

**Finisher SR4080
Machine Code: D610
Field Service Manual**












May, 2016

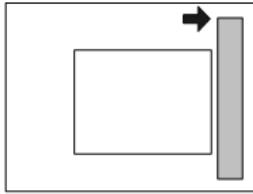
Safety, Conventions, Trademarks

Conventions

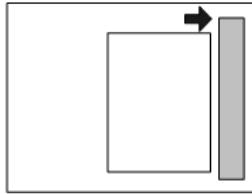
Common Terms

This is a list of symbols and abbreviations used in this manual.

Symbol, Abbreviation	Meaning
	Blue screw
	Bushing
	C-ring
	Connector
	E-ring
	Flexible film cable
	Harness clamp
	Hook
	Screw
	Spring
	Timing belt
JG	Junction Gate
LEF	Long Edge Feed
SEF	Short Edge Feed
TE	Trailing Edge of paper



SEF (Short Edge Feed)



LEF (Long Edge Feed)

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Warnings, Cautions, Notes

In this manual, the following important symbols and notations are used.

WARNING

- A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

CAUTION

- A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the finisher or other property.

Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine.

Note

- This information provides tips and advice about how to best service the machine.

General Safety Instructions

For your safety, please read this manual carefully before you use this product. Keep this manual handy for future reference.

Safety Information

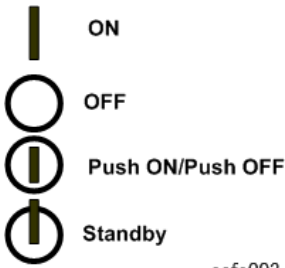
Always obey the following safety precautions when using this product.

Safety During Operation

In this manual, the following important symbols and notations are used.

Switches and Symbols

Where symbols are used on or near switches on machines for Europe and other areas, the meaning of each symbol conforms with IEC60417.



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Responsibilities of the Customer Engineer

Reference Material for Maintenance

- Maintenance shall be done using the special tools and procedures prescribed for maintenance of the machine described in the reference materials (service manuals, technical bulletins, operating instructions, and safety guidelines for customer engineers).
- In regard to other safety issues not described in this document, all customer engineers shall strictly obey procedures and recommendations described the “CE Safety Guide”.
- Use only consumable supplies and replacement parts designed for use of the machine.

Before Installation, Maintenance

Power

WARNING

- Always disconnect the power plug before doing any maintenance procedure. After switching off the machine, power is still supplied to the main machine and other devices. To prevent electrical shock, switch the machine off, wait for a few seconds, then unplug the machine from the power source.
- Before you do any checks or adjustments after turning the machine off, work carefully to avoid injury. After removing covers or opening the machine to do checks or adjustments, never touch electrical components or moving parts (gears, timing belts, etc.).
- After turning the machine on with any cover removed, keep your hands away from electrical components and moving parts. Never touch the cover of the fusing unit, gears, timing belts, etc.

Installation, Disassembly, and Adjustments

WARNING

- After installation, maintenance, or adjustment, always check the operation of the machine to make sure that it is operating normally. This ensures that all shipping materials, protective materials, wires and tags, metal brackets, etc., removed for installation, have been removed and that no tools remain inside the machine. This also ensures that all release interlock switches have been restored to normal operation.
- Never use your fingers to check moving parts causing spurious noise. Never use your fingers to lubricate moving parts while the machine is operating.

Special Tools

CAUTION

- Use only standard tools approved for machine maintenance.
- For special adjustments, use only the special tools and lubricants described in the service manual. Using tools incorrectly, or using tools that could damage parts, could damage the machine or cause injuries.

During Maintenance

General

CAUTION

- Before you begin a maintenance procedure: 1) Switch the machine off, 2) Disconnect the power plug from the power source, 3) Allow the machine to cool for at least 10 minutes.
- Avoid touching the components inside the machine that are labeled as hot surfaces.

Safety Devices

WARNING

- Never remove any safety device unless it requires replacement. Always replace safety devices immediately.
- Never do any procedure that defeats the function of any safety device. Modification or removal of a safety device (fuse, switch, etc.) could lead to a fire and personal injury. Always test the operation of the machine to ensure that it is operating normally and safely after removal and replacement of any safety device.

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- For replacements use only the correct fuses or circuit breakers rated for use with the machine. Using replacement devices not designed for use with the machine could lead to a fire and personal injuries.

Organic Cleaners

CAUTION

- During preventive maintenance, never use any organic cleaners (alcohol, etc.) other than those described in the service manual.
- Make sure the room is well ventilated before using any organic cleaner. Use organic solvents in small amounts to avoid breathing the fumes and becoming nauseous.
- Switch the machine off, unplug it, and allow it to cool before doing preventive maintenance. To avoid fire or explosion, never use an organic cleaner near any part that generates heat.
- Wash your hands thoroughly after cleaning parts with an organic cleaner to contamination of food, drinks, etc. which could cause illness.
- Clean the floor completely after accidental spillage of silicone oil or other materials to prevent slippery surfaces that could cause accidents leading to hand or leg injuries. Use "My Ace" Silicone Oil Remover (or dry rags) to soak up spills. For more details, please refer to Technical Bulletin "Silicone Oil Removal" (A024-50).

Ozone Filters

CAUTION

- Always replace ozone filters as soon as their service life expires (as described in the service manual).
- An excessive amount of ozone can build up around machines that use ozone filters if they are not replaced at the prescribed time. Excessive ozone could cause personnel working around the machine to feel unwell.

Power Plug and Power Cord

WARNING

- Before servicing the machine (especially when responding to a service call), always make sure that the power plug has been inserted completely into the power source. A partially inserted plug could lead to heat generation (due to a power surge caused by high resistance) and cause a fire or other problems.
- Always check the power plug and make sure that it is free of dust and lint. Clean it if necessary. A dirty plug can generate heat which could cause a fire.

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- Inspect the length of the power cord for cuts or other damage. Replace the power cord if necessary. A frayed or otherwise damaged power cord can cause a short circuit which could lead to a fire or personal injury from electrical shock.
 - Check the length of the power cord between the machine and power supply. Make sure the power cord is not coiled or wrapped around any object such as a table leg. Coiling the power cord can cause excessive heat to build up and could cause a fire.
 - Make sure that the area around the power source is free of obstacles so the power cord can be removed quickly in case of an emergency.
 - Make sure that the power cord is grounded (earthed) at the power source with the ground wire on the plug.
 - Connect the power cord directly into the power source. Never use an extension cord.
 - When you disconnect the power plug from the power source, always pull on the plug, not the cable.

After Installation, Servicing

Disposal of Used Items

CAUTION

- Always dispose of used items (developer, toner, toner cartridges, OPC drums, etc.) in accordance with the local laws and regulations regarding the disposal of such items.
- To protect the environment, never dispose of this product or any kind of waste from consumables at a household waste collection point. Dispose of these items at one of our dealers or at an authorized collection site.

Points to Confirm with Operators

At the end of installation or a service call, instruct the user about use of the machine. Emphasize the following points.

- Show operators how to remove jammed paper and troubleshoot other minor problems by following the procedures described in the operating instructions.
- Point out the parts inside the machine that they should never touch or attempt to remove.
- Confirm that operators know how to store and dispose of consumables.
- Make sure that all operators have access to an operating instruction manual for the machine.
- Confirm that operators have read and understand all the safety instructions described in the operating instructions.

-
- Demonstrate how to turn off the power and disconnect the power plug (by pulling the plug, not the cord) if any of the following events occur: 1) something has spilled into the product, 2) service or repair of the product is necessary, 3) the product cover has been damaged.
 - Caution operators about removing paper fasteners around the machine. They should never allow paper clips, staples, or any other small metallic objects to fall into the machine.

Safety Instructions for this Machine

1. The installation must be done by trained service technicians.
2. This machine weighs 92 kg. (202.9 lb.). At least four persons are required to remove the machine from its pallet and position it for installation.
3. To prevent fire hazards never use flammable solvents around the machine.
4. Never place any object on the machine.
5. If anything falls into the machine, turn off the main power switch on the right side of the machine, then disconnect the power cord from the power source.
6. Locate the machine on a sturdy flat surface where it will not be exposed to excessive vibration.
7. To avoid fire hazard, confirm that the ventilation ports are not blocked, so air can flow freely.
8. Gas generated by the molten glue can irritate the eyes, throat, and nose. The machine should always be used in a well ventilated room.
9. To avoid the dangers of fire and electrical shock, make sure that the machine is never exposed to:
 - Excessive high temperatures and/or humidity
 - Dust
 - Water
 - Direct sunlight
 - Open flame
 - Corrosive gases

Trademarks

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- PCL® is a registered trademark of Hewlett-Packard Company.
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- PowerPC® is a registered trademark of International Business Machines Corporation.

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- Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

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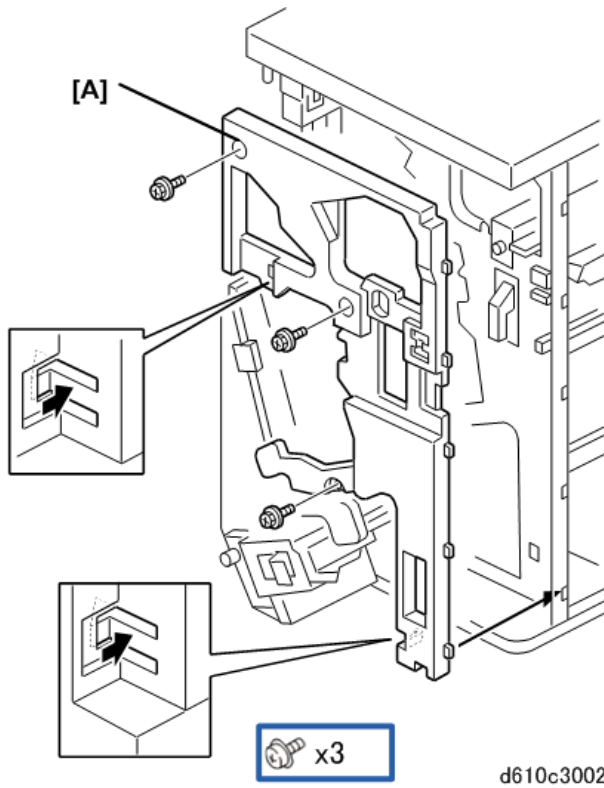
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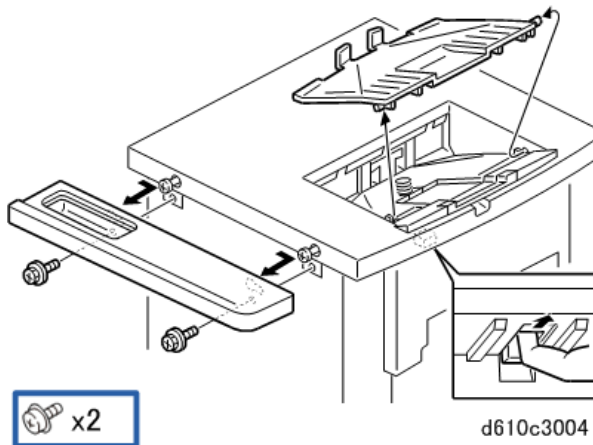
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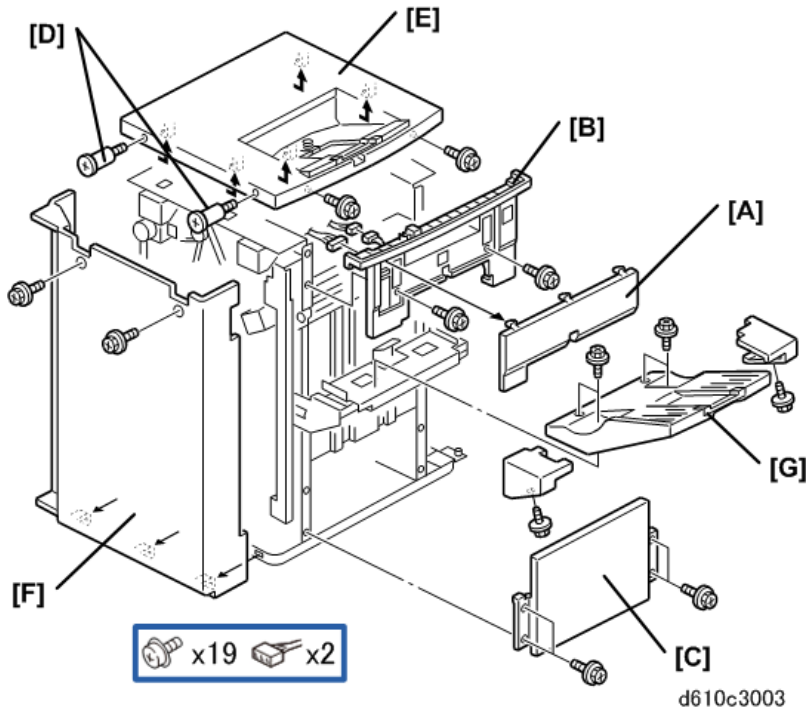
Side Table and Upper Tray

1. Remove the side table [A]. Slide to the right to remove it.
2. Click the release lever [B] and remove the upper tray [C].



Left Covers, Rear Cover, Top Cover

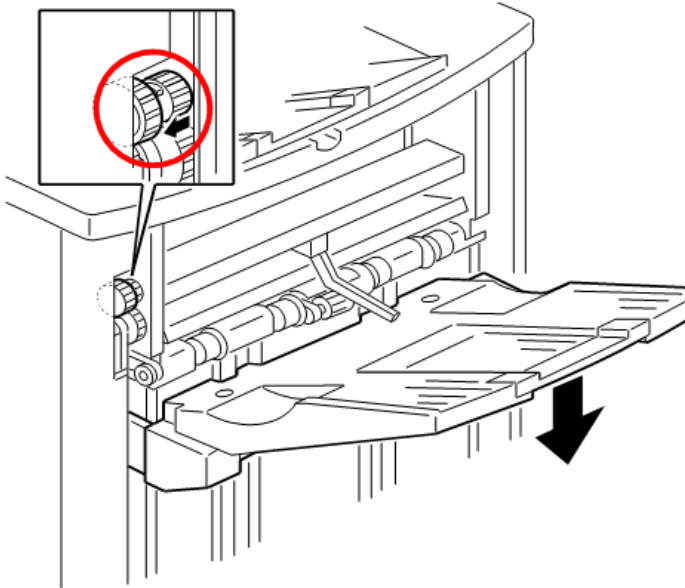
1. Remove the left upper panel [A].
2. Remove the left upper cover [B].
3. Remove the door and left inner cover. page 13
4. Remove the rear cover [F].
5. Remove the left lower cover [C].
6. Remove the upper tray. page 14
7. Remove the step screws [D].
8. Remove the top cover [E]. Slide to the right to remove.
9. Remove the rear cover [F].



Shift Tray

1. If you need to lower the shift tray, support the bottom of the tray with your hand, then pull the gear toward you to release the tray and lower it.
2. Remove the shift tray.
3. Remove the shift tray rear cover and front cover

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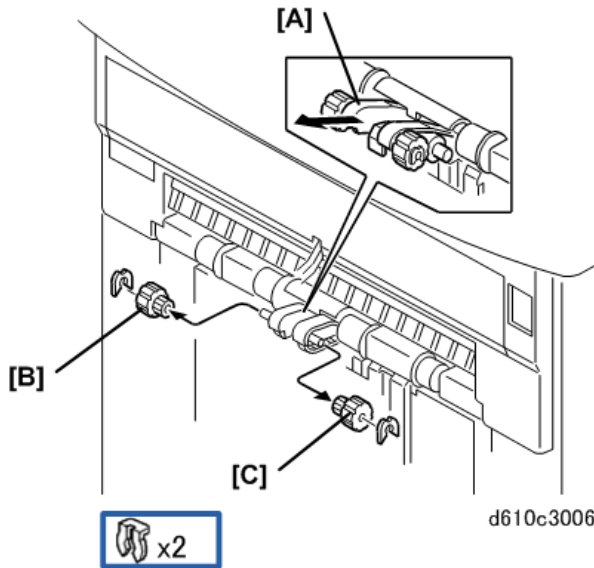
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Rollers

Shift Positioning Roller

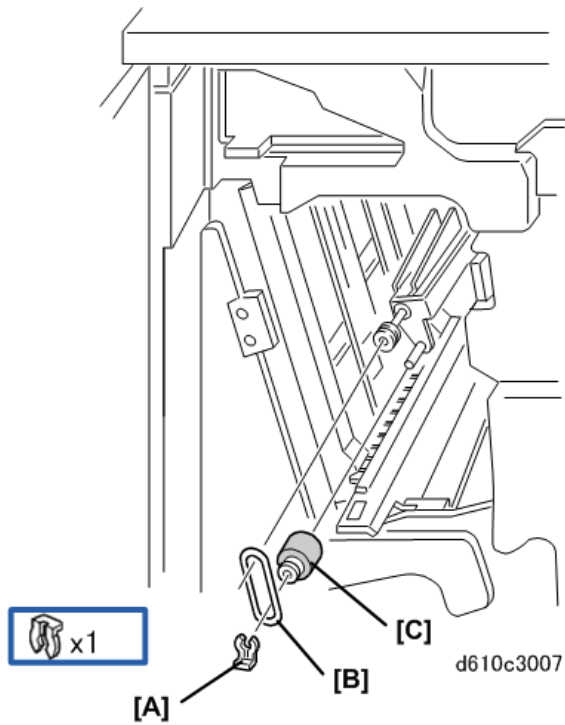
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1. Above the shift tray, pull the roller mount [A] out.
2. Remove the rollers [B] and [C].



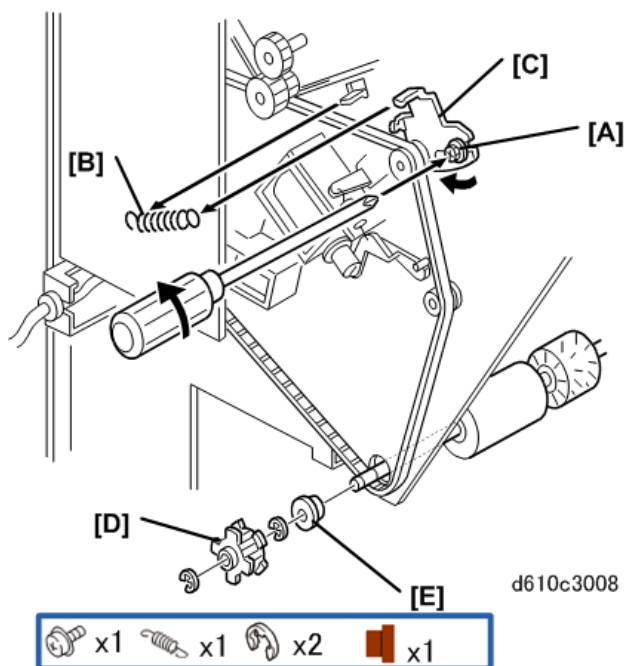
Positioning Roller

1. Open the front door.
2. Remove the snap ring [A].
3. Release the rubber belt [B].
4. Replace the positioning roller [C].

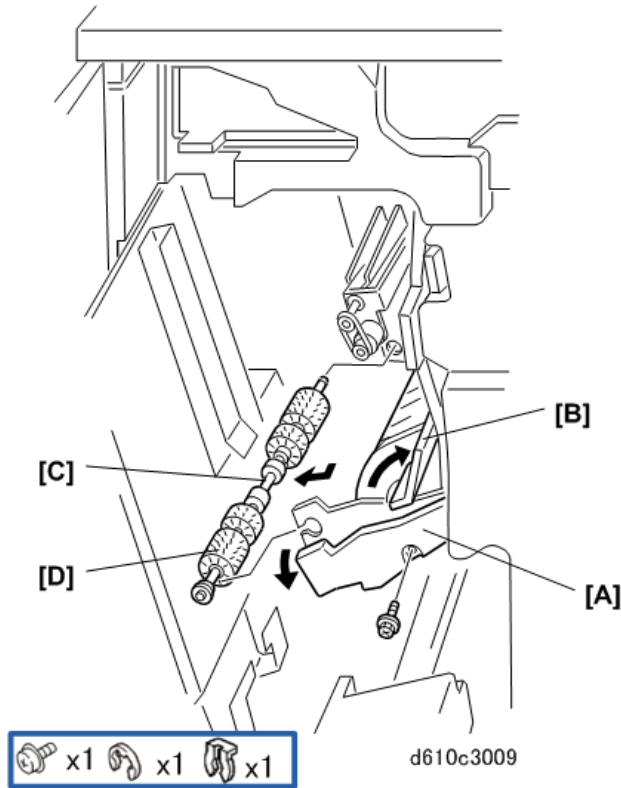


Alignment Brush Roller

1. Open the front door and pull out the staple unit.
2. Remove the rear cover.
3. Remove the main board and all connectors.
4. Remove the screw [A] and tension spring [B] for the tension bracket [C], and release the tension of the timing belt.
5. Remove the pulley [D] and bushing [E].



6. Remove the inner cover [A].
7. Open the guide [B], then remove the alignment brush roller assembly [C].
8. Remove the alignment brush roller [D].

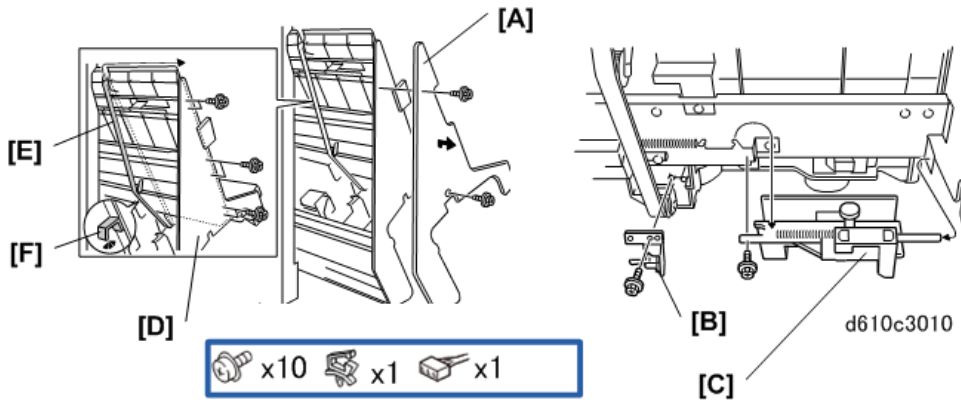


Stack Feed-out Belt, Jogger Fence

Stack Feed-out Belt

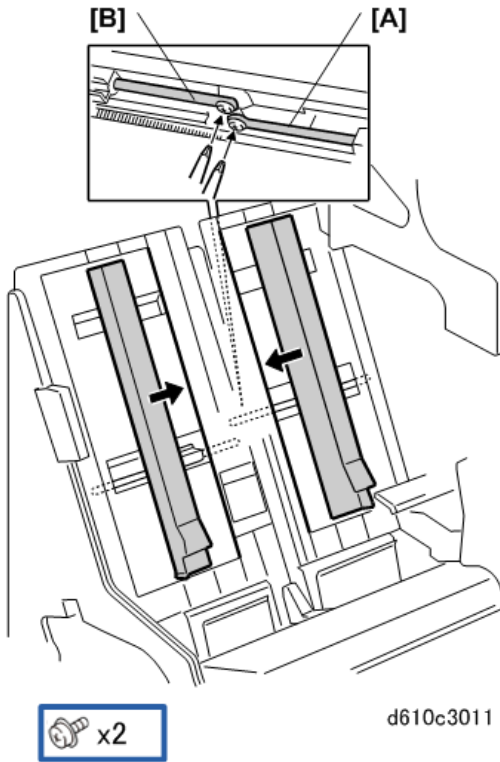
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1. Open the front door.
2. Pull out the jogger and stapler unit.
3. Remove the inner cover [A].
4. Remove the sensor bracket [B].
5. Remove the front guide [C].
6. When re-installing, make sure that the flat end of the shaft is against the plate.
7. Remove the front panel [D] from the stays.
8. Remove the old belt [E] from the bottom, center, then the top.
9. Make sure the ribbed side of the new belt and pawl [F] are facing down.
10. Make sure the new belt is engaged at all three rollers.



Jogger Fence

1. Open the front door.
2. Pull out the jogger and stapler unit.
3. Push both fences to the center.
4. Remove the left jogger fence [A].
5. Remove the right jogger fence [B].
6. If the screws are difficult to remove or re-attach, remove the jogger fence belt and spring plate.



Sensors

Stack Height 1 Sensors, Exit Guide Open Sensor

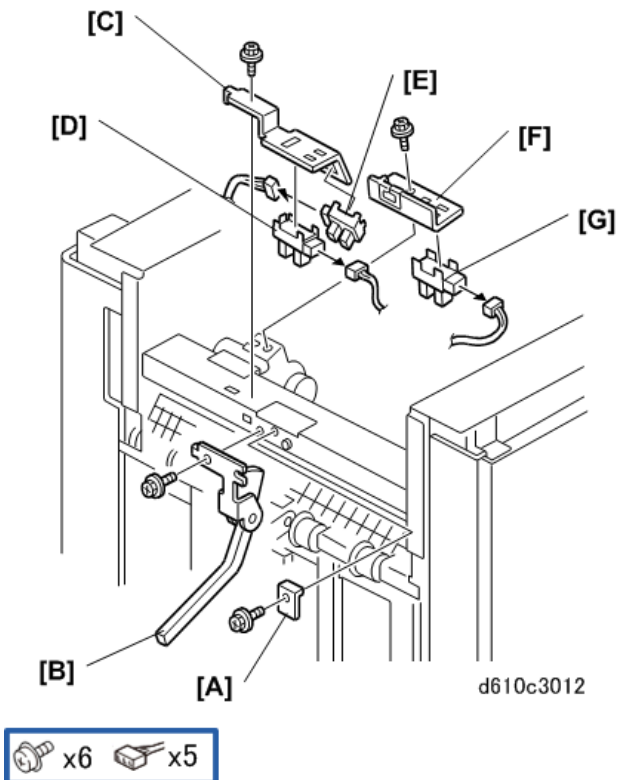
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Stack Height Sensors 1 and 2

1. Remove the top cover.
2. Remove the left upper panel and left upper cover.
3. Remove the protector plate [A].
4. Remove the sensor feeler [B].
5. Remove the sensor bracket [C].
6. Replace the stack height sensor 1 [D].
7. Replace the stack height sensor 2 [E].

Exit Guide Open Sensor

1. Remove the sensor bracket [F].
2. Replace the exit guide open sensor [G].



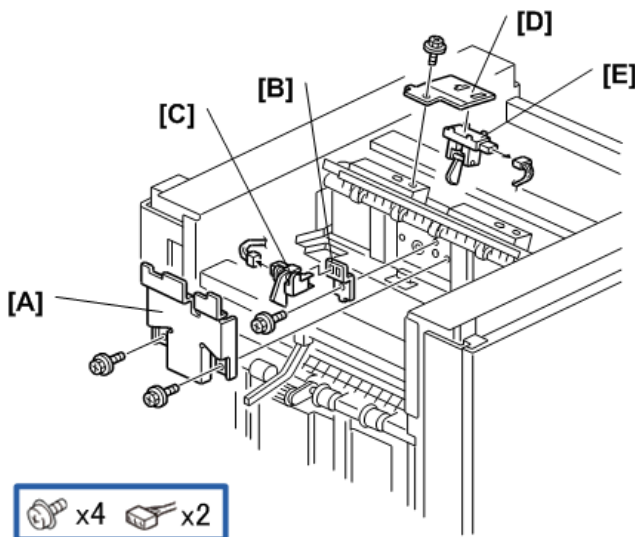
Upper Tray Paper Limit and Exit Sensor

Upper Tray Paper Limit Sensor

1. Remove the top cover.
2. Remove the sensor cover [A].
3. Remove the sensor bracket [B].
4. Replace the upper tray paper limit sensor [C].

Upper Tray Exit Sensor

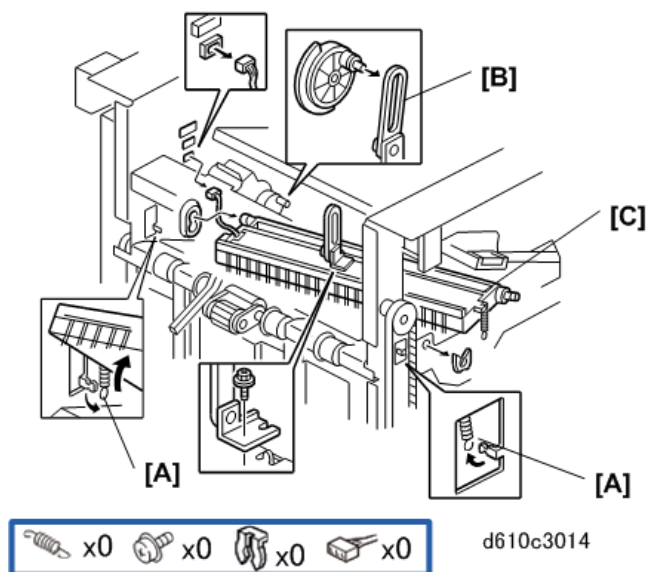
1. Remove the sensor bracket [D].
2. Replace the upper tray exit sensor [E].



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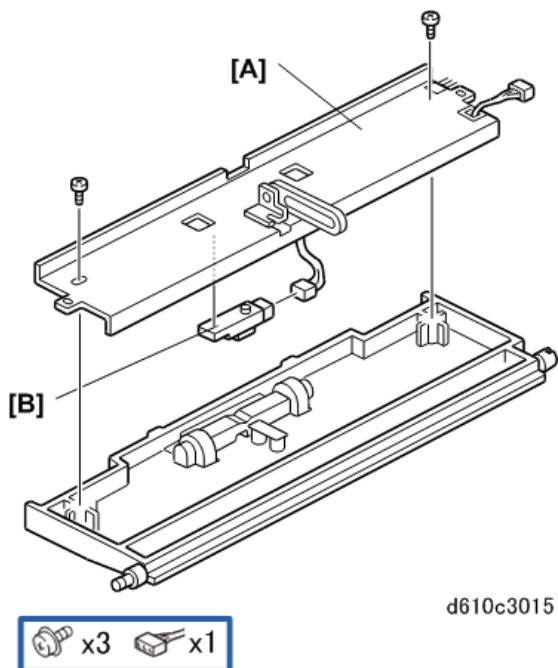
Shift Tray Exit Sensor

1. Remove the top cover.
2. Open the front door.
3. Remove the inner cover.
4. Release the upper exit guide springs [A].
5. Disconnect the link [B] from the cam.
6. Remove the upper exit guide [C].



7. Remove the guide stay [A].

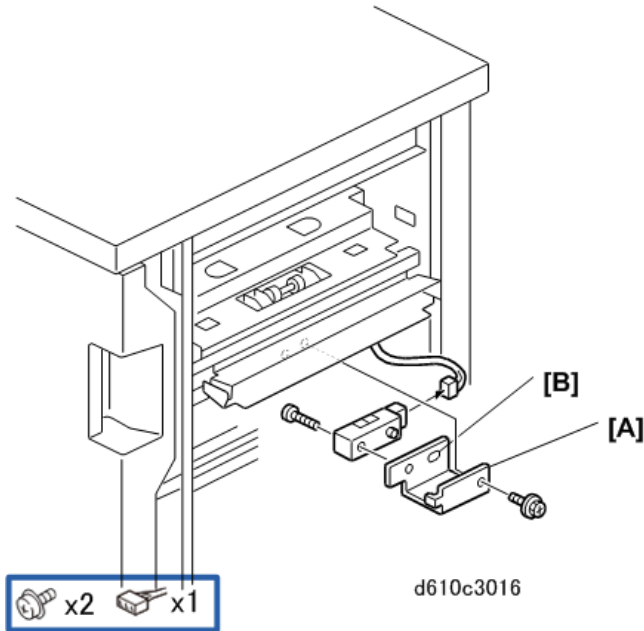
8. Replace the shift tray exit sensor [B].



Entrance and Stapler Tray Entrance Sensors

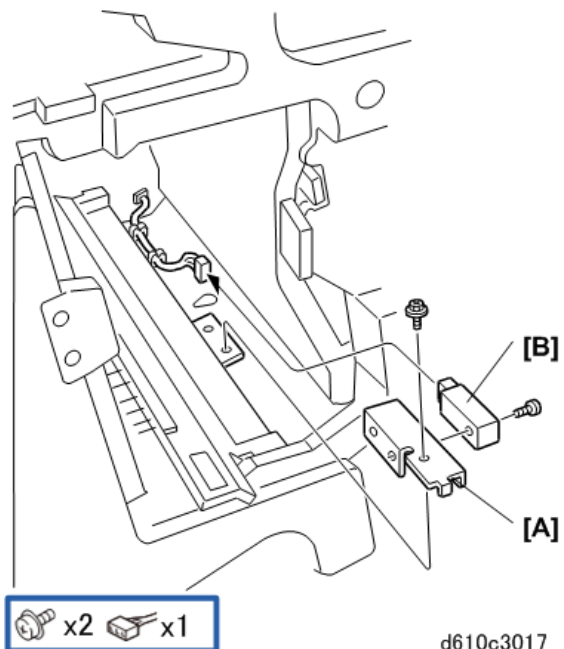
Entrance Sensor

1. Disconnect the finisher from the copier.
2. Remove the sensor bracket [A].
3. Replace the entrance sensor [B].



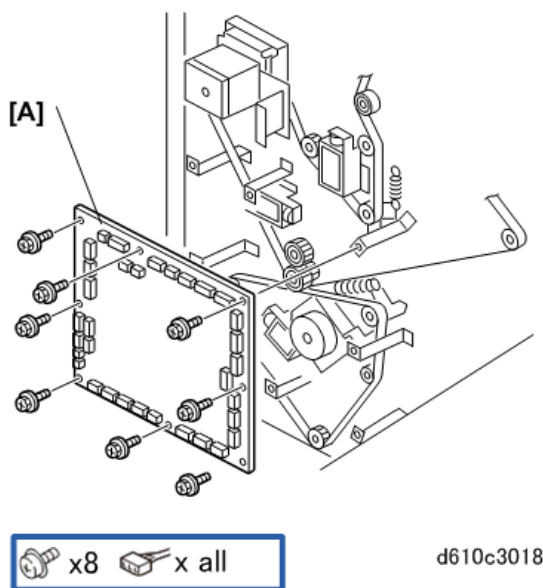
Stapler Tray Entrance Sensor

1. Open the front door.
2. Remove the sensor bracket [A].
3. Replace the stapler tray entrance sensor [B].

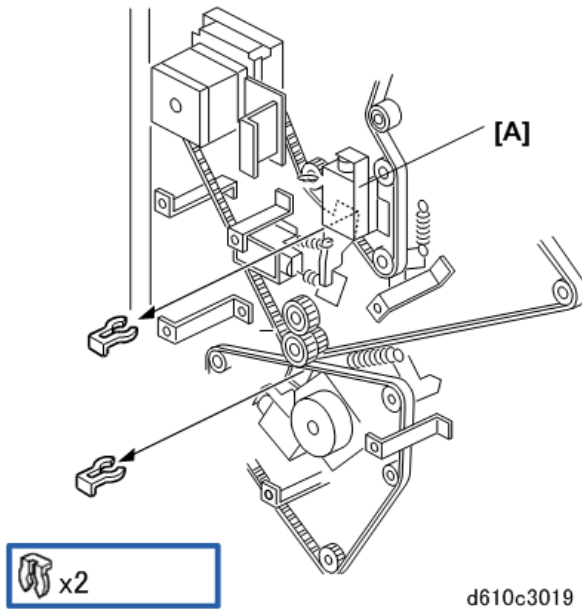


Pre-Stack Paper Sensor

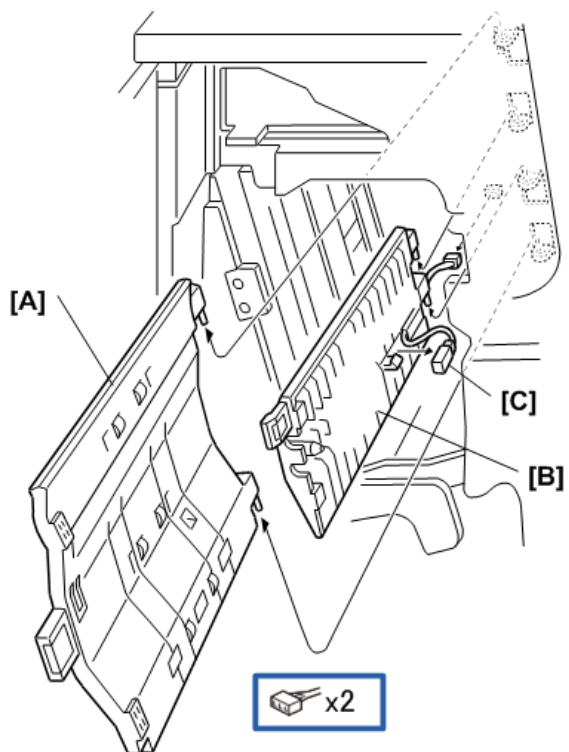
1. Remove the rear cover.
2. Remove the main board [A].



3. Release the guide [A].



4. Open the front door.
5. Remove the left vertical transport guide [A].
6. Remove the middle vertical transport guide [B].
7. Replace the pre-stack paper sensor [C].



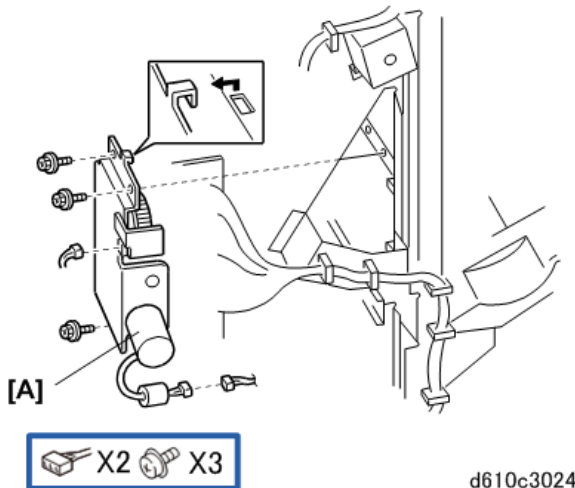
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Motors

1

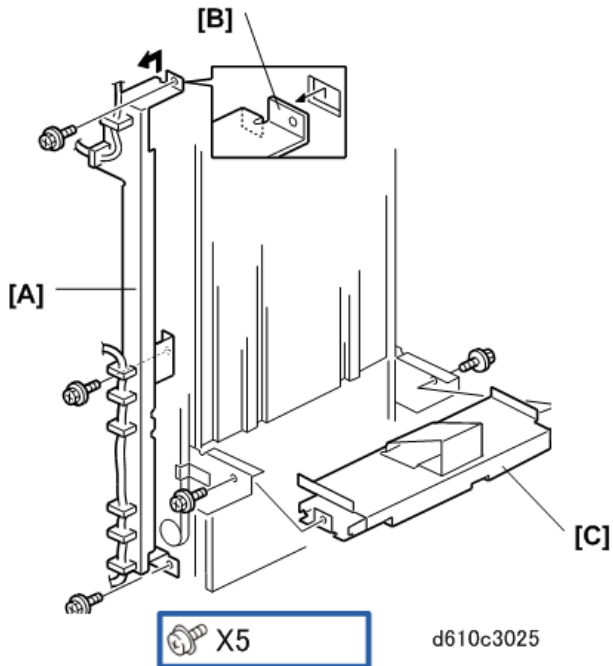
Shift Tray Motor

1. Remove the front door and rear cover. page 13
2. Remove shift motor [A].

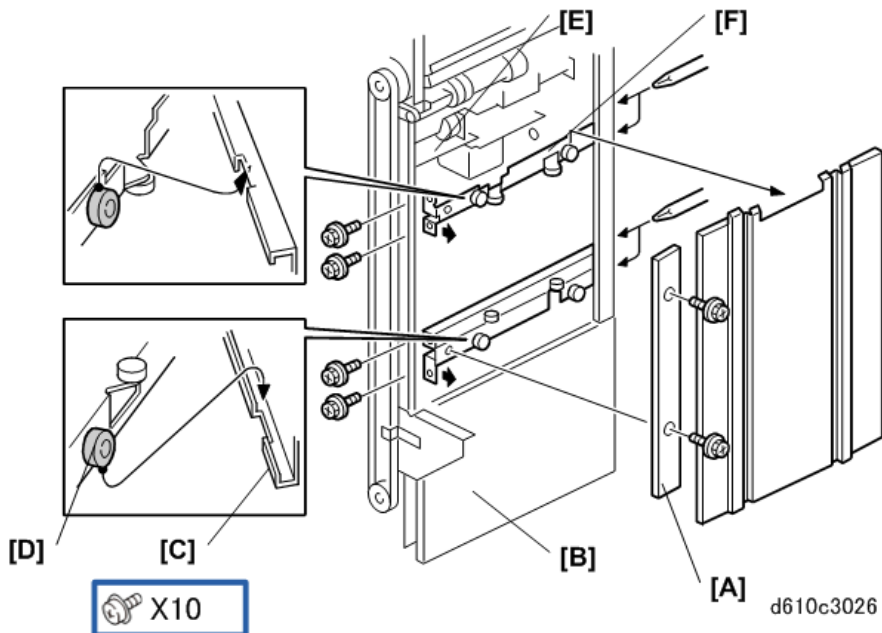


Stacking Roller, Roller Drag Motors, Return HP Sensor

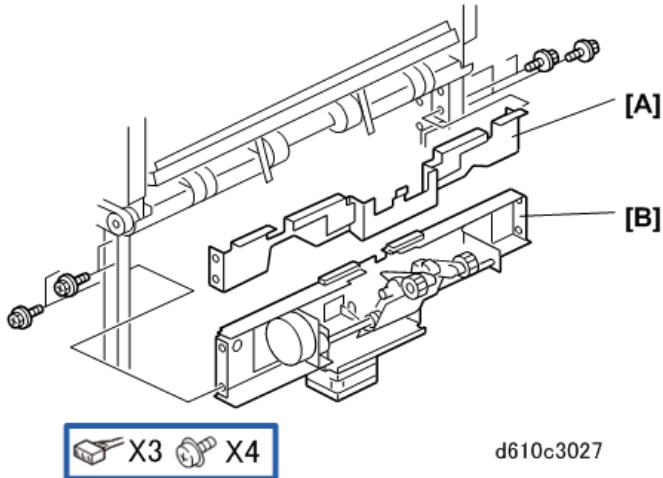
1. Do the procedures to remove the front door and all covers, with the exception of the left lower cover and top cover (labeled [C] and [E]).
2. Be sure to lower the shift tray by pulling the gear toward you. The shift tray must be down.
3. Remove the shift tray motor. See previous page.
4. Remove the left stay [A].
5. Unhook the stay at top [B].
6. Remove the shift tray mounting plate [C].



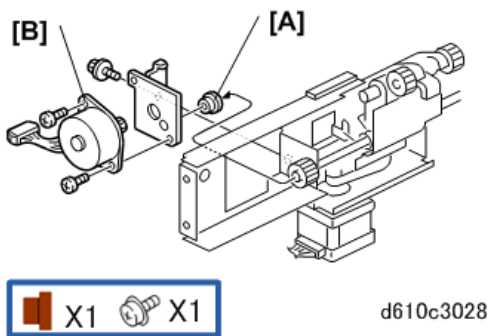
7. Remove the end fence [A] and plate [A].
8. Disengage the end fence races [B] from the rollers [C] behind the fence.
9. Remove the upper stay [E].
10. Remove the lower stay [F].



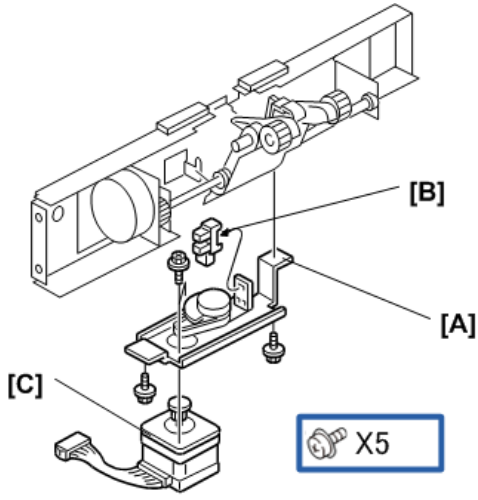
11. Remove the cover [A].
12. Remove the stacking roller/drag motor stay [B].
13. Make sure the motor and sensor connectors are disconnected before removing.



14. Remove the stacking motor bracket [A].
15. Remove the stacking motor [B].



16. Remove the roller drag motor bracket [A].
17. Remove return HP sensor [B].
18. Remove the roller drag motor [C].

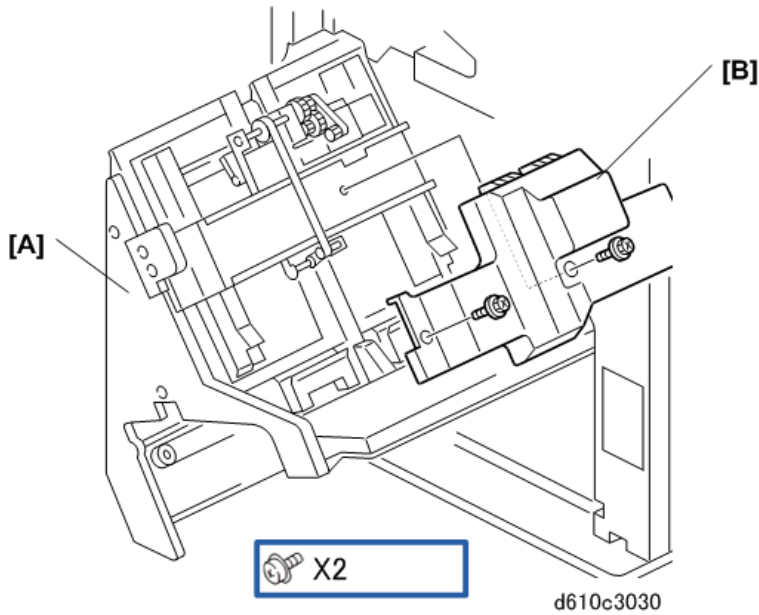


Z-Fold Jogger Unit

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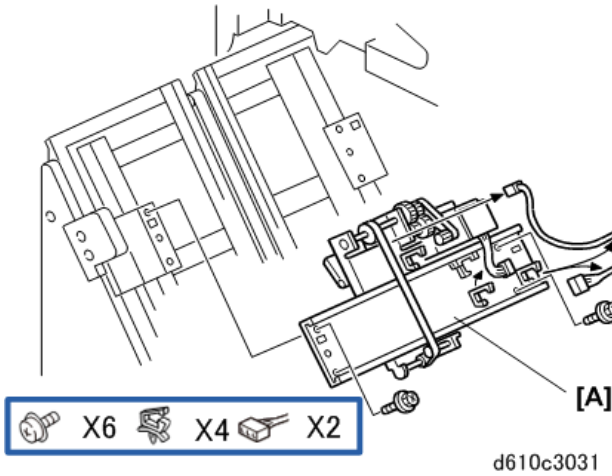
Z-Fold Jogger Unit Cover

1. Open the front door.
2. Pull out the stapler tray unit [A].
3. Remove the Z-fold jogger unit cover [B].



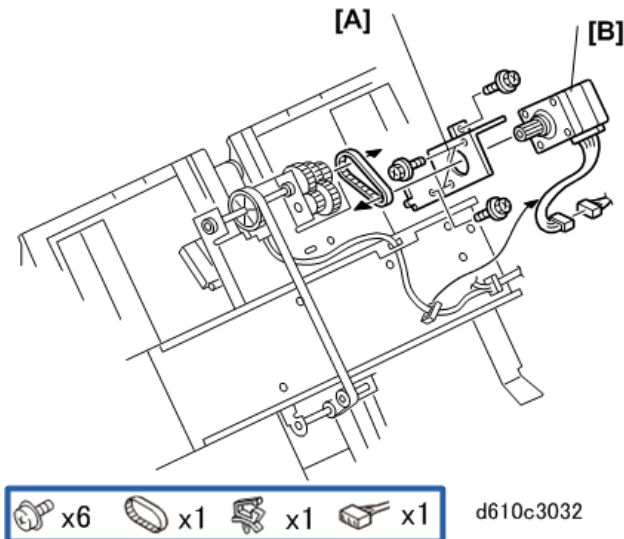
Z-Fold Jogger Unit

1. Open the front door and pull out the stapler tray unit.
2. Remove the Z-fold jogger unit cover.
3. Remove the Z-fold jogger unit [A].



Top Fence Motor

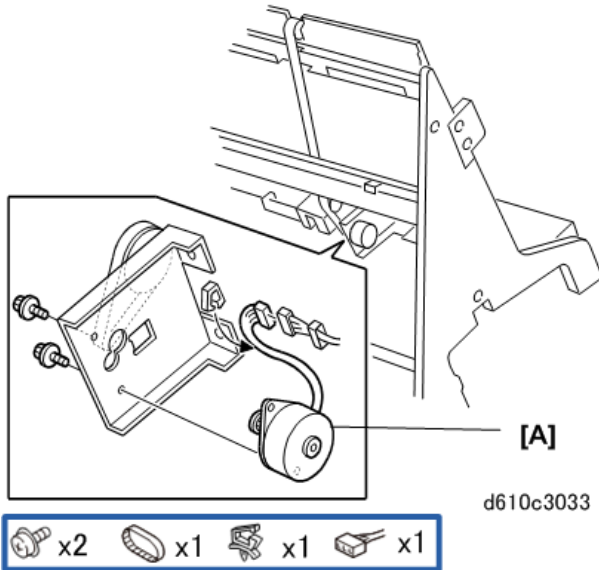
1. Open the front door and pull out the stapler tray unit.
2. Remove the Z-fold jogger unit cover.
3. Remove the motor bracket [A].
4. Remove the jogger top fence motor [B].



Bottom Fence Motor

1. Open the front door and pull out the stapler tray unit.

2. Remove the jogger bottom fence motor [A].

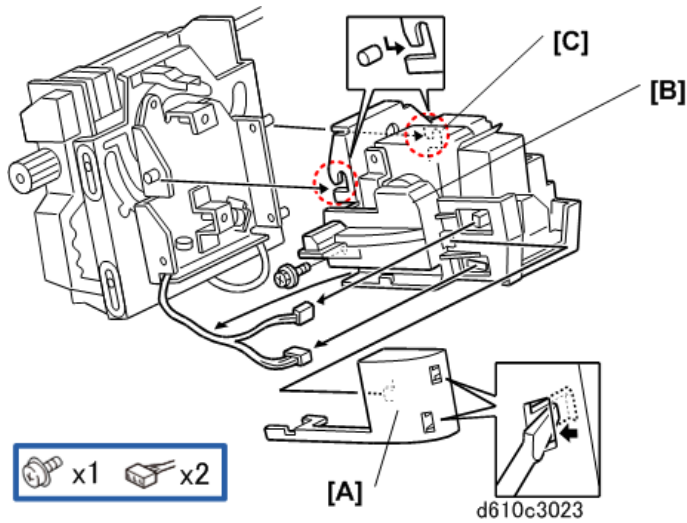


Stapler

Stapler Removal

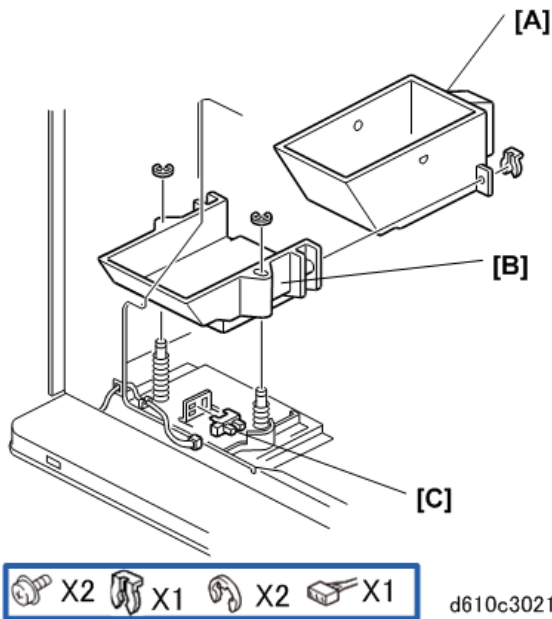
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1. Open the front door and pull out the staple tray.
2. Remove the stapler unit harness cover [A].
3. Remove the stapler cover [B].
4. Lift the stapler off of the pegs [C].



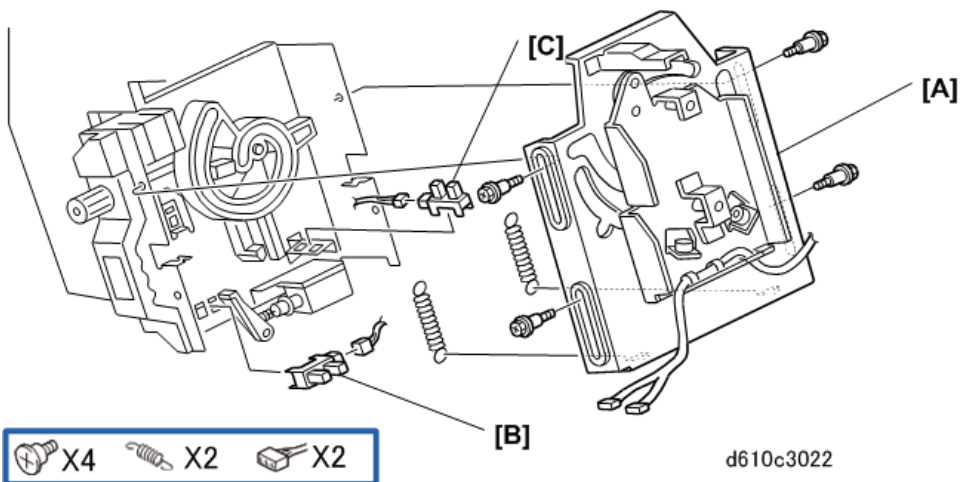
Staple Waste Hopper Sensor

1. Open the front door, pull out the stapler unit, then remove the rear cover.
2. Remove the rear cover.
3. Remove the staple waste hopper [A].
4. Remove the hopper holder [B].
5. Replace the staple waste hopper sensor [C].



Stapler Rotation HP Sensor, Stapler Return Sensor

1. Remove the stapler unit. (See above.)
2. Remove the stapler mount bracket [A].
3. Replace the stapler rotation HP sensor [B].
4. Replace the stapler return sensor [C].



Punch Unit B531 (Option)

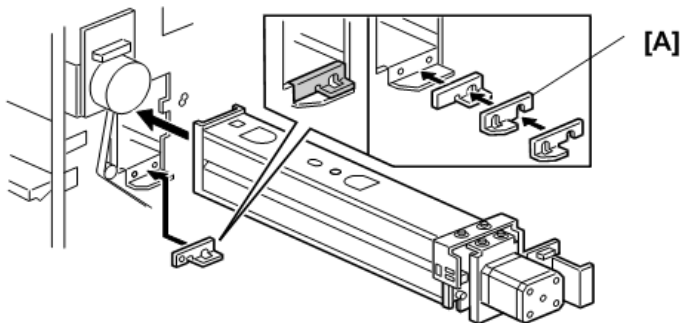
Punch Position Adjustment

The position of the punched holes can be adjusted in two ways.

Front to Rear Adjustment

Three spacers [A] are provided with the punch unit for manual adjustment of the hole position in the main scan direction:

- 2 mm (x 1)
- 1 mm (x 2)




d610c3034

One spacer was installed at installation and the remaining spacers were fastened with a screw to the rear frame of the finisher under the rear cover and slightly above the lock bar.

Right to Left Adjustment

The position of the punched holes can be adjusted right to left in the sub scan direction with SP6-113 Punch Hole Position Adjustment. The position can be adjusted in the range ± 7.5 mm in 0.5 mm steps. The default setting is 0.

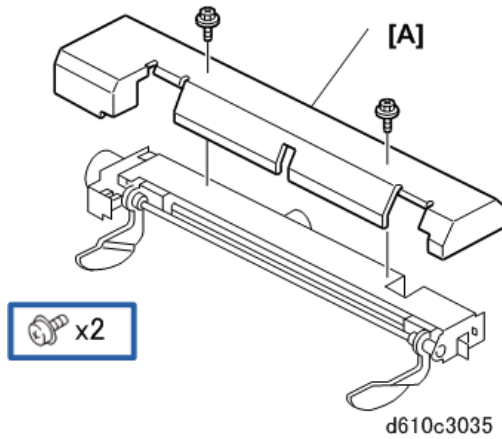
Press the  key to toggle the \pm selection. A +VE value shifts the punch holes left toward the edge of the paper, and a -VE value shifts the holes right away from the edge.

Output Jogger Unit B513 (Option)

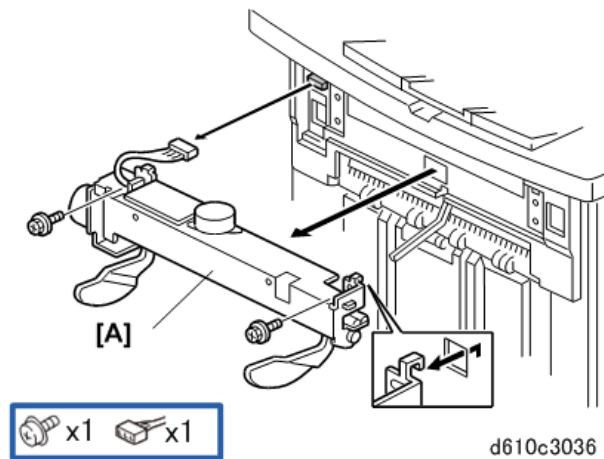
1

Jogger Unit

1. Remove the jogger unit cover [A].

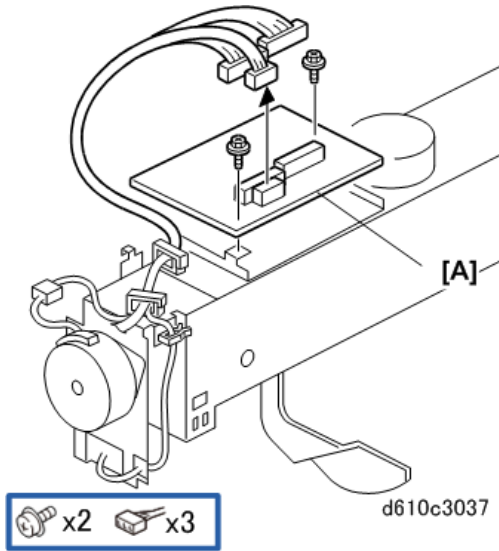


2. Remove the jogger unit [A].



Jogger Unit PCB

1. Remove the jogger unit from the finisher. (See above.)
2. Remove the jogger unit control PCB [A].



DIP Switches

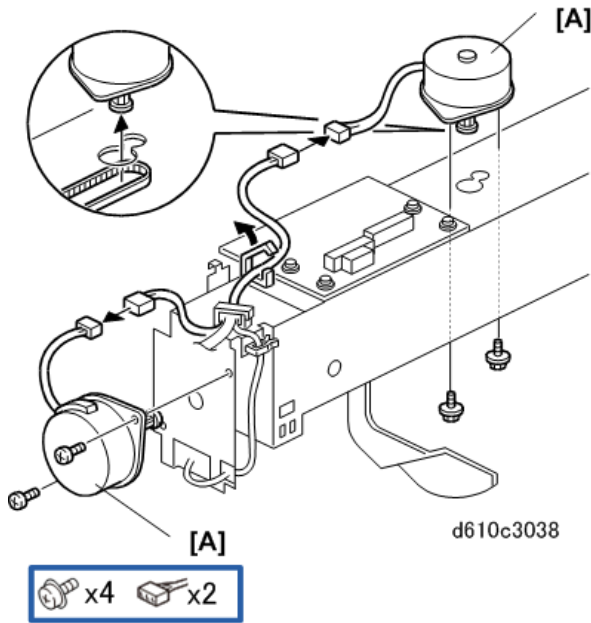
DPS100				Description
1	2	3	4	
0	0	0	0	Default
0	0	1	0	Free run: A4 LEF, staple mode
0	0	0	1	Free run: staple and tray shift

★ Important

- Do not use any other settings.

Shift Jogger Motor, Fence Lift Motor

1. Remove the jogger unit from the finisher. (See above.)
2. Remove the shift jogger motor [A].
3. Remove the shift jogger lift motor [B].



2. Detailed Descriptions

Overview

Specifications

Upper Tray

Paper Capacity (80 g/m ²)	500 sheets (A4, 8.5" x 11" and smaller)
	250 sheets (B4, 8.5" x 14" and larger)
Paper Size	A3 to A6 SEF, 11" x 17" to 5.5" x 8.5", 12" x 18"
Paper Weight	52 to 216 g/m ² (14 to 58 lb)
Upper Tray Full Detection	Provided

Shift Tray

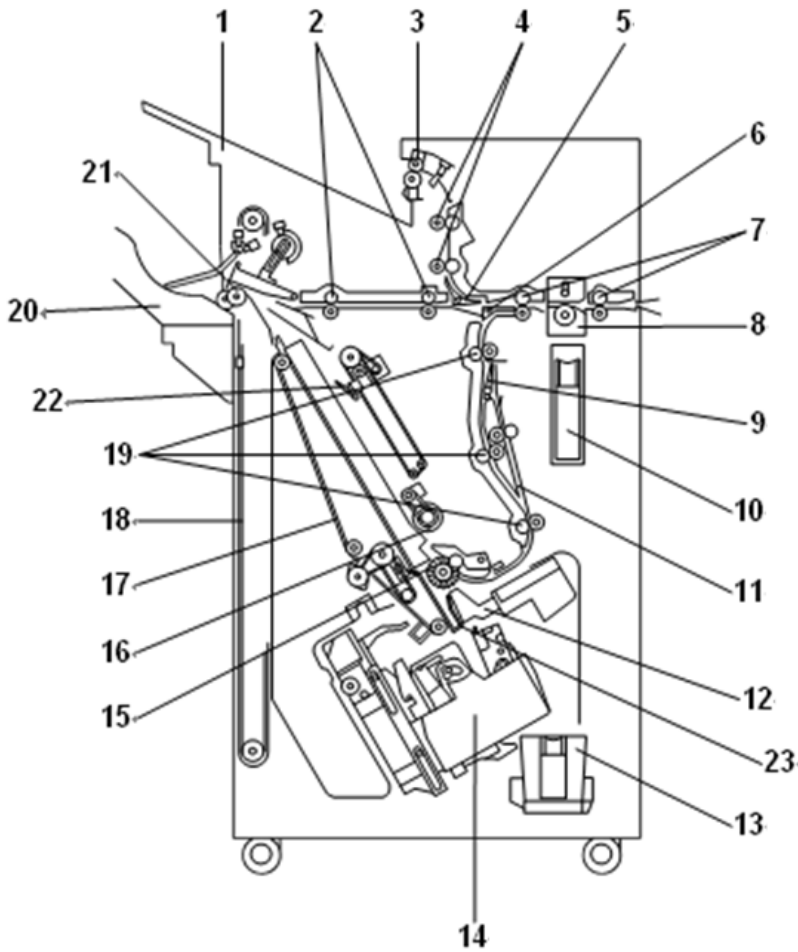
Paper Capacity (80 g/m ²)	3000 sheets (A4 LEF, B5 LEF, 8.5" x 11" LEF)
	1500 sheets (A3, A4 SEF, B4 and B5 SEF, 11" x 17", 8.5" x 14", 8.5" x 11" SEF, 12" x 18")
	500 sheets (A5 LEF, 5.5" x 8.5" LEF)
	100 sheets (A5 SEF, 5.5" x 8.5" SEF)
Paper Size	A3 to A5, 11" x 17" to 5.5" x 8.5", 12" x 18" (including tab paper)
Paper Weight	52 to 216 g/m ² (14 to 58 lb)
Shift Tray Full Detection	Provided

Stapler

Stapling Stack Size	A4, B5, 8.5" x 11" (Max. 100 Sheets)
	A3, B4, 11" x 17", 8.5" x 14" (Max. 50 sheets)

Stapling Paper Size	A3 to B5 11" x 17" to 8.5" x 11"		
Stapling Paper Weight	64 to 80 g/m ² (17 to 20 lb)		
Staple Position	4 Modes <ul style="list-style-type: none"> • 1 Staple: Front, Rear, Rear-Oblique • 2 Staples: 2 locations 		
Staple Capacity	5000 staples/cartridge		
Staple Supply	Cartridge or Staple Replacement		
Stapled Stack Size	Sheets	Sets	Sizes
	10 to 100	200 to 30	A4 SEF, B5 SEF, 8.5" x 11" SEF
	2 to 9	150	A4 LEF, B5 LEF, 8.5" x 11" LEF
	10 to 50	150 to 30	A3, B4, 11" x 17", 8.5" x 14"
	2 to 9	150	
Trim Waste Staple Capacity	30,000 or more		
Waste Staple Hopper Full Detection	Provided		
Power Consumption	Less than 100 W		
Power Source	DC 24 V (From Mainframe)		
Size (W x D x H)	800 x 730 x 980 mm (31.5" x 28.7" x 38.6")		
Weight	Less than 65 kg (143 lb.)		

Mechanical Layout



d610c6025

No.	Part	No.	Part
1	Upper Tray	13	Staple Waste Hopper
2	Middle Transport Rollers	14	Stapler
3	Upper Tray Exit Roller	15	Alignment Brush Roller
4	Upper Transport Rollers	16	Positioning Roller
5	Tray Junction Gate	17	Stack Feed-out Belt
6	Stapler Junction Gate	18	Shift Tray Drive Belt

No.	Part	No.	Part
7	Entrance Rollers	19	Lower Transport Rollers
8	Punch Unit	20	Shift Tray
9	Pre-stack Junction Gate	21	Shift Tray Exit Roller
10	Punch Waste Hopper	22	Jogger Top Fence
11	Pre-stack Tray	23	Jogger Bottom Fence
12	Stack Plate		

Electrical Component Description

The following table lists all electrical components and briefly describes their function.

Symbol	Name	Function
Motors		
M01	Shift Tray Exit	Drives the exit roller for the shift tray.
M02	Shift Tray Lift	Moves the shift tray up or down.
M03	Exit Guide	Opens and closes the upper exit guide.
M04	Lower Transport	Drives the lower transport rollers, the positioning roller and the alignment brush roller
M05	Shift	Moves the shift tray from side to side.
M06	Positioning Roller	Moves the positioning roller into contact with the paper.
M07	Stacking Roller Drag	Moves the stacking roller in and out.
M08	Stacking Roller	Rotates the stacking roller.
M09	Jogger	Moves the jogger fences.
M10	Stack Feed-Out Belt	Drives the stack feed-out belt.
M11	Stack Plate - Center	Presses down the center of the edge for stapling.
M12	Stapler	Moves the staple unit from side to side.
M13	Stack Plate – Front	Presses down the front corner of the edge for stapling.

M14	Stack Plate – Rear	Presses down the rear corner of the edge for stapling.
M15	Stapler Rotation	Rotates the stapler 45 degrees for oblique stapling.
M16	Staple Hammer	Drives the staple hammer.
M17	Punch	Drives the punch shaft and roller. Punch Unit B531 (option).
M18	Upper Transport	Drives the entrance rollers, the middle and upper transport rollers, and upper tray exit roller.
M19	Shift Jogger	Drives the shift jogger fences against the sides of the sheets to align the stack, then reverses to return them to the home position. Jogger Unit B513 (option).
M20	Shift Jogger Lift	Raises the shift jogger fences after aligning the stack, then reverses and lowers them when returning to the home position. Jogger Unit B513 (option).
M21	Jogger Top Fence	Moves the top jogger fence.
M22	Jogger Bottom Fence	Moves the bottom jogger fence.
BOARDS		
PCB	Main	Controls the finisher and communicates with the copier.
PCB	Stapler	Controls the stapler unit.
PCB	Punch	Passes signals between the punch unit and the finisher main board. Punch Unit B531 (option).
PCB	Jogger	Controls the shift/jogger unit B513 (option).

Symbol	Name	Function
SENSORS		
S01	Entrance	Detects the copy paper entering the finisher and checks for misfeeds.
S02	Upper Tray Exit	Checks for misfeeds at the upper tray.
S03	Upper Tray Limit	Detects when the paper stack height in the upper tray is at its upper limit.
S04	Shift Tray Exit	Checks for misfeeds at the shift tray exit.

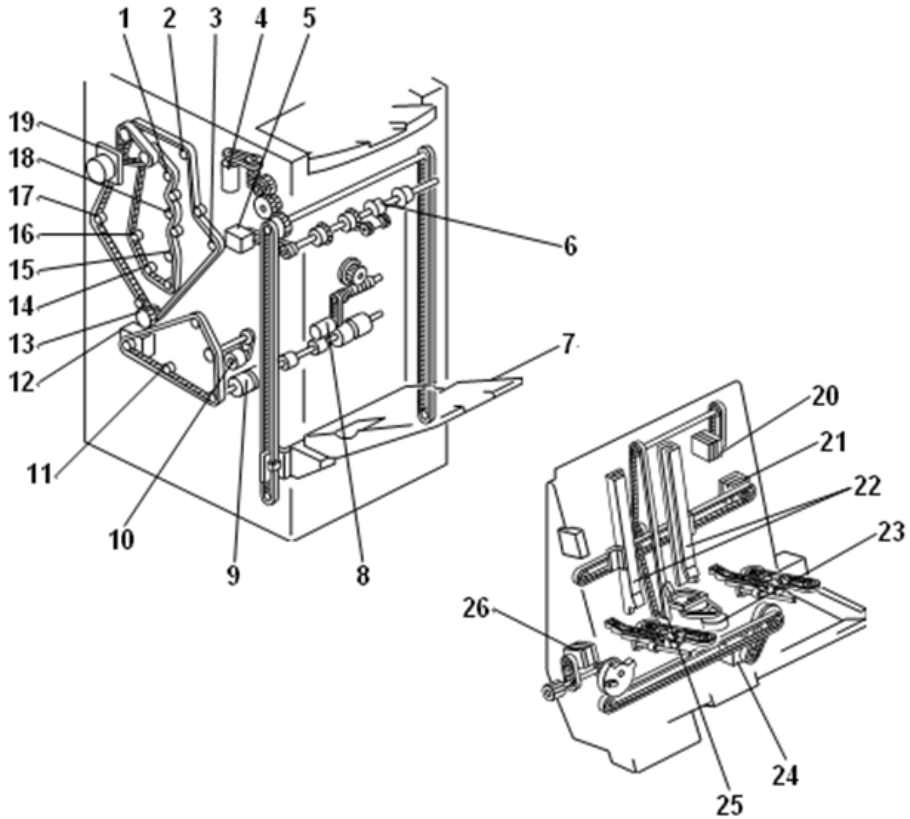
Symbol	Name	Function
S05	Exit Guide Open	Detects whether the guide plate is opened or not.
S06	Staple Mode HP 1	Detects the shift tray home position for standby mode and for staple mode.
S07	Staple Mode HP 2	Detects the shift tray home position for standby mode and for staple mode.
S09	Shift Lower Limit – Large Paper	Detects the lower limit for the shift tray when large paper sizes are being used
S10	Shift Tray Lower Limit 2	Not used.
S11	Shift Tray Lower Limit 3	Detects when the shift tray is at its lower limit.
S12	Shift Mode HP	Detects the shift tray home position in sort/stack mode.
S13	Stacking Roller HP	Detects when the stacking roller is at home position.
S14	Shift Tray Half-Turn	Detects whether the shift tray is at either the front or home HP.
S15	Pre-Stack Tray Paper	Determines when to turn off the pre-stack paper stopper solenoid.
S16	Stapler Tray Exit	Detects jams at the staple tray exit.
S17	Positioning Roller HP	Detects the home position of the positioning roller.
S18	Stack Feed-Out Belt HP	Detects the home position of the stack feed-out belt.
S19	Stapler Tray Paper	Detects the copy paper in the stapler tray.
S20	Jogger HP	Detects the home position of the shift jogger fences.
S21	Stack Plate - Center HP	Detects the home position of the center stack plate.
S22	Stack Plate – Front	Detects the home position of the front stack plate.
S23	Stack Plate – Rear	Detects the home position of the rear stack plate.
S24	Stapler HP	Detects the home position of the staple unit for side-to-side movement.
S25	Stapler Rotation HP	Detects the home position of the stapler unit for 45-degree rotation.

Symbol	Name	Function
S26	Stapler Return	Detects the on timing of the stapler return solenoid.
S27	Staple Waste Hopper	Detects when the staple waste hopper is full.
S28	Punch Waste Hopper	Detects when the punch waste hopper is full and detects when the punch tray is set. Punch Unit B531 (option).
S29	Punch HP 1	Detects the cam home position for the 2-hole punch. Punch Unit B531 (option).
S30	Punch HP 2	Detects the cam home position for 3/4 punch. Punch Unit B531 (option).
S31	Shift Jogger HP	Detects the home position of the jogger unit arms during paper alignment. Jogger Unit B513 (option).
SENSORS		
S32	Shift Jogger Lift HP	Detects the when both shift jogger fences are at the lowered position and ready to move against the sides of the stack. Jogger Unit B513 (option).
S33	Top Fence HP	Detects the top fence home position for Z-fold paper staple mode.
S34	Bottom Fence HP	Detects the bottom fence home position for Z-fold paper staple mode.
SOLENOIDS		
SOL1	(Upper) Tray Junction Gate	Drives the tray junction gate.
SOL2	Stapler Junction Gate	Drives the stapler junction gate.
SOL3	Pre-Stack Junction Gate	Drives the pre-stack junction gate.
SOL4	Pre-stack Paper Stopper	Drives the stopper pawl of the pre-stacking tray.
SOL5	Stapler Return	Positions the stapler correctly on its return from the staple supply point.
SWITCHES		
SW1	Shift Tray Upper Limit	Cuts the power to the shift tray lift motor when the shift tray position is at its upper limit.
SW2	Front Door Safety	Cuts the dc power when the front door is opened.

Symbol	Name	Function
SW3	Emergency Stop	Switches the current job off and on to allow time for the operator to remove paper from the shift tray.

2

Drive Layout



d610c6026

No.	Part	No.	Part
1	Upper Transport Roller 2	14	Lower Transport Roller 1
2	Upper Tray Exit Roller	15	Transport Roller 1
3	Lower Transport Roller 2	16	Entrance Roller 2
4	Shift Tray Lift Motor	17	Entrance Roller

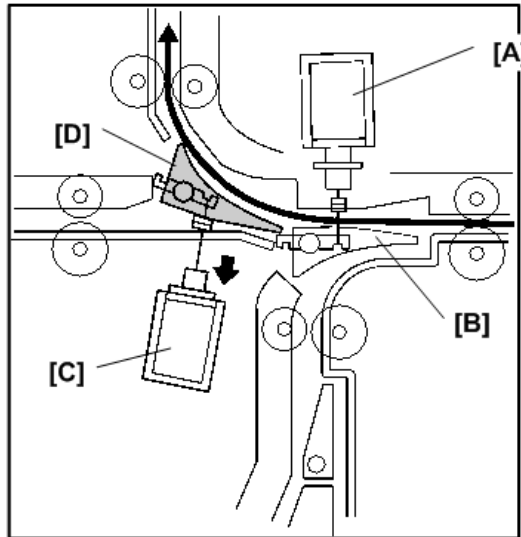
No.	Part	No.	Part
5	Shift Tray Exit Motor	18	Upper Transport Roller 1
6	Shift Tray Exit Roller	19	Upper Transport Motor
7	Shift Tray	20	Stack Feed-out Motor
8	Shift Motor	21	Jogger Motor
9	Staple Tray Exit Roller	22	Jogger Fence
10	Positioning Roller	23	Stack Plate Motor
11	Lower Transport Roller 3	24	Stapler Motor
12	Lower Transport Motor	25	Stack Feed-out Belt
13	Lower Transport Rollers 2	26	Stapler Rotation Motor

Main Mechanisms

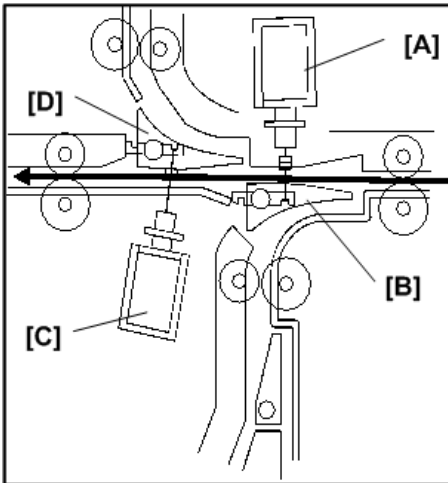
Tray and Stapler Junction Gate

2

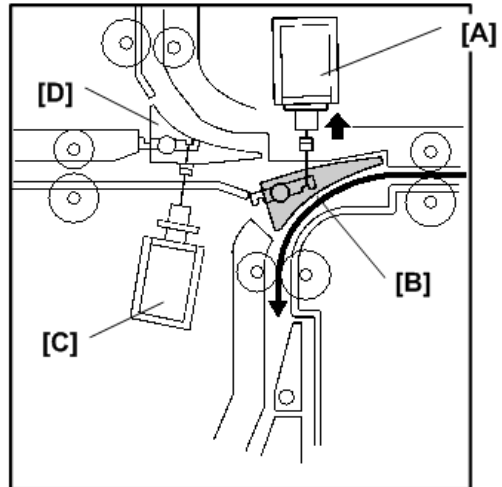
Upper Tray Mode



Sort/Stack Mode



Staple Mode

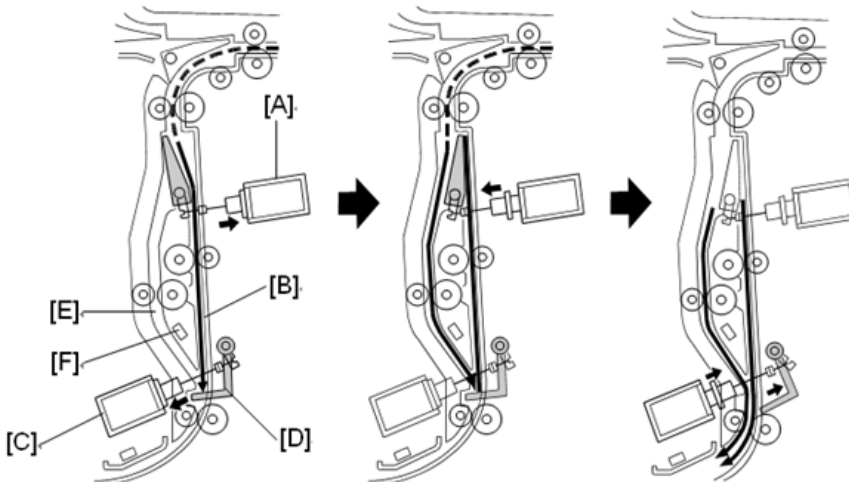


d610c6001

Depending on the finishing mode, the copies are directed up, straight through, or down by the combinations of open and closed junction gates.

Solenoid/Gate		Selected Operation Mode		
		Upper Tray	Sort/Stack	Staple
[A]	Stapler junction gate solenoid	Off	Off	ON
[B]	Stapler junction gate	Closed	Closed	OPEN
[C]	Tray junction gate solenoid	ON	Off	Off
[D]	Tray junction gate	OPEN	Closed	Closed

Paper Pre-Stacking



d610c6002

- This mechanism improves productivity in staple mode. It is only used when copying on A4, LT, or B5 (all LEF).
- During stapling, the copier has to wait. This mechanism reduces the wait by holding the first two sheets of a job while the previous job is still being stapled. It only works during the second and subsequent sets of a multi-set copy job.
- The pre-stack junction gate solenoid [A] turns on 120 mm after the 1st sheet of paper turns on the entrance sensor, and this directs the sheet to the pre-stack tray [B]. (This sheet cannot be fed to the stapler yet, because the first set is still being stapled.)
- The pre-stack paper stopper solenoid [C] turns on 350 mm after the 1st sheet turns on the entrance sensor. The pre-stack paper stopper [D] then stops the paper.
- The pre-stack junction gate solenoid turns off 230 mm after the trailing edge of the 1st sheet passes through the entrance sensor, and the 2nd sheet is sent to the paper guide [E].

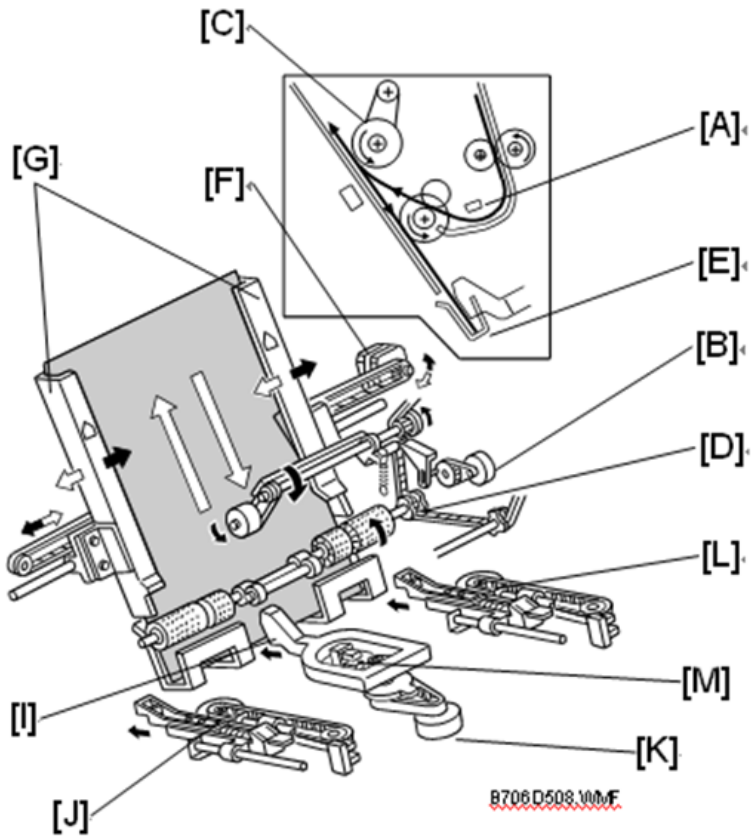
- The pre-stack paper stopper is released about 40 mm after the 2nd sheet turns on the pre-stack stopper sensor [F], and the two sheets of copy paper are sent to the stapler tray. All sheets after the 2nd sheet go to the stapler tray via the paper guide [E].

Jogger Unit Paper Positioning

2

In the staple mode, as every sheet of paper arrives in the jogger unit, it is vertically and horizontally aligned, then the staple edge is pressed flat to ensure the edge of the stack is aligned correctly for stapling.

- Vertical Paper Alignment: About 60 ms after the trailing edge of the copy passes the staple tray entrance sensor [A], the positioning roller motor [B] is energized to push the positioning roller [C] into contact with the paper.
- The positioning roller and alignment brush roller [D] rotate to push the paper back and align the trailing edge of the paper against the stack stopper [E].
- Horizontal Paper Alignment: When the print key is pressed, the jogger motor [F] turns on and the jogger fences [G] move to the wait position about 7.2 mm wider than the selected paper size on both sides.
- When the trailing edge of the paper passes the staple unit entrance sensor, the jogger motor moves the jogger fences 3.7 mm towards the paper.
- Next, the jogger motor turns on again for 3.5 mm for the horizontal paper alignment then goes back to the wait position.
- Paper Stack Correction: After the paper is aligned in the stapler tray, the left [J], center [K], and right [L] stack plate motors switch on briefly and drive the front stack, center stack, and rear stack plates against the edge of the stack to flatten the edge completely against the staple tray for stapling.
- When the next copy paper turns on the stapler entrance sensor, the stack plate motor turns on and returns to its home position. The home position is detected by stack plate HP sensor [M].



d610c6003

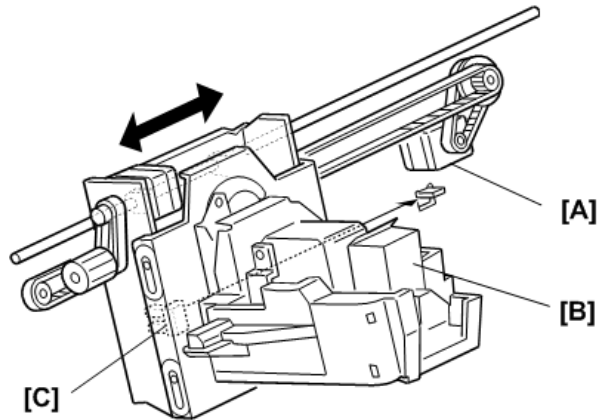
Stapling

Stapler Unit Movement

2

Side-to-Side

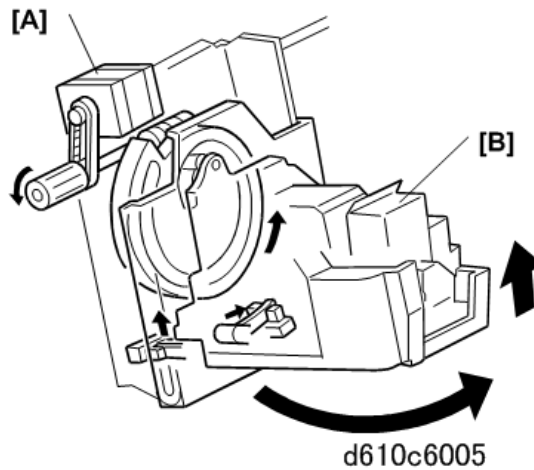
- The stapler motor [A] moves the stapler [B] from side to side. After the start key is pressed, the stapler moves from its home position to the stapling position.
- If two-staple-position mode is selected, for the first stack the stapler moves to the rear stapling position first, staples, moves to the front position, staples and waits at the front.
- For the second stack, the stapler staples the front corner first, then moves to the rear corner and staples.
- For continuous stapling jobs, the corners are stapled rear then front for the odd number stacks and stapled front then rear for even number stacks.
- After the job is completed, the stapler returns to its home position. This is detected by the stapler HP sensor [C].



d610c6004

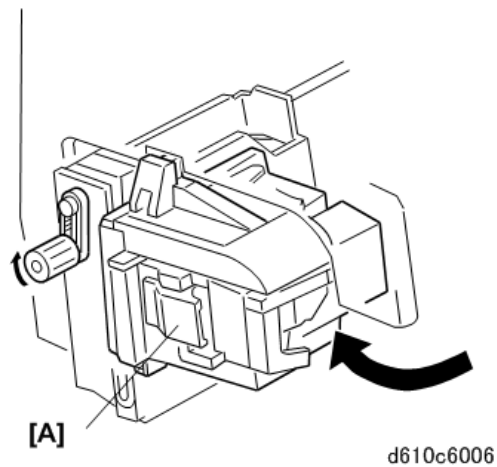
Rotation (1)

In the oblique staple position mode, the stapler rotation motor [A] rotates the stapler units [B] 45° to counterclockwise after it moves to the stapling position.

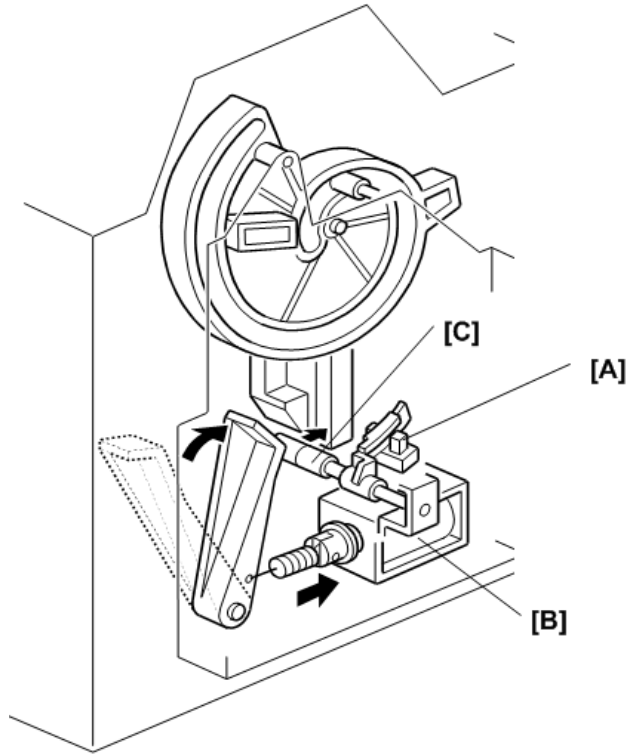


Rotation (2)

When the staple end condition arises, the stapler motor moves the stapler to the front and the stapler rotation motor rotates the stapler unit to clockwise to remove the staple cartridge [A]. This allows the user to add new staples.



Once the staples have been installed, and the front door closed, the stapler unit returns to its home position. As the stapler unit is returning to the home position, the stapler return sensor [A] is activated, the return solenoid [B] turns on and it assists the guide roller [C] to return to its guide (this guide directs the stapler during rotation).

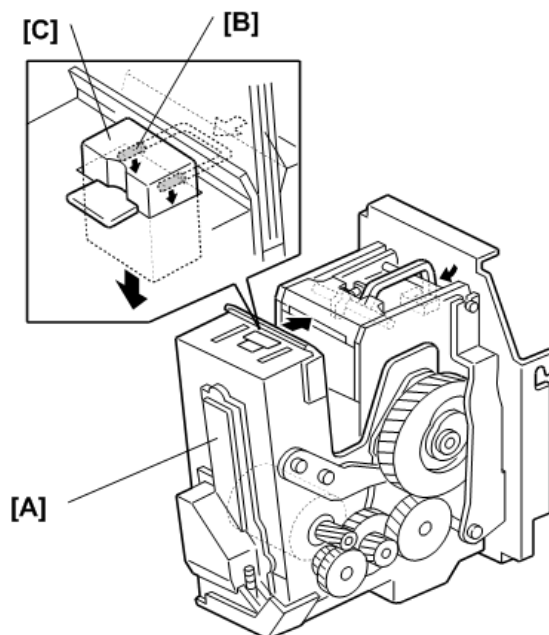


d610c6007

Stapler

When the aligned copies are brought to the stapling position by the positioning roller and jogger fences, the staple hammer motor [A] starts stapling.

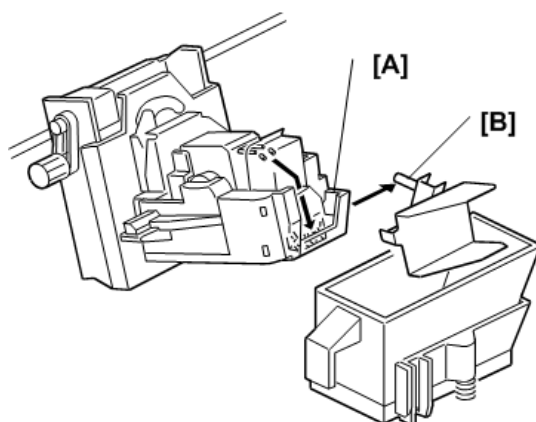
During stapling, the stapler trims off the excess length [B] of the staples by lowering the cutter [C].



d610c6008

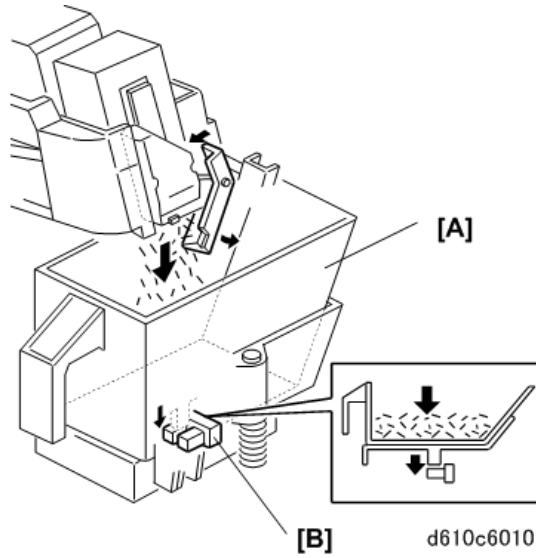
This excess length depends on the number of copies in the set; there will be very little for a stack containing 100 sheets.

The staple waste drops into the tray [A] in the stapler. When the stapler unit returns to its home position, the tray hits the shaft [B] and the tray opens.

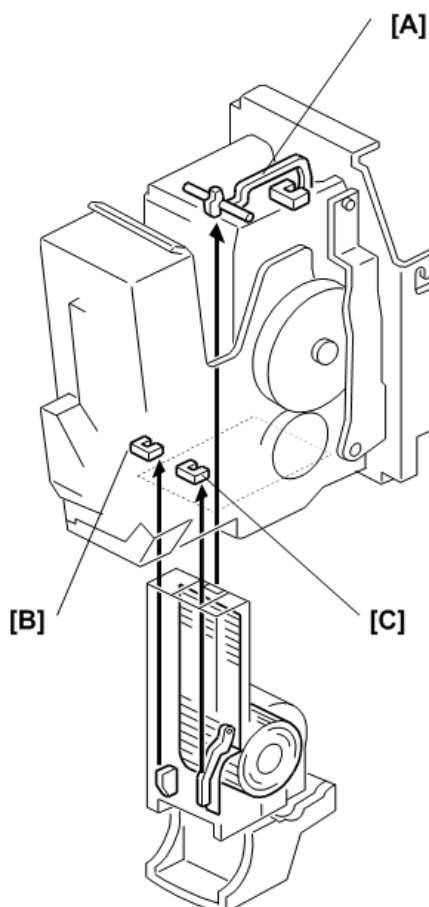


d610c6009

The staple waste drops into the staple waste hopper [A]. When the staple waste hopper is full, the actuator on its base activates the staple waste hopper sensor [B]. An SC737 (Full Finisher Staple Waste Hopper) is displayed.



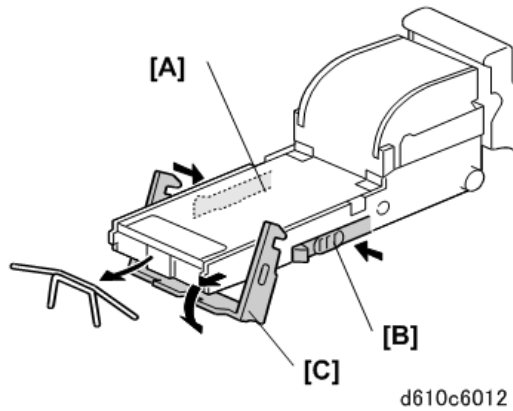
The stapler has a staple end sensor [A], cartridge set sensor [B] and staple hammer HP sensor [C].



d610c6011

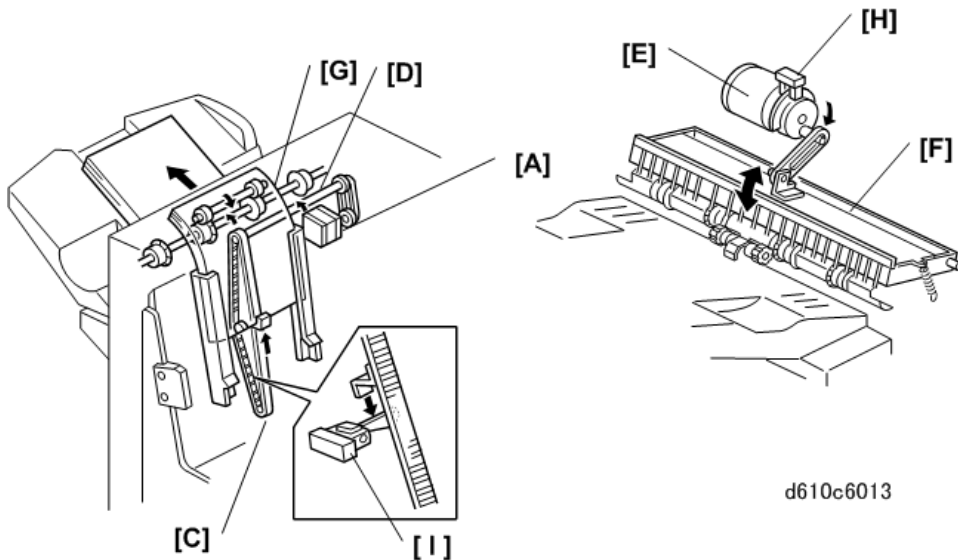
When a staple end or no cartridge condition is detected, a message is displayed advising the operator to install a staple cartridge. If this condition is detected during a copy job, the indication will appear, and the copy job will stop.

The staple cartridge has a clinch area [A] where jammed staples collect. The operator can remove the jammed staples from the clinch area by pressing in the releases [B] on both sides, then lowering the bracket lever [C].



Feed Out

- After the copies have been stapled, the stack feed-out motor [A] starts.
- The pawl [B] on the stack feed-out belt [C] transports the set of stapled copies up and feeds it to the shift tray exit roller [D].
- When stapling starts, the exit guide motor [E] opens the upper exit guide [F], which includes the upper shift tray exit roller [G], in order to feed out the leading edge of the copy set smoothly.
- The exit guide motor turns on again a certain time after stapling is complete, and the upper exit guide plate is lowered. Then the shift tray exit roller takes over the stack feed-out.
- The on-off timing of the exit guide motor is detected by the exit guide open sensor [H].
- The stack-feed-out motor turns off when the pawl actuates the stack feed-out belt home position sensor [I].



Stapling Z-Folded Paper

 *c6020

Here is the operation sequence for jogging and stapling Z-folded sheets:

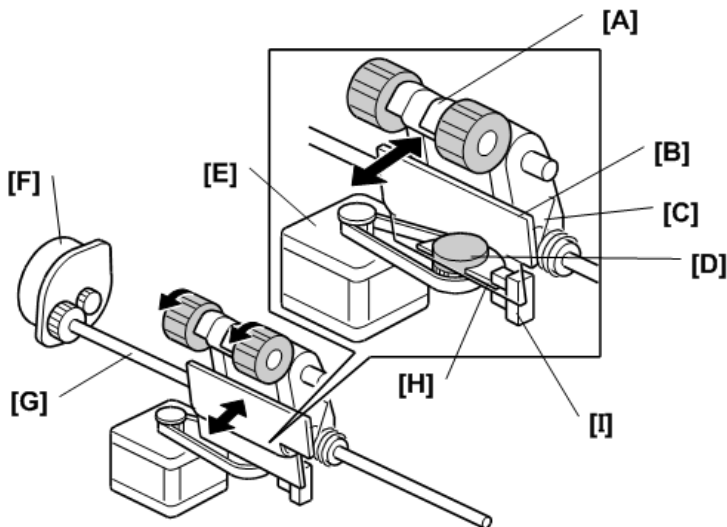
[1]	The lower jogger fence lifts to receive the Z-folded sheets.
[2]	The top fence moves down, to the horizontal position.
[3]	A sheet of paper goes into the stapler tray.
[2]	The positioning roller turns when each sheet is fed to the stapler tray.
[5]	Each sheet is fed down against the lower jogger fence to align the bottom edge.
[6]	After the set number of sheets come in, the jogger top-fence motor switches on and lowers the top fence against the top of the stack. This aligns the stack for stapling.
[7]	The bottom fence motor lowers the aligned stack to the stapling position.
[8]	The stapler staples the stack.

Stack Output

Paper Exit and Stacking

2

- The stacking roller assembly [A] is fastened to a plate [B] on a shaft by a spring [C]. The cam [D], in contact with the bottom of the plate, is connected to the stacking roller drag motor [E] via a timing belt.
- The stacking roller drag motor and timing belt rotate the cam against the bottom of the plate to move the rollers forward and back with each sheet ejected onto the shift tray.
- The stacking roller motor [F] drives the shaft [G] that rotates the stacking rollers counter-clockwise as the rollers move back.
- The simultaneous rotation and backward movement of the roller assembly pulls each sheet back toward the copier to align the edges of the stack on the shift tray.
- The actuator [H] is mounted on the cam and rotating with both rotating clockwise) and detects the roller assembly home position when the actuator leaves the gap of the return drive HP sensor [I] and signals the machine that the rollers are at the home position.
- The machine uses this information to control paper feed timing and confirm that the mechanism is operating correctly. The cam and actuator make one complete rotation for every sheet fed out of the machine onto the shift tray.

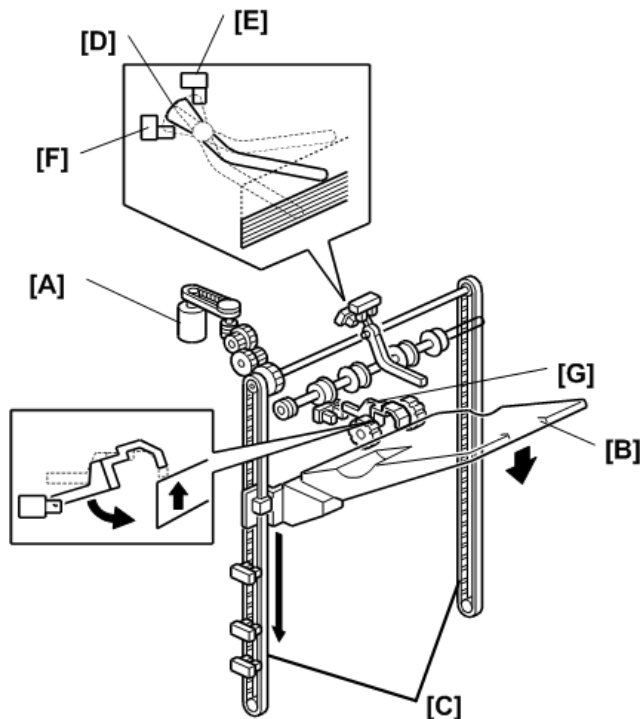


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Shift Tray

Overview

- The shift tray lift motor [A] controls the vertical position of the shift tray [B] through gears and timing belts [C].
- After the main switch is turned on, or when the stack is removed from the tray, the end of the feeler on the tray falls and its actuator [D] rotates up into staple mode HP sensor 2 [E] (S7) and switches it on.
- This switches on the lift motor, which raises the tray until the tray pushes the actuator out of the sensor [E]. Then, the lift motor stops the shift tray; this is the home position (the actuator [D] is between the two sensors [E] and [F]).
- The shift tray upper limit switch (SW1) prevents the drive gear from being damaged if staple mode HP sensor 2 [E] fails. In case of a failure, when the shift tray pushes up the actuator [G] and positioning rollers, the switch will cut the power to the shift tray lift motor.

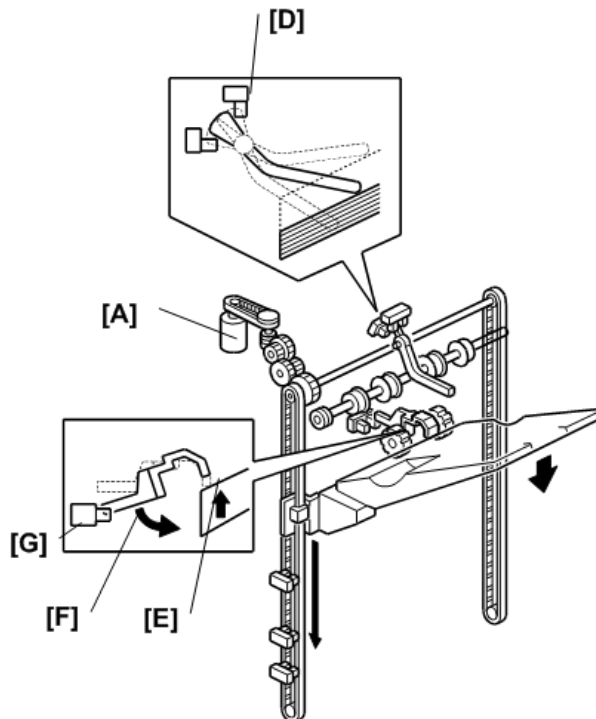


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Shift Tray Raising and Lowering

Sort/Stack Mode (Shift Mode)

- The shift tray moves to home position, which is when the actuator [F] has just exited the shift mode home position sensor [G] (S12).
- During feed-out, the tray is lowered automatically at prescribed intervals; sensor [D] (S7) is ignored.
- When the stack is removed from the tray, the end of the feeler [E] between the arms of the stacking roller falls, and its actuator [F] enters sensor [G] (S12) and switches it on.
- This switches on the lift motor [A], which raises the tray until the actuator leaves the sensor. Then, the lift motor stops the tray; this is the home position.
- In sort/stack mode, if S12 fails when the tray is being lifted, the shift tray upper limit switch (SW1) prevents the drive gear from being damaged.



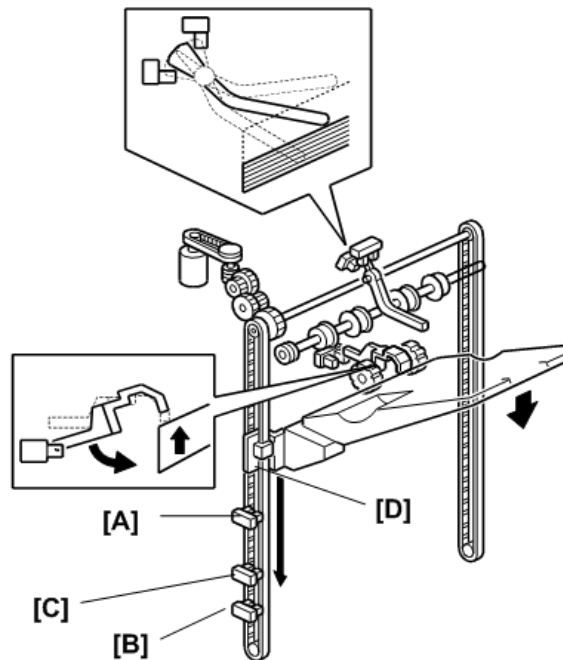
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Staple Mode

The shift tray moves to home position, which is when the actuator [B] (above) is between the staple mode home position sensors [C] and [D]. During feed-out, the shift tray is lowered automatically at prescribed intervals. When the stack is removed from the tray, the tray returns to the home position for stand-by mode.

Shift Tray Lower Limit Detection

- This machine has two shift tray lower limit sensors: shift lower limit sensor [A] (S9) for large paper (B4 and larger) and shift lower limit sensor [B] (S11) for small paper (smaller than B4). (Sensor [C] (S10) is not used.)
- When the actuator [D] enters sensor [A] while using large paper (about 1,500 sheets are on the tray), a message will be displayed and copying will stop.
- When the actuator [D] enters sensor [B] while using small paper (about 3,000 sheets are on the tray), a message will be displayed and copying will stop.



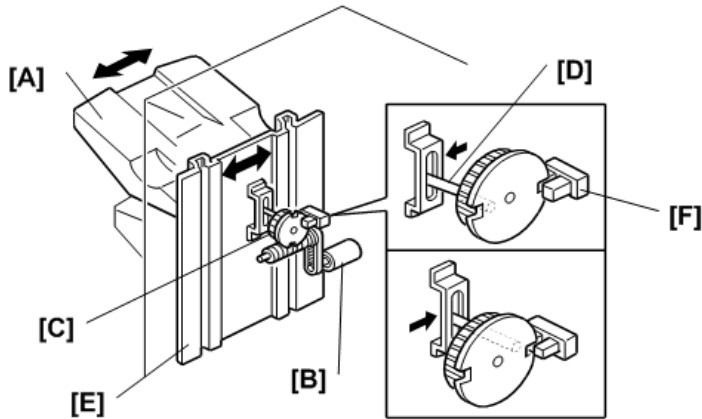
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Shift Tray Side-to-Side Movement

In sort/stack mode, the shift tray [A] moves from side to side to separate the sets of copies.

- The horizontal position of the shift tray is controlled by the shift motor [B] and shift gear disk [C].
- After one set of copies is made and delivered to the shift tray, the shift motor turns on, driving the shift gear disk and the shaft [D].
- The end fence [E] is positioned by the shaft, creating the side-to-side movement.
- When the shift gear disk has rotated 180 degrees (when the shift tray is fully shifted across), the cut-out in the shift gear disk turns on the shift tray half-turn sensor [F] and the shift motor stops.

- The next set of copies is then delivered. The motor turns on, repeating the same process and moving the tray back to the previous position.



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Jam Conditions

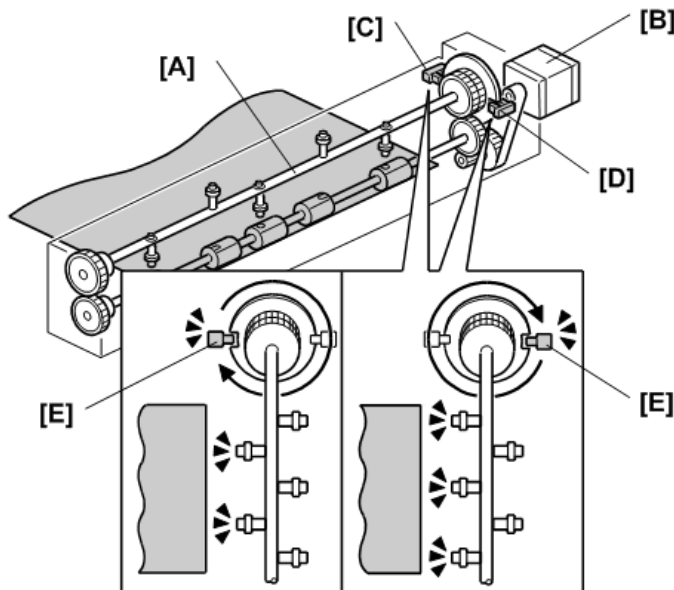
1. The entrance sensor does not turn on when the copier has fed paper 426 mm after the copier exit sensor turned off.
2. The entrance sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
3. The upper tray exit sensor does not turn on when the upper transport motor has fed paper 574 mm after the entrance sensor turned on.
4. The upper tray exit sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
5. In sort/stack mode, the shift tray exit sensor does not turn on when the upper transport motor has fed paper 733 mm after the entrance sensor turned on.
6. In sort/stack mode, the shift tray exit sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
7. In staple mode, the stapler tray entrance sensor does not turn on when the upper and lower transport motor have fed paper 835 mm after the entrance sensor turned on.
8. In staple mode, the stapler tray entrance sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
9. In staple mode, the stapler tray paper sensor does not turn off within 250 pulses of the stack feed-out motor after it started.
10. In staple mode, the shift tray exit sensor does not turn off within 1,260 ms after the stack feed-out motor started.

Punch Unit B531 (Option)

Punch Unit Drive

The punch unit makes 2 or 3 holes at the trailing edge of the paper. The number of holes depends on a selection made on the operation panel.

- The cam [A] has 2 punches on one side and 3 punches on the other, and is turned by the punch motor [B].
- The punch motor turns on immediately after the trailing edge of the paper passes the entrance sensor. The punches on the cam rotate downward and punch holes in the paper.
- After punching a sheet of paper, the cam returns to home position and stops.
- Home position depends on whether 2 holes or 3 holes are being made, so there are two punch HP sensors.
- Punch HP sensor 1 [C] is used when 2-hole punching is selected, and punch HP sensor 2 [D] is used when 3-hole punching is selected.
- When the cut-out [E] enters the slot of the punch HP in use (sensor 1 or 2-hole punching or sensor 2 for 3/4-hole punching) the motor stops.
- The knob (not shown) on the front end of the punch unit can be turned in either direction to clear paper jammed in the punch unit.

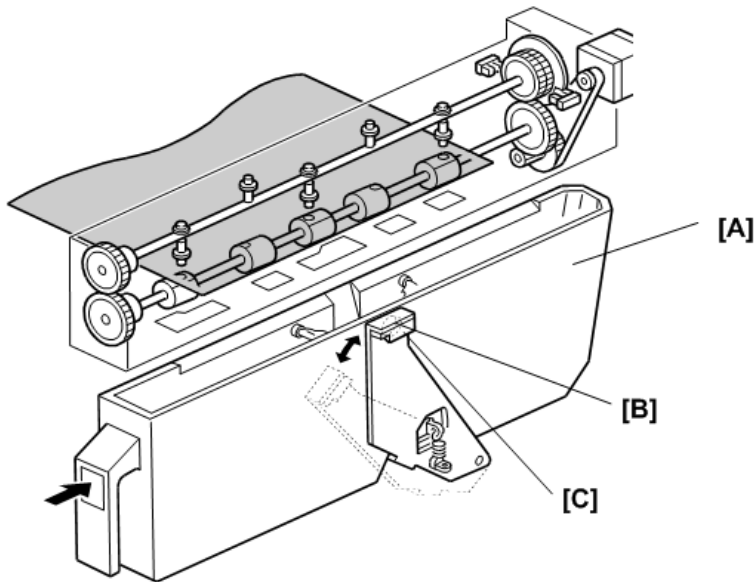


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Punch Waste Collection

Punch waste is collected in the punch waste hopper [A] positioned under the punch unit.

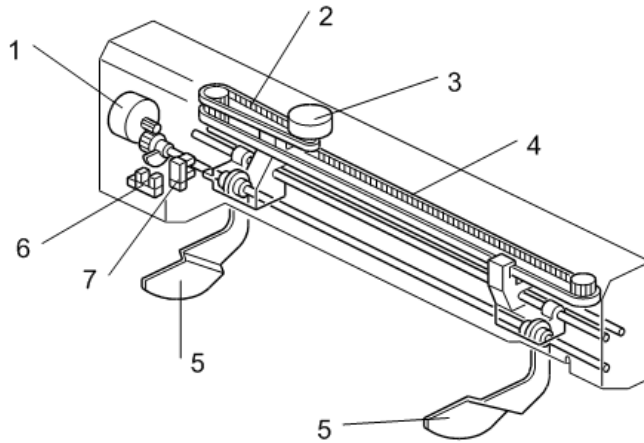
- When the level of the punch waste in the hopper rises as far as the hole [B] in the hopper, the punch waste sensor [C] turns on, stops the job, and triggers a message to indicate that the hopper is full and must be removed and emptied.
- The job resumes automatically after the hopper is emptied and returned to the finisher.
- The punch waste hopper sensor also functions as the hopper set sensor. When the hopper is not in the finisher, or if it is not inserted completely, the spring loaded sensor arm rotates up and to the right with the punch waste sensor away from the hole in the hopper holder and a message is displayed.
- The message in this case is the same as the hopper full message.



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Output Jogger Unit B513 (Option)

Jogger Unit Mechanical Layout



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No.	Part
1	Shift Jogger Fence Lift Motor
2	Shift Jogger Motor Timing Belt
3	Shift Jogger Motor
4	Shift Jogger Fence Timing Belt
5	Shift Jogger Fences
6	Shift Jogger HP Sensor
7	Shift Jogger Lift HP Sensor

Jogger Unit Drive

- At prescribed intervals, the jogger motor [A] switches on and drives the jogger timing belt [B], gear [C] and jogger fence timing belt [D] which drives the shift jogger fences [E] against the sides of the stack to align its edges.

- At the end of the job, the jogger fence lift motor [F] switches on and raises the fences until the actuator [G] leaves the slot of the shift jogger fence lift HP sensor [H] and shuts off the shift jogger fence lift motor.
- At the same time, the jogger motor reverses and drives the fences away from the sides of the stack until the actuator [I] deactivates the shift jogger fence HP sensor [J] and switches off the jogger motor.
- The jogger fences remain up in the standby position until the next job starts.

