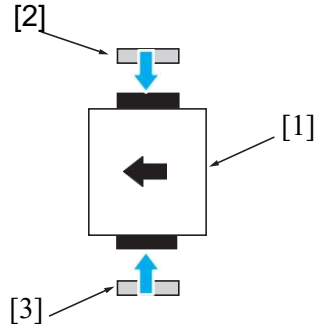


   [1] Receiving roller
   [2] First and second sheets (for plain paper)
   [3] Receiving roll
   [4] Alignment plate/F, Alignment plate/R (moved to the center)
4. The alignment plates return their home position. The alignment plate/F and the alignment plate/R shift to the waiting position according to the paper width immediately before the trailing edge of the paper passes the receiving roller.
5. When the trailing edge of the sheet passes through the receiving roller, the paper guide is lowered to guide the trailing edge of the sheet to the alignment tray.
6. The upper paddle rotates, and the upper and lower paddles grip the sheet. The sheet is transported into the alignment tray. (Operation on switchback) The sheets are transported into the alignment tray and are stopped by the trailing edge stopper. This allows aligning the trailing edge of the sheets. (paper alignment operation in FD)

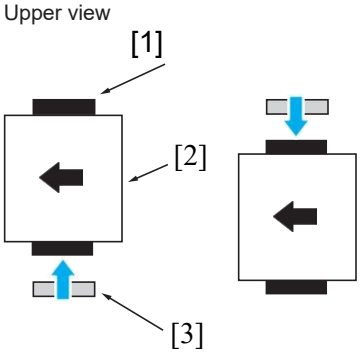


[1] Receiving roller
[2] Receiving roll
[3] First and second sheets
[4] Alignment plate/F, Alignment plate/R (Retracted to the home position)
[5] Lower paddle (rotation)

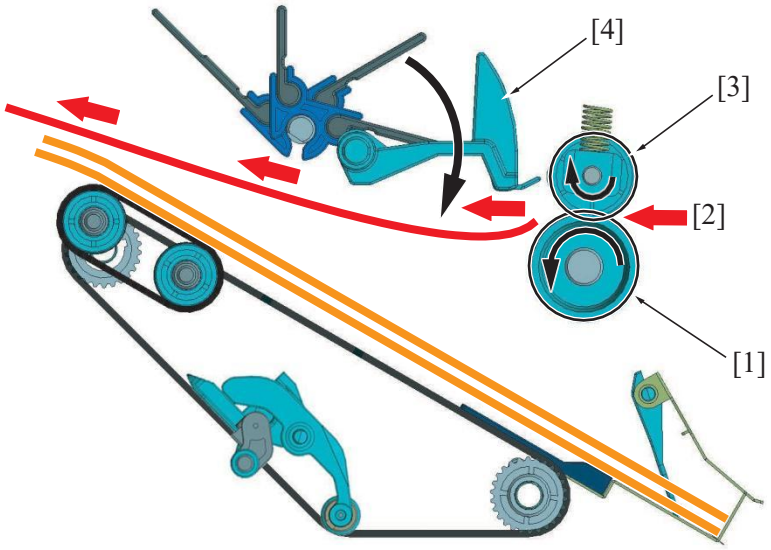
7. The alignment plates move to align the ends of the sheets. (Paper alignment in CD)
   - The sheets are placed between the alignment plates/F and /R corresponding to the paper width so that their both ends are aligned.
     Upper view



     [1] Paper
     [2] Alignment plate /R (moving forward to front side)
     [3] Alignment plate/F (moving backward to rear side)
   - The alignment operations described above are performed for all sheets of paper in the job to align the ends of the sets of paper.
8. When offset is selected as finishing option, the alignment plates are moved to shift the sets of paper.
   - Depending on the width of paper, the alignment plate/F or /R pushes the sets of paper to the rear side (or to the front side) from one side so that the sets of the paper are shifted.
     Upper view



     [1] Alignment plate/R
     [2] Paper
     [3] Alignment plate/F
     NOTE
     • The offset of paper (amount of shift) is 20 mm (13/16 inches).
   - The sheets are shifted by alternatively repeating the above operation.
9. The third sheet is ejected by the receiving roller of the transport section.

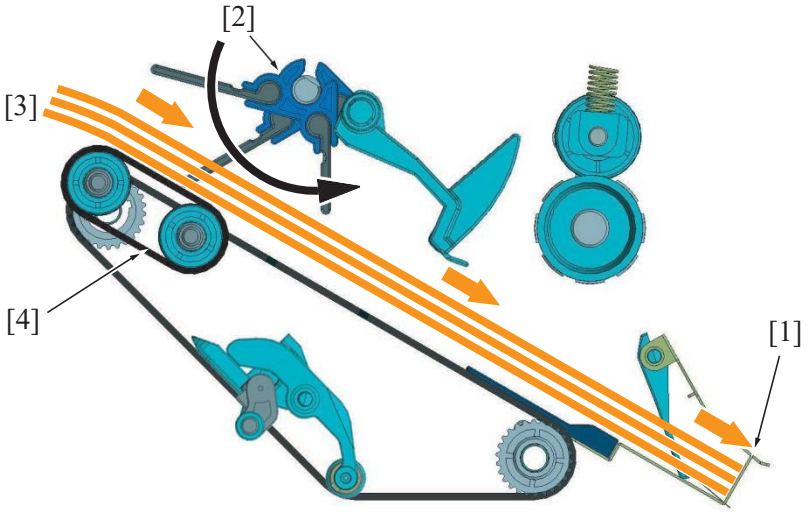


[1] Receiving roller
[2] Third sheet
[3] Receiving roll
[4] Paper guide (upper position)

10. When the trailing edge of the sheet passes through the receiving roller, the paper guide is lowered to guide the trailing edge of the sheet to the alignment tray.
11. The upper paddle rotates. The sheet is transported into the alignment tray. (Operation on switchback)

NOTE

- **When the switchback operation for the 3rd sheet or later, the lower paddle does not rotate.**



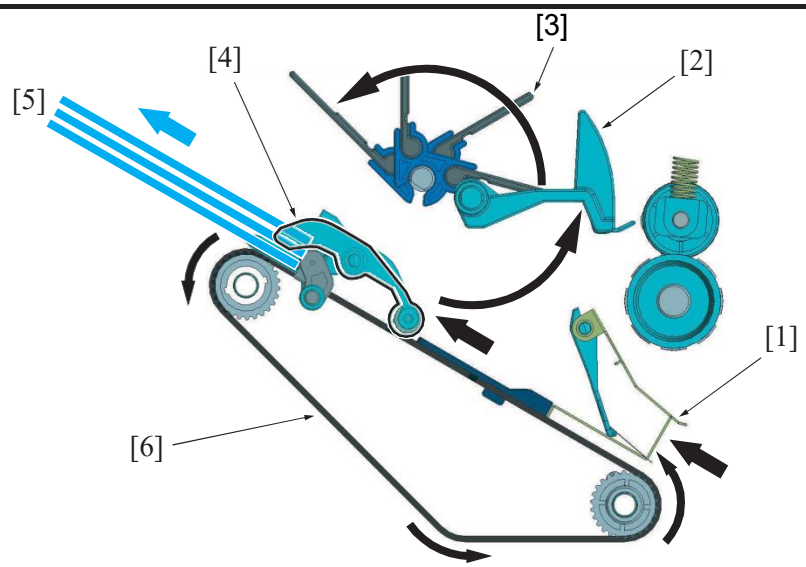
[1] Trailing edge stopper
[2] Upper paddle (rotation)
[3] Paper
[4] Lower paddle (rotation)

12. The sheet is stopped by the trailing edge stopper. This allows aligning the trailing edge of the sheets. (Paper alignment operation in FD)
13. The alignment plates move to align the ends of the sheets. (Paper alignment operation in CD)

NOTE

- **CD alignment operation is omitted since it is described in steps 7 to 8.**

14. For staple mode, the trailing edges of the sheets are stapled at this timing.
15. When all paper alignment is completed, the trailing edge stopper pushes the sheets to the position where the gripper can grip them.
16. The gripper grips the trailing edges of the sets of paper in the alignment tray and transports them to the paper exit position.



[1] Trailing edge stopper/C (paper gripping position)
[2] Paper guide (upper position: home position)
[3] Upper paddle (upper position: home position)
[4] Gripper (move)
[5] Paper bunch
[6] Paper transport belt (rotation)

17. The gripper releases the sets of paper to discharge them to the main tray. The gripper is moved to the home position and brought into a standby state.

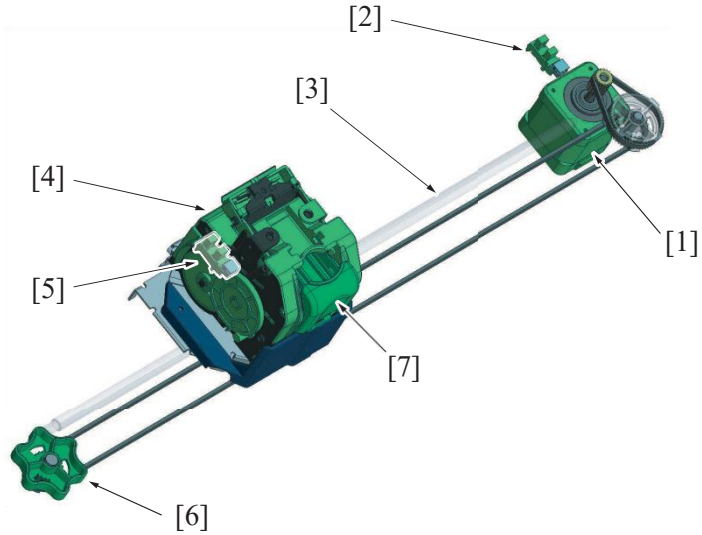
STAPLER SECTION

Configuration/Drive

In the stapler section, staples are pressed through the sheets aligned in the alignment section so that the sheets are fastened together as a batch.

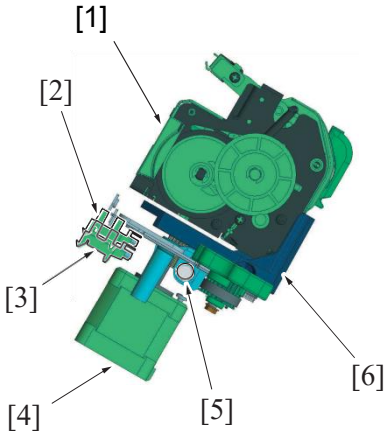
Configuration

Front perspective view



[1]	Side stapler movement motor (M13)	[2]	Stapler home position sensor (Rear) (PS23)
[3]	Shaft	[4]	Stapler unit
[5]	Stapler position sensor (Center) (PS24)	[6]	Stapler move dial
[7]	Staple cartridge	-	-

Front view



[1]	Stapler unit	[2]	Stapler home position sensor (Rear) (PS23)
[3]	Stapler position sensor (Center) (PS24)	[4]	Side stapler movement motor (M13)
[5]	Shaft	[6]	Stapler holder

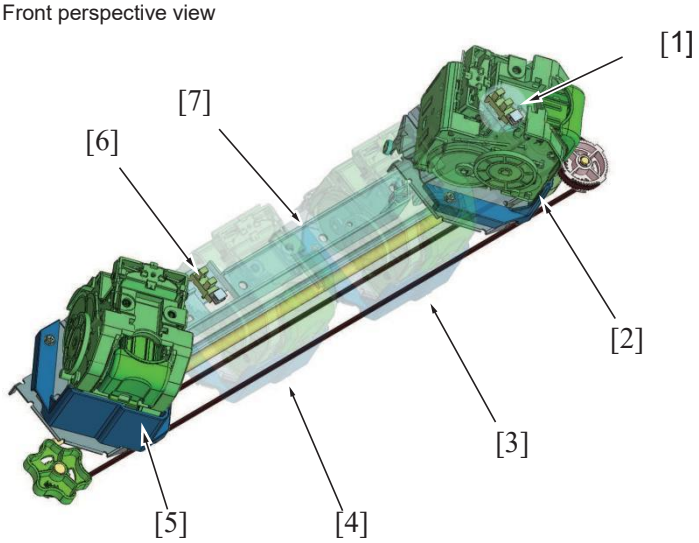
Drive

- The driving source of the staple section is the side stapler movement motors, stapler motor built into the staple unit, and the following parts are driven.

Driving source	Driving parts	Function
Side stapler movement motor	Staple unit	Back and forth movement and rotation of the stapler unit
Stapler	Clincher staple arm	Fastening of sheets with staples

- When the side stapler movement motor rotates, the belt is driven by the pulley and the stapler holder attached to the belt moves back and forth along the shaft.
- When the staple unit moves to the stapler home position, the staple cartridge replacement or the corner staple position, the shape of the slide guide plate causes the staple unit to rotate.
  NOTE
  - **The staple unit is rotated at the staple cartridge replacement position to ease replacement work.**

Front perspective view



[1]	Stapler home position sensor (Rear) (PS23)	[2]	Stapler unit (home position)
[3]	Stapler unit (2-staple position)	[4]	Stapler unit (2-staple position)
[5]	Stapler unit (staple cartridge replacement position)	[6]	Stapler position sensor (Center) (PS24)
[7]	Slide guide plate	-	

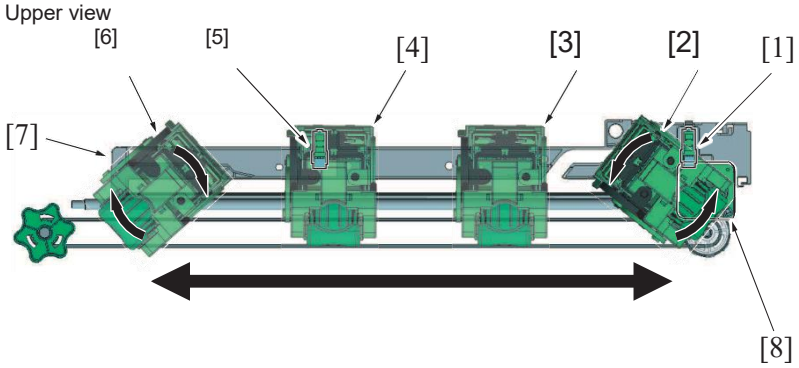
Operation

Stapler positioning control

(1) Stapler home position detection control

- The stapler home position sensor (rear) detects the stapler home position. The stapler's staple position is detected by the amount of motor rotation provided by the stapler home position sensor (rear) and stapler position sensor (center).
- In the corner staple mode, the stapler moves to the corner staple position and staples paper.
- In the 2-staple mode, the stapler moves to the 2-staple position (rear) and staples paper. Then it moves to the next 2-staple position (front) and staples the paper. After the stapling operation is completed, the stapler returns to the home position.

Upper view



[1]	Stapler home position sensor (Rear) (PS23)	[2]	Stapler unit (home position)
[3]	Stapler unit (2-staple position: rear)	[4]	Stapler unit (2-staple position: front)
[5]	Stapler position sensor (Center) (PS24)	[6]	Stapler unit (staple cartridge replacement position)
[7]	Slide guide plate	[8]	Side stapler movement motor (M13)

(2) Staple cartridge replacement position detection control

- The stapler position sensor (center) detects the staple cartridge replacement position. (The stapler determines that it arrives at the replacement position based on how much the side stapler movement motor rotates after the stapler passes the stapler position sensor (center).
- When staple empty is detected, the staple unit moves to the staple cartridge replacement position, rotates, and stays at the position.
- User can replace the staple cartridge by opening the front door.
  NOTE
  - **Using the stapler move dial, user can replace the staple cartridge without moving the staple unit.**
- When staple cartridge replacement is completed and the front door is closed, the stapler returns to the home position.

Stapling control

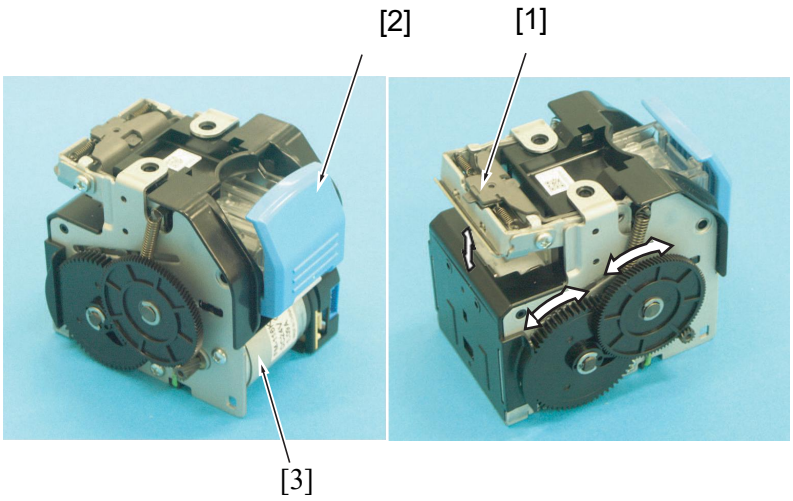
(1) Stapling operation

- The stapling operation is driven by the stapler motor.

- In the stapling operation, the clincher staple arm is lowered by the stapler motor. The clincher staple arm presses the sheets. (This is called clamp operation.) Then a staple is pushed up by the staple arm from the stapler side. The staple is pressed through the sheets and bent from the clincher staple arm side, so that the sheets are fastened together. The stapler motor then lifts the clincher staple arm and lowers the staple arm to complete the stapling operation.
- The number of sheets that user wishes to staple are placed into the alignment tray and the stapling operation is performed. However, if the number exceeds the upper limit, the stack of sheets is discharged to the exit tray without being stapled.

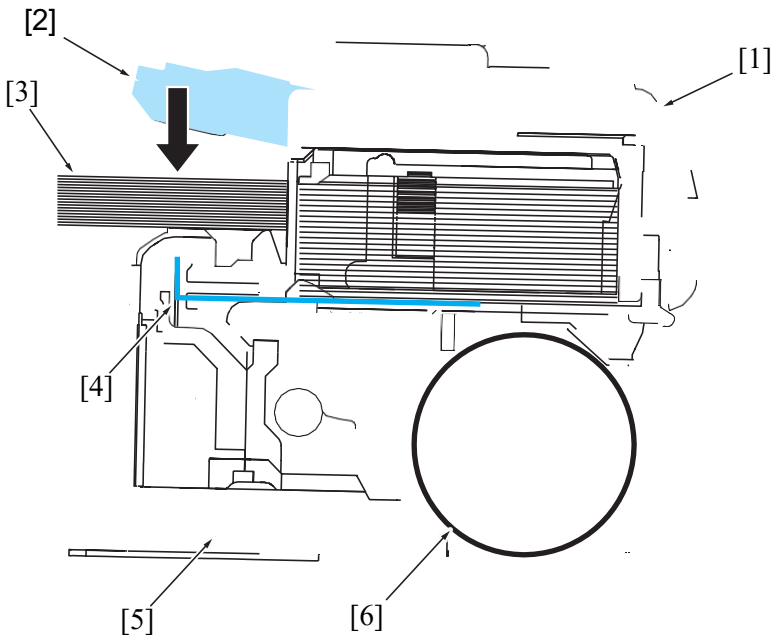
  NOTE
  - **Refer to Sort staple for the specifications on the number of sheets that can be stapled.**

Overall view



[1]	Clincher staple arm	[2]	Staple cartridge
[3]	Stapler motor	-	-

Front view

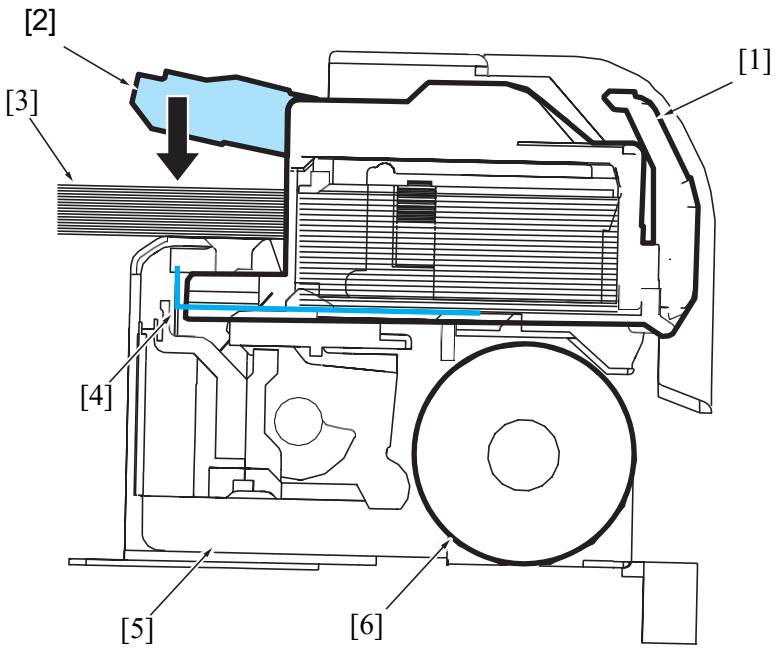


[1]	Staple cartridge	[2]	Clincher staple arm
[3]	Paper bunch	[4]	Staple sheet (staple)
[5]	Stapler	[6]	Stapler motor

Staple empty detection control

(1) Staple cartridge

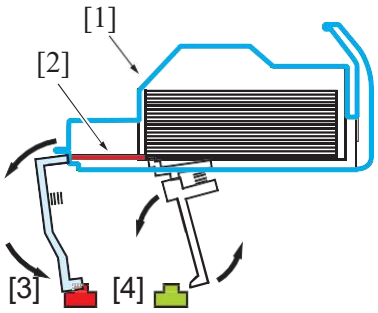
- The stapler is provided with a staple cartridge used only for the stapler.
- To reload the stapler with staples, the staple cartridge is first loaded with staples (staple sheet type: 5000 staples) and then the staple cartridge is attached to the stapler.
  For information on how to load staplers, refer to the user's guide.



[1]	Staple cartridge	[2]	Clincher staple arm
[3]	Paper bunch	[4]	Staple sheet (staple)
[5]	Stapler	[6]	Stapler motor

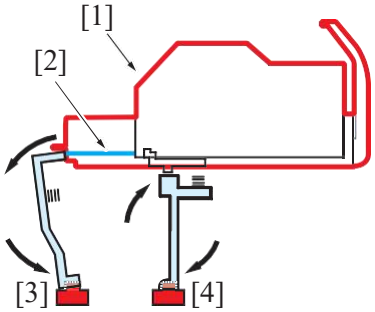
Staple empty detection mechanism

- The stapler includes the self-priming sensor and staple empty sensor to detect the status of the staple cartridge and staples.
- The staple cartridge is loaded with staple sheets, and a staple sheet is conveyed to the clinch position (staple position) from the lowest one.
  State where staple sheets are loaded



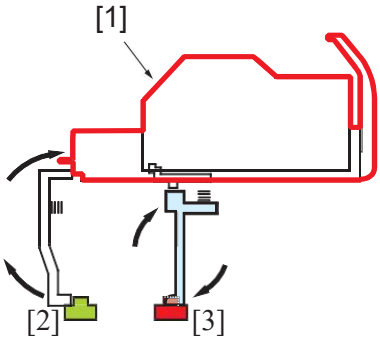
[1] Staple cartridge (loaded with staple sheets)
[2] Staple sheet fed from the cartridge
[3] Self-priming sensor (blocked)
[4] Staple empty sensor (unblocked)

- While the staple cartridge is loaded, if the trailing edge of the last staple sheet in the cartridge passes the actuator of the staple empty sensor, the actuator is raised by the spring force.
- When the actuator is raised, the staple empty sensor is blocked and machine determines that the cartridge is empty. The control panel displays the staple empty message.
  State where the last staple sheet is fed



[1] Staple cartridge (staple empty)
[2] Staple sheet (remainder)
[3] Self-priming sensor (blocked)
[4] Staple empty sensor (blocked)

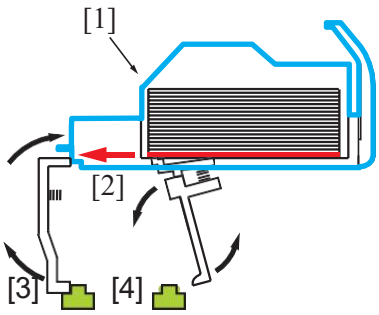
State where staple sheet runs out



[1] Staple cartridge (empty)
[2] Self-priming sensor (unblocked)
[3] Staple empty sensor (blocked)

- Even when the staple empty sensor detects the trailing edge of the last staple sheet, the staple sheet (staples: about 20) fed from the cartridge remains at the cartridge's front section. In this case, the actuator of the self-priming sensor is pressed down by the leading edge of the staple sheet.
- If the actuator is pressed down, the self-priming sensor is blocked and machine determines that the staple sheet is fed to the clinch position (staple position).
- Even when staple empty is detected, printing is not disabled. Paper is discharged without being stapled.
- After staple empty is detected, when the staple cartridge is loaded with staple sheets and the stapler is loaded with the cartridge, the actuator of the staple empty sensor is pressed down by the staple sheets.
- When the actuator is pressed down, the staple empty sensor is unblocked and staple empty condition is cleared. At this point, the staple empty sensor detects the staple sheets (unblocked). However, if the leading edge of the staple sheet cannot be detected by the self-priming sensor (unblocked), the clinch operation is repeated up to 20 times to feed the leading edge of the staple sheet to the position (clinch position) where it can be detected by the self-priming sensor.

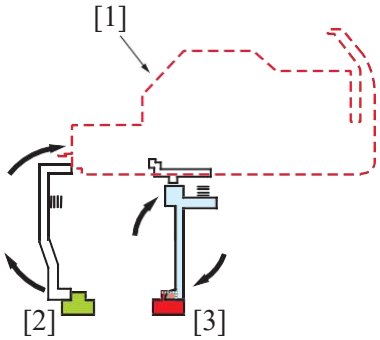
State where staple sheet is not fed



[1] Staple cartridge (loaded with staple sheets)
[2] Staple sheet is fed by clinch operation
[3] Self-priming sensor (unblocked)
[4] Staple empty sensor (unblocked)

- If the self-priming sensor cannot detect the leading edge of the staple sheet after clinch operations, machine determines that the staple sheet is not properly fed (staple sheet is not properly set) and the control panel displays the staple empty message.
- If the staple empty message appears even after staple sheets are loaded, check whether the staple sheets is properly set in the staple cartridge. If the cartridge is clogged with a staple sheet, clear the sheet.
- If staple empty occurs, the stapler stays at the staple cartridge replacement position. (position where staples can be supplied only by opening the front door).

(a) When the staple cartridge is not loaded



[1]	Staple cartridge (not mounted)	[2]	Self-priming sensor (unblocked)
[3]	Staple empty sensor (blocked)	-	-

- The actuator of the staple empty sensor is raised by the spring force. The staple empty sensor is blocked.
- The actuator of the self-priming sensor is raised by the spring force. The self-priming sensor is unblocked.
- MFP determines that the cartridge is empty and the control panel displays the staple empty message.

Clogged staple detection control

- Stapling operation is performed by lowering of the clincher staple arm and lifting of the staple arm.
- The staple arm position is detected by the staple home sensor located in the stapler.
- The stapler determines that the stapling operation is completed if the staple arm returns to the home position within the specified time after the stapling operation. If the staple arm does not return to the home position after the specified time has passed, the machine determines that staple trouble has occurred and an error message appears on the control panel.

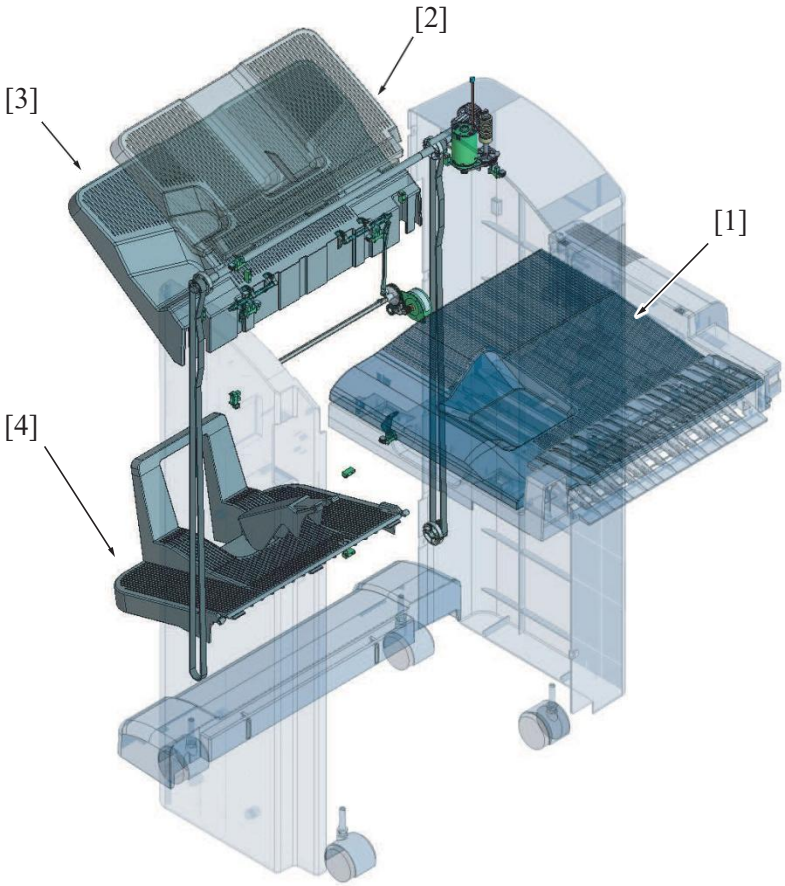
RECEIVING SECTION

Configuration

Configuration outline

- In the receiving section, paper transported into the finisher is placed into each tray.

Overall: Front perspective view



[1]	3rd tray (RU section upper position)	[2]	Sub tray
[3]	Main tray	[4]	Saddle tray: FS-534SD only

(1) Main tray

- Stores paper that is aligned in the alignment section.
- The tray's up/down mechanism moves the tray down depending on the amount of paper loaded, so that a large capacity of paper can be placed. The tray also includes the mechanism for detecting the amount of loaded paper.
- The paper stacking capacity for trays is different between the FS-534 and FS-534SD.

NOTE

- **For details on the paper stacking capacity, refer to Paper process ability .**

(2) Sub tray

- Stores paper that is transported from the transport section without passing through the alignment section.
- The tray is a fixed type without the up/down mechanism. The tray includes the mechanism for detecting the amount of loaded paper.

NOTE

- **For details on the paper stacking capacity, refer to Sub tray.**

(3) 3rd tray

- It stores the paper that is transported from the MFP paper exit section.
- The upper part of the RU section door can be used as the exit tray. The tray includes the mechanism for detecting the amount of loaded paper.

NOTE

- **For details on the paper stacking capacity, refer to 3rd tray.**

(4) Saddle tray

NOTE

- **FS-534SD only**

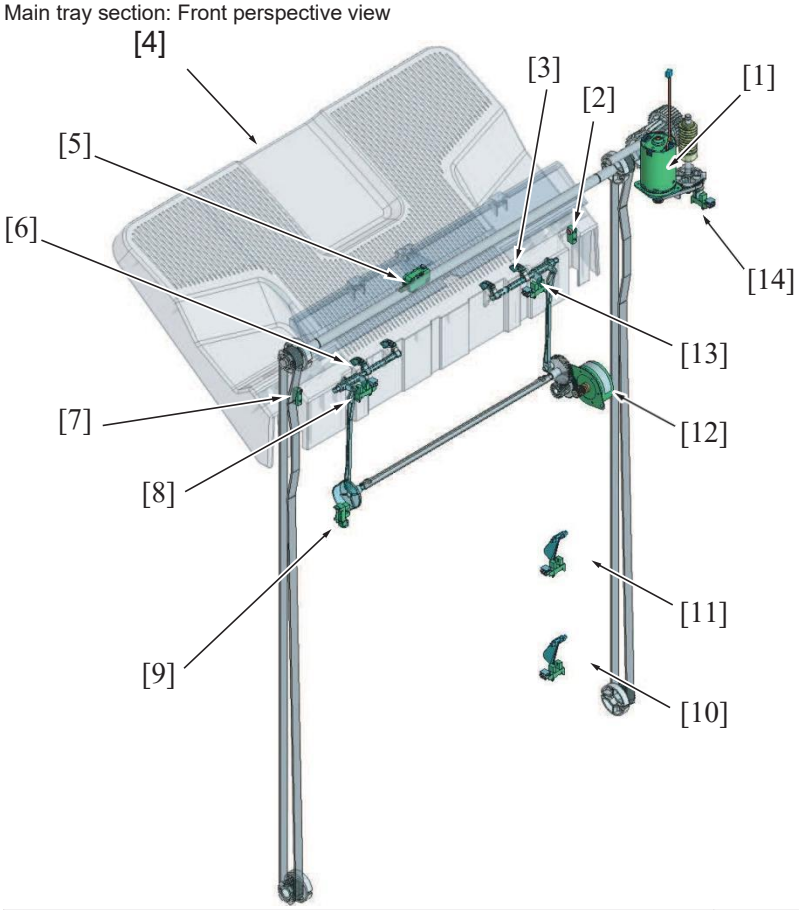
- Stores paper that is center-stapled in the saddle section is placed in the tray.
- The tray is a fixed type without the up/down mechanism. The tray does not have the sensor for detecting the amount of loaded paper. (To detect paper full, the number of sets discharged to the tray is counted.)

NOTE

- **For details on the amount of loaded paper, refer to Saddle stitching/folding.**

Main tray

Main tray section: Front perspective view



[1]	Main tray up/down motor (M11)	[2]	Main tray upper sensor/out (PS6)
[3]	Paper detection lever/Rr	[4]	Main tray
[5]	Main tray upper position detect switch (SW2)	[6]	Paper detection lever/Fr
[7]	Main tray upper sensor (PS7)	[8]	Main tray upper position sensor/F (PS27)
[9]	Paper delivery control sensor (PS28)	[10]	Main tray full detection sensor (PS29) *1
[11]	Main tray full detection sensor (PS29) *2	[12]	Paper receiving control motor (M12)
[13]	Main tray upper position sensor/R (PS26)	[14]	Stacker motor sensor (PS25)

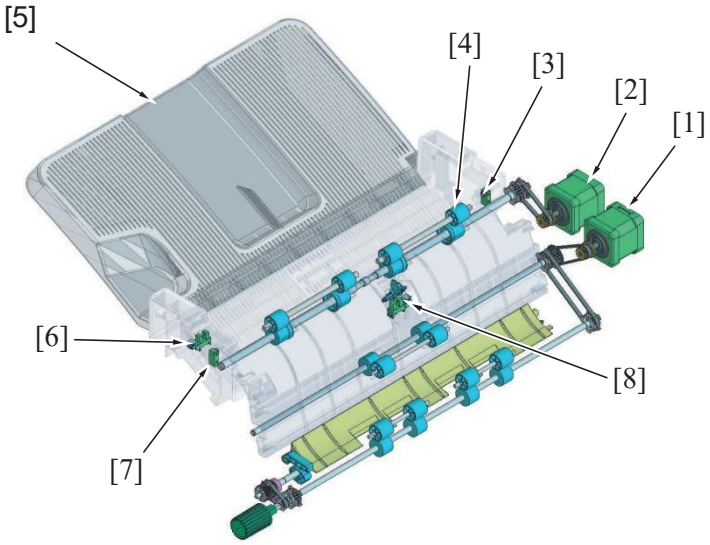
- *1: Installation position for the FS-534 sensor
- *2: Installation position for the FS-534SD sensor

Sub tray

NOTE

- **For configurations of the paper transport path to the sub tray, refer to PD.7.1.2 Paper feed section - sub tray section .**

Sub tray section: Front perspective view



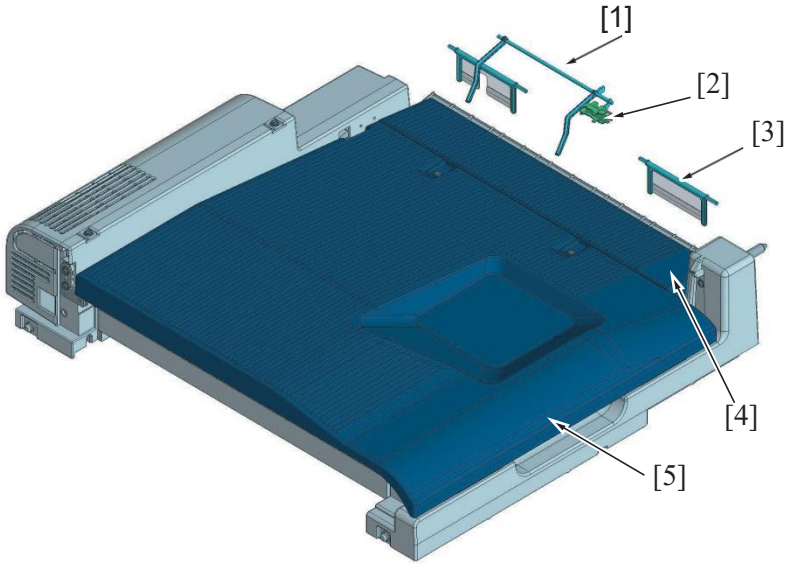
[1]	FNS entry transport motor (M2)	[2]	FNS discharge motor (M3)
[3]	Sub tray full detection sensor/out (PS9)	[4]	Sub tray section exit roller
[5]	Sub tray	[6]	Upper cover open/close detection sensor (PS32)
[7]	Sub tray full detection sensor/in (PS10)	[8]	Sub tray exit sensor (PS8)

3rd tray

NOTE

- **For configurations of the paper transport path to the 3rd tray, refer to Configuration .**

3rd tray section: Front perspective view



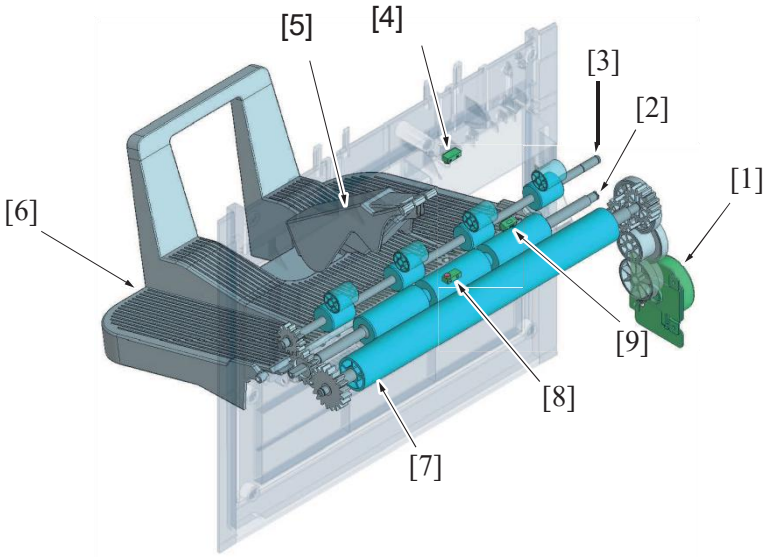
[1]	3rd exit tray full sensor actuator	[2]	3rd exit tray full sensor (PS1)
[3]	Paper press	[4]	Paper feed guide plate
[5]	3rd tray (RU section door)	-	-

Saddle tray

NOTE

- **FS-534SD only**
- **For configurations of the paper transport path to the saddle tray, refer to PD.11.1 Configuration .**

Saddle tray section: Perspective view



[1]	Center fold roller motor (M5)	[2]	Tri-folding roller
[3]	Saddler section exit roller	[4]	Booklet tray empty detection sensor/in (PS13)
[5]	Paper press	[6]	Saddle tray
[7]	Center folding roller/2	[8]	Booklet tray empty detection sensor/out (PS14)
[9]	Fold exit sensor (PS12)	-	-

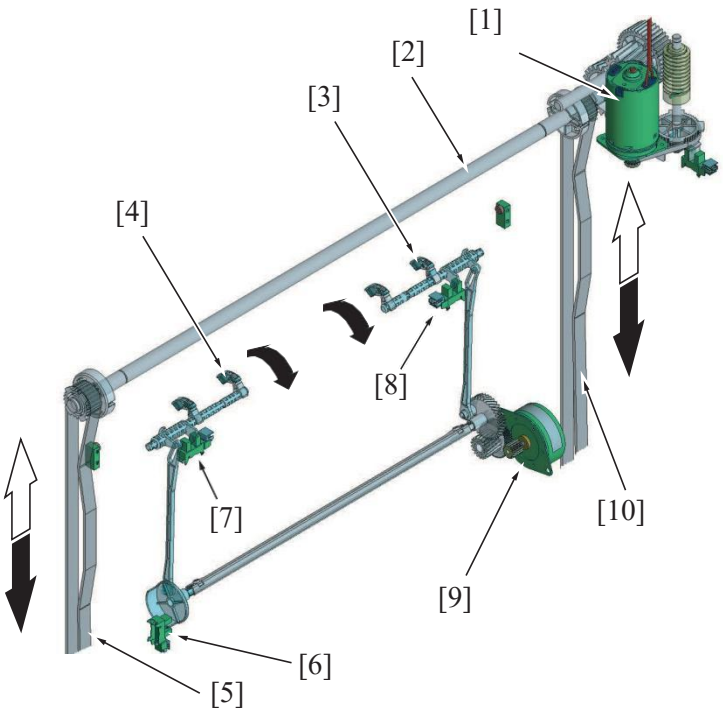
Drive

The driving source of the main tray section is the main tray up/down motor and the paper receiving control motor, and the following parts are driven.

Driving source	Driving parts	Function
Main tray up/down motor (M11)	Main tray	• Normal rotation: The main tray is lowered depending on the number of sheets discharged into the main tray. • Reverse rotation: After paper is removed, the main tray is lifted to the home position.
Paper receiving control motor (M12)	Paper detection lever	The height of stacked paper (amount of stacked paper) discharged to the main tray is detected.

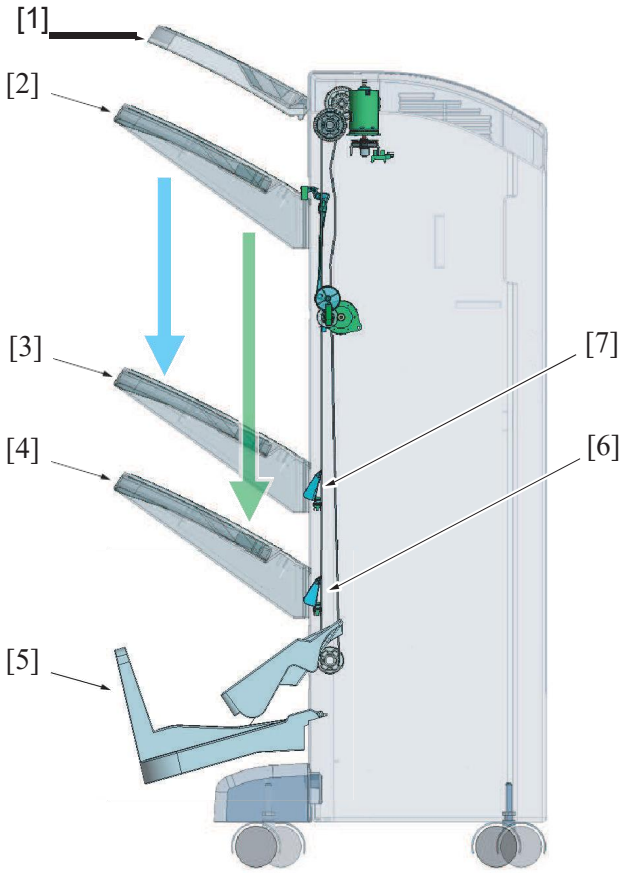
Main tray section

Front perspective view



[1]	Main tray up/down motor (M11)	[2]	Main tray driving shaft
[3]	Paper detection lever/Rr	[4]	Paper detection lever/Fr
[5]	Main tray drive belt/Fr	[6]	Paper delivery control sensor (PS28)
[7]	Main tray upper position sensor/F (PS27)	[8]	Main tray upper position sensor/R (PS26)
[9]	Paper receiving control motor (M12)	[10]	Main tray drive belt/Rr

Front view



[1]	Sub tray	[2]	Main tray (home position)
[3]	Main tray (main tray full position) *1	[4]	Main tray (main tray full position) *2
[5]	Saddle tray	[6]	Main tray full detection sensor (PS29) *2
[7]	Main tray full detection sensor (PS29) *1	-	-

- *1: FS-534SD
- *2: FS-534

(1) Mechanism for protecting main tray drive section

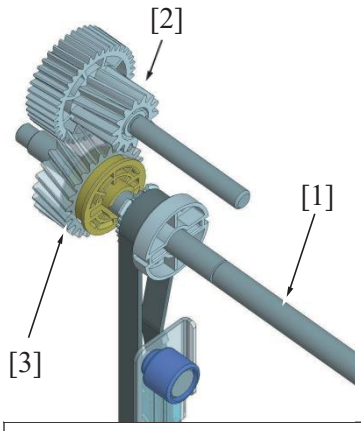
⚠CAUTION

- When the drive connection in the torque limiter is released, the main tray moves down under its own weight.
- To avoid finisher breakage and your injury, before releasing the drive connection in the torque limiter, be sure to support the main tray with your hand.

- The drive connection section of the main tray up/down drive mechanism has a torque limiter to prevent breakage.
- There may be an obstacle below the main tray during its downward movement. If the tray touches the obstacle and the force required to stop the lowering operation exceeds the specified value, the teeth of the drive gear rotates in the reverse direction and the driving force cannot be transmitted to the main tray. The torque limiter is used to prevent this situation from causing the breakage of the main tray drive mechanism and the main tray up/down motor.

- The main tray can be moved only upward with your hands. By manually pushing it upward with the force exceeding the specified value, the main tray can be raised. In contrast, as the torque limiter is not provided for the downward movement, the main tray cannot be lowered by pushing it down. If the tray is forcibly pushed downward, the main tray drive mechanism can be damaged.
- If the main tray needs to be manually lowered for maintenance and repair, the tray can be lowered by releasing the drive connection in the torque limiter.

Front perspective view

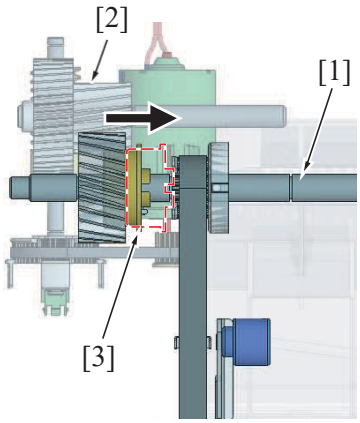


[1]	Main tray driving shaft	[2]	Main tray up/down motor drive connecting gear
[3]	Torque limiter	-	-

(a) Method for releasing the drive connection

1. Remove the rear cover.
2. Support the main tray with your hand so that it does not fall down.
3. Slide the area of the torque limiter, located on the main tray driving shaft, as shown to the front side of the main body. The connection of the drive gears is released and the main tray is lowered.

Side view



[1]	Main tray driving shaft	[2]	Main tray up/down motor drive connecting gear
[3]	Torque limiter	-	-

Sub tray section

NOTE

- **For information on the drive in the sub tray (between transport section and sub tray section), refer to PD.7.2 Drive in the transport section.**

3re tray section

NOTE

- **The 3rd tray does not have drive parts which requires drives source such as drive motor.**

Saddle tray section

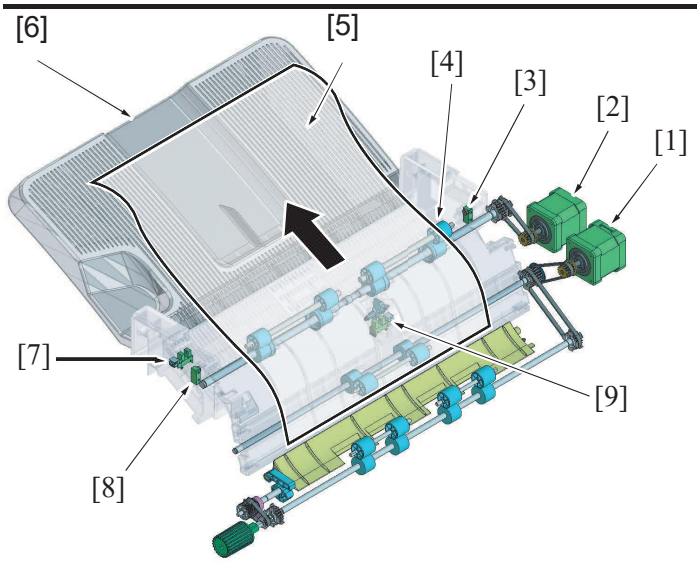
NOTE

- **For information on the drive in the sub tray (between transport section and sub tray section), refer to PD.11.7.1 Drive in the transport section.**

Operation

Sub tray exit mechanism

- Paper transported from the RU section is discharged to the sub tray by the sub tray exit roller via the FNS paper feed roller, FNS transport roller, and sub tray vertical transport roller.
- To transport paper to the sub tray, the paper path switching gate also operates.
- The sub tray exit roller is driven by the FNS discharge motor.

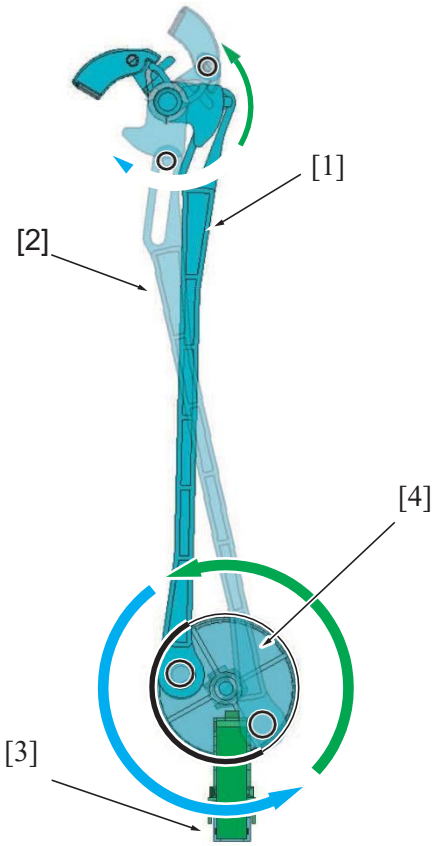


[1]	FNS entry transport motor (M2)	[2]	FNS discharge motor (M3)
[3]	Sub tray full detection sensor/out (PS9)	[4]	Sub tray section exit roller
[5]	Paper	[6]	Sub tray
[7]	Upper cover open/close detection sensor (PS32)	[8]	Sub tray full detection sensor/in (PS10)
[9]	Sub tray exit sensor (PS8)	-	-

Main tray paper level detection control

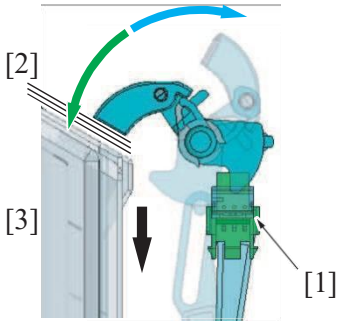
- The height of paper stacked on the main tray is always controlled to the specified level, by lowering the main tray depending on the amount of paper discharged to the main tray.
- The paper level is detected by the main tray upper position sensors/Fr and /Rr. Based on the detection results, the main tray height is controlled.
- The top end of the paper detection lever is lifted when the paper detection lever drive gear makes a half-turn. When the paper receiving control motor makes another half-turn, the end of the lever presses down the top of the trailing edge of the paper stacked on the main tray. Depending on the number of the sheets stacked or the height of the exit tray, the position of the paper detection lever changes.
- When the paper detection lever is at the home position, the main tray upper position sensor is unblocked. When the top end of the lever is lifted, the main tray upper position sensor is blocked. If the amount of stacked paper increases while the end of the lever presses down the top of the trailing edge of the paper stacked on the main tray, the paper detection lever becomes unable to return to the home position and the main tray upper position sensor is blocked. This causes machine to determine that the height of stacked paper exceeds the specified height. In this case, the main tray up/down motor is rotated and the main tray is lowered until the main tray upper position sensor is unblocked. When the main tray is lowered to the main tray full detection sensor, MFP determines that the main tray is full and the control panel displays the main tray full message.
- When main tray full is detected, the control panel displays the warning message. In this state, any main tray related configurations and jobs that use the main tray cannot be performed. The warning screen is cleared by removing the paper on the main tray. By removing the paper from the main tray, the paper detection lever is lowered. This causes machine to determine that the paper is removed and the “main tray full” message disappears.
- When the paper detection lever drive gear makes a turn, paper receiving control motor stops. The position of the paper detection lever drive gear is detected by the paper delivery control sensor.
- The paper level detection control is performed each time when paper is discharged to the tray to always monitor the height of paper. This control also serves as the function of preventing paper stacked on the tray from being disturbed by the paper discharged next.

Front view



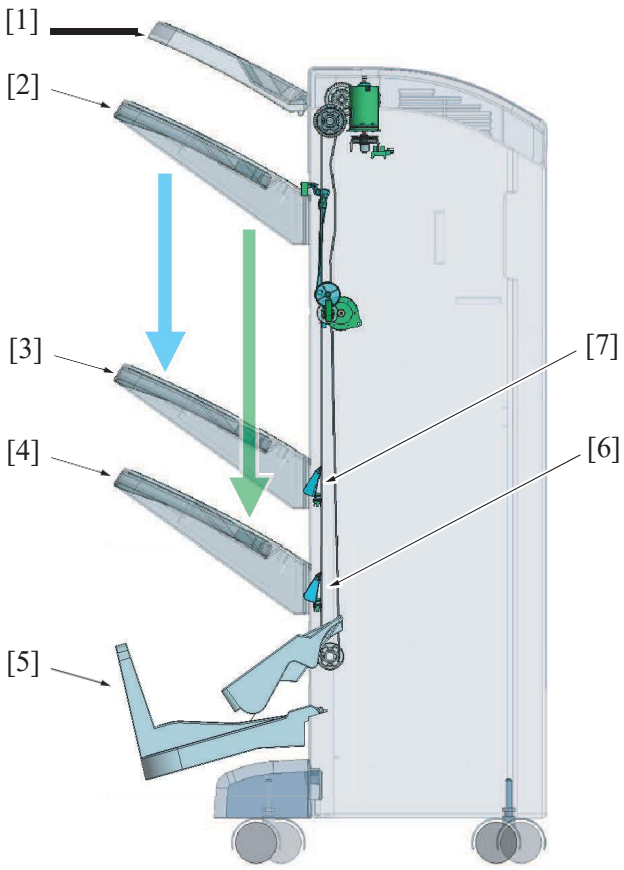
[1]	Paper detection lever (home position)	[2]	Paper detection lever (upper position)
[3]	Paper delivery control sensor (PS28)	[4]	Paper detection lever drive gear

(1) Paper detection lever tip enlarged picture



[1]	• Main tray upper position sensor/F (PS27) • Main tray upper position sensor/R (PS26)	[2]	Paper
[3]	Main tray	-	-

(2) Front view



[1]	Sub tray	[2]	Main tray (home position)
[3]	Main tray (main tray full position) *1	[4]	Main tray (main tray full position) *2
[5]	Saddle tray	[6]	Main tray full detection sensor (PS29) *2
[7]	Main tray full detection sensor (PS29) *1	-	-

- *1: FS-534SD
- *2: FS-534

(3) Amount of paper placed on the main tray

- The amount of paper placed on the main tray is different depending on the mode.
- When either the number or height of stacked sheets reaches the specified value, the main tray full is detected.

(a) Amount of paper placed on the main tray in sort or group mode

- For details on the paper stacking capacity, refer to Number of stacked sheets.

(b) Amount of paper placed on the main tray in sort offset or group offset mode

- For details on the paper stacking capacity, refer to Number of stacked sheets.

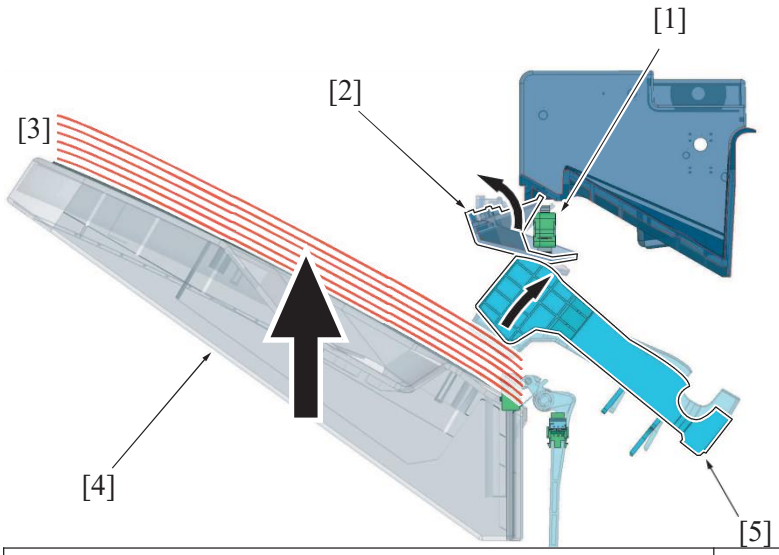
(c) Amount of paper placed on the main tray in staple mode

- For details on the paper stacking capacity, refer to Paper capacity.

Main tray upper detection mechanism

- The main tray includes the upper limit detection mechanism. The mechanism is to avoid malfunction and breakage of the main tray up/down mechanism that may be caused by the tray being lifted higher than the specified position.
- While paper is stacked on the main tray, if the main tray moves up and the top of the stack pushes the alignment plate up, the main tray upper position detect switch cover is raised and the main tray upper position detect switch is pressed. This causes the main tray up/down motor to stop rotating and the main tray to stop moving upward.

  NOTE
  - **In the case of small paper of which width is shorter than the distance formed between the alignment plates when the alignments are at home position, the paper may directly pushes up the main tray upper position detect switch cover. In that case, the main tray upward movement is also stopped.**
  - **While the main tray is moving upward, if user press the main tray upper position detect switch cover by mistake, the main tray upward movement is also stopped. In this case, when the main tray upper position detect switch cover is released, if the top surface of the main tray does not reach the specified height, the main tray moves up again. When the top surface of the main tray reaches the specified height, the upward operation stops.**
  - **For details of the main tray up/down operation, refer to PD.10.3.2 Main tray paper level detection control .**

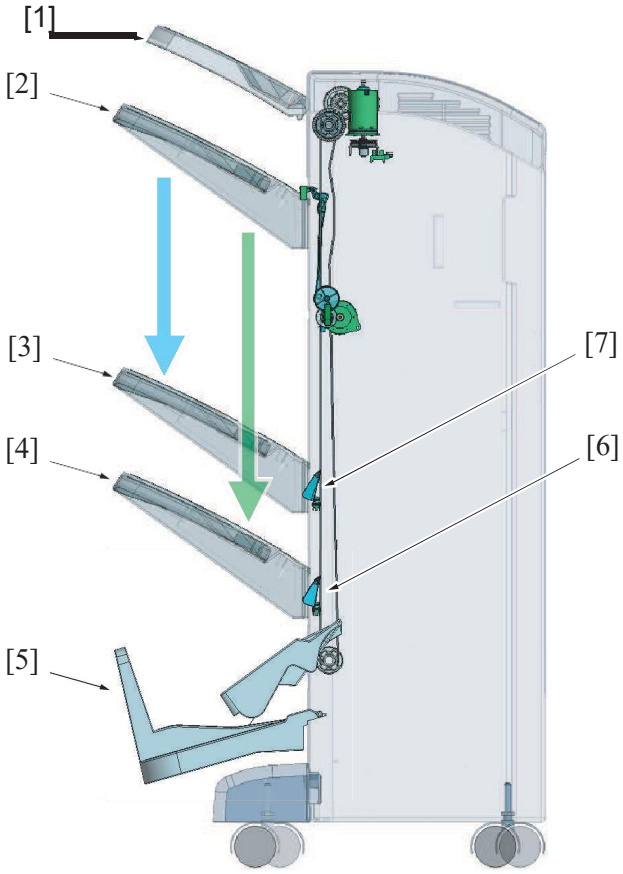


[1]	Main tray upper position detect switch (SW2)	[2]	Main tray upper switch cover
[3]	Paper	[4]	Main tray
[5]	Alignment plate	-	-

Tray full detection mechanism

(1) Main tray

- When machine determines that the amount of paper stacked on the main tray exceeds the specified height, the paper detection lever causes the main tray up/down motor to rotate to lower the main tray to the specified position. When the main tray is lowered to the position of the main tray full detection sensor, the main tray full is determined.
- When paper full is detected, the warning message appears on the control panel. In this state, any main tray related configurations and jobs that use the main tray cannot be performed. The warning screen is cleared by removing paper from the main tray.
  For details of main tray up/down control, refer to PF.10.3.2 Main tray paper level detection control.



[1]	Sub tray	[2]	Main tray (home position)
[3]	Main tray (main tray full position) *1	[4]	Main tray (main tray full position) *2
[5]	Saddle tray	[6]	Main tray full detection sensor (PS29) *2
[7]	Main tray full detection sensor (PS29) *1	-	-

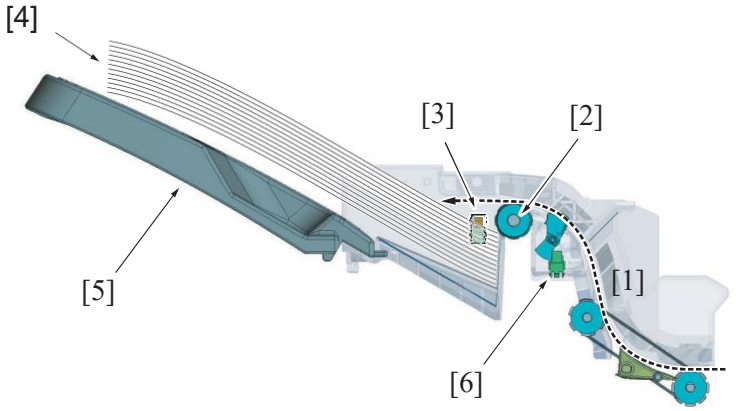
- *1: FS-534SD

- *2: FS-534

(2) Sub tray

- When the specified amount of paper is discharged into the sub tray, the stacked paper blocks the sub tray full detection sensor. The sensor detects it as a full state of the exit tray.
- When the sub tray full is detected, the warning message appears on the control panel. In this state, any sub tray related configurations and jobs that use the sub tray cannot be performed. The warning screen can be cleared by removing the paper on the sub tray.

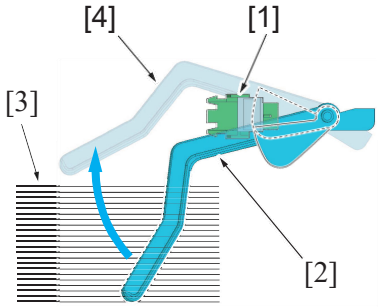
Front view



[1]	Sub tray paper transport route	[2]	Sub tray section exit roller
[3]	• Sub tray full detection sensor/out (PS9) • Sub tray full detection sensor/in (PS10)	[4]	Paper
[5]	Sub tray	[6]	Sub tray exit sensor (PS8)

(3) 3rd tray

- When the specified amount of paper is discharged into the 3rd tray, the stacked paper pushes up the 3rd tray full detection sensor actuator. When the actuator is pushed up to the predetermined position, the 3rd exit tray full sensor will be unblocked by the actuator to detect the exit tray full.
- The warning message will be displayed on the control panel when the 3rd tray full is detected. All setting operations and jobs will be disabled when the warning message is displayed on the screen. The warning message will be released by removing the paper on the 3rd tray.



[1]	3rd exit tray full sensor (PS1)	[2]	3rd exit tray full sensor actuator (no paper)
[3]	Paper	[4]	3rd exit tray full sensor actuator (exit tray full)

(4) Saddle tray

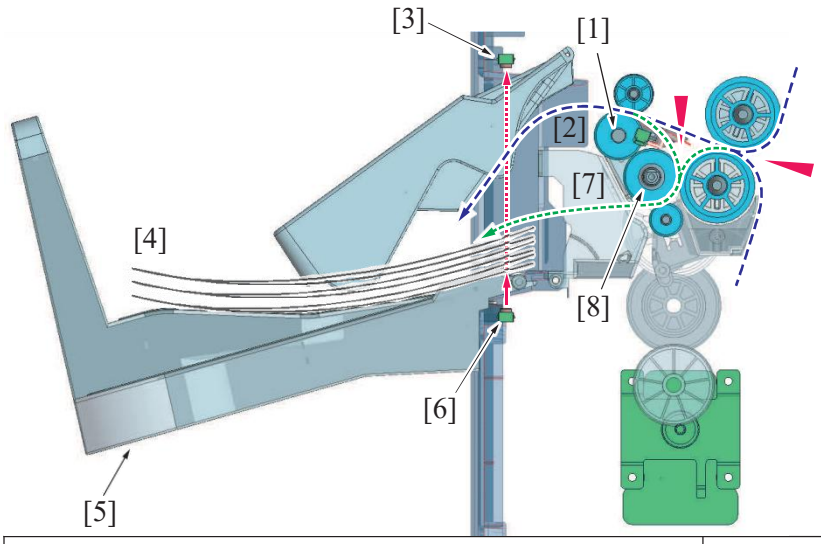
NOTE

- **FS-534SD only**

- When paper is discharged to the saddle tray, the light from the saddle tray exit sensor is blocked. When the stacked sheets are removed, the sensor light is unblocked.
- When the specified amount of paper is discharged into the saddle tray, the stacked paper blocks the saddle tray exit sensor. The sensor detects it as a full state of the saddle tray.

  NOTE

  - **For a tri-fold job, if paper is present in the saddle tray when the job is started, the saddle tray full is detected. (Even only one set of sheets remains, tray full is detected.)**
- When the saddle tray full is detected, the warning message appears on the control panel. In this state, any saddle unit related configurations and jobs that use the saddle unit cannot be performed. The warning screen is cleared by removing the paper placed on the saddle unit.



[1]	Saddle section exit roller	[2]	Paper transport route: Center folding
[3]	Booklet tray empty detection sensor/in (PS13)	[4]	Paper
[5]	Saddle tray	[6]	Booklet tray empty detection sensor/out (PS14)
[7]	Paper transport route: Tri-folding	[8]	Tri-folding roller

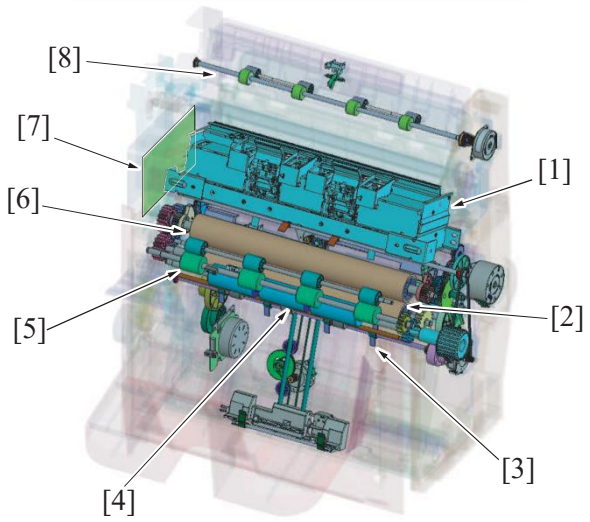
SADDLE SECTION

Configuration

NOTE

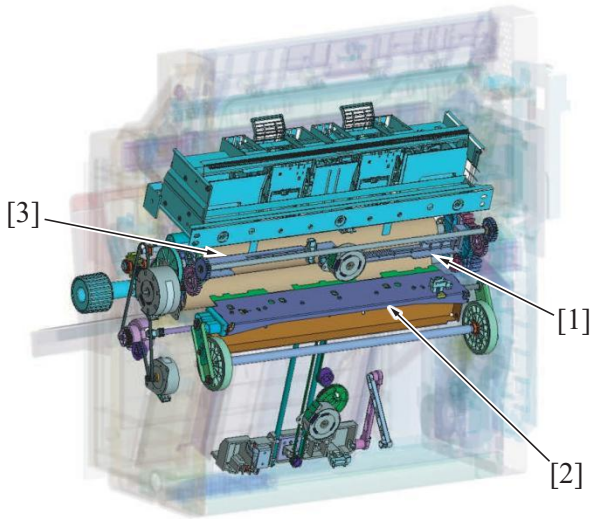
- **FS-534SD only**

Front left side perspective view



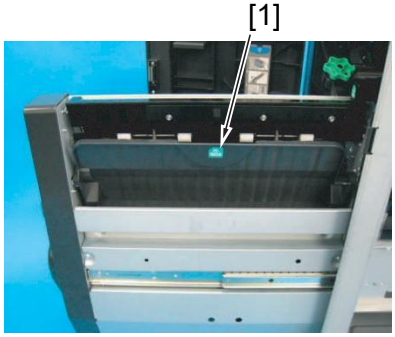
[1]	Staple unit	[2]	Center folding roller/2
[3]	Center fold section lower paddle	[4]	Tri-folding roller
[5]	Saddle section exit roller	[6]	Center fold roller/1
[7]	SD drive board (SDDB)	[8]	Saddle section paper feed roller

Front right side perspective view



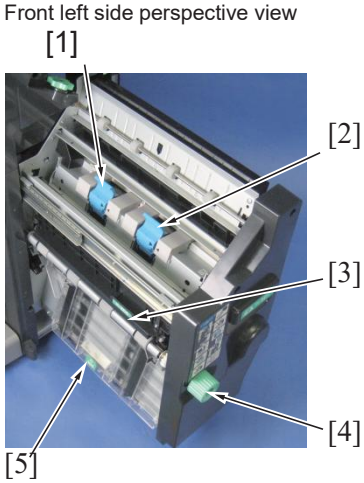
[1]	Center staple alignment plate drive gear/Rr	[2]	Center fold knife
[3]	Center staple alignment plate drive gear/Fr	-	-

Right side view



[1]	Jam removal cover (transport section)	-	-

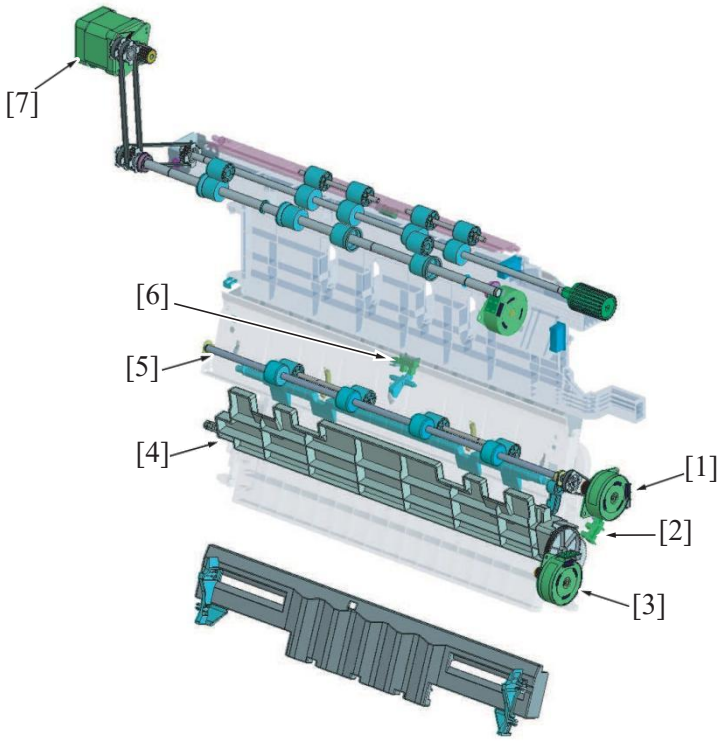
Front left side perspective view



[1]	Staple cartridge (rear side)	[2]	Staple cartridge (front side)
[3]	Jam removal cover (exit section)	[4]	Jam removal dial (folding section)
[5]	Jam removal cover (alignment section)	-	-

Transport section

Drive



[1]	SD transport motor (M1)	[2]	Curl cover detection sensor (PS2)
[3]	Paper discharge control motor (M2)	[4]	Curl cover
[5]	SD transport roller	[6]	SD entrance sensor (PS1)
[7]	FNS discharge motor (M3)	-	-

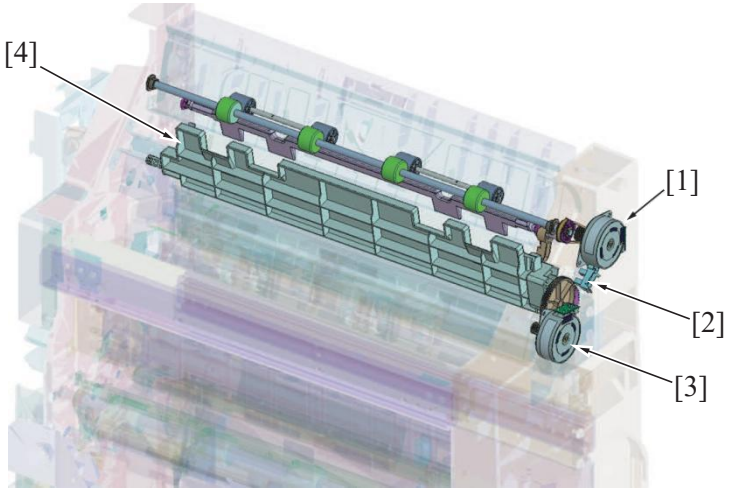
Paper transport

- The FNS discharge motor rotates reversely to transport the paper from the finisher transport section into the saddle unit.
- The paper then is transported to the alignment section by SD transport roller.
- The SD transport roller rotates when the SD transport motor is driven.

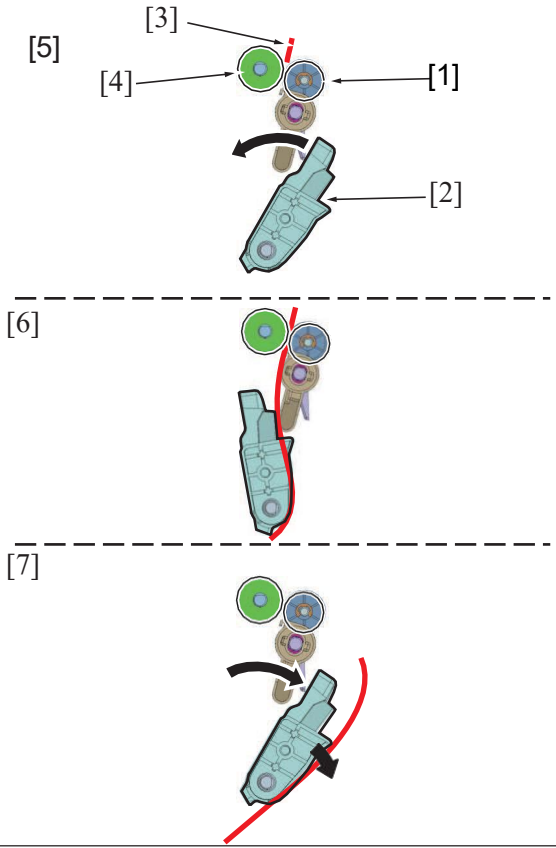
Curl cover

- The paper is transported to the alignment section one–by-one. A paper which is curled may cause paper misfeed at the entrance of the saddle stitcher.

- In order to prevent this paper misfeed, the curl cover is installed so that each paper is transported to the alignment section without fail.
- The curl cover is operated by the paper discharge control motor. Paper receiving opens/closes the feeding port inside the saddle unit entrance when the paper discharge control motor rotates in forward/reverse direction.



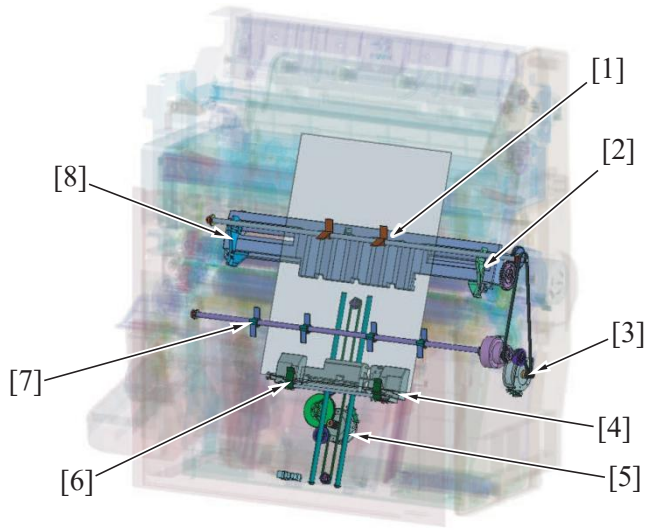
[1]	SD transport motor (M1)	[2]	Curl cover detection sensor (PS2)
[3]	Paper discharge control motor (M2)	[4]	Curl cover



[1]	SD transport roll	[2]	Curl cover
[3]	Paper	[4]	SD transport roller
[5]	Paper transportation from within the finisher	[6]	Curl cover operation
[7]	Next paper standby (moves curl cover to the home position)	-	-

Alignment section

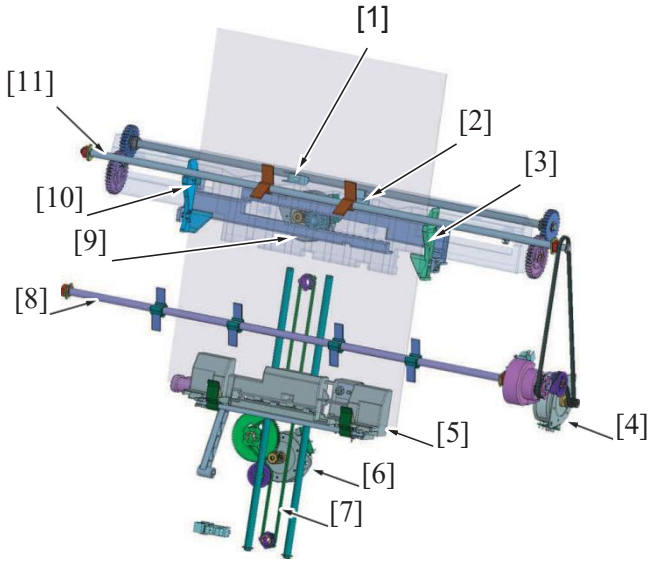
Drive



[1]	Center folding section upper paddle	[2]	Alignment plate/F
[3]	SD paddle motor (M7)	[4]	Stopper guide
[5]	Stopper drive motor (M4)	[6]	Paper grip
[7]	Center folding section lower paddle	[8]	Alignment plate/R

Alignment

- It aligns the paper transported to the alignment section.
- The paper CD alignment is conducted by alignment plate/F and alignment plate/R. The alignment plate shifts by forward/reverse rotation of the alignment motor to align the paper edge.
- The paper FD alignment is conducted by the stopper guide, center folding section upper paddle and center folding section lower paddle.
- The stopper guide moves up when the stopper drive motor rotates in forward/reverse direction to stop at the position which suits the length of the paper transported. The leading edge of the paper stops by the stopper guide to align the leading edge.
- When the paper is transported, the stopper drive motor rotates in forward/reverse direction to operate the stopper guide drive belt, and moves the stopper guide up/down.
- The center folding section upper paddle and the center folding section lower paddle are installed in order to receive the transported paper to the alignment section without fail.
- The paddle is driven by the SD paddle motor.



[1]	Center staple/fold stacker paper detect sensor (PS3)	[2]	Alignment home sensor (PS4)
[3]	Alignment plate/F	[4]	SD paddle motor (M7)
[5]	Stopper guide	[6]	Stopper drive motor (M4)
[7]	Stopper guide drive belt	[8]	Center folding section lower paddle
[9]	Alignment motor (M3)	[10]	Alignment plate/R
[11]	Center folding section upper paddle	-	-

(1) Alignment operation

- When the saddle exit sensor of the finisher detects the leading edge of the paper, the alignment motor starts rotating in the direction to close the alignment plate, and the alignment plate/F and the alignment plate/R stop at the position where it is slightly wider than the paper width.
- When the specified period of time has passed after the SD entrance sensor detects the trailing edge of the paper, the alignment motor rotates in forward/reverse direction to do oscillation of the alignment plate to align paper.
- The oscillation of the alignment plate is conducted each time a sheet of paper is transported, and the alignment plate is shifted to the standby position after the alignment operation is finished.
- The home position of the alignment plate is detected by the alignment home sensor.

(2) Stopper guide operation

- The stopper guide is moved up according to the paper size.
- The stopper guide moves up and stops at the specified position after the leading edge of the paper passes the main tray exit sensor.

(3) Paddle operation

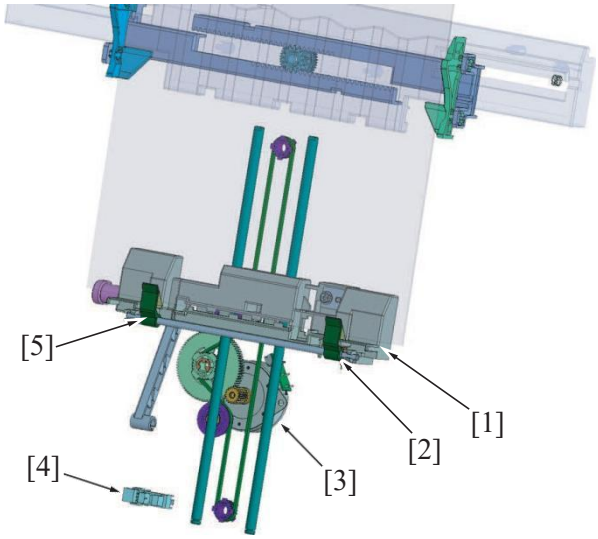
- The up/down paddle is driven by the SD paddle motor. The up/down paddle is driven when the specified period of time has passed after the leading edge of the paper passed the saddle exit sensor of the finisher.
- The up/down paddle stops after the paper trailing edge passes the finisher's main tray exit sensor and the paddle rotates for the specified number of times.

Stopper guide

- At the stopper guide, paper is aligned in the FD direction. Paper conveyed to the aligning section is conveyed to the specified position.
- The exit grip holds the paper when shifting it to the specified position and when stapling papers.
- The alignment section, staple position and other positions (center folding, saddle folding, tri-folding) have their own up/down stop positions. They are controlled by the pulse number of the stopper drive motor.

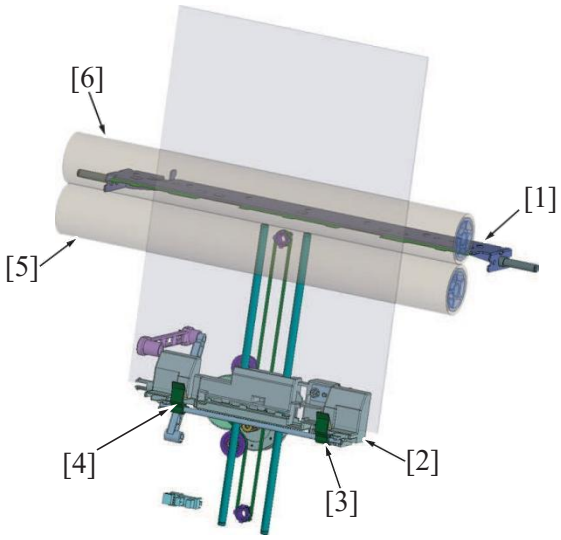
(1) Stopper operation

- The stopper drive motor moves the stopper guide up and down in accordance with the paper size. The stopper home sensor detects the home position.



[1]	Stopper guide	[2]	Exit grip/Fr
[3]	Stopper drive motor (M4)	[4]	Stopper home sensor (PS6)
[5]	Exit grip/Rr	-	-

(2) Stopper control



[1]	Center folding knife assy	[2]	Stopper guide
[3]	Exit grip/Fr	[4]	Exit grip/Rr
[5]	Center folding roller/2	[6]	Center folding roller/1

(a) Folding mode

- After a specified period of time since the last sheet of paper was aligned, the stopper solenoid is turned ON and the sheets of paper are held in place.
- After the sheets are held in place, the stopper drive motor rotates to move the stopper guide down and lower the sheets to the folding position.

(b) Saddle stitching mode

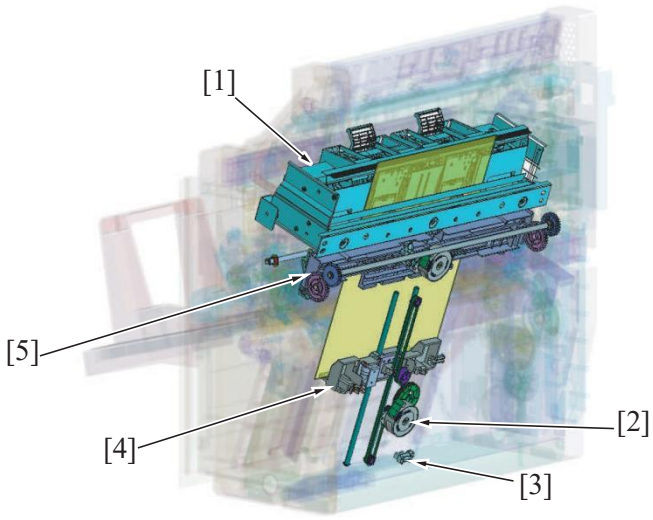
- After a specified period of time since the last sheet of paper was aligned, the stopper solenoid is turned ON and the sheets of paper are held in place.
- After the sheets are held in place, the stopper drive motor rotates to move the stopper guide down and lower the sheets to the saddle stitching position.
- After a specified period of time since stapling operation was completed, the alignment motor opens the alignment plates and the stopper drive motor starts rotating to move the stopper guide further down and lower the paper to the folding position.

(c) Tri-folding mode

- After a specified period of time since the last sheet of paper was aligned, the stopper solenoid is turned ON and the sheets of paper are held in place.
- After the sheets are held in place, the stopper drive motor rotates to move the stopper guide down and lower the sheets to the 1st folding position in the tri-folding.

Stapler

Drive



[1]	Stapler unit	[2]	Stopper drive motor (M4)

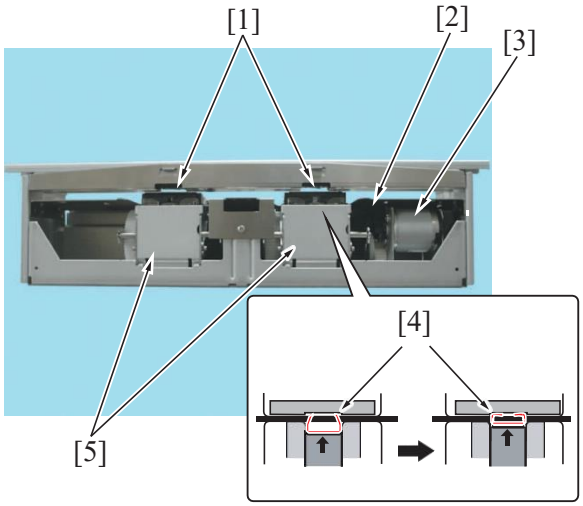
[3]	Stopper home sensor (PS6)	[4]	Stopper guide
[5]	Alignment tray	-	-

Operation

- The stapling operation is performed by the stapler motor.

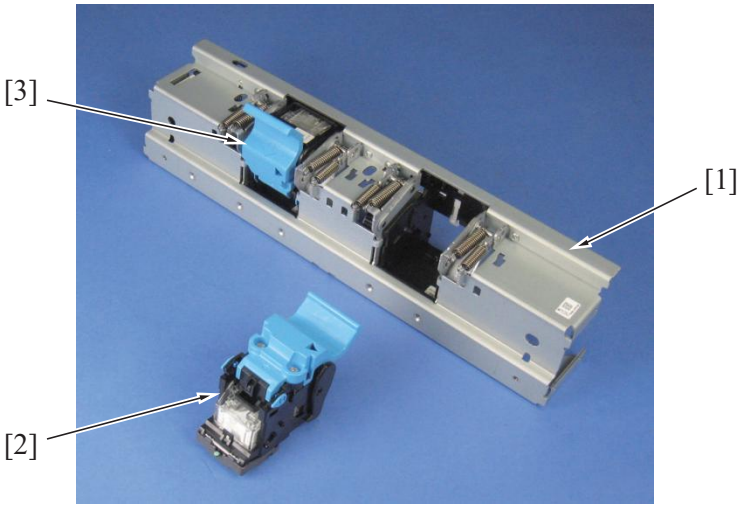
(1) Stapling operation

- The stapling operation is performed by the staple motor in the stapler.
- The drive gear pushes out the pressed portion of the paper toward the clincher to hold the paper, and then the pin will be pushed out.
- When the pin penetrates the paper batch, the pin will be bent to staple the paper batch at the clincher section.



[1]	Clincher	[2]	Drive gear
[3]	Stapler motor	[4]	Staple
[5]	Stapler	-	-

(2) Staple control



[1]	Staple unit	[2]	Staple cartridge (Front side): Removed
[3]	Staple cartridge (Rear side): Installed	-	-

(a) Stapling

- After completing the alignment operation of the alignment plate, the staple motor performs the stapling operation.
- The stapling operation is completed when the stapler home position sensor (rear) detects the home position and turn ON.

(b) Clogged staple detection

- When the stapler home position sensor (rear) does not turn ON after the specified period of time after it turned OFF during stapling, it is determined that the staple motor has the trouble, and stops the stapler motor.

(c) Staple cartridge detection

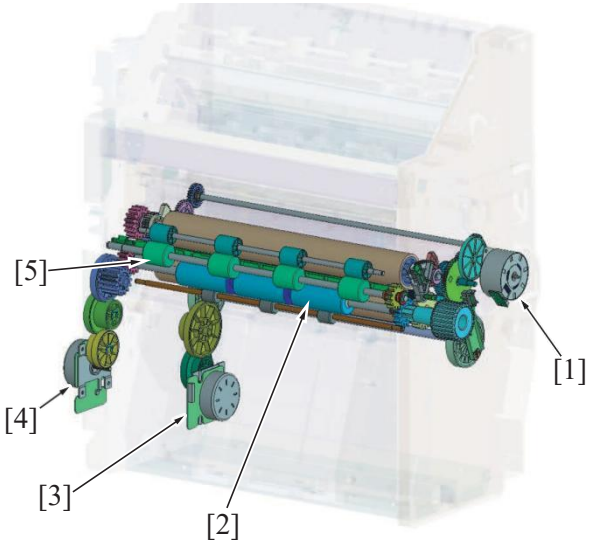
- The staple cartridge switch detects the presence of a cartridge or the incorrect settings of a staple cartridge.
- When no staple cartridge is installed or it is installed incorrectly, an error message appears on the machine control panel.

(d) Staple detection control

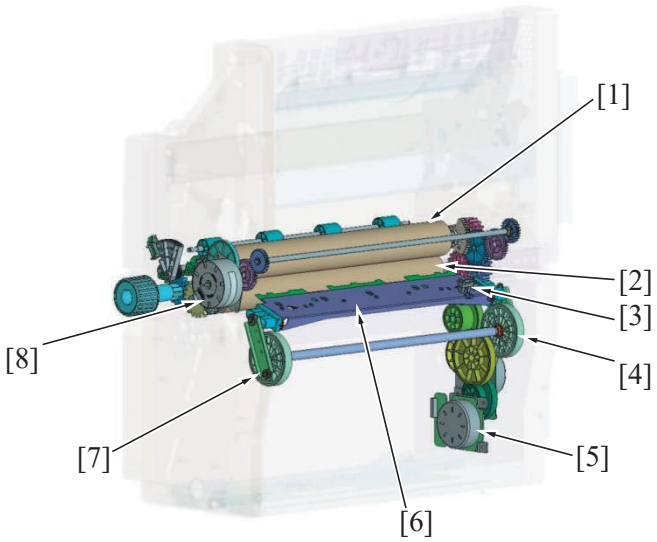
- When the staple goes empty, the staple empty switch turns ON and a message appears on the machine control panel.

Folding/Saddle stitching

Drive



[1]	Tri-folding guide motor (M6)	[2]	Tri-folding roller
[3]	Center fold knife motor (M9)	[4]	Center fold roller motor (M5)
[5]	Saddle section exit roller	-	-



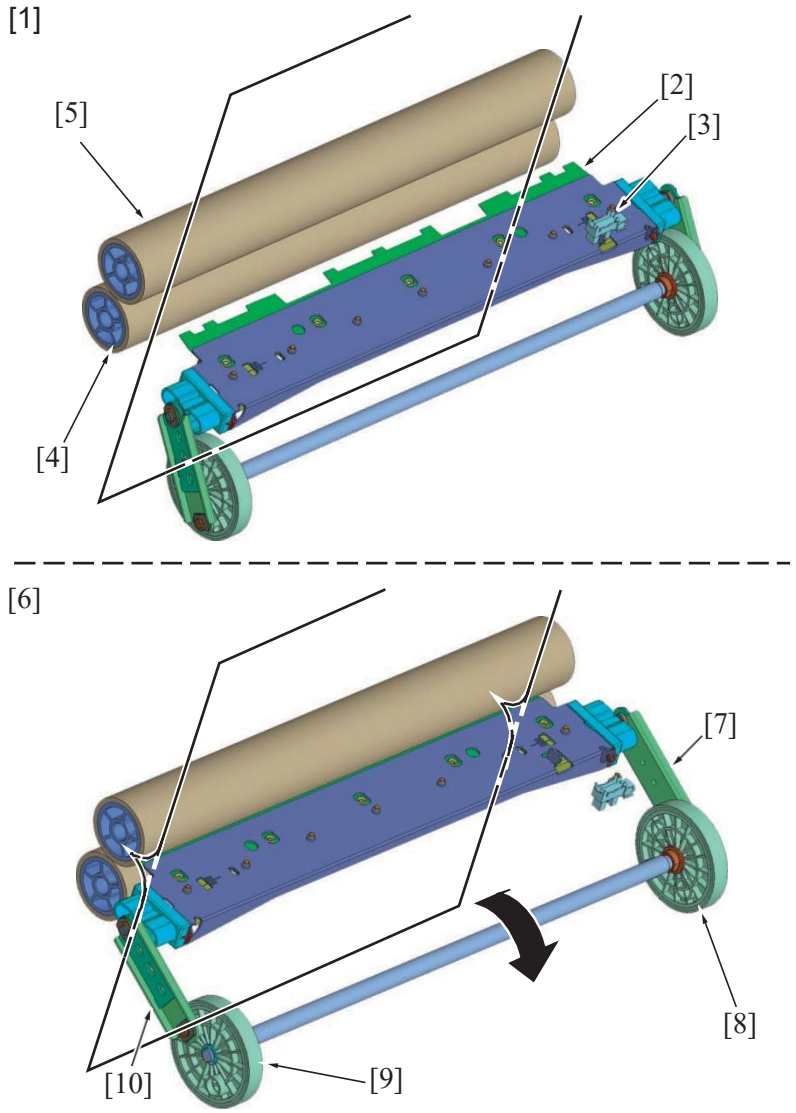
[1]	Center folding roller/1	[2]	Center folding roller/2
[3]	Center fold knife home sensor (PS8)	[4]	Fold drive gear/Rr
[5]	Center fold knife motor (M9)	[6]	Center folding knife assy
[7]	Fold drive gear/Fr	[8]	Tri-folding guide motor (M6)

Folding knife

- The center fold knife motor drives the folding knife.
- The folding knife is used in the folding/saddle stitching/tri-folding mode.
- In the tri-folding mode, it is used at the 1st folding.

(1) Folding knife operation

- The center fold knife motor rotates the crank shaft a half turn via the gear, and pushes the paper to the nip section with the folding knife.
- The folding rollers draw and fold the paper.
- The position of the stopper guide controls the folding position.



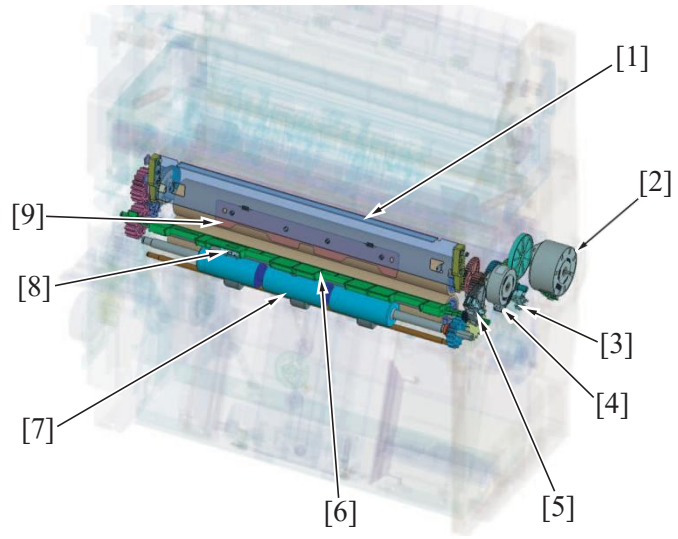
[1]	Before folding	[2]	Folding knife
[3]	Center fold knife home sensor (PS8)	[4]	Center folding roller/2
[5]	Center folding roller/1	[6]	Folding operation
[7]	Crank shaft/Rr	[8]	Fold knife assy drive gear/Rr
[9]	Fold knife assy drive gear/Fr	[10]	Crank shaft/Fr

(2) Folding knife control

- The center fold knife motor turns ON and sticks out the folding knife to the paper after a specified period of time since the stopper guide stops at the folding position.
- The center fold knife motor stops when the folding knife reciprocates after fold operation is completed and the center fold knife home sensor turns OFF.

Tri-folding

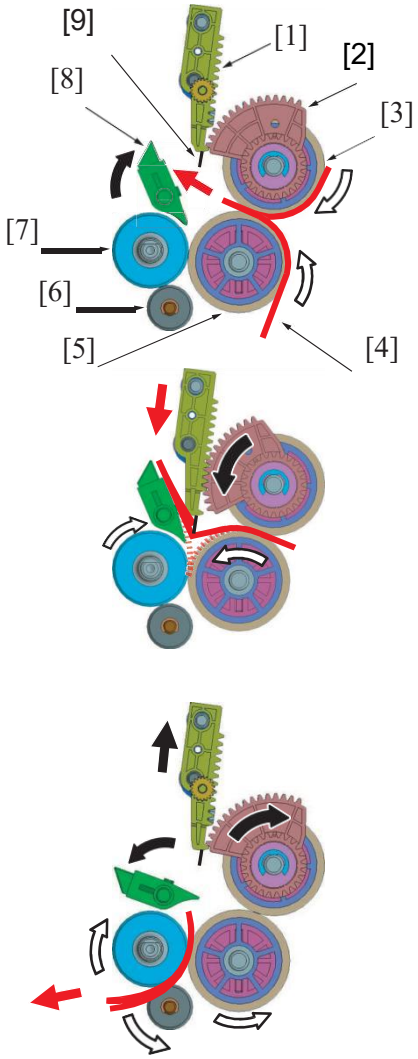
Drive



[1]	Tri-folding knife assy	[2]	Center fold guide motor (M8)
[3]	Guide home sensor (PS7)	[4]	Tri-fold guide motor (M6)
[5]	Tri-folding gate home sensor (PS11)	[6]	Center folding change gate
[7]	Tri-folding roller	[8]	Fold exit sensor (PS12)
[9]	Tri-folding knife	-	-

Tri-folding operation

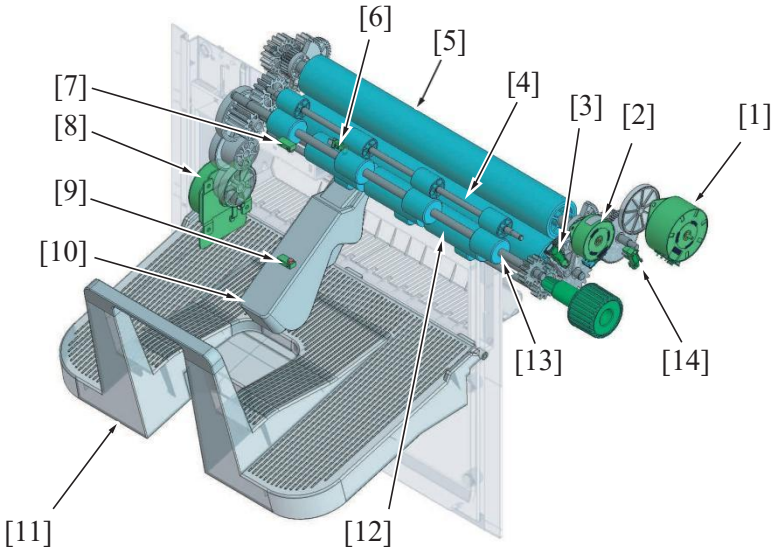
1. When the center fold guide motor drives, the tri-folding gate rotates. The leading edge of the paper to which the first fold was applied at the center folding section, will be transported to the tri-folding path.
2. When the tri-folding guide motor drives, the tri-folding knife assy drive gear rotates to move down the tri-folding knife assy. The paper to which the first fold is applied at the center folding section will be pushed out to the tri-folding roller.
3. The paper is pulled into the tri-folding roller to tri-fold the paper.
4. When tri-folding is finished, the tri-folding gate will return to the home position. The home position of the tri-folding gate is detected by the tri-folding gate home sensor.



[1]	Tri-folding knife assy	[2]	Tri-folding knife assy drive gear
[3]	Center folding roller/1	[4]	Paper
[5]	Center folding roller/2	[6]	Tri-folding roll
[7]	Tri-folding roller	[8]	Tri-folding gate
[9]	Tri-folding knife	-	-

Exit section

Drive



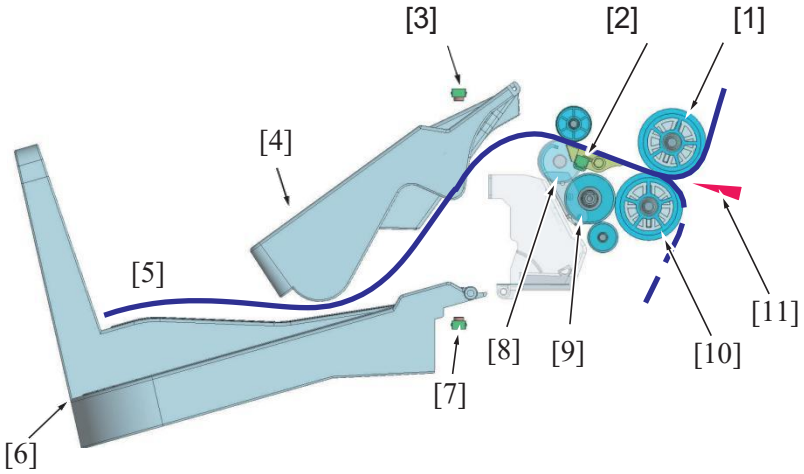
[1]	Center fold guide motor (M8)	[2]	Tri-fold guide motor (M6)
[3]	Tri-folding gate home sensor (PS11)	[4]	Center folding roller/2
[5]	Center folding roller/1	[6]	Fold exit sensor (PS12)
[7]	Booklet tray empty detection sensor/in (PS13)	[8]	Center fold roller motor (M5)
[9]	Booklet tray empty detection sensor/out (PS14)	[10]	Paper press
[11]	Saddle tray	[12]	Tri-folding roller
[13]	Saddle section exit roller	[14]	Guide home sensor (PS7)

Paper exit

- Center folded, saddle stitched, or tri-folded paper is discharged to the saddle tray.
- The paper that is center folded and saddle folded is sent though the upper route, and the tri-folded paper is sent through the lower route to be discharged.
- The paper is discharged by driving the exit roller and the tri-fold roller. Both rollers are driven by the center fold roller motor.

Paper exit for center fold / saddle stitch

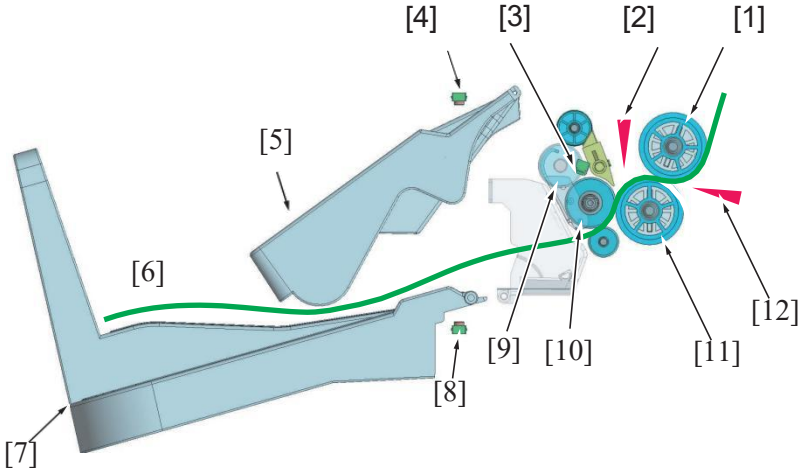
- The center fold roller motor is driven after the center fold or the saddle stitch, and discharges the paper to the saddle tray by the paper exit roller.



[1]	Center folding roller/1	[2]	Fold exit sensor (PS12)
[3]	Booklet tray empty detection sensor/in (PS13)	[4]	Paper press
[5]	Paper transport route	[6]	Saddle tray
[7]	Booklet tray empty detection sensor/out (PS14)	[8]	Saddle section exit roller
[9]	Tri-folding roller	[10]	Center folding roller/2
[11]	Folding knife	-	-

(1) Paper exit for tri-folding

- Since the paper is tri-folded by the tri-folding roller, the paper is transported through the lower route.

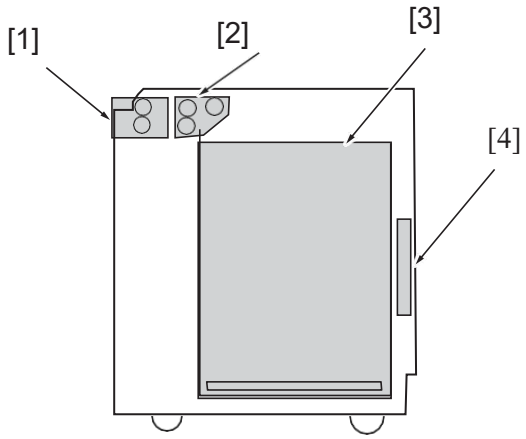


[1]	Center folding roller/1	[2]	Tri-folding knife
[3]	Fold exit sensor (PS12)	[4]	Booklet tray empty detection sensor/in (PS13)
[5]	Paper press	[6]	Paper transport route
[7]	Saddle tray	[8]	Booklet tray empty detection sensor/out (PS14)

[9]	Saddle section exit roller	[10]	Tri-folding roller
[11]	Center folding roller/2	[12]	Folding knife

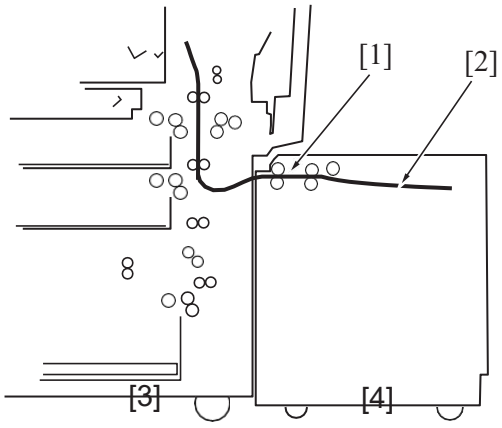
PE THEORY OF OPERATION CPT910U

SECTION CONFIGURATION



[1]	Paper transport section	[2]	Paper feed section
[3]	Paper storage section	[4]	Dehumidification heater

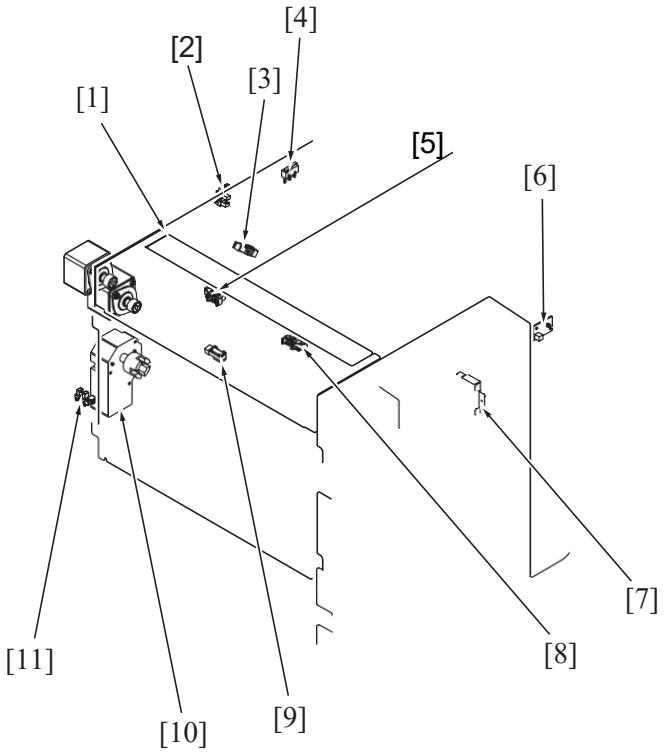
PAPER PATH



[1]	Transportation to main body	[2]	Paper feed from the tray
[3]	Main body	[4]	CPT910U

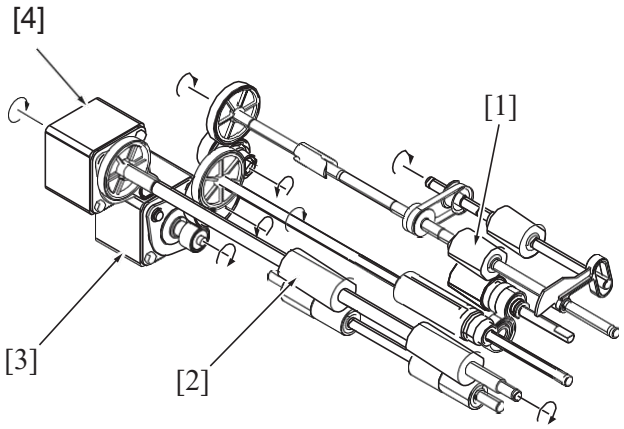
CONFIGURATION





[1]	LU drive board (LUDB)	[2]	Near empty sensor /1 (PS5)
[3]	Near empty sensor /2 (PS6)	[4]	LU door switch (MS1)
[5]	Upper limit sensor (PS2)	[6]	Tray LED (LED)
[7]	Dehumidification heater (DH)	[8]	Paper empty sensor (PS4)
[9]	Paper feed sensor (PS3)	[10]	Lift-up motor (M1)
[11]	Tray set sensor (PS1)		

DRIVE

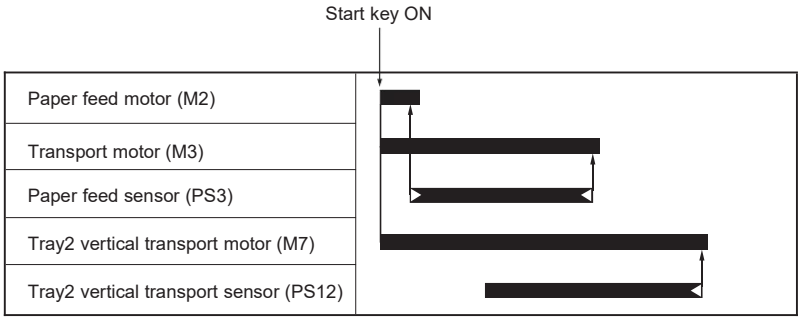


[1]	Feed roller	[2]	Transport roller
[3]	Paper feed motor (M2)	[4]	Transport motor (M3)

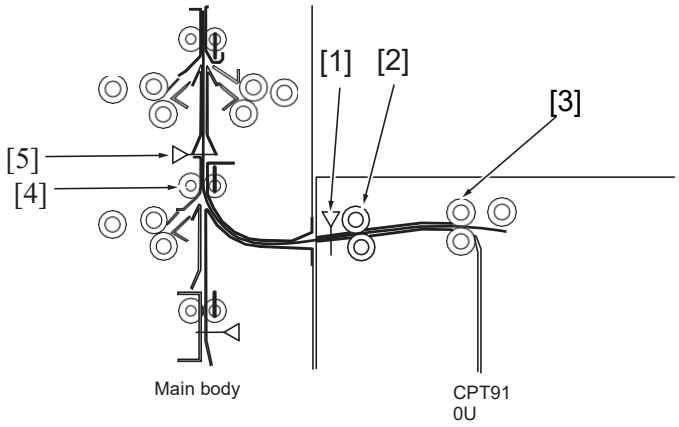
OPERATION

Paper feed and transport control

- The feed roller rotates and feeds paper at a predetermined timing.
- The LCT transport rollers rotate and convey paper at a predetermined timing.
- In consecutive print, when the interval between the preceding and following sheets is below the specified value, the LCT transport rollers temporarily stop to ensure a predetermined interval.
- The paper transport speed is faster than the system speed.



Layout of sensors and rollers

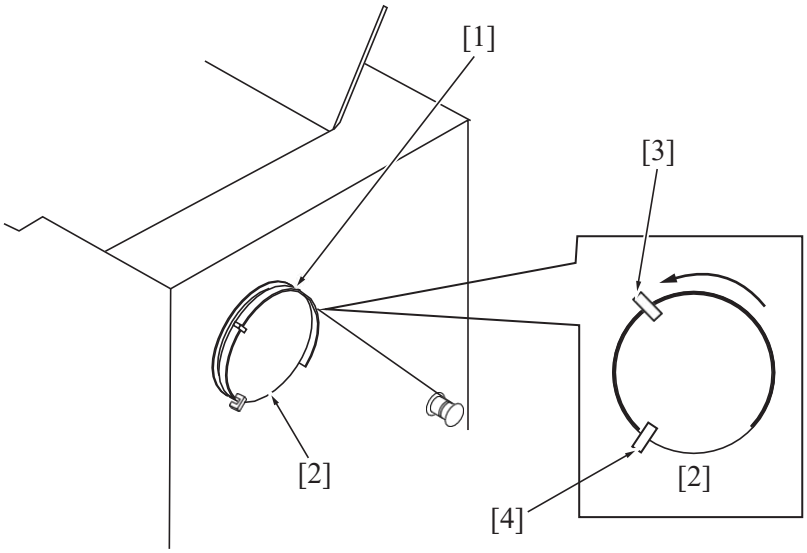


[1]	Paper feed sensor (PS3)	[2]	Transport roller
[3]	Feed roller	[4]	Tray2 vertical transport roller
[5]	Tray2 vertical transport sensor (PS12)		

Paper level detection

- The level of the paper still available for use is determined based on the outputs from near empty sensor/1 and sensor/2.
- A near empty condition is detected when the amount of paper left still available for use is about 50 sheets ± 30 sheets.

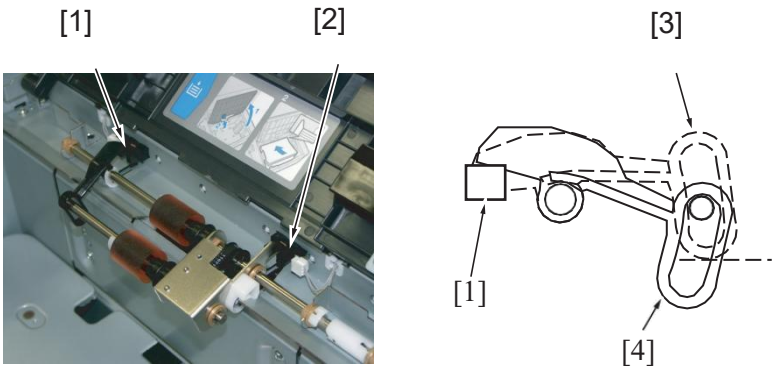
Reference data: plain paper	Paper full	Paper near full	Paper available	Near empty
Paper level	3000 to 2000 sheets	2000 to 1000 sheets	1000 to 51 sheets	50 to 1 sheets
Near empty sensor /1	blocking	blocking	unblocking	unblocking
Near empty sensor /2	unblocking	blocking	blocking	unblocking



[1]	Paper level detection plate	[2]	Notch
[3]	Near empty sensor /1 (PS5)	[4]	Near empty sensor /2 (PS6)

Paper empty detection

- The paper empty sensor detects a paper empty condition.

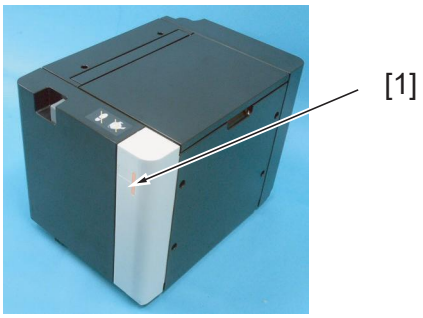


[1]	Paper empty sensor (PS4)	[2]	Upper limit sensor (PS2)
[3]	Paper still available	[4]	Paper empty condition

Paper level indicator

- The amount of paper still available for use, or the paper level, is indicated by the LED provided on the right-hand side of the unit as viewed from the front.
- Following describe different paper level conditions.

Paper condition	Empty	Near empty	Other than empty and near empty conditions, during lift-up
LED display	ON	blinking	OFF

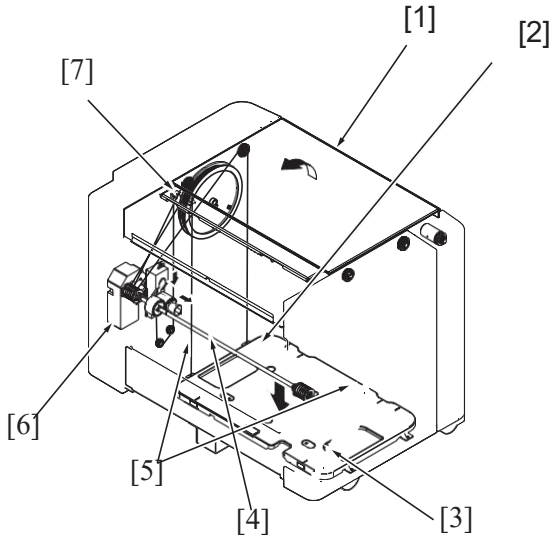


[1]	Tray LED		

Tray lift-up control

Tray ascend/descend mechanism

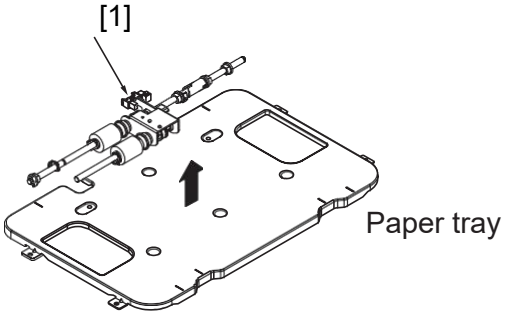
- The tray is suspended by the wires at the front and rear.
- Rotation of the lift-up motor winds the wires, which causes the tray to go up.
- Opening the LU door disconnects the lift-up motor from the tray ascend/descend mechanism, causing the tray to lower by its own weight.
- There is a drive assist spring used for bringing the tray to a stop at an appropriate height.



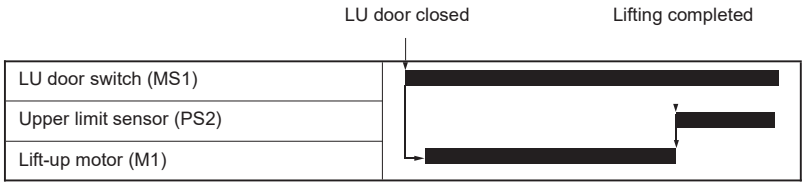
[1]	LU door	[2]	Paper tray
[3]	Drive assist spring	[4]	Lift-up axis
[5]	Wire	[6]	Lift-up motor (M1)
[7]	Coupling		

(1) Closing the LU door

- The condition of the upper limit sensor signal is checked when the LU door is closed. If the upper limit sensor is unblocked, the lift-up motor is energized so that lifting of the tray is started.
- When the upper limit sensor is blocked after the lifting of the tray has been started, the lift-up motor is deenergized to complete the lifting of the tray.

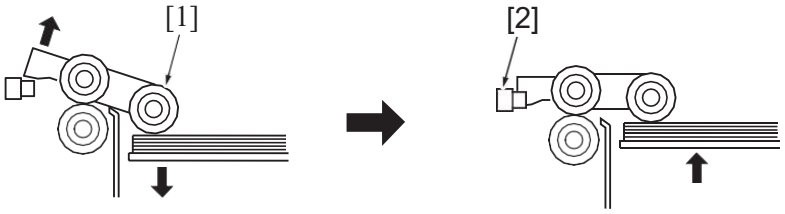


[1] Upper limit sensor (PS2)	



(2) During a print cycle

- As the paper is consumed for a number of print cycles carried out, the pickup roller gradually lowers and eventually unblocks the upper limit sensor. The lift-up motor is then energized again and the lifting of the tray is started.
- When the upper limit sensor is blocked, the lift-up motor is deenergized to complete the lifting of the tray.
- The sequence of these operations is repeated. This maintains the pressure (paper take-up pressure) between the pickup roller and the paper stack at a constant level regardless of the level of the paper stack left.



[1]	Pick-up Roller	[2]	Upper limit sensor (PS2)

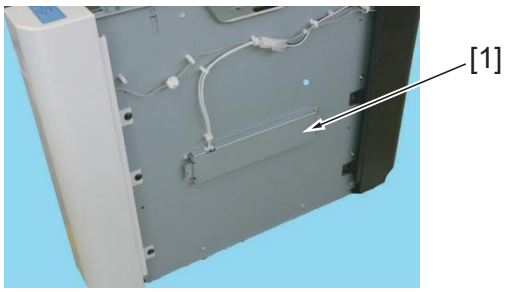
Paper size detection

- The LCT is not capable of detecting the paper size.

Dehumidification heater control

- The LCT is equipped with a dehumidification heater as standard.
- ON/OFF control of the dehumidification heater is operatively associated with turning on or off of the dehumidifier heater of the machine.

Right side surface



[1]	Dehumidification heater (DH)	