Ring Binder RB5020 Machine Code: D737

SERVICE MANUAL V1.1

Revision History

This is the Revision History for the Ring Binder RB5020 service manual.

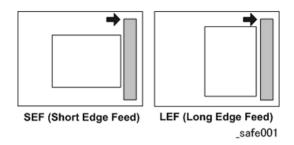
Version	Date	Changes
	illustrations has been re (action) is followed by t	Text, Illustrations. In procedures the order of the text and illustrations has been reversed. For each step, the text description (action) is followed by the relevant illustration. The callouts [A], [B], [C] in text refer to the illustration below, not above.
		Added safety caution:
Ver. 1.1	31 Mar 2015	A CAUTION
		 Never not touch solder connections or electronic parts on the PSU after removing it because electrical charge can remain on the PSU even after it has been removed.
		 After removing the PSU, never place put it on a conductive material such as metal.

Symbols, Abbreviations and Trademarks

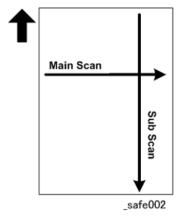
Conventions

Symbol	What it means		
\$	Binding screw (shoulder hexagonal head)		
8	Binding screw (round flathead)		
*	Black screw (heavy, fusing unit, TCRU)		
4	Bushing		
0	C-ring		
T	Clip		
F	Connector		
B	E-ring		
\$	FFC (Flat Film Connector)		
	FFC (Flat Film Connector)		
	FFC (Flat Film Connector)		
•	Gear		
Ş	Harness clamp		
₩	Harness clamp: metal: fusing unit		
-	Hook (or tab release: sensors)		
₽	Knob screw (black)		
₽	Knob screw (sliver)		
A	Pivot screw		
(M)	Screw: most common: silver		
D	Shoulder screw		

Symbol	What it means		
*	Shoulder screw (black)		
	Spring		
<u></u>	Standoff		
₽.	Stud screw		
P	Tapping screw (for plastic)		
0	Timing belt		
©	Washer		



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



In this manual "Main Scan" means "Horizontal" and "Sub Scan" means "Vertical", both relative to 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.

ACAUTION

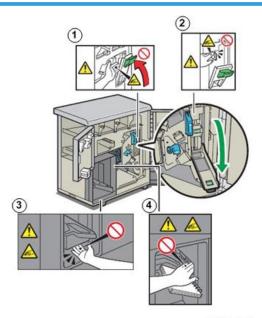
 A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property.

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

U Note

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

Safety Label



d1790109

1 To avoid injury, keep the fingers of your other hand clear of the cartridge cover when you close it.

2	To avoid injury, avoid touching the parts at the indicated location.	
3	To avoid injury, never touch the ring binder tray while the ring binder is operating.	
4	To avoid injury, never put your hand into the paper exit when removing bound booklets.	1

Commonly Used Terms and Abbreviations

Here is a list of commonly used terms and abbreviations that are used throughout the Field Service Manual and Appendices.

Terms	Meaning		
(ccw)	Counter-clockwise rotation of a drum, roller, gear, etc.		
(cw)	Clockwise rotation of a drum, roller, gear, etc.		
BF	Booklet Finisher SR5060 (D734)*1		
BW	Black and white (monochrome) copying or printing		
Bank	Paper Bank (1st, 2nd, 3rd Tray of the main machine)		
CIT	Cover Interposer Tray CI5030 (D738)*1		
CIT-PB	Cover Interposer Tray for Perfect Binder Type S1 (D736-2)*1		
FIN	Finisher SR5050 (D735) (corner staple only, no booklets)*1		
ITB	Image Transfer Belt		
JG	Junction Gate		
LCIT	Large Capacity Input Tray.		
	LCIT RT5080 (D732) or LCIT RT5070 (D733)*1		
LD	Laser Diode (Laser Unit)		
LE	Leading Edge		
LSDB	Laser Synchronization Detection Board (Laser Unit)		
MFU	Multi Folding Unit FD5020 (D740)*1		
PCDU	Photoconductor Development Unit		
РВ	Perfect Binder GB5010 (D736)*1		

Terms	Meaning		
PFU	Paper Feed Unit (Tray 1, Tray 2, Tray 3)		
PTB	Paper Transport Belt (between PTR and fusing unit)		
PTR	Paper Transfer Roller		
RB	Ring Binder RB5020 (D737)		
TCRU	Trained Customer Replacement Units		
TE	Trailing Edge		
TM/P	ID sensor. "ID sensor" is used in this manual. However, you may see "TM/P" in the SP codes on the operation panel.		
TPU	Transit Path Unit for Perfect Binder Type S1 (D736)*1		
TRM	Trimmer Unit 5040 (D520)*1		
VTU	Vertical Transport Unit		
*1	Optional peripheral devices.		

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1. Replacement and Adjustment

Common Procedures

Before You Begin

Handling the Binder Unit

Pulling out the Binder Unit

- 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.)





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Pushing in the Binder Unit

- 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.





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- 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

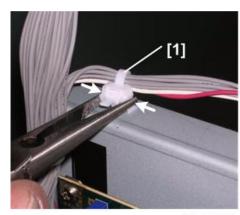
Some harnesses are locked by plastic bands [1] to plastic standoffs that are attached to the frame.

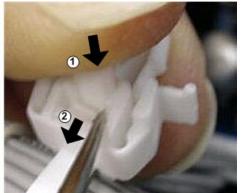
When releasing a harness, do not remove the band:

- 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.



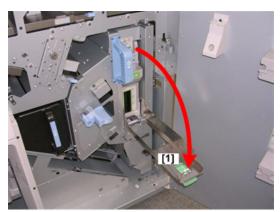


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Ring Cartridge

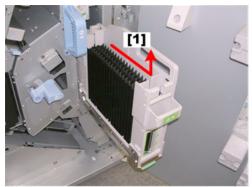
Always remove the ring cartridge before removing the binder unit for servicing.

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



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





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Rear Cover

- 1. Remove the rear cover
 - [1] Left, rear edge(@x1).
 - [2] Rear cover (\$\mathbb{O}^{\mathbb{C}} x7).

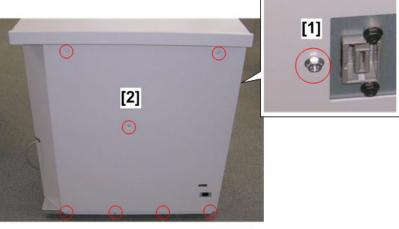




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Top Cover

- 1. Remove the rear cover
 - [1] Left, rear edge(@x1).
 - [2] Rear cover (\$\mathbb{O}^{\mathbb{R}} x7).



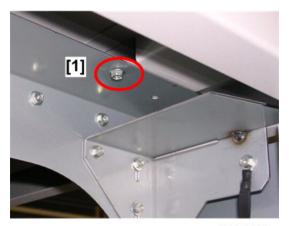
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- 2. Disconnect the top cover at the rear:
 - [1] Right rear corner (©x1)
 - [2] Left rear corner (@x1).



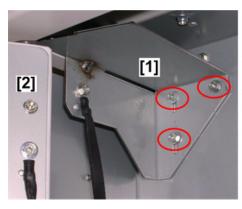
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3. Disconnect the top cover at the front right corner [1] ($\mathfrak{D}^{*}x1$)



d392r0305g

- 4. At the front left corner, remove:
 - [1] Door plate (@x3)
 - [2] Left door
 - [3] Top cover (@x3)





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5. Lift off the top cover [1].



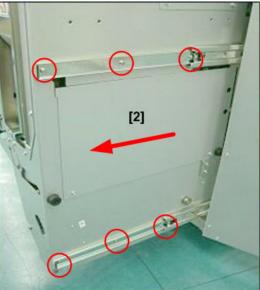
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Removing the Binder Unit

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.
- 1. Open the right front door.
- 2. Pull out the binder until it stops.
- 3. Remove:
 - [1] Stopper (@x2)
 - [2] Binder unit screws (©x6)



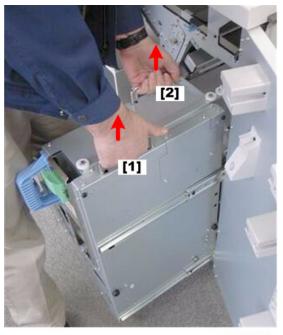


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4. Lift the binder unit by its handles [1] and [2], pull it straight up and then slightly to the left to disengage the right side of the unit from the frame and rail.

ACAUTION

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



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



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



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Binder Unit Covers

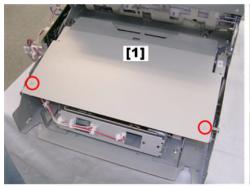


Binder Unit Covers

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

- 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. (page 24)
- 4. Remove the clamp unit cover [1] (\$\mathbb{O}^{\text{x}} x 2).





d392r1001

Pre-Bind Jogger Left 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. (page 17)
- 4. Remove the pre-bind jogger side cover [1] ($\mathfrak{F}x4$).



d392r1002

Pre-Bind Jogger Bottom Cover

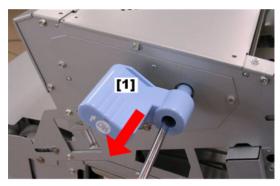
- 1. Open the right front door.
- 2. Remove the ring cartridge.
- 3. Remove the binder unit from its rails and set it on a flat surface. page 17
- 4. Remove the pre-bind jogger bottom cover [1] (\$\tilde{\psi}\$x4).



d392r1003

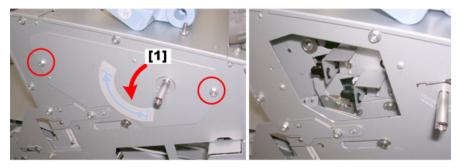
Pre-Bind Jogger Front Cover

- 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. (page 17)
- 4. Remove lever Mc8 [1] (\$\mathbb{O}^2 x 1).



d392r908

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



d392r909

Pre-Bind Jogger Top 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. (page 17)
- 4. Remove the pre-bind jogger top cover [1] (\$\mathbb{O}^{\text{x}} x4)\$.



d392r1005

Ring Supply Unit Upper Right Cover

- 1. Open the right front door.
- 2. Remove the ring cartridge.
- 3. Remove the binder unit from its rails. (page 17)
- 4. Lay the binder unit down on its left side (stoppers up).
- 5. Remove the right upper cover [1] (\$\mathbb{O}^{\mathbb{C}} x2).

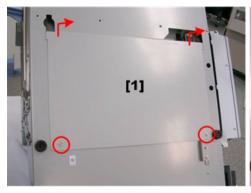




d392r1006

Ring Supply Unit Right Cover

- 1. Open the right front door.
- 2. Remove the ring cartridge.
- 3. Remove the binder unit from its rails. (page 17)
- 4. Lay the binder unit down on its left side (stoppers up).
- 5. Remove the right cover [1] (@x2).



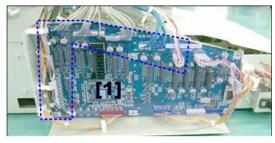


d392r1007

Separating Pre-Bind Jogger from Binder Unit

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

- 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. (page 17)
- 3. Disconnect the binder unit control board [1] (Fx11, \$x2)



d392r0101c

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



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5. Remove handle **Mc8** [1] (**3** x4).



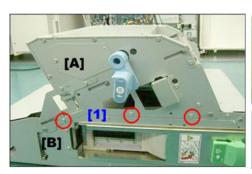
d392r0101e

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

[1] Front (@x3)

[2] Rear (@x1)

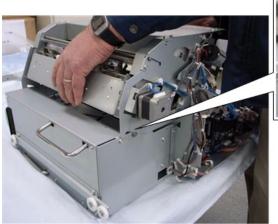
7

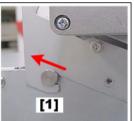




d392r0101f

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





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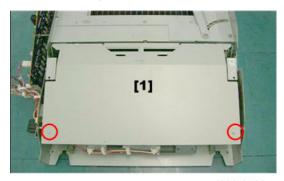
- 8. Set the separated pre-bind jogger [1] on a clean flat surface.
- 9. If you replace the pre-bind jogger, do SP 6505 to 6507.



d392r0101k

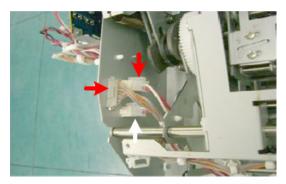
Clamp Unit

- 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. page 17
- 3. Separate the pre-bind jogger from the binder unit. (page 24)
- 4. Remove the clamp unit cover [1] (\$\mathbb{O}^{\text{x}} x 2).



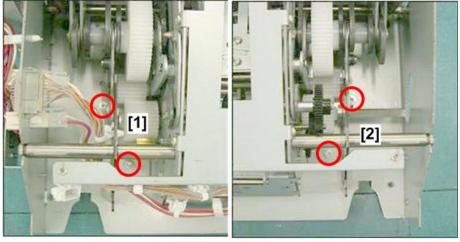
d392r0102a

5. At the lower left corner, disconnect the connectors [1] ($\ensuremath{\bigcirc} x3$).



d392r0102b

- 6. Disconnect the clamp unit at the bottom.
 - [1] Left (@x2)
 - [2] Right (\$\mathscr{\text{@}}\text{x2})



d392r0102c

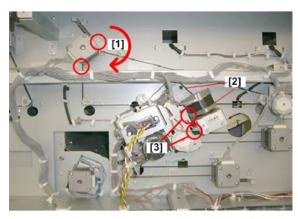
7. Remove the clamp unit from the binder unit and lay it on a flat surface.



d392r0102e

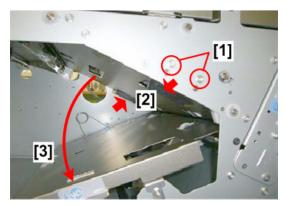
Pre-Punch Jog Unit

- 1. Remove the rear cover.
- 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] (\$\sigma x2\$).



d392r0305b

- 5. Open the right front doors.
- 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).



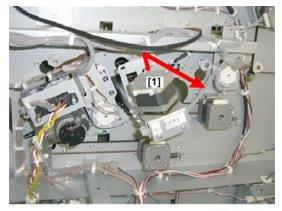
d392r0305c

9. At the rear, remove the rear screws [1] (\$\mathbb{O}^{\mathcal{P}} x2).



d392r0305d

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



d392r0305e

11. Set the pre-punch jogger unit [1] on a flat surface.

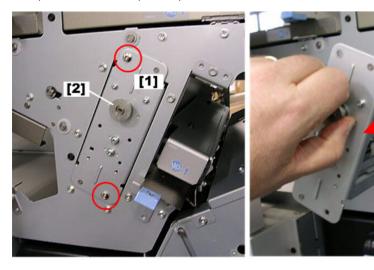
12. After replacing the pre-punch jog unit, do SP6504. (See "SP6504 Adjustment" in "Common Procedures".)



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Punch Unit

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



d392r1101

4. Lay the punch on a flat, clean surface.



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)
- 1. The setting for this SP code is written on the white label attached to the plate below the side jogger motor (M302).



d392r0407a

- 2. Multiply the value by "0.1". For example, if the value is "-19" then $-19 \times 0.1 = -1.9$
- 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

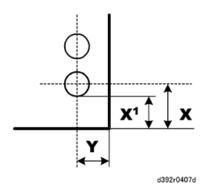
1. Close the front door of the Ring Binder.

Important

- After the following adjustment, keep the front door of the Ring Binder closed and turn main power switch OFF and ON.
- 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).



- Use paper in the weight range 70 to 90 g/m².
- With a punched sheet face-down as shown below, use a micrometer to measure the distances, X, Y, and X¹.



Standard Values

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

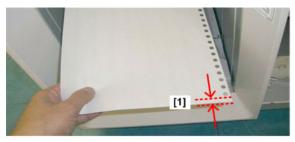
Hole Position Adjustment

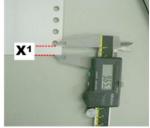
Here is an example of how to adjust X^1 .

1. Close the front door of the Ring Binder.



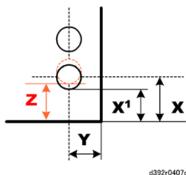
- After the following adjustment, keep the front door of the Ring Binder closed and turn main power switch OFF and ON.
- 2. Use a micrometer to measure X^1 at [1]. If the measurement is not standard, we will call this value Z in the following steps, and the red circle in the following diagram shows the non-standard position of the punch hole.





d392r0407b

3. In this example, "Z" is measured at "9.65". This does not match the standard for LT ($X^1 = 9.525$).



- 4. Subtract the measured value "Z" (9.65) from the standard value "X1" (9.525) and multiply it by "2". $9.525 - 9.65 = -0.125 \times 2 = -0.250$
- 5. 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 X¹, 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

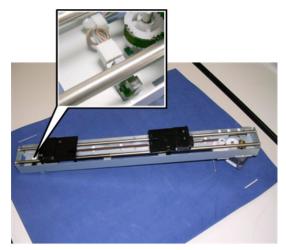
Pre-Punch Jogger HP Sensor (S301)

- 1. Remove the rear cover. (page 14)
- 2. Remove the pre-punch jogger unit. (page 28)
- 3. Set the pre-punch jogger unit on a flat surface.



d392r0306a

4. Turn over the pre-punch jogger unit

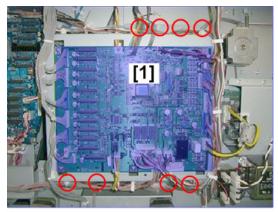


d392r03036f

- 5. Remove the pre-punch jogger HP sensor (S301) (❤️x1, ▼x1)
- 6. After replacing the pre-punch jogger HP sensor (S301), do SP6504. (See Section 5 of the main service manual.)

Chad Box Sensor (\$308)

- 1. Remove the rear cover. (page 14)
- 2. Remove the main control board bracket [1] ($\ x \ 27, \ x \ 8$).



d392r0613a

3. Remove the sensor (@x1, @x1).



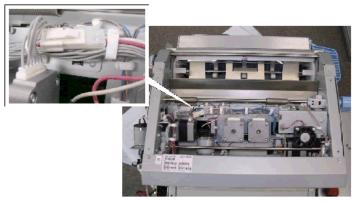


d392r0613b

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.
- 3. Remove the pre-bind jogger side cover.



d392r0714a

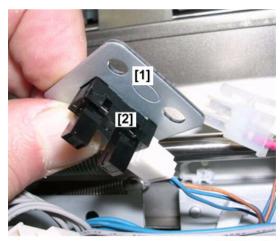
- 4. Disconnect and move aside the harnesses and clamps (\$\sim x2, \$\sim x2)\$.
- 5. Remove the screw (@x1).



d392r0714b

6. Remove:

- [1] Sensor bracket (@x1)
- [2] Sensor (**T** x3, **S**x1)



d392r0714c

Paddle Roller HP Sensor (\$602)

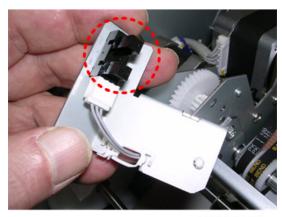
- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Separate the pre-bind jogger from the binder unit. (page 24)
- 4. Set the pre-bind jogger unit on its side with the open end up.
- 5. Remove the screw [1] and sensor bracket (\$\mathbb{O}^{\mathcal{P}} x 1).





d392r0714d

6. Remove the sensor (▼x3, ⋘x1)



d392r0714e

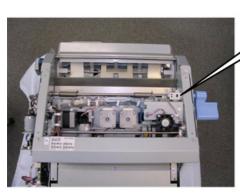
Clamp HP Sensor (S603)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the pre-bind jogger left cover. (page 20)
- 4. Rotate lever Mc7 to lock it.



d392r0714f

5. Remove sensor bracket [1] (@x1, Fx1).





d392r0714g

6. Remove the sensor (❤ x1, ▼x3)



d392r0714h

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. (page 17)
- 3. Remove the pre-bind jogger left cover.
- 4. Remove the pre-jog binder bottom cover.

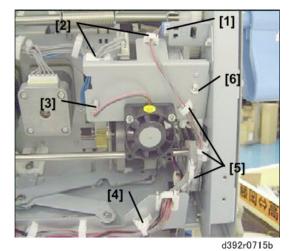




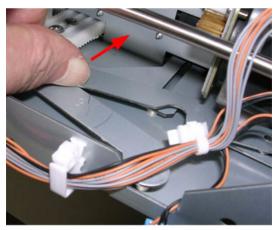
d392r0715a

5. Remove:

- [1] **%**x1
- [2] \$x2
- [3] **%**x1
- [4] 🖏 x 2
- [5] 🖏x3
- [6] 🖤x1

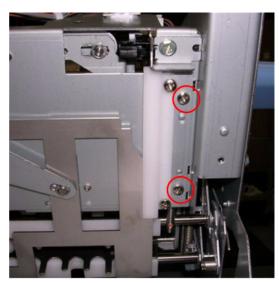


6. Push up the arms of the scissors lift to raise the actuator away from the sensor on the right.



d392r0715d

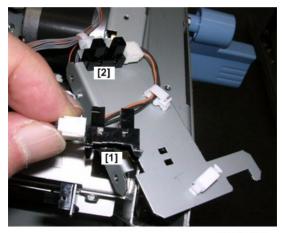
7. Under the unit base remove the sensor bracket screws ($\Im x2$).



d392r0715c

8. Remove:

- [1] Alignment pin HP sensor (S604) (🗫 1, 🕶 x1, 🔻 x3)
- [2] Alignment pin up sensor (S610) (\$\sqrt{x}1\$, \$\sqrt{x}\$x1\$, \$\sqrt{x}\$x3)

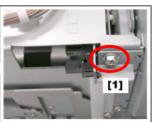


d392r0715e

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.
- 4. Remove the sensor bracket [1] ($\mathfrak{S}^{2}x1$).





d392r0716a

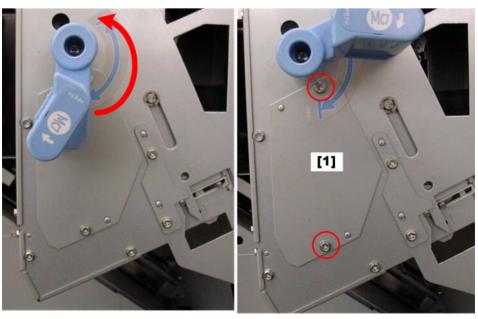
5. Remove the sensor (▼x3, ⋘x1)



d392r0716b

50-Sheet Detection Sensor (S606)

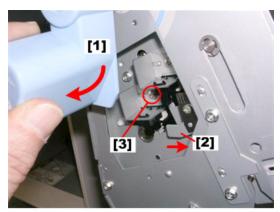
- 1. Open the right front door.
- 2. Pull the binder unit out on its rails.
- 3. Rotate lock lever Mc7 so that you can see the screws of the front cover [1].
- 4. Remove the front cover (@x2).



d392r0716c

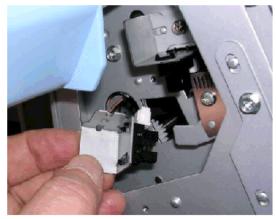
5. Lower lever Mc7 [1] to move the actuator [2] away from the sensor.

6. Remove sensor bracket screw [3] (\$\mathbb{O}^2 x 1).



d392r0716d

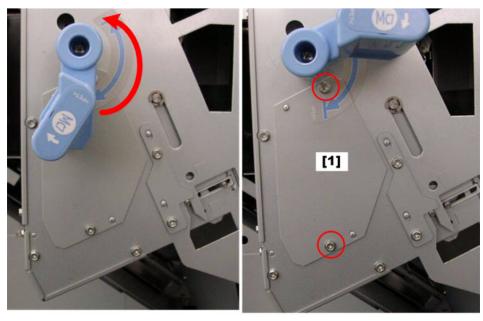
- 7. Remove the sensor bracket.
- 8. Remove the sensor (▼x3, ❤x1).



d392r0716e

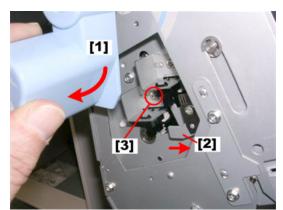
Stack Thickness Sensor (S607)

- 1. Open the right front door.
- 2. Pull the binder unit out on its rails.
- 3. Rotate lock lever Mc7 so that you can see the screws of the front cover [1].



d392r0716c

- 4. Lower lever Mc7 [1] to move the actuator [2] away from the sensor.
- 5. Remove sensor bracket screw [3] (\$\mathbb{O}^2 x1).



d392r0716d

6. Remove the sensor bracket.

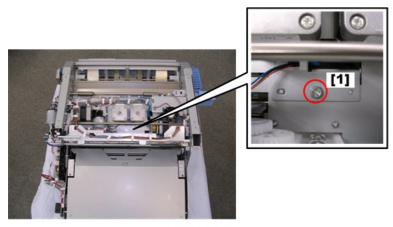


d392r0716f

7. Remove the sensor (▼x3, ⋘x1).

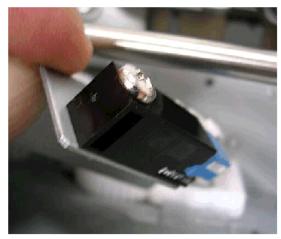
Paper LE Detect Sensor (S609)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the pre-bind jogger left cover. (page 20)
- 4. Remove the pre-bind jogger bottom cover. (page 21)
- 5. Remove the sensor bracket [1] (\$\mathbb{O}^2 x 1).



d392r0717a

6. Remove the sensor (@x1, @x1)



d392r0717b

Stack Tamper HP Sensor (S612)

- 1. Open the right front door.
- 2. Pull the binder unit out on its rails.
- 3. Remove sensor cover [1] (\$\mathbb{O}^p x 1).

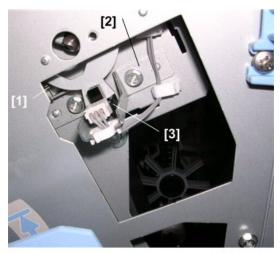




d392r0717c

4. Remove:

- [1] Spring x1
- [2] Sensor bracket 🕯 x2
- [3] Sensor (₹x1, ₹x3)



d392r0717d

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.
- 3. Turn the actuator [1] to the left or right until the cutout is over the sensor.



d392r0718a

4. Remove the sensor (ℜx1, ❤x1, ▼x3).

Runout Roller HP Sensor (S614)

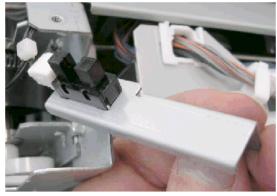
- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface.

- 3. Remove the pre-bind jogger bottom cover.
- 4. Remove the sensor bracket [1] (\$\mathbb{O}^{\mathbb{C}} \times 1).



d392r0718b

5. Remove the sensor (❤ x1, ▼x3).



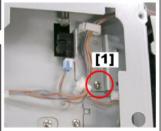
d392r0718c

Ring Supply Unit Sensors

Ring Cartridge Sensor (\$801)

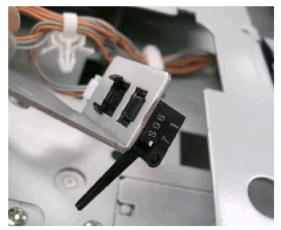
- 1. Open the right front door.
- 2. Remove the binder unit from its rails. (page 17)
- 3. Lay the binder unit on its left side, and remove the ring supply unit right cover. (page 23)
- 4. Remove the sensor bracket [1] (\$\varphi x1, \$\varphi x1).





d392r0719h

5. Remove the sensor (❤ x1, ▼x3).

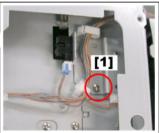


d392r0719j

Ring Cartridge Type Sensor (\$805)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails. (page 23)
- 3. Lay the binder unit on its left side, and remove the ring supply unit right cover. (page 23)
- 4. Remove the sensor bracket [1] (\$\varphi x1, \$\varphi x1).





d392r0719h

5. Remove the sensor [1] (𝔻x1, 𝔻x, ▼x3).



d392r0719i

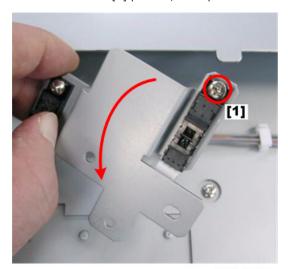
Rings Reversed Sensor (\$802)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails. (page 17)
- 3. Lay the binder unit on its left side, and remove the ring supply unit right cover. (page 23)
- 4. Remove sensor bracket [1] (@x1).



d392r0720a

5. Remove the sensor [1] (\mathcal{F}_{x1} , \mathcal{P}_{x1}).



d392r0720b

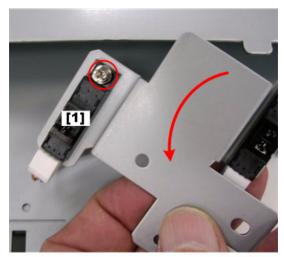
50/100 Ring Detection Sensor (\$804)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails. (page 17)
- 3. Lay the binder unit on its left side, and remove the right cover. (page 23)
- 4. Remove sensor bracket [1] (@x1).



d392r0720c

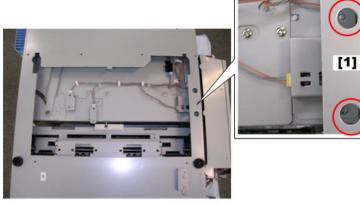
5. Remove the sensor [1] (\mathcal{F}_{x1} , \mathcal{F}_{x1}).



d392r0720d

Ring Near-End Sensor (\$803)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails. (page 17)
- 3. Lay the binder unit on its left side and remove the right cover. (page 23)
- 4. Remove the sensor bracket [1] (@x2)



d392r0720e

5. Disconnect the sensor (❤ x1, ▼ x3).

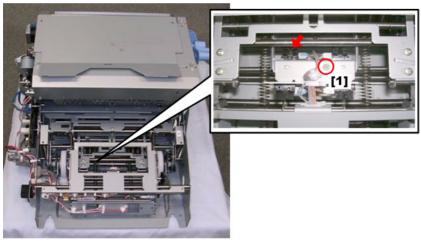


d392r0720f

Clamp Unit Sensors

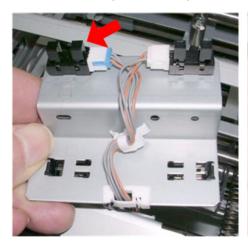
Binder Unit HP Sensor (\$701)

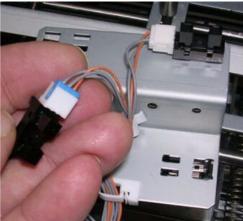
- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the clamp unit cover. (page 20)
- 4. Remove the sensor bracket [1] (\$\mathbb{O}^2 x 1).



d392r0719a1

- 5. Pull the bracket straight out.
- 6. Remove the sensor (❤ x1, ▼x3).

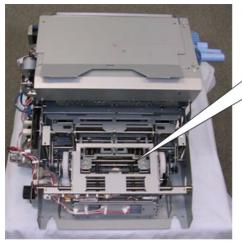


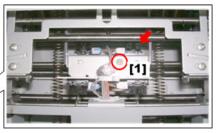


d392r0719b

Bind Timing Sensor (S702)

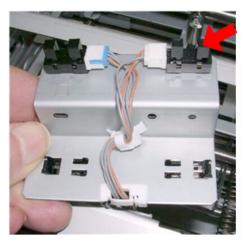
- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the clamp unit cover. (page 20)
- 4. Remove the sensor bracket [1] (@x1).





d392r0719a2

- 5. Pull the bracket straight out.
- 6. Remove the sensor (❤ x1, ▼x3).

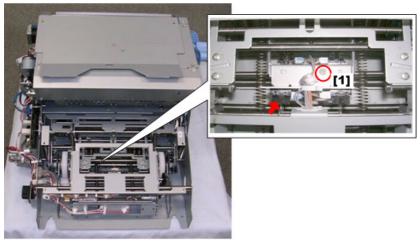




d392r0719d

Ring Switch HP Sensor (\$706)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the clamp unit cover. (page 20)
- 4. Remove the sensor bracket [1] (@x1).



d392r0719a3

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

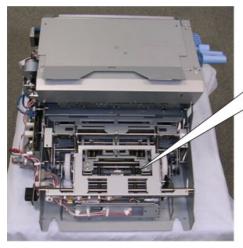


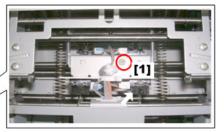


d392r0719e

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. (page 17)
- 3. Remove the clamp unit cover. (page 20)
- 4. Remove the sensor bracket [1] (@x1).





d392r0719a4

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



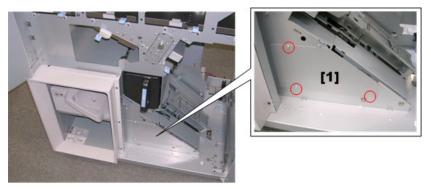


d392r0719f

Output Belt Sensors

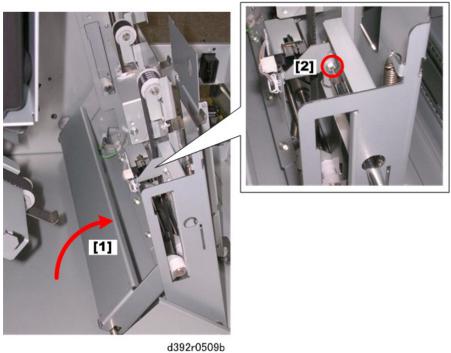
Output Belt 1 HP Sensor (\$401)

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

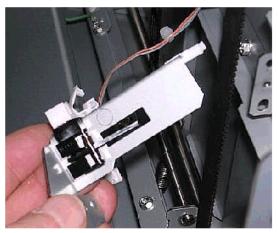


d392r0509a

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



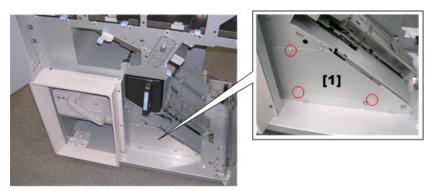
5. Remove the sensor (\$x1, \$x1, \$x3).



d392r0509d

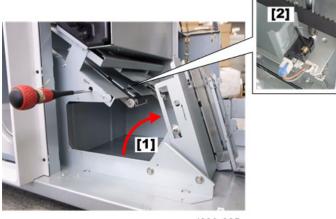
Output Belt 2 HP Sensor (\$402)

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



d392r0509a

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



d392r905

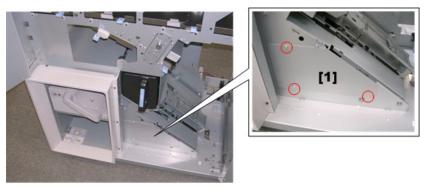
5. Remove the sensor (\$x1, \$x1, \$x3).



d392r0509f

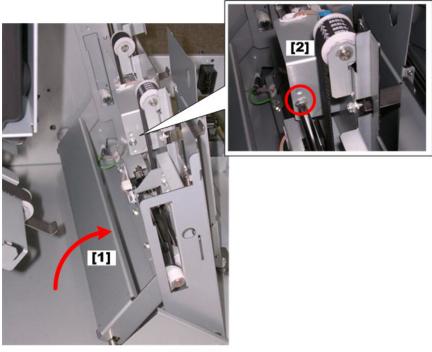
Output Belt Unit Entrance Sensor (\$404)

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



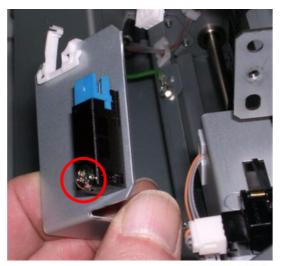
d392r0509a

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



d392r0509g

5. Remove the sensor ($\{x_1, x_1, x_1, x_1\}$).



d392r0509h

Output Belt Rotation HP Sensor (\$403)

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

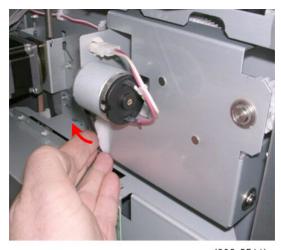


• The screw at [2] has a washer. Do not lose the washer. Be sure to reinstall the screw with the washer at this corner.



d392r0511a

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



d392r0511b

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



d392r0511c

5. At the back of the finisher, remove the panel rear screw (\$\mathbb{O}^2 x 1).



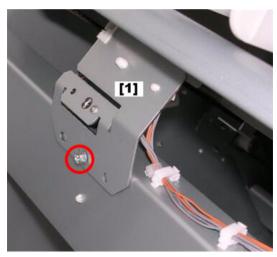
d392r0511d

6. Remove the panel.



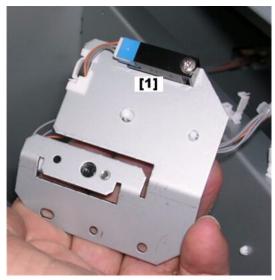
d392r0511e

7. Remove the sensor bracket [1] (\mathfrak{F}_{x1}).



d392r0511f

8. Remove the sensor ($\{x_1, x_1, x_1, x_1, x_1\}$).



d392r0511g

Stacker Unit Sensors

Obstacle Detection Switch (\$506)

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



d392r0512a

3. Remove the cover (©x2).



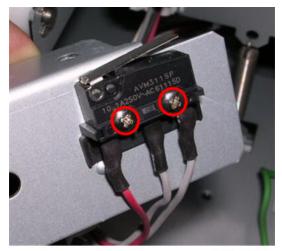
d392r0512b

4. Remove the sensor bracket [1] ($\mathfrak{F}x2$).



d392r0512c1

5. Remove the micro-switch (Standoff x1, \mathscr{F} x1, \mathscr{V} x2).



d392r0512d

Book Position Sensor Pair (\$507E/\$507R)

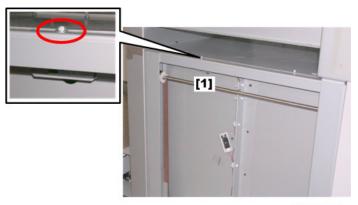
Book Position Sensor (S507E)

1. Remove panel [1] from the left side of the finisher (\$\mathcal{O}^{\mathcal{C}} x4\$).



d392r0508a

2. Remove the sensor bracket [1] (\mathfrak{F}_{x1}).



d392r0508e

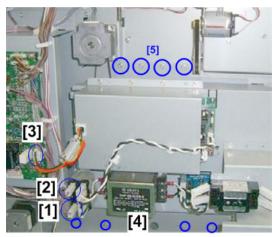
3. Remove the sensor (Fx1, Fx1)



d398r0508f

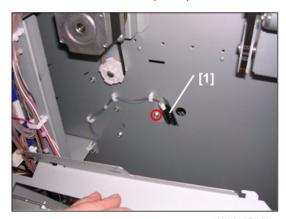
Book Position Sensor (S507R)

- 1. Remove the rear cover.
- 2. Remove:
 - [1] Red connector (Fx1)
 - [2] Black connector (x1)
 - [3] Red, black connector (Fx1)
 - [4] Lower screws (©x4)
 - [5] Upper screws (©x4)



d392r0510a

3. Remove the sensor bracket (@x1).



d392r0510b

4. Remove the sensor (Fx1, Fx1).

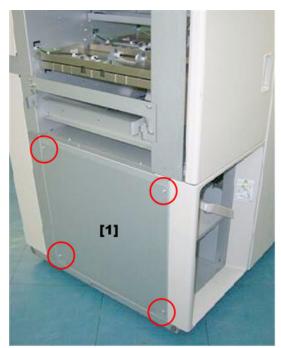


d392r0510c

Stack Height Sensor Pair (S052E/S502R)

Stack Height Sensor (S502E)

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



d392r0508a

2. Remove the sensor [1] (\mathscr{F} x1, \mathscr{O} x1).



d392r0508b

Stack Height Sensor (S502R)

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

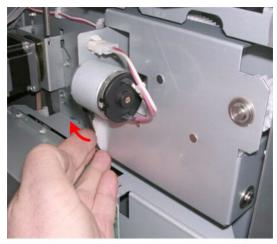


• The screw at [2] has a washer. Do not lose the washer. Be sure to reinstall the screw with the washer at this corner.



d392r0511a

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



d392r0511b

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



d392r0511c

5. At the back of the finisher, remove the panel rear screw ($\mathfrak{P}x1$).



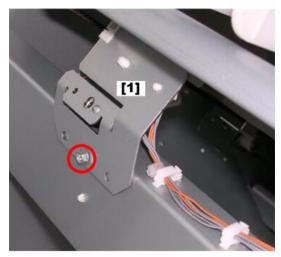
d392r0511d

6. Remove the panel.



d392r0511e

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



d392r0511f

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



d392r0511h

Stacker Detect Sensor (\$504)

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



d392r0512a

3. Remove the cover ($\mathfrak{P}x2$).

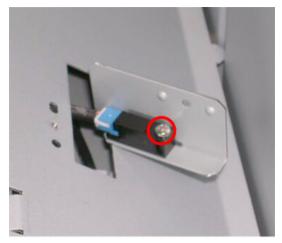


d392r0512b

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



d392r0512c2



d392r0512e

Tray Detection Sensor (\$505)

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



d392r0512a

3. Remove the cover (@x2).



d392r0512b

4. Remove the sensor bracket [1] (@x2, Spring x1).

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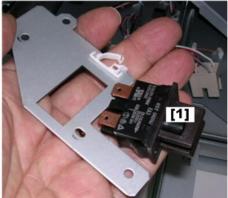




d392r0512c3

5. Remove the sensor (\$\sqrt{x}1, \sqrt{x}1).





d392r0512f

Motors

Pre-Punch Jog Unit Motor

Side Jogger Motor (M302)

- 1. Remove the rear cover.
- 2. Remove the pre-punch jogger unit. (page 28)
- 3. Set the pre-punch jogger unit on a flat surface.



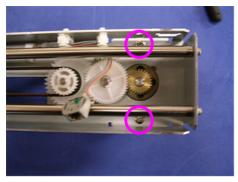
d392r0306a

4. Turn the pre-punch jog unit over.



d392r0306b

5. Remove the motor ($\mathbf{x}_1, \mathbf{x}_1, \mathbf{x}_1, \mathbf{x}_2$).





d392r0306c

Reinstallation

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



d392r0306e

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. (page 17)
- 3. Separate the pre-bind jogger unit from the binder unit. (page 24)
- 4. Turn the pre-bind jogger unit onto its left side.
- 5. Disconnect the motor (Fx2, x1).





d392r0721a

6. Remove the motor (Fx1).

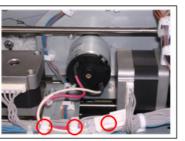


d392r0721b

Alignment Pin Motor (M602)

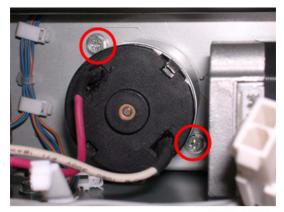
- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the pre-bind jogger left cover. (page 20)
- 4. Disconnect the motor (\$\sim x2, \$\sim x1\$).





d392r0721c

5. Remove the motor bracket and motor (\$\mathbb{O}^2 x2).



d392r0721d

6. Remove the motor bracket (\$\mathbb{O}^{\mathbb{C}}x2).





d392r0721e

Paddle Roller Lift Motor (M603)

1. Open the right front door.

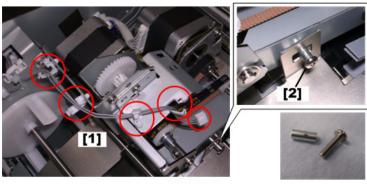
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Separate the pre-bind jogger from the binder unit. (page 24)
- 4. Lay the jogger unit on its left side.





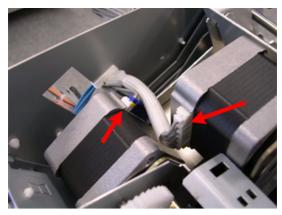
d392r0722a

- 5. Disconnect the sensor and open the harness clamps [1] (*x4, *x1).



d392r0722b

7. Disconnect both motors (\$\simex2\$).



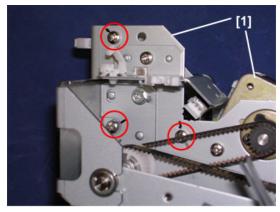
d392r0722c

8. Remove the paddle roller lift assembly.



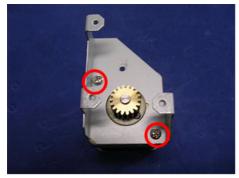
d392r07**22**d

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



d392r0722e

10. Remove the motor from the bracket ($\mathfrak{P}x2$).





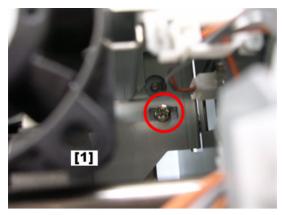
d392r0722f

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. (page 17)
- 3. Remove the pre-bind jogger left cover.

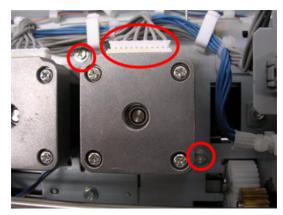


4. Below the left corner of the fan [1], loosen (Do not remove!) the screw to release tension on the timing belt.



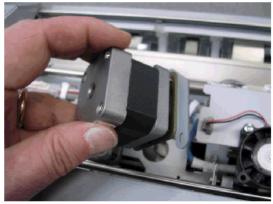
d392r0723c

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



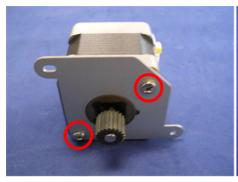
d392r0723b

6. Remove the motor.



d392r0723d

7. Separate the bracket and the motor (\$\mathbb{O}^2 x2).

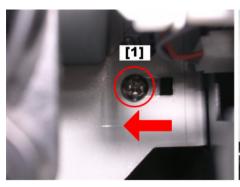




d392r0723e

Re-installation

- 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 (Fx1, Fx2).





d392r0723f

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. page 17
- 3. Remove the pre-bind jogger left cover.





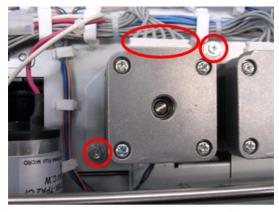
d392r0723g

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



d392r0723i

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



d392r0723h

6. Remove the motor.



d392r0723j

7. Separate the bracket and the motor (\$\mathbb{G}^{\text{x}}x2).

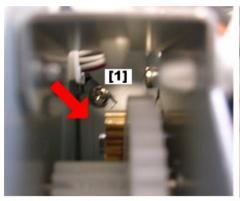


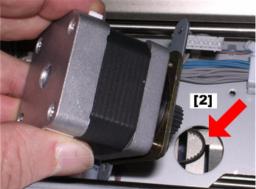


d392r0723k

Re-installation

- 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).



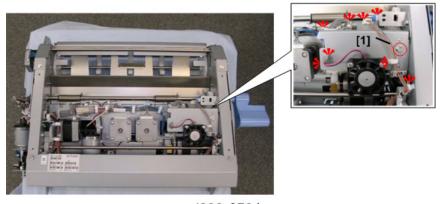


d392r0723l

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. page 17
- 3. Remove the pre-bind jogger left cover. page 20
- 4. Remove the connectors and harness clamps (\$\sigma x2, \$\sigma x6\$).
- 5. Remove screw [1] (@x1).



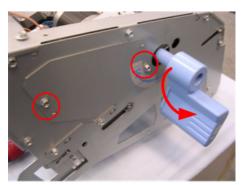
d392r0724a

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



d392r0724b

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



d392r0724c

9. Remove the screws [1] and remove the motor bracket [2] (\$\mathbb{O}^{\text{x}} x2).





d392r0724d

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



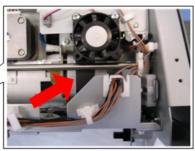


d392r0724e

Runout Roller Motor (M609)

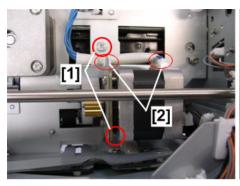
- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the pre-bind jogger left cover. (page 20)
- 4. Remove the pre-bind jogger bottom cover. (page 21)
- 5. Remove the spine clamp motor (M605).





d392r0726a

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





d392r0726b

8. Separate the bracket and the motor (\$\mathbb{O}^2 x2).

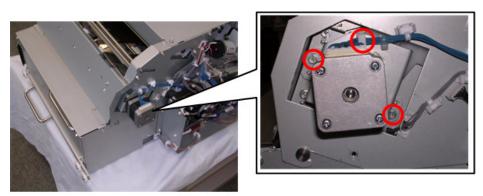




d392r0726c

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. (page 17)
- 3. Disconnect the motor bracket ($\Im x2$, $\Re x1$, and $\Im x1$).



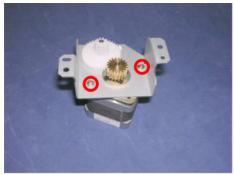
d392r0724f

4. Remove the motor bracket.



d392r0724g

5. Separate the bracket and the motor ($\mathfrak{P}x2$).

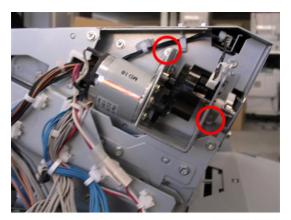




d392r0724h

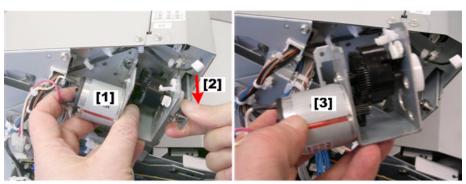
Shutter Motor (M608)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Disconnect:
 - [1] Motor [1] (\$\varphi x1, \$\varphi x1)
 - [2] Sensor [2] (\$\tilde{x}\$ x1, \$\tilde{x}\$x1)



d392r0725b

- 4. Disconnect the motor bracket (\$\mathbb{G}^{\times}x2).
- 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.



d392r0725c

6. Separate the bracket and the motor ($\mathfrak{F}x2$).

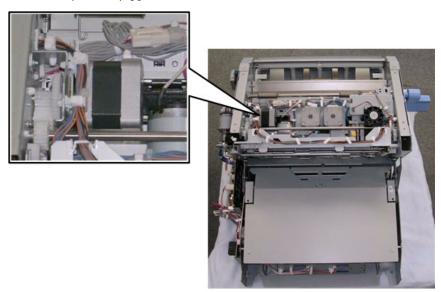




d392r925d

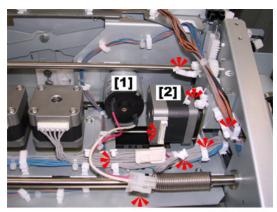
Runout Press Roller Motor (M610)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the pre-bind jogger left cover.



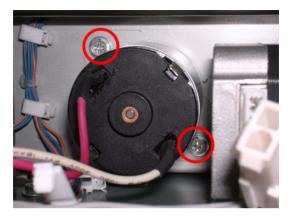
d392r0727a

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



d392r0727b

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



d392r0727c

6. Remove the pin alignment motor.



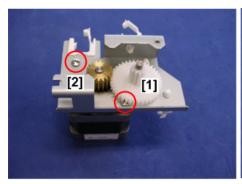
d392r0727d

7. Remove the runout press roller motor bracket.



d392r0727e

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

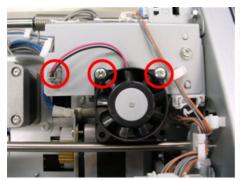


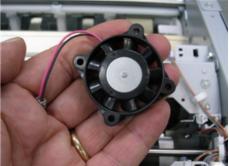


d392r0727f

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. (page 20)
- 3. Remove the fan motor (\mathcal{F}_{x1} , \mathcal{F}_{x2}).



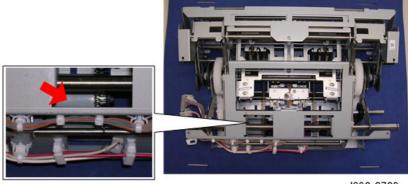


d392r0728a

Clamp Unit Motors

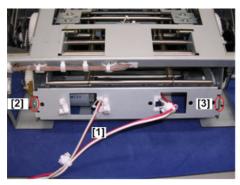
Clamp Unit Motor (M701)

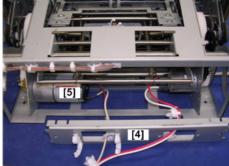
- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the clamp unit.



d392r0729a

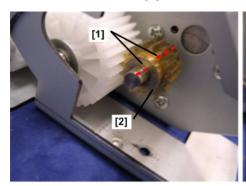
- 4. Release the harnesses [1] (₹x2, ₹x4).
- 5. Remove screws [2] and [3] from the left and right ends of the brace.
- 6. Pull off the brace [4] to expose the motor [5].

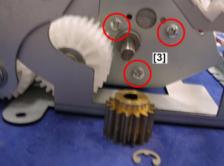




d392r0729b

- 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].





d392r0729c

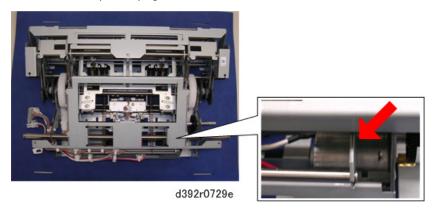
10. Remove the motor.



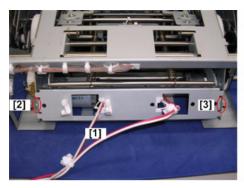
d392r0729d

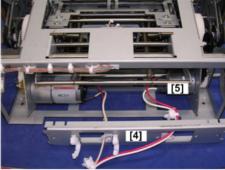
50/100 Clamp Adjust Motor (M702)

- 1. Open the right front door.
- 2. Remove the binder unit from its rails and set it on a flat surface. (page 17)
- 3. Remove the clamp unit. (page 26)



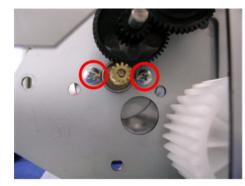
- 4. Release the harnesses [1] (₹x2, ₹x4).
- 5. Remove screws [2] and [3] from the left and right ends of the brace.
- 6. Pull off the brace [4] to expose the motor [5].





d392r0729f

7. Disconnect the harnesses and remove the motor ($\Im x2$).





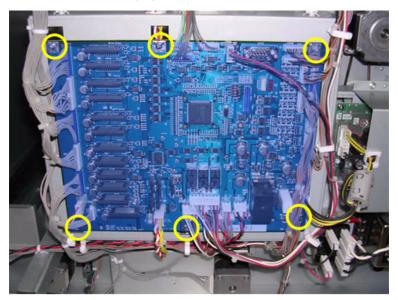
d392r0729g

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Boards

Main Control Board

1. Remove the rear cover. (page 14)



d392r1103

- 2. Remove the main control board (\mathcal{F} x all, \mathcal{F} x5, \mathbb{F} x1 at upper right corner).
- 3. After you install the new board, do SP6504 to SP6507. (See Section 5 of the main Service Manual.)

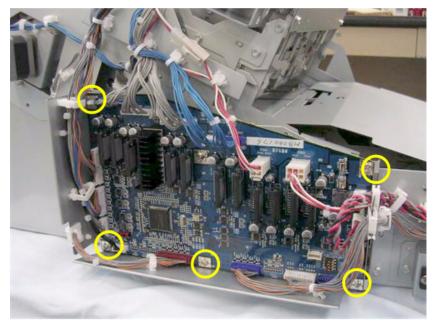
Mportant !

- When adjusting SP6504, close the front door of the Ring Binder.
- After SP6504 adjustment, keep the front door of the Ring Binder closed and turn main power switch OFF and ON.

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. (page 17)

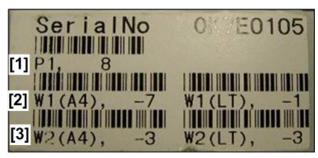


d392r1104

4. Install the new board.

Doing the SP adjustments

1. Locate the label attached to the bottom cover of the pre-bind jogger unit.



d392r0103b

- 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.

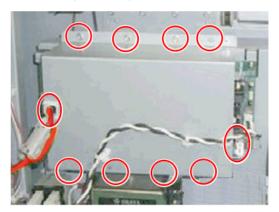


- The A4 punch unit must be installed for punching and binding A4 sheets; the LT punch unit
 must be installed for punching and binding LT sheets. Also, the proper size rings (A4 or LT)
 must be installed in the ring cartridge.
- 3. Also, input the value of SP6504. (See Section 5 of the main Service Manual.)

PSU

ACAUTION

- Never not touch solder connections or electronic parts on the PSU after removing it because electrical charge can remain on the PSU even after it has been removed.
- After removing the PSU, never place put it on a conductive material such as metal
- 1. Remove the rear cover.
- 2. Remove the protection plate (\$\sigma x2, \sigma x1, \text{\$\mathscr{W}} x8).



d392r1105

3. Remove the PSU (*****x1, **%**x5).



d392r1106

MEMO

MEMO

MEMO

