

**LCT**  
**(Machine Code: B457)**

# 1. REPLACEMENT AND ADJUSTMENT

## ⚠ CAUTION

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

**NOTE:** This manual uses the following symbols.

☞ : See or Refer to

🔩 : Screws

🔌 : Connector

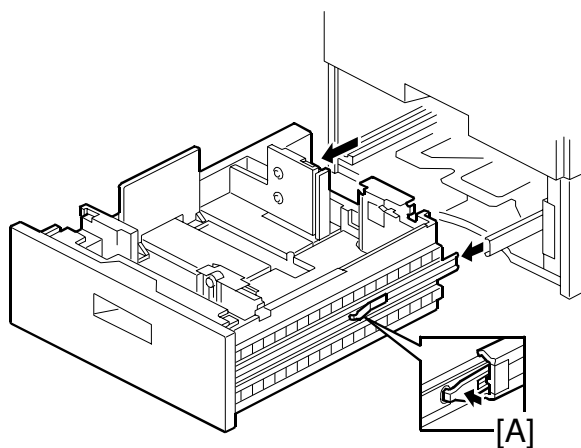
🔗 : Clip ring

Ⓢ : E-ring

## 1.1 TRAY

While pressing the stopper [A] attached to the guide rail, pull out the large capacity tray.

**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.

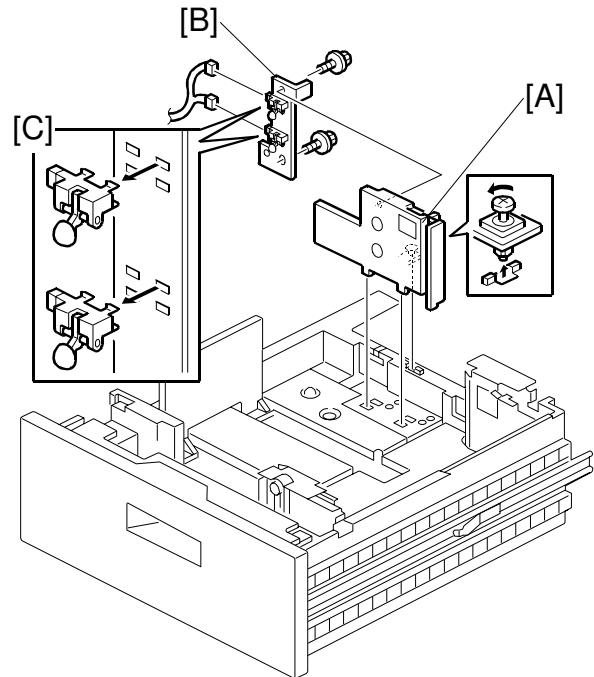


B457R001.WMF

## 1.2 SENSORS

### *Paper Height Sensors of Paper Storage Side*

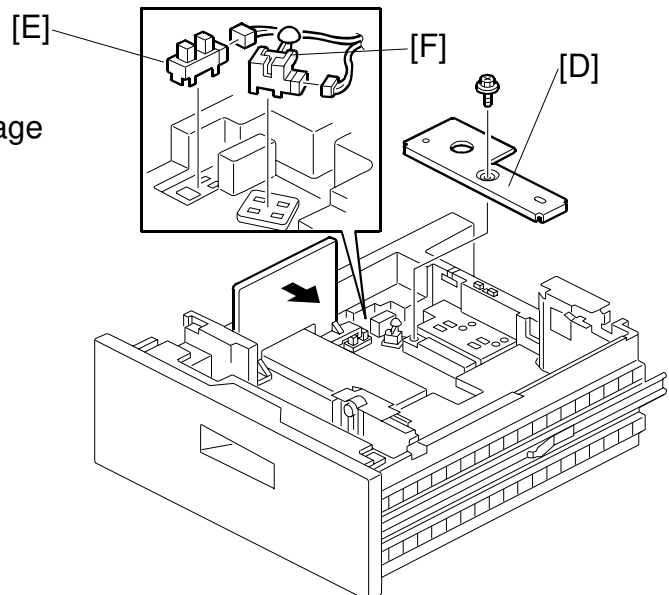
1. Tray (☛ 1.1)
2. Rear fence [A] (🔩 x 2)
3. Rear fence bracket [B] (🔩 x 2)
4. Paper height sensors [C] (🔩 x 2)



B457R002.WMF

### *Left Fence HP Sensor/Paper End Sensor 2*

5. Bottom cover [D] (🔩 x 1)
6. Left fence HP sensor [E]
7. Paper end sensor 2 (paper storage side) [F]

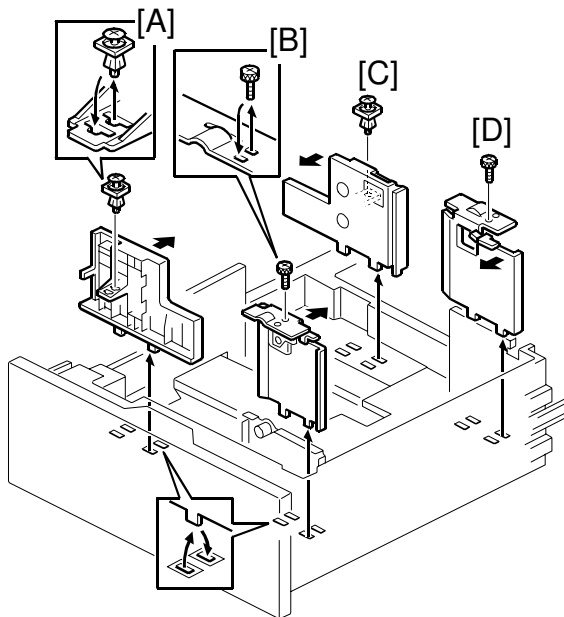


B457R003.WMF

## 1.3 CHANGING THE TRAY SIZE

1. Fence screws [A through D]
2. Change the position of the fences.

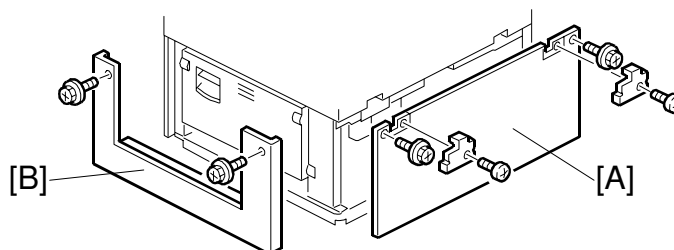
**NOTE:** Before fastening the screws, set paper in the tray.



B457R004.WMF

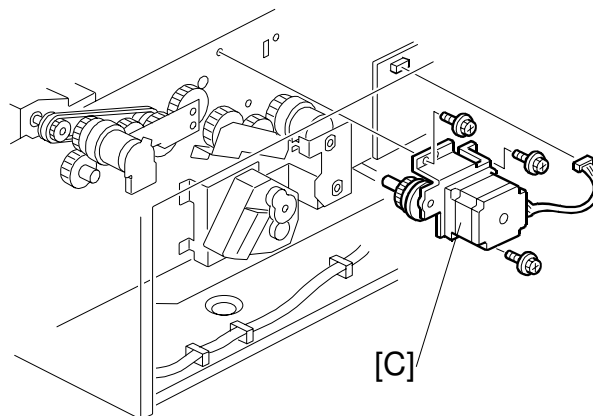
## 1.4 TRAY LIFT MOTOR

1. Rear cover [A] (⌘ x 4)
2. Right cover [B] (⌘ x 2)



B457R105.WMF

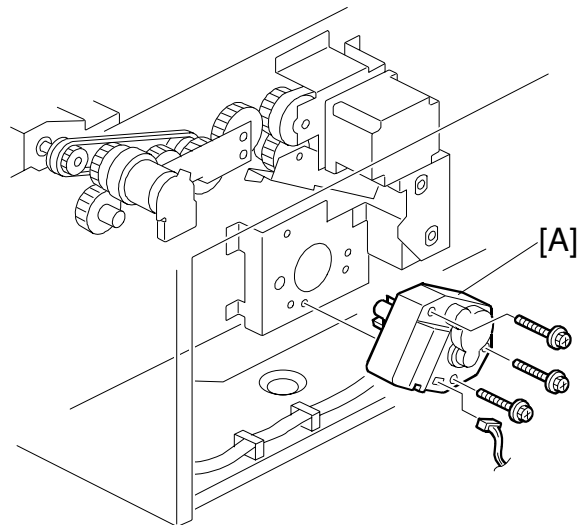
3. Tray lift motor [C] (⌘ x 1 , ⌘ x 3)



B457R005.WMF

## 1.5 TRAY MOTOR

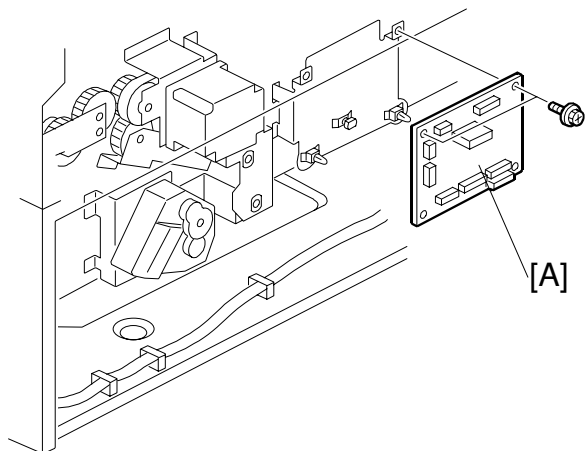
1. Rear cover (☛ 1.4)
2. Tray motor [A] (☛ x 1, ⚙ x 3)



B457R006.WMF

## 1.6 MAIN BOARD

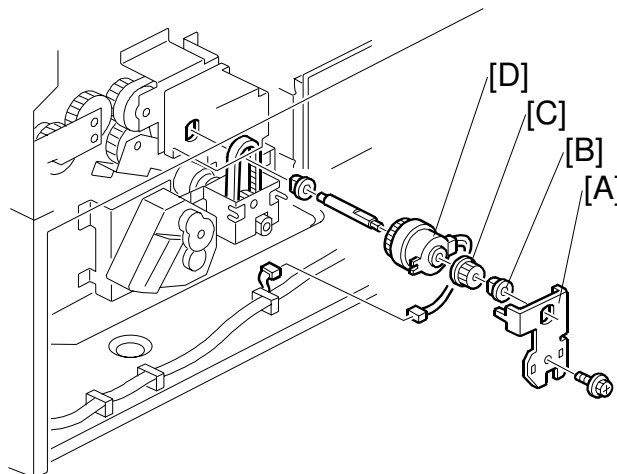
1. Rear cover (☛ 1.4)
2. Main board [A] (☛ x #, ⚙ x 1)



B457R007.WMF

## 1.7 STACK TRANSPORT CLUTCH

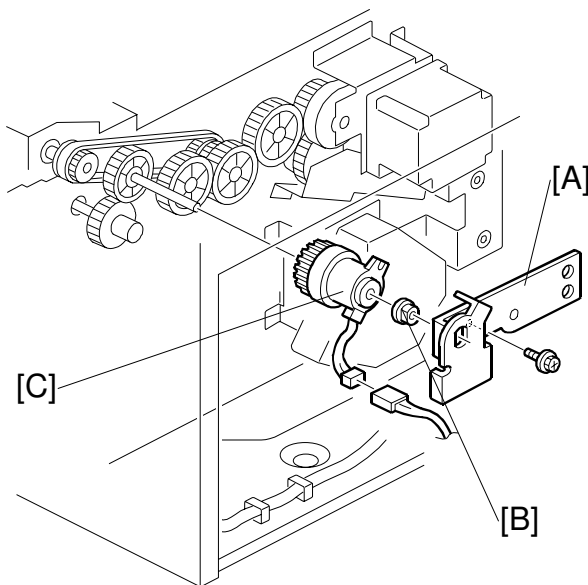
1. Rear cover (☛ 1.4)
2. Clutch bracket [A] (☛ x 1)
3. Bushing [B]
4. Gear [C]
5. Stack transport clutch [D] (☛ x 1)



B457R008.WMF

## 1.8 PAPER FEED CLUTCH

1. Rear cover (☛ 1.4)
2. Paper feed clutch bracket [A] (☛ x 1)
3. Bushing [B]
4. Paper feed clutch [C] (☛ x 1)

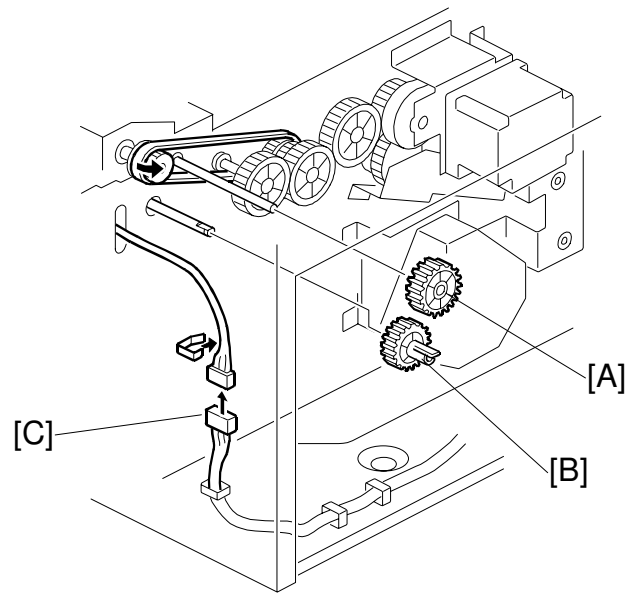


B457R009.WMF

Peripherals

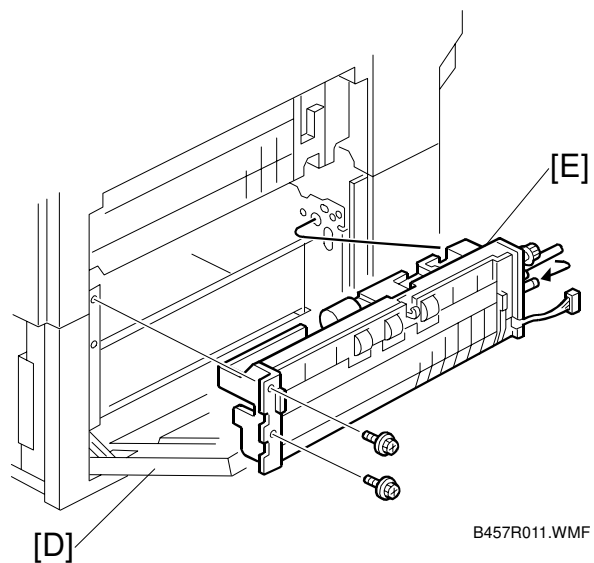
## 1.9 PAPER FEED UNIT

1. Paper feed clutch (☛ 1.8)
2. Gears [A][B]
3. ☛ x 1 [C]



B457R010.WMF

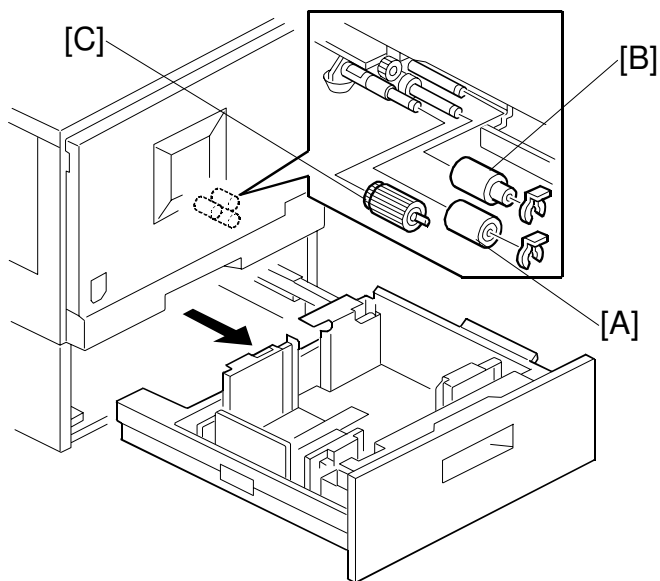
4. Open the vertical transport guide plate [D].
5. Paper feed unit [E] (☛ x 2)



B457R011.WMF

## 1.10 PICKUP, FEED, AND SEPARATION ROLLERS

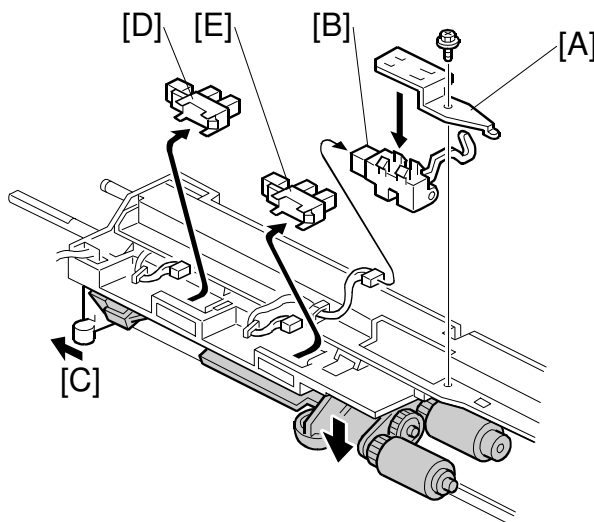
1. Tray (☛ 1.1)
2. Separation roller [A] (☞ x 1)
3. Feed roller [B] (☞ x 1)
4. Pickup roller [C] (☞ x 1)



B457R012.WMF

## 1.11 UPPER LIMIT, PAPER END 1, AND RELAY SENSORS

1. Paper feed unit (☛ 1.9)
2. Relay sensor bracket [A] (☛ x 1)
3. Relay sensor [B]
4. While pushing the release lever [C], remove the following:
  - Upper limit sensor [D]
  - Paper end sensor 1 [E] (paper feed side)



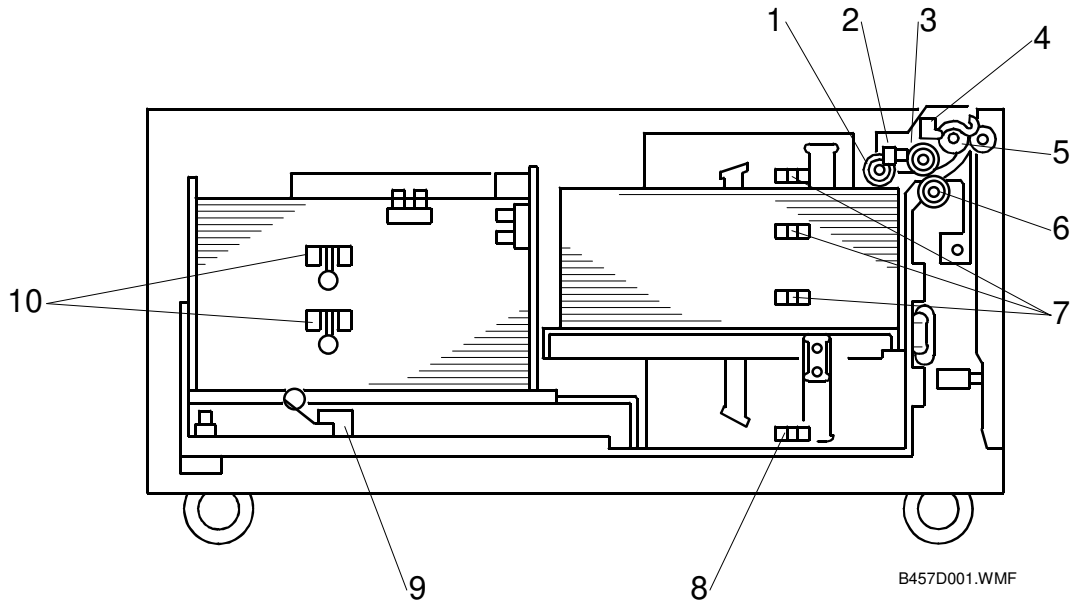
B457R013.WMF



---

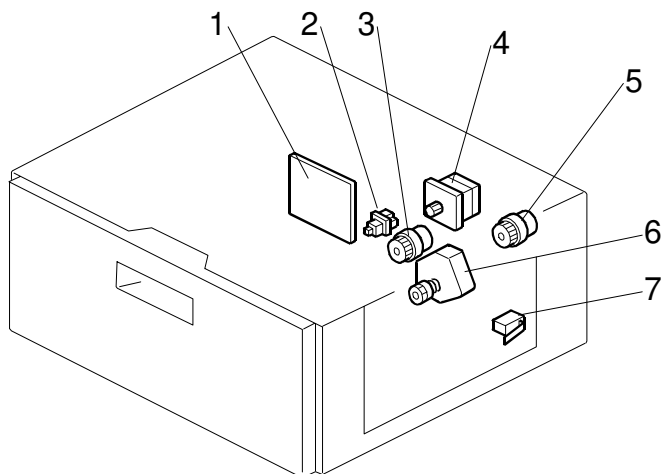
## 2. DETAILED DESCRIPTIONS

### 2.1 MECHANICAL COMPONENT LAYOUT

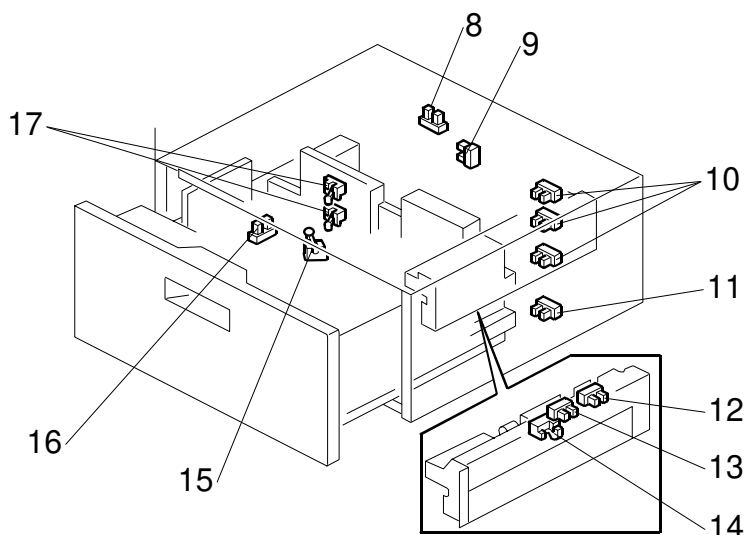


- |                       |                                 |
|-----------------------|---------------------------------|
| 1. Pickup Roller      | 7. Paper Height Sensors 1, 2, 3 |
| 2. Upper Limit Sensor | 8. Lower Limit Sensor           |
| 3. Paper Feed Roller  | 9. Paper End Sensor 2           |
| 4. Relay Sensor       | 10. Paper Height Sensors 4,5    |
| 5. Relay Roller       |                                 |
| 6. Separation Roller  |                                 |

## 2.2 ELECTRICAL COMPONENT LAYOUT



B457D002.WMF



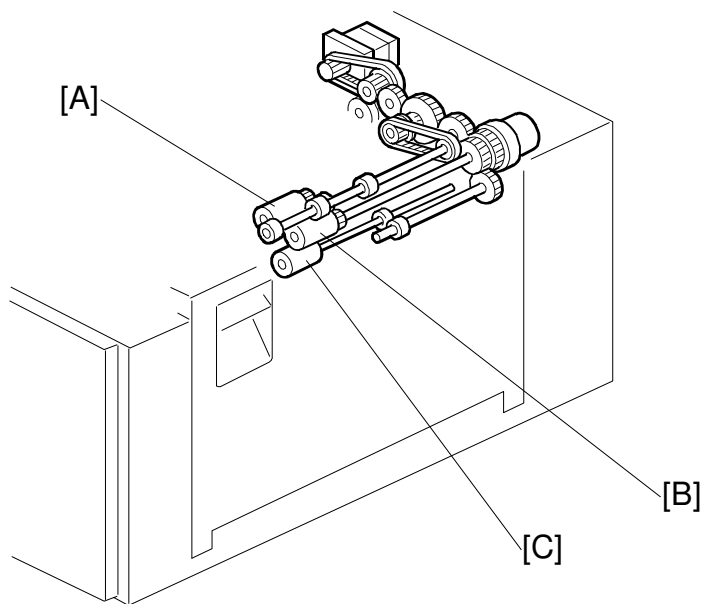
B457D003.WMF

- |                           |                                  |
|---------------------------|----------------------------------|
| 1. Main board             | 10. Paper height sensors 1, 2, 3 |
| 2. Tray sensor            | 11. Lower limit sensor           |
| 3. Stack transport clutch | 12. Upper limit sensor           |
| 4. Tray motor             | 13. Paper end sensor 1           |
| 5. Paper feed clutch      | 14. Relay sensor                 |
| 6. Tray lift motor        | 15. Paper end sensor 2           |
| 7. Right cover switch     | 16. Left fence HP sensor         |
| 8. Paper size sensor      | 17. Paper height sensors 4, 5    |
| 9. Side fence sensor      |                                  |

## 2.3 ELECTRICAL COMPONENT DESCRIPTIONS

Symbol	Name	Function	Index No.
<b>Motors</b>			
M1	Tray	Drives all rollers.	4
M2	Tray Lift	Drives the paper tray up or down.	6
<b>Sensors</b>			
S1	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.	13
S2	Relay	Detects the copy paper coming to the relay roller and checks for misfeeds.	14
S3	Upper Limit	Detects when the paper is at the correct paper feed height.	12
S4	Lower Limit	Detects when the tray is completely lowered, to stop the LCT motor.	11
S5	Paper Height 1, 2, 3	Detects the amount of paper remaining in the right side of the tray.	10
S6	Paper Height 4, 5	Detects the amount of paper remaining in the left side of the tray.	17
S7	Left Fence HP	Detects when the left fence is at its home position	16
S8	Tray	Detects whether the tray is correctly set.	2
S9	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.)	9
S10	Paper Size	Detects whether the side fence is at the LT or A4 position.	8
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.	15
<b>Switches</b>			
SW1	Right Cover	Detects whether the right cover is open.	7
<b>Magnetic Clutches</b>			
MC1	Paper Feed	Drives the paper feed roller.	5
MC2	Stack Transport	Drives the rear fence of the paper storage side.	3
<b>PCBs</b>			
PCB1	Main	Controls the LCT and communicates with the copier/printer.	1

## 2.4 PAPER FEED



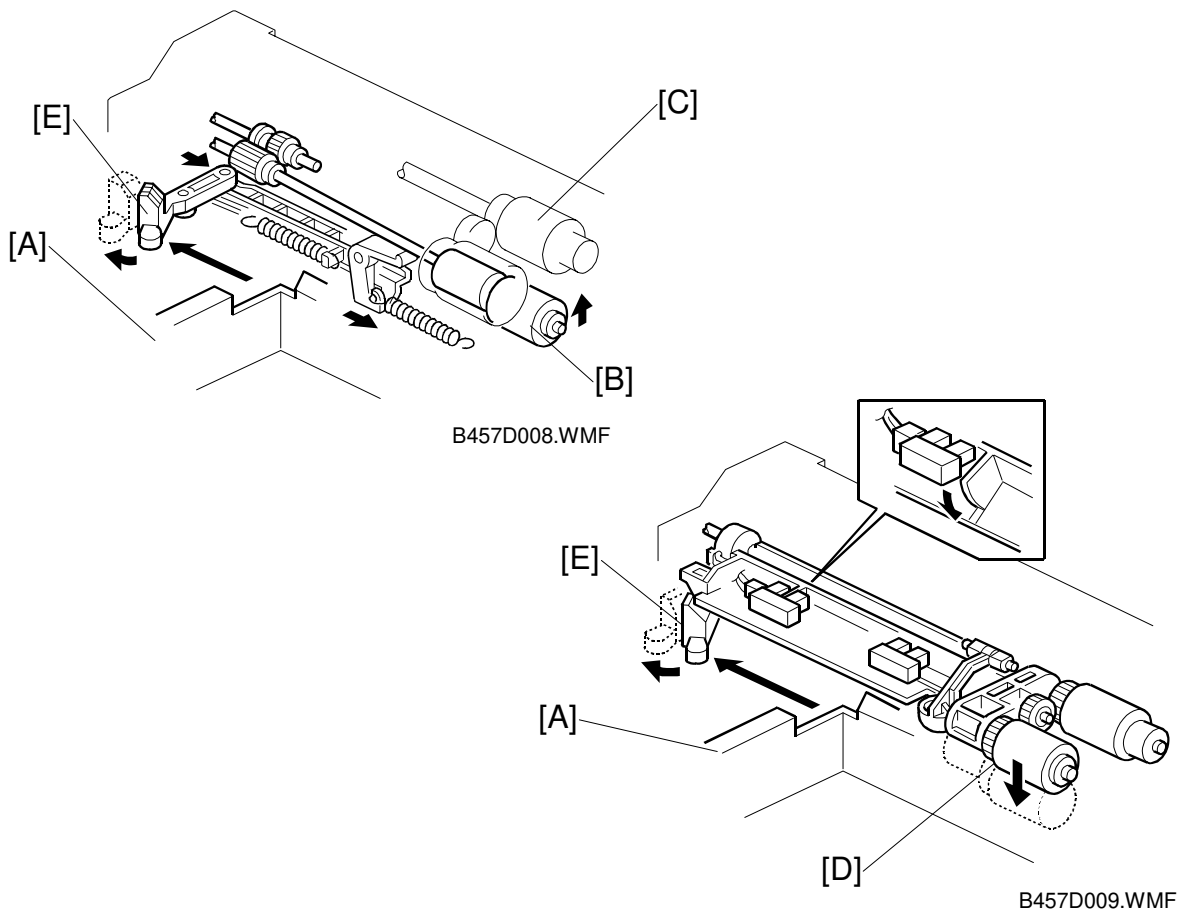
B457D005.WMF

This products uses an FRR type paper feed mechanism.

The paper feed unit consists of the pickup 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).

## 2.5 SEPARATION ROLLER AND PICKUP ROLLER RELEASE

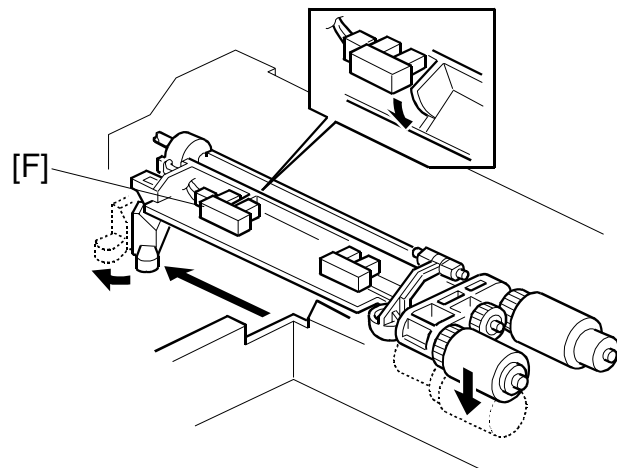
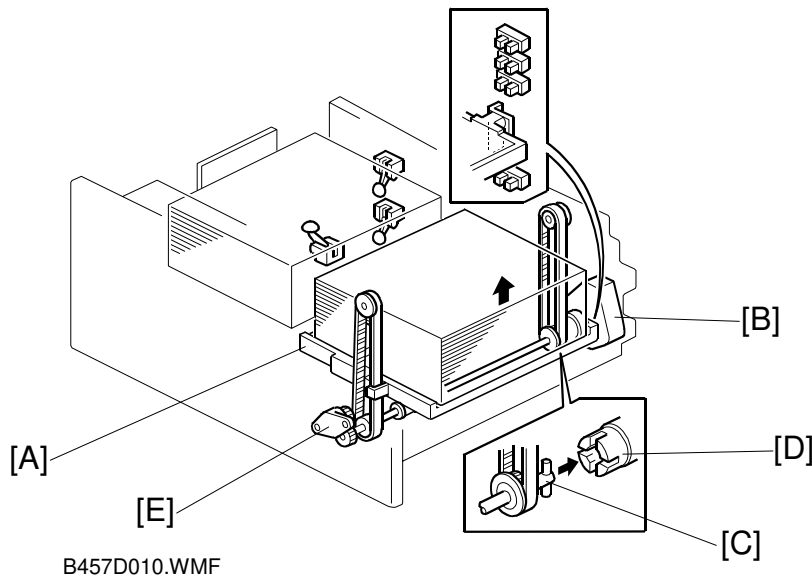


To prevent the paper from being torn when pulling out the paper feed tray, the separation and pickup rollers release automatically.

When the paper tray [A] is not inside the machine, the separation roller [B] is away from the paper feed roller [C], and the pickup 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 pickup 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.

## 2.6 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 [B] starts. The base plate lift shaft [C] is coupled to the lift motor at the shaft [D], so the base plate [A] of the tray is lifted. After a short while, the top of the paper stack contacts the pickup roller and lifts it up. Then the motor stops lifting the plate when the upper limit sensor actuator enters the sensor (➡ 2.2).

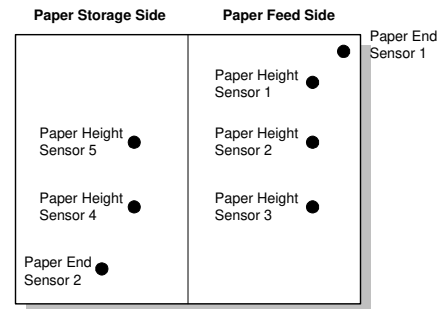
When paper in the tray is used up, the pick-up roller is gradually lowered, and the actuator leaves the upper limit sensor [F]. When this happens, the lift motor begins turning again. The tray will then be lifted until the actuator enters the upper limit sensor again).

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

## 2.7 PAPER AMOUNT DETECTION

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

Paper feed side	<ul style="list-style-type: none"> <li>Paper end sensor 1</li> <li>Paper height sensors 1 to 3</li> </ul>
Paper storage side	<ul style="list-style-type: none"> <li>Paper height sensors 4 and 5</li> <li>Paper end sensor 2</li> </ul>



The table shows the change of sensor patterns after the storage side and the feed side are fully loaded.

B457D112.WMF

Storage side	Feed side	S	F	S	F	S	F	S	F	S	F	S	F	S	F
	PE1		●		●		●		○		●		●		○
	H1		○		○		●		○		○		○		○
H4	H2	●	○	●	○	●	○	●	○	○	○	○	●	○	○
H5	H3	●	○	●	●	●	○	●	○	○	○	○	○	○	○
PE2		●		●		●		●		○		○		○	
Indication															
Remarks		The base plate is at the bottom.	As the paper in the feed side is used, the base plate is lifted.				When the paper in the feed side is all used, the base plate returns to the bottom. The paper in the storage side is carried to the feed side.				As the paper in the feed side is used, the base plate is lifted.				The LCT is empty.

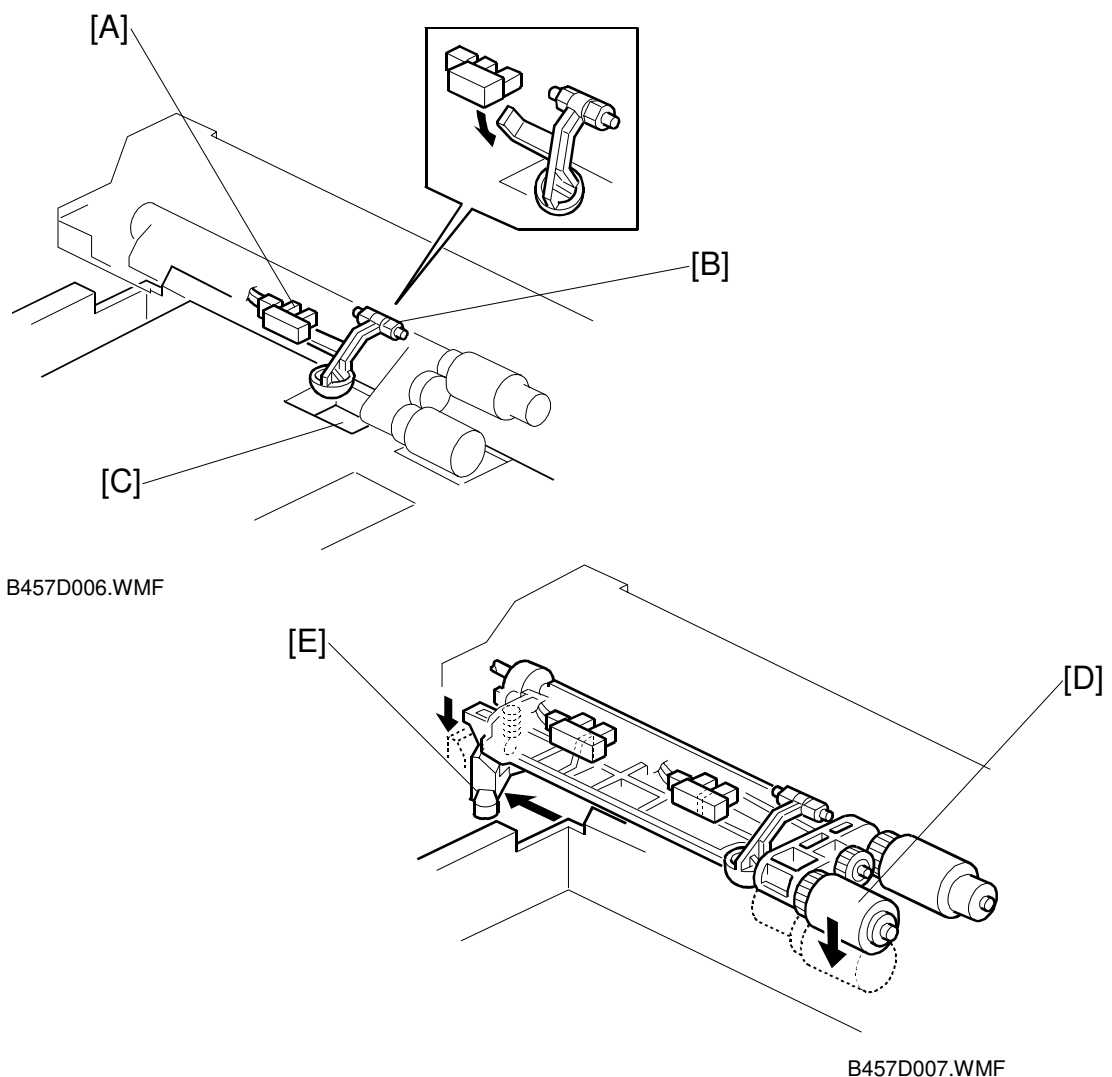
PE1~2: Paper end sensor 1~2, H1~5: Paper height sensor 1~5, ● : Actuated, ○ :Not actuated

The table shows the change of sensor patterns after the storage side is half loaded and the feed side is fully loaded.

Storage side	Feed side	S	F	S	F	S	F	S	F	S	F	S	F	S	F
	PE1		●		●		●		○		●		●		○
	H1		○		○		●		○		○		●		○
H4	H2	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H5	H3	●	○	●	○	●	○	●	○	○	○	○	○	○	○
PE2		●		●		●		●		○		○		○	
Indication															
Remarks		The base plate is at the bottom.	As the paper in the feed side is used, the base plate is lifted.				When the paper in the feed side is all used, the base plate returns to the bottom. The paper in the storage side is carried to the feed side. The bottom plate is lifted until paper end sensor 1 detects the paper.				As the paper in the feed side is used, the base plate is lifted.				The LCT is empty.

PE1~2: Paper end sensor 1~2, H1~5: Paper height sensor 1~5, ● : Actuated, ○ :Not actuated

## 2.8 PAPER END DETECTION OF PAPER FEED SIDE



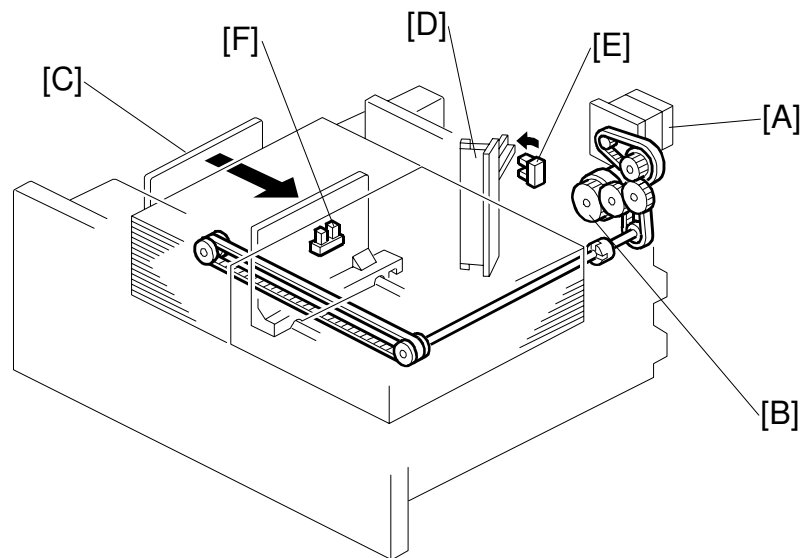
The paper end sensor 1[A] detects when copy paper in the paper feed side runs out.

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 and the actuator leaves the sensor, and the machine detects that there is no paper in the tray.

When the user puts back the tray, the lever [E] lowers the pickup roller and the feeler. When, on the other hand, the tray is pulled out, the lever lifts the roller and feeler.



## 2.9 PAPER STACK TRANSPORT



B457D004.WMF

When the paper in the paper feed side is used up, the tray motor [A] and stack transport clutch [B] turn on. Then the rear 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 (☛ 2.2) 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.