

AUTO REVERSE DOCUMENT FEEDER (A661)

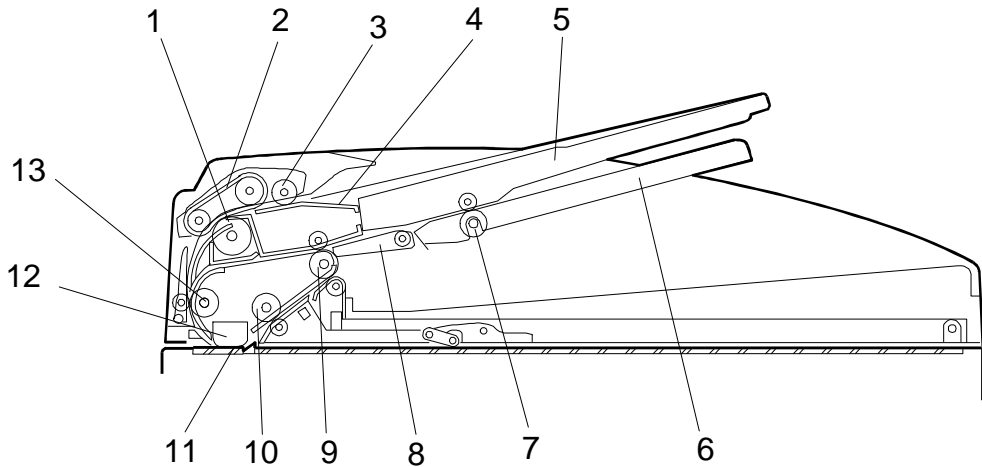


1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Original Size:	Standard Size Single-sided Mode: A3 to A5, DLT to HLT Double-sided Mode: A3 to A4, DLT to LT Non-standard Size (Single-sided Mode only) Max. width 297 mm Min. width 105 mm Max. length 1260 mm Min. length 128 mm
Original Weight :	45 kg to 90 kg
Table Capacity :	30 sheets (70 kg)
Original Standard Position:	Rear left corner
Separation:	FRR
Original Transport:	Roller transport
Original Feed Order:	From the top original
Reproduction Range:	37 to 150%
Power Source:	24 & 5 Vdc from the copier
Power Consumption:	50 W
Dimensions (W x D x H):	550 x 470 x 130 mm
Weight:	11 kg

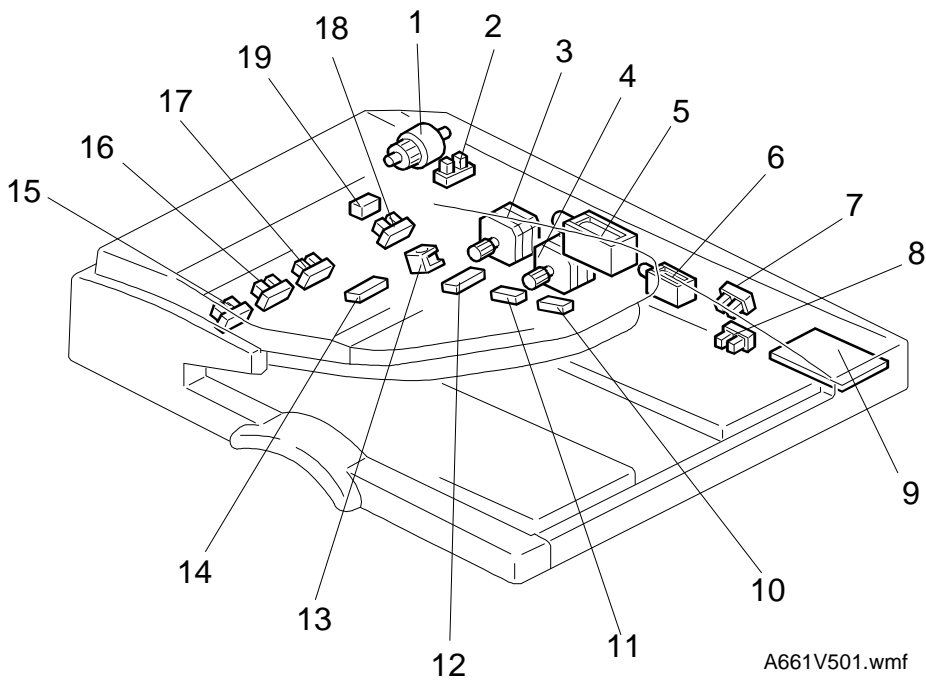
1.2 MECHANICAL COMPONENT LAYOUT



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|----------------------------|-----------------------------|
| 1. Separation Roller | 8. Junction Gate |
| 2. Paper Feed Belt | 9. Original Exit Roller |
| 3. Pick-up Roller | 10. 2nd Transport Roller |
| 4. Original Entrance Guide | 11. DF Exposure Glass |
| 5. Original Table | 12. Original Exposure Guide |
| 6. Reverse Table | 13. 1st Transport Roller |
| 7. Reverse Roller | |

1.3 ELECTRICAL COMPONENT LAYOUT



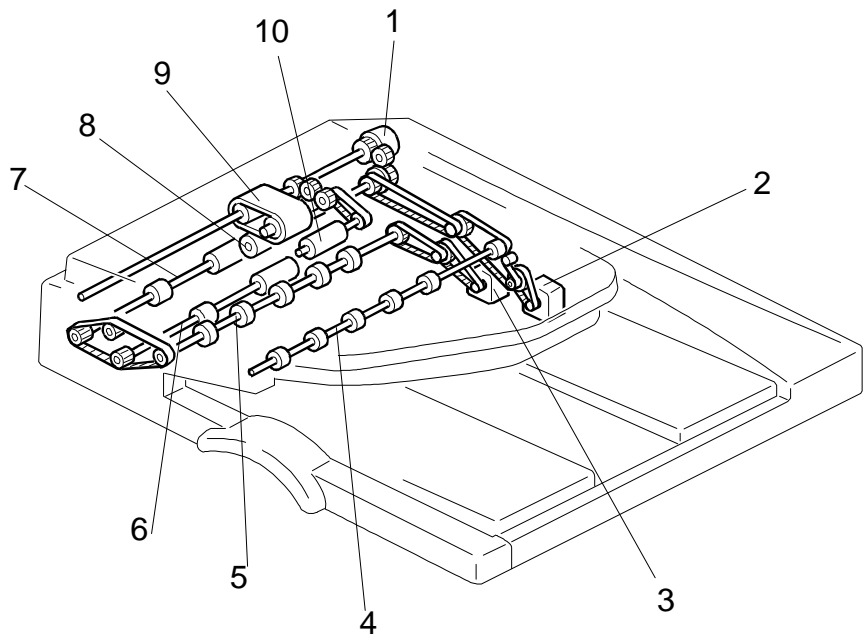
- | | |
|------------------------------|------------------------------|
| 1. DF Feed Clutch | 11. Original Length Sensor 1 |
| 2. Feed Cover Open Sensor | 12. Reverse Table Sensor |
| 3. DF Transport Motor | 13. Stamper Solenoid |
| 4. DF Feed Motor | 14. Original Exit Sensor |
| 5. DF Pick-up Solenoid | 15. Original Width Sensor 3 |
| 6. Junction Gate Solenoid | 16. Original Width Sensor 2 |
| 7. DF Position Sensor | 17. Original Width Sensor 1 |
| 8. APS Start Sensor | 18. Original Set Sensor |
| 9. DF Drive PCB | 19. Registration Sensor |
| 10. Original Length Sensor 2 | |

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Motors			
M1	DF Feed	Drives the feed belt, separation, pick-up, and reverse table rollers.	4
M2	DF Transport	Drives the transport and exit rollers	3
Sensors			
S1	APS Start	Informs the CPU when the DF is opened and closed (for platen mode) so that original size sensors in the copier can check the original size.	8
S2	DF Position	Detects whether the DF is lifted or not.	7
S3	Registration	Detects the leading edge of the original to turn off the DF feed and transport motors, detects the original exposure timing, and checks for original misfeeds.	19
S4	Feed Cover Open Sensor	Detects whether the feed-in cover is opened or not.	2
S5	Original Width - 1	Detects the original width.	17
S6	Original Width - 2	Detects the original width.	16
S7	Original Width - 3	Detects the original width.	15
S8	Original Length - 1	Detects the original length.	11
S9	Original Length - 2	Detects the original length.	10
S10	Original Set	Detects if an original is on the feed table.	18
S11	Original Exit	Detects the leading edge of the original to turn on the junction gate solenoid and checks for original misfeeds. Detects the trailing edge of the original to turn off the transport and feed motor and junction gate solenoid.	14
S12	Reverse Table	Detects the trailing edge of the original to turn on the DF feed clutch for next original and checks for original misfeeds.	12
Solenoids			
SOL1	DF Pick-up	Controls the up-down movement of the original table.	5
SOL2	Stamper	Energizes the stamper to mark the original.	13
SOL3	Junction Gate	Opens and closes the junction gate.	6
Clutches			
MC1	DF Feed	Transfers transport motor drive to the pick-up roller and feed belt.	1
PCBs			
PCB1	DF Drive	Interfaces the sensor signals with the copier, and transfers the magnetic clutch, solenoid and motor drive signals from the copier.	9



1.5 DRIVE LAYOUT

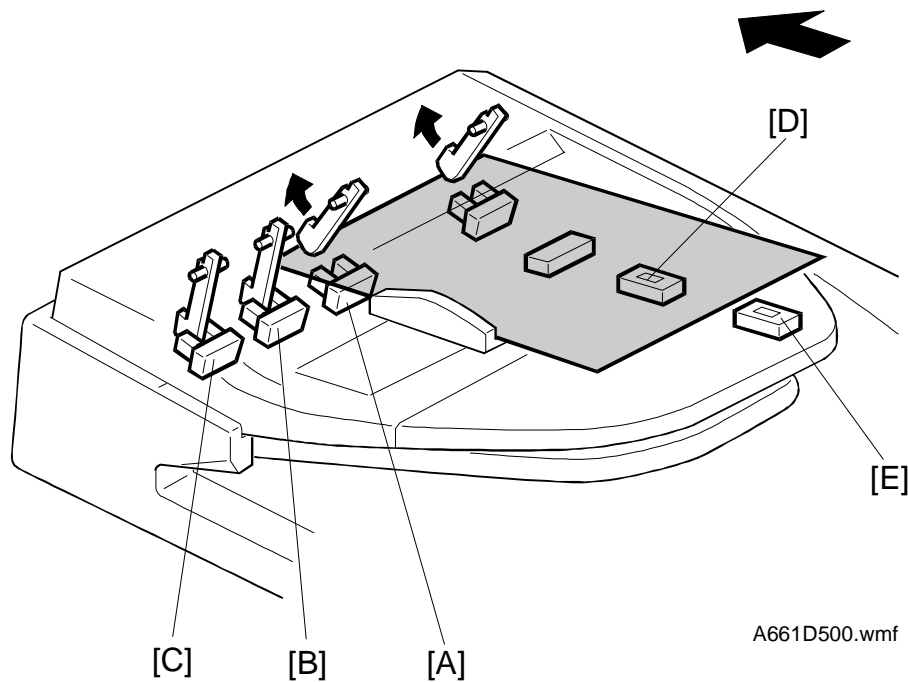


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- | | |
|-------------------------|-------------------------|
| 1. DF Feed Clutch | 6. 2nd Transport Roller |
| 2. DF Feed Motor | 7. 1st Transport Roller |
| 3. DF Transport Motor | 8. Separation Roller |
| 4. Reverse Table Roller | 9. Original Feed Belt |
| 5. Exit Roller | 10. Pick-up Roller |

2. DETAILED DESCRIPTIONS

2.1 ORIGINAL SIZE DETECTION



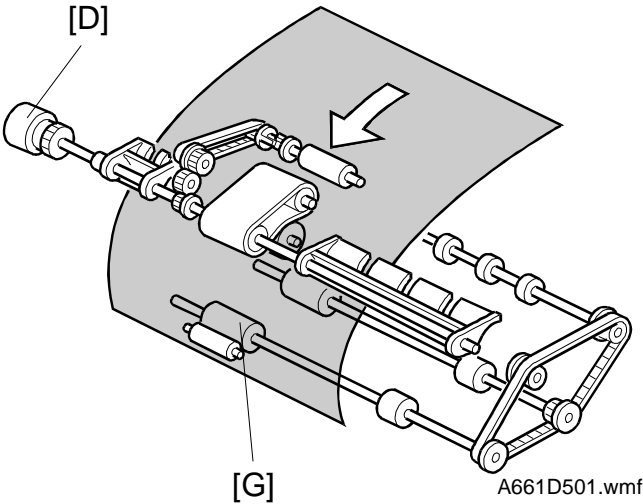
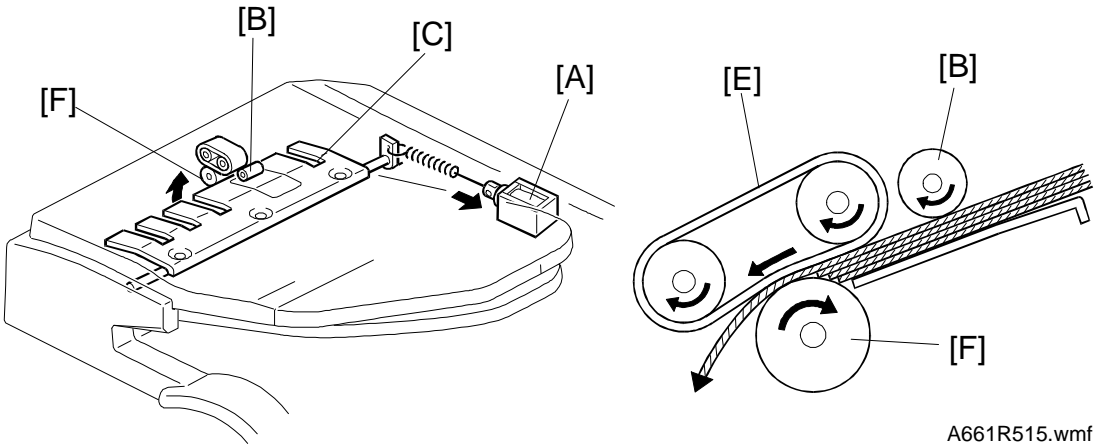
The DF has three width sensors (- 1 [A], - 2 [B], and - 3[C]) to detect the original width and two original length sensors (-1 [D] and -2 [E]) to detect the original length. The DF detects the original size through the combination of those five sensors as shown in the table on the next page.

When using an original of a non-standard size, the user needs to input the original length at the operation panel.

	NA	EU	Original Width-1	Original Width-2	Original Width-3	Original Length-1	Original Length-2
A3 (297 x 420)	X	○	ON	ON	ON	ON	ON
B4 (257 x 364)	X	○	ON	ON	–	ON	ON
A4 (Lengthwise) (210 x 297)	X	○	ON	–	–	ON	–
A4 (297 x 210) (Sideways)	X	○	ON	ON	ON	–	–
B5 (182 x 257) (Lengthwise)	X	○	–	–	–	ON	–
B5 (257 x 182) (Sideways)	X	○	ON	ON	–	–	–
A5 (148 x 210) (Lengthwise)	X	X	–	–	–	–	–
A5 (210 x 148) (Sideways)	X	○	ON	–	–	–	–
11" x 17" (DLT)	○	X	ON	ON	ON	ON	ON
11" x 15"	○	X	ON	ON	ON	ON	ON
10" x 14"	○	X	ON	ON	–	ON	ON
8.5" x 14" (LG)	○	X	ON	–	–	ON	ON
8.5" x 13" (F4)	X	○	ON	–	–	ON	ON
8" x 13" (F)	○	○	ON	–	–	ON	ON
8.5" x 11" (Lengthwise)	○	X	ON	–	–	ON	–
8.5" x 11" (Sideways)	○	X	ON	ON	ON	–	–
10" x 8" (Lengthwise)	○	X	ON	–	–	ON	–
5.5" x 8.5" (Lengthwise) (HLT)	○	X	–	–	–	–	–
5.5" x 8.5" (Sideways) (HLT)	○	X	ON	–	–	–	–

Key
X: No, ○: Yes
ON: Paper present

2.2 PICK-OFF AND SEPARATION MECHANISM

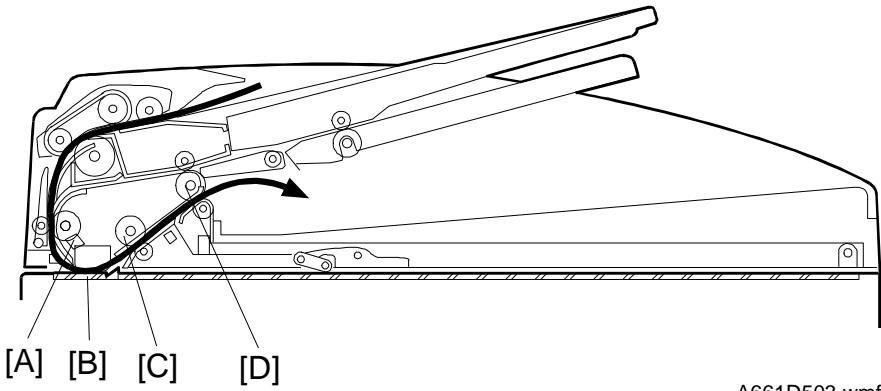


When the print key is pressed, the DF pick-up solenoid [A] turns on and the originals are lifted up to the pick-up roller [B] by the entrance guide [C]. At the same time, the DF feed clutch [D] turns on.

At 200 ms after this, the DF feed motor turns on. The original is fed to the paper feed belt [E] from the top page. The pages are separated by the separation roller [F] and the top sheet of the original is fed to the 1st transport roller [G]. The original separation system uses the FRR system.

2.3 ORIGINAL TRANSPORT AND EXIT MECHANISM

2.3.1 Single-sided Original



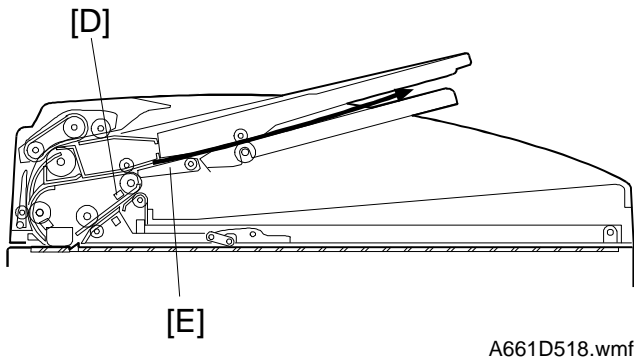
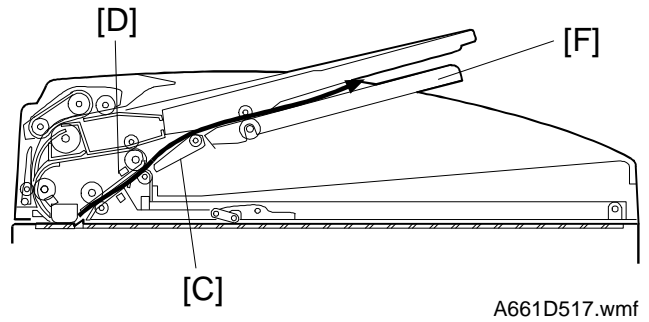
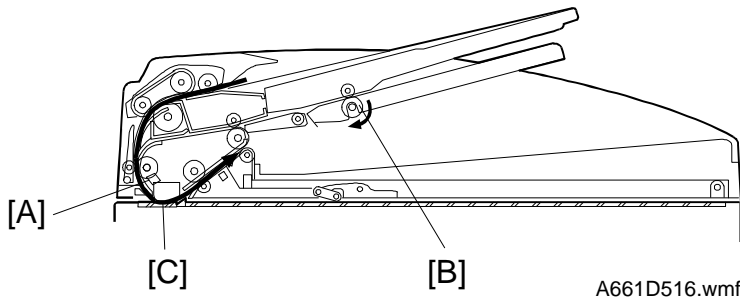
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When the leading edge of the original reaches the registration sensor [A], the DF feed and transport motors turn off. After a short time the DF feed and transport motors turn on again. The original is fed to the DF exposure glass [B] and it is scanned in this area.

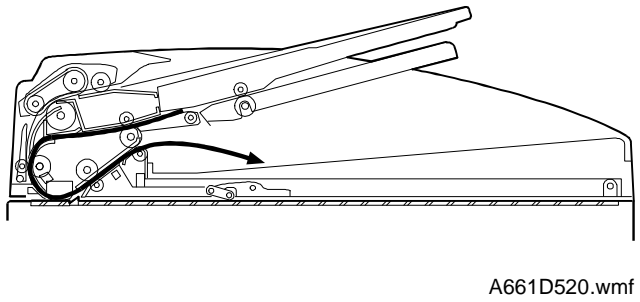
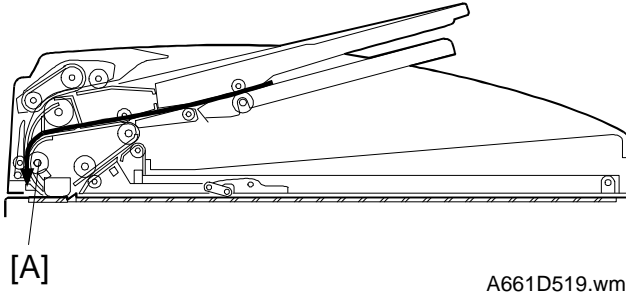
The original is fed through to the 2nd transport roller [C] and fed out by the exit roller [D].

The DF feed motor speed while feeding the original to the registration sensor is 59.4 mm/s. However, when the motor turns on again to feed the original to the exposure glass, the speed depends on the selected reproduction ratio. At 100%, it is 90 mm/s.

2.3.2 Double-sided Original

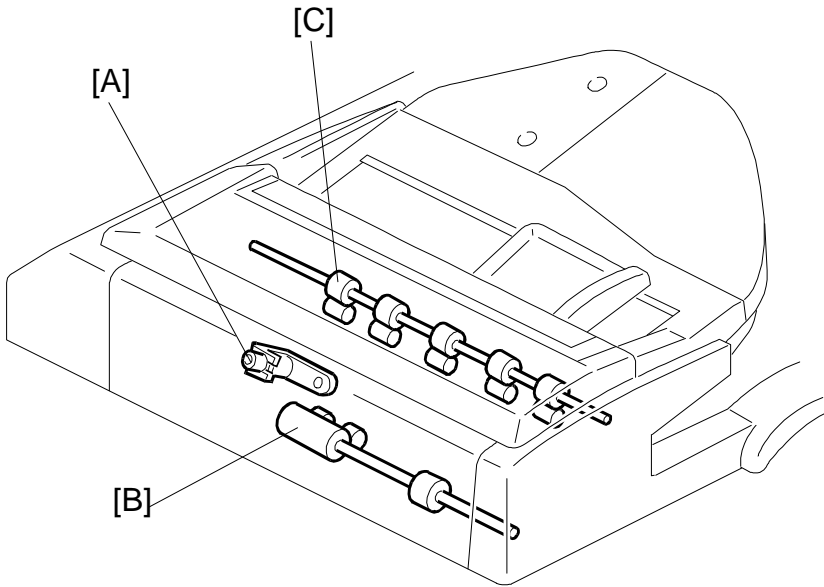


1. When the leading edge of the original reaches the registration sensor [A] the DF feed and transport motors turn off. After a short time, the DF feed motor turns on and the DF transport motor turns on in reverse to drive the reverse table roller [B]. The original is fed to the DF exposure glass [C] and it is scanned in this area.
2. When the leading edge of the original reaches the exit sensor [D], the junction gate solenoid turns on and the junction gate [E] is opened. The original is transported to the reverse table [F] to reverse the original.
3. 33 mm after the trailing edge of the original reaches the exit sensor [D], the junction gate solenoid turns off and the junction gate [E] closes. At the same time, the DF feed and transport motors turn off.



4. After a short time, both motors turn on in the same direction and the original is fed to the 1st transport roller [A].
5. The original is fed and exposed in the same way as in steps 1, 2 and 3, to copy the reverse side.
6. The original is fed out to the original exit tray.

2.4 STAMP



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This function is only for fax mode.

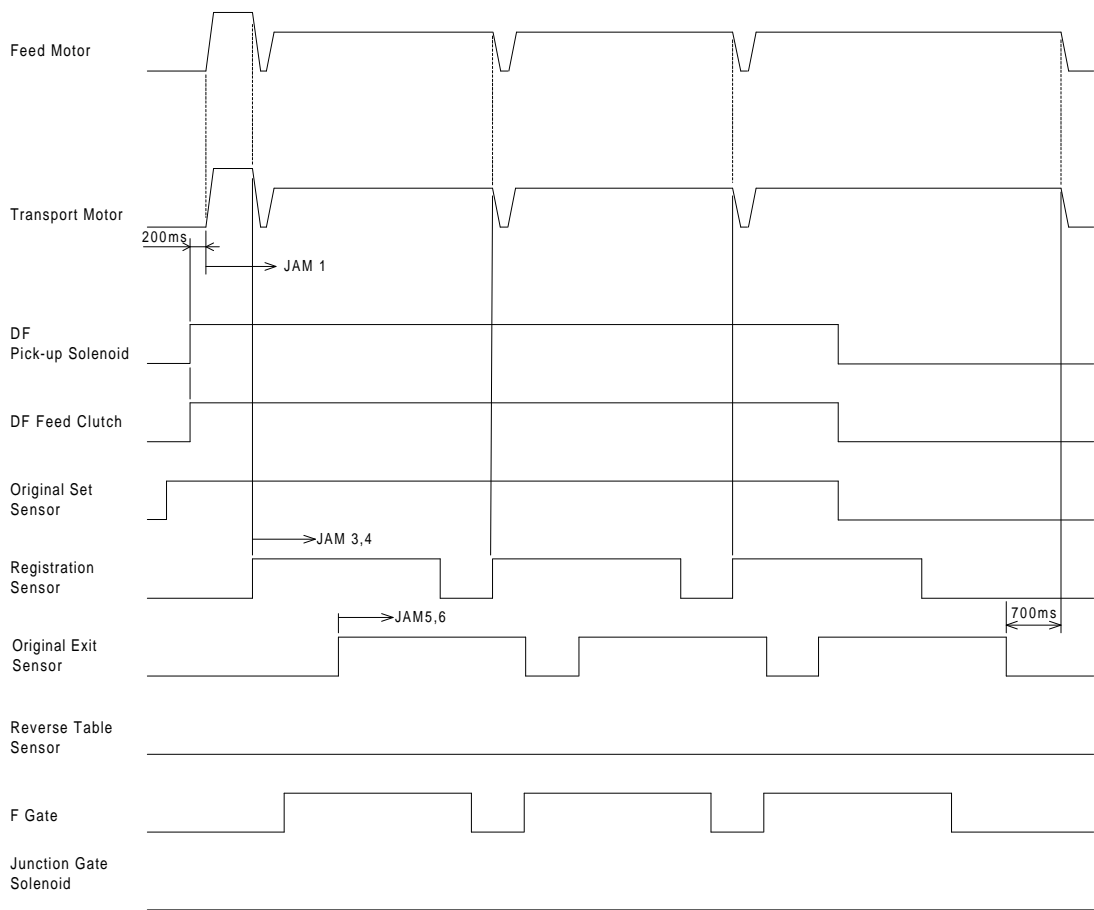
There is a stamp [A] between the 2nd transport roller [B] and the exit roller [C], and its solenoid is controlled by the copier directly.

When the original reaches the stamp position, the DF feed motor stops. At 300 milliseconds after stopping the DF feed motor, the stamper solenoid turns on if the page was sent successfully (immediate transmission) or stored successfully (memory transmission). After stamping, the DF feed motor starts again for feeding out the document, and its speed is about 1.3 times the normal speed.

The stamping position on the original can be changed by adjusting SP6-010.

2.5 TIMING CHARTS

2.5.1 LT Sideways (Single-sided Original Mode)

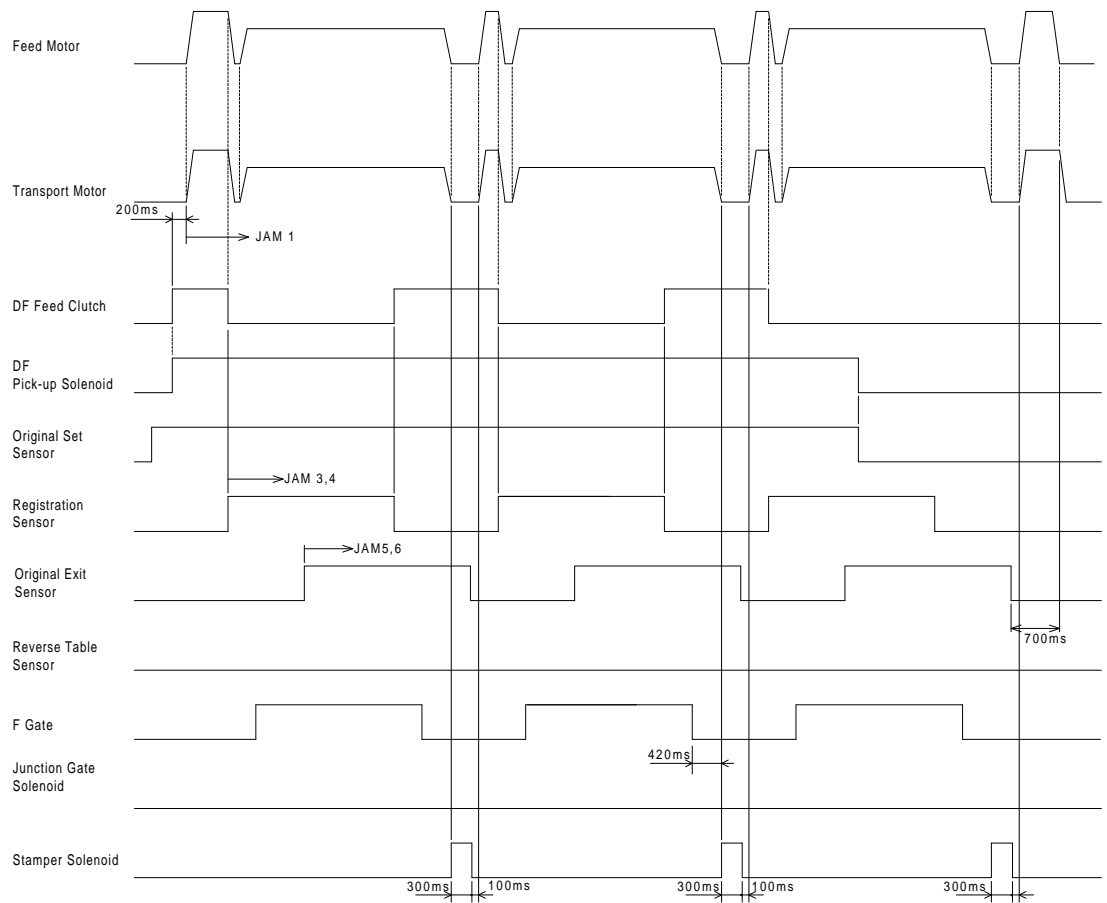


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Jam conditions: Refer to Section 2.6 for details.

F Gate: This signal goes high when the laser starts to write a page to the drum.

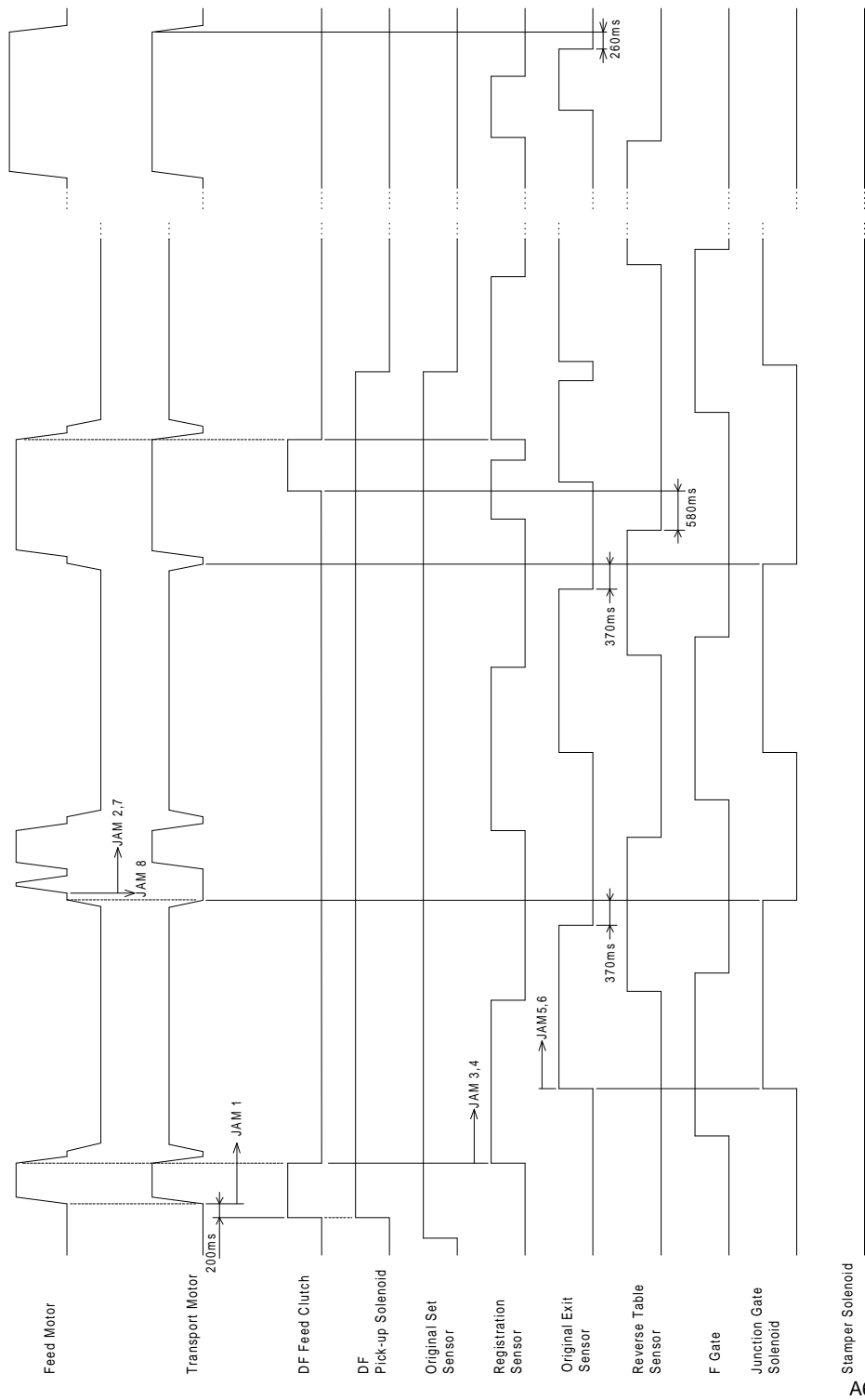
2.5.2 LT Sideways-Stamper Mode (Single-sided Original Mode)



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Jam conditions: Refer to Section 2.6 for details.
F Gate: This signal goes high when the laser starts to write a page to the drum.

2.5.3 LT Sideways (Double-sided Original Mode)

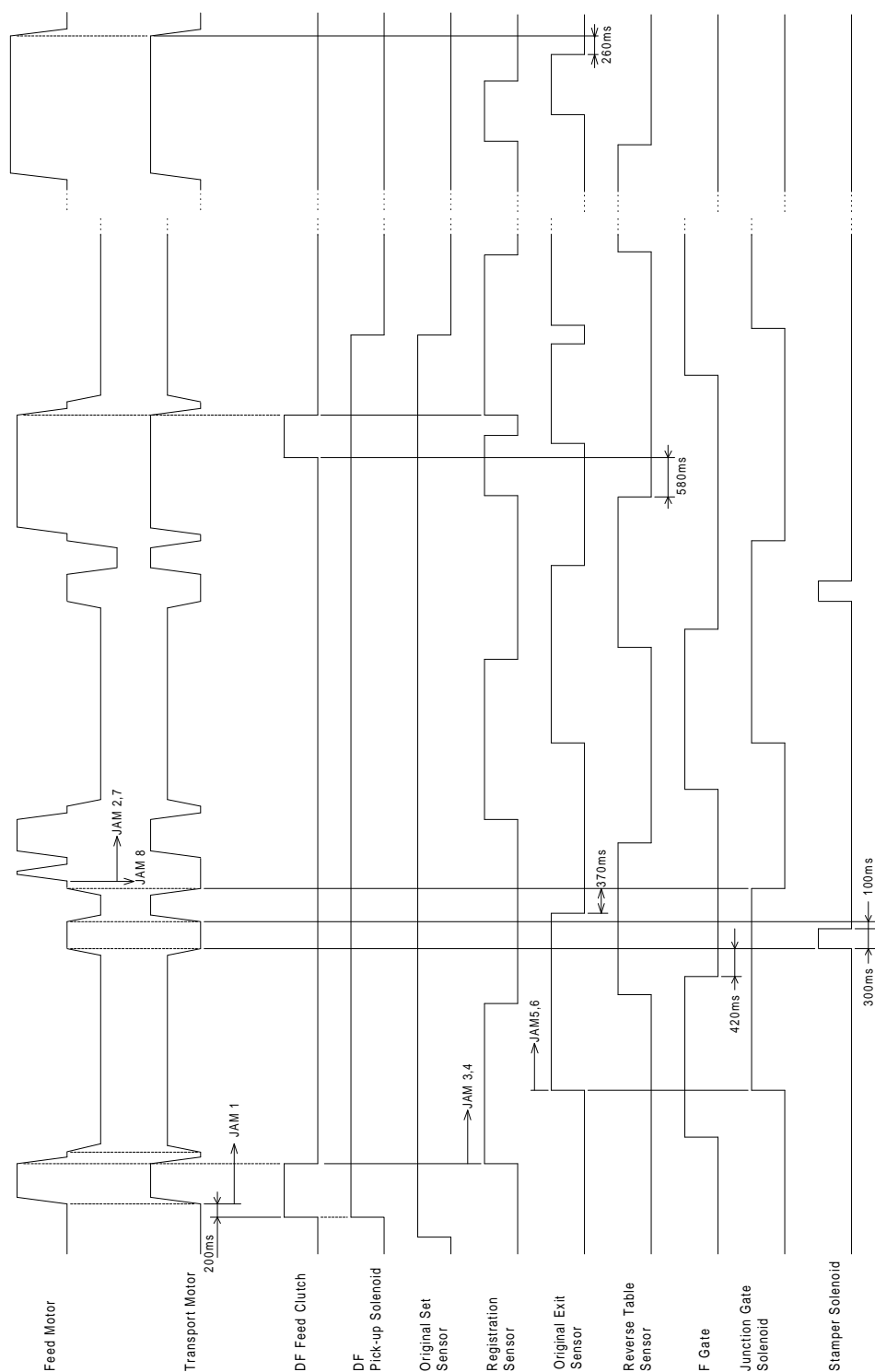


Jam conditions: Refer to Section 2.6 for details.

F Gate: This signal goes high when the laser starts to write a page to the drum.

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2.5.4 LT Sideways-Stamper Mode (Double-sided Original Mode)



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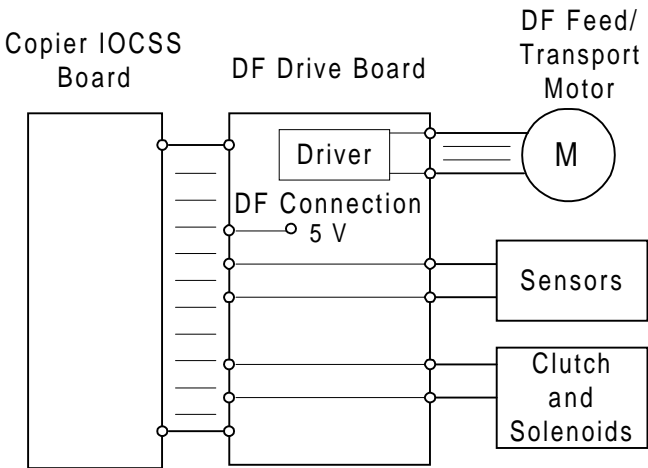
Jam conditions: Refer to Section 2.6 for details.

F Gate: This signal goes high when the laser starts to write a page to the drum.

2.6 JAM DETECTION

- JAM 1:** If the registration sensor does not turn on before the CPU judges that the original was fed 255 mm since the DF feed motor turned on, when the original was fed from the original tray.
- JAM 2:** If the registration sensor does not turn on before the CPU judges that the original was fed 190 mm since the DF feed motor turned on, when the original was fed from the reverse tray.
- JAM 3:** If the registration sensor does not turn off before the CPU judges that the original was fed X1 mm since the registration sensor turned on.
Standard sizes : $X1 = \text{Original Size} \times 1.4$
Non-standard sizes : $X1 = 1765$
- JAM 4:** If the original exit sensor does not turn on before the CPU judges that the original was fed 140 mm since the registration sensor turned on.
- JAM 5:** If the original exit sensor does not turn off before the CPU judges that the original was fed X1 mm since the original exit sensor turned on.
- JAM 6:** If the reverse table sensor does not turn on before the CPU judges that the original was fed 180 mm since the original exit sensor turned on.
- JAM 7:** If the reverse table sensor does not turn off before the CPU judges that the original was fed X2 mm since the DF feed motor turned on again.
 $X2 = \text{Original Size} \times 1.4$
- JAM 8:** If the reverse table sensor is off when the DF feed motor turns on again.

2.7 OVERALL ELECTRICAL CIRCUIT

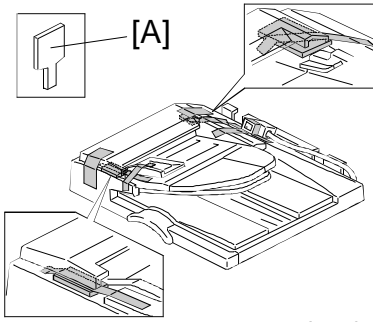


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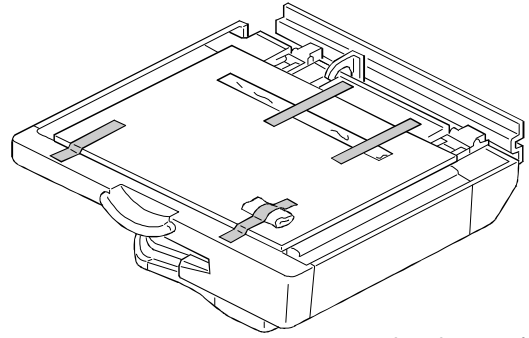
The DF pick-up solenoid, junction gate solenoid, stamper solenoid, and DF feed clutch are directly controlled by the copier through the DF drive board. The sensor signals are directly sent to the copier through the DF drive board. The DF drive board has a driver for the DF feed and transport motors and thier drive signals are sent from the copier.

When the DF connector is connected to the copier IOCSS board, the DF connection signal to the copier goes to 5 V. Then the copier detects that the ARDF is connected.

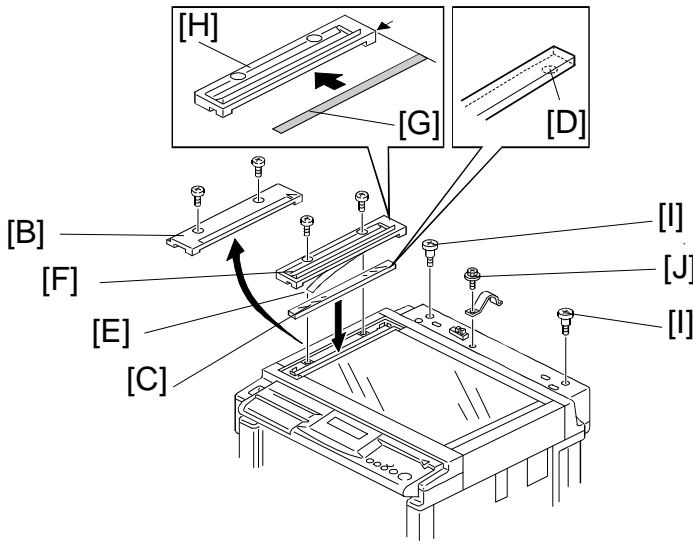
3. INSTALLATION



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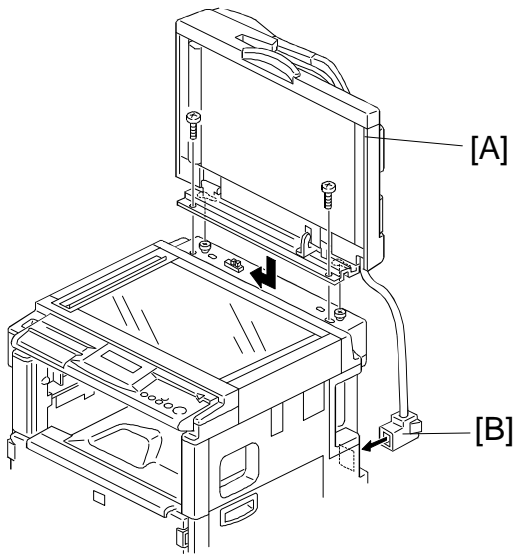
⚠ CAUTION

Unplug the copier power cord before starting the following procedure.

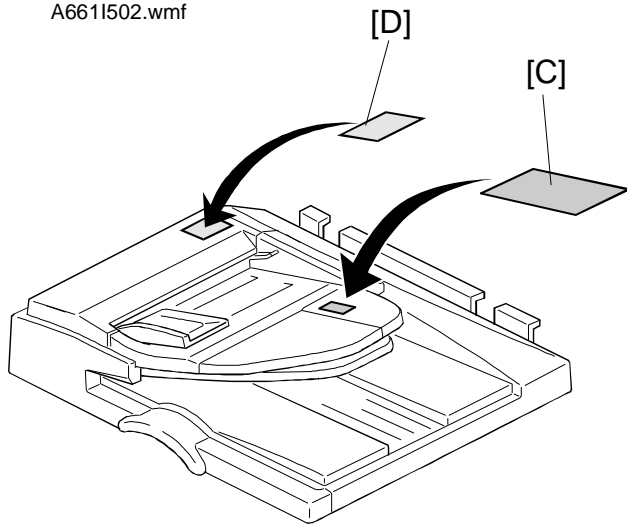
NOTE: When installing the DF, use the tool [A] in the accessory bag or a usual screw driver.

1. Unplug the document feeder. Then, remove all tapes.
2. Remove the left scale [B] (2 screws).
3. Place the DF exposure glass [C] on the glass holder. The white mark [D] must be at the rear side facing down.
4. Peel off the backing [E] of the double side tape attached to the rear side of the scale guide [F], then install the scale guide (2 screws removed in step 2).
5. Affix the original size decal [G] on the scale guide.

NOTE: Place the decal along the rear edge, and the left side flush with the scale paper guide [H], as shown.
6. Install stud screws [I] and grounding plate [J] for the DF on the copier.



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A661I503.wmf

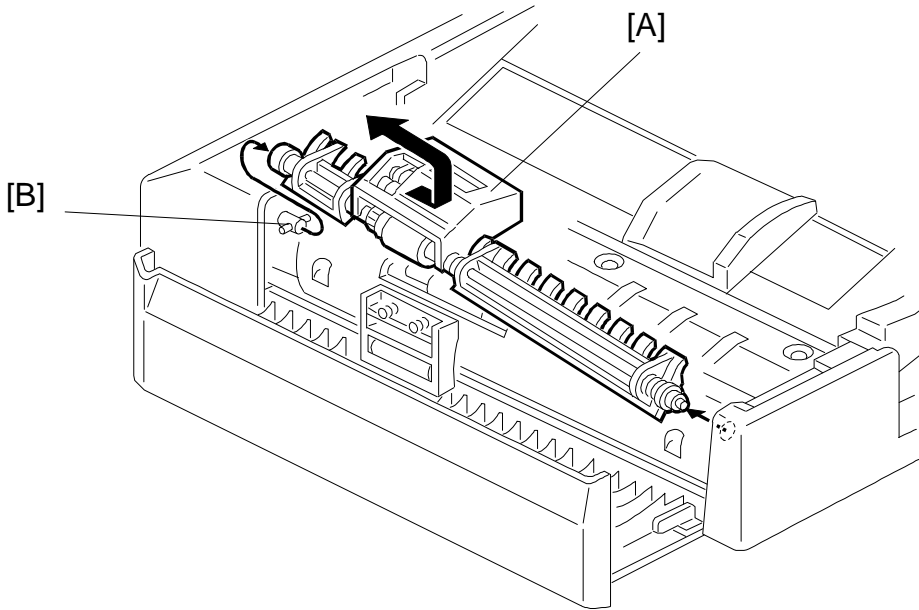
7. Install the DF unit [A].
8. Slide the DF to the left, then secure the DF unit with 2 screws (M4 x 10).
9. Connect the I/F harness [B] to the copier.
10. Affix the original direction decal [C] on the DF table as shown.
11. Affix the glass cleaning decal [D] on the DF cover as shown **if necessary**.
12. Turn the ac and main switches on. Then, check if the document feeder works properly.

4. PREVENTIVE MAINTENANCE

	EM	60K	120K	185K	240K	NOTE
AUTO REVERSE DOCUMENT FEEDER (for originals)						
Transport Belt	C	R	R	R	R	Alcohol
Separation Roller	C	R	R	R	R	Alcohol
Pick-up Roller	C	R	R	R	R	Alcohol
Stamper	I					Replace if necessary
White Plate	C					Alcohol
DF Exposure Glass	C					Alcohol
Platen Cover	C					Alcohol

5. REPLACEMENT AND ADJUSTMENT

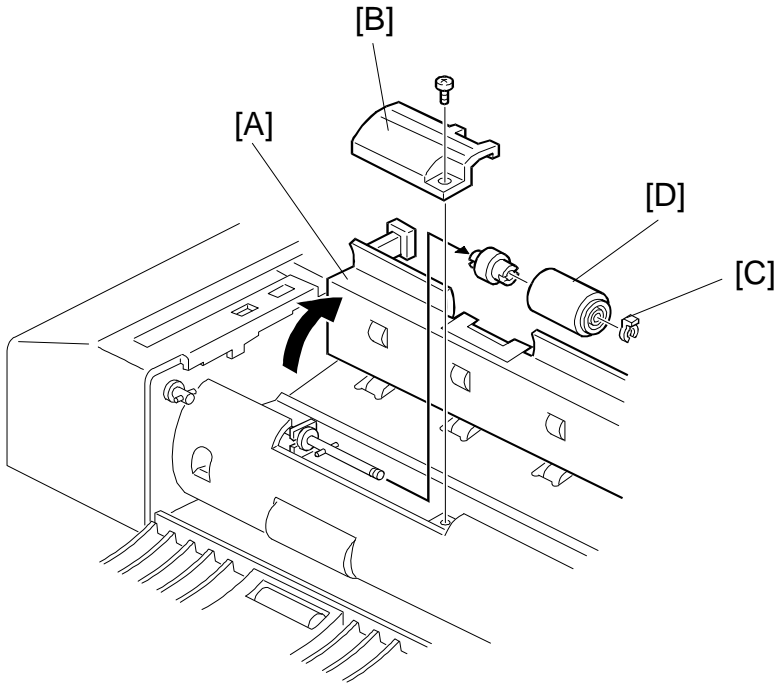
5.1 ORIGINAL FEED UNIT REMOVAL



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1. Open the DF feed cover.
2. Push the original feed unit to the front [A].
3. Release the rear joint of the original feed unit [B].
4. Remove the original feed unit.

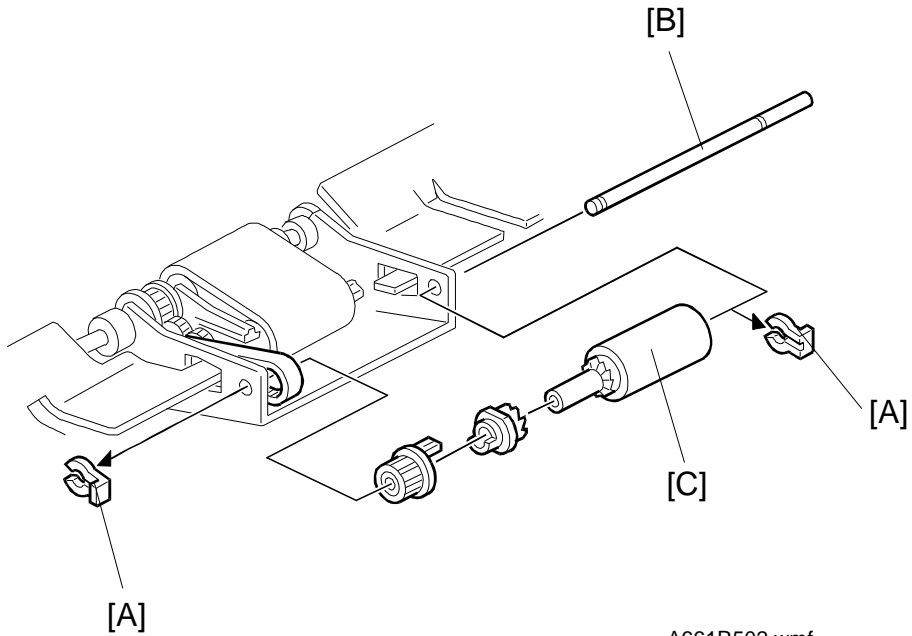
5.2 SEPARATION ROLLER REPLACEMENT



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1. Remove the original feed unit.
2. Open the entrance guide [A].
3. Remove the support guide [B] (1 screw).
4. Remove the snap ring [C].
5. Replace the separation roller [D].

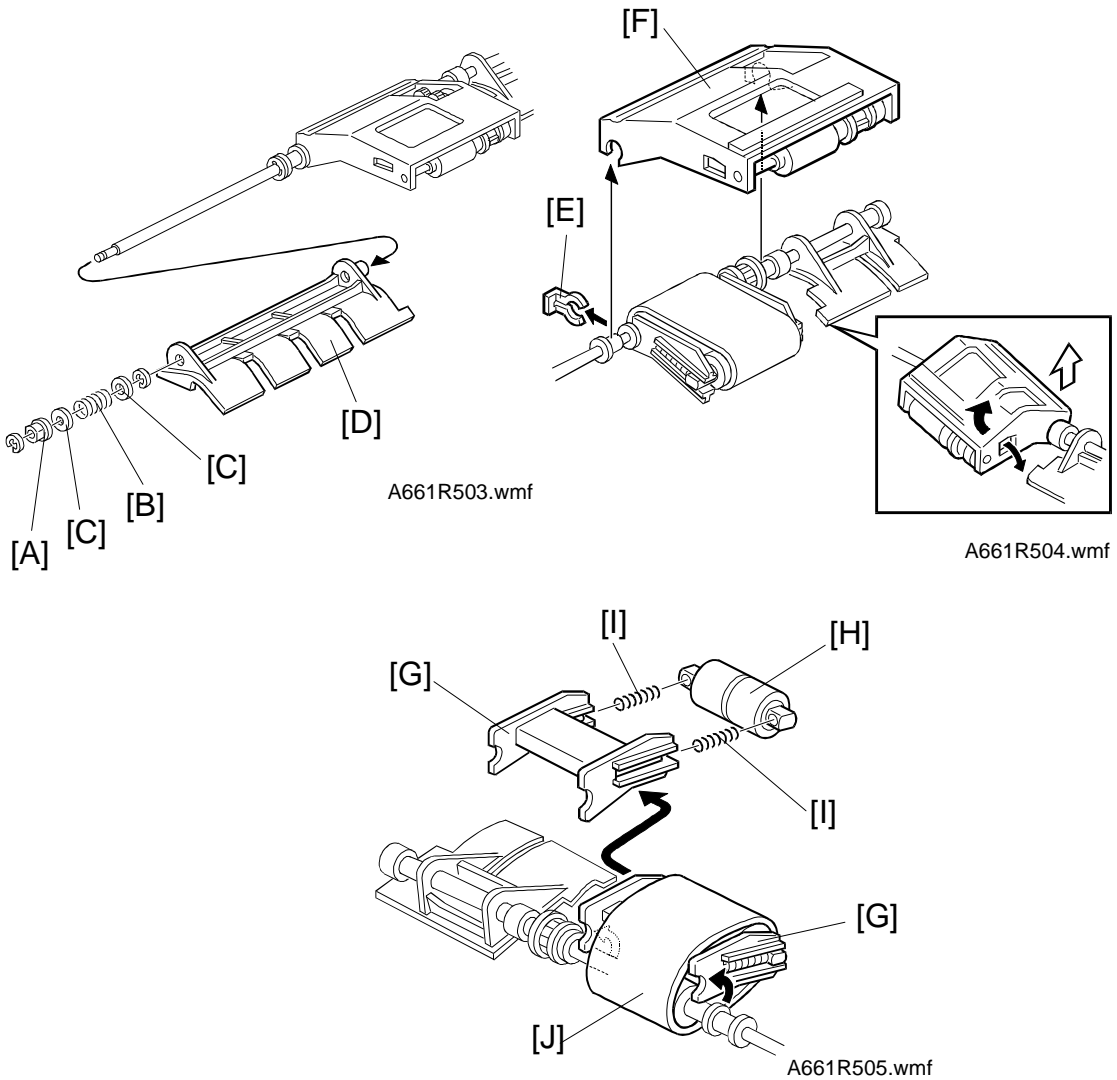
5.3 PICK-UP ROLLER REPLACEMENT



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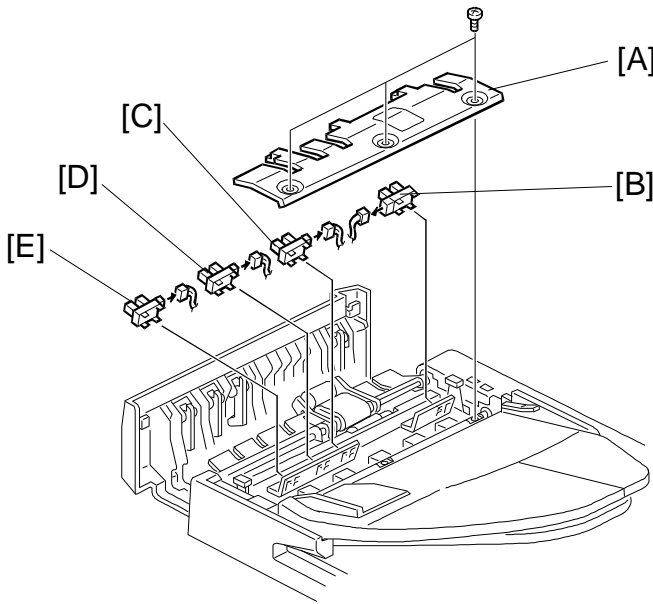
1. Remove the original feed unit.
2. Remove the two snap rings [A].
3. Pull out the pick-up roller shaft [B].
4. Replace the pick-up roller [C].

5.4 FEED BELT REPLACEMENT



1. Remove the original feed unit.
2. Remove the front bushing [A], spring [B], and washers [C] (1 E-ring).
3. Remove the original guide [D] (1 E-ring).
4. Remove the snap ring [E] and the pick-up roller unit [F].
5. Release the idle roller holder [G] from the drive roller shaft.
6. Remove the idle roller [H], idle roller holder [G], and 2 springs [I].
7. Replace the feed belt [J].

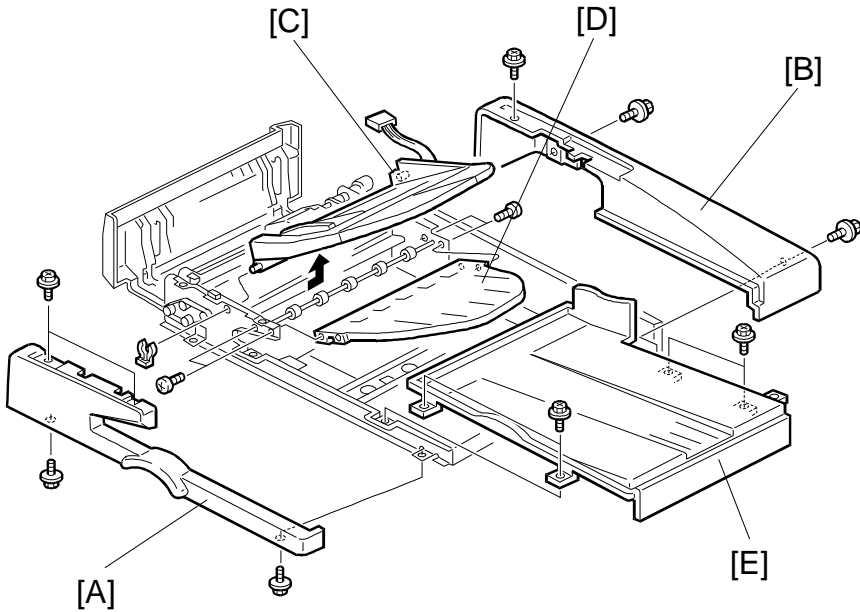
5.5 ORIGINAL SET SENSOR AND WIDTH SENSOR REPLACEMENT



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1. Open the DF feed cover.
2. Remove the entrance guide [A] (3 screws).
3. Replace the following sensors.
 - Original Set Sensor [B]
 - Original Width Sensor 1 [C]
 - Original Width Sensor 2 [D]
 - Original Width Sensor 3 [E]

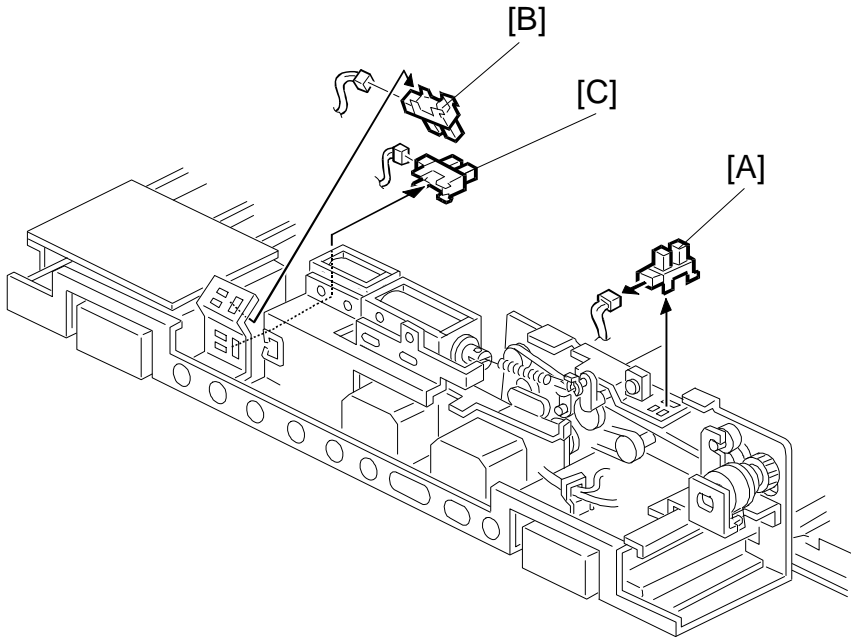
5.6 DF COVER REMOVAL



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1. Open the DF feed cover.
2. Remove the front cover [A] (3 screws).
Remove the rear cover [B] (3 screws).
3. Remove the reverse table [D] (4 screws).
Remove the original table [C] (1 snap ring, 1 connector).
Remove the original exit table [E] (4 screws).

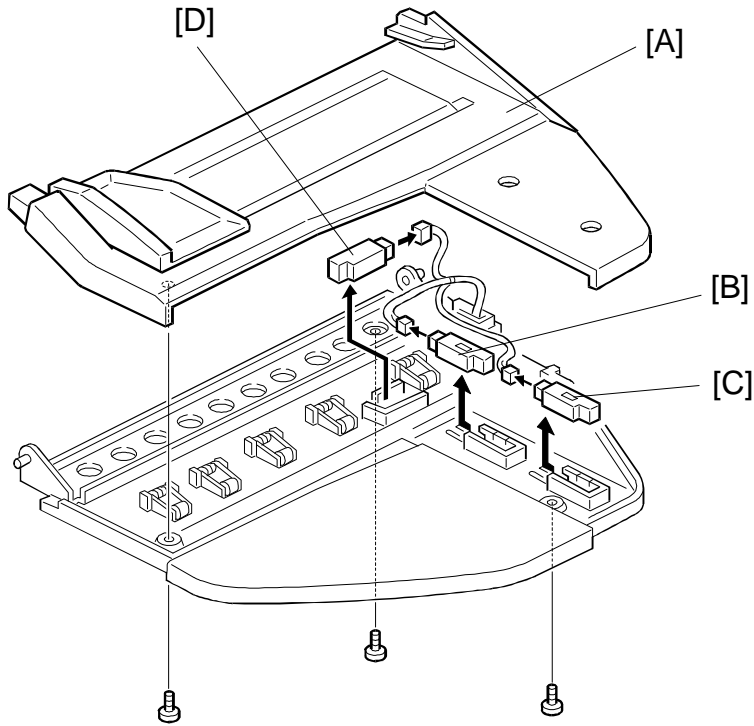
5.7 DF FEED COVER OPEN , DF POSITION, AND APS START SENSOR REPLACEMENT



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1. Remove the rear cover.
2. Replace the following sensors.
 - DF Feed Cover Open Sensor [A].
 - DF Position Sensor [B].
 - APS Start Sensor [C].

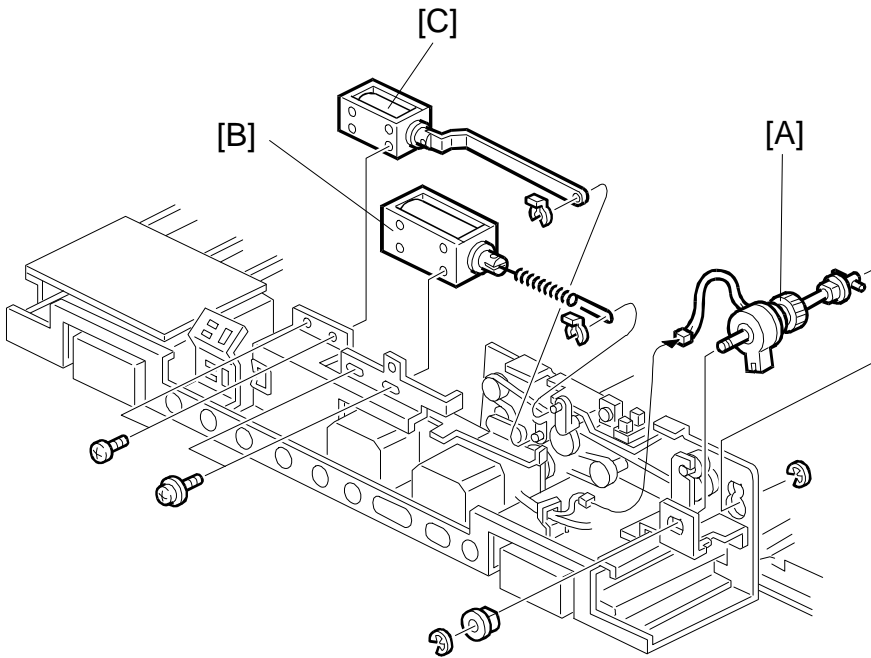
5.8 ORIGINAL LENGTH SENSOR REPLACEMENT



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1. Remove the original table.
2. Remove the original guide [A] (3 screws).
3. Replace the following sensors.
 - Original Length Sensor 1 [B]
 - Original Length Sensor 2 [C]
 - Reverse Table Sensor [D]

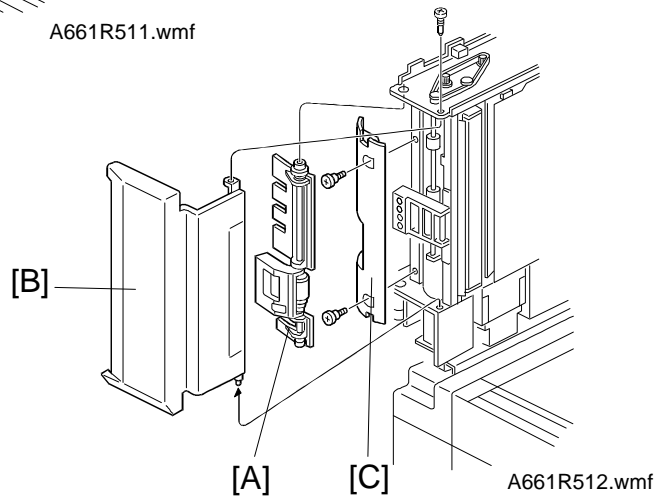
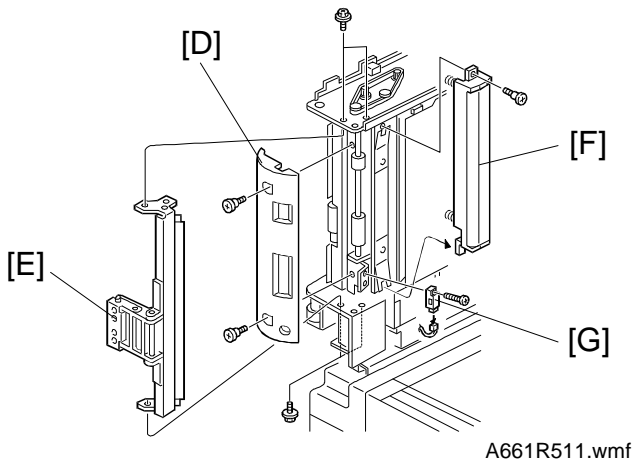
5.9 DF FEED CLUTCH, DF PICK-UP SOLENOID, AND JUNCITON SOLENOID GATE REPLACEMENT



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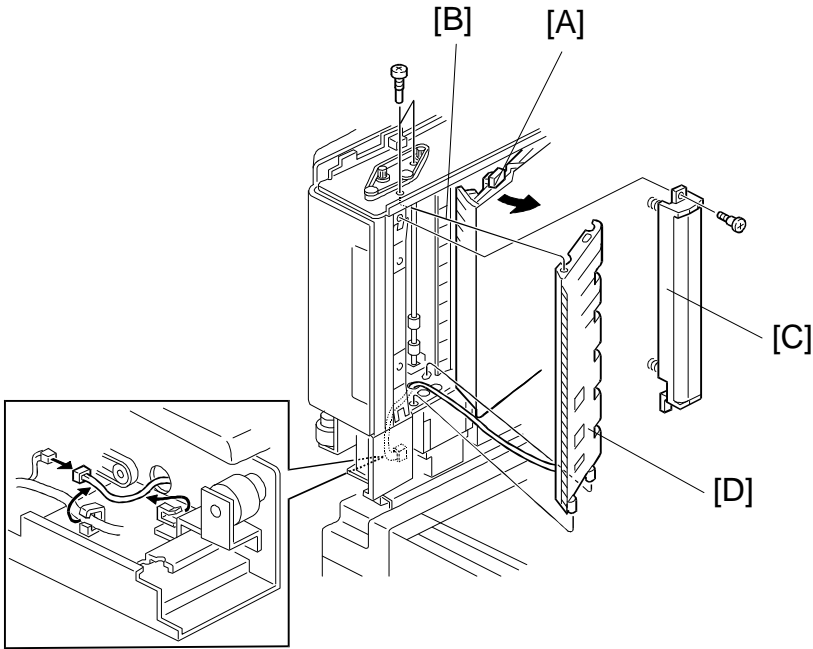
1. Remove the rear cover.
2. Replace the following clutch and solenoids.
 - DF Feed Clutch [A] (2 E-rings, 1 connector)
 - DF Pick-up Solenoid [B] (2 screws, 1 snap ring, 1 connector)
 - Junction Gate Solenoid [C] (2 screws, 1 snap ring, 1 connector)

5.10 REGISTRATION SENSOR REPLACEMENT



1. Remove the front and rear cover.
2. Remove the original feed unit [A].
3. Remove the DF feed cover [B] (1 screw).
4. Remove the upper transport guide [C] (2 screws).
5. Remove the lower transport guide [D] (2 screws).
6. Remove the idle roller unit [E] (4 screws).
7. Remove the original exposure guide [F] (1 screw).
8. Replace the registration sensor [G] (1 screw, 1 connector).

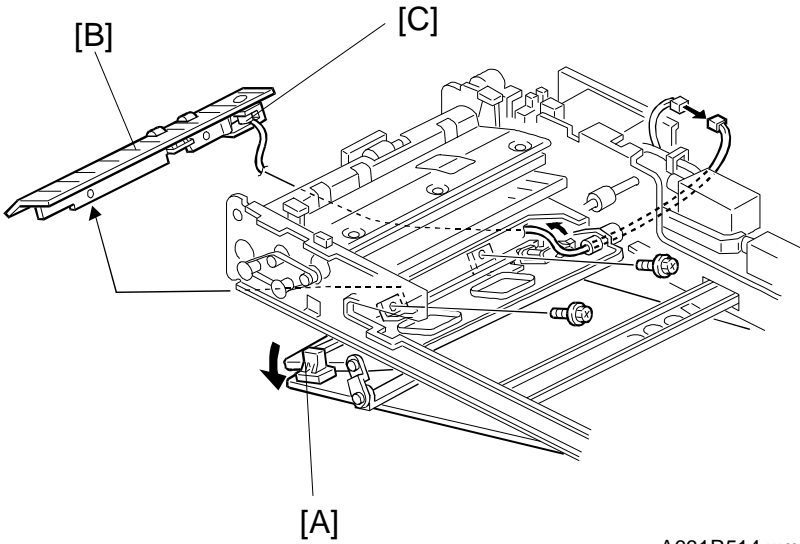
5.11 ORIGINAL EXIT SENSOR REPLACEMENT



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1. Remove the front and rear cover.
2. Release the lever [A] and open the original guide [B].
3. Remove the original exposure guide [C] (1 screw).
4. Remove the upper original guide [D] (4 screws, 1 connector).
5. Replace the original exit sensor from the upper original guide (1 screw, 1 connector).

5.12 STAMPER SOLENOID REPLACEMENT



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1. Remove the front cover, rear cover, original table, reverse table, and original exit tray.
2. Release the lever and open the original guide [A].
3. Remove the lower original guide [B] (2 screws).
4. Replace the stamper solenoid [C] (1 screws, 1 connector).