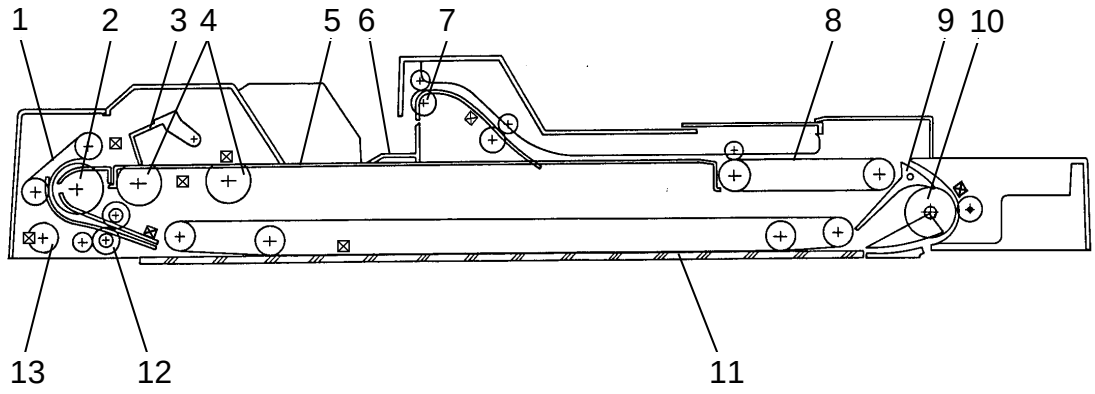
RECYCLING
DOCUMENT HANDLER
(Machine Code : A499)

1. SPECIFICATIONS

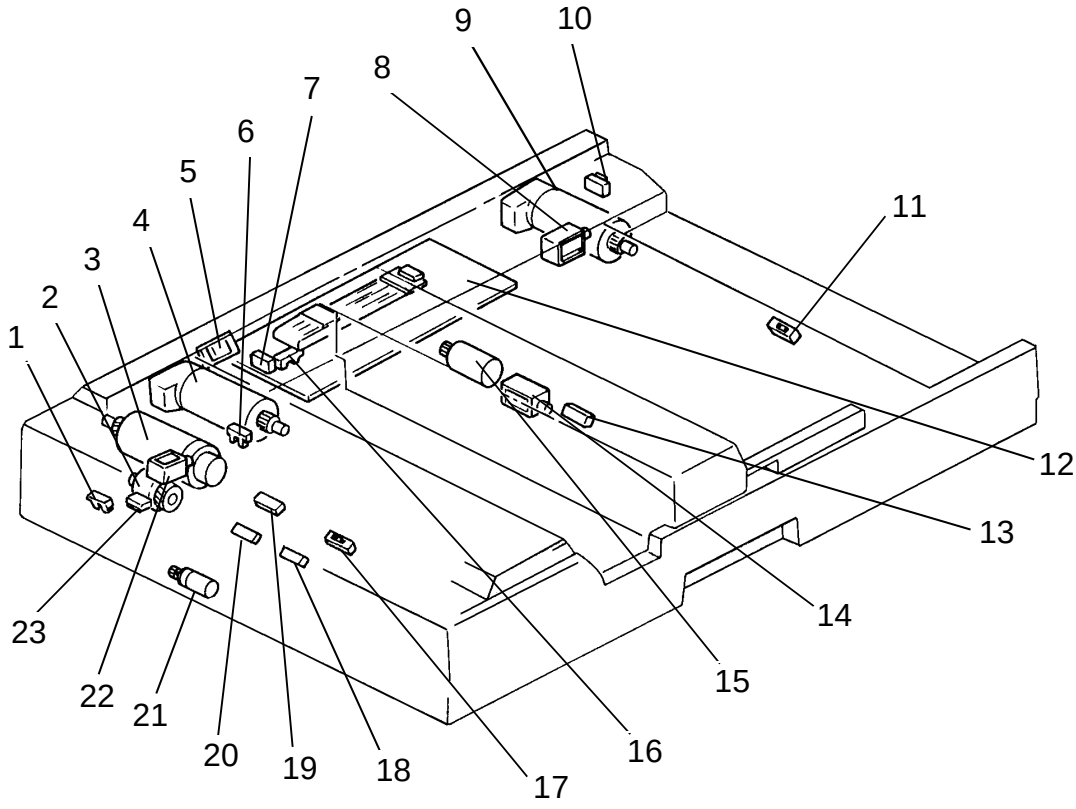
Original Size:	Max A3, 11" x 17" Min A5 lengthwise, 5 1/2" x 8 1/2" (No A5 Sideways, 8 1/2 x 5 1/2)
Original Weight:	52~104 g/m^2 (14~28 lb) (ARF) 52~128 g/m^2 (14~34 lb) (ADF)
Original Feed Mode:	Automatic Feed (ADF) Automatic Recycle Feed (ARF)
Original Capacity:	Max 50 sheets (A4, 8 1/2" x 11")
Original Separation:	Feed and Friction Belts system
Original Transport:	One flat belt
Original Stop System:	DC servo motor control system
Copying Speed:	Continuous copy 53 cpm (A4S, LCT feed) 52 cpm (11" x 8 1/2", LCT feed) Single copy 50 cpm (A4S, 11" x 8 1/2", LCT feed)
Number of Recycles:	Max 30 times
Power Source:	24V (from copier), 2A
Power Consumption:	70W
Dimensions: (W x D x H)	735 x 516 x 132 millimeters (29.0 x 20.4 x 5.2 inches)
Weight:	Approximately 17.5 kg (38.6 lb)

2. MECHANICAL COMPONENT LAYOUT



1. Friction Belts
2. Feed Roller
3. Original Gate
4. Pick-up Rollers
5. Original Stacker
6. Push-plate
7. Feed-out Rollers
8. Exit Relay Belts
9. Inverter Pawls
10. Inverter Roller
11. Transport Belt
12. Pull-out Roller
13. Pulse Generator

3. ELECTRICAL COMPONENT LAYOUT



1. Pulse Generator Sensor
2. Feed-in Clutch
3. Feed-in Motor
4. Transport Belt Motor
5. Indicator Panel
6. One-turn Sensor
7. Lift Switch
8. Inverter Solenoid
9. Inverter Motor
10. Feed-out Unit Safety Switch
11. Inverter Sensor
12. RDH Main PCB
13. Feed-out Sensor
14. Push Plate Solenoid
15. Feed-out Motor
16. RDH Position Sensor
17. Original Set Sensor
18. Registration Sensor
19. Recycle Sensor
20. Original Width Sensor
21. Friction Belt Motor
22. Original Gate Solenoid
23. Feed-in Unit Safety Switch

4. ELECTRICAL COMPONENT DESCRIPTIONS

MOTORS

NAME	FUNCTION	LOCATION
Feed-in Motor	Drives the feed-in system. (pick-up rollers, feed roller, and pull-out roller) (dc servo).	3
Transport Belt Motor	Drives the transport belt. (dc servo)	4
Inverter Motor	Drives the inverter roller and the exit relay belts.	9
Feed-out Motor	Drives the feed-out unit.	15
Friction Belt Motor	Drives the Friction belts	21

SOLENOIDS

NAME	FUNCTION	LOCATION
Original Gate Solenoid	Energizes to open the original gate.	22
Inverter Solenoid	Energizes to invert the original when copying a two-sided original.	8
Push Plate Solenoid	Energizes to push the stack of originals to the feed-in section.	14

SWITCHES

NAME	FUNCTION	LOCATION
Lift Switch	Informs the copier CPU when the RDH is lifted and also serves as the jam reset switch for the RDH.	7
Feed-in Unit Safety Switch	Detects whether the feed-in unit is set correctly.	23
Feed-out Unit Safety Switch	Detects whether the feed-out unit is set correctly.	10

SENSORS

NAME	FUNCTION	LOCATION
Original Set Sensor	Informs the copier CPU that originals have been placed and causes the Insert Original indicator to go out.	17
Recycle Sensor	Informs the CPU when the top original is fed from the original stacker.	19
Registration Sensor	Sets original stop timing and measures the original's length.	17
Original Width Sensor	Determines the width of the original.	20
Pulse Generator Sensor	Generates the pulses used to measure the original's length.	1
Inverter Sensor	Sets original stop timing when in auto reverse mode.	11
Feed-out Sensor	Checks for original misfeeds.	13
One Turn Sensor	Informs the CPU when the pick-up roller turns one rotation.	6
RDH Position Sensor	Informs the CPU when RDH is being closed so that APS sensor can begin checking the original size.	16

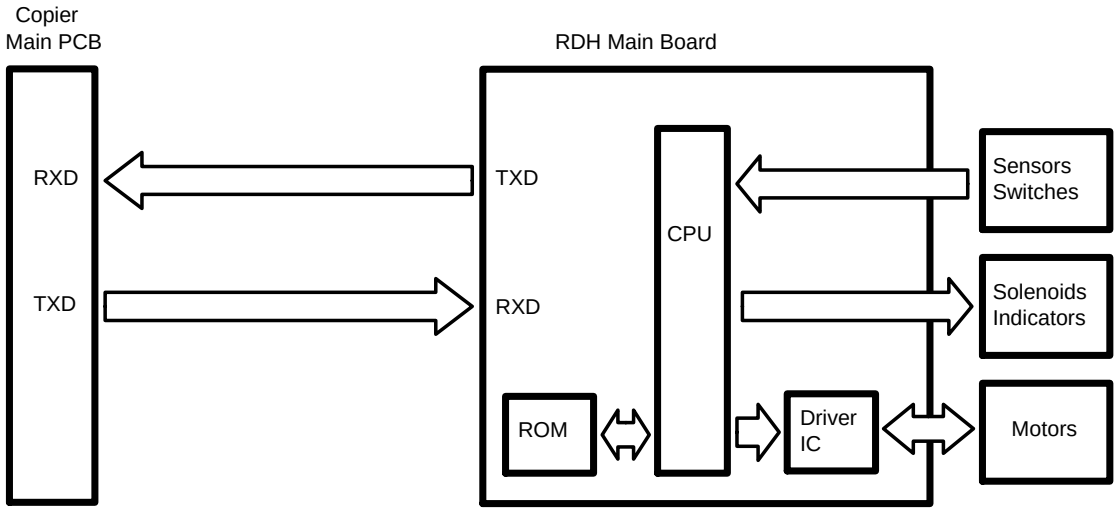
MAGNETIC CLUTCH

NAME	FUNCTION	LOCATION
Feed-in clutch	Energizes to rotate the feed roller.	2

PRINTED CIRCUIT BOARDS

NAME	FUNCTION	LOCATION
RDH Main PCB	Controls all RDH functions.	12
Indicator Panel PCB	Contains indicators for the operator.	5

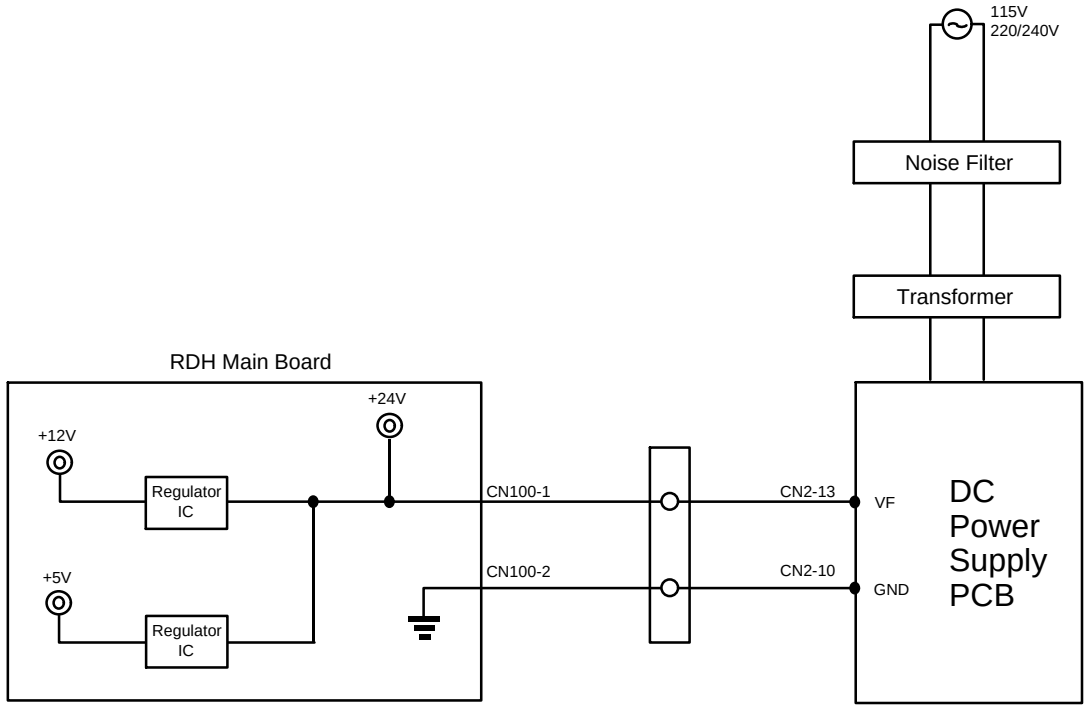
5. OVERALL MACHINE CONTROL



The RDH CPU monitors the input signals from the sensors and switches, and energizes the solenoids and the indicator LEDs directly. The motors are controlled by the RDH CPU through their respective driver ICs.

Also, the RDH CPU communicates with the main system using a fiber optic serial interface.

6. POWER DISTRIBUTION



The RDH uses three dc power levels : +24 volts, +12 volts, and +5 volts.

The line voltage is applied to the power supply board of the main copier where it is stepped down and rectified to +24 volts. Then, this dc voltage is supplied to the RDH main board.

The regulator IC on the RDH main board further steps down the +24 volts to +12 volts and +5 volts.

7. BASIC OPERATION

7.1 ONE-SIDED ORIGINAL FEED

When an original is placed the RDH, the Set Original indicator goes out and the RDH informs the copier that originals have been set.

When the Start key is pressed, the copier CPU sends the feed-in signal to the RDH. On receipt of this signal, the gate solenoid turns on, opening the original gate. At the same time the push-plate solenoid and the feed-in motor turn on. The push-plate and pick-up rollers move the entire stack of originals to the feed position.

After that, the transport motor starts turning. The bottom original is fed in by the feed roller and the friction belts and delivered to the exposure glass by the transport belt.

After a very short period, the second original is also fed in until its leading edge reaches the registration sensor. This is in preparation for the next copy cycle.

When the scanner reaches the return position, the copier CPU sends the feed-out and the feed-in signals to the RDH in order to feed in the second original. If the first original is A4/Letter size (sideways feed) or smaller, the it is not fed out as the next original is transported to the exposure glass. It is just moved to the right side of the exposure glass. After completing the second scan, the third original is fed in and **the first original** is fed out from the unit. This continues until all originals have been copied.

The originals are stacked on the original table where they wait for the next copy cycle.

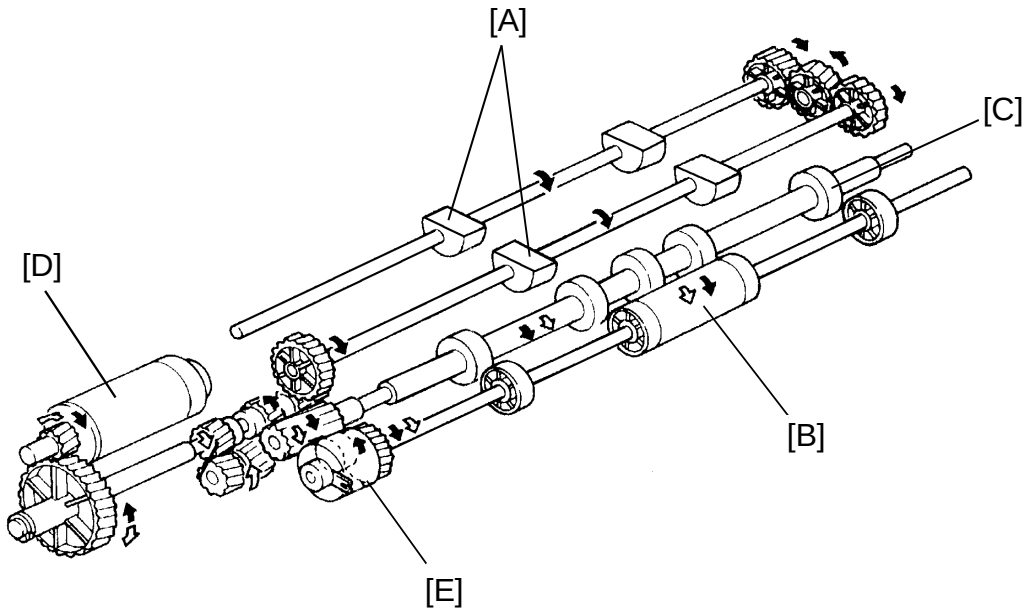
7.2 TWO-SIDED ORIGINAL FEED

Unlike one-sided original feed, the back-side of the original must be copied first to keep the originals and copies in correct order.

During original feed-in, the sequence is the same as for one-sided feed; however, the RDH CPU also energizes the feed-out motor and the inverter solenoid a short time after the original's leading edge has passed the RDH registration sensor. The transport motor continues to feed the original until the inverter mechanism inverts the original for the back-side copying. Then, the transport motor reverses to feed the original towards the original stopper and stops the original at the correct position on the exposure glass.

When the scanner reaches the return position, the copier CPU sends the feed-out signal to the RDH CPU. The RDH then inverts the original in the same way as for back-side copying.

8. FEED-IN DRIVE MECHANISM



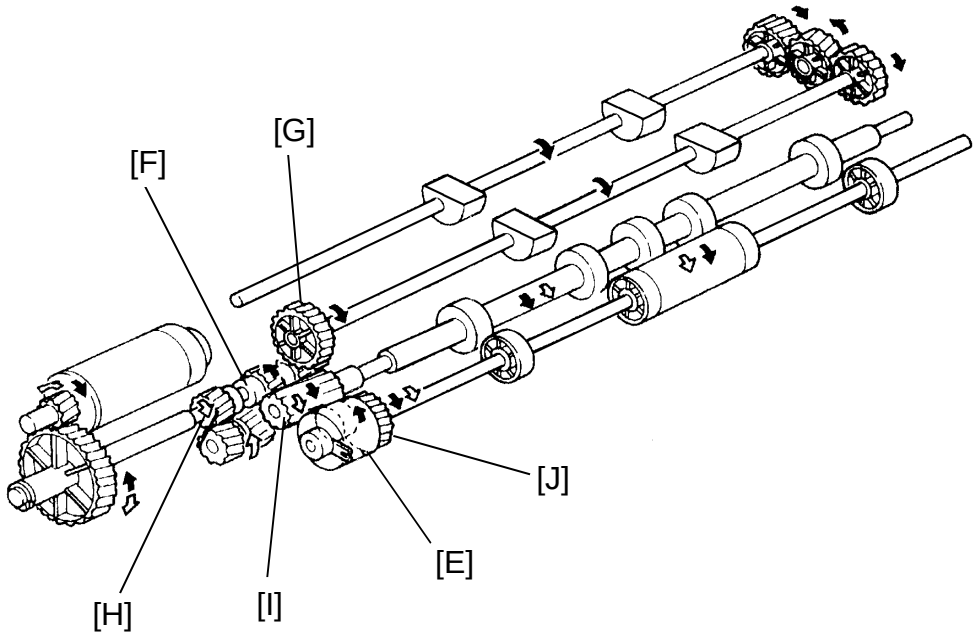
The pick-up rollers [A], feed roller [B], and the pull-out rollers [C] are driven by the feed-in motor [D] through the gears and the feed-in clutch [E].

-Basic Operation-
The feed-in motor is a reversible dc motor. When the feed-in motor rotates forward (clockwise), all the rollers turn in the original feed direction. (The feed roller can rotate only when the feed-in clutch is on.)

When the feed-in motor reverses, the pick-up rollers stop. However, the feed roller and the pull-out rollers continue turning in the same direction.

Roller(s)	Feed-in Motor	
	Forward	Reverse
Pick-up	On	Off
Feed	On/Off	On/Off
Pull-out	On	On

(* Only when the feed-in clutch turns on, the feed roller rotates.)

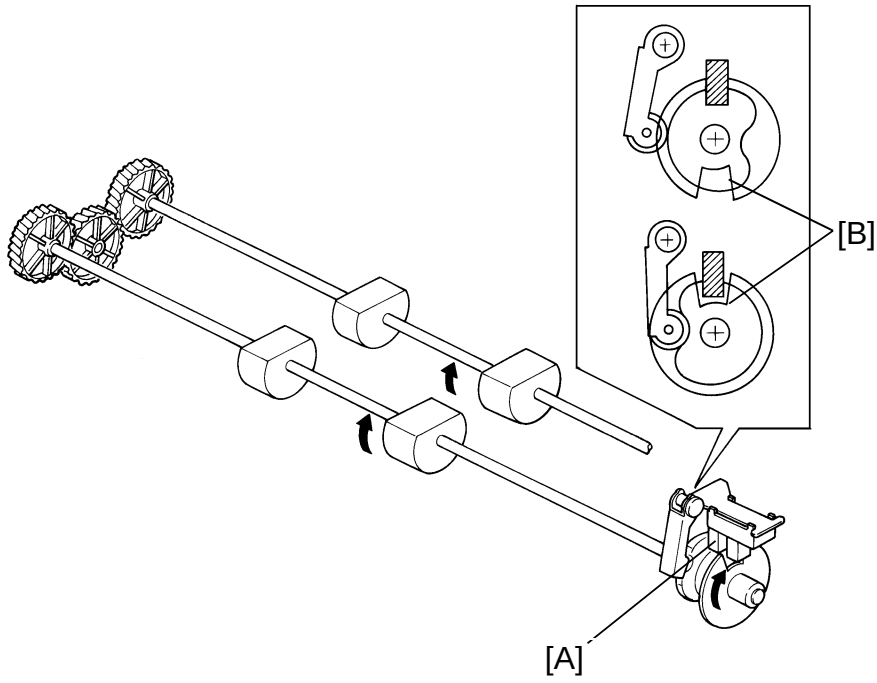


When the Start Key is pressed, the feed-in motor starts turning clockwise. Drive is transferred to the pick-up rollers through gears [F] and [G] and to the feed-in clutch through gears [H] and [I]. The timing of the feed roller rotation is controlled by the feed-in clutch.

Next, the feed-in motor reverses (counterclockwise). The pick-up rollers stop turning due to the one-way bearing inside gears [F]. However, the feed roller continues turning in the **same direction** through gears [J], [H], [I], and the feed-in clutch [E].

Since the pull-out roller is installed on the shaft of gear [H], the pull-out roller always turns in the original feed direction whenever the feed-in motor is turned on.

9. ONE-TURN SENSOR

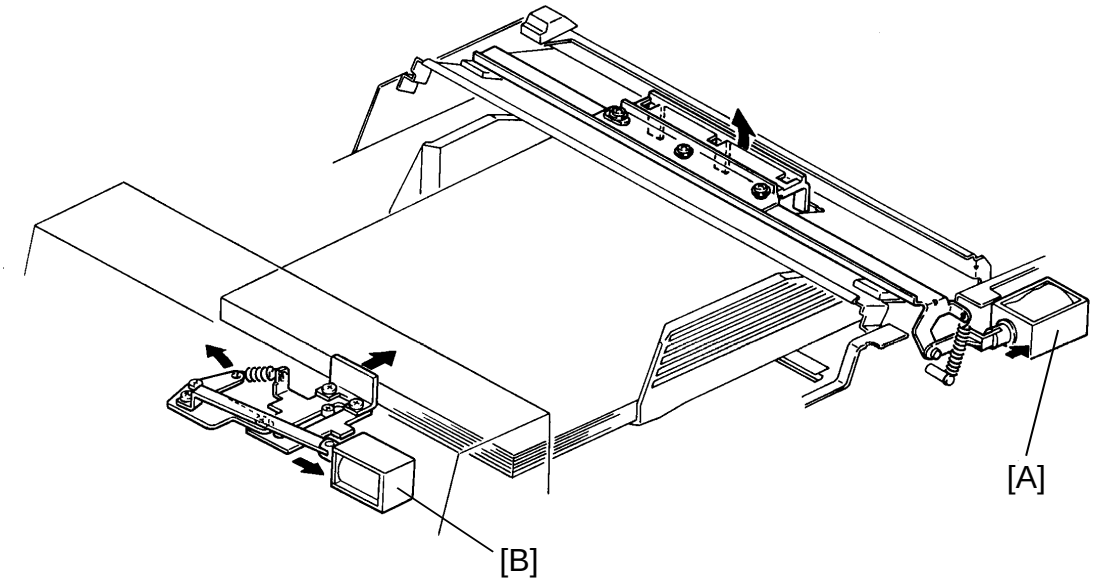


The one-turn sensor is located at the rear end of the pick-up roller shaft [A]. It counts the rotations of the pick-up rollers.

Every 360°, the notch [B] in the one-turn disk returns to the one-turn sensor and the sensor turns on.

When feeding an original, the CPU monitors the rotation of the pick-up rollers through this sensor. It always stops the rollers with their flat surfaces facing up.

10. ORIGINAL SETTING FOR RECYCLE



When the Start Key is pressed, the original gate solenoid [A] is energized to open the original gate. At the same time, the push plate solenoid [B] is energized and the pick-up rollers start turning. The pick-up rollers and the push plate move the entire stack of the originals to the feed-in section.

At this time, the originals turn the recycle sensor on. After that, the original are fed one by one from the bottom of the stack. The recycle sensor stays on until the last original is fed.

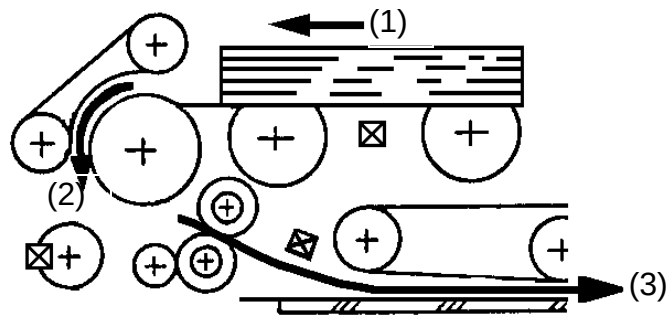
The copied originals are fed out from the feed-out unit onto the original stacker where they wait for the next cycle.

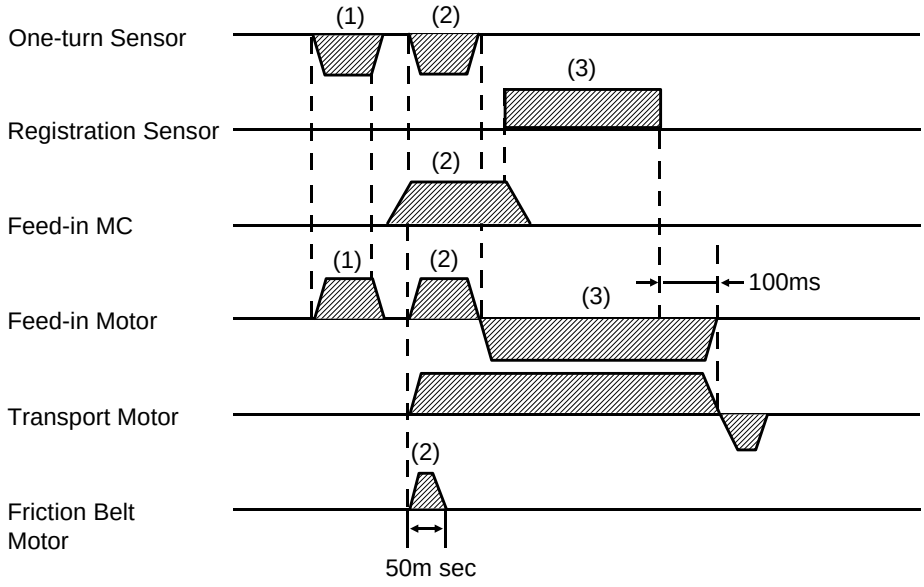
When the last original is fed in from the feed-in section, the recycle sensor turns off. This informs the RDH CPU that all the originals have been fed in for the first set of copies.

Soon after the last original passes the recycle sensor, the original gate is opened again and the push plate and the pick-up rollers move the stack of originals to the feed-in section for the second cycle. This is the pre-stacking cycle. However, the last few originals of the first cycle have not fed out yet, at this moment. In order to set them on the pre-stacked originals, the original gate, and the push plate are energized again after the last original is fed out.

This recycle system increases the total copy productivity to 50cpm for A4, or 8 1/2"x11" originals. (sideways feed and 100% reproduction ratio)

11. ORIGINAL FEED-IN





Soon after the entire stack of the originals are moved to the feed-in position(1), the feed-in clutch and the friction belt motor turn on. The friction belt motor rotates for 50 milliseconds counter to the direction of the feed roller rotation to ensure the separation of the bottom original(2).

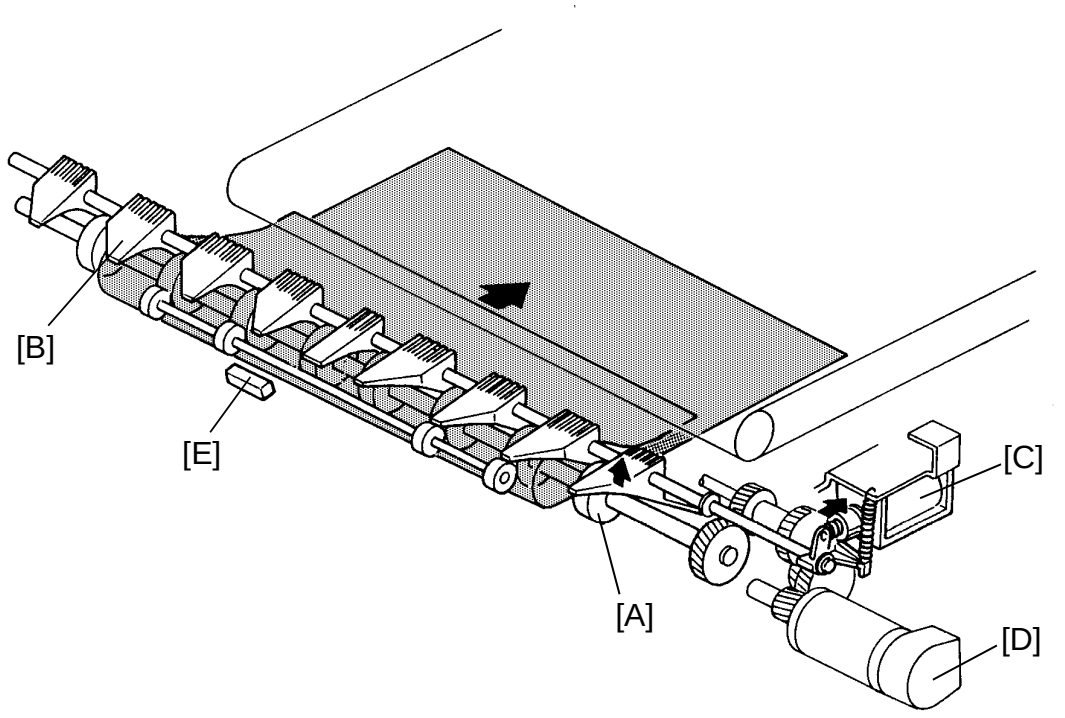
When the leading edge of the original reaches the registration sensor, the feed-in clutch turns off and the feed-in motor reverses(3). From this time onward, the pull-out rollers take over and feed the original to the transport section.

The registration sensor also serves to measure the original length. The RDH CPU determines the original size by counting how many pulses it receives while the original passes the sensor.

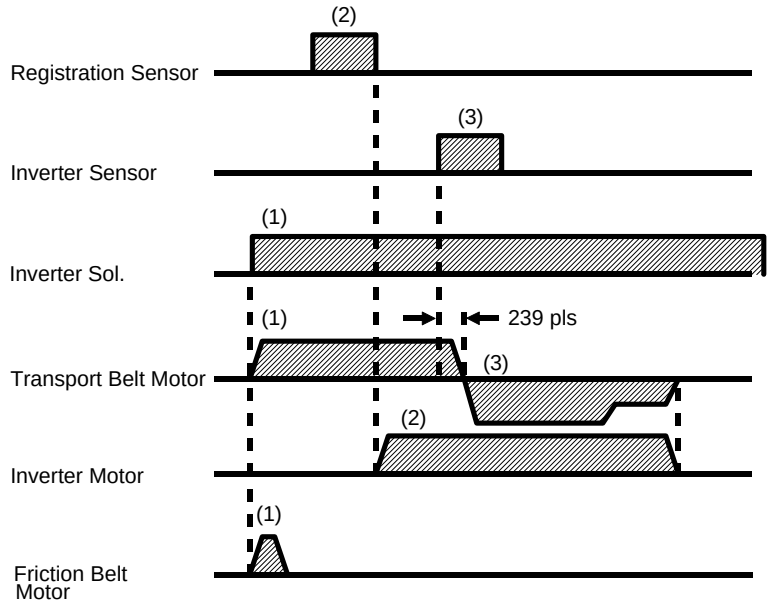
The original width is checked by the original width sensor, which is located next to the registration sensor.

The original stop position is determined by pulse count from the time the original trailing edge passes the registration sensor.

12. ORIGINAL INVERSION MECHANISM



Two sided originals are inverted by the inverter rollers [A] and the inverter pawls [B]. When the inverter solenoid [C] is energized, the inverter pawls are opened and the original is inverted.



When the Start key is pressed, the two sided original is fed in to the transport section. The inverter solenoid is energized at the same time as the transport belt motor and the friction belt motor turns on. (1)

When the trailing edge of the original passes the registration sensor, the inverter motor [D] starts turning. (2)

The original passes over the exposure glass and goes into the inverter section. Since the inverter pawls are already open at that time, the original is inverted and directed back to the transport belt section. The transport belt motor reverses 239 pulses after the leading edge of the original passes the inverter sensor [E]. (3)

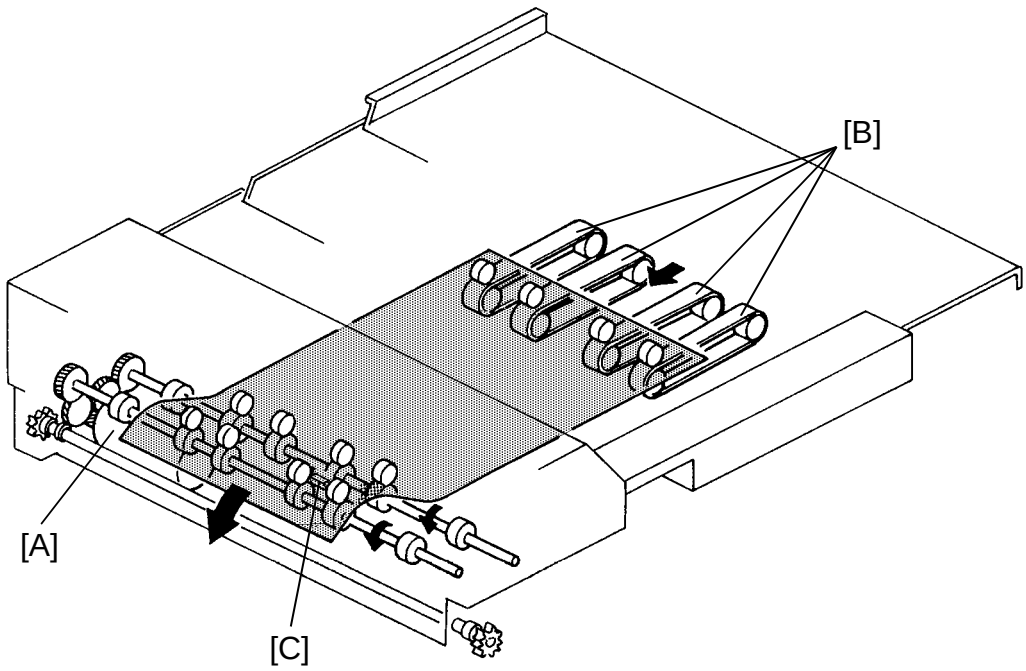
The transport belt then moves the original to the original scale.

The back side of the original is copied first.

After the back side is exposed, the transport belt motor and the inverter solenoid turn on again. The original is moved to the inverter rollers and inverted, and then moved back to the original stopper.

After front side is exposed, the original is fed out of the RDH unit.

13. ORIGINAL FEED-OUT MECHANISM



When the RDH receives the feed-out signal from the copier, the transport belt motor, the inverter motor, and the feed-out motor [A] start turning. Since the inverter solenoid is off at this time, the inverter pawls are positioned to direct the original to the exit relay belts [B]. The original is fed to the feed-out unit by the exit relay belts and then fed out of the RDH unit.

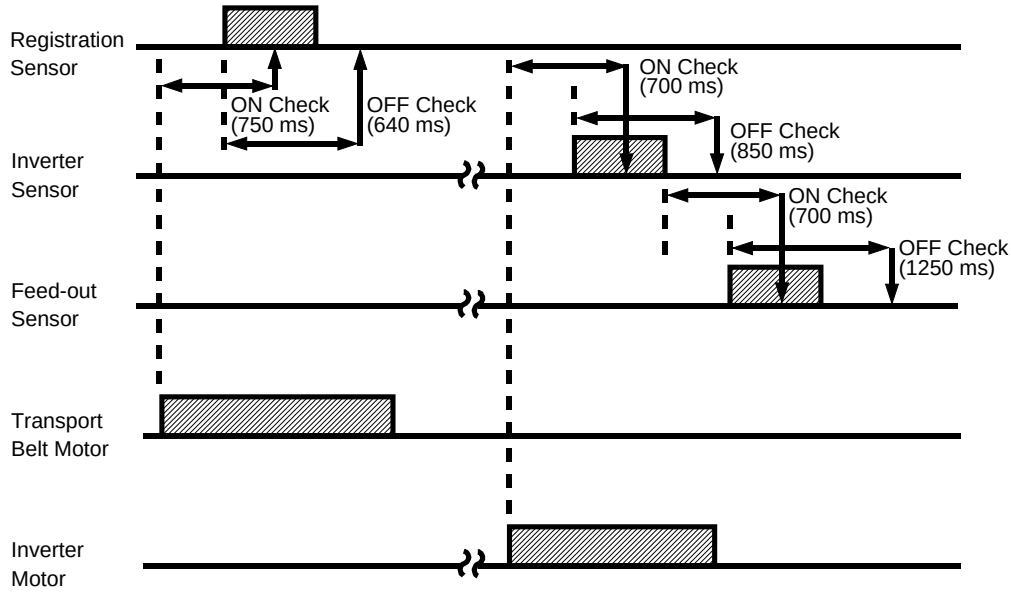
The feed-out motor drops to half of its normal speed 100 milliseconds after the original's leading edge passes the feed-out sensor [C]. It stays at half speed until 180 milliseconds after the original's trailing edge passes the feed-out sensor. This lower speed prevents uneven stacking of originals.

For B4/10"x14" and larger originals, the feed-out motor changes its speed 280 milliseconds after the original's leading edge passes the feed-out sensor.

14. ORIGINAL MISFEED DETECTION

The copier CPU lights the original misfeed indicator if the previous original remains on the exposure glass after manual copying and RDH feed is attempted. When the RDH is lifted and the previous original is removed, RDH copying is permitted.

14.1 One-sided original

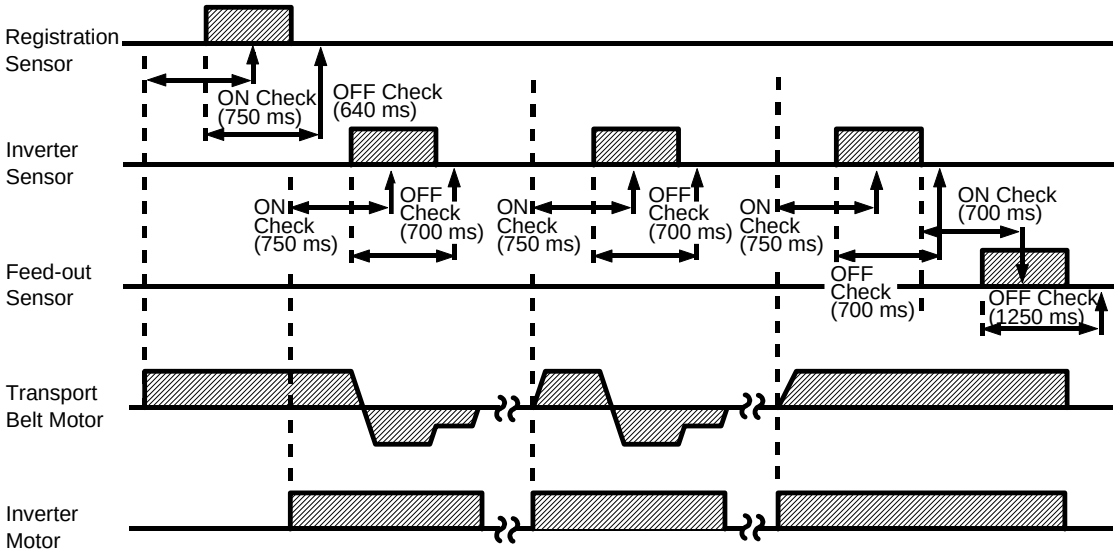


If the registration sensor is not actuated within 750 milliseconds after the transport belt motor starts turning, the Original Misfeed indicator lights (ON check). If the registration sensor does not turn off within 640 milliseconds, the CPU determines that there has been an original misfeed (OFF check).

If the inverter sensor is not actuated within 700 milliseconds after the inverter motor starts turning (ON check) or if the inverter sensor does not turn off within 850 milliseconds, the Original Misfeed indicator turns on.

If the feed-out sensor is not actuated within 700 milliseconds after the inverter sensor turns off (ON check), or if the feed-out sensor does not turn off within 1250 milliseconds, the Original Misfeed indicator lights (OFF check).

14.2 Two-sided original



The ON/OFF check timing of the registration sensor is same as in the one-sided original mode.

For original inversion, if the inverter sensor is not actuated within 750 milliseconds after the inverter roller turns on (ON check) or if the inverter sensor does not turn off within 700 milliseconds (OFF check), the Original Misfeed indicator lights.

During original feed-out, ON/OFF checks are performed at both the inverter sensor and the feed-out sensor at the same time as in the one-sided original mode.

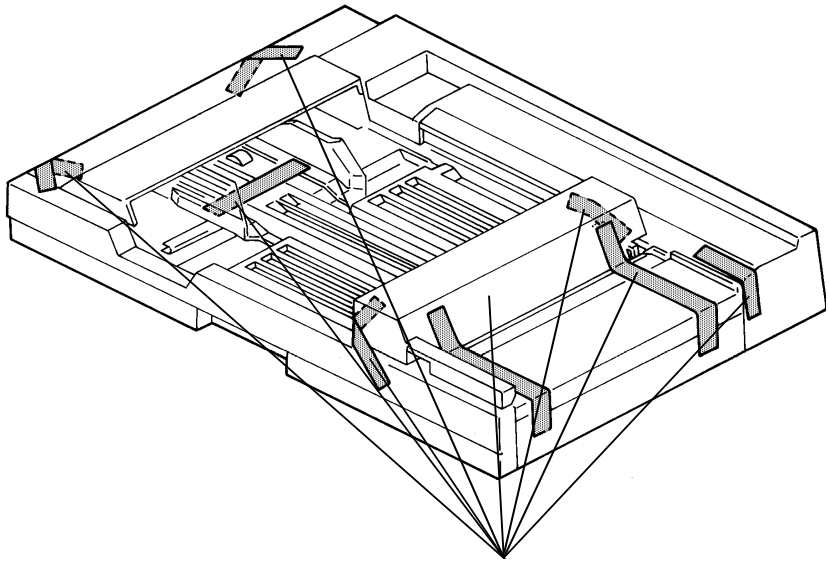
15. INSTALLATION

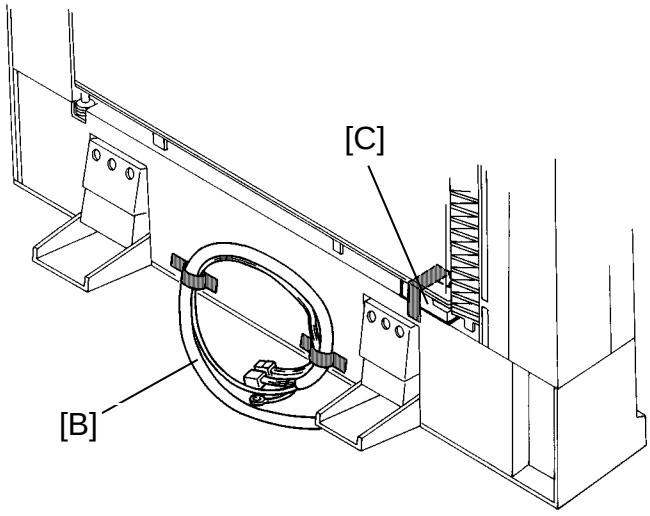
15.1 ACCESSORY CHECK

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

1. Installation Procedure	1
2. RDH Test Chart	1
3. RDH Base Holder Bracket	1
4. Stopper	2
5. Switching Lever	1
6. Ground Screw	1
7. Toothed Washer	1
8. Shoulder Screw	2
9. Pan head Screw 4 x 6	3
10. Pan head Screw (WASHER)	1
11. Truss head Screw 4 x 6	8
12. Shoulder Screw 4 x 10	8
13. Bushing	1
14.Plastic Clamp	1
15. NECR	1
16.Envelope - NECR (U.S.A. only)	1

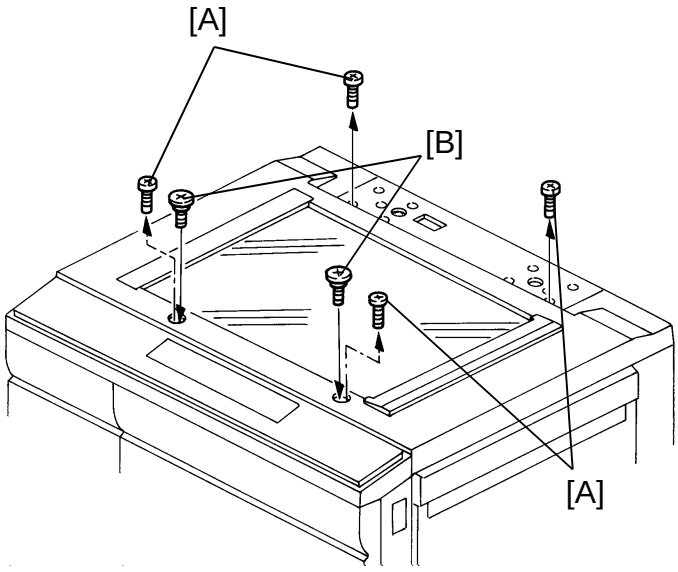
15.2 INSTALLATION PROCEDURE

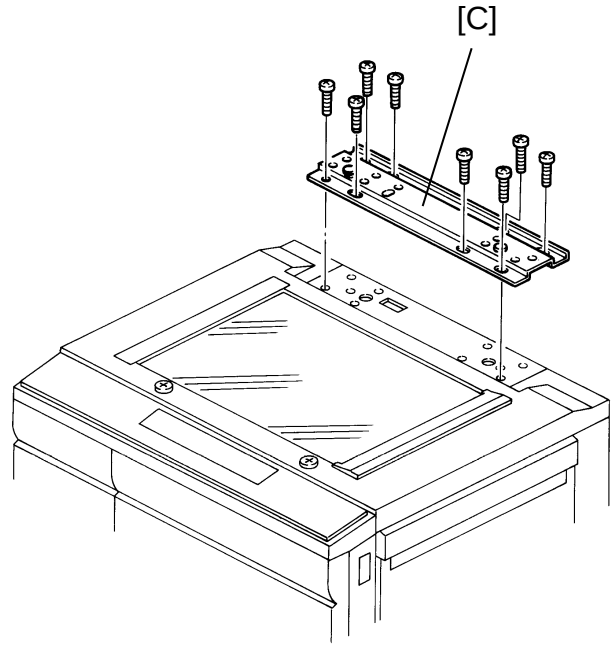


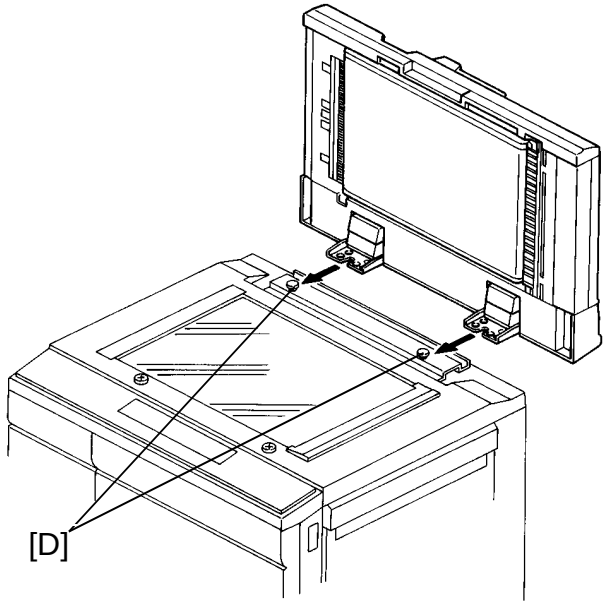


Warning: Before installing the RDH, make sure that the copier is unplugged.

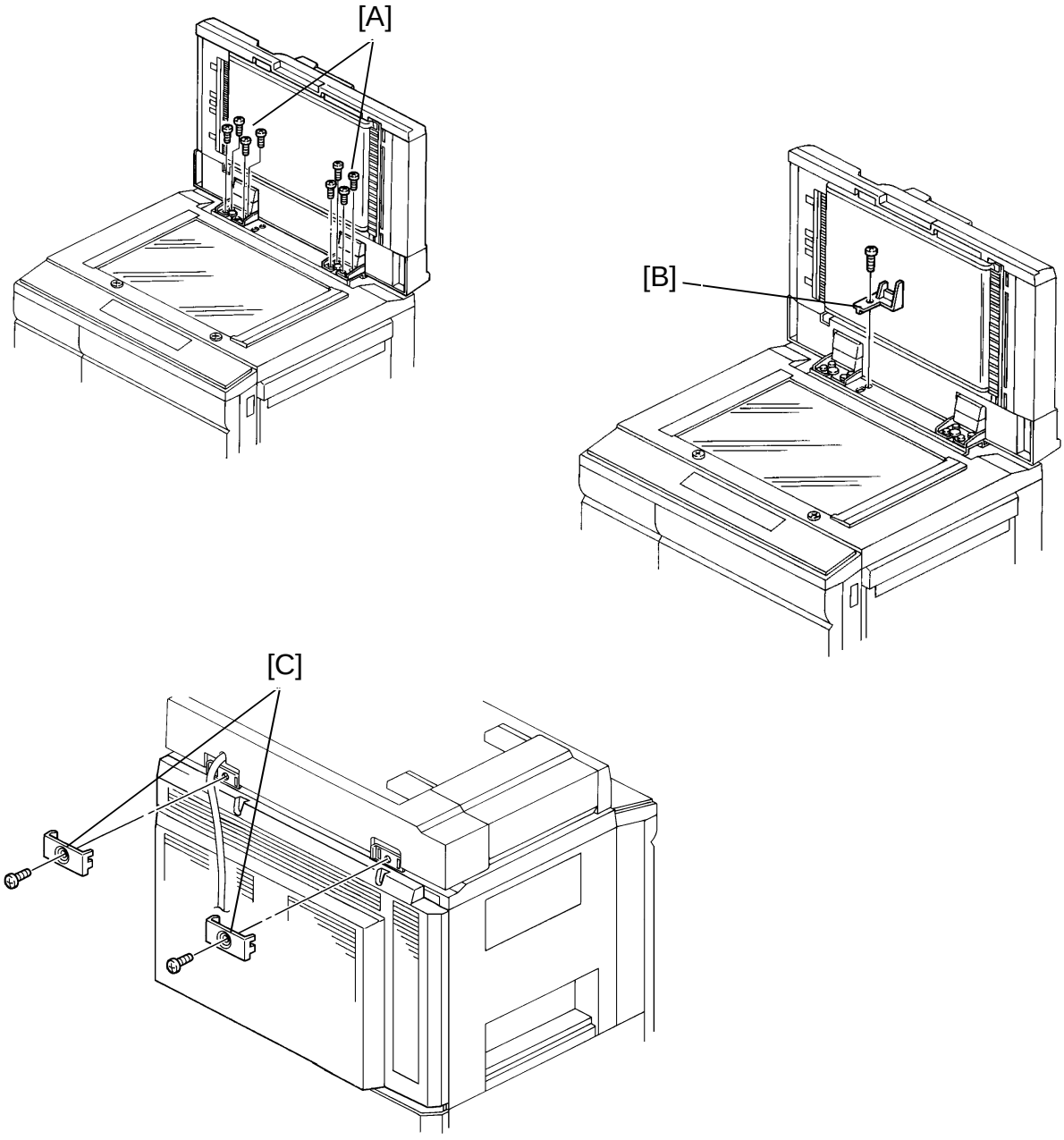
1. Remove the 8 strips of filament tape [A].
2. Remove the interface harness cable [B] (2 strips of filament tape) and the cushion [C] (1 strip of filament tape).



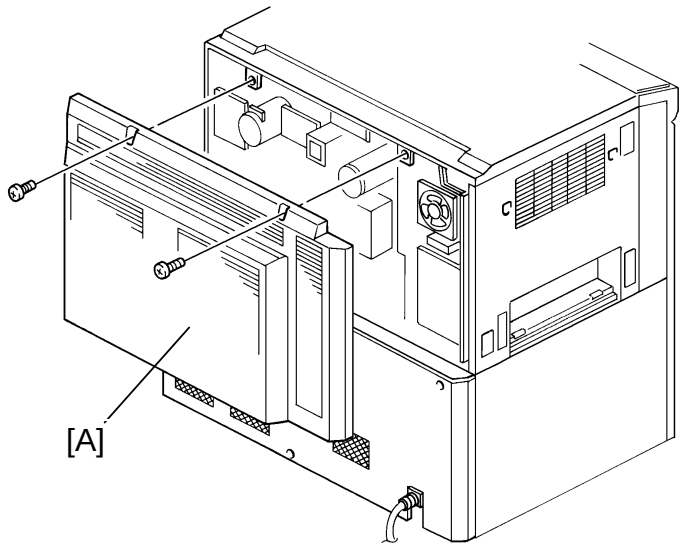


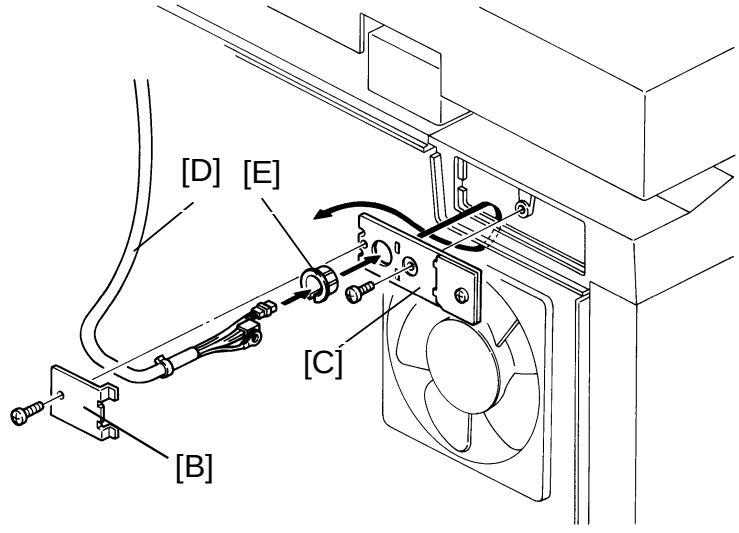


3. Remove the 4 panhead screws [A] and insert 2 flat shoulder screws [B] as shown.
4. Install the RDH base holder plate [C] (8 pan head screws M4 x 10).
5. Align the slots on the RDH hinges with the base holder pins [D], then slide the RDH forward as shown to fit the slots over the pins.

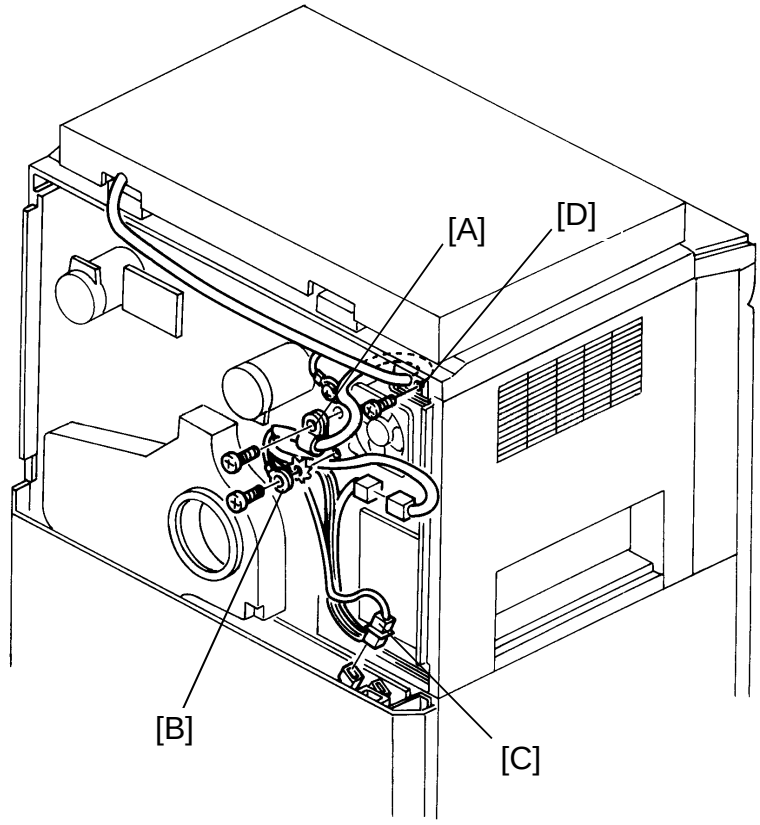


6. Secure the RDH to the holder plate (4 truss head screws M4 x 6 [A] per RDH hinge).
7. Install the switching lever [B] on the holder plate (1 pan head screw M4 x 6).
8. Close the RDH, then install the two angle stoppers [C] (1 pan head screw M4 x 6 each).

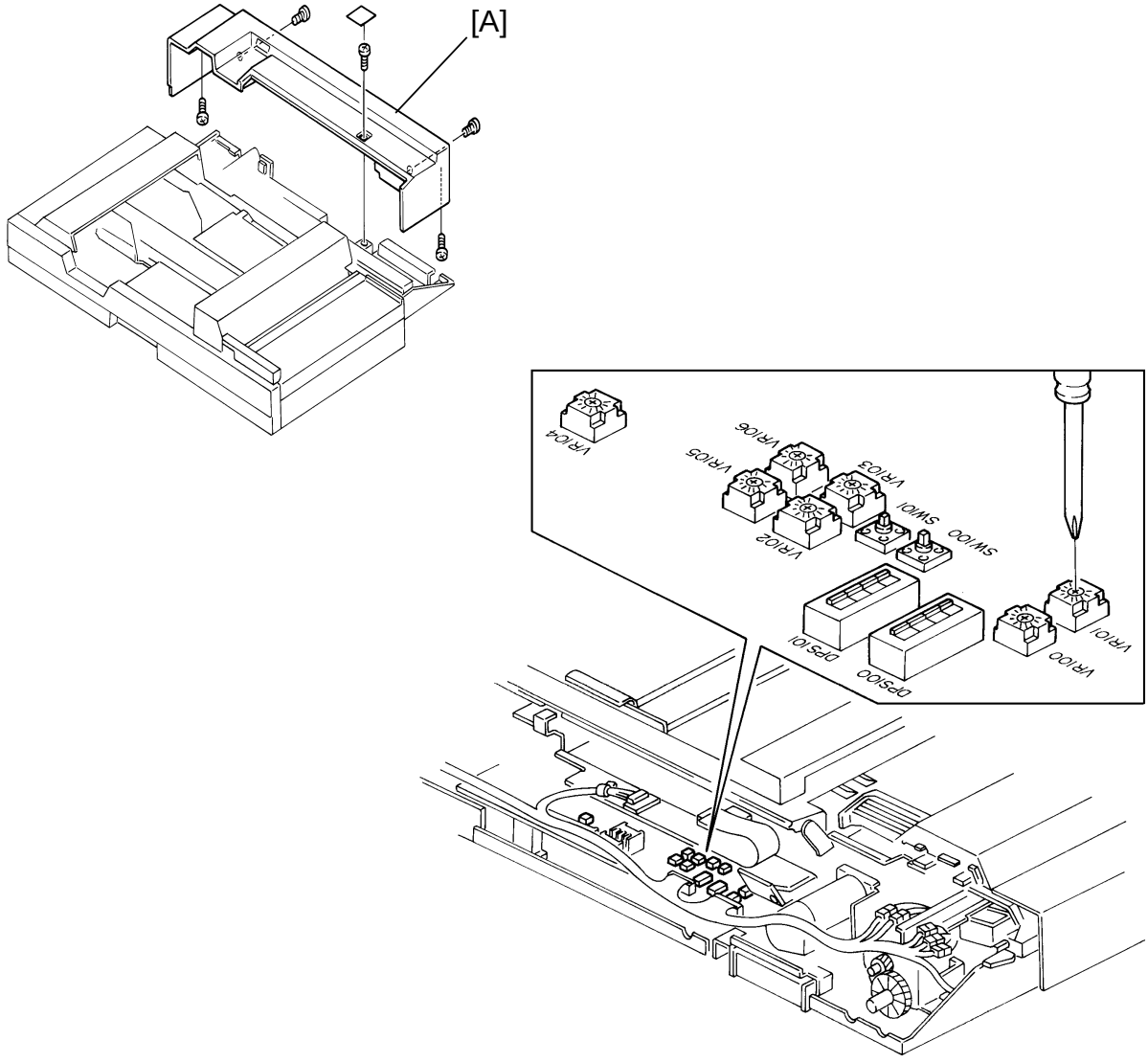




9. Remove the copier upper rear cover [A] (2 screws).
10. Remove the harness bracket cover plate [B] (1 screw), then remove the harness bracket [C] (1 screw).
11. Feed the harness [D] through the bushing [E] and the bracket hole, then secure the bushing.



12. Secure the harness as shown with a plastic clamp [A] (1screw with flat washer).
13. Secure the grounding wire [B] (1 grounding screw, 1 toothed washer).
14. Set the RDH harness as follows:
    1) Fiber optic cable - CN113 (main PCB) [C]
    2) 4P connector - 4P connector (copier).
15. Reinstall the harness bracket [D] (1 screw).
16. Put the rear cover back on the copier.

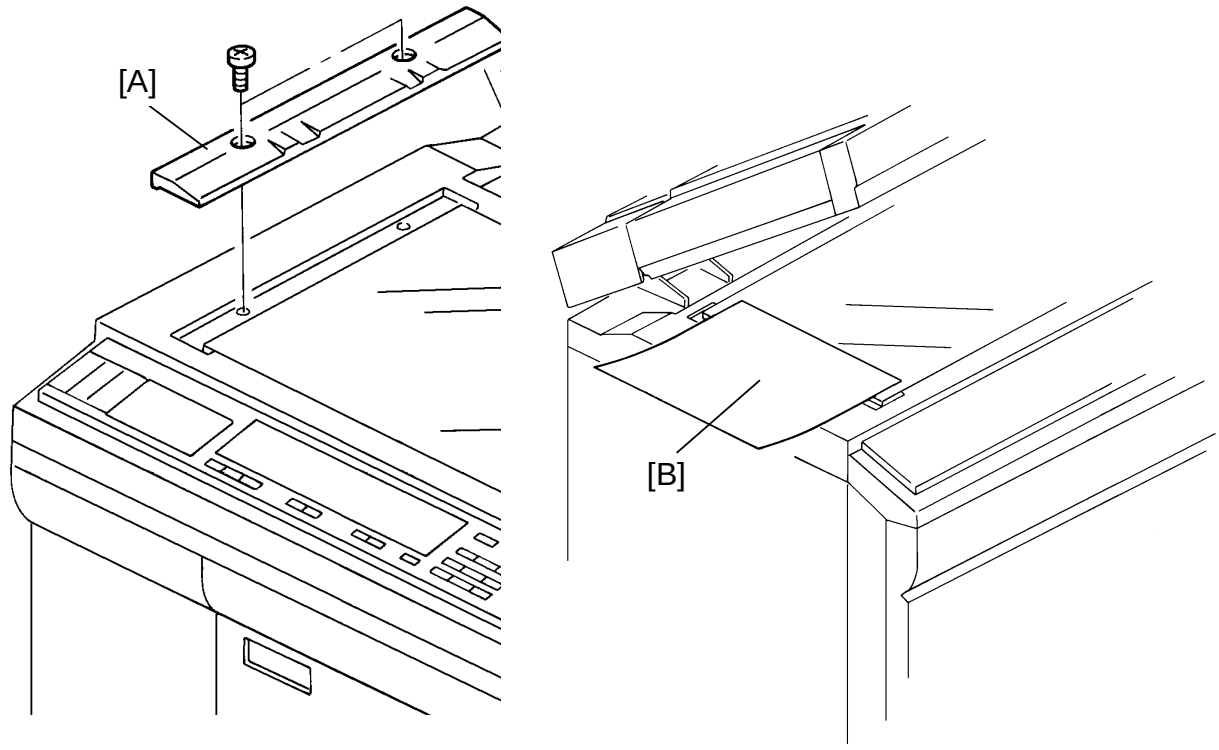


17. Plug in the copier and turn on the main switch.

NOTE: Before confirming the original registration, make sure that the main frame registration is within specifications.

18. Confirm the original front side registration as follows:
    1) Remove the RDH rear cover [A] (5 screws), then turn on the DIP SW 101-2 to change to timing registration mode.
    2) Make a copy of the test chart in platen mode (A4/8 1/2 x 11, sideways).
    3) Make a copy of the test chart in RDH mode.
    4) Compare the registration of the copy in platen mode with that in RDH mode, and confirm that there is no more than a 1.0 mm difference.
    5) If the difference is more than 1.0 mm, then turn VR 101 to correct the stop timing of the original.

NOTE: Turning VR 101 clockwise stops the original sooner.

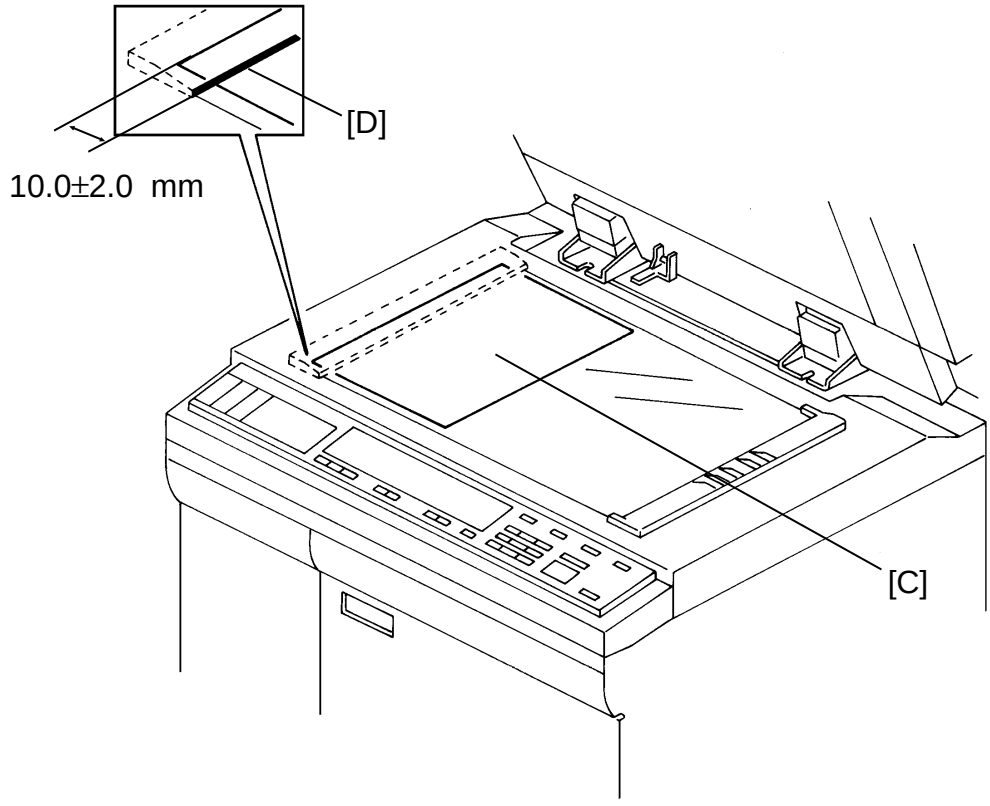


19. Confirm the original reverse side registration as follows:
    1) Make a copy of the test chart 2nd side in platen mode (A4/8$^{1/2}$ x 11, sideways).
    2) Make a copy of the test chart in RDH 2 sided mode.
    3) Compare the registration of the copy in platen mode with that in RDH 2-sided mode, and confirm that there is no more than a 2.0 mm difference.
    4) If the difference is more than 2.0 mm, remove the left scale [A] (2 screws), then set a sheet of A4/8$^{1/2}$ x 11 sideways paper [B] on the exposure glass as shown. (Covering the first scanner.)

NOTE: Without the left scale, the original jams when it strikes the exposure glass edge. This sheet of paper prevents that.

    5) Set DIP SW 100 and 101 on the main PCB as follows:

ON:	100-2 and 4	OFF:	100-1 and 3
	101-2		101-1, 3, and 4



6) Set a test chart on the RDH, then press SW 101 to feed the test chart through the RDH.

7) When the test chart stops on the exposure glass, gently pull off the sheet of paper set in step 4), then press SW 101 again to feed the test chart in the reverse direction.

8) Open the RDH slowly so that the test chart [C] does not move from the stoped position.

9) Confirm that the test chart has stopped at the correct position, 10 ± 2.0 mm from the scale edge (0 position) [D].

10) If the test chart did not stop at the correct position, turn VR 100 to correct the original-stop timing.

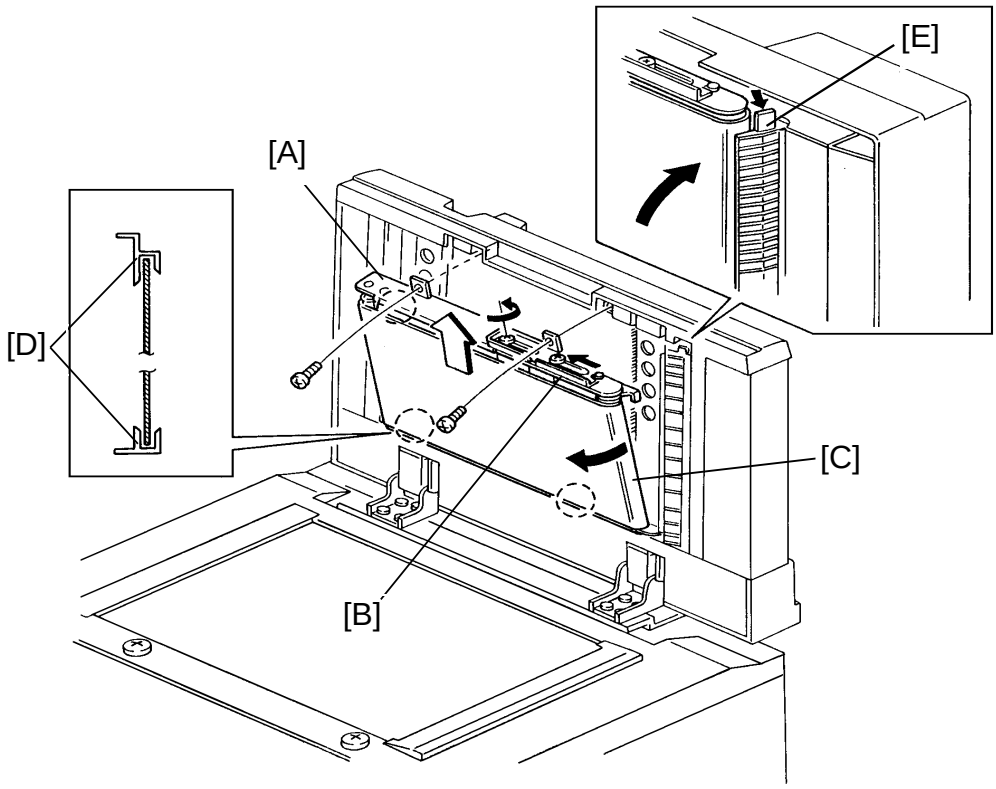
NOTE: Turning VR 100 clockwise stops the original sooner.

20. Turn off the main switch, then reassemble.

21. Check the operation of the RDH.

16. REPLACEMENT AND ADJUSTMENT

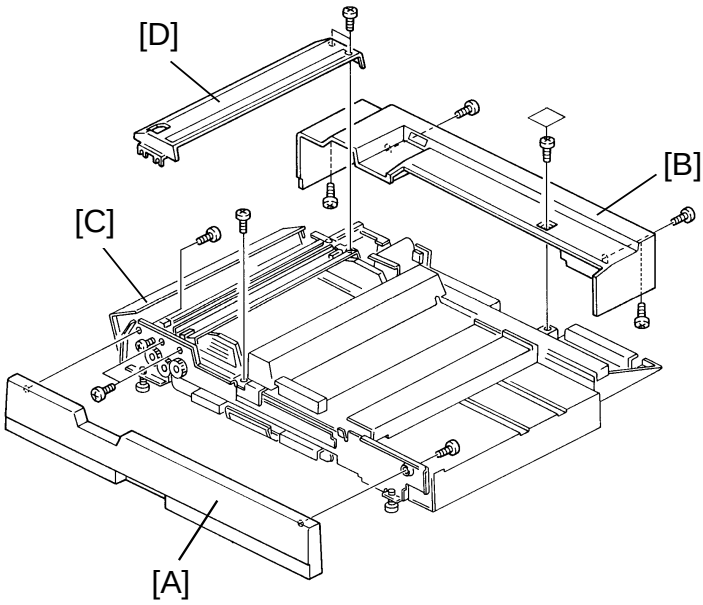
16.1 TRANSPORT BELT REPLACEMENT

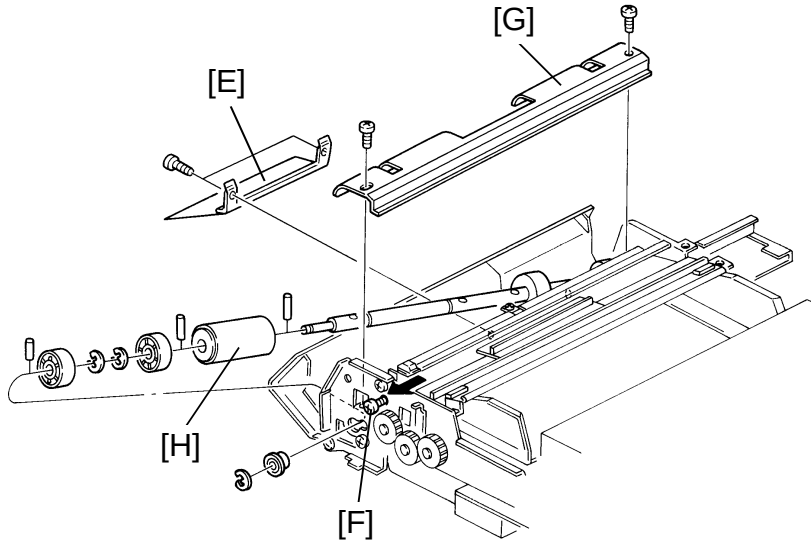


1. Turn off the copier main switch.
2. Open the transport belt unit [A] (2 screws).
3. Slide the belt tension plate [B] to the left (1 screw), then lower the belt tension unit [C].
4. Replace the transport belt.

NOTE: The RDH belt has to be installed in the notch as shown [D]. The feed out unit [E] has to be open when the transport belt unit is reinstalled.

16.2 PAPER FEED ROLLER REMOVAL

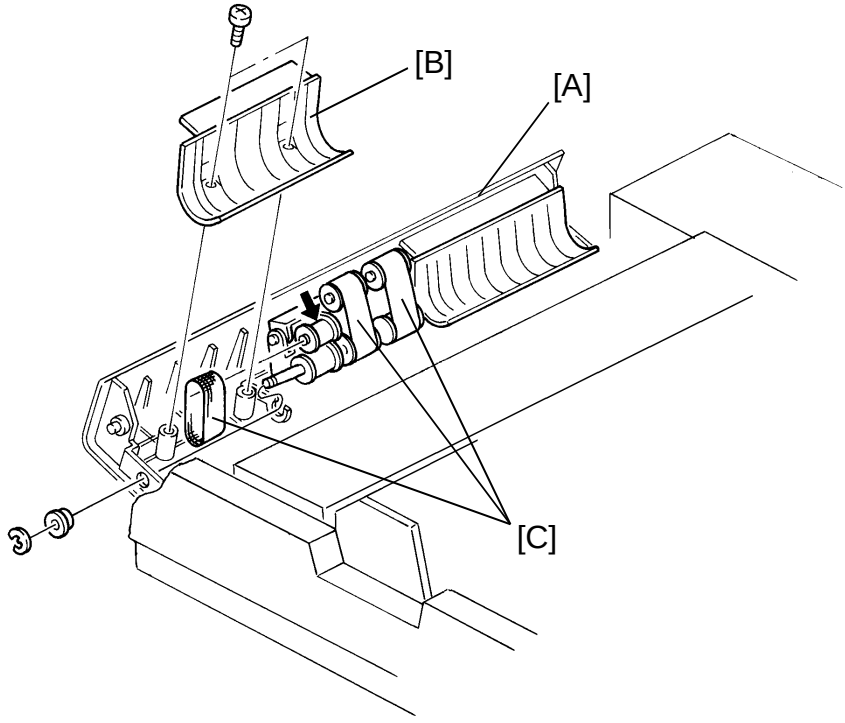




1. Turn off the copier main switch, then remove the RDH front cover [A] (3 screws) and the rear cover [B] (5 screws).
2. Open the feed-in unit [C].
3. Remove the feed-in unit cover [D] (4 screws) and the paper guide mylar [E] (2 screws).
4. Loosen the feed-in unit release button holder pins [F], then slide the holder to the front and remove the paper feed guide plate [G] (2 screws).
5. Remove the paper feed roller [H] (3 E-rings, 1 bearing, 2 pins, and 2 pull-out rollers).

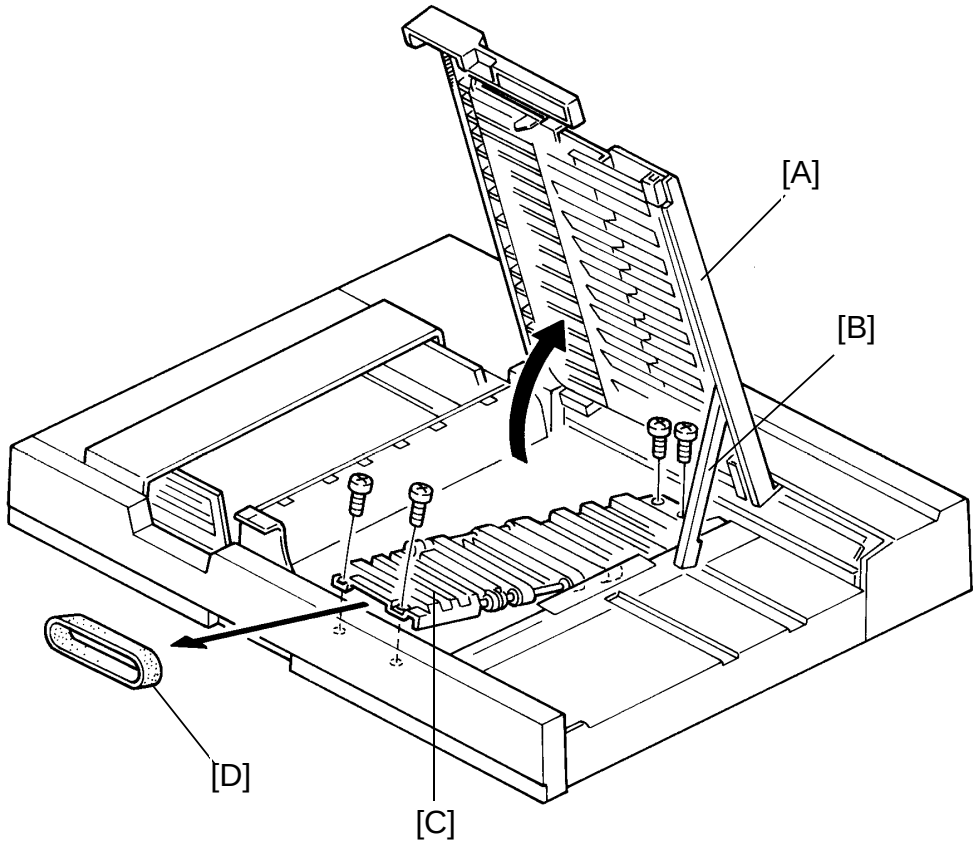
NOTE: Be careful not to lose the pins.

16.3 FRICTION BELT REPLACEMENT



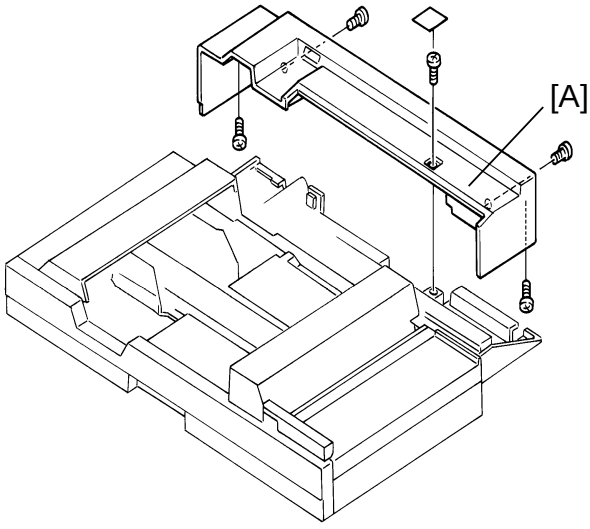
1. Turn off the copier main switch, then open the paper feed unit [A].
2. Remove the paper guide plate [B] (2 screws).
3. Replace the 3 friction belts [C] (1 E-ring and 1 busing).

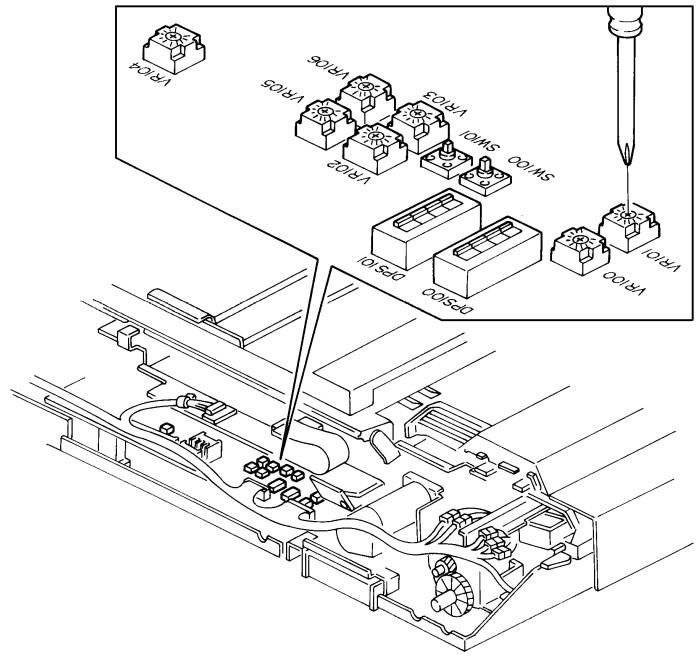
16.4 PAPER EXIT TRANSPORT BELT REMOVAL



1. Turn off the copier main switch, then slide the paper exit unit all the way to the left.
2. Open the paper exit unit cover [A] and set the stay [B] as shown to hold the cover open.
3. Carefully lift up the front end of the transport unit [C], then remove the 4 paper exit transport belts [D] (4 screws).

16.5 RDH LEADING EDGE REGISTRATION ADJUSTMENT

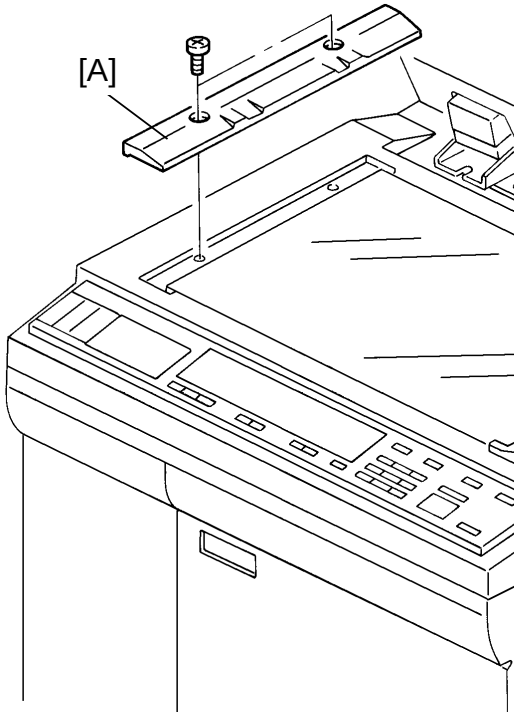


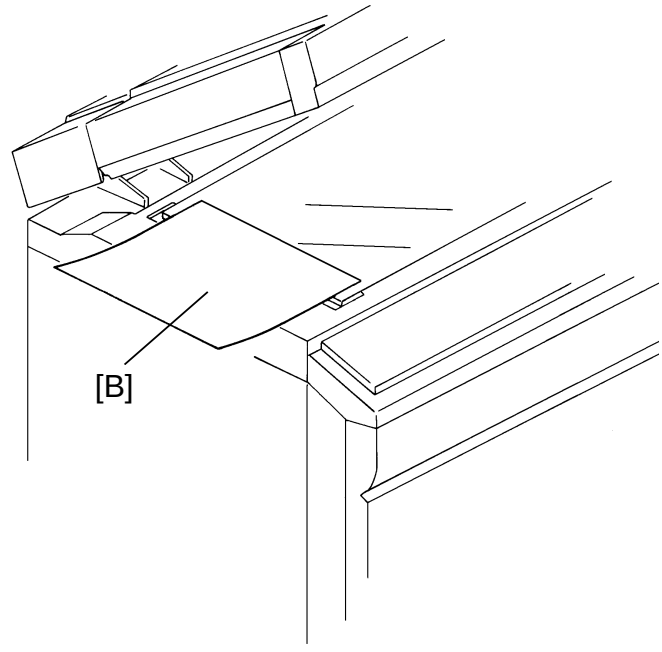


NOTE: Before confirming the original registration, make sure that the main frame registration is within specifications.

1. Confirm the original front side registration as follows:
   1) Remove the RDH rear cover [A] (5 screws), then turn on the DIP SW 101-2 to change to timing registration mode.
   2) Make a copy of the test chart in platen mode (A4/8$\frac{1}{2}$ x 11, sideways).
   3) Make a copy of the test chart in RDH mode.
   4) Compare the registration of the copy in platen mode with that in RDH mode, and confirm that there is no more than a 1.0 mm difference.
   5) If the difference is more than 1.0 mm, remove the RDH rear cover [A] (5 screws), then turn VR 101 to correct the stop timing of the original.

NOTE: Turning VR 101 clockwise stops the original sooner.



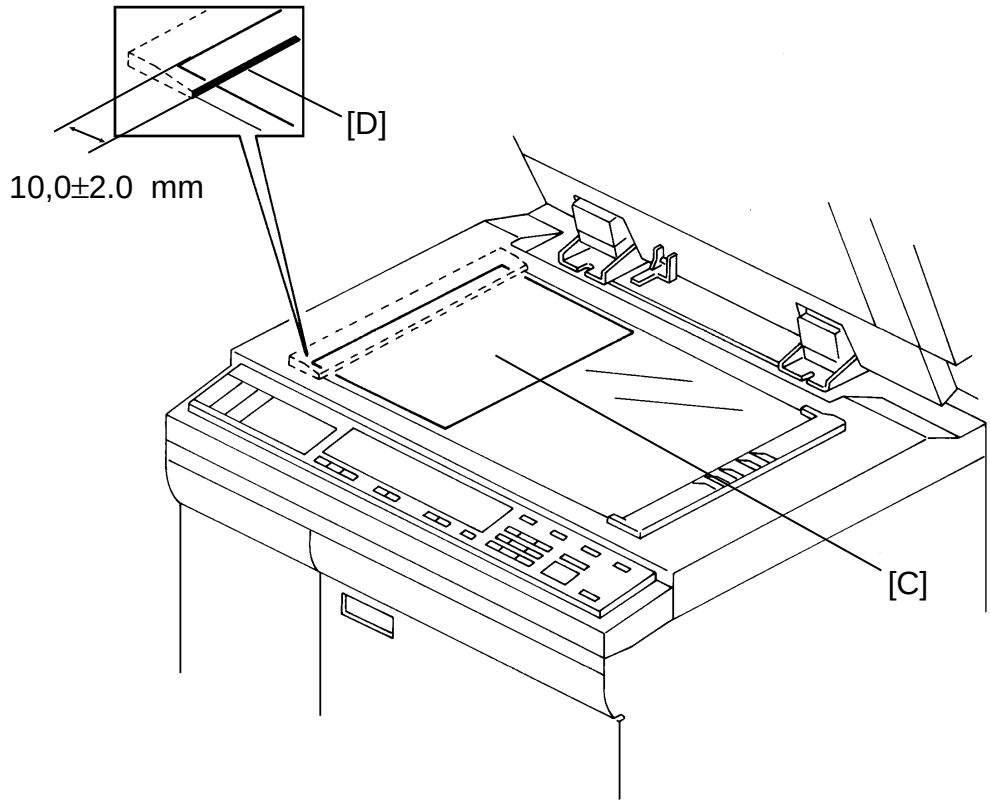


2. Confirm the original reverse side registration as follows:
   1) Make a copy of the test chart 2nd side in platen mode (A4/8$\frac{1}{2}$ x 11, sideways).
   2) Make a copy of the test chart in RDH 2 sided mode.
   3) Compare the registration of the copy in platen mode with that in RDH 2-sided mode, and confirm that there is no more than a 2.0 mm difference.
   4) If the difference is more than 2.0 mm, remove the left scale [A] (2 screws), then set a sheet of A4/8$\frac{1}{2}$ x 11 sideways paper [B] on the exposure glass edge as shown.

NOTE: Without the left scale, the original jams when it strikes the exposure glass edge. This sheet of paper prevents that.

   5) Set DIP SW 100 and 101 on the main PCB as follows:

DIP SW 100				DIP SW 101			
1	2	3	4	1	2	3	4
0	1	0	1	0	1	0	0



6) Set a test chart on the RDH, then press SW 101 to feed the test chart through the RDH.

7) When the test chart stops on the exposure glass, gently pull off the sheet of paper set in step 4), then press SW 101 again to feed the test chart in the reverse direction.

8) Open the RDH slowly so that the test chart [C] does not move from the stop position.

9) Confirm that the test chart has stopped at the correct position, 10 ± 2.0 mm from the scale edge (0 position) [D].

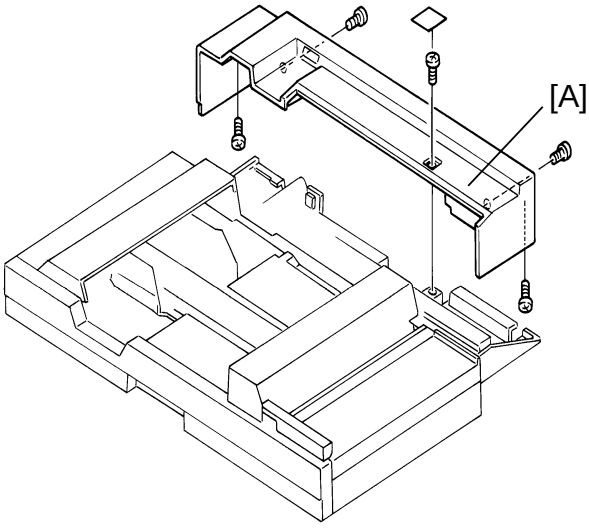
10) If the test chart did not stop at the correct position, turn VR 100 to correct the original-stop timing.

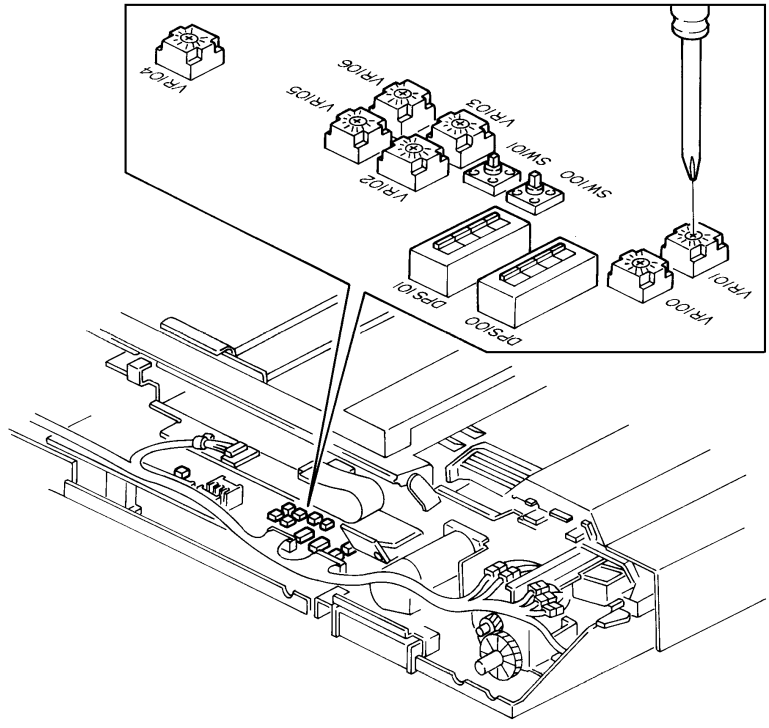
NOTE: Turning VR 100 clockwise stops the original sooner.

3. Turn off the main switch, then reassemble.

4. Check the operation of the RDH.

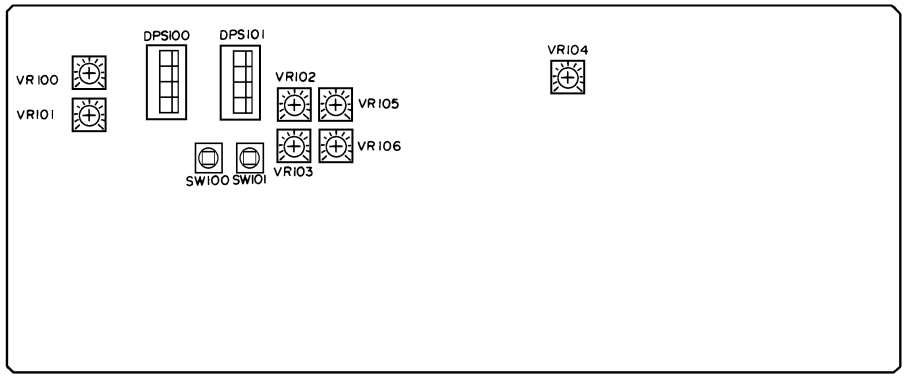
16.6 MOTOR SPEED CHECK & ADJUSTMENT

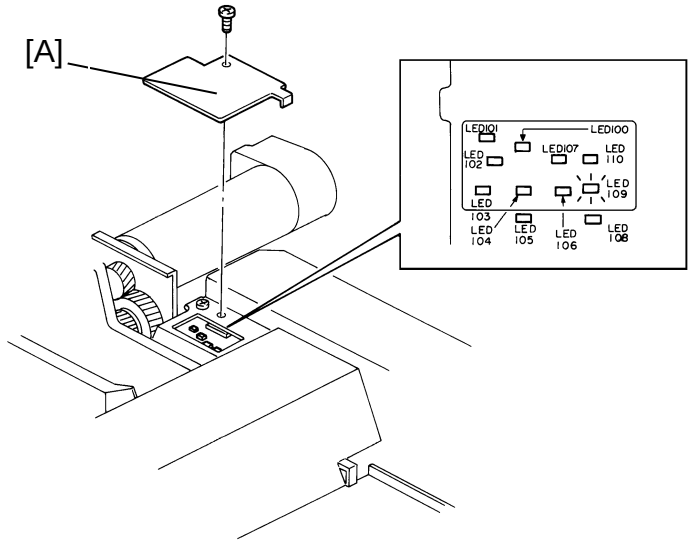




1. Remove the RDH rear cover [A] (5 screws), and set DIP SW 100 and 101 as follows:

DIP SW								
DPS 100				DPS 101				DIP SW Combination
1	2	3	4	1	2	3	4	
1	**1**	**0**	**1**	1	0	0	0	1
				0	1	0	0	2
				0	0	1	0	3
				0	0	0	1	4





2. Remove the LED cover [A] (1 screw).
   NOTE: For the DIP SW combinations, refer to the table on the previous page.
3. Set Dip SW 101 Combination #1. The paper feed motor starts turning. Turn VR105 until LED 109 lights.
4. Set DIP SW 101 combination #1. The paper feed motor reverses direction while SW101 is pressing(ON). Turn VR 106 until LED 109 lights.
5. Set DIP SW 101 combination #2. The transport motor starts. Turn VR 104 until LED 109 lights.
6. Set DIP SW 101 combination #3. The inverter motor starts turning. Turn VR 102 until LED 109 lights.
7. Set DIP SW 101 combination #4. The feed-out motor starts turning. Turn VR 103 until LED 109 lights.
8. Check the operation of the RDH.
9. All DIP SW off.
10. Reassemble.

17. DEFECTIVE SENSOR TABLE

Registration (Reflective Photocoupler)	Open	Paper always jams at the registration roller, and the original misfeed indicator turns on.
	Short	The original misfeed indicator turns on when the main switch is turned on.
Original Width (Reflective Photocoupler)	Open or Short	The paper size is not detected. "No match. Select paper size manually." is displayed.
Original Set (Reflective Photocoupler)	Open	No original is detected, so the RDH does not operate (Platen mode only).
	Short	In platen mode, the original is not fed and the Misfeed indicator turns on.
Inverter (Reflective Photocoupler)	Open	Paper always jams at the inverter roller, and the Original Misfeed indicator lights.
	Short	The Original Misfeed indicator lights when the main switch is turned on.
Feed-out (Reflective Photocoupler)	Open	Paper always jams at the feed-out roller, and the Original Misfeed indicator lights.
	Short	The Original Misfeed indicator lights when the main switch is turned on.
Recycle (Photointerrupter)	Open	The original misfeed indicator is on when the Start key is pressed.
	Short	When the original is placed on the platen, "Slide to size mark and reset original." is displayed and the Start key turns red. After the original is repositioned, the Start key turns green, but an original misfeed is indicated when the Start key is pressed.
Pulse Generator (Photointerruptor)	Open or Short	The RDH cannot detect the paper size, and "No paper matches copy ratio" is displayed.

One Turn (Photointerruptor)	Open	When the Start key is pressed, the paper feed motor rotates for about 2 seconds. Then, original misfeed is indicated.
	Short	When the main switch is turned on, the paper feed motor rotates for about 2 seconds. Then, an original misfeed is indicated.