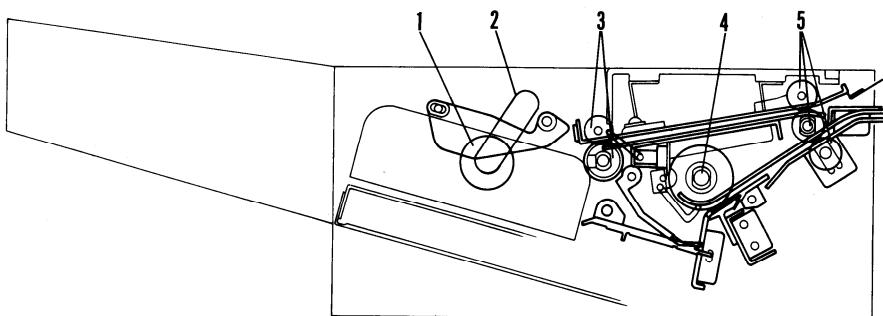


1. SPECIFICATIONS

Power Source :	+5 volts and +24 volts from the copier
Power Consumption :	25 W
Dimensions : (W x D x H)	520 mm x 540 mm x 180 mm 20.5" x 21.3" x 7.1"
Weight :	12.5 Kg (49.5 lb)
Paper Size :	Min. A5/HLT (sideways) Max. A3/LDG
Tray Capacity :	Max. 50 sheets

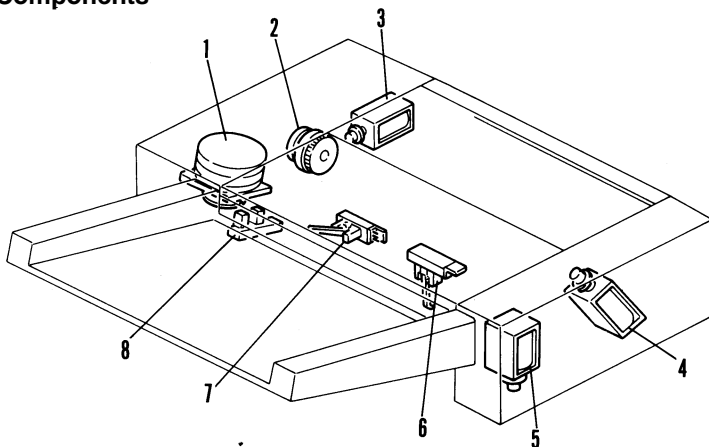
2. COMPONENTS LAYOUT

- Mechanical Components -



- | | |
|----------------------------|----------------------|
| 1. Positioning Roller | 4. Feed Roller |
| 2. Positioning Roller Belt | 5. Transport Rollers |
| 3. Fork Gate Rollers | |

- Electrical Components -

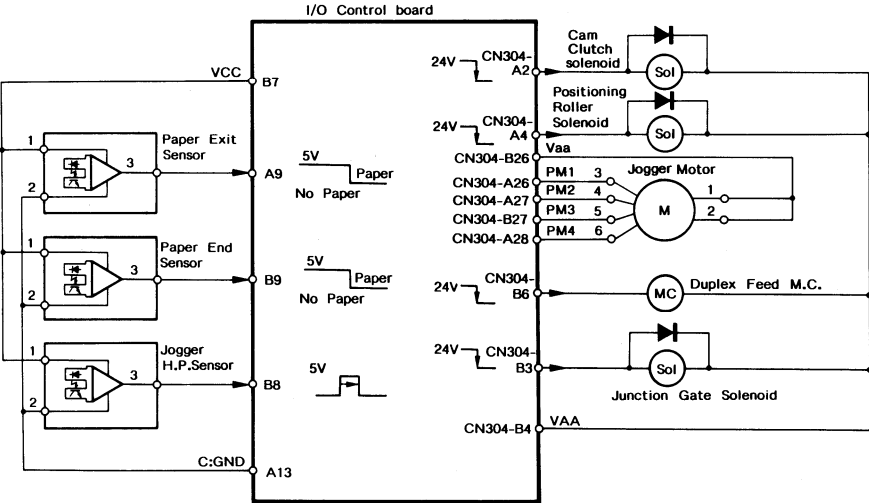


- | | |
|---------------------------------------|--------------------------------------|
| 1. Jogger Motor (M10) | 5. Cam Clutch Solenoid (SOL9) |
| 2. Duplex Feed Clutch (MC9) | 6. Paper End Sensor (S23) |
| 3. Junction Gate Solenoid (SOL7) | 7. Paper Exit Sensor (S24) |
| 4. Positioning Roller Solenoid (SOL8) | 8. Jogger Home Position Sensor (S25) |

3. ELECTRICAL COMPONENT DESCRIPTIONS

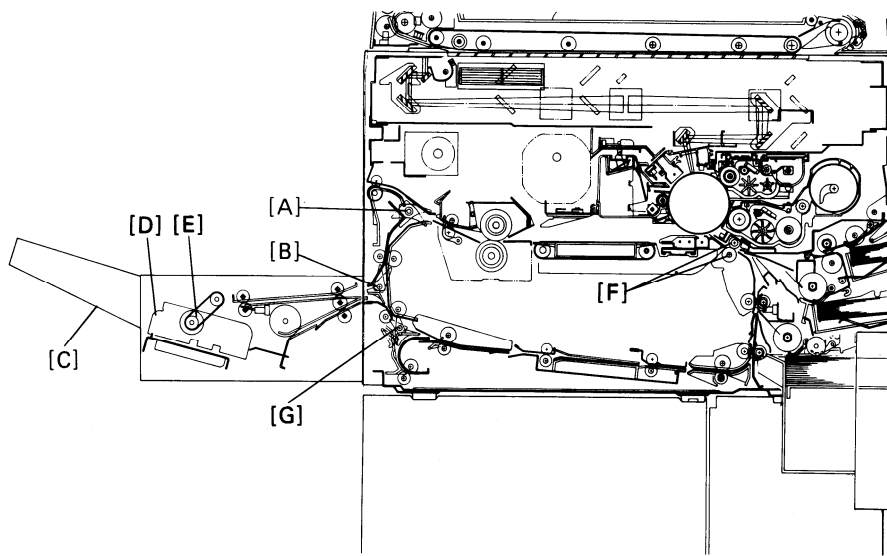
Index No.	Name	Function	Symbol	P to P Location
Motor				
1	Jogger	Drives the jogger fences that keep paper stacked evenly in the duplex tray.	M10	D-7, C-7
Magnetic Clutch				
2	Duplex Feed	Starts paper feed from the duplex tray.	MC9	D-8, C-8
Solenoids				
3	Junction Gate	Opens and closes the junction gate to change the paper path.	SOL7	D-7, C-7
4	Positioning Roller	Raises and lowers the positioning roller.	SOL8	D-8, C-8
5	Cam Clutch	Locks and releases the spring clutch to raise and lower the pressure plate.	SOL9	D-7, C-7
Sensors				
6	Paper End	Detects when paper is in the duplex unit.	S23	D-6
7	Paper Exit	Detects when paper is being fed into the duplex tray.	S24	D-6
8	Jogger Home Position	Detects when jogger fences are in home position.	S25	D-6

4. OVERALL MACHINE CONTROL



The copier I/O control PCB controls all operations in the duplex unit.

5. BASIC OPERATION



The optional duplex unit enables automatic multi-duplex/multi-overlay copying.

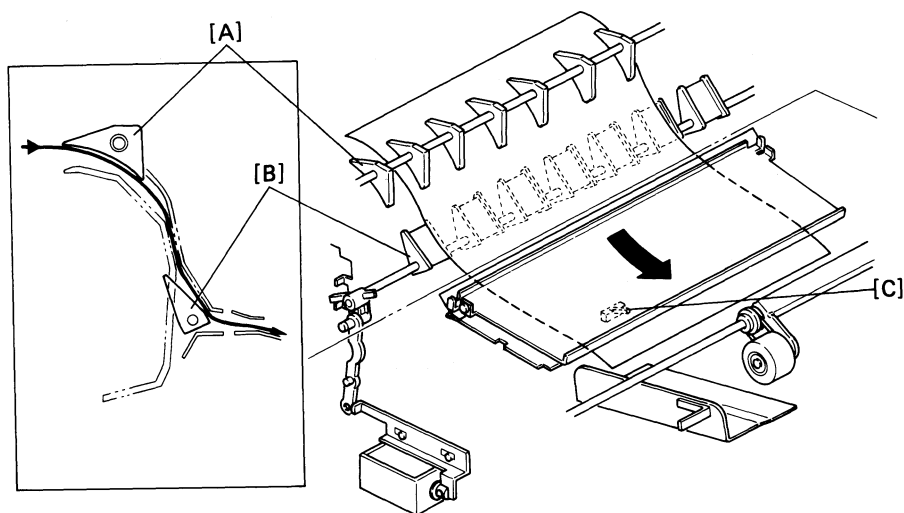
With multi-duplex/multi-overlay copying, first side copies are directed by the duplex/overlay transport gate [A] and the junction gate [B] to the duplex tray [C]. The jogger fences [D] and the positioning roller [E] align the sheets of copy paper in the duplex tray.

When multi-duplex copy mode is selected and the Start key is pressed, the copies in the duplex tray are fed through the lower transport section rollers to the registration rollers [F].

When multi-overlay copy mode is selected and the Start key is pressed, the copies in the duplex tray are inverted one at a time in the inverter section [G] and fed to the registration rollers.

The copier provides the duplex unit power source. All duplex unit rollers are driven by the copier main motor.

6. PAPER STACKING

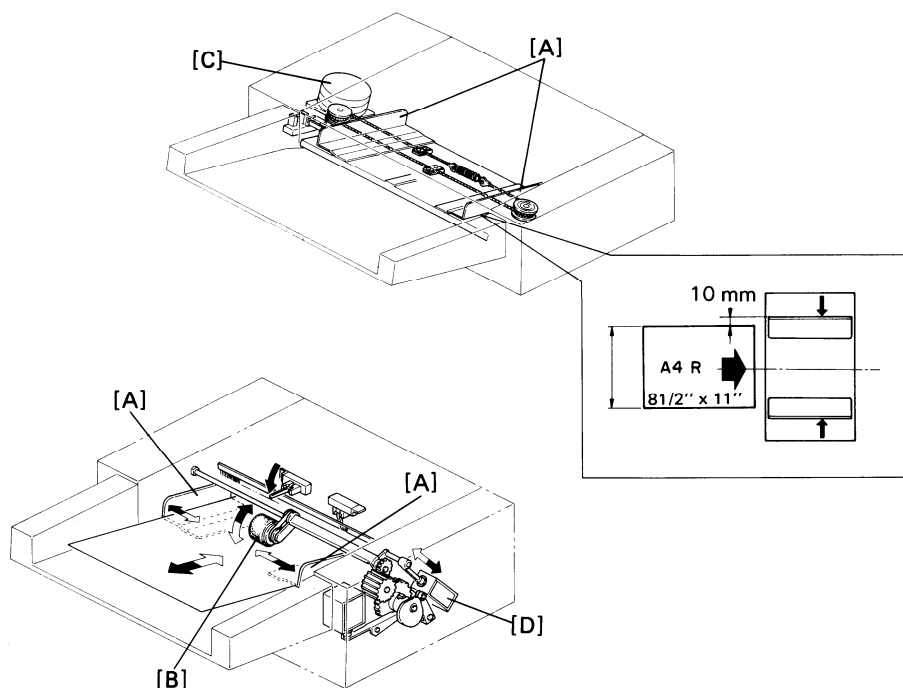


When the fusing exit sensor detects the leading edge of the first copy in multi-duplex or multi-overlay mode, the duplex/overlay transport [A] and junction gate [B] solenoids are energized to direct the copy to the duplex tray.

The duplex unit paper transport rollers are driven by the copier main motor through gears and the drive chain. The duplex/overlay transport clutch transmits the gear drive to the duplex unit. This clutch is energized and de-energized at the same time as the duplex/overlay transport gate solenoid.

The paper exit sensor [C] in the duplex unit is used for timing and to check for paper misfeeds.

7. PAPER ALIGNMENT



The jogger fences [A] align copy paper laterally and the positioning roller [B] aligns paper in the feed direction.

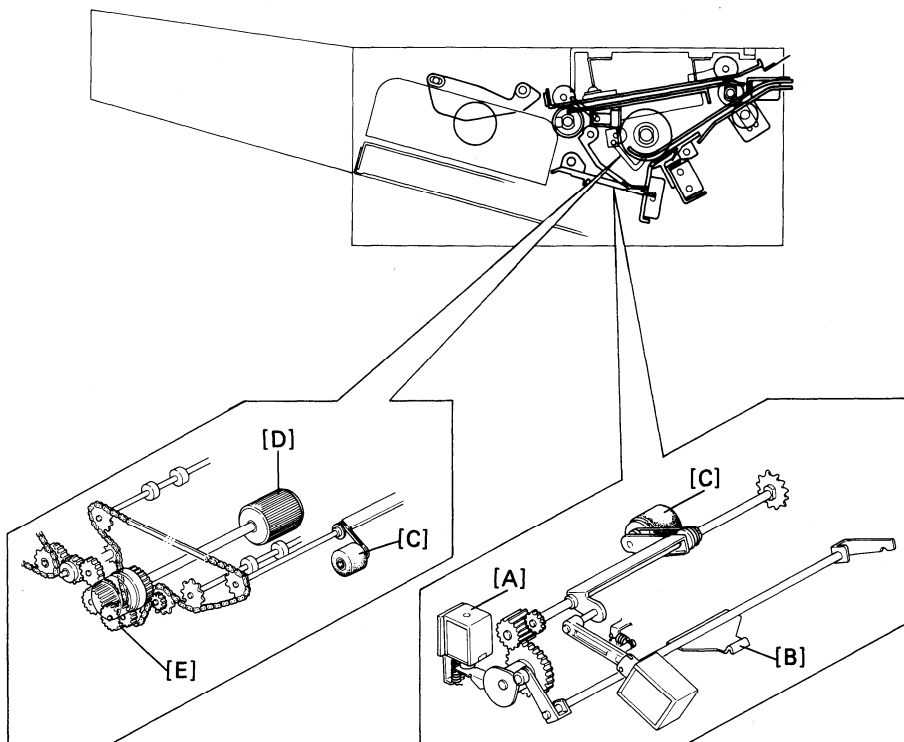
The jogger fences are driven by the stepper motor [C] in the duplex unit. The drive mechanism for the duplex unit jogger fences is the same as that for the copier jogger fences. When the fusing exit sensor detects the leading edge of the first sheet of copy paper, the front and rear fences move into position 10 mm away from the sides of the copy paper.

These fences move up against the copy paper 0.7 seconds after the paper exit sensor detects the trailing edge of the copy paper.

The fences then move back 10 mm from both sides of the paper. This operation is performed every time a sheet of copy paper is fed to the duplex tray.

In duplex/overlay copy mode, the positioning roller solenoid [D] is energized to raise the roller when the Start key is pressed. This solenoid is de-energized to lower the roller when the jogger fences move against the paper sides.

8. PAPER FEED

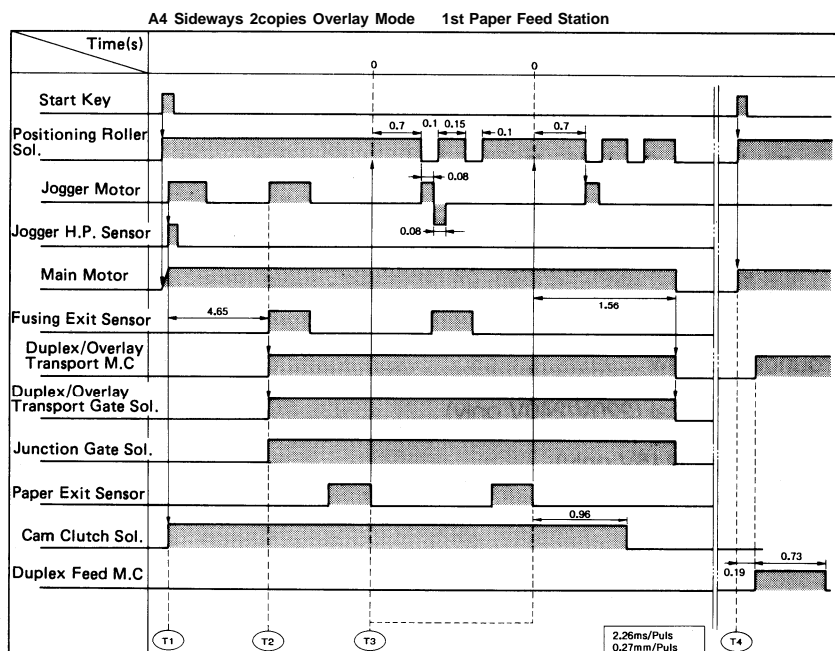


The duplex unit paper feed mechanism uses the friction pad system.

The cam clutch solenoid [A] is energized when the fusing exit sensor detects the leading edge of the paper. The cam clutch solenoid is de-energized 1.56 second after the paper exit sensor detects the trailing edge of the last copy. This raises the lift arm [B].

When the Start key is pressed, the positioning roller [C] starts rotating. The feed roller [D] starts rotating 0.19 second after the duplex feed clutch [F] is turned on.

9. ELECTRICAL TIMING



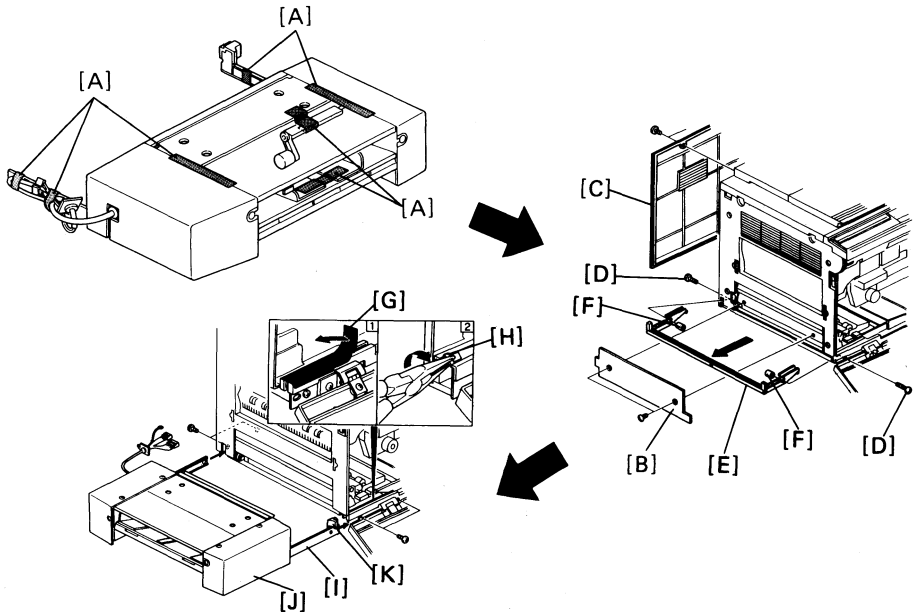
- T1: Just after the start key is pressed, the jogger motor starts to rotate to move the jogger fences into the home position.
- T2: When the fusing exit sensor detects the leading edge of the paper, the duplex/overlay transport M.C., the duplex/overlay transport gate solenoid and the cam clutch solenoid are turned on.
- T3: Timing pulse reset.
- T4: The positioning roller starts to rotate when the start key is pressed. 0.19 seconds after the pressing start key, the duplex/overlay transport M.C. and the duplex feed M.C. are turned on to feed the paper to the registration roller.

10. ACCESSORY CHECK

Check the quantity and condition of the accessories in the box according to the following list:

- 1. Installation Procedure1
(115V - English only / 220V - Five Languages)
- 2. New Equipment Condition Report1
- 3. Envelope for NECR (115V only)1
- 4. Receiving Tray1
- 5. Pan head Screws - M4 x 64
- 6. Grounding Screw1
- 7. Multilingual Decal (220V/240V only) 1
- 8. English Decal (115V only)1

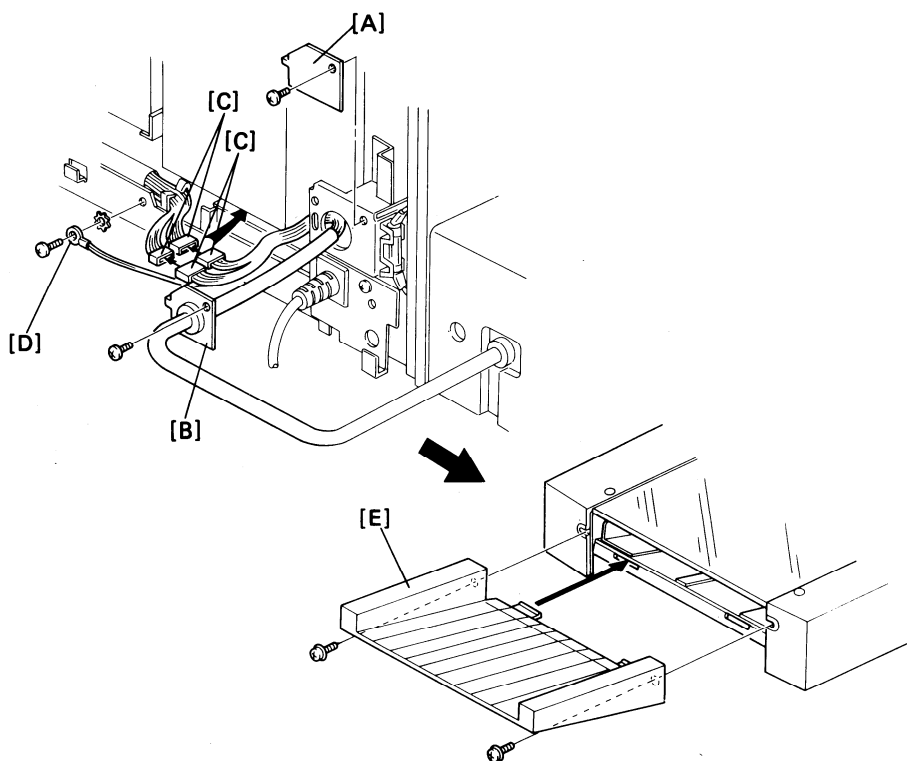
11. INSTALLATION PROCEDURE



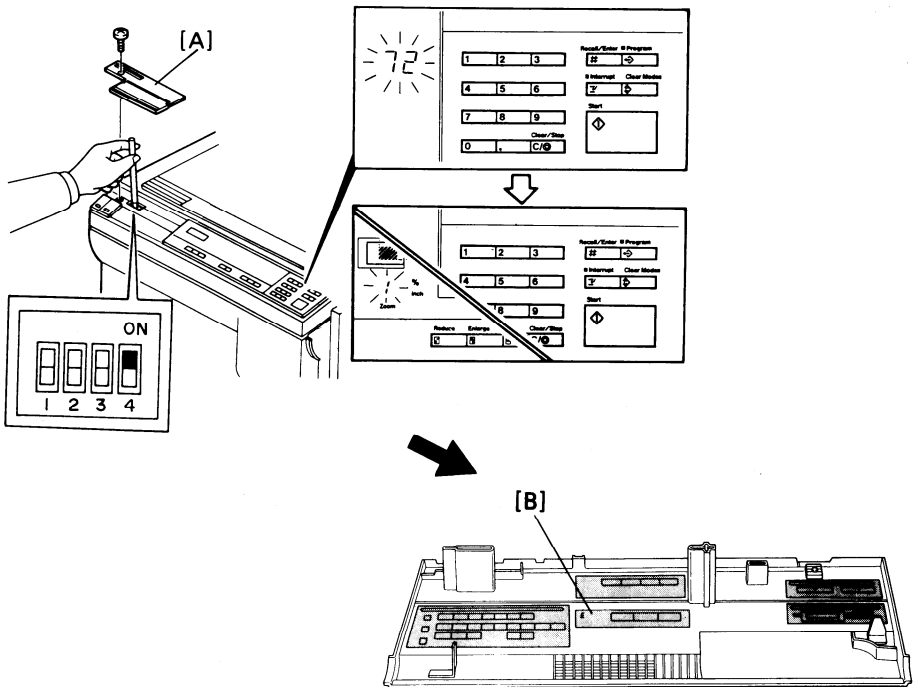
1. Turn off the main switch and unplug the copier power cord.
2. Remove the strips of shipping tape [A].
3. Remove the copier bottom left cover [B] (2 screws) and copier rear cover [C] (4 screws).
4. Open front cover.
5. Remove the 2 stopper screws [D]. Then remove the handle [E] and 2 collars [F] from the copier.
6. Remove the shielding tape [G] from the inner cover.
7. Remove the plastic stopper tab [H] using pliers.
8. Install the front and rear acuride rails [I] of the multi duplex/overlay unit [J] as shown and secure them to the copier (2 screws each).

NOTE: a) Use the M4 x 5 screws to secure the front and rear acuride rails to the copier.

b) Make sure that the multi duplex/overlay unit moves smoothly by sliding back and forth several times with the release lever [K].



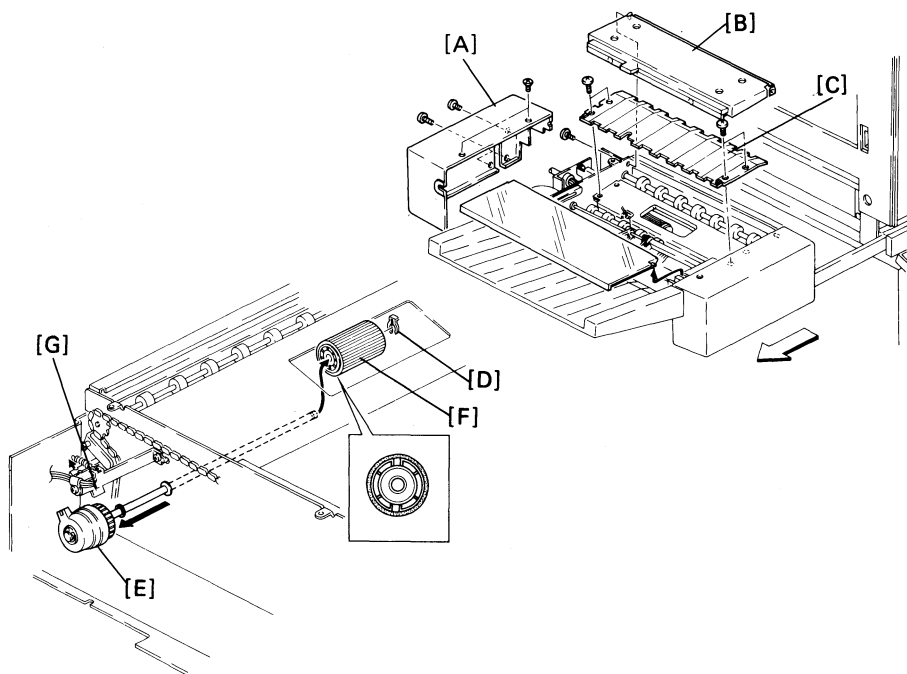
9. Remove the bracket [A] (1 screw) and mount the harness bracket [B] on the power cord bracket (1 screw).
10. Connect the harness connectors [C] (white - 10P, yellow - 6P). Then, put the connectors and the harness back under the transformer. Slide harness between the transformer and accurate bracket.
11. Fix the ground wire [D] to the bottom plate as shown (1 grounding screw).
12. Reinstall the copier rear cover (4 screws).
13. Install the receiving tray [E] (2 screws).



14. Remove the dip switch cover [A] (1 screw).
15. Plug in the power cord of the copier and turn on the main switch.
16. Turn on DPS 1-4 under the operation panel.
17. Enter "72" in the copy counter using the numeral keys, then press the "#" key.
18. Enter "1" in the magnification ratio indicator using the numeral keys, then press the "#" key.
19. Turn off DPS 1-4 under the operation panel.
20. Reinstall the dip switch cover.
21. Stick the decal [B] on the front cover as shown.
22. Check the multi duplex/overlay operation and fill out the New Equipment Condition Report.

12. REPLACEMENT AND ADJUSTMENT

12.1 PAPER FEED ROLLER REPLACEMENT

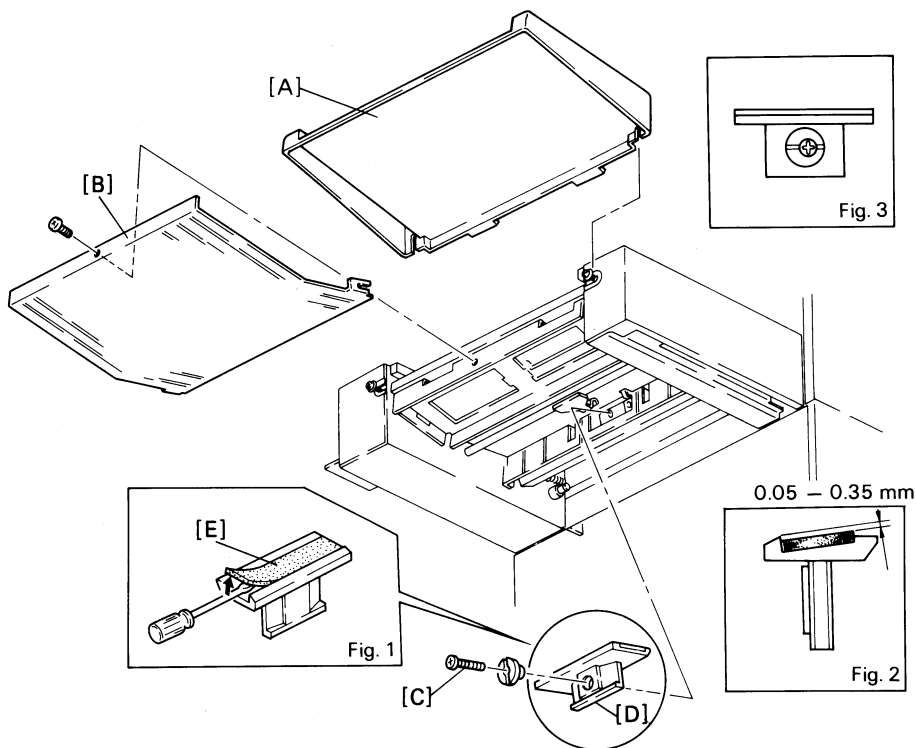


1. Slide the duplex unit to the left and remove the transparent cover.
 - Open the front cover and push lever E1 to the left.
2. Remove the rear cover [A] (5 screws)
3. Remove the top cover [B] (collar screw).
4. Remove the transport guide plate [C] (4 screws)
5. Remove the snap ring [D] from the paper feed roller.
6. Pull the paper feed clutch [E] and the shaft out for enough to remove the paper feed roller [F].
7. Replace the roller.

NOTE: a) Mount the paper feed roller so the bearing is towards the rear of the machine.

b) Position the notch in the feed clutch on the holding bracket [G] properly.

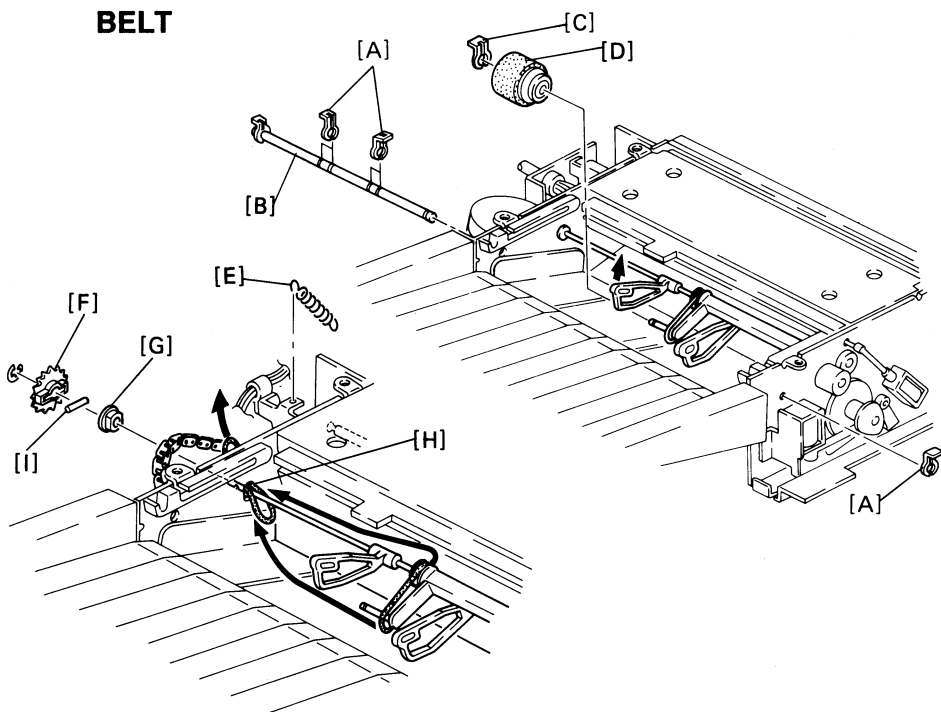
12.2 FRICTION PAD REPLACEMENT AND ADJUSTMENT



(Bottom View)

1. Remove the duplex tray [A] from the multi-duplex unit (2 screws).
2. Remove the bottom cover [B] from the multi-duplex unit (1 screw).
3. Remove the eccentric cam set screw [C] from the friction pad assembly [D].
4. Remove the friction pad assembly.
5. Peel off the friction pad [E] from the pad holder and replace it (see fig. 1).
6. Verify the pad is installed correctly by checking it against fig. 2.
7. Install the assembly with the adjusting cam in the position shown above in fig. 3.

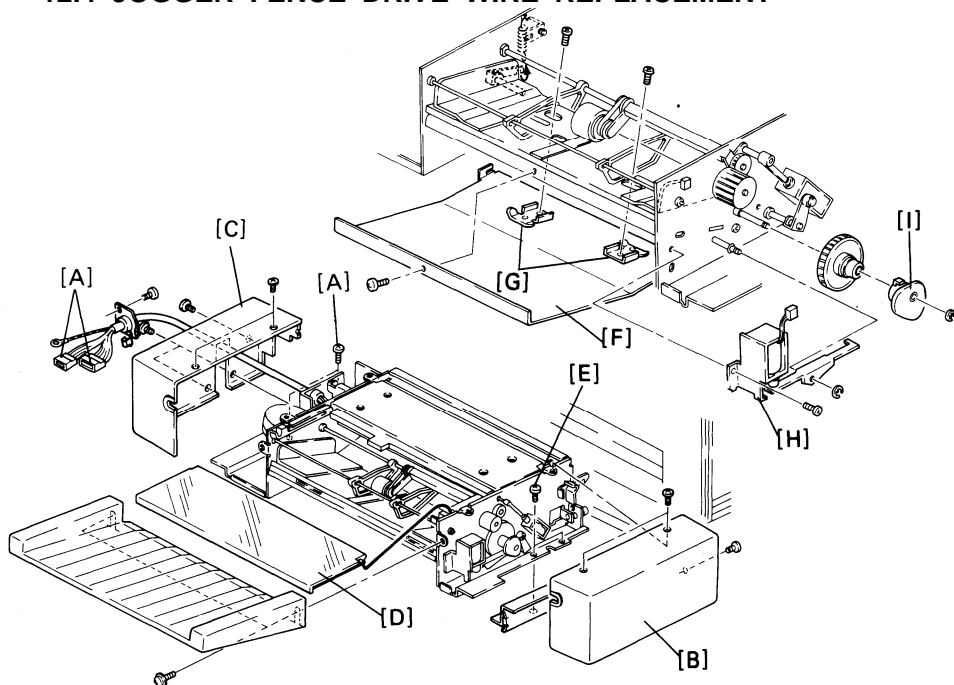
12.3 REPLACEMENT OF POSITIONING ROLLER AND ROUND BELT



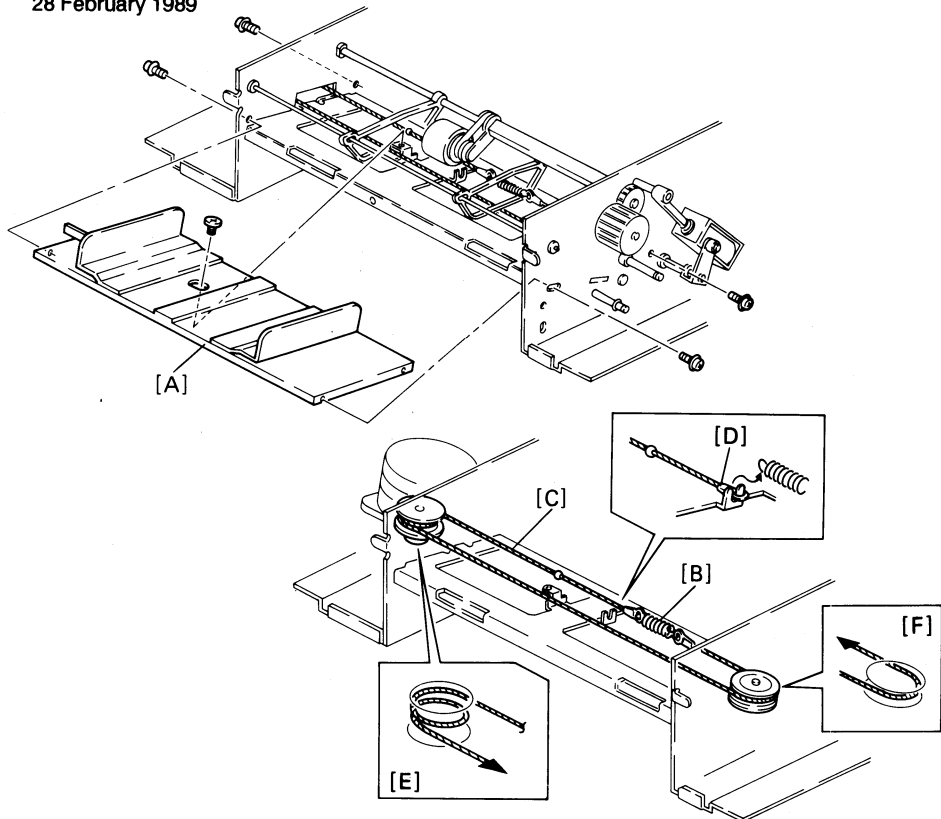
1. Slide the duplex unit to the left and remove the a transparent cover.
• Open the front cover and push lever "E1" to the left.
2. Remove the duplex unit front and rear covers (3 front cover screws and 5 rear cover screws).
3. Remove 6 snap rings [A] and remove the support shaft [B].
4. Remove the snap ring [C]. Take out and replace the positioning roller [D].
5. Remove the chain tension spring [E].
6. Remove the positioning roller drive sprocket [F] and bushing [G] (one E ring).
7. Remove the drive belt [H] as shown in the figure, by slipping it through the hole for bushing and replace it.

NOTE: Do not drop the pin [I] from the drive sprocket.

12.4 JOGGER FENCE DRIVE WIRE REPLACEMENT



1. Slide the duplex unit to the left.
 - Open the front cover and push lever "E1" to the left.
2. Remove the rear cover of the copier (4 screws) and disconnect the automatic duplex unit connectors [A] (10P and 6P), ground wire and bracket (1 screw).
3. Remove the duplex unit front [B] and rear [C] covers (3 front cover screws and 5 rear cover screws), tray (2 screws) and transparent cover [D] from the automatic duplex unit.
4. Loosen the set screws [E] (2 front screws and 2 rear screws) from the rail bracket.
5. Disengage the automatic duplex unit from the rail and place it on a bench.
6. Remove the bottom cover [F] (1 screw), move the jogger fence outward and remove the wire stop plates [G] (2 screws).
7. Remove the tray cam clutch solenoid [H].
8. Remove the cam clutch [I] (1 E-clip).



9. Remove the table jogger fence [A] (2 front screws and 1 middle screws).

- Pull out the table to the left as shown.

10. Remove the tension spring [B] and jogger fence drive wire [C].

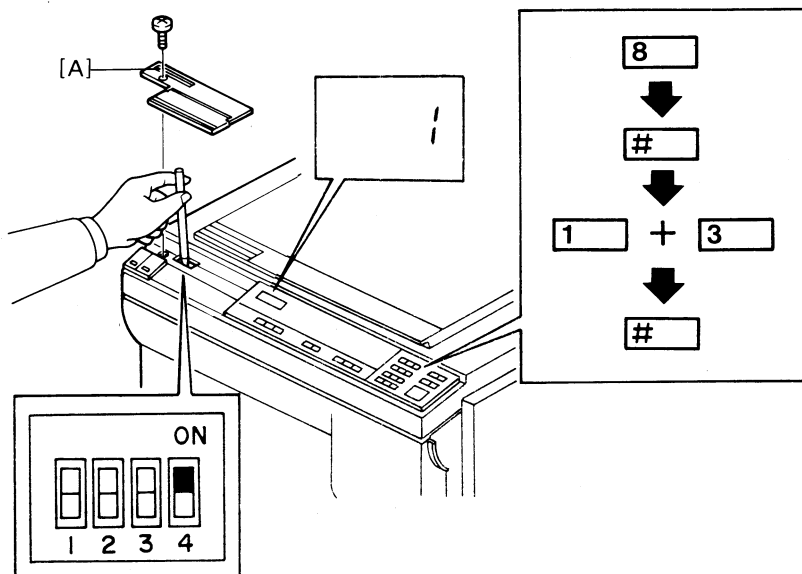
11. Install the new jogger fence drive wire as follows

1. Place the wire [D] block in the fork as shown in fig. 1.
2. Wind the wire by 1.5 turns around the center of the jogger motor pulley [E] (from down to up).
3. Hook the wire to the upper groove of the intermediate pulley [F].
4. Link the wire hooks together with the tension spring.

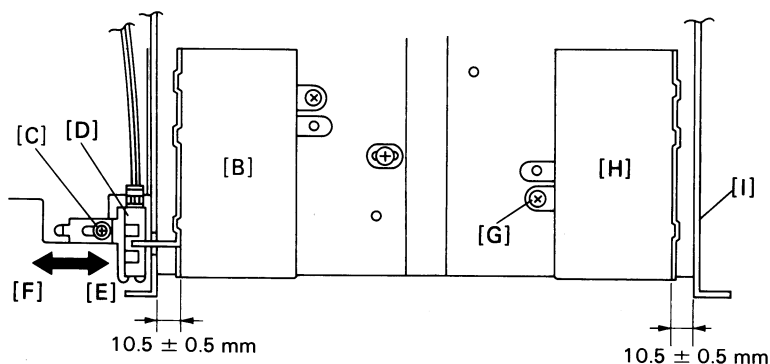
12. Reassemble the automatic duplex unit.

13. Adjust the jogger home position by referring to the next page.

12.5 JOGGER HOME POSITION SENSOR ADJUSTMENT (SP MODE #8-13)



1. Remove the DIP switch cover [A] from the control panel and turn on the DIP switch 1-4.
2. Use the numeric keys on the control panel to select the check mode.
3. Set the check item to the jogger home position sensor (#13).



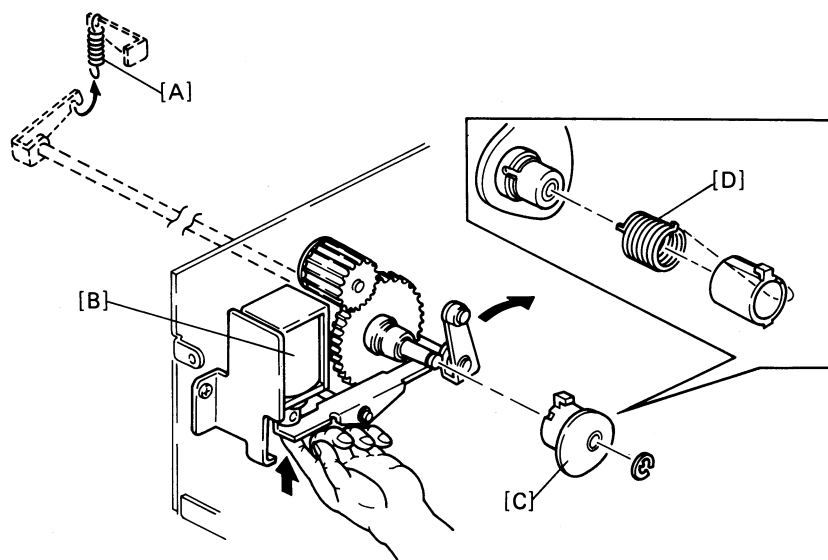
4. Move the rear jogger fence [B] so the position is approximately 10.5 ± 0.5 mm.
5. Loosen the adjusting screw [C] for jogger home position sensor [D], move the bracket inward [E] until the control panel magnification indicator displays "0", move it outward [F] until the magnification indicator just shows "1" and tighten the adjusting screw.
6. Loosen the front jogger fence wire set screw [G] and move the front jogger fence [H] until it is 10.5 ± 0.5 mm from the front side plate [I].
7. Tighten the jogger wire set screw.

(At this time the jogger rear fence will already be in the correct position.)

Precautions:

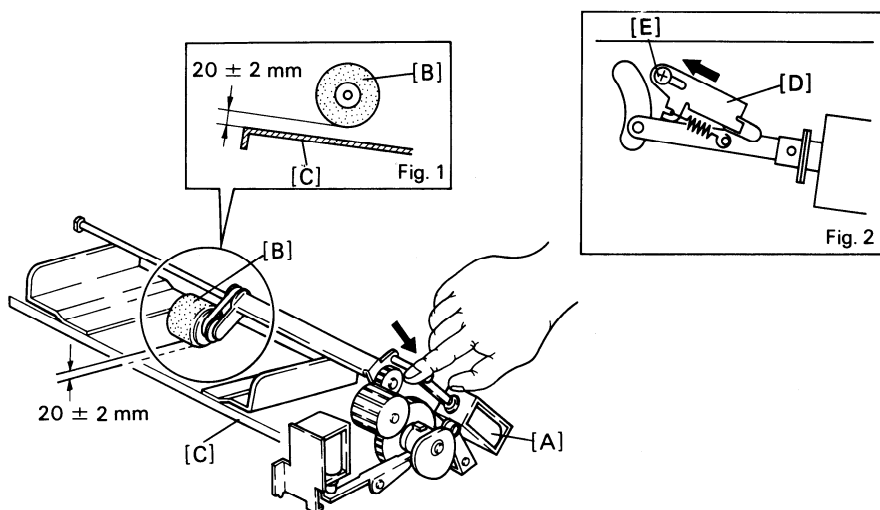
1. Before the above-mentioned adjustment, ensure the silver ball on the jogger fence drive wire is properly attached to the jogger fence.
2. The above adjustment is correct from the factory. Do not use the adjusting screw for jogger home position sensor replacement. Should the jogger home position sensor need replacement, remove the sensor from the bracket and replace it without changing the bracket's position.

12.6 CAM CLUTCH LUBRICATION



1. Slide the duplex unit to the left.
2. Remove the front and rear covers from the duplex unit (3 screws front, 5 rear).
3. Remove the spring [A].
4. Actuate the cam clutch solenoid [B] by hand and remove the cam clutch [C] (1 C-clip).
5. After cleaning the spring clutch [D], apply a light coating of Mobil Temp. 78 to it.

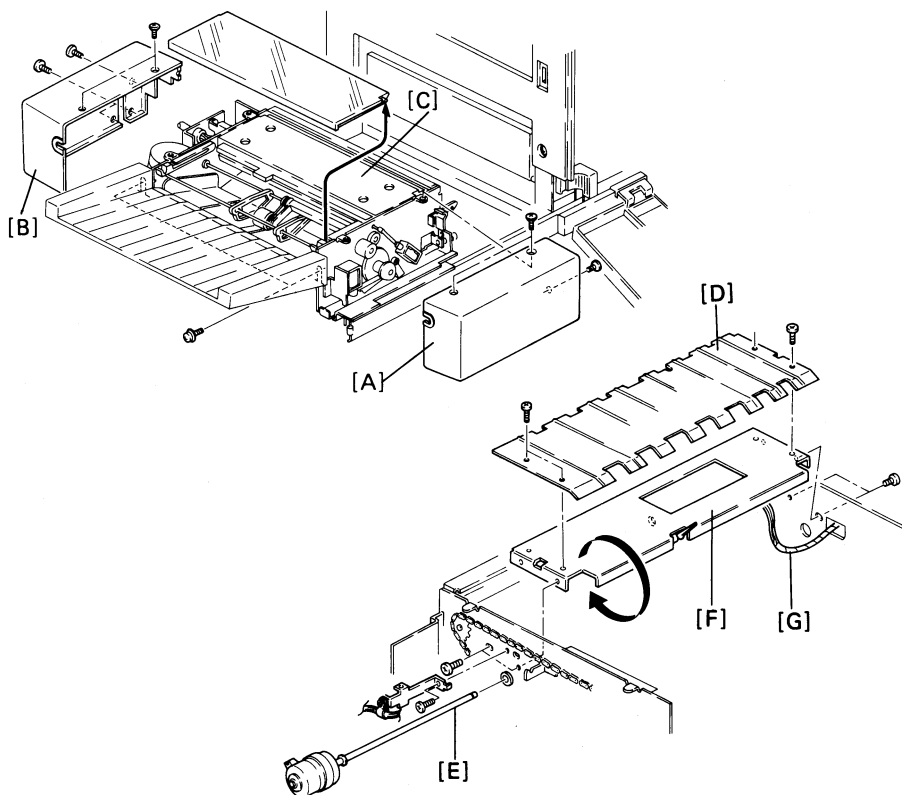
12.7 POSITIONING ROLLER SOLENOID ADJUSTMENT



1. Slide the duplex unit to the left.
2. Remove the front cover from the automatic duplex unit (3 screws).
3. Actuate the positioning roller solenoid [A] by hand and check the gap between the positioning roller [B] and jogger fence table [C] (fig. 1).

NOTE: For most paper applications, leave the pressure adjusting plate [D] at the factory position (as shown in fig. 2). If there is difficulty feeding thick paper, loosen the screw [E] and move the pressure adjusting plate in the arrow direction.

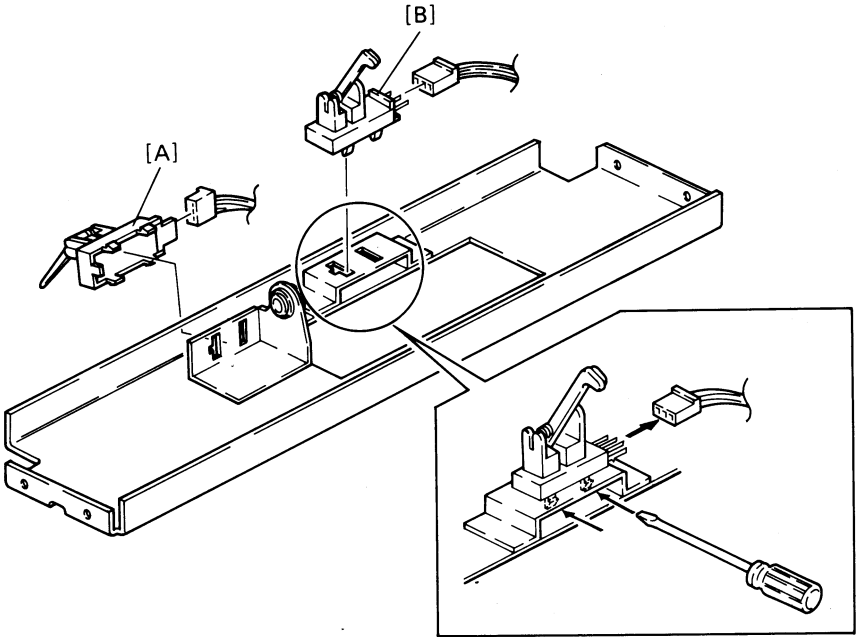
12.8 PAPER EXIT/PAPER END SENSORS REPLACEMENT



1. Slide the duplex unit to the left and remove the transparent cover.
2. Remove the front [A] and rear [B] covers (3 screws front, 5 rear).
3. Remove the upper cover [C].
 - Loosen the collar screw from the rear plate.
4. Remove the transport guide plate [D] (4 screws).
5. Remove the snap ring from the paper feed roller and pull the feed roller drive shaft [E] out for enough to remove the paper feed roller.
6. Loosen the set screws from the paper feed support plate [F] (2 screws each side, front and rear).

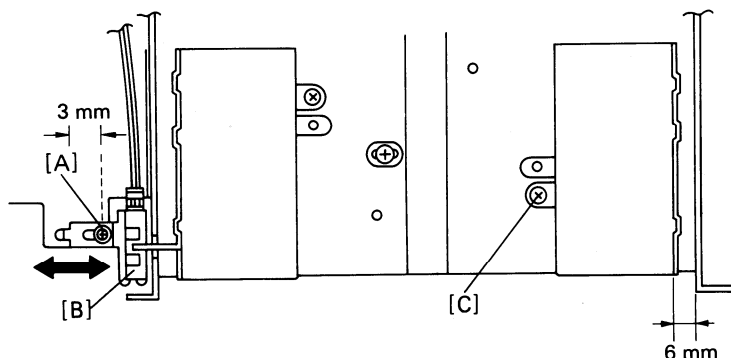
NOTE: Loosen the harness [G] to turn the support plate easier.

7. Turn the paper feed support plate cover, so the sensors are visible.



- 8. Replace the paper exit sensor [A].
- 9. Replace the paper end sensor [B].
 - Use of a long screwdriver facilitates the replacement.
- 10. Reverse the procedure to reassemble.

12.9 MULTI-DUPLEX SIDE TO SIDE REGISTRATION ADJUSTMENT



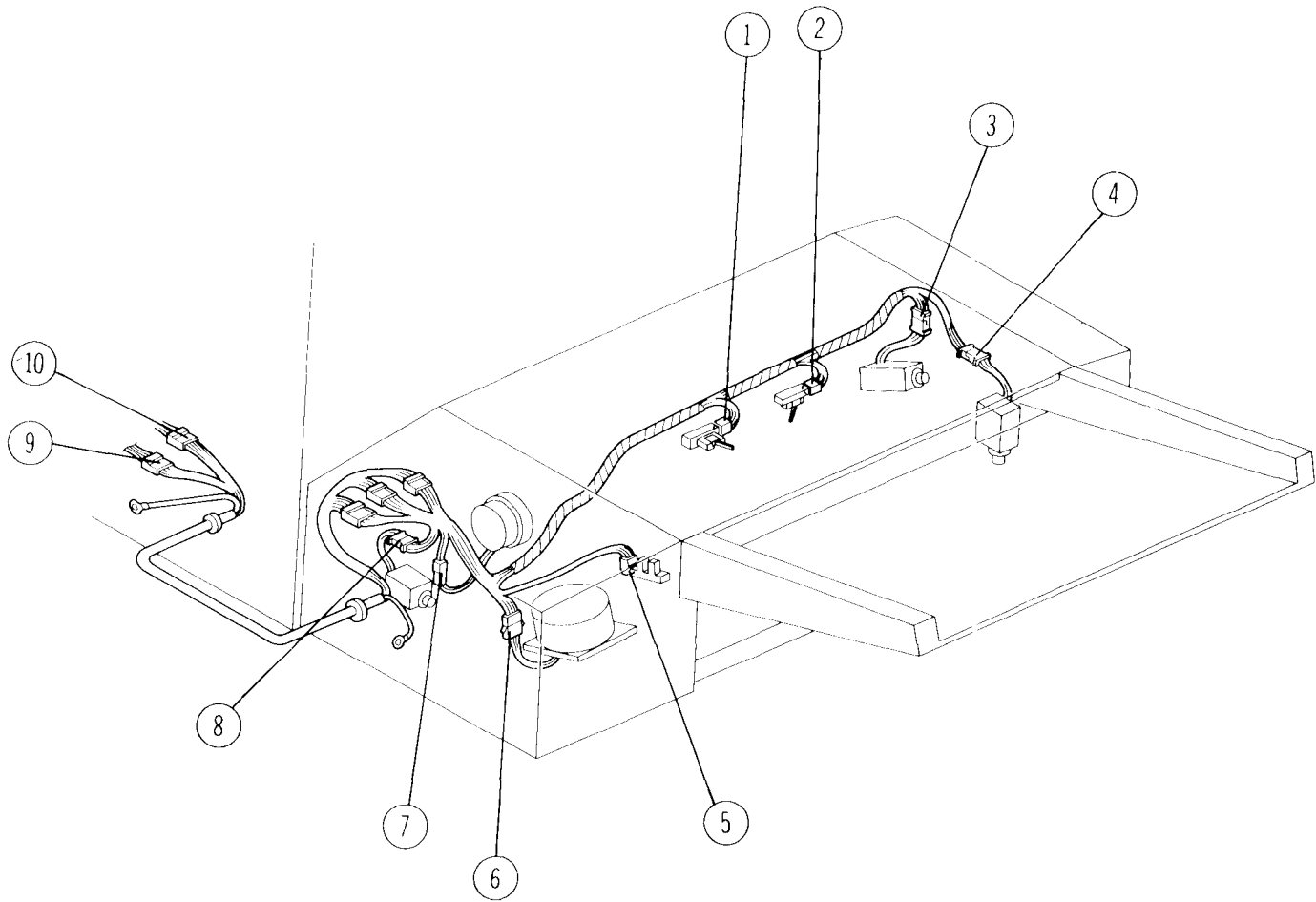
NOTE: Before performing this adjustment do the following:

1. Verify that side-to-side registration is off on the second side of multiple copy runs in duplex and overlay modes.
2. Perform the Jogger Home Sensor adjustment (page 6-19).

Adjustment Procedure

1. Measure the error in registration.
Example: When 2 or more multi-duplex copies are made, the second image is shifted 3 mm towards the front of the copy.
2. Loosen the jogger home position sensor adjusting screw [A] and move the home position sensor the same amount as measured to correct the error.
Example: 3 mm towards the front of the machine.
3. Loosen the front jogger set screw [C] and move the front jogger twice the measured distance.
Example: 6 mm towards the front of the machine.
4. Retighten the front jogger set screw.

5. MULTI DUPLEX/OVERLAY



5. MULTI DUPLEX/OVERLAY

Index No.	CN. No.	Component	Type	P to P
1.	CN3	Paper Exit Sensor	3P/R	~ D-6
2.	CN2	Paper End Sensor	3P/W	D6
3.	CN7	Positioning Roller SOL	2P/W	D-8 (C-8)
4.	CN5	Cam Clutch SOL	2P/B	D-7 (C-7)
5.	CN1	Jogger H.P. Sensor	2P/W	D6
6.	CN8	Jogger Motor	6P/W	D-7 (C-7)
7.	CN6	Duplex Feed MC	2P/W	D-8 (C-8)
8.	CN4	Junction Gate SOL	2P/B	D-7 (C-7)
9.	CN905	Multi Duplex/Overlay Harness	6P/Y	D-7/8
10.		Multi Duplex/Overlay Harness	10P/W	D-6/7