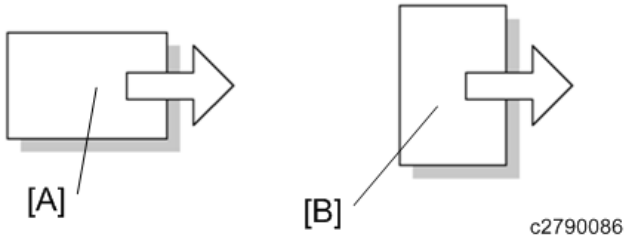
Paper Feed Unit PB3150
Machine Code: D694
Field Service Manual

May, 2016

Symbols, Abbreviations and Trademarks

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

	Clip ring
	Screw
	Connector
	Clamp
SEF	Short Edge Feed [A]
LEF	Long Edge Feed [B]



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1. Replacement and Adjustment

Rear Cover

The Aim of Anti-tip Components and Precautions

The anti-tip components are necessary for meeting the requirements of IEC60950-1, the international standard for safety.

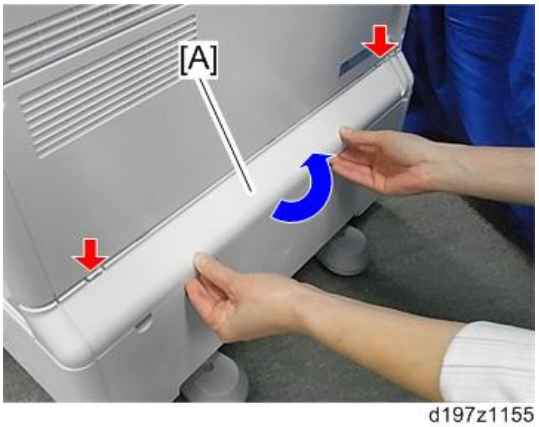
The aim of these components is to prevent the products, which are heavy in weight, from toppling as a result of people running into or leaning onto the products, which can lead to serious accidents such as persons becoming trapped under the product. (U.S.: UL60950-1, Europe: EN60950-1)

Therefore, removal of such components must always be with the consent of the customer.

Do not remove them at your own judgment.

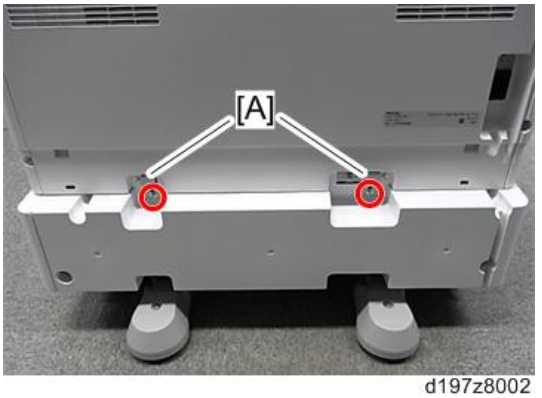
Rear Cover

1. **Rear lower gap cover [A] (hook×2)**



d197z1155

2. Securing brackets [A] (×1 each)



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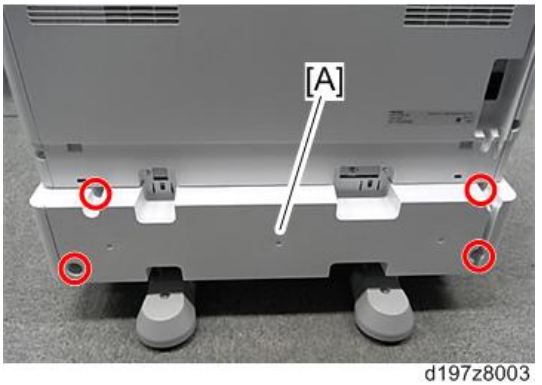
3. Rear cover [A] (×4)



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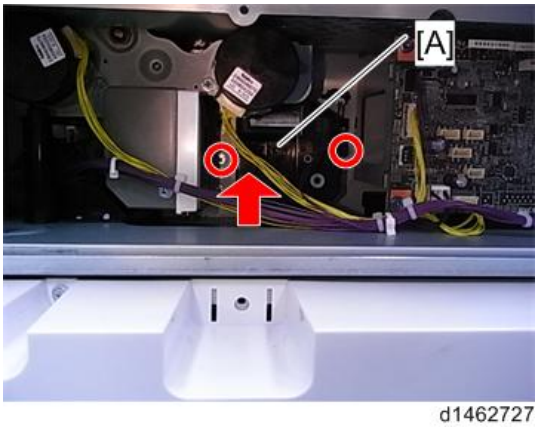
Tray Lift Motor

Tray Lift Motor

1. Rear cover (page 3)
2. Tray lift motor [A] (×2, ×1).



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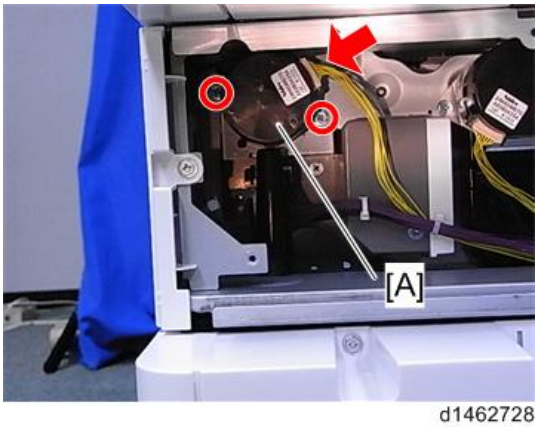
Transport Motor

Transport Motor

1. Rear cover (page 3)
2. Transport motor [A] (×2, ×1)



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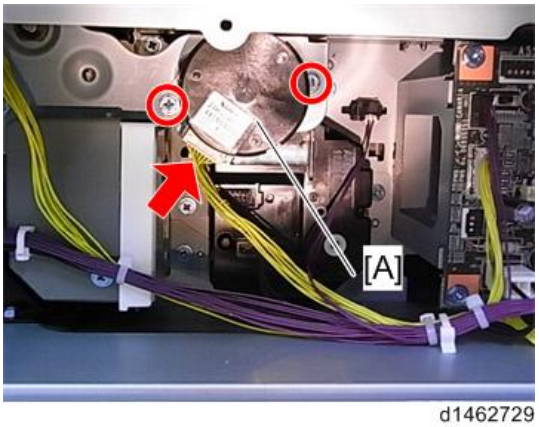
Paper Feed Motor

Paper Feed Motor

1. Rear cover (page 3)
2. Paper feed motor [A] (×2, ×1)



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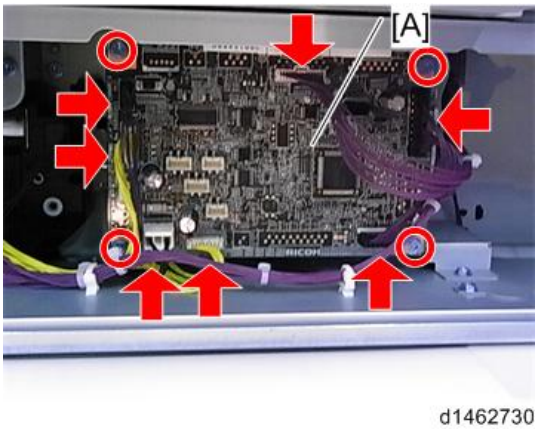
Controller Board

Controller Board

1. Rear cover (page 3)
2. Controller board [A] (×4, ×7)

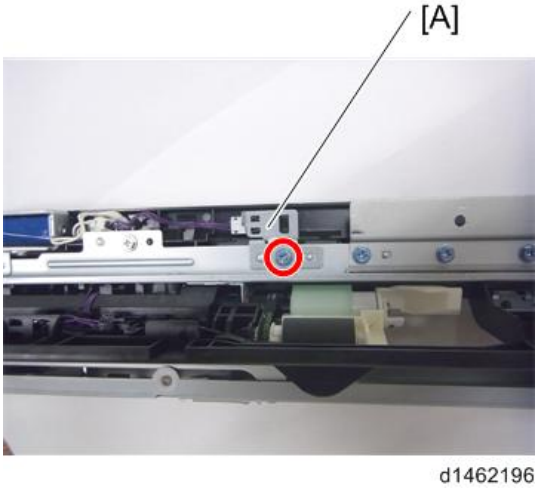


d1462730

Transport Sensor, Limit Sensor, Paper End Sensor, Paper Feed Sensor

Transport Sensor, Limit Sensor, Paper End Sensor, Paper Feed Sensor

1. Paper feed unit (page 12)
2. Transport sensor bracket [A] (×1, ×1)



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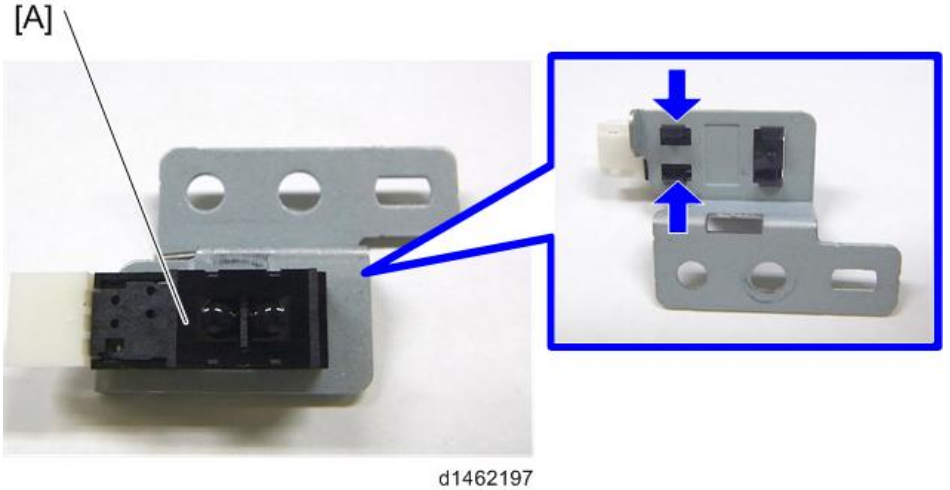
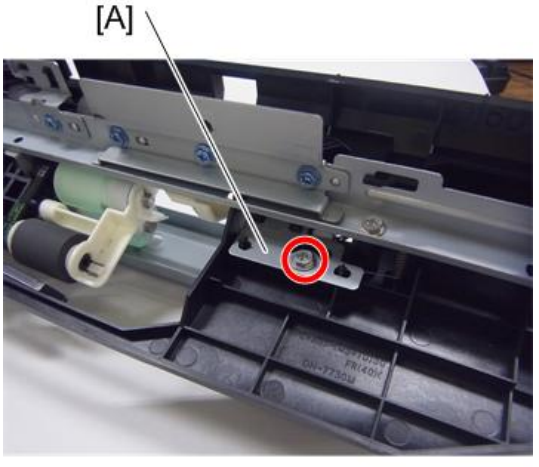
3. Transport sensor [A]



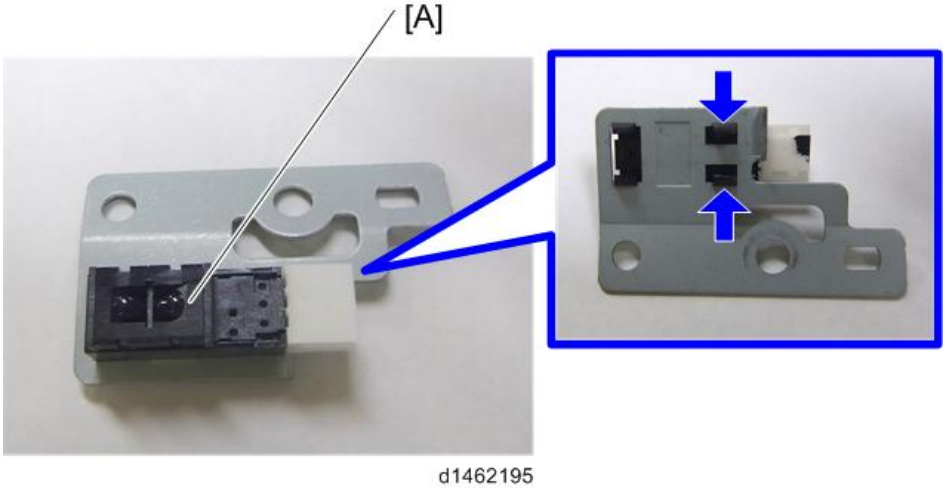
d1462197

4. **Paper feed sensor bracket [A] (×1, ×1)**



d1462194

5. **Paper feed sensor [A]**



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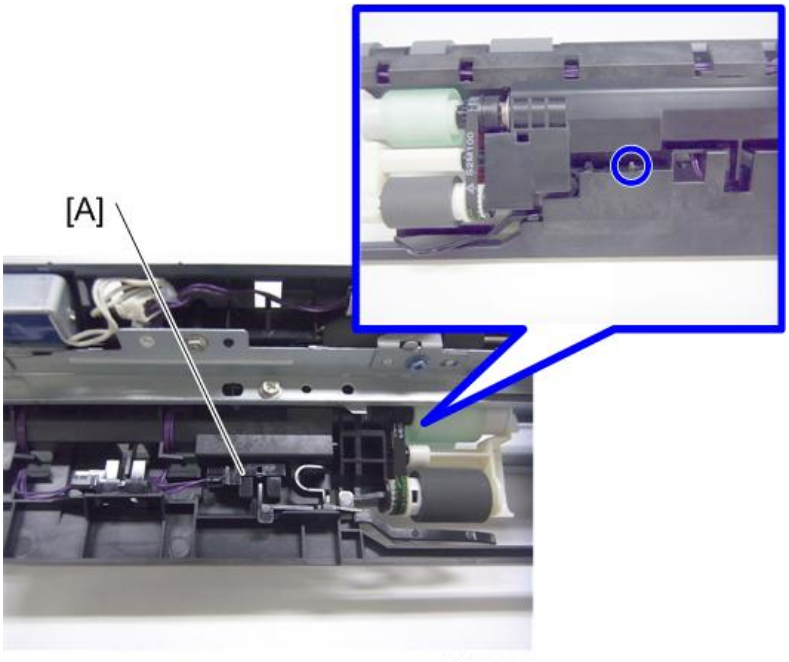
6. **Paper end sensor [A] (×1)**



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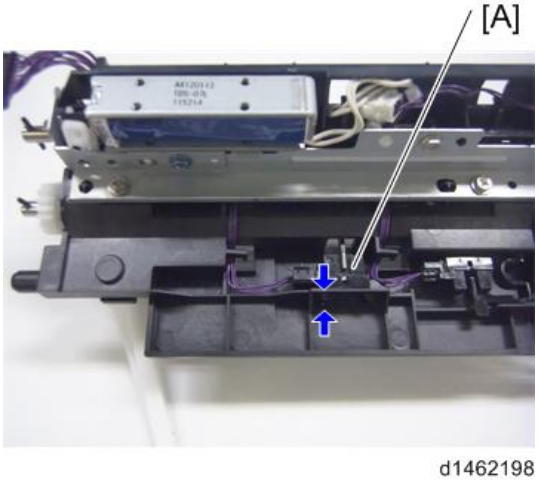
7. **Limit sensor [A] (×1)**



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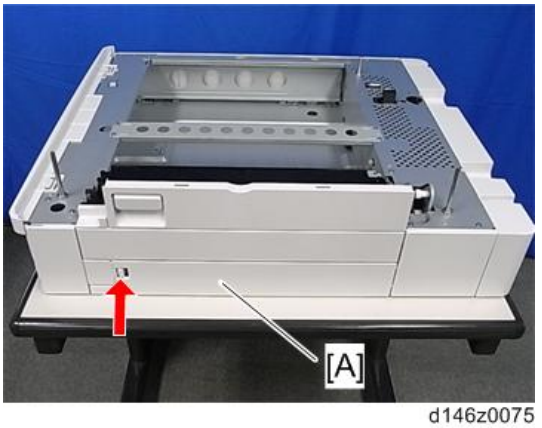
Paper Feed Unit

Paper Feed Unit

1. Pull out the paper tray.
2. Rear cover (page 3)
3. Right lower cover [A] (hook ×1)



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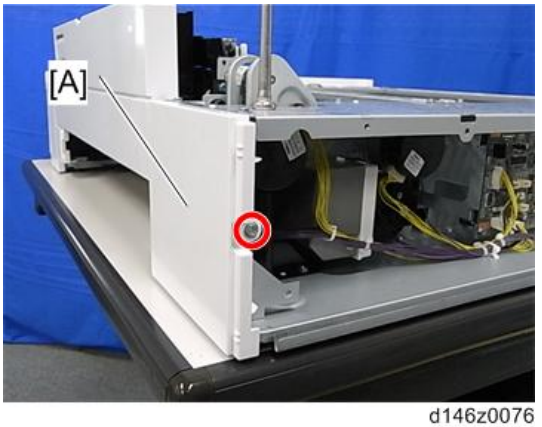
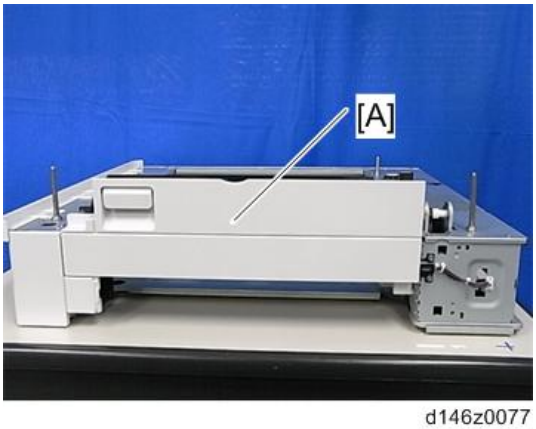
4. Right rear cover [A] (×1)



d146z0076

5. Open the transport cover [A].



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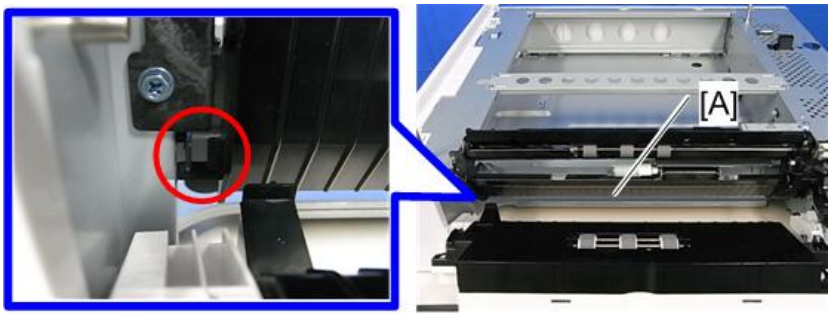
6. Transport guide [A] (tab ×1)



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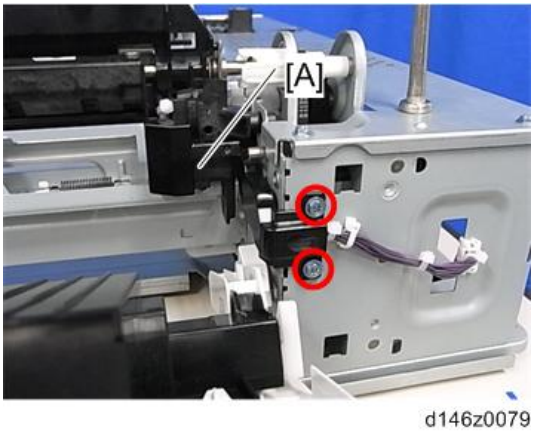
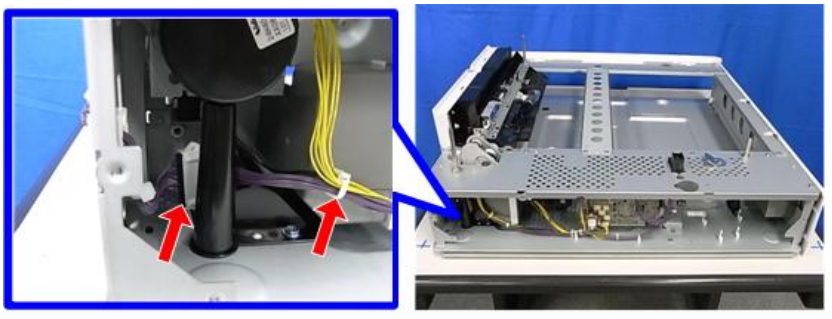
7. Harness guide [A] (×2)



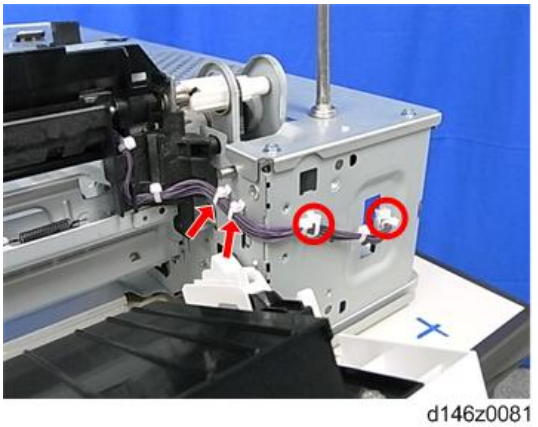
d146z0079

8. **Release the clamp, and then disconnect the harness at the right rear of the unit (×1, ×1).**



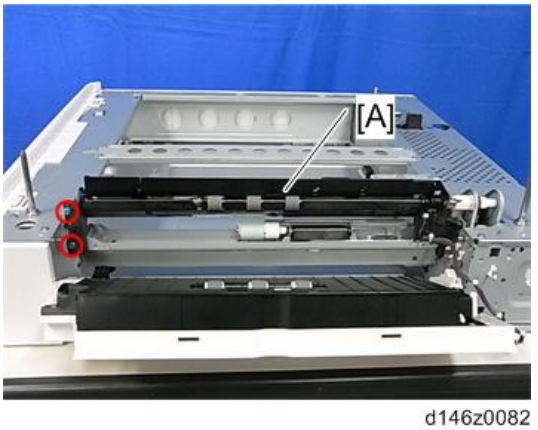
d146z0080

9. **Release the four clamps (×4).**



d146z0081

10. **Paper feed unit [A] (×2)**

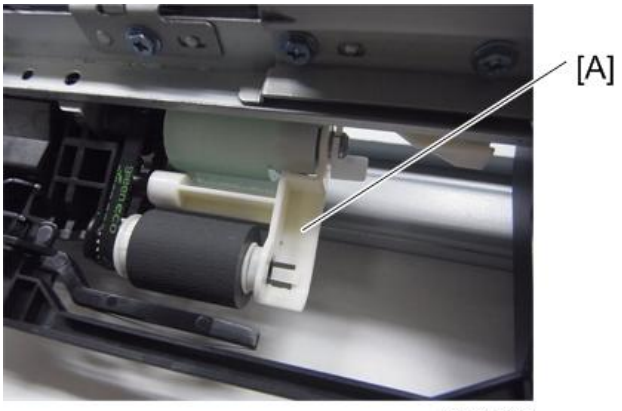


d146z0082

Pick-up Roller, Feed Roller, Friction Roller

Pick-up Roller, Feed Roller, Friction Roller

1. Paper feed unit (page 12)
2. Holder [A] (×1)



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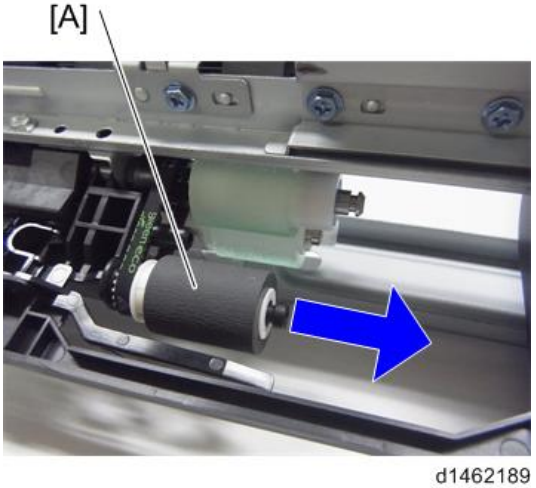
3. Pick-up roller [A]



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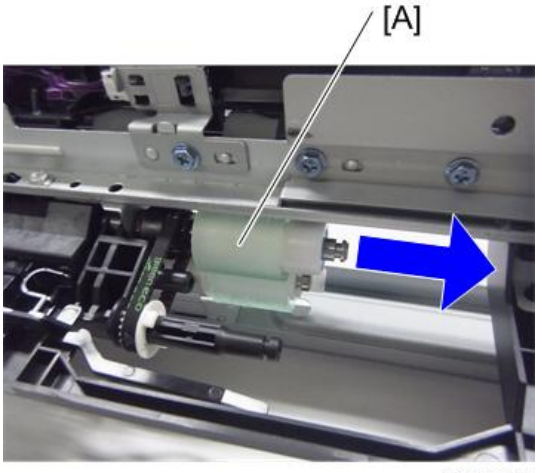
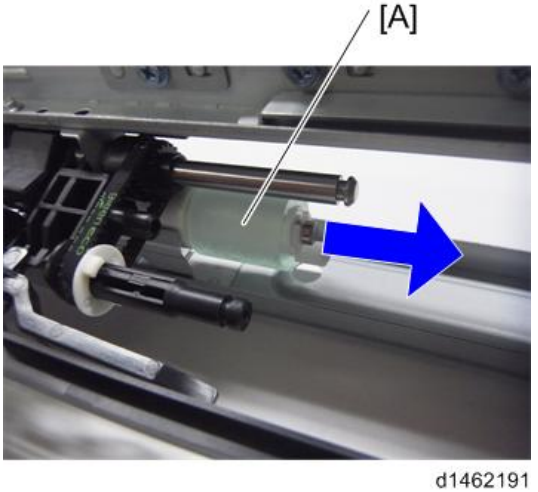
4. **Feed roller [A]**



d1462190

5. **Friction roller [A]** (×1)



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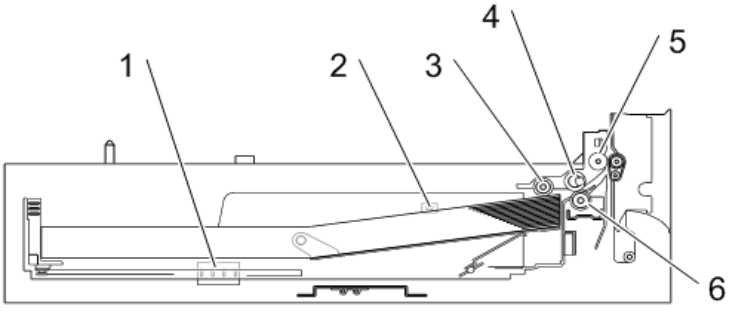
2. Detailed Descriptions

Paper Feed Unit PB3150 (D694)

Parts Layout



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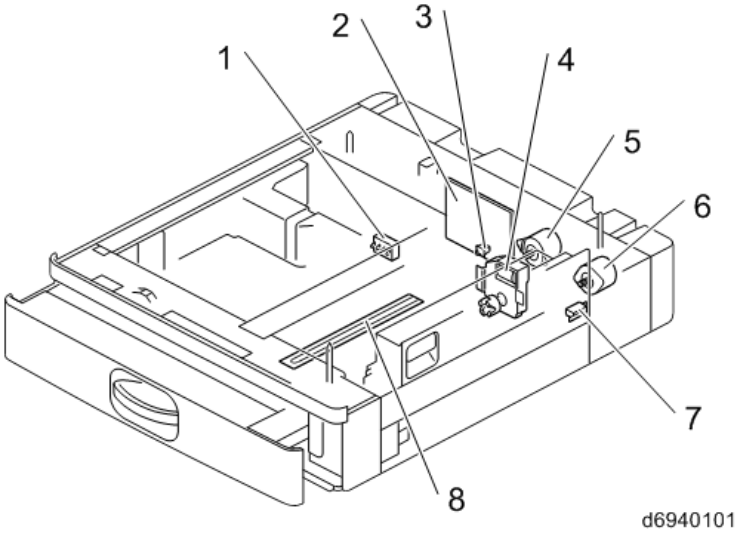
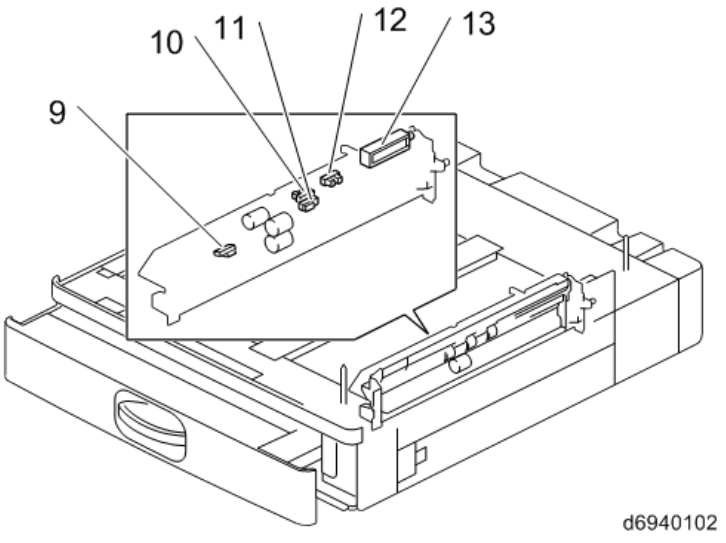
No.	Description	No.	Description
1	Paper size detection switch	4	Feed roller
2	Tray set sensor switch	5	Transport roller
3	Pick-up roller	6	Friction roller



d6940101



No.	Description	No.	Description
1	Paper size detection switch	8	Dehumidifying heater
2	Controller board	9	Paper feed sensor
3	Tray set sensor switch	10	Paper end sensor
4	Tray lift motor	11	Vertical transport sensor
5	Paper feed motor	12	Limit sensor
6	Transport motor	13	Pick-up solenoid
7	Vertical transport cover open/close switch		

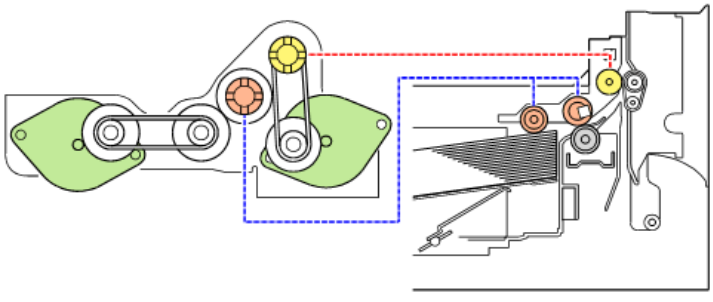
Mechanism

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. The transport roller is driven by the transport motor. The friction roller is not driven.



d6940201

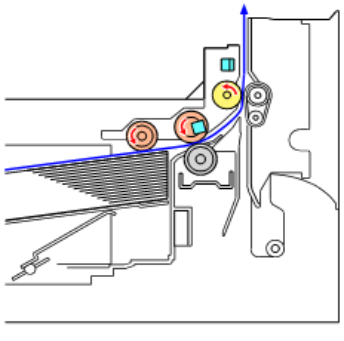
Separation roller/pick-up roller release mechanism

When the right tray is set, the friction roller comes in contact with the feed roller. The pick-up roller touches the top sheet of paper that is to be transported.

When the right tray is opened, contact between the feed roller and friction roller, and contact between the pick-up roller and paper are released.

Paper feed transport mechanism

In order to feed the paper at regular intervals, there is a paper feed sensor between the pick-up roller and the feed 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 transported, 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. **Just before the trailing edge of the first sheet leaves the paper feed roller, the paper feed motor turns OFF.**

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

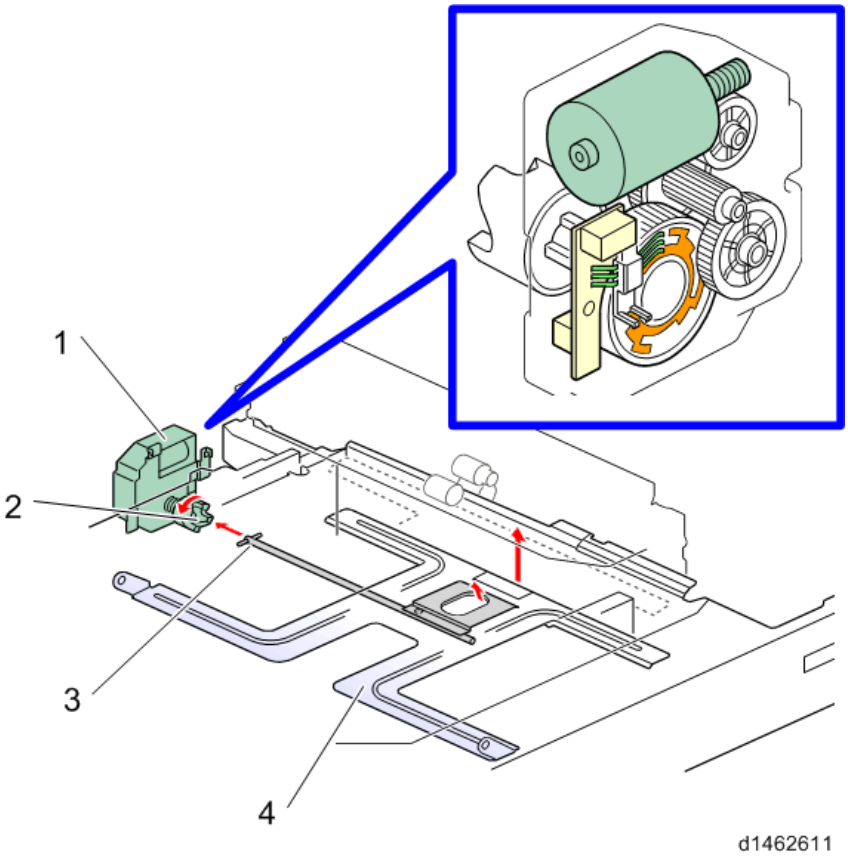
   1. The pick-up solenoid turns OFF, and the second sheet of paper is transported to the paper feed sensor position.
   2. When the trailing edge of the second sheet passes the feed roller, the paper feed motor is turned OFF. The pick-up solenoid remains OFF.

4. **Just before the trailing edge of the first sheet passes the feed roller, the pick-up solenoid turns OFF. The pick-up roller is brought into contact with the paper surface.**
5. **When the first sheet has been transported a specified distance by the downstream transport roller, the paper feed motor turns ON to feed the second sheet.**

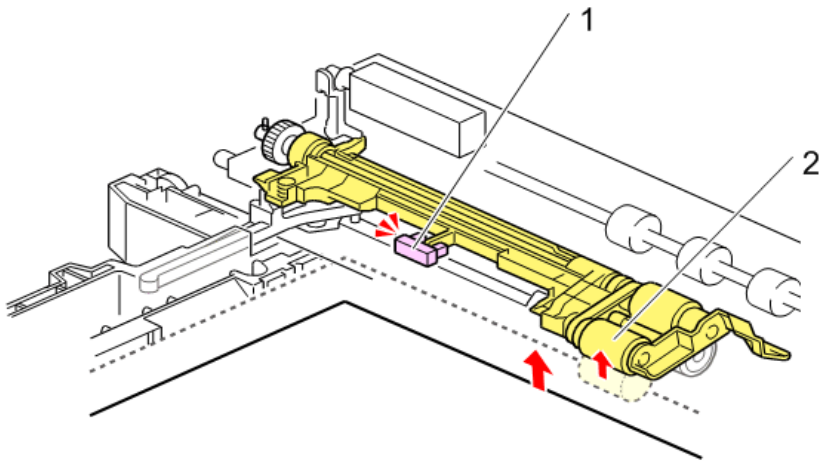
Tray bottom plate lift

When the paper feed tray is set in the main frame, the tray set sensor switch turns ON. The coupling of the lift motor connects with the shaft at the rear of the tray, and the motor rotates to lift the tray bottom plate. The tray bottom plate rises until the paper surface lifts up the pick-up roller and the upper limit sensor turns OFF (the sensor is blocked). The tray is now ready to feed.

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



No.	Description	No.	Description
1	Lift motor	3	Tray shaft (rear)
2	Coupling	4	Tray bottom plate

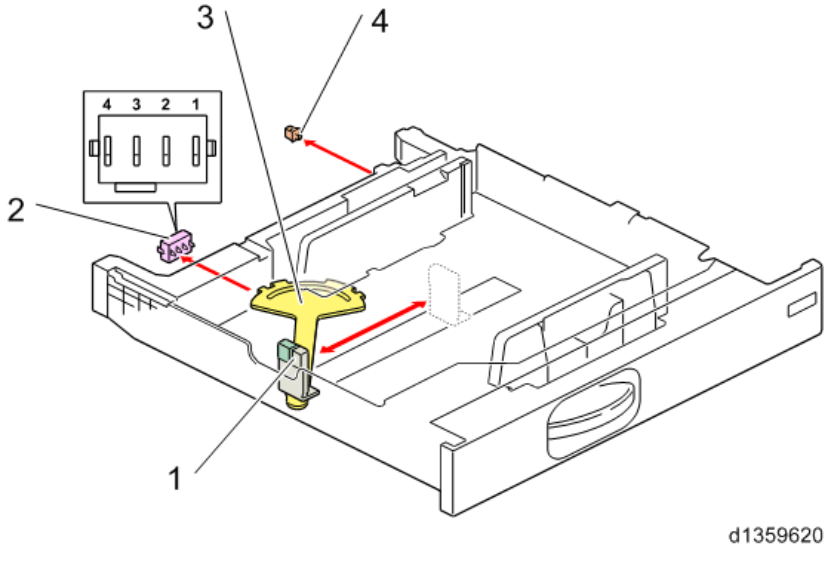


No.	Description	No.	Description
1	Limit sensor	2	Pick-up roller

Paper size detection

The end fence is linked mechanically with the size detection actuator. When the end fence is moved, the size detection actuator also moves.

When the paper feed tray is set, 4 paper size detection switches turn ON/OFF depending on the position of the size detection actuator. Paper size is detected by a combination of these switches.



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

Paper size detection switch operation

Paper size	Size detection 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/paper end detection

Remaining paper detection

Remaining paper in the paper feed tray is detected by a combination of ON/OFF status (contact/non-contact) of contact-type remaining paper sensors (boards) CN-3 and CN-5.

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

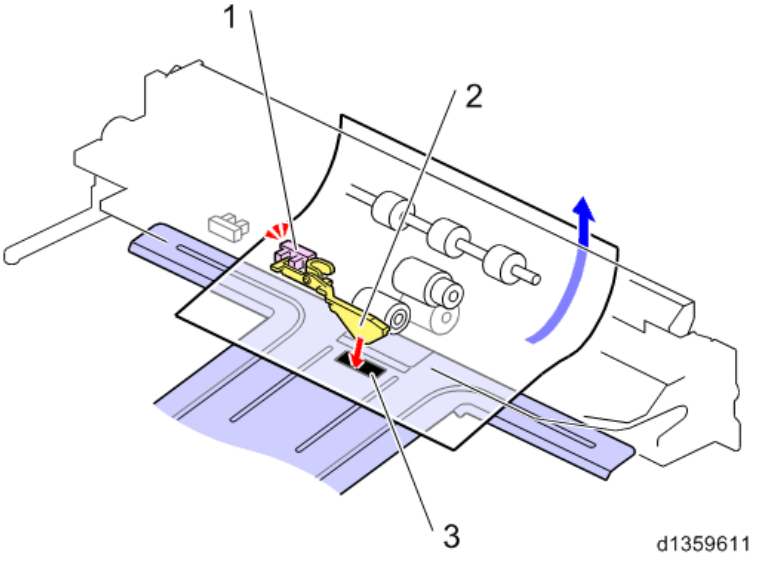
The following 4 levels of remaining paper can be detected.

Remaining paper	100%	70%	30%	10%
CN-3	OFF	ON	ON	OFF
CN-5	OFF	OFF	ON	ON

Remaining paper	100%	70%	30%	10%
Control panel display	4 bars	3 bars	2 bars	1 bar

Paper end detection

When there is no more paper in the paper feed tray, the paper end feeler turns ON the paper end sensor (the sensor is unblocked).



No.	Description	No.	Description
1	Paper end sensor	3	Slot
2	End feeler		