LCIT RT5040 Machine Code: D453

Service Manual

30th January, 2009 Subject to change

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1. Replacement and Adjustment

Removing Trays

- Tray 5 weighs 27 kg (60 lb) empty. Trays 4 and 6 weigh 20 kg (44 lb) each empty.
- To prevent damage to the tray and personal injury, never attempt to lift a tray alone or without attaching the carrying handles, especially if a tray is loaded with paper.
- Two people on each side of the tray should lift the carrying handles together to lift and move the tray.
- Never remove the tray if the LCT has not been docked to the copier. Removing the tray while the LCT is standing alone can unbalance the LCT and cause it to fall over.

Note

• Only one set of carrying handles is attached to the side of Tray 5. Follow the procedure below to attach and use these handles to move Tray 4, 5, or 6.



- 1. Pull the tray [A] out of the LCT until it stops.
- 2. Remove the screws from the right rail [B] ($\hat{\not}$ x3)
- 3. Remove the screws from the left rail [D] ($\hat{\not}$ x3)

Vote

• You do not need to remove screw for the stopper pin bracket at the back of the left rail.



- 4. Remove carrying handles [A] and [B] from the right side of the tray (${
 otin x 2 ea.}$)
 - 5. Use the same screws to attach the carrying handles at **1** and **2**.
 - 6. With one person on each side of the tray, lift it carefully and remove it from the rails.

Door and Covers

Door and Covers



🔂 Important

- The frame is held together by 8 blue screws.
- To avoid weakening or warping the shape of the frame, never remove these blue screws.

Note

- The upper inner cover must be removed before the top cover.
- Remove:
- 1. Right cover (∦ x 6).
- 2. Right rear cover (🖗 x 6).
- 3. Left rear cover (🖗 x 6)
- 4. Top cover (∦ x 5).
- 5. Front door (🐼 x 1).

Note

- While lifting the top cover, remove the snap ring and front door.
- 1. Paper slot cover (🖗 x 2)

Inner Covers

Inner Upper Cover

- 1. Open the front door.
- 2. Pull out the top and middle trays.



d453r501

- 3. Pull down the U1 lever [A].
- 4. Remove:

[B] Knob (⋛x 1)

[C] Inner upper cover (ℰ x2)

Inner Lower Cover

- 1. Open the front door.
- 2. Pull out the middle and bottom trays.



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3. Inner lower cover [A] (⋛ x 2)

Paper Feed

Paper Feed Unit

- 1. Pull out the top, middle or bottom tray.
- 2. Inner upper or lower cover (
 Inner Covers)
 - For the paper feed unit in the top tray or middle tray, remove the inner upper cover.
 - For the paper feed unit in the bottom tray, remove the inner lower cover.



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- 3. Pull the paper feed unit [A] (black screw x 2).
- 4. Stopper bracket [B] (⋛ x 1)



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5. Pull the paper feed unit [A] out fully, and then lift it.

When reinstalling the paper feed unit



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When reinstalling the paper feed unit, align the cutout in the slide rail with the stud screw, and then install the paper feed unit.

Paper Feed, Separation and Pickup Rollers

Top Tray (Tray 4)

ACAUTION

• Before doing this procedure, turn off the main machine and disconnect it from its power source.



- 1. Open the front door [A].
- 2. Pull out the top tray [B] until it stops.



3. Side plate [A] (black screw x 2)



4. Pull the paper feed unit [A].



5. Slide the sensor bracket [A] to the front (black screw x 1).

Comportant)

• Note the original position of this bracket. It must be re-installed at its original position.



- 6. Remove:
 - [A]: Paper feed roller (🕅 x 1)
 - [B]: Separation roller ($\langle \overline{0} \rangle \times 1$)
 - [C]: Pickup roller (🕅 x 1)

Middle Tray (Tray 5)

CAUTION

• Before doing this procedure, turn off the main machine and disconnect it from its power source.



1. Open the front door [A].

2. Pull out the middle tray [B].



3. Side plate [A] (black screw x 2)



4. Pull the paper feed unit [A] (black screw x 2).



5. Slide the sensor bracket [A] to the front (black screw x 1).

🔂 Important 🔵

• Note the original position of this bracket. It must be re-installed at its original position.



- 6. Remove:
 - [A]: Paper feed roller (🐼 x 1)
 - [B]: Separation roller (🐼 x 1)
 - [C]: Pickup roller (🕅 x 1)

Bottom Tray (Tray 6)

• Before doing this procedure, turn off the main machine and disconnect it from its power source.



- 1. Open the front door [A].
- 2. Pull out the bottom tray [B].



3. Paper end fence [A] if it is stored here.



4. Side plate [A] (black screw x 2)



5. Pull the paper feed unit [A] (black screw x 2).



6. Slide the sensor bracket [A] to the front (black screw x 1).

Comportant 2

• Note the original position of this bracket. It must be re-installed at its original position.



- 7. Remove:
 - [A]: Paper feed roller (🐼 x 1)
 - [B]: Separation roller (🖾 x 1)
 - [C]: Pickup roller (🖾 x 1)

LCT Motors

Transport Motors, LCT Exit Motor

4th, 5th, and 6th Transport Motors **0**, **2**, **3**



B834R109

Remove:

- Left rear cover (Door and Covers)
- [A] Motor unit (ﷺ x1, Timing belt x1, ⅔ x2)

[B] Motor (⋛ x2)

1

LCT Exit Motor **(**



Remove:

```
• Left rear cover (🖝 Door and Covers)
```

[A] Motor unit (ﷺ x1, Timing belt x1, ∦ x3)

[B] Motor (🖗 x2)

Feed Motors/Grip Motors



Each paper feed unit has a pick-up feed motor **1** and a grip motor **2**. The removal procedure is the same for each feed tray.

1. Left rear cover (🖝 Door and Covers)

- 2. Use a small screwdriver to turn the shaft [A] so the pin can slip out of the keyhole.
- 3. Motor unit [B] (倉 x4, 🖗 x2, 🖆 x2)



B834R109C

4. Remove:

- [A]: Springs (x2). First, loosen the screws (x2) **0**, **2**.
- [B]: Paper feed motor ($\hat{\mathscr{F}} \times 2$, Timing belt x1)
- [C]: Grip motor (ℰ x2, Timing belt x1)

Reinstallation

Attach the tension spring, then tighten the screws 3 to tighten the belts.

Lift Motors

4th, 6th Lift Motors

The procedure for removing the 4th and 6th lift motors is the same.



Remove:

- Left rear cover (🖝 Door and Covers)
- [A]: Motor unit (곍 x 3, ☜ x1).

5th Lift Motor

1. Left rear cover (🖝 Door and Covers)



0453r

2. Motor unit [A] (곍 x 5, ⊑ৠ x 1)



3. 5th lift motor [A] (⋛ x 2)

Cooling Fan

1. Left rear cover (🖝 Door and Covers)



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2. Fan bracket [A] (倉 x 2, x 1, ☞ x 1)

0



3. Cooling fan [A] (⋛ x 2)

C Important

• When reinstalling the cooling fan, make sure that the cooling fan is installed with its decals facing upward.

Electrical Components

Paper Feed and End Sensors

1. Pull out the paper feed unit (
Paper Feed Unit)



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d453r511

- 3. Remove:
 - [A]: Paper feed sensor (hooks)
 - [B]: Paper end sensor (hooks)

When reinstalling the sensor bracket

• Make sure that the white connector is connected to the paper feed sensor and the red connector is connected to the paper end sensor.



• Use two holes [A] when attaching the sensor bracket. Do not use the hole [B].

Lift Sensor

1. Paper feed unit (🖝 Paper Feed Unit)



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2. Sensor bracket [A] (♂ x 1, □ x 1, □ x 1)



3. Lift sensor [A] (hooks)

LCT Exit Sensor



B834R105

- Disconnect the LCT from the copier.
- [A] Exit sensor unit(ℰ x 1, ⊑ x 1).

[B] Exit sensor

Paper Path Sensors



Removing the Vertical Feed Unit

B834R105A

- 1. Open the front door.
- 2. Remove:
 - Inner upper cover (Inner Covers)
 - Inner lower cover (🖝 Inner Covers)
 - Left rear cover (Door and Covers)



B834R105A



3. Disconnect the harness clamps ${f 0}$ and ${f 2}$ (${\textcircled{\baselined{1.5}}} x$ 2).

4. Disconnect the motor harnesses ❸, ❹, ⑤ (x 3, ☞ x 11).



B834R105C

- 5. Remove:
 - [A]: Upper stay (🖗 x 2)
 - [B]: Lower stay (🖗 x 2)

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B834R105D

6. Vertical feed unit [A] (🖗 x 6)

4th Transport, 4th Relay Upper, Lower Sensors



- 1. Vertical feed unit. (
 Vertical Feed Unit)
- 2. Remove:
 - [A]: 4th Transport sensor (斧 x 1, ⊑╝ x 1)
 - [B]: 4th Relay sensor upper (斧 x 1, 町 x 1)

[C]: 4th Relay sensor – lower (Ĝ x 1, ⊑ x 1)



5th Relay Sensor, 5th Transport Sensor

- 1. Vertical feed unit. (
 Vertical Feed Unit)
- 2. Remove:
 - [A]: 5th Relay sensor (🖗 x 1, 🗊 x 1)
 - [B]: 5th Transport sensor (倉 x 1, 🖽 x 1)



- 1. Vertical feed unit. (
 Vertical Feed Unit)
- 2. Remove:
 - [A]: 6th Relay sensor (倉 x 1, 🗊 x 1)
 - [B]: 6th Transport sensor (倉 x 1, ⊑ x 1)

Main Control Board

1. Rear covers (Door and Covers)



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2. Main control board [A] (Ĝ x 7, Standoffs x 1, 🗊 x All).

Paper Height, Paper Width Sensors

Paper Height Sensors



B834R106

- 1. Rear left cover (🖝 Door and Covers)
- 2. Remove:
 - [A]: Paper height sensor unit (ℱ x 2, ⊑^{IJ} x 4).
 - [B]: Clamp bracket (⋛ x 2)

[C]Paper height sensors (x 4) (Hooks x 2 each)

Paper Width Sensors



B834R106A

- 1. Rear left cover (🖝 Door and Covers)
- 2. Remove:

[A]: Paper width sensor unit (𝔅 x 2, ⊑ x 3)

[B]: Paper width sensors (x 3) (Hooks x 2 each)

Adjustment

Side Registration Adjustment



Normally the side registration of the image can be adjusted with SP1002-004 to -006 (Side-to-Side Registration – Tray 4, 5, 6). When the punch hole positions are not aligned from a particular feed station, adjust the side registration by changing the tray cover position for the tray, as described below. Then adjust the side registration of the image with the SP1002.

- 1. Pull out the tray.
- 2. Change the screw positions [A] at both the right and left sides as shown.

Note

• Adjustment range: 0 ± 2.0 mm adjustment step: 0.5 mm/step

Image Position Board and Sensor



Image Position Sensor

• Disconnect the LCT from the copier.

[A] Image position sensor unit (𝔅 x 2, ⊑╝ x 1)

- [B] Stopper (∦ x 1)
- [C] Image position sensor
- After replacing the image position sensor, do the procedure for image position sensor adjustment.
 (In Adjusting Image Position Sensor Strength and Side-to-side Registration)

Image Position Sensor Board

- Disconnect the LCT from the copier.
 - [D] Cover (倉 x 2, 帰 x 2)
 - [E] Image position sensor board (♂ x 2, ☞ x 2, ⇔ x 2)

Adjusting Image Position Sensor Strength and Side-to-side Registration

- 1. Turn off the main power switch.
- 2. Disconnect the LCT from the mainframe.



- 3. With the LCT [A] separated from the mainframe, reconnect the LCT cable to the mainframe.
- 4. Turn on the main power switch.
- 5. Insert one sheet of plain white paper [B] in the paper path.
- 6. Make sure that the paper covers the entire area below the image position sensor (CIS) [C].
- Enter the SP mode and do SP1910-002 (CIS Image Position Adjustment: LED Strength LCT). This
 calibrates the amount of light to be emitted from the CIS.
- 8. Do SP1909-002 (CIS Image Position Adjustment: PWM After Adjustment LCT).
 - If the displayed value is between 10 (Ah) and 40 (28h), the CIS is calibrated successfully. (The display is in hexadecimal code.)
 - If the value is outside this range, do SP 1910-002 and 1909-002 again. If the value does not come between 20 and 40, the CIS may be defective.
- 9. Exit the SP mode.
- 10. Reinstall the LCT to the side of the copier.
- 11. Push [User Tools]> [Adjust Settings for Operators].
- 12. Do "0111-4 to -7" for Trays 4, 5, 6, 7 and set the value for each tray to "Off".
- 13. Exit from SP 1911 and return to the SP mode menu.
- 14. Adjust the image positions in the main scan direction.
 - Do SP2902-003, select Pattern 27, then print the trimming pattern.
 - Do SP1002 and adjust the image position in the main scan direction for Trays 4, 5, 6, and 7.



- Print the trimming pattern from each tray of the LCT and from the bypass tray (if installed).
- To do this, touch "Copy Window" in the SP display, select a tray, then push [Start].
- The distance of the test pattern line from the paper edge for each tray must be 2 mm. If it is not 2 mm, adjust with SP1002-004 to -007, depending on which tray is not within the specified 2 mm.
- 15. Do SP1912-002 (CIS Image Position Adjustment: Normal Paper). This sets the CIS for operation with standard copy paper.
- 16. Exit the SP mode.
- 17. Push [User Tools]> [Adjust Settings for Operators].
- Once again, do "0111-4 to -7" (CIS Image Position Adjustment: Feed Setting) and reset the values for Trays 4, 5, 6, and 7 to "On".



Double Feed Problem from LCT

If double feed occurs several times when paper is fed from an LCT (tray 4, 5, or 6), try to change the upper limit of the paper stack in the LCT tray

Changing the upper limit of the paper stack in the LCT tray can improve paper separation for the paper stack in the LCT tray.



- 1. Remove the paper feed unit of the LCT unit (Paper Feed Unit).
- 2. Loosen the screw on the paper lift sensor bracket [A].
- 3. Move the bracket 0.5 mm in the arrow direction as shown above.
- 4. Tighten the screw on the paper lift sensor bracket [A].

Note

- To return the upper limit position to the default position, move the paper lift sensor bracket 0.5 mm to the opposite side.
- Return the upper limit position to the default if a paper jam occurs at the paper feed sensor in the LCT.

1. Replacement and Adjustment

Mechanical Overview

Mechanical Component Layout



* Each feed unit has 1 paper feed motor that drives the pick-up roller and paper feed roller, and 1 grip motor that drives the separation roller and grip roller.

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Drive Layout



B834V102

- 1. 4th Lift Motor
- 2. 5th Lift Motor
- 3. 6th Lift Motor
- 4. 6th Paper Feed Motor
- 5. 6th Grip Motor
- 6. 6th Transport Motor
- 7. 5th Paper Feed Motor

- 1. 5th Grip Motor
- 2. 5th Transport Motor
- 3. LCT Exit Motor
- 4. 4th Transport Motor
- 5. 4th Grip Motor
- 6. 4th Paper Feed Motor

Electrical Components



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- 1. LCT Exit Sensor 1. 6th Paper Width Sensor 3 2. 4th Relay Sensor 2. 6th Paper Width Sensor 2 3. Image Position Sensor Board 3. 5th Paper Length Sensor 4. 4th Relay Sensor - Upper 4. 6th Paper Width Sensor 1 5. 4th Transport Sensor 5. 6th Paper Height Sensor 4 6. 4th Paper Height Sensor 4 6. 6th Paper Height Sensor 3 7. 4th Paper Height Sensor 3 7. 6th Paper Length Sensor 8. 4th Paper Height Sensor 2 8. 6th Paper Height Sensor 2 9. 4th Paper Height Sensor 1 9. 6th Paper Height Sensor 1 10. 4th Paper Width Sensor 3 10. 6th Transport Sensor 11. 4th Paper Width Sensor 2 11. Door Safety Switch 12. 4th Paper Width Sensor 1 12. 6th Paper End Sensor 13. 5th Paper Width Sensor 3 13. 6th Paper Feed Sensor 14. 5th Paper Width Sensor 2 14. 6th Lift Sensor 15. 5th Paper Width Sensor 1 15. 6th Pick-up Solenoid 16. 4th Paper Length Sensor 16. 6th Relay Sensor 17. 5th Paper Height Sensor 4 17. 5th Transport Sensor 18. 5th Paper Height Sensor 3 18. 5th Relay Sensor 19. 5th Paper Height Sensor 2
 - 20. 5th Paper Height Sensor 1

19. LCT Image Position Sensor



1.	5th Transport Motor	10	5th Lift Motor
2.	4th Transport Motor	11.	6th Paper Feed Motor
3.	4th Grip Motor	12.	6th Lift Motor
4.	4th Paper Feed Motor	13.	Anti-Condensation Heaters
5.	5th Grip Motor	14.	6th Grip Motor
6.	5th Paper Feed Motor	15.	6th Transport Motor
7.	LCIT Cooling Fan	16.	LCT Exit Motor
8.	4th Lift Motor	17.	Tray Front Fan
9.	Main Control Board	18.	Tray Rear Fan

Each of the three trays is provided with a front fan (17) and rear fan (18).



1.	Paper Feed Motor Bypass)	1. 5th Paper Feed Sensor
2.	Paper Feed Sensor Bypass)	2. 5th Grip Motor
3.	Grip Motor Bypass)	3. 5th Transport Motor
4.	Transport Sensor Bypass)	4. 5th Transport Sensor
5.	Transport Motor Bypass)	5. 6th Paper feed Motor
6.	4th Paper Feed Motor	6. 6th Paper Feed Sensor
7.	4th Paper Feed Sensor	7. 6th Grip Motor
8.	4th Grip Motor	8. 6th Transport Sensor
9.	4th Transport Sensor	9. 6th Transport Motor
10.	4th Transport Motor	10. 6th Relay Sensor
11.	4th Relay Sensor – Upper	11. 5th Relay Sensor
12.	4th Relay Sensor – Lower	12. LCT Exit Motor
13.	5th Paper feed Motor	13. LCT Exit Sensor

Electrical Component Summary

Motors		
No.	Name	Description
M1	4th Grip Motor	Drives the separation roller and the grip roller of the 4th tray.
M2	4th Lift Motor	Drives the bottom plate of the 4th tray up and down.
M3	4th Paper Feed Motor	Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 4th tray.
M4	4th Transport Motor	Drives the rollers in the vertical feed path that feed the paper from the 4th tray to the LCT exit motor.
M5	5th Grip Motor	Drives the separation roller and the grip roller of the 5th tray.
M6	5th Lift Motor	Drives the bottom plate of the 5th tray up and down.
M7	5th Paper Feed Motor	Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 5th tray.
M8	5th Transport Motor	Drives the transport rollers in the vertical feed path that feed the paper from the 4th tray and the 5th tray to the LCT exit motor.

Motors			
No.	Name	Description	
M9	6th Grip Motor	Drives the separation roller and the grip roller of the 6th tray.	
M10	6th Lift Motor	Drives the 5th tray up and down.	
M11	6th Paper Feed Motor	Drives the pick-roller and feed roller that picks up each sheet and starts to feed it out of the 6th tray.	
M12	6th Transport Motor	Drives the rollers in the vertical feed path that feed the paper from the 6th tray to the LCT exit motor.	
M13	LCT Exit Motor	Feeds the paper out the LCT and into the entrance of the copier.	

No.	Name	Description
PCBs		
PCB1	Main Control Board	Controls the operation of all motors and sensors in the LCT unit.
PCB2	Image Position Sensor Board	Operates the CIS sensor (performs waveform correction) the LCT. The CRB (CIS Relay Board) and CIS sensor perform side-to-side image correction. The CRB and CIS are a single unit. The CRB is not a separate board.

Sensors			
No.	Name	Description	
S1	4th Lift Sensor	Detects when the paper in the 4th tray is at the correct height for paper feed and switches the 4th lift motor off.	
S2	4th Paper End Sensor	Detects when the last sheet feeds from the 4th tray.	
\$3	4th Paper Feed Sensor	Detects the paper when it arrives at the 4th paper feed roller and checks for misfeeds.	
S4	4th Paper Height Sensor 1	4th from the bottom of the 4th tray, detects stack height: 100%	

Sensors			
No.	Name	Description	
S5	4th Paper Height Sensor 2	5th from the bottom of the 4th tray, detects stack height: 75%	
S6	4th Paper Height Sensor 3	6th from the bottom of the 4th tray, detects stack height: 50%	
S7	4th Paper Height Sensor 4	4th from the bottom of the 4th tray, detects stack height: 25% and signals near-end.	
S8	4th Paper Length Sensor (B834)	Detects the length of the paper in the 4th tray (used in combination with the paper width sensors).	
S9	4th Paper Width Sensor 1 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 4th tray.	
S10	4th Paper Width Sensor 2 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 4th tray.	
S11	4th Paper Width Sensor 3 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 4th tray.	
S12	4th Paper Size Sensor 1 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 4th tray.	
S13	4th Paper Size Sensor 2 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 4th tray.	
S14	4th Paper Size Sensor 3 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 4th tray.	
\$15	4th Relay Sensor	Detects the leading and trailing edges of the paper in the paper path near the bottom of the 4th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location.	
\$16	4th Relay Sensor - Upper (B834)	Detects the leading and trailing edges of the paper in the paper path near the top of the 4th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location.	

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Sensors			
	No.	Name	Description
	S17	4th Transport Sensor	Detects jams in the paper path where the transport motor feeds the paper from the 4th tray.
	S18	5th Lift Sensor	Detects when the paper in the 5th tray is at the correct height for paper feed and switches the 4th lift motor off.
	S19	5th Paper End Sensor	Detects when the last sheet feeds from the 5th tray.
	S20	5th Paper Feed Sensor	Detects the paper when it arrives at the 5th paper feed roller and checks for misfeeds.
	S21	5th Paper Height Sensor 1	4th from the bottom of the 5th tray, detects stack height: 100%
	S22	5th Paper Height Sensor 2	5th from the bottom of the 5th tray, detects stack height: 75%
	S23	5th Paper Height Sensor 3	6th from the bottom of the 5th tray, detects stack height: 50%
	S24	5th Paper Height Sensor 4	4th from the bottom of the 5th tray, detects stack height: 25% and signals near-end.
	S25	5th Paper Length Sensor (B834)	Detects the length of the paper in the 5th tray (used in combination with the paper width sensors).
	S26	5th Paper Width Sensor 1 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 5th tray.
	S27	5th Paper Width Sensor 2 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 5th tray.
	S28	5th Paper Width Sensor 3 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 5th tray.
	S29	5th Paper Size Sensor 1 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 5th tray.
	\$30	5th Paper Size Sensor 2 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 5th tray.

Sensors		
No.	Name	Description
S31	5th Paper Size Sensor 3 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 5th tray.
\$32	5th Relay Sensor (B834)	Detects the leading and trailing edges of the paper in the paper path near the 5th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location.
\$33	5th Transport Sensor	Detects jams in the paper path where the transport motor feeds the paper from the 5th tray.
\$34	óth Lift Sensor	Detects when the paper in the 6th tray is at the correct height for paper feed and switches the 4th lift motor off.
\$35	6th Paper End Sensor	Detects when the last sheet feeds from the 6th tray.
\$36	6th Paper Feed Sensor	Detects the paper when it arrives at the 6th paper feed roller and checks for misfeeds.
\$37	óth Paper Height Sensor 1	4th from the bottom of the 6th tray, detects stack height: 100%
\$38	óth Paper Height Sensor 2	5th from the bottom of the 6th tray, detects stack height: 75%
\$39	6th Paper Height Sensor 3	6th from the bottom of the 6th tray, detects stack height: 50%
S40	óth Paper Height Sensor 4	4th from the bottom of the 6th tray, detects stack height: 25% and signals near-end.
S41	6th Paper Length Sensor (B834)	Detects the length of the paper in the 6th tray (used in combination with the paper width sensors).
S42	6th Paper Width Sensor 1 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 6th tray.
S43	óth Paper Width Sensor 2 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 6th tray.

Sensors		
No.	Name	Description
S44	6th Paper Width Sensor 3 (B834)	1 of a set of 3 sensors that detect the width of the paper in the 6th tray.
S45	6th Paper Size Sensor 1 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 6th tray.
S46	6th Paper Size Sensor 2 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 6th tray.
S47	6th Paper Size Sensor 3 (B832)	1 of a set of 3 sensors that detect the width of the paper in the 6th tray.
S48	6th Relay Sensor (B834)	Detects the leading and trailing edges of the paper in the paper path near the 6th tray. Checks the timing of the feed and signals a jam if the paper is late or lags at this location.
S49	6th Transport Sensor	Detects jams in the paper path where the transport motor feeds the paper from the 6th tray.
\$50	LCT Exit Sensor	Detects jams at the exit of the LCT unit.
\$51	LCT Image Position Sensor	Mounted on the CRB (CIS Relay Board), this contact image sensor detects the side-to-side edges of the paper in the paper path. The machine uses this information to correct the position of the image when the lasers fire.

No.	Name	Description		
Solenoids				
SOL1	4th Pick-up Solenoid	Engages/disengages rotation of the pick-up roller in the 4th tray.		
SOL2	5th Pick-up Solenoid	Engages/disengages rotation of the pick-up roller in the 5th tray.		
SOL3	6th Pick-up Solenoid	Engages/disengages rotation of the pick-up roller in the 6th tray.		

No.	Name	Description
Switches		
SW1	Door Safety Switch	An interlock safety switch that detects when the front door is opened and closed.

No.	Name	Description		
Other				
H1, H2	Anti-Condensation Heaters	Evaporates moisture around the trays in the LCT (230V 18W).		

Paper Handling

Paper Feed Rollers





This LCT has three paper tray feed stations:

The 4th and 6th tray each hold 1,000 sheets of paper. The 5th tray holds 2,000 sheets of paper. Total: 4,000 sheets

Each tray contains four rollers:

- [A]: Pick-up roller
- [B]: Paper feed roller
- [C]: Separation roller
- [D]: Grip roller

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Note
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• The pick-up roller, paper feed roller, and separation roller are a standard FRR paper feed system.

Paper Feed Motors



Two stepper motors control the paper feed drive:

- [A] Paper feed motor
- [B] Grip motor

The paper feed motor drives the pick-up roller [C] and the paper feed roller [D].

The grip motor drives the grip roller [E] that feeds the paper out of the tray, and the separation roller [F].

Paper Separation



When the paper feed station is selected for a job, the paper feed motor [B] and grip motor [C] turn on.

- When the feed motor [B] turns on, it drives the feed roller [D]. It also drives the pick-up roller [E] because the pick-up roller is linked to the feed roller by an idle gear.
- When the paper feed station is set in the mainframe, the separation lift lever rises. As a result, the separation roller [A] contacts the paper feed roller [D] and turns with the feed roller, unless more than one sheet of paper is fed. The two trays of the LCT unit use the standard FRR mechanism.
- When the paper feed motor turns on after the pick-up solenoid has turned on, the pick-up roller [E] lowers until it contacts the top sheet of the paper stack and then sends it to the paper feed and separation rollers.

If the air assist fan is NOT used:

• When the paper feed sensor [F] detects the leading edge of the paper, the paper feed motor switches off, the pick-up roller lifts, and the grip rollers [G] feed the paper out of the tray.

If the air assist fan is used:

• When the grip sensor detects the leading edge of the paper, the paper feed motor switches off and the pick-up roller is still lowered. When the paper feed sensor detects the leading edge of the paper, the pick-up roller lifts and the grip rollers [G] feed the paper out of the tray.

Paper Detection/Lift

Mechanism



2

Detection

When the tray set in the machine, the tray is detected by the drawer connector on the back side of the tray.

Lift

When the machine detects that the paper tray is set in the machine:

- The tray lift motor [A] rotates forward
- Coupling gear [B] on the tray lift motor engages pin [C] of the lift drive shaft.
- The tray drive belts [D], connected to the tray bottom plate [E], are driven by the tray lift motor via the lift drive shaft and tray lift pulleys [F].
- When the lift motor rotates forward, the tray bottom plate [E] rises. The tray rises until the top of the paper stack pushes up the pick-up roller and the lift sensor in the feed unit is de-activated.
- When the actuator [G] on the rear end of the bottom plate activates the paper height sensors [H], the remaining paper capacity is detected.

When the tray is pulled out:

- Coupling gear [B] separates from pin [C] and the tray bottom plate goes down.
- A damper [I] slows the descent of the bottom plate. For the B834, all three trays have this damper.

Lift Sensor



When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the proper paper feed level, the paper pushes up the pick-up roller and the actuator [C] on the pick-up roller supporter [D] de-activates the lift sensor [E] to stop the lift motor.

After several paper feeds, the paper level gradually lowers, then the lift sensor is activated and the lift motor turns on again until the lift sensor is de-activated again.

Paper Size Detection



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W3	Paper Width Sensor 3
W2	Paper Width Sensor 2
W1	Paper Width Sensor 1
L1	Paper Length Sensor

Each tray has three paper width sensors and one paper length sensor. The illustration above shows how four sensors are arranged in the tray.

This table describes how the three width sensors and one length sensor are used to determine the paper size in the 4th, 5th, and 6th paper trays.

Paper Size	Width Sensors			Length Sensor	Area	
	W1	W2	W3	L1	NA	EU

Large Size	12"×18"	L	L	L	Н	YES	YES
	13"×19"					NO	NO
	320×450 mm					NO	NO
A3 SEF	297×420 mm	L	L	Н	Н	YES	YES
A4 LEF	297×210 mm	L	L	Н	L	YES	YES
DLT SEF]]"×]7"	L	Н	L	Н	YES	YES
LT LEF]]"×8½"	L	Н	L	L	YES	YES
B4 SEF	257×364 mm	L	Н	Н	Н	YES	YES
B5 LEF	257×182 mm	L	Н	Н	L	YES	YES
A4 SEF	210×297 mm	Н	L	L	Н	NO	YES
LT SEF	8½"×11"	Н	L	L	Н	YES	NO
A5 LEF	210×148 mm	Н	L	L	L	NO	YES
HLT LEF	8½"×5½"	Н	L	L	L	YES	NO
B5 SEF	182×257 mm	Н	L	Н	Н	NO	NO
F SEF	8"×13"	Н	L	Н	Н	YES	YES
A5 SEF	148×210 mm	Н	Н	L	L	YES	YES
HLT SEF	5½"×8½"	Н	Н	Н	L	YES	YES

YES: Detected automatically

NO: Not detected automatically. Requires size setting change with the "Tray Paper Setting" key on the copier operation panel to detect the desired paper size.

H: Sensor OFF

L: Sensor ON

Remaining Paper Detection



Each tray has four paper height sensors. The illustration above shows the paper height sensors in the 4th tray. This arrangement is duplicated in the 5th and 6th trays.

The amount of paper remaining in the tray is detected by the three paper height photo-interrupter sensors on the left rail as the bottom plate rises. Five states, determined by the position of the actuator [A] are possible.

- 1. With the actuator [A] below paper height sensor 4 [B], no sensor is actuated and the display indicates 100%.
- 2. When the actuator passes paper height sensor 4 [B], the display indicates 75% of the paper supply remaining.
- 3. When the actuator passes paper height sensor 3 [C], the display indicates 50% of the paper supply remaining.
- 4. When the actuator passes paper height sensor 2 [D], the display indicates 25% of the paper supply remaining.

Vote

- When the actuator enters the gap of the near end sensor [E] and the paper height sensor 2 [D] does not detect the actuator, the machine signals near end.
- 5. Finally, when the last sheet feeds, the paper end sensor signals that the tray is empty.

Air-assisted Feed Mechanism



Two air assist fans [A] and [B] comprise the air assist mechanism.

The air flow created by the opposing fans floats the first sheet off the top of the stack. This assists in the separation of the top sheet from the sheet below and prevents double-feeding.

This only works when feeding the following paper types: Thick 2, Thick 3, Special 2, coated paper 1, coated paper 2 and coated paper 3.

Paper End Detection



The paper end sensor [A] detects the top sheet of the paper in the tray by monitoring the reflected light. When the paper tray runs out of paper, the paper end sensor does not receive the reflected light due to the cutout [B]. Then, the tray lift motor rotates backwards 2 seconds to drop the tray bottom plate.



The image position sensor [A] is located in the LCT paper path above the paper path and in front of the LCT exit rollers. (This sensor is mounted on its own control board.)

The sensor is a CIS (Contact Image Sensor). It checks the side edges of each sheet as it passes, and feeds this information back to the machine.

If the side-to-side registration of the paper is slightly out of alignment, the machine will correct the image position when the laser writes the image on the surface of the drum. This function does not correct the position of the paper.

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