SERVICE MANUAL

Paper Feed Unit Type 140F

August 2nd, 1995
Subject to change

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1. OVERALL MACHINE INFORMATION

1.1. SPECIFICATIONS

Paper Capacity: 500 sheets

Acceptable Paper Sizes:

Model	H526			H515		
Paper Size	**US**	**Europe**	**Asia**	**US**	**Europe**	**Asia**
Letter	✓			✓		
Legal	✓			✓		
Half Letter						
A4		✓	✓		✓	✓
A5 side-ways		✓	✓		✓	✓
F/F4			✓			✓
B4						
B5						
B5 side-ways						

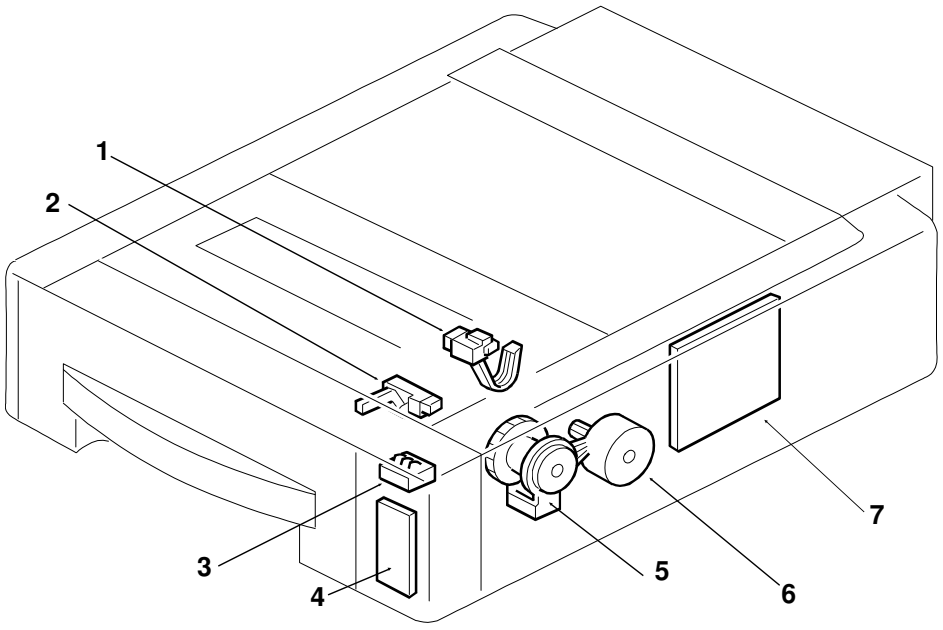
Note: The machine does not accept a paper size indicated by a shaded box.

Paper Weight: 60.0~90.0 $^{g}/_{m^2}$ [16~24 lb.]

Dimensions (W x D x H): 427 x 549 x 153 mm [16.8 x 21.6 x 6.0 ins]

Weight: 7.5 kg [17 lbs]

1.2. COMPONENT LAYOUT



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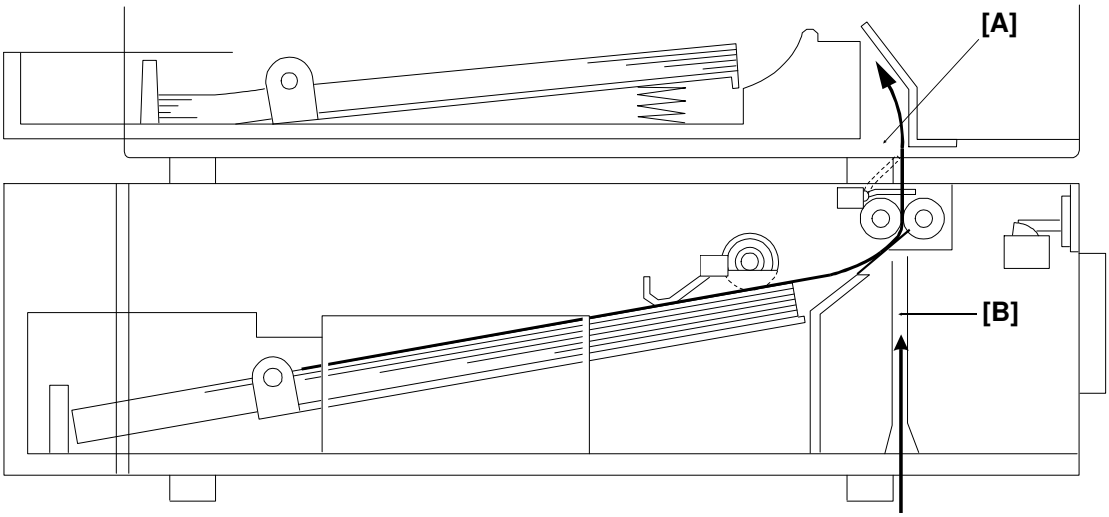
Index	Name	Description
1	Paper End Sensor	This sensor detects when the paper in the cassette has run out.
2	Relay Sensor	This sensor detects when the paper is at the exit point of the paper feed unit.
3	Paper Size Sensor	This sensor detects the paper size installed in the cassette. The user must install the correct size actuator.
4	LEDs	The LEDs indicate whether a paper end or a jam condition has been detected in the paper feed unit.
5	Paper Feed Clutch	This clutch transfers drive from the paper feed motor to the paper feed roller.
6	Paper Feed Motor	This stepper motor drives the paper feed mechanisms in the unit.
7	Interface Board	This board interfaces the control signals and sensor outputs between the host fax machine and the paper feed mechanisms in the unit. It also relays the signals between the host fax machine and another paper feed unit (if installed).

2. DETAILED SECTION DESCRIPTIONS

2.1. PAPER PATH



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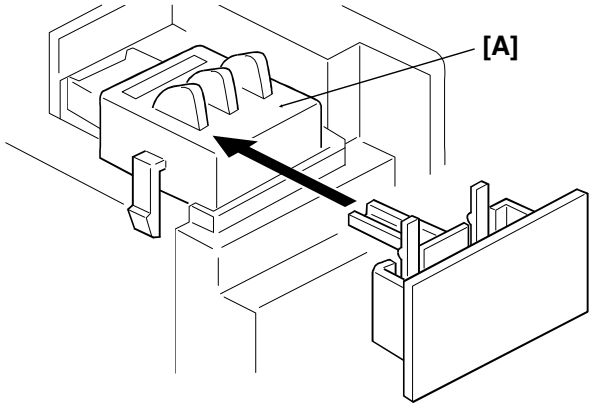
The host fax machine has a paper entrance [A] at the bottom. Paper from the optional paper feed unit(s) comes into the fax machine's registration area through that entrance.

If the machine has two or more optional paper feed units, paper from a lower paper feed unit comes through the slot [B] to the host fax machine.

2.2. PAPER SIZE DETECTION

The machine detects paper size by monitoring the output signals from the three microswitches in the paper size sensor [A].

The following table shows the combinations of the sensor's output and the paper size detected.



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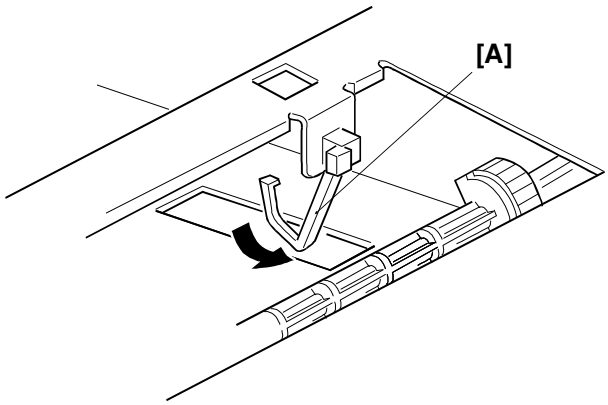
Microswitch			H515 model			H526 model		
L	**C**	**R**	**US**	**Europe**	**Asia**	**US**	**Europe**	**Asia**
Off	Off	Off						
Off	Off	**On**	Legal			Legal		
Off	**On**	Off						
Off	**On**	**On**	Letter			Letter		
On	Off	Off			F/F4			F/F4
On	Off	**On**		A4			A4	
On	**On**	Off						
On	**On**	**On**		A5 sideways			A5 sideways	

Note: The machine does not detect the presence of paper in the shaded conditions.

2.3. PAPER END DETECTION

The paper end sensor actuator [A] drops through a slot in the bottom plate when the cassette runs out of paper. The machine then detects a paper end condition.



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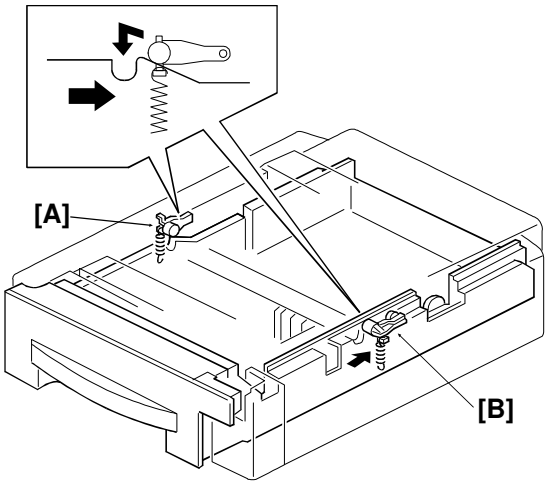
2.4. CASSETTE LOCK

When the cassette is installed in the paper feed unit, the lock pins ([A] and [B]) enter the slots at each side of the cassette.



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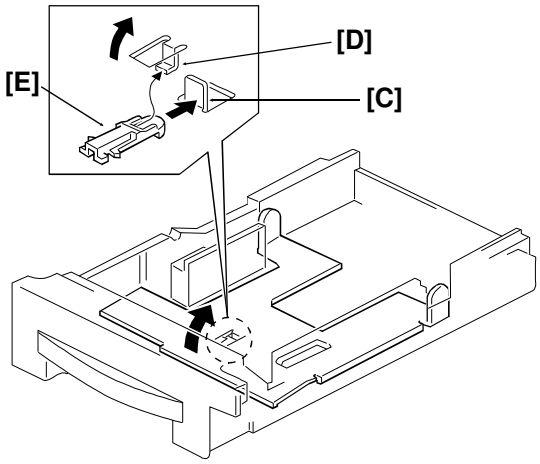

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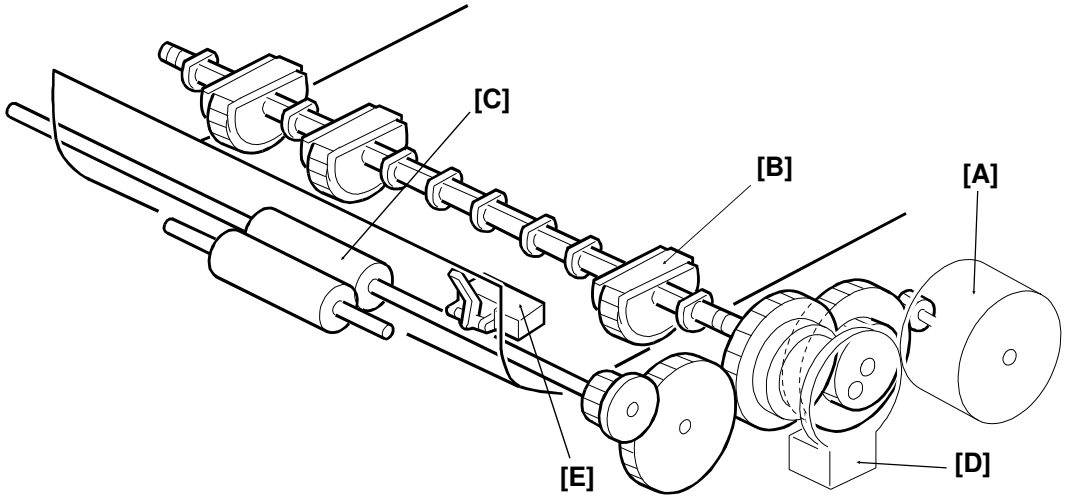
The pin [C] on the base of the unit releases the bottom plate [D] from the lock [E] when the cassette is installed in the unit.

2.5. PAPER FEED



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The paper feed motor [A] drives the feed roller [B] and the relay roller [C]. The paper feed clutch [D] turns on when the unit feeds a sheet of paper from the cassette. It transfers the motor drive to the feed roller until the paper reaches the relay sensor [E].

If only one paper feed unit is installed:
The host machine's paper feed motor feeds the paper into the printer mechanism after the leading edge of the paper passes the host machine's registration sensor.

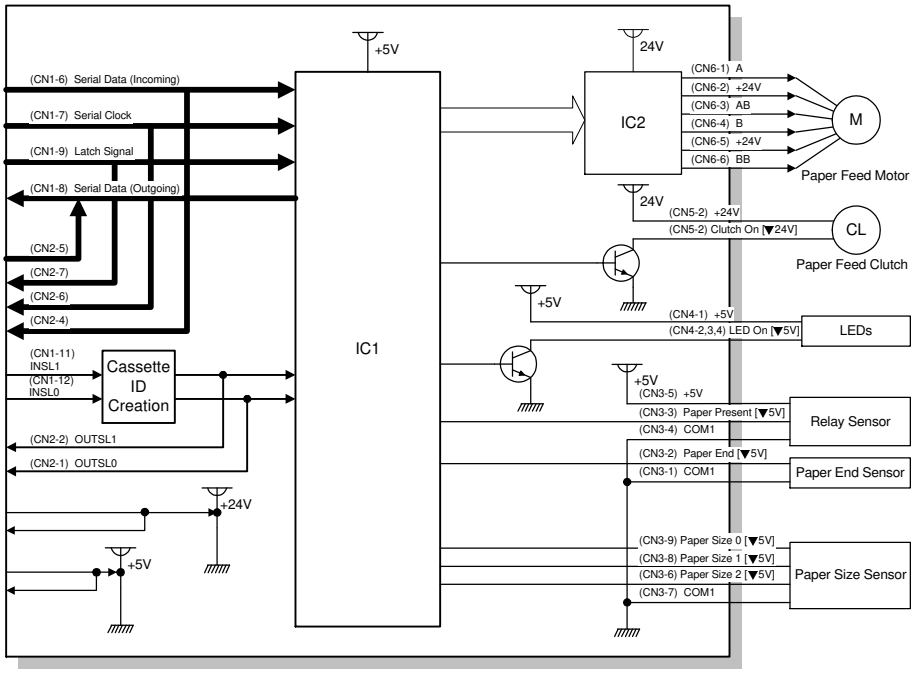
If two paper feed units are installed:
The feed motor in the upper paper feed unit feeds the paper to the fax machine's registration area after the leading edge of the paper passes the feed unit's relay sensor. The fax machine's paper feed motor then feeds the paper into the printer mechanism.

Jam Conditions

A jam condition is detected when one of the following conditions occurs:

1. The relay sensor does not activate 2 s after the paper feed clutch was turned on [error code 9-50 or 9-52].
2. The registration sensor in the fax machine does not activate 2 s after the relay sensor in the paper feed unit was activated [error code 9-51].
3. The relay sensor in the upper paper feed unit does not activate 2 s after the relay sensor in the lower paper feed unit was activated (when two paper feed units are installed) [error code 9-53].

2.6. INTERFACE BOARD



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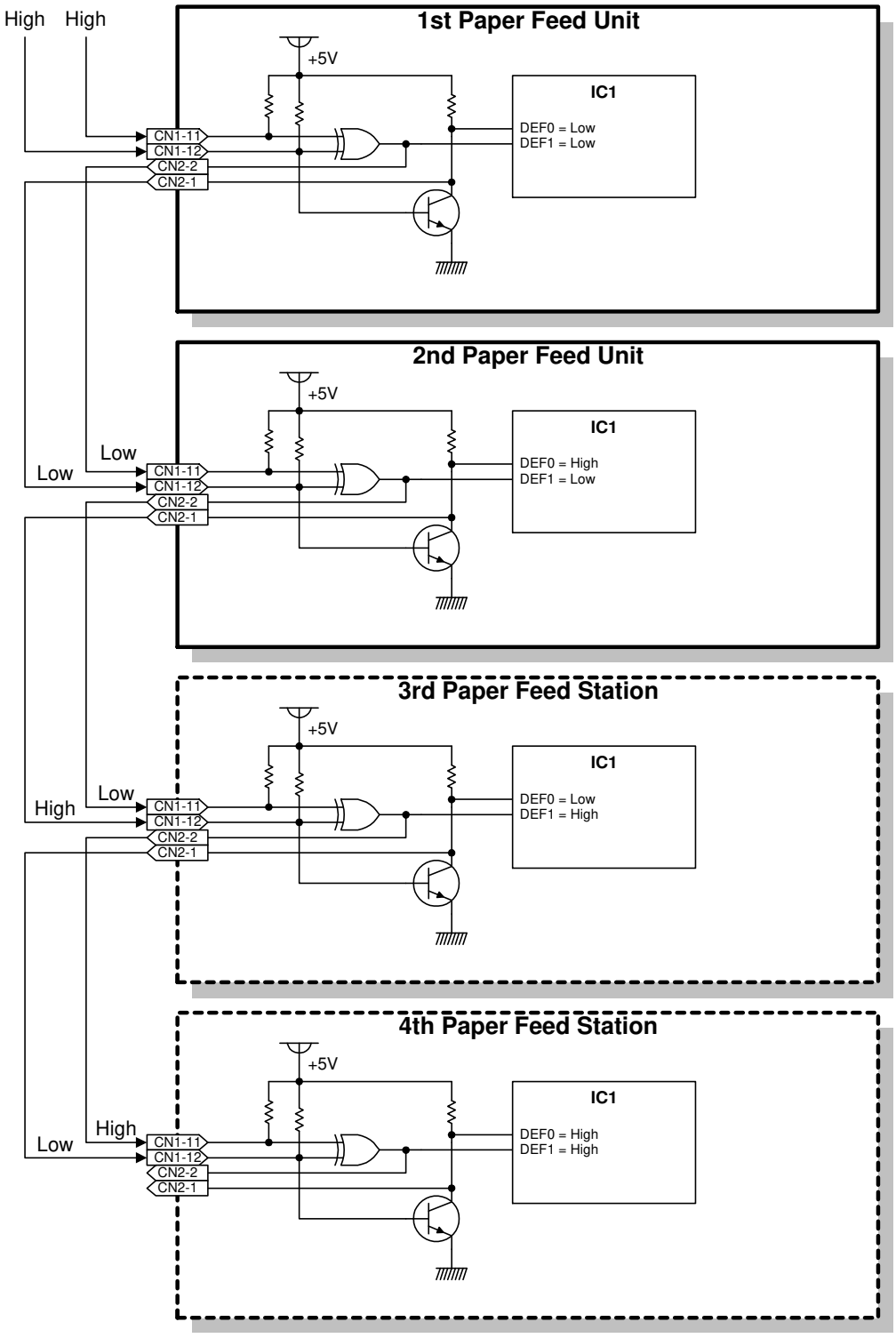
IC1 on the interface board controls the drive components as directed by control signals received from the host fax machine. It also monitors the sensors in the unit and controls the LEDs to notify the users of any errors. IC2 is the motor driver.

The host fax machine controls the paper feed unit(s) through a serial interface. The fax machine sends the control signals to the installed paper feed units one by one. Each paper feed unit then controls its drive components and/or responds with sensor status signals to the host fax machine.

Two logical signals (DEF0 and DEF1) are used to identify how many paper feed stations the unit is assigned. The cassette ID creation circuit gives a unique number to each paper feed unit as shown in the following table and as illustrated on the next page.

	INSL1	INSL0	DEF1	DEF0	Cassette ID
1st optional PFU	High	High	Low	Low	00
2nd optional PFU	Low	Low	Low	High	01
3rd optional PFU	Low	High	High	Low	10
4th optional PFU	High	Low	High	High	11

Up to four optional paper feed stations can be identified using these signals. However, the number of optional paper feed stations which can be installed is limited by the host fax machine's specifications. As an example, the H526 models can have only one optional paper feed unit, while the H515 models can have up to two optional paper feed units.



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3. INSTALLATION

3.1. INSTALLATION PROCEDURE

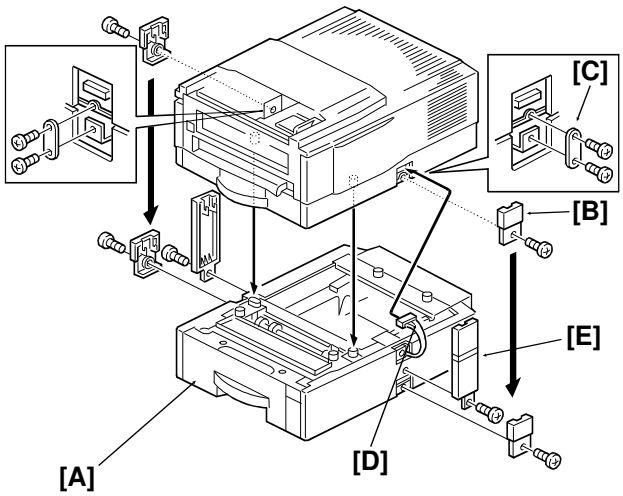
CAUTION

Do the following before installing the optional unit:

1. Print out all messages stored in the memory.
2. Print out the lists of user-programmed items and the system parameter list.
3. Turn off the main switch, and disconnect the power plug.

Installation Procedure

1. Put the machine on the paper feed unit [A] and remove the connector cover [B] (1 screw).
2. Secure the machine to the paper feed unit with the bracket [C] (2 screws). Then connect the harness [D] to the machine.
3. Install the harness cover [E] (1 screw), and replace the connector cover [B] (which was removed in step 1).



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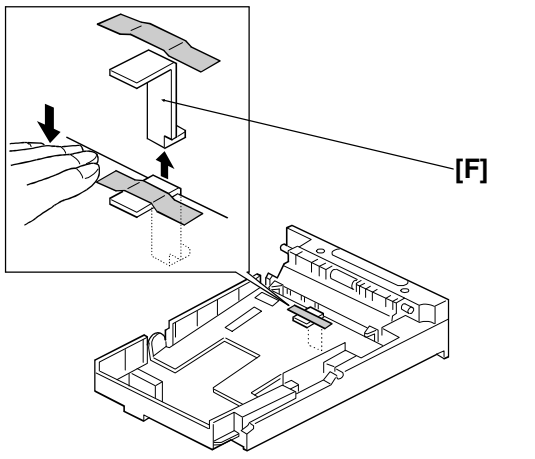
4. Remove the bottom plate holder bracket [F] as shown.
5. Add some paper and turn on the machine. Make a test print using the paper feed unit.



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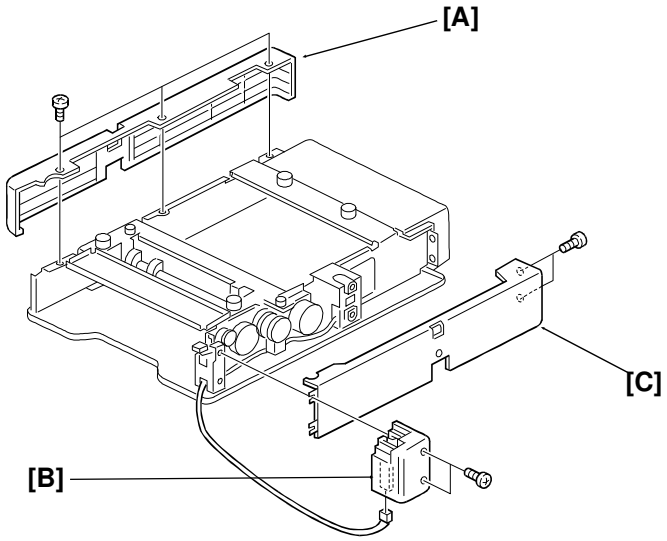
4. REPLACEMENT AND ADJUSTMENT

4.1. COVERS



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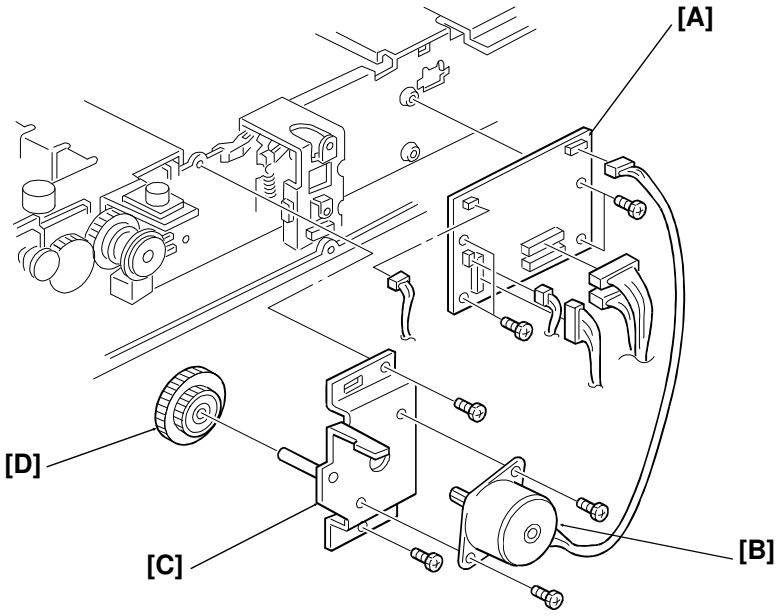
A: Left Side Cover (3 screws)
B: Right Front Cover (2 screws, 1 connector)
C: Right Side Cover (2 screws)

4.2. PCB AND PAPER FEED MOTOR



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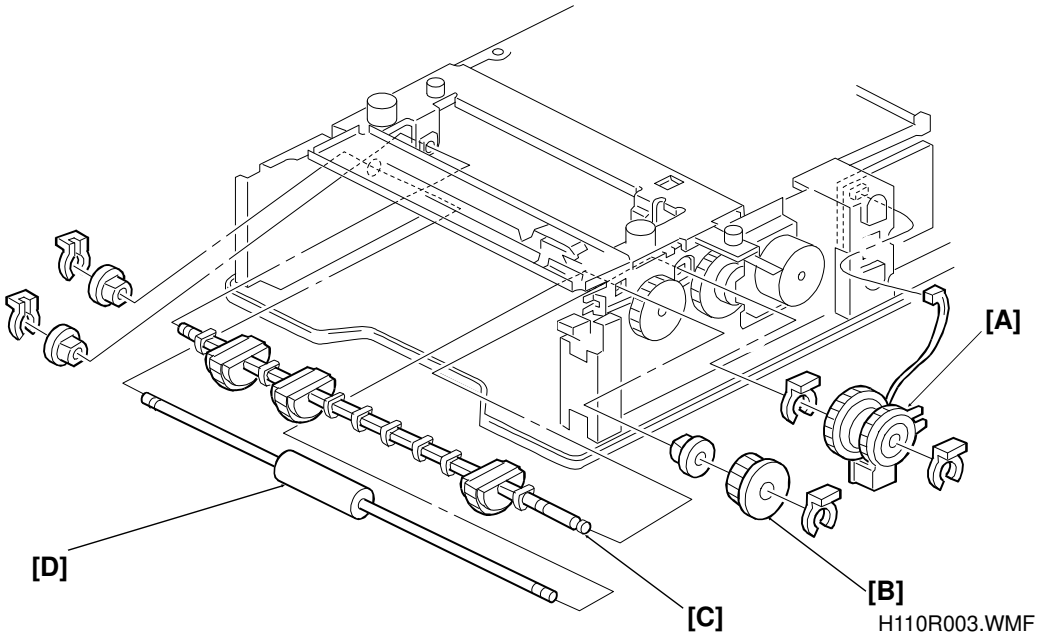
A: Interface PCB (3 screws, 6 connectors)
B: Paper Feed Motor (2 screws, 1 connector)
C: Paper Motor Bracket (2 screws)
D: Gear

4.3. PAPER FEED ROLLER ASSEMBLY/PAPER FEED CLUTCH



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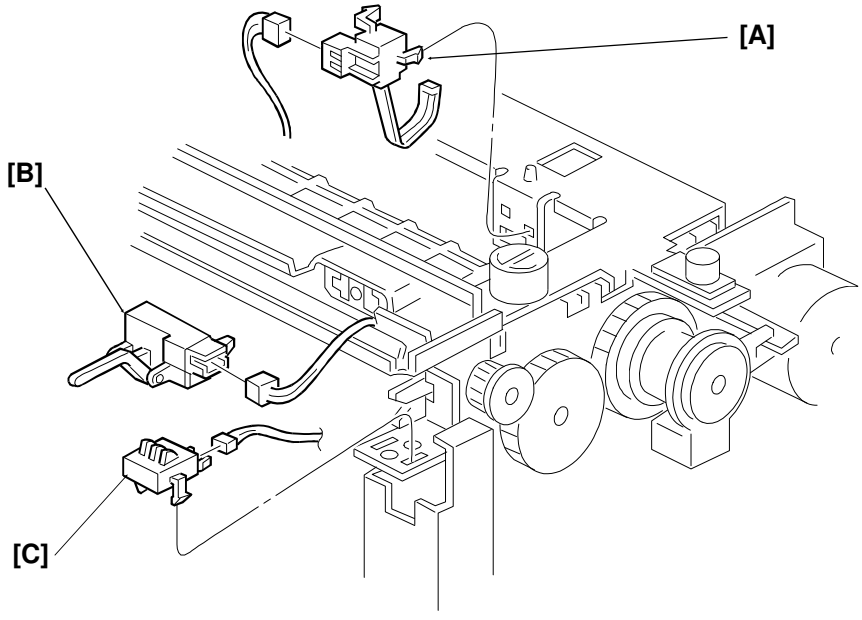
A: Paper Feed Clutch (1 clip)
B: Gear (1 clip)
C: Paper Feed Roller (2 clips, 1 bushing)
D: Relay Roller (1 clips, 2 bushings)

4.4. SENSORS



H110R004.wmf

A: Paper End Sensor (1 connector)
B: Relay Sensor (1 connector)
C: Paper Size Sensor (1 connector)