

# **PAPER TRAY UNIT (G511)**

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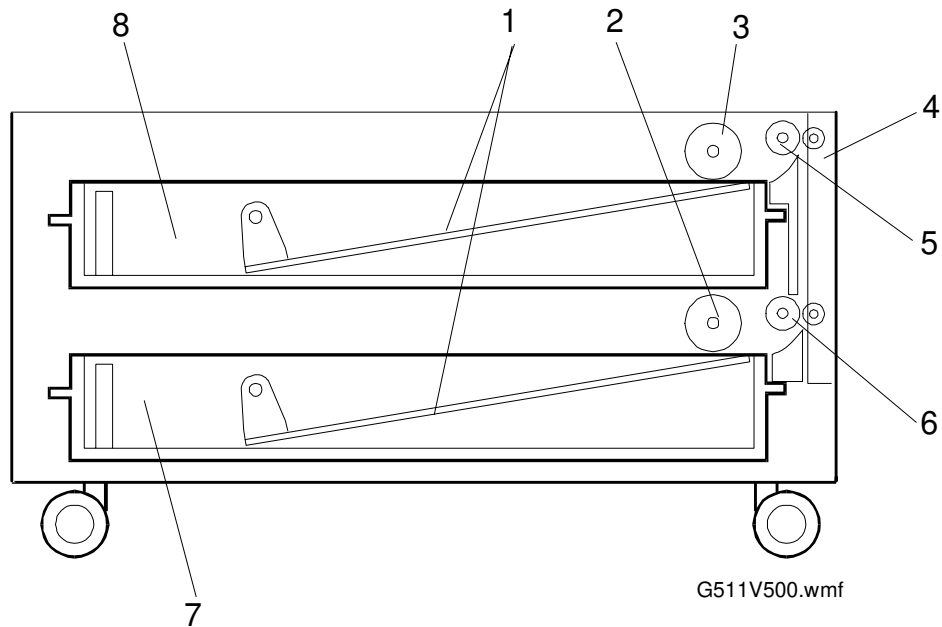
# 1. SPECIFICATIONS

Copy Paper Size:	A3 to A5 sideways
Paper Weight:	60 g to 90 g
Tray Capacity:	500 sheets (70 kg)
Power Source:	24 & 5 Vdc from the copier
Power Consumption:	40 W
Dimensions (W x D x H):	530 x 565 x 255 mm
Weight:	20 kg

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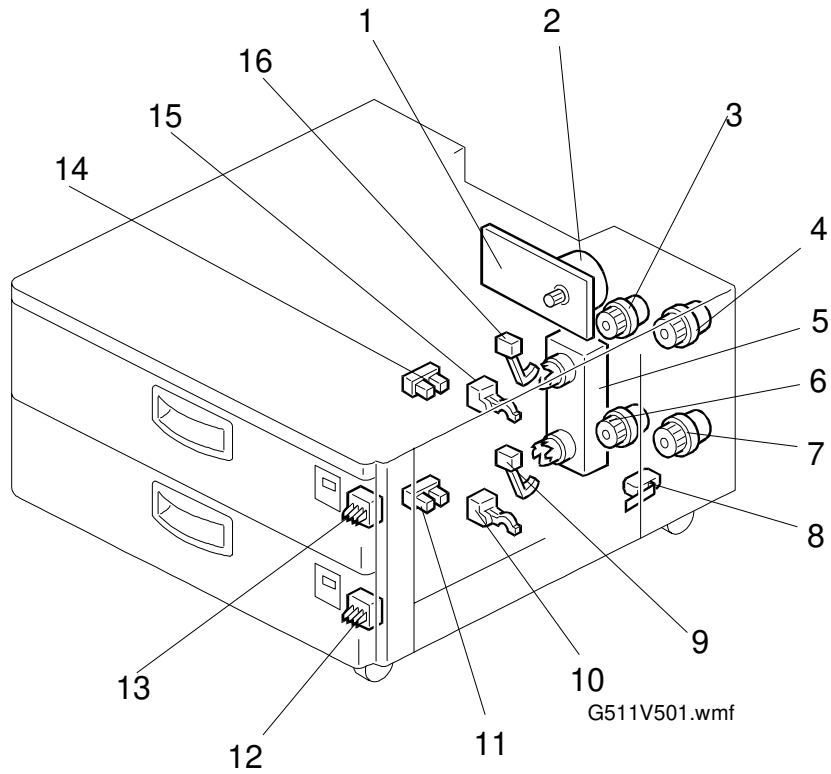
## 2. COMPONENT LAYOUT

### 2.1 MECHANICAL COMPONENT LAYOUT



- |                            |                       |
|----------------------------|-----------------------|
| 1. Bottom Plate            | 5. Upper Relay Roller |
| 2. Lower Paper Feed Roller | 6. Lower Relay Roller |
| 3. Upper Paper Feed Roller | 7. Lower Tray         |
| 4. Bank Door               | 8. Upper Tray         |

## 2.2 ELECTRICAL COMPONENT LAYOUT



- |                            |                                   |
|----------------------------|-----------------------------------|
| 1. Paper Tray Unit Board   | 9. Lower Paper End Sensor         |
| 2. Paper Feed Motor        | 10. Lower Relay Sensor            |
| 3. Upper Paper Feed Clutch | 11. Lower Tray Upper Limit Sensor |
| 4. Upper Relay Clutch      | 12. Lower Paper Size Sensor       |
| 5. Upper/Lower Lift Motor  | 13. Upper Paper Size Sensor       |
| 6. Lower Paper Feed Clutch | 14. Upper Tray Upper Limit Sensor |
| 7. Lower Relay Clutch      | 15. Upper Relay Sensor            |
| 8. Tray Cover Switch       | 16. Upper Paper End Sensor        |

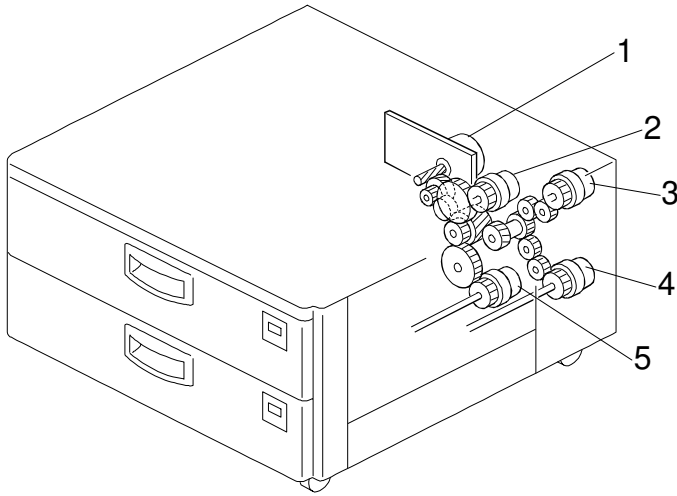
Options

## 2.3 ELECTRICAL COMPONENT DESCRIPTION

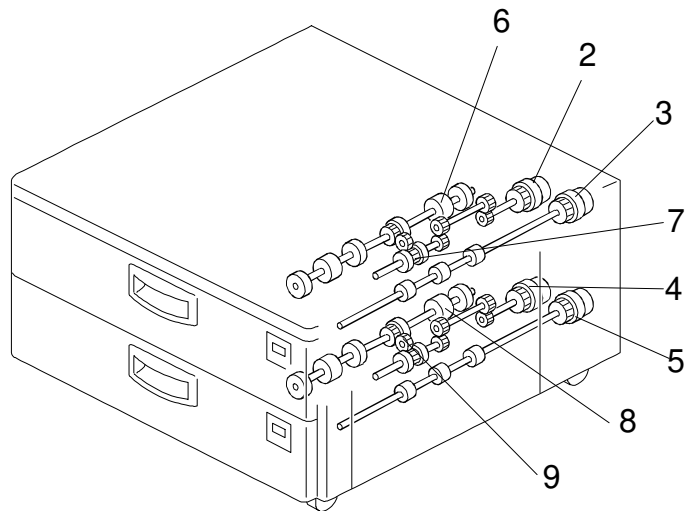
Symbol	Name	Function Motors	Index. No.
<b>Motors</b>			
M1	Paper Feed	Drives all the rollers.	2
M2	Upper Lift	Lifts and lowers the upper tray bottom plate.	5
M3	Lower Lift	Lifts and lowers the lower tray bottom plate.	5
<b>Sensors</b>			
S1	Upper Paper End	Informs the CPU when there is no paper in the upper tray.	16
S2	Lower Paper End	Informs the CPU when there is no paper in the lower tray.	9
S3	Upper Tray Upper Limit	Detects when the paper in the upper tray is at the correct height for paper feed.	14
S4	Lower Tray Upper Limit	Detects when the paper in the lower tray is at the correct height for paper feed.	11
S5	Upper Relay	Detects misfeeds and controls the upper paper feed clutch off timing.	15
S6	Lower Relay	Detects misfeeds and controls the lower paper feed clutch off timing.	10
S7	Upper Paper Size	Determines what paper size is in the upper tray.	12
S8	Lower Paper Size	Determines what paper size is in the lower tray.	13
<b>Clutches</b>			
MC1	Upper Paper Feed	Starts paper feed from the upper feed tray.	3
MC2	Lower Paper Feed	Starts paper feed from the lower feed tray.	6
MC3	Upper Relay	Starts the upper relay roller.	4
MC4	Lower Relay	Starts the lower relay roller.	7
<b>PCBs</b>			
PCB1	Paper Tray Unit Drive	Interfaces the sensor signals to the copier and transfers the magnetic clutch, heater, and motor drive signals from the copier.	1

Optional tray heaters are also available.

## 2.4 DRIVE LAYOUT



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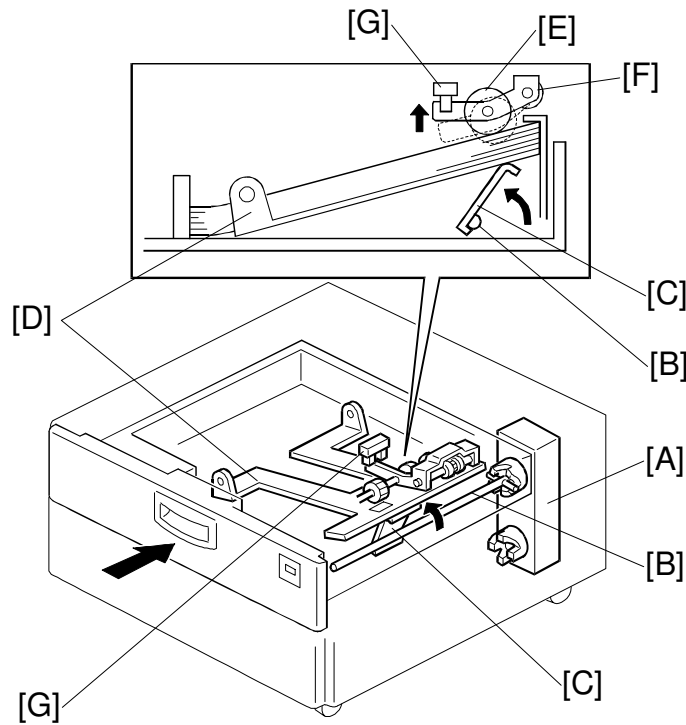


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- |                            |   |
|----------------------------|---|
| 1. Paper Feed Motor        | 7. Drive Gear – Upper Paper Feed Roller |
| 2. Upper Paper Feed Clutch | 8. Lower Paper Feed Roller              |
| 3. Upper Relay Clutch      | 9. Drive Gear – Lower Paper Feed Roller |
| 4. Lower Relay Clutch      |   |
| 5. Lower Paper Feed Clutch |   |
| 6. Upper Paper Feed Roller |   |

### 3. DETAILED DESCRIPTION

#### 3.1 PAPER FEED AND TRAY LIFT/LOWER MECHANISM



G511D500.wmf

This paper tray unit has two trays. Each paper tray is a drawer type that can hold up to 500 sheets of paper. The mechanism is the same as for the main machine, except for the lifting and lowering mechanism of the tray bottom plate.

When the tray is slid into the machine, the lift motor [A] turns on. The paper size sensor works as the tray detector. When the sensor detects the tray, the lift motor turns the tray arm shaft [B], and the tray arm [C] lifts the tray bottom plate [D].

The tray bottom plate lifts the paper feed roller [E]. When the shutter on the paper feed roller holder [F] turns on the lift sensor [G], the lift motor turns off.

When the lift sensor turns off during multicopying, the lift motor turns on until lift sensor turns on again. Between copies, the bottom plate is lowered (see below). This mechanism gives a stable paper feed pressure.

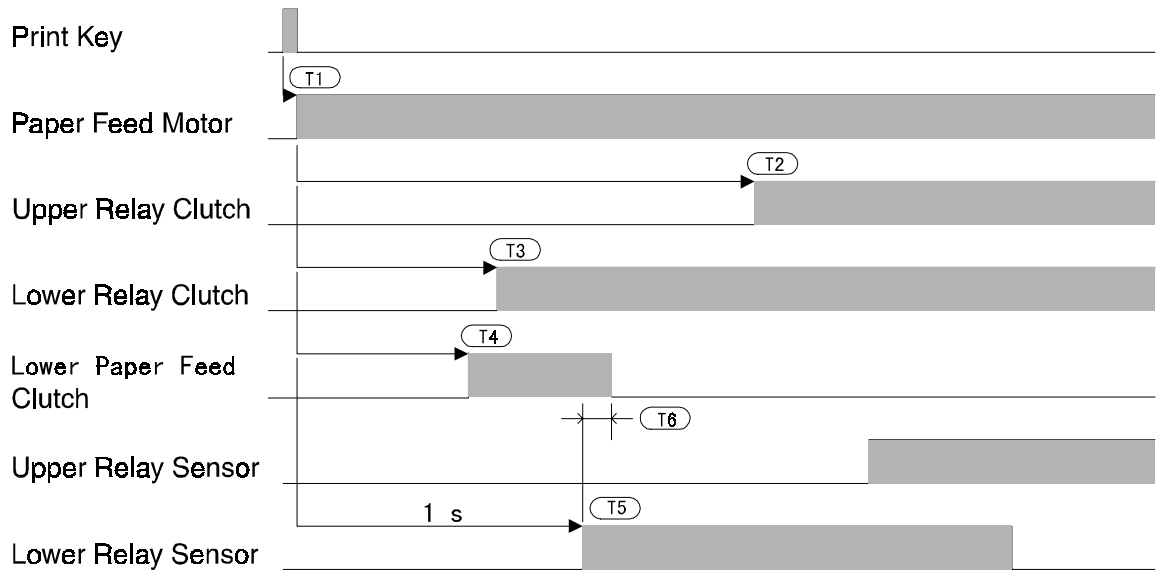
In the following conditions, the lift motor turns on clockwise for approximately 1 second to lower the tray. This mechanism prevents paper feed roller marks from appearing on the paper and stabilizes the paper transport.

- 30 s after the paper feed clutch turns off for the last sheet of a copy job.
- When the tray becomes empty.

### 3.2 TIMING CHART

Conditions:

- A4 sideways
- Lower paper tray
- The tray bottom plate is at the upper limit.



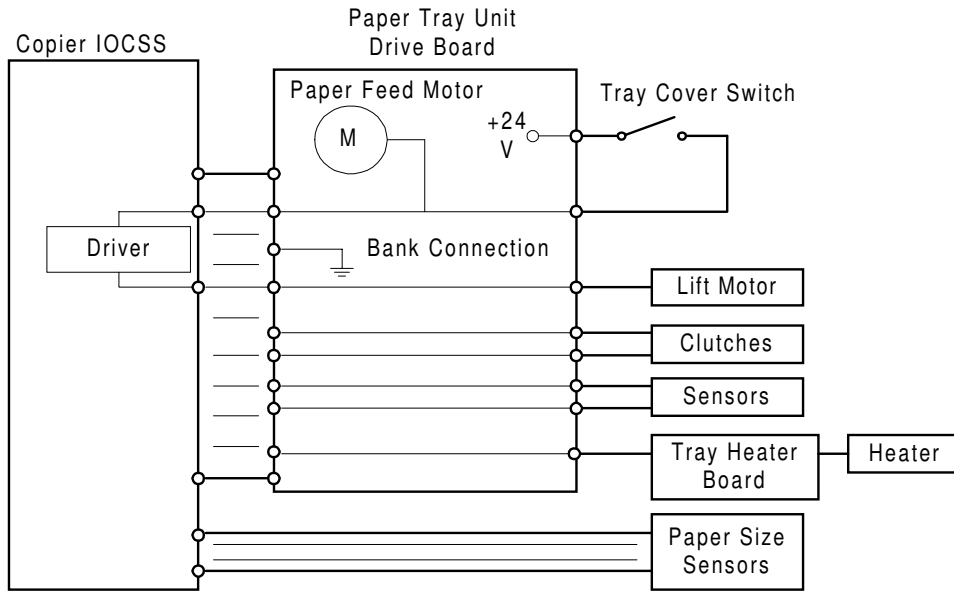
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- T1: 50 ms after the print key is pressed, the paper feed motor turns on.
- T2: 1.6 s after the paper feed motor turns on, the upper relay clutch turns on.
- T3: 700 ms after the paper feed motor turns on, the lower relay clutch turns on.
- T4: 600 ms after the paper feed motor turns on, the lower paper feed clutch turns on.
- T5: 1 s after the paper feed motor turns on, the lower relay sensor should turn on.
- T6: 100 ms after the lower relay sensor turns on, the lower feed clutch turns on.

Options



### 3.3 OVERALL ELECTRICAL CIRCUIT



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The lift motors, clutches, and tray heater are directly controlled by the copier through the paper tray unit drive board. The sensor signals are directly sent to the copier.

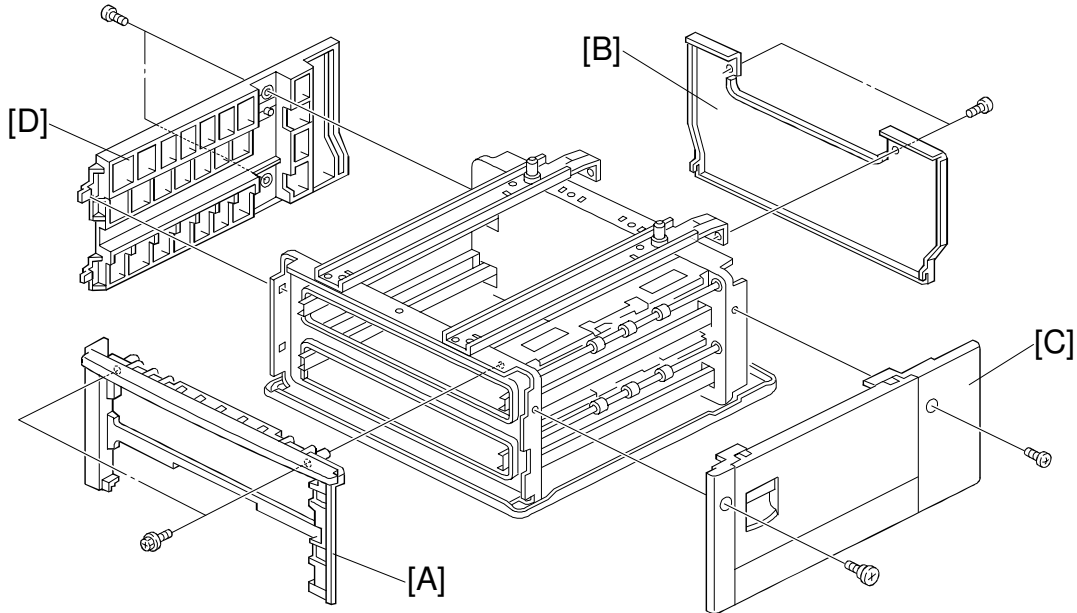
The power for the paper feed motor and lift motors is supplied through the tray cover switch.

When the bank connector is connected to the copier IOCSS board, the bank connection signal to the copier is grounded. Then the copier detects that the paper tray unit is connected.

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## 4. REPLACEMENT AND ADJUSTMENT

### 4.1 EXTERIOR COVER REMOVAL

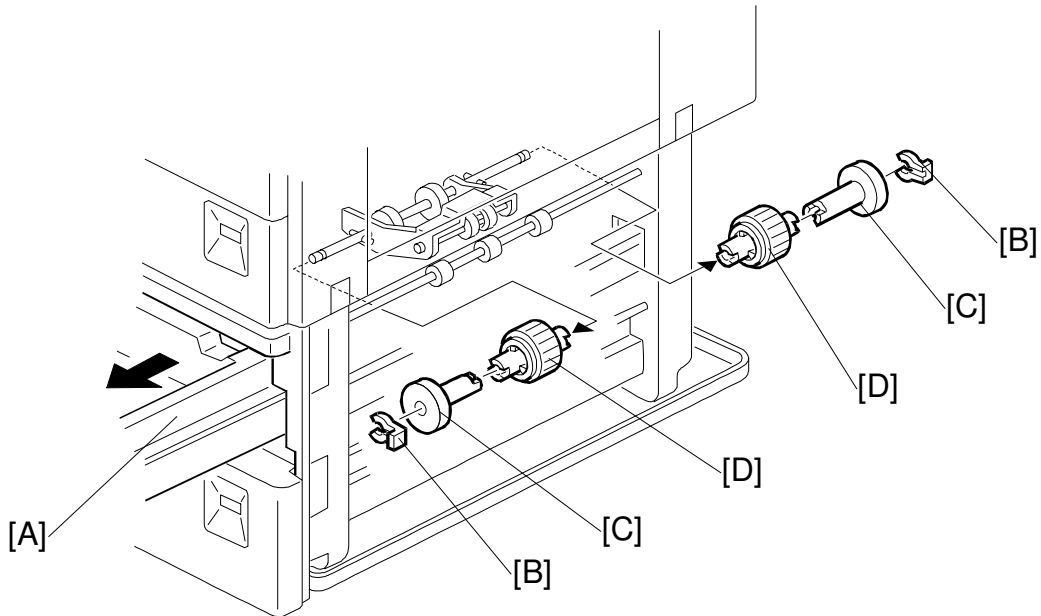


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#### Front Cover

1. Remove the upper tray and lower tray (4 screws each).
2. Remove the front cover [A] (2 screws).  
Rear Cover [B] (2 screws).  
Right Cover [C] (2 screws).  
Left Cover [D] (2 screws).

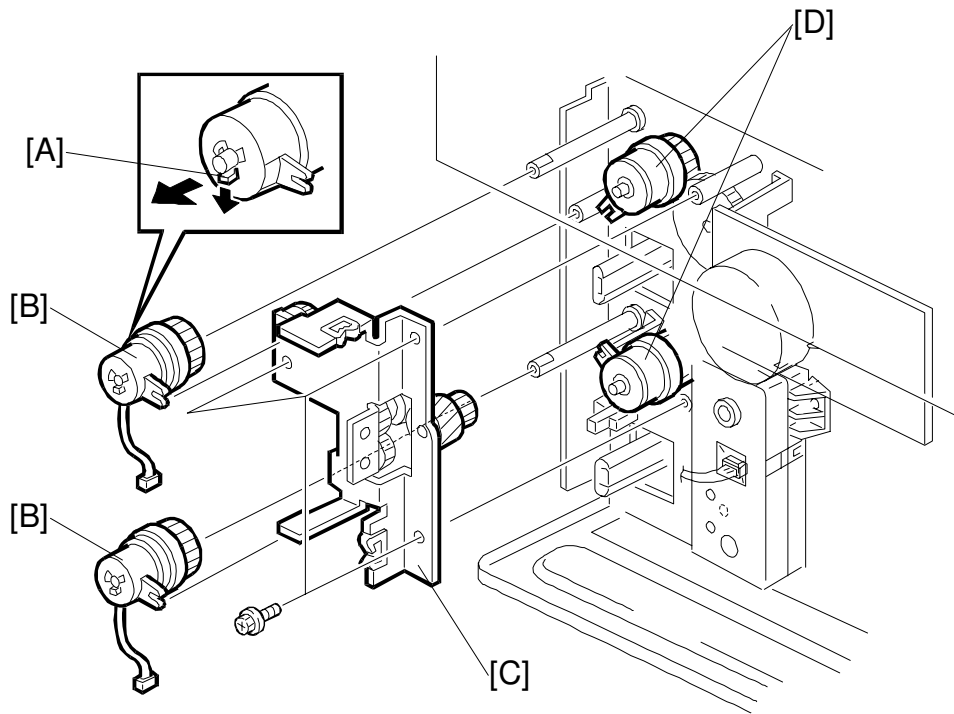
## 4.2 PAPER FEED ROLLER REPLACEMENT



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1. Remove the right cover.
2. Pull out the tray [A].
3. Remove the snap ring [B].
4. Remove the auxiliary roller [C].
5. Replace the paper feed roller [D].

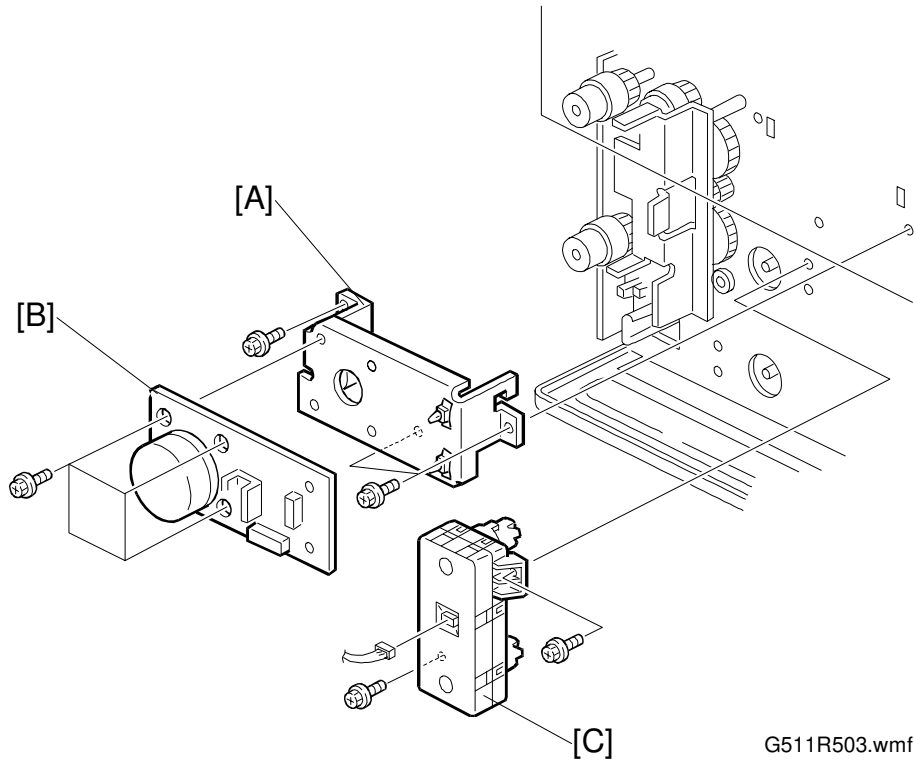
### 4.3 PAPER FEED AND RELAY CLUTCH REPLACEMENT



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1. Remove the rear cover.
2. Remove the right cover.
3. Release the hook [A] and remove (replace) the relay clutches [B].
4. Remove the drive unit [C] (3 screws).
5. Replace the paper feed clutches [D] (1 E-ring each).

## 4.4 PAPER FEED MOTOR REPLACEMENT



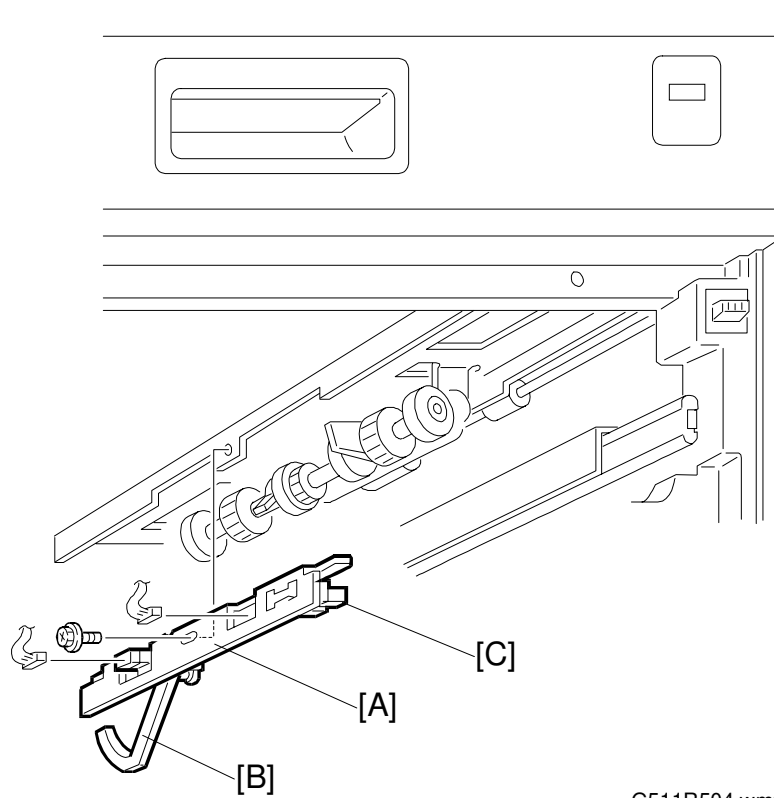
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1. Remove the rear cover.
2. Disconnect the 3 connectors on the paper tray unit drive board.
3. Remove the paper tray unit drive board ass'y [A] (3 screws).
4. Replace the paper feed motor [B] (4 screws, 2 hooks).

## 4.5 LIFT MOTOR REPLACEMENT

1. Remove the rear cover.
2. Pull out the tray.
3. Replace the lift motor [C] (2 screws, 1 connector).

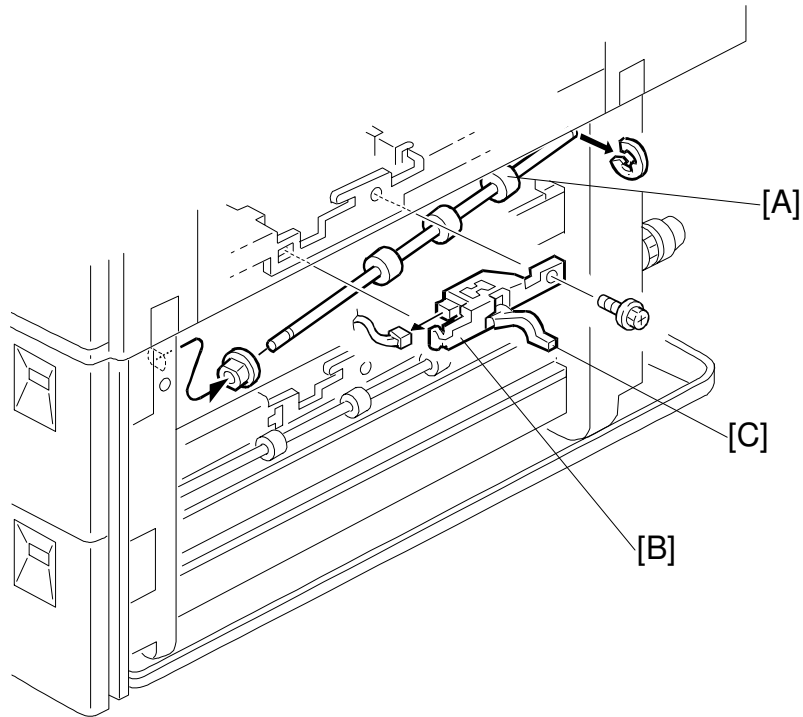
## 4.6 PAPER END AND UPPER LIMIT SENSOR REPLACEMENT



1. Remove the paper tray.
2. Remove the paper end and upper limit sensor with bracket [A] (1 screw, 2 connectors).
3. Replace the paper end sensor [B] or replace the upper limit sensor [C].

**NOTE:** When reinstalling the sensor ass'y, put the harness in the clamp to prevent the harness from touching the paper.

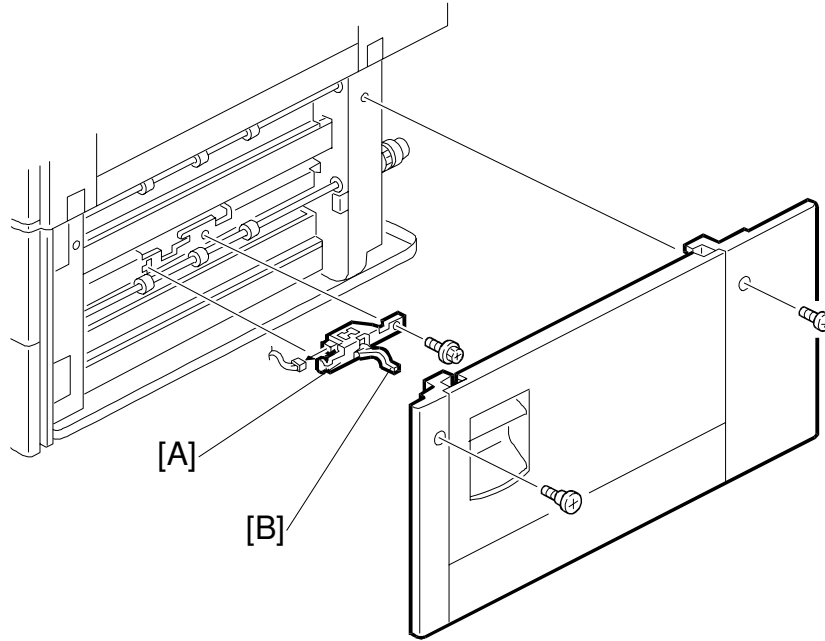
## 4.7 UPPER RELAY SENSOR REPLACEMENT



G511R505.wmf

1. Remove the right cover.
2. Remove the upper relay roller [A] (1 E-ring, 1 bushing).
3. Remove the upper relay sensor with bracket [B] (1 screw, 1 connector).
4. Replace the upper relay sensor [C].

## 4.8 LOWER RELAY SENSOR REPLACEMENT

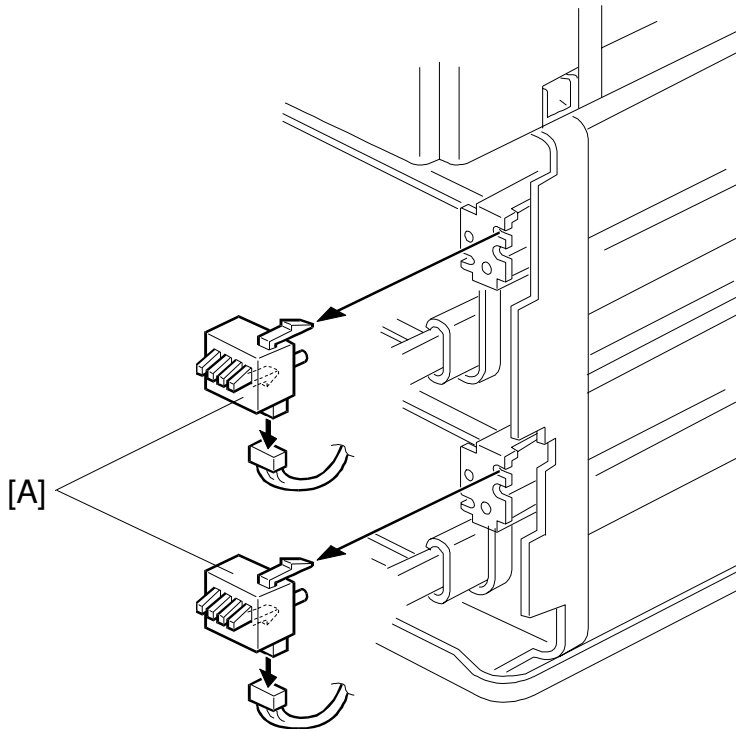


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1. Remove the right cover.
2. Remove the lower relay sensor with bracket [A] (1 screw, 1 connector).
3. Replace the lower relay sensor [B].



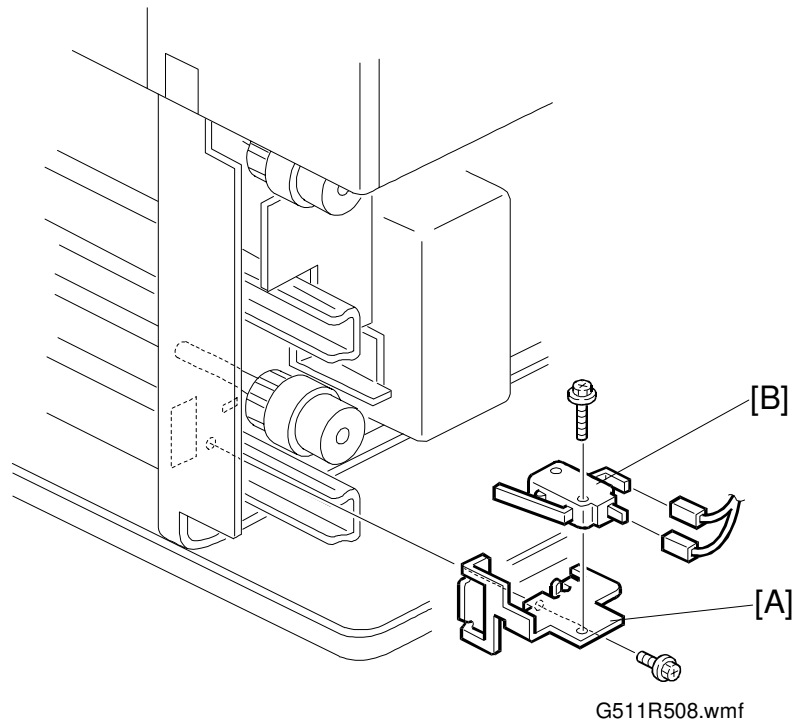
## 4.9 PAPER SIZE SENSORS



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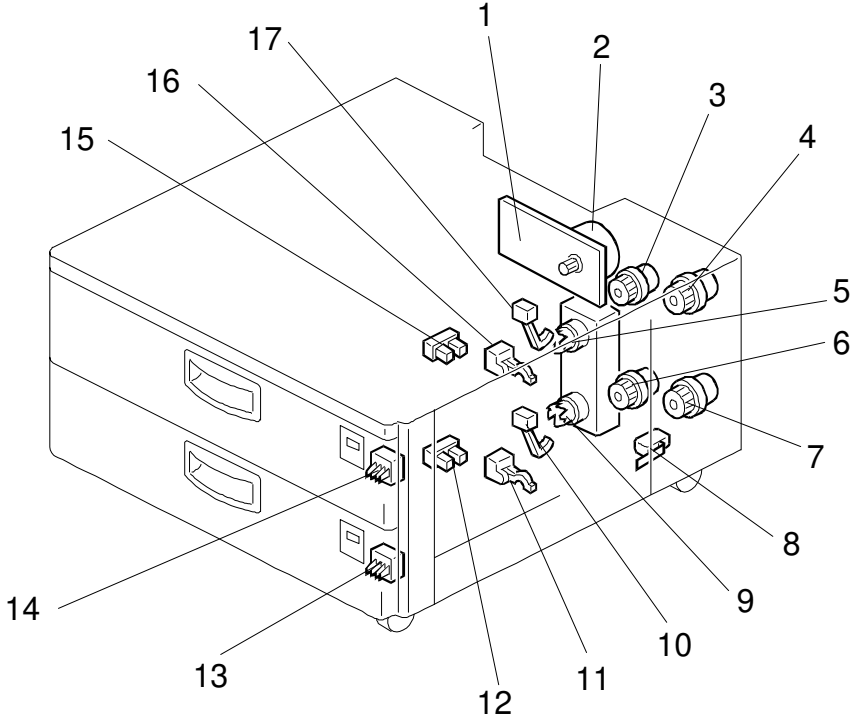
1. Remove the front cover.
2. Remove the left cover.
3. Replace the paper size sensors [A] (1 connector).

## 4.10 TRAY COVER SWITCH REPLACEMENT



1. Remove the left cover
2. Remove the rear cover.
3. Remove the tray cover switch with bracket [A] (1 screw, 2 connectors).
4. Replace the tray cover switch [B] (1 screw).

# PAPER TRAY UNIT (G511) ELECTRICAL COMPONENT LAYOUT



G511S500.WMF

<b>Symbol</b>	<b>Index No.</b>	<b>Name</b>	<b>P to P</b>
<b>Motors</b>			
M1	2	Paper Feed	L8
M2	5	Upper Lift	L8
M3	9	Lower Lift	L8
<b>Sensors</b>			
S1	17	Upper Paper End	I8
S2	10	Lower Paper End	J8
S3	15	Upper Tray Upper Limit	M8
S4	12	Lower Tray Upper Limit	M8
S5	16	Upper Relay	J8
S6	11	Lower Relay	J8
S7	13	Upper Paper Size	I8
S8	14	Lower Paper Size	I8
<b>Clutches</b>			
MC1	3	Upper Paper Feed	K8
MC2	6	Lower Paper Feed	K8
MC3	4	Upper Relay	K8
MC4	7	Lower Relay	K8
<b>PCBs</b>			
PCB1	1	Paper Tray Unit Drive	L10
<b>Switches</b>			
SW1	8	Tray Cover Switch	J8