LCT PB3050
Machine Code: D352

SERVICE MANUAL

August, 2007
Subject to change

Safety and Symbols

Replacement Procedure Safety

⚠CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

☛: See or Refer to

: Screws

: Connector

: Clip ring

: E-ring

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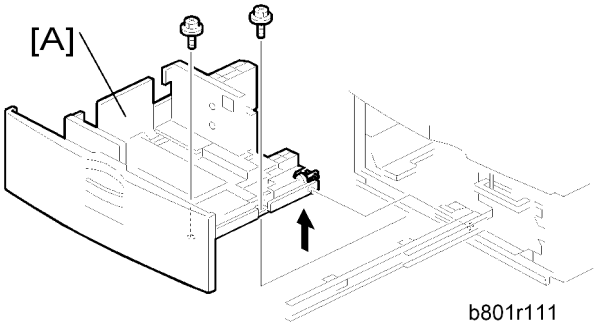
1. Replacement and Adjustment

Left and Right Tray

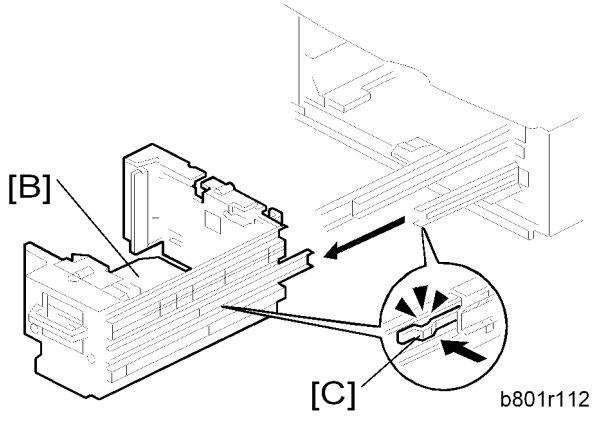


1. Pull the LCT drawer.

Note

- If the right tray comes up with the left tray, push the right tray into the LCT.

2. Left tray [A] (x 2)



3. Remove the right tray [B] while pressing down the stopper [C].

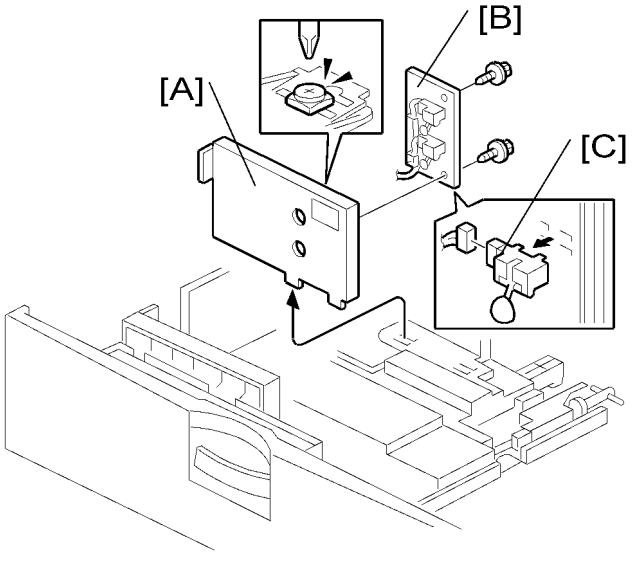
Note

- When reinstalling the tray, set the tray on the guide rail and carefully push the tray in, making sure to keep the tray level.

Sensors

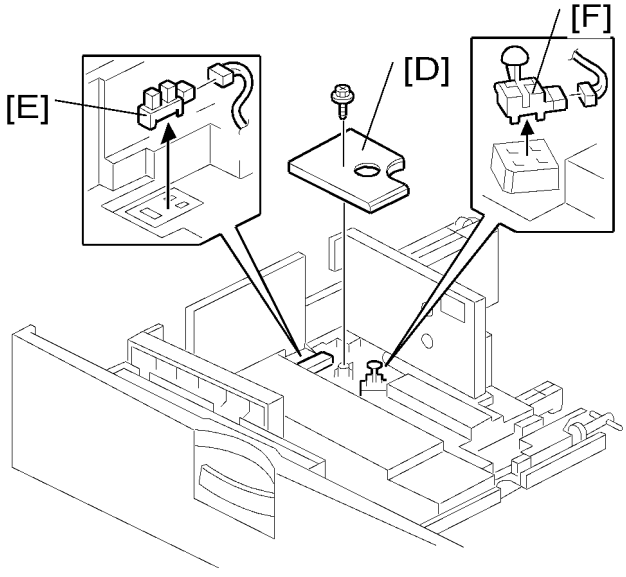
1

Paper Height Sensors on the Paper Storage Side



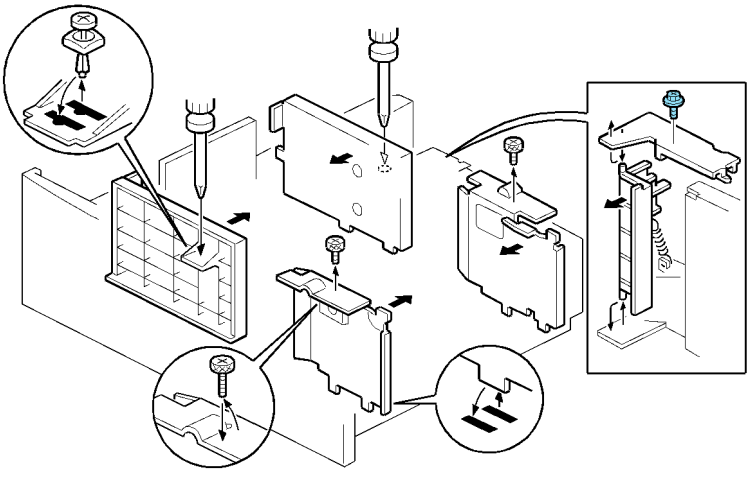
1. Tray (☛ "Left and Right Tray")
2. Rear fence [A] (☞ x 1)
3. Rear fence bracket [B] (☞ x 2)
4. Paper height sensors [C] (☜ x 1 each)

End Fence HP Sensor/Paper End Sensor 2



1. Bottom cover [D] (x 1)
2. End fence HP sensor [E] (x 1)
3. Paper end sensor 2 (paper storage side) [F] (x 1)

Changing the Tray Size

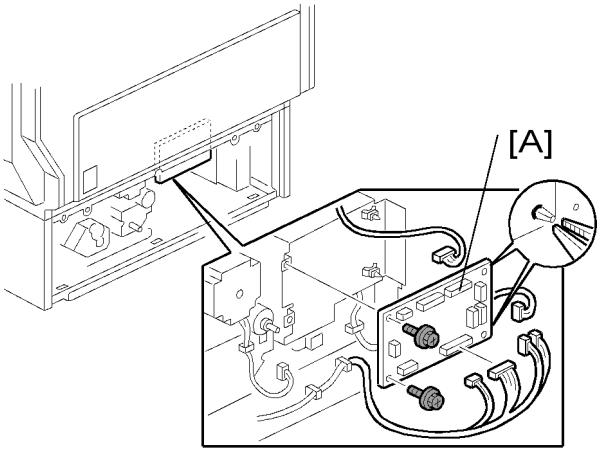


1. Remove the fence screws (x 5).
2. Change the position of the fences.

Note

- Before fastening the screws, set paper in the tray.

Main Board

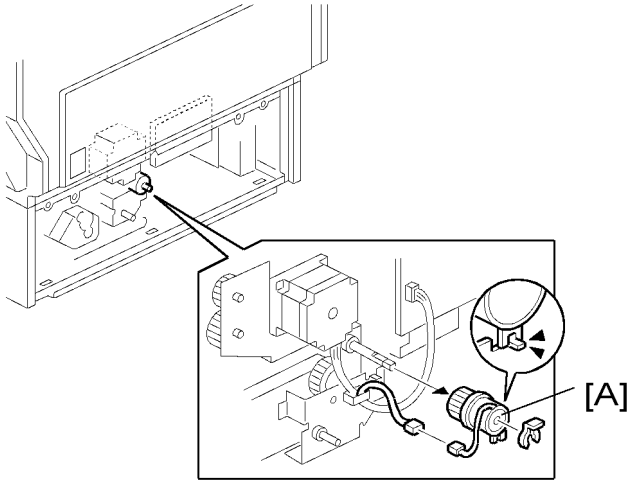


1. Rear cover (☛ "Tray Lift Motor")
2. Main board [A] (All s, x 2, snap x 2)

Clutches

1

Stack Transport Clutch



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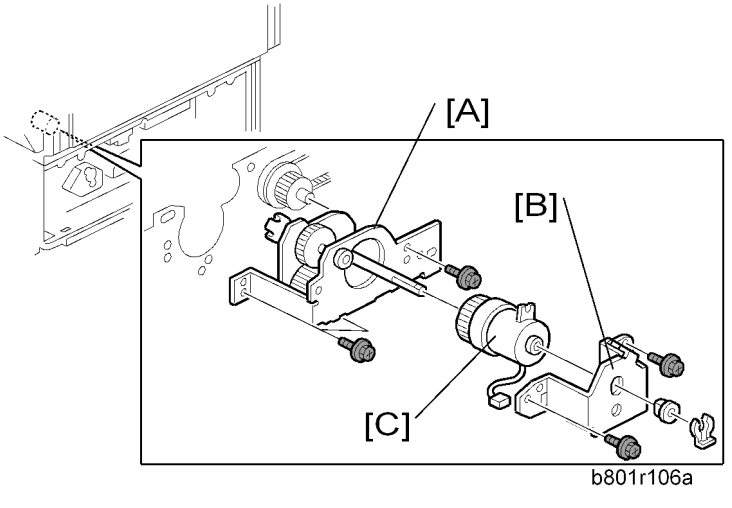
1. Rear cover (☛ "Tray Lift Motor")
2. Stack transport clutch [A] (x 1, x 1)

Paper Feed Clutch



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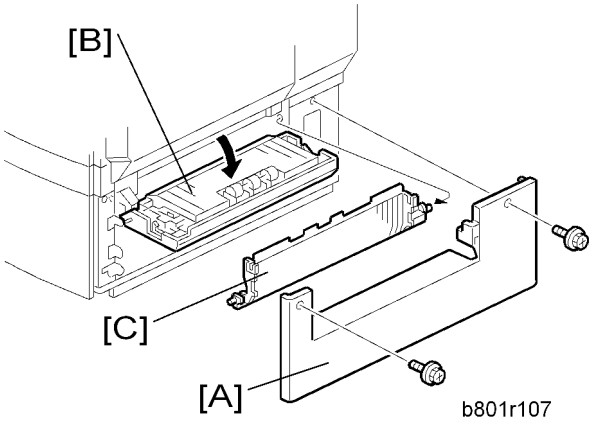
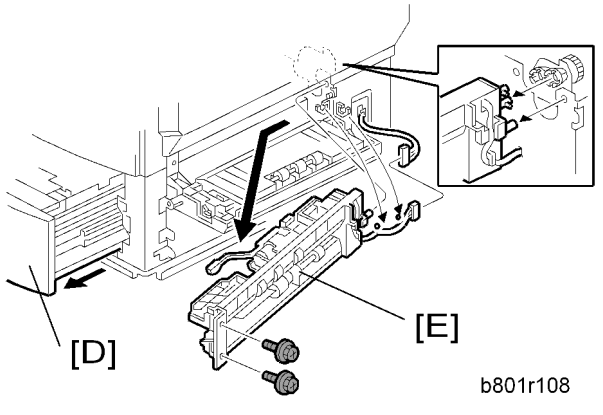
1. Rear cover (☛ "Tray Lift Motor")

2. Paper feed gear unit [A] (x 3, x 1)
3. Paper feed clutch bracket [B] (x 1, x 2, bushing x 1)
4. Paper feed clutch [C]

Paper Feed Unit



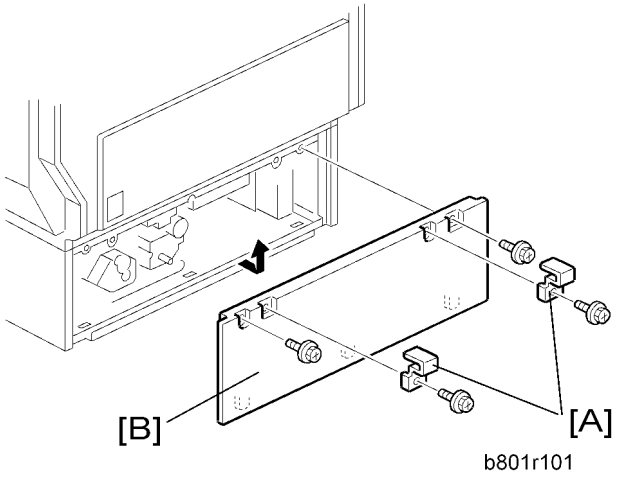
1. Right cover [A]
2. Open the vertical guide plate [B]
3. Guide plate [C]



4. Pull the LCT drawer [D].
5. Paper feed unit [E] (x 2, x 1)

Motors

Tray Lift Motor



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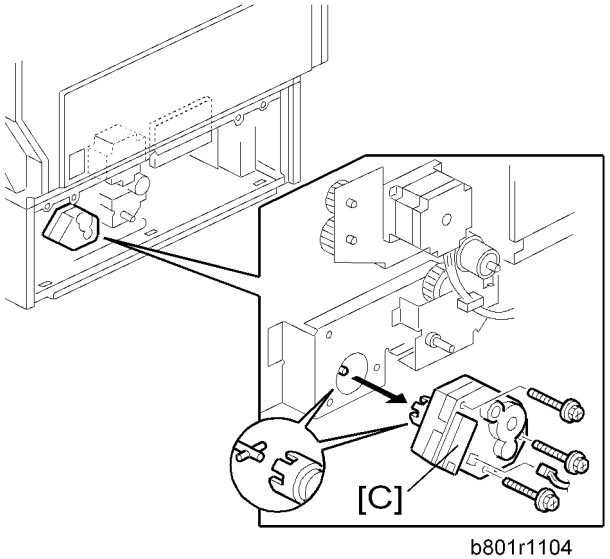
1. Securing brackets [A] (x 1 each)
2. Rear cover [B] (x 2)



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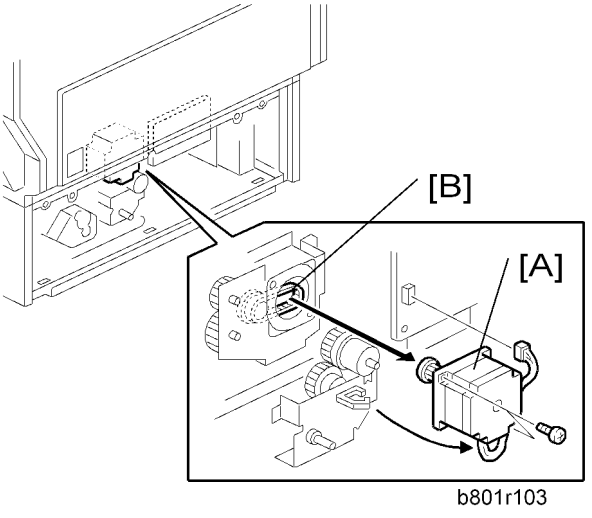
3. Tray lift motor [C] (x 1, x 3)

Tray Motor

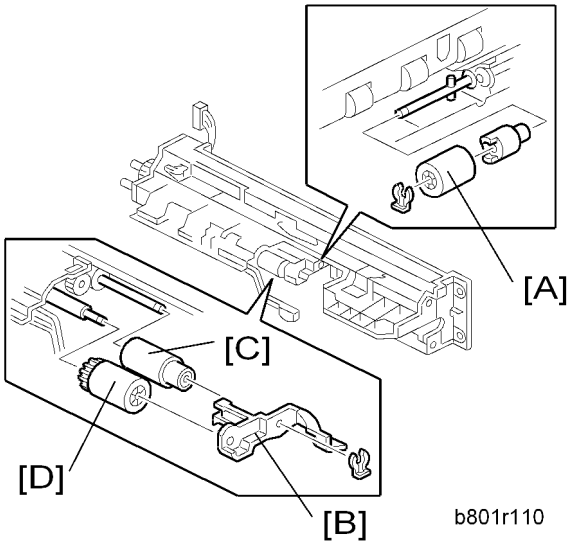


1. Rear cover (☛ "Tray Lift Motor")
2. Tray motor [A] (✋ x 1, 🔩 x 2)

Note

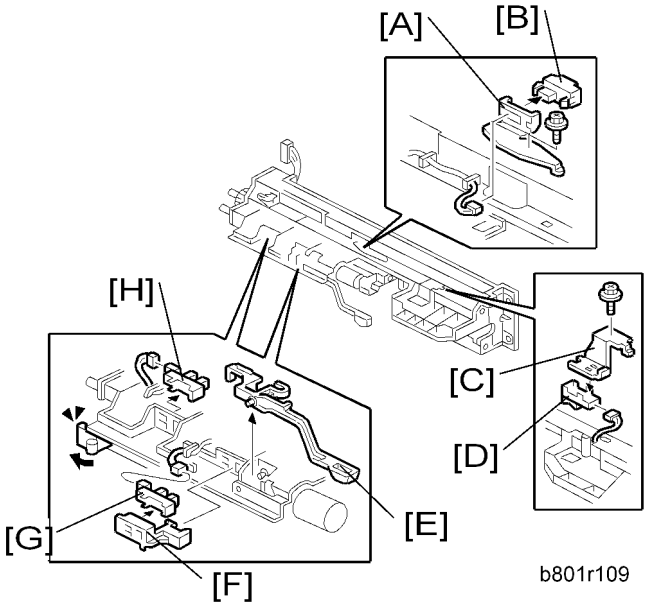
- When installing the tray motor, make sure that the gear of the tray motor holds the timing belt [B].

Pick-up, Feed and Separation Rollers



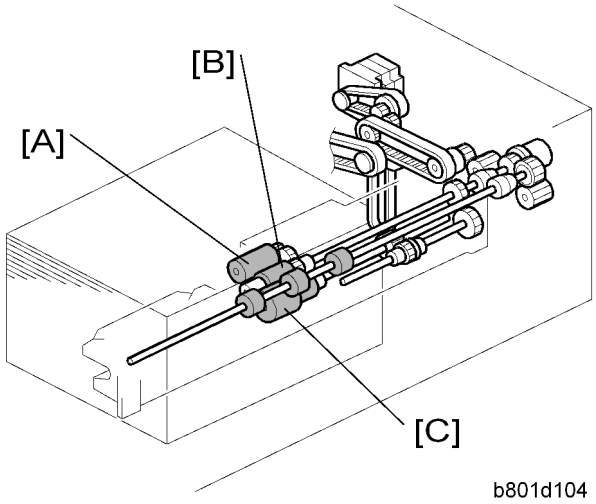
1. Paper feed unit (☛ "Paper Feed Unit")
2. Separation roller [A] (x 1)
3. Roller holder [B] (x 1)
4. Feed roller [C] and pick-up roller [D]

Paper Feed, Paper End, Lift and Relay Sensors



1. Paper feed unit (☛ "Paper Feed Unit")
2. Vertical transport sensor bracket [A] (x 1, x 1)
3. Relay sensor [B]
4. Paper feed sensor bracket [C]
5. Paper feed sensor [D]
6. Paper end feeler [E]
7. Paper end sensor holder [F] (hook x 3)
8. Paper end sensor [G] (x 1, hook x 3)
9. Lift sensor [H] (x 1, hook x 3)

Paper Feed



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This products uses an FRR type paper feed mechanism.

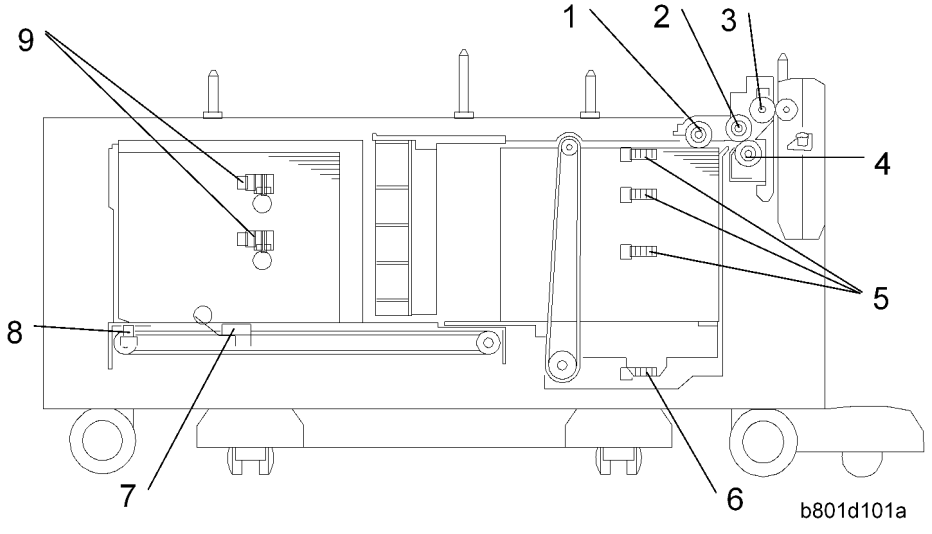
The paper feed unit consists of the pick-up roller [A], paper feed roller [B], separation roller [C], and relay rollers.

There is a torque limiter in the back of the separation roller (ferrite powder type).

2. Details

Component Layout

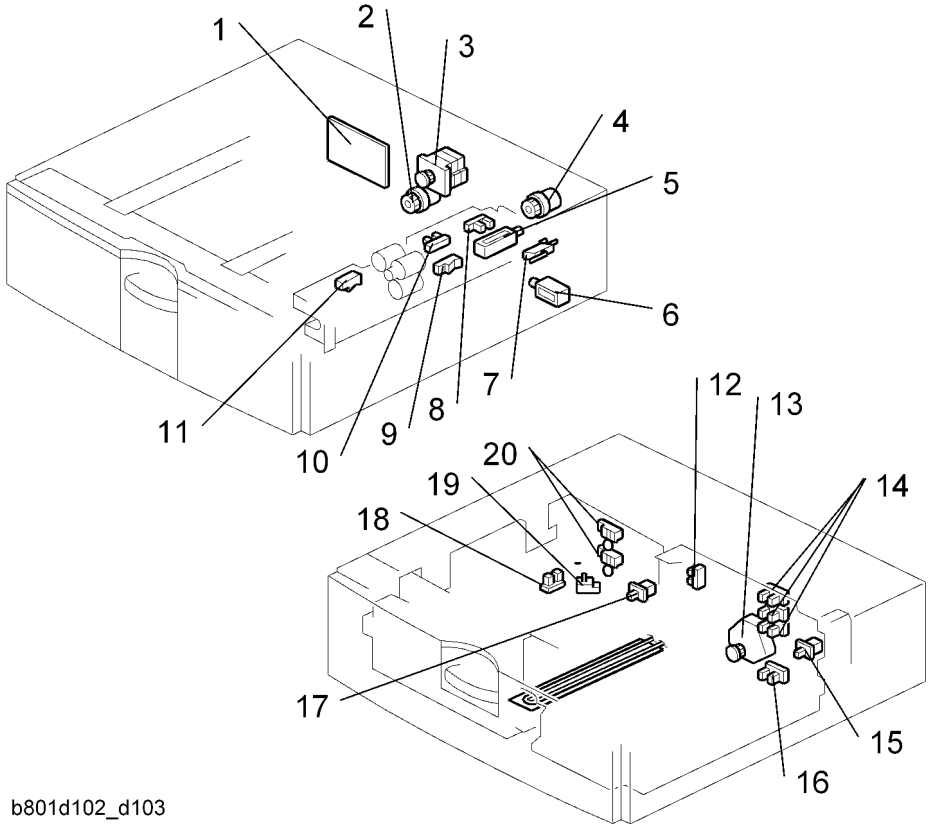
Mechanical Component Layout



1. Pick-up Roller	6. Lower Limit Sensor
2. Paper Feed Roller	7. Paper End Sensor 2
3. Relay Sensor	8. End Fence HP Sensor
4. Separation Roller	9. Paper Height Sensors 4, 5
5. Paper Height Sensors 1, 2, 3	

2

Electrical Component Layout



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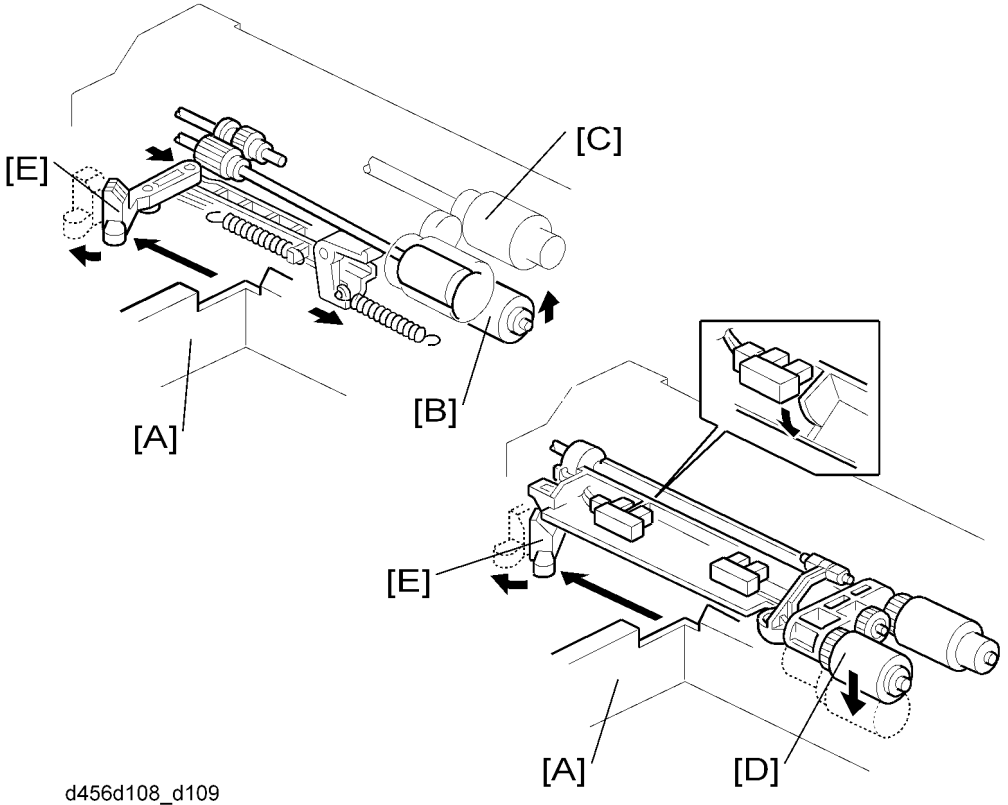
1. Main board	11. Paper feed sensors
2. Stack transport clutch	12. Side fence sensor
3. Tray motor	13. Tray lift motor
4. Paper feed clutch	14. Paper height sensor 1, 2, 3
5. Pick-up solenoid	15. Tray set switch
6. Right tray lock solenoid	16. Lower limit sensor
7. Vertical guide switch	17. Left tray set switch
8. Lift sensor	18. End fence HP sensor
9. Relay sensor	19. Paper end sensor 2
10. Paper end sensor 1	20 Paper height sensors 4, 5

Electrical Component Descriptions

Symbol	Name	Function	Index No.
Motors			
M1	Tray	Drives all rollers.	3
M2	Tray Lift	Drives the paper tray up or down.	13
Sensors			
S1	Paper Feed Sensor	Detects whether the paper is jammed at LCT.	11
S2	Relay	Detects the copy paper coming to the relay roller and checks for misfeeds.	9
S3	Paper End 1 (paper feed side)	Informs the copier/printer when the paper in the right side (paper feed side) of the tray has been used up. If there is a paper stack in the left side (paper storage side), this is moved into the paper feed side. If there is no paper stack in the left side, paper end is indicated.	10
S4	Lift	Detects when the paper is at the correct paper feed height.	8
S5-S7	Paper Height 1, 2, 3	Detects the amount of paper remaining in the right side of the tray.	14
S8	Lower Limit	Detects when the tray is completely lowered, to stop the LCT motor.	16
S9	End Fence HP	Detects when the left fence is at its home position	18
S10	Side Fence	Detects whether the side fence is open or closed. (The fence opens when the left-tray paper stack is moving to the paper feed side.)	12
S11	Paper End 2 (paper storage side)	Informs the copier/printer when there is no paper in the left side (paper storage side) of the tray.	19
S12 S13	Paper Height 4, 5	Detects the amount of paper remaining in the left side of the tray.	20
Switches			

Symbol	Name	Function	Index No.
SW1	Vertical Guide	Detects whether the right cover is open.	7
SW2	Tray Set Switch	Detects whether the tray is correctly set.	15
SW3	Left Tray Set Switch	Detects whether the left tray is correctly set.	17
Magnetic Clutches			
MC1	Paper Feed	Drives the paper feed roller.	4
MC2	Stack Transport	Drives the rear fence of the paper storage side.	2
Solenoids			
SOL1	Pick-up	Pushes the pick-up roller up or down.	5
SOL2	Tray Lock	Locks or unlocks the right tray.	6
PCBs			
PCB1	Main	Controls the LCT and communicates with the copier/printer.	1

Separation Roller and Pick-Up Roller Release



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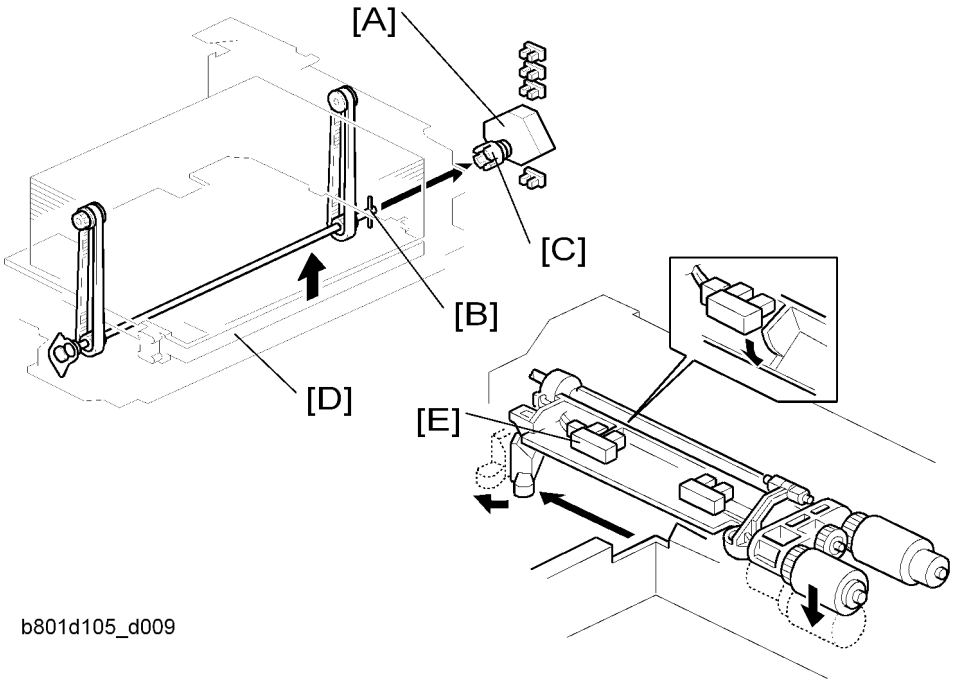
To prevent the paper from being torn when pulling out the paper feed tray, the separation and pick-up rollers release automatically.

When the paper tray [A] is not inside the machine, the separation roller [B] is away from the paper feed roller [C], and the pick-up roller [D] stays in the upper position.

When the paper tray is set into the machine, it pushes the release lever [E]. This causes the pick-up roller [D] to go down into contact with the top sheet of paper and the separation roller [B] to move up and contact the paper feed roller.

Tray Lift



When the paper feed tray is put in the machine, the tray switch on the back turns on and the tray lift motor [A] starts. The base plate lift shaft [B] is coupled to the lift motor at the shaft [C], so the base plate [D] of the tray is lifted. After a short while, the top of the paper stack contacts the pick-up roller and lifts it up. Then the motor stops lifting the plate when the upper limit sensor actuator enters the sensor (☛ "Electrical Component Layout").

When paper in the tray is used up, the pick-up roller is gradually lowered, and the actuator leaves the lift sensor [E]. When this happens, the lift motor begins turning again. The tray will then be lifted until the actuator enters the upper limit sensor again).

When the tray is removed from the copier, the coupling between the lift motor [A] and base plate lift shaft [B] is broken and the base plate goes into a controlled free fall (using a damper to slow the fall and prevent damage).

Paper Amount Detection

The table lists the sensors that are used to detect the amount of remaining paper.

Right Tray (Paper feed side)

- Paper end sensor 1
- Paper height sensor 1 to 3

Left Tray (Paper storage side)

- Paper height sensor 4 and 5
- Paper end sensor 2

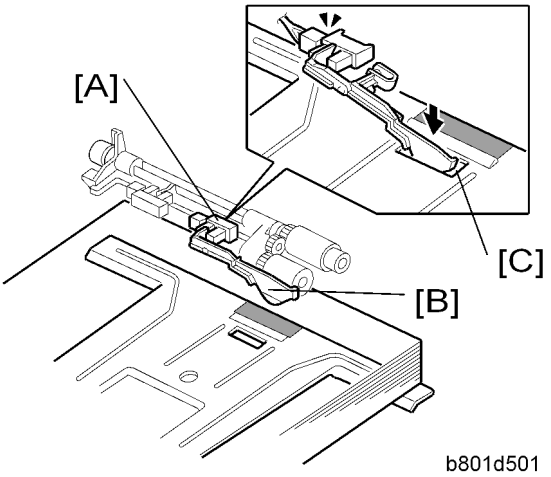
Right Tray

Amount of paper	Paper Height Sensor			Paper End Sensor	Display No. of Line
	1	2	3		
100%	OFF	OFF	OFF	ON	4
70%	OFF	OFF	ON	ON	3
30%	OFF	ON	-	ON	2
10%	ON	-	-	ON	1
Paper End	-	-	-	OFF	0

Left Tray

Amount of paper	Paper Height Sensor		Paper End Sensor	Display No. of Line
	4	5		
100%	OFF	OFF	OFF	4
70%	ON	OFF	OFF	3
30%	ON	ON	OFF	2
Paper End	ON	ON	ON	0

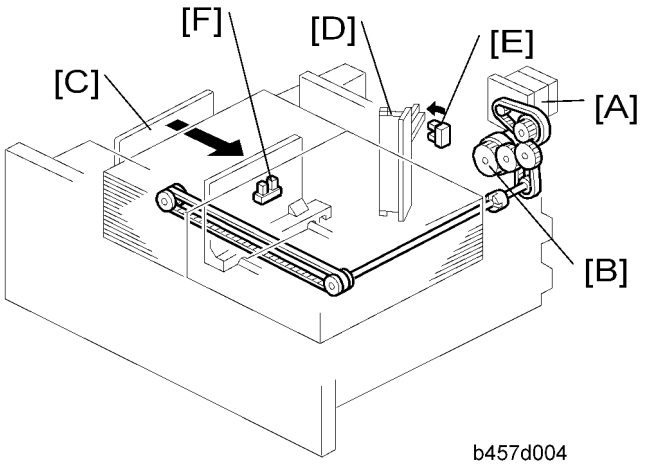
Paper End Detection (Paper Feed Side)



The paper end sensor 1 [A] detects when copy paper in the paper feed side runs out.

When there is paper in the tray, the paper pushes up the feeler [B] and the actuator enters the sensor. When paper runs out, the feeler drops in to cutout [C] and the actuator leaves the sensor, and the machine detects that there is no paper in the tray.

Paper Stack Transport



When the paper in the paper feed side is used up, the tray motor [A] and stack transport clutch [B] turn on. Then the end fence [C] moves the stack of paper from the paper storage side to the paper feed side.

Note

- During paper feed, the stack transport clutch (☛ "Electrical Component Layout") does not switch on, so drive from the tray motor only transfers to the relay roller and not to the fence mechanism.

While the stack is in motion, it pushes the side fence [D] aside, and the side fence sensor [E] detects that the fence is open.

After the stack has been moved all the way across, a spring in the side fence moves the side fence back, and the side fence sensor detects that the fence is closed. Then, the tray motor reverses until end fence home position sensor [F] is deactivated.

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