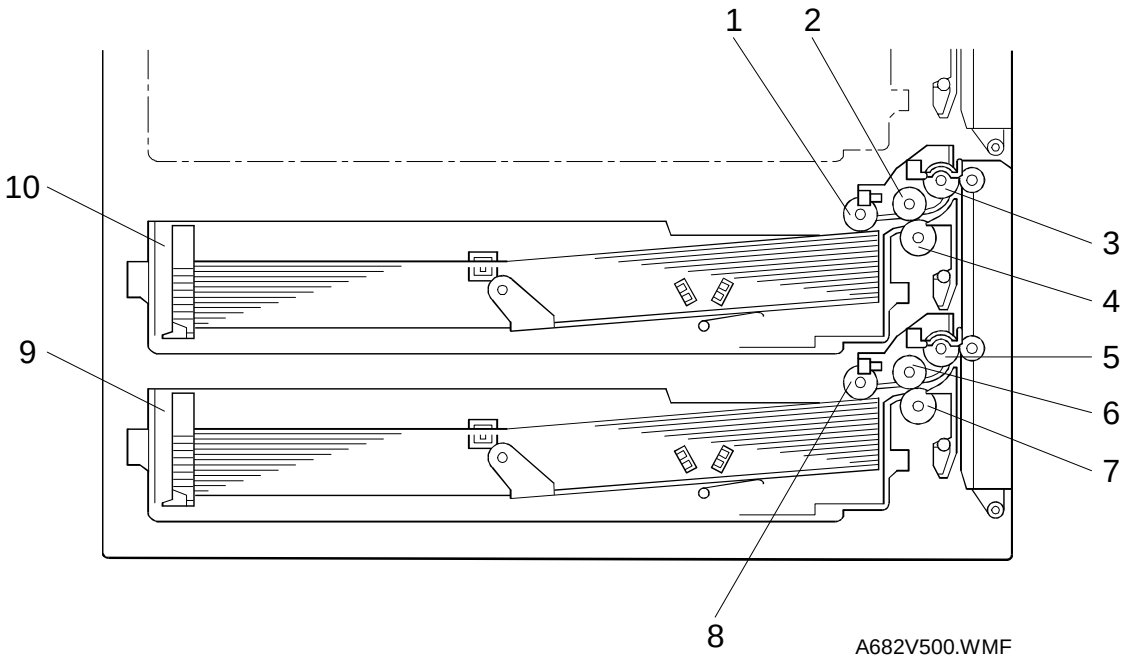
PAPER TRAY UNIT
(Machine Code: A682)

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

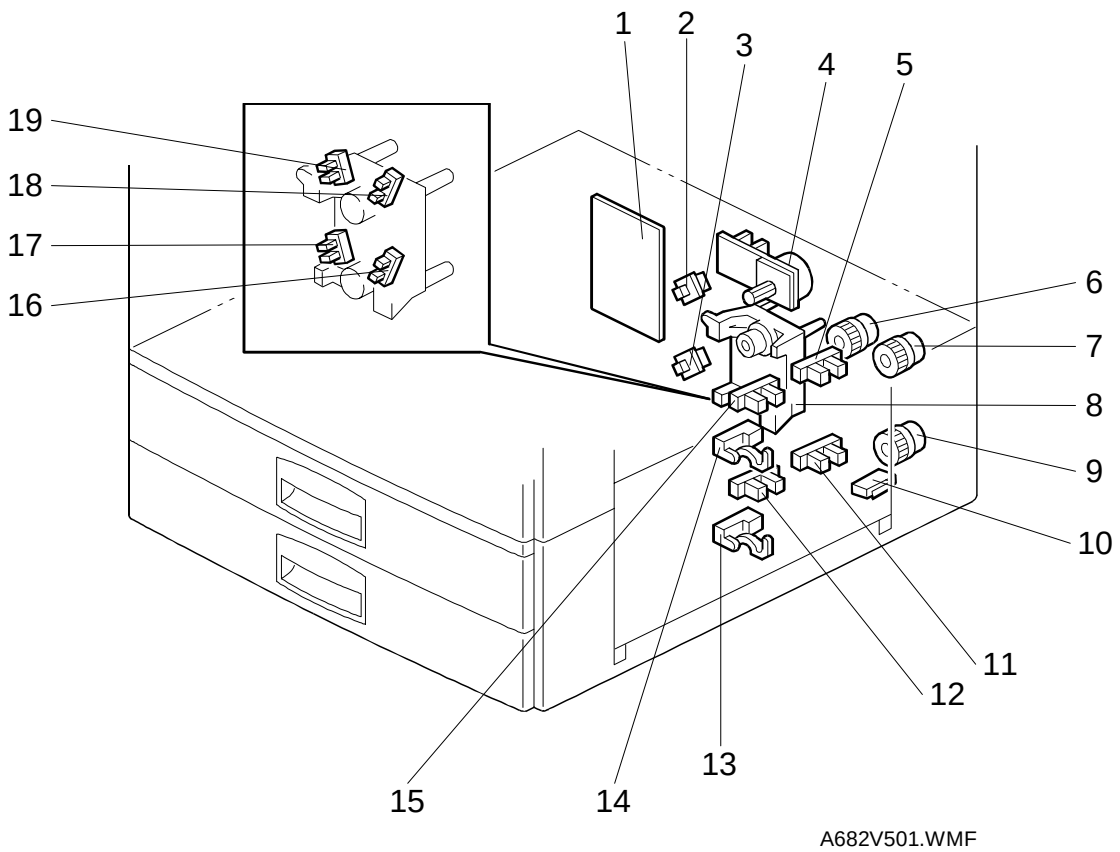
Paper Size:	A5 lengthwise to A3 HLT lengthwise to DLT
Paper Weight:	60 g/m^2 ~ 105 g/m^2, 16 lb ~ 28 lb
Tray Capacity:	500 sheets (80 g/m^2, 20 lb)
Paper Feed System:	FRR
Paper Height Detection:	4 steps (100%, 70%, 30%, Near end)
Power Source:	24 Vdc, 5 Vdc (from the copier) 120 Vac: 115 V version (from the copier) 220 ~ 240 Vac: 224/240 V version (from the copier)
Power Consumption:	50 W
Weight:	25 kg
Size (W x D x H):	540 mm x 600 mm x 270 mm

1.2 MECHANICAL COMPONENT LAYOUT



1. Upper Pick-up Roller
2. Upper Paper Feed Roller
3. Upper Relay Roller
4. Upper Separation Roller
5. Lower Relay Roller
6. Lower Paper Feed Roller
7. Lower Separation Roller
8. Lower Pick-up Roller
9. Lower Tray
10. Upper Tray

1.3 ELECTRICAL COMPONENT LAYOUT

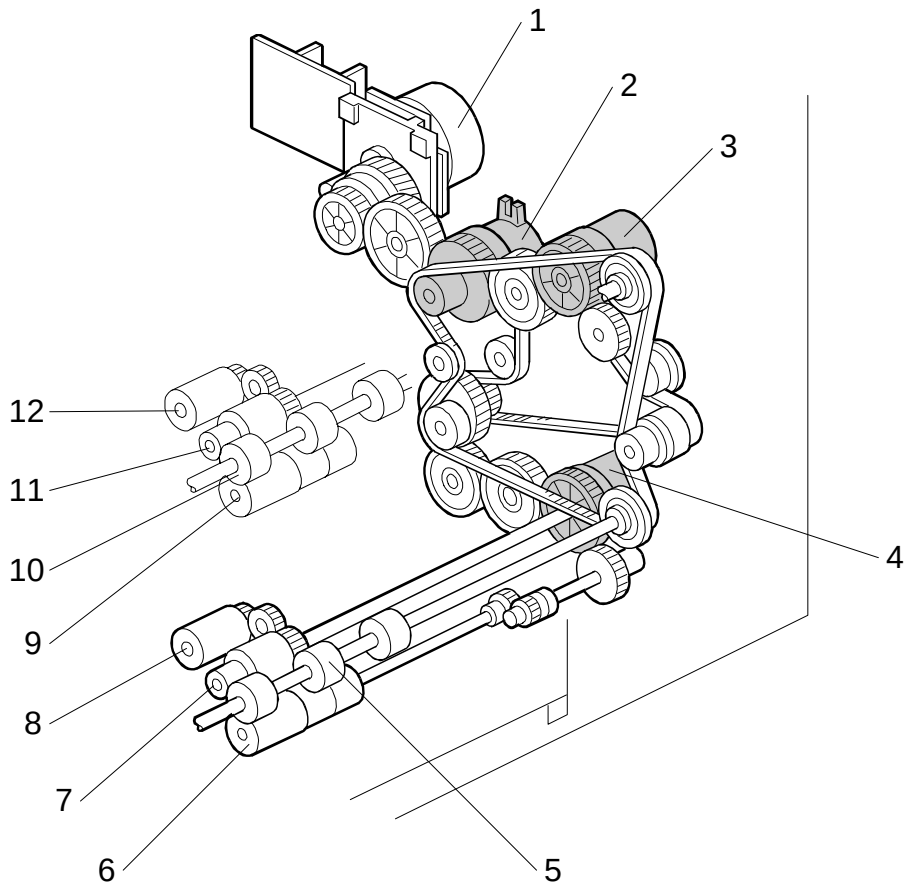


1. Main Board
2. Upper Tray Switch
3. Lower Tray Switch
4. Tray Motor
5. Upper Lift Sensor
6. Relay Clutch
7. Upper Paper Feed Clutch
8. Tray Lift Motor
9. Lower Paper Feed Clutch
10. Vertical Guide Switch
11. Lower Lift Sensor
12. Lower Paper End Sensor
13. Lower Relay Sensor
14. Upper Relay Sensor
15. Upper Paper End Sensor
16. Lower Paper Height 2 Sensor
17. Lower Paper Height 1 Sensor
18. Upper Paper Height 2 Sensor
19. Upper Paper Height 1 Sensor

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Motors			
M1	Tray	Drives all rollers.	4
M2	Tray Lift	Lifts the upper and lower tray bottom plates (there are two motors in this unit, one for each tray.	15
Sensors			
S1	Upper Lift	Detects when the paper in the upper tray is at the correct feed height.	5
S2	Lower Lift	Detects when the paper in the lower tray is at the correct feed height.	11
S3	Upper Paper End	Informs the copier when the upper tray runs out of paper.	15
S4	Lower Paper End	Informs the copier when the upper tray runs out of paper.	12
S5	Upper Relay	Detects misfeeds.	14
S6	Lower Relay	Detects misfeeds.	13
S7	Upper Paper Height 1	Detects the amount of paper in the upper tray.	17
S8	Upper Paper Height 2	Detects the amount of paper in the upper tray.	16
S9	Lower Paper Height 1	Detects the amount of paper in the lower tray.	19
S10	Lower Paper Height 2	Detects the amount of paper in the lower tray.	18
Switches			
SW1	Upper Tray	Informs the copier when the upper tray is set in the machine.	2
SW2	Lower Tray	Informs the copier when the lower tray is set in the machine.	3
SW3	Vertical Guide	Detects whether the vertical guide is opened or not.	10
Magnetic Clutches			
MC1	Upper Paper Feed	Starts paper feed from the upper tray.	7
MC2	Lower Paper Feed	Starts paper feed from the lower tray.	9
MC3	Relay	Drives the transport rollers.	6
PCBs			
PCB1	Main	Controls the paper tray unit and communicates with copier.	1

1.5 DRIVE LAYOUT



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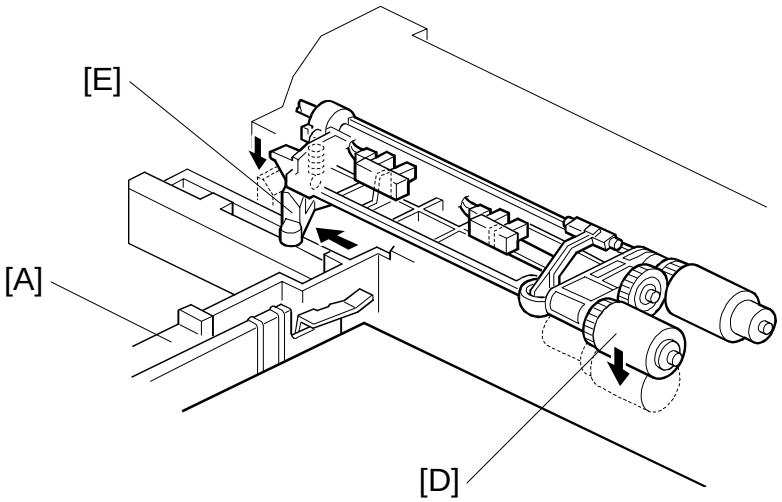
1. Tray Motor
2. Relay Clutch
3. Upper Paper Feed Clutch
4. Lower Paper Feed Clutch
5. Lower Relay Roller
6. Lower Separation Roller
7. Lower Paper Feed Roller
8. Lower Pick-up Roller
9. Upper Separation Roller
10. Upper Relay Roller
11. Upper Paper Feed Roller
12. Upper Pick-up Roller

2. DETAILED DESCRIPTIONS

2.1 PICK-UP AND SEPARATION ROLLER RELEASE MECHANISM



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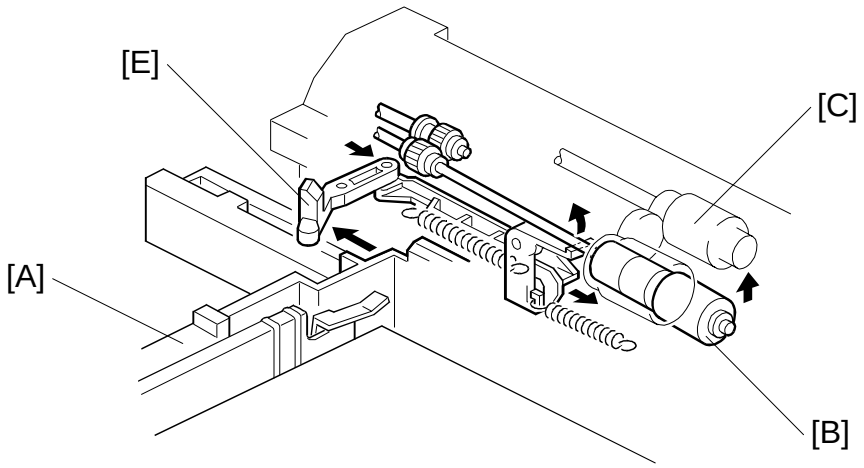

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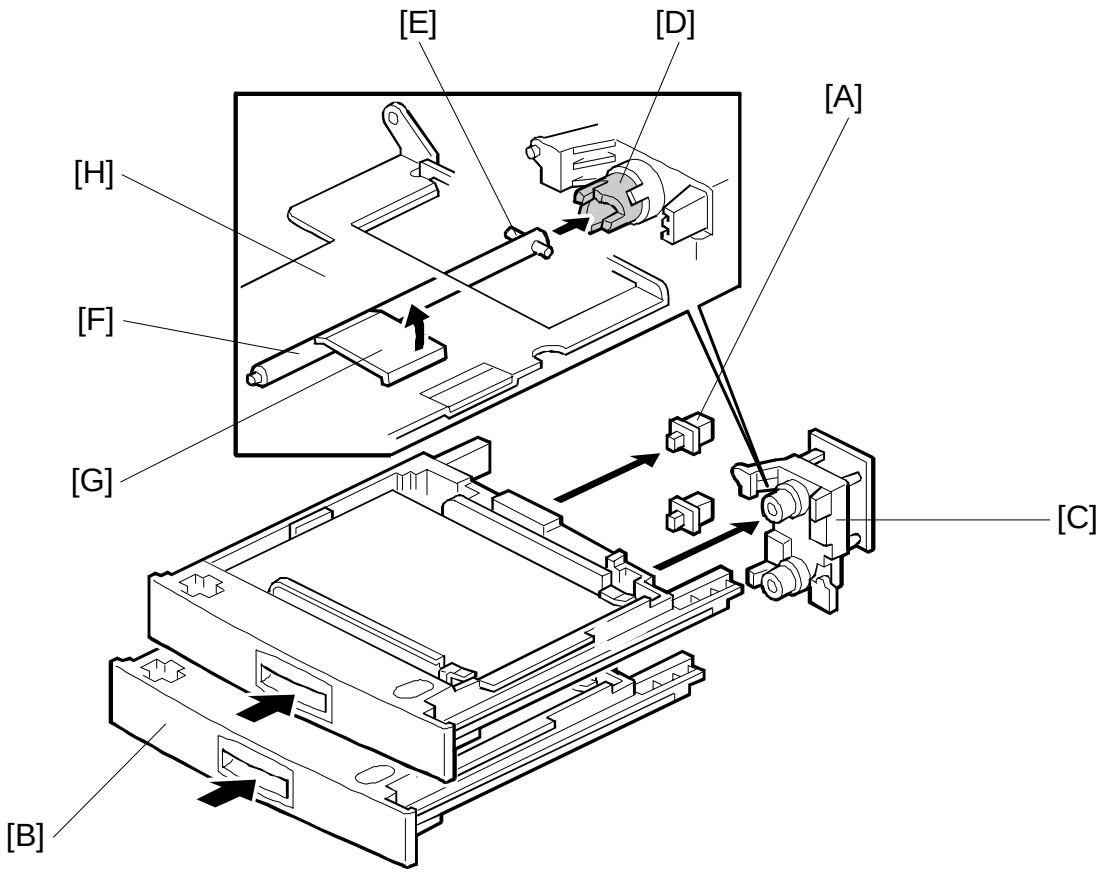
When the paper tray [A] is not inside the paper tray unit, the separation roller [B] is away from the paper feed roller [C], and the pick-up roller [D] stays in the upper position.

When the paper tray is put into the paper tray unit, it pushes the release lever [E]. This causes the pick-up roller to move down (top diagram) and the separation roller to move into contact with the paper feed roller (bottom diagram).

2.2 PAPER LIFT MECHANISM



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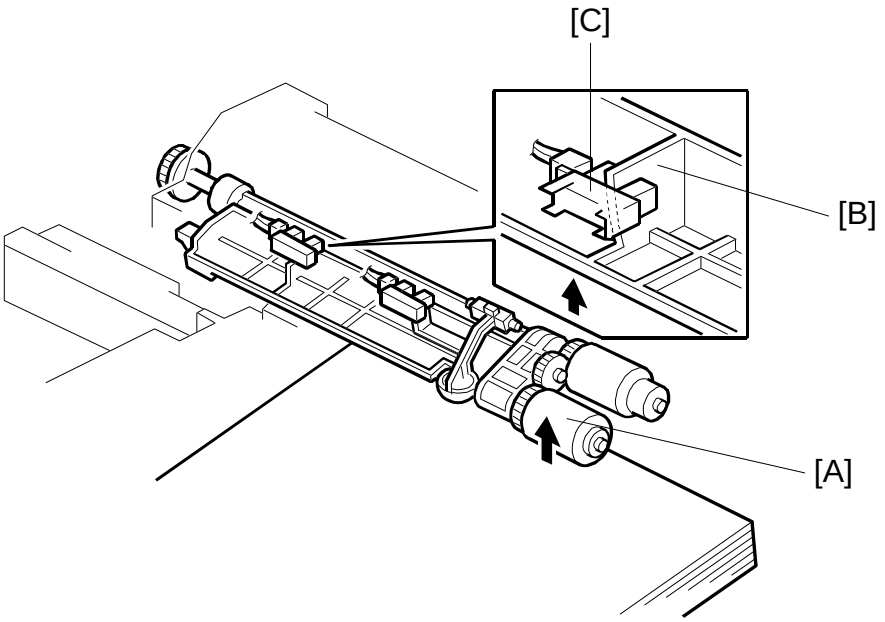
The paper tray switch [A] detects when the paper tray [B] is placed in the machine. When the machine detects that the paper tray is in the machine, the tray lift motor [C] rotates and the coupling gear [D] on the tray lift motor engages the pin [E] on the lift arm shaft [F]. Then the tray lift arm [G] lifts the tray bottom plate [H].



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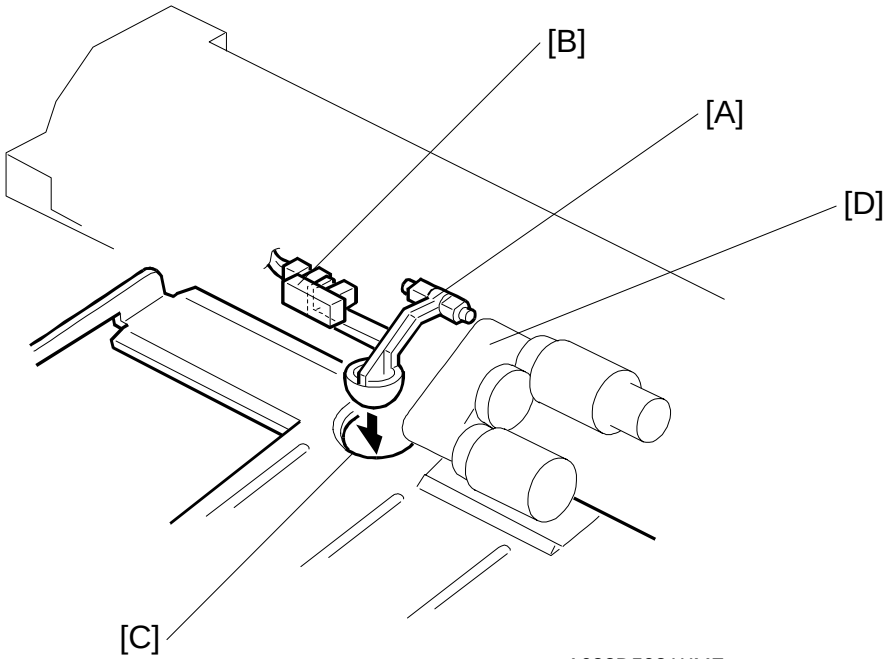
When the paper tray is placed in the machine, the pick-up roller [A] lowers. When the top sheet of paper reaches the proper height for paper feed, the paper pushes up the pick-up roller, and the actuator [B] on the pick-up roller supporter activates the lift sensor [C] to stop the tray lift motor.

After several paper feed cycles, the paper level gradually lowers and the lift sensor is de-activated. The tray lift motor turns on again until this sensor is activated again.

When the tray is drawn out of the machine, the tray lift motor coupling gear disengages the pin on the lift arm shaft, and the tray bottom plate then drops under its own weight.

2.3 PAPER END DETECTION



If there is some paper in the paper tray, the paper end feeler [A] is raised by the paper stack and the paper end sensor [B] is deactivated.

When the paper tray runs out of paper, the paper end feeler drops into the cutout [C] in the tray bottom plate and the paper end sensor is activated.

When the paper tray is drawn out, the paper end feeler is lifted up by the pick-up roller supporter [D].

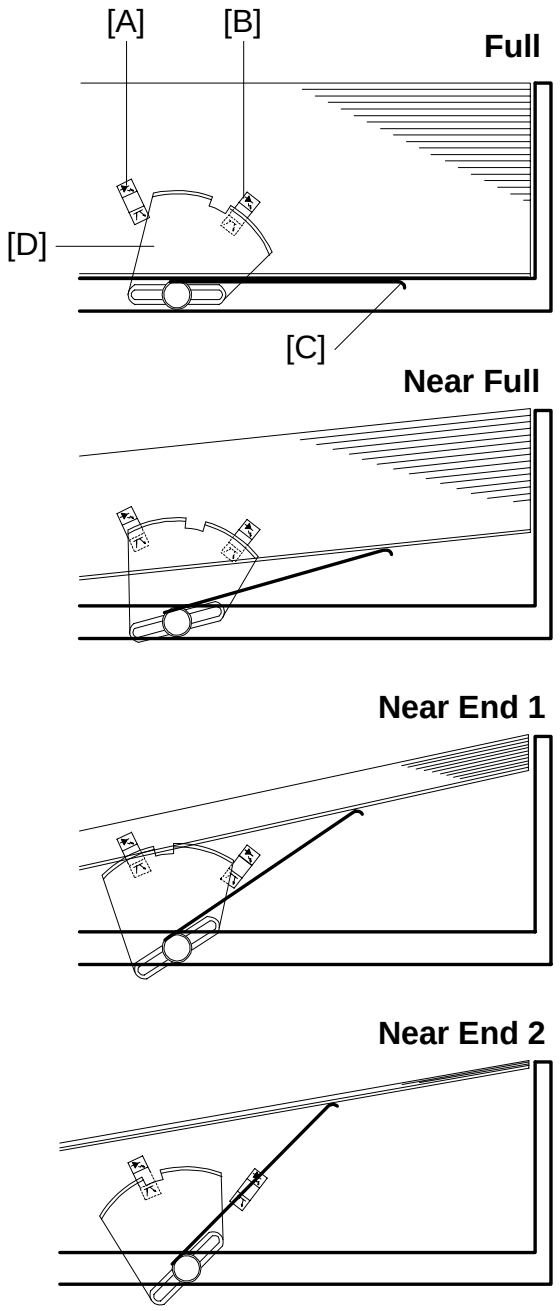
2.4 PAPER HEIGHT DETECTION

The amount of paper in the tray is detected by the combination of two paper height sensors [A] and [B].

When the amount of paper decreases, the bottom plate pressure lever [C] moves up and the actuator [D] which is mounted on the same drive shaft as the pressure lever rotates.

The following combination of sensor signals is sent to the copier.

Amount of Paper	Paper Height Sensor 1	Paper Height Sensor 1
Full	OFF	ON
Near Full	ON	ON
Near End 1	ON	OFF
Near End 2	OFF	OFF



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3. SERVICE TABLES

3.1 DIP SWITCHES

DPS101								Description
1	2	3	4	5	6	7	8	
0	0	0	0	0	0	0	0	Default
0	0	0	0	0	0	0	1	Free run, feed from upper tray
0	0	0	0	0	0	1	1	Free run, feed from lower tray
0	0	0	0	0	1	0	1	Free run, feed from upper and lower trays alternately

NOTE: 1) Do not use any other settings.
2) To do the free run, proceed as follows:
1. Remove the paper from the tray (this is because the machine has no jam detection).
2. Set DPS101 for the required free run as shown above.
3. Turn the main power switch off, wait a few seconds, then switch on.
4. Press SW101 to start the free run.
5. To stop the free run, press SW102.

3.2 TEST POINTS

No.	Label	Monitored Signal
TP100	(24 V)	+24 V
TP101	(GND)	Ground
TP103	(TXD)	TXD to the copier
TP104	(RXD)	RXD from the copier
TP105	(5 V)	+5 V
TP106	(GND)	Ground

3.3 SWITCHES

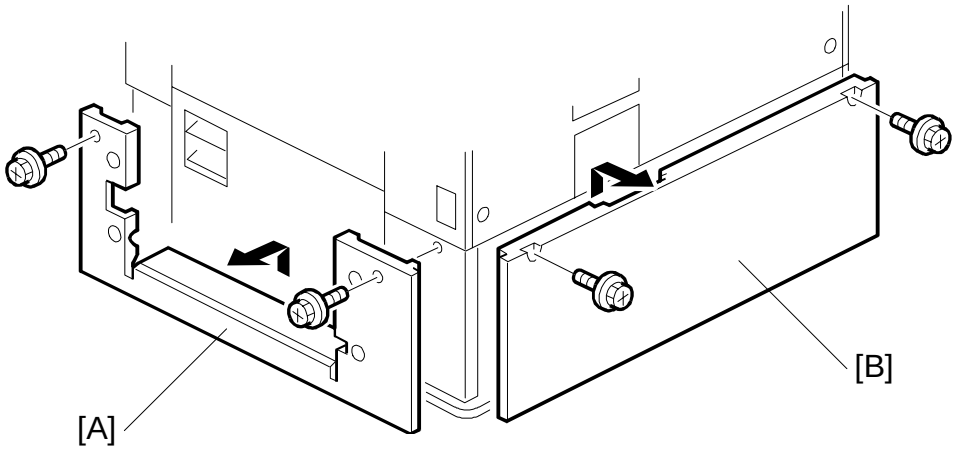
No.	Function
SW101	Starts the free run
SW102	Stops the free run

3.4 FUSES

No.	Function
FU101	Protects the 24 V line.

4. REPLACEMENT AND ADJUSTMENT

4.1 COVER REPLACEMENT



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Right Cover

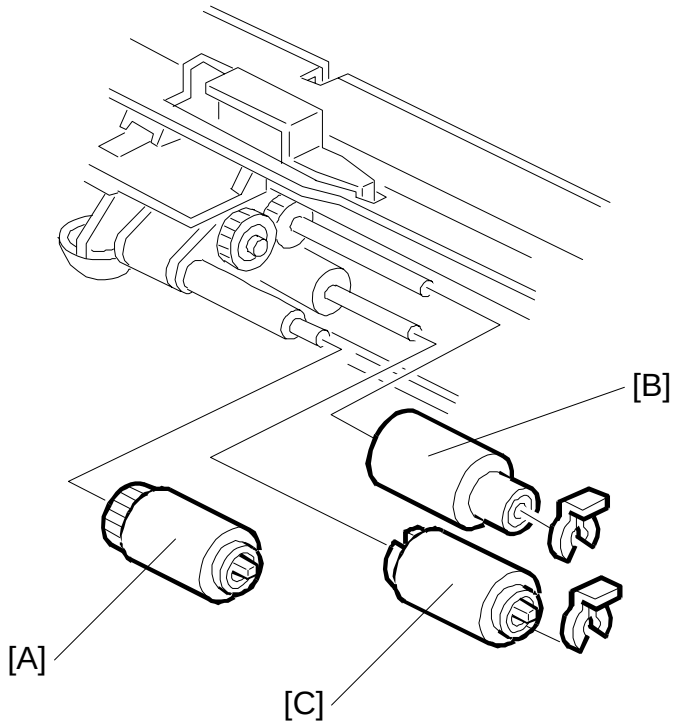
1. Remove the right cover [A] (2 screws).

Rear Cover

1. Remove the rear cover [B] (2 screws).

4.2 ROLLER REPLACEMENT

4.2.1 PAPER FEED, SEPARATION, AND PICK-UP ROLLERS



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1. Remove the paper tray.

Pick-up Roller

2. Replace the pick-up roller [A].

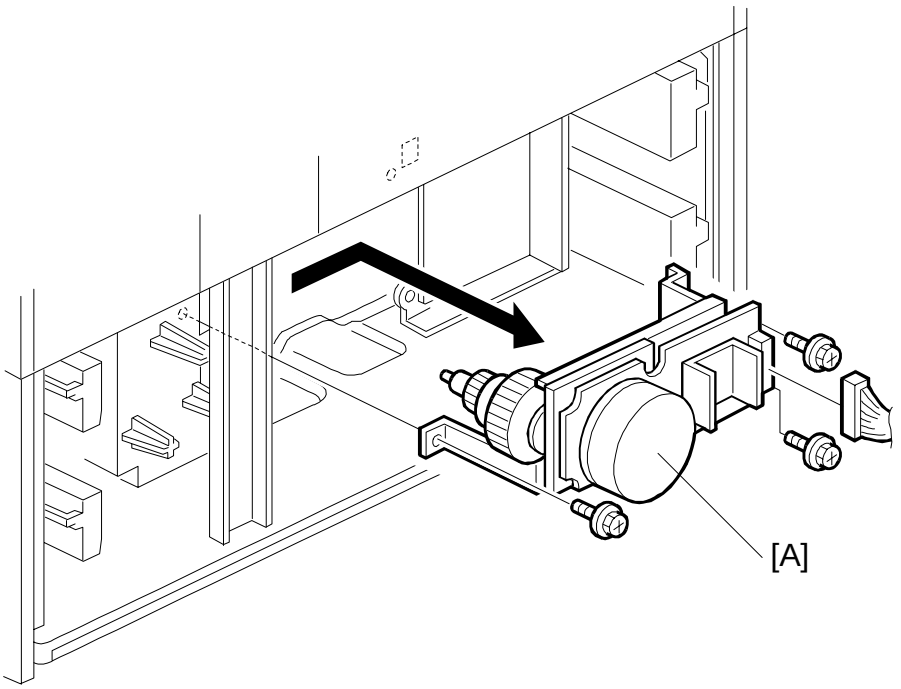
Paper Feed Roller

2. Replace the paper feed roller [B] (1 snap ring).

Separation Roller

2. Replace the separation roller [C].

4.3 TRAY MOTOR REPLACEMENT



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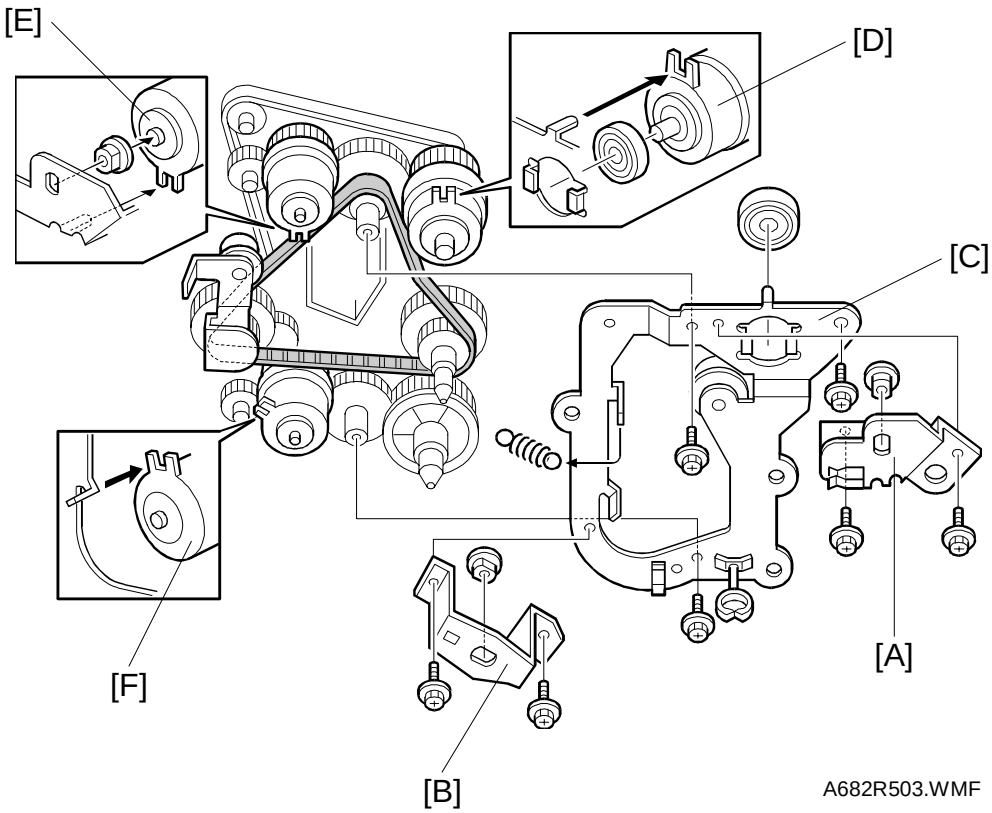
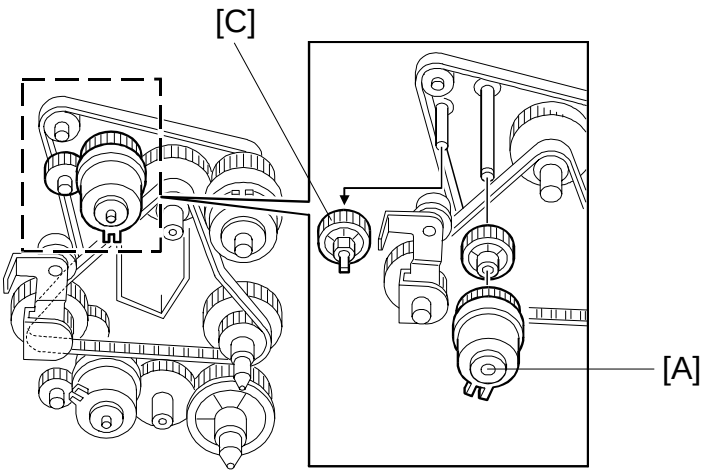
1. Remove the rear cover.
2. Remove the tray motor [A] (1 connector, 3 screws).

4.4 PAPER FEED AND RELAY CLUTCH REPLACEMENT



1. Remove the rear cover.
2. Remove the upper paper feed clutch holder [A] (2 screws).
3. Remove the lower paper feed clutch holder [B] (2 screws).
4. Remove the gear holder [C] (3 screws, 1 spring, 1 bearing).
5. Replace the relay clutch [D] (1 connector).
6. Replace the upper feed clutch [E] (1 bushing, 1 connector).
7. Replace the lower feed clutch [F] (1 connector).

4.5 PAPER FEED UNIT REPLACEMENT



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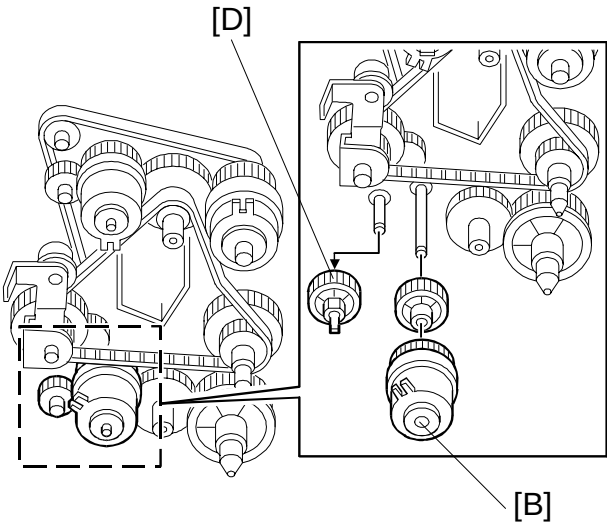

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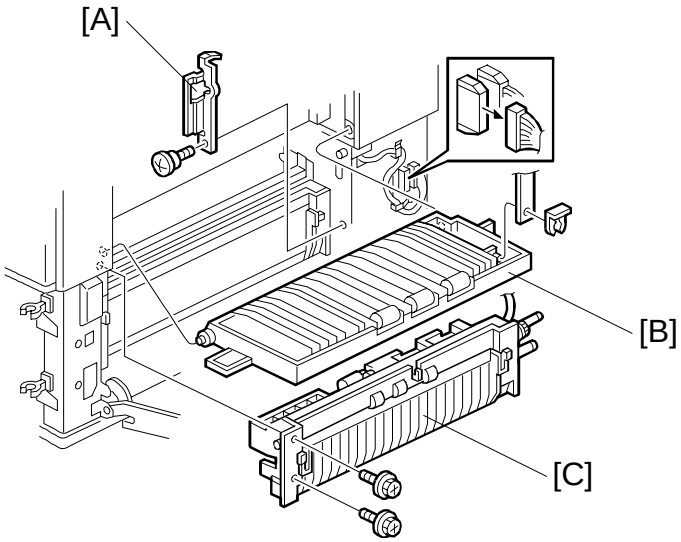
1. Remove the rear cover.
2. Remove the upper and lower paper feed clutch holder.
3. Remove the gear holder.
4. Remove the upper feed clutch [A] or lower feed clutch [B].
5. Remove the upper or lower gear [C, D].



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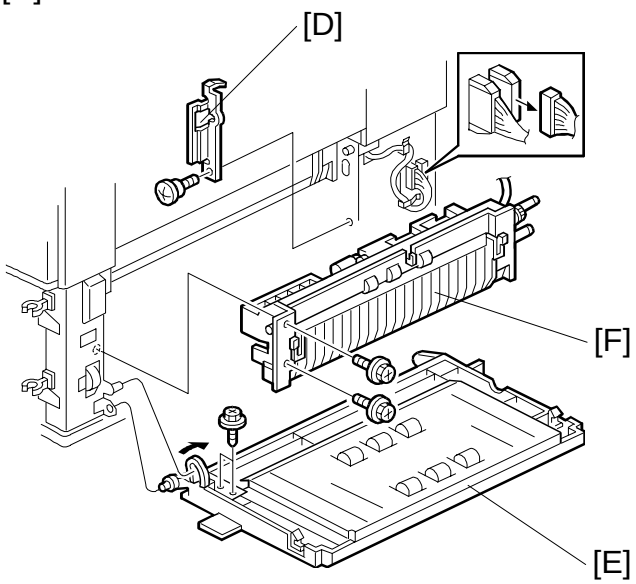

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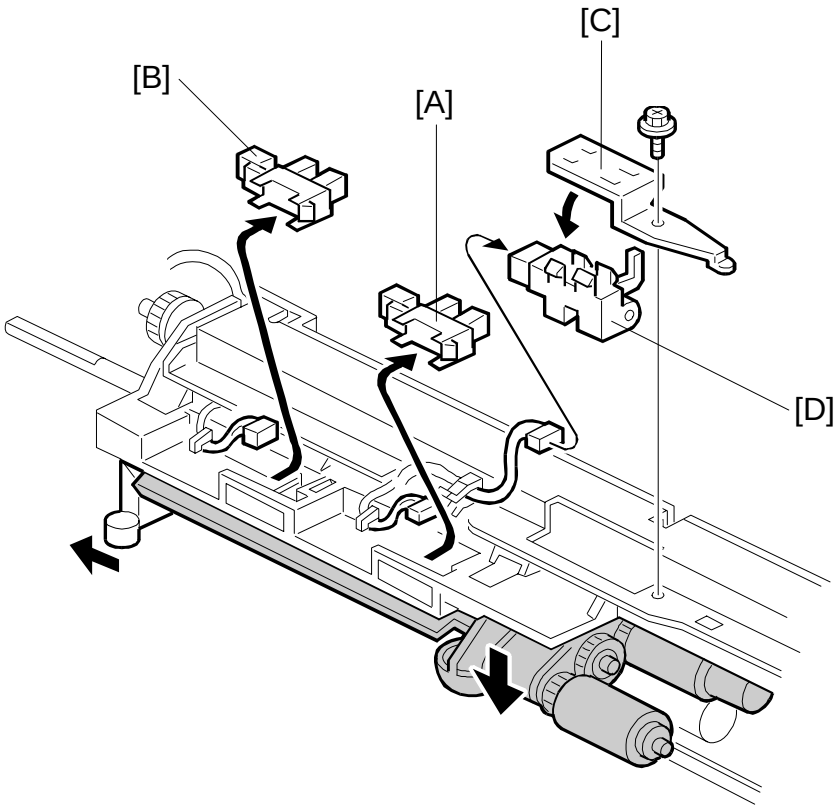
Upper Paper Feed Unit

6. Remove the docking bracket [A] (1 screw).
7. Remove the vertical transport cover [B] of the copier (1 snap ring).
8. Remove the upper paper feed unit [C] (2 screws, 1 connector).

Lower Paper Feed Unit

6. Remove the docking bracket [D] (1 screw).
7. Remove the vertical transport guide [E] (2 screws).
8. Remove the lower paper feed unit [F] (2 screws, 1 connector).

4.6 PAPER END, TRAY LIFT, AND RELAY SENSOR REPLACEMENT



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1. Remove the paper feed unit.

Paper End Sensor

2. Replace the paper end sensor [A] (1 connector).

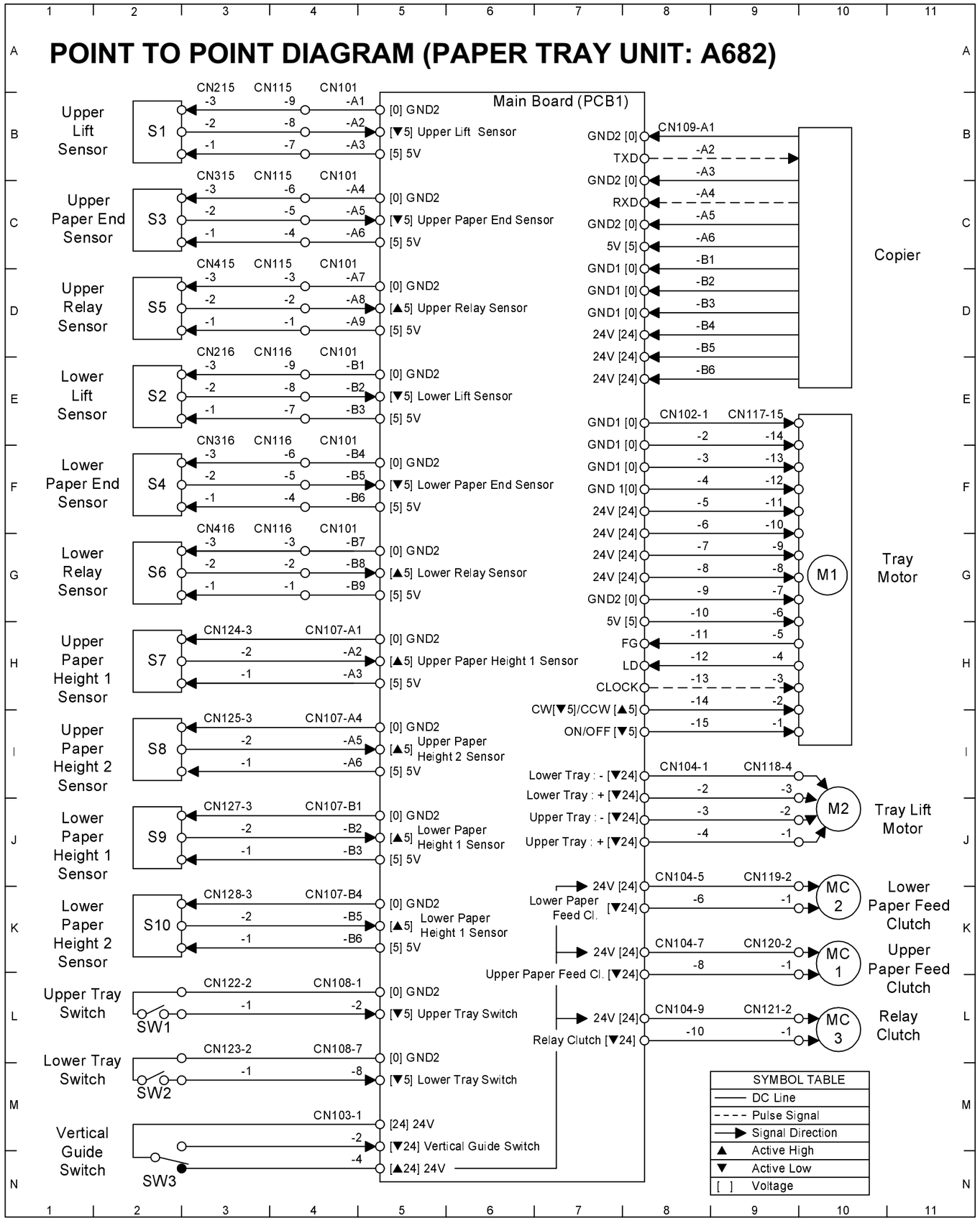
Tray Lift Sensor

2. Replace the tray lift sensor [B] (1 connector).

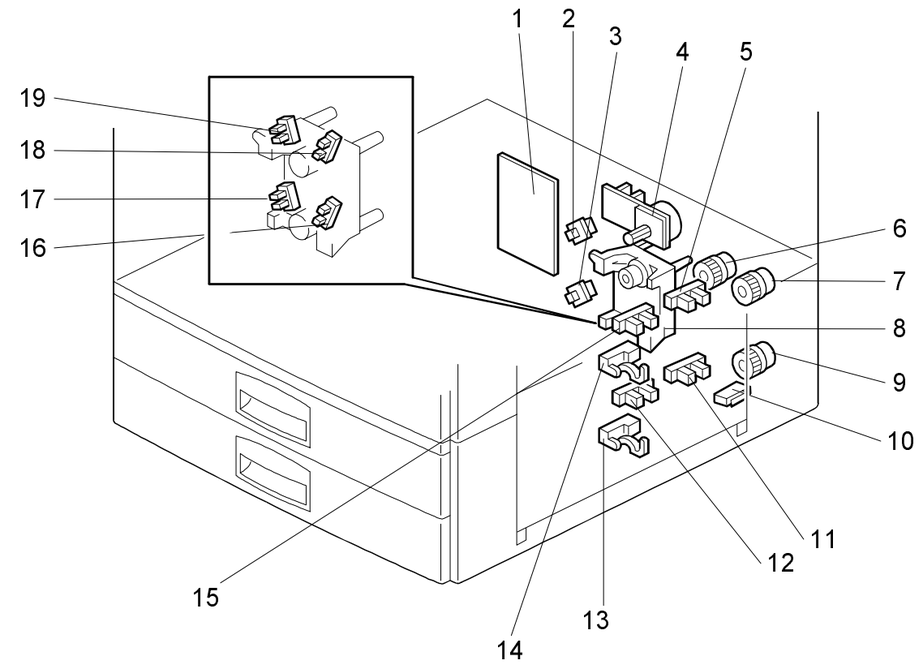
Relay Sensor

2. Remove the sensor bracket [C] (1 screw).
3. Replace the relay sensor [D] (1 connector).

POINT TO POINT DIAGRAM (PAPER TRAY UNIT: A682)



PAPER TRAY UNIT (A682) ELECTRICAL COMPONENT LAYOUT



Symbol	Index No.	Description	P to P
Motors			
M1	4	Tray	G10
M2	8	Tray Lift	J10
Sensors			
S1	5	Upper Lift	B2
S2	11	Lower Lift	E2
S3	15	Upper Paper End	C2
S4	12	Lower Paper End	F2
S5	14	Upper Relay	D2
S6	13	Lower Relay	G2
S7	17	Upper Paper Height 1	J2
S8	16	Upper Paper Height 2	K2
S9	19	Lower Paper Height 1	H2
S10	18	Lower Paper Height 2	I2
Switches			
SW1	2	Upper Tray	L2
SW2	3	Lower Tray	M2
SW3	10	Vertical Guide	M2
Magnetic Clutches			
MC1	7	Upper Paper Feed	K10
MC2	9	Lower Paper Feed	K10
MC3	6	Relay	L10
PCB			
PCB1	1	Main	B6