Ring Binder RB5000
Machine Code: D392

SERVICE MANUAL

NOTE: THIS FINISHER MUST BE INSTALLED BY A CUSTOMER SERVICE ENGINEER WHO HAS COMPLETED THE TRAINING COURSES ON THE BASE COPIER AND THIS FINISHER.

April 2008
Subject to change

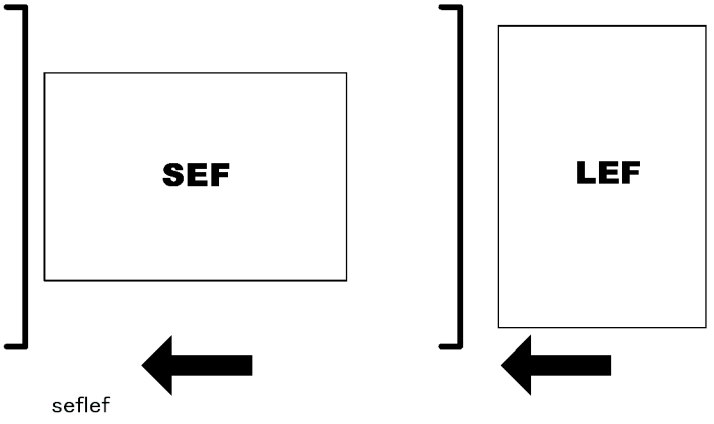
Safety, Conventions, Trademarks

Conventions

Common Terms

This is a list of abbreviations used in text.

Symbol	What it means
CT	Core Tech Manual
	Screw
	Connector
	E-ring
	C-ring
	Harness clamp
FFC	Flexible Film Cable
JG	Junction Gate
LE	Leading Edge
LEF	Long Edge Feed
SEF	Short Edge Feed
TE	Trailing Edge



seflef

The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.

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 finisher**

Note

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

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

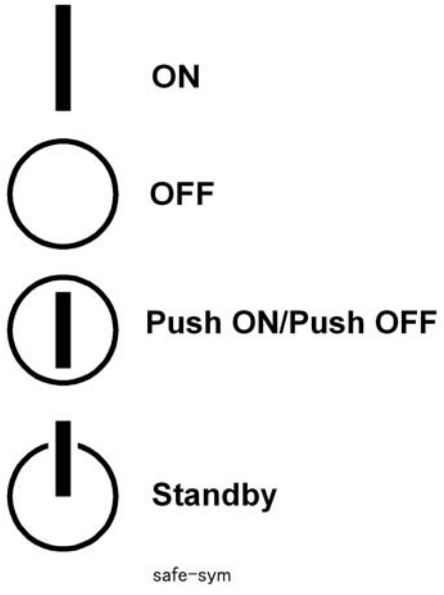
Always obey the following safety precautions when using this product.

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 finishers for Europe and other areas, the meaning of each symbol conforms with IEC60417.



Responsibilities of the Customer Engineer

Reference Material for Maintenance

- Maintenance shall be done using the special tools and procedures prescribed for maintenance of the finisher 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 finisher.

Before Installation, Maintenance

Power

⚠WARNING

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

⚠CAUTION

- After installation, maintenance, or adjustment, always check the operation of the finisher 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 finisher. 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 finisher is operating.

Special Tools

⚠CAUTION

- Use only standard tools approved for finisher 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 finisher or cause injuries.

During Maintenance

General

⚠CAUTION

- Before you begin a maintenance procedure: 1) Switch the finisher off, 2) Disconnect the power plug from the power source, 3) Allow the finisher to cool for at least 10 minutes.
- Avoid touching the components inside the finisher 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 finisher to ensure that it is operating normally and safely after removal and replacement of any safety device.
- For replacements use only the correct fuses or circuit breakers rated for use with the finisher. Using replacement devices not designed for use with the finisher 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 finisher 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 finishers that use ozone filters if they are not replaced at the prescribed time. Excessive ozone could cause personnel working around the finisher to feel unwell.

Power Plug and Power Cord

⚠WARNING

- Before serving the finisher (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.
- 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 finisher 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 finisher. 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 finisher 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 finisher.
- 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 finisher. They should never allow paper clips, staples, or any other small metallic objects to fall into the finisher.

Safety Instructions for this Finisher

1. The installation must be done by trained service technicians.
2. Connect the finisher to an independent power supply. The power supply should not be shared with the host machine or any other device. If the finished is connected to a shared power supply, this could cause the voltage level to drop and trip the breaker switch of the finisher.
3. To ensure that the finisher power cord can be unplugged quickly in case of an emergency:
    - Set up and use the finisher as close as possible to the power supply.
    - Keep the area around the power supply free of boxes, paper, furniture, etc.
4. To avoid a fire hazard, always use the power plug and power cord provided with the finisher. The power cord set is specially designed for the ring binder. Never attempt to use any other type of power cord or plug.
5. To prevent fire hazards never use flammable solvents around the finisher.
6. Never place any object on the finisher.
7. Never store anything in the open space under the output tray.
8. Locate the finisher on a strong flat surface where it will not be exposed to excessive vibration.

9. To avoid the dangers of fire and electrical shock, make sure that the finisher is never exposed to:
    - Excessively high temperature and/or humidity
    - Dust
    - Water
    - Direct sunlight
    - Open flame
    - Corrosive gases

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TABLE OF CONTENTS

4. Troubleshooting

5. Service Tables

6. Details

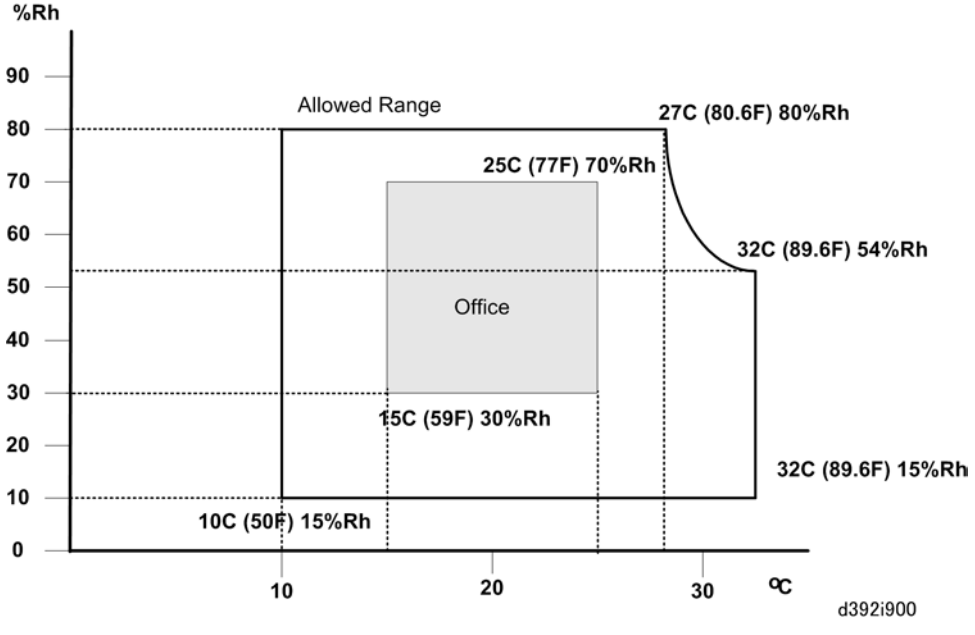
7. Specifications

1. Installation

Installation Requirements

Operating Environment

1. Temperature Range
   - Allowed: 10°C to 32°C (50°F to 90°F)
   - Recommended: 15°C to 25°C (59°F to 77°F) Rh 50%
2. Humidity Range:
   - Allowed: 15% to 80% Rh
   - Recommended: 30% to 70%
3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight or strong light.)
4. Ventilation: Air must be replaced a minimum of 3 times per hour
5. Ambient Dust: Less than 0.10 mg/m^3



6. If the installation area has air-conditioners or heaters, put the finisher in a location that agrees with these conditions:
   - Where there are no sudden temperature changes from low to high, or high to low.
   - Where it will not be directly exposed to cool air from an air conditioner in the summer.

- Where it will not be directly exposed to reflected heat from a heater in the winter

7. Do not put the finisher where it will be exposed to corrosive gases.
8. Put the finisher on a strong and level surface. The front and rear of the machine must be less than 5 mm (0.2") away from level.
9. Do not put the finisher where there could be strong vibrations.
10. Do not connect the finisher to a power supply shared with other electrical devices.
11. The machine generates a strong electromagnetic field. This can cause interference with radio or television reception.

Machine Level

1. Front to rear: Less than 5 mm (0.2") away from level
2. Right to left: Less than 5 mm (0.2") away from level

   The finisher legs can be turned to adjust them up or down to make the machine level.

Minimum Space Requirements

The minimum clearances at the front and back are the same as the host machine.

Power Supply

Input voltage level	100 to 240V 50/60 Hz NA: 120V 50/60 Hz 5A EU: 220 to 240V 50/60 Hz 3A

Important

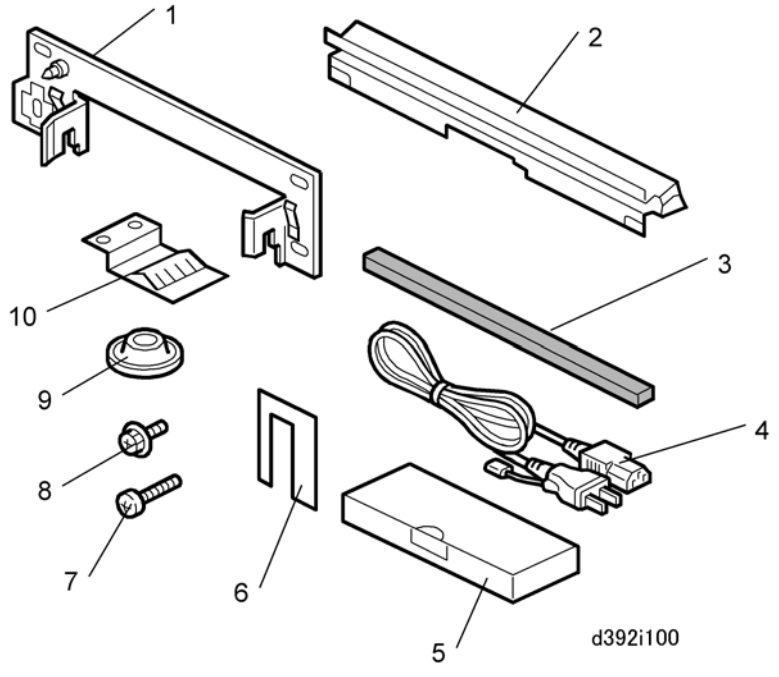
- **The finisher must have an independent power source. Avoid multi-wiring.**
- **The finisher must be properly grounded at the power source.**

Ring Binder (D392) Installation

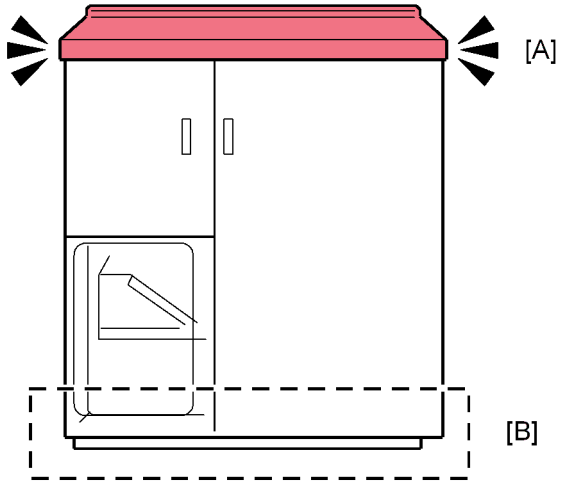
Accessories

Check each accessory against the list below to make sure that you have everything.

No.	Item	Q'ty
1.	Docking Bracket	1
2.	Entrance Guide Plate (for D101, D102, D103)	1
3.	Sponge Strip	1
4.	Power Cord	1
5.	Ring Opener	1
6.	Ring Supply Level Indicator	1
7.	Tapping Screws (M4 x 14)	4
8.	Tapping Screws (M4 x 6)	4
9.	Leveling Shoes	4
10.	Ground (Earth) Plate	1



Before You Begin

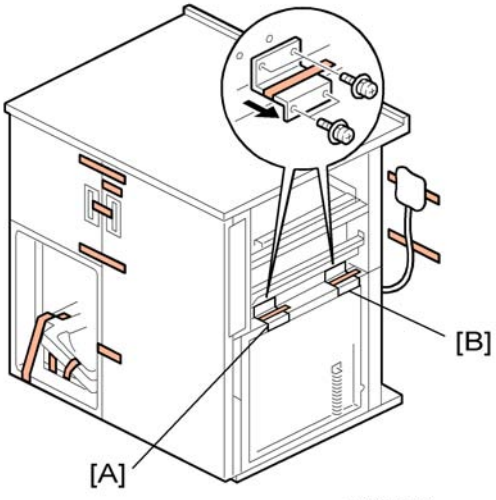


The finisher weighs 140 kg (308 lb.).

IMPORTANT: To prevent bending or breaking the top cover, never lift the finisher by its top cover [A]. Always raise the finisher from the base [B].

Installation Procedure

Remove All Shipping Materials



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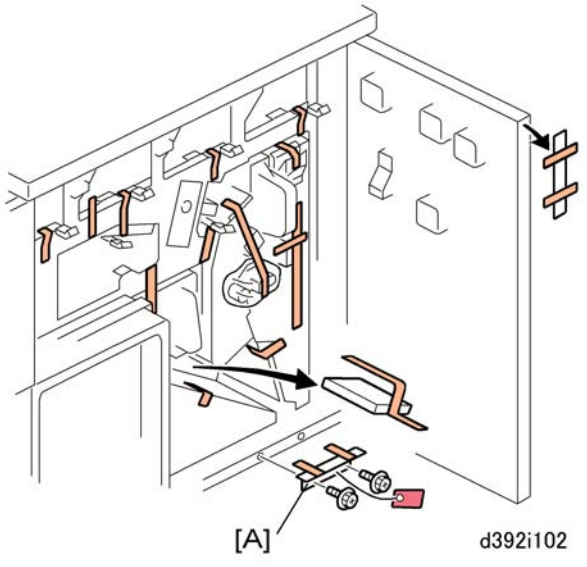
1. Remove all visible tapes, wrapping material, and cushions attached to the outside of the finisher and the power cord.
2. Remove:

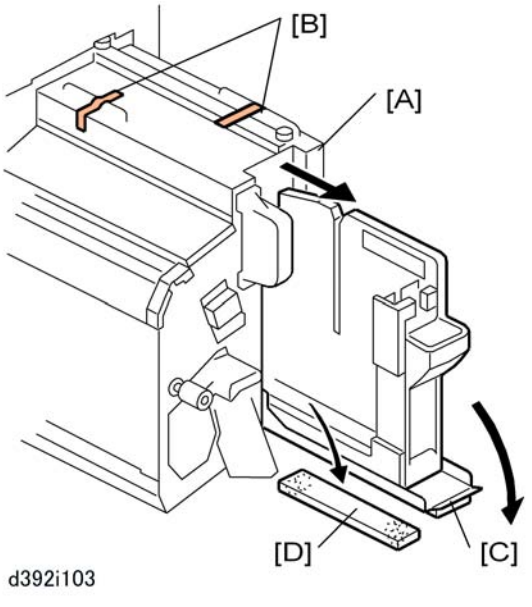
   [A] Brace x1 (x2)

   [B] Brace x2 (x2)

   IMPORTANT: Do not discard these braces. They must be reattached to the finisher before it is moved or shipped to another location.



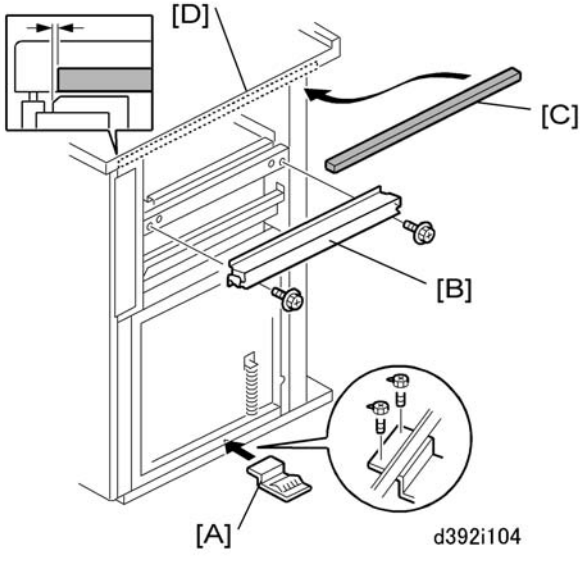
3. Open the right door and left door.
4. Remove all tapes and packing material.
5. Remove the brace and red tag [A] (x2).



6. Pull the binder unit [A] out of the finisher until it stops.
7. Remove the tape [B] on top of the finisher.
8. Pull down the ring cartridge handle and cover [C].
9. Pull the ring cartridge out and remove the cushion [D].

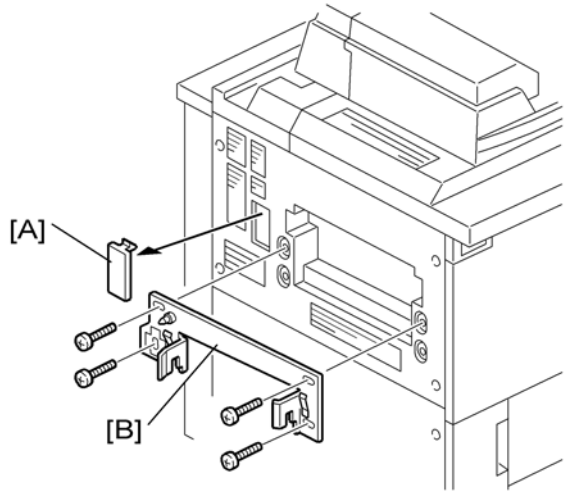
10. Push the ring cartridge in and close its cover.
11. Push the binder unit into the finisher.
12. Close the left front door and right front door.

Prepare the Finisher for Docking



1. Attach the ground plate [A] (x2).
2. Attach the entrance guide plate [B] (x2).
3. Remove the tape from the back of the sponge strip [C].
4. Attach the sponge strip to the top edge [D] of the finisher as shown above.

Prepare the Main Machine for Docking



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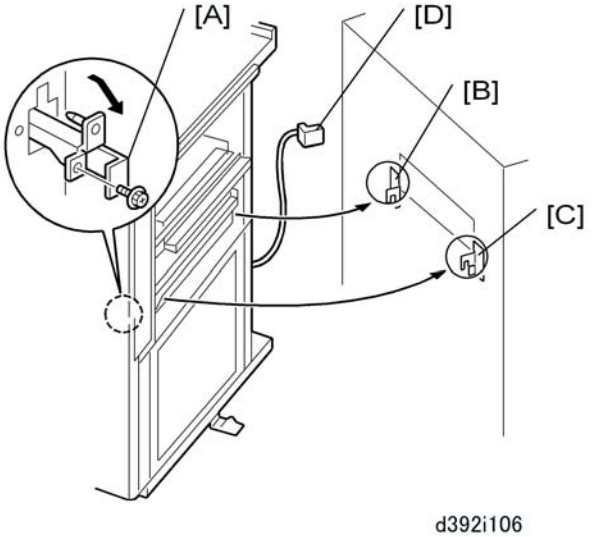
1. On the left side of the main machine, remove the knockout [A] covering the interface connector.
2. Attach the docking bracket [B] (M4x14 x4).

Dock the Finisher to the Main Machine



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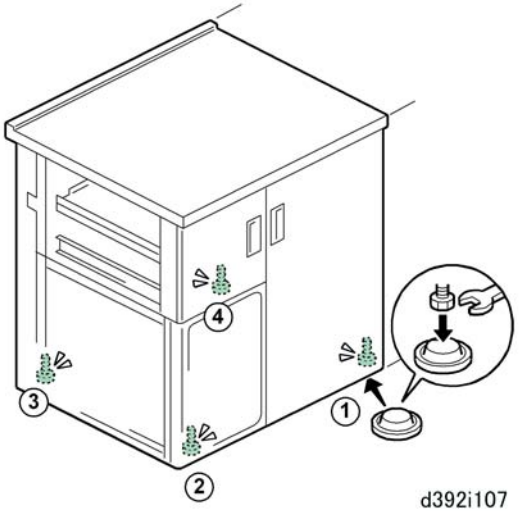
1. Open the right door of the finisher.
2. Pull out the locking lever [A] (x1).

3. Align the right side of the finisher with the docking brackets [B] and [C] on the left side of the main machine, and then slowly push the finisher onto the brackets.
4. Connect the finisher I/F cable [D] to the main machine.
5. Push in the locking lever and check that it slides into the slots of the docking brackets.
6. Check that the top edge of the finisher is parallel with the left edge of the main machine.
7. Refasten the locking lever [A] (x1) and close the right front door.

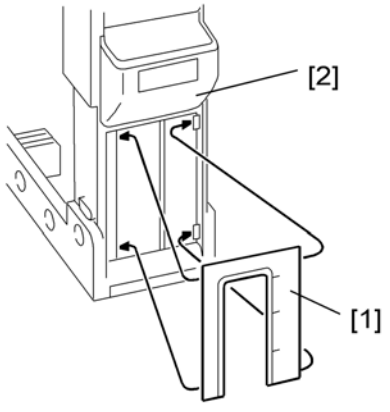
Install the Shoes and Level the Finisher



1. Set the leveling shoes (x4) under the feet of the finisher.
2. Open the right front door and left front door.
3. Place a level on the frame
4. Use a wrench to turn the nut at each foot until the machine is level.

Attach Ring Supply Level Indicator

1. Open the front door.
2. Pull out the ring binder.
3. Lift the ring supply cartridge out of the top of the binder unit.



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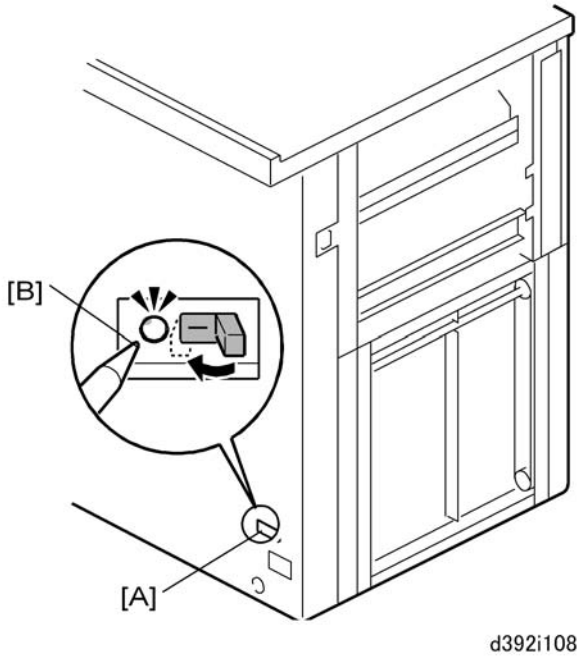
4. Set the ring supply level indicator [1] behind the tabs on the side of the ring supply cartridge [2].

Test the Breaker Switch



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1. If the main machine is on, turn it off.
2. Confirm that the breaker switch [A] is set to the right.

   NOTE: The breaker switch is at the bottom of the left rear corner near the power cord. When it is set to the right, you should see a straight line (-).
3. Connect the power cord to the finisher, then connect the other end to a power supply outlet.

4. Use the sharp point of a pen [B] or similar tool to push in the breaker switch until it snaps to the off position. (You should see "0".)
5. If the breaker does not snap to the off position:
   - Check that the power cord is correctly connected to the finisher and power supply.
   - Push the breaker switch again to see if it snaps to the off position.
   - If the breaker switch does not snap to the off position, it must be replaced.
6. Be sure to reset the breaker switch to the on (-) position.

Centering Paper in the Paper Path

At installation you must confirm that the paper is exiting the ring binder correctly and do the necessary correction if required. There are two checks:

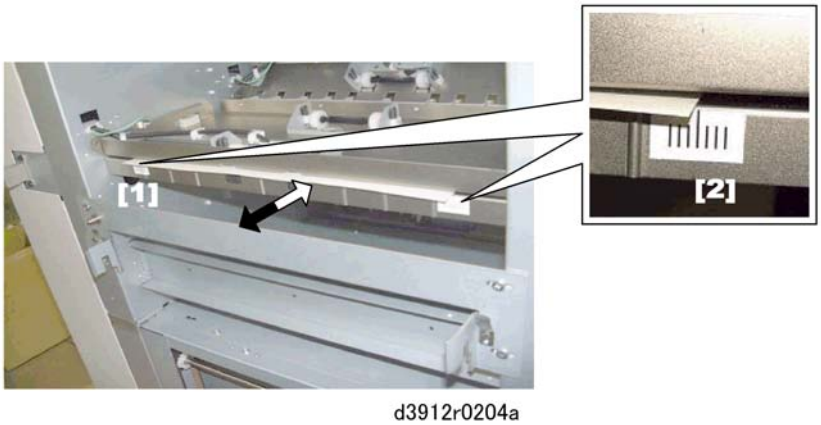
- Side-to-side registration check. The paper should be centered in the paper path.
- Skew check. The paper should feed straight out of the ring binder.

Checking and Correcting Side-to-Side Registration

Checking Side-to-Side Registration

Do this check to confirm that the paper is centered in the paper path.

1. Make sure that the I/F cable of the ring binder unit is connected.
2. If the finisher is connected to the left side of the ring binder, disconnect it and pull it away from the left side of the ring binder.
3. Execute a run by feeding paper (A4 or LT) from Tray 2 of the host machine (punching only, no ring binding).



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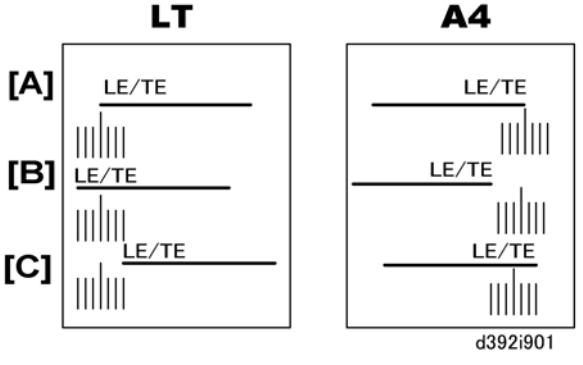
4. During the run, each sheet of paper briefly protrudes about 5 to 10 mm before it switches back into the ring binder and feeds to the punch unit, as shown above.

- There are two scales on the left side of the ring binder below the paper exit.
- The rear scale [1] is for LT-size paper and the front scale [2] is for A4-size paper. Be sure to read the correct scale for the paper size in use.

5. Check the position of the paper on the scale to determine if the paper is centered.

Important

- **Read the rear scale for LT-size paper and the front scale for A4-size paper.**
- **The scale lines are spaced 1 mm apart.**
- **The edges of the paper should be at the center line and not deviate more than ±2 mm.**



[A]	Leading/trailing edges centered. No adjustment necessary.
[B]	Leading/trailing edges offset to the rear more than 2 mm. Adjustment required.
[C]	Leading/trailing edges offset to the front more than 2 mm. Adjustment required.

6. If the edge of the paper is on the scale at the center [A], no adjustment is required.

   -or-

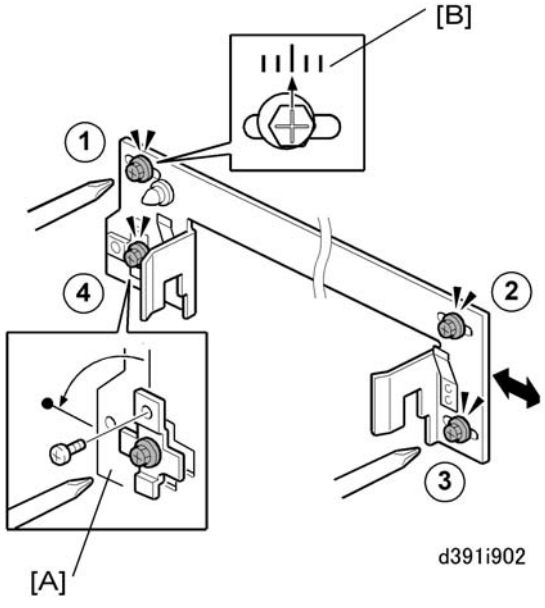
   If the edge of the paper is ±2 mm off the center line on the scale, adjustment is required. Do the procedure in the next section.

Correcting Side-to-Side Registration: Bracket Adjustment

Important

- **If the Z-fold unit is the next unit on the right, you must first do the procedure below and then do the procedure for the Z-fold unit described in the next section.**

1. Disconnect the ring binder from the upstream unit.



2. On the docking bracket attached to the upstream unit, loosen screws (1), (2), (3), and (4).
3. Remove bracket [A] (x1), rotate it 90 degrees, and re-fasten the screw. Changing the position of this bracket aligns the oval cut-out horizontally and frees the joint bracket so it can slide side-to-side.
4. Look at the scale [B].
5. Slide the bracket to the left or right and tighten the screw.

   If the deviation from center was toward the front, slide the bracket to the rear and tighten the screw (1).

   -or-

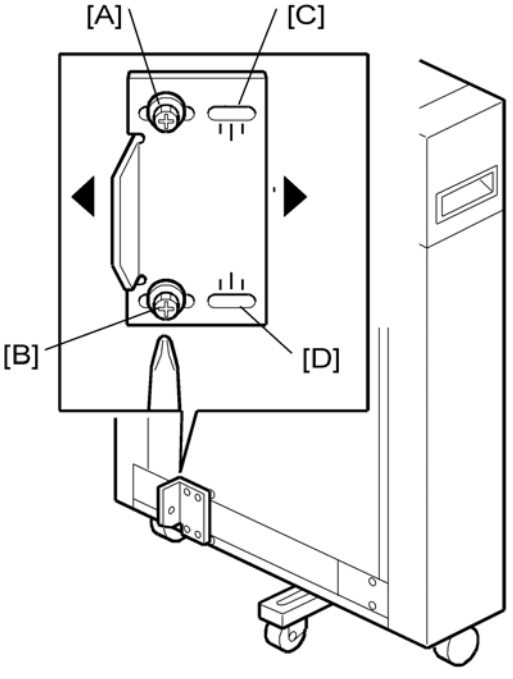
   If the deviation from center was toward the rear, side the bracket to the front and tighten screw (1).
6. Tighten screws (2), (3), and (4).
7. Do another test run to check the results of the adjustment.

   -or-

   If the unit on the right is the Z-fold unit, do the procedure described in the next section before doing more test runs.

Correcting Side-to-Side Registration: At Z-Fold Unit

After adjusting the docking bracket (described in the previous section), you must do this procedure if the next unit on the right is the Z-fold unit.



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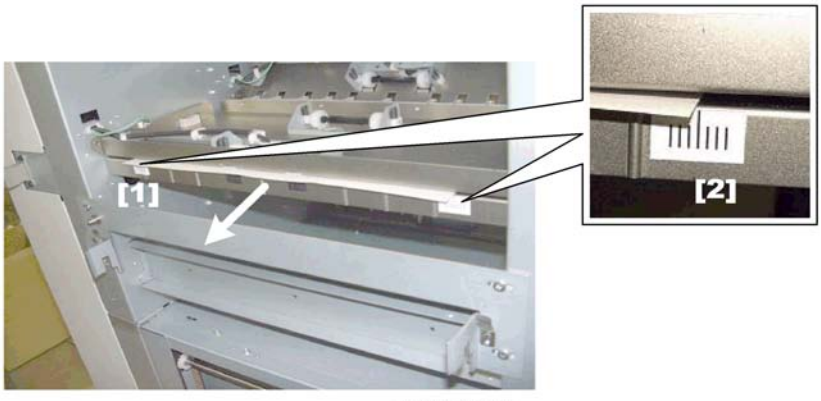
1. At the base of the Z-fold unit, loosen screws [A] and [B].
2. Slide the plate left or right on the scales [C] and [D], to adjust the position by the same amount as the adjustment on the docking bracket in the previous section.
3. Re-tighten all the screws.
4. Do another test run and check the results of the adjustments.

Checking and Correcting Skew

Checking for Paper Skew

Do this check to confirm that the paper is not skewed in the paper path.

1. Make sure that the I/F cable of the ring binder unit is connected.
2. If the finisher is connected to the left side of the ring binder, disconnect it and pull it away from the left side of the ring binder.
3. Execute a straight-through run (no ring binding, no punching) with A3 or DLT from Tray 2 of the host machine.



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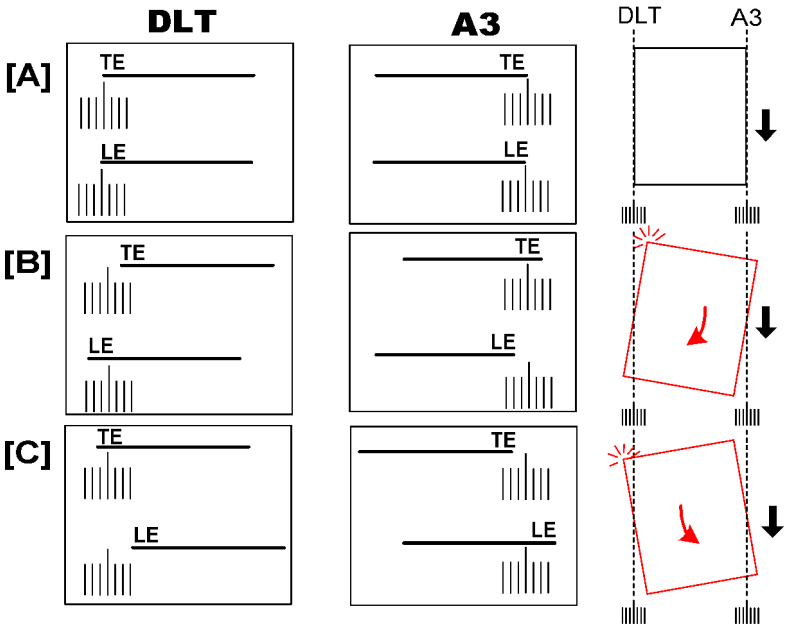
4. During the run, each sheet of paper exits the side of the ring binder, as shown above.
   - There are two scales on the left side of the ring binder below the paper exit.
   - The rear scale [1] is for DLT-size paper and the front scale [2] is for A3-size paper. Be sure to read the correct scale for the paper size in use.
5. Check the position of the paper on the scale to determine if the paper skews as it exits.

Important

- **Read the rear scale for DLT-size paper and front scale for A3-size paper.**
- **The scale lines are spaced 1 mm apart.**
- **The paper must not deviate more than ±2 mm on the scale.**

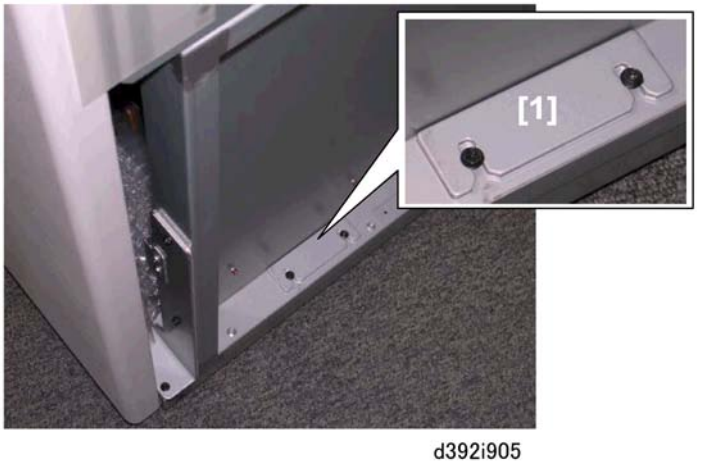


d392i904

[A]	Centered. No adjustment necessary.
[B]	Trailing edge skew to the front, total skew more than ±2 mm. Adjustment required.
[C]	Trailing edge skew to the rear, total skew more than ±2 mm. Adjustment required.

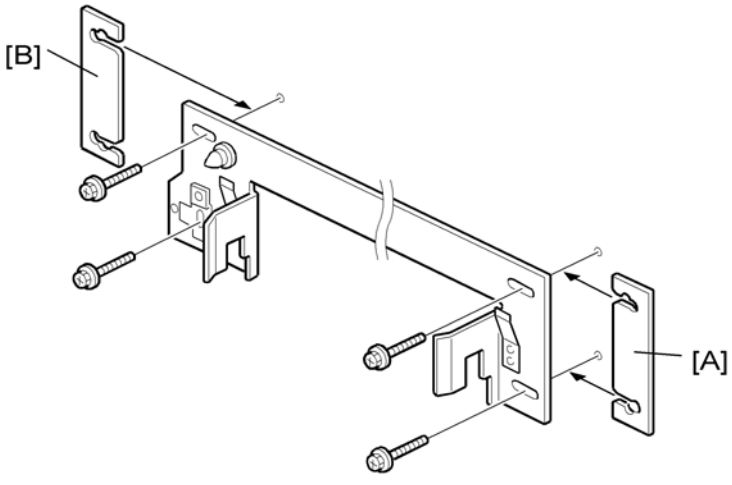
Correcting Skew

1. Disconnect the ring binder from the upstream unit.



d392i905

2. Remove the spacers from the right side of the ring binder at the base (x2).



3. On the docking bracket attached to the upstream unit, loosen the screws.
4. Insert a spacer and tighten the screws.

   If the trailing edge is skewing toward the **front** of the machine, insert a spacer [A] under the **rear** end of the bracket and tighten the screws.

   -or-

   If the trailing edge is skewing toward the **rear** of the machine, insert a spacer [B] under the **front** end of the bracket and tighten the screws.
5. To another run to check the adjustment. If skew is still present, insert another spacer.

After Installation

Confirm that the operators understand the following important points:

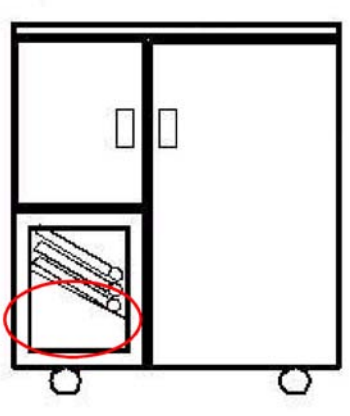
- Decals attached to the machine that provide guidance for removing paper jams. Point out the decal locations.
- Detailed instructions on removing ring jams are provided in the operating instructions under "Removing Jammed Ring Combs".
- When pulling out and pushing in the binder unit on its rails, always grip the binder unit by its handle (**Mc8**).

d392r902

⚠CAUTION

- Always grip handle Mc8 when pulling out or pushing in the binder unit.
- Never touch any other surface of the binder unit when it is moving on its rails.
- To avoid injury the fingers, never push on the top of the binder unit to slide it back into the finisher as shown above.

- Never store paper, extra rings, manuals or any other material below the output tray. Obstacles in this area (circled in the illustration below) will interfere with the raising and lowering of the tray and cause an error.



d392d910

2. Preventive Maintenance

PM Tables

For details about "PM Tables" for this peripheral, see the main service manual.

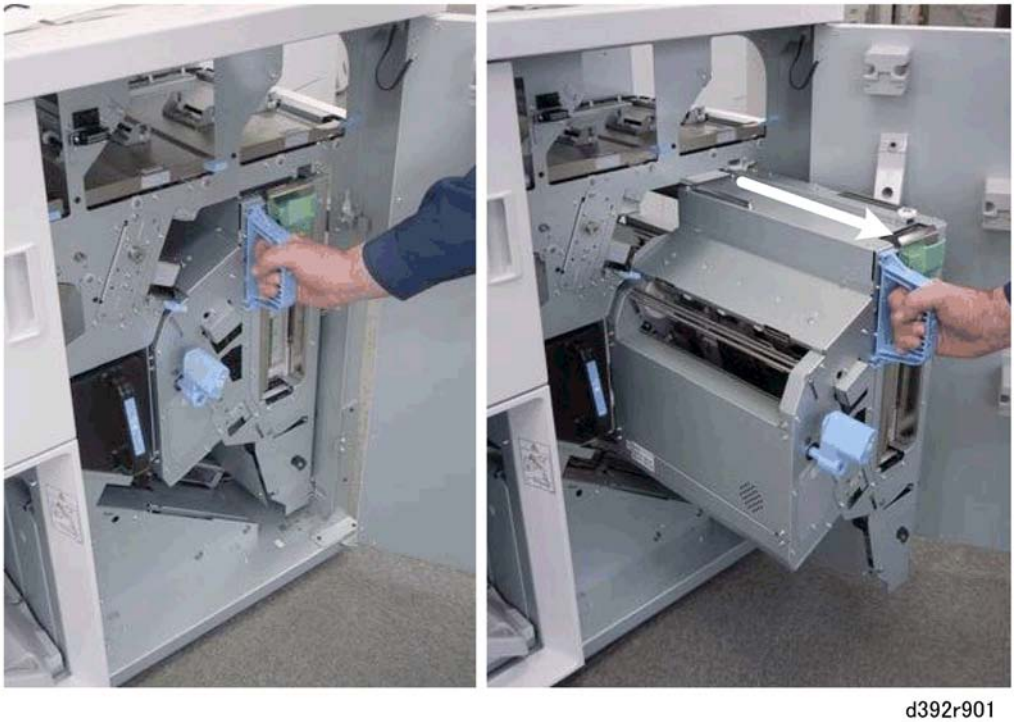
3. Replacement and Adjustment

Common Procedures

Before You Begin

Handling the Binder Unit

Pulling out the Binder Unit



d392r901

1. Open the front door.
2. Grip handle **Mc8** and slowly pull the binder unit out of the finisher until it stops. (There are no wires attached to the binder unit.)

Pushing in the Binder Unit

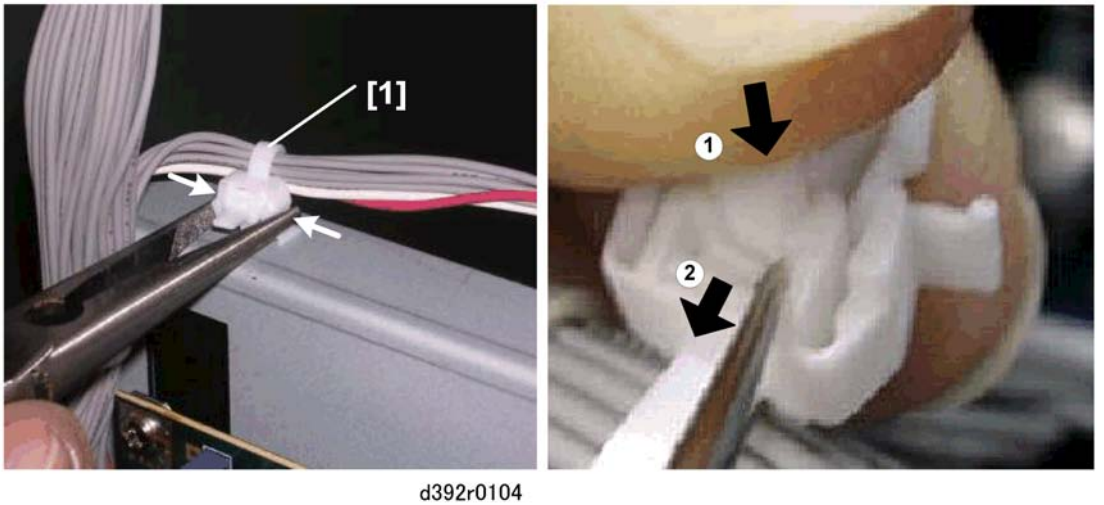
d392r902

1. Check the right side of the binder unit and confirm that all the screws are installed and that the binder unit is squarely mounted on its two rails.
2. Grip handle Mc8 and slowly push the binder unit into the finisher until it stops.

⚠CAUTION

- Always grip handle Mc8 when pulling out or pushing in the binder unit.
- Never touch any other surface of the binder unit when it is moving.
- To avoid injury the fingers, never push on the top of the binder unit to slide it back into the finisher as shown above.

Standoffs on Harnesses



d392r0104

Some harnesses are locked by plastic bands [1] to plastic standoffs that are attached to the frame.

When releasing a harness, do not remove the band:

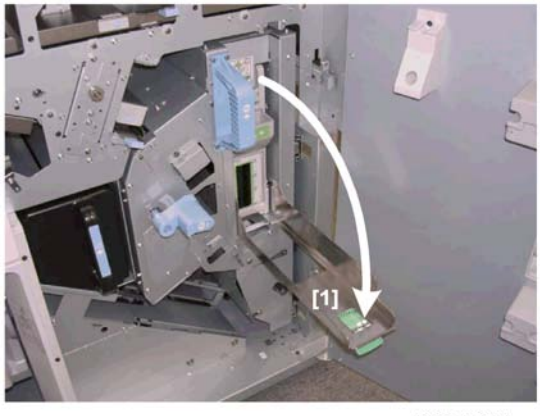
- Use a pair of needle-nose pliers to press in the base of the stand off and lift it out of its hole.
- The base of a removed standoff can be quickly re-inserted into its hole.

If you must remove the band:

- Press the end of the band loop.
- Use a sharp tool to press down the lock band below (or above) the looped band to separate the serrations of the bands and release the loop.

Ring Cartridge

Always remove the ring cartridge before removing the binder unit for servicing.



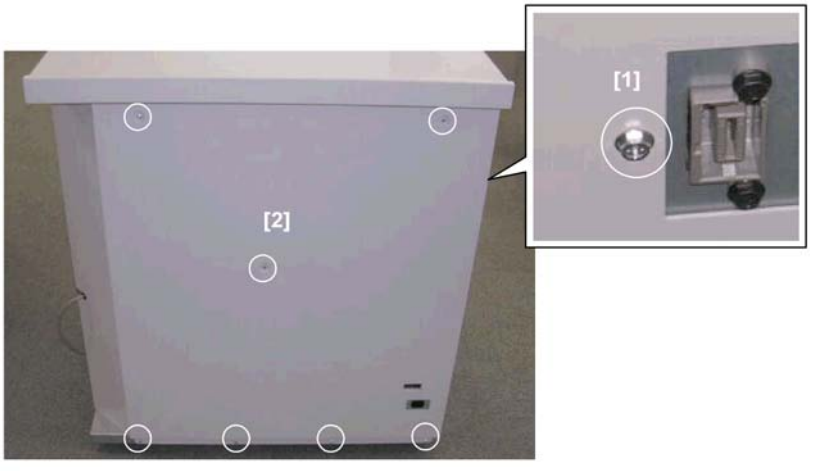
d392r0901a

1. Open the right front door.
2. Lower the release [1].

d392r0901b

3. Pull out the ring cartridge [1] and lift it out of the frame.

Rear Cover



d392r0305a

1. Remove the rear cover
   [1] Left, rear edge(x1).
   [2] Rear cover (x7).

Top Cover

d392r0305a

1. Remove the rear cover

[1] Left, rear edge(🔩 x1).

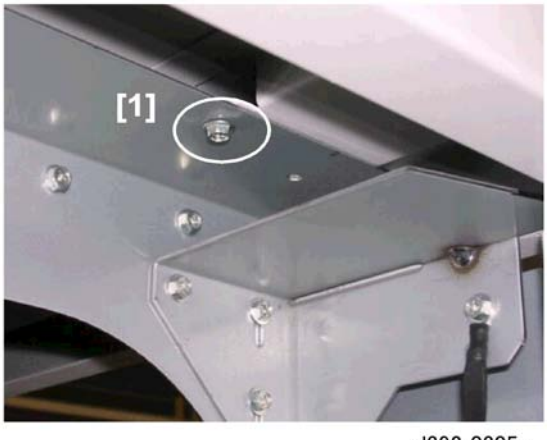
[2] Rear cover (🔩 x7).

d392r0305f

2. Disconnect the top cover at the rear:

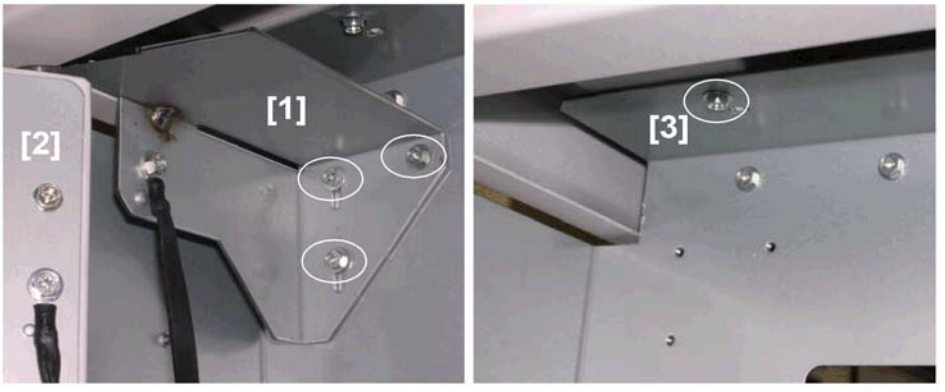
   [1] Right rear corner (🔩 x1)

   [2] Left rear corner (🔩 x1).



d392r0305g

3. Disconnect the top cover at the front right corner [1] (🔩 x1)



d392r0305h

4. At the front left corner, remove:

   [1] Door plate (x3)

   [2] Left door

   [3] Top cover (x3)

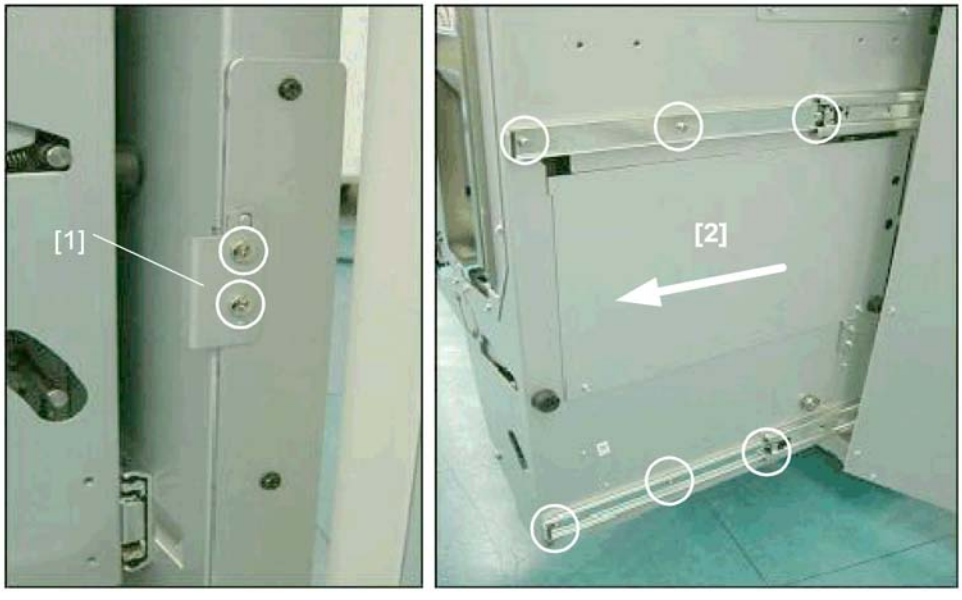
d392r0305i

5. Lift off the top cover [1].

Removing the Binder Unit

It is recommended that the binder unit be removed for all servicing and maintenance.

- Some of the binder unit covers can be removed with the binder unit still mounted on the rails.
- However, the binder unit wobbles on the rails and slips easily back into the machine and does not provide a stable platform for removing sensors or motors.

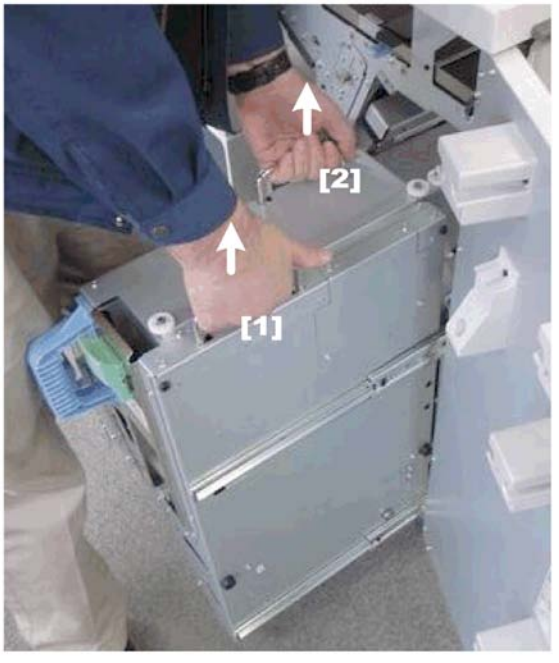


d392r0101a

1. Open the right front door.
2. Pull out the binder until it stops.
3. Remove:

   [1] Stopper (x2)

   [2] Binder unit screws (x6)

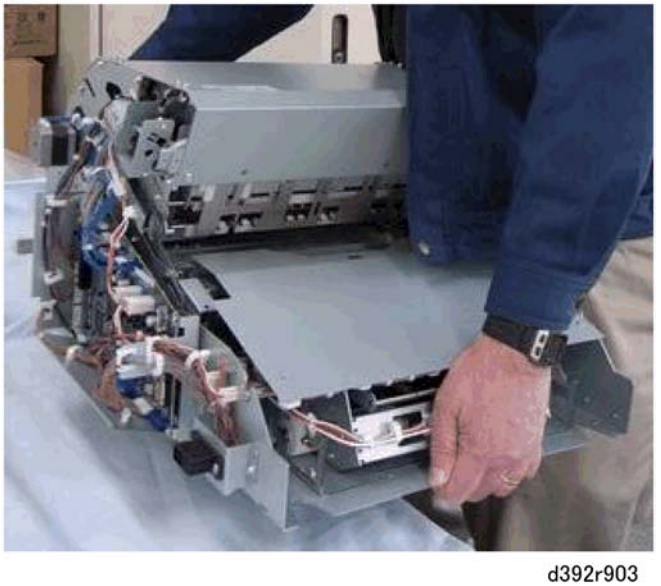


d392r010i

4. Lift the binder unit by its handles [1] and [2], pull it straight up and then slightly to the left to disengage the right side of the unit from the frame and rail.

⚠CAUTION

- The binder unit is heavy and weighs about 22 kg (50 lb.)



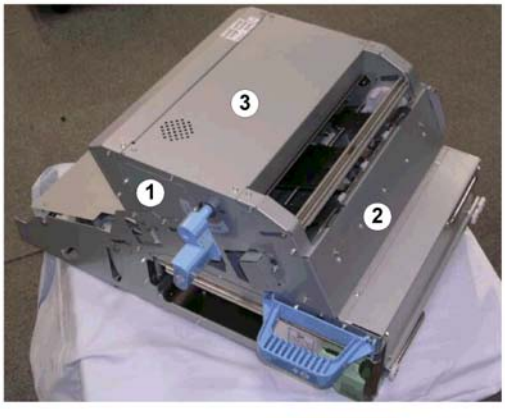
d392r903

5. Hold the binder unit from the rear with a firm grip under the top and bottom of the unit as shown below.

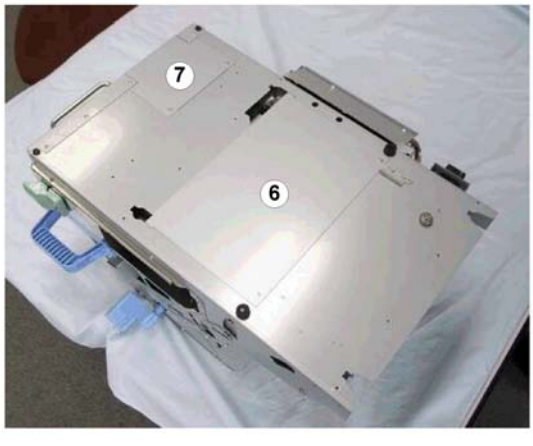
d392r0101j

6. Lay the binder on its right side with its rubber stoppers down.

Binder Unit Covers



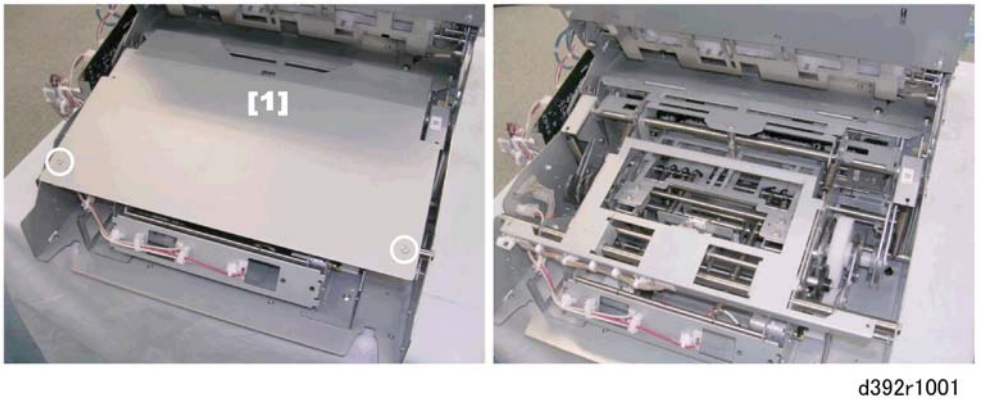
d392r1008



Binder Unit Covers

①	Pre-Bind Jogger	Front Cover
②		Top Cover
③		Left Cover
④		Bottom Cover
⑤	Clamp Unit	Clamp Unit Cover
⑥	Ring Supply Unit	Right Cover
⑦		Upper Right Cover

Clamp Unit Cover



d392r1001

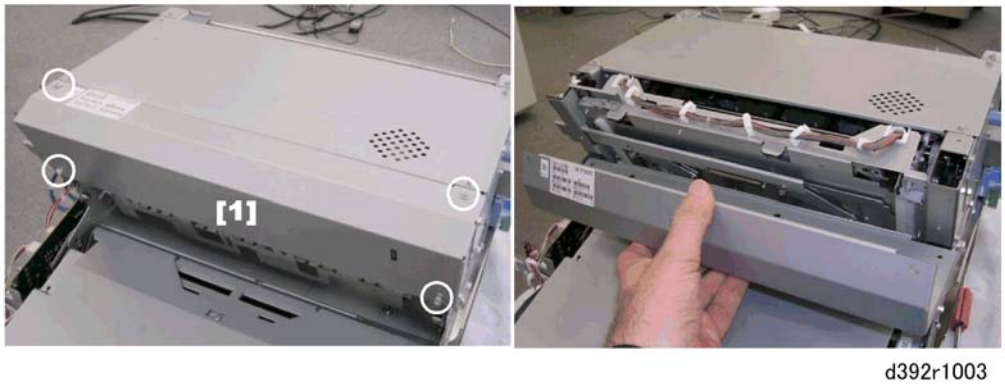
1. Open the right front door.
2. Remove the ring cartridge.
3. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
4. Remove the clamp unit cover [1] (☞ x2).

Pre-Bind Jogger Left Cover

d392r1002

1. Open the right front door.
2. Remove the ring cartridge.
3. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
4. Remove the pre-bind jogger side cover [1] (☞ x4).

Pre-Bind Jogger Bottom Cover

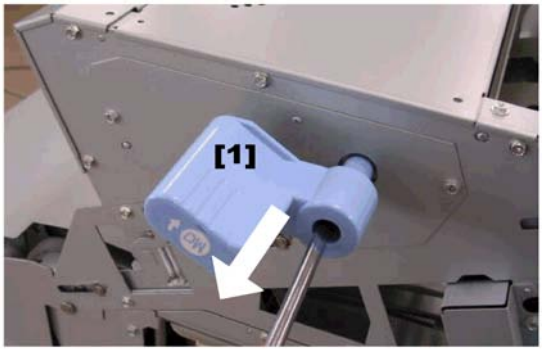


d392r1003

1. Open the right front door.
2. Remove the ring cartridge.
3. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
4. Remove the pre-bind jogger bottom cover [1] (☞ x4).

Pre-Bind Jogger Front Cover

1. Open the right front door.
2. Remove the ring cartridge.
3. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



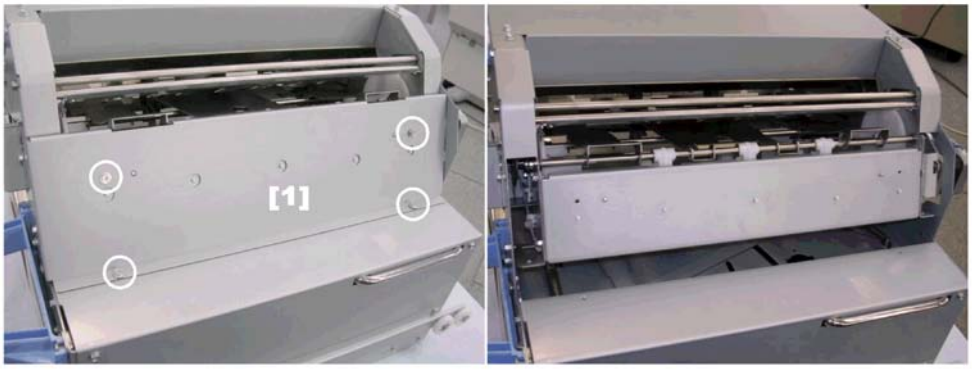
d392r908

4. Remove lever Mc8 [1] (x1).

d392r909

5. Remove the pre-bind jogger front cover [1] (x2).

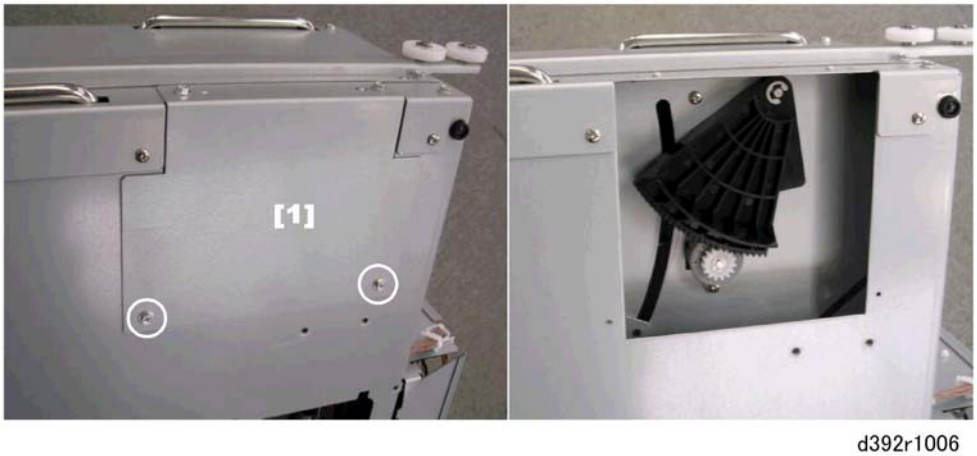
Pre-Bind Jogger Top Cover



d392r1005

1. Open the right front door.
2. Remove the ring cartridge.
3. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
4. Remove the pre-bind jogger top cover [1] (🔩 x4).

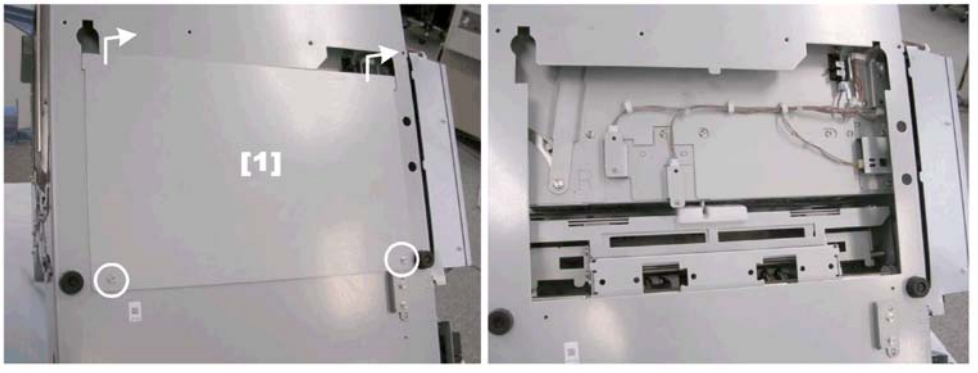
Ring Supply Unit Upper Right Cover



d392r1006

1. Open the right front door.
2. Remove the ring cartridge.
3. Remove the binder unit from its rails. (☛ p.38)
4. Lay the binder unit down on its left side (stoppers up).
5. Remove the right upper cover [1] (🔩 x2).

Ring Supply Unit Right Cover

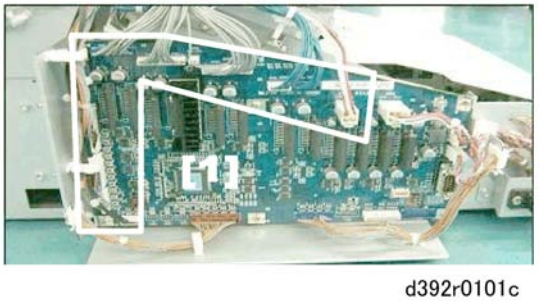


d392r1007

1. Open the right front door.
2. Remove the ring cartridge.
3. Remove the binder unit from its rails. (☛ p.38)
4. Lay the binder unit down on its left side (stoppers up).
5. Remove the right cover [1] (x2).

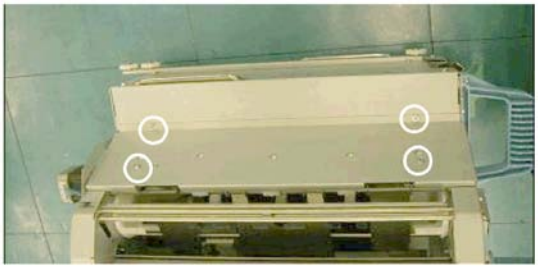
Separating Pre-Bind Jogger from Binder Unit

Follow this procedure to separate the pre-bind jogger from the binder unit.



d392r0101c

1. Open the right front door and remove the ring cartridge.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Disconnect the binder unit control board [1] (x11, x2)

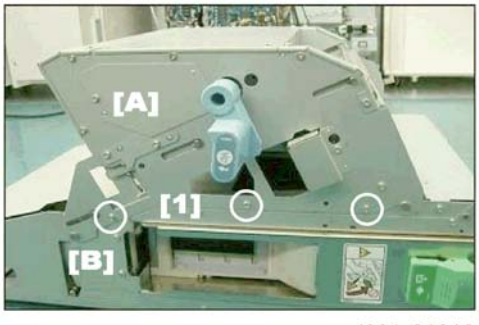


d392r0101d

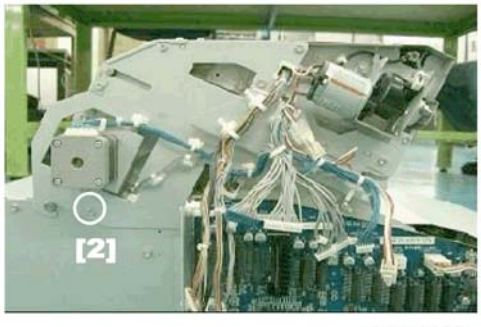
4. Remove the pre-bind jogger top cover [1] (x4).

d392r0101e

5. Remove handle Mc8 [1] (x4).



d391r0101f

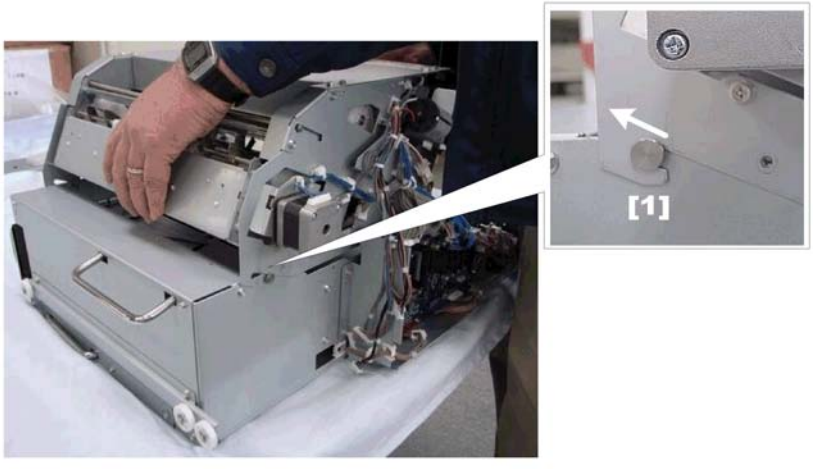


d392r010g

6. To separate the pre-bind jogger [A] from the binder unit [B], remove:

   [1] Front (x3)

   [2] Rear (x1)



d392r904

7. Slide the hooks [1] of the pre-bind jogger off the studs on both sides, and lift off binder unit.

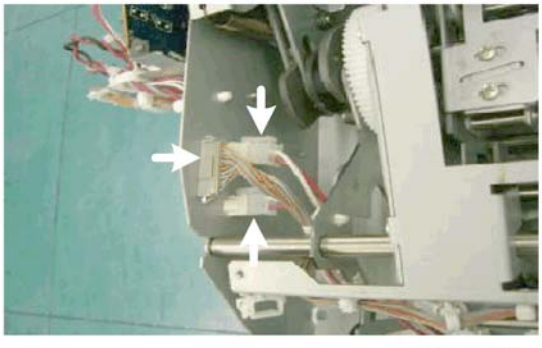
d392r0101k

8. Set the separated pre-bind jogger [1] on a clean flat surface.
9. If you replace the pre-bind jogger, do SP 6505 to 6507. (See Section 5 of the main service manual.)

Clamp Unit

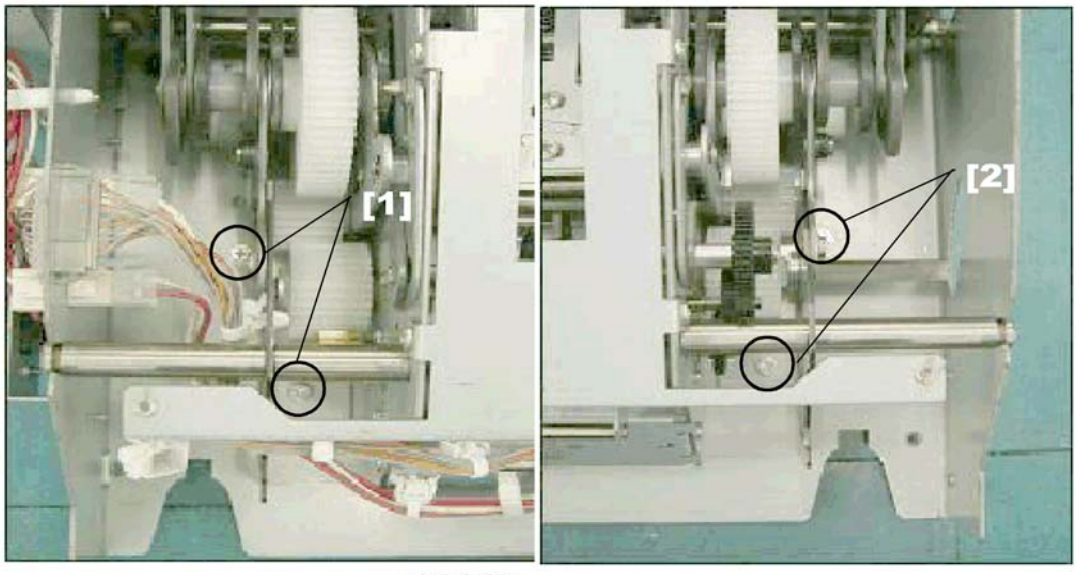
d392r0102a

1. Open the right front door and remove the ring cartridge.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Separate the pre-bind jogger from the binder unit. (☛ p.46)
4. Remove the clamp unit cover [1] (x2).



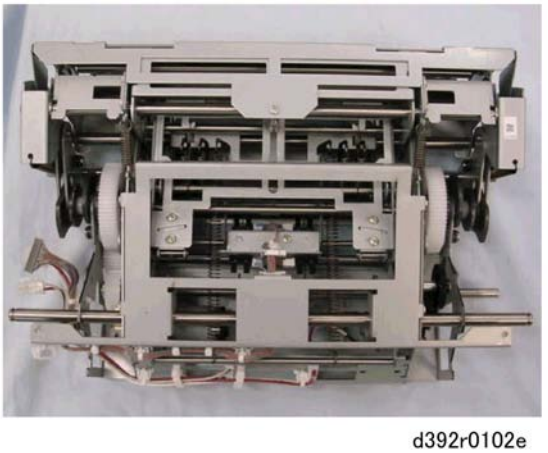
d392r0102b

5. At the lower left corner, disconnect the connectors [1] (x3).



d392r0102c

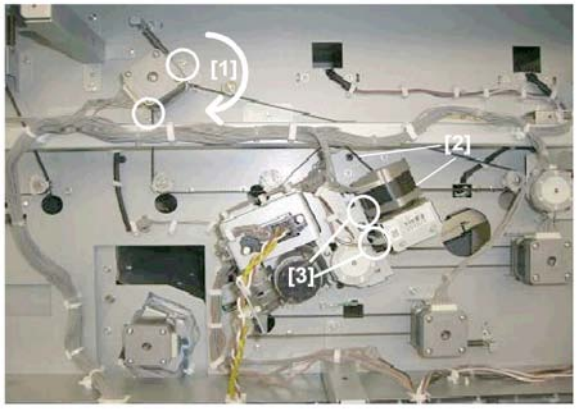
6. Disconnect the clamp unit at the bottom.
   [1] Left (x2).
   [2] Right (x2)



d392r0102e

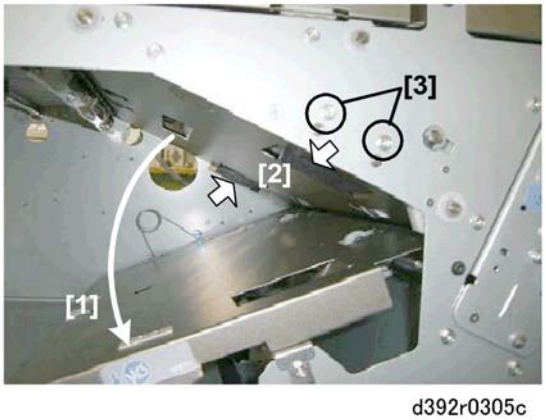
7. Remove the clamp unit from the binder unit and lay it on a flat surface.

Pre-Punch Jog Unit



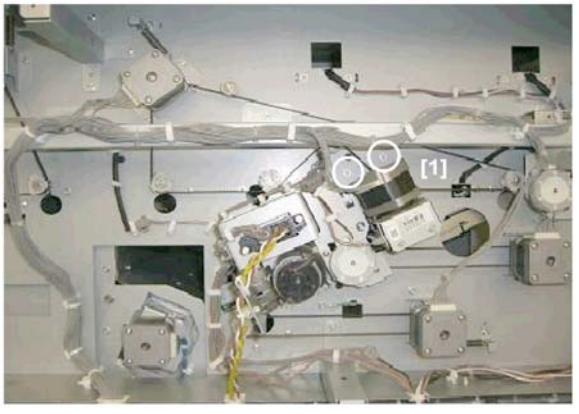
d392b0305b

1. Remove the rear cover. (☛ p.36)
2. Loosen the motor bracket [1] (x2).
3. While turning the loosened bracket slightly to the right, disconnect the timing belt [2] from the gear.
4. Disconnect the motor and sensor [3] (x2).
5. Open the right front doors.



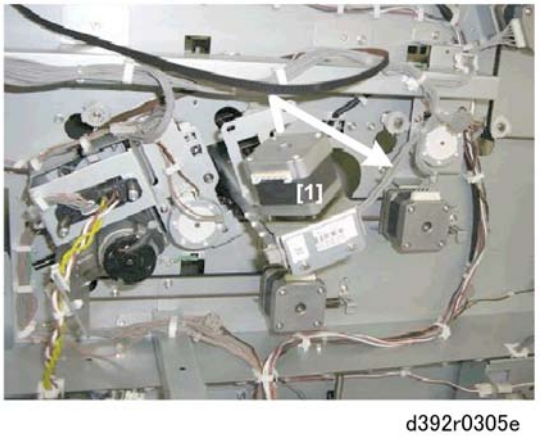
d392r0305c

6. Lower plate **Mc3** [1] so that you can see the side fences [2].
7. Push the flaps of the front and rear side fences to the center.
8. Remove the screws [3] (x2).



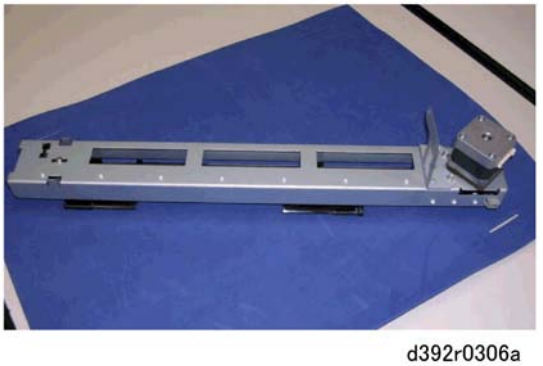
d392r0305d

9. At the rear, remove the rear screws [1] (x2).



d392r0305e

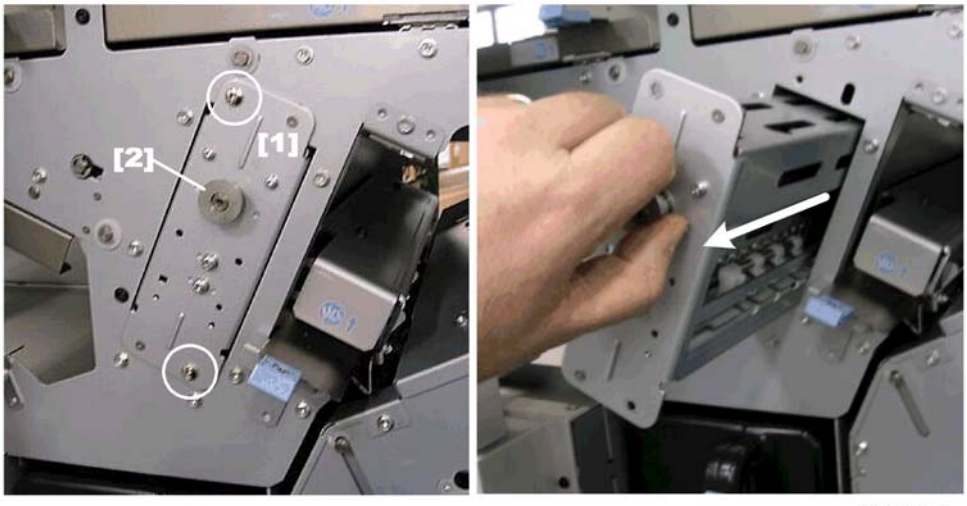
10. Raise the pre-punch jog unit [1] slightly and slowly pull it out of the finisher.



d392r0306a

11. Set the pre-punch jogger unit [1] on a flat surface.
12. After replacing the pre-punch jog unit, do SP6504. (See Section 5 of the main service manual.)

Punch Unit



d392r1101

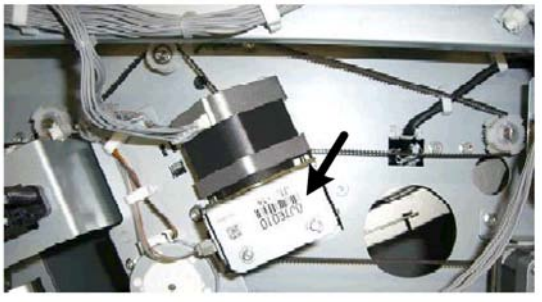
1. Open the left and right front doors.
2. Remove the screws of the punch unit [1] (x2).
3. Grasp the knob [2] and pull the punch unit out.

d392r1102

SP6504 Adjustment

These adjustments must be done after one or more of the following items has been replaced:

- Binder unit control board (sub board)
- Ring binder main board
- Pre-punch jogger unit
- Pre-punch jogger HP sensor (S301)



d392r0407a

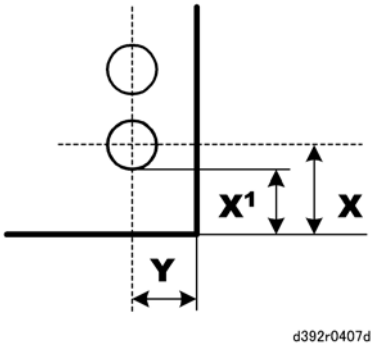
1. The setting for this SP code is written on the white label attached to the plate below the side jogger motor (M302).
2. Multiply the value by "0.1". For example, if the value is "-19" then
   -19 x 0.1 = -1.9
3. Go into the SP mode, execute SP6504-1 (A4 LEF) or SP6504-2 (LT LEF) and enter the number.

Checking the Position of the Punched Holes

1. Do SP6504 and enter the number printed on the label attached to the punch unit. (For more details about SP6504, please refer to Section 5 of the main machine service manual.)
2. Do a run with the ring binder in the punch only mode (no ring binding).

Important

- **Use paper in the weight range 70 to 90 g/m^2.**



d392r0407d

3. With a punched sheet face-down as shown above, use a micrometer to measure the distances, **X**, **Y**, and **X^1**.

Standard Values

	A4 (mm)	LT (mm)	Note
X	8.8	12.7	Last hole center to paper edge.

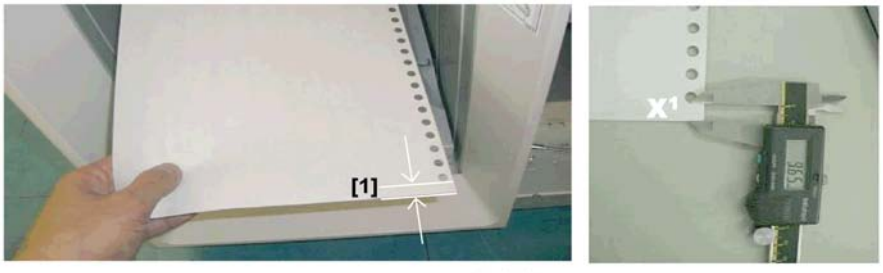
	A4 (mm)	LT (mm)	Note
Y	6	6	Last hole center to paper edge.
X^1	5.625	9.525	Last hole edge to paper edge.

Important

- **The distance "Y" is determined by the size of the punch unit (A4 or LT) and cannot be adjusted.**
- **"Y" is the same distance for both A4 and LT.**
- **If "Y" is out of adjustment, the punch unit must be replaced.**

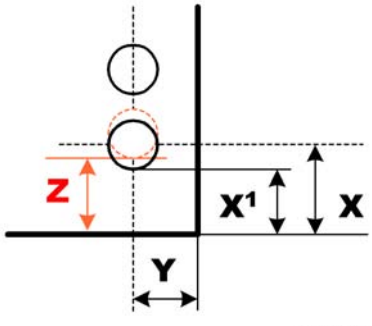
Hole Position Adjustment

Here is an example of how to adjust X^1.



d392r0407b

1. Use a micrometer to measure X^1 at [1]. If the measurement is not standard, we will call this value Z in the following steps, and the red circle in the following diagram shows the non-standard position of the punch hole.



d392r0407d

2. In this example, "Z" is measured at "9.65". This does not match the standard for LT (X^1 = 9.525).
3. Subtract the measured value "Z" (9.65) from the standard value "X^1" (9.525) and multiply it by "2".

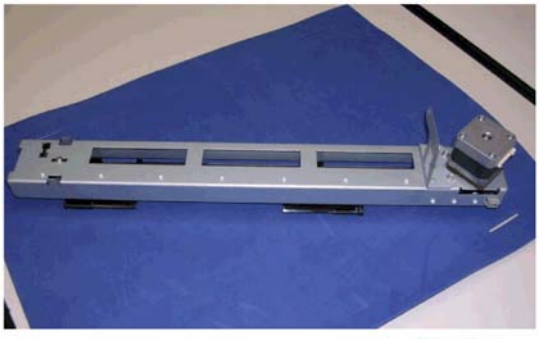
   9.525 - 9.65 = -0.125 x 2 = -0.250

4. Do SP6504 again and adjust the setting by adding the value derived from the calculation above (in this example "-0.250")
    - The actual adjustment is done by adjusting the movement of the pre-punch jogger fences so that the hole-punch position is lowered "**-0.125**".
    - The firmware does this automatically by dividing the entered value (-0.25) by 2 (-0.125), so 9.65 – 0.125 = 9.525 mm.
    - If the measured distance "Z" is less than **X**[1], then the adjustment must raise the hole-punch position. In this case, the value of SP6504 must be increased in order to raise the hole position.

Sensors

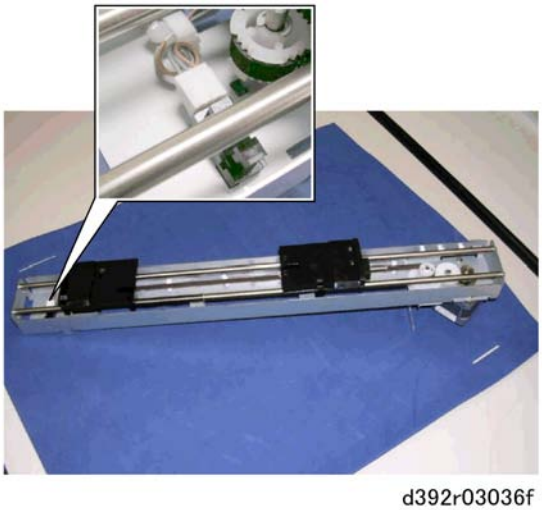
Pre-Punch Jogger HP Sensor (S301)

1. Remove the rear cover. (☛ p.36)
2. Remove the pre-punch jogger unit. (☛ p.51)



d392r0306a

3. Set the pre-punch jogger unit on a flat surface.



d392r03036f

4. Turn over the pre-punch jogger unit
5. Remove the pre-punch jogger HP sensor (S301) (☞ x1, Hook x1)
6. After replacing the pre-punch jogger HP sensor (S301), do SP6504. (See Section 5 of the main service manual.)

Chad Box Sensor (S308)

d392r0613a

1. Remove the rear cover. (☛ p.36)
2. Remove the main control board bracket [1] (x 27, x8).

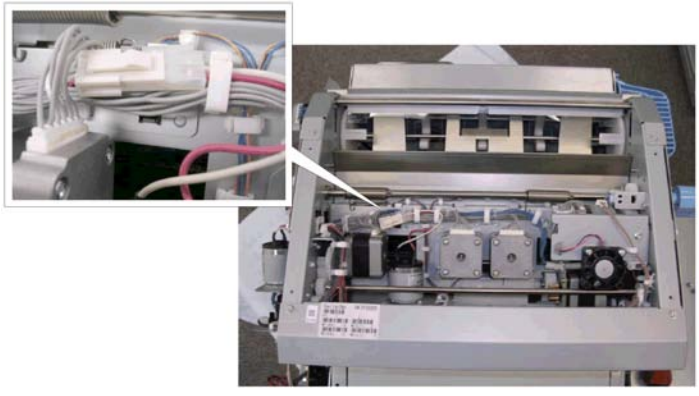
d392r0613b

3. Remove the sensor (x1, x1).

Pre-Bind Jogger Sensors

Side Fence 1 HP Sensor (S601)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)

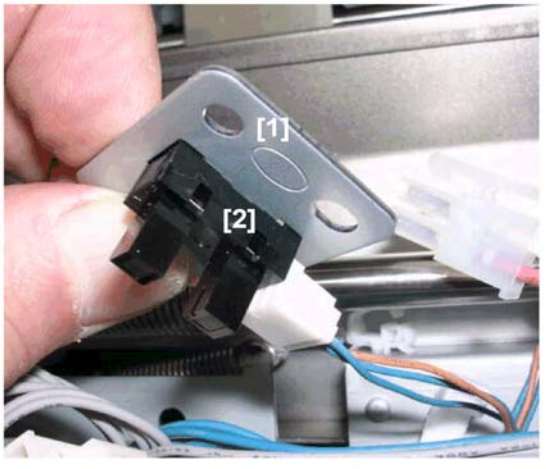


d392r0714a

3. Remove the pre-bind jogger side cover.

d392r0714b

4. Disconnect and move aside the harnesses and clamps (x2, x2).
5. Remove the screw (x1).

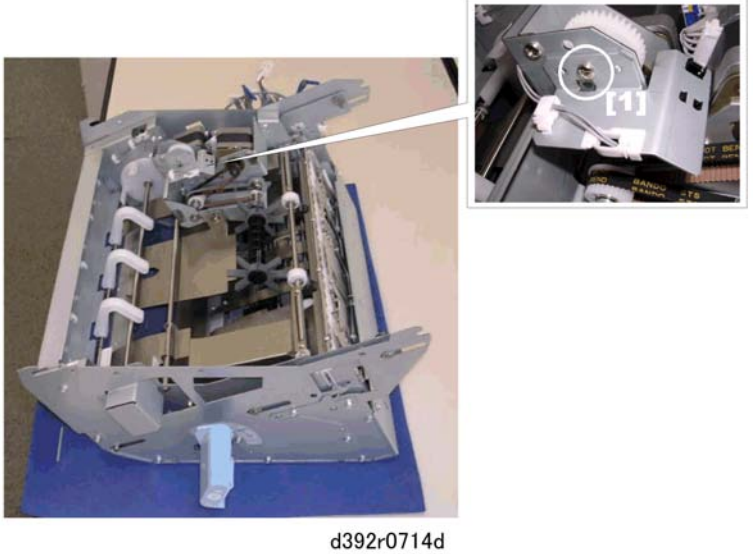


d392r0714c

6. Remove:
   [1] Sensor bracket (x1)
   [2] Sensor (Hooks x3, x1)

Paddle Roller HP Sensor (S602)

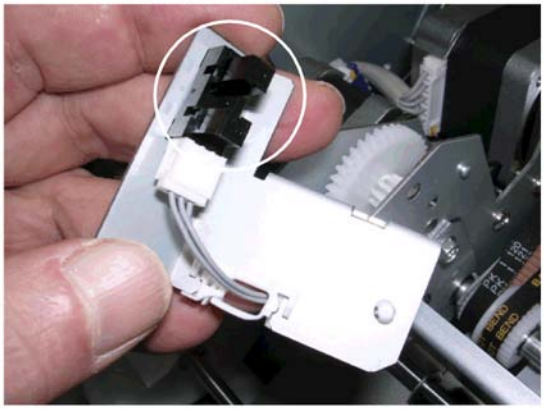
1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Separate the pre-bind jogger from the binder unit. (☛ p.46)



d392r0714d

4. Set the pre-bind jogger unit on its side with the open end up.

5. Remove the screw [1] and sensor bracket (x1).



d392r0714e

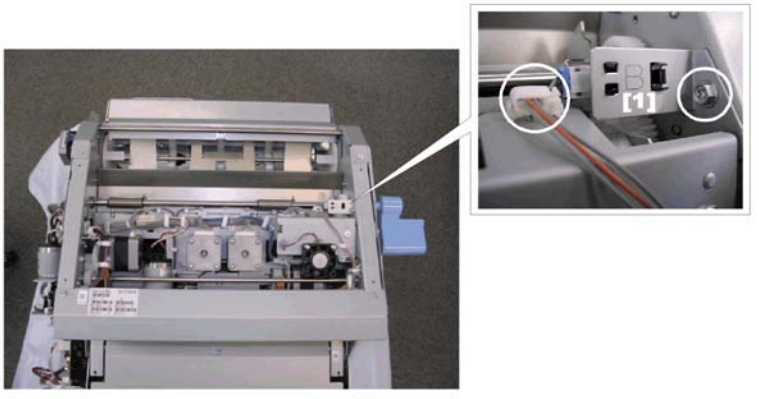
6. Remove the sensor (Hooks x3, x1)

Clamp HP Sensor (S603)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the pre-bind jogger left cover. (☛ p.43)

d392r0714f

4. Rotate lever Mc7 to lock it.



d392r0714g

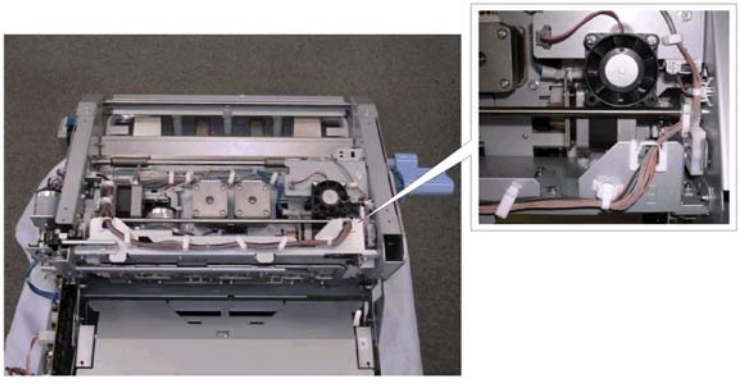
5. Remove sensor bracket [1] (x1, x1).

d392r0714h

6. Remove the sensor (x1, Hooks x3)

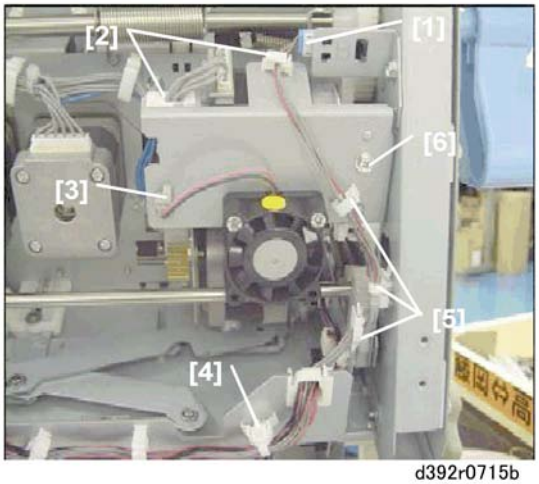
Alignment Pin HP Sensor (S604), Alignment Pin Up Sensor (S610)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



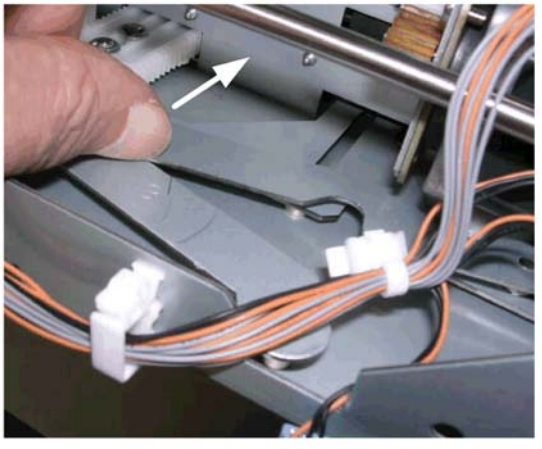
d392r0715a

3. Remove the pre-bind jogger left cover.
4. Remove the pre-jog binder bottom cover.



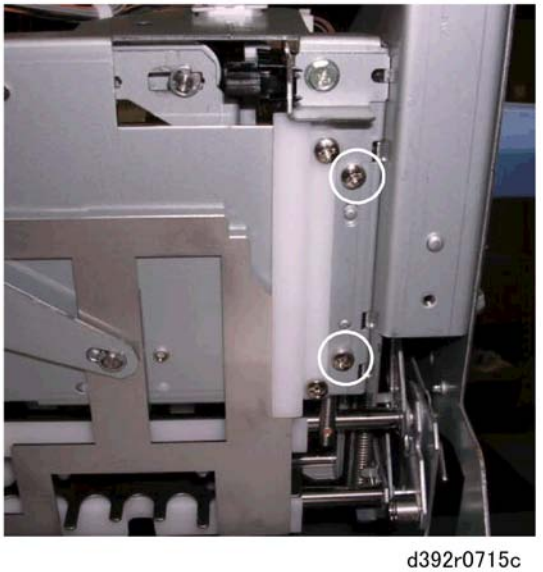
d392r0715b

5. Remove:
   [1] x1
   [2] x2
   [3] x1
   [4] x2
   [5] x3
   [6] x1



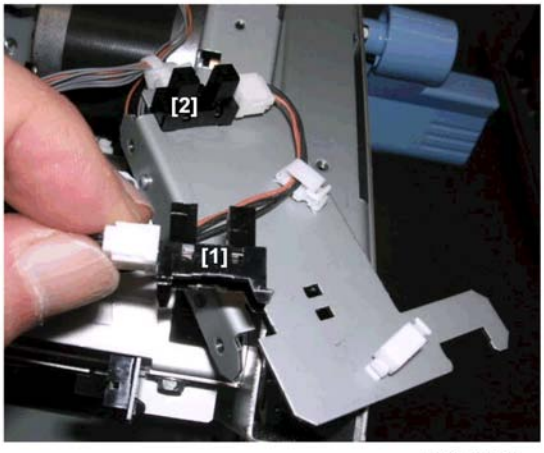
d392r0715d

6. Push up the arms of the scissors lift to raise the actuator away from the sensor on the right.



d392r0715c

7. Under the unit base remove the sensor bracket screws (x2).



d392r0715e

8. Remove:

   [1] Alignment pin HP sensor (S604) (x1, x1, Hooks x3)

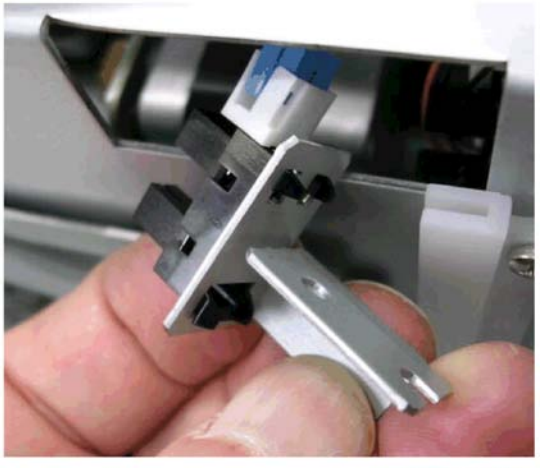
   [2] Alignment pin up sensor (S610) (x1, x1, Hooks x3)

Shutter HP Sensor (S605)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface.
3. Remove the pre-bind jogger unit bottom cover.

d392r0716a

4. Remove the sensor bracket [1] (x1).

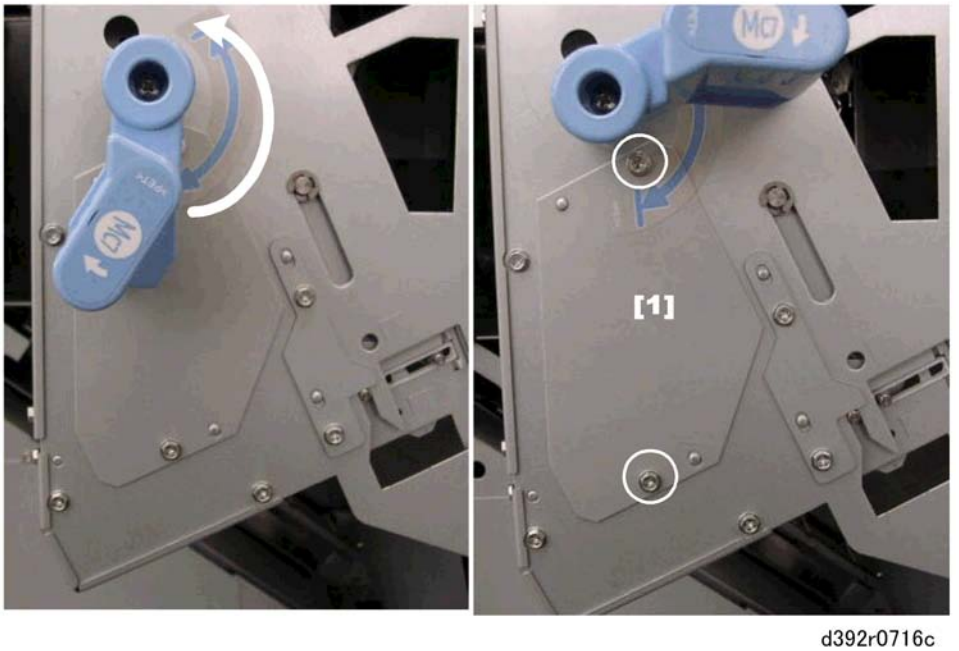


d392r0716b

5. Remove the sensor (Hooks x3, x1)

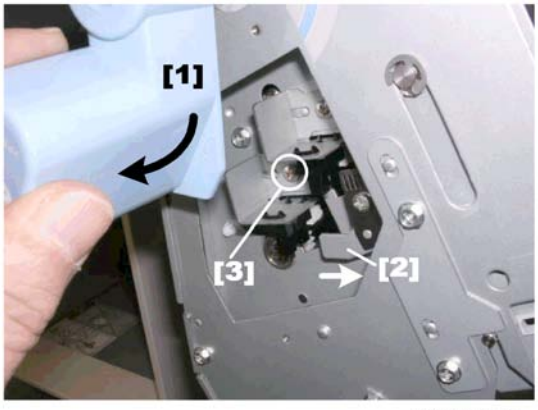
50-Sheet Detection Sensor (S606)

1. Open the right front door.
2. Pull the binder unit out on its rails.



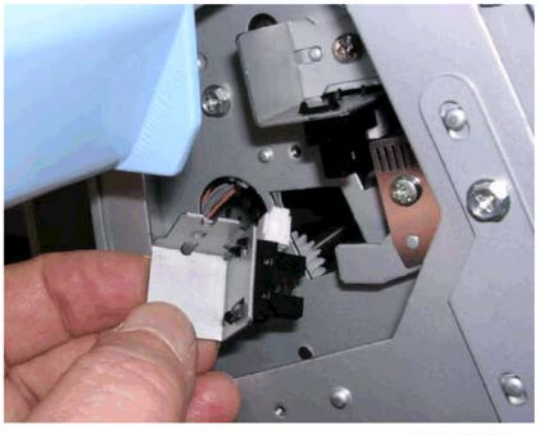
d392r0716c

3. Rotate lock lever Mc7 so that you can see the screws of the front cover [1].
4. Remove the front cover (x2).



d392r0716d

5. Lower lever Mc7 [1] to move the actuator [2] away from the sensor.
6. Remove sensor bracket screw [3] (x1).

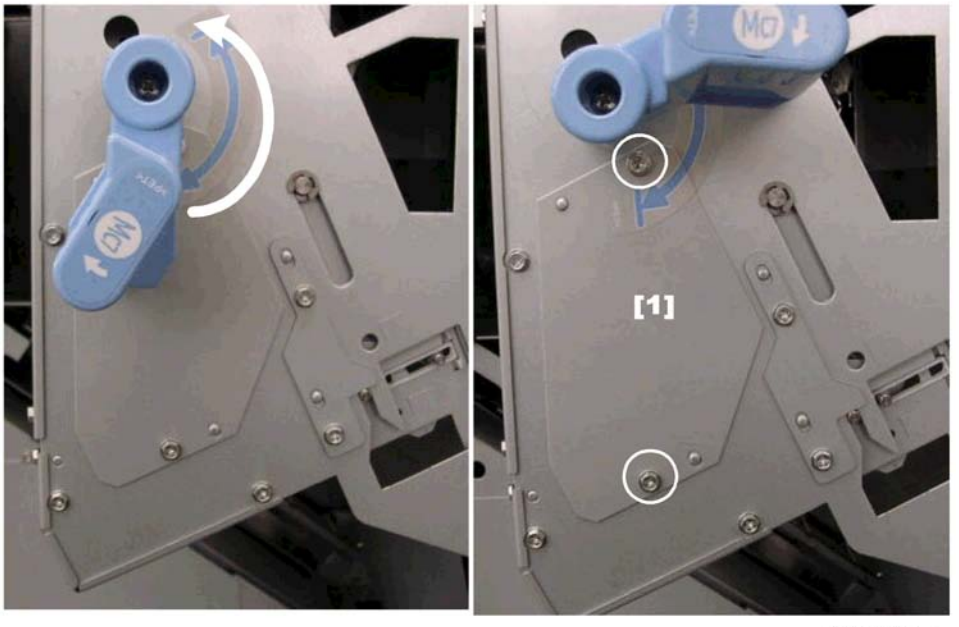


d392r0716e

7. Remove the sensor bracket.
8. Remove the sensor (Hooks x3, x1).

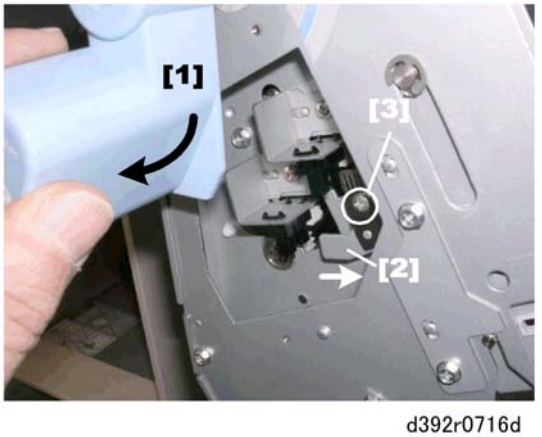
Stack Thickness Sensor (S607)

1. Open the right front door.
2. Pull the binder unit out on its rails.



d392r0716c

3. Rotate lock lever Mc7 so that you can see the screws of the front cover [1].



d392r0716d

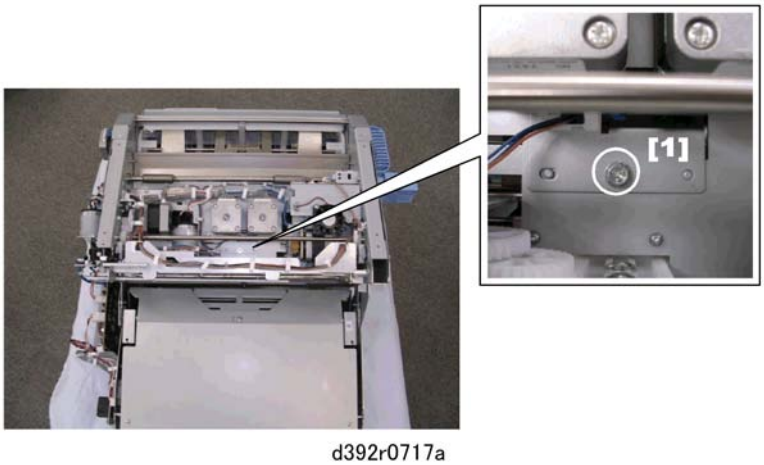
4. Lower lever Mc7 [1] to move the actuator [2] away from the sensor.
5. Remove sensor bracket screw [3] (x1).

d392r0716f

6. Remove the sensor bracket.
7. Remove the sensor (Hooks x3, x1).

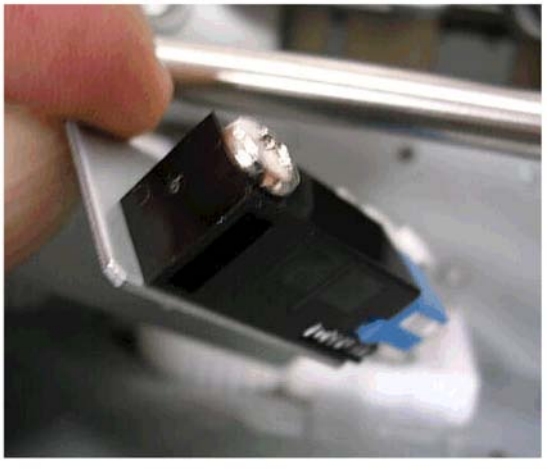
Paper LE Detect Sensor (S609)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the pre-bind jogger left cover. (☛ p.43)
4. Remove the pre-bind jogger bottom cover. (☛ p.43)



d392r0717a

5. Remove the sensor bracket [1] (x1).

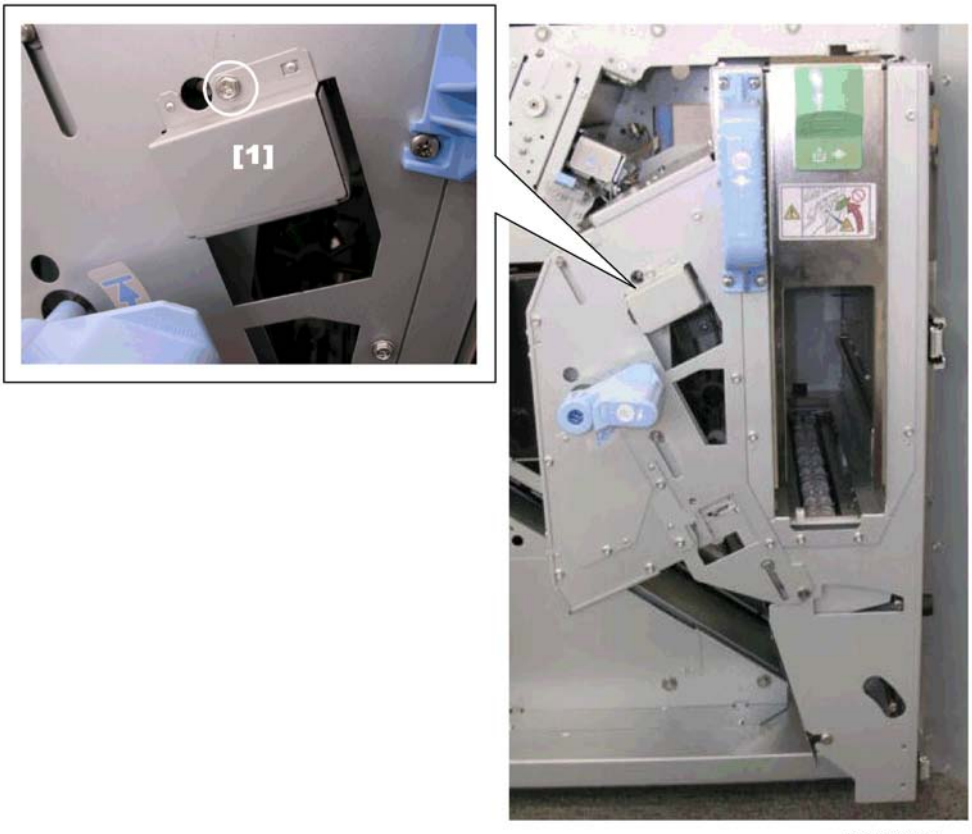


d392r0717b

6. Remove the sensor (x1, x1)

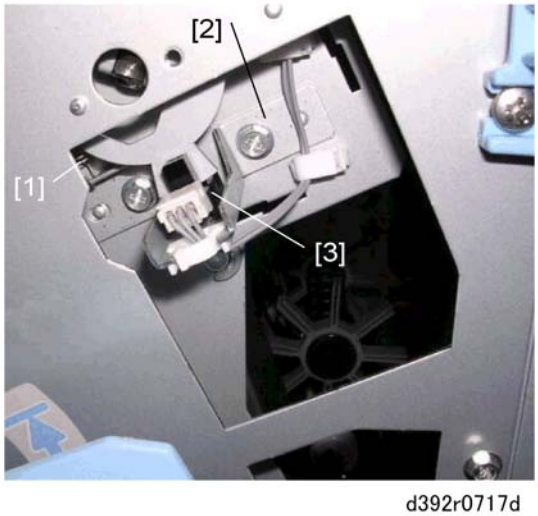
Stack Tamper HP Sensor (S612)

1. Open the right front door.
2. Pull the binder unit out on its rails.



d392r0717c

3. Remove sensor cover [1] (x1).



d392r0717d

4. Remove:

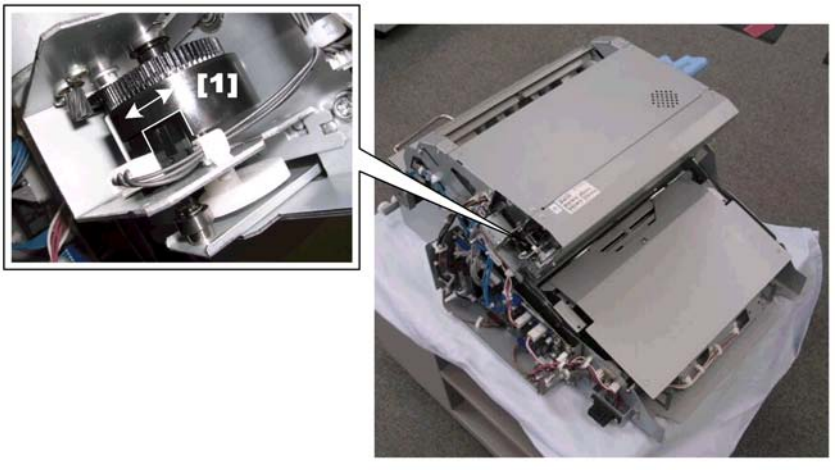
   [1] Spring x1

[2] Sensor bracket x2

[3] Sensor (x1, x1, Hooks x3)

Shutter HP Sensor (S613)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface.

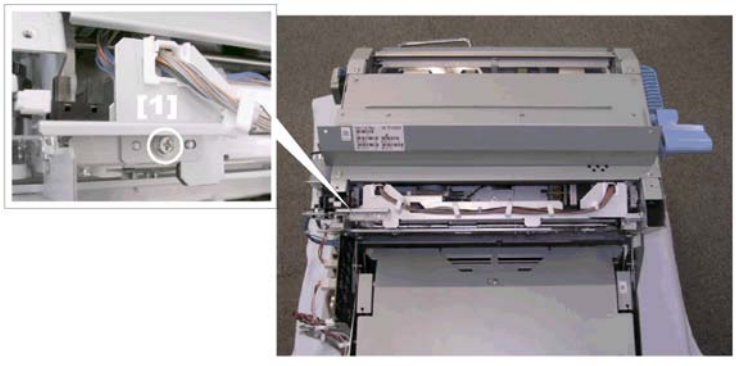


d392r0718a

3. Turn the actuator [1] to the left or right until the cutout is over the sensor.
4. Remove the sensor (x1, x1, Hooks x3).

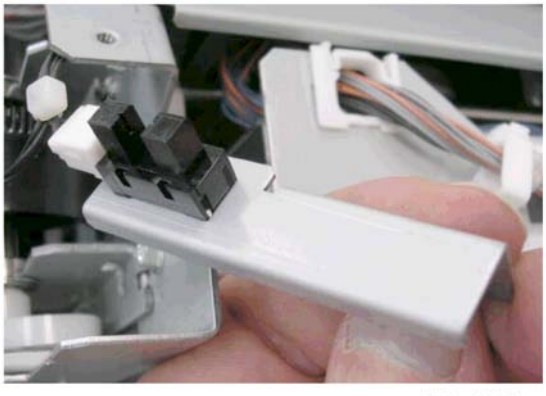
Runout Roller HP Sensor (S614)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface.
3. Remove the pre-bind jogger bottom cover.



d392r0718b

4. Remove the sensor bracket [1] (x1).



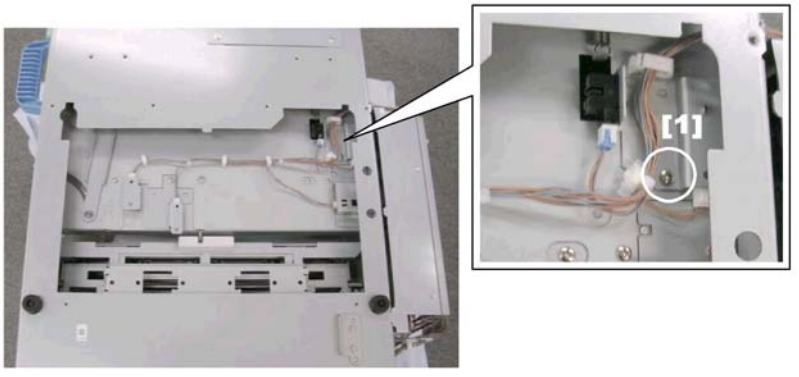
d392r0718c

5. Remove the sensor (x1, Hooks x3).

Ring Supply Unit Sensors

Ring Cartridge Sensor (S801)

1. Open the right front door.
2. Remove the binder unit from its rails. (☛ p.38)
3. Lay the binder unit on its left side, and remove the ring supply unit right cover. (☛ p.46 "Ring Supply Unit Right Cover")



d392r0719h

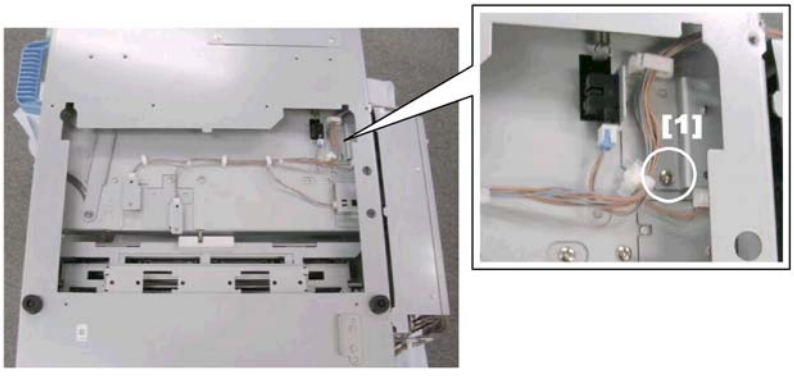
4. Remove the sensor bracket [1] (x1, x1).

d392r0719j

5. Remove the sensor (x1, Hooks x3).

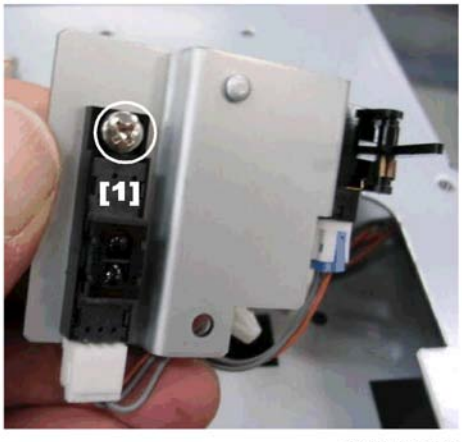
Ring Cartridge Type Sensor (S805)

1. Open the right front door.
2. Remove the binder unit from its rails. (☛ p.38)
3. Lay the binder unit on its left side, and remove the ring supply unit right cover. (☛ p.46)



d392r0719h

4. Remove the sensor bracket [1] (x1, x1).

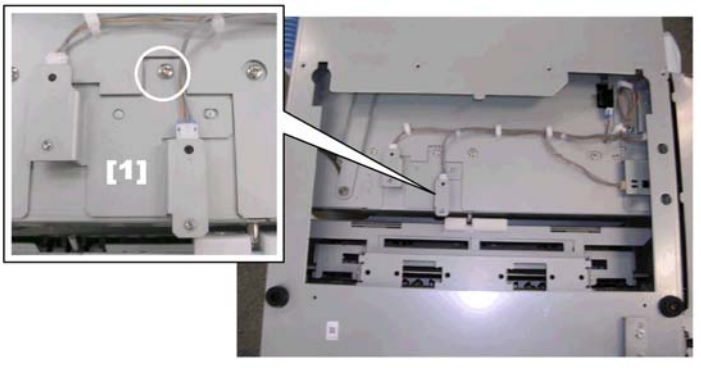


d392r0719i

5. Remove the sensor [1] (x1, x, Hooks x3).

Rings Reversed Sensor (S802)

1. Open the right front door.
2. Remove the binder unit from its rails. (☛ p.38)
3. Lay the binder unit on its left side, and remove the ring supply unit right cover. (☛ p.46)



d392r0720a

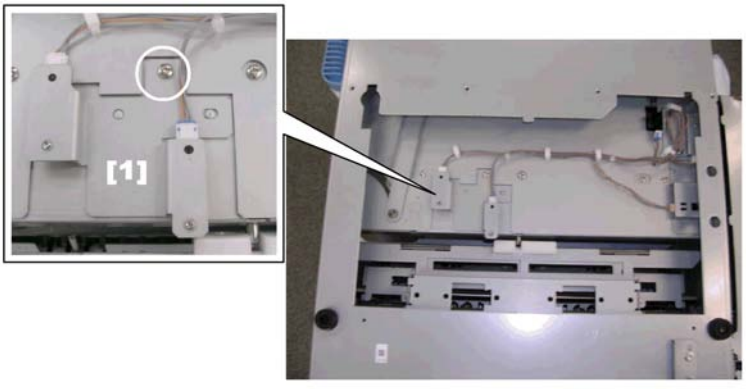
4. Remove sensor bracket [1] (x1).

d392r0720b

5. Remove the sensor [1] (x1, x1).

50/100 Ring Detection Sensor (S804)

1. Open the right front door.
2. Remove the binder unit from its rails. (☛ p.38)
3. Lay the binder unit on its left side, and remove the right cover. (☛ p.46)



d392r0720c

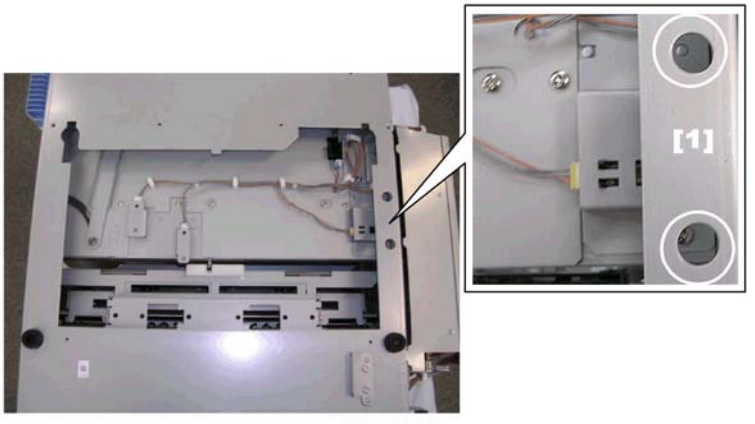
4. Remove sensor bracket [1] (x1).

d392r0720d

5. Remove the sensor [1] (x1, x1).

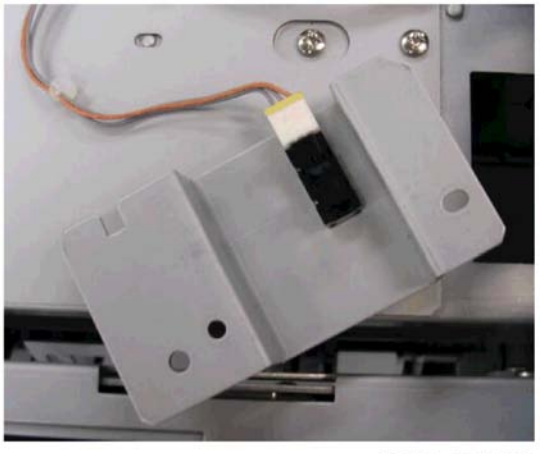
Ring Near-End Sensor (S803)

1. Open the right front door.
2. Remove the binder unit from its rails. (☛ p.38)
3. Lay the binder unit on its left side and remove the right cover. (☛ p.46)



d392r0720e

4. Remove the sensor bracket [1] (x2)



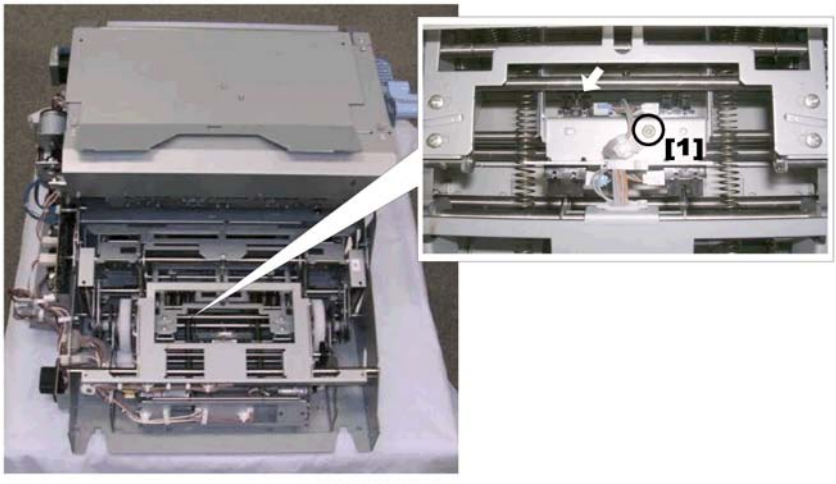
d392r0720f

5. Disconnect the sensor (x1, Hooks x3).

Clamp Unit Sensors

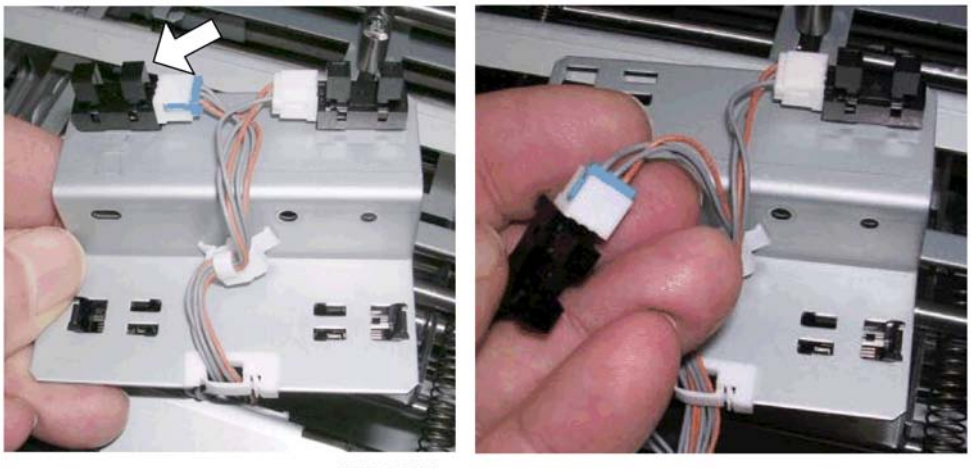
Binder Unit HP Sensor (S701)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the clamp unit cover. (☛ p.42)



d392r0719a1

4. Remove the sensor bracket [1] (x1).

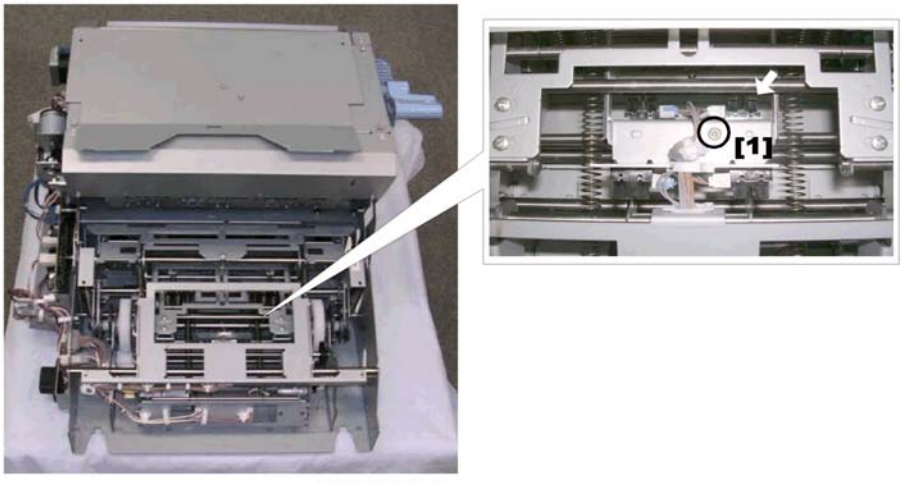


d392r0719b

5. Pull the bracket straight out.
6. Remove the sensor (x1, Hooks x3).

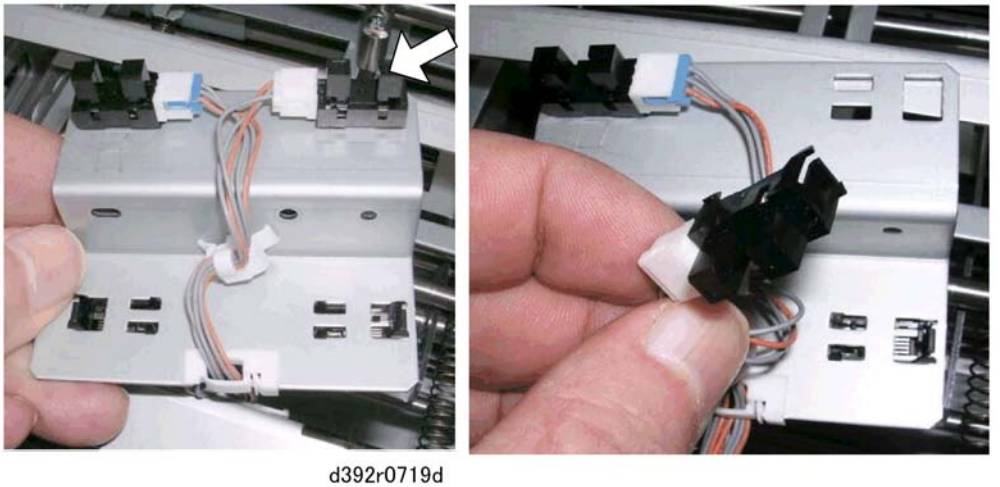
Bind Timing Sensor (S702)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the clamp unit cover. (☛ p.42)



d392r0719a2

4. Remove the sensor bracket [1] (x1).

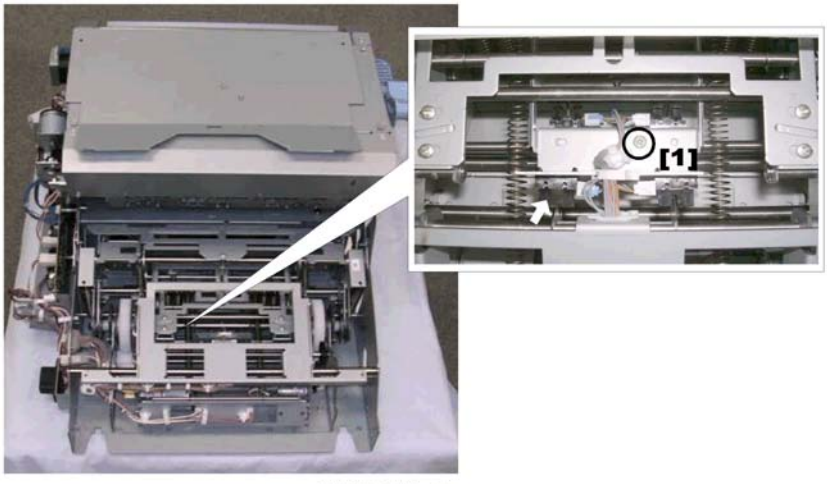


d392r0719d

5. Pull the bracket straight out.
6. Remove the sensor (x1, Hooks x3).

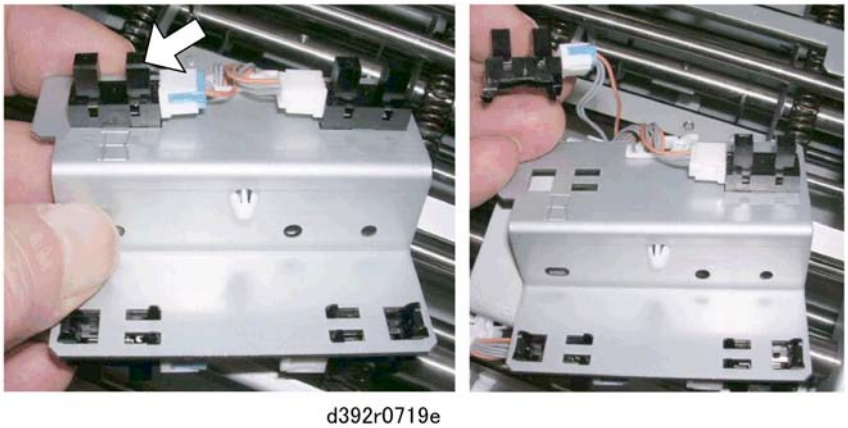
Ring Switch HP Sensor (S706)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the clamp unit cover. (☛ p.42)



d392r0719a3

4. Remove the sensor bracket [1] (x1).

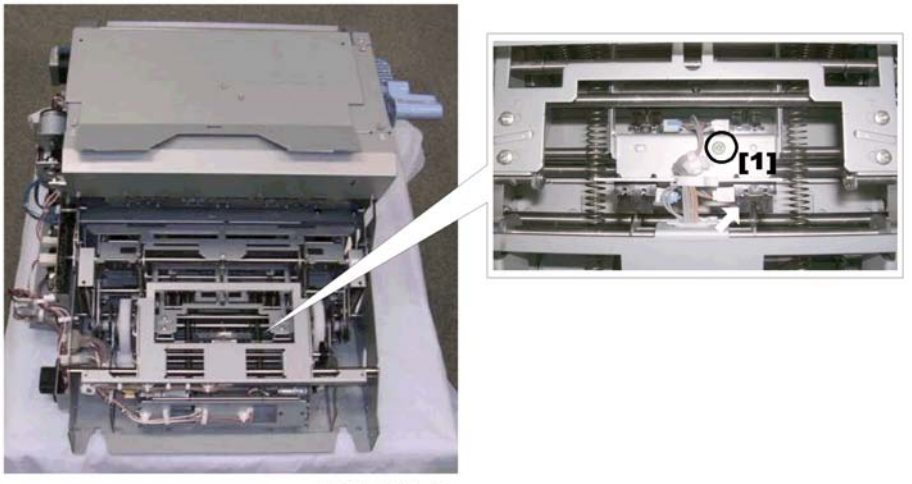


d392r0719e

5. Pull the bracket straight out and turn it over.
6. Remove the sensor (x1, Hooks x3).

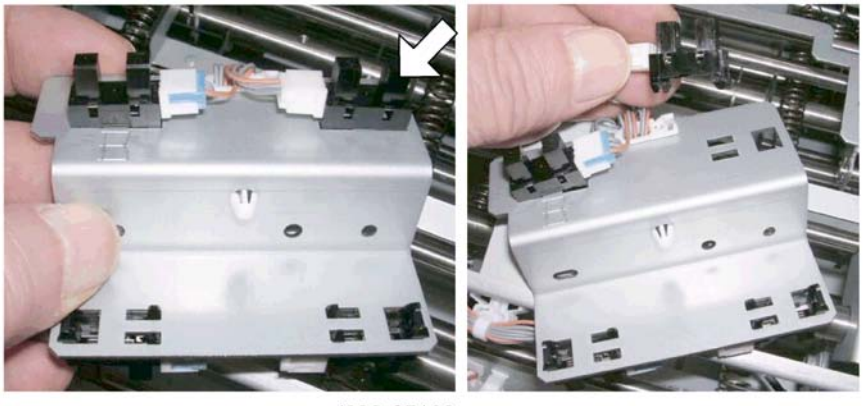
Ring Switch Timing Sensor (S707)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the clamp unit cover. (☛ p.42)



d392r0719a4

4. Remove the sensor bracket [1] (x1).

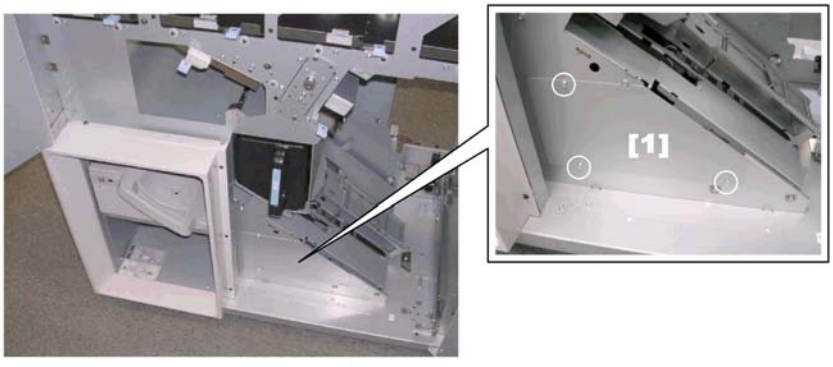


d392r0719f

5. Pull the bracket straight out and turn it over.
6. Remove the sensor (x1, Hooks x3).

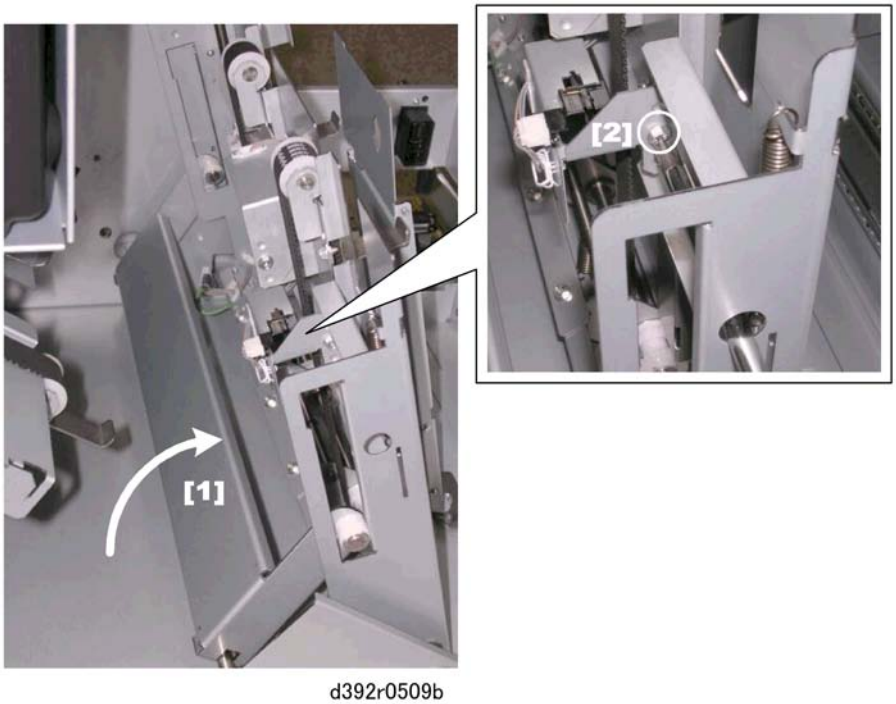
Output Belt Sensors

Output Belt 1 HP Sensor (S401)



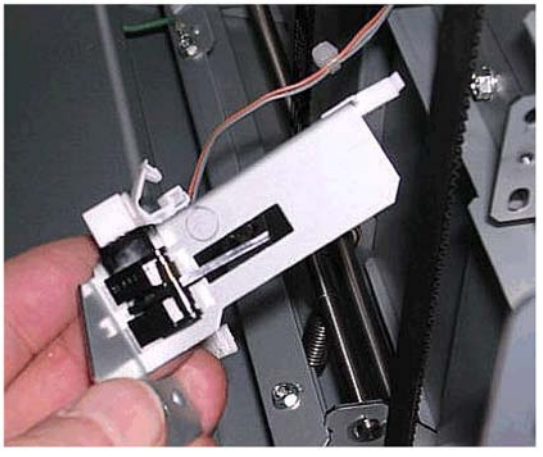
d392r0509a

1. Open the right and left front doors.
2. Remove base cover [1] (x3).



d392r0509b

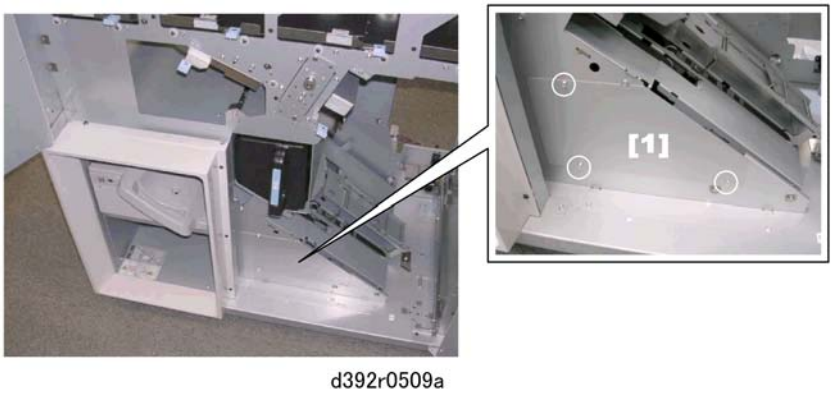
3. Raise output tray 1 [1] until it stops and remains open.
4. Remove the sensor bracket [2] (x1).



d392r0509d

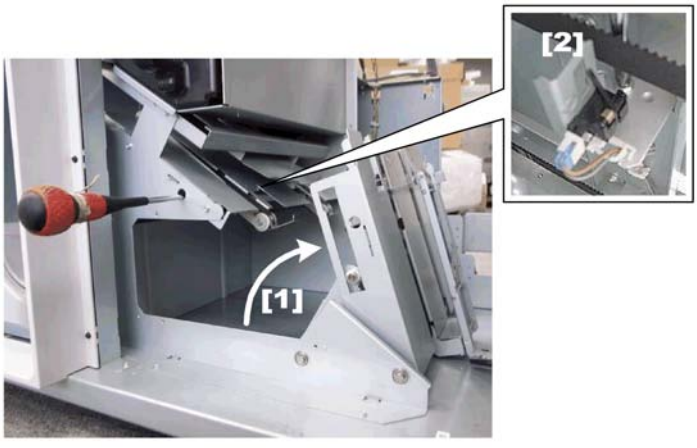
5. Remove the sensor (x1, x1, Hooks x3).

Output Belt 2 HP Sensor (S402)



d392r0509a

1. Open the right and left front doors.
2. Remove base cover [1] (x3).



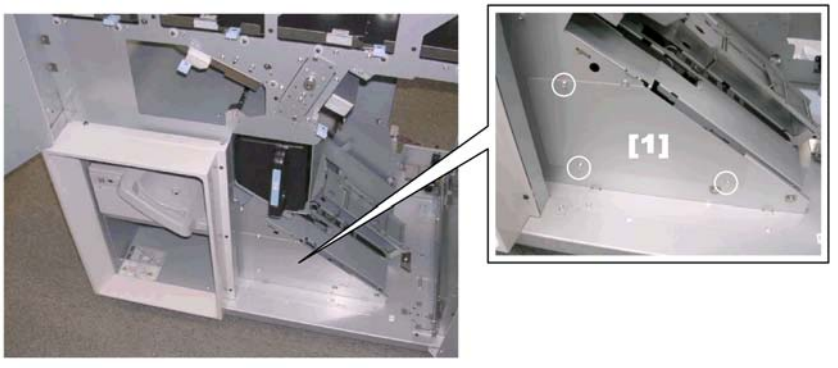
d392r905

3. Raise output tray 1 [1] until it stops and remains open.
4. Remove the sensor bracket [2] (x1).

d392r0509f

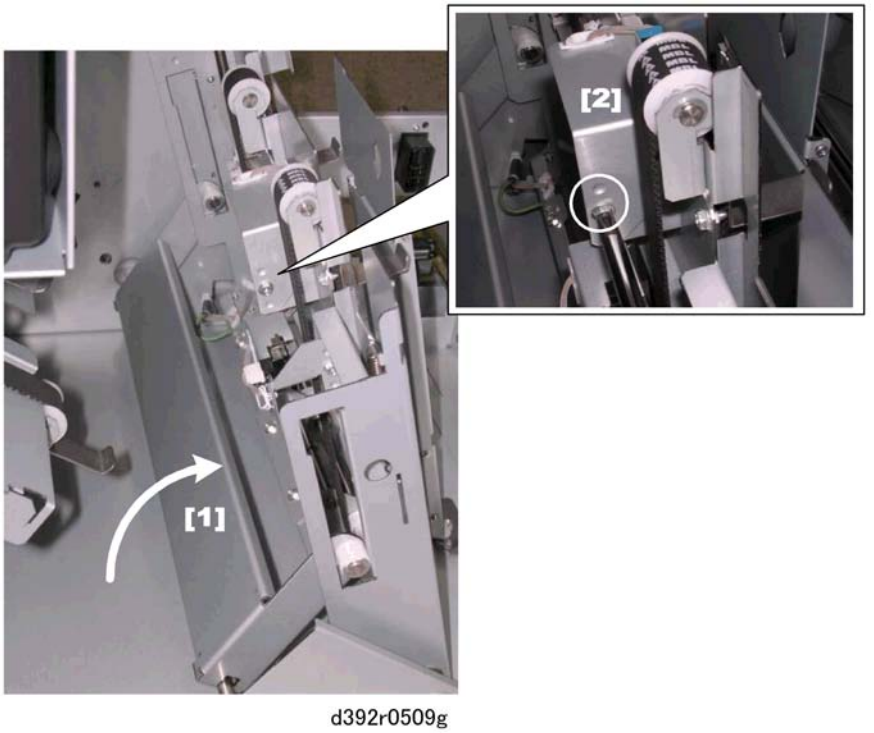
5. Remove the sensor (x1, x1, Hooks x3).

Output Belt Unit Entrance Sensor (S404)



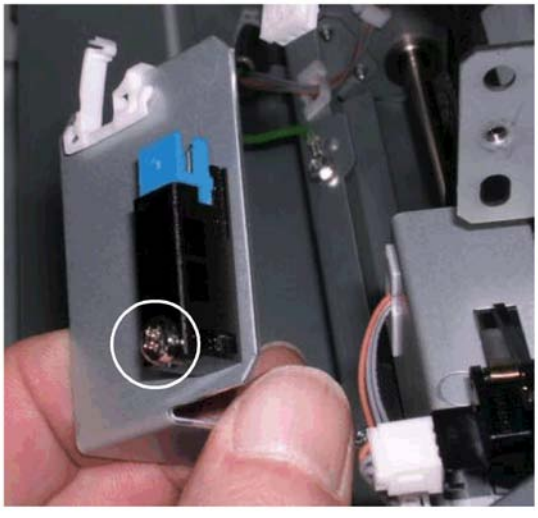
d392r0509a

1. Open the right and left front doors.
2. Remove base cover [1] (x3).



d392r0509g

3. Raise output tray 1 [1] until it stops and remains open.
4. Remove the sensor bracket [2] (x1).



d392r0509h

5. Remove the sensor (x1, x1, x1).

Output Belt Rotation HP Sensor (S403)

d392r0511a

1. Remove the rear cover. (☛ p.36)

2. At the front, remove the stacker cover [1].

   The screw at [2] has a washer. Do not lose the washer. Be sure to reinstall the screw with the washer at this corner.

d392r0511b

3. Spin the timing belt of the tray lift motor to lower the tray. (This may take about 1 minute.)

d392r0511c

4. Remove the screws of the panel [1] (x4).

d392r0511d

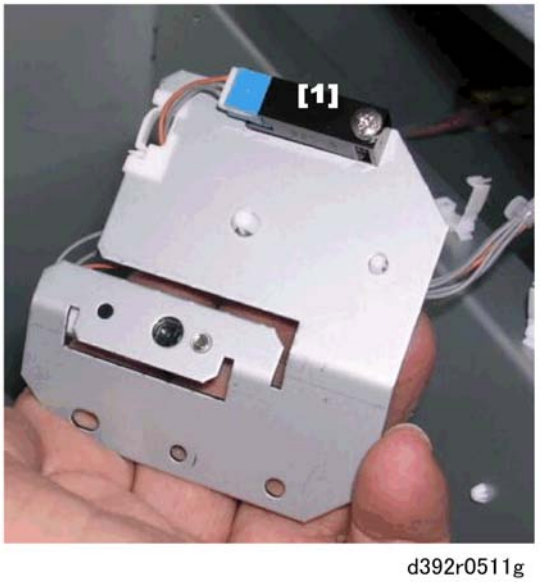
5. At the back of the finisher, remove the panel rear screw (x1).

d392r0511e

6. Remove the panel.

d392r0511f

7. Remove the sensor bracket [1] (x1).

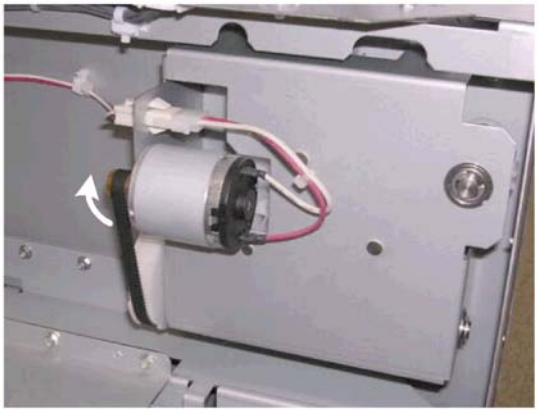


d392r0511g

8. Remove the sensor (x1, x1, x1).

Stacker Unit Sensors

Obstacle Detection Switch (S506)

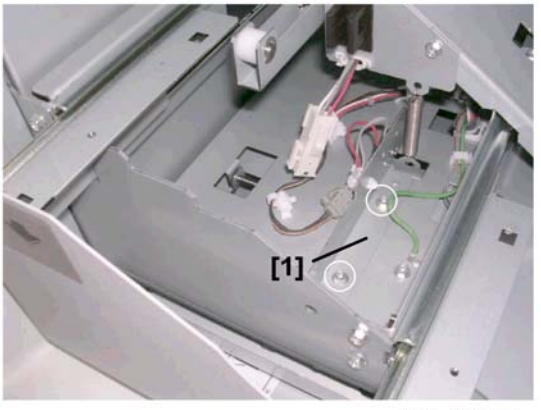


d392r0512a

1. Remove the rear cover. (☛ p.36)
2. Spin the timing belt of the tray lift motor to lower the tray. (This may take about 1 minute.)

d392r0512b

3. Remove the cover (x2).



d392r0512c1

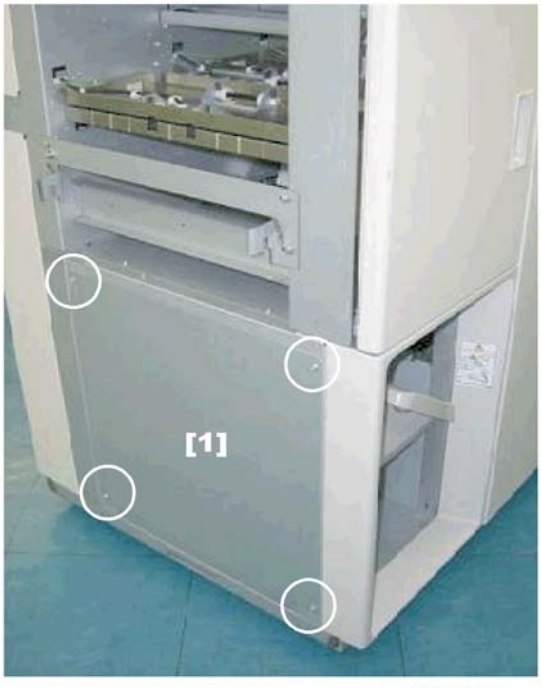
4. Remove the sensor bracket [1] (x2).

d392r0512d

5. Remove the micro-switch (Standoff x1, x1, x2).

Book Position Sensor Pair (S507E/S507R)

Book Position Sensor (S507E)



d392r0508a

1. Remove panel [1] from the left side of the finisher (x4).

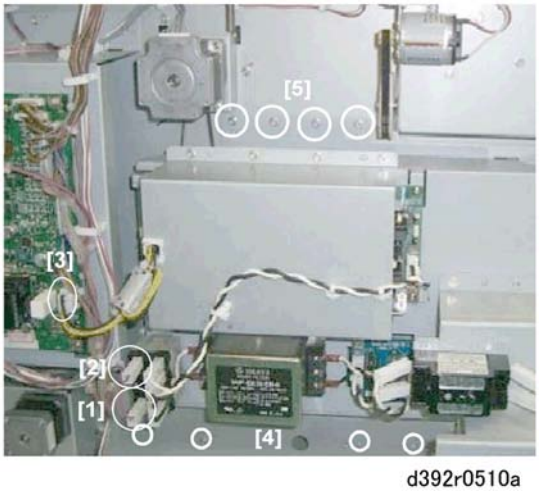
d392r0508e

2. Remove the sensor bracket [1] (x1).

d398r0508f

3. Remove the sensor (✋ x1, 🔩 x1)

Book Position Sensor (S507R)



d392r0510a

1. Remove the rear cover.
2. Remove:

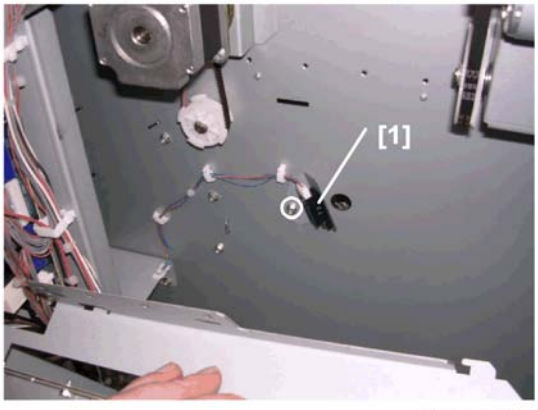
   [1] Red connector (✋ x1)

   [2] Black connector (✋ x1)

   [3] Yellow, black connector (✋ x1)

   [4] Lower screws (🔩 x4)

   [5] Upper screws (🔩 x4)



d392r0510b

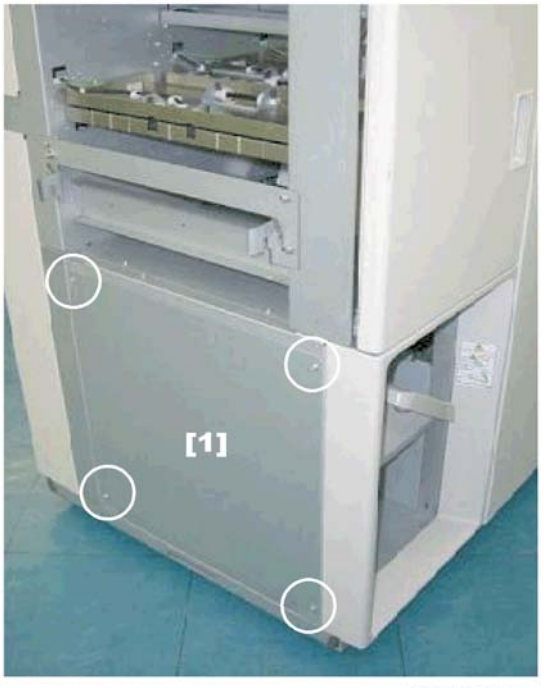
3. Remove the sensor bracket (x1).

d392r0510c

4. Remove the sensor (x1, x1).

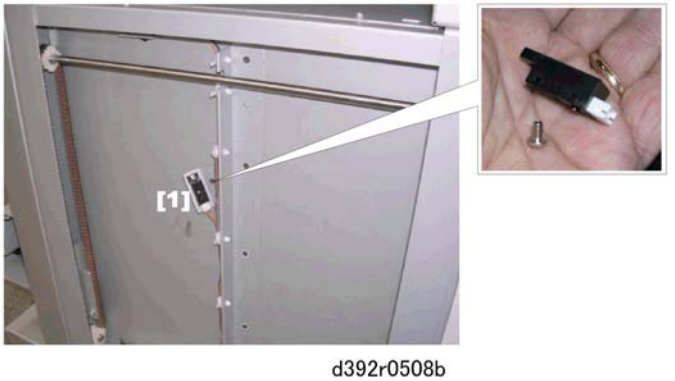
Stack Height Sensor Pair (S052E/S502R)

Stack Height Sensor (S502E)



d392r0508a

1. Remove panel [1] from the left side of the finisher (x4).



d392r0508b

2. Remove the sensor [1] (x1, x1).

Stack Height Sensor (S502R)

d392r0511a

1. Remove the rear cover. (☛ p.36)
2. At the front, remove the stacker cover [1].

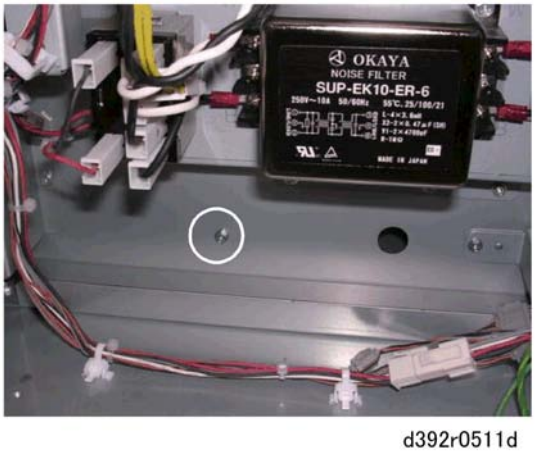
   The screw at [2] has a washer. Do not lose the washer. Be sure to reinstall the screw with the washer at this corner.

d392r0511b

3. Spin the timing belt of the tray lift motor to lower the tray. (This may take about 1 minute.)

d392r0511c

4. Remove the screws of the panel [1] (x4).



d392r0511d

5. At the back of the finisher, remove the panel rear screw (x1).

d392r0511e

6. Remove the panel.

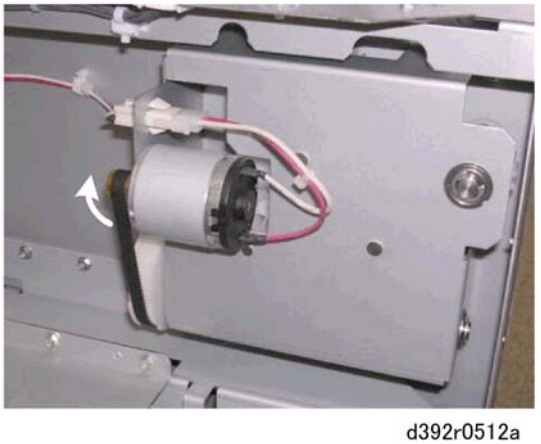
d392r0511f

7. Remove the sensor bracket [1] (x1).

d392r0511h

8. Remove the sensor (x1, x1, x1).

Stacker Detect Sensor (S504)



d392r0512a

1. Remove the rear cover. (☛ p.36)
2. Spin the timing belt of the tray lift motor to lower the tray. (This may take about 1 minute.)

d392r0512b

3. Remove the cover (x2).

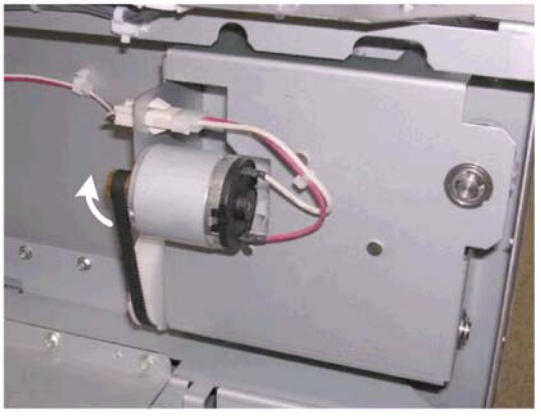
d392r0512c2

4. Remove the sensor bracket [1] (x2).

d392r0512e

5. Remove the sensor (x, x1).

Tray Detection Sensor (S505)

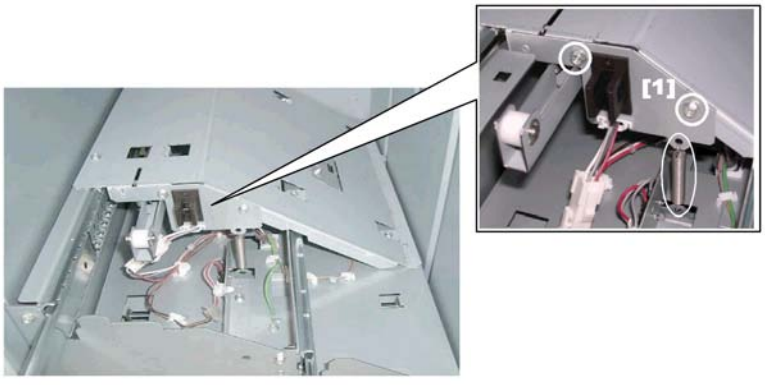


d392r0512a

1. Remove the rear cover. (☛ p.36)
2. Spin the timing belt of the tray lift motor to lower the tray. (This may take about 1 minute.)

d392r0512b

3. Remove the cover (x2).



d392r0512c3

4. Remove the sensor bracket [1] (x2, Spring 1).

d392r0512f

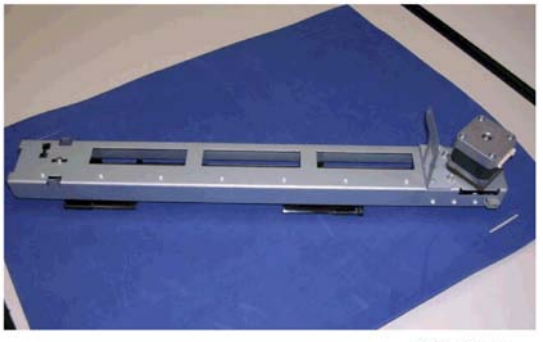
5. Remove the sensor (x1, x1).

Motors

Pre-Punch Jog Unit Motor

Side Jogger Motor (M302)

1. Remove the rear cover. (☛ p.36)
2. Remove the pre-punch jogger unit. (☛ p.51)

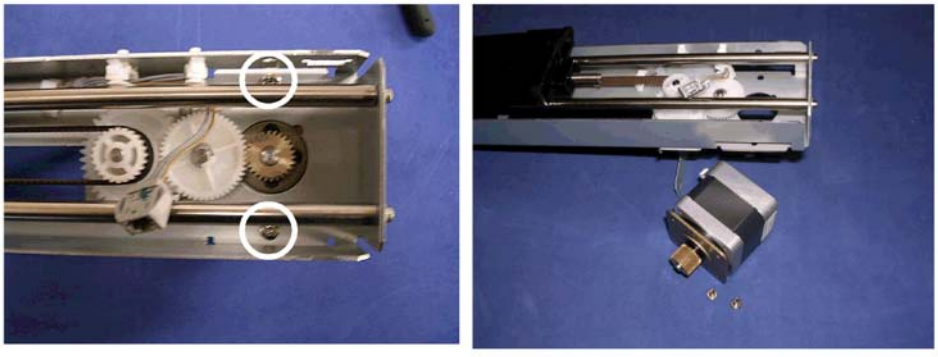


d392r0306a

3. Set the pre-punch jogger unit on a flat surface.

d392r0306b

4. Turn the pre-punch jog unit over.



d392r0306c

5. Remove the motor (x1, Standoff x1, x2).

Reinstallation

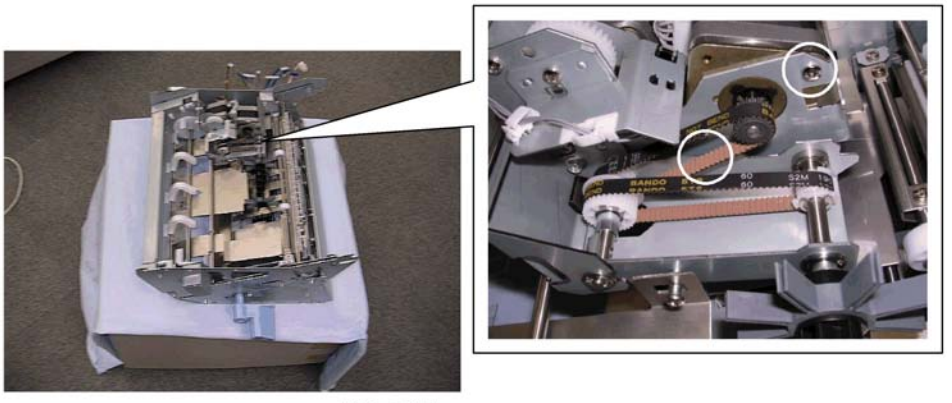
d392r0306e

1. Reattach the motor as shown above, so that the motor connector [1] is positioned properly.

Pre-Bind Jogger Motors

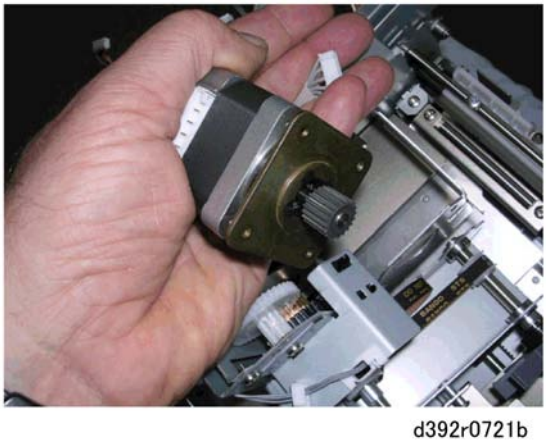
Paddle Roller Motor (M601)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Separate the pre-bind jogger unit from the binder unit. (☛ p.46)



d392r0721a

4. Turn the pre-bind jogger unit onto its left side.
5. Disconnect the motor (☞ x2, Timing belt x1).

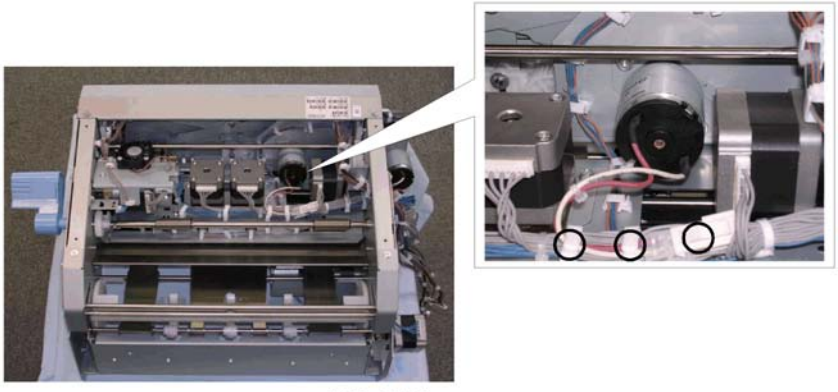


d392r0721b

6. Remove the motor (☞ x1).

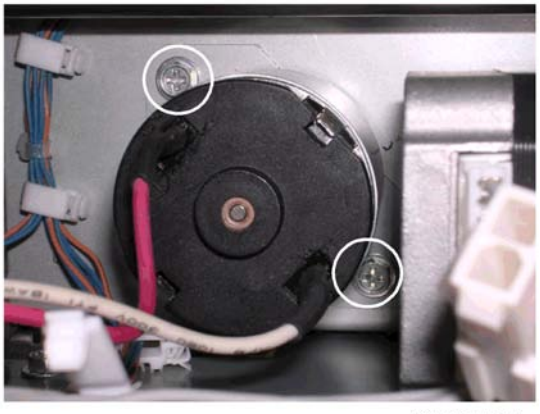
Alignment Pin Motor (M602)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the pre-bind jogger left cover. (☛ p.43)



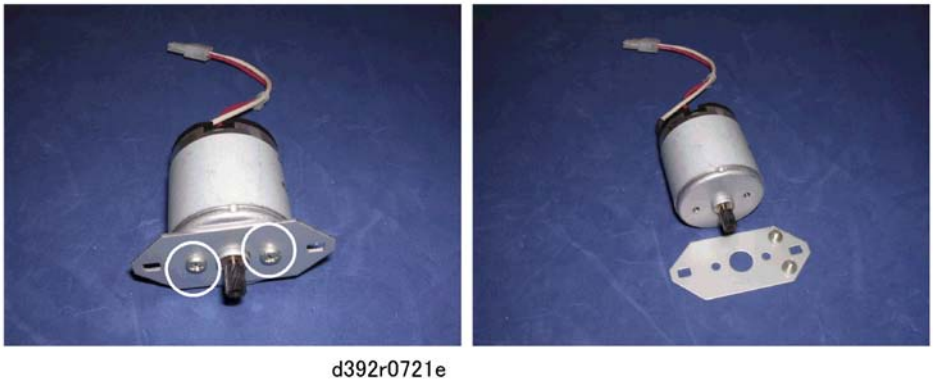
d392r0721c

4. Disconnect the motor (x2, x1).



d392r0721d

5. Remove the motor bracket and motor (x2).

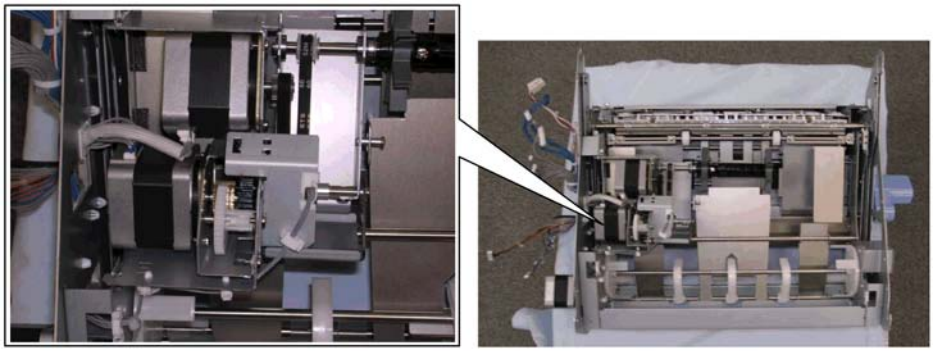


d392r0721e

6. Remove the motor bracket (x2).

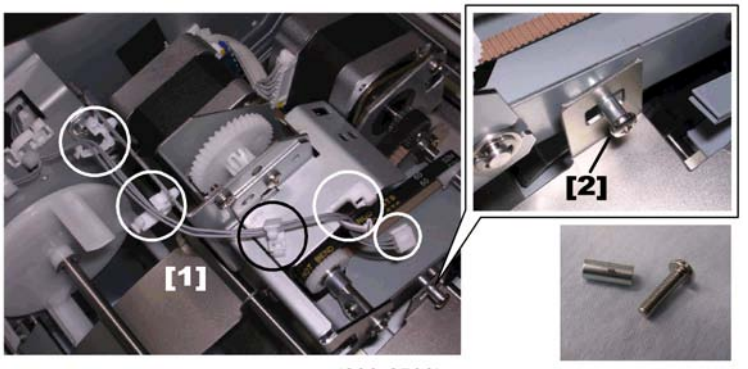
Paddle Roller Lift Motor (M603)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Separate the pre-bind jogger from the binder unit. (☛ p.46)



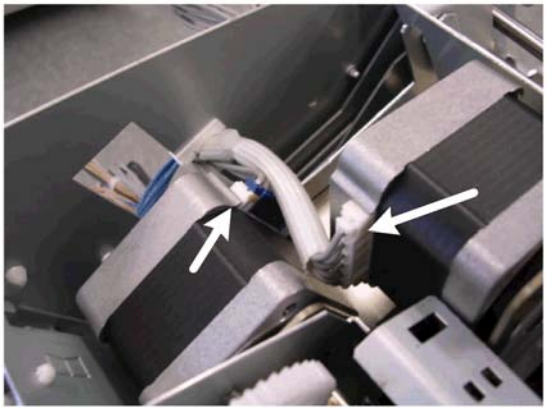
d392r0722a

4. Lay the jogger unit on its left side.



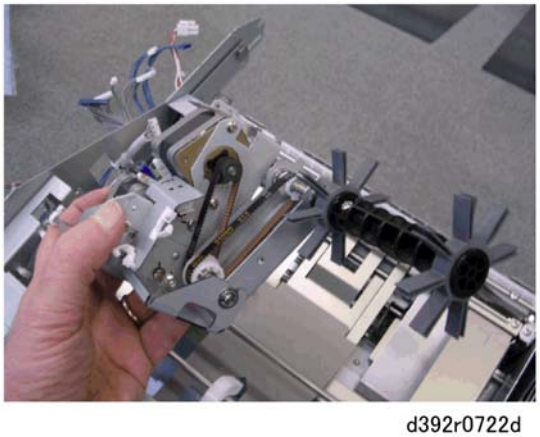
d392r0722b

5. Disconnect the sensor and open the harness clamps [1] (x4, x1).
6. Remove the screw and sleeve [2] (x1).



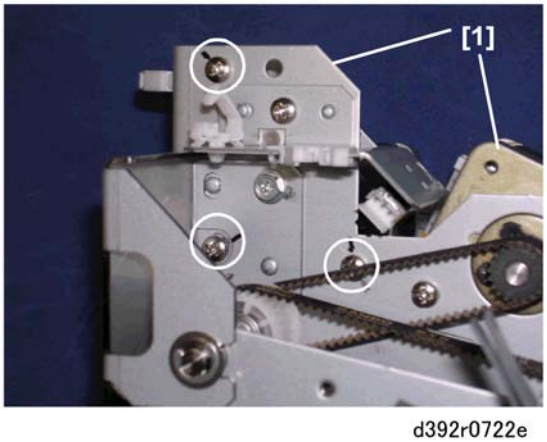
d392r0722c

7. Disconnect both motors (x2).



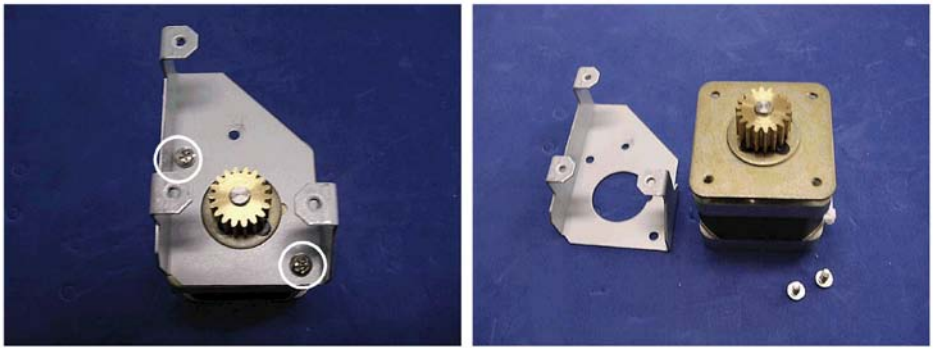
d392r0722d

8. Remove the paddle roller lift assembly.



d392r0722e

9. Disconnect the motor and bracket [1] and remove them from the paddle roller lift assembly (x3).

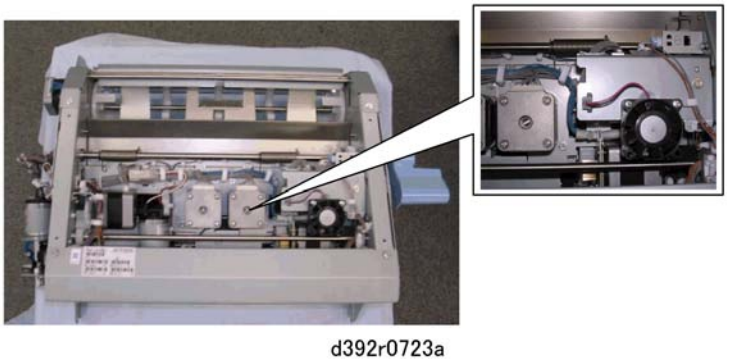


d392r0722f

10. Remove the motor from the bracket (x2).

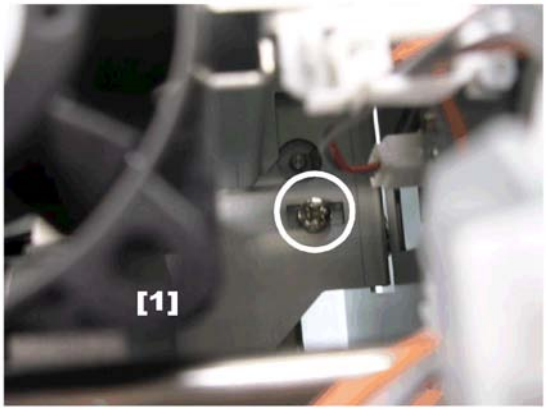
Side Fence 1 Motor (M604)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



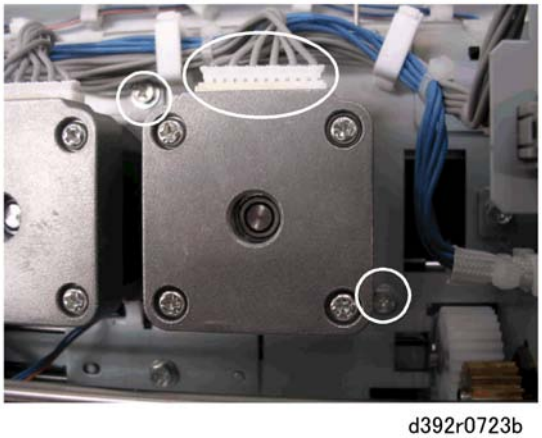
d392r0723a

3. Remove the pre-bind jogger left cover.



d392r0723c

4. Below the left corner of the fan [1], loosen (Do not remove!) the screw to release tension on the timing belt.

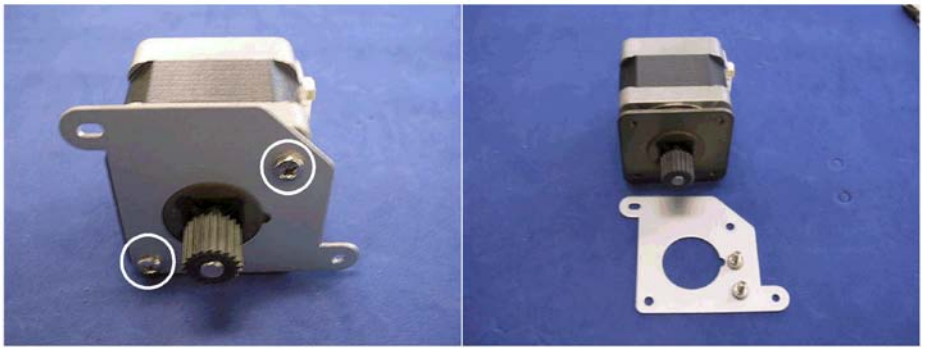


d392r0723b

5. Disconnect the motor and remove the screws (x1, x2).

d392r0723d

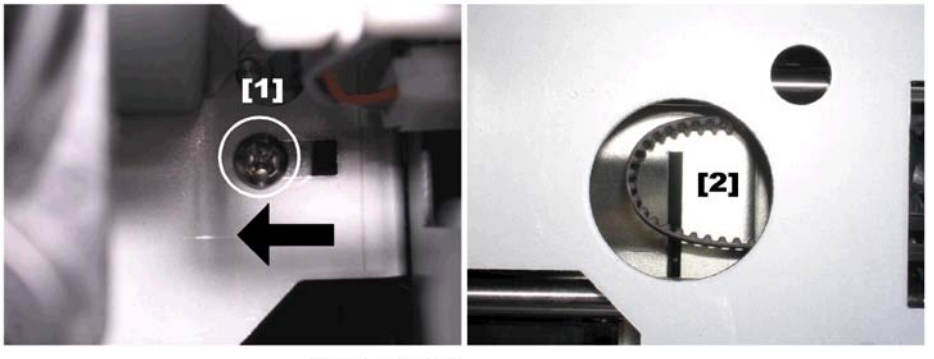
6. Remove the motor.



d392r0723e

7. Separate the bracket and the motor (x2).

Re-installation



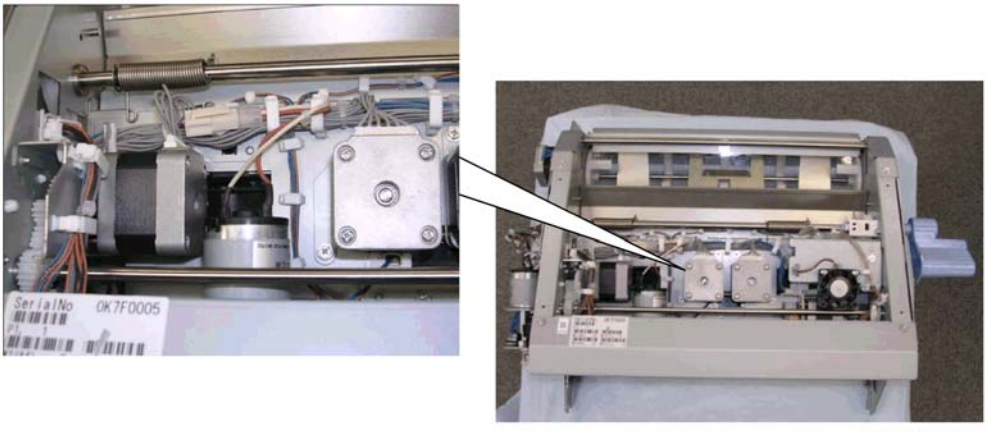
d392r0723f

1. Make sure the tension screw [1] is completely to the left, then tighten it.

   This provides maximum exposure of the belt [2] below the hole, and prevents it from moving when the motor is re-installed.
2. Reinstall the motor (x1, x2).
3. Loosen the tension screw, push it to the right to apply tension to the belt, then re-tighten the screw.

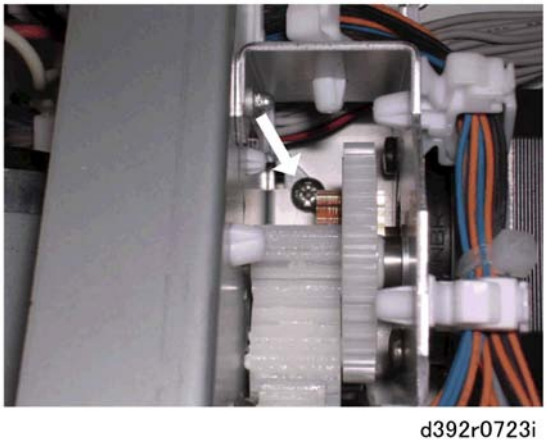
Side Fence 2 Motor (M606)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



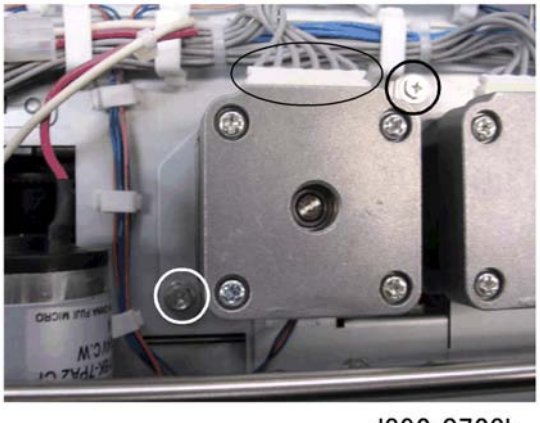
d392r0723g

3. Remove the pre-bind jogger left cover.



d392r0723i

4. Behind the white gears, loosen (Do not remove!) the screw to release tension on the timing belt.

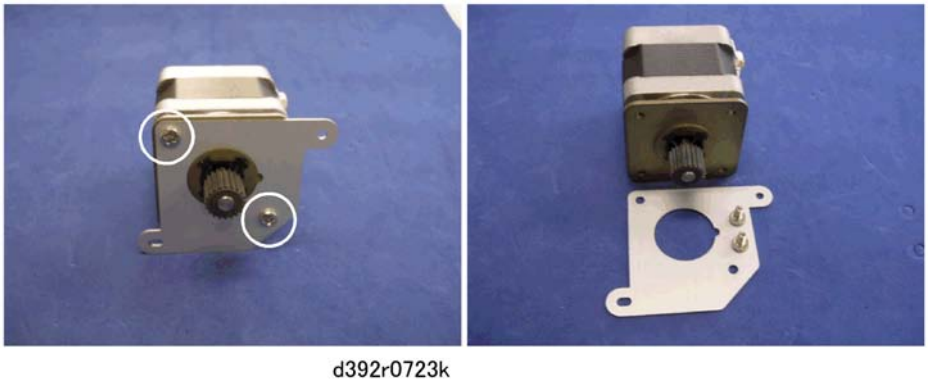


d392r0723h

5. Disconnect the motor and remove the screws (x1, x2).

d392r0723j

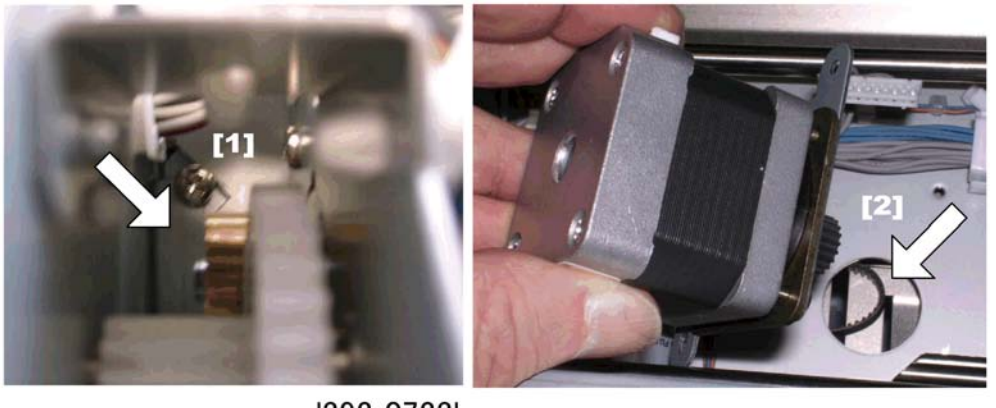
6. Remove the motor.



d392r0723k

7. Separate the bracket and the motor (x2).

Re-installation



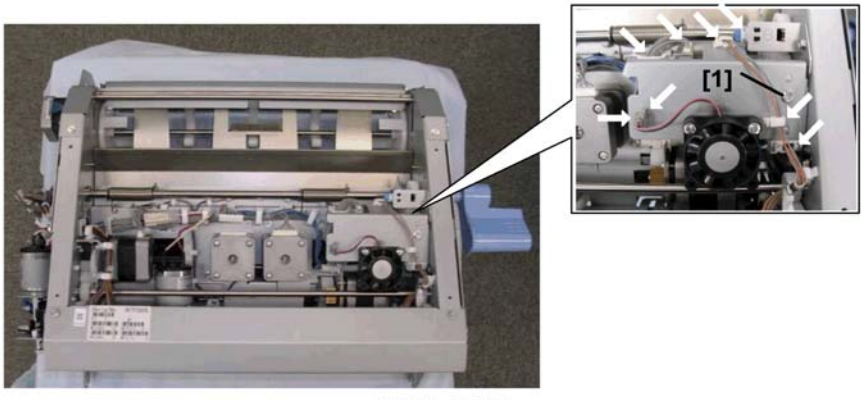
d392r0723l

1. Make sure the tension screw [1] is completely to the down, then tighten it.

   This provides maximum exposure of the belt [2] below the hole, and prevents it from moving when the motor is re-installed.
2. Reinstall the motor (x1, x2).
3. Loosen the tension screw, push it up to apply tension to the belt, then re-tighten the screw.

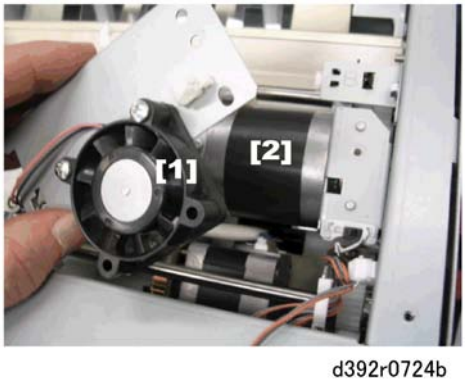
Spine Clamp Motor (M605)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)
3. Remove the pre-bind jogger left cover. (☛ p.43)



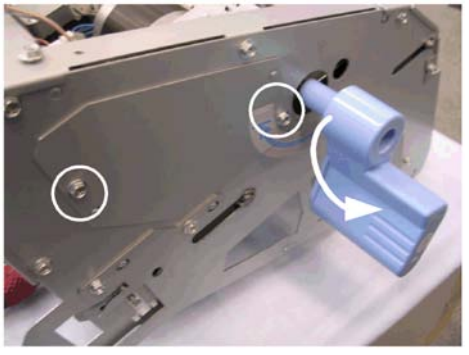
d392r0724a

4. Remove the connectors and harness clamps (x2, x6).
5. Remove screw [1] (x1).



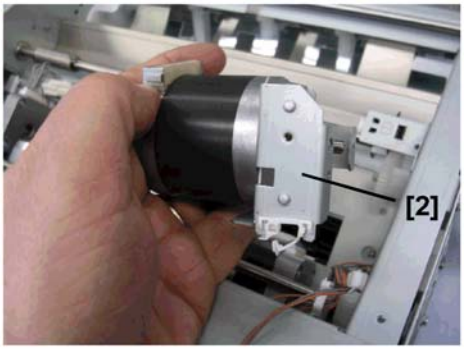
d392r0724b

6. Remove the motor and bracket [1] to expose the motor [2].



d392r0724c

7. Turn lever Mc7 to expose the front cover.
8. Remove the front cover (x2).



d392r0724d

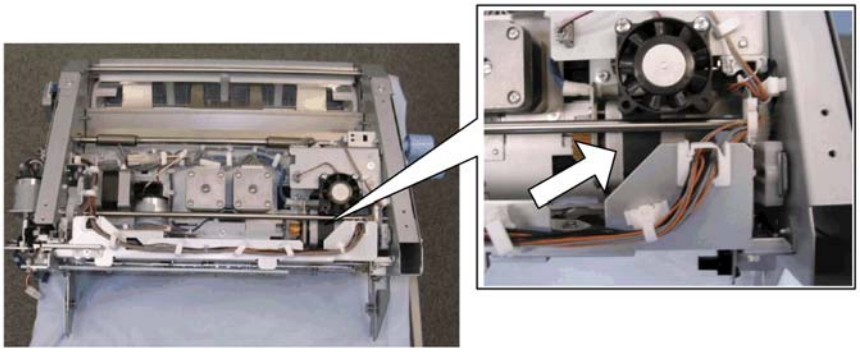
9. Remove the screws [1] and remove the motor bracket [2] (x2).

d392r0724e

10. Separate the bracket and the motor (x2).

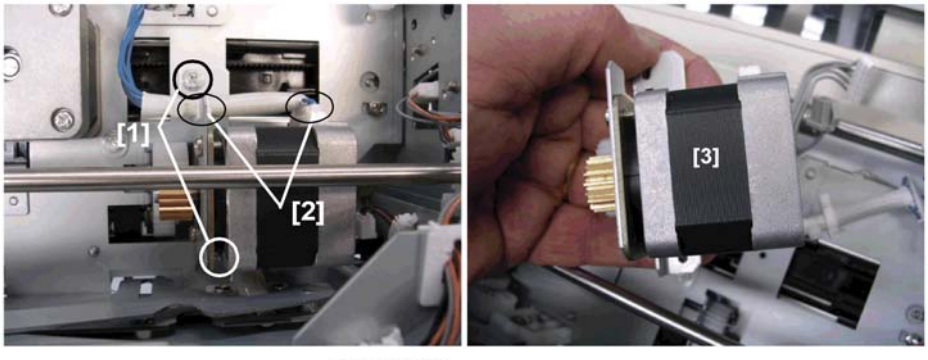
Runout Roller Motor (M609)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



d392r0726a

3. Remove the pre-bind jogger left cover. (☛ p.43)
4. Remove the pre-bind jogger bottom cover. (☛ p.43)
5. Remove the spine clamp motor (M605).



d392r0726b

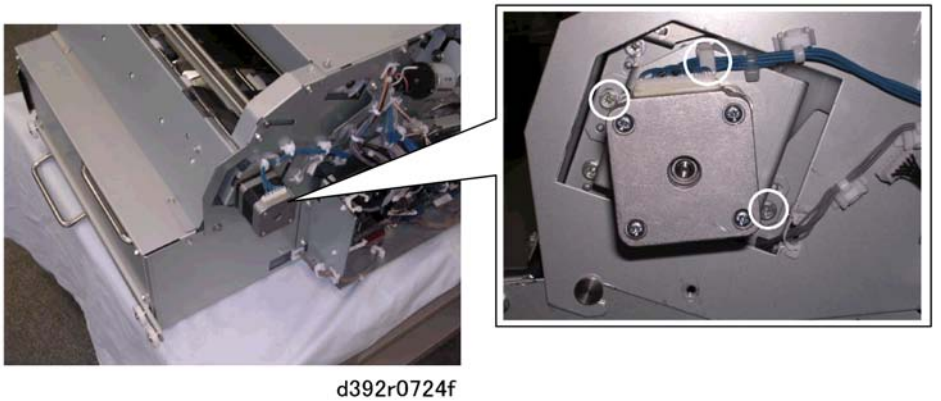
6. Disconnect:
   [1] Motor bracket (x2)
   [2] Motor (x1, x1)
7. Remove the motor bracket with the motor [3].

d392r0726c

8. Separate the bracket and the motor (x2).

Stack Tamper Motor (M607)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (p.38)

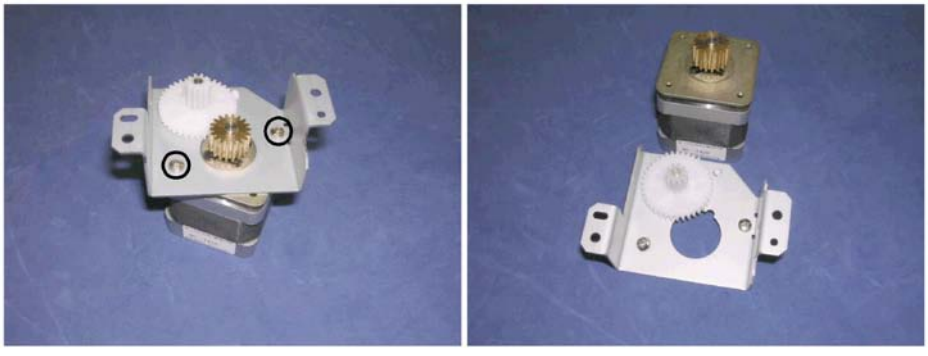


d392r0724f

3. Disconnect the motor bracket (x2, x1, x1).

d392r0724g

4. Remove the motor bracket.

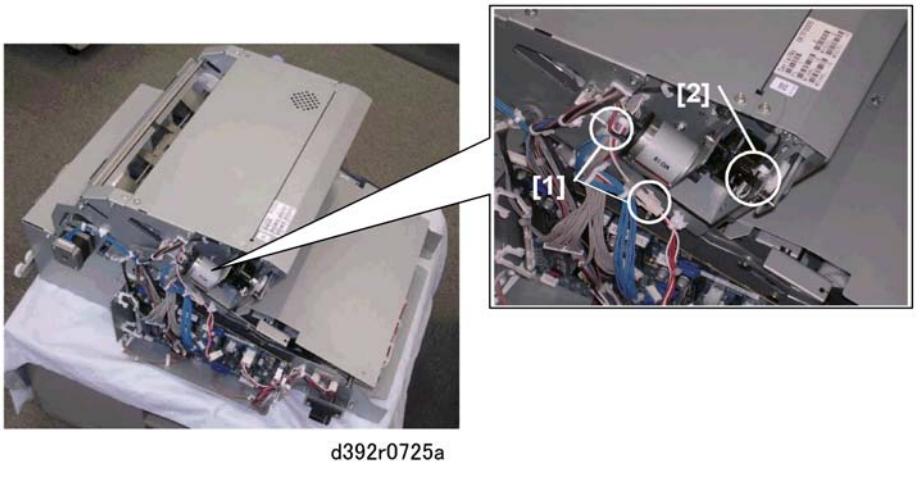


d392r0724h

5. Separate the bracket and the motor (x2).

Shutter Motor (M608)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)

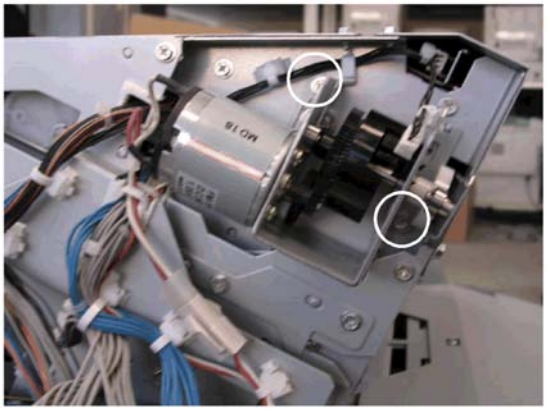


d392r0725a

3. Disconnect:

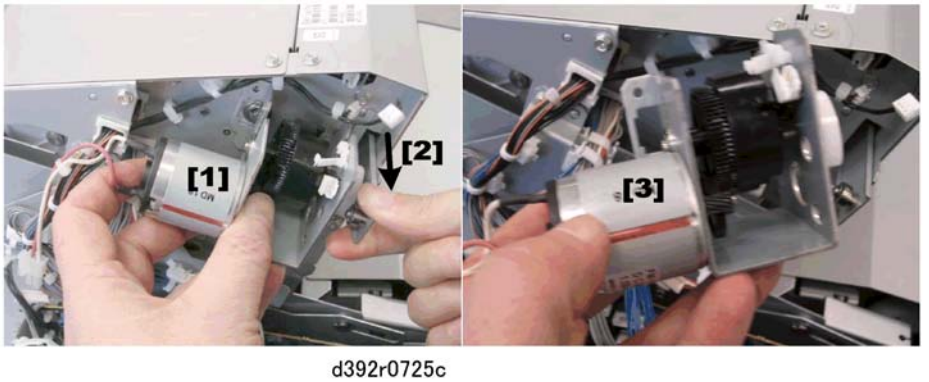
   [1] Motor [1] (x1, x1)

   [2] Sensor [2] (x1, x1)



d392r0725b

4. Disconnect the motor bracket (☞ x2).



d392r0725c

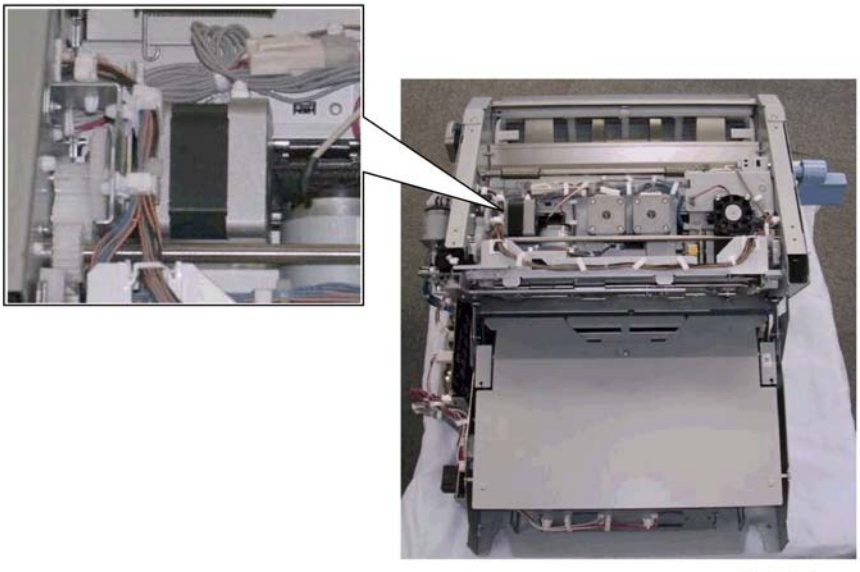
5. While holding the motor [1] on the left, pull out the spring-loaded cam follower [2] then remove the bracket [3] with the motor.

d392r925d

6. Separate the bracket and the motor (☞ x2).

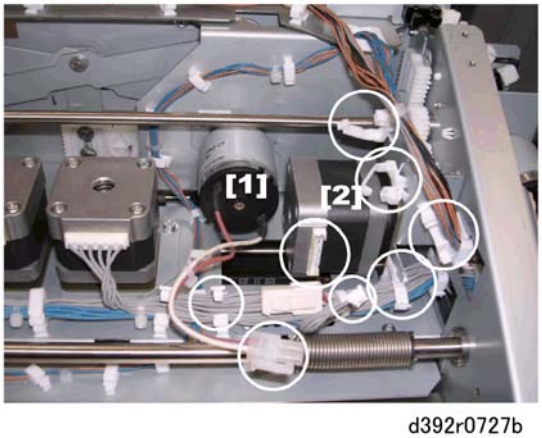
Runout Press Roller Motor (M610)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



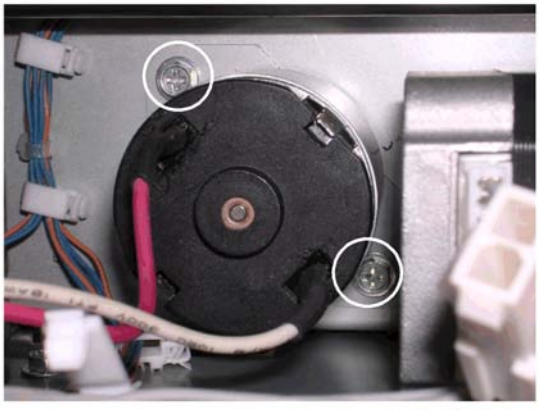
d392r0727a

3. Remove the pre-bind jogger left cover.



d392r0727b

4. Disconnect the pin alignment motor [1], and the runout press roller motor [2] (x2, x5, Standoff x1).



d392r0727c

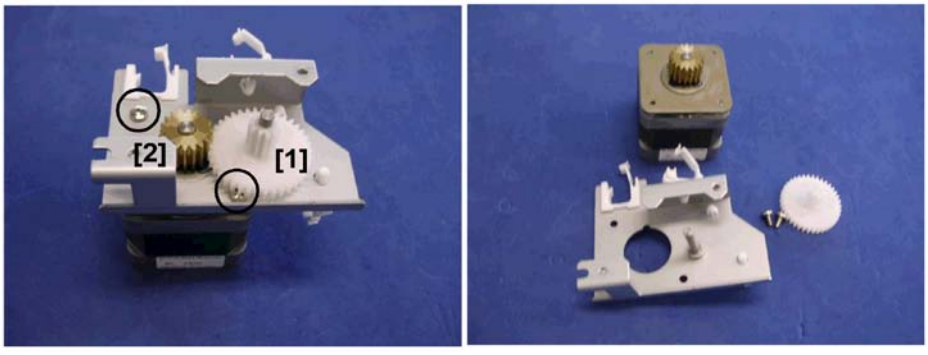
5. Disconnect the pin alignment motor bracket (x2).

d392r0727d

6. Remove the pin alignment motor.

d392r0727e

7. Remove the runout press roller motor bracket.

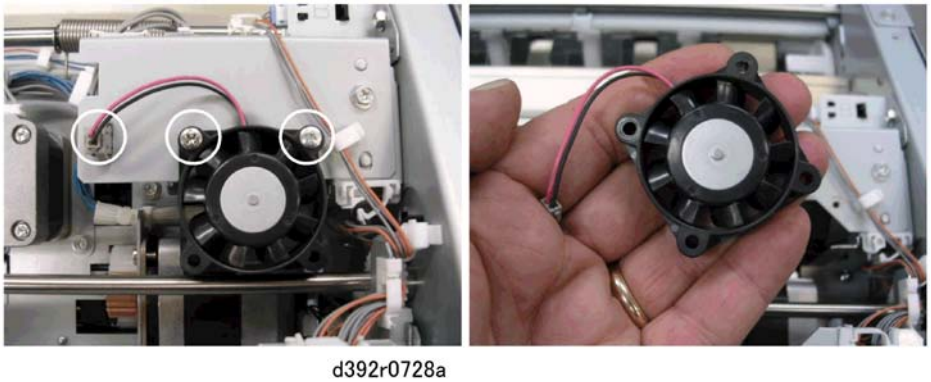


d392r0727f

8. Remove the timing gear [1], then separate the bracket [2] and the motor (x2).

Fan Motor (M611)

1. Open the right front door and pull out the binder unit.
2. Remove the left cover of the pre-bind jogger unit. (p.43)



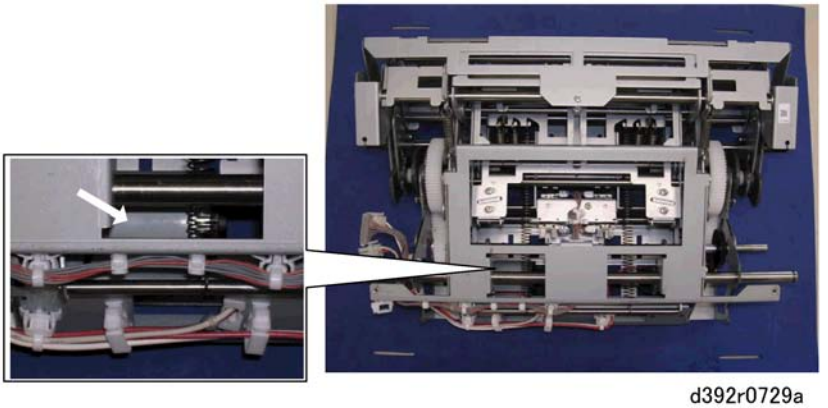
d392r0728a

3. Remove the fan motor (x1, x2).

Clamp Unit Motors

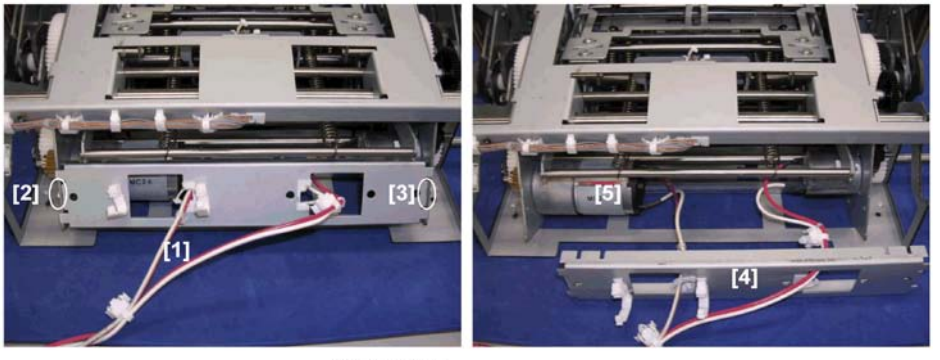
Clamp Unit Motor (M701)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (p.38)



d392r0729a

3. Remove the clamp unit.



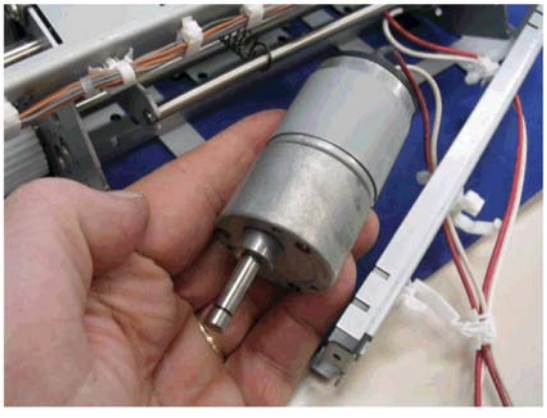
d392r0729b

4. Release the harnesses [1] (Standoffs x2, x4).
5. Remove screws [2] and [3] from the left and right ends of the brace.
6. Pull off the brace [4] to expose the motor [5].

d392r0729c

7. Mark the shaft and timing gear [1] with a black marker. (This will make it easier to reattach the gear at reinstallation.)

8. Remove the e-ring [2] and pull off the gear.
9. Remove the motor screws [3].

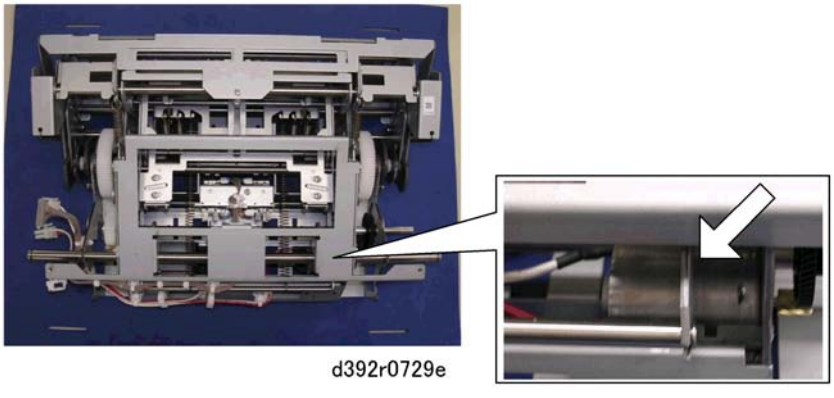


d392r0729d

10. Remove the motor.

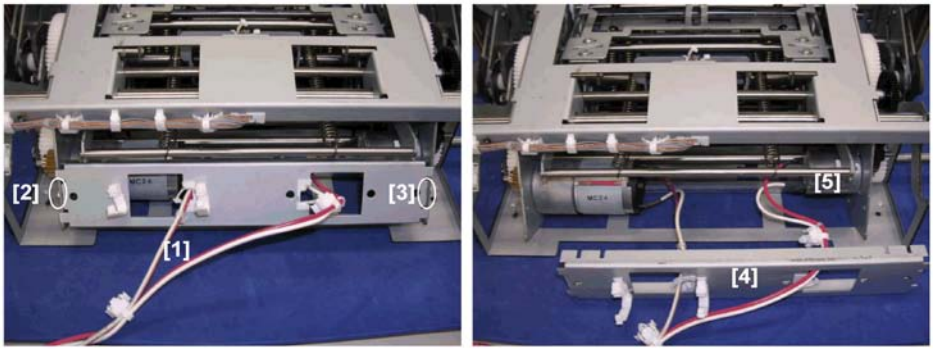
50/100 Clamp Adjust Motor (M702)

1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



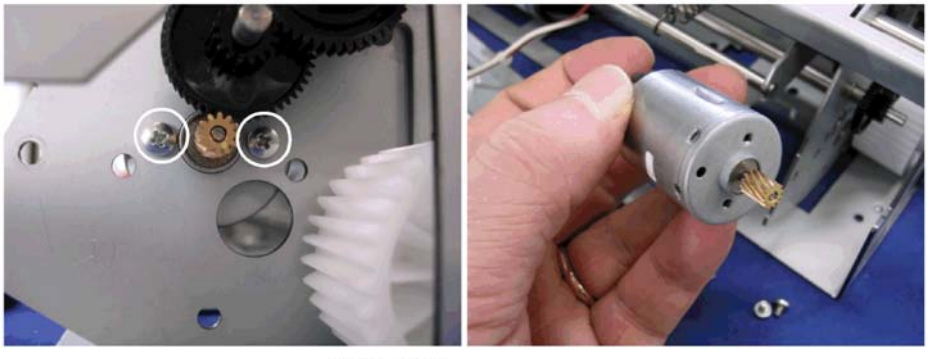
d392r0729e

3. Remove the clamp unit. (☛ p.49)



d392r0729f

4. Release the harnesses [1] (Standoffs x2, x4).
5. Remove screws [2] and [3] from the left and right ends of the brace.
6. Pull off the brace [4] to expose the motor [5].



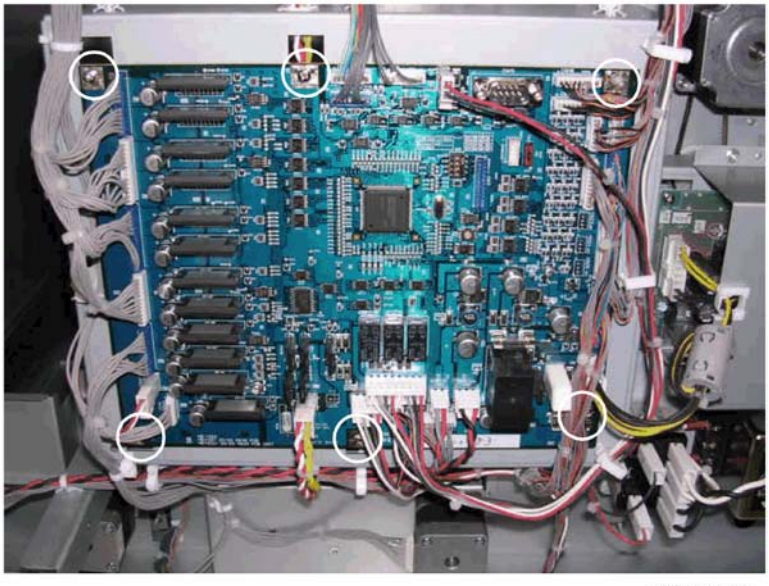
d392r0729g

7. Disconnect the harnesses and remove the motor (x2). (☛ p.34)

Boards

Main Control Board

1. Remove the rear cover. (☛ p.36)



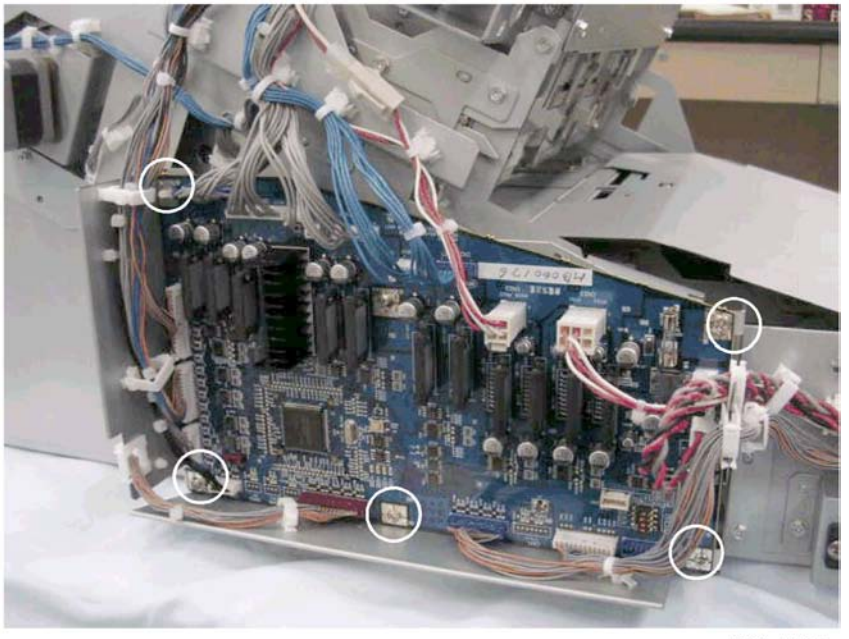
d392r1103

2. Remove the main control board (✋ xAll, 🔩 x5, Standoff x1 at upper right corner).
3. After you install the new board, do SP6504 to SP6507. (See Section 5 of the main Service Manual.)

Binder Control Board

Removing the Binder Control Board

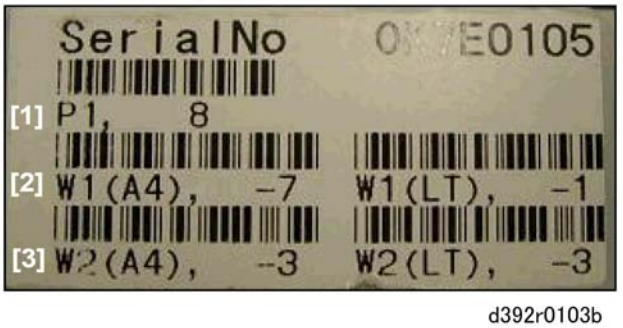
1. Open the right front door.
2. Remove the binder unit from its rails and set it on a flat surface. (☛ p.38)



d392r1104

3. Remove the binder control board from the side of the binder unit (x All, x4, Standoff x1 at upper left corner).
4. Install the new board.

Doing the SP adjustments



d392r0103b

1. Locate the label attached to the bottom cover of the pre-bind jogger unit (shown above).
2. Enter the SP mode and enter the values on the label.
   - Do SP6505 and enter the value of the 1st line [1].
   - Do SP6506 and enter the 1st value of the 2nd line [2] for A4 or the 2nd value for LT.
   - Do SP6507 and enter the 1st value of the 3rd line [3] for A4 or the 2nd value for LT.

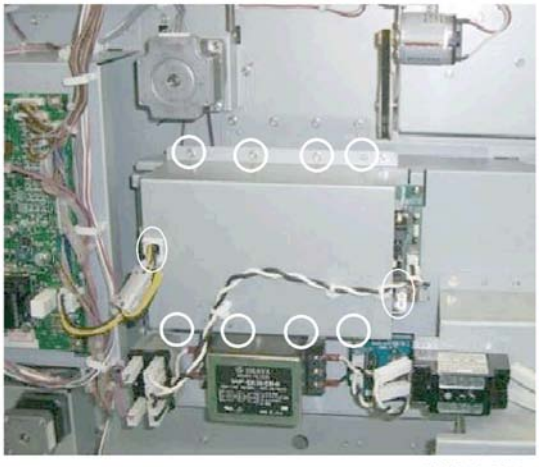
Important

- **The A4 punch unit must be installed for punching and binding A4 sheets; the LT punch unit must be installed for punching and binding LT sheets. Also, the proper size rings (A4 or LT) must be installed in the ring cartridge.**

3. Also, input the value of SP6504. (See Section 5 of the main Service Manual.)

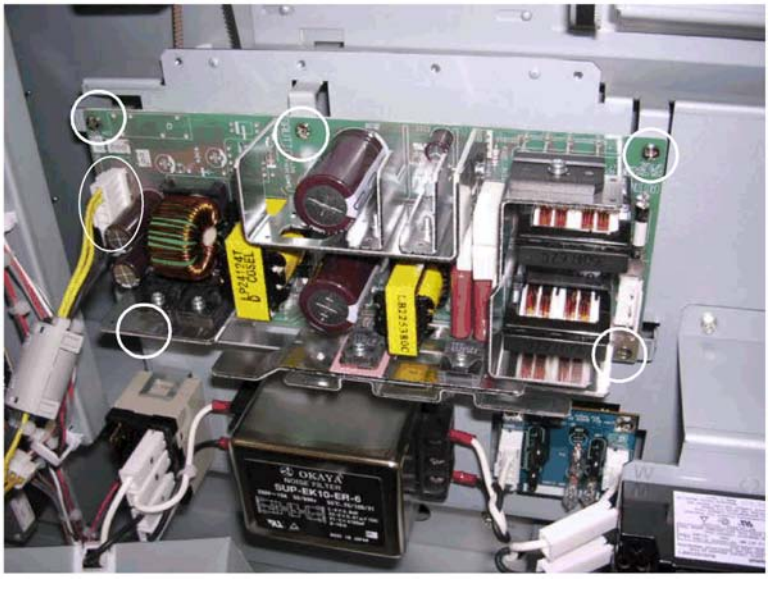
PSU

1. Remove the rear cover. (☛ p.36)



d392r1105

2. Remove the protection plate (x2, x1, x8).



3. Remove the PSU (x1, x5).

4. Troubleshooting

Service Call Tables

For details about "Service Call Tables" for this peripheral, see the main service manual.

5. Service Tables

Service Program Mode

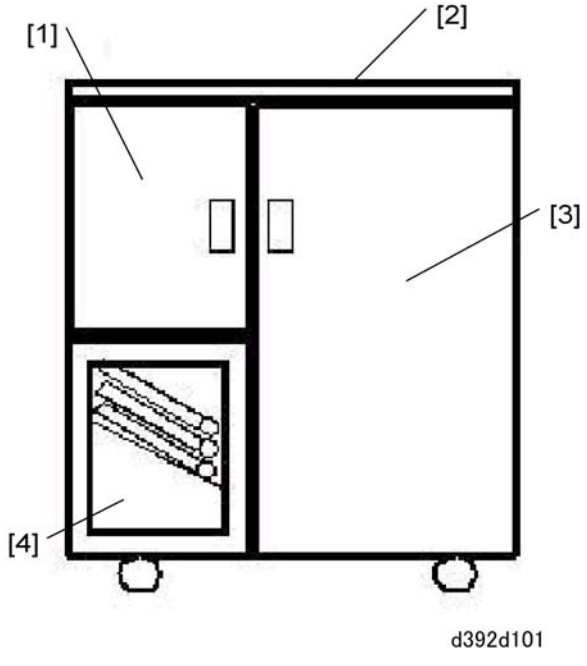
For details about "Service Program Mode" for this peripheral, see the main service manual.

6. Details

Overview

Important Parts

External View



[1] Left Door

[2] Top Cover

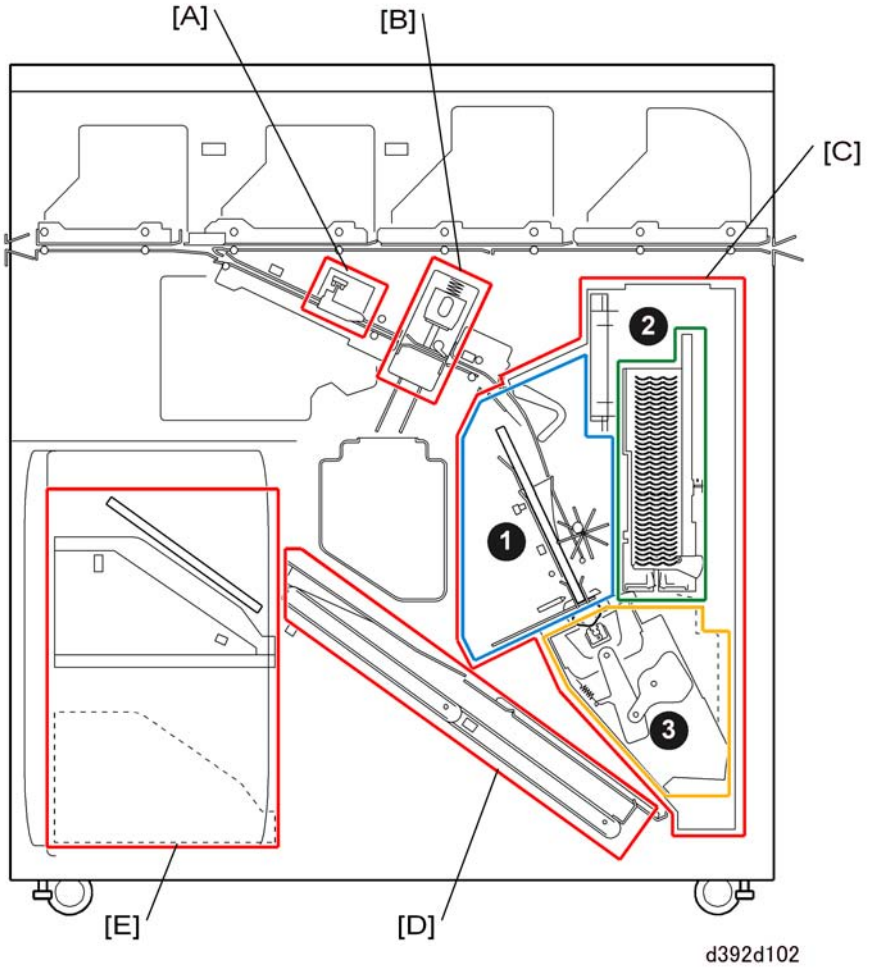
[3] Right Door

[4] Output Tray

Important

- The open area below the output tray [4] must remain free of obstacles.
- This must not be used as a storage area for paper or other supplies.

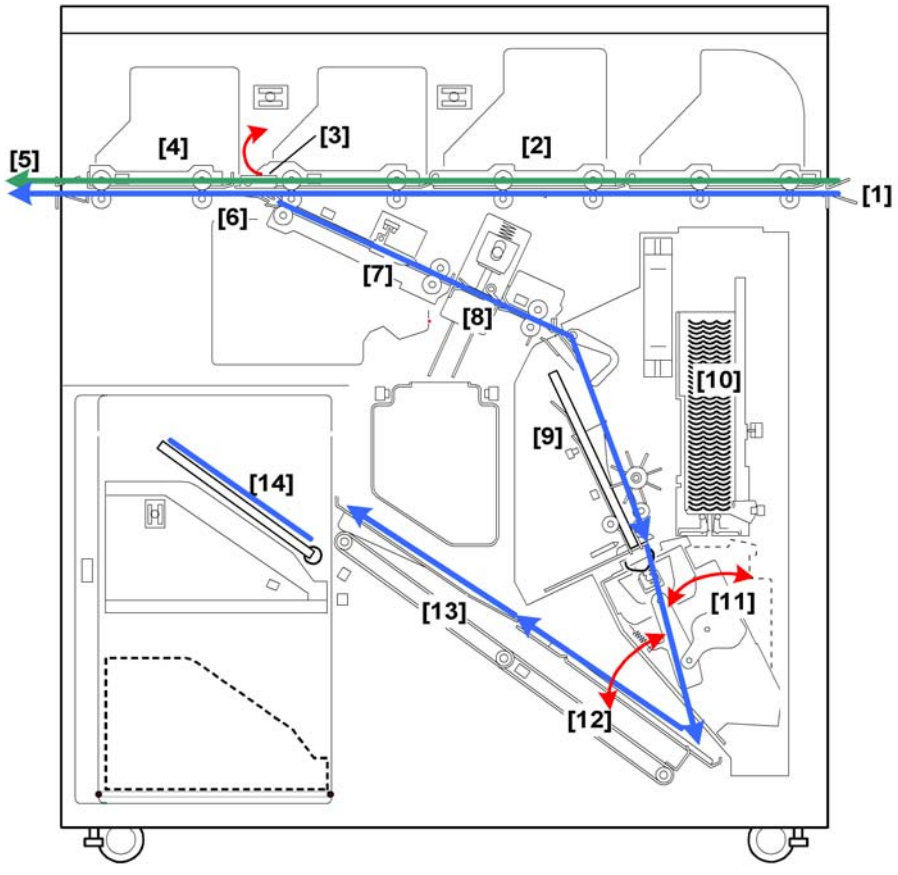
Cross Section



[A]	Pre-Punch Jogger Unit
[B]	Punch Unit
[C]	Binder Unit
①	Pre-Bind Jogger Unit
②	Ring Supply Unit (with Ring Cartridge)
③	Clamp Unit
[D]	Output Belt Unit

[E]	Stacker Unit

Paper Transport



Downstream delivery

Paper enters the finisher at the entrance [1]. The transport rollers [2] feed the paper through the finisher and past the switchback junction gate [3], which remains up. The exit rollers [4] feed the paper out of the finisher at [5].

Ring binding

Paper enters the finisher at the entrance [1]. The transport rollers [2] feed the paper through the finisher and past the switch back junction gate [3] which remains open. The exit rollers [4] feed the paper partially out of the finisher at [5] and stop.

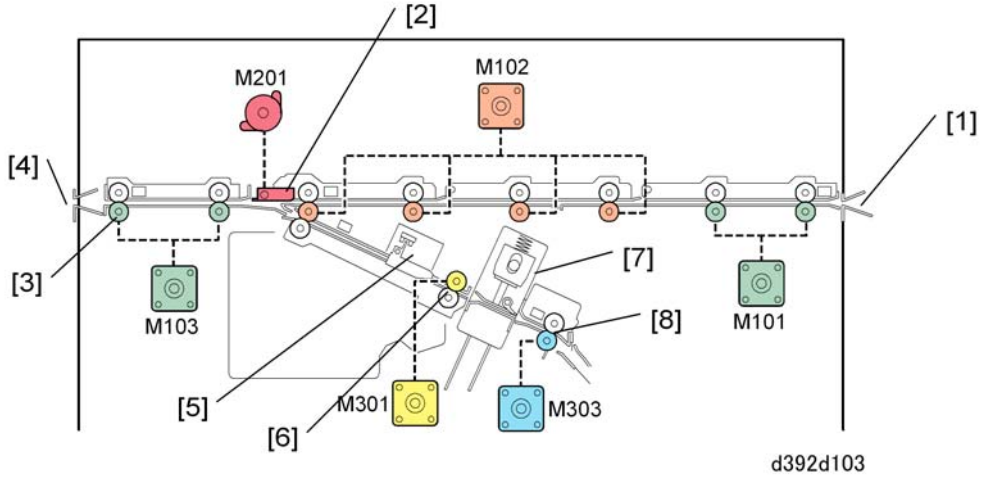
The switchback junction gate [3] lowers. The exit rollers [4] reverse and feed the paper toward the lowered junction gate. At [6], the junction gate feeds the paper down to the pre-punch jogger [7], where the paper is aligned for punching.

The punch unit [8] punches the paper and feeds the paper to the pre-bind jogger [9], where the sheets are stacked, aligned, and clamped for ring binding.

The ring supply unit and ring cartridge [10] holds the rings. The clamp unit [11] takes one ring from the ring cartridge and swings left to the pre-bind jogger (this is holding the clamped stack) and closes the rings around the spine of the stack.

Output belt 1 [12] raises and catches the bound stack and then lowers back to the same level as output belt 2 [13]. Output belt 1 and 2 then feed the document to the stacking unit [14].

Paper Feed and Switchback



[1] Entrance

[2] Switchback Junction Gate

[3] Exit rollers

[4] Exit

[5] Pre-Punch Jogger Side Fences

[6] Pre-Punch Jogger Rollers

[7] Punch Unit

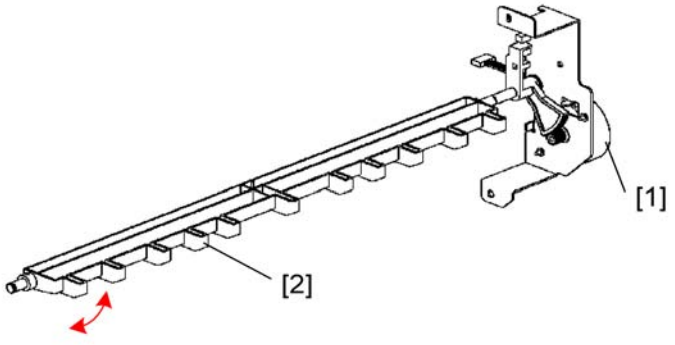
[8] Punch Unit Runout Rollers

M101	Entrance Motor	Drives the entrance roller and 1st transport roller at the entrance of the ring binder.

M102	Transport Motor	With its long timing belt, drives transport rollers 2, 3, 4, and 5 in the horizontal paper path.
M201	Path JG Motor	Operates the path junction gate near transport roller 4 in the horizontal path. A spring normally keeps the junction gate open so that paper can pass straight through the finisher for downstream delivery. Closes the junction gate after paper has passed. The exit motor reverses and feeds the paper past the closed junction gate into the binding path below.
M103	Exit Motor	Drives the 6th transport roller and exit roller in the horizontal paper path for downstream delivery (the paper passes straight through with no punching or binding). For ring binding, this motor reverses and feeds the paper past the closed switchback junction gate to the binding path below.
M301	Jog Roller Motor	Operates the jog roller that feeds the paper into the pre-punch jogger unit.
M303	Punch Unit Runout Motor	Rotates the punch runout roller that feeds the punched sheet out of the punch unit to the pre-bind jogger.

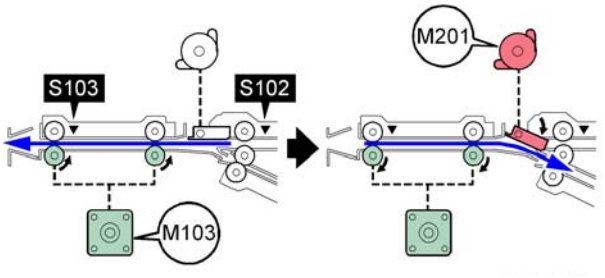
Pre-Punch Jogging and Punching

Switchback



d392d125

The path junction gate motor (M201) [1] raises and lowers the switchback junction gate [2]

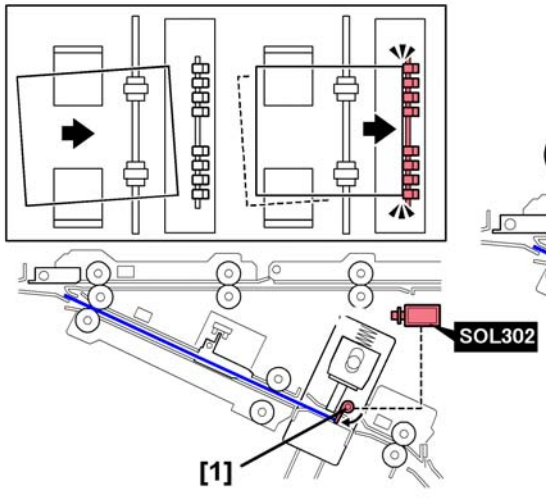


d392d105

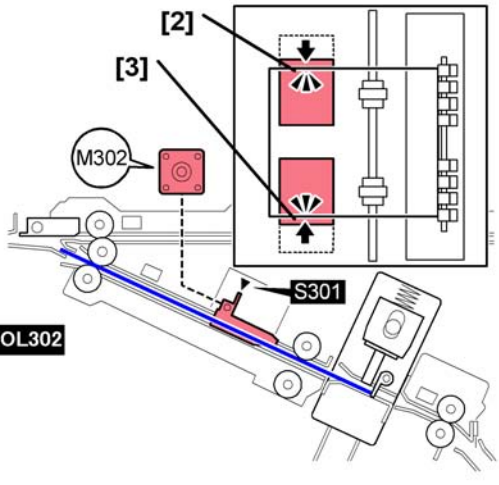
M201	Path JG Motor	Operates the path junction gate near transport roller 4 in the horizontal path. A spring normally keeps the junction gate open so that paper can pass straight through the finisher for downstream delivery. At the start of a binding job, rotates the junction gate which closes the horizontal path. This changes the direction of the paper (switchback) and feeds it to the punch unit below.
S103	Exit Sensor	Detects the leading and trailing edge of each sheet at the exit roller. Detects a jam if the paper fails to arrive (late jam) or stops (lag jam).
S102	Transport Sensor	Detects the leading and trailing edge of each sheet at transport roller 5 by the junction gate. Detects a jam if the paper fails to arrive (late jam) or stops (lag jam).

M103	Exit Motor	Drives the 6th transport roller and exit roller in the horizontal paper path for downstream delivery (the paper passes straight through with no punching or binding).

Pre-Punch Jogging



d392d106

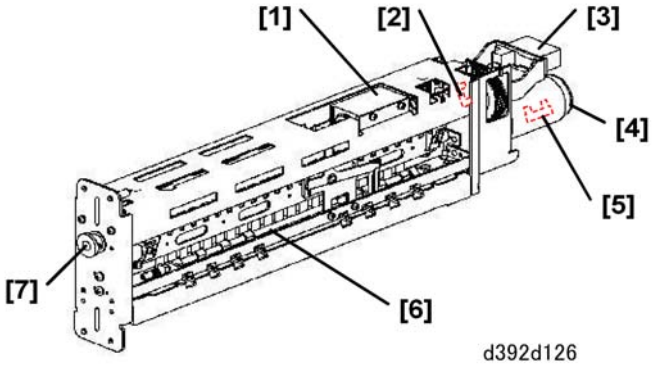


d392d107

[1]	Stopper	
[2]	Front Side Fence	
[3]	Rear Side Fence	

M302	Side Jogger Motor	Drives the front and rear fence to center each sheet of paper so that it is aligned for punching. Sheets are aligned and punched one at a time.
SOL302	Top Fence SOL	Opens and closes the stopper inside the punch unit that improves the accuracy of hole punching on the leading edge of each sheet.
S301	Pre-Punch Jogger HP Sensor	Detects the home position of the front and rear jogger fences in the pre-punch jogger unit.

Paper Punching

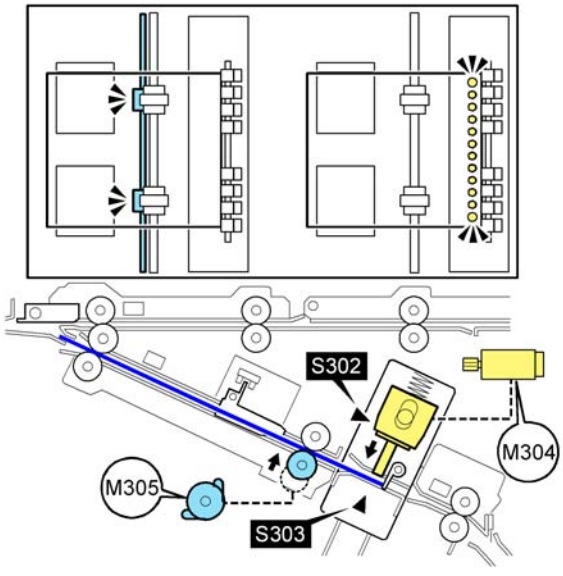


[1]	Top fence solenoid (SOL302) opens and closes the stopper [6].
[2]	Punch HP Sensor (S302) detects the starting point for punching.
[3]	Drawer Connector
[4]	Punch motor (M304)
[5]	Punch encoder sensor (S303) controls speed, stop control for operation based on load changes for thick paper, thin paper.
[6]	Stopper stops the paper at the punching position.
[7]	Knob used to pull the punch unit out of the finisher.

There are two separate punch units, one for A4 paper and one for LT paper.

- The A4 punch unit punches 23 holes.
- The LT punch unit punches 21 holes.

The correct type of punch unit must be installed for A4/LT punching. The job will not execute if the paper size (A4 or LT) does not match the punch unit. The system always recognizes which type of punch is installed (based on the punch circuitry.)

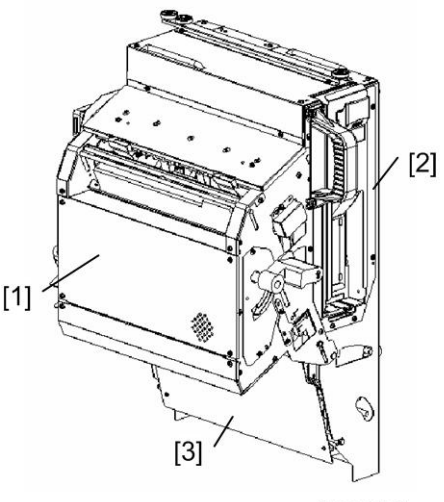


d392d108

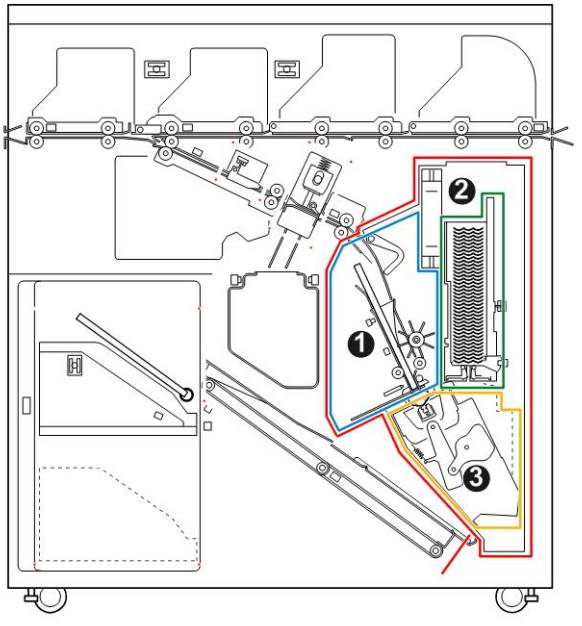
M305	Jog Roller Lift Motor	Opens the nip of the rubber rollers by raising the idle rollers in the pre-punch jogger unit so that the paper can be freed for horizontal alignment (perpendicular to the direction of paper feed) by the front and rear fence in the pre-punch jogging unit.
S303	Punch Encoder Sensor	Controls the start and stop timing of the punching operation by counting rotations of the punch motor (M304).
S302	Punch HP Sensor	Detects the home position of the punch unit. Signals an error if the punch unit is not installed or not installed properly.
M304	Punch Motor	Drives the punch unit that punches holes in the paper. There are two types of punches: 1) A4 23 hole-, 2) LT 21-hole. The punch unit must be replaced to switch between A4/LT punching.

Binder Unit

Overview



d392d127



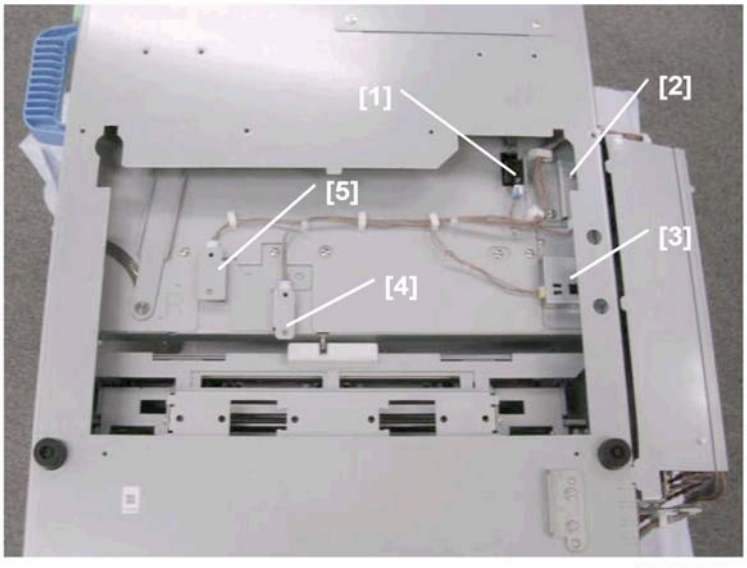
d392d139

Three units comprise the binder unit.

[1]	Pre-bind jogger unit	Jogs and stacks each punched sheet so that the document is aligned for ring binding.
[2]	Ring supply unit	Holds the ring cartridge that feeds a single ring to the clamp unit below.
[3]	Clamp unit	Takes a ring from the bottom of the ring cartridge and swings right to insert the ring into the holes in the stack in the pre-bind jog unit.

Ring Supply Unit

Locations of Components



d392d140

[1] Cartridge Detection Sensor (S801)

[2] Ring Cartridge Type Sensor (S805)

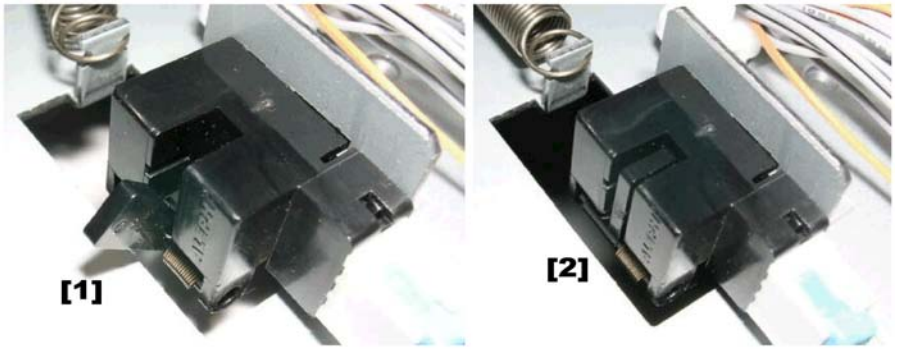
[3] Ring Near-End Sensor (S803)

[4] Rings Reversed Sensor (S802)

[5] 500/100 Ring Detect Sensor (S804)

[1] Ring Cartridge Detection: Cartridge Detection Sensor (S801)

Detects the presence of the ring cartridge. Triggers an alert if the ring cartridge is not installed or installed incorrectly.

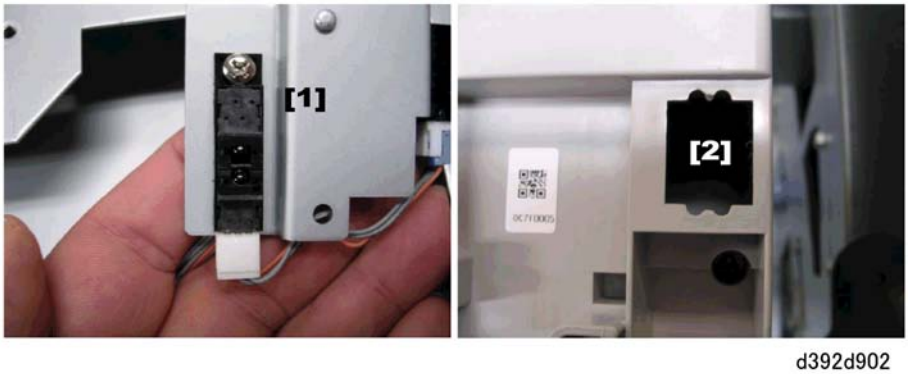


d392d907

Pushing the ring cartridge into the binder unit pushes the actuator arm [1] out of the gap of the interrupt sensor, and the cartridge is ready to feed rings. Pulling out the ring cartridge releases the actuator arm [2], turns on the sensor, and signals that the ring cartridge is not installed.

[2] Ring Type Detection: Ring Cartridge Type Sensor (S805)

This sensor detects which type of ring cartridge is installed (A4 or LT).

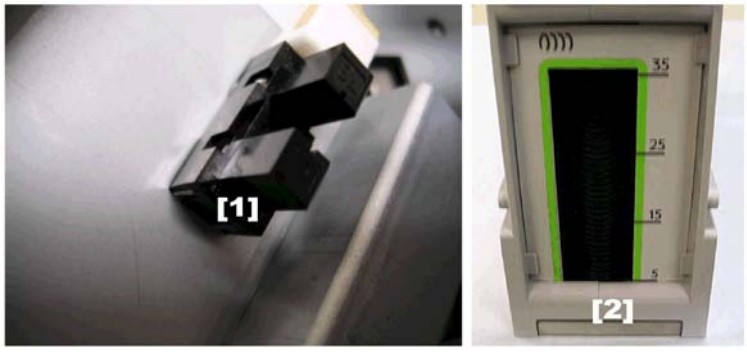


d392d902

The ring cartridge type sensor (S805) [1] is a photo-sensor. The LT cartridge has an open knockout [2]. The A4 cartridge has a cover. The sensor detects the cartridge type by the absence (shown above) or presence of the cover.

[3] Ring Supply Level Detection: Ring Near-End Sensor (S803)

This interrupt sensor detects when approximately 5 rings remain in the ring cartridge.

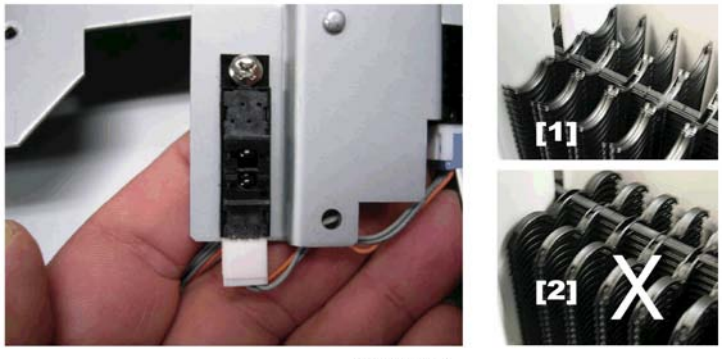


d392d903

An actuator attached to a descending weight on top of the ring stack turns this sensor [1] on when it reaches the bottom of the ring stack. A graduated scale [2] attached to the front of the ring cartridge at installation also allows the operator to see the number of rings remaining in the ring cartridge.

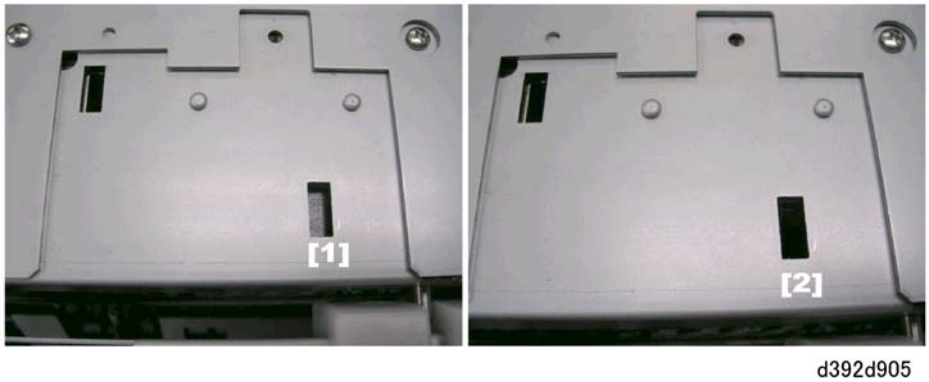
[4] Ring Loading Detection: Rings Reversed Sensor (S802)

This photo-sensor detects when rings have been loaded incorrectly.



d392d904

Rings must be loaded in the cartridge with the open side facing up [1] not down [2].



d392d905

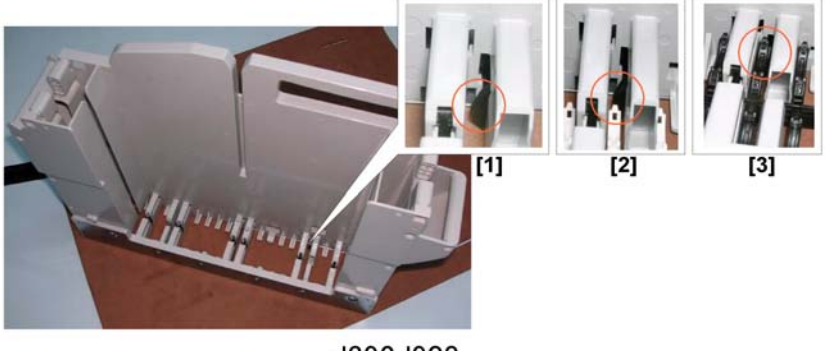
When the rings are loaded correctly, this pushes a cover into the window [1]. When the rings are loaded incorrectly, the cover does not appear on the window [2]. The sensor determines whether the rings are loaded correctly based on the presence or absence of the cover.

[5] Ring Size Detection: 500/100 Ring Detect Sensor (S804)

This photo-sensor detects the ring size. There are only two ring sizes: 50-sheet, and 100-sheet.

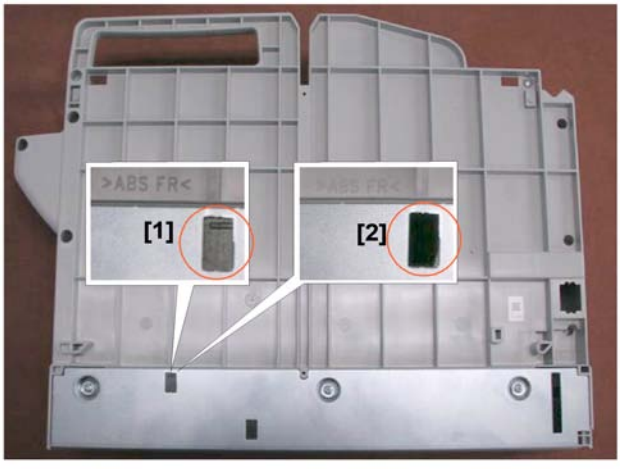
d392d906

An actuator opens and closes a window on the right side of the ring cartridge.



d392d908

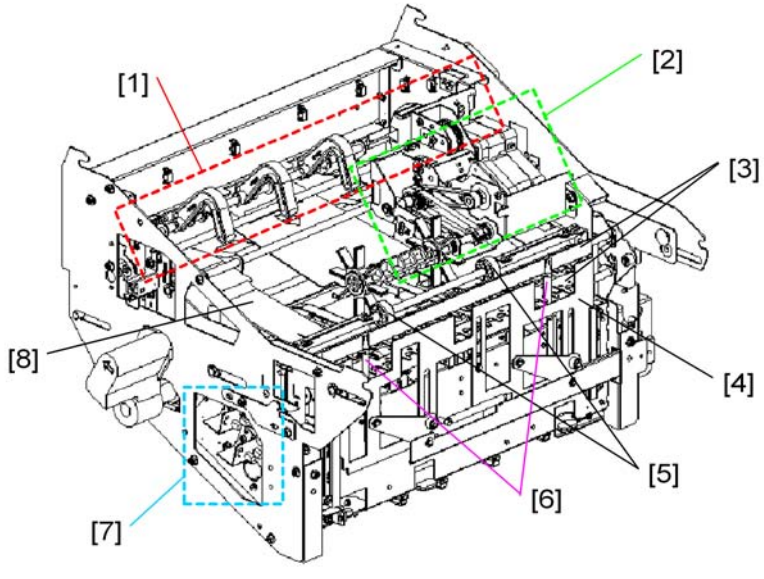
The actuator [1] remains up when 50-sheet rings [2] are installed. The wider 100-sheet rings [3] push the actuator down.



d392d909

The cover on the right side of the cartridge remains closed [1] when the 50-sheet size rings are installed. The cover opens [2] when the 100-sheet size rings depress the actuator. The sensor detects whether the cover is open (50-sheet rings) or closed (100-sheet rings).

Pre-Bind Jogger

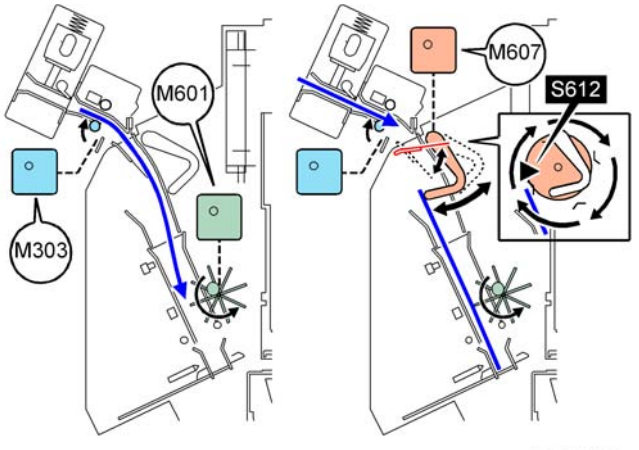


d392d128

[1]	Stack Tamper Mechanism	Presses down each sheet as it enters the pre-bind jogger so that the following sheet can feed smoothly.

[2]	Paddle Roller Mechanism	Feeds each sheet into the unit until the leading edge hits the top edge of the shutter and stops.
[3]	Clamp Mechanism	Clamps the punched leading edge of the stack and holds it while the rings are inserted and closed.
[4]	Shutter Mechanism	Raises and stops the punched leading edge of each sheet when the stack is formed for ring binding.
[5]	Stack Runout Mechanism	Feeds the stack out of the pre-bind jogger unit after the rings have been inserted and closed.
[6]	Alignment Pin Mechanism	Inserts two pins in the last holes on either end of the leading edge to make sure that the holes are aligned correctly for ring binding.
[7]	Stack Thickness Detection Mechanism	Determines the thickness of the stack (the thickness determines how far the paddle roller must be raised).
[8]	Jogger Mechanism	Jogs the top and bottom edges of the stack between the front fence and rear fence.

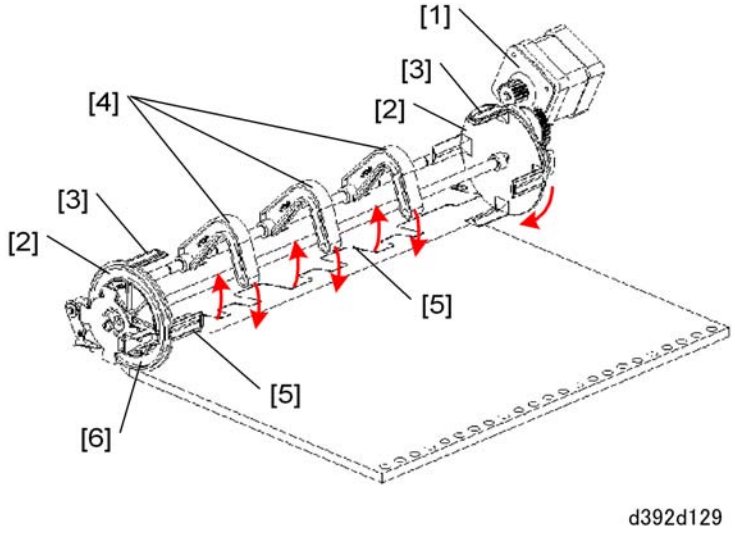
Stack Tamper Mechanism



d392d109

M303	Punch Unit Runout Motor	Rotates the punch runout roller that feeds the punched sheet out of the punch unit to the pre-bind jogger.
M601	Paddle Roller Motor	Drives the paddle roller in the pre-bind jogger that pushes the leading edge of each sheet against the raised shutter to align

		the stack. The motor drives the roller at a speed that is slightly faster than the line speed.
M607	Stack Tamper Motor	Drives the cam that operates the tamper arms, posts, and mylar sheet that press down the trailing edge of each sheet as it enters the pre-bind jogger unit so that the path is clear for the next sheet.
S612	Stack Tamper HP Sensor	Detects the actuator of the tamper fence and stops the stack tamper motor (S607). The allowed arc of rotation is 90 degrees.



[1] Stack Tamper Motor (M607)

[2] Tamper Wheels

[3] Tamper Posts

[4] Tamper Arms

[5] Tamper Plate (mylar)

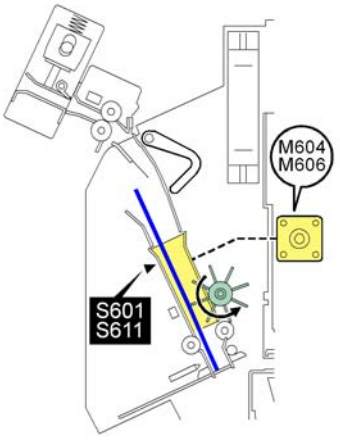
[6] Stack Tamper HP Sensor (S612)

The stack tamper motor [1] (M607) drives the tamper wheels [2], posts [3], arms [4], and mylar tamper plate [5] that press down on the top and ends of the trailing edge to keep the paper feed path open for the next sheet approaching.

After the sheet enters the binder unit, the arms rotate down 90 degrees to press down the trailing edge of the paper. The stop position of the tamper fence is controlled by the stack tamper HP sensor [6] (S612).

The mylar tamper plate is linked to the rotation of the stack tamper arms so that the tamper arms, tamper plate, and posts of the tamper fence press down on the trailing edge of the sheet at the same time after the sheet has passed over the mylar tamper plate (a cam controls this mechanism).

Pre-Bind Jogger Mechanism



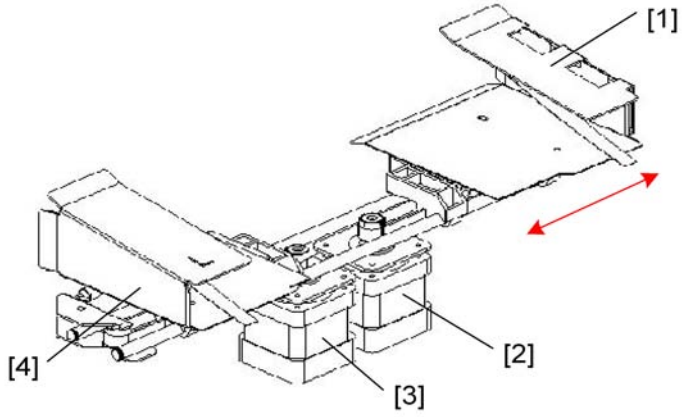
d392d110

Fence 1 (Front Fence)

M604	Jog Fence Motor 1	Operates Side Fence 1, the front jogger fence in the pre-bind jogger unit. At the start of every job, moves the front fence to the position for the selected paper size and stops. The rear fence jogs the paper against the stationary front fence.
S601	Side Fence 1 HP Sensor	Detects the home position of the front side fence of the pre-bind jogger. The home or default position is for A4-size paper. (The front fence moves between two positions: A4 and LT.)

Fence 2 (Rear Fence)

M606	Jog Fence Motor 2	Operates Side Fence 2, the rear jogger fence in the pre-bind jogger unit. At the start of every job, moves the front fence to the start position for the selected paper size and waits. As each sheet is fed, the motor pushes the rear side fence forward and then retracts it. This jogs the edge of each sheet against the stationary front fence.
S611	Side Fence 2 HP Sensor 2	Detects the home position of side fence 2 (rear fence) in the pre-bind jogger unit.



[1] Side Fence Motor 1 (M604)

[2] Side Fence 1 (Front)

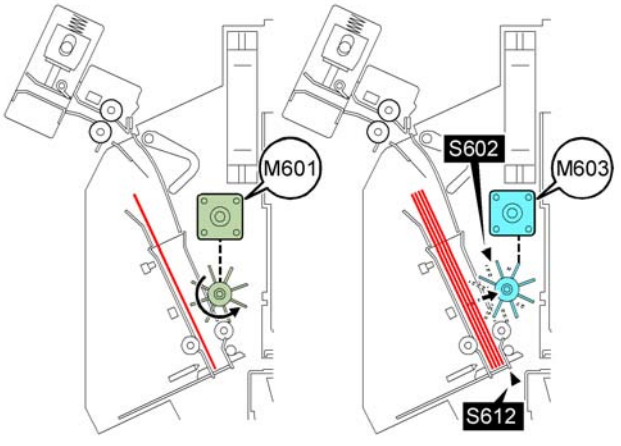
[3] Side Fence Motor 2 (M606)

[4] Side Fence 2 (Rear)

Side fence motor 1 (M604) [1] moves side fence 1 [2] via a timing belt to the position for the selected paper size (A4 or LT) and stops. Side fence 1 HP sensor controls the operation of side fence motor 1 (M604).

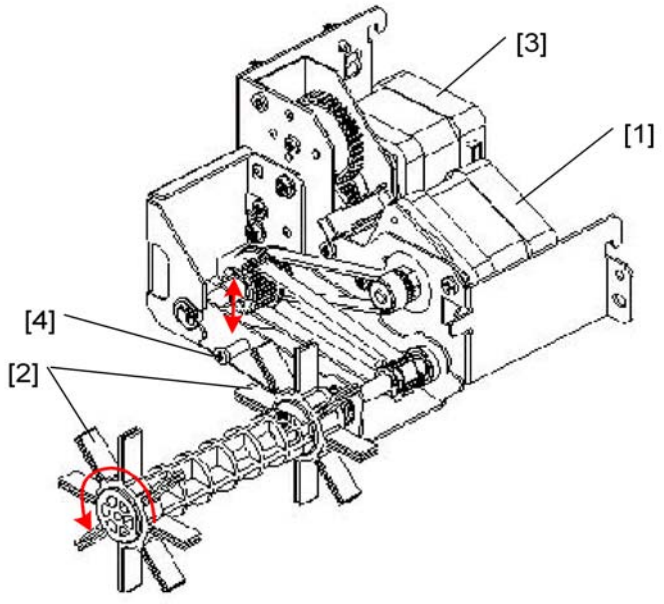
Side fence motor 2 (M606) [3] moves side fence 2 [4] (the rear fence) to the front and back to jog each sheet against side fence 1 which remains stationary. The side fence 2 HP sensor (S611) controls the operation of side fence motor 2 to make sure that side fence 2 moves the prescribed distance for the selected paper size.

Paddle Roller Mechanism



d392d111

M601	Paddle Roller Motor	Drives the paddle roller in the pre-bind jogger that pushes the leading edge of each sheet against the raised shutter to align the stack. The motor drives the roller at a speed that is slightly faster than the line speed.
M603	Paddle Roller Lift Motor	Raises and lowers the paddle roller. Raises the paddle roller to the proper height for the stack. The readings of the stack thickness sensor (S607) are used to determine when and how far the paddle roller is raised by the motor. At the end of the job, lowers the paddle roller as far as the paddle roller HP sensor (S601).
S602	Paddle Roller HP Sensor	Detects the descending paddle roller and switches off the paddle roller motor (M601) so that the roller stops at its home position.
S612	Stack Tamper HP Sensor	Detects the actuator of the tamper fence and stops the stack tamper motor (S607). The allowed arc of rotation is 90 degrees.



d392d131

[1] Paddle Roller Motor (M601)

[2] Paddle Rollers

[3] Paddle Roller Lift Motor (M603)

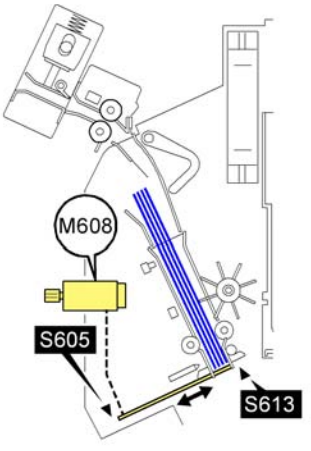
[4] Lift Pin

The paddle roller motor (M601) [1] drives the paddle rollers [2]. The rotation of the paddle rollers pulls each sheet into the pre-bind jogger and pushes the leading edge against the shutter. The operation of the paddle mechanism ensures that the paper that has entered the jogging unit feeds as far as the raised shutter and stops at its leading edge.

The paddle roller, comprised of soft rubber strips, is rotated at a speed slightly faster than the line speed to rake the paper into the pre-bind jogger.

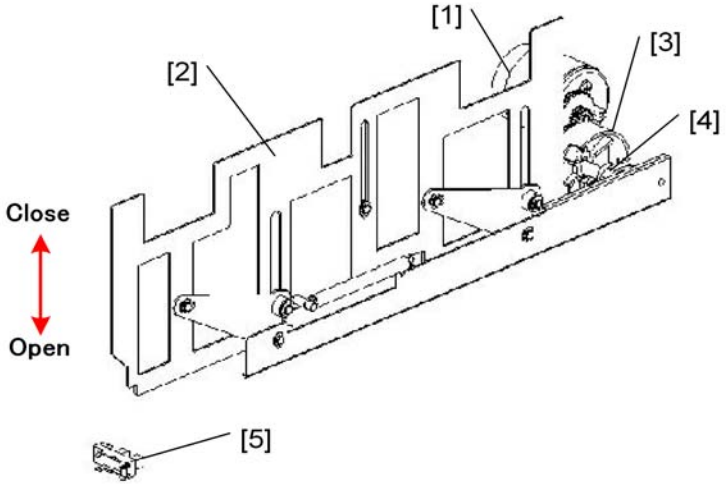
The height of the paddle roller is controlled by the paddle roller lift motor (M603) and the paddle roller HP sensor (S602). The paddle roller is raised to the correct height for the thickness of the stack and then remains at a prescribed distance away from the surface of the stack. The height of the paddle roller is controlled by the thickness of the stack detected by the stack thickness sensor (S607).

Shutter Mechanism



d392d112

M608	Shutter Motor	Raises and lowers the shutter. Raises the shutter to provide a fence to stop the leading edge of each sheet as it enters the pre-bind jogger. Lowers the shutter so the assembled stack can be clamped for binding.
S605	Shutter HP Sensor 1	Detects the actuator of the shutter when it is lowered, signals that the shutter has returned to its home position, and switches off the shutter motor (M608).
S613	Shutter HP 2 Sensor	Detects the stop positions of the shutter and shuts off the shutter motor (M608). There are two stop positions. The shutter is raised and stopped so that the leading edge of the stack in the pre-bind jogger can be aligned against the shutter, and then lowered and stopped so that the punched leading edge can be bound with the rings.



[1] Shutter Motor (M608)

[2] Shutter

[3] Shutter Drive Gear

[4] Shutter Cam

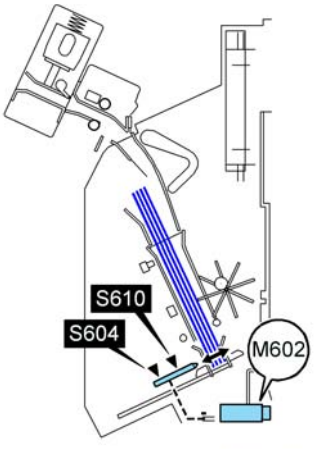
[5] Shutter HP Sensor 1 (S605)

While the sides of the stack in the binder unit are being jogged, the shutter motor (M608) [1] closes the shutter [2] so that the leading edge of the stack will hit it and be aligned for binding.

The motor will open the shutter again for ring binding and book output. The shutter is closed and opened by the rotating shutter driver gear [3] and shutter cam [4] driven by the shutter motor (M608).

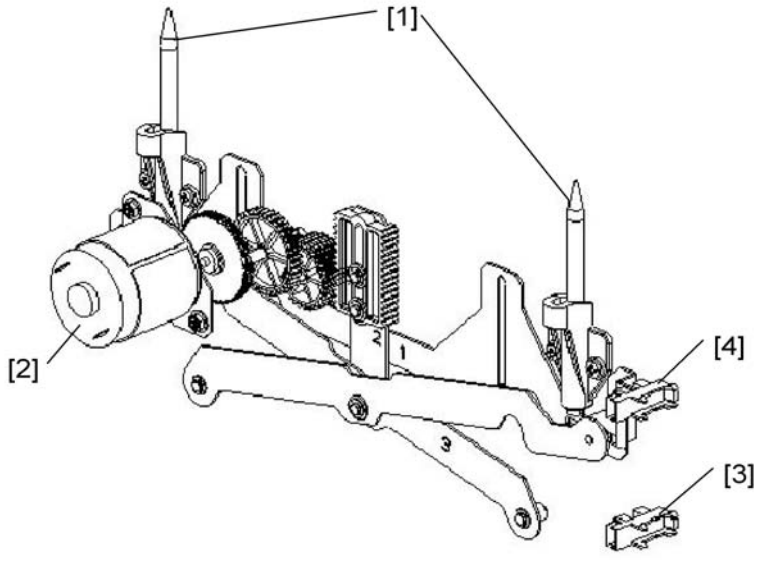
Shutter HP sensor 1 (S605) [5] detects the open/closed positions of the shutter, and shutter HP sensor 2 (S613) (not shown above) detects the stop position for the motor through a slit in the shutter drive gear.

Alignment Pin Mechanism



d392d113

M602	Alignment Pin Motor	Raises and lowers the alignment pins. Raises the pins until they pass through the holes on either end of the spine. This is the last alignment adjustment done before ring binding.
S610	Alignment Pin Up Sensor	Detects when the two alignment pins in the binder unit are at the full up position and inserted successfully into the two holes on either end of the stack.
S604	Alignment Pin HP Sensor	Detects the actuator of the alignment pin linkage, signals that the linkage has returned to its home position, and switches off the alignment pin motor (M602).



[1] Alignment Pins

[2] Alignment Pin Motor (M602)

[3] Alignment Pin HP Sensor (S604)

[4] Alignment Pin Up Sensor (S610)

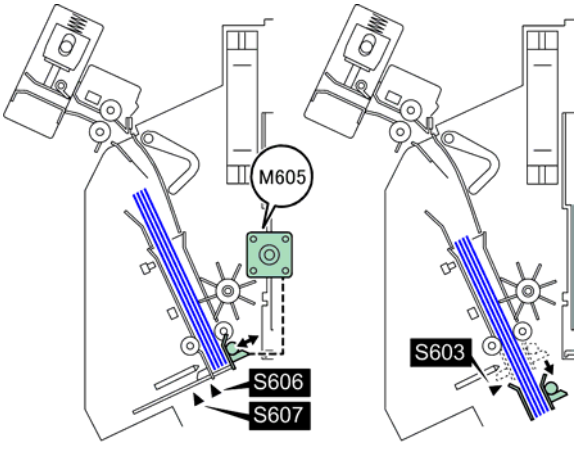
The two alignment pins [1] are inserted into the holes at either end of the punched edge to make sure that the spine is aligned correctly so that the rings can be inserted into the punched holes.

The alignment pins are projected and retracted by a scissors lift (rack and pinion) driven by the alignment pin motor (M602) [2].

Other than during the pin alignment operation, the pins remain retracted to their home positions detected by the alignment pin HP sensor (S604) [3].

During the pin alignment, the pins (driven by the alignment pin motor) project up and pass through the punch holes, and when the pins reach the punched holes, the alignment pin up sensor (S610) [4] detects the pins at their highest point and reverses the motor to retract the pins to the home position.

Stack Thickness Detection



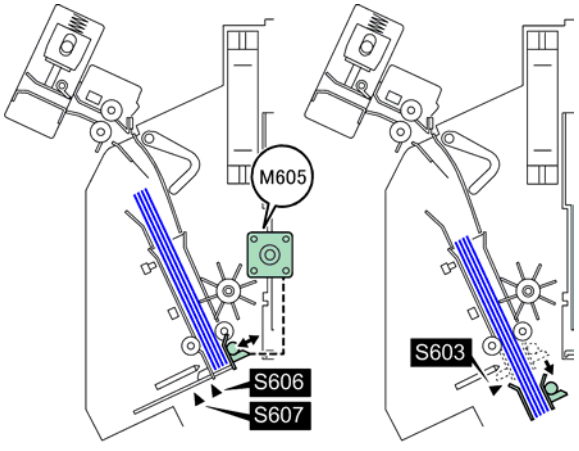
d392d114

S606	50-Sheet Detect Sensor	Detects when the stack is thicker than 5.5 mm. If the job is set for binding a 50-sheet document with the smaller 50-sheet rings, the job will stop if this sensor detects that the stack is thicker than 5.5 mm. The 5.5 mm thickness is the limit for a 50-sheet ring binding job.
S607	Stack Thickness Sensor	Measures the thickness of the stack through a cutout in the upper arm plate. This reading is used to adjust the height of the paddle roller when the stack is jogged in the pre-bind jogger.

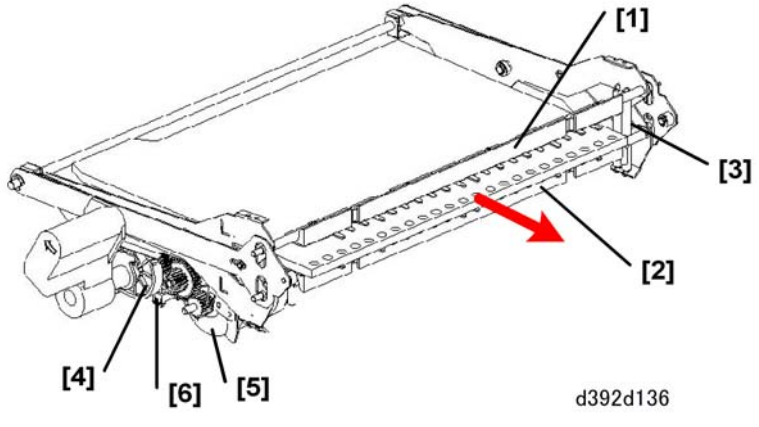
If the thickness of the stack in the jogger unit measured by the stack thickness sensor (S607) is more than 5.5 mm for a 50-sheet job or more than 11 mm for a 100-stack job, this will cause an overflow error.

The stack thickness sensor (S607) measures the stack through a cutout in the clamp upper arm plate. This reading is also used to adjust the height of the paddle roller.

Pre-Bind Unit Clamper



M605	Clamp Motor	Rotates the cam that opens and closes the clamp that clinches the punched spine of the stack after it has been jogged in the pre-bind jogger. The spine remains clamped until the rings have been inserted and closed.
S603	Clamp HP Sensor	Controls the operation of the clamp lift cam that opens the arms of the clamp in the pre-bind jogger. The jaws of the clamp (powered by large springs) close on the punched spine and do not release it until the rings have been inserted into the holes and closed.



[1] Upper Guide Clamp

[2] Lower Guide Clamp

[3] Clamp Spring

[4] Clamp Lift Cam

[5] Clamp Motor (M605)

[6] Clamp HP Sensor (S603)

The guide clamps [1] and [2] clinch the spine of the document before binding. The opposing upper and lower clamps are held closed by large springs [3].

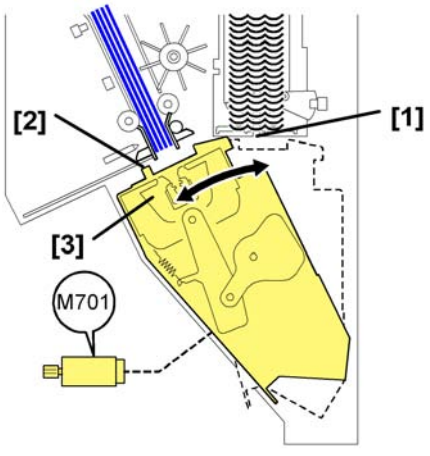
The rotation of the clamp lift cam [4] driven by the clamp motor (M605) [5] against a bearing attached to the clamp upper arm raises the clamp upper guide.

The rotation position of the clamp lift cam is controlled by the clamp HP sensor (S603) [6]. The clamp upper guide normally remains retracted and separated from the bearing of the clamp upper arm.

During ring binding, the stack is clinched only at the spine by the upper and lower guide clamps and pulled in the direction of the arrow for ring binding by the clamp binder motor (M701).

Ring Binding

Ring Loading, Clamp Unit Swing Mechanism

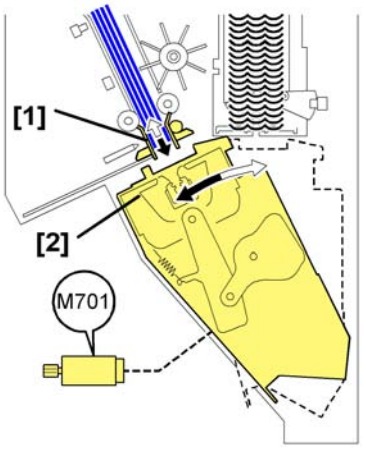


M701: Clamp Binder Motor

The clamp binder motor (M701) performs these operations:

- Drives the linkage and gear that raises the ring clamper to the bottom of the ring supply unit [1] to clinch one ring strip and pull it away from the bottom of the ring stack.
- Drives the gear> cam> linkage that swings the top of the ring binder (holding the ring strip) toward the bottom of the pre-bind jogger [2] (where the clamped spine of the stack is exposed and waiting for the rings to be inserted and closed).
- Rotates the cam> gear> linkage that pulls the closer [3] down to close the rings into the holes and around the spine of the document.

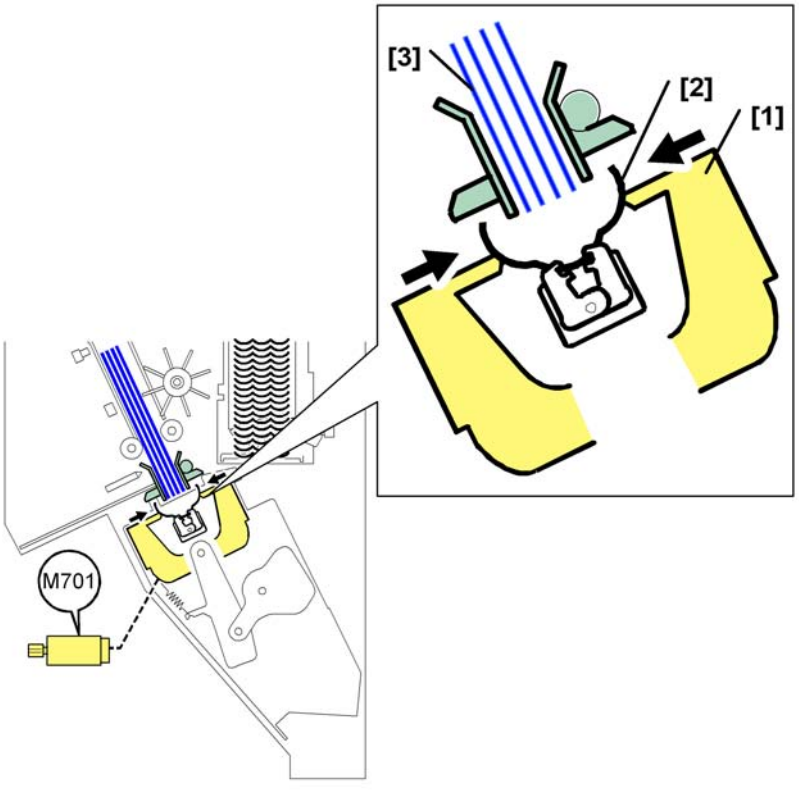
Lowering the Punched Stack for Binding



M701: Clamp Binder Motor

The clamp binder motor (M701) rotates a cam via a gear, and this pulls down a link that pulls the pre-bind jogger [1] into the clamp unit [2]. This lowers the clamped spine of the document, to prepare for the closing of the rings through the punched holes.

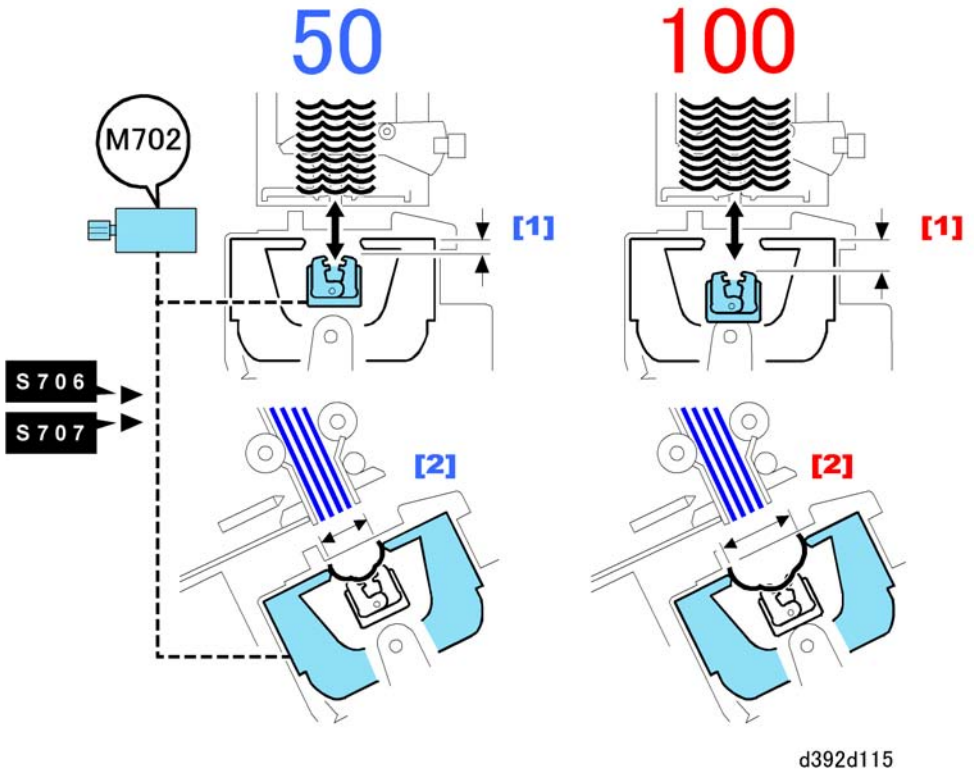
Binding Mechanism



d392d116

The clamp binder motor (M701) turns a gear that moves an intricate arrangement of cams and linkages. This mechanism closes the plates of the closer [1] just below the curvature of the ring [2]. This forces the ring to close through the holes of the spine [3] clamped in the clamper unit of the pre-bind jogger. The continued rotation of the motor, cams, and linkages retracts the plates of the closer, retracts the clamper of the pre-jog binder, and swings the clamp unit back to the right to fetch the next ring.

Size Switching Mechanism



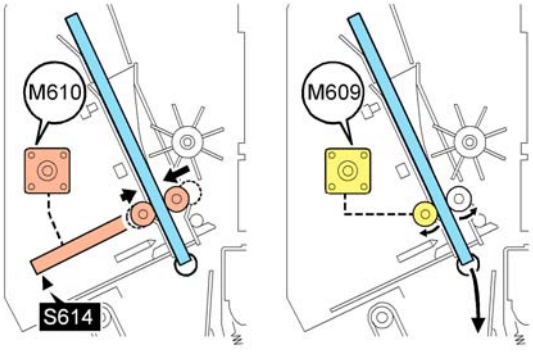
S707	Ring Switch Timing Sensor	Confirms that the cam (driven by the 50/100 clamp adjust motor (M702) has reached the stop position and switches off the motor at the correct pitch setting for the ring size. Issues an error if the closer does not return to its home position with the prescribed time
S706	Ring Switch HP Sensor	Confirms that the cams (driven by the 50/100 clamp adjust motor (M702) have returned to home position after they have adjusted the depth and pitch for closing and locking the rings. Issues an error if the cams do not return to the home position within the prescribed time.
M702	50/100 Clamp Adjust Motor	Operates the switching cams (1 and 2) that adjust the pitch and depth for the size of the rings so they will be closed properly.

In order for this mechanism to work with both large and small rings, the linkage depth [1] and the binding pitch [2] must be adjusted for the size of the ring (50 or 100-sheet size).

The 50/100 clamp adjust motor (M702) drives a gear and switching cams 1 and 2 above the same shaft. Switching cam 1 switches the binding pitch and switching cam 2 switches the linkage depth.

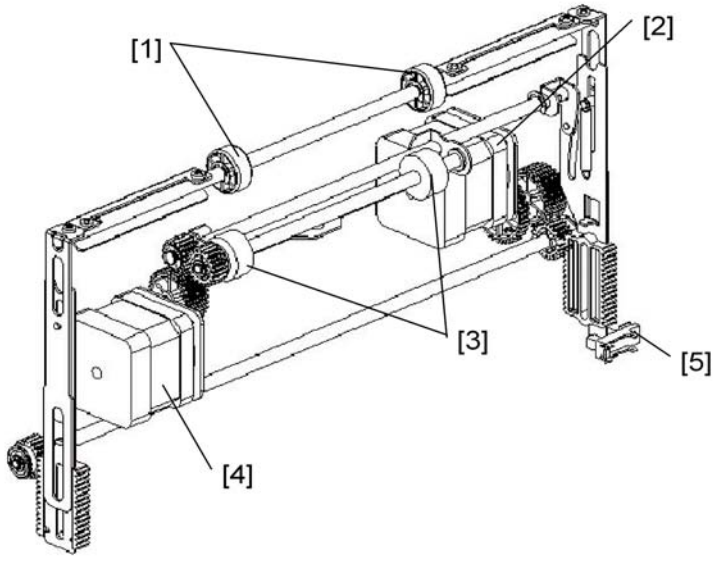
Output and Stacking

Binder Unit Output



d392d117

M610	Runout Press Roller Motor	Raises and lowers the press roller to adjust it to the thickness of the book before the runout roller motor turns on and starts rotating the roller to feed the bound document out of the binder unit.
M609	Runout Roller Motor	Rotates the runout press roller that feeds the bound book out of the binder unit.
S614	Runout Roller HP Sensor	Controls operation of the runout press roller motor (M610) that raises the runout roller in the pre-bind jogger unit. The roller is lowered to close the nip so that the bound stack can be fed out of the binder unit. The home position is up (nip released).



d392d134

6

[1]	Runout Press Roller
[2]	Runout Roller Motor (M610)
[3]	Runout Roller
[4]	Runout Roller Motor (M609)
[5]	Runout Roller HP Sensor (S614)

The runout mechanism:

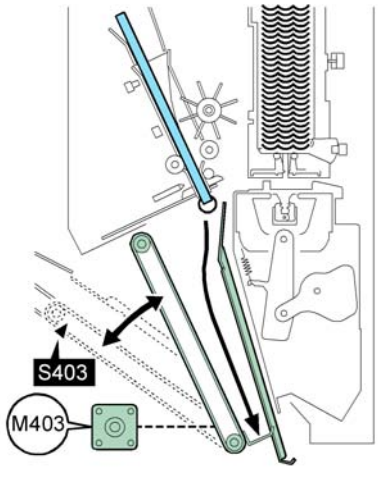
- Delivers stacks that have been only punched with no binding
- Stacks documents that have been both punched and bound with rings

When a punched or bound stacked is sent out of the binder unit, the runout press roller [1] (driven by the runout roller roller motor (M610) [2]) lowers in the direction of the arrow, clinches the stack, then the runout roller [3] (driven by the output roller motor (M609) [4]) starts rotating and feeds the stack out of the finisher.

The runout press roller HP sensor (S614) [5] detects the descending press roller, turns off the runout press roller motor (M610) and stops the roller at its clinch position.

While the runout press roller is descending and the runout roller is about 1 mm away from the surface of the travel guide at the upper part, the stacks feeds out of the binder unit.

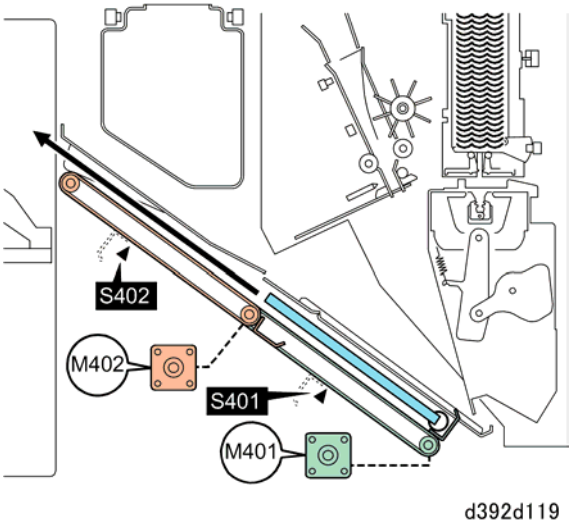
Output Belts



d392d118

M403	Output Belt Rotation Motor	Rotates the output belt 1 assembly. Rotates the assembly cw to the vertical so it can receive the bound book from the binder unit, and then rotates it ccw to the horizontal to feed the book to output belt 2.
S403	Output Belt Rotation HP Sensor	After the output belt rotation motor (M403) rotates output belt 1 cw to the vertical, it reverses and rotates the book and belt ccw to the horizontal. The sensor detects when the belt reaches the horizontal and stops the output belt rotation motor (M403).

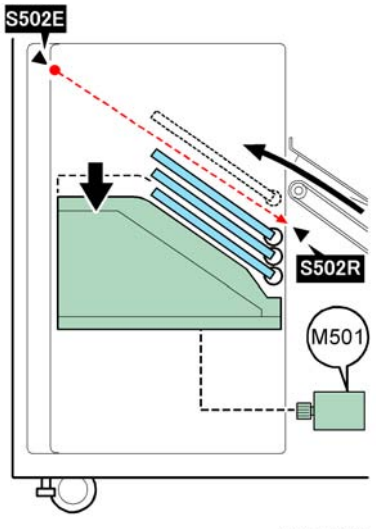
Cw: clockwise, ccw: counterclockwise



d392d119

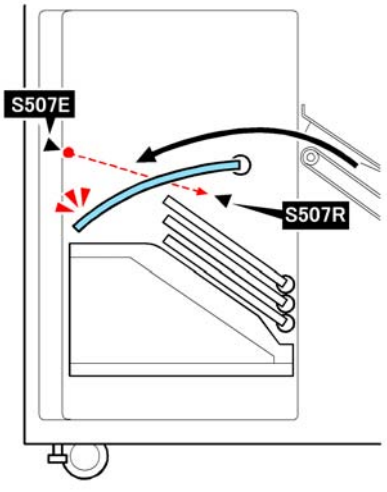
M402	Output Belt 2 Motor	Drives the belt of output belt 2 which relays the book from output belt 1 to the book output tray.
M401	Output Belt 1 Motor	Drives the belt of output belt 1 which receives the bound book from the binder unit
S401	Output Belt 1 HP Sensor	Detects the home position of the pawls mounted on output belt 1. The pawls hook and push the book onto output belt 2. With the pawls at their home positions, the belt is ready to move the next book received from the binder unit.
S402	Output Belt 2 HP Sensor	Detects the home position of the pawls mounted on output belt 2. The pawls hook and push the book onto the output stacking tray. With the pawls at their home positions the belt is ready to move the next book from output belt 1.

Stacker Unit



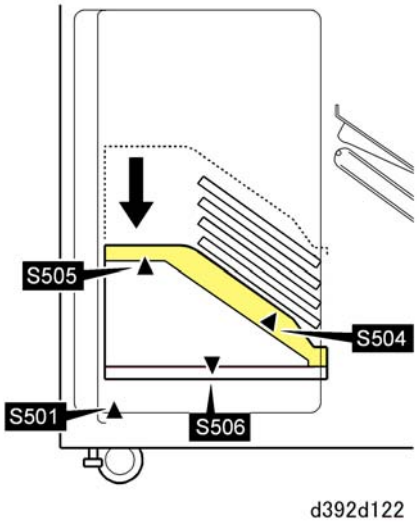
M501	Stacker Motor	Raises and lowers the stacking tray where the bound books are output from output belt 2.
S502E	Stack Height Sensor	Detects the top of the document stack on the on the stacker tray and signals when the stacker tray is full. This is the emitter sensor of an Emitter/Receptor pair.

S502R	Stack Height Sensor	Detects the top of the document stack on the on the stacker tray and signals when the stacker tray is full. This is the receptor sensor of an Emitter/Receptor pair.



d392d121

S507E	Book Position Sensor	Checks the position of the bound book to detect book skew or falling. The emitter of an Emitter/Receptor pair.
S507R	Book Position Sensor	Checks the position of the bound book to detect book skew or falling. The receptor of an Emitter/Receptor pair.

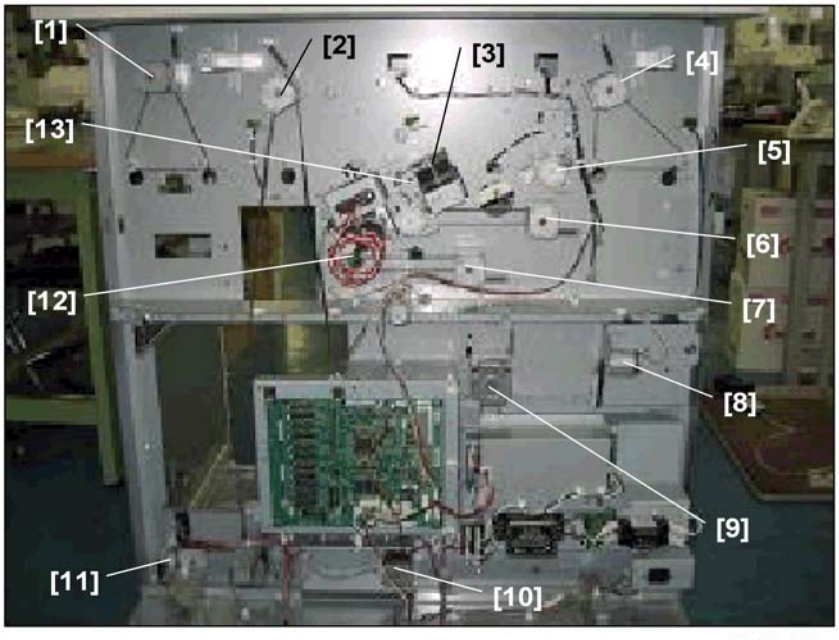


d392d122

S505	Tray Detect Sensor	Detects whether the stacker tray is pulled out or pushed in. Signals an alert after a job starts if the tray is pulled out.
S504	Stacker Detect Sensor	Detects a document on the stacker tray at power on.
S501	Stacker HP Sensor	Detects the home position of the stacker tray and stops the stacker motor (M501). The stacker tray is at its home position when it is completely down.
S506	Obstacle Detection Microswitch	The bay on the left side of the finisher remains open with a large space exposed under the output tray. This space must always remain open. If something like a stack of magazines or newspapers is placed under the tray accidentally, the spring loaded bottom of the tray will trigger this switch and stop the tray when it contacts the top of the obstacle.

Motor, Sensor Locations

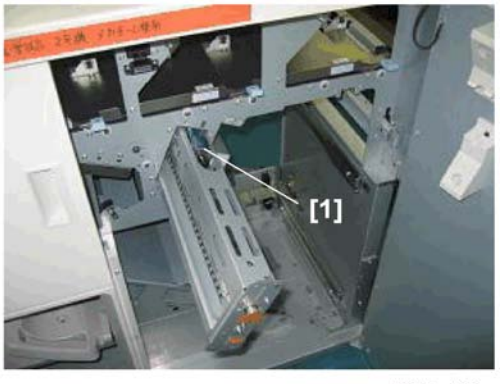
Main Board Motors, Solenoid



d392v101

[1]	M101	Entrance Motor	Drives the entrance roller and 1st transport roller at the entrance of the ring binder.
[2]	M102	Transport Motor	Drives transport rollers 2, 3, 4, and 5 in the horizontal paper path.
[3]	M302	Side Jogger Motor	Drives the front and rear fence to the rear and forward that centers each sheet of paper so it is aligned for punching.
[4]	M103	Exit Motor	Drives the 6th transport roller and exit roller in the horizontal paper path for downstream delivery (the paper passes straight through with no punching or binding).
[5]	M201	Path JG Motor	Operates the path junction gate near the transport roller 4 in the horizontal path.

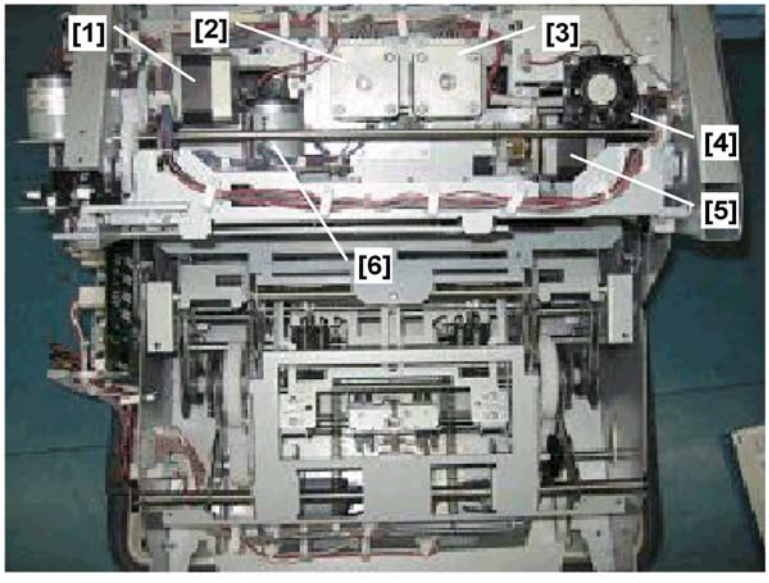
[6]	M301	Jog Roller Motor	Operates the side fence that jogs the stack below the punch to align it for punching.
[7]	M303	Punch Unit Runout Motor	Rotates the punch runout roller that feeds the punched sheet out of the punch unit to the pre-bind jogger.
[8]	M501	Stacker Motor	Raises and lowers the stacking tray where the bound books are output from output belt 2.
[9]	M402	Output Belt 2 Motor	Drives the belt of output belt 2 which relays the book from output belt 1 to the book output tray.
[10]	M403	Output Belt Rotation Motor	Rotates the output belt 1 assembly.
[11]	M401	Output Belt 1 Motor	Drives the belt of output belt 1 which receives the bound book from the binder unit.
[12]	M304	Punch Motor	Drives the punch unit that punches holes in the paper.
[13]	M305	Jog Roller Lift Motor	Opens the nip of the rubber rollers by raising the idle rollers in the pre-punch jogger unit so the paper can be freed for horizontal alignment (perpendicular to the direction of paper feed) by the front and rear fence in the pre-punch jogging unit.



d392v102

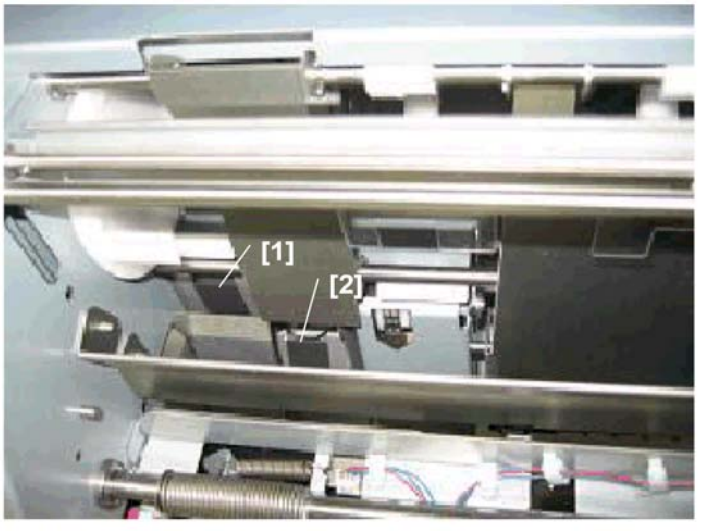
[1]	SOL302	Top Fence SOL	Opens and closes the stopper inside the punch unit that improves the accuracy of hole punching on the leading edge of each sheet.

Binder Unit Control Board Motors



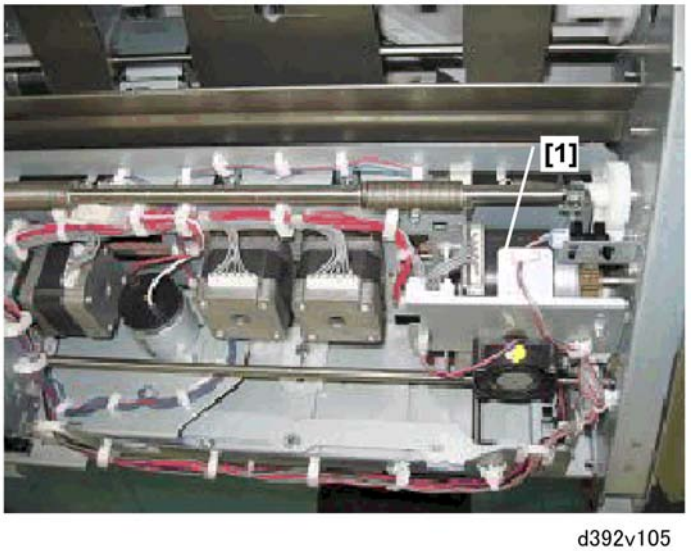
d392v103

[1]	M610	Runout Press Roller Motor	Raises and lowers the press roller to adjust it to the thickness of the book before the runout roller motor turns on to start rotating the roller to feed the roller out of the binder unit.
[2]	M606	Jog Fence Motor 2	Operates Side Fence 2, the rear jogger fence in the pre-bind jogger unit.
[3]	M604	Jog Fence Motor 1	Operates Side Fence 1, the front jogger fence in the pre-bind jogger unit.
[4]	M611	Fan Motor	Cools the area around the motors in the binder unit.
[5]	M609	Runout Roller Motor	Rotates the runout press roller that feeds the bound book out of the binder unit.
[6]	M602	Alignment Pin Motor	Raises and lowers the alignment pins.



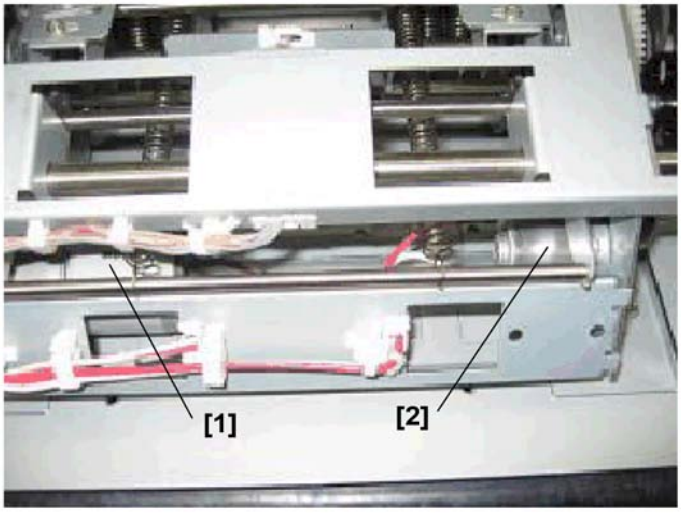
d392v104

[1]	M603	Paddle Roller Lift Motor	Raises and lowers the paddle roller.
[2]	M601	Paddle Roller Motor	Drives the paddle roller in the pre-bind jogger that pushes the leading edge of each sheet against the raised shutter to align the stack.



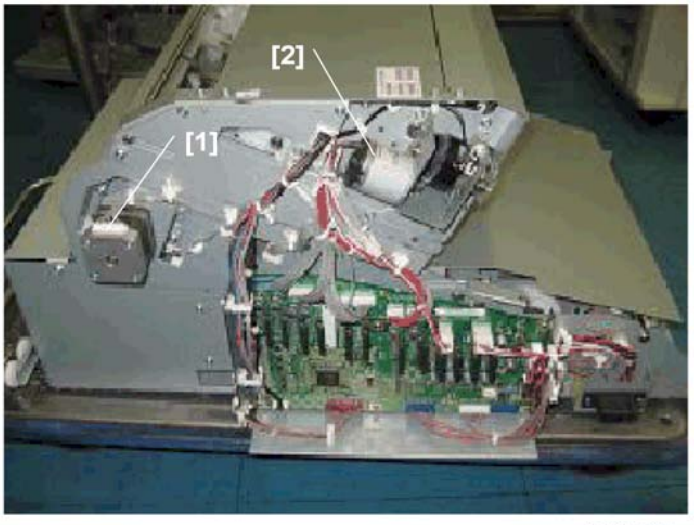
d392v105

[1]	M605	Clamp Motor	Rotates the cam which opens and closes the clamp that clinches the punched spine of the stack after it has been jogged in the pre-bind jogger.



d392v106

[1]	M701	Clamp Binder Motor	(1) Drives the linkage and gear that raises the ring clamper to the bottom of the ring supply unit to pull and clamp one ring strip from the bottom of the ring stack. (2) Drives the gear> cam> linkage that swings the top of the ring binder (holding the ring strip) toward the bottom of the pre-bind jogger (where the clamped spine of the stack is exposed and waiting for the rings to be inserted and closed). (3) Rotates the cam> gear> linkage that pulls the closer down to close the rings.
[2]	M702	50/100 Clamp Adjust Motor	Operates the switching cams (1 and 2) that adjust the pitch and depth for the size of the rings so they will be closed properly.

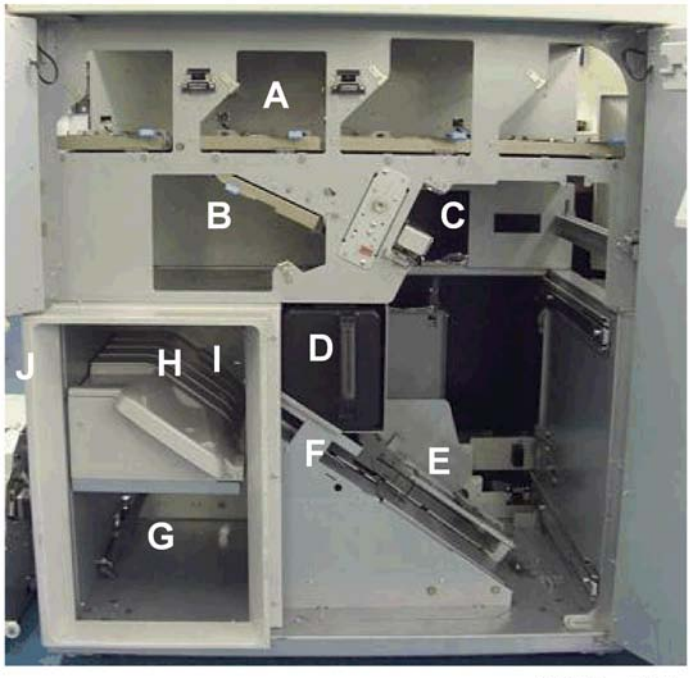


d392v107

[1]	M607	Stack Tamper Motor	Drives the cam that operates the tamper arms, posts, and mylar sheet that press down the trailing edge of each sheet as it enters the pre-bind jogger unit so the path is clear for the next sheet.
[2]	M608	Shutter Motor	Raises and lowers the shutter.

Main Board Sensors

Front View



d392v108

A Horizontal Paper Path

B Pre-Punch

C Post-Punch

D Punchout Box

E Output Belt 1

F Output Belt 2

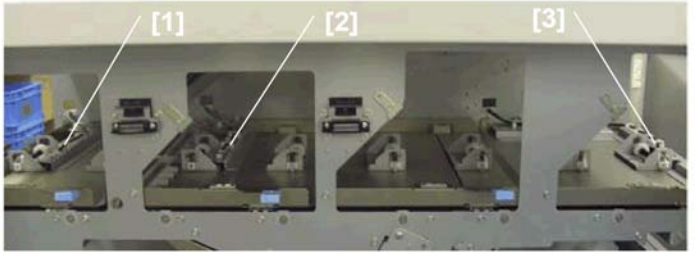
G Stacker Well

H Output Tray

I Stacker Top

J Stacker Side

A: Paper Transport



d392v109

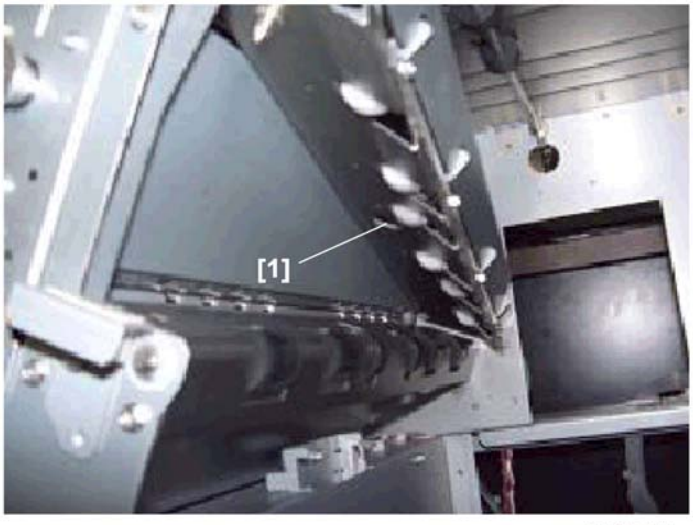
[1]	S103	Exit Sensor	Detects the leading and trailing edge of each sheet at the exit roller. Detects a jam if the paper fails to arrive (late jam) or stops (lag jam).
[2]	S102	Transport Sensor	Detects the leading and trailing edge of each sheet at the transport roller 5 at the junction gate. Detects a jam if the paper fails to arrive (late jam) or stops (lag jam).
[3]	S101	Entrance Sensor	Detects the leading and trailing edge of each sheet at the entrance roller. Detects a jam if the paper fails to arrive (late jam) or stops (lag jam).

B: Pre-Punching

d392v110

[1]	S201	Punch Reference Sensor	After the paper has passed the switchback junction roller, this sensor triggers the operation of the pre-punch jogging unit to center and align the sheet for punching.

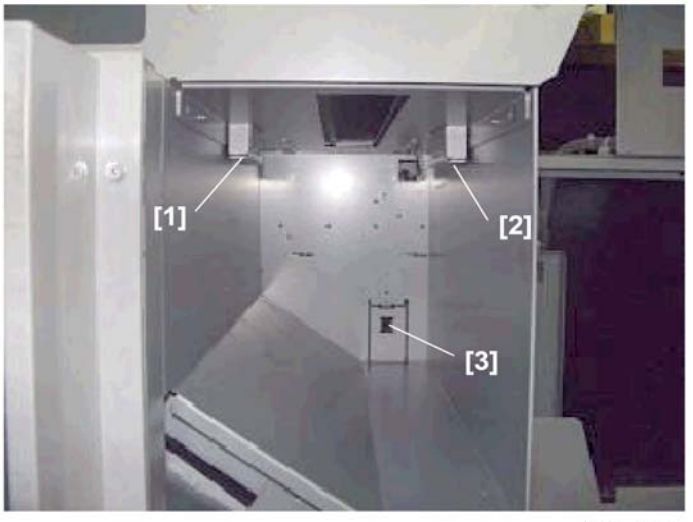
C: Post-Punching



d392v111

[1]	S202	Punch Reference Sensor	Located immediately downstream of the punch unit, confirms that the paper has exited the punch unit after punching, then after successful exit triggers the jogging operation of the pre-bind jogger. Signals an error if either the leading or trailing edge of the sheet fails to arrive at the prescribed time.

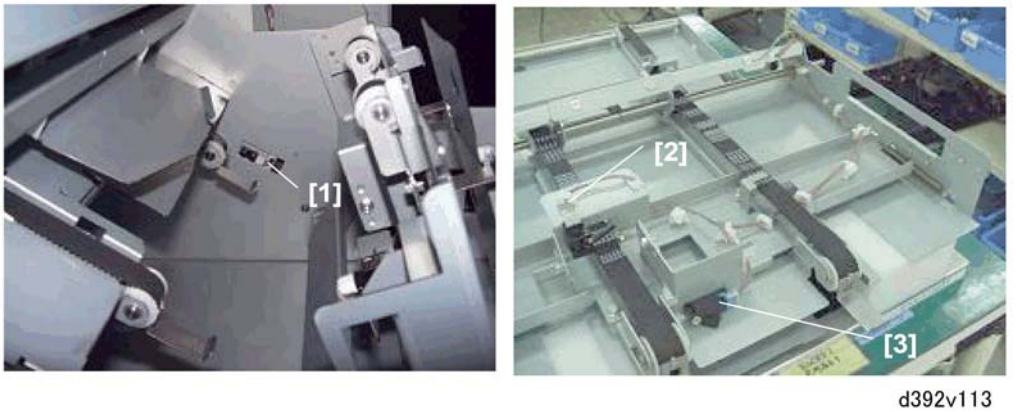
D: Punchout Box



d392v112

[1]	S307R	Full Sensor	Detects when the chad box is full. The receptor of an Emitter/ Receptor pair.
[2]	S307E	Full Sensor	Detects when the chad box is full. The emitter of an Emitter/ Receptor pair.
[3]	S308	Chad Box Sensor	Detects the presence of the chad box. Triggers an error if the box is not installed or is installed improperly.

E: Output Belt 1



d392v113

[1]	S403	Output Belt Rotation HP Sensor	Detects when the belt reaches the horizontal and stops the output belt rotation motor (M403).

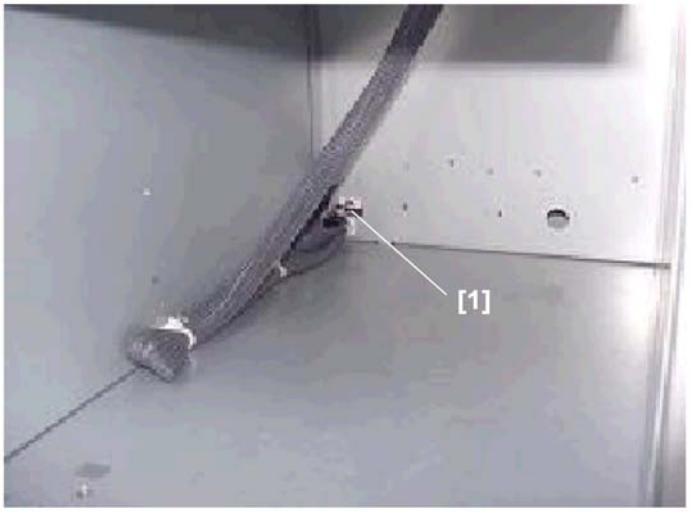
[2]	S401	Output Belt 1 HP Sensor	Detects the home position of the pawls mounted on output belt 1.
[3]	S404	Output Unit Entrance Sensor	Checks the leading/trailing edge timing of the stacks (ring-bound or punched-only) fed from the pre-bind jogger unit.

F: Output Belt 2

d392v114

[1]	S402	Output Belt 2 HP Sensor	Detects the home position of the pawls mounted on output belt 2.

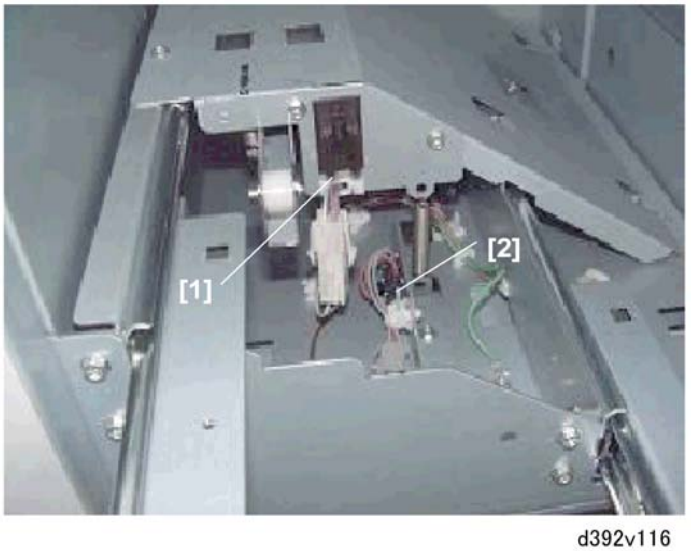
G: Stacker Well



d392v115

[1]	S501	Stacker HP Sensor	Detects the home position of the stacker tray and stops the stacker motor (M501).

H: Tray: Inside View

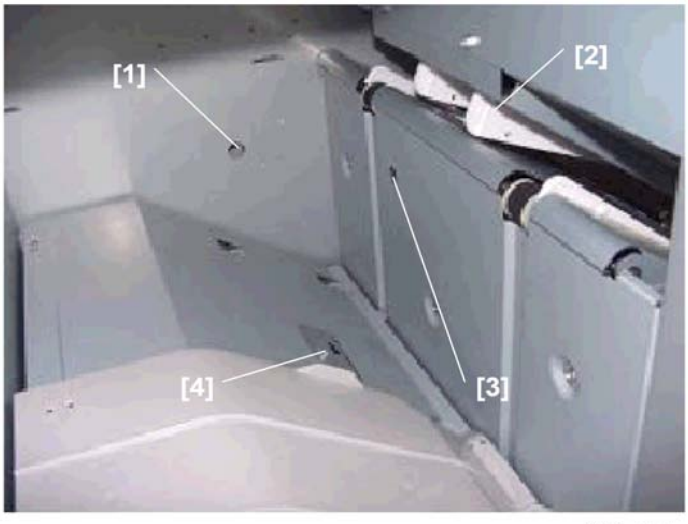


d392v116

[1]	S505	Tray Detect Sensor	Detects whether the stacker tray is pulled out or pushed in. Signals an alert after a job starts if the tray is pulled out.

[2]	S506	Obstacle Detect Microswitch	Detects an obstacle below the output tray and stops the operation.

I: Stacker: Top



d392v117

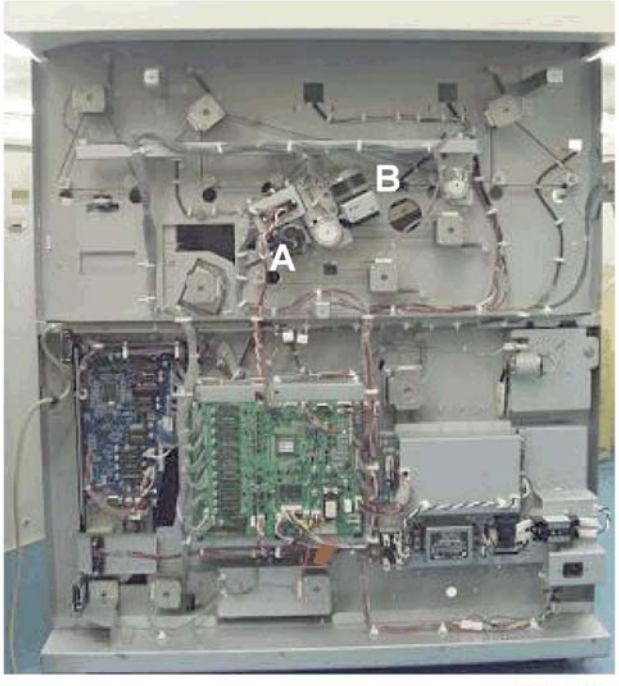
[1]	S507R	Book Position Sensor	Checks the position of the bound book to detect book skew or falling. The receptor of an Emitter/Receptor pair.
[2]	S405	Book Pass Sensor	Checks the leading/trailing edge timing of the stack output to the stacking tray by the pawl of output belt 2. Signals an error if the leading/trailing edges fail to arrive or leave at the prescribed time.
[3]	S502R	Stack Height Sensor	Detects the top of the document stack on the on the stacker tray and signals when the stacker tray if full. This is the receptor sensor of an Emitter/Receptor pair.
[4]	S504	Stacker Detect Sensor	Detects a document on the stacker tray at power on.

J: Stacker: Side

d392v118

[1]	S502E	Stack Height Sensor	Detects the top of the document stack on the on the stacker tray and signals when the stacker tray if full. This is the emitter sensor of an Emitter/Receptor pair.
[2]	S507E	Book Position Sensor	Checks the position of the bound book to detect book skew or falling. The emitter of an Emitter/Receptor pair.

Around Punch Unit, Pre-Punch Jogger

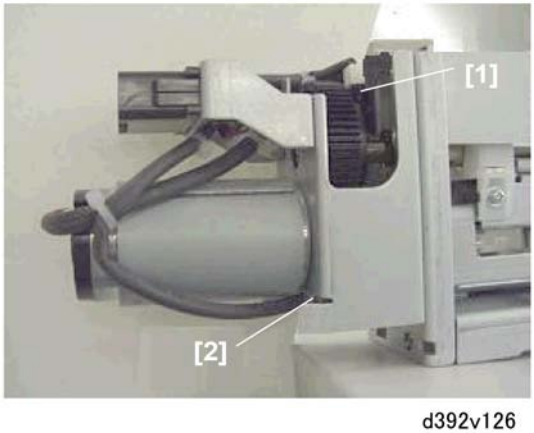


d392v119

A Punch Unit

B Pre-Punch Jogger Unit

A: Punch Unit

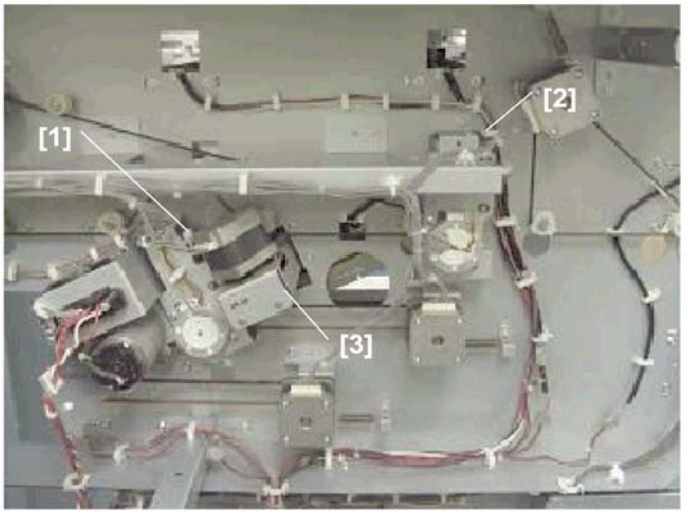


d392v126

[1]	S302	Punch HP Sensor	Detects the home position of the punch unit. Signals an error if the punch unit is neither installed nor installed properly.

[2]	S303	Punch Encoder Sensor	Controls the start and stop timing of the punching operation by counting rotations of the punch motor (M304).

B: Pre-Punch Jogger Unit

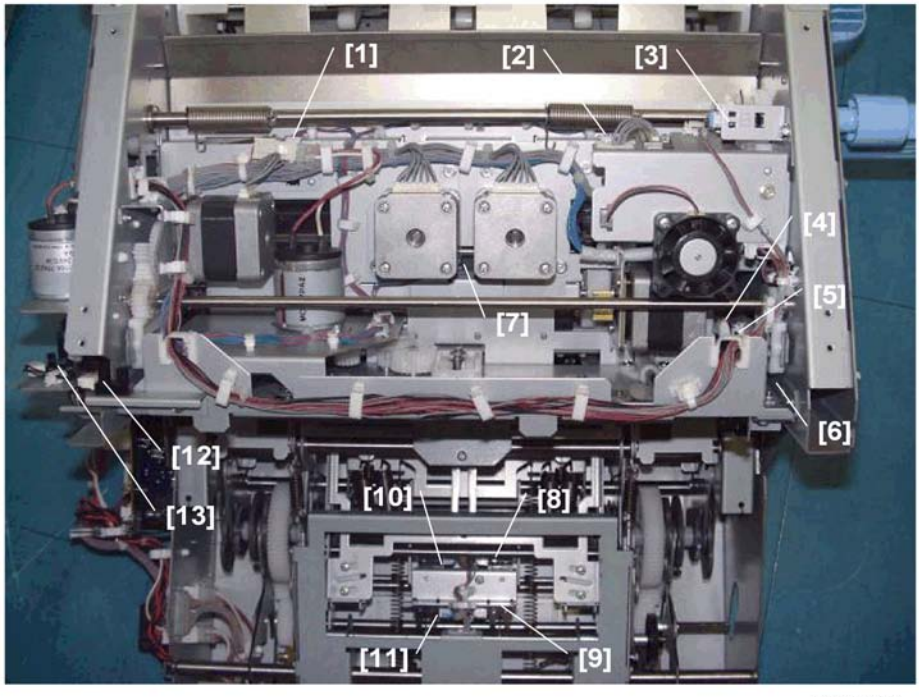


d392v121

[1]	S309	Jog Roller Lift HP Sensor	Detects the home position of the idle rollers raised and lowered by the jog roller lift motor (M305) in the pre-punch jogger unit during pre-punch jogging.
[2]	S203	Path JG HP Sensor	Detects the actuator of the switchback junction gate after it returns to its home position and switches off the path junction gate motor (M201).
[3]	S301	Pre-Punch Jogger HP Sensor	Detects the home position of the front and rear jogger fences in the pre-punch jogger unit.

Sub Board Sensors

Paper Jogging Unit (Front), Binder Unit

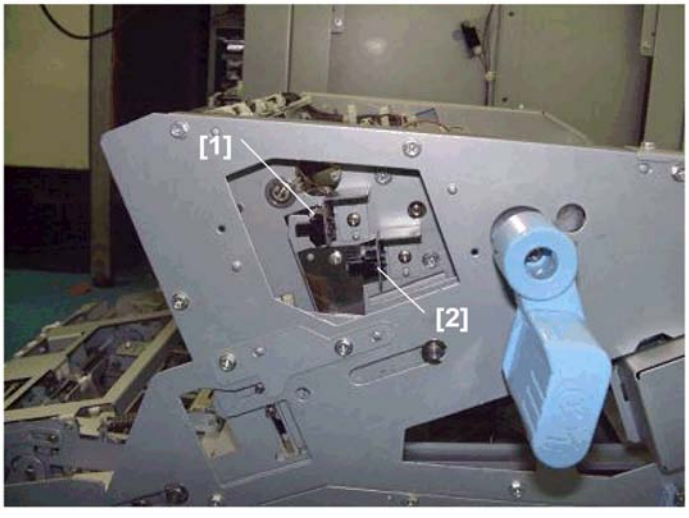


d392v122

[1]	S611	Side Fence 2 HP Sensor 2	Detects the home position of side fence 2 (rear fence) in the pre-bind jogger unit.
[2]	S601	Side Fence 1 HP Sensor	Detects the home position of the front side fence of the pre-bind jogger.
[3]	S603	Clamp HP Sensor	Controls the operation of the clamp lift cam that opens the arms of the clamp in the pre-bind jogger.
[4]	S610	Alignment Pin Up Sensor	Detects when the two alignment pins in the binder unit are at the full up position and inserted successfully into the two wholes on either end of the stack.
[5]	S604	Alignment Pin HP Sensor	Detects the actuator of the alignment pin linkage, signals that the linkage has returned to its home position, and switches off the alignment pin motor (M602).

[6]	S605	Shutter HP Sensor 1	Detects the actuator of the as it is lowered, signals that the shutter has returned to its home position, and switches off the shutter motor (M608).
[7]	S609	Paper LE Detect Sensor	Detects the arrival of each sheet in the pre-bind jogger under. Also signals an alert if it detects paper remaining in the pre-bind jogger unit at power on.
[8]	S702	Bind Timing Sensor	Monitors the operation timing of the clamp unit during the binding cycle: 1). Separation, when the closer retrieves 1 ring from the ring cartridge above, 2) Swinging the clamp unit left to the pre-bind jogger holding the punched edge of the stack, 3) Closing, retracts the closer to close and lock the rings through the punched holes, 4) Swinging the clamp unit right to the home position below the ring supply unit. Issues an error if the clamp unit does not return to its home position within the prescribed time.
[9]	S707	Ring Switch Timing Sensor	Confirms that the cam (driven by the 50/100 clamp adjust motor (M702) has reached the stop position and switched off the motor at the pitch setting for the ring size. Issues an error if the closer does not return to its home position with the prescribed time
[10]	S701	Binder HP Sensor	Detects the home position of the clamp unit. Issues an error if the clamp unit does not return to its home position under the ring supply unit within the prescribed time.
[11]	S706	Ring Switch HP Sensor	Confirms that the cams (driven by the 50/100 clamp adjust motor (M702) have returned to its home position after they have adjusted the depth and pitch for closing and locking the rings.
[12]	S614	Runout Roller HP Sensor	Controls operation of the runout roller motor (M609) that raises the runout roller in the pre-bind jogger unit.
[13]	S613	Shutter HP 2 Sensor	Detects the stop positions of the shutter and shuts off the shutter motor (M608).

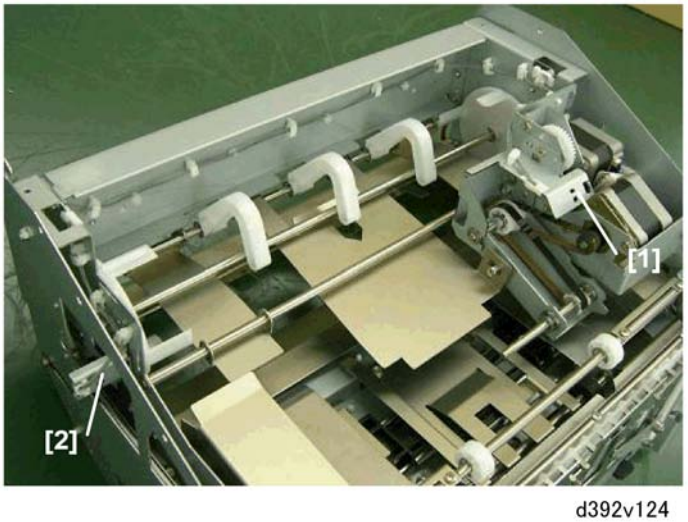
Paper Jogging Unit: Side View



d392v123

[1]	S606	50-Sheet Detect Sensor	Detects when the signature is thicker than 5.5 mm.
[2]	S607	Stack Thickness Sensor	Measures the thickness of the stack through a cutout in the upper arm plate.

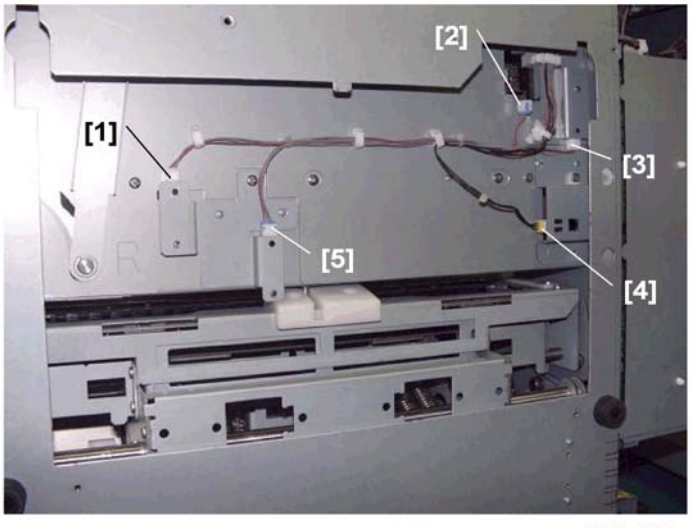
Paper Jogging Unit: Inside View



d392v124

[1]	S602	Paddle Roller HP Sensor	Detects the descending paddle roller and switches off the paddle roller motor (M601) so the roller stops at its home position.
[2]	S612	Stack Tamper HP Sensor	Detects the actuator of the tamper fence and stops the stack tamper motor (S607).

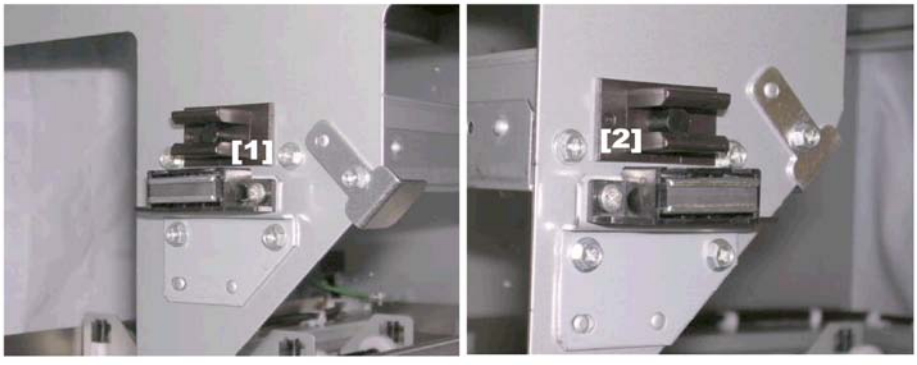
Cartridge Unit: Inside View



d392v125

[1]	S804	50/100 Ring Detect Sensor	There are only two ring sizes: 50/100. The notations refer to the approximate number of sheets in the stack (50 sheets, 100 sheets).
[2]	S801	Cartridge Detect Sensor	Detects the presence of the ring cartridge. Triggers an alert if the ring cartridge is not installed or installed incorrectly.
[3]	S805	Ring Cartridge Type Sensor	This sensor detects which type of ring cartridge is installed (A4 ring cartridge or LT ring cartridge).
[4]	S803	Ring Near-End Sensor	The actuator attached to the descending weight on top of the ring stack turns this sensor on when it reaches the bottom of the stack when there are only 5 rings remaining.
[5]	S802	Rings Reversed Sensor	Detects when rings have been loaded incorrectly.

Switches



d392v906

[1]	SW1	Left Door Switch	Detects when left door opened/closed/
[2]	SW2	Right Door Switch	Detects when right door opened/closed.

7. Specifications

Specifications

For details about "Specifications" for this peripheral, see the main service manual.

MEMO