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# PF-110

# SERVICE MANUAL

Published in April 2009  
845JK210  
5JKSM160  
First Edition

## **CAUTION**

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

It may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for proper disposal.

## **ATTENTION**

IL Y A UN RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UN MODÈLE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES UTILISÉES SELON LES INSTRUCTIONS DONNÉES.

Il peut être illégal de jeter les batteries dans des eaux d'égout municipales. Vérifiez avec les fonctionnaires municipaux de votre région pour les détails concernant des déchets solides et une mise au rebut appropriée.

**Revision history**

<b>Revision</b>	<b>Date</b>	<b>Replaced pages</b>	<b>Remarks</b>

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# Safety precautions

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This booklet provides safety warnings and precautions for our service personnel to ensure the safety of their customers, their machines as well as themselves during maintenance activities. Service personnel are advised to read this booklet carefully to familiarize themselves with the warnings and precautions described here before engaging in maintenance activities.

## Safety warnings and precautions

Various symbols are used to protect our service personnel and customers from physical danger and to prevent damage to their property. These symbols are described below:

 **DANGER:** High risk of serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

 **WARNING:** Serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

 **CAUTION:** Bodily injury or damage to property may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

### Symbols

The triangle () symbol indicates a warning including danger and caution. The specific point of attention is shown inside the symbol.

 General warning.

 Warning of risk of electric shock.

 Warning of high temperature.

 indicates a prohibited action. The specific prohibition is shown inside the symbol.

 General prohibited action.

 Disassembly prohibited.

 indicates that action is required. The specific action required is shown inside the symbol.

 General action required.

 Remove the power plug from the wall outlet.

 Always ground the copier.

# 1. Installation Precautions

## WARNING

- Do not use a power supply with a voltage other than that specified. Avoid multiple connections to one outlet: they may cause fire or electric shock. When using an extension cable, always check that it is adequate for the rated current. .... 
- Connect the ground wire to a suitable grounding point. Not grounding the copier may cause fire or electric shock. Connecting the earth wire to an object not approved for the purpose may cause explosion or electric shock. Never connect the ground cable to any of the following: gas pipes, lightning rods, ground cables for telephone lines and water pipes or faucets not approved by the proper authorities. .... 

## CAUTION:

- Do not place the copier on an infirm or angled surface: the copier may tip over, causing injury. .... 
- Do not install the copier in a humid or dusty place. This may cause fire or electric shock. .... 
- Do not install the copier near a radiator, heater, other heat source or near flammable material.

This may cause fire. .... 

- Allow sufficient space around the copier to allow the ventilation grills to keep the machine as cool as possible. Insufficient ventilation may cause heat buildup and poor copying performance. .... 

- Always handle the machine by the correct locations when moving it. .... 
- Always use anti-toppling and locking devices on copiers so equipped. Failure to do this may cause the copier to move unexpectedly or topple, leading to injury. .... 

- Avoid inhaling toner or developer excessively. Protect the eyes. If toner or developer is accidentally ingested, drink a lot of water to dilute it in the stomach and obtain medical attention immediately. If it gets into the eyes, rinse immediately with copious amounts of water and obtain medical attention. .... 

- Advise customers that they must always follow the safety warnings and precautions in the copier's instruction handbook. .... 

## 2.Precautions for Maintenance

### WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly. .... 
  - Always follow the procedures for maintenance described in the service manual and other related brochures. .... 
  - Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits. .... 
  - Always use parts having the correct specifications. .... 
  - Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident. .... 
  - When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully. .... 
  - Always check that the copier is correctly connected to an outlet with a ground connection. .... 
  - Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock. .... 
  - Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight. .... 
  - Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly. .... 
- ### CAUTION
- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections. .... 
  - Use utmost caution when working on a powered machine. Keep away from chains and belts. .... 
  - Handle the fixing section with care to avoid burns as it can be extremely hot. .... 
  - Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures. .... 

• Do not remove the ozone filter, if any, from the copier except for routine replacement. ....



• Do not pull on the AC power cord or connector wires on high-voltage components when removing them; always hold the plug itself. ....



• Do not route the power cable where it may be stood on or trapped. If necessary, protect it with a cable cover or other appropriate item. ....



• Treat the ends of the wire carefully when installing a new charger wire to avoid electric leaks. ....



• Remove toner completely from electronic components. ....



• Run wire harnesses carefully so that wires will not be trapped or damaged. ....



• After maintenance, always check that all the parts, screws, connectors and wires that were removed, have been refitted correctly. Special attention should be paid to any forgotten connector, trapped wire and missing screws. ....



• Check that all the caution labels that should be present on the machine according to the instruction handbook are clean and not peeling. Replace with new ones if necessary. ....



• Handle greases and solvents with care by following the instructions below: ....



Use only a small amount of solvent at a time, being careful not to spill. Wipe spills off completely. Ventilate the room well while using grease or solvents. Allow applied solvents to evaporate completely before refitting the covers or turning the power switch on. Always wash hands afterwards.

• Never dispose of toner or toner bottles in fire. Toner may cause sparks when exposed directly to fire in a furnace, etc. ....



• Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately. ....



### 3.Miscellaneous

#### WARNING

• Never attempt to heat the drum or expose it to any organic solvents such as alcohol, other than the specified refiner; it may generate toxic gas. ....



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# Read This First

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## Safety and Symbols

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### Replacement Procedure Safety

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 **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

$\sigma$ : Screws

$\eta$ : Connector

$\chi$ : Clip ring

$\varepsilon$ : E-ring

# Replacement and Adjustment

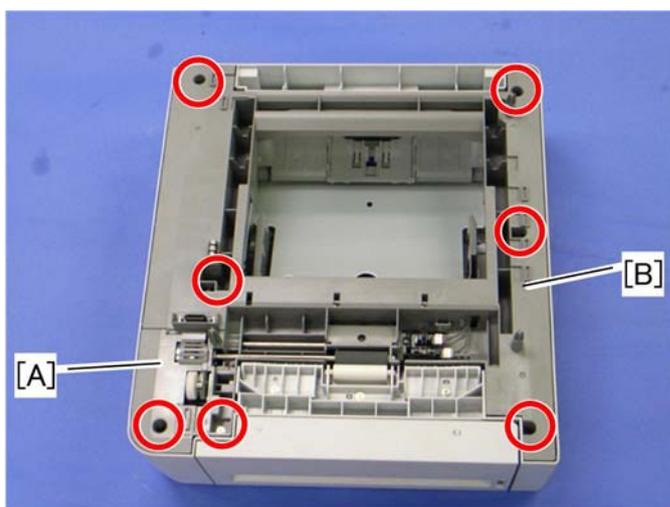
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## Paper Feed Unit

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### Top Cover

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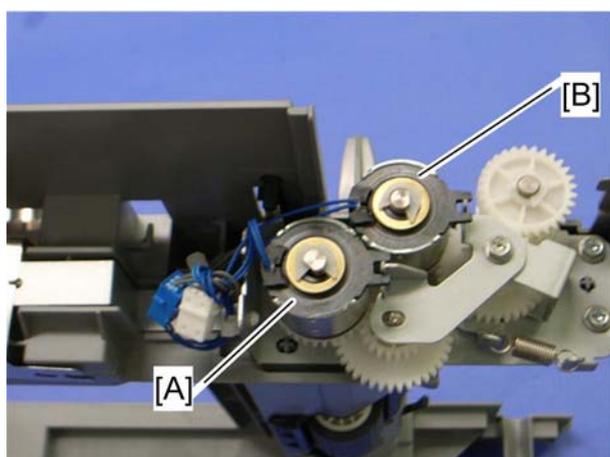
g849r501

1. Top left cover [A] ( $\sigma \times 1$ )
2. Top cover [B] ( $\sigma \times 6$ )

### Paper Feed and Relay Clutch

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1. Top cover (\* Top Cover)



g849r504

2. Paper feed clutch [A] ( $\chi \times 1$ ,  $\eta \times 1$ )
3. Relay clutch [B] ( $\chi \times 1$ ,  $\eta \times 1$ )

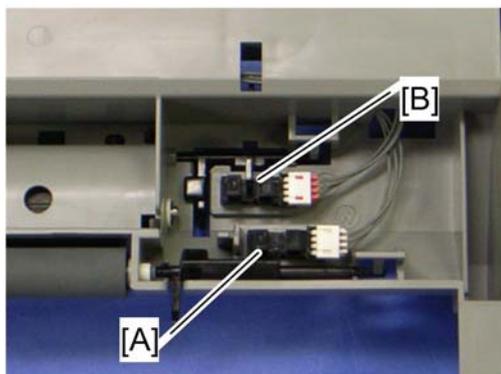
## Replacement and Adjustment

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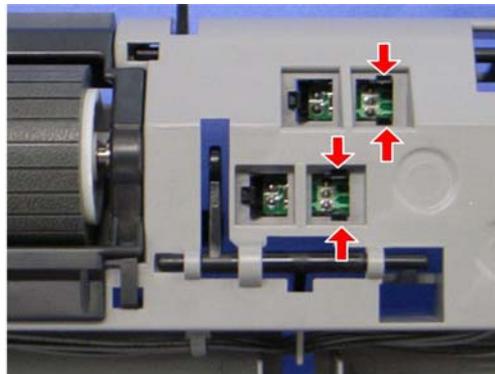
### Paper End and Relay Sensor

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1. Top cover (\* Top Cover)



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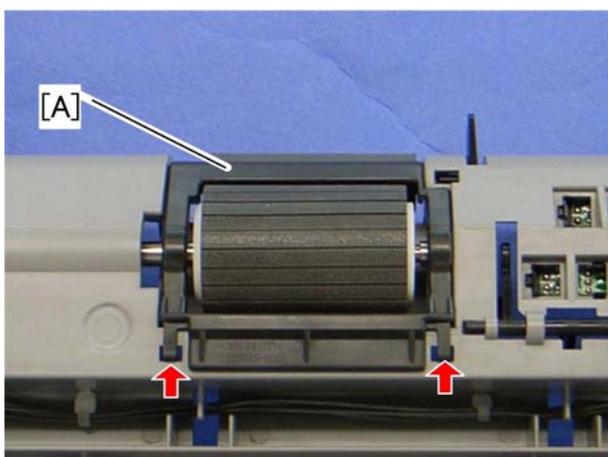
g849r506

2. Paper end sensor [A] (hooks,  $\eta$  x 1)
3. Relay sensor [B] (hooks,  $\eta$  x 1)

### Paper Feed Roller

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1. Top cover (\* Top Cover)
2. Paper feed clutch (\* Top Cover)

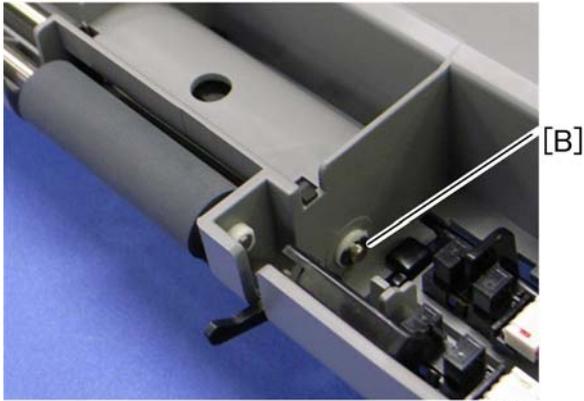


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3. Paper guide [A] (hooks)

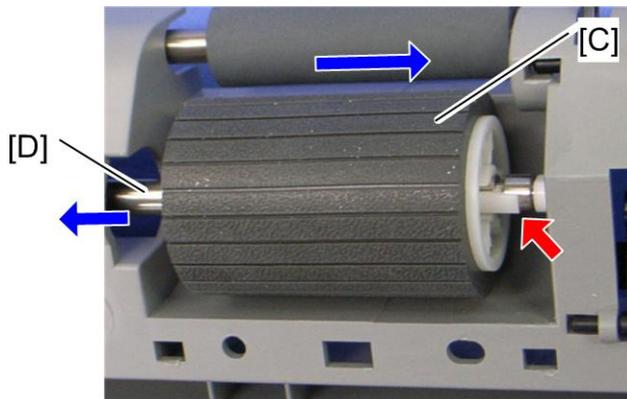
## Replacement and Adjustment

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4. Remove the e-ring [B] at the right edge of the feed roller shaft.

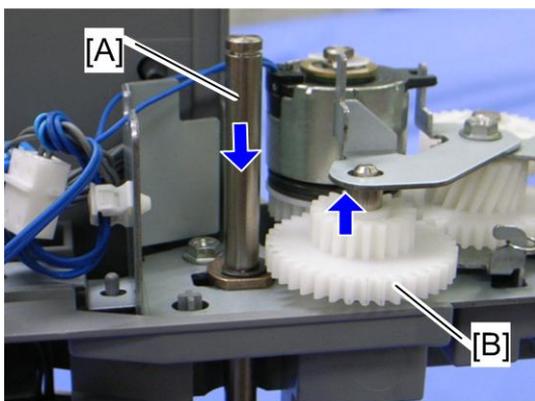


g849r506

5. Slide the paper feed roller [C] to the right side (hook).
6. Pull out the feed roller shaft [D] to the left side (bushing x 1).

## When reassembling

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g849r507

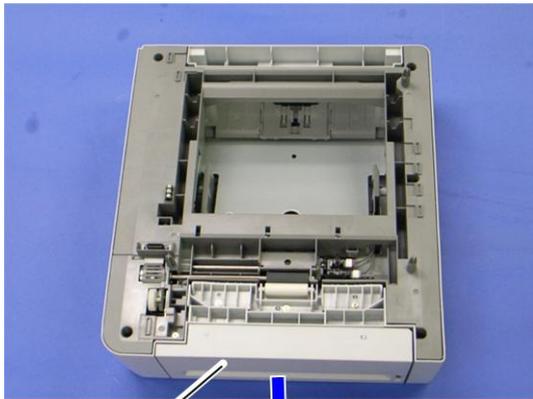
If the feed roller shaft [A] cannot be inserted easily, pull the gear [B], and then insert the feed roller shaft.

## Replacement and Adjustment

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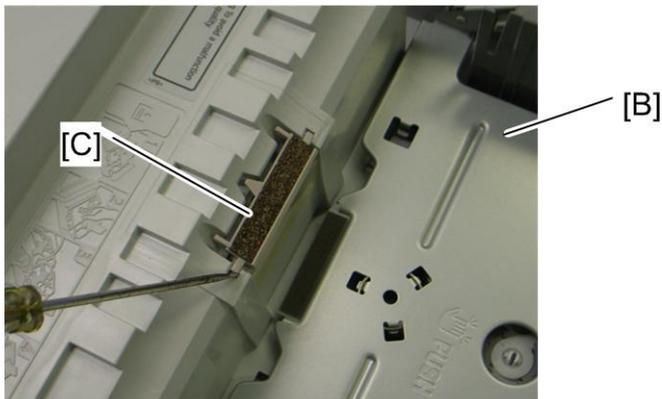
### Friction Pad

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g849r501a

1. Pull out the tray [A]

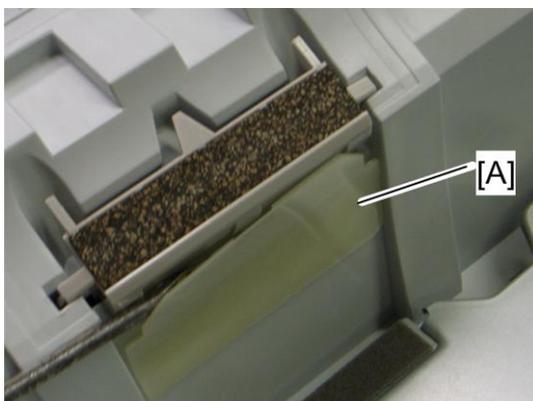


g849r508

2. Press down the bottom plate [B]
3. Friction pad [C] (hooks, spring x 1)

### When reassembling

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g849r509

When re-installing the friction pad, make sure that the mylar [A] does not go under the friction pad.

# Detailed Section Descriptions

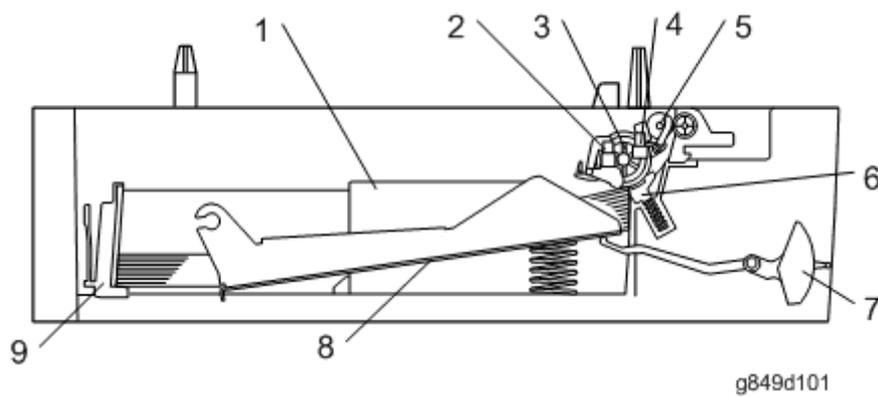
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## Overview

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## Component Layout

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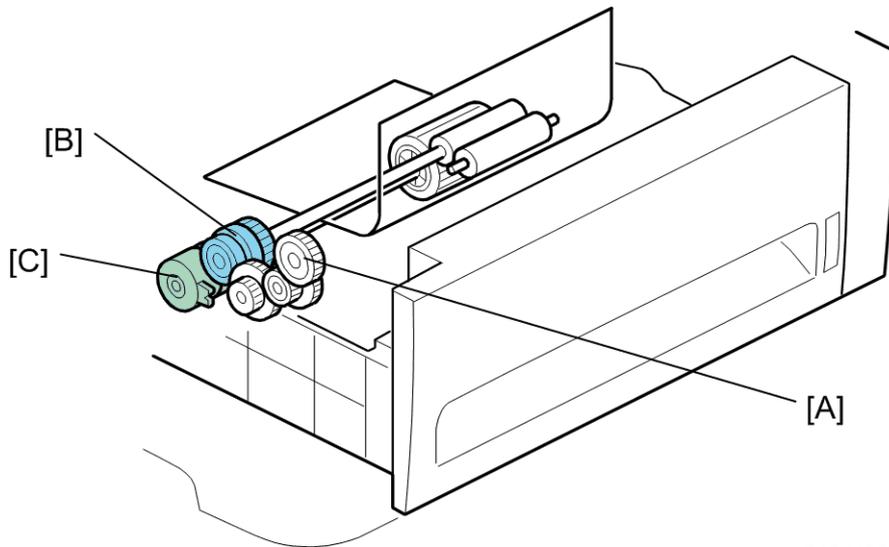
1. Side Fence	6. Friction Pad
2. Paper End Sensor	7. Paper Height Lever
3. Paper Feed Roller	8. Bottom Plate
4. Relay Sensor	9. Rear Fence
5. Relay Roller	

## Basic Operation

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### Paper Separation and Feed

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The paper tray holds 500 sheets of paper.

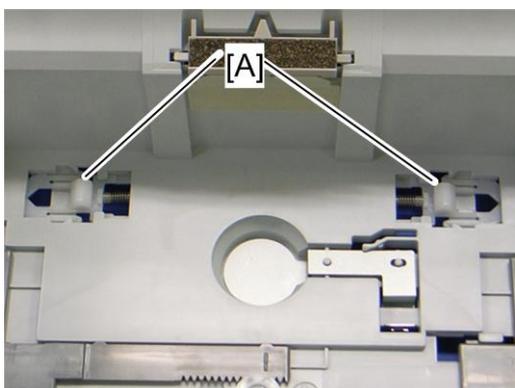
The paper feed unit uses a friction pad system.

The gear [A] is driven by the transport/fusing motor in the mainframe.

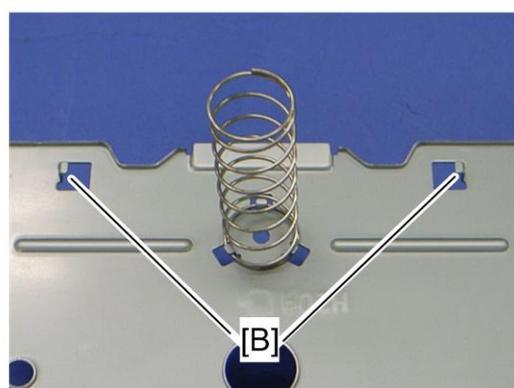
The relay clutch [B] and paper feed clutch [C] control drive from the mainframe. When the optional tray is selected as the feed tray, the relay clutch and paper feed clutch transmit drive power to the relay roller and paper feed roller.

### Paper Lift

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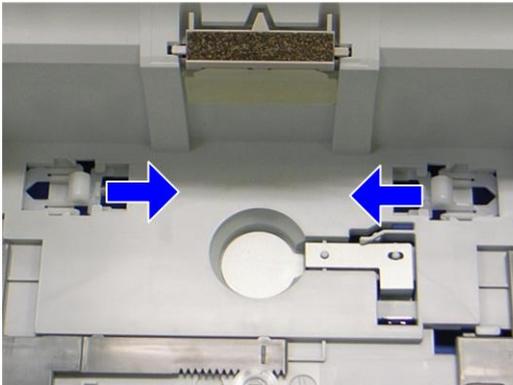
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The bottom plate is always pressed up by the spring in the tray. Therefore, you must press down the bottom plate when you insert the tray in the machine.

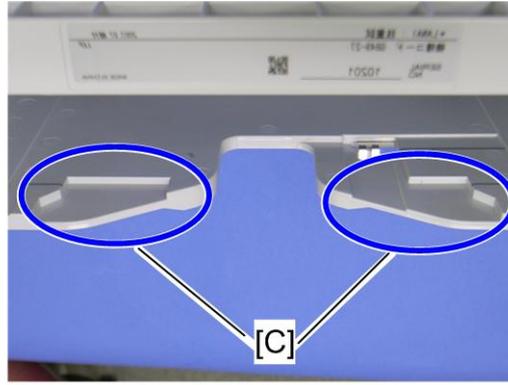
## Detailed Section Descriptions

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The bottom tray lock levers [A] hold the tabs [B] under the bottom plate after the bottom plate is pressed down.



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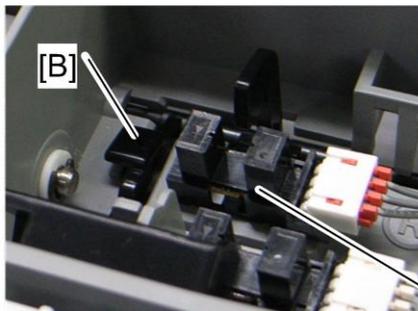


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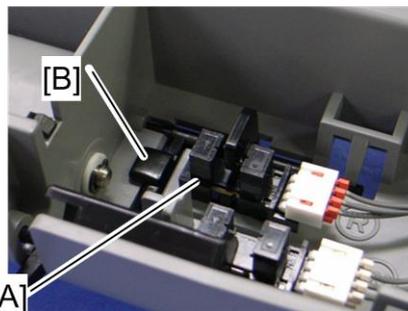
When the tray is inserted in the machine, the lock lever guides [C] in the paper feed unit push the bottom plate lock levers, and then the lock levers release the tabs under the bottom plate. As a result, the bottom plate is lifted by the spring.

## Paper End Detection

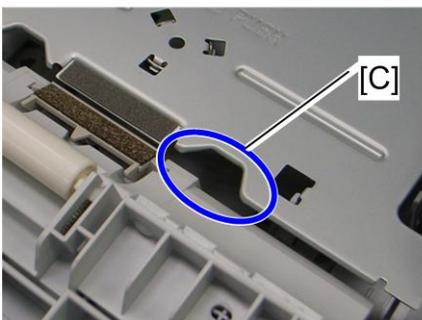
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There is a paper end sensor [A] in the tray. The feeler [B] drops into the cutout [C] in the bottom plate and the actuator interrupts the paper end sensor. This sensor also detects whether the tray is set.

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