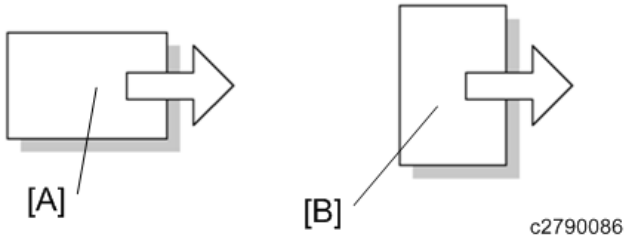
Internal Finisher SR3180
Machine Code: D766
Field Service Manual

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
LEF	Long Edge Feed



[A] Short Edge Feed (SEF)

[B] Long Edge Feed (LEF)

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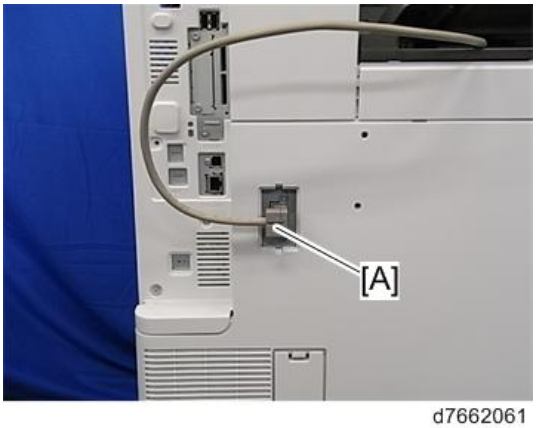
1. Replacement and Adjustment

Main Unit

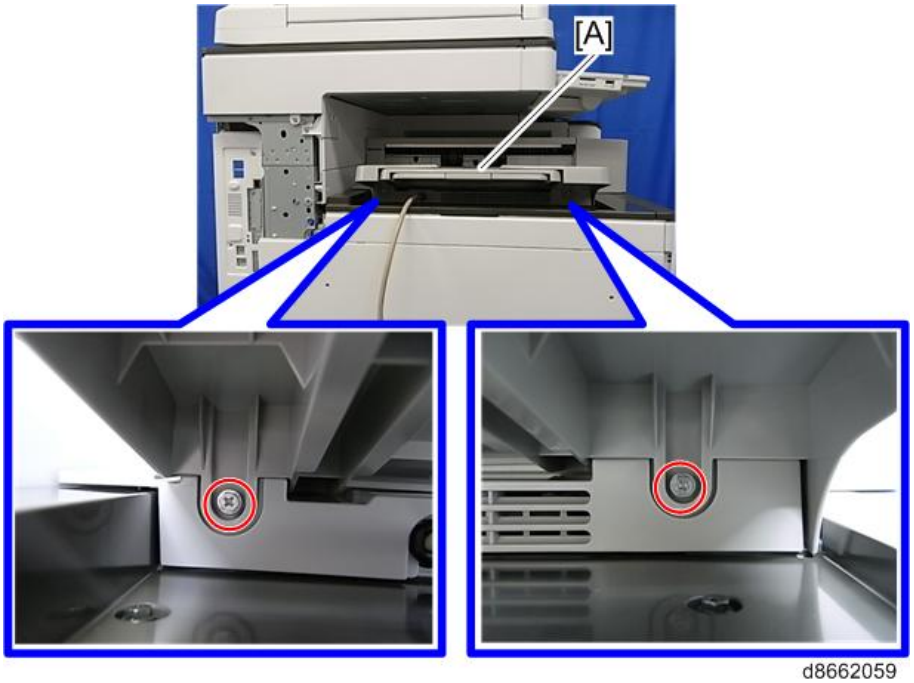
Internal Finisher SR3180

1. Interface cable [A]



d7662061

2. Paper exit tray [A] (×2)

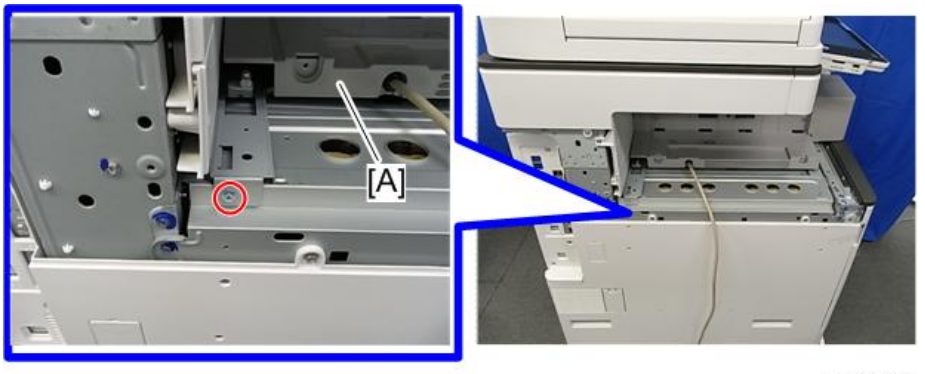


d8662059

3. Cover [A] (×2)

d7662057

4. Screw on the finisher [A] (×1)



d7662036

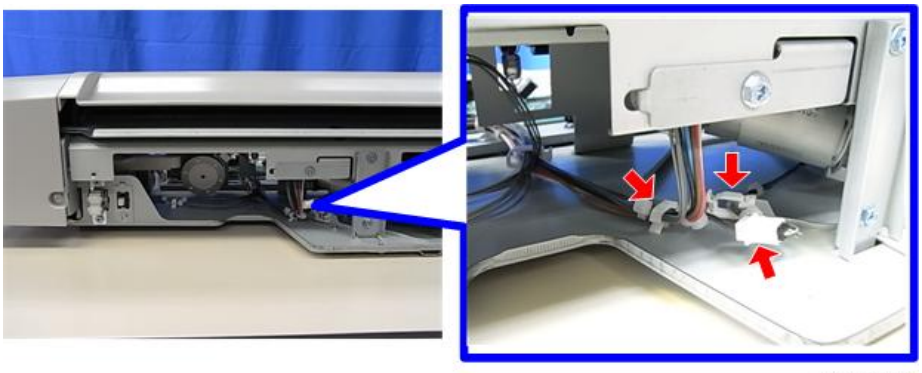
5. Finisher [A]

d7662064

Stapler Unit

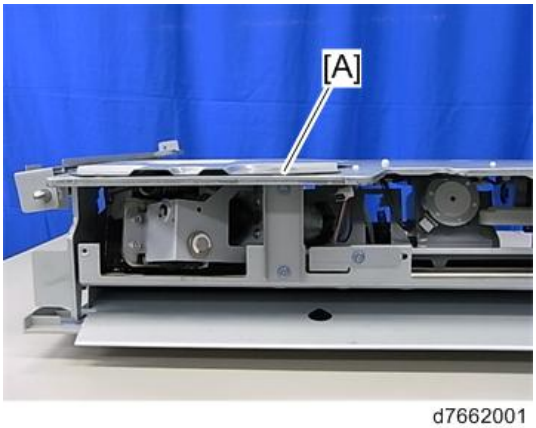
Stapler Unit

1. Rear cover (page 11)
2. Disconnect the connector and release the clamps (×1, ×2).



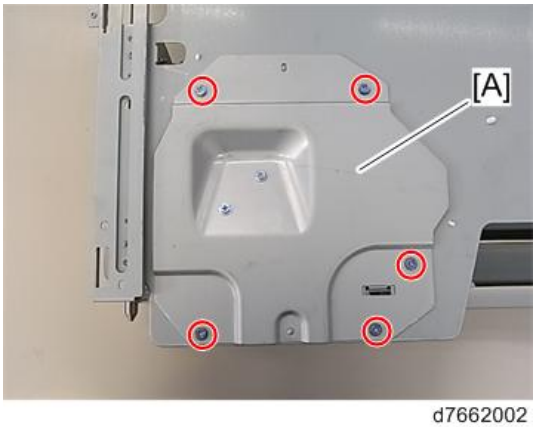
d7662000

3. Turn the finisher [A] over.



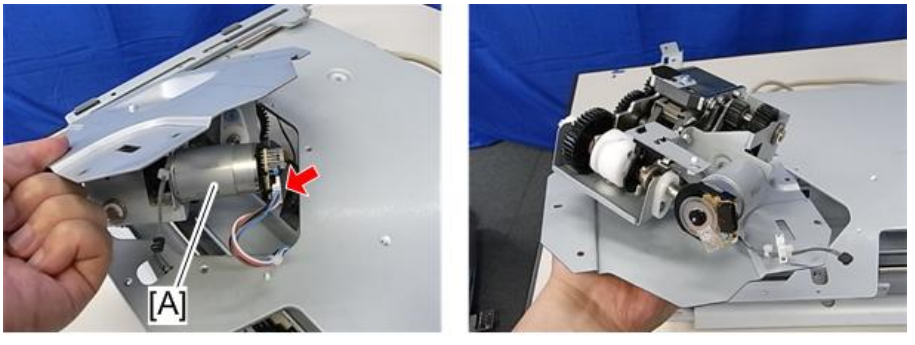
d7662001

4. **Remove the screws securing the stapler unit [A] (×5).**



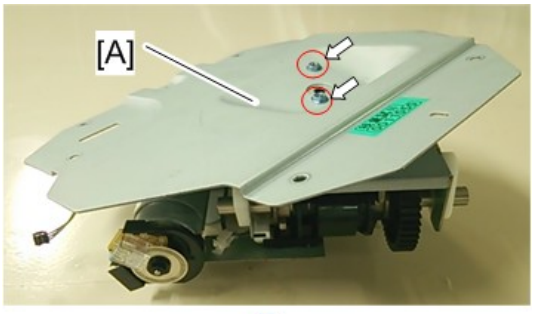
d7662002

5. **Stapler unit [A] (×1)**



d7662003

6. **Bracket [A] from the stapler unit (×2)**

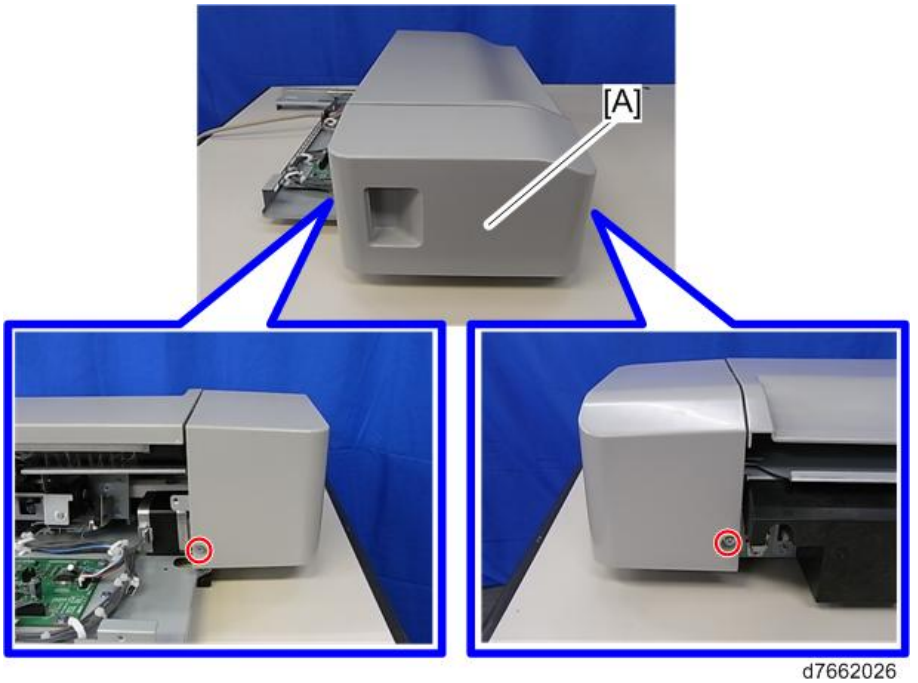


d766e0001

Exterior Covers and Tray

Finisher Front Cover

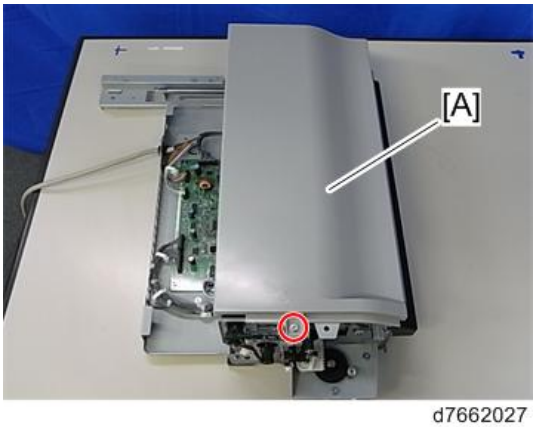
1. Paper exit cover (page 12)
2. Finisher front cover [A] (×2)



Finisher Upper Cover

1. Finisher front cover (page 10)

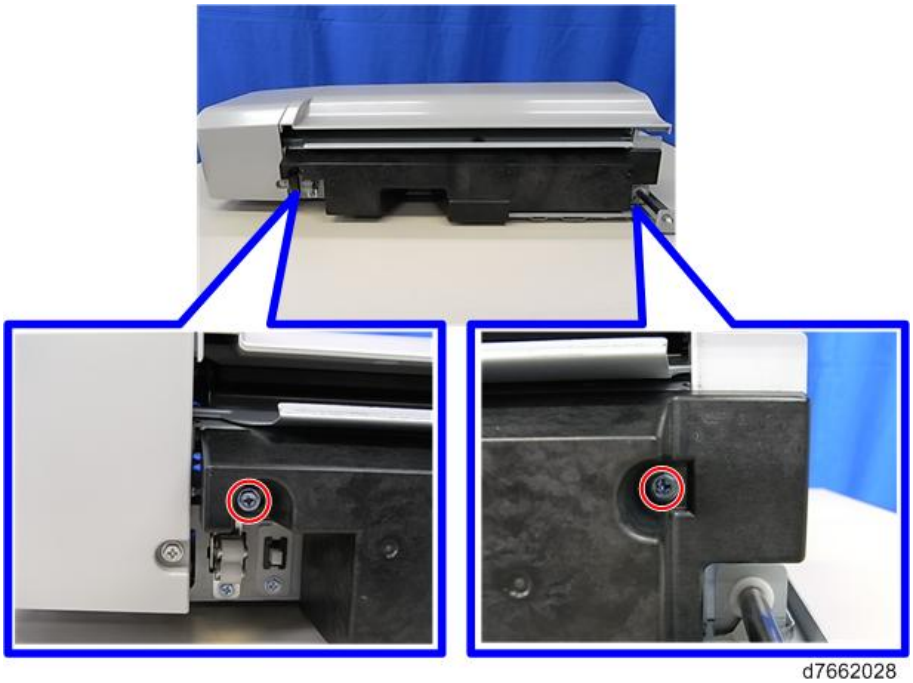
2. Finisher upper cover [A] (×1)



d7662027

Rear Cover

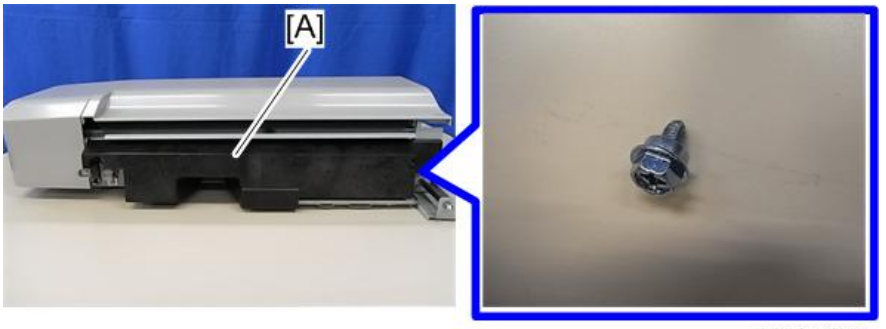
1. Finisher (page 5)
2. Rear cover (×2)



d7662028

Note

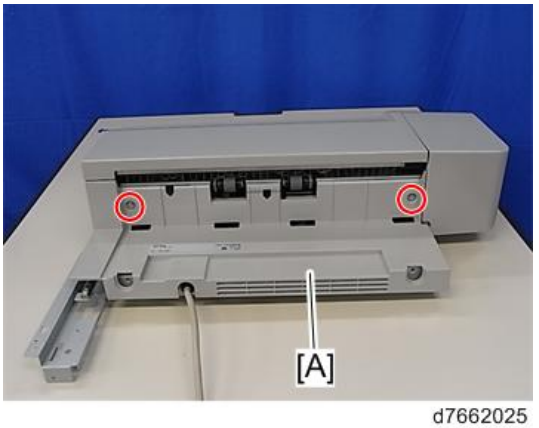
- The screw on the right (when you are facing the rear cover [A]) is a step screw



d766z4500

Paper Exit Cover

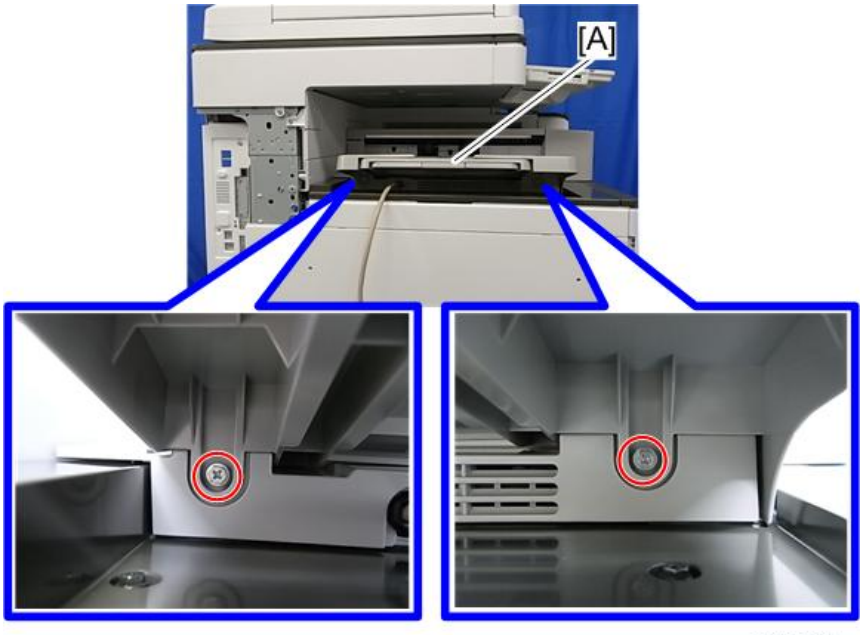
1. Internal Finisher (page 5)
2. Paper exit cover [A] (×2)



d7662025

Paper Exit Tray

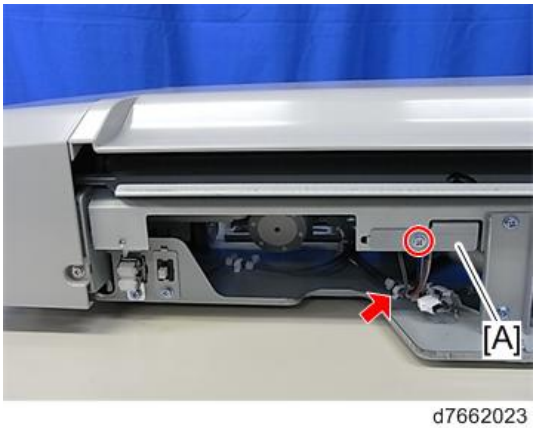
1. **Paper exit tray [A] (×2)**



Sensors and Switch

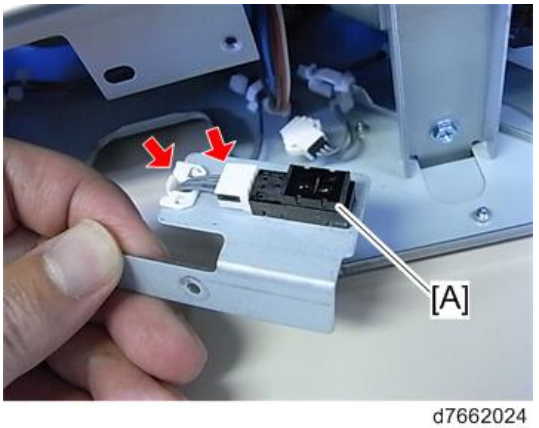
Entrance Sensor

1. Rear cover (page 11)
2. Remove the entrance sensor [A] together with the bracket (×1, ×1).



d7662023

3. Entrance sensor [A] (×1, ×1)

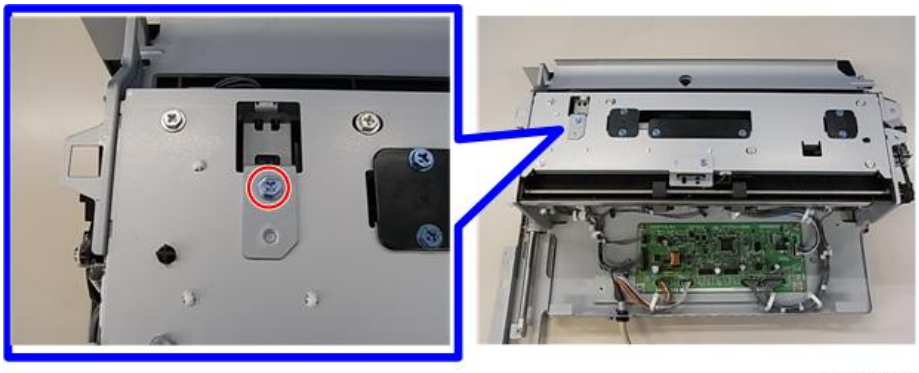


d7662024

Side-to-Side Registration Sensor

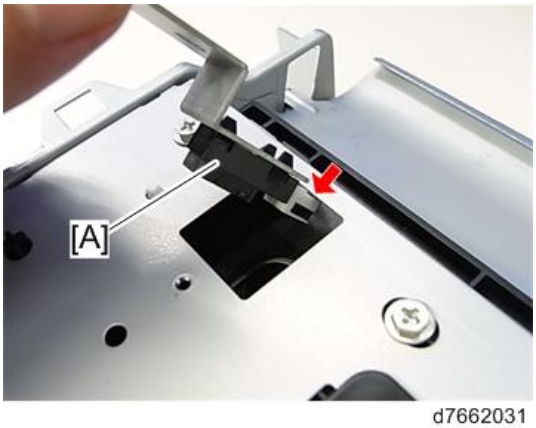
1. Finisher upper cover (page 10)

2. Remove the screw (×1).



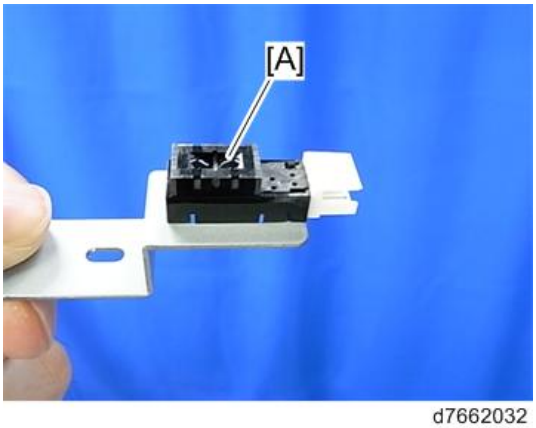
d7662030

3. Remove the side-to-side registration sensor [A] together with the bracket (×1).



d7662031

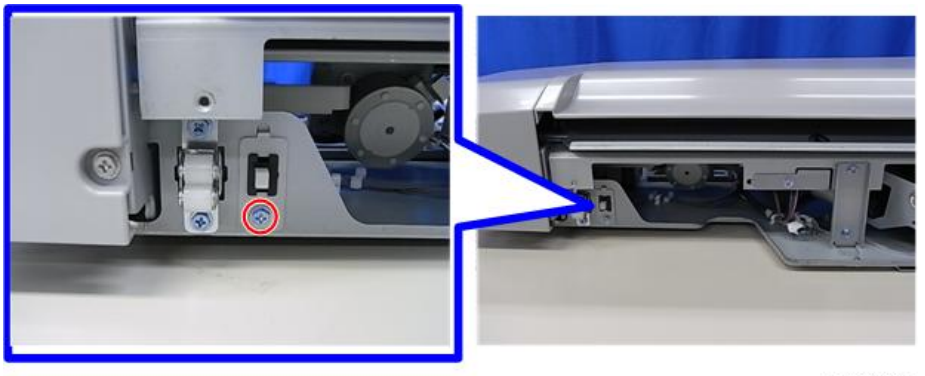
4. Side-to-side registration sensor [A]



d7662032

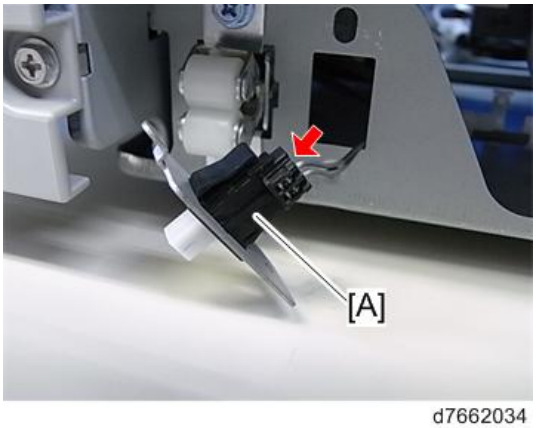
Open/Close Door Switch

1. Rear cover (page 11)
2. Remove the screw (×1).



d7662033

3. Open/close door switch [A] (×1).

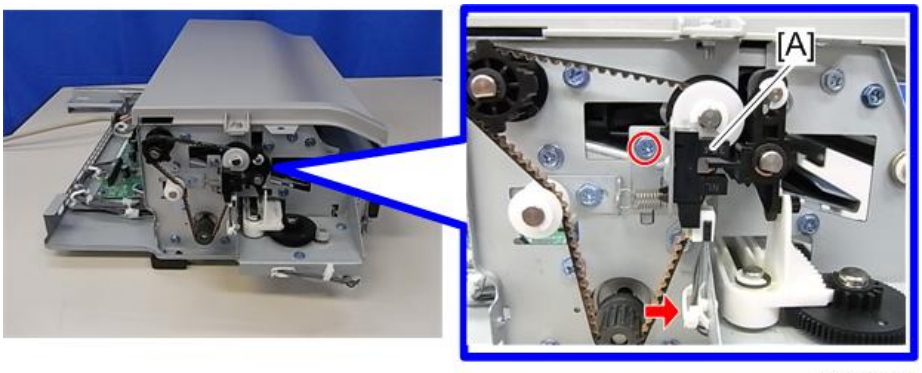


d7662034

Shift HP Sensor

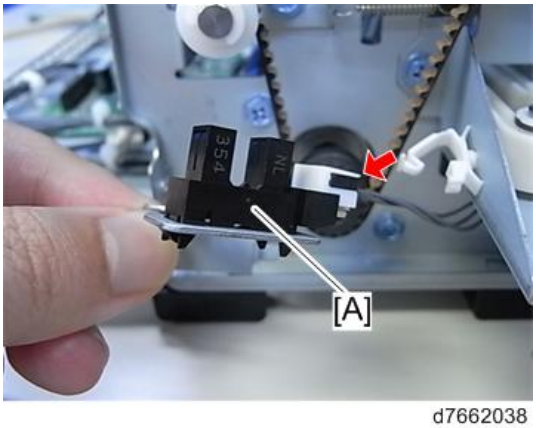
1. Finisher front cover (page 10)

2. Remove the shift HP sensor [A] together with the bracket (×1, ×1).



d7662037

3. Shift HP sensor [A] (×1)

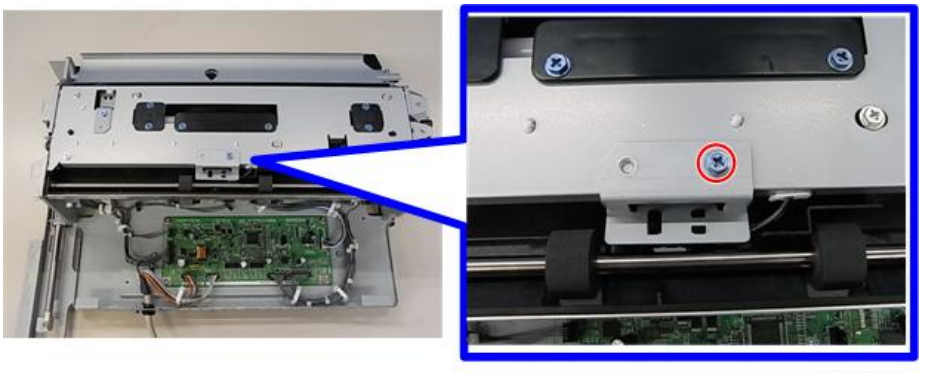


d7662038

Paper Exit Sensor

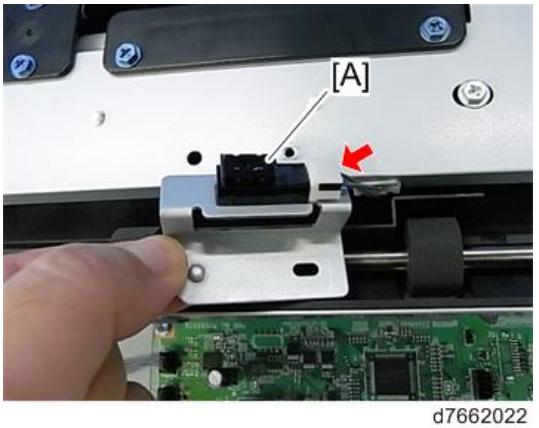
1. Finisher upper cover (page 10)

2. Remove the screw (×1).



d7662021

3. Paper exit sensor [A] (×1)

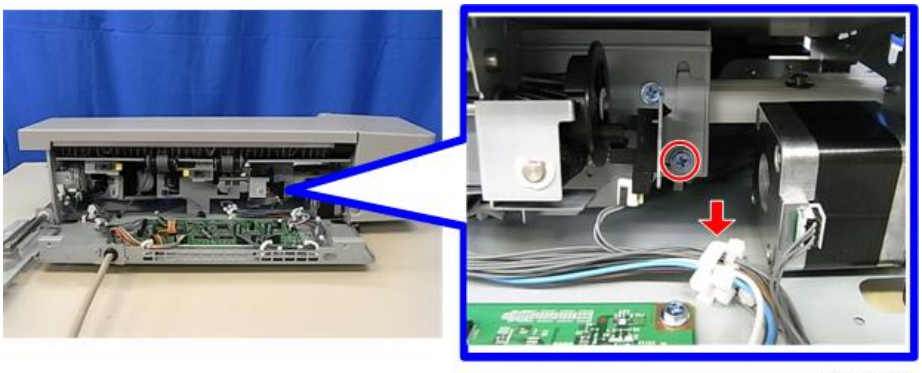


d7662022

Paper Exit Pressure HP Sensor

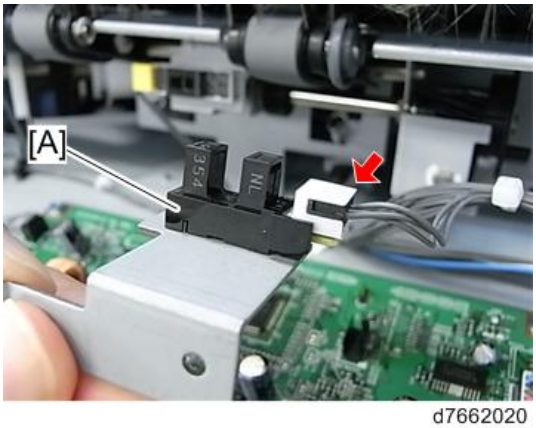
1. Paper exit cover (page 12)

2. **Remove the screw and release the clamp (×1, ×1).**



d7662019

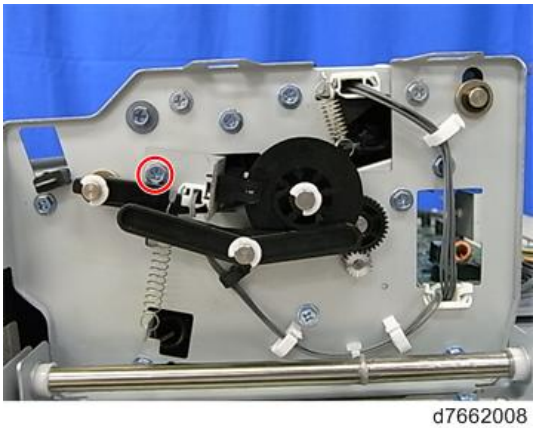
3. **Paper exit pressure HP sensor [A] (×1)**



d7662020

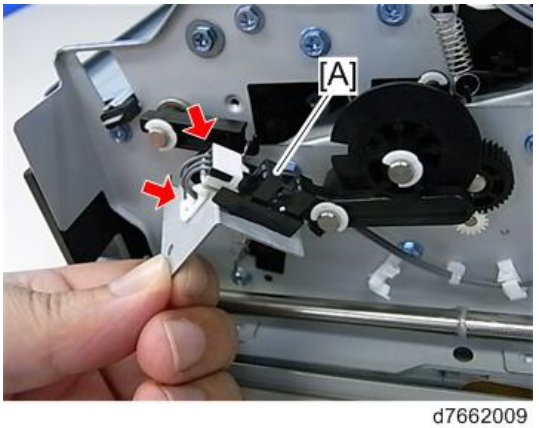
Junction Gate Motor HP Sensor

1. Remove the screw (×1).



d7662008

2. Junction gate motor HP sensor [A] (×1, ×1)

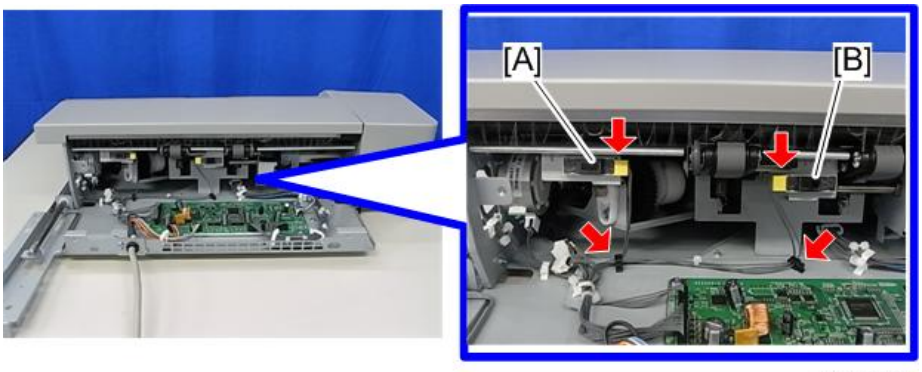


d7662009

Paper Exit Full Sensor 1/Paper Exit Full Sensor 2 (Staple)

1. Paper exit cover (page 12)

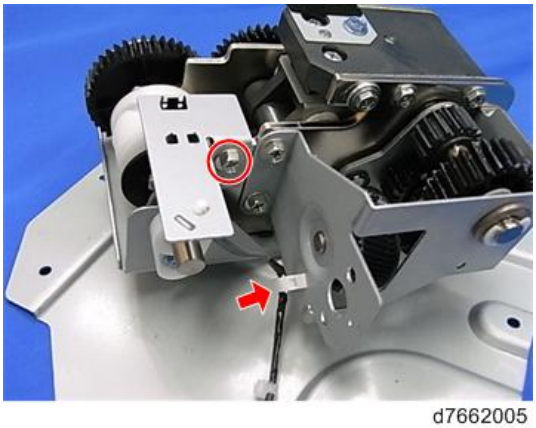
2. Paper exit full sensor 1 [A], paper exit full sensor 2 [B] (×1, and ×1, for each sensor)



d7662007

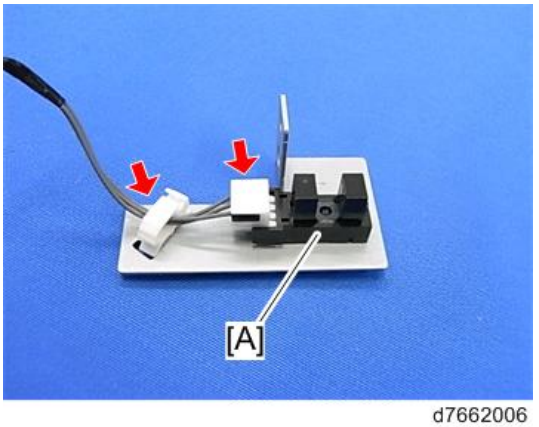
Stapler Drive HP Sensor

1. Stapler unit (page 7)
2. Loosen the screw and release the clamp (×1, ×1).



d7662005

3. **Remove the stapler drive HP sensor [A] from the bracket (×1, ×1).**

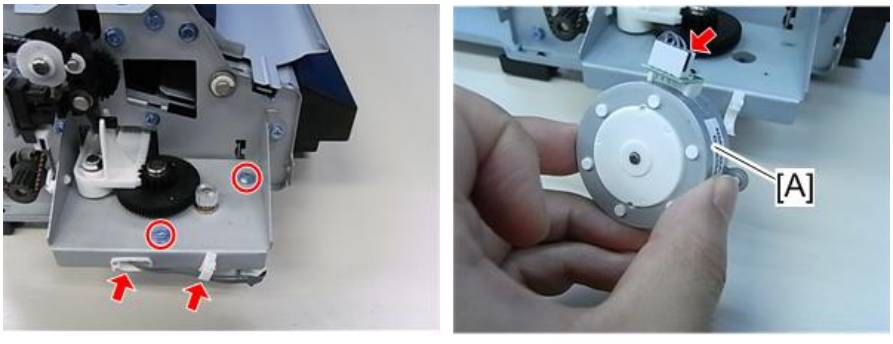


d7662006

Motors

Shift Motor

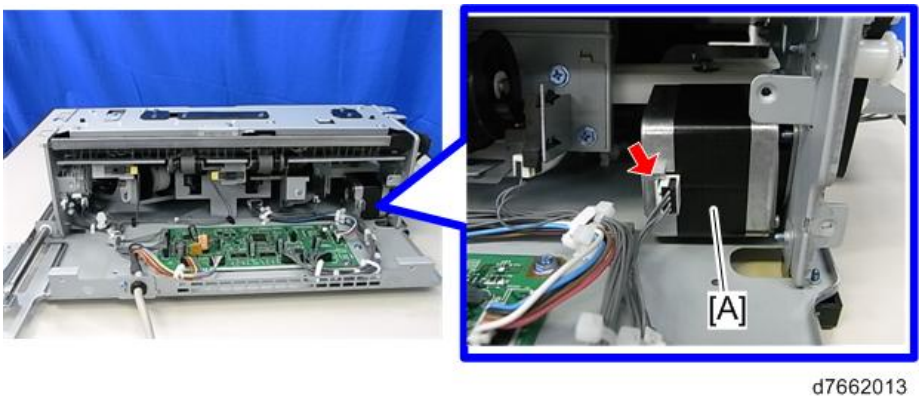
1. Finisher front cover (page 10)
2. Shift motor [A] (×2, ×1, ×2)



d7662035

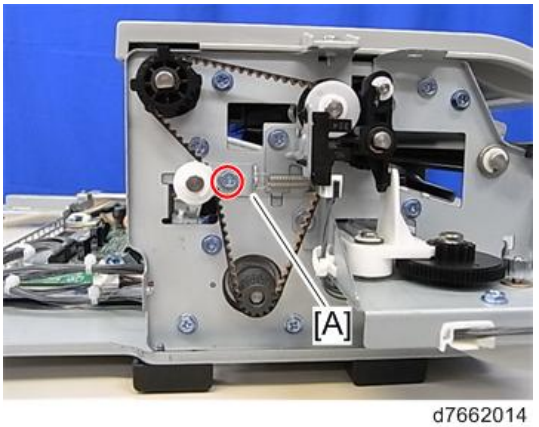
Transport Motor

1. Finisher front cover (page 10)
2. Disconnect the connector attached to the transport motor [A] (×1).



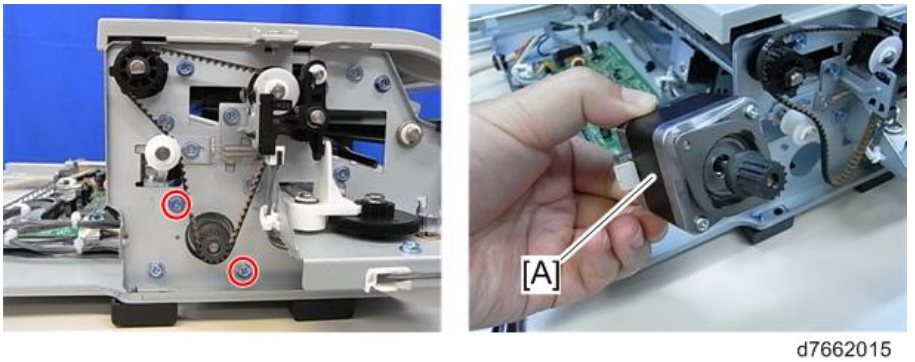
d7662013

3. **Loosen the screw securing the spring bracket [A], and then release the tension on the belt (×1).**



d7662014

4. **Transport motor [A] (×2)**



d7662015

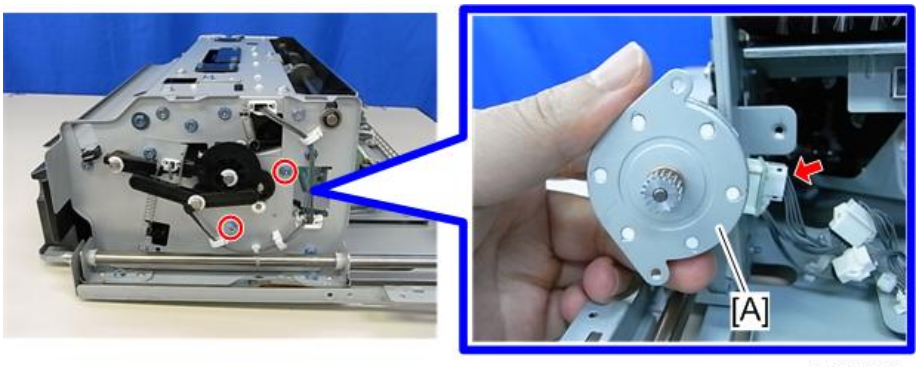
Junction Gate Motor

1. **Paper output cover (page 12)**

2. Release the clamp (×1).

d7662011

3. Junction gate motor [A] (×2, ×1)



d7662010

Paper Exit Pressure Motor

1. Paper exit cover (page 12)
2. Rear cover (page 11)

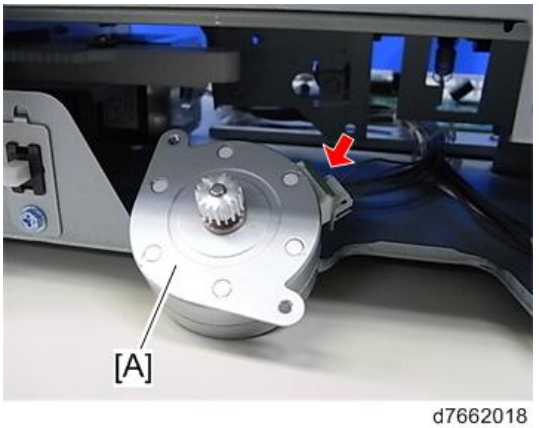
3. **Release the clamp (×1).**

d7662017

4. **Remove the screws on the bracket [A] (×2).**

d7662016

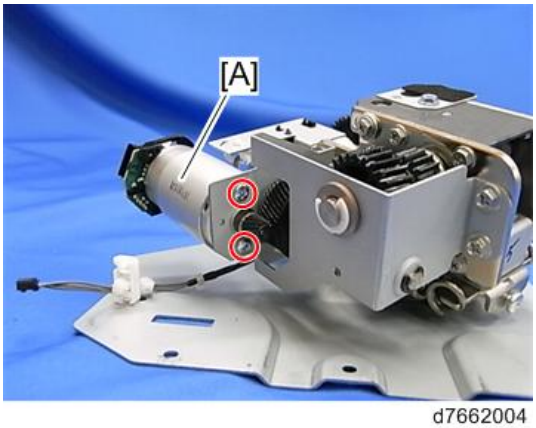
5. **Paper exit pressure motor [A] (×1)**



d7662018

Stapler Drive Motor

1. Stapler unit (page 7)
2. Stapler drive HP sensor (page 21)
3. Stapler drive motor [A] (×2)

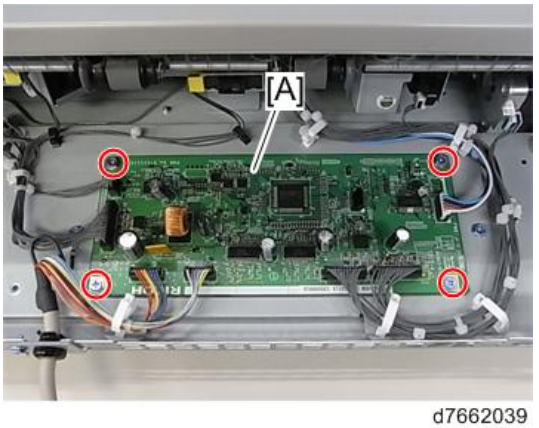


d7662004

Board

Controller Board

1. **Paper exit cover (page 12)**
2. **Controller board [A] (×4, ×all)**

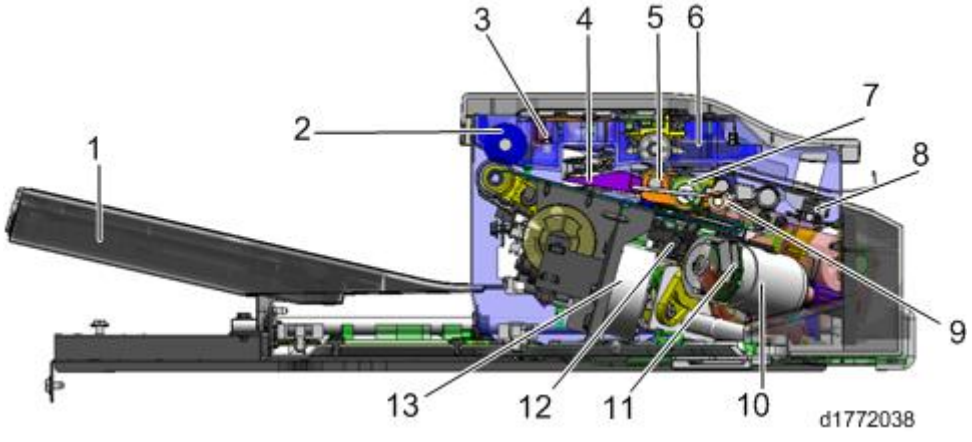


d7662039

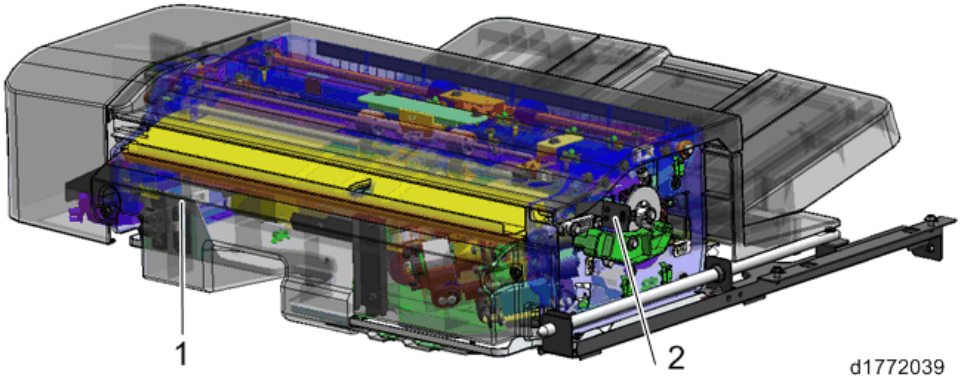
2. Detailed Descriptions

Internal Finisher SR3180 (D766)

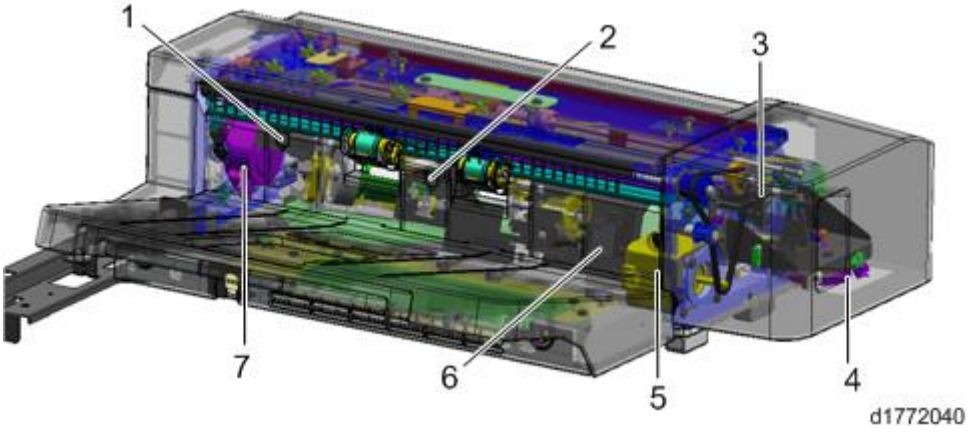
Parts Layout



No.	Description	No.	Description
1	Paper exit tray	8	Entrance sensor
2	Paper exit roller/paper exit belt	9	Trailing edge presser
3	Paper exit sensor	10	Stapler drive motor
4	Junction gate	11	Stapler
5	Shift roller	12	Stapler home position sensor
6	Side-to-side registration sensor	13	Paper exit pressure motor
7	Reverse roller		



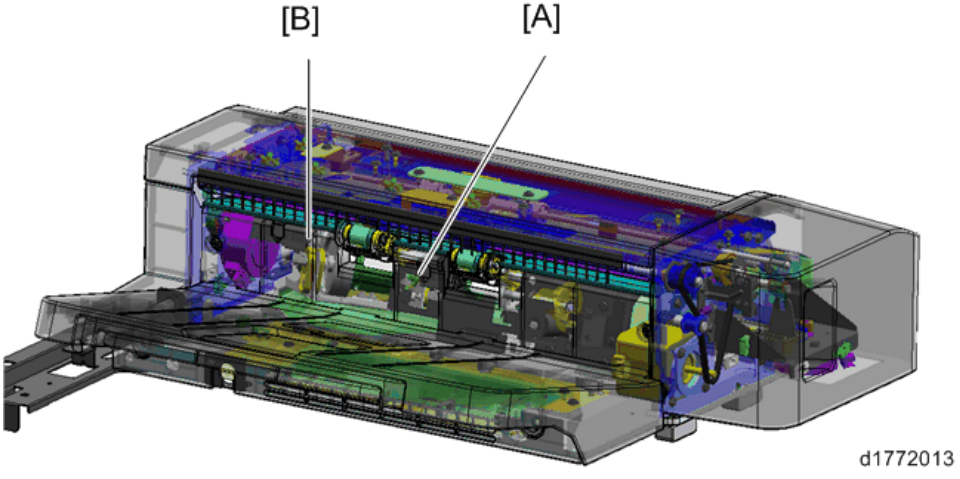
No.	Description	No.	Description
1	Open/close door switch	2	HP sensor



No.	Description	No.	Description
1	Paper exit full sensor 2 (staple)	5	Transport motor
2	Paper exit full sensor 1	6	Paper exit pressure HP sensor
3	Shift HP sensor	7	Junction gate motor
4	Shift motor		

Mechanism

Tray full detection mechanism

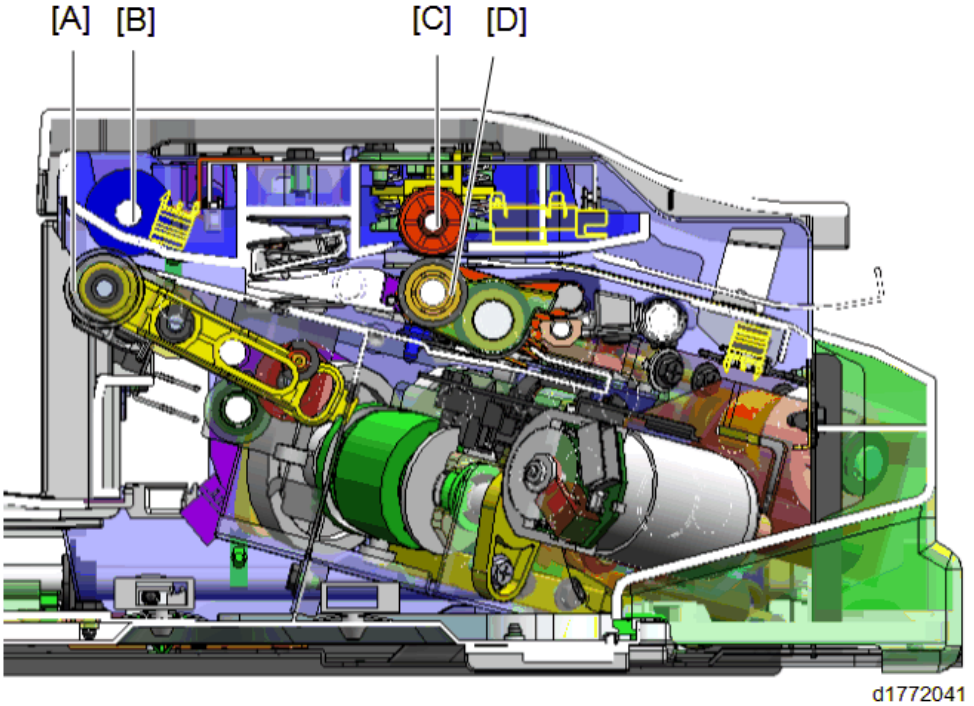


When the paper exit full sensor 1 [A] or the paper exit full sensor 2 (staple) [B] detects paper, the paper exit tray is full. Paper feed is stopped temporarily while the tray is full, and is restarted after the paper is removed.

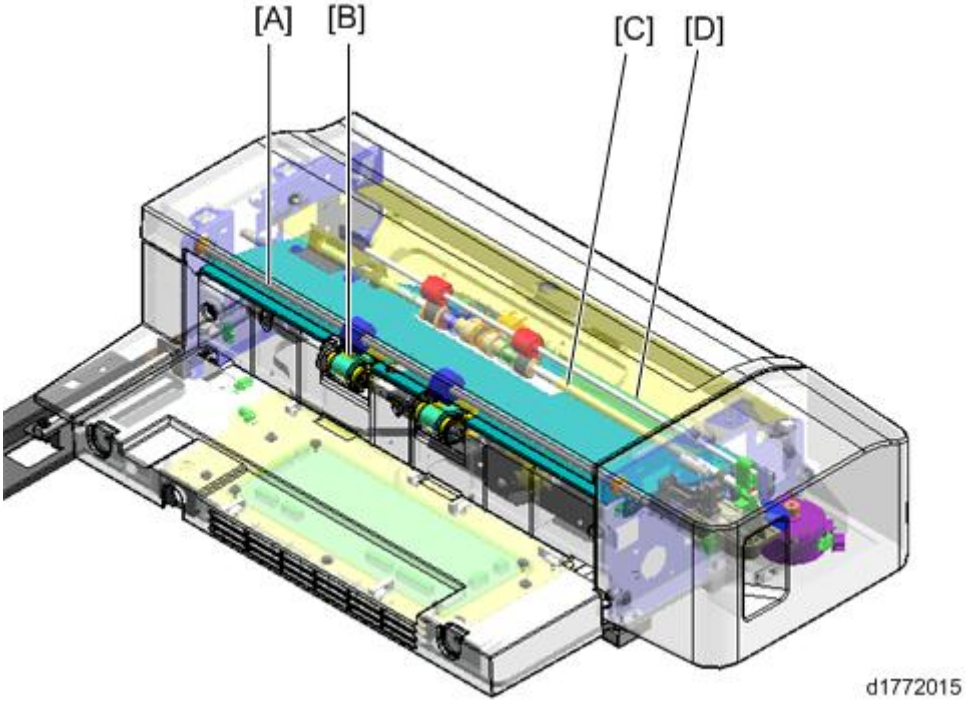
The paper exit full sensor 1 is at the center of the main scan (side-to-side), and detects the total quantity of paper in the paper exit tray.

If the paper is stapled, the height of the paper around the stapled area is higher than that of the other areas. The paper exit full sensor 2 (staple) is located at the stapling area, and detects the quantity of stapled paper.

Straight paper exit/shift paper exit mechanism



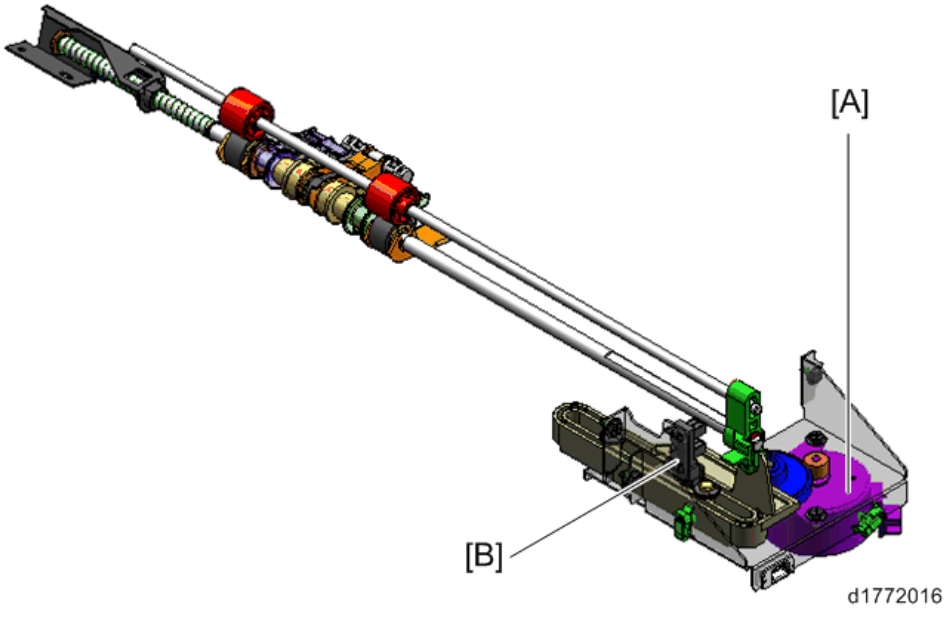
Paper from the main machine is transported to the paper exit roller [B] and paper exit belt [A] via the shift rollers ([C] and [D]). The transport motor drives the shift rollers, reverse rollers and paper exit rollers.



After passing through the paper exit roller of the main machine, to shift the paper from side to side, the shift rollers ([C] and [D]) nip the sheets and the shift motor moves the paper towards the front or rear of the machine.

If the paper is still held by the paper exit rollers, this will stop the paper from shifting, so the paper exit rollers ([A] and [B]) are moved from their home (strong pressure) positions to their pressure release positions.

Shift mechanism



Shift roller operation timing

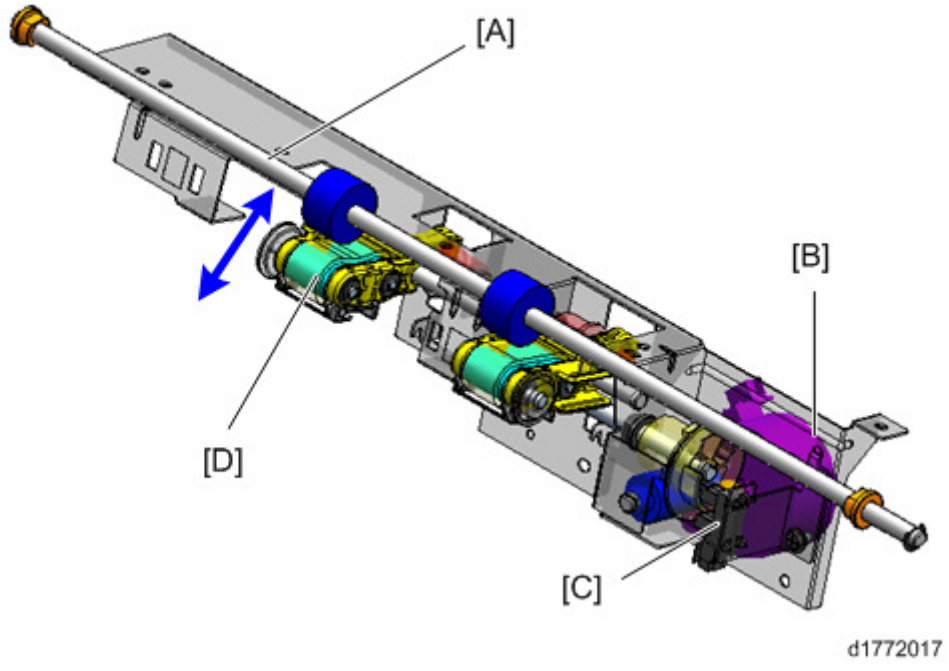
Paper is shifted when the distance between the trailing edge and the paper exit roller on the main machine is 10mm (the entrance sensor detects the leading edge of the paper).

The shift motor [A] rotates clockwise/anti-clockwise to shift the paper towards the front/rear of the machine.

The shift amount is 20mm when shifting towards the front, and 10mm when shifting towards the back.

The home position is located at the back end of the shift area, and is detected by the shift roller HP sensor [B].

Paper exit roller/paper exit belt release mechanism



Pressure release timing of the paper exit rollers

- Waiting (before paper is received): Strong pressure
- When paper is transported: Pressure released
- When paper shift is completed (shift motor stops): Strong pressure

When paper is transported, the paper exit rollers/paper exit belt ([A] and [D]) are at the pressure release position so that they do not interfere with paper shifting.

When paper shift is completed, the rollers are moved to the strong pressure position for paper transportation and paper exit.

Positions of the paper exit roller/paper exit belt

- HP (strong pressure)
- Pressure release position
- Weak pressure position

The paper exit pressure motor [B] rotates clockwise/anti-clockwise to drive the paper exit drive belt [D] to the strong pressure or weak pressure positions.

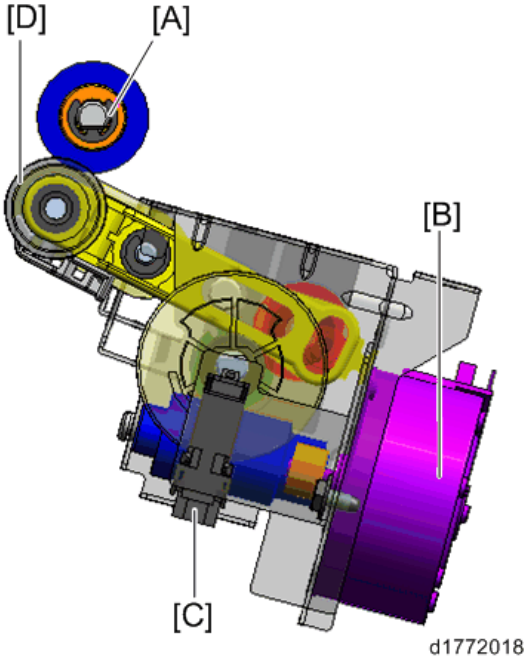
The paper exit pressure HP sensor [C] detects the home position.

Details of each position

- Home position (strong pressure position)

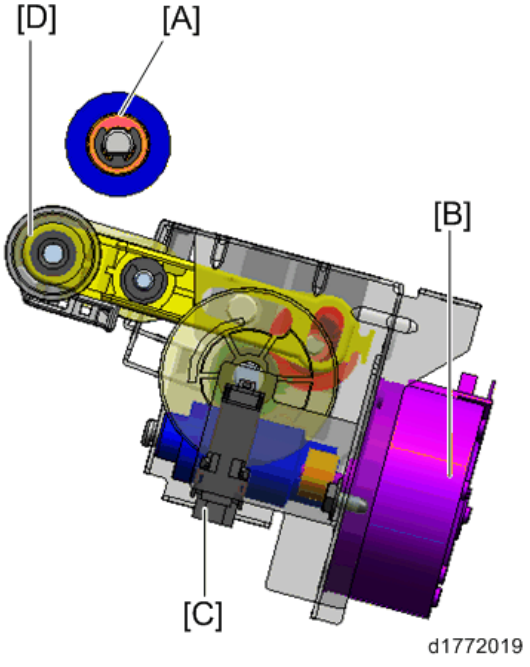
This is used for paper transportation and paper exit. The pressure increased using the motor [B], and the paper exit roller (drive) [A] and the paper exit belt (driven) [D] come into contact in order to nip the paper firmly.

[C] is the paper exit pressure HP sensor.



- Pressure release position

  The nip of the paper exit roller/paper exit belt is released so that they do not interfere with paper shift.

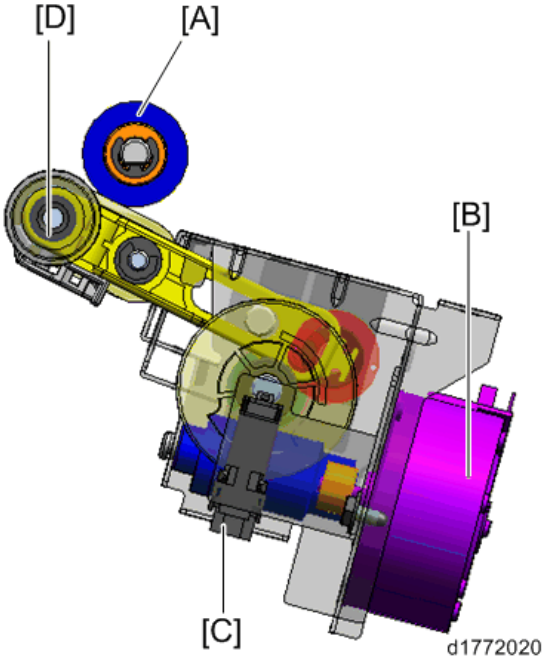


- Weak pressure position

  This is used during stapling, when there is already paper stacked in the paper exit tray, and more paper is being transported.

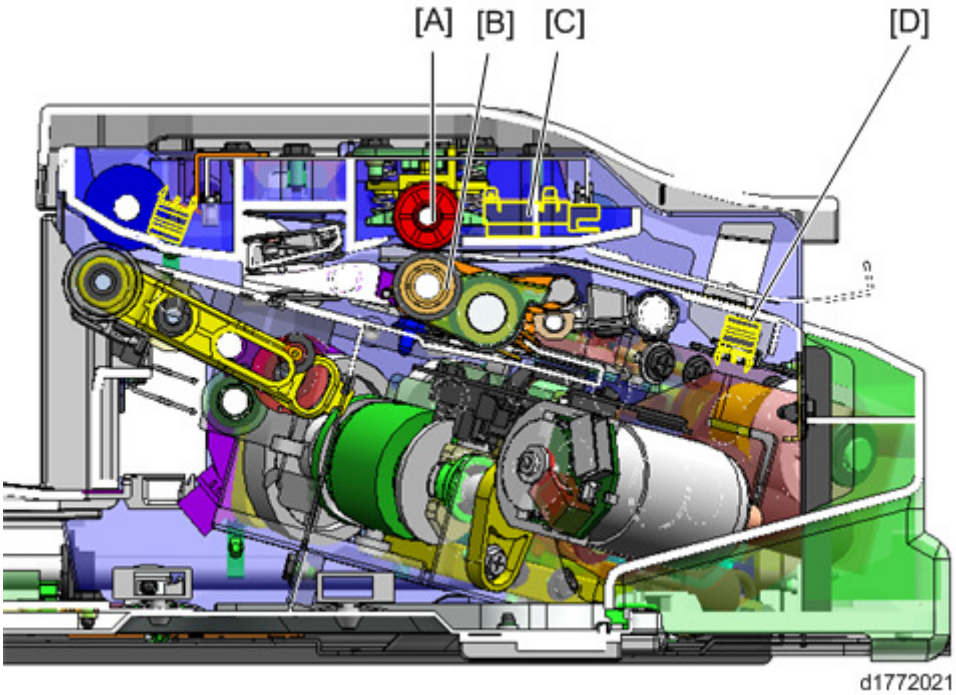
  The motor [A] lowers the pressure, and the position of the paper exit belt (driven) is moved so that the middle part of the belt comes in contact with the paper exit roller (drive).

  The weak pressure position is for preventing smudges or stains caused by paper rubbing against the paper that is already stacked.



Staple eject mechanism

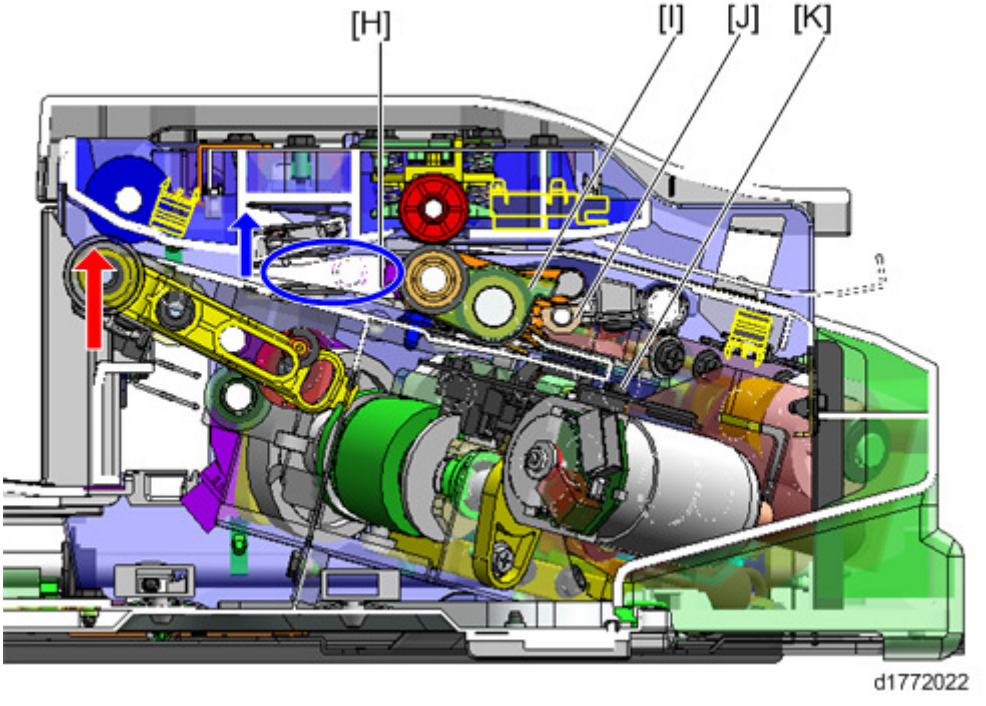
- Transport/adjustment of paper position (home position)



This finisher does not have a jogger. Paper position (side-to-side) is aligned using sensors, by registration adjustment during paper transportation.

The leading edge of the paper transported from the main machine is detected by the entrance sensor [D]. After the trailing edge has passed through the paper exit rollers of the main machine, the paper is transported by the shift rollers ([A] and [B]) for shifting. The paper is shifted to the position where the side-to-side registration sensor [C] detects the rear edge of the paper (as viewed from the front of the machine). During paper shifting, the paper exit roller and paper exit belt move to the pressure release position.

- Stacking (Position B)

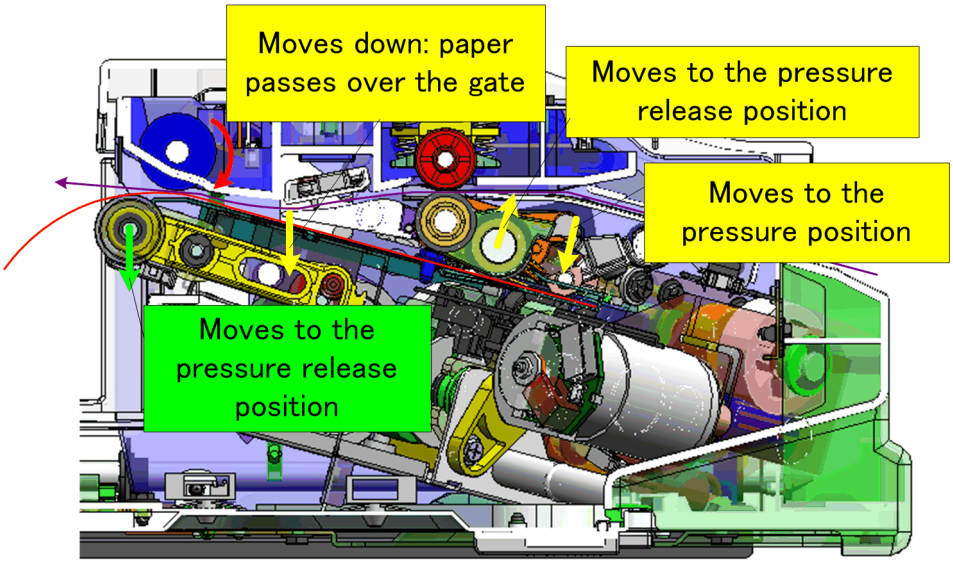


After shifting is completed, the paper exit rollers move to the strong pressure position and received the paper from the shift rollers. After the trailing edge of the paper has passed the junction gate, the paper exit roller rotates in the opposite direction. Paper is transported to the stacking area, and then passed through the reverse rollers [H].

At this time, the junction gate [J] moves to the lower position (the gate's edge is raised, as shown by the blue arrow and circle) to bring paper to the stacking area.

After paper is transported to the reverse rollers, the paper exit rollers move to the pressure release position to allow shifting of the next sheets (as shown by the red arrow). When the transported sheet of paper touches the stack guide [K], the paper is aligned (main-scan direction). After the paper is stacked, the trailing edge presser [I] moves to the press position (the reverse rollers move to the pressure release position) and holds back the stacked paper.

- Second sheet transport/adjustment (Position A)



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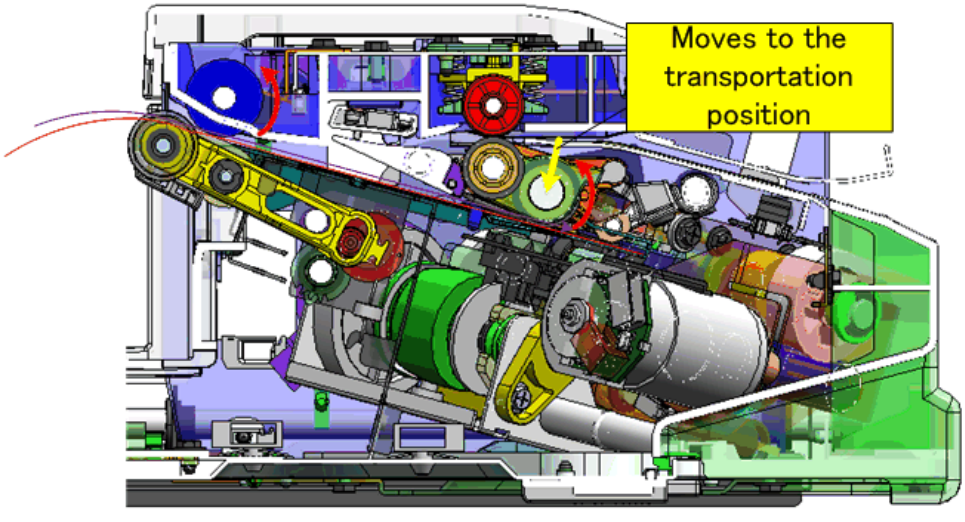
After the first sheet is stacked, the second sheet is shifted in the same way as the first sheet. During this time, the stacked paper is held back by the trailing edge presser.

- Second sheet stacking



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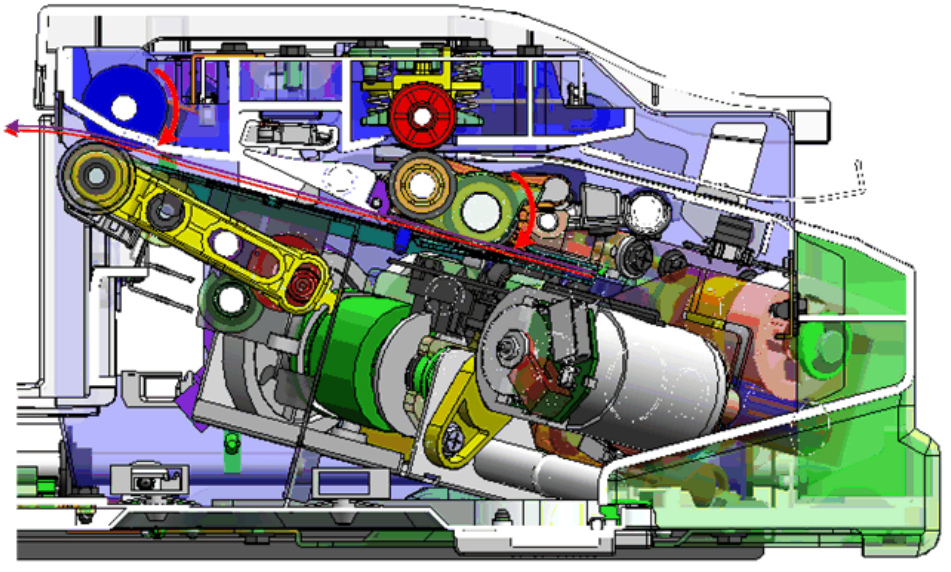
After the first sheet is shifted, the paper exit rollers and paper exit belt move to the weak pressure position, and transport the paper to the stacking area. The reverse rollers then receive the paper. The same is done to the third and subsequent sheets. The trailing edge presser holds back the stacked paper, and transports the second and subsequent sheets by sliding them onto the stacked paper.

- Paper batch (Position C)



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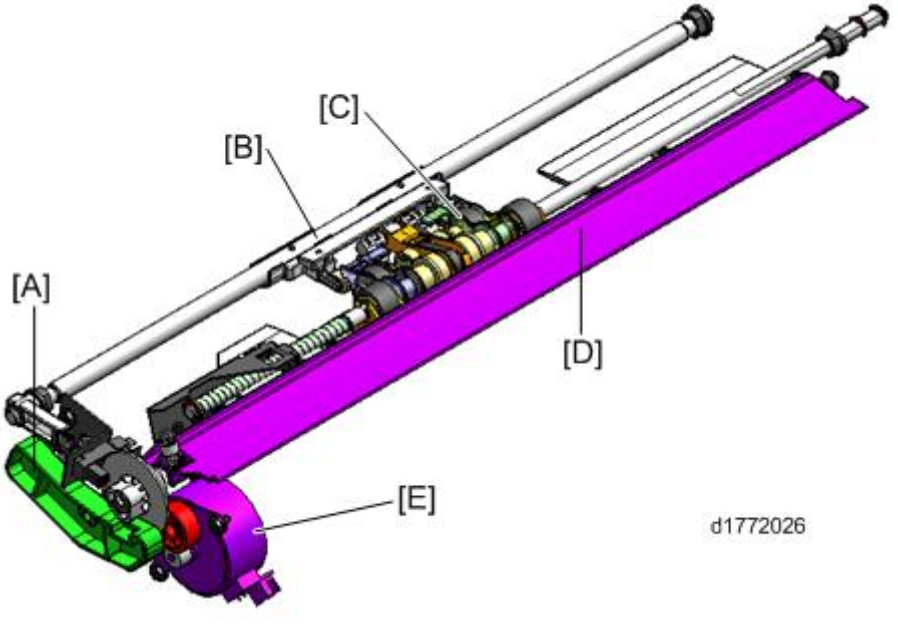
After the specified number of sheets are stacked, the batch of paper is stapled and transported through the paper exit rollers and paper exit belt. If the stapling method is set to “Double” using the user settings, the batch of paper is moved slightly and stapling is repeated.

Junction gate/trailing edge presser mechanism



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The junction gate motor [E] drives the junction gate [D], trailing edge presser [B], and the reverse rollers [C]. The junction gate motor HP sensor [A] detects the home position.

Timing of operation

- Junction gate
  - Upper-transportation position → Lower-transportation position

    The junction gate moves to the lower transportation position when the trailing edge of the paper reaches the point 10mm after the junction gate. (Paper position is based on the entrance sensor, and is controlled by motor pulses.)
  - Lower-transportation position → Upper-transportation position>

    The junction gate moves to the upper transportation position when the trailing edge of the paper reaches the guide fence, and the trailing edge presser moves to the press position.
- Trailing edge presser (Reverse roller)
  - Press position → Pressure release position>

    The trailing edge presser moves to the pressure release position when the trailing edge of the paper reaches the reverse roller.
  - Pressure release position → Press position>

    The trailing edge presser moves to the press position when the trailing edge of the paper reaches the guide fence.

The junction gate motor rotates clockwise, and switches the junction gate and the trailing edge presser (reverse roller). The positions of the junction gate, trailing edge presser and reverse roller vary as follows.

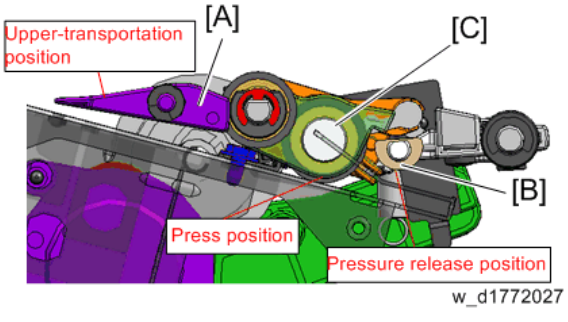
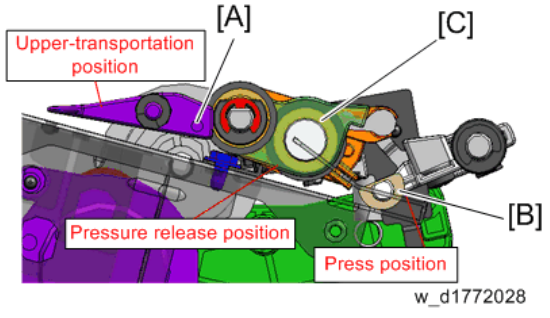
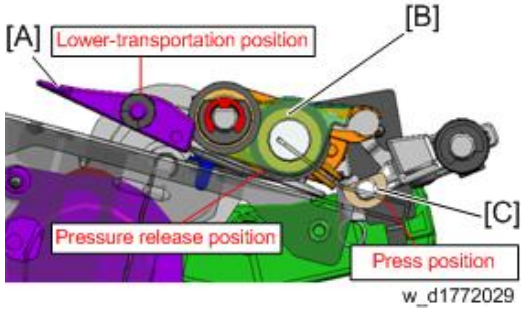
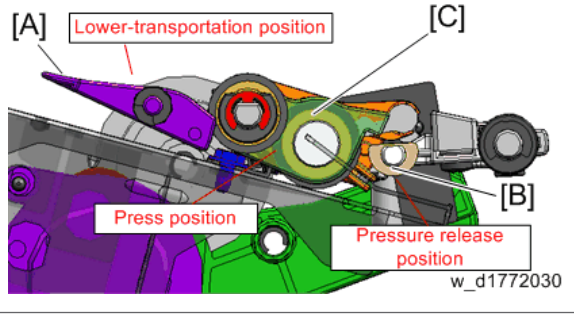
	Figure	[A] Junction gate	[B] Trailing edge presser	[C] Reverse roller
Home Position *		Upper transportation position	Pressure release position	Press position

	Figure	[A] Junction gate	[B] Trailing edge presser	[C] Reverse roller
Position A		Upper transportation position	Press position	Pressure release position
Position B		Lower transportation position	Press position	Pressure release position
Position C		Lower transportation position	Pressure release position	Press position

* The home position is at “Junction gate: Upper-transportation position” and “Trailing edge presser: Pressure release position”, and is detected by the junction gate motor HP sensor.

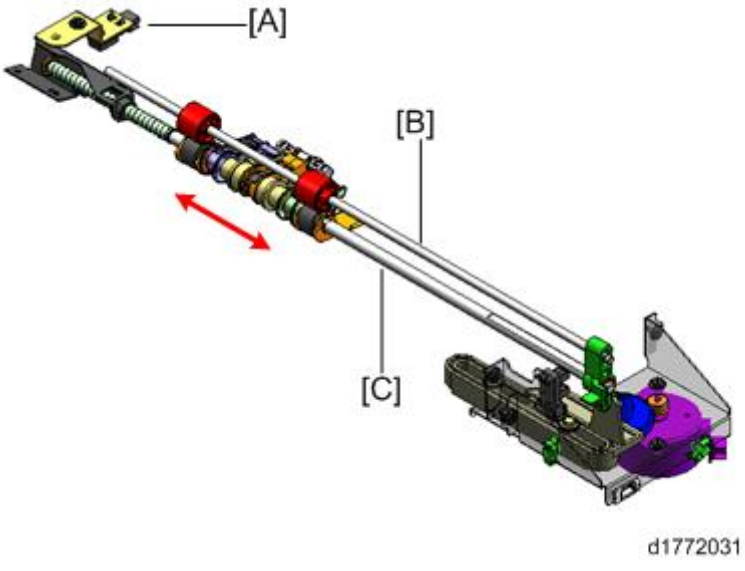
Sub-scan direction (transport direction) jogger mechanism

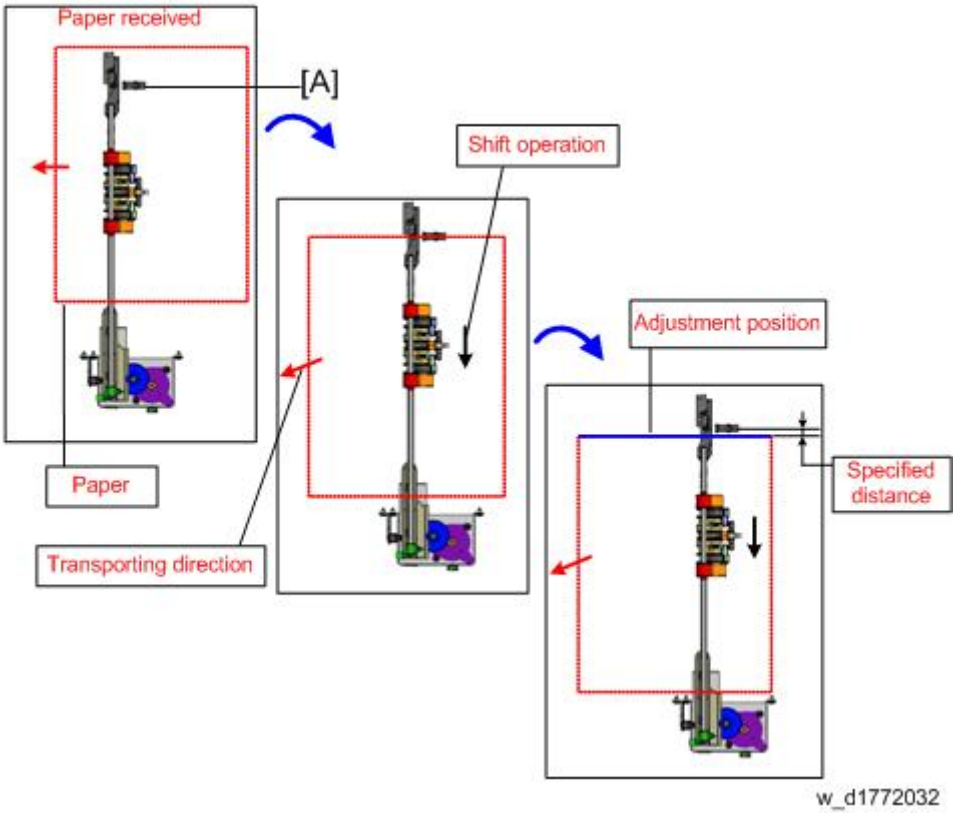
Paper transported to the stacking area by the paper exit rollers is delivered to the reverse rollers. Paper alignment for the sub-scan direction is performed by using the reverse rollers to press the trailing edge of the paper against the guide fence.

Paper detection on the stack guide plate

The paper exit sensor detects paper when there is paper on the stack guide plate.

Sheet edge face alignment mechanism (main-scan direction)





This option does not have a jogger. Paper position adjustment for stapling (main-scan direction) is performed by paper shift and alignment of the paper edges using the registration sensor.

Paper transported to the shift rollers ([B] and [C]) is shifted when the trailing edge is 10mm from the paper exit roller. (Paper position is based on the entrance sensor, and is controlled by motor pulses.)

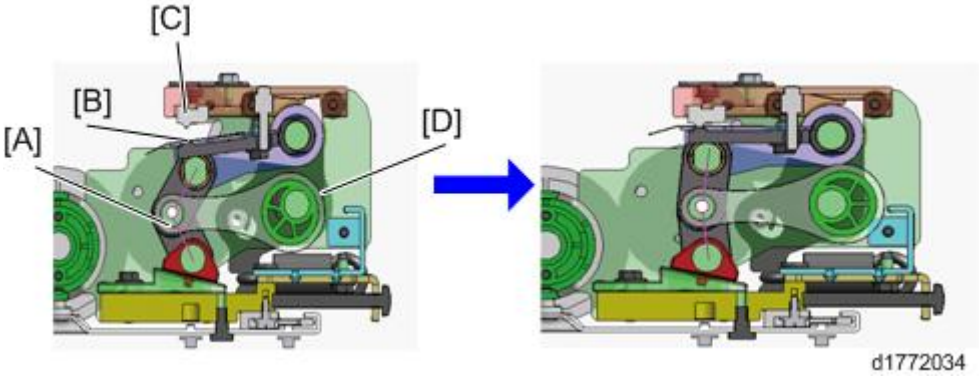
The paper shifts to a position where it can be detected by the sub-scan (leading edge) registration sensor [A]. The paper is then shifted for a specified distance. These operations are applied to each sheet, so that the edge of each sheet is aligned as shown by the blue line above.

Stapler mechanism

This option uses the crimping method. V-shaped teeth align the paper and press a tooth-mark onto the paper. This tooth-mark holds the paper together. The pressure applied is 220 kg.

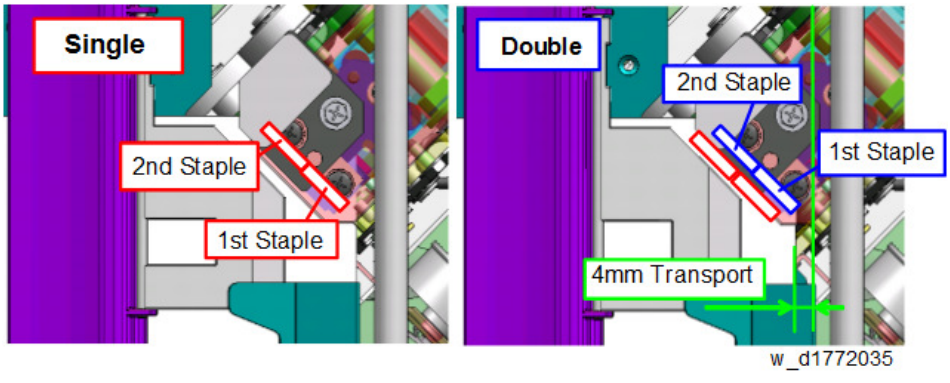
This option performs two stapling movements for every stapling operation.

Moving to the first staple position → Stapling → Moving to the second staple position → Stapling → Moving back to the home position



The pressure cam [D] stretches the pressure link [A], and the upper tooth [C] and the lower tooth [B] fit into each other. Stapler movements and stapling operations are driven by the stapler drive motor. The stapler drive HP sensor detects the home position.

- Double/Single Staple



It is difficult to adjust the bonding strength because it depends on how well the paper fibers twine. Setting to Single or Double allows you to adjust the bond strength.

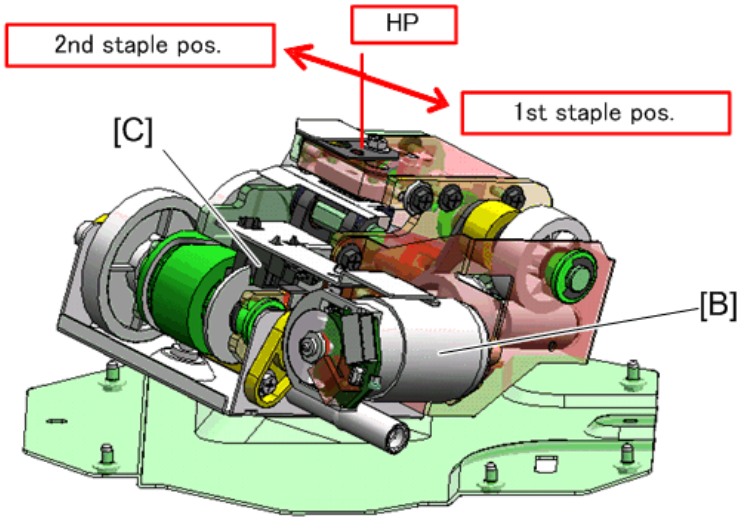
For Single, stapling is applied twice.

For Double, after stapling is applied twice, the paper exit roller shifts the paper 4mm, and a stapling operation is applied again.

- Paper exit

After stapling, the trailing edge presser is released. The paper exit rollers ejects the paper.

Stapler movement mechanism



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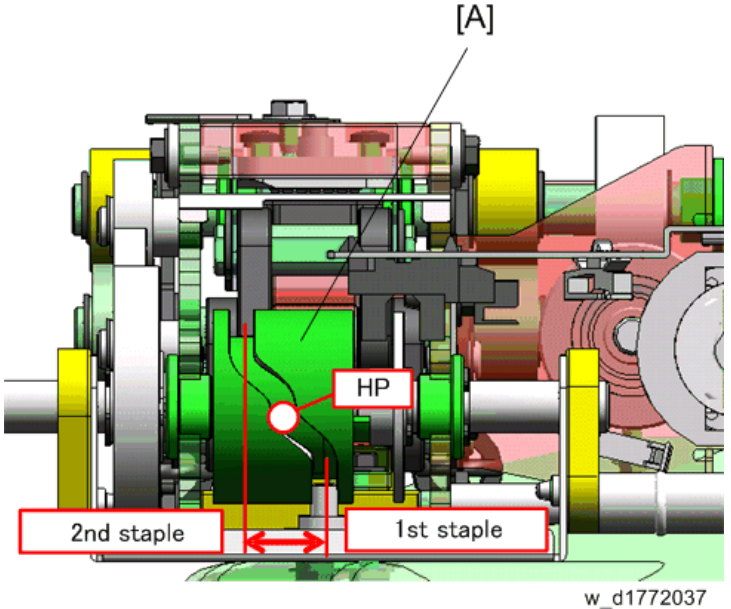

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Because this stapler needs to staple twice for a single staple position, there is a mechanism to move the stapler.

The grooved cam [A] inside the stapler unit rotates, and the securing pin passes over the grooves to guide the cam.

Stapler movements and stapling operations are driven by the stapler drive motor [B]. The stapler home position sensor [C] detects the home position.