

**DOCUMENT FEEDER**  
**(DF Type 55)**

---

# 1. SPECIFICATIONS

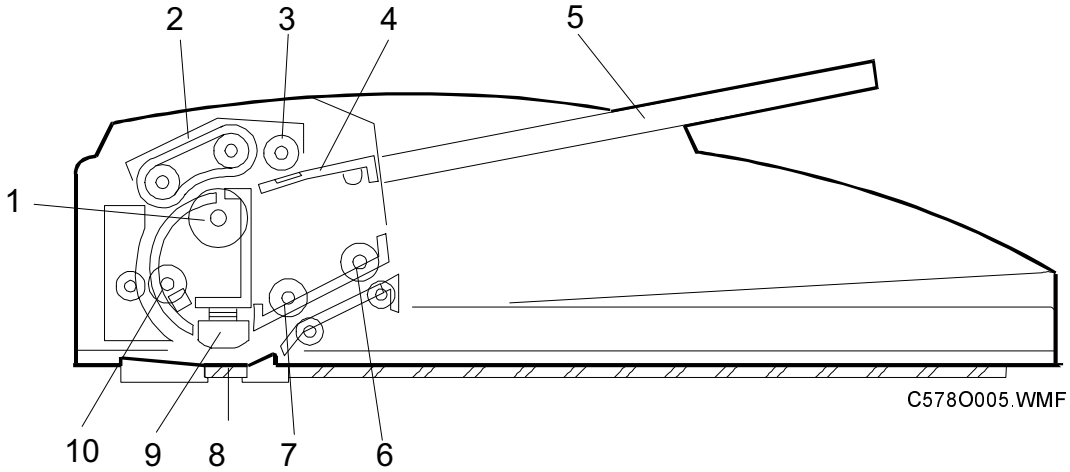
Original Size:	Standard Sizes A3 to A5 Non-standard Sizes Max. width 297 mm Min. width 105 mm Max. length 864 mm Min. length 128 mm
Original Weight :	45 g to 90 g
Table Capacity :	30 sheets (using 20 lb or 80 g/m <sup>2</sup> paper)
Original Standard Position:	Rear left corner
Separation:	FRR
Original Transport:	Roller transport
Original Feed Order:	From top original
Reproduction Range:	50 to 155%
Power Source:	24 & 5 V dc from the copier
Power Consumption:	25 W
Dimensions (W x D x H):	550 x 470 x 120 mm
Weight:	9 kg

Options

---

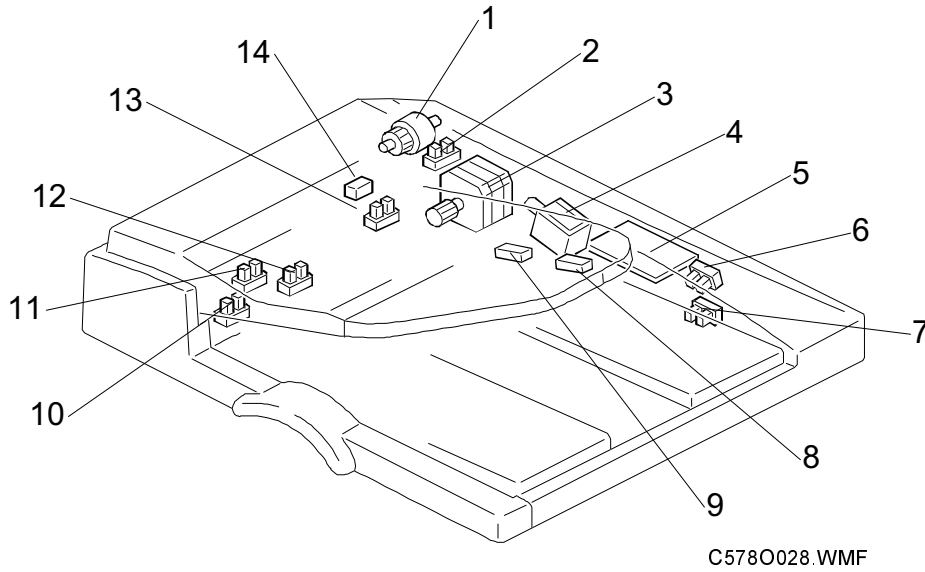
## 2. COMPONENT LAYOUT

### 2.1 MECHANICAL COMPONENT LAYOUT



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

## 2.2 ELECTRICAL COMPONENT LAYOUT



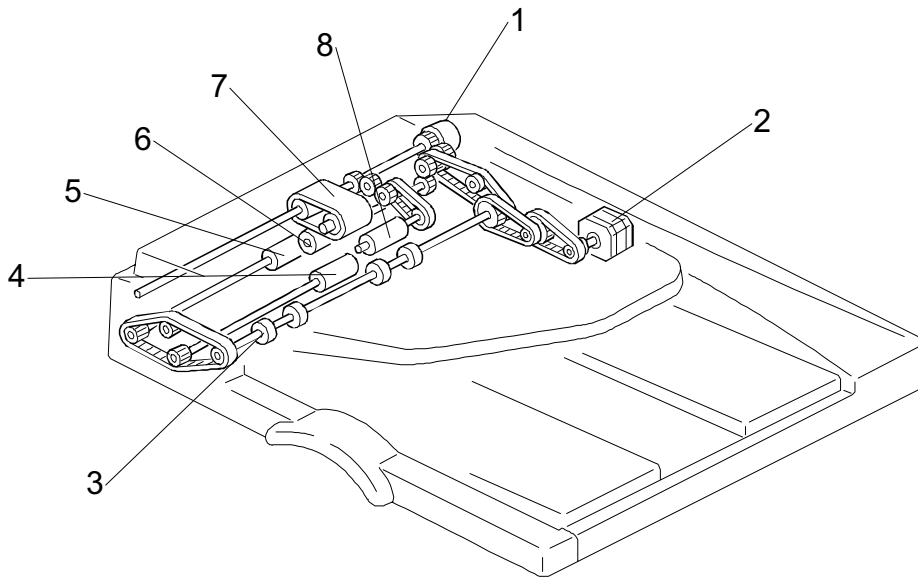
- |                             |                             |
|-----------------------------|-----------------------------|
| 1. DF Feed Clutch           | 9. Original Length Sensor 1 |
| 2. Feed Cover Open Sensor   | 10. Original Width Sensor 3 |
| 3. DF Feed Motor            | 11. Original Width Sensor 2 |
| 4. DF Pick-up Solenoid      | 12. Original Width Sensor 1 |
| 5. DF Drive PCB             | 13. Original Set Sensor     |
| 6. DF Position Sensor       | 14. Registration Sensor     |
| 7. APS Start Sensor         |                             |
| 8. Original Length Sensor 2 |                             |

## 2.3 ELECTRICAL COMPONENT DESCRIPTION

Table

Index No.	Name	Function
<b>Motors</b>		
3	DF Feed	Drives all the rollers.
<b>Sensors</b>		
7	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.
6	DF Position	Detects whether the DF is lifted or not.
14	Registration	Detects the leading edge of the original to turn off the transport motor, detects the original exposure timing, and checks for original misfeeds.
2	Feed Cover Open Sensor	Detects whether the feed-in cover is opened or not.
12	Original Width - 1	Detects the original width
11	Original Width - 2	Detects the original width
10	Original Width - 3	Detects the original width
9	Original Length - 1	Detects the original length.
8	Original Length - 2	Detects the original length.
13	Original Set	Detects if an original is on the feed table.
<b>Solenoids</b>		
4	DF Pick-up	Controls the up-down movement of the original table.
<b>Clutches</b>		
1	DF Feed	Transfers transport motor drive to the pick-up roller and feed belt.
<b>Boards</b>		
5	DF Drive	Interfaces the sensor signals with the copier, and transfers the magnetic clutch, solenoid and motor drive signals from the copier.

## 2.4 DRIVE LAYOUT



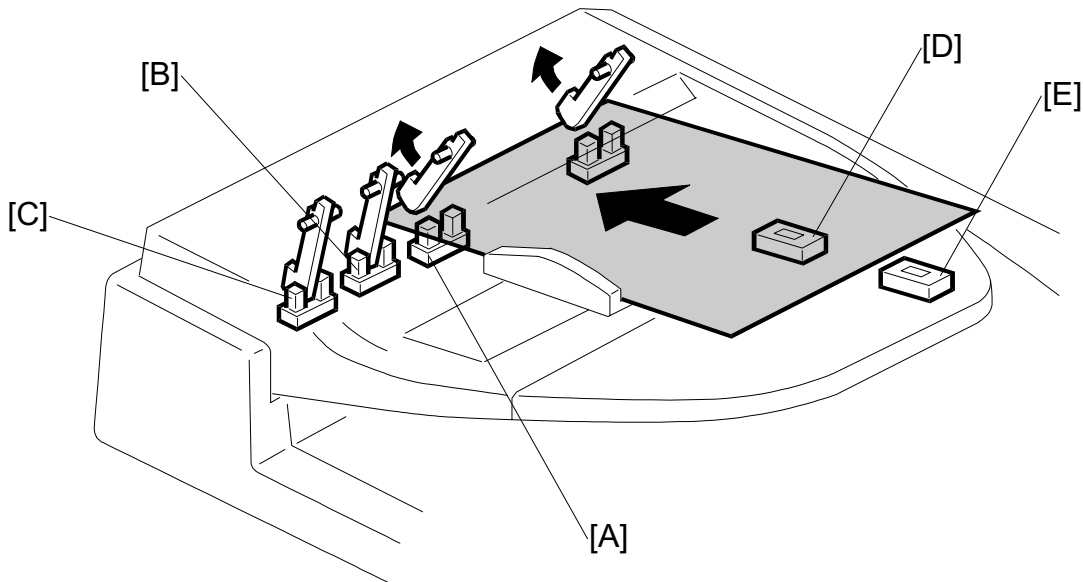
C578O004.WMF

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

---

### 3. DETAILED DESCRIPTIONS

#### 3.1 ORIGINAL SIZE DETECTION



C578O006.WMF

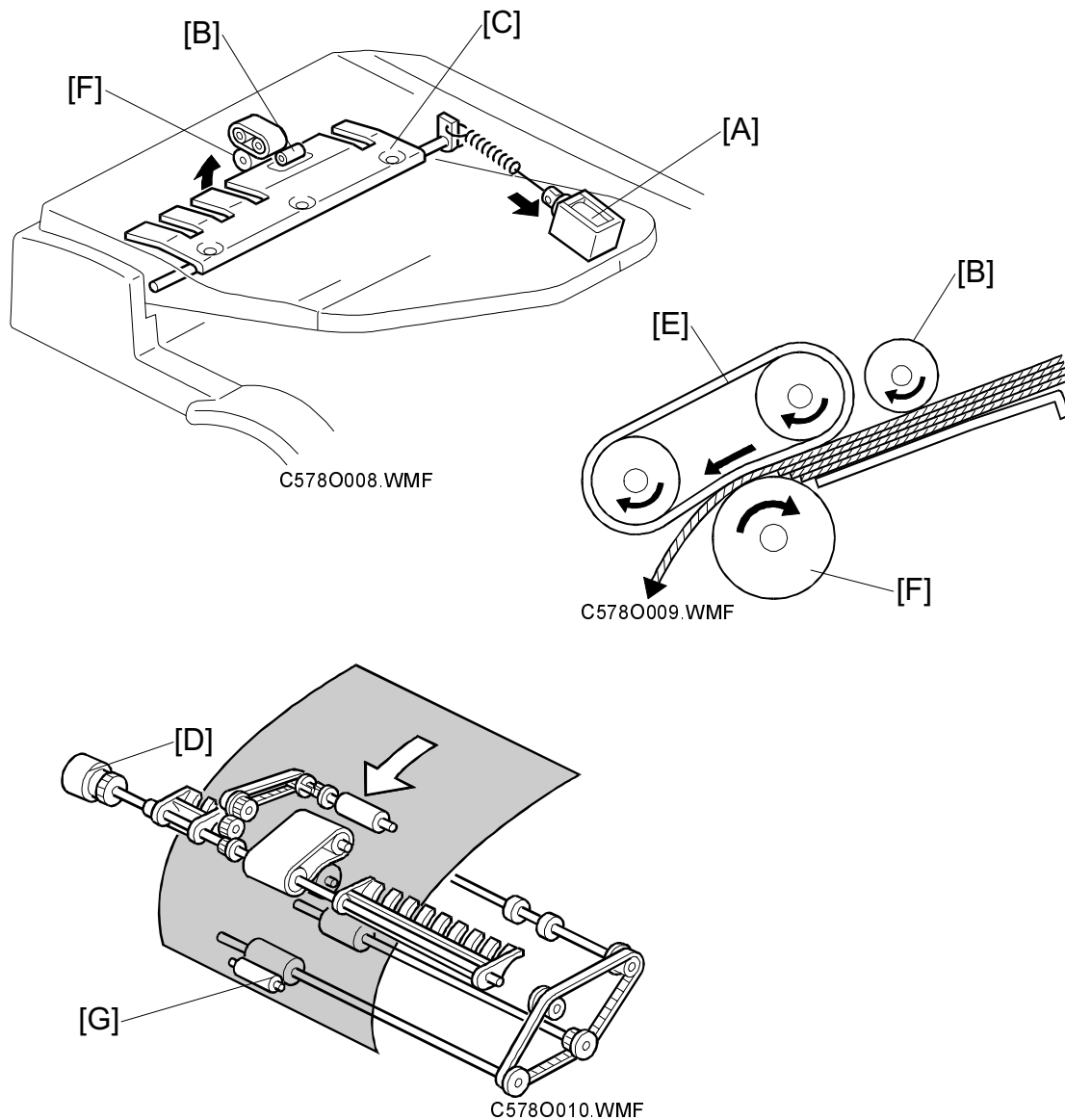
The DF has three width sensors (- 1 [A], - 2 [B], and - 3[C]) to detect the original width and two original length sensors (-1 [D] and -2 [E]) to detect the original length. The DF detects the original size through the combination of those five sensors as shown in the table on the next page.

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

ON: Paper present



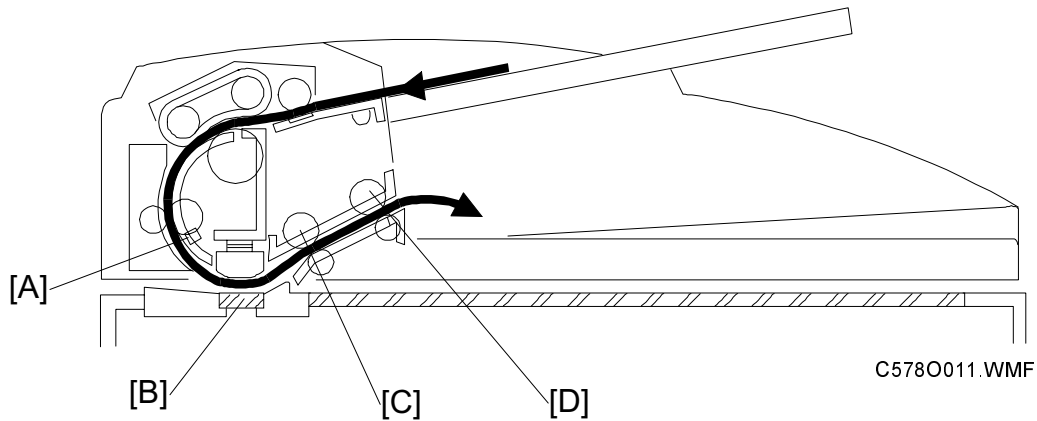
### 3.2 PICK-OFF AND SEPARATION MECHANISM



When the Start 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 300 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.

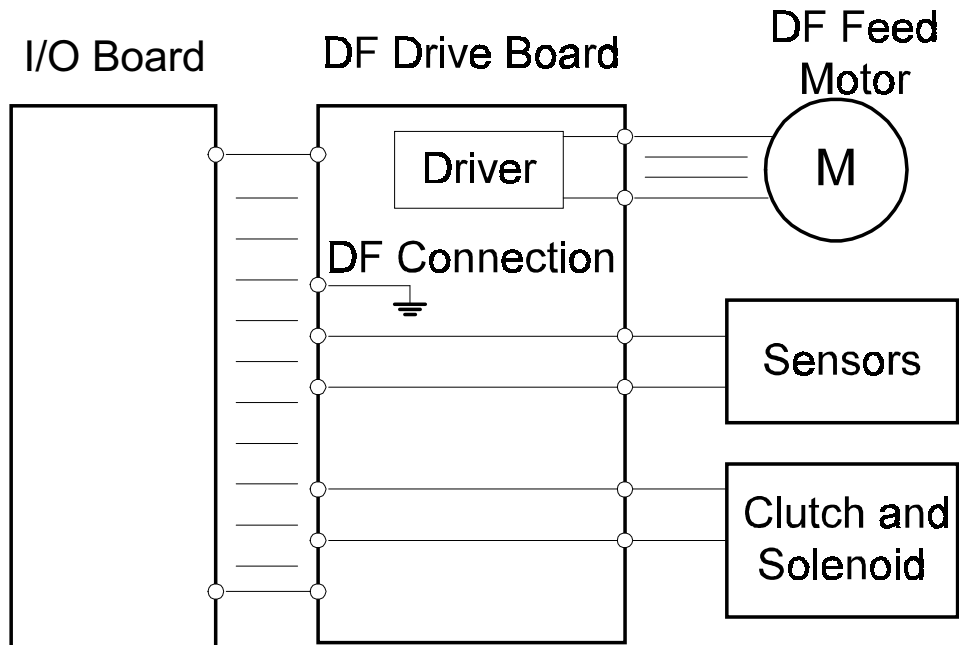
### 3.3 ORIGINAL TRANSPORT AND EXIT MECHANISM



When the leading edge of the original reaches the registration sensor [A], the DF feed motor turns off. After a short time the DF feed motor turns 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 47.5 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 42.33 mm/s.

### 3.4 OVERALL ELECTRICAL CIRCUIT



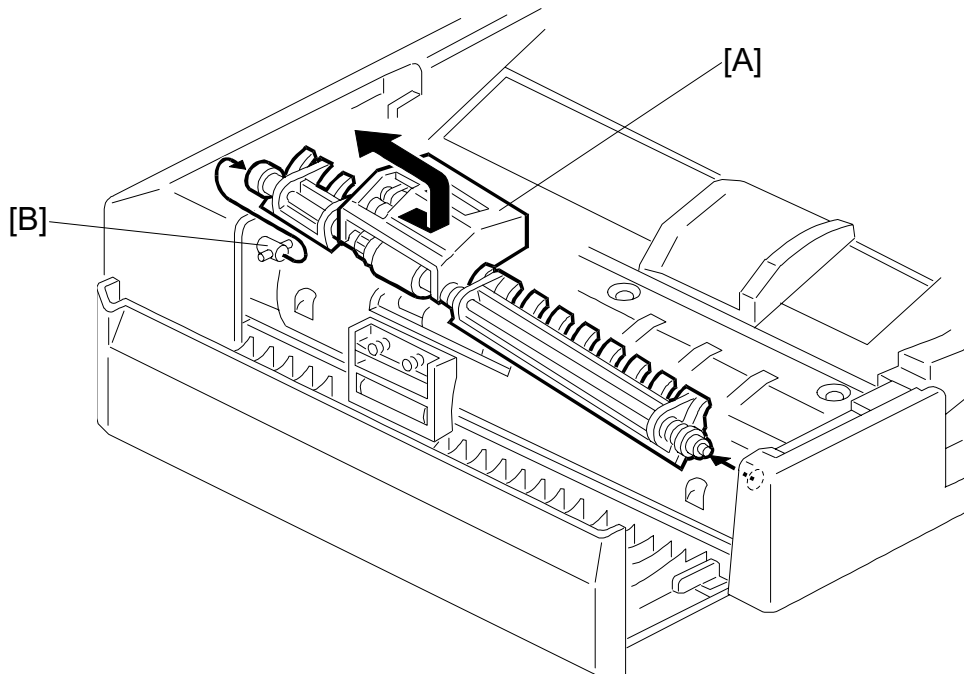
C578O502.WMF

The DF pick-up solenoid and DF feed clutch are directly controlled by the CPU of the main body through the DF drive board. The sensor signals are directly sent to the main body through the DF interface board. The DF drive board has a driver for the DF feed motor and its drive signal is sent from the main body. When the DF connector is connected to the I/O board of the main body, the DF connection signal to the main body is grounded. Then the main body detects that the DF is connected.

---

## 4. REPLACEMENT AND ADJUSTMENT

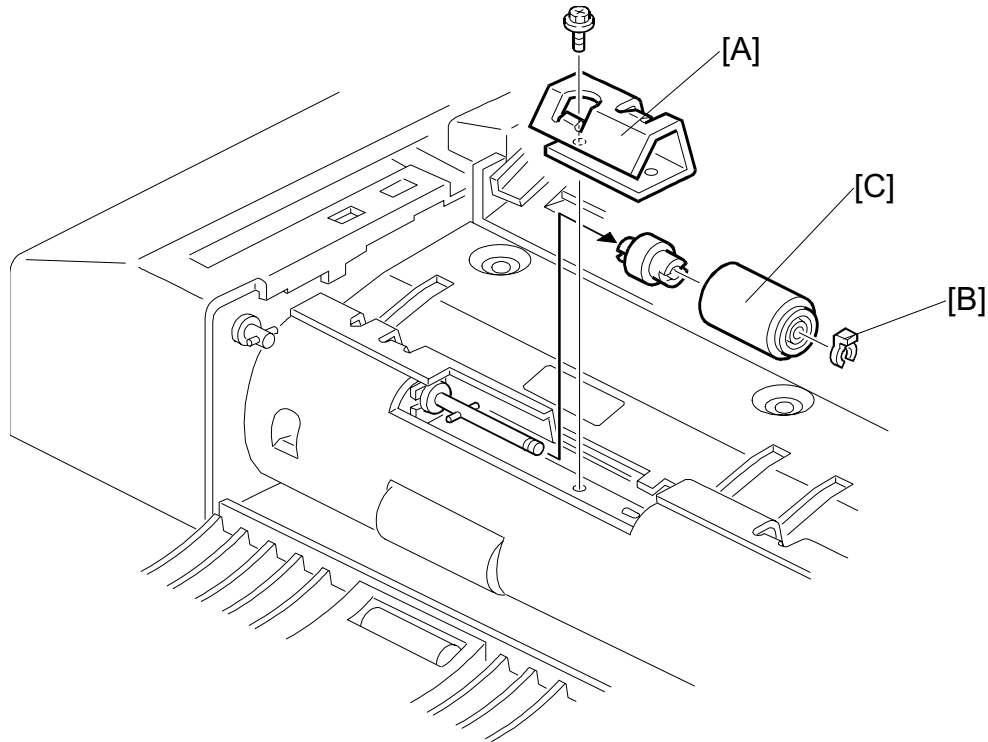
### 4.1 ORIGINAL FEED UNIT REMOVAL



C578O015.WMF

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.

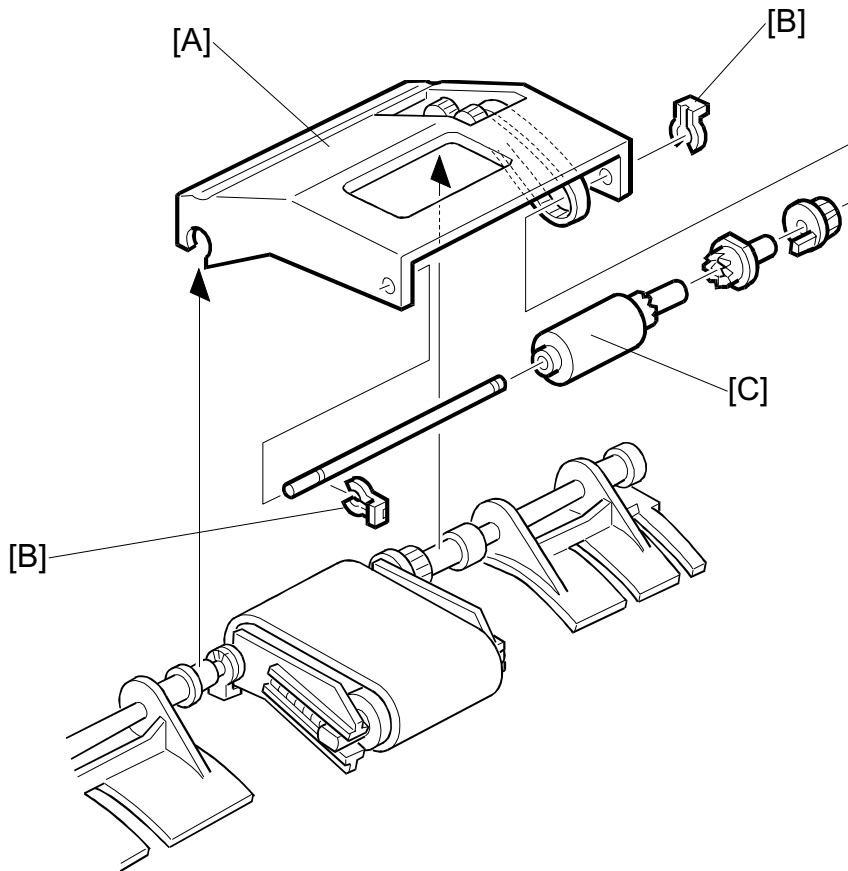
## 4.2 SEPARATION ROLLER REPLACEMENT



C5780016.WMF

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

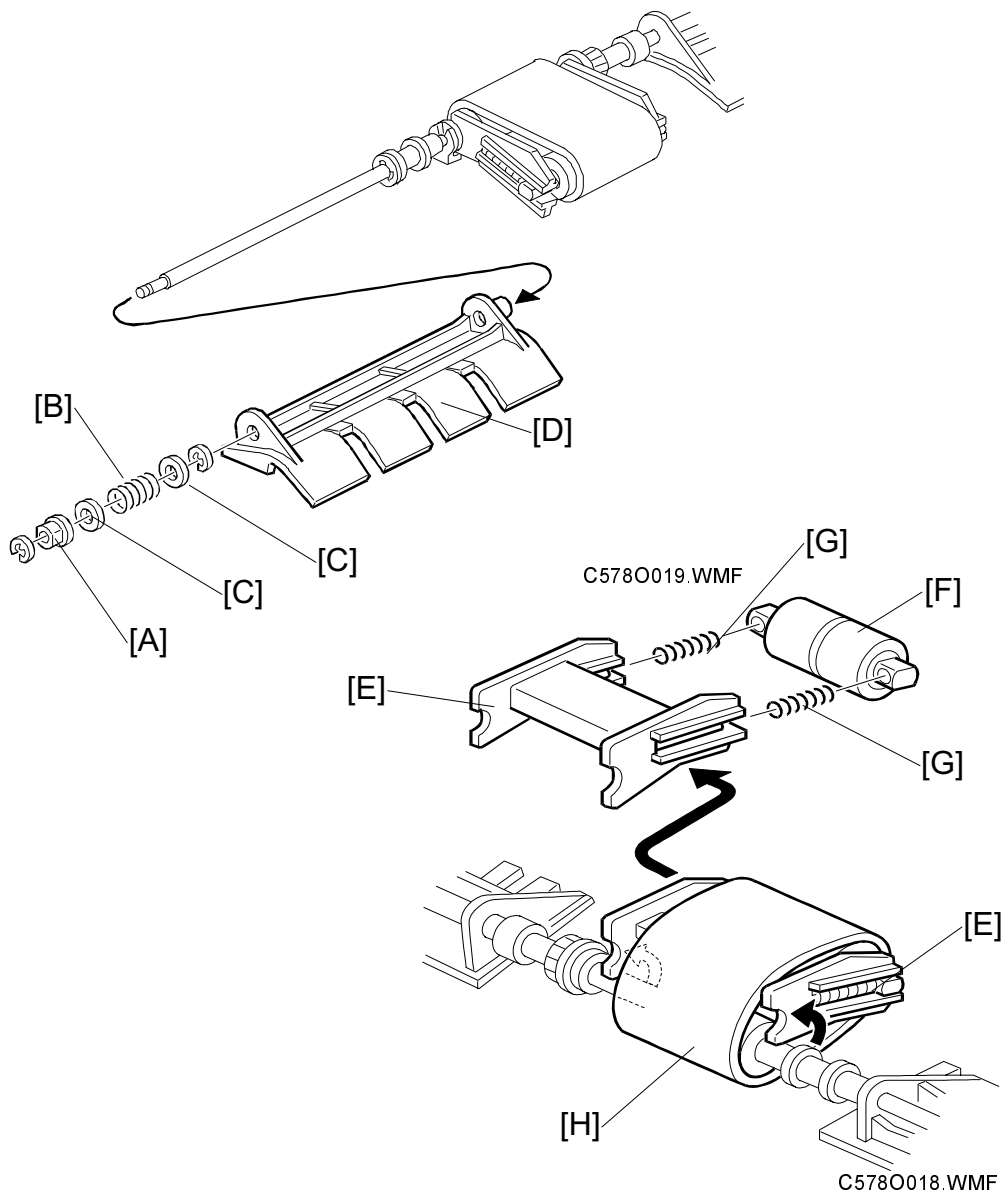
### 4.3 PICK-UP ROLLER REPLACEMENT



C578O017.WMF

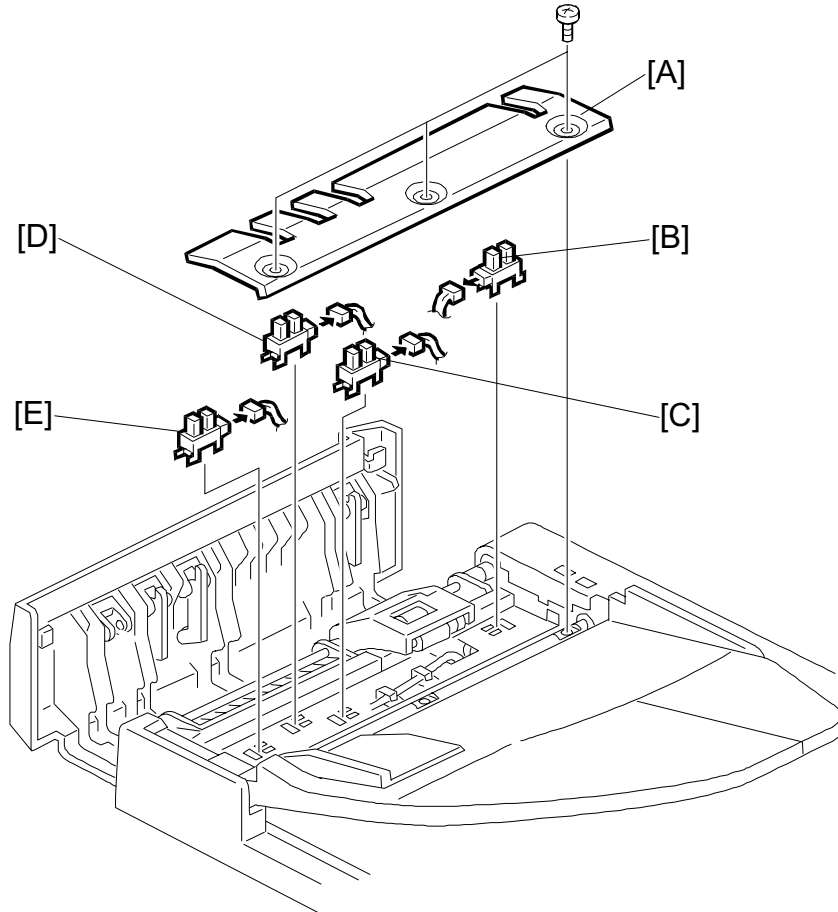
1. Remove the original feed unit.
2. Remove the pick-up roller unit [A].
3. Remove the two snap rings [B].
4. Replace the pick-up roller [C].

Options

**4.4 FEED BELT REPLACEMENT**

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

## 4.5 ORIGINAL SET SENSOR AND WIDTH SENSOR REPLACEMENT

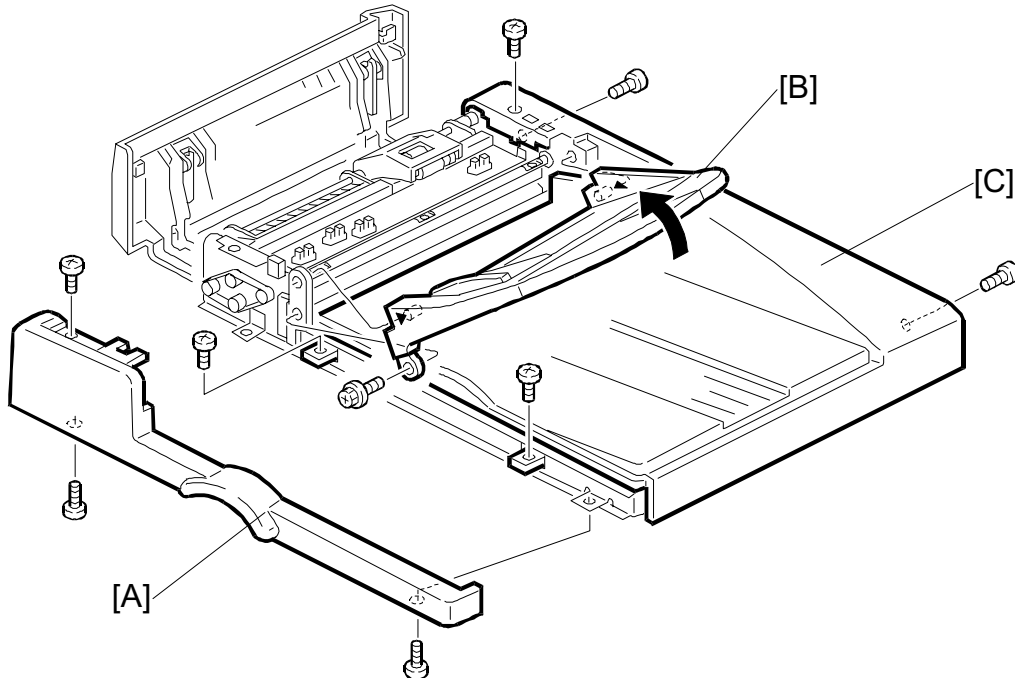


C578O020.WMF

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]



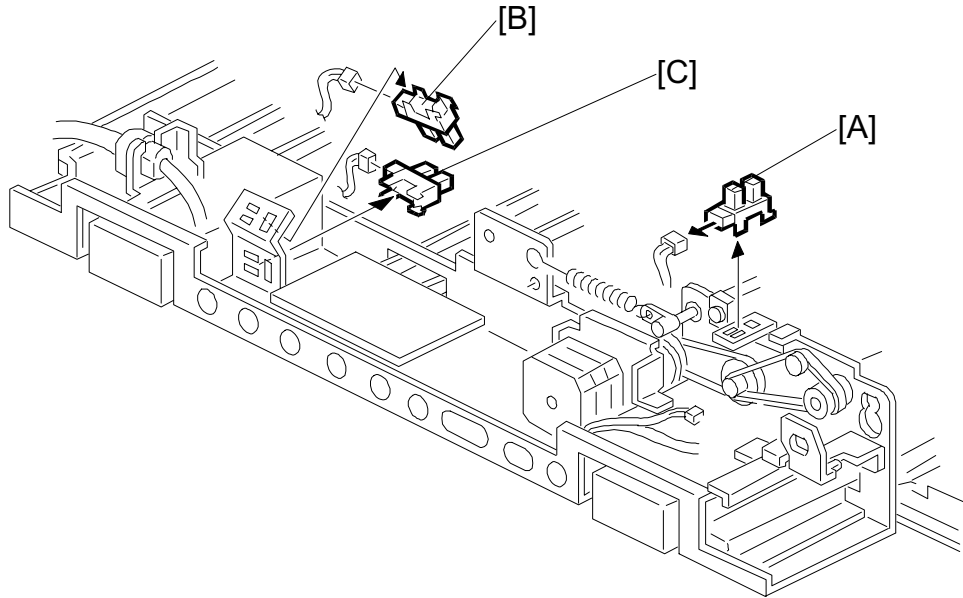
## 4.6 DF COVER REMOVAL



C578O021.WMF

1. Open the DF feed cover.
2. Remove the front cover [A] (3 screws).
3. Remove the original table [B] (1 screw, 1 connector).
4. Remove the rear cover [C] (5 screws).

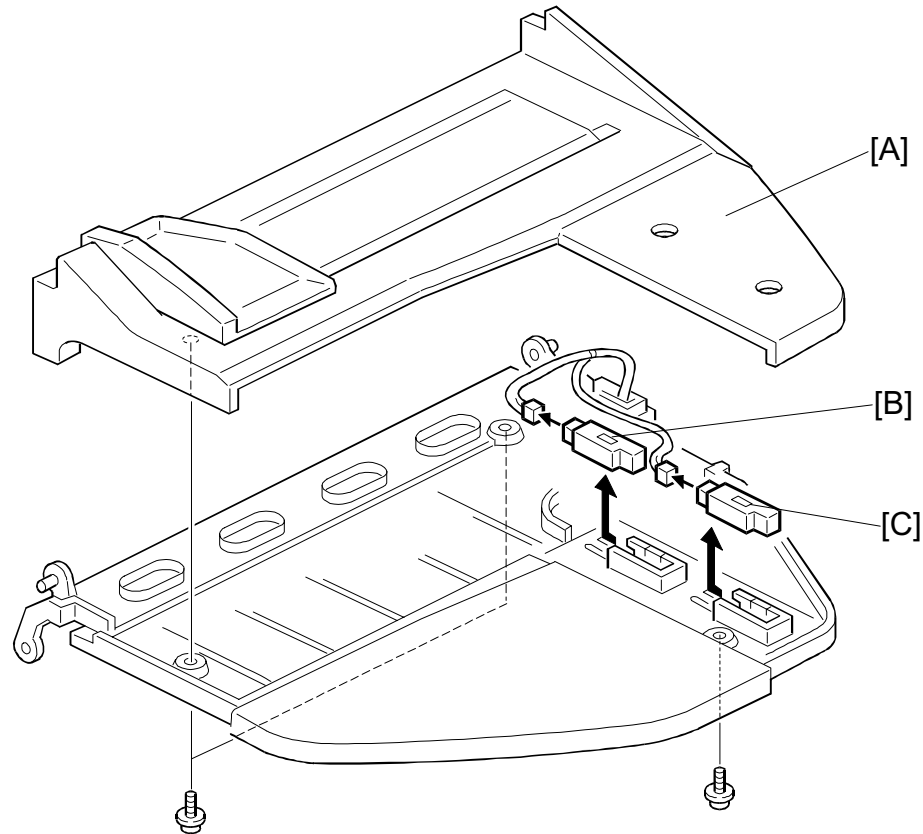
## 4.7 DF FEED COVER OPEN , DF POSITION, AND APS START SENSOR REPLACEMENT



C578O503.WMF

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

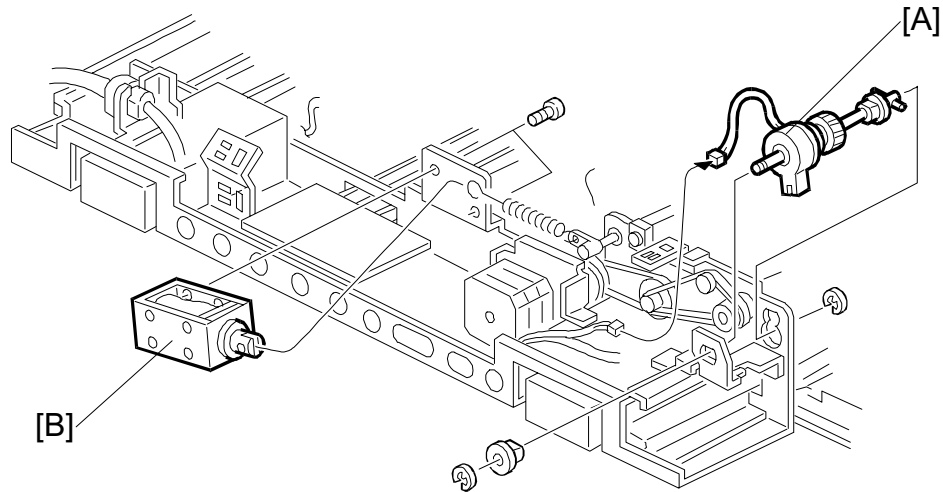
## 4.8 ORIGINAL LENGTH SENSOR REPLACEMENT



C578O023.WMF

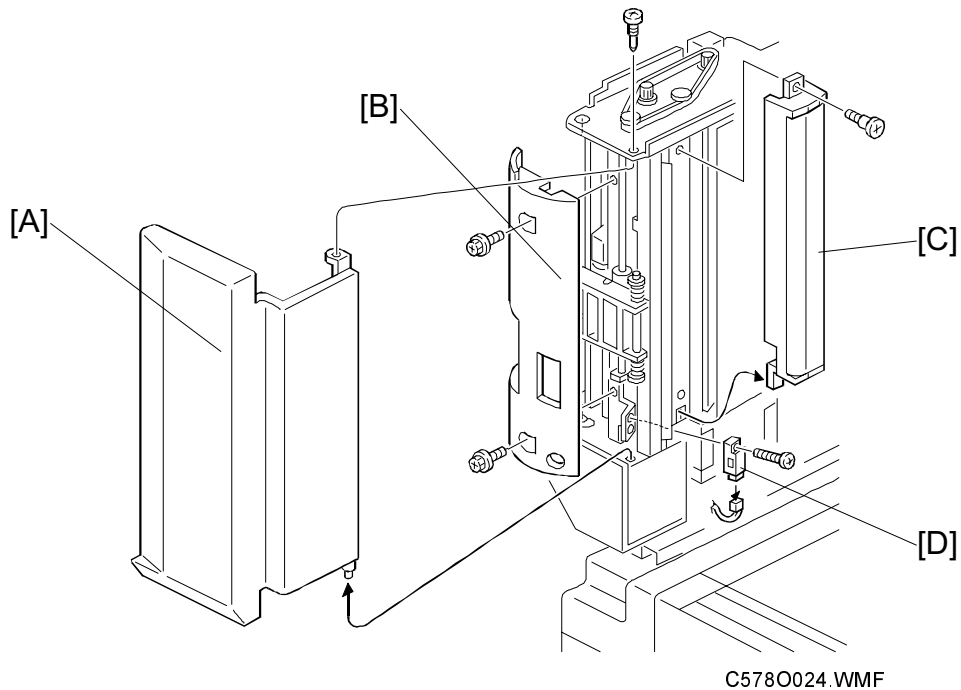
1. Remove the original table.
2. Remove the original guide [A] (3 screws).
3. Replace the following sensors.  
Original Length Sensor 1 [B]  
Original Length Sensor 2 [C]

## 4.9 DF FEED CLUTCH AND DF PICK-UP SOLENOID REPLACEMENT



C578O504.WMF

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

**4.10 REGISTRATION SENSOR REPLACEMENT**

1. Remove the front cover.
2. Remove the original feed unit.
3. Remove the DF feed cover [A] (1 screw).
4. Remove the transport guide [B] (2 screws).
5. Remove the original exposure guide [C] (1 screws).
6. Replace the registration sensor [D] (1 screw, 1 connector).