

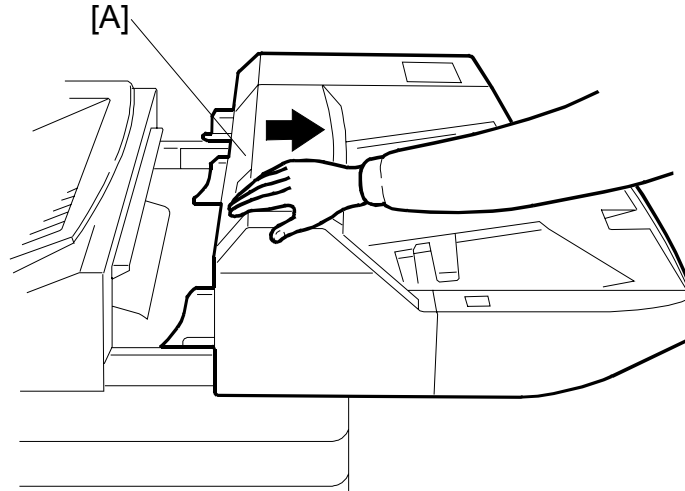
Multi Bypass Tray BY5000
(Machine Code: B833)

TABLE OF CONTENTS

1. REPLACEMENT AND ADJUSTMENT.....	B833-1
1.1 OPENING THE BYPASS TRAY	B833-1
1.2 BYPASS TRAY COVERS.....	B833-2
1.3 TRAY LIFT SWITCH, FEED TRAY	B833-3
1.4 FEED ROLLERS	B833-5
1.5 BYPASS TRAY PCB	B833-6
1.6 PAPER FEED MOTOR, TRANSPORT MOTOR	B833-7
1.7 PAPER FEED AND LIFT SENSORS	B833-8
Sensor Removal	B833-8
1.8 PICK-UP SOLENOID	B833-9
1.9 PAPER WIDTH SWITCH, PAPER END AND PAPER LENGTH SENSORS	B833-10
1.10 PAPER HEIGHT SENSORS, LIFT MOTOR.....	B833-11
 2. DETAILS	 B833-12
2.1 TRAY LIFT.....	B833-12
2.2 PAPER FEED.....	B833-13
Feed.....	B833-13
Tray Lift.....	B833-13
2.3 PAPER SIZE DETECTION.....	B833-14
Paper Size Detection Table	B833-15
Selecting the Paper Size for Undetectable Sizes.....	B833-15
 3. OVERALL MACHINE INFORMATION	 B833-16
3.1 MECHANICAL COMPONENT LAYOUT	B833-16
3.2 ELECTRICAL COMPONENTS.....	B833-17
3.2.1 LAYOUT	B833-17
3.2.2 ELECTRICAL COMPONENT SUMMARY	B833-18
3.3 DRIVE LAYOUT	B833-19

1. REPLACEMENT AND ADJUSTMENT

1.1 OPENING THE BYPASS TRAY



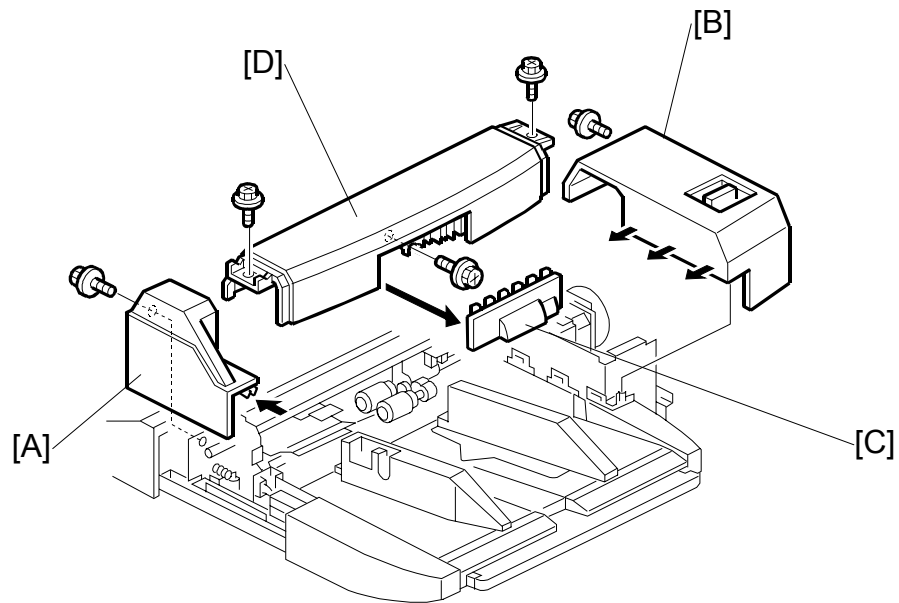
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1. Pull in the direction indicated by the arrow at the front left cover.

⚠ CAUTION

When moving the LCT with the bypass unit attached, grip and push the body of the LCT unit. To avoid damaging the bypass tray, never attempt to push or rotate the assembled units by pulling or pushing on the bypass tray.

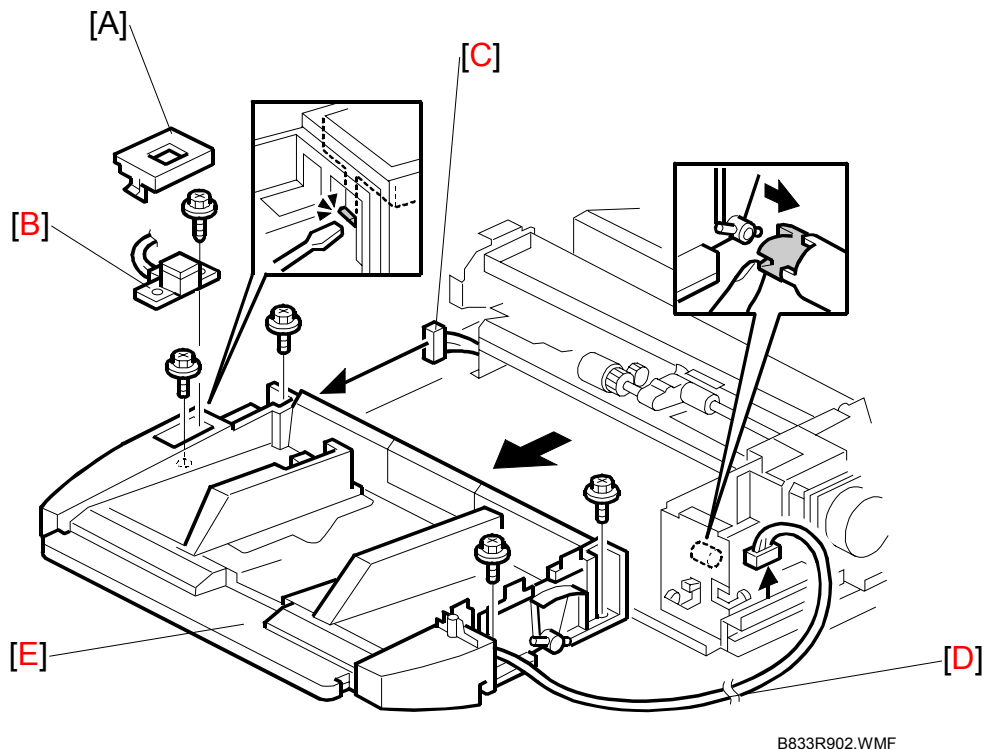
1.2 BYPASS TRAY COVERS



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1. Open the bypass tray. (☛1.1)
2. Front cover [A] (🔩 x 1).
3. Rear cover [B] (🔩 x 1).
4. Pull off the pick-up roller cover [C].
5. Top cover [D] (🔩 x 2).

1.3 TRAY LIFT SWITCH, FEED TRAY



1. Open the bypass tray. (☛1.1)
2. Remove the covers. (☛1.2)
3. Use the tip of a screwdriver to remove the tray lift switch cover [A].
4. Remove the tray lift switch [B] (⚙ x 1, hook x 1, standoff x 1, ☛ x 1).
5. Disconnect the tray lift switch connector [C].
6. Disconnect the paper width switch [D] (☛ x 2, harness clamp x 1).
7. Remove the feed tray [E] (⚙ x 4).

8. Pull out the extension tray [A].

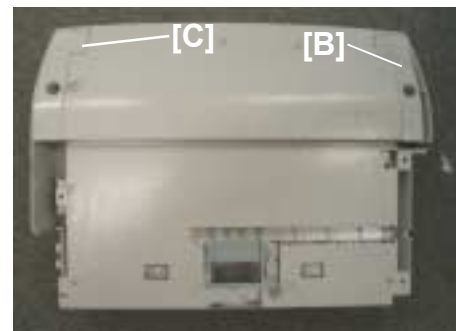
NOTE: The extension tray must be removed to separate the top and bottom of the bypass feed tray.



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9. Remove the bottom plate rear right cover [B]
(⌘ x1)

10. Remove the bottom plate rear left cover [C]



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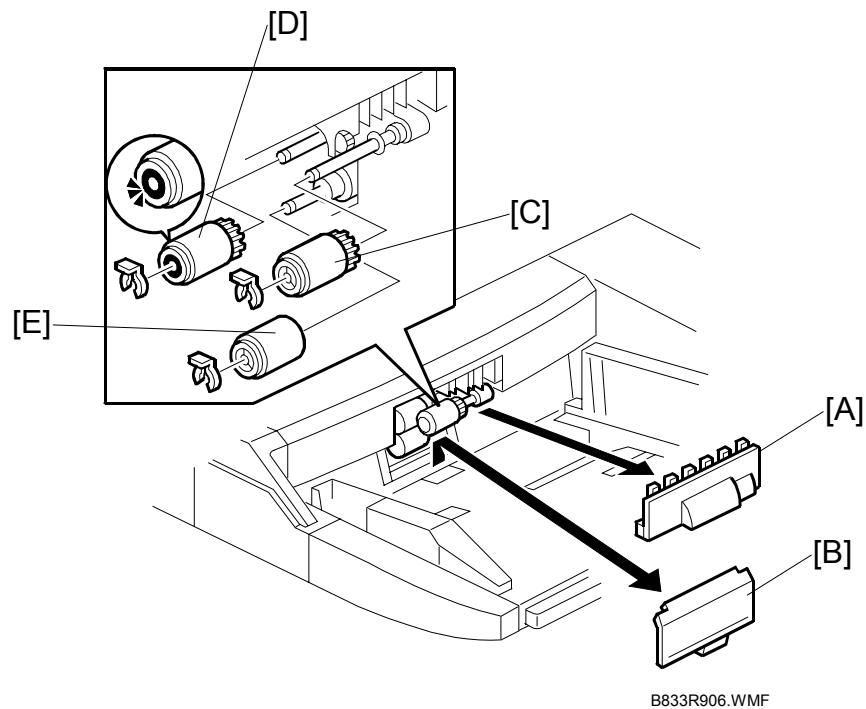
11. Remove the plate [D] and shaft (⌘ x1, ⌘ x1).

12. Separate the top and bottom of the feed tray
(⌘ x2, ⌘ x1).



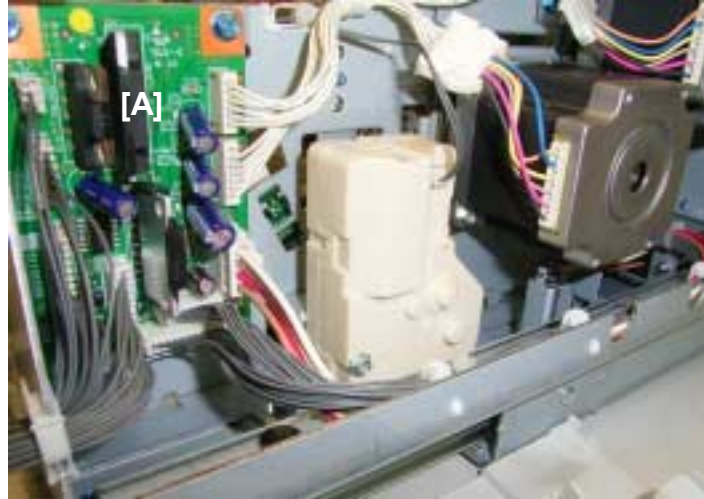
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1.4 FEED ROLLERS



1. Pull off the pick-up roller cover [A].
2. Pull off the separation roller cover [B].
3. Remove the pick-up roller [C] (⌚ x 1).
4. Remove the feed roller [D] (⌚ x 1).
5. Remove the separation roller [E] (⌚ x 1).
NOTE: After re-installing the feed roller, make sure that it rotates clockwise.
6. Reset the PM count to zero for the new rollers.

1.5 BYPASS TRAY PCB

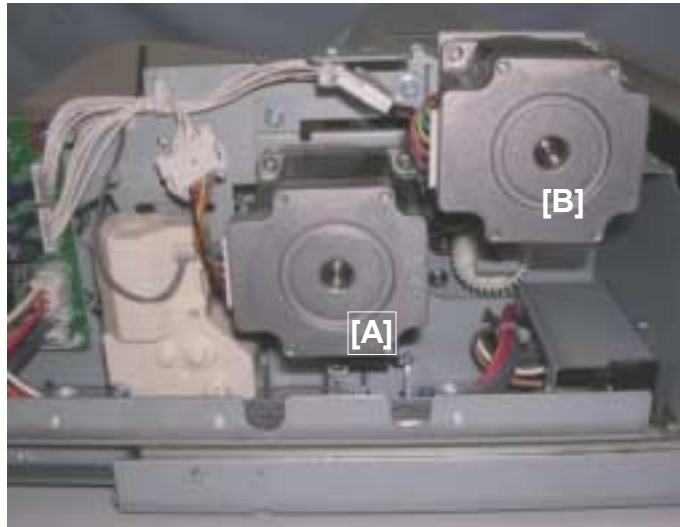


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1. Remove the rear cover. (☛1.2)
2. Remove the bypass tray PCB [A] (☛ x 9, ☛ x 2, standoffs x 2).

NOTE: Before disconnecting CN210 and CN211, mark either connector with a marker to make sure that you re-connect them correctly. The shapes of these connectors are the same and the wires are the same color.

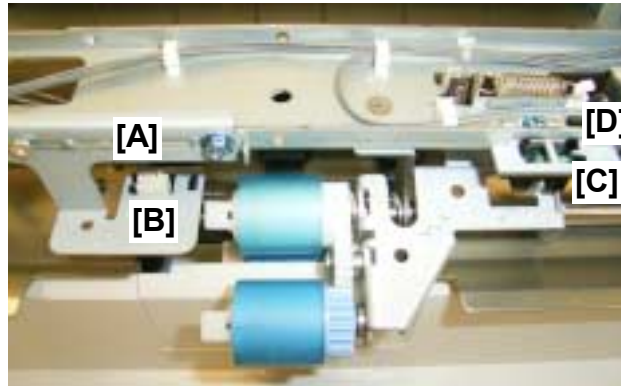
1.6 PAPER FEED MOTOR, TRANSPORT MOTOR



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1. Remove the rear cover. (●1.2)
2. Remove the paper feed motor [A] (⚙ x3, Spring x1, Timing belt x1, 📏 x1)
3. Remove the transport motor [B] (⚙ x3, Spring x1, Timing belt x1, 📏 x1)

1.7 PAPER FEED AND LIFT SENSORS

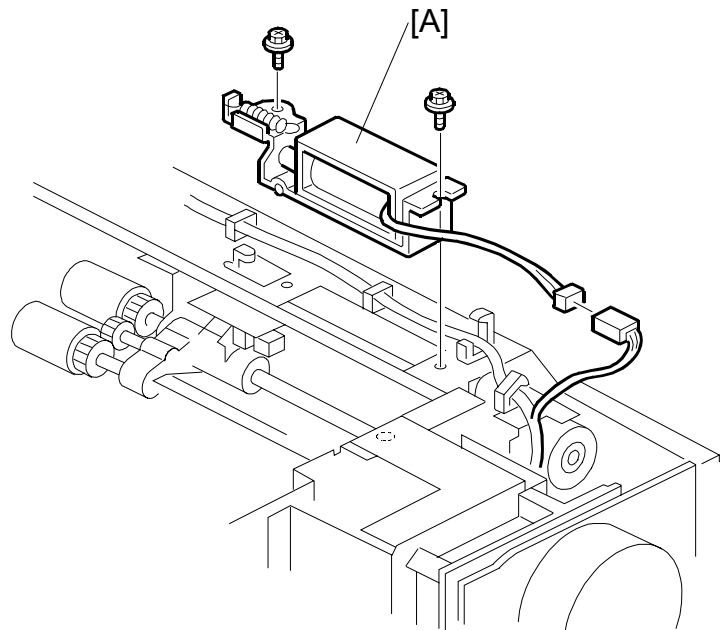


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Sensor Removal

1. Remove the rear, front, and top covers. (☛1.2)
2. Remove the paper feed bracket [A] (Step ☛ x 1, ☛ x 1).
3. Remove the paper feed sensor [B] (Hooks x 3, ☛ x 1)
4. Remove the lift sensor bracket [C] (☛ x 1).
5. Remove the lift sensor [D] (Hooks x 3, ☛ x 1).

1.8 PICK-UP SOLENOID

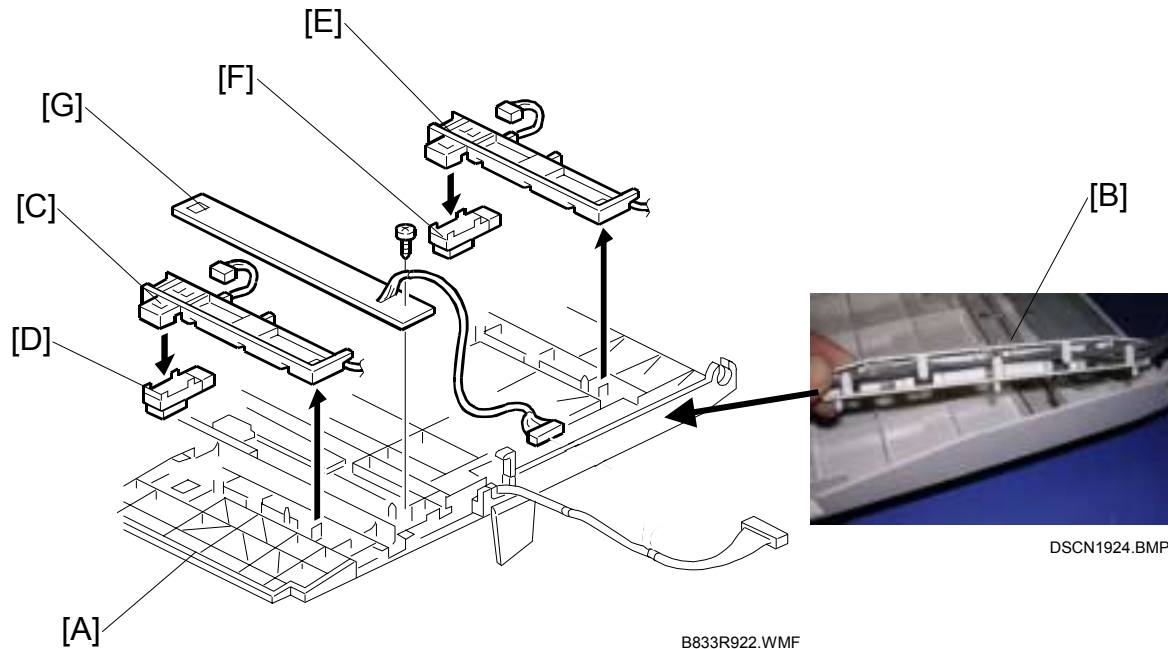


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1. Remove the rear, front, and top covers. (☛1.2)
2. Remove the pick-up solenoid [A] (⚙ x 2, 🛠 x 1, harness clamp x 1)

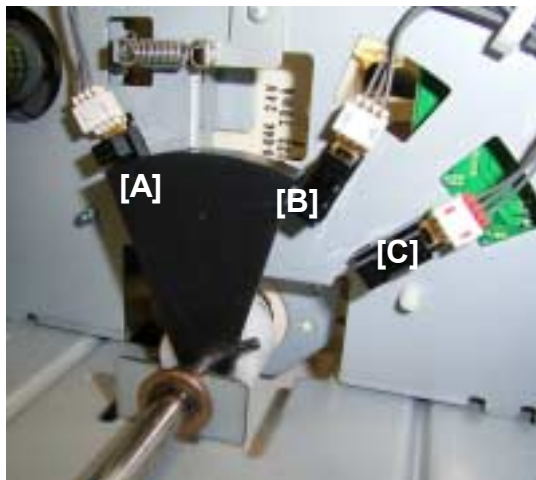
NOTE: When re-installing the solenoid, make sure that the arm of the solenoid is positioned above and in contact with the plate of the pick-up roller shaft below. To confirm correct installation, manually move the solenoid to the left and right. When the solenoid plunger is moved, the pick-up roller should move up and down smoothly.

1.9 PAPER WIDTH SWITCH, PAPER END AND PAPER LENGTH SENSORS

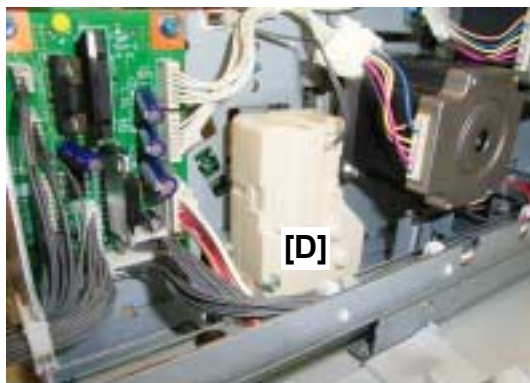


1. Remove the feed tray and separate the top and bottom. (☛1.3)
2. Turn over the top half of the feed tray [A] then lay it on a flat surface.
3. Remove the cable cover [B] (Hooks x2)
4. Paper end sensor bracket [C] (Hook x1).
5. Paper end sensor [D] (Hooks x 2, ☞ x 1).
6. Paper length sensor bracket [E] (Hook x 1, ☞ x 1).
7. Paper length sensor [F] (Hooks x 2, ☞ x 1).
8. Paper width switch [G] (☞ x 1, Harness clamp x 1, ☞ x 1).

1.10 PAPER HEIGHT SENSORS, LIFT MOTOR



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B833R924.BMP

1. Open the bypass tray. (🔧1.1)
2. Remove the bypass tray covers. (🔧1.2)
3. Remove the feed tray. (🔧1.3)

Paper Height Sensors

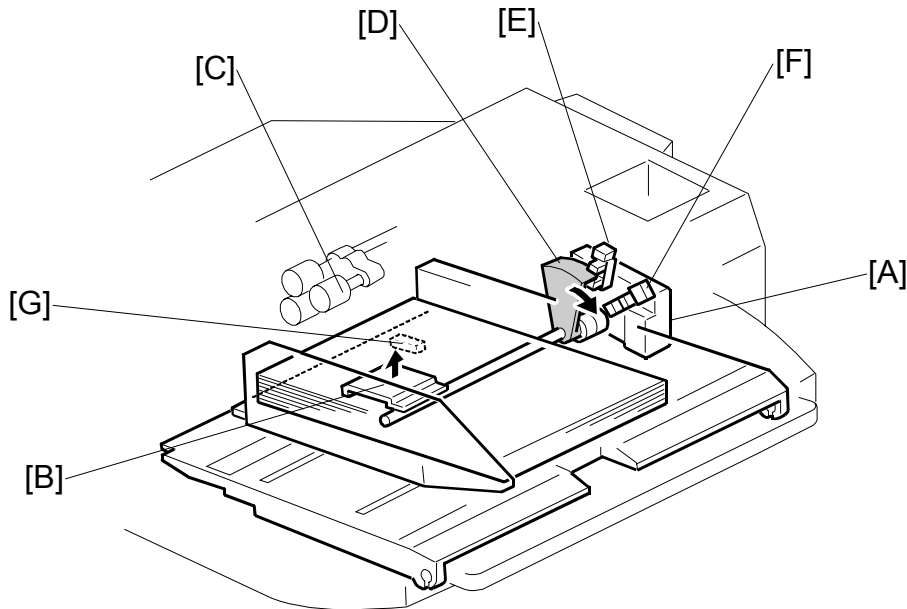
1. Paper Height Sensor 1 [A] (Hooks x 3, 📏 x 1)
2. Paper Height Sensor 2 [B] (Hooks x 3, 📏 x 1)
3. Paper Height Sensor 3 [C] (Hooks x 3, 📏 x 1)

Lift Motor

1. Remove screws (🔧 x6) then push lift motor [D] to loosen its frame.
2. Raise the loosened frame slightly to remove the lift motor (🔧 x2, 📏 x1)

2. DETAILS

2.1 TRAY LIFT



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When the tray lift switch is pressed, the lift motor [A] switches on and pushes the lift plate [B] against the bottom of the feed tray until the top of the stack is at the correct feed position.

NOTE: If there is paper in the bypass tray when the main machine has just been switched on, the lift motor will turn on and lift the stack to the feed position.

As paper is fed, the pick-up roller [C] lowers until it activates the lift sensor which switches on the lift motor again to raise the stack to the feed level again. (0)

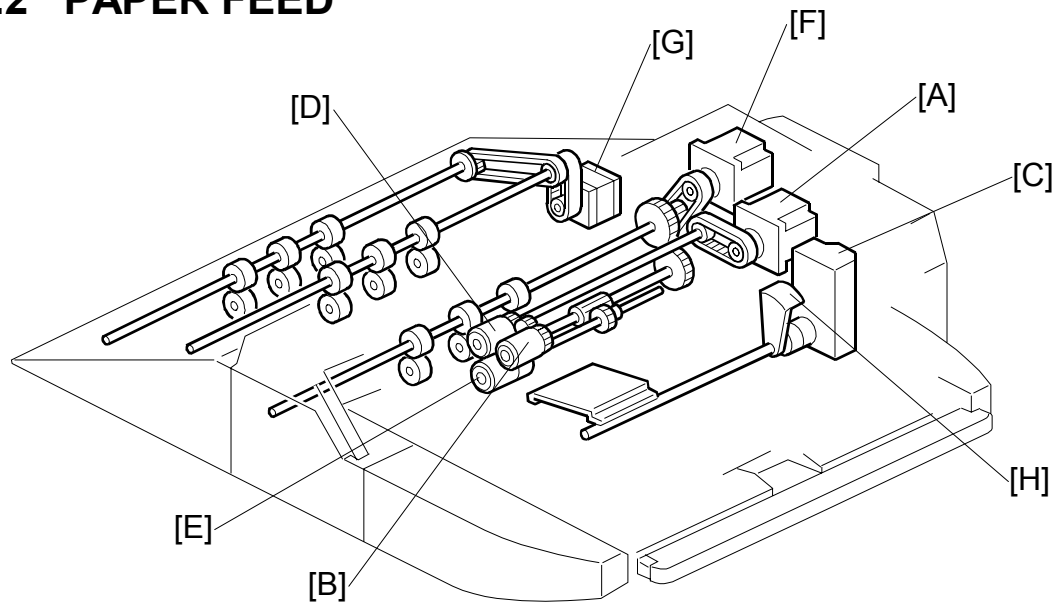
As the bottom plate shaft rotates and raises the bottom plate, the actuator [D] lowers and activates paper height sensor 1 [E] and then paper height sensor 2 [F] as the bottom plate continues to rise. With the tray full, the actuator remains upright and deactivates neither paper height sensor. During continuous feed, the actuator rotates downward through three positions, deactivating the first sensor, then both sensors, then only the second sensor. These states are used to report the amount of paper on the operation panel.

SN1	SN2	Paper Remaining Status
OFF	OFF	100% (Full)
ON	OFF	90%
ON	ON	50%
OFF	ON	25%

After the last sheet feeds, the paper end sensor [G] below the feed tray detects that the tray is empty.

NOTE: When you re-load the tray with paper, be sure to press the tray lift button to raise the bottom of the tray so the stack is at the correct feed position.

2.2 PAPER FEED



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Feed

The bypass tray can hold 500 sheets of standard weight paper.

The bypass tray uses the standard FRR (Feed and Reverse Roller) feed system.

☛ **CT** Handling Paper> Paper Feed Methods> **Forward and Reverse Roller (FRR)**

When the job starts, the feed motor [A] switches on and rotates the pick-up roller [B]. At the same time, the pick-up solenoid [not shown] switches on and lowers the pick-up roller. The lift motor [C] switches on to raise the stack until the top of the stack reaches the correct feed level. At that time, the paper pushes the pick-up roller down. When the actuator [not shown] goes out of the lift sensor [not shown], the lift motor stops.

The pick-up roller picks up and feeds the first sheet to the feed roller [D] and separation roller [E]. When the feed sensor [not shown] detects the leading edge of the sheet, the pick-up solenoid raises the pick-up roller and the feed roller feeds the sheet.

NOTE: Unlike the separation rollers in the LCT, the separation roller always remains in contact with the feed roller above.

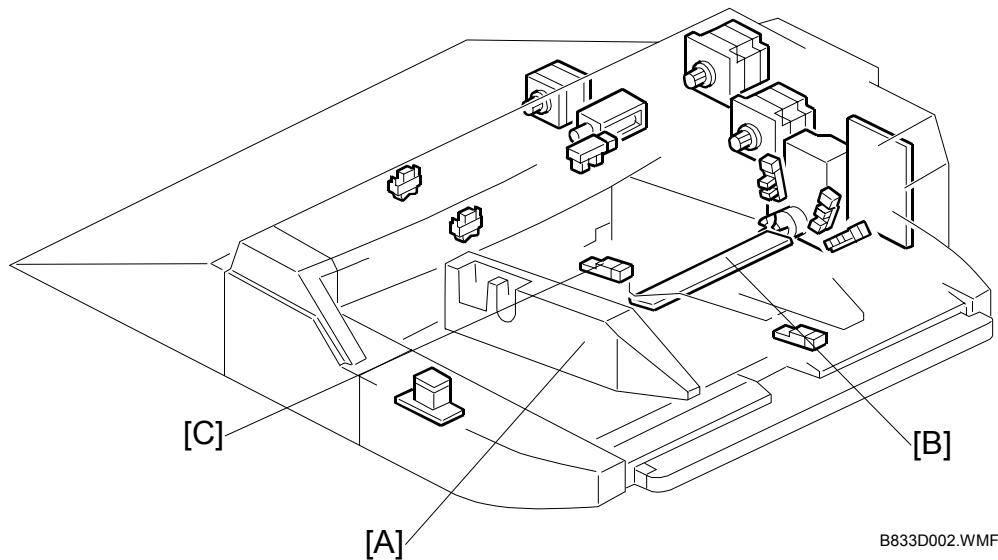
The transport motor [F] then feeds the paper into the bypass tray, and the relay motor [G] feeds the paper out of the bypass tray, and into the machine through the LCT.

Tray Lift

When the pick-up roller [B] lowers far enough to go into the lift sensor, the lift motor switches on to raise the bottom plate until the actuator goes out of the lift sensor again and switches off the lift motor. This movement is repeated to maintain the correct height of the stack for paper feed.

Actuator [H] is used by the height sensors, to detect the amount of remaining paper.

2.3 PAPER SIZE DETECTION



The side fences [A] can be adjusted to standard and non-standard paper sizes. Paper size is measured with the paper width switch [B] and the paper length sensor [C].

When the side fences are moved to match the paper width, four feelers inside the paper width switch [B] slide along the wiring patterns on the paper width switch terminal plate. The status of each feeler is read to determine whether it is High (in contact with a pattern wire) or Low (not in contact with a wire).

The paper length sensor reading (ON or OFF) is used with the paper width reading to determine the paper size. For more details about how the paper size is determined, see the paper size detection table on the next page.

The paper end sensor [C] de-activates when the last sheet is fed, reports that the paper tray is empty, and halts the job.

Paper Size Detection Table

Paper Size			Paper Width SW					Length Sensor	Area	
			1	2	3	4	5		NA	EU
Large		12" x 18"							●	●
		13" x 19"	H	H	H	H	L	L	○	○
		320 x 340 mm							○	○
A3	SEF	297 x 420 mm	H	H	H	L	L	L	●	●
A4	LEF	297 x 210 mm						H	●	●
DLT	SEF	11" x 17"	H	H	H	L	H	L	●	●
LT	LEF	11" x 8 1/2"						H	●	●
B4	SEF	257 x 364 mm	H	H	L	L	H	L	●	●
B5	LEF	257 x 182 mm						H	●	●
A4	SEF	210 x 297 mm						L	○	●
LT	SEF	8 1/2" x 11"	H	H	L	H	H	L	●	○
A5	LEF	210 x 148 mm						H	○	●
HLT	LEF	8 1/2" x 5 1/2"							●	○
B5	SEF	182 x 257 mm	H	L	L	H	H	L	○	○
F	SEF	8" x 13"							●	●
A5	SEF	148 x 210 mm	H	L	H	H	H	H	●	●
HLT	SEF	5 1/2" x 8 1/2"	L	L	H	H	H	H	●	●
B6	SEF	128 x 182 mm							○	○
A6	SEF	105 x 148 mm							●	●
Post-card		100 x 148 mm	L	H	H	H	H	H	○	○

Table Key

1, 2, 3, 4, and 5	The paper size switch consists of 5 feelers that slide along the wiring patterns of the paper width switch terminal plate when the side fences are manually adjusted to fit the size of the paper loaded in the tray. The H, L status of each feeler is determined by whether the feeler is in contact with the wire of a pattern.
H	High (5 V) (Inactive)
L	Low (0 V) (Active)
●	The machine determines the paper size automatically by reading the output of the paper size switches and the paper length sensor.
○	The machine cannot detect the paper size automatically. The user must select the paper size manually before starting the job. See below.

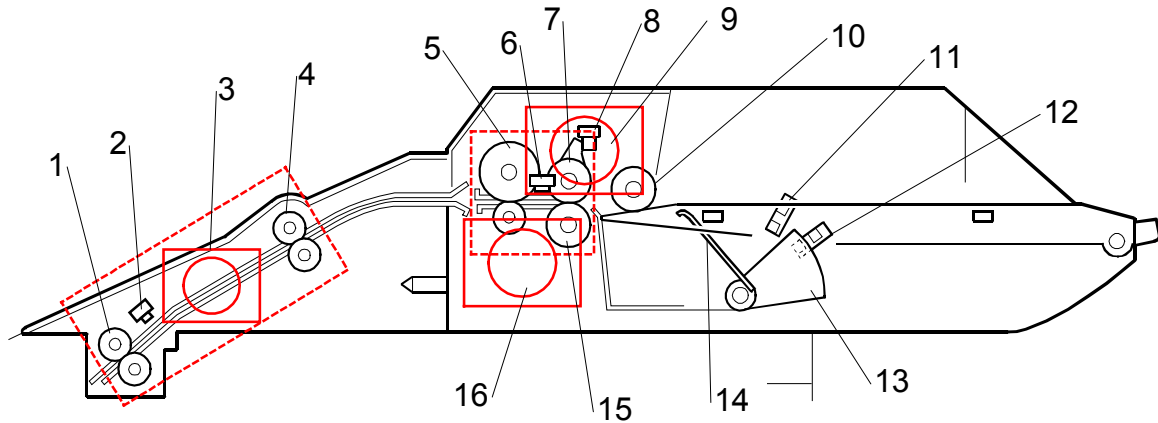
Selecting the Paper Size for Undetectable Sizes

Press the [Tray Paper Settings] key on the operation panel to select paper sizes that are not detected automatically by the combination of paper size and paper length sensor readings (marked "○" in the table above and any other paper size not listed that requires pulling out the paper tray extension).

NOTE: Mixed paper sizes cannot be loaded into the bypass tray. Loading paper of different sizes will cause a paper jam.

3. OVERALL MACHINE INFORMATION

3.1 MECHANICAL COMPONENT LAYOUT

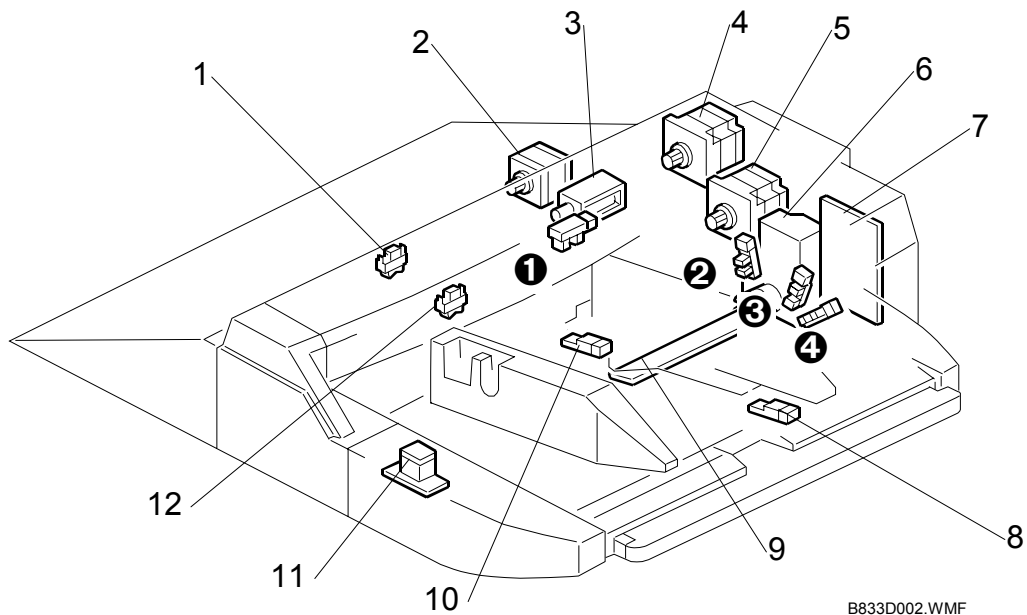


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- | | |
|-----------------------|---------------------------|
| 1. Transport Roller 3 | 9. Transport motor |
| 2. Relay Sensor | 10. Pick-up Roller |
| 3. Relay Motor | 11. Paper Height Sensor 1 |
| 4. Transport Roller 2 | 12. Paper Height Sensor 2 |
| 5. Transport Roller 1 | 13. Lift Plate Actuator |
| 6. Paper Feed Sensor | 14. Lift Plate |
| 7. Paper Feed Roller | 15. Separation Roller |
| 8. Lift Sensor | 16. Paper Feed Motor |

3.2 ELECTRICAL COMPONENTS

3.2.1 LAYOUT



B833D002.WMF

- 1. Relay Sensor
- 2. Relay Motor
- 3. Pick-up Solenoid
- 4. Transport Motor
- 5. Feed Motor
- 6. Lift Motor
- 7. Bypass Unit Control Board
- 8. Paper Length Sensor
- 9. Paper Width Switch
- 10. Paper End Sensor
- 11. Tray Lift Switch
- 12. Paper Feed Sensor
- ① Lift Sensor
- ② Tray Lower Limit Sensor
- ③ Paper Near End Sensor
- ④ Paper End Sensor

3.2.2 ELECTRICAL COMPONENT SUMMARY

Motors		
No.	Name	Description
M1	Feed Motor	Drives the paper feed roller in the feed mechanism.
M2	Lift Motor	Raises and lowers the bottom plate below the paper stack.
M3	Relay Motor	Drives the relay rollers that feed the paper from the bypass tray into the feed path of the LCT below.
M4	Transport Motor	Drives the transport roller of the bypass tray that pulls the paper out of the tray and sends it to the relay roller.

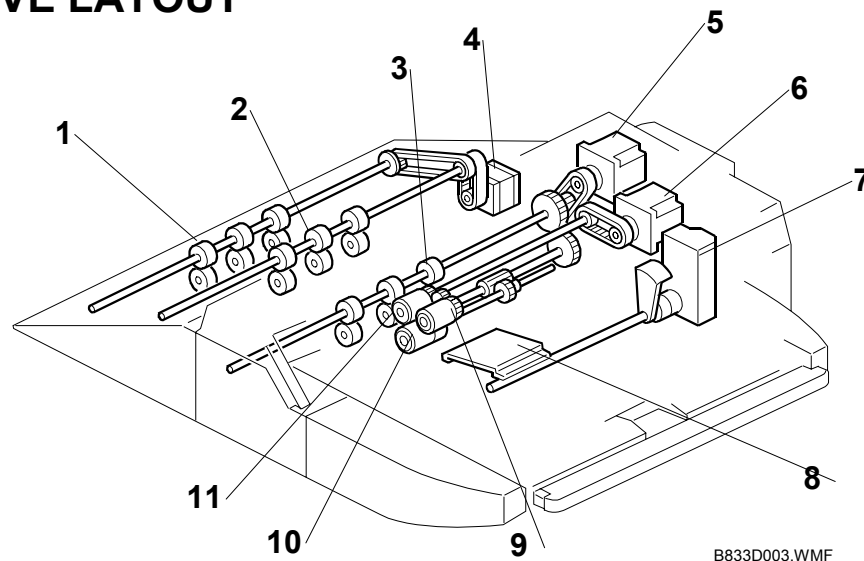
PCB		
No.	Name	Description
PCB1	Bypass Unit Control Board	Controls operation of all bypass unit electrical components.

Sensors		
No.	Name	Description
S1	Lift Sensor	Detects when the paper in the bypass tray is at the proper height for paper feed.
S2	Tray Lower Limit Sensor	Detects when the tray is at its lowest possible position.
S3	Paper End Sensor	Informs the copier when the paper in the bypass tray has run out.
S4	Paper Feed Sensor	Detects the copy paper coming to the 4th paper feed roller and checks for misfeeds.
S5	Paper Height Sensor 1	Paper end sensor. The paper height sensor pair (1 and 2) work together to monitor the height of the paper stack in the bypass tray.
S6	Paper Height Sensor 2	
S7	Paper Length Sensor	Used with the paper width switch to determine paper size. This sensor is activated when paper is set for short edge feed. For example, when the paper width switch detects A4 width and this sensor is off, the machine determines A4 is set for long edge feed. When A4 width is detected and the paper length sensor is on, then the machine determines that A3 is loaded for short edge feed.
S8	Relay Sensor	Detects jams in the paper path after paper is fed from the feed roller..

Solenoids		
No.	Name	Description
SOL1	Pick-up Solenoid	Controls up-down movement of the pick-up roller in the bypass tray.

Switches		
No.	Name	Description
SW1	Tray Lift Switch	Switches the tray lift motor on and off to raise and lower the bottom plate of the tray to the feed position. This switch must be pressed to start paper feed.
SW2	Paper Width Switches	A slide switch connected to the side fences. When the side fences are moved to match the paper width, four feelers inside the paper size switch slide along wiring patterns of a terminal plate. The wire pattern detected determines the paper width.

3.3 DRIVE LAYOUT



1. Transport Roller 2
2. Transport Roller 1
3. Grip Roller
4. Relay Motor
5. Transport Motor
6. Feed Motor
7. Lift Motor
8. Lift Plate
9. Pick-up Roller
10. Separation Roller
11. Feed Roller