ARDF DF3110
Machine Code: D3FE
Field Service Manual
Ver. 1.0

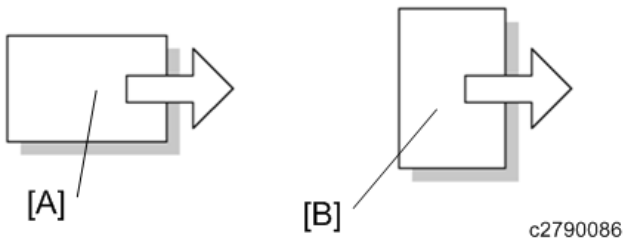
Latest Release: December, 2018
Initial Release: December, 2018

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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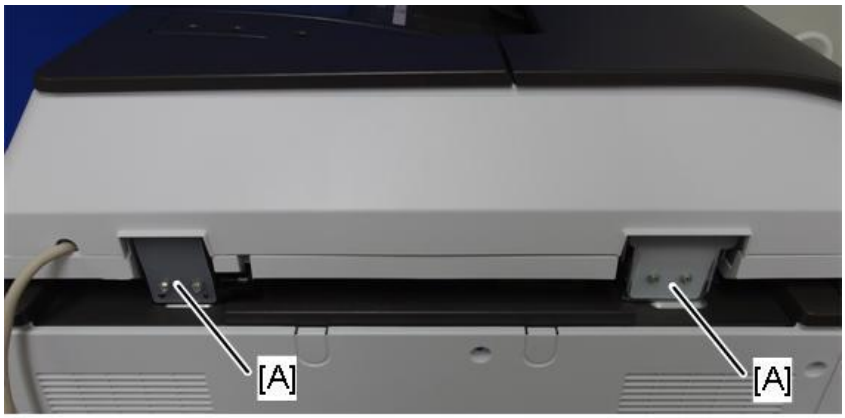
Table of Contents

1. Detailed Descriptions

Changes from the Previous Machine

- To solve JAM16 (Registration Sensor Late Jam), there is an additional function to assist the original paper feed during the pullout operation. For details, see “Paper Feed / Separation Mechanism” and “Skew Correction Mechanism / Registration Mechanism”.
- Mylars [A] have been added to the hinge gaps to prevent fingers getting caught in the hinge gaps when carrying out maintenance.



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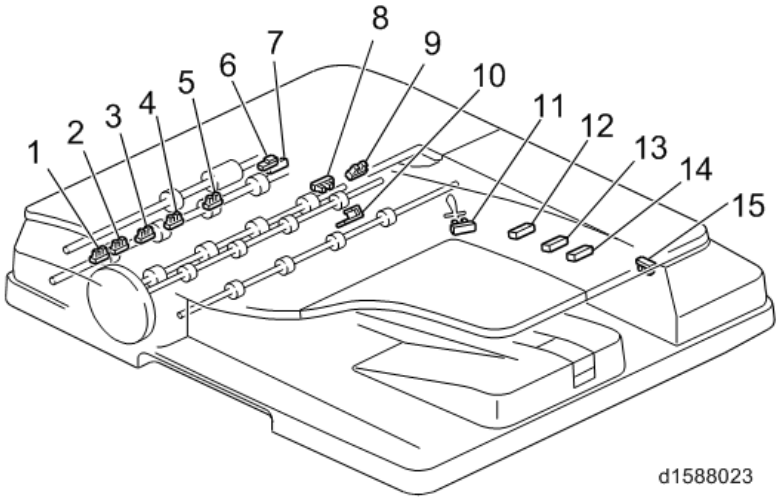
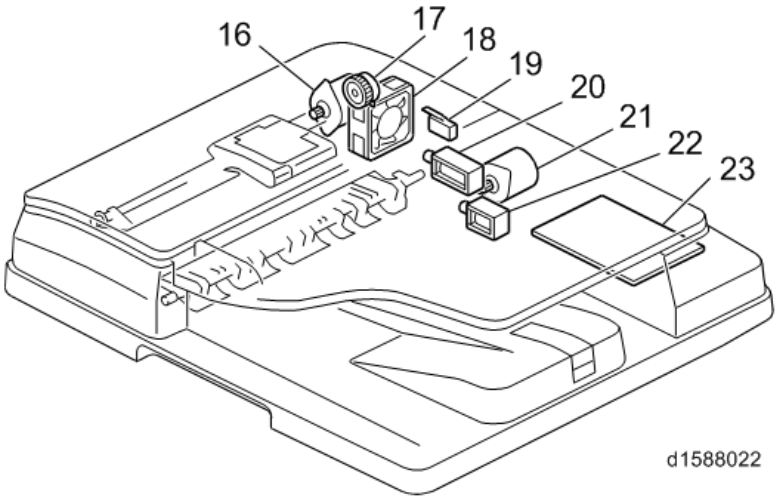
Specifications

Mode:	Batch mode, SADF mode, Mixed Sizes mode, Original Orientation mode, and Custom Size originals mode
Original Size:	EU/AA • A3 SEF - A5 SEF/LEF, B4 JIS SEF - B6 JIS SEF/LEF, 11 x 17 SEF - 8 1/2 x 11 SEF/LEF You cannot scan two sides of B6 JIS originals NA • 11 x 17 SEF - 5 1/2 x 8 1/2 SEF/LEF, A3 SEF - B6 JIS SEF/LEF You cannot scan two sides of B6 JIS originals
Original weight:	• One-sided originals: 40-128 g/m2 (11-34 lb. Bond) • Two-sided originals: 52-128 g/m2 (14-34 lb. Bond)
Number of originals to be set (81 g/m2, 20 lb. Bond):	100 sheets
Maximum power consumption:	42 W or less (Power is supplied from the main unit.)
Dimensions (W x D x H):	565 x 500 x 125 mm (22.3 x 19.7 x 5.0 inches)
Weight:	Approx. 9 kg (19.9 lb.)

Parts Layout





No.	Description	No.	Description
1	Original Width Sensor 5 (LL) (S5)	13	Original Length Sensor (M) (S13)
2	Original Width Sensor 4 (L) (S4)	14	Original Length Sensor (L) (S12)
3	Original Width Sensor 3 (M) (S3)	15	DF Position Sensor (S9)
4	Original Width Sensor 2 (S) (S2)	16	Paper Transport Motor (M2)
5	Original Width Sensor 1 (SS) (S1)	17	Paper Feed Clutch (CL1)
6	Skew Correction Sensor (S10)	18	Cooling Fan Motor (FAN1)
7	Registration Sensor (S6)	19	Left Cover Switch (SW1)
8	Original Exit Sensor (S7)	20	Pick-up Solenoid (SOL2)
9	Original Set Sensor (S8)	21	Paper Feed Motor (M1)
10	Stamp Solenoid (SOL3)	22	Inverter Solenoid (SOL1)
11	Original Sensor (S11)	23	ARDF Drive Board (PCB1)
12	Original Length Sensor (S) (S14)	-	-

Mechanism

Original Detection

When an original is placed on the original tray correctly, the edge of the original pushes up the feeler of the original sensor.

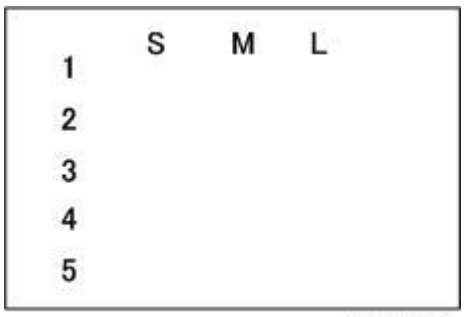
Original Size Detection / Original Set Detection Mechanism

Five original width sensors detect the width of the original just when the leading edge of the original passes the interval sensor. Three original length sensors on the original table detect the length. These two pieces of size information summarize the original size.

Size (Width x Length: mm)		Width Detection					Length Detection		
		1	2	3	4	5	S	M	L
1	A3 SEF (297 x 420)	On	On	On	On	On	On	On	On
2	B4 SEF (257 x 364)	On	On	On	-	-	On	On	On
3	A4 SEF (210 x 297)	On	On	-	-	-	On	On	-
4	A4 LEF (297 x 210)	On	On	On	On	On	-	-	-
5	B5 SEF (182 x 257)	On	-	-	-	-	On		-
6	B5 LEF (257 x 182)	On	On	On	-	-			-
7	A5 SEF (148 x 210)	On	-	-	-	-			-
8	A5 LEF (210 x 148)	On	On	-	-	-			-
9	B6 SEF (128 x 182)	-	-	-	-	-			-
10	B6 LEF (182 x 128)	On	-	-	-	-	-	-	-
11	11" x 17" SEF (DLT)	On	On	On	On	-	On	On	On*
12	11" x 15" SEF	On	On	On	On	-	On	On	On *
13	8 1/2" x 11" SEF (LT)	On	On	-	-	-	On	-	-
14	11" x 8 1/2" LEF (LT)	On	On	On	On	-	-	-	-

* The machine cannot tell the difference between certain original sizes, such as DLT (11 x 17”) and 11 x 15”. The machine assumes such originals are 11 x 17”. To change this, use SP mode.

Sensor Position



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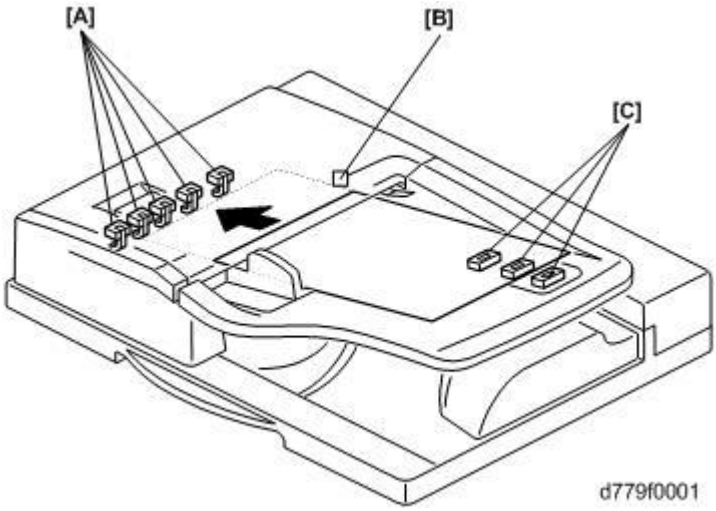


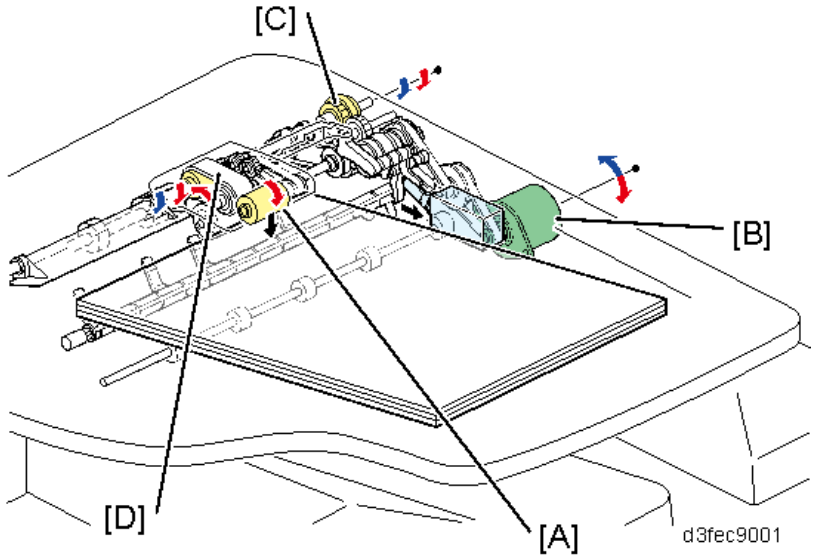
	Description
A	Original Width Sensors
B	Original Set Sensor
C	Original Length Sensors

Paper Feed / Separation Mechanism

The separation mechanism uses the RF method.

When the originals are placed and [Start] is pressed, the paper feed solenoid is turned ON and the pickup roller [A] goes down to the original.

At this time, the paper feed motor [B] and paper feed clutch [C] switch ON to drive the pickup roller and feed belt [D]. Then a sheet of paper is fed.

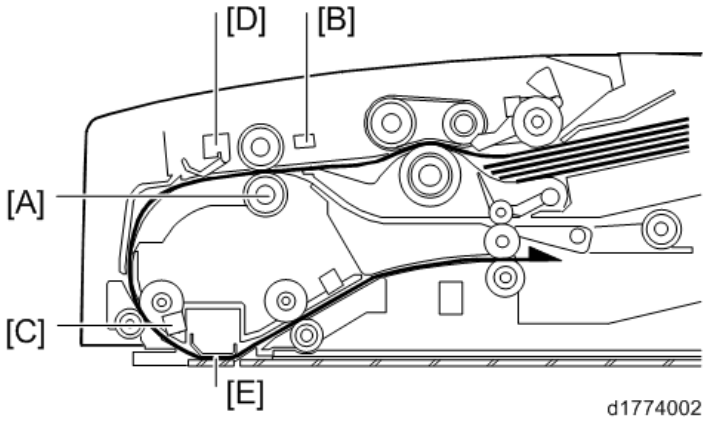


Skew Correction Mechanism / Registration Mechanism

- **Skew Correction**

  This machine adjusts paper skew by hitting the originals against the pullout roller [A].

The skew correction sensor [B] detects the leading edge of the original after it passes through the separation area. When the leading edge reaches the entrance transport roller, the paper is fed a bit more so that it bumps into the pullout roller [A], to make slack for skew adjustment.



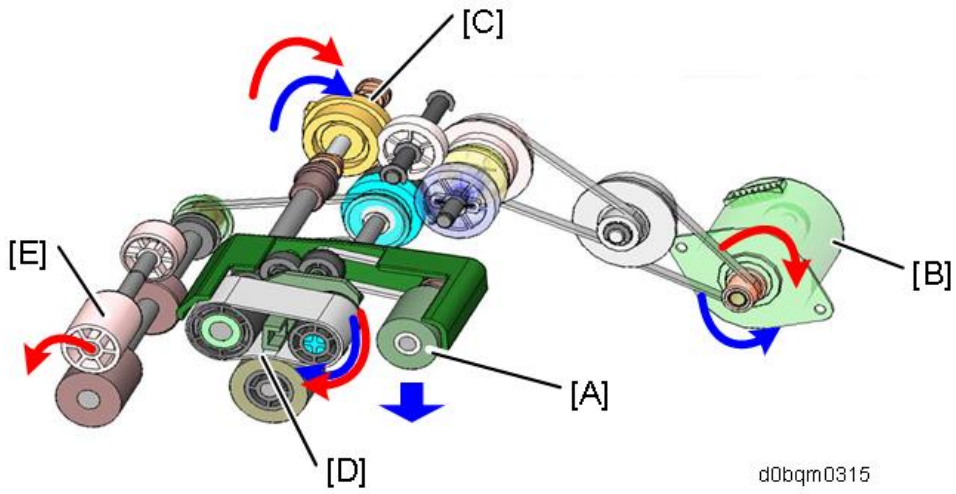
- **Pullout Function**

  After skew correction, the original is fed by the pullout function.

  The paper feed motor [B] rotates in reverse, and the pickup roller [A] and feed belt [D] driven by the paper feed clutch [C] feed the original after skew correction.

  The indicated parts rotate in the direction of the red arrow for the pullout function.

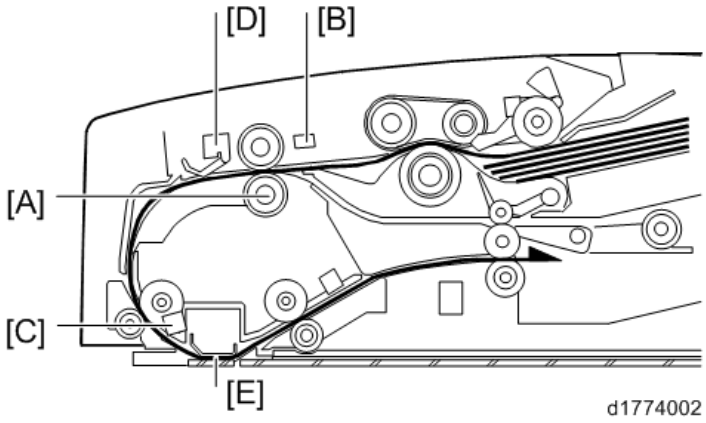
  During paper feeding, the roller rotates in the direction of the blue arrow.



If the leading edge of the original is not hit to the pickup roller due to slipping or is not hit fully, resulting in the pickup roller failing to pull the original, JAM (Registration Sensor Late Jam) used to occur; however, the assist function to feed originals have reduced the occurrence of such paper jams.

- **Registration Mechanism**

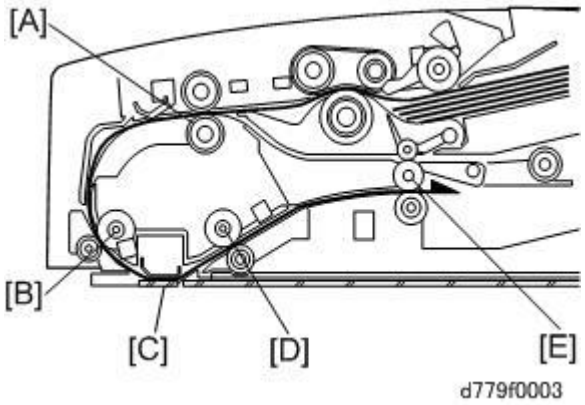
  The registration sensor [C] detects the leading edge of the originals. The machine uses the data for registration during copying.



	Description
A	Pullout Roller
B	Skew Correction Sensor
C	Registration Sensor
D	Original Width Sensor
E	Sheet-through Exposure Glass

- **Transport Mechanism (Simplex)**

  Originals are transported by the pullout roller [A] and the entrance transport roller [B] to the sheet-through exposure glass [E], which scans the image. After this process, the originals are transported to paper exit section by the exit transport roller [D] and the exit driven roller [E].

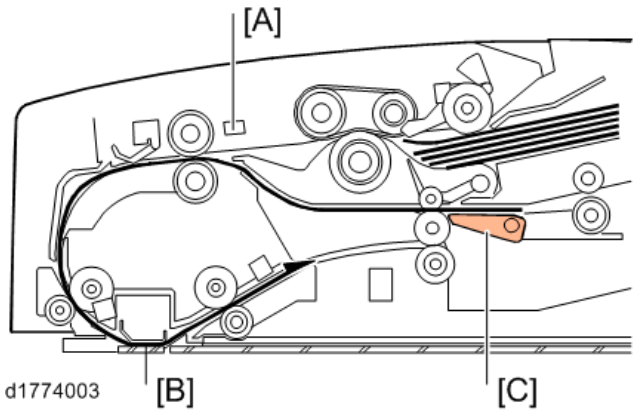


	Description
A	Pullout Roller
B	Entrance Transport Roller
C	Sheet-through Exposure Glass
D	Exit Transport Roller
E	Exit Driven roller

- **Transport Mechanism (Duplex)**

  When originals are detected by the skew correction sensor [A], the transport motor switches OFF and the original stops for a while. After skew correction, the originals are re-transported to the sheet-through exposure glass [B], which scans the first side (front). Then the inverter

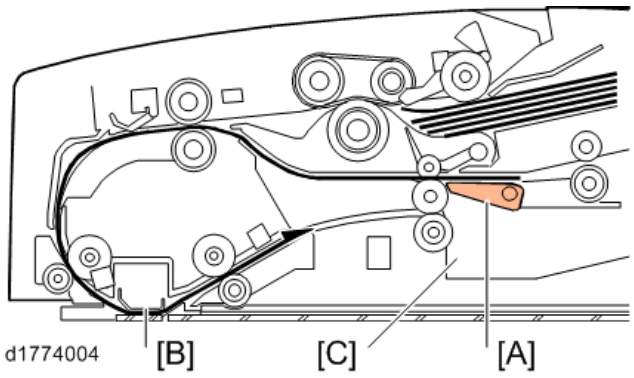
solenoid switches ON and the junction gate [C] opens. By that process, the originals are transported to the reverse roller. At this time, the transport motor stops and the inverter solenoid switches off.

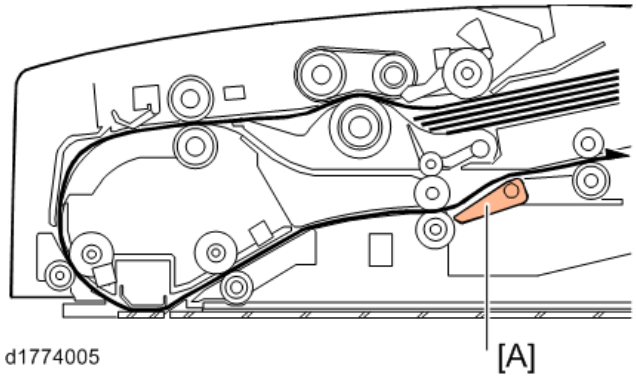


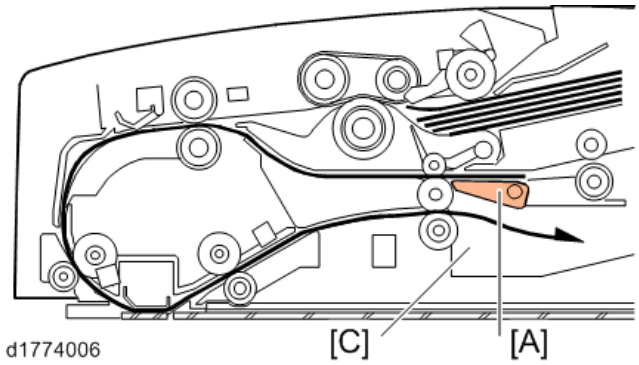
	Description
A	Skew Correction Sensor
B	Sheet-through Exposure Glass
C	Junction Gate

The originals, which reached the reverse roller, are re-fed over the upper surface of the junction gate [A]. When the originals reach the sheet-through exposure glass [B], the second side (back) is scanned.

To make the order of the sheets on the exit tray correct, the two sides (front/back) of the original need to be inverted. Therefore, the inverter solenoid switches ON and the originals are transported to the reverse roller again. After the inversion, the originals exit onto the exit tray [C].







SP6-901-002 (Setting to Give Priority to Stackability)

To improve the alignment of the delivered originals, select to give priority to stackability in the following SP. This will reduce the originals' delivery speed and improve their stackability.

- **SP6-901-002 (Setting to give priority to stackability):**
  0: Higher throughput (default)
  1: Higher stackability

2. Replacement and Adjustment

Document Feeder

Original Feed Unit

1. Open the left cover.
2. Remove the original feed unit [A].

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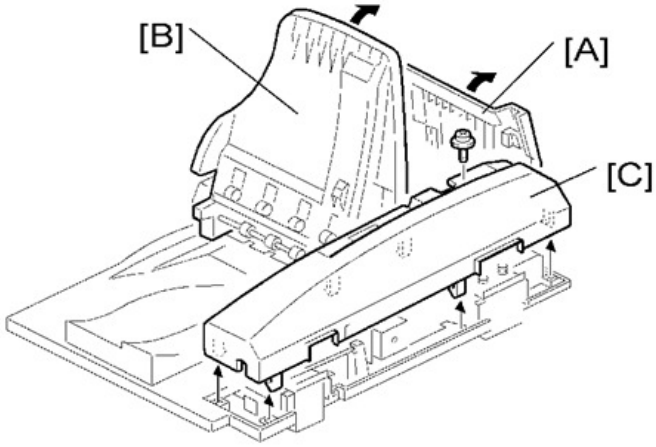
Note

- Pull the original feed unit forward to release the back side of the shaft.

Exterior Covers and Original Tray

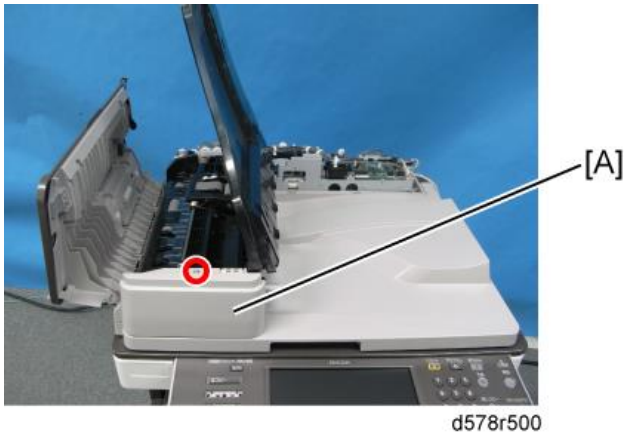
Rear Cover

1. Open the left cover [A].
2. Open the original tray [B].
3. Remove the rear cover [C] (×1, hook ×5).



Front Cover and Original Tray

1. Open the left cover.
2. Remove the rear cover. (Rear Cover)
3. Remove the front cover [A] (×1).



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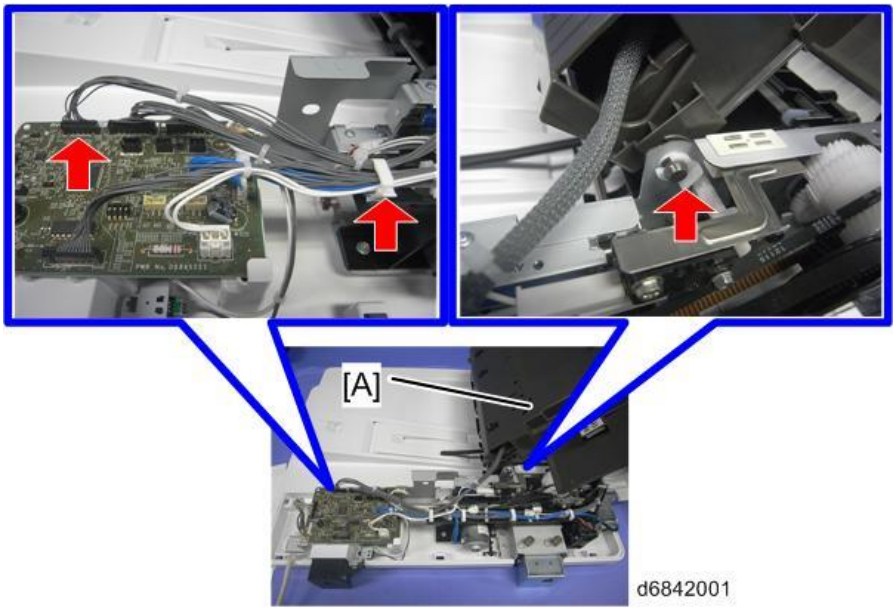
Note

- Keep the original tray open when removing the front cover.

4. Remove the original tray [A] (×1, ×1, ×1).

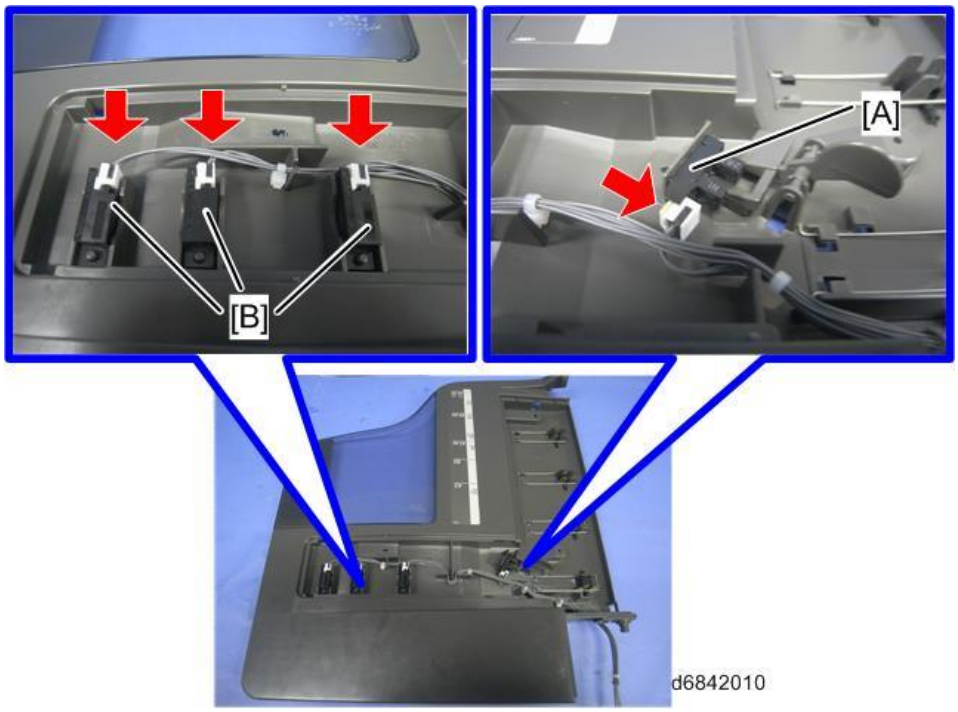


Sensors and Switch

Original Length Sensors (S12)(S13)(S14) and Original Sensor (S11)

1. Remove the original tray. (Front Cover and Original Tray)
2. Remove the tray cover [A] (×3).

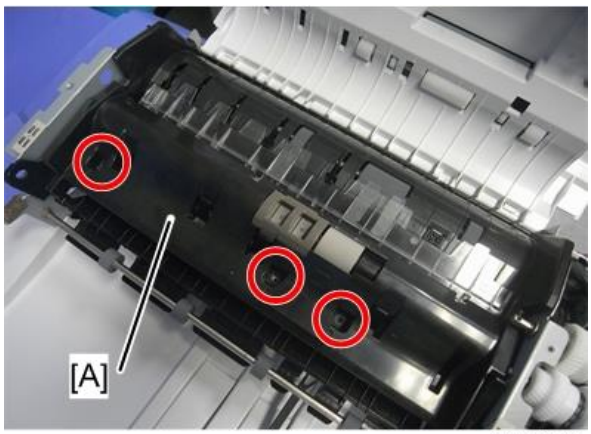
3. Remove the following items:
   - Original sensor [A] (×1)
   - Original length sensors [B] (×1 each)



Original Set Sensor (S8)

1. Remove the original feed unit. (Original Feed Unit)
2. Remove the original tray. (Front Cover and Original Tray)

3. Remove the original feed-in guide plate [A] (×3).



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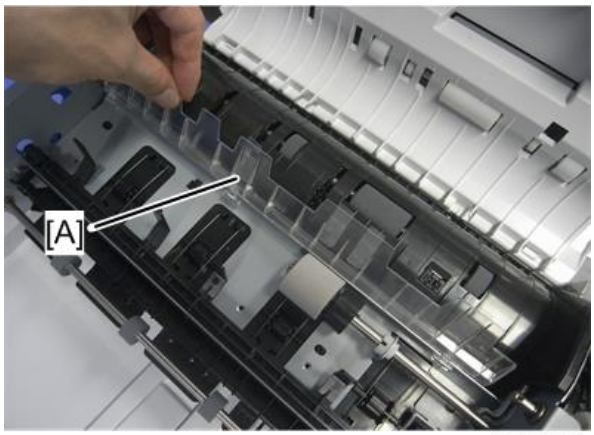
4. Remove the feed guide [A].



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5. Remove the original turn guide plate [A] (hook ×2).

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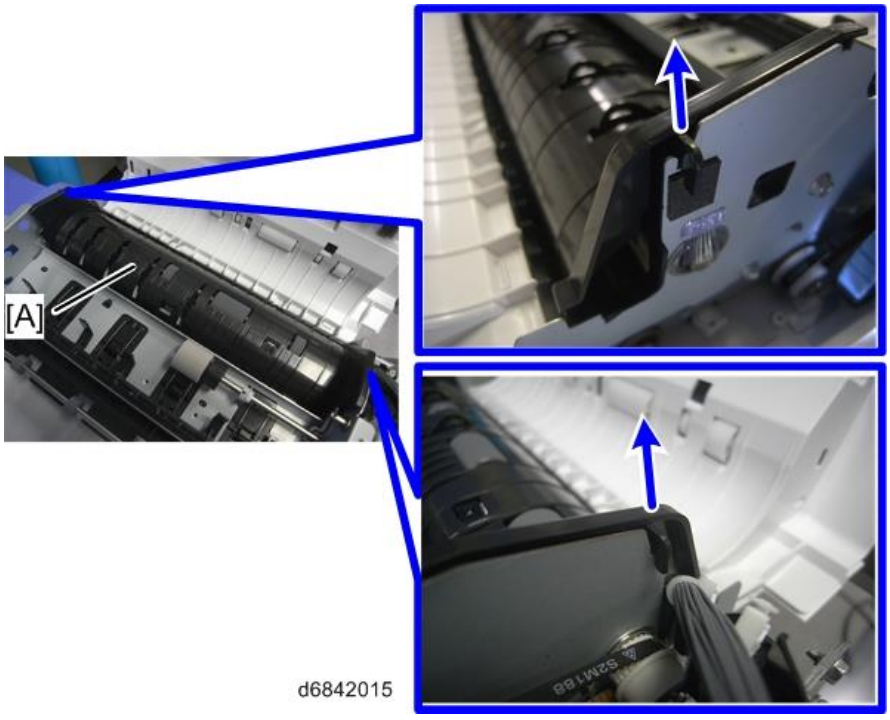
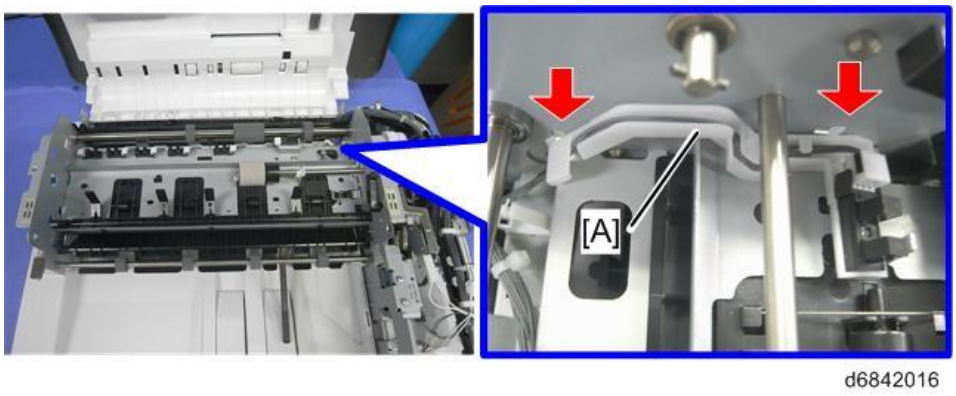
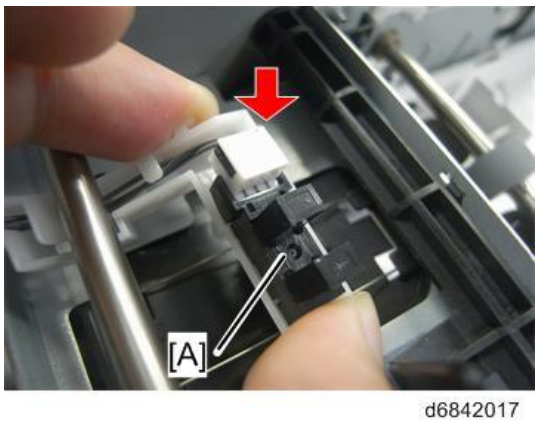


6. Remove the original set sensor bracket [A] (hook ×2).



7. Remove the original set sensor (S8) [A] (×1).

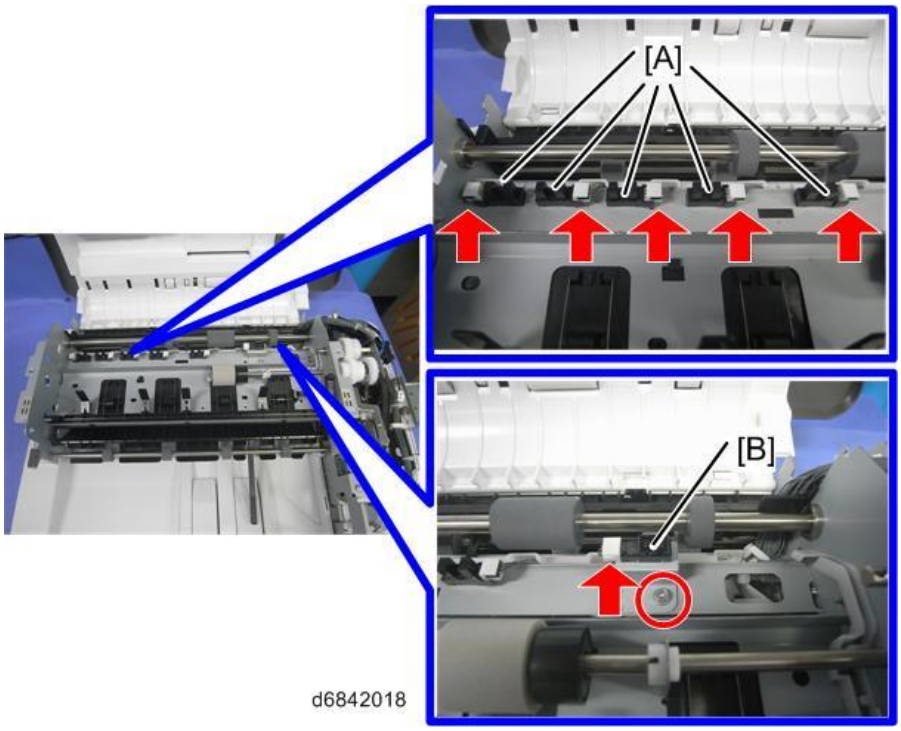


Original Width Sensors (S1)(S2)(S3)(S4)(S5) and Skew Correction Sensor (S10)

1. Remove the original turn guide plate. (Original Set Sensor (S8))

2. Remove the original width sensors [A] (×1 each) and skew correction sensor [B] with bracket

(×1, ×1).

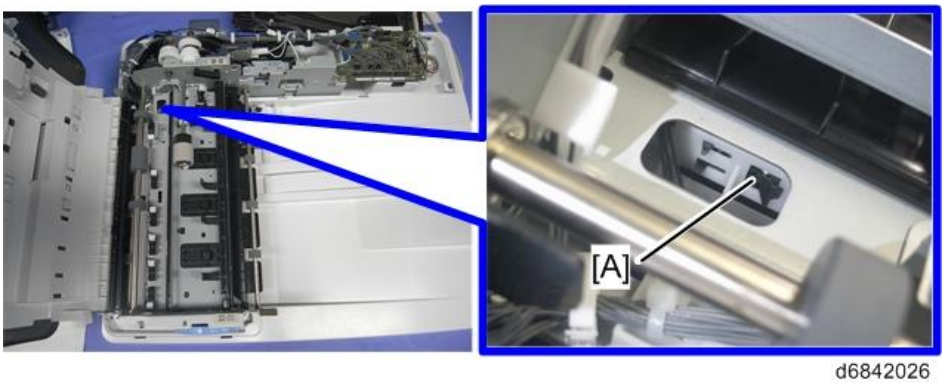


Original Exit Sensor (S7)

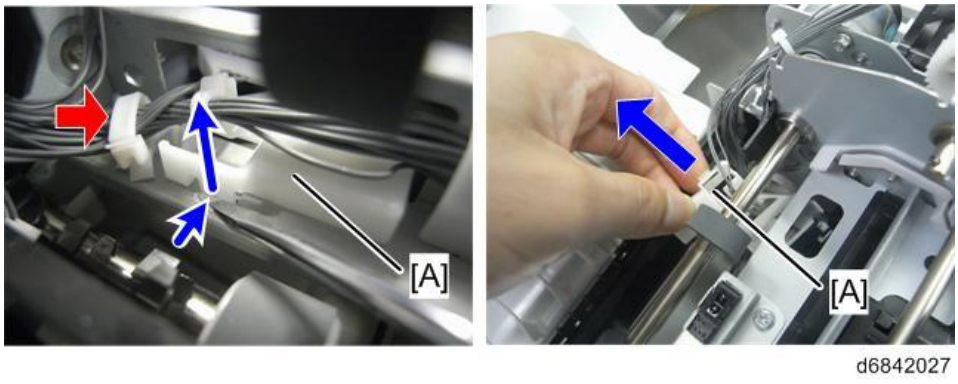
1. Remove the original feed-in guide plate. (Original Set Sensor (S8))

Note

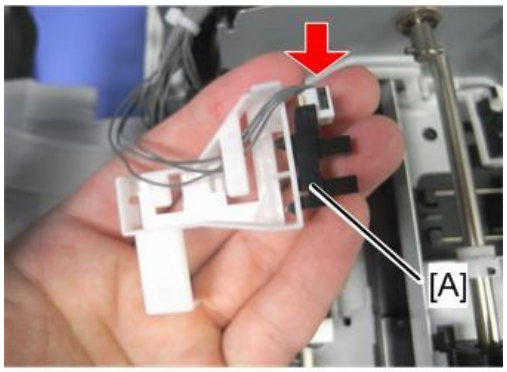
- The Original exit sensor [A] is located in the ARDF mainframe.



2. Remove the original exit sensor bracket [A] (×1).



3. Remove the original exit sensor (S7) [A] (×1).



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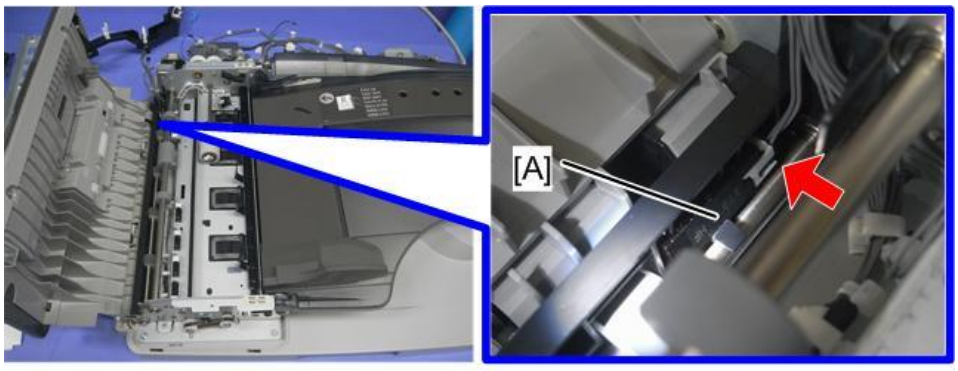
Registration Sensor (S6)

1. Remove the original feed-in guide plate. (Original Set Sensor (S8))
2. Remove the registration sensor (S6) [A] (×1).



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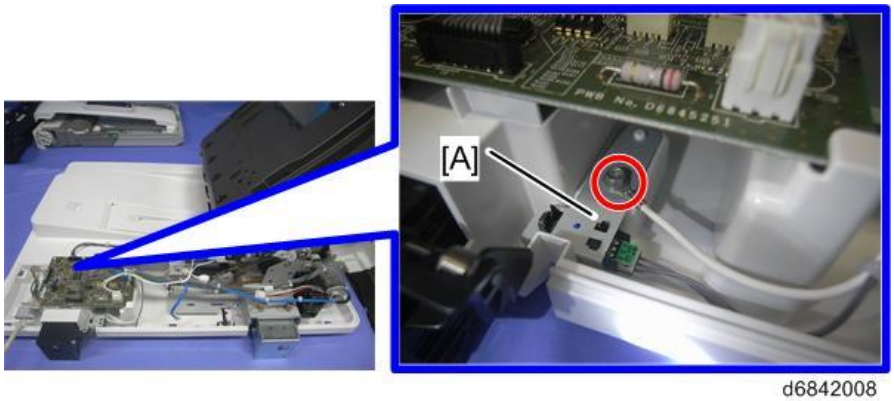
DF Position Sensor (S9)

1. Remove the ARDF drive board. (ARDF Drive Board (PCB1))
2. Remove the DF position sensor with bracket [A] (×1).



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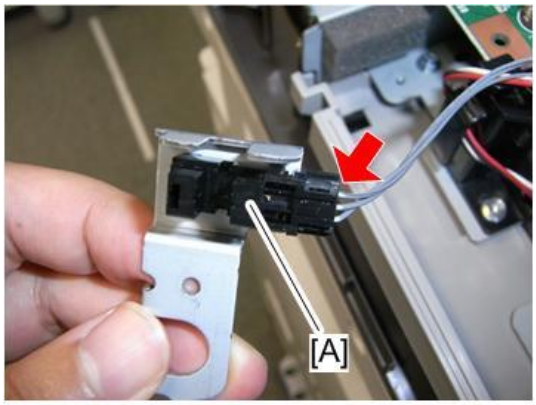
3. Remove the DF position sensor (S9) [A] (×1).



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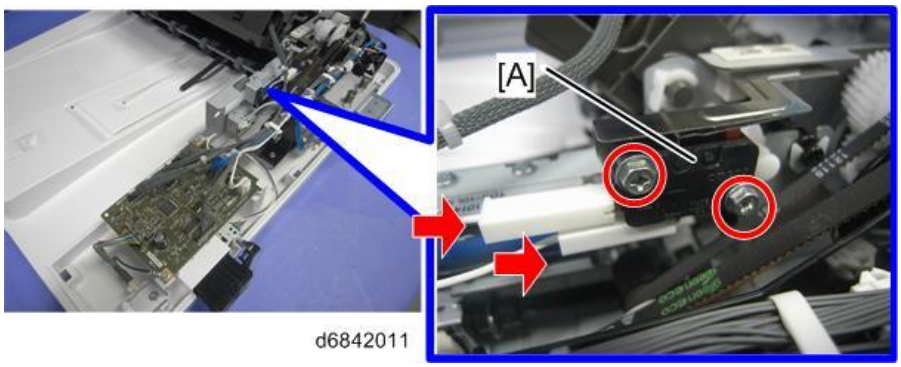
Left Cover Switch (SW1)

1. Remove the rear cover. (Rear Cover)

2. Remove the left cover switch (SW1) [A] (×2, ×2).



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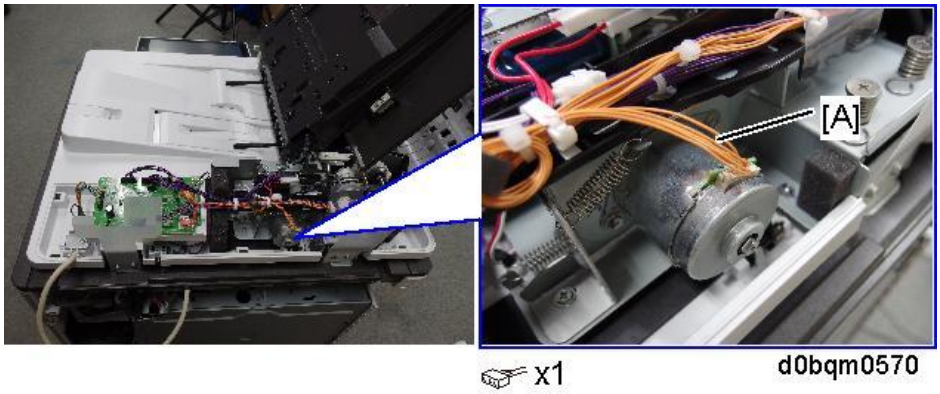
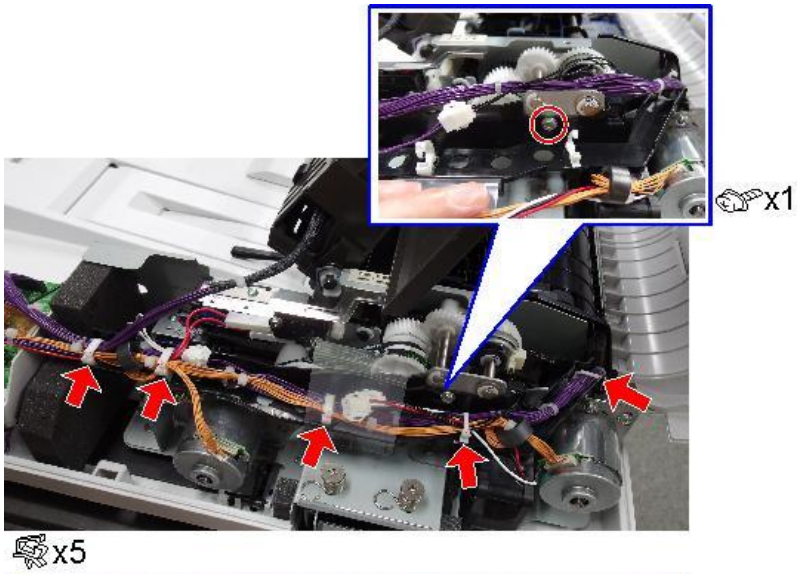
Motors, Solenoids, and Clutches

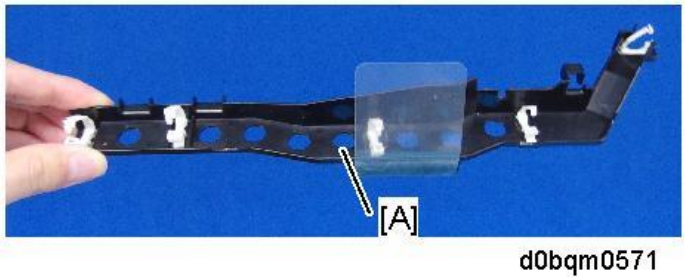
Paper Feed Motor (M1)

1. Remove the rear cover. (Rear Cover)
2. Disconnect the motor harness [A].

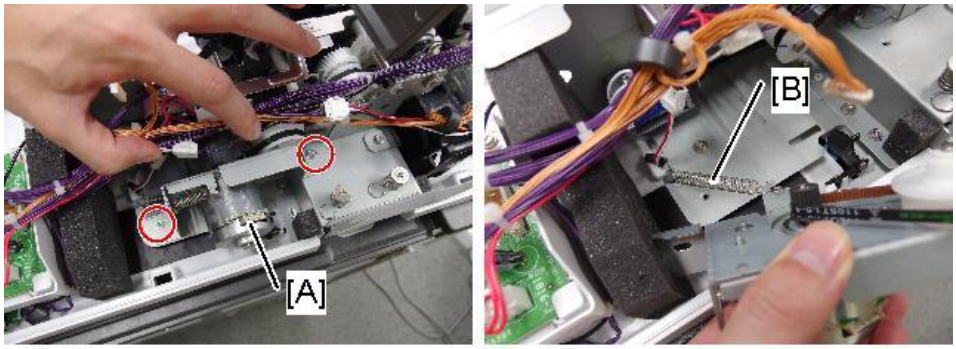


3. Remove the harness guide [A].

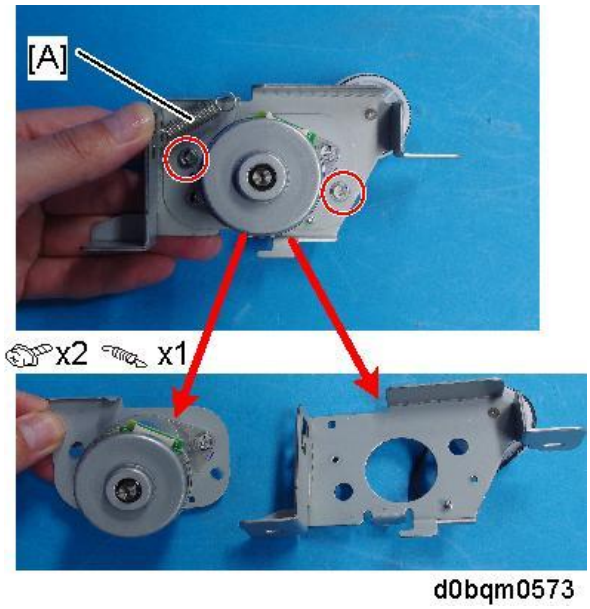




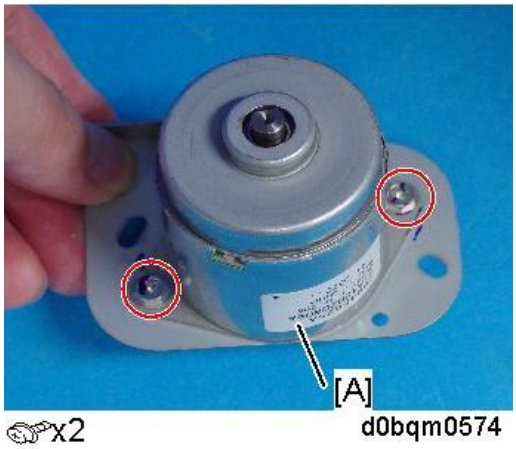
4. Remove the spring [B], and remove the paper feed motor with bracket [A].



5. Remove the spring [A], and disassemble the motor unit.

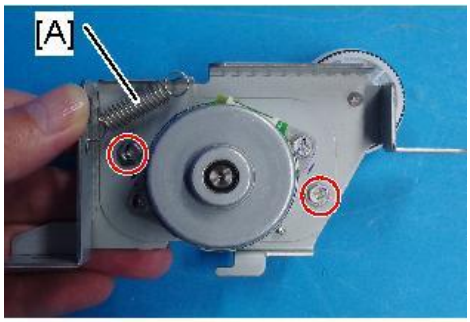


6. Remove the paper feed motor (M1) [A].



Installation Procedure

1. Attach the paper feed motor (M1) to the bracket temporarily, and then attach the spring [A].



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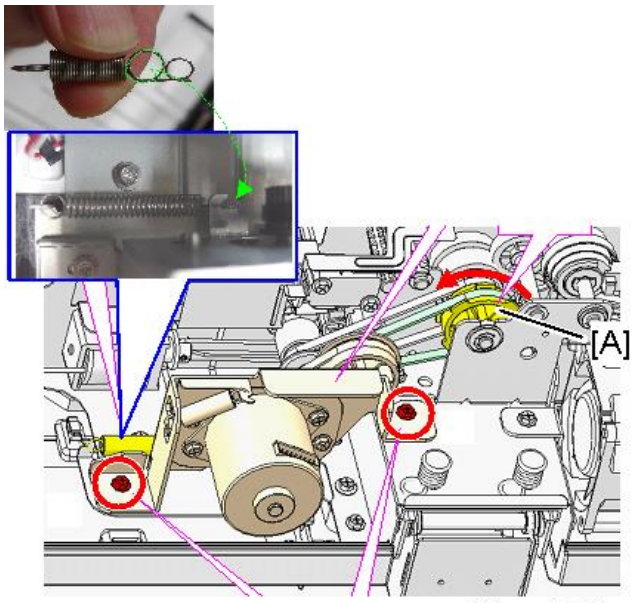
2. Attach the motor unit temporarily, and then attach the spring.
3. Rotate the pulley [A] three or more times to adjust the two timing belts.
   Be sure to hook using the larger loop away from the end of the spring.



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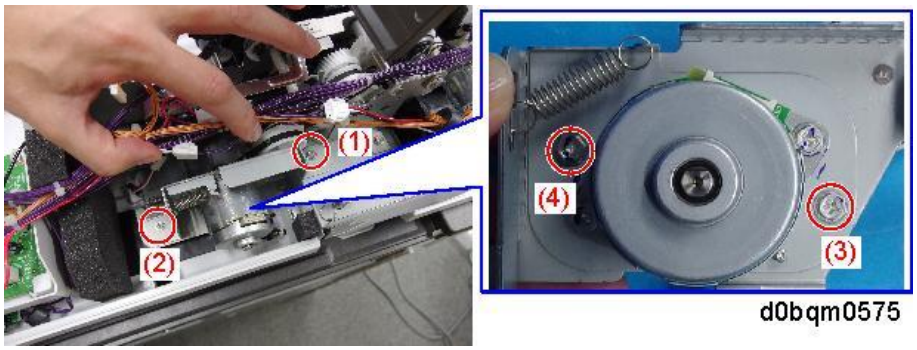
4. Fasten the temporarily applied screws in the ascending order of 1 > 2 > 3 > 4.



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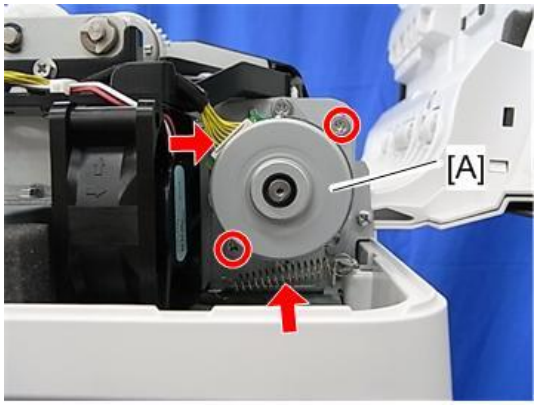
Paper Transport Motor (M2)

1. Remove the rear cover. (Rear Cover)

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



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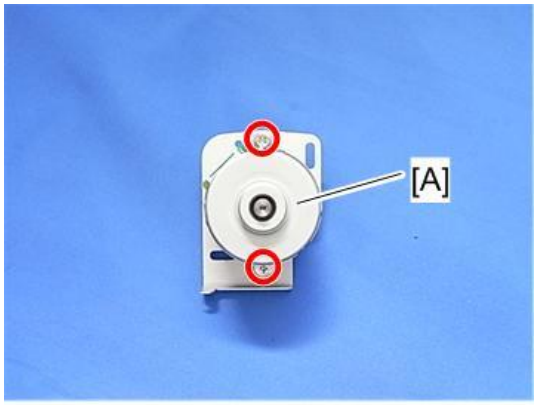
3. Remove the paper transport motor (M2) [A] (×2).

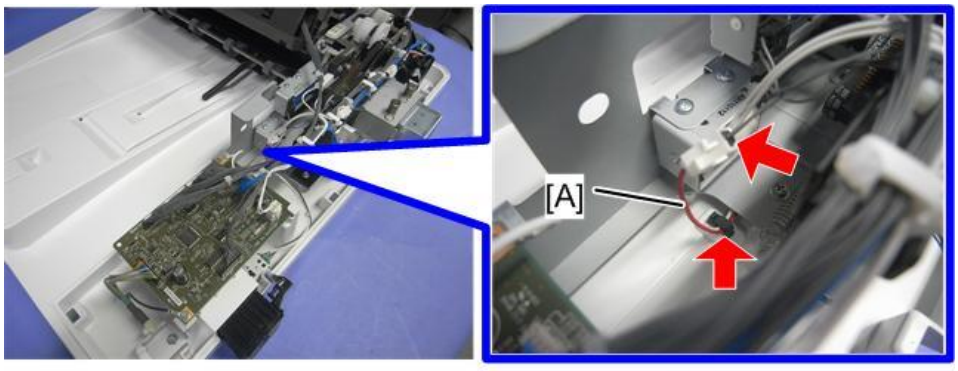


d146z0032

Stamp Solenoid (SOL3)

1. Remove the rear cover. (Rear Cover)

2. Remove the stamp solenoid harness [A] (×1, ×1).



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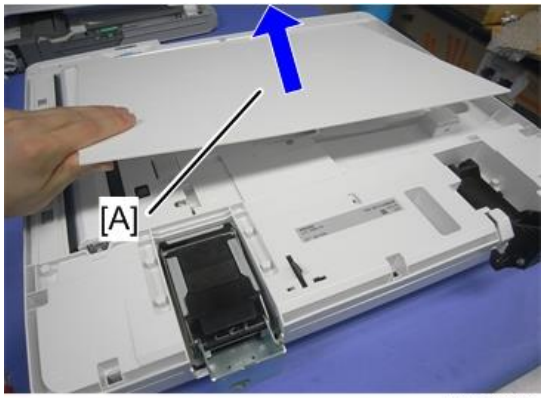
3. Open the DF and remove the platen sheet [A].



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4. Remove the stamp solenoid cover [A] (×1).

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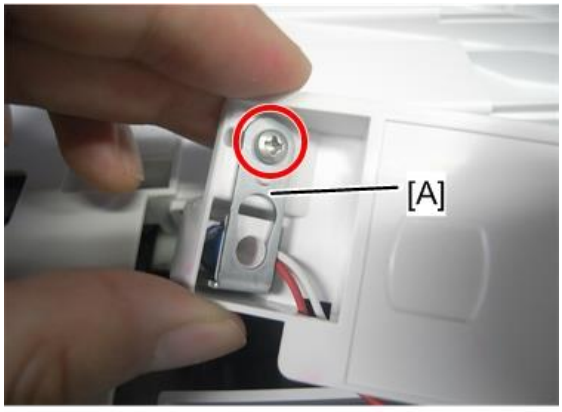
5. Remove the stamp solenoid (SOL3) [A] (×1).



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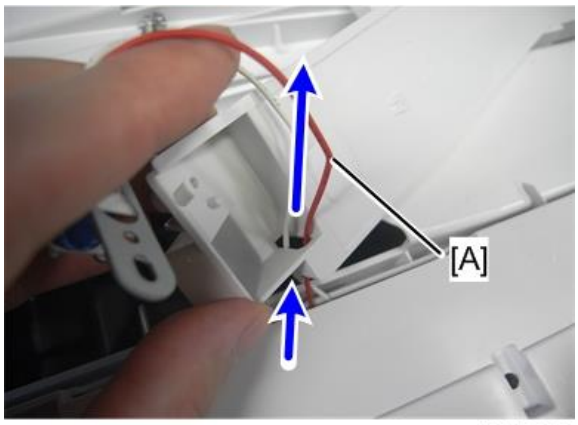
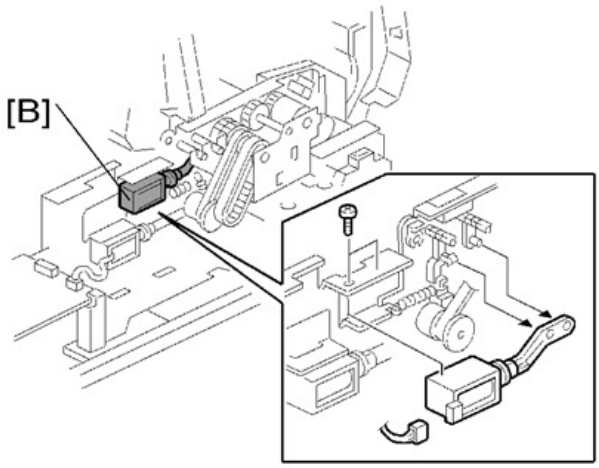
6. Pull out the harness [A].



Pick-up Solenoid (SOL2)

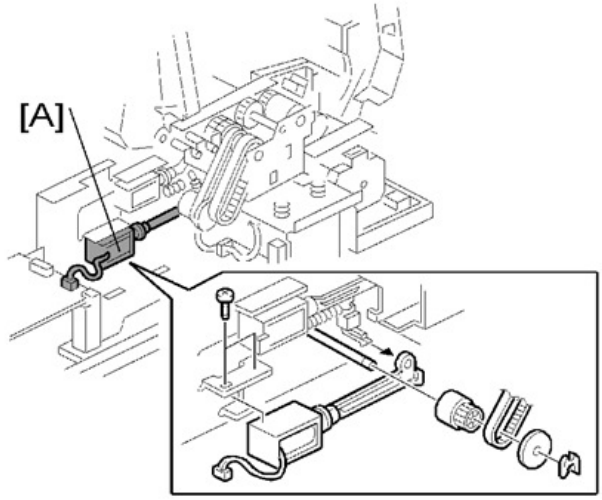
1. Remove the rear cover. (Rear Cover)
2. Remove the harness guide. (Paper Feed Motor (M1))
3. Remove the pick-up solenoid (SOL2) [B] (×2, ×1).



Inverter Solenoid (SOL1)

1. Remove the rear cover. (Rear Cover)
2. Remove the harness guide. (Paper Feed Motor (M1))

3. Remove the inverter solenoid (SOL1) [A] (×2, ×1, ×1, gear ×1, gear cover ×1, ×1).

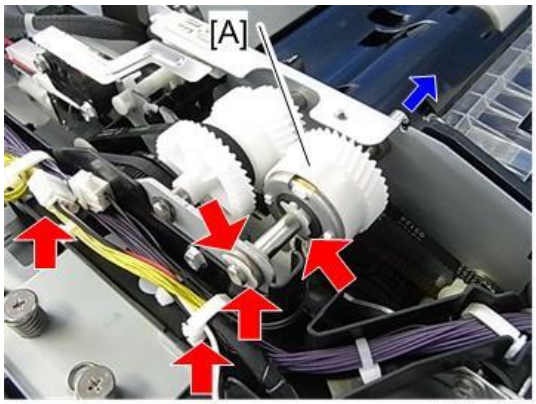


Paper Feed Clutch (CL1)

1. Remove the rear cover. (Rear Cover)

2. Remove the original feed unit. (Original Feed Unit)

3. Remove the paper feed clutch (CL1) [A] (×2, bushing ×1, shaft ×1, ×1, ×1).



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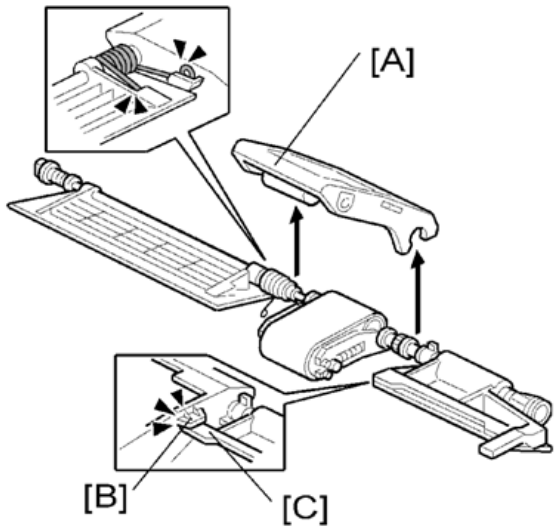
Belt and Rollers

Feed Belt

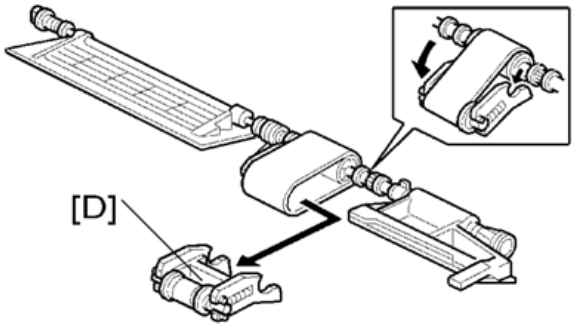
1. Remove the original feed unit. (Original Feed Unit)
2. Remove the feed belt cover [A] (spring×1).



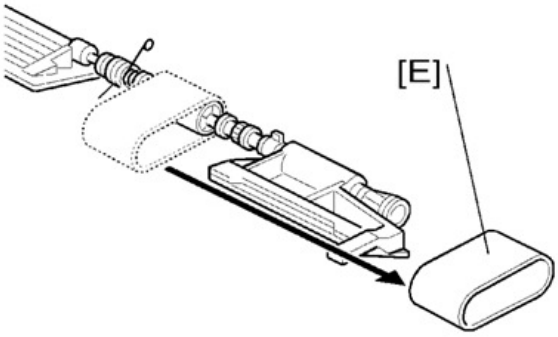
Note

- When reattaching the feed belt cover, make sure that the projection [B] of the feed belt cover is on the guide plate rear [C].

3. Remove the belt tension unit [D].

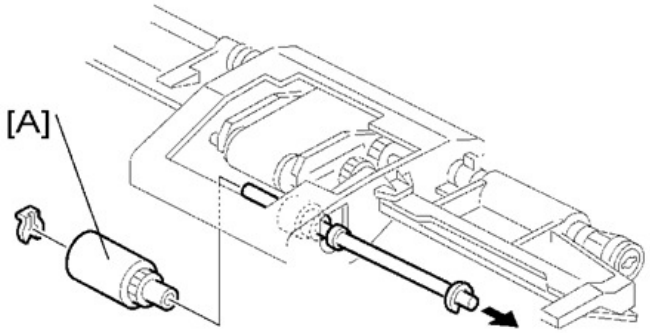


4. Remove the feed belt [E].



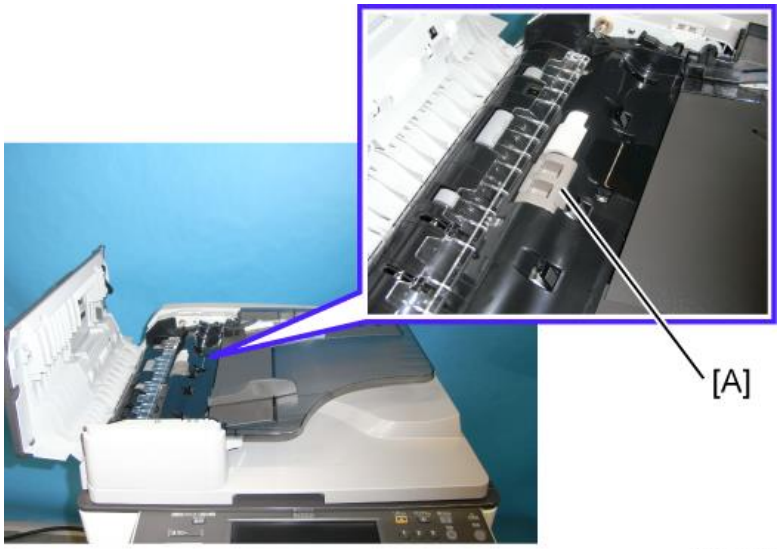
Pick-Up Roller

1. Remove the original feed unit. (Original Feed Unit)
2. Remove the pick-up roller [A] (×1).



Separation Roller

1. Remove the original feed unit. (Original Feed Unit)
2. Remove the separation roller cover [A].



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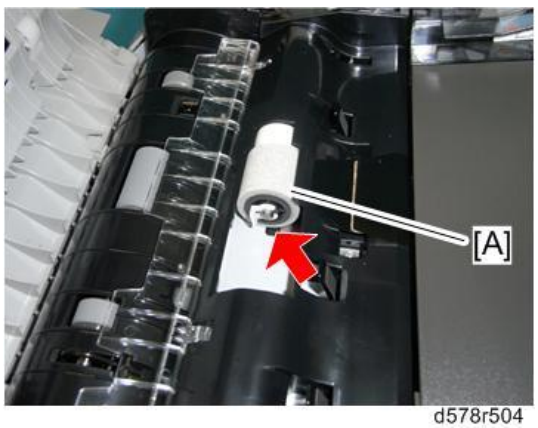
3. Remove the separation roller [A] (×1).



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Board

ARDF Drive Board (PCB1)

1. Remove the rear cover. (Rear Cover)
2. Remove the ARDF drive board (PCB1) [A] (×2, ×7).