Paper Feed Unit PB3240
Machine Code:M494
Field Service Manual
Ver 1.0

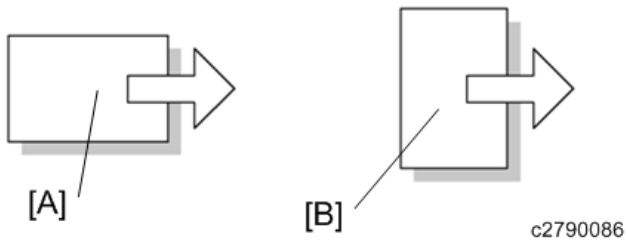
Latest Release: Sep, 2016
Initial Release: Sep, 2016

Symbols, Abbreviations and Trademarks

Symbols, Abbreviations

This manual uses several symbols and abbreviations. The meaning of those symbols and abbreviations are as follows:

Symbol	What it means
	Clip ring
	Screw
	Connector
	Clamp
	E-ring
	Flat Flexible Cable
	Timing Belt
SEF	Short Edge Feed
LEF	Long Edge Feed
K	Black
C	Cyan
M	Magenta
Y	Yellow
B/W, BW	Black and White
FC	Full color



[A] Short Edge Feed (SEF)

[B] Long Edge Feed (LEF)

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Microsoft® Windows Vista® Home Basic

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- The product names of Windows Server 2012 R2 are as follows:

Microsoft® Windows Server® 2012 R2 Foundation

Microsoft® Windows Server® 2012 R2 Essentials

Microsoft® Windows Server® 2012 R2 Standard

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1. Replacement and Adjustment

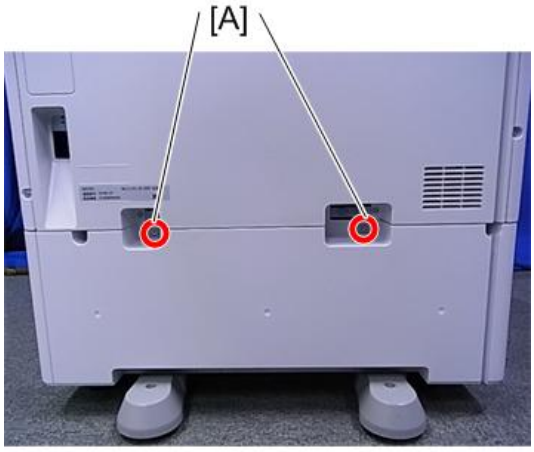
Exterior Cover

Precautions Concerning Stabilizers

Stabilizers are necessary for meeting the requirements of IEC60950-1, the international standard for safety.
The aim of these components is to prevent the products, which are heavy, from toppling as a result of people running into or leaning on them, which can lead to serious accidents such as persons becoming trapped under the product. (U.S.: UL60950-1, Europe: EN60950-1)
Therefore, removal of such components must always be with the consent of the customer.
Do not remove them under your own judgment.

Rear Cover

1. Remove the securing brackets [A] (×2).



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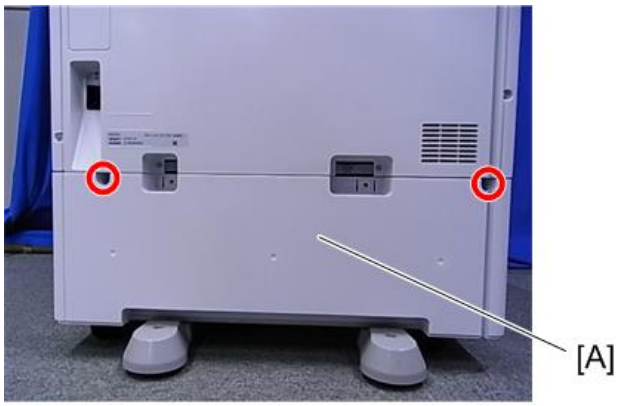
2. Remove the rear cover [A] (×2).



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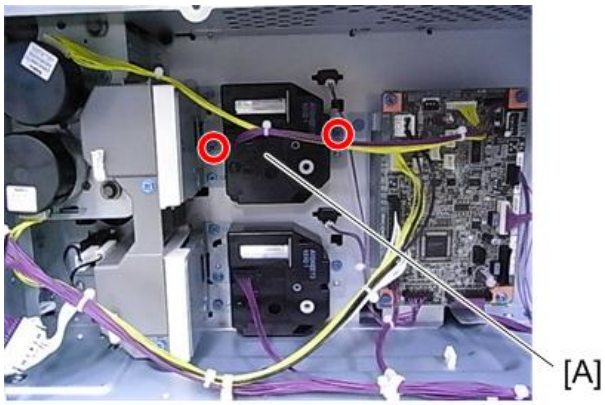
Motors

Tray Lift Motor (Upper)

1. Remove the rear cover (Rear Cover).
2. Remove the tray lift motor (upper) [A] (×2, ×1).



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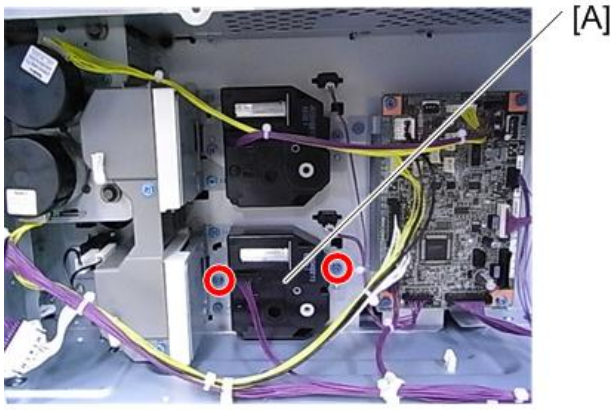
Tray Lift Motor (Lower)

1. Remove the rear cover. (Rear Cover)
2. Remove the tray lift motor (lower) [A] (×2, ×1).



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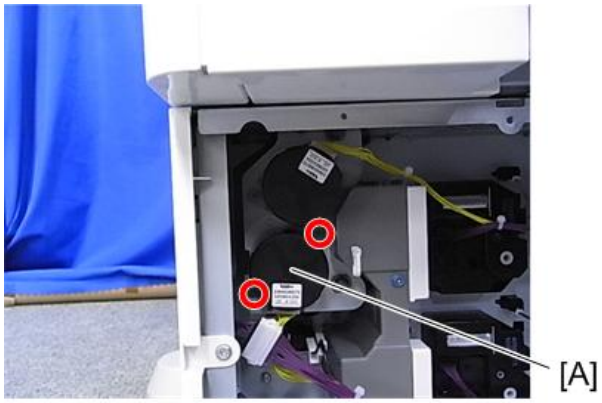
Transport Motor

1. Remove the rear cover. (Rear Cover)

2. Remove the transport motor [A] (×2, ×1).

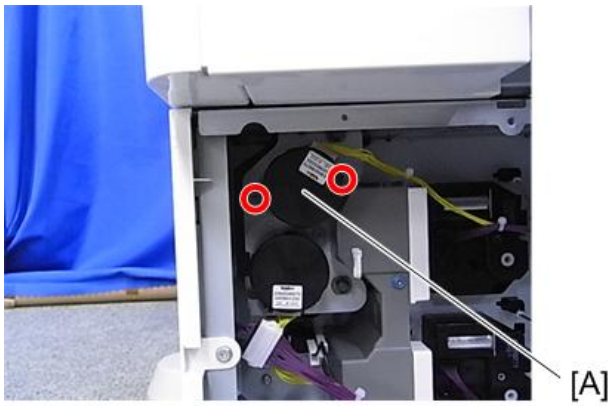


d1462705

Paper Feed Motor

1. Remove the rear cover. (Rear Cover)

2. Remove the paper feed motor [A] (×2, ×1).



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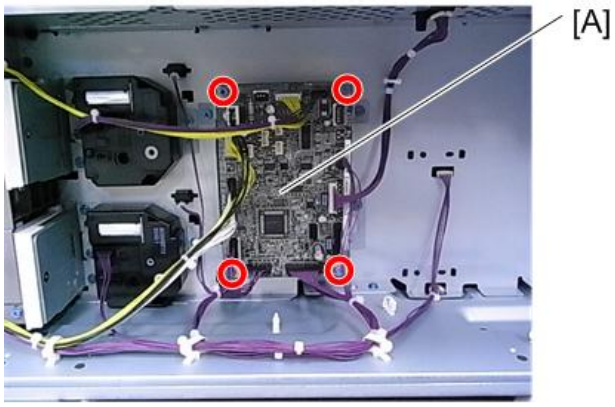
Board

Controller Board

1. Remove the rear cover. (Rear Cover)
2. Remove the controller board [A] (×4, ×10).



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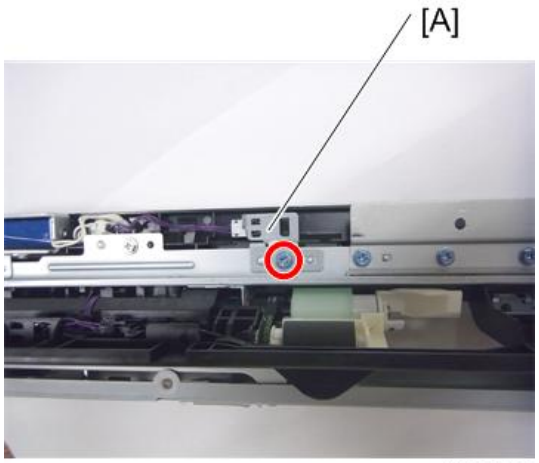
Sensors

Transport Sensor

1. Remove the paper feed unit. (2nd Paper Feed Unit, 1st Paper Feed Unit)
2. Remove the transport sensor bracket [A] (×1).



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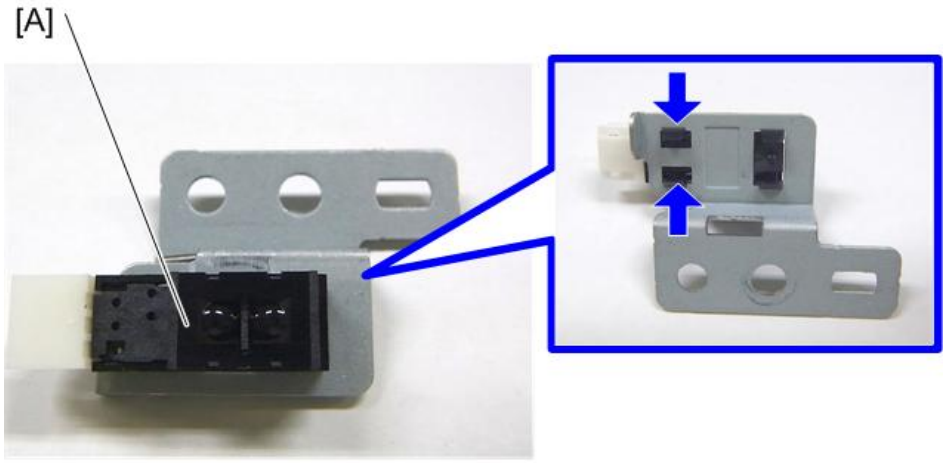
3. Remove the transport sensor [A] (×1).



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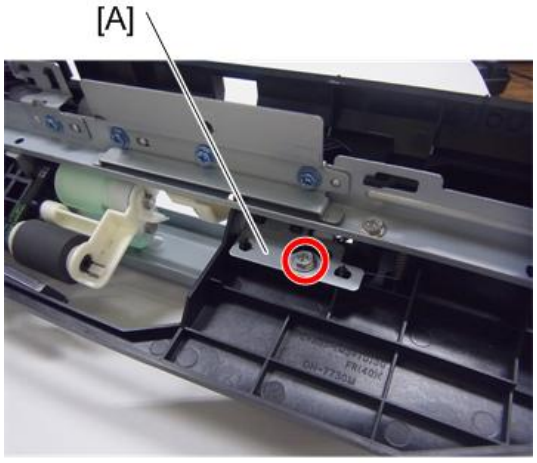
Paper Feed Sensor

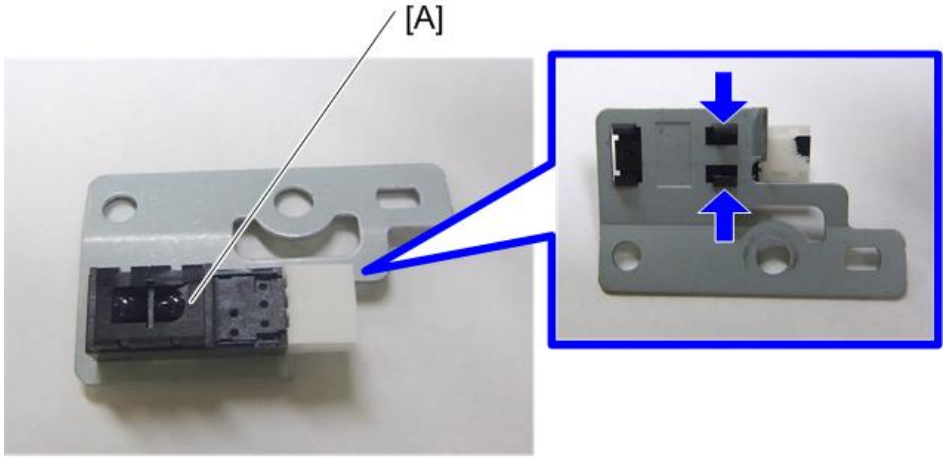
1. Remove the paper feed unit. (2nd Paper Feed Unit, 1st Paper Feed Unit)

2. Remove the paper feed sensor bracket [A] (×1).



d1462194

3. Remove the paper feed sensor [A] (×1).

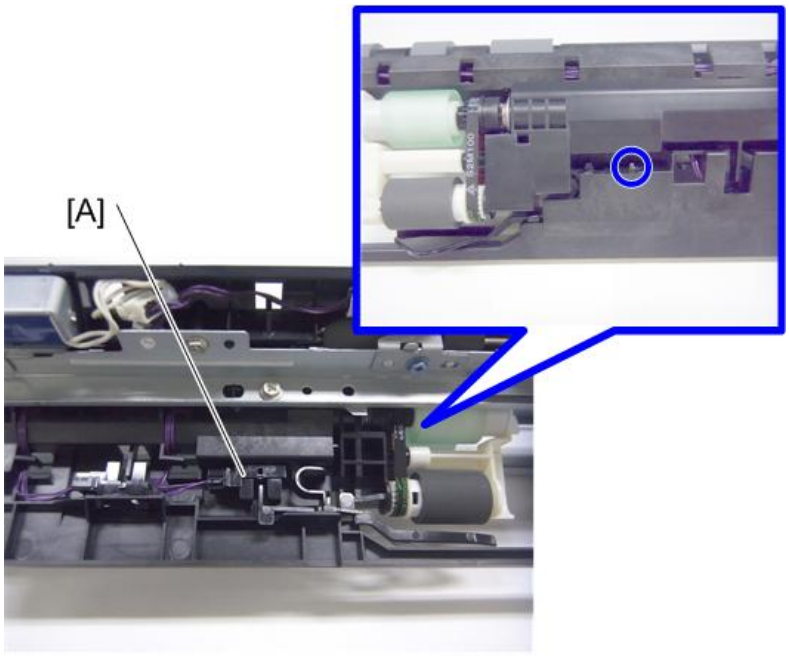


d1462195

Paper End Sensor

1. Paper feed unit (2nd Paper Feed Unit, 1st Paper Feed Unit)

2. Paper end sensor [A] (×1)



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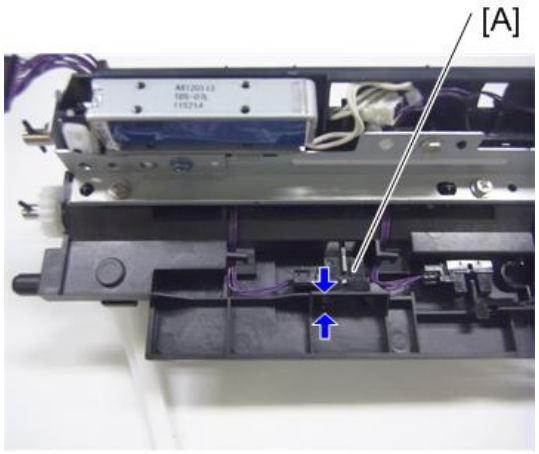
Upper Limit Sensor

1. Remove the paper feed unit. (2nd Paper Feed Unit, 1st Paper Feed Unit)

2. Remove the upper limit sensor [A] (×1).



d1462198

Paper Feed Unit

2nd Paper Feed Unit

1. Pull out the paper trays.
2. Remove the rear cover. (Rear Cover)
3. Remove the right front cover [A] (×1).

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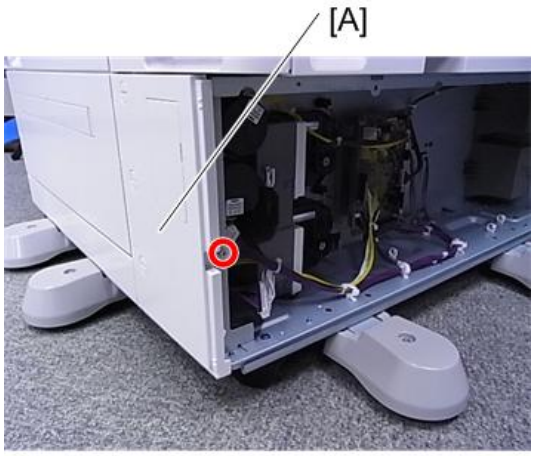
4. Remove the right rear cover [A] (×1).



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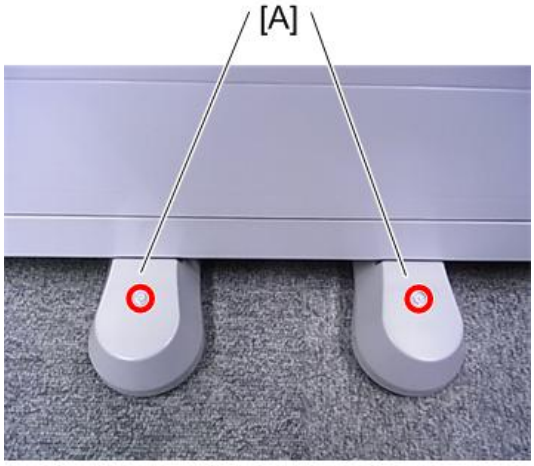
5. Remove the stabilizer covers [A] (×2).



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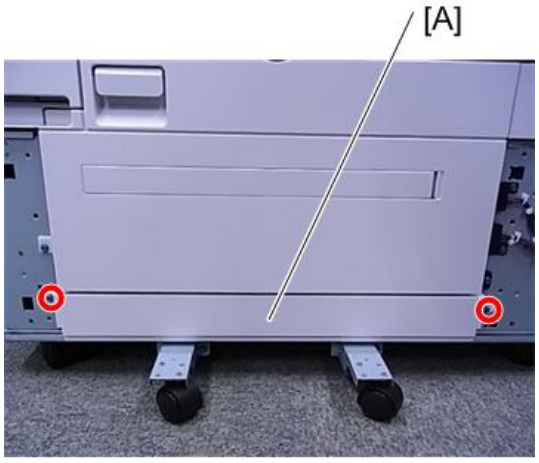
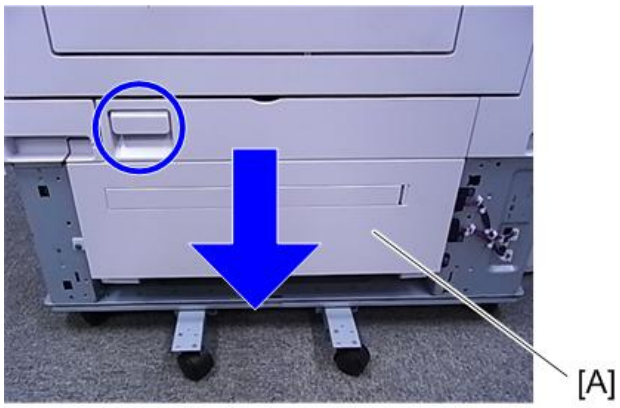
6. Remove the right lower cover [A] (×2).



d1462710

7. Open the transport cover [A].



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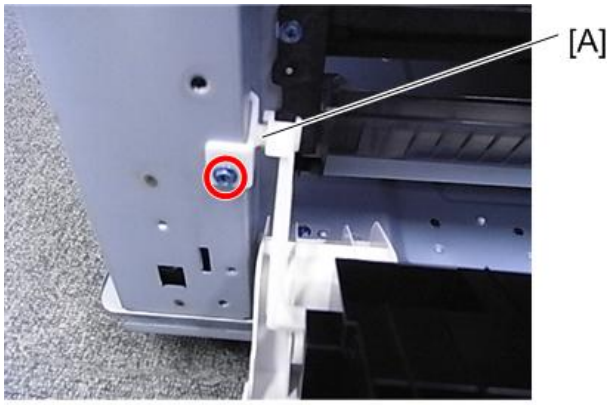
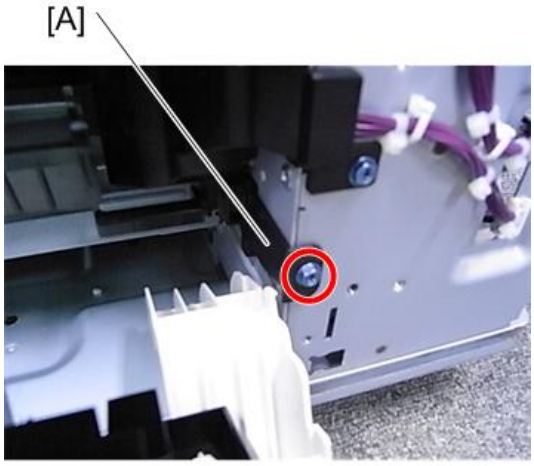
8. Remove the stopper [A] (×1).



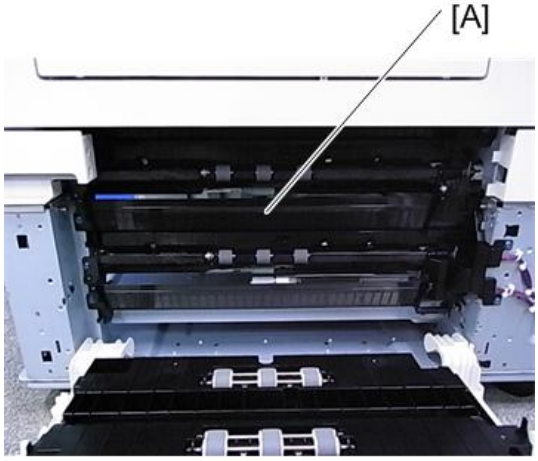
d1462712

9. Remove the interlock switch cover [A] (×1).



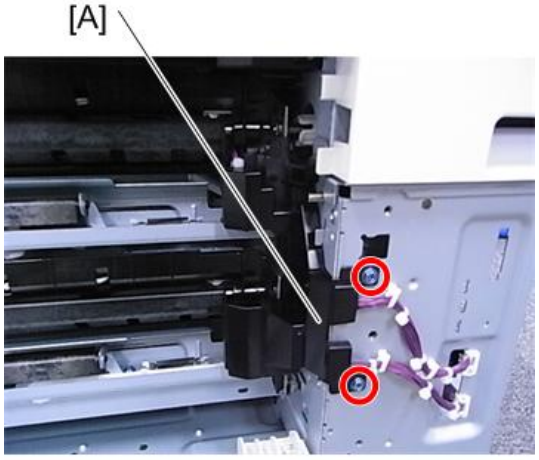
d1462713

10. Remove the paper feed guide plate [A].



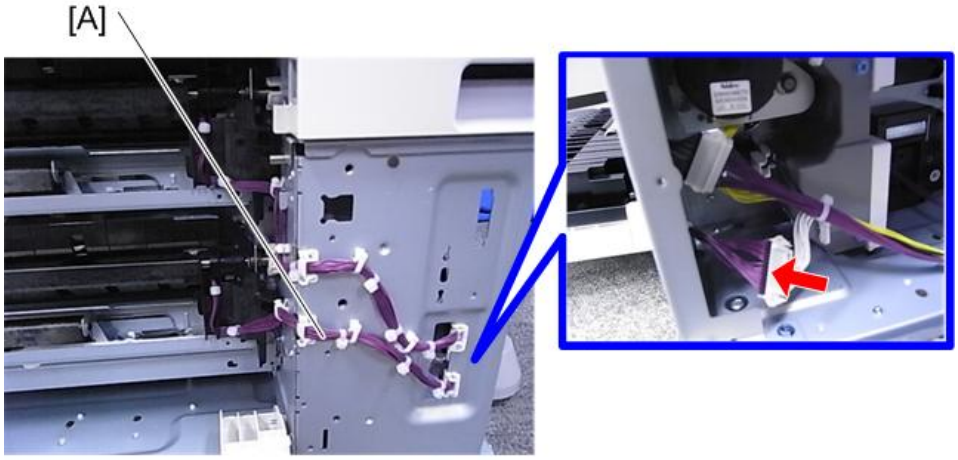
d1462714

11. Remove the harness cover [A] (×2).



d1462715

12. Remove the harness [A] (×1, ×4).



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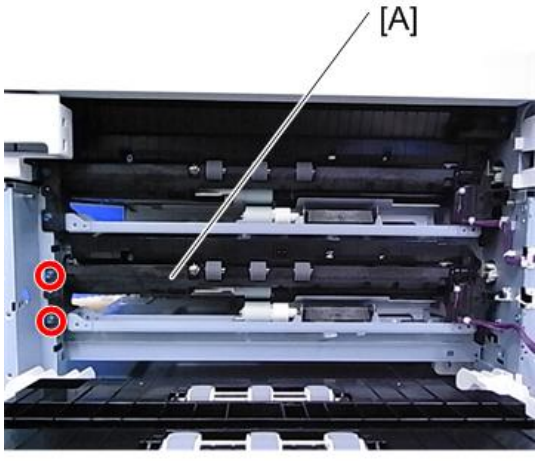
13. Remove the 2nd paper feed unit [A] (×2).

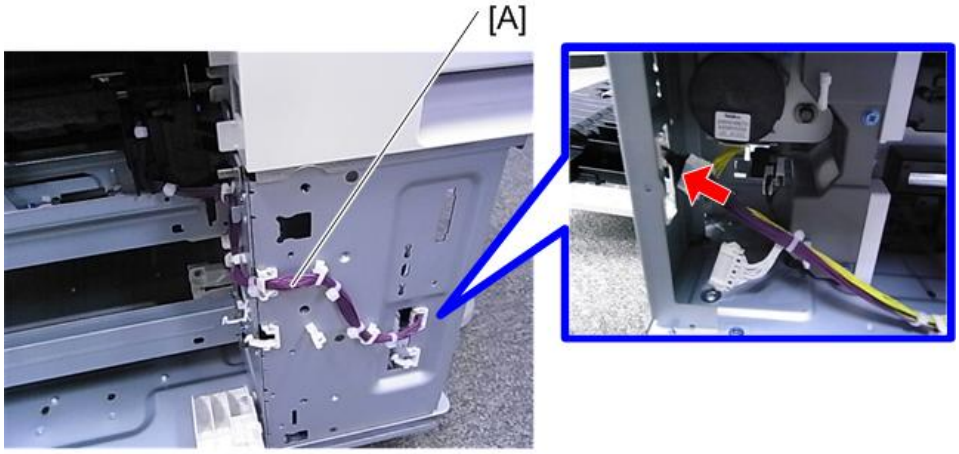


d1462717

1st Paper Feed Unit

1. Remove the 2nd paper feed unit. (2nd Paper Feed Unit)

2. Remove the harness [A] (×1,×6).



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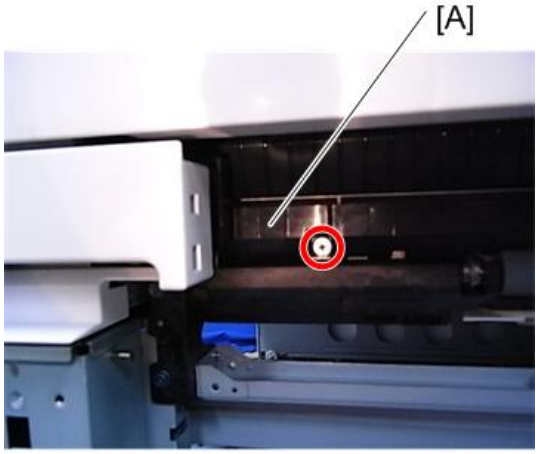
3. Remove the guide plate [A] (×1).



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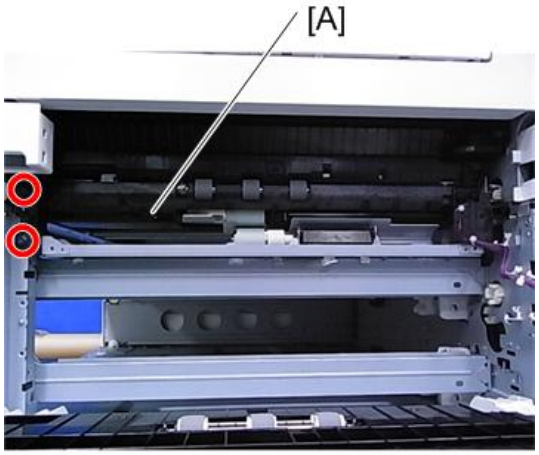
4. Remove the 1st paper feed unit [A] (×2).



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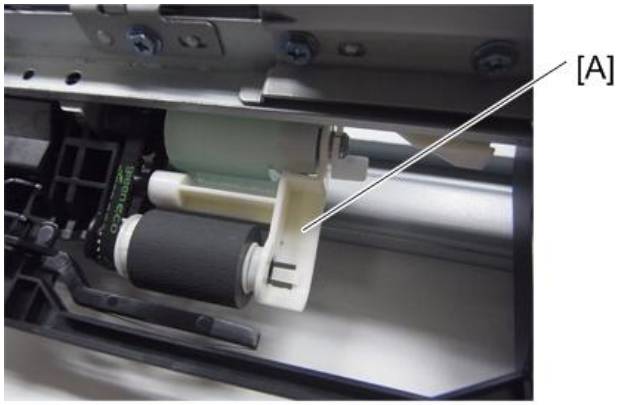
Rollers

Pick-up Roller

1. Remove the paper feed unit. (2nd Paper Feed Unit, 1st Paper Feed Unit)
2. Remove the holder [A] (×1).



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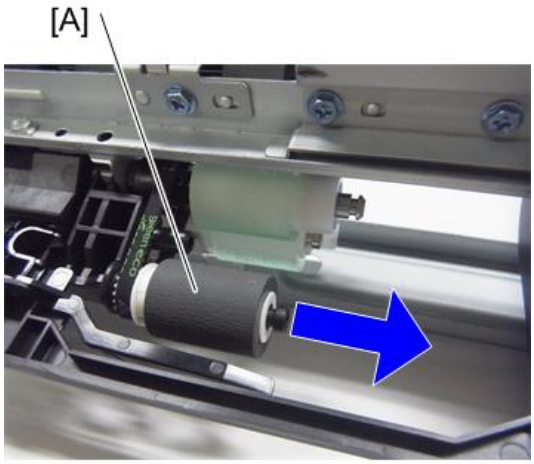
3. Remove the pick-up roller [A].

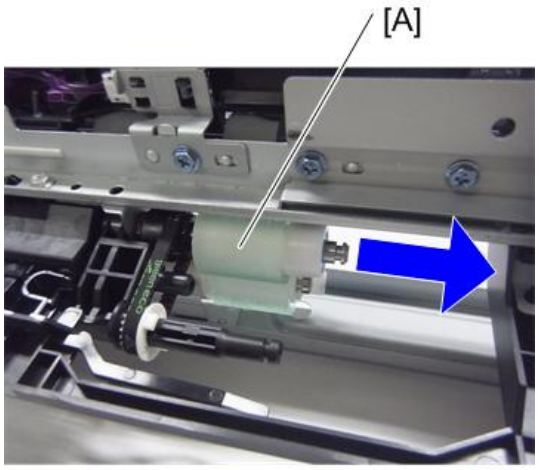


d1462189

Feed Roller

1. Remove the pick-up roller. (Pick-up Roller)

2. Remove the feed roller [A].



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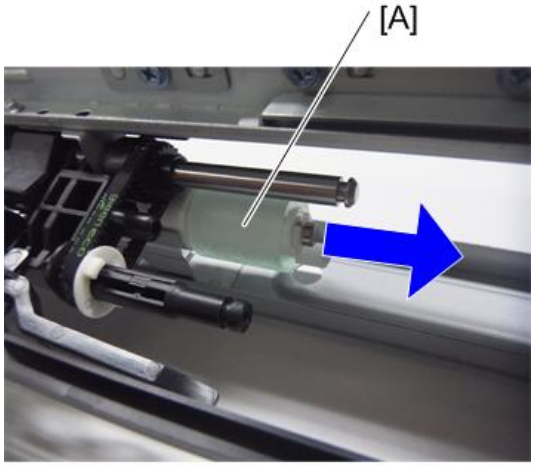
Friction Roller

1. Remove the feed roller. (Feed Roller)

2. Remove the friction roller [A] (×1).



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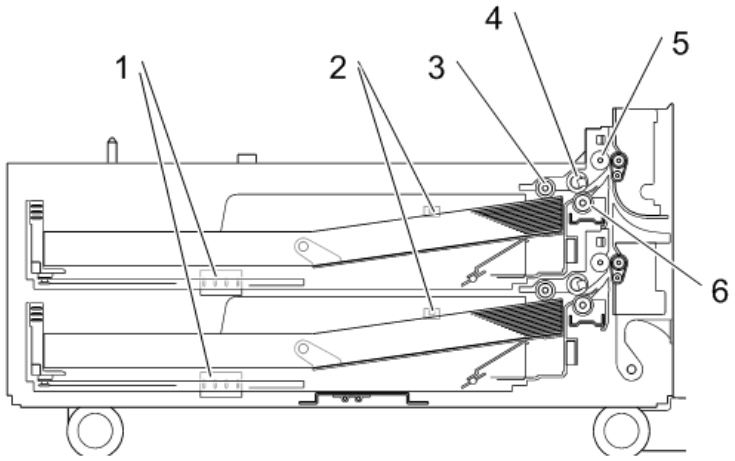
2. Detailed Descriptions

Parts Layout



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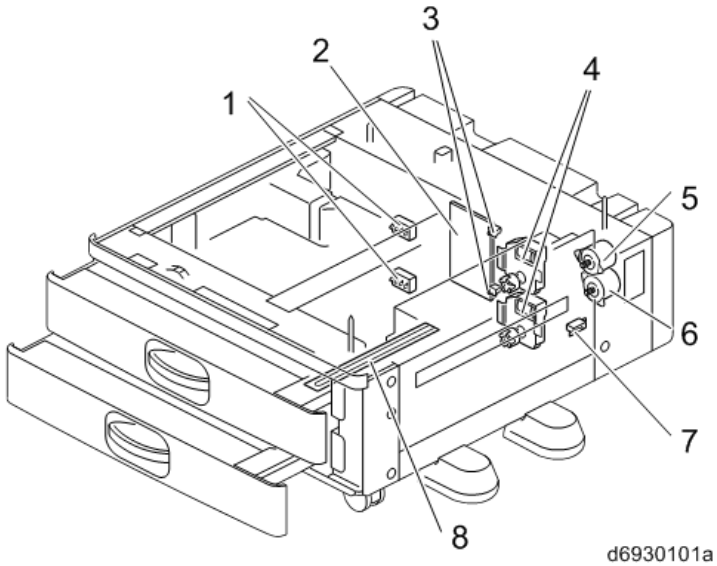
No.	Description
1	Paper size switch
2	Tray set switch
3	Pick-up roller
4	Feed roller
5	Transport roller
6	Friction roller



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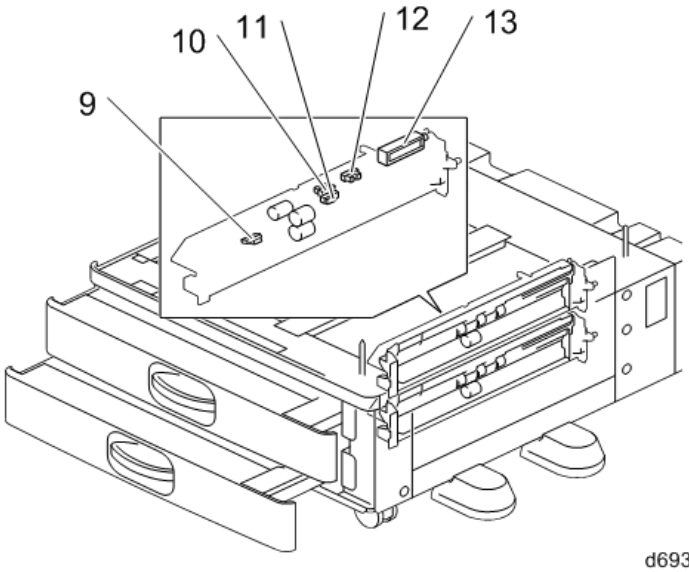

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No.	Description	No.	Description
1	Paper size switch	8	Anti-condensation heater
2	Bank controller board	9	Paper feed sensor
3	Tray set switch	10	Paper end sensor
4	Tray lift motor	11	Vertical Transport sensor
5	Paper feed motor	12	Upper limit sensor
6	Transport motor	13	Pick-up solenoid
7	Transport cover open/closed switch		

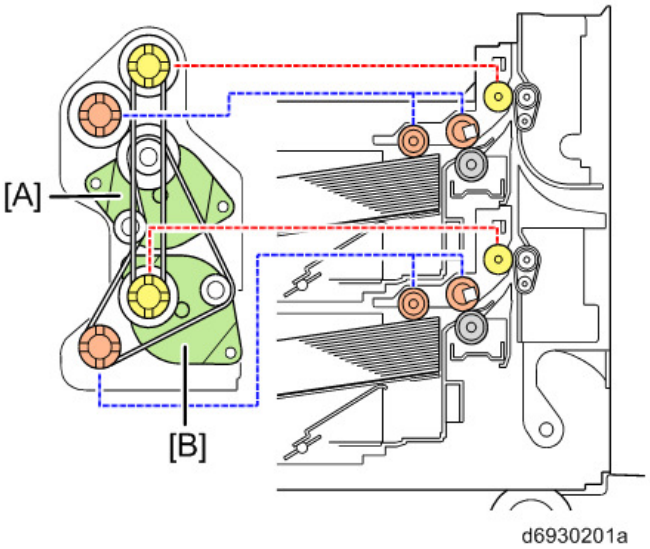
Mechanism

Paper Feed Separation Mechanism

The feed system is a RF paper feed system. The paper feed unit has a pick-up roller, feed roller, and friction roller. The feed roller and friction roller are high durability rollers.

Drive Mechanism

The pick-up roller and feed roller are driven by the paper feed motor [A]. The transport roller is driven by the transport motor [B]. The friction roller is not driven by a motor.

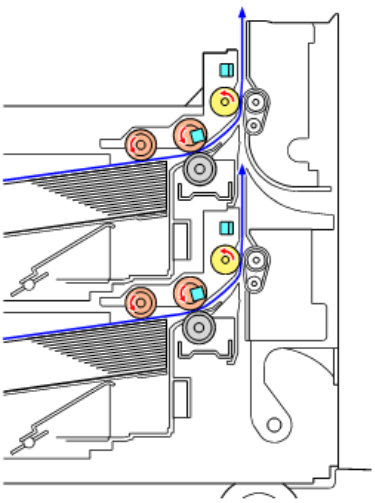


Friction Roller/ Pick-Up Roller Release Mechanism

When the paper feed tray is set, the friction roller comes in contact with the feed roller, and the pick-up roller contacts the uppermost sheet of paper.
However, when the paper feed tray is pulled out, to prevent paper from dropping out, the contact between the feed roller and friction roller, and between pick-up roller and paper is released.

Paper Feed Transport Mechanism

In order to feed the paper at regular intervals, there is a paper feed sensor near the pick-up roller, and this sensor is used to adjust the paper feed timing.



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1. The paper feed motor turns ON, and feeds the first sheet of paper.

2. To prevent the next sheet from being fed, the pick-up solenoid turns ON just before the trailing edge of the first sheet passes through the pick-up roller, and the pick-up roller leaves the paper surface.

3. Slightly before the trailing edge of the first sheet leaves the paper feed roller, the paper feed motor switches OFF.

However, at this time, if the paper feed sensor does not detect paper (the second sheet is not fed to the paper feed sensor position), the paper feed motor does not turn OFF. Pre-feed is performed as follows:

1. The pickup solenoid switches OFF, and the second sheet of paper is fed to the paper feed sensor position.
2. When the trailing edge of the second sheet passes the feed roller, the paper feed motor is switched OFF. The pickup solenoid remains OFF.

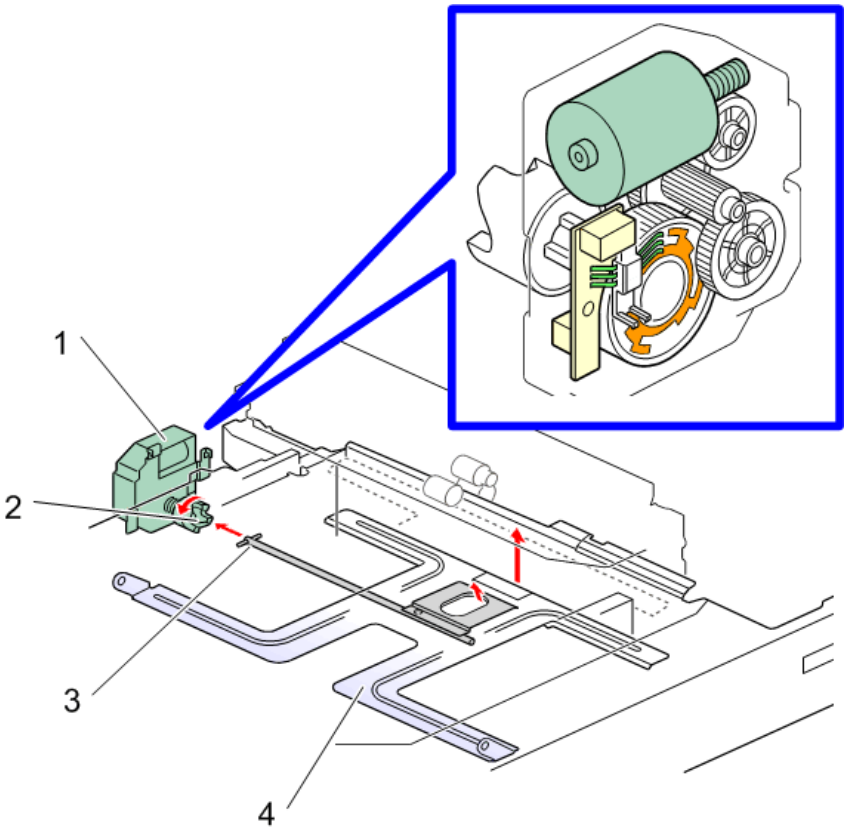
4. Just when the trailing edge of the first sheet passes the paper feed roller, the pickup solenoid is switched OFF, and the pickup roller is brought in contact with the paper surface.

5. When the first sheet has been fed a predetermined distance by the downstream transport roller, the paper feed motor is switched ON to supply the second sheet.

Tray Base Plate Lift

When the paper feed tray is set in the main unit, the set switch switches ON, and it is detected that the tray is set. At this time, the coupling of the lift motor engages with the shaft at the rear of the tray, the motor rotates, and the tray base plate is lifted up. The paper surface pushes up the pickup roller, the tray base plate is lifted until the upper limit sensor switches OFF (blocked), and the machine enters the standby mode.

When the paper feed tray is removed, the coupling is disengaged, and the base plate descends. At this time, the lift motor rotates until the coupling returns to the home position.



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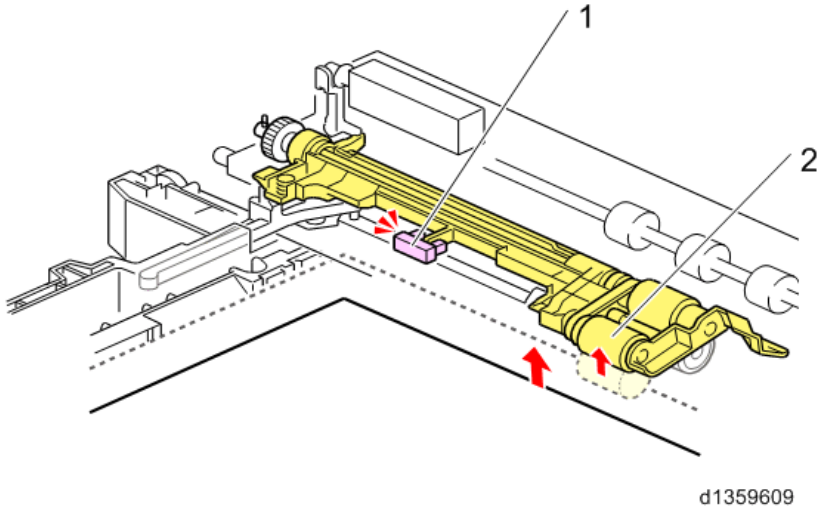
No.	Description	No.	Description
1	Lift motor	3	Tray rear side shaft
2	Coupling	4	Tray base plate



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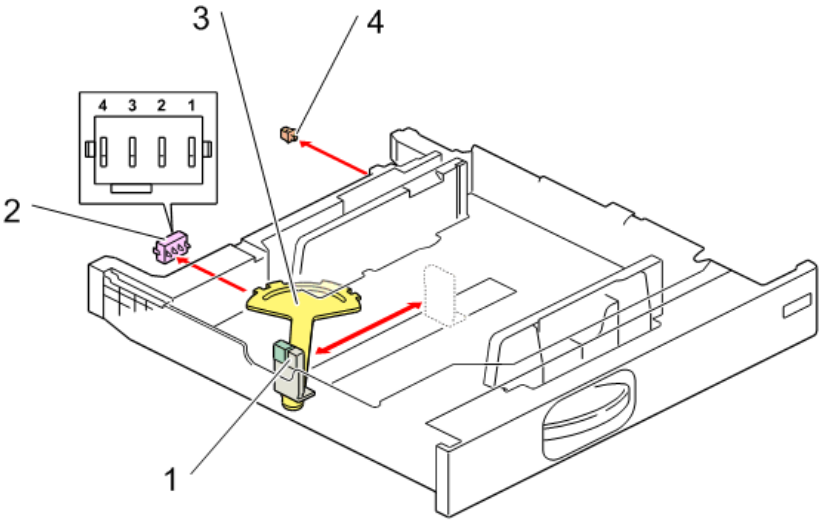
No.	Description	No.	Description
1	Upper limit sensor	2	Pick-up roller

Paper Size Detection

The end fence interlocks mechanically with the size detection actuator, and when the end fence is moved, the size detection actuator also moves.

When the paper feed tray is set, 4 paper size switches turn ON/OFF depending on the position of the size

detection actuator. Paper size is detected by the detected combination of these switches.



No.	Description	No.	Description
1	End fence	3	Size detection actuator
2	Paper size switch	4	Tray set switch

Paper size switch operation

Paper size	Paper size switch			
	SW4	SW3	SW2	SW1
SRA3 (12”×18”)	1	0	1	0
A3 (DLT)	0	1	0	0
B4 (LG)	0	0	1	1
	0	1	1	1
A4_SEF	1	1	1	0
LT_SEF	1	1	0	0
B5_SEF	1	0	0	0
A4_LEF (LT_LEF)	0	0	0	1
B5_LEF (Exe_LEF)	0	0	1	0
A5_LEF	0	1	0	1

Remaining Paper Detection/Paper End Detection

Remaining paper detection

Detection of paper remaining in the paper feed tray is performed by a combination of ON/OFF (contact/non-contact) status of contact-type remaining detection plates (printed circuits) CN-3, CN-5.

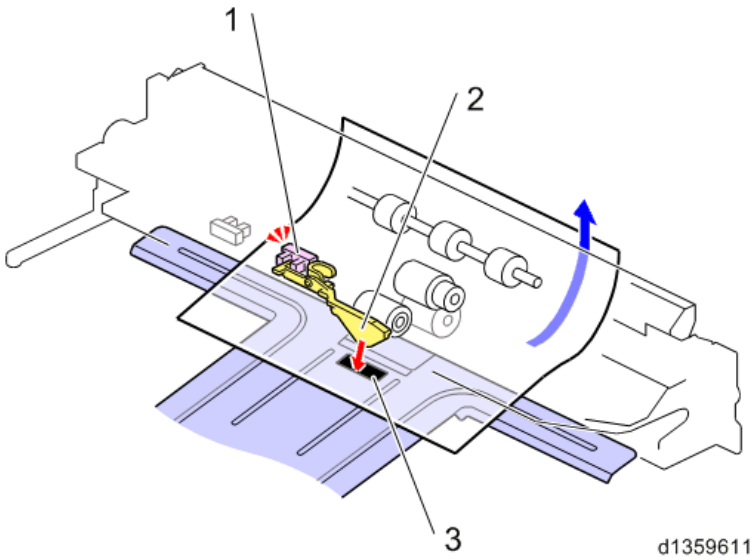
When the amount of remaining paper decreases, and the tray lift motor rotates, the remaining paper sensors CN-3 and CN-5 in the motor are turned ON/OFF.

The following 4 levels of remaining paper can be detected:

Amount remaining	100%	70%	30%	10%
CN-3	OFF	ON	ON	OFF
CN-5	OFF	OFF	ON	ON
Control panel remaining paper display	4 bars	3 bars	2 bars	1 bar

Paper end detection

When the paper feed tray is empty, the paper end sensor switches ON (unblocked) due to the end feeler.



No.	Description	No.	Description
1	Paper end sensor	3	Slot in the tray base plate
2	End feeler		