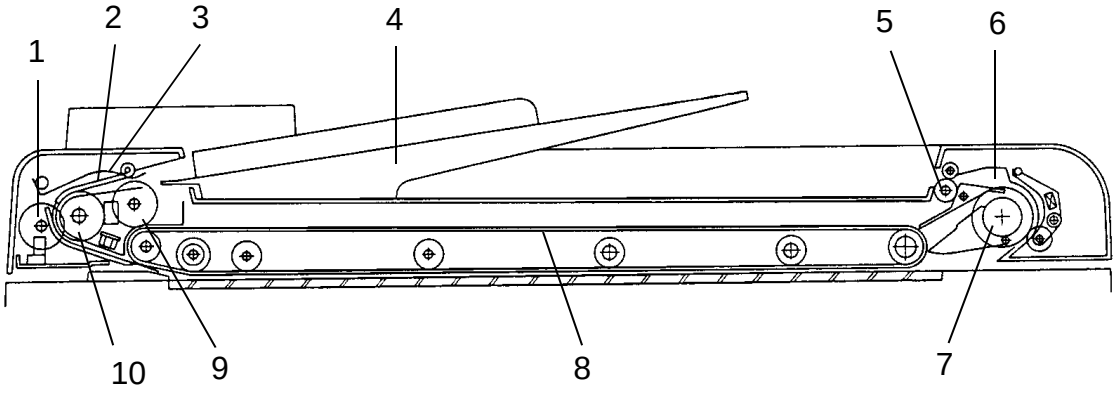
# 1. SPECIFICATIONS

| | |
|---|---|
| Original Size and Weight: | - Thin original mode -<br>Maximum A3 / 11" x 17"<br>Minimum B6 / 5 1/2" x 8 1/2"<br>Weight 41 to 128 g/m$^2$ (11 to 34 lb)<br>- Thick original mode -<br>Maximum A3 / 11" x 17"<br>Minimum B6 / 5 1/2" x 8 1/2"<br>Weight 52 to 128 g/m$^2$ (14 to 34 lb)<br>- Auto reverse mode -<br>Maximum A3 / 11" x 17"<br>Minimum B6 lengthwise /<br>5 1/2" x 8 1/2" lengthwise<br>Weight 64 to 105 g/m$^2$ (17 to 28 lb) |
| Original Feed: | Automatic feed — ADF mode<br>Manual feed one by one — SADF mode |
| Original Table Capacity: | 30 sheets / 80 g/m$^2$ (20 lb) |
| Original Set: | Face up. First sheet on top |
| Original Transport: | One flat belt |
| Copy Speed: | 12 copies/minute for A4 / 8 1/2" x 11" sideways |
| Power Consumption: | 20 W |
| Dimensions (W x D x H): | 670 x 460 x 103 mm (26.4" x 18.1" x 4.1") |
| Weight: | Approximately 8.8 kg (19.4 lb) |

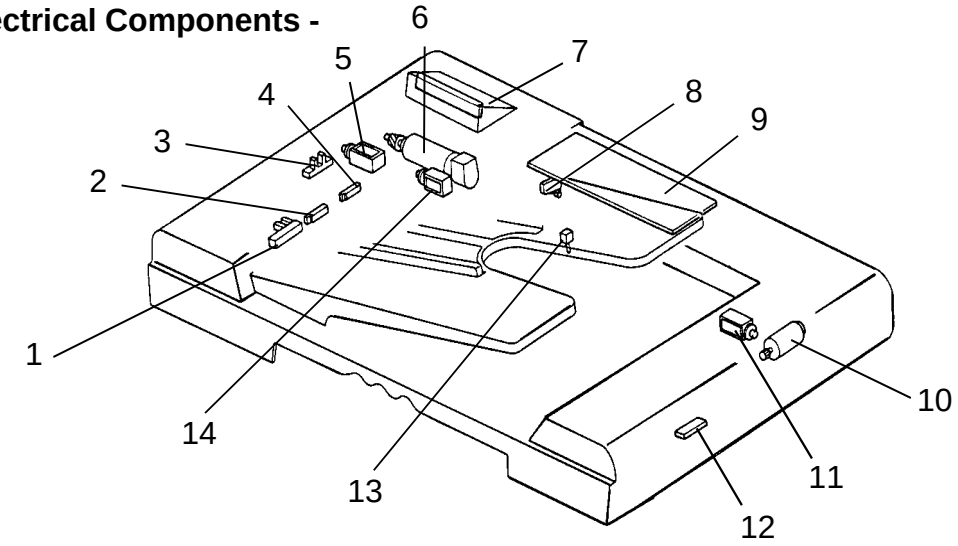
# 2. COMPONENT LAYOUT (NC100)

**- Mechanical Components -**




1. Pulse Generator Disk
2. Friction Belt
3. Pick-up Lever
4. Original Table
5. Exit Roller
6. Inverter Pawl
7. Inverter Roller
8. Transport Belt
9. Pick-up Roller
10. Feed Roller

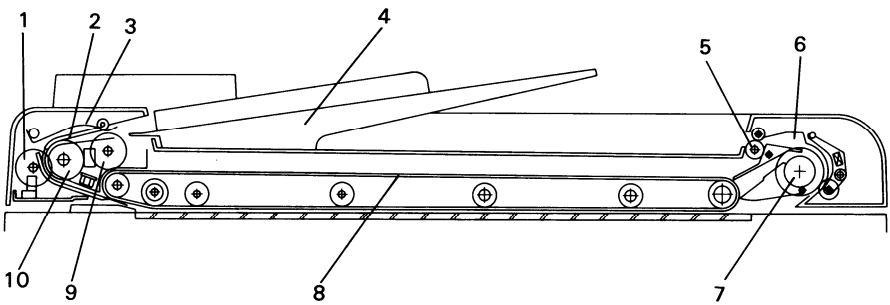
**- Electrical Components -**




1. Original Set Sensor
2. Registration Sensor
3. Pulse Generator Sensor
4. Original Width Sensor
5. Pick-up Solenoid
6. Belt Drive Motor
7. Indicator Panel
8. Lift Switch
9. DF Main Board
10. Feed-out Motor
11. Inverter Solenoid
12. Feed-out Sensor
13. Original Select Switch
14. Feed-in Solenoid

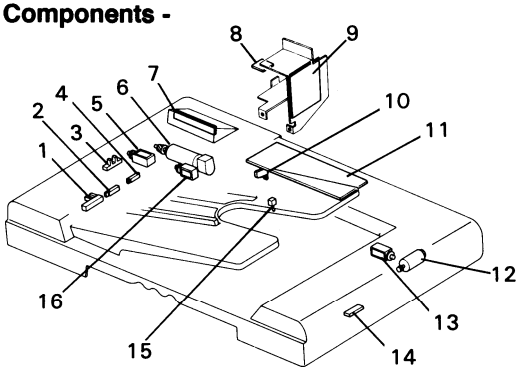
# 2. COMPONENT LAYOUT (FT2260)

## - Mechanical Components -




1. Pulse Generator Disk
2. Friction Belt
3. Pick-up Lever
4. Original Table
5. Exit Roller
6. Inverter Pawl
7. Inverter Roller
8. Transport Belt
9. Pick-up Roller
10. Feed Roller

## - Electrical Components -



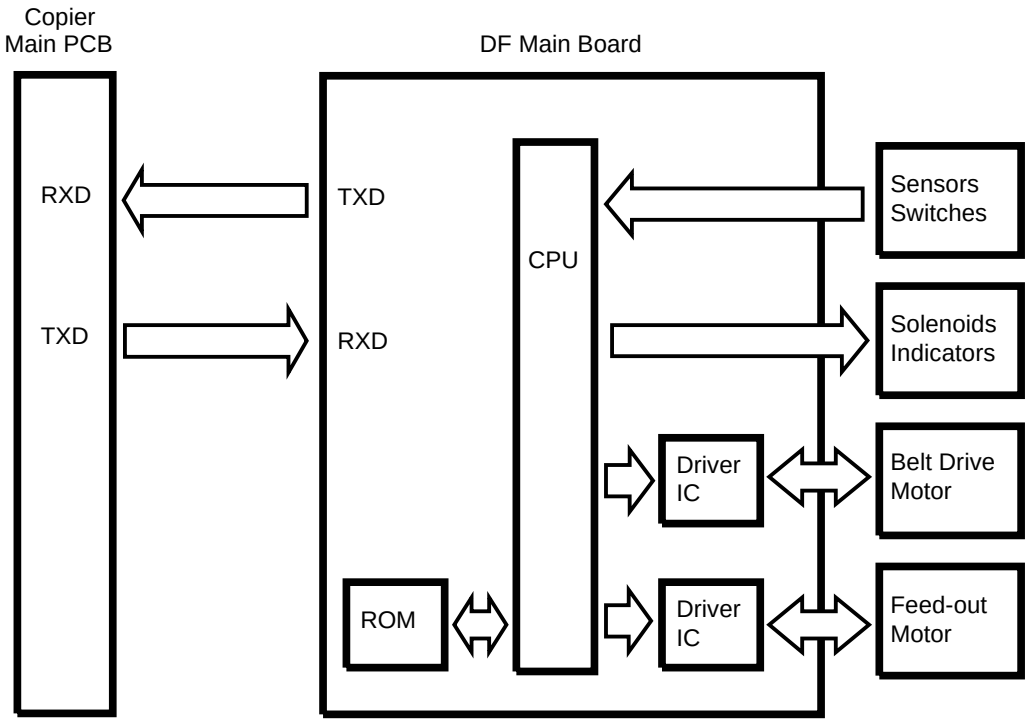

1. Original Set Sensor
2. Registration Sensor
3. Pulse Generator Sensor
4. Original Width Sensor
5. Pick-up Solenoid
6. Belt Drive Motor
7. Indicator Panel
8. Interface Board
9. DF Power Supply Board
10. Lift Switch
11. DF Main Board
12. Feed-out Motor
13. Inverter Solenoid
14. Feed-out Sensor
15. Original Select Switch
16. Feed-in Solenoid

# 3. ELECTRICAL COMPONENT DESCRIPTIONS

| Symbol | Name | Function | Location |
|---|---|---|---|
| **Motors** | | | |
| M1 | Belt Drive Motor | DC servomotor that drives to the transport belt and feed-in system (pick-up roller, feed roller, pull-out roller and relay roller). | 6 |
| M2 | Feed-out Motor | DC servomotor that drives the feed-out unit of the DF. | 10 |
| **Solenoids** | | | |
| SOL1 | Pick-up Solenoid | Energizes to press the pick-up lever against the stack of originals in preparation for original feed-in. | 5 |
| SOL2 | Feed-in Solenoid | Turns on to engage the feed-in clutch so rotation is transmitted to the feed roller, pull-out rollers, and relay rollers. | 14 |
| SOL3 | Inverter Solenoid | Energizes to invert the original when copying two sided originals. | 11 |
| **Switches** | | | |
| SW1 | Lift Switch | Informs the CPU when the DF is lifted and also serves as the jam reset switch for the DF. | 8 |
| SW2 | Original Select Switch | Selects thick original mode or thin original mode. | 13 |
| **Sensors** | | | |
| S1 | Original Set Sensor | Informs copier CPU that originals have been placed and causes the Insert Original indicator to go out. | 1 |
| S2 | Registration Sensor | Sets original stop timing and measures original length. | 2 |
| S3 | Original Width Sensor | Determines the width of the originals. | 4 |
| S4 | Pulse Generator Sensor | Generates pulses used to measure the original length. | 3 |
| S5 | Feed-out Sensor | Checks for original misfeeds and sets original stop timing when in auto reverse mode. | 12 |

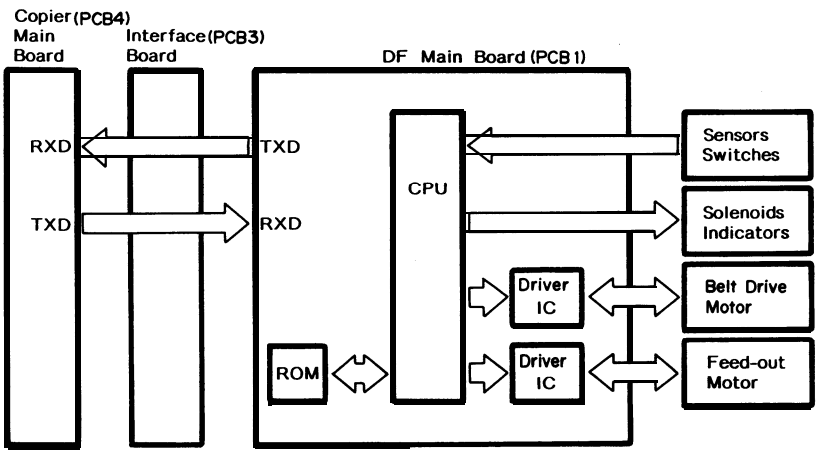
| Symbol | Name | Function | Location |
|---|---|---|---|
| **Printed Circuit Boards** | | | |
| PCB1 | DF Main Board | Controls all DF functions. | 9 |
| PCB2 | Indicator Panel Board | Contains operator indicators. | 7 |

# 4. OVERALL MACHINE CONTROL (NC100)




The DF CPU monitors the input signals from the sensors and switches, and energizes the solenoids and the indicator LEDs directly. The belt drive motor and the inverter motor are controlled by the DF CPU through their respective driver ICs. The exchanged signals are shown in the tables on the next page.

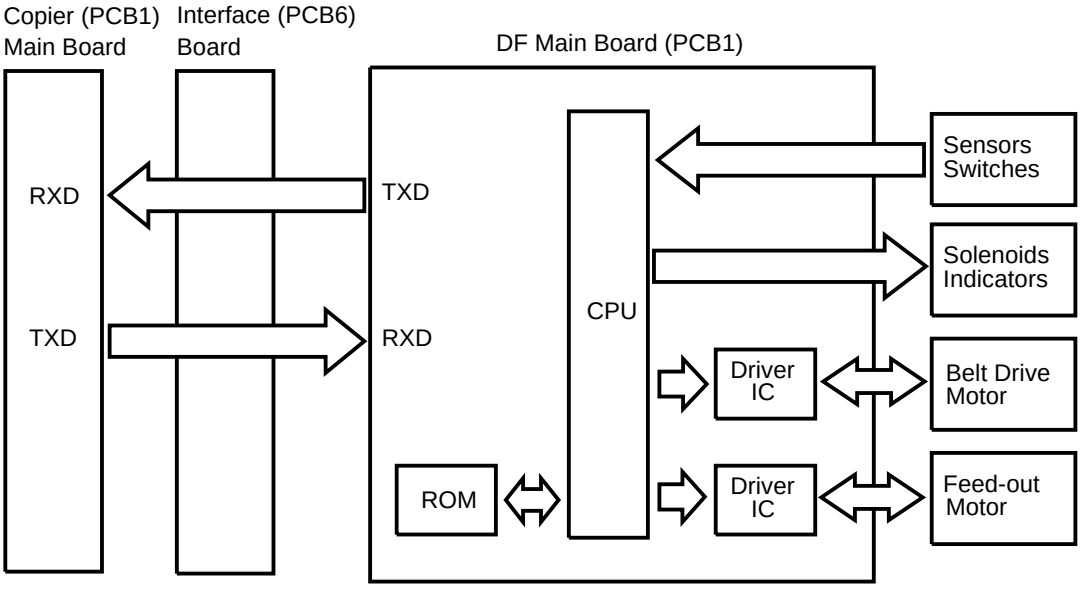
# 4. OVERALL MACHINE CONTROL (FT2260)




The DF CPU monitors the input signals from the sensors and switches, and energizes the solenoids and the indicator LEDs directly. The belt drive motor and the inverter motor are controlled by the DF CPU through their respective driver ICs.

Also, the DF CPU communicates with the copier using a serial interface. The exchanged signals are shown in the tables on the next page.

# 4. OVERALL MACHINE CONTROL (FT4418)




The DF CPU monitors the input signals from the sensors and switches, and energizes the solenoids and the indicator LEDs directly. The belt drive motor and the inverter motor are controlled by the DF CPU through their respective driver ICs. The exchanged signals are shown in the tables on the next page.

## 1. DF → Copier

| No. | Signal Name | Definition |
|---|---|---|
| 1 | Original Set | Originals are set on the original table |
| 2 | Copy Start | Allows the copier to start copy sequence |
| 3 | Lift Up | The DF is lifted |
| 4 | DF Misfeed | Misfeed occurs in the DF |

## 2. Copier → DF

| No. | Signal Name | Definition |
|---|---|---|
| 1 | Feed-in | Requests the DF to feed-in the original |
| 2 | Feed-out | Requests the DF to feed-out the original |
| 3 | Invert Original | Requests the DF to invert the original |
| 4 | Auto Feed | Shifts the DF to the auto feed mode |
| 5 | Original Stay | Attempt to use DF but the original from the previous copy run remains on the exposure glass |

# 5. BASIC OPERATION

## 1. One-sided Original Feed

When an original is inserted face up into the DF, the Insert Original indicator light goes out and the DF informs the copier CPU that originals have been set.

When the Start key is pressed, the copier CPU moves the scanner 100 mm away from the left scale and sends the feed-in signal to the DF. On receipt of this signal, the DF energizes the pick-up solenoid, the feed-in solenoid, and the belt drive motor in order to feed-in the bottom sheet of the original stack onto the exposure glass. The pick-up solenoid and the feed-in solenoid remain energized until the original leading edge reaches the DF registration sensor. The belt drive motor turns off shortly after the original's trailing edge passes the DF registration sensor.

While feeding the original, the DF registration sensor and the paper width sensor check the original size.

Just when the original trailing edge has passed the DF registration sensor, the DF CPU sends the copy start signal to the copier. On receipt of the signal, the copier CPU carries out the original ID measurement while returning the scanner to the home position and starts the copy cycle.

When the scanner reaches the return position, the copier CPU sends the feed-out and the feed-in signals to the DF CPU in order to exchange the original with the next original. At this time, the scanner begins returning to the home position, but stays 100 mm away from the left scale until the next original is on the exposure glass. At this time the original ID measurement is taken.

When the scanner comes to the return position after scanning the last original, the copier CPU only sends the feed-out signal in order to feed-out the last original.

## 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 the correct order.

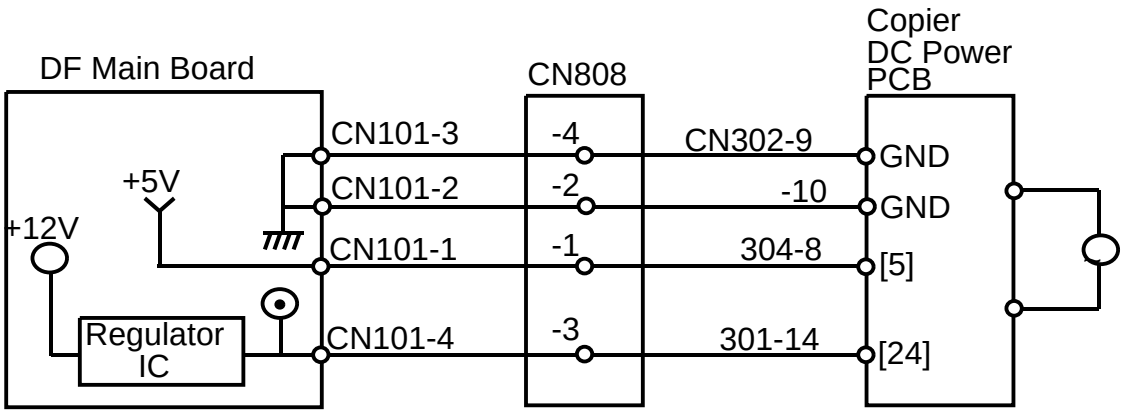
During original feed-in, the sequence is the same as for one-sided feed; however, the DF CPU also energizes the inverter motor and the inverter solenoid a short time after the original trailing edge has passed the DF registration sensor. The belt drive motor continues to feed the original until the original leading edge passes the feed-out sensor. At this point the inverter mechanism inverts the original, in preparation for copying the back side. Then the belt drive motor reverses and the original is fed towards the left scale and is aligned against the scale. The DF CPU sends the copy start signal a short time after the original trailing edge has passed the feed-out sensor.

When the scanner reaches the return position, the copier CPU sends the invert original signal to the DF CPU in order to make a copy of the front side. The original is inverted in the same way as for back side copying.

## 3. Semi-automatic Document Feed

If a single original is inserted into the original table and copied, the DF shifts to the semi-automatic feed mode and lights the Auto Feed indicator. The Auto Feed indicator remains on for five seconds after the copier main motor stops. If another original is inserted within that five-second period, it is automatically fed and copied.

# 6. POWER DISTRIBUTION (NC100)

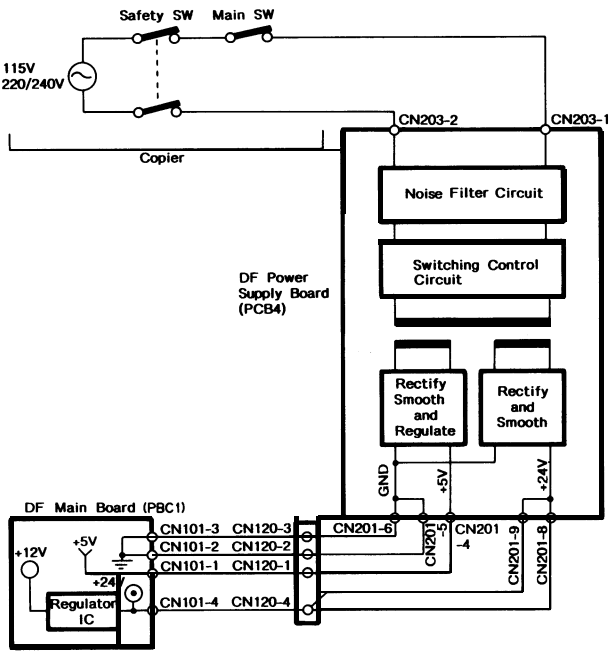



The DF uses three DC power levels: +24 volts, +12 V, and +5 V.

The AC power from the wall outlet is supplied to the DC power PCB of the copier. The DC power PCB generates two DC voltages: +24V, +5V, and it supplies power to the DF main board.

The regulator IC on the DF main board further steps down the +24V to +12V.

# 6. POWER DISTRIBUTION (FT2260)

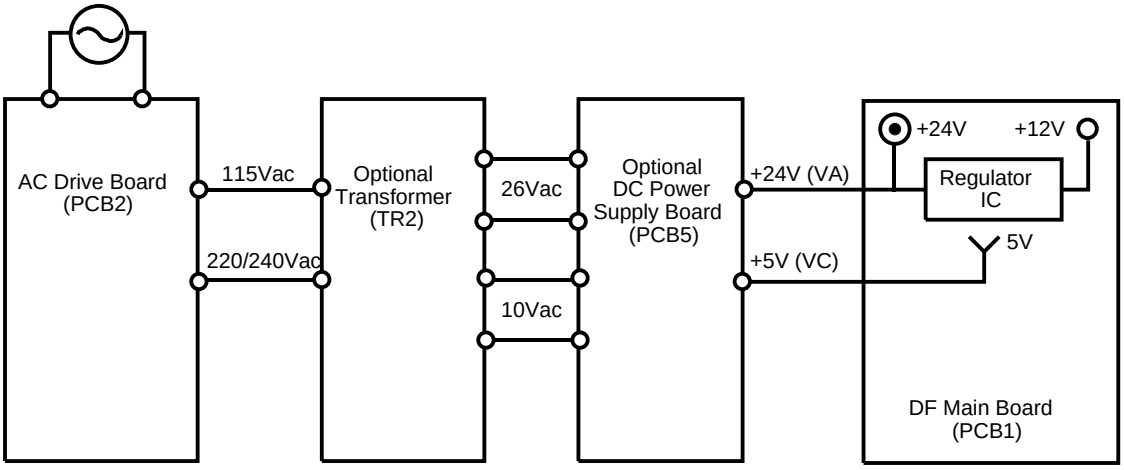



**The DF uses three dc power levels: +24 volts, +12 volts, and +5 volts.**

**The line voltage is applied to the DF power supply board where it is stepped down and rectified to +24 volts and +5 volts. Then, those two dc voltages are supplied to the DF main board.**

**The regulator IC on the DF main board further steps down the +24 volts to +12 volts.**

# 6. POWER DISTRIBUTION (FT4418)

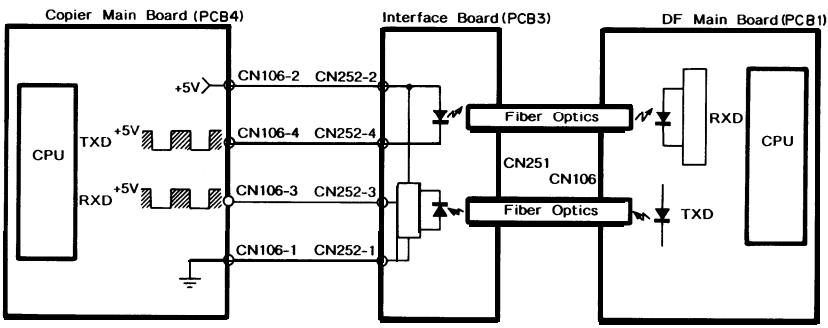



The DF uses three DC power levels: +24 volts, +12 V, and +5 V.

When the main switch is turned on, the optional transformer receives the wall outlet ac power through the ac drive board and outputs 10 volts ac and 26 volts ac to the optional dc power supply board. The optional dc power supply board then converts the 10 volts ac input to +5 volts dc and the 26 volts ac input to +24 volts. Then, thoes two dc voltsges are supplied to the DF main board.

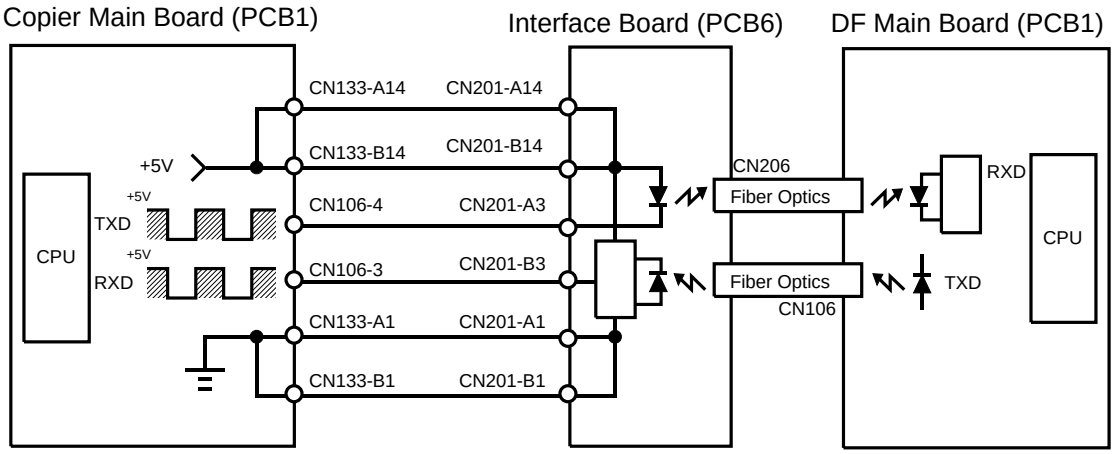
The regulator IC on the DF main board further steps down the +24V to +12V.

# 7. INTERFACE CIRCUIT (FT2260)




**The Copier CPU and the DF CPU communicate via the interface board and fiber optics. The interface board changes the optical signals to electrical signals (only vice versa).**

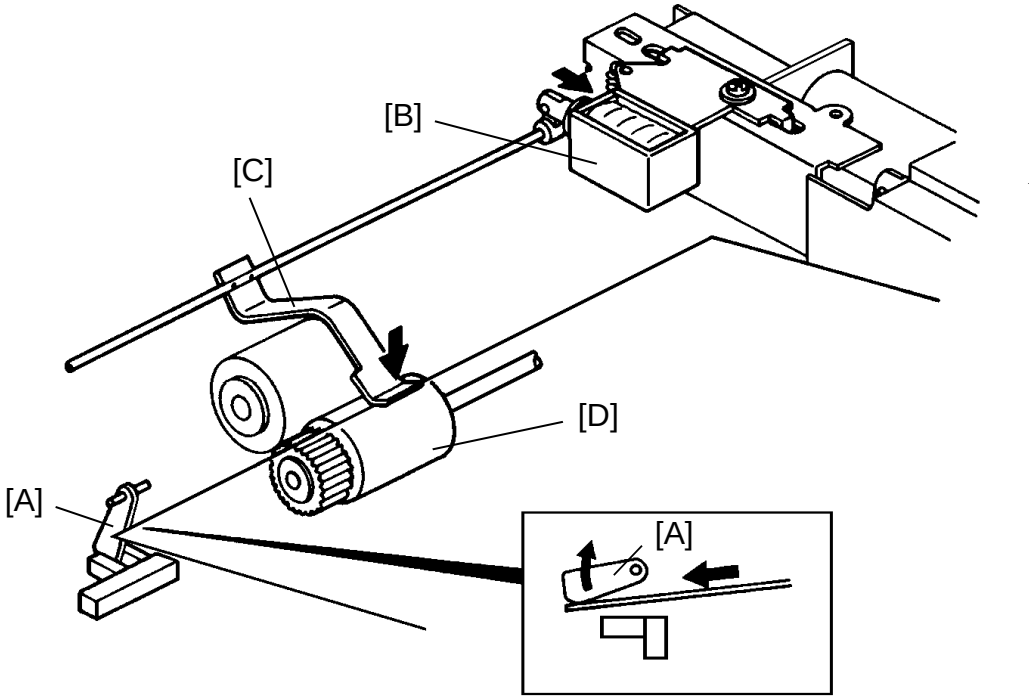
# 7. INTERFACE CIRCUIT (FT4418)




The copier CPU and the DF CPU communicate via the interface board and fiber optics. The interface board changes the optical signals to electrical signals (and vice versa).

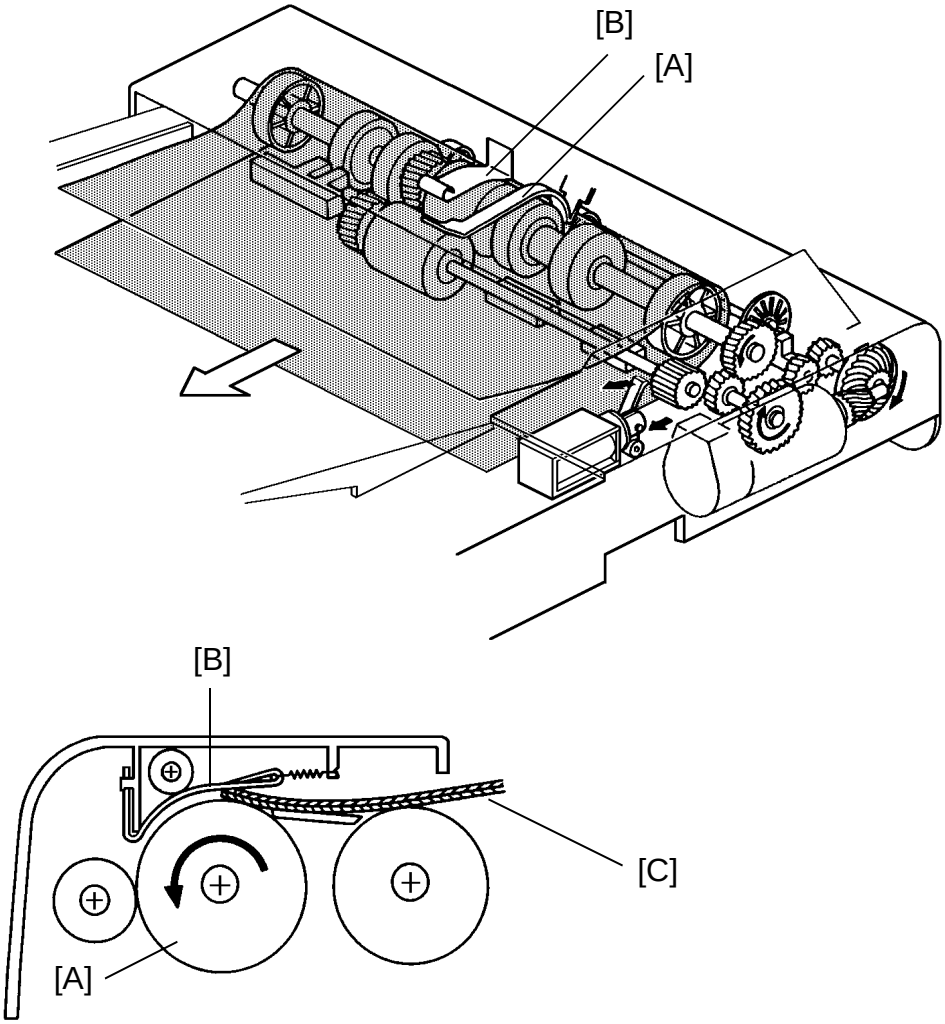
# 7. ORIGINAL FEED

## 7.1 ORIGINAL PICK-UP




After setting the originals on the original table, the originals contact the feeler [A] of the original set sensor and cause the feeler to move out of the sensor. The DF then sends the original set signal to the copier CPU to inform it that the DF will be used. When the Start key is pressed, the pick-up solenoid [B] is energized. The original stack is then pressed between the pick-up lever [C] and pick-up roller [D]. The rotation of the pick-up roller advances the bottom original.

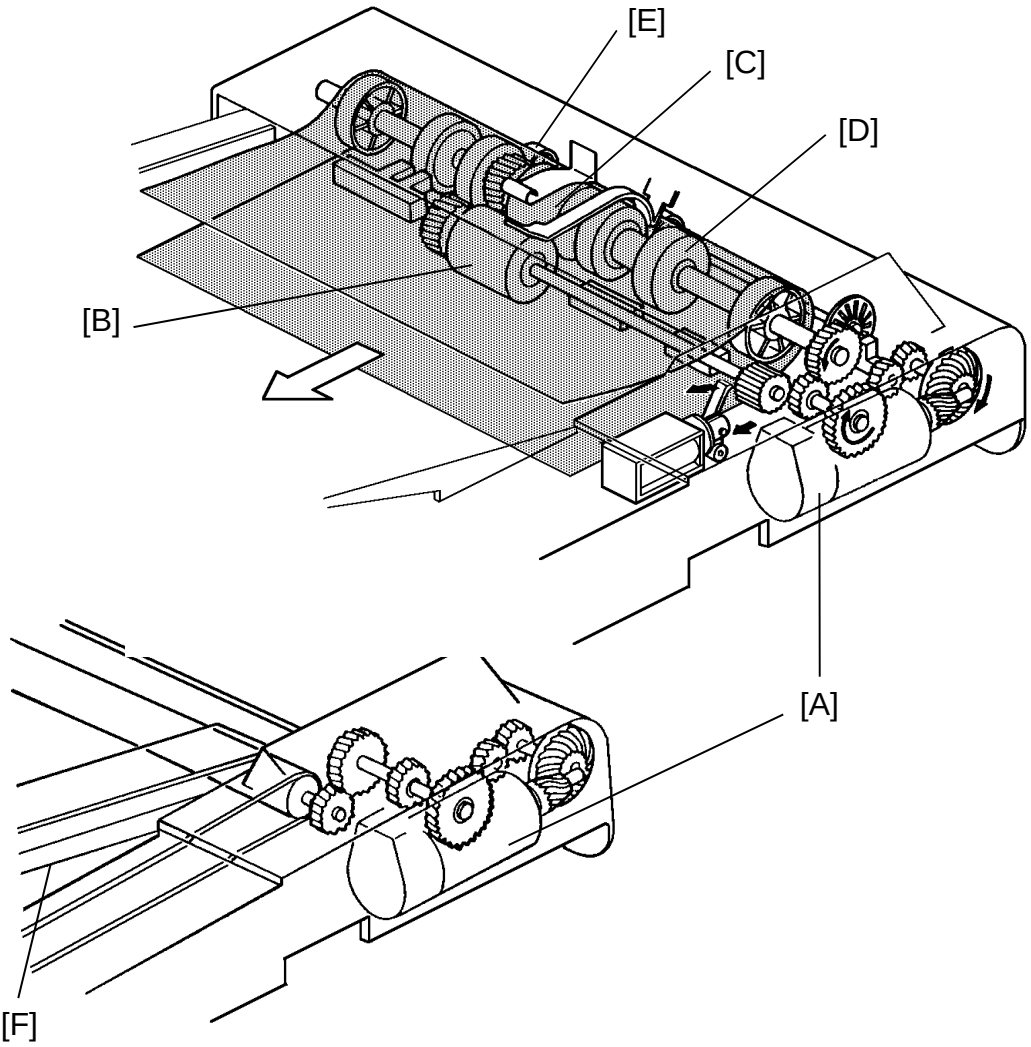
## 7.2 ORIGINAL SEPARATION




The feed roller [A] and the friction belt [B] are used to feed-in and separate the originals [C]. Only the bottom original is fed because the friction belt prevents any other originals from feeding.

Original feed starts when the feed roller starts turning and advances the bottom original of the stack. The feed roller moves the original past the friction belt because the driving force of the feed roller is greater than the resistance of the friction belt. The friction belt prevents multiple feeds because the resistance of the friction belt is greater than the friction between original sheets.

## 7.3 ORIGINAL FEED-IN MECHANISM

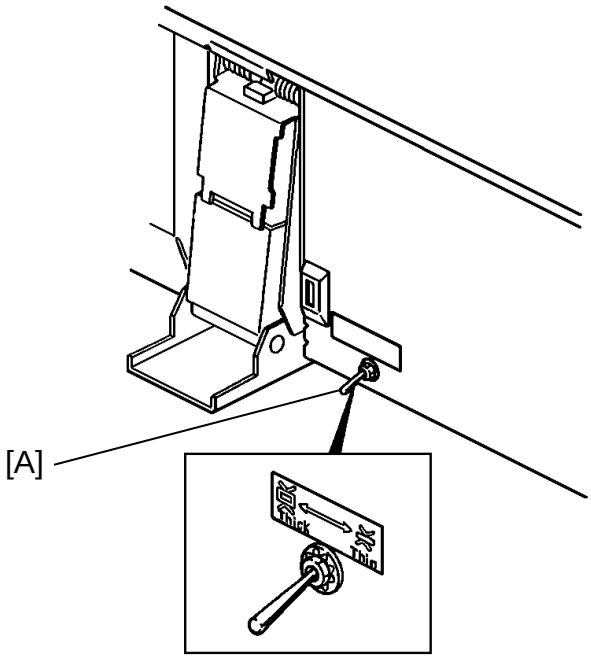



The belt drive motor [A] drives the pick-up roller [B], the feed roller [C], the pull out roller [D], the relay roller [E], and transport belt [F] via a feed clutch and a gear train.

The pick-up and feed-in solenoids are energized 100 milliseconds after the Start key of the copier is pressed. Then 100 milliseconds after the solenoids are energized, the belt drive motor starts turning. The pulse generator disc [G] always turns when the belt drive motor is on.

Slightly after the original trailing edge passes the registration sensor, the relay rollers and the transport belt stop turning.

This document feeder has two different ways of stopping originals at the correct position on the exposure glass. They are called the "thin original mode" and the "thick original mode". The mode used is determined by the original select switch [A].




- Original Select Switch -

1. Thin Original Mode

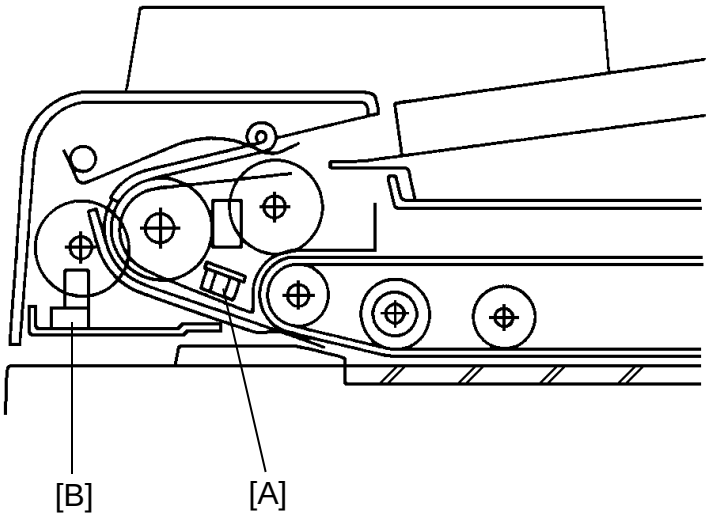
The original is stopped at the correct position on the exposure glass based on encoder pulse count. The belt drive motor stops shortly after the original trailing edge passes the DF registration sensor. (Exact timing depends on registration adjustment.) Thin original mode is selected at the factory.

2. Thick Original Mode

When thick original mode is selected, the belt drive motor remains energized for an additional 30 encoder pulses as compared to thin original mode. Then, the belt drive motor pauses and reverses for 21 pulses. This forces the original against the left scale and thus aligns the edge of the original with the scale.

After the exposure cycle is completed, the copier sends the feed-out signal to the DF CPU and the belt drive and feed out motors start turning. At this time, the copied original feeds out and the next original feeds in.

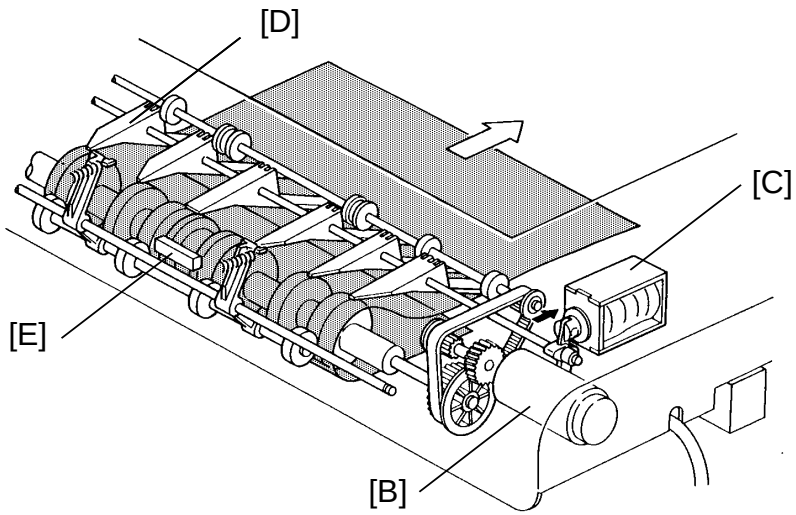
## 7.4 ORIGINAL SIZE DETECTION



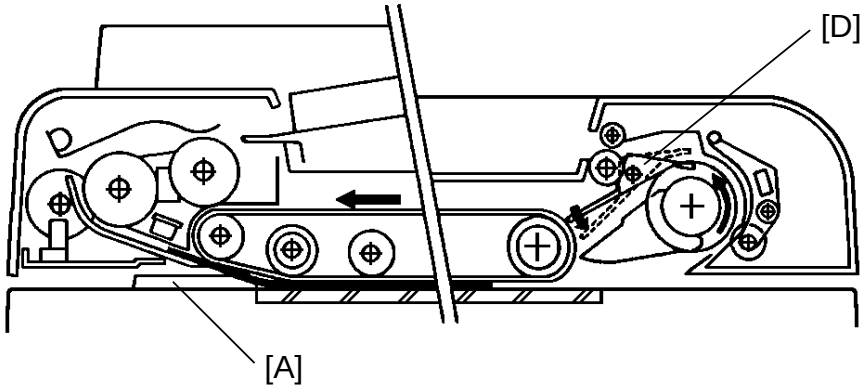

The DF determines original size (both width and length) through the use of the original width sensor [A], registration sensor, and pulse generator sensor [B]. The original's length is calculated by counting the number of pulses from the pulse generator while the registration sensor is on.

Original size detection is necessary for the feed-in/feed-out timing of the DF.

## 7.5 ORIGINAL INVERSION MECHANISM



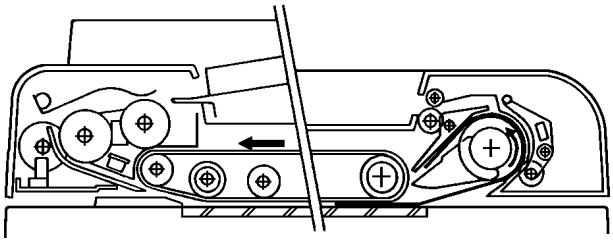

1)



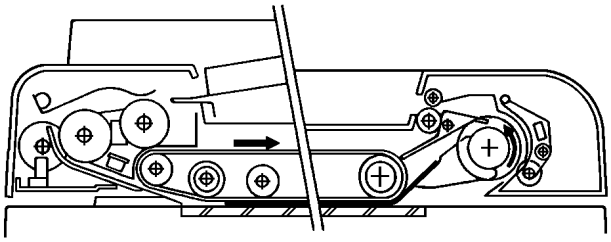

The two sided originals are inverted in the feed-out unit.

1) When the copier Start key is pressed, the two sided original is fed into the feed-in unit, passing over the DF registration sensor [A]. The feed-out motor [B] and the inverter solenoid [C] turn on 100 milliseconds after the original trailing edge passes the registration sensor. When the inverter solenoid turns on, the inverter pawls [D] rotate counterclockwise.

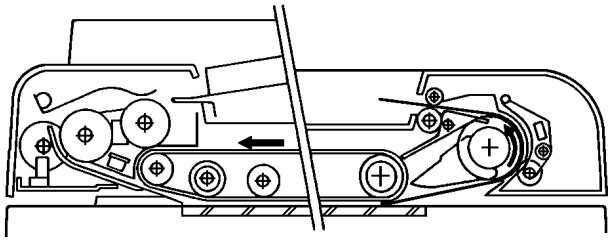
2) 4)



3) 5)



6)



2) The original passes over the exposure glass and feeds into the feed-out unit.

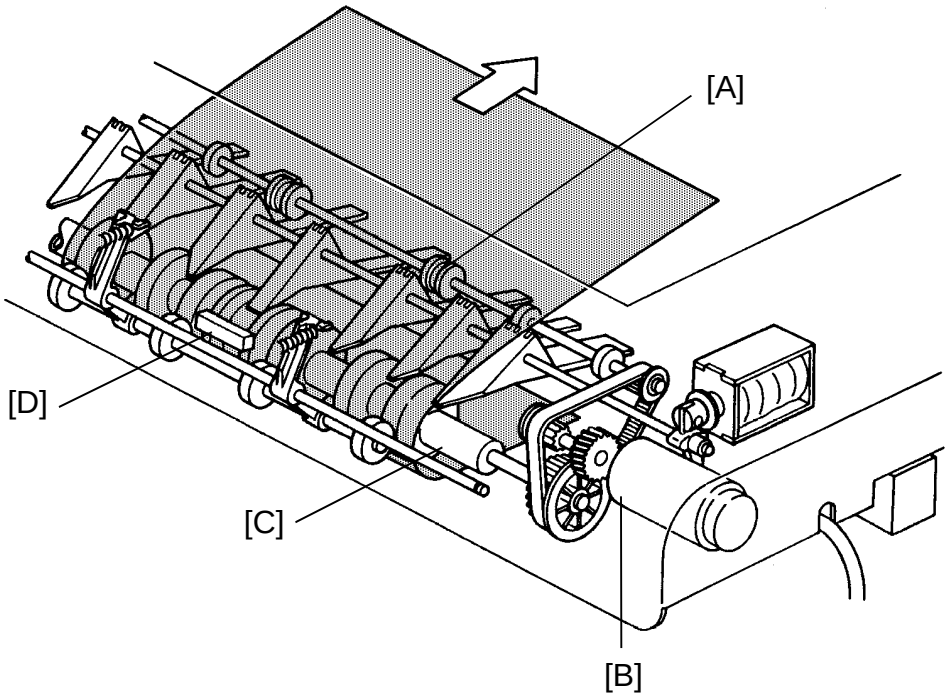
3) The original is directed onto the exposure glass again by the inverter pawls. The belt drive motor now reverses 140 milliseconds after the feed out sensor [E] turns on. The transport belt then moves the original toward the left scale. Slightly before the original reaches the left scale, the belt drive motor drops to half speed. This is to prevent damaging the edge of the original against the left scale.
When the original leading edge reaches the left scale, the belt drive motor stops. At the same time, the feed-out motor and the inverter solenoid turn off.

4) After the reverse side of the original is exposed, the belt drive motor, the feed-out motor, and the inverter solenoid turn on, and the original is fed into the inverter section. (This is the same as step 2 above.)

5) The original is fed onto the exposure glass again as in step 3 above. The front side of the original is then copied.

6) After the front side of the original has been exposed, the original is fed out from the DF.

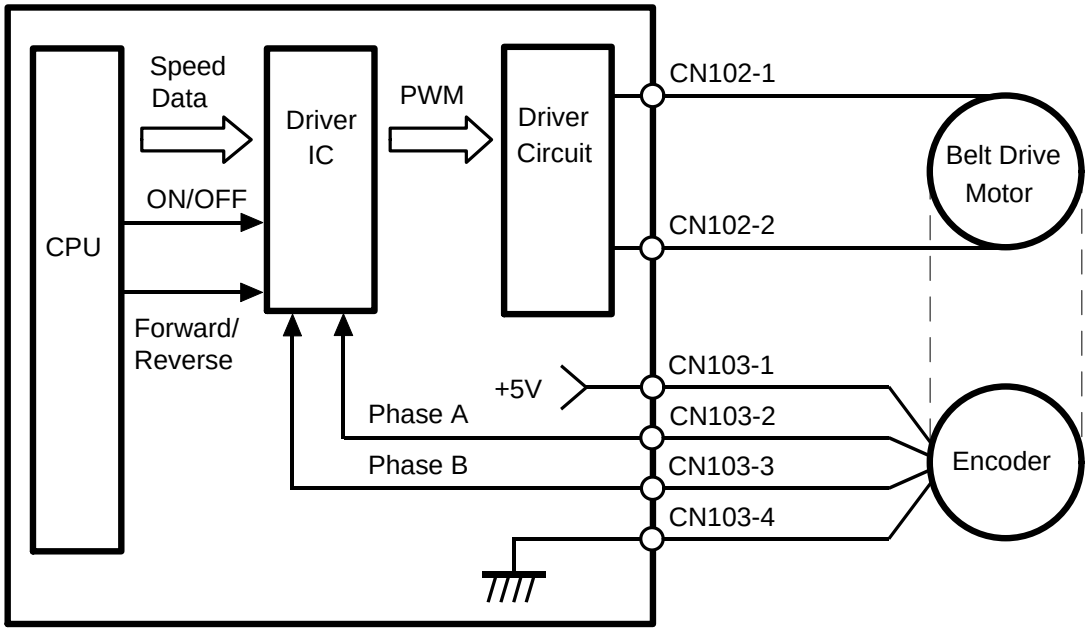
## 7.6 ORIGINAL FEED-OUT MECHANISM




The exit rollers [A] are driven by the inverter motor [B]. When the document feeder receives the feed out signal from the copier, the transport belt and the exit rollers start turning simultaneously. The transport belt carries the original to the inverter rollers [C] and the exit rollers take over the original feed-out. When the original trailing edge passes the feed-out sensor [D], the feed-out motor drops to half of its normal speed for 220 milliseconds and then stops. The lower speed prevents uneven stacking of originals. For A3 or double letter size originals, the feed-out motor speed does not change due to the length of the originals.

## 7.7 BELT DRIVE MOTOR CIRCUIT

**DF Main Board (PCB 1)**

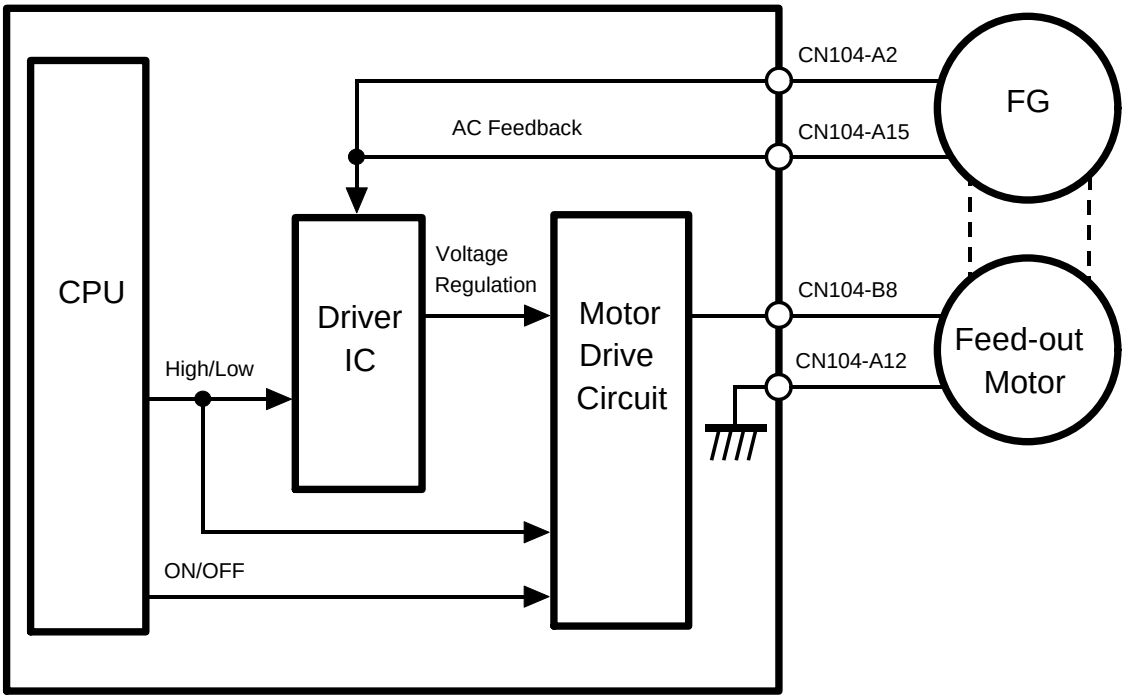



A dc servomotor is used as the belt drive motor. The driver IC controls the speed of the belt drive motor. The CPU sends the speed data (programmed) to the driver IC. The driver IC sends the pulse-width-modulation (PWM) signal to the driver circuit, which sends the motor drive pulses.

An encoder in the servomotor has two magnetic sensors that generate two pulse signals (phase A and B). The driver IC monitors the belt speed and direction by these pulse signals and uses this data to regulate the motor's speed.

## 7.8 FEED-OUT MOTOR CIRCUIT

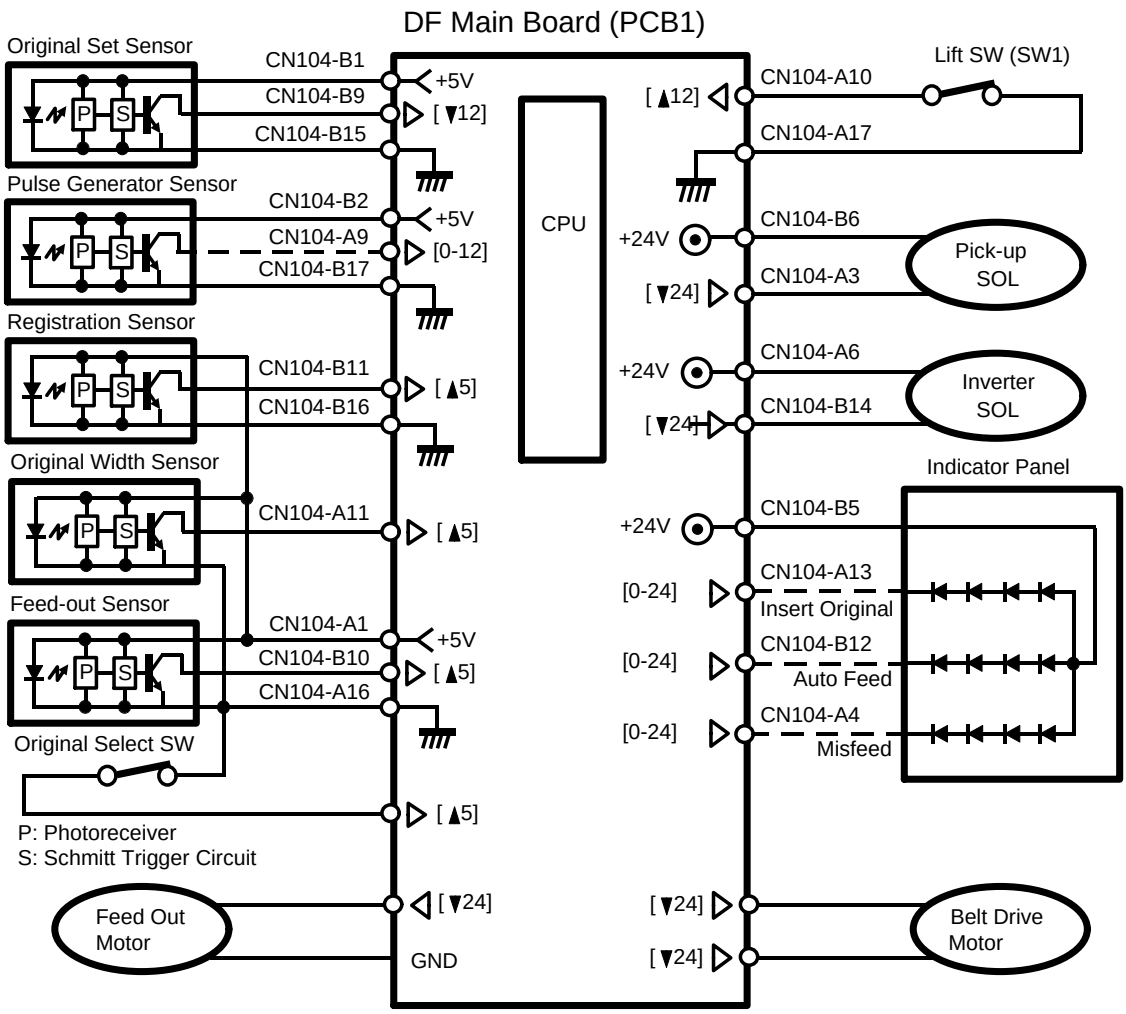
**DF Main Board (PCB 1)**




The DF CPU sends the speed data (high or low) to the driver IC and the motor drive circuit. The motor drive circuit creates the PWM signal and sends the motor drive pulses to the inverter motor.

The frequency generator of the feed-out motor makes a very low voltage ac current which is fed back to the driver IC. The driver IC monitors the frequency of this ac current and based on the frequency it regulates the motor speed.

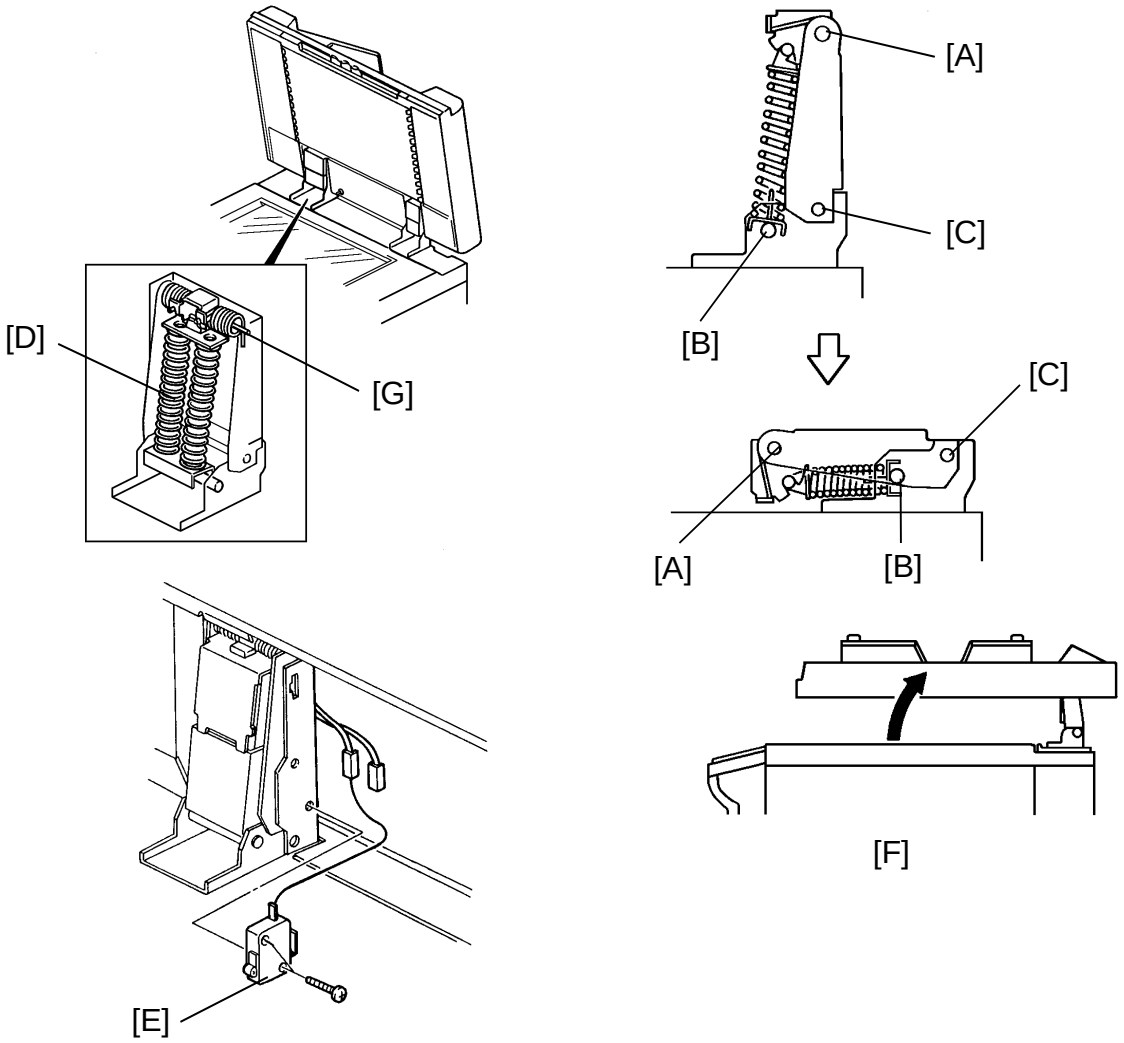
## 7.9 INPUT AND OUTPUT CIRCUITS




The above devices are directly controlled and monitored by the CPU. The solenoids and indicator panel are energized with +24 volts. The sensors and switches are energized with +12 volts or +5 volts.

To energize a solenoid or indicator, the CPU drops the connected trigger line from +24 volts to LOW. The CPU monitors the input lines of the sensors and switch to determine when they are activated.

# 8. LIFT MECHANISM




When the document feeder is opened, the lift springs [D] provide enough force to ensure that the document feeder does not fall onto the exposure glass. When the document feeder is closed, points "A", "B", and "C" are aligned and no such force is provided to the document feeder.

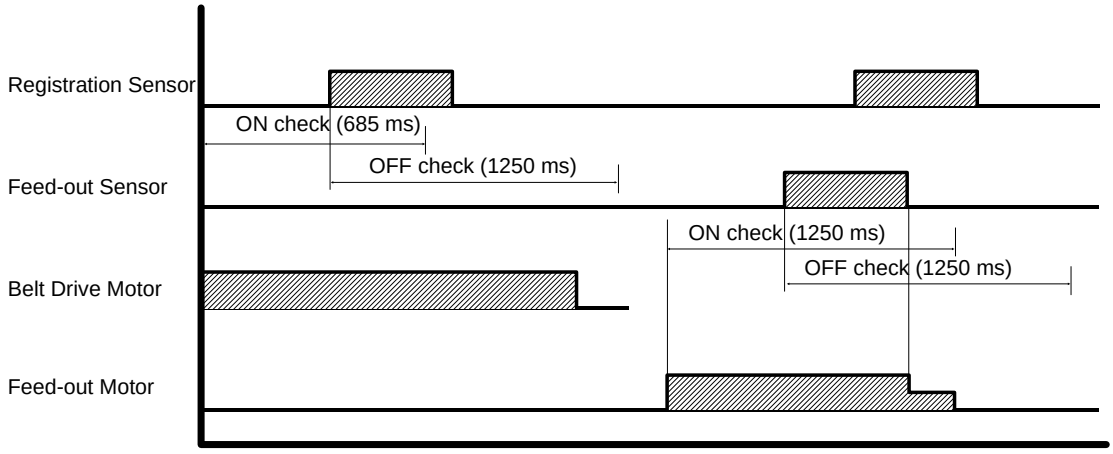
The lift switch [E] is actuated when the document feeder is closed. The copier then shifts to the document feeder mode. The lift switch also serves as the reset switch for document feeder misfeeds.

When a book or thick (maximum thickness 60 mm) original is copied, the DF acts as a cover for the original as shown in the figure [F]. The lift switch is turned off during this condition, so the DF does not function. The tension of spring [G] returns the DF to the normal condition after copying a thick original.

# 9. ORIGINAL MISFEED SENSING

The registration sensor and the feed-out sensor are used for misfeed checks.

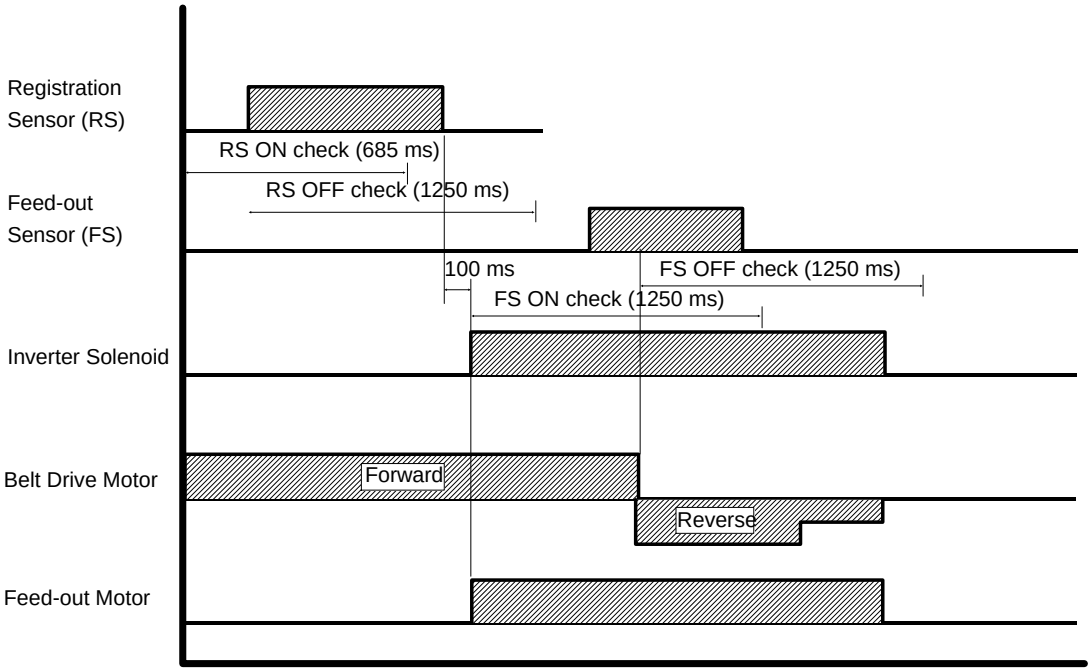
**1. One sided original**




If the registration sensor is not actuated within 685 milliseconds after the belt drive motor starts turning, the Original Misfeed indicator lights (ON check).

If the registration sensor does not turn off within 1,250 milliseconds, the CPU determines that there has been an original misfeed (OFF check). The Original Misfeed indicator also lights if the feed-out sensor is not actuated within 1,250 milliseconds after the feed-out motor starts turning (ON check) or if the feed-out sensor does not turn off within 1,250 milliseconds after the feed-out sensor is actuated (OFF check).

## 2. Two sided original



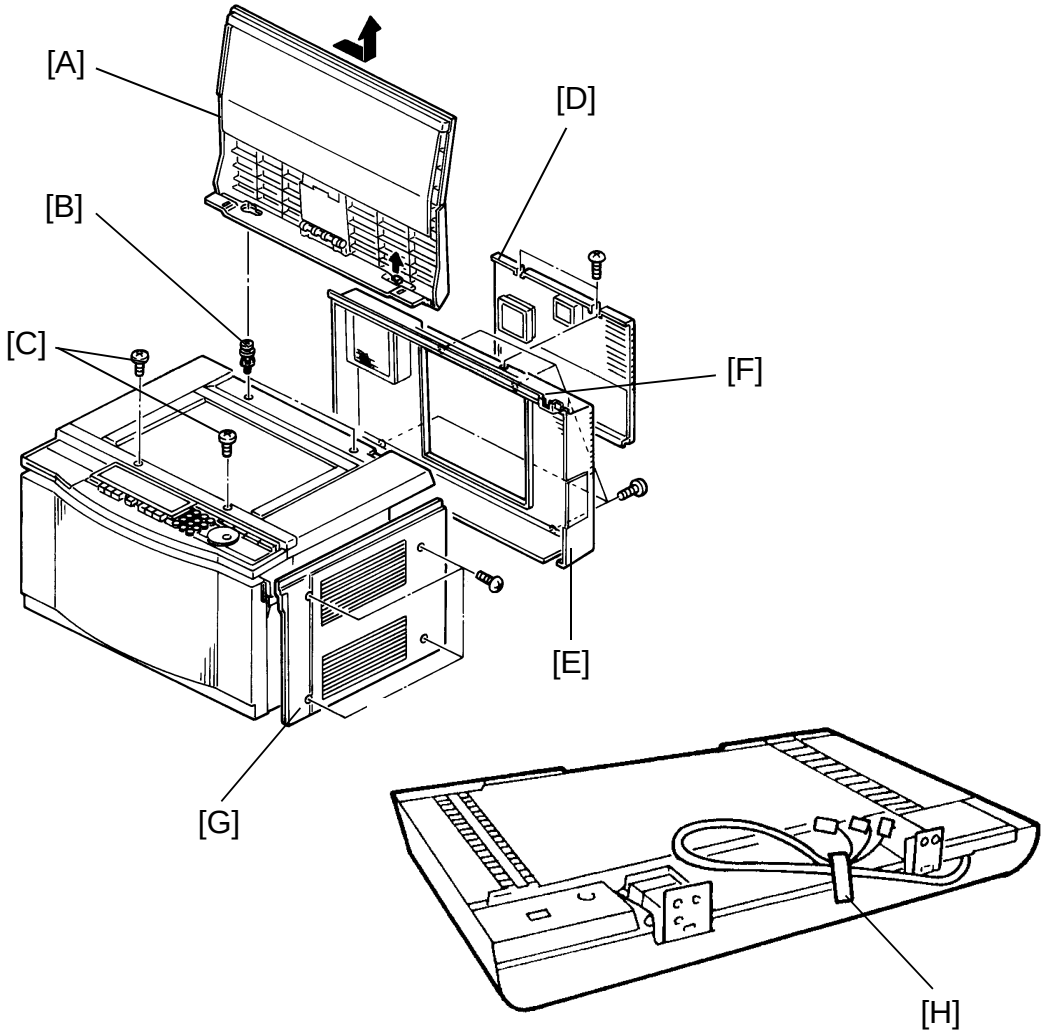

The registration ON/OFF check is the same as for one-sided originals. The inverter motor and the inverter solenoid turn on 100 milliseconds after the registration sensor turns off. If the feed-out sensor is not actuated within 1,250 milliseconds after the feed-out motor starts turning, the Original Misfeed indicator lights (ON check). The Original Misfeed indicator also lights if the feed-out sensor does not turn off within 1,250 milliseconds after the belt drive motor reverses (OFF check).

If a previous original remains on the exposure glass after manual copying and DF feed is attempted, the original misfeed indicator lights. When the DF is lifted and the previous original is removed, DF copying is permitted.

# 10. INSTALLATION PROCEDURE (for Machine Code: A030)

## 10.1 ACCESSORY CHECK

1. Original Table ..... 1 pc
2. DF Mounting Bracket (for A027) ..... 1 pc
3. Angle Stopper ..... 1 pc
4. Lift Switch Actuator ..... 1 pc
5. E Plate ..... 1 pc
6. Spacer — 0.5 mm ..... 6 pcs
7. Spacer — 0.2 mm ..... 4 pcs
8. DF Harness Bracket ..... 1 pc
9. Bushing ..... 1 pc
10. Toothed Washer ..... 1 pc
11. Grounding Screw — M4 x 6 ..... 1 pc
12. Hexagon Head Screw — M4 x 10 ..... 4 pcs
13. Philips Screw with Flat Washer — M4 x 5 ..... 4 pcs
14. Philips Pan Head Screw — M4 x 5 (round head) ..... 3 pcs
15. Philips Pan Head Screw — M4 x 5 (flat head) ..... 2 pcs
16. Philips Pan Head Screw — M3 x 5 ..... 1 pc
17. Stud Screw ..... 2 pcs
18. DF Test Sheet ..... 1 pc
19. Installation Procedure ..... 1 pc
20. New Equipment Condition Report (17 and 27 machines) ..... 1 pc
21. Environment for N.E.C.R. (17 machine only) ..... 1 pc
22. Power Supply Unit Harness (for A027) ..... 1 pc
23. Harness Mounting Bracket (for A027) ..... 1 pc
24. Philips Pan Head Screw — M4 x 6 ..... 5 pcs
25. Grounding Screw — M4 x 6 ..... 1 pc
26. Toothed Washer ..... 1 pc
27. Philips Pan Head Screw — M5 x 10 (for A030) ..... 2 pcs
28. DF Mounting Bracket (for A030) ..... 1 pc
29. DF Bracket (for A030) ..... 1 pc
30. Multilingual Decal (16, 25, 26 and 27 machines) ..... 1pc



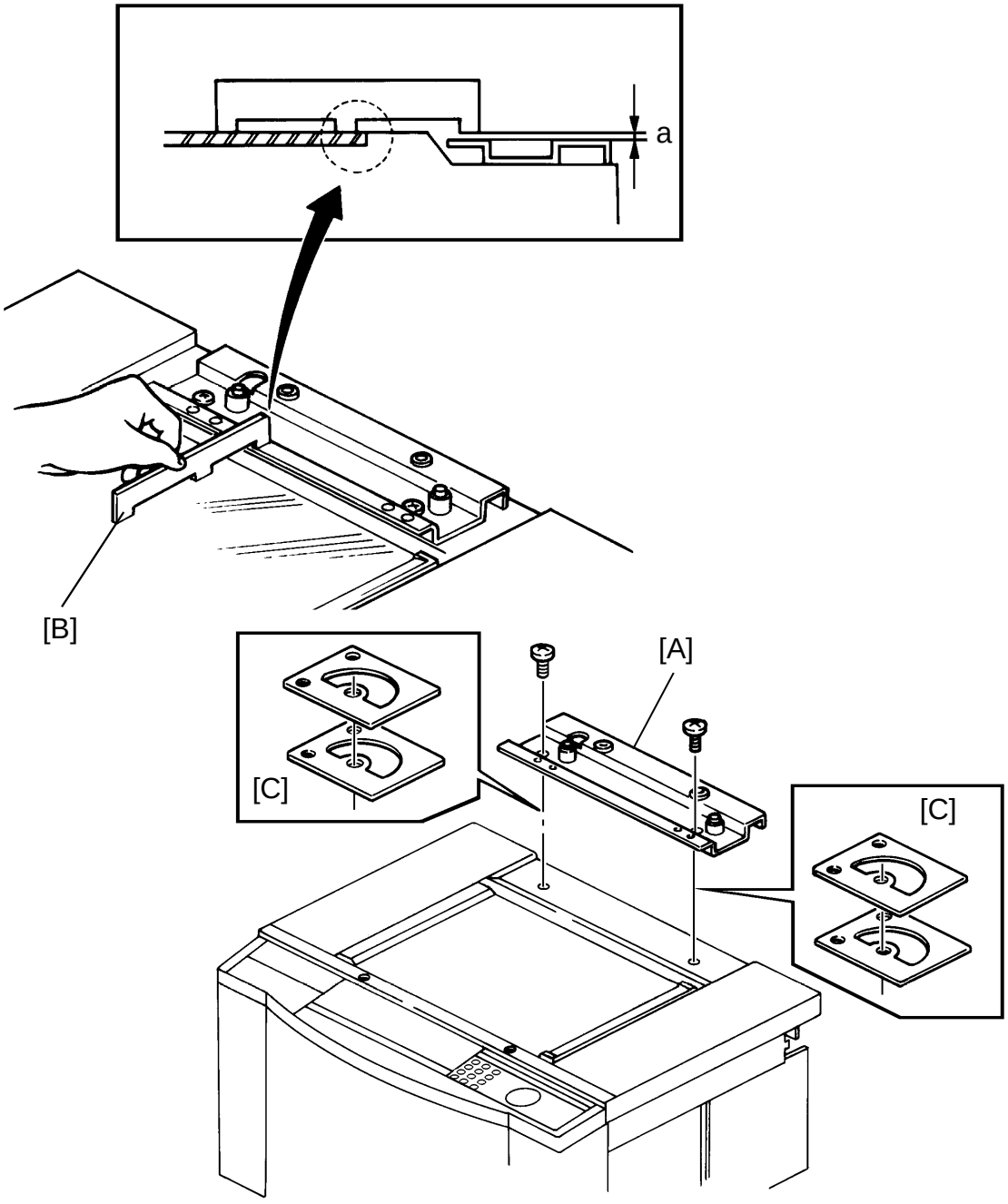

## 10.2 INSTALLATION PROCEDURE (for Machine Code: A030)

CAUTION: When installing the DF, make sure that the copier is unplugged.

1. Remove the following parts of the copier:
   1) Platen cover [A] (2 push-locks)
   2) Two screws [B] fixing the platen cover
   3) Two screws [C] fixing the scale cover
   4) Toner collection bottle cover [D] (2 screws)
   5) Rear cover [E] (5 screws).

**NOTE:** Cut the harness hole cap [F].

   6) Right cover [G] (4 screws).
2. Remove the strips of tape [H].

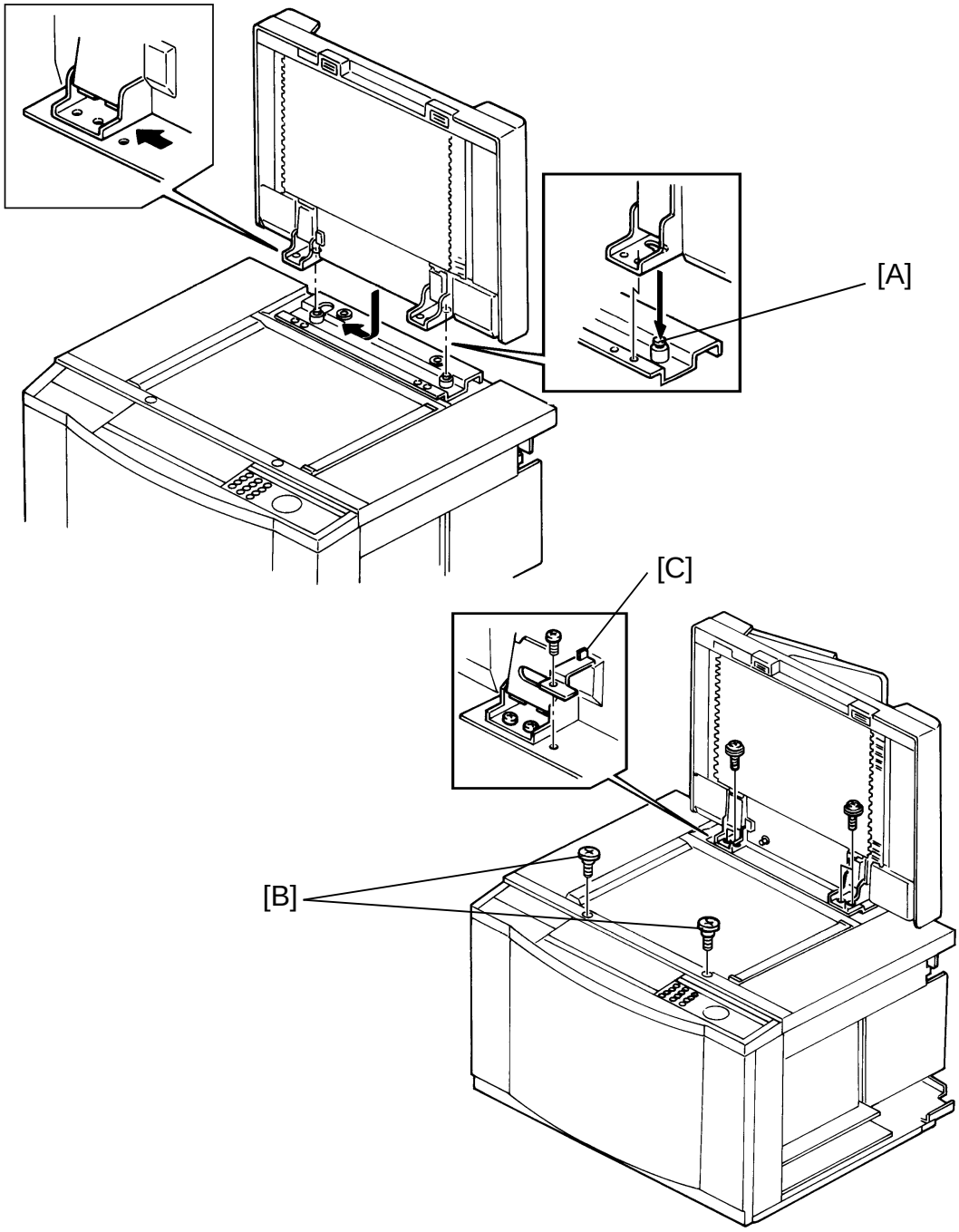



3. Secure the DF mounting bracket [A] (2 screws - M5 X10 [26]).

4. Adjust the height of the DF mounting bracket in the following order:

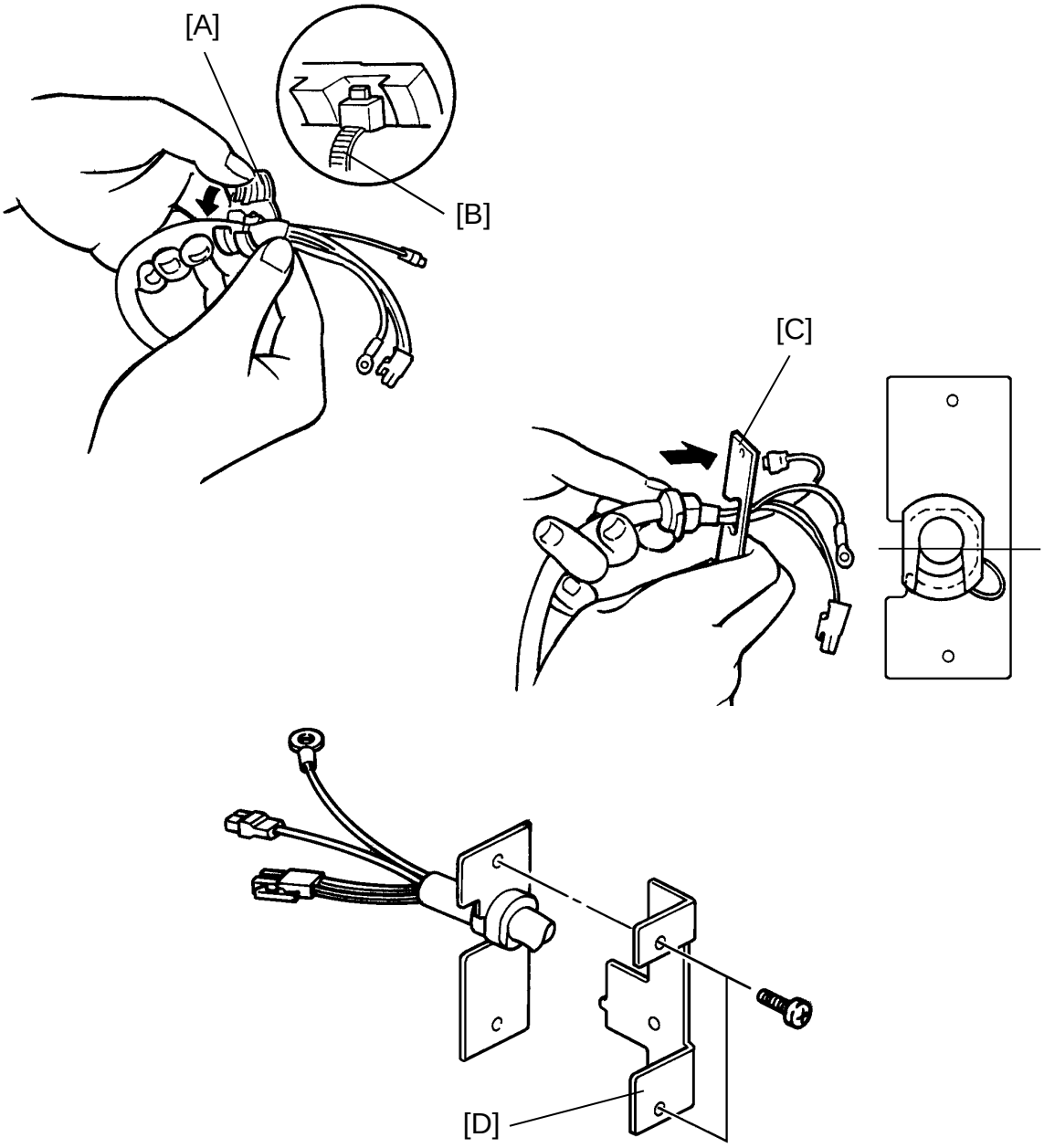
    1) Set the E plate [B] on the exposure glass as shown and measure the clearance "a" between the DF mounting bracket and the E plate.

    2) Remove the DF mounting bracket and insert the spacers [C] to make clearance "a" between 0 mm and 0.3 mm.

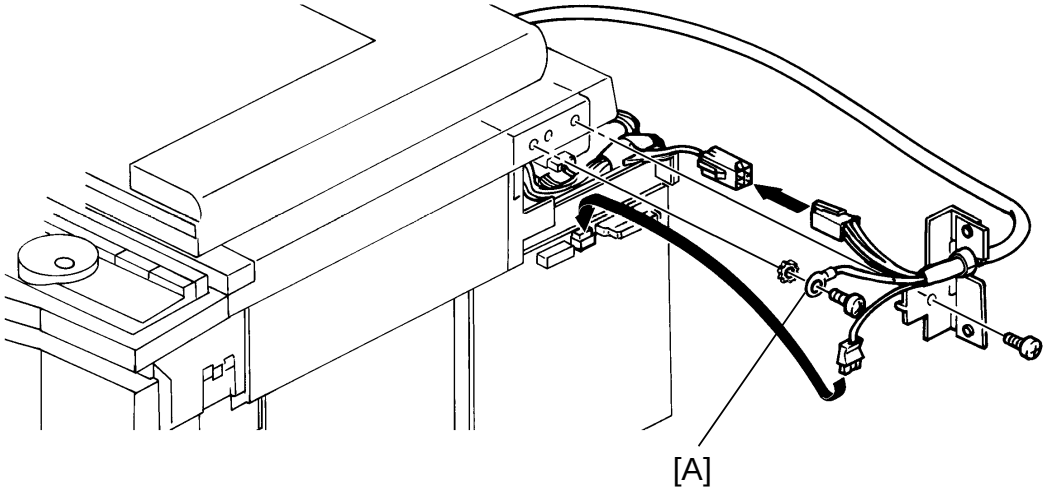


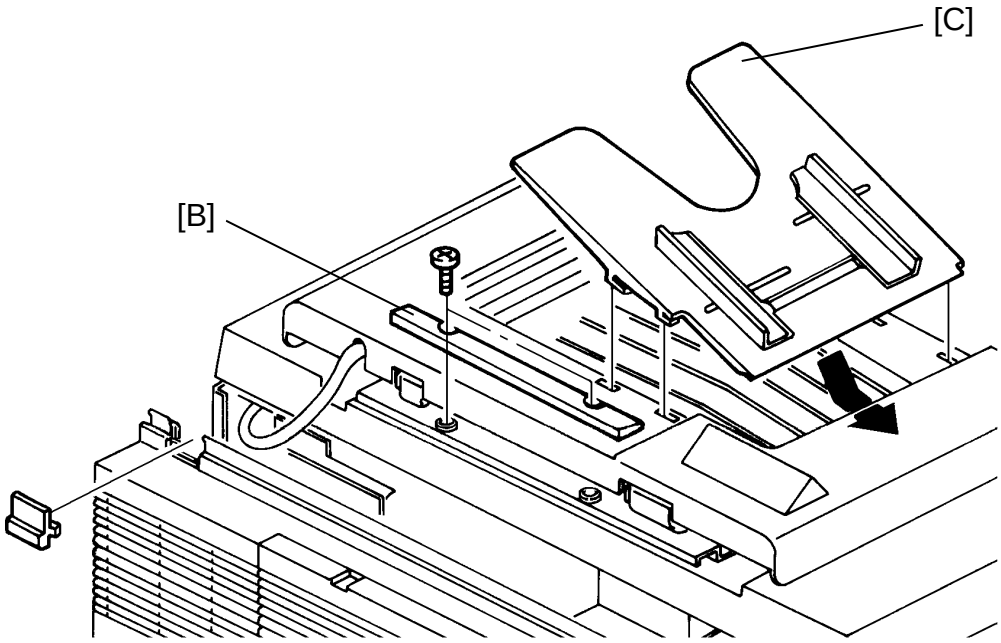

5. Mount the DF on the DF mounting bracket by aligning the holes in the DF and the pins [A] on the mounting bracket, then slide the DF to the left as shown.
6. Secure the DF to the DF mounting bracket (4 screws [13]).
7. Install the 2 stud screws [B] as shown in the figure.
8. Install the lift switch actuator [C] (1 screw [16]).

CAUTION: During this step, avoid bending the fiber optics sharply as this will damage them.

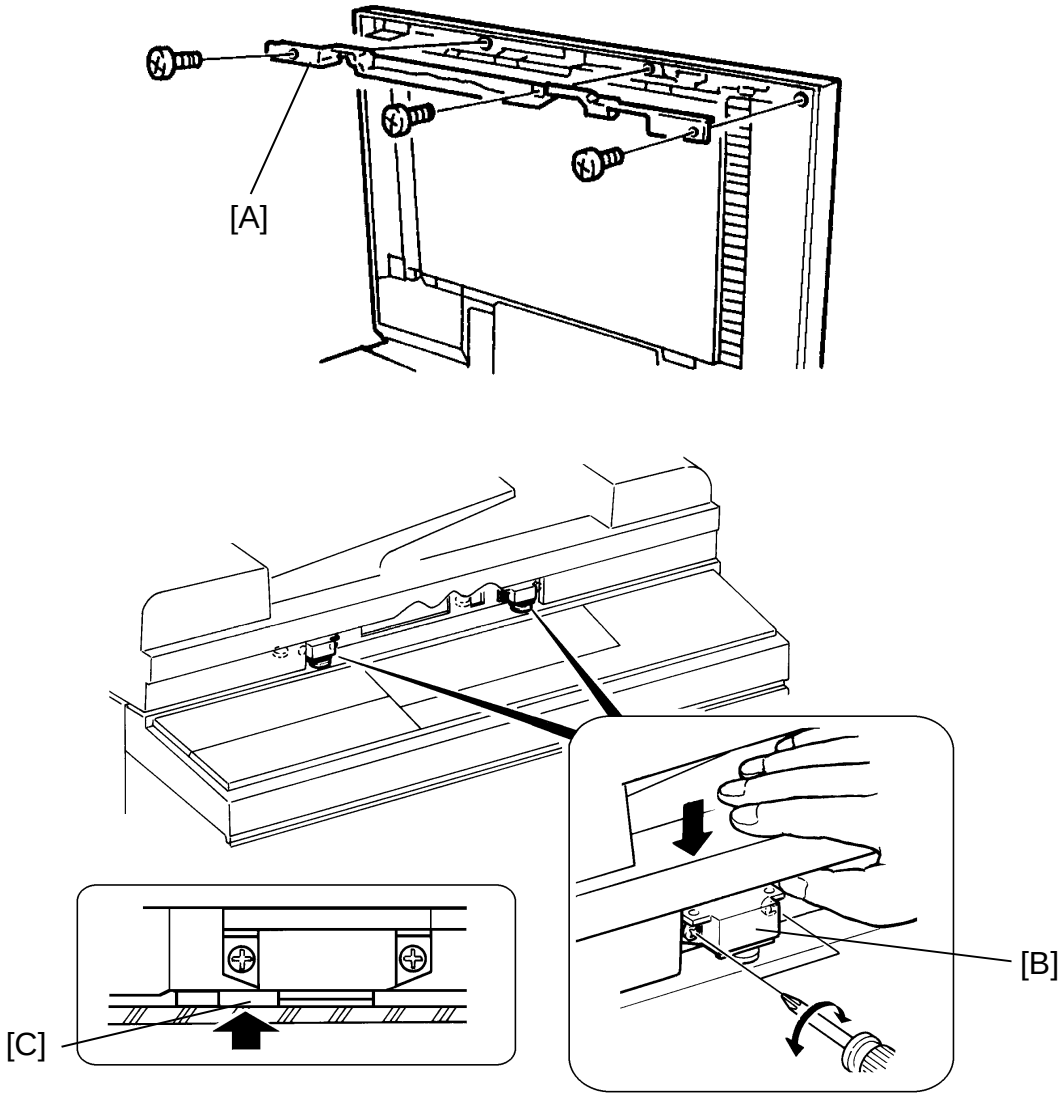



9. Place the bushing [A] over the DF harness just at the harness band [B].
10. Secure the bushing in the DF harness bracket [C].
11. Set the DF bracket [D] to the DF harness bracket (2 screws [14]).




12. Install the DF harness to the copier as shown (1 screw).
13. Set the DF harness as follows:
    1) Fiber optics — CN108 (main PCB)
    2) 4P connector — 4P connector (copier).
14. Secure the grounding wire [A] (1 grounding screw, 1 toothed washer).
15. Reinstall the copier's covers.
16. Install the angle stopper [B] (2 screws [15]), and the original table [C].




17. Adjust the height of the magnet catches in the following order:
    1) Remove the grip cover [A] (3 screws).
    2) Loosen the screws of the magnet catches [B] (2 screws each).
    3) Close the document feeder and tighten the screws of the magnet catches when the rubber stopper [C] contacts the exposure glass.
18. Reinstall the grip cover (3 screws).

**NOTE:** Open and close the document feeder to confirm that the magnet catches are making good contact.

19. Remove the main PCB cover (1screw), and set DIP SW 101 on the main PCB as follows:

    ON: 101-1
    OFF: 101-2,3,4
    * Turn to the OFF side of the 101-2

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

21. Confirm the original registration as follows:
    1) Make a copy of the test sheet in the platen mode (A4 width).
    2) Confirm that the original select switch is in the thin original mode and make a copy in DF mode (A4 width).
    3) Compare the registration of the copy in platen mode with that of the DF mode, and confirm that the difference is within 2.5 mm.
    4) If the difference is more than 2.5 mm, remove the DF main PCB cover [D] (1 screw) and adjust VR102 to change the original-stop timing.

**NOTE:** Turning VR102 clockwise results in the original stopping later.

    5) Make a copy of the test sheet in DF two-sided original mode.

**NOTE:** a) The test sheet should stop pressed against he left scale in DF two-sided original mode.

b) The position of the original select switch does not matter.

    6) Compare the registration of the copy in platen mode with that of DF two-sided original mode, and confirm that the difference is within 2.0 mm.
    7) If the difference is more than 2.0 mm, remove the DF main PCB cover and adjust VR103 to change the original-stop timing.

**NOTE:** a) The test sheet should stop pressed against the left scale in DF two-sided original mode.

b) Turning VR103 clockwise results in the original stopping later.

22. Check the operation of the DF.

23. Position the original select switch to the thin paper mode (normal position), and explain the function of this switch to the customer.

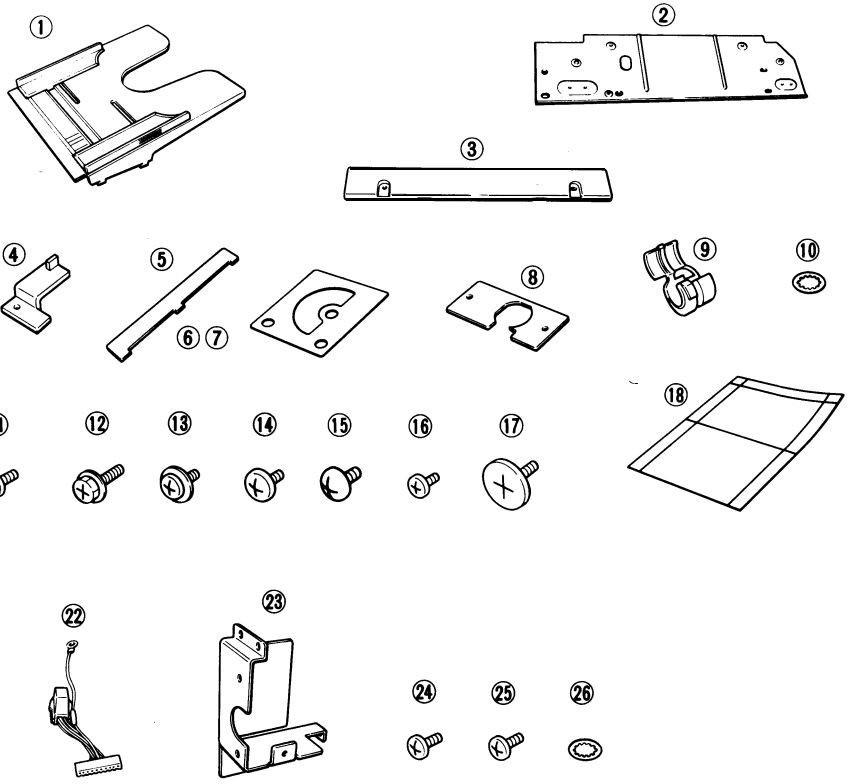
# 11. ACCESSORY CHECK (FT2260)

Check the accessories and their quantities according to the following list:

1. Original Table ..... 1 pc
2. DF Mounting Bracket ..... 1 pc
3. Angle Stopper ..... 1 pc
4. Lift Switch Actuator ..... 1 pc
5. E Plate ..... 1 pc
6. Spacer – 0.5 mm ..... 4 pcs
7. Spacer – 0.2 mm ..... 4 pcs
8. DF Harness Bracket ..... 1 pc
9. Bushing ..... 1 pc
10. Toothed Washer ..... 1 pc
11. Grounding Screw – M4 x 6 ..... 1 pc
12. Hexagon Head Screw – M4 x 10 ..... 4 pcs
13. Philips Screw with Flat Washer – M4 x 5 ..... 4 pcs
14. Philips Pan Head Screw – M4 x 5 ..... 2 pcs
15. Philips Pan Head Screw – M4x5 ..... 2 pcs
16. Philips Pan Head Screw – M3x5 ..... 1 pc
17. Stud Screw ..... 2 pcs
18. DF Test Sheet ..... 1 pc
19. Installation Procedure ..... 1 pc
20. N. E.C.R ..... 1 pc
21. Envelope for N. E.C.R. (115V only) ..... 1 pc

When installing the DF, the power supply unit (option) is also required.
Check the accessories and their quantities according to the following list:

22. Power Supply Unit Harness ..... 1 pc
23. Harness Mounting Bracket ..... 1 pc
24. Philips Pan Head Screw – M4 x6 ..... 5 pcs
25. Grounding Screw – M4 x 6 ..... 1 pc
26. Toothed Washer ..... 1 pc

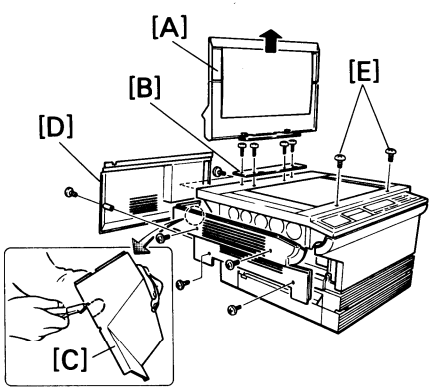

①
②
③
④
⑤
⑥ ⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
㉒
㉓
㉔
㉕
㉖

# 12. INSTALLATION PROCEDURE (FT2260)

**CAUTION: When installing the DF, make sure that the copier is unplugged.**

**1. Remove the following parts of the copier:**

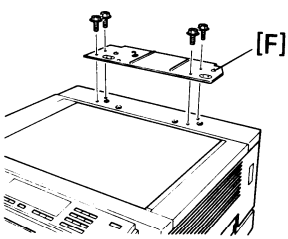
**1) Platen cover [A] (2 push-locks)**
**2) Platen cover pedestal [B] (4 screws)**
**3) Upper left cover [C] (4 screws)**




**NOTE: Cut the harness hole cap with nippers.**

**4) Upper rear cover [D] (2 screws)**
**5) 2 screws for fixing the operation panel [E].**

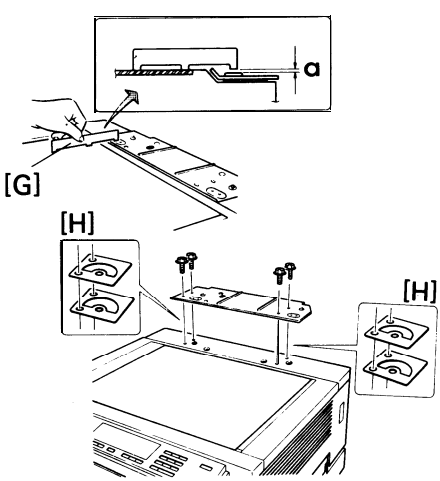
**2. Secure the DF mounting bracket [F] (4 screws [12]).**



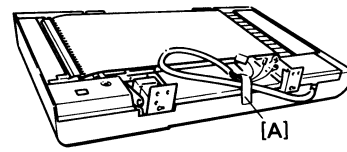

**3. Adjust the height of the DF mounting bracket in the following order:**

1) **Set the E plate [G] on the exposure glass as shown and measure the clearance "a" between the DF mounting bracket and the E plate.**

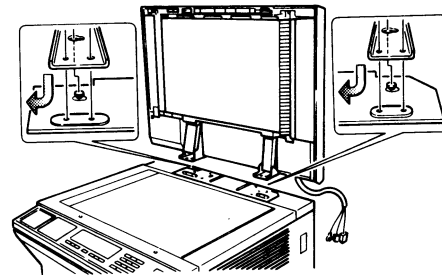
2) **Remove the DF mounting bracket and insert the spacers [H] to make clearance "a" between 0 mm and 0.3 mm.**



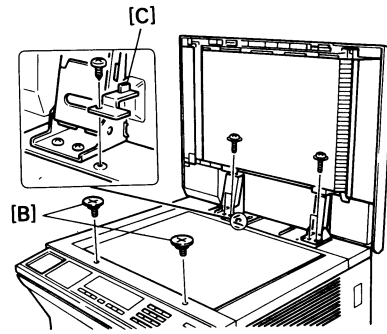
4. Remove the strip of tape [A].

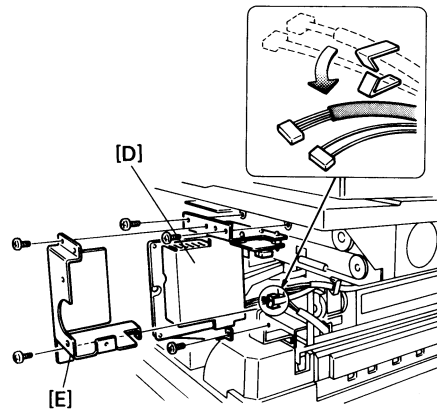



5. Mount the DF on the DF mounting bracket by aligning the holes in the DF and the pins on the mounting bracket, then slide the DF to the left as shown.



6. Secure the DF to the DF mounting bracket (4 screws [13]).
7. Install the 2 stud screws [B] as shown in the figure.
8. Install the lift switch actuator [C] (1 screw [16]).
9. Pull out the interface harness connector (red, 4p) and the ac harness connector (black, 2P) from the wire clamp.
10. Install the power supply unit [D] (3 screws).
11. Install the harness mounting bracket [E] (2 screws [21]).

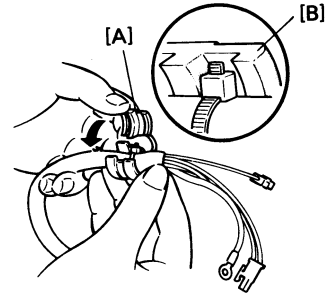



NOTE: See illustration for correct installation. There are three holes; however, the top right hole is used to fix the ground wire of the DF harness.

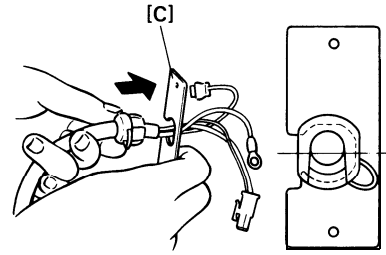
**CAUTION: During this step, avoid bending the fiber optics sharply as this will damage them.**

12. Place the bushing [A] over the DF harness just at the harness band [B].




13. Secure the bushing in the DF harness bracket [C].

14. Install the DF harness bracket on the harness mounting bracket (2 screws [15]).

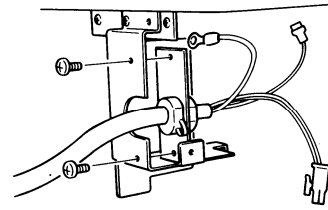



15. Couple the five connectors as follows:

    1) Fiber optics - CN251

    2) Interface harness connector (red) ↔ CN252

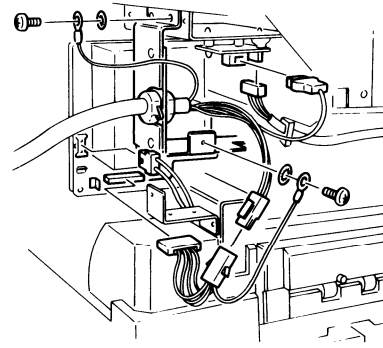
    3) AC harness connector (black) ↔ CN203



NOTE: Remove the tape from the ac harness connector.

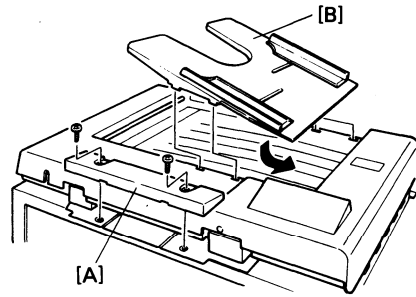
    4) Power supply unit harness connector (brown) ↔ CN201

    5) Power supply unit connector (white) ↔ DF harness connector (white).



16. Secure the two grounding wires together with the two toothed washers (1 screw each [11] [22]).

17. install the angle stopper [A] (2 screws [14]).
18. Install the original table [B].

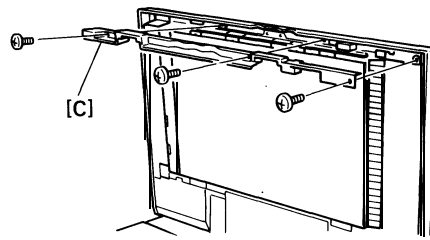



19. Adjust the height of the magnet catches in the following order:

    1) Remove the grip cover [C] (3 screws).

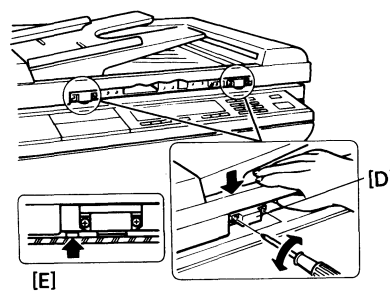
    2) Loosen the screws of the magnet catches [D] (2 screws each).

    3) Close the document feeder and tighten the screws of the magnet catches when the rubber stopper [E] contacts the exposure glass.




20. Reinstall the grip cover (3 screws).

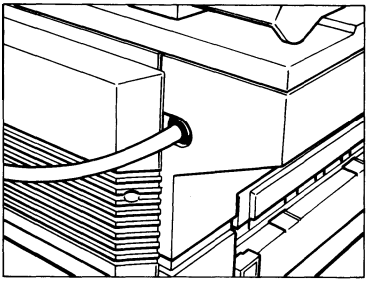
NOTE: Open and close the document feeder to confirm that the magnet catches are making good contact.




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

22. Confirm the original registration (see adjustments section).

23. Reassemble the copier. (The DF harness fits in the cut-out in the upper left cover.)



24. Check the operation of the DF and fill out the New Equipment Condition Report.

25. Position the original select switch to the thin paper mode (normal position) and explain the function of this switch to the customer.

# 11. INSTALLATION PROCEDURE (for Machine Code: A048)

## 11.1 ACCESSORY CHECK

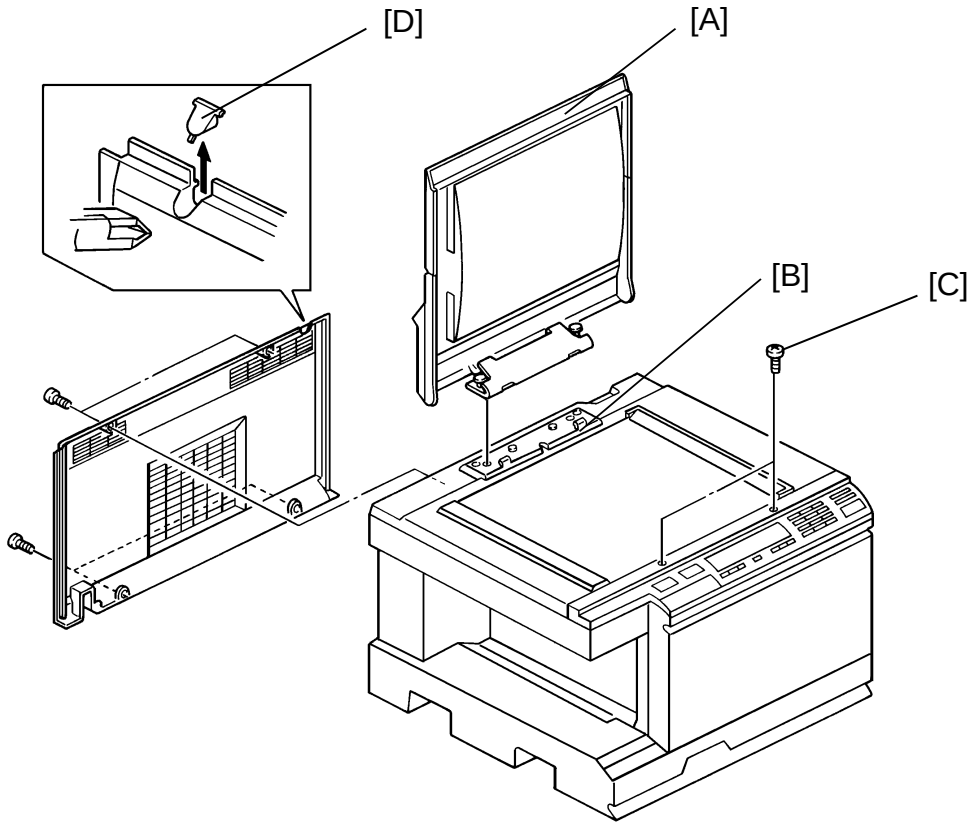
Check the quantity and condition of the accessories in the box according to the following list:

1. Original Table ..... 1
2. DF Mounting Bracket ..... 1
3. Angle Stopper ..... 1
4. Lift Switch Actuator ..... 1
5. E Plate ..... 1
6. Spacer - 0.5 mm ..... 6
7. Spacer - 0.2 mm ..... 4
8. DF Harness Bracket ..... 1
9. Bushing ..... 1
10. Toothed Washer ..... 1
11. Grounding Screw - M4 x 6 ..... 1
12. Hexagon Head Screw - M4 x 10 ..... 4
13. Philips Screw with Flat Washer - M4 x 5 ..... 4
14. Philips Pan Head Screw - M4 x 5 (round head) ..... 3
15. Philips Pan Head Screw - M4 x 5 (flat head) ..... 2
16. Philips Pan Head Screw - M3 x 5 ..... 1
17. Stud Screw ..... 2
18. DF Test Chart ..... 1

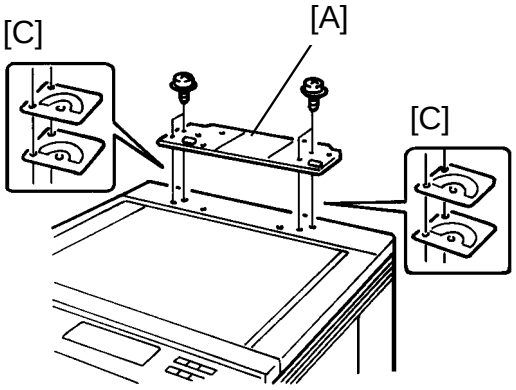
**NOTE** 1. When the document feeder is installed on the copier, the DC power supply unit (option) is required.

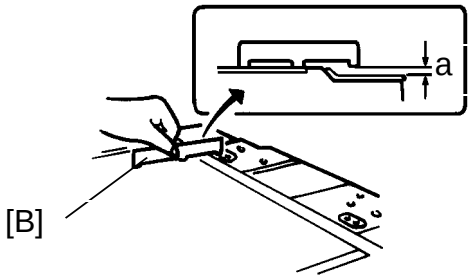
2. When installing the DC power supply unit, please refer to the installation procedure enclosed with it.

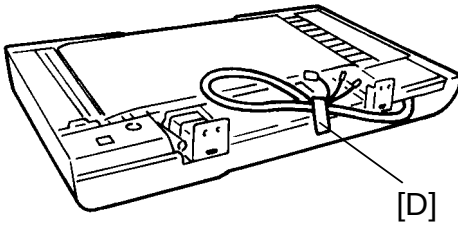
## 11.2 INSTALLATION PROCEDURE




1. Install the dc power supply unit.
2. Remove the following parts from the copier:
   1) Platen cover [A] (2 push-locks)
   2) Platen cover pedestal [B] (4 screws)
   3) 2 screws [C] for fixing the operation panel.
3. Remove the harness cap [D] on the rear cover with nippers.



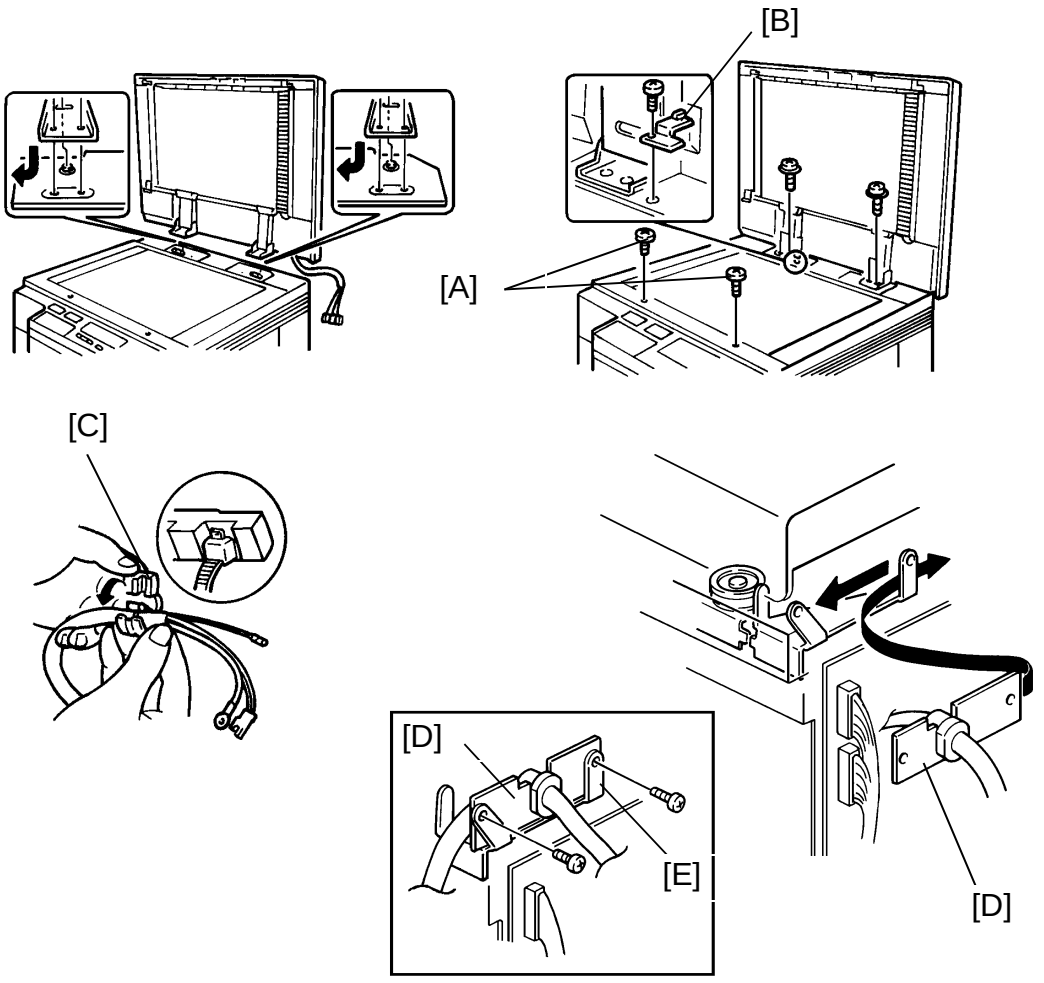



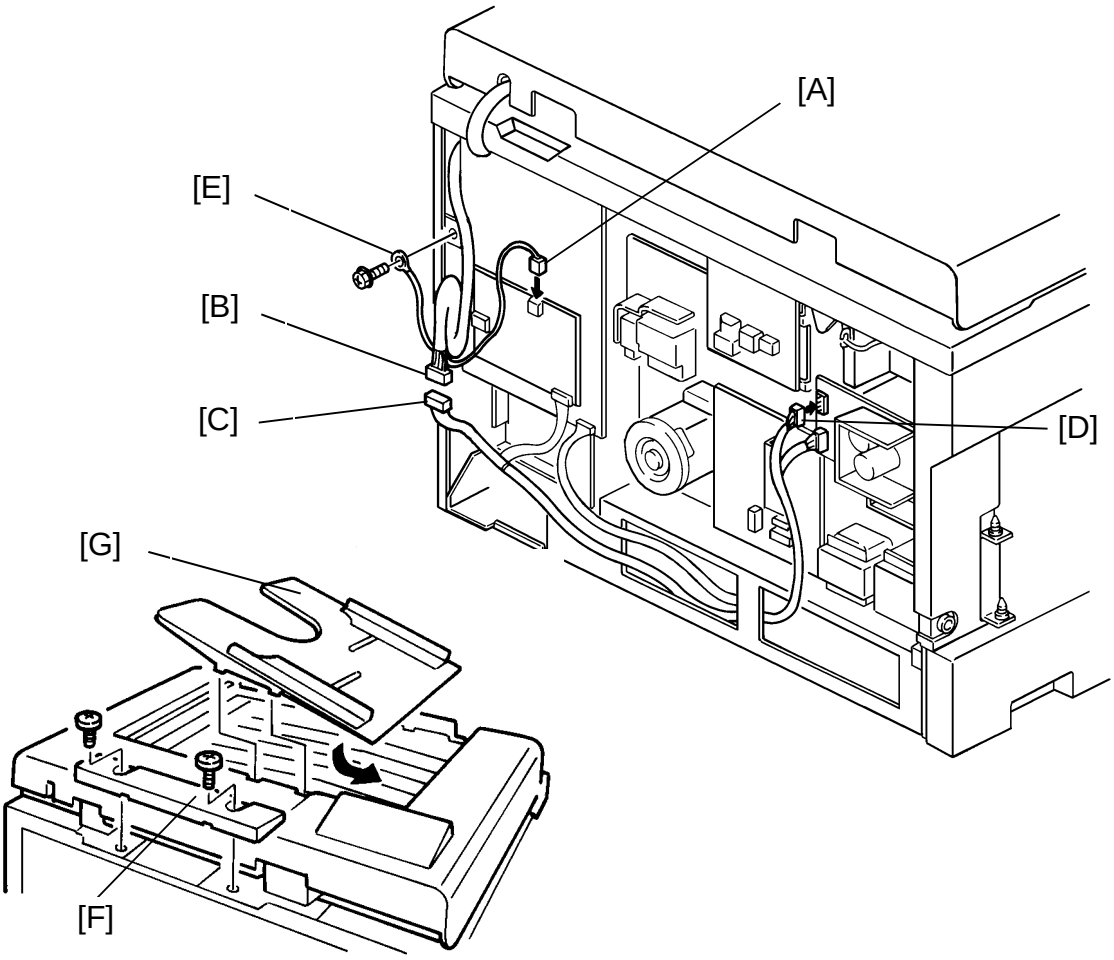

4. Secure the DF mounting bracket [A] (4 screws).

5. Adjust the height of the DF mounting bracket as explained below:
   1) Set the E plate [B] on the exposure glass as shown and measure the clearance "a" between the DF mounting bracket and the E plate with a scale.
   2) Remove the DF mounting bracket and insert spacers [C] until the clearance "a" is between 0 mm and 0.3 mm.

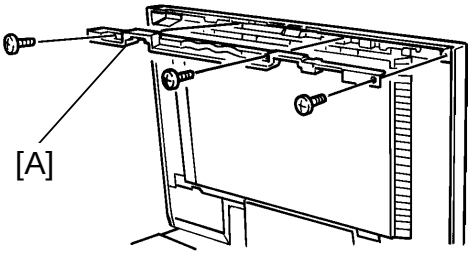
6. Remove the strip of tape [D].

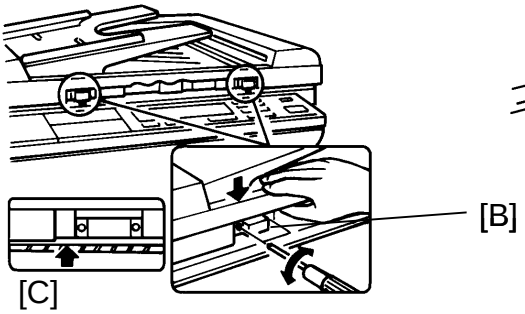


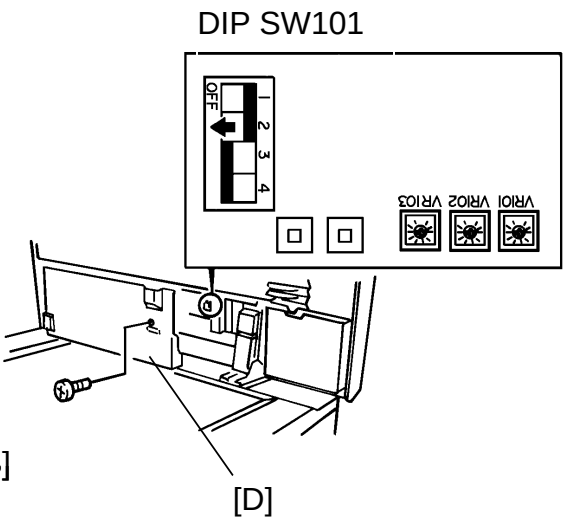

7. Mount the DF on the DF mounting bracket so that the holes in the DF are aligned with the pins on the mounting bracket, then slide the DF to the left as shown.
8. Secure the DF to the DF mounting bracket (4 screws).
9. Secure the 2 stud screws [A] as shown.
10. Install the lift switch actuator [B] (1 screw).
11. Place the bushing [C] on the DF harness as shown in the figure.
12. Place the bushing on the harness bracket [D] and secure the bracket to the harness support bracket [E] (2 screws).




13. Connect the optic cable connector (2P/Black) [A] to CN206 on the interface board.
14. Connect the dc harness (4P/White) [B] to the optional harness connector [C]; then, connect the optional harness connector [D] to CN102 on the dc power supply unit.
15. Secure the grounding wire [E] to the right side plate.
16. Install the angle stopper [F] (2 screws).
17. Install the original table [G].




18. Adjust the height of the magnet catches as follows:
    1) Remove the grip cover [A] (3 screws).
    2) Loosen the screws of the magnet catches [B] (2 screws for each catch).
    3) Close the document feeder and tighten the screws of the magnet catches when the rubber stopper [C] contacts the exposure glass.

19. Remove the DF main PCB cover [D] and turn off DIP switch 101-2.

**NOTE:** Make sure that DIP switch 101-1 is on and the other switches (101-2, 3, and 4) are off.

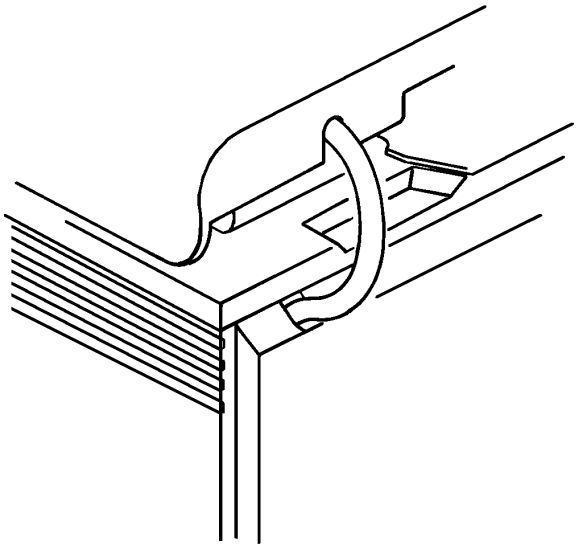
20. Reinstall the grip cover (3 screws).

**NOTE:** Open and close the document feeder to confirm that the magnet catches are making good contact.

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

22. Confirm the original registration as follows:
    1) Make a copy of the test sheet in platen mode (A4 width).
    2) Confirm that the original select switch is set to thin paper mode and make a copy in DF mode (A4 width).
    3) Compare the registration of the copy in platen mode with that of DF mode, and confirm that the difference is within 2.5 mm.
    4) If the difference is more than 2.5 mm, remove the DF main PCB cover and adjust VR102 to change the original-stop timing.

**NOTE:** Turning VR102 clockwise results in the original stopping later.



5) Make a copy of the test sheet in DF two-sided original mode.

**NOTE:** 1. The test sheet must be set facedown.

2. The original select switch can be set at any position.

6) Compare the registration of the copy in platen mode with that of DF two-sided original mode, and confirm that the difference is within 2.0 mm.

7) If the difference is more than 2.0 mm, remove the DF main PCB cover and adjust VR103 to change the original-stop timing.

**NOTE:** 1. The test sheet should stop pressed against the left scale in DF two-sided original mode.

2. Turning VR103 clockwise results in the original stopping later.

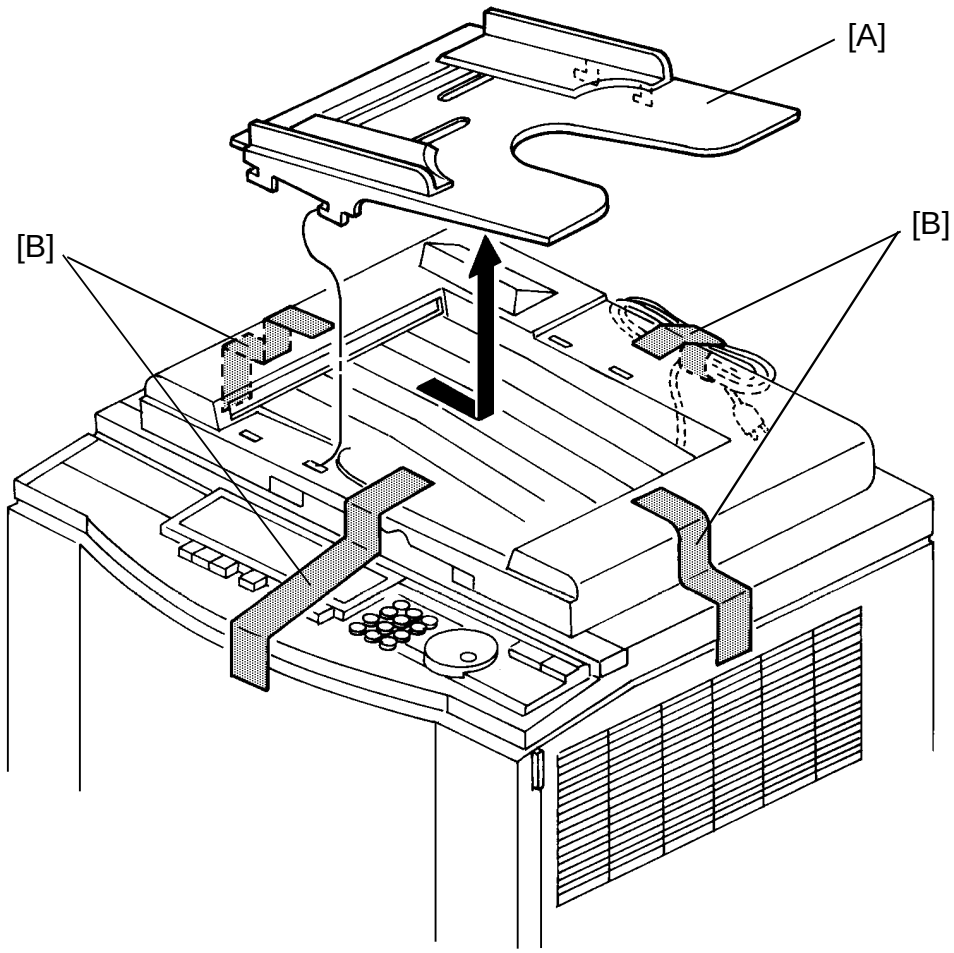
23. Reassemble the copier. (The DF harness fits in the cut-out on the rear cover as shown.)

24. Check the operation of the DF.

25. Position the original select switch to thin original mode (normal position) and explain the function of this switch to the customer.

# 11. PREPARATION FOR TRANSPORTATION

CAUTION: Before moving the document feeder, be sure to prepare it for transportation as follows. The document feeder may be badly damaged if it is moved without proper preparation.

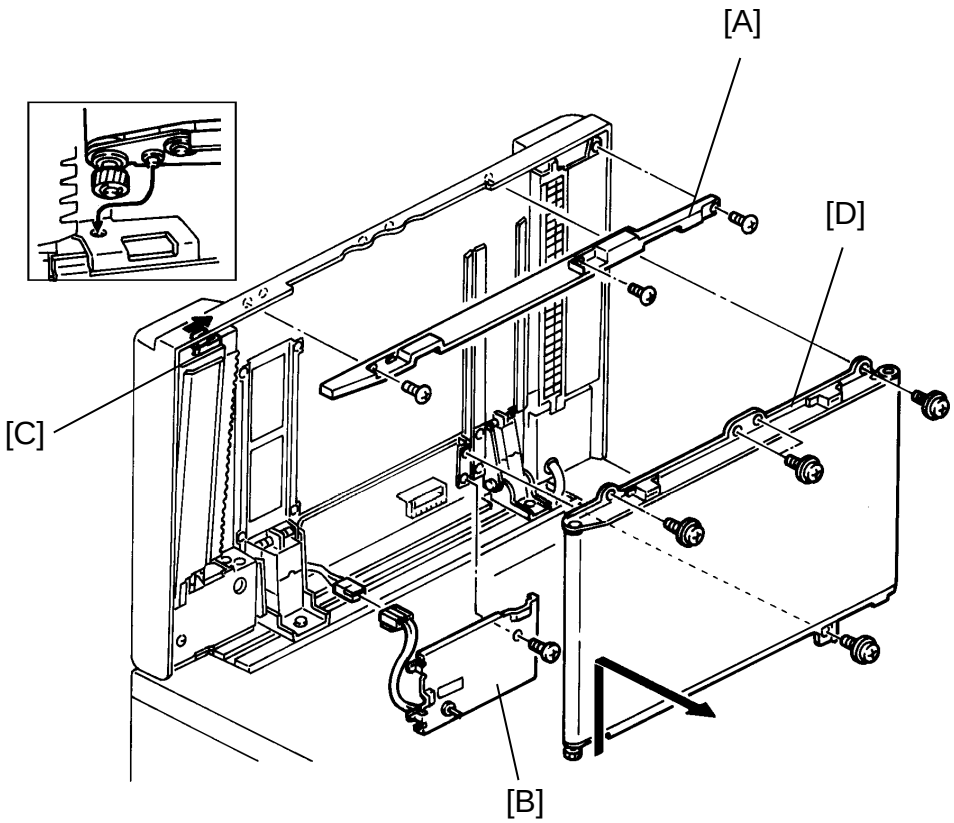



1. Remove the original table [A].
2. Secure the document feeder with strips of tape [B] as shown in the illustration.

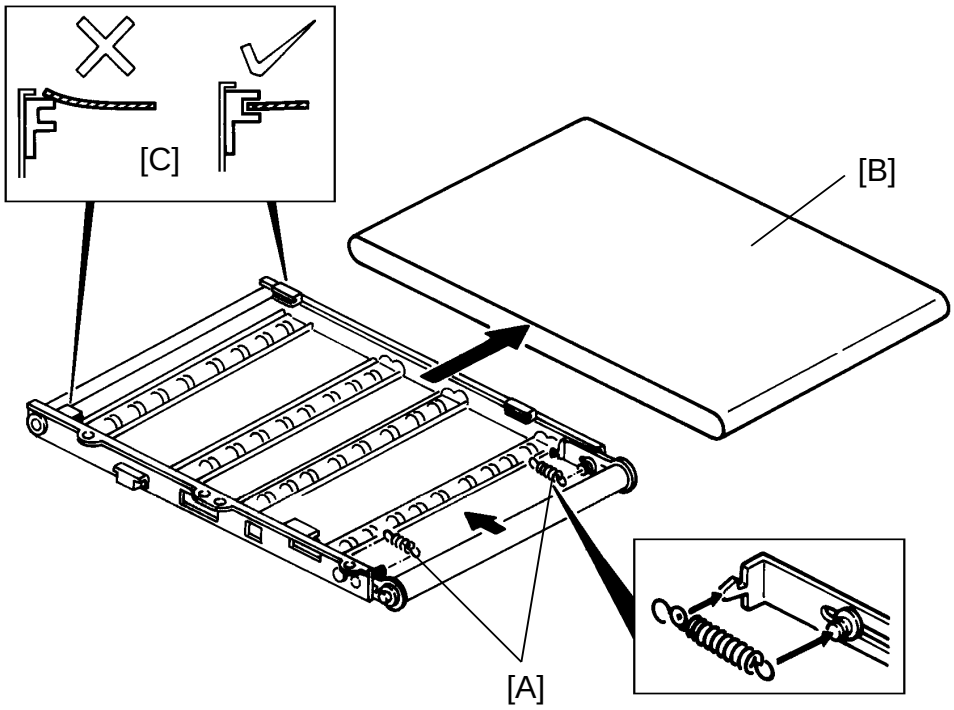
# 12. REPLACEMENT AND ADJUSTMENT

## 12.1 FEED-IN UNIT

### 12.1.1 Transport Belt Replacement




1. Turn off the main switch and remove the grip [A] (3 screws).
2. Remove the DF main PCB cover [B] (1 screw, 1 connector).
3. Open the entrance guide [C] and remove the transport belt assembly [D] (5 screws).

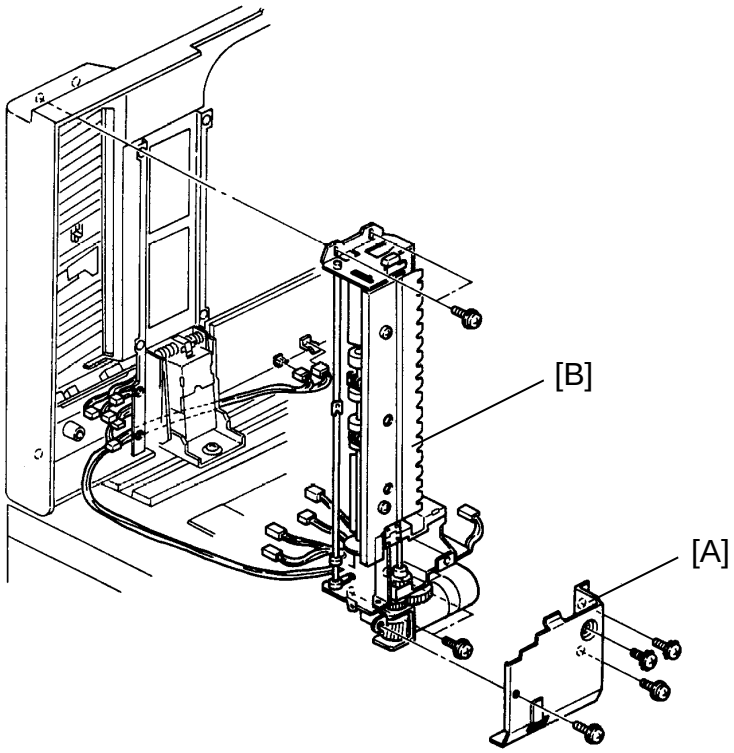



4. Remove the 2 tension springs [A] and pull off the transport belt [B].

**NOTE:** a) When installing the transport belt, make sure the belt lies between the belt guide spacers [C].

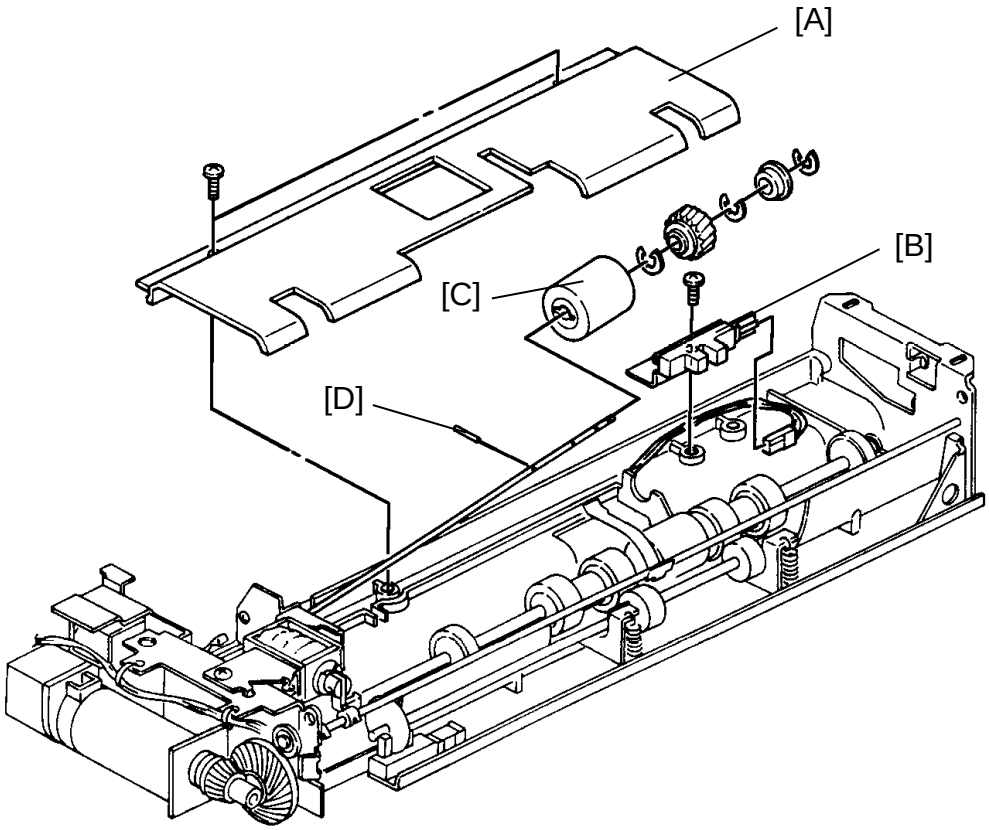
b) When installing the transport belt assembly, make sure the positioning pin correctly fits in the DF frame, and hold open the exit guide to prevent the mylar strip from becoming damaged.

### 12.1.2 Feed-in Unit Removal




1. Turn off the main switch.
2. Remove the transport belt assembly. (See Transport Belt Replacement.)
3. Remove the belt drive motor cover [A] (4 screws).
4. Remove the feed-in unit [B] (4 screws, 8 connectors).

### 12.1.3 Pick-up Roller Replacement*



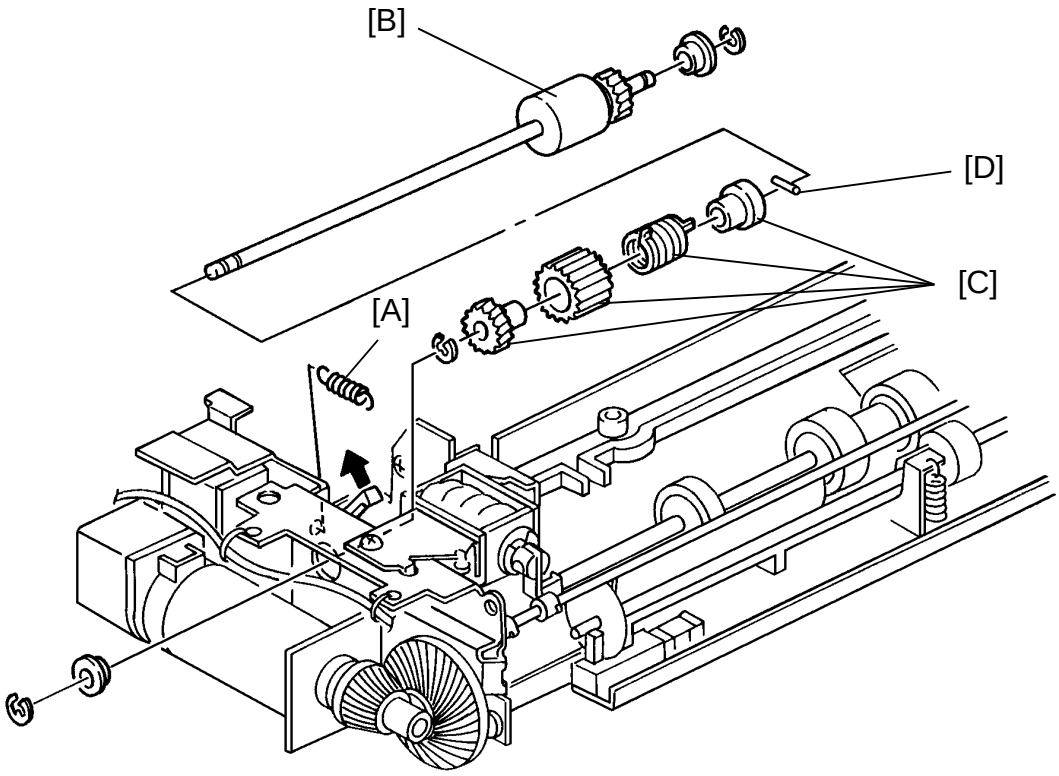

1. Turn off the main switch.
2. Remove the feed-in unit. (See Feed-in Unit Removal.)
3. Remove the lower entrance guide [A] (2 screws).
4. Remove the original set sensor assembly [B] (1 screw, 1 connector).
5. Remove the pick-up roller [C] (3 E-rings, 1 bushing, 1 gear).

**NOTE:** a) Be careful not to loose the pin [D].

b) When installing the roller, make sure the positioning pin is correctly inserted in the cut-out of the roller.

c) When installing the gear, make sure the flat side of the gear is facing away from the roller.

### 12.1.4 Feed-in Clutch Lubrication

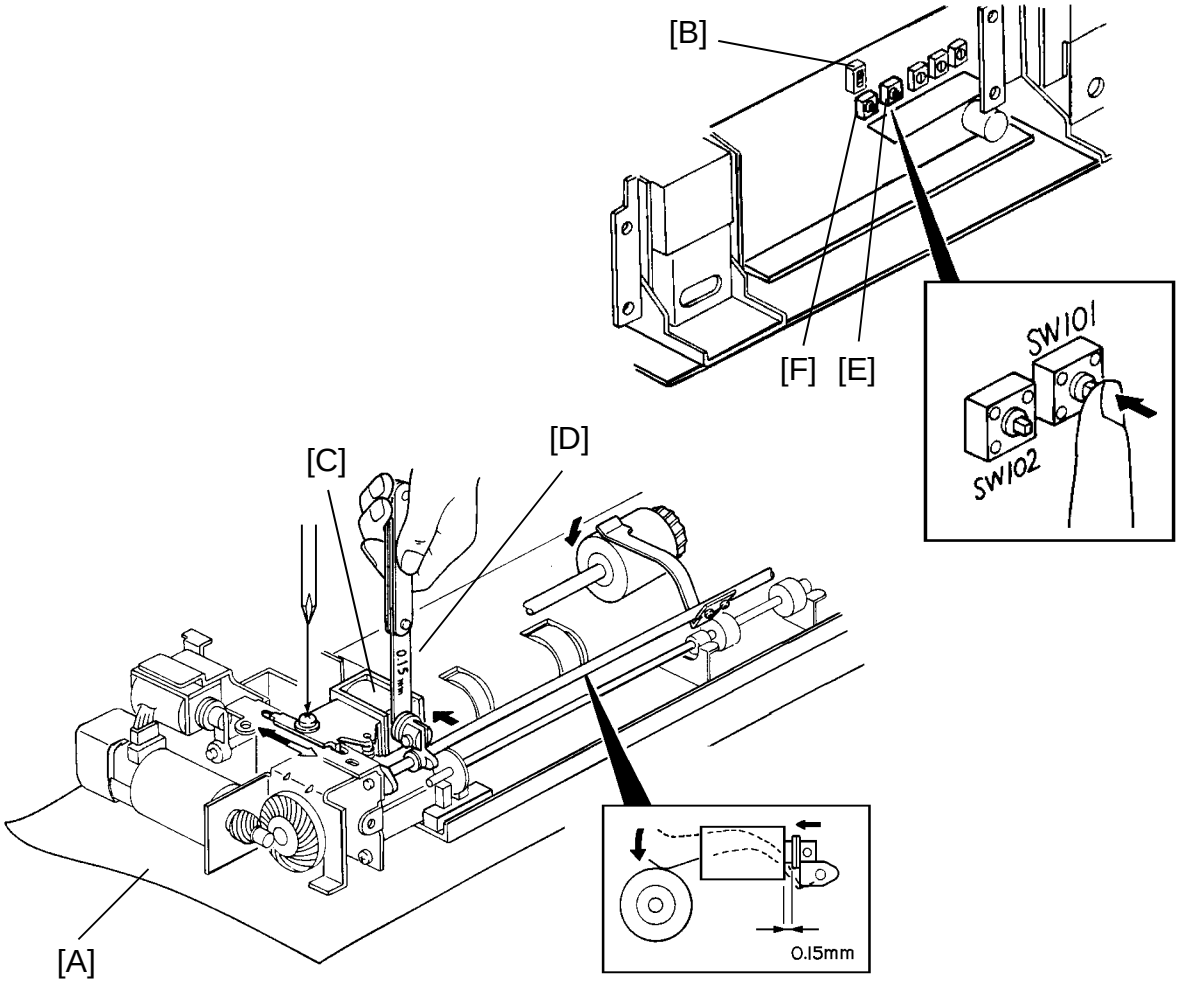



1. Turn off the main switch.
2. Remove the original set sensor assembly. (See Pick-up Roller Replacement.)
3. Remove the feed-in solenoid lever spring [A].
4. Remove the pick-up roller assembly [B] (2 E-rings, 2 bushings).
5. Disassemble and lubricate the feed clutch [C] (1 E-ring) with Mobil Temp. 78.

**NOTE:** a) Be careful not to loose the pin [D].

b) When installing the feed clutch, make sure the positioning pin is correctly inserted in the cut-out of the clutch.

## 12.1.5 Pick-up Solenoid Adjustment




1. Turn off the main switch.
2. Place several sheets of paper [A] over the exposure glass area.
3. Lower the feed-in unit (See Feed-in Unit Removal) without disconnecting the eight connectors.
4. Turn on the main switch.

**NOTE:** When the main switch is turned on, the DPS101 setting on the DF main PCB must be as follows:

1 = ON 3 = OFF
2 = ON 4 = OFF

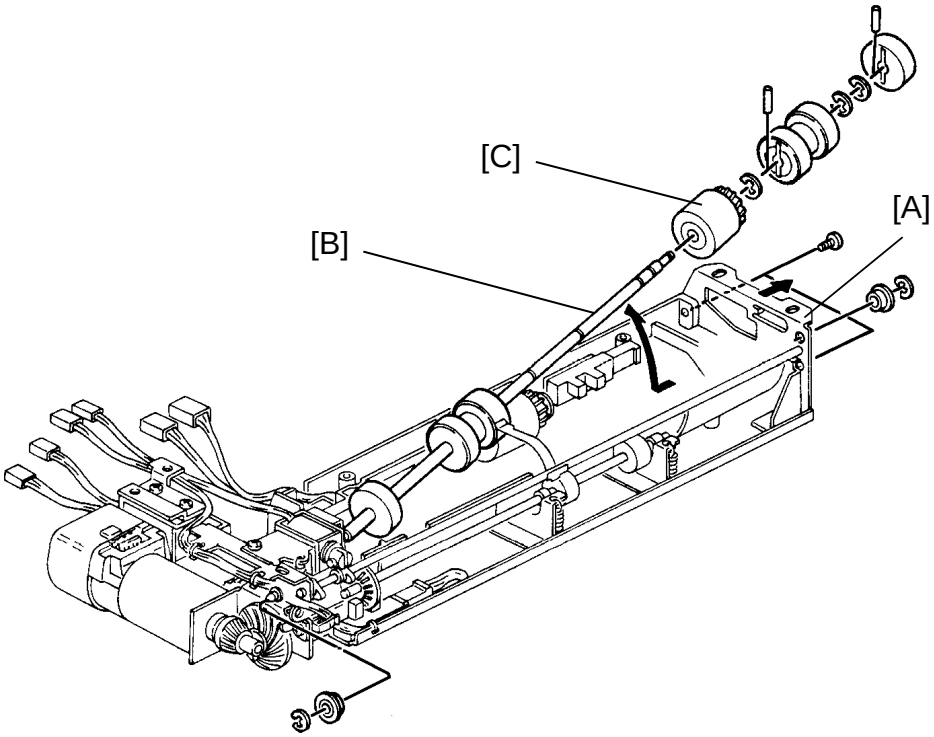
This is so that the initial check sequence can take place.

5. Turn off DPS101-1 and 2, then turn on DPS101-3 and 4 [B].
6. Loosen the screw fixing the pick-up solenoid [C].
7. Place the 0.15 mm thickness gauge [D] between the plunger and the solenoid.
8 While holding the solenoid, press SW101 [E] on the DF main PCB to engage all DF solenoids.
9. Holding the solenoid securely, move it slowly towards the left, until the plunger is attracted to the solenoid. Just at this point, tighten the screw.

**NOTE:** Make sure the pick-up lever is touching the pick-up roller during this adjustment.

10. Press SW 102 [F] to turn off the solenoids.
11. Turn off DPS101-3 and 4, then turn on DPS101-1 and 2.
12. Turn off the main switch and reassemble the DF.
13. Check the original feed-in operation.

## 12.1.6 Feed Roller Replacement -



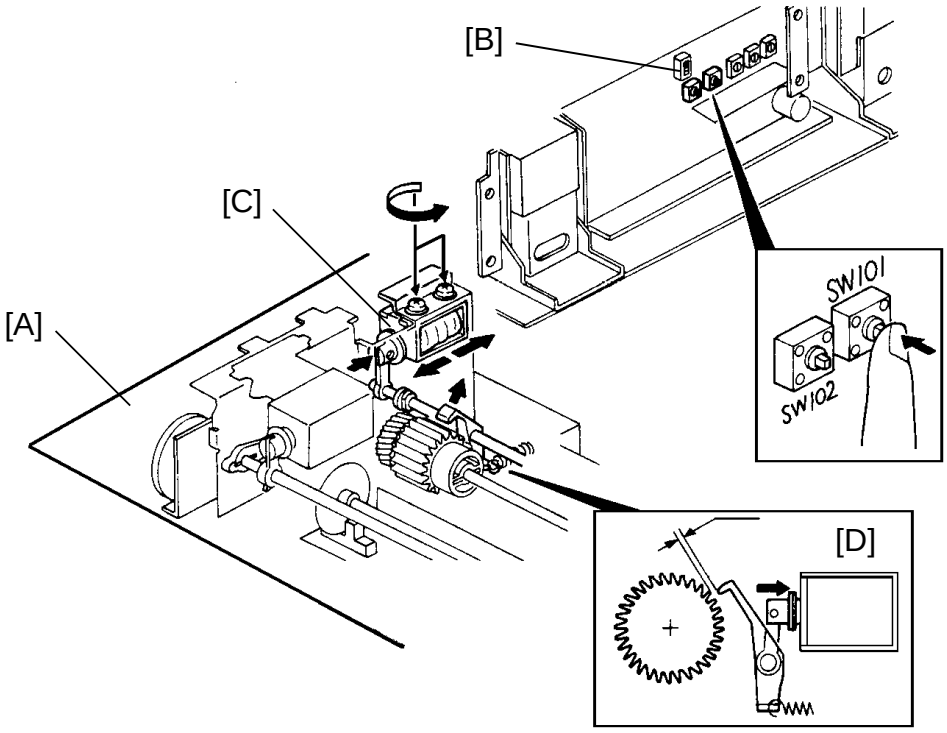

1. Turn off the main switch.
2. Remove the lower entrance guide. (See Pick-up Roller Replacement.)
3. Loosen the front bracket [A] (2 screws).
4. Release the feed roller shaft [B] from the front bracket (1 E-ring, 1 bearing).
5. Remove the feed roller [C] (3 E-rings, 1 side roller, 1 pull-out roller).

**NOTE:** a) Take care not to lose the pins.

b) When installing the feed roller, make sure the gear side of the roller faces the front (See illustration).

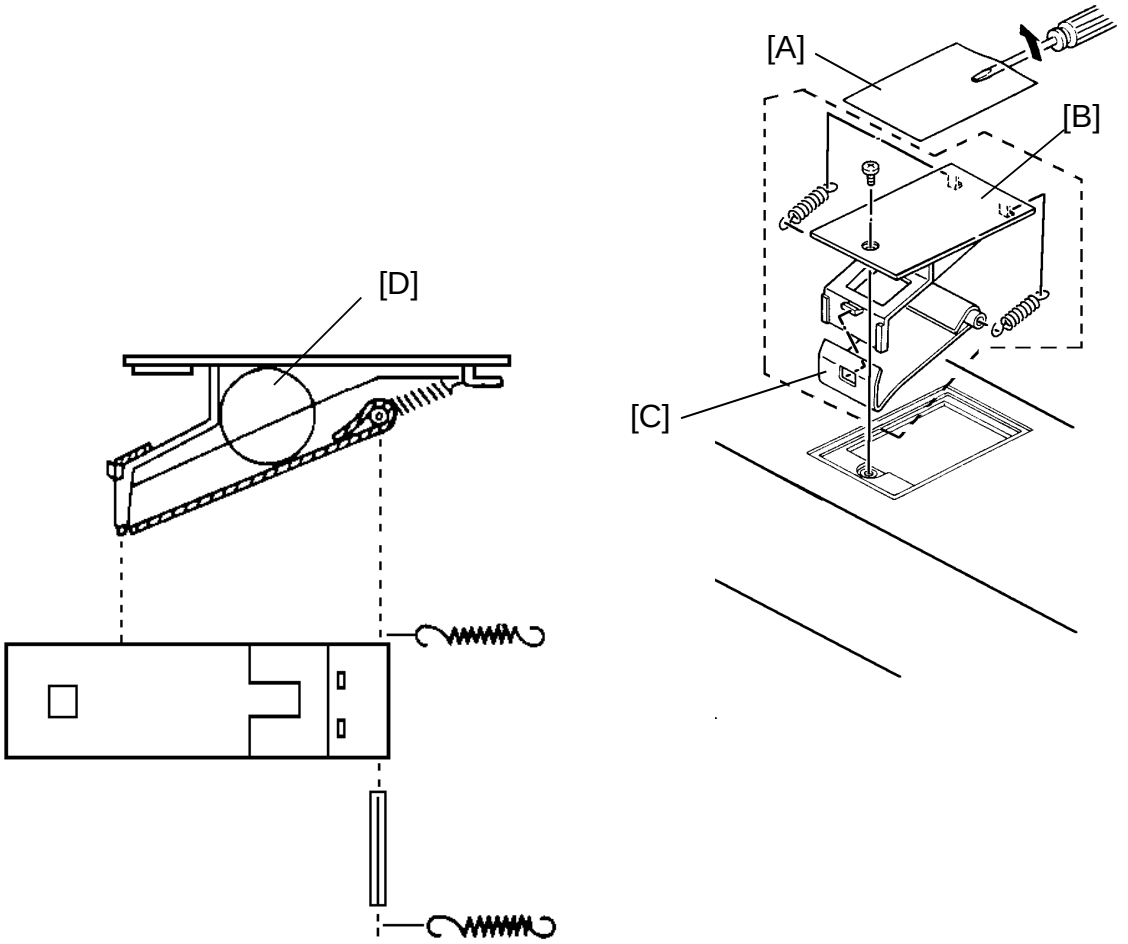
c) When installing the side and pull-out rollers, make sure the pins are correctly inserted in the cut-outs of the rollers.

## 12.1.7 Feed-in Solenoid Adjustment




1. Turn off the main switch.
2. Place several sheets of paper [A] over the exposure glass area.
3. Lower the feed-in unit (See Feed-in Unit Removal) without disconnecting the eight connectors.
4. Check that DPS101 is set for the normal mode (1 = ON, 2 = ON, 3 = OFF, 4 = OFF).
5. Turn on the main switch.
6. Turn off DPS101-1 and 2, then turn on DPS101-3 and 4 [B].
7. Loosen the 2 screws securing the feed-in solenoid [C].
8. Press SW101 on the DF main PCB (to engage all DF solenoids) and adjust the position of the solenoid until the gap [D] (See illustration) is within 1.0 – 2.0 mm.
9. Press SW102 on the DF main PCB to turn off all DF solenoids.
10. Turn off DPS101-3 and 4, then turn on DPS101-1 and 2.

## 12.1.8 Friction Belt Replacement



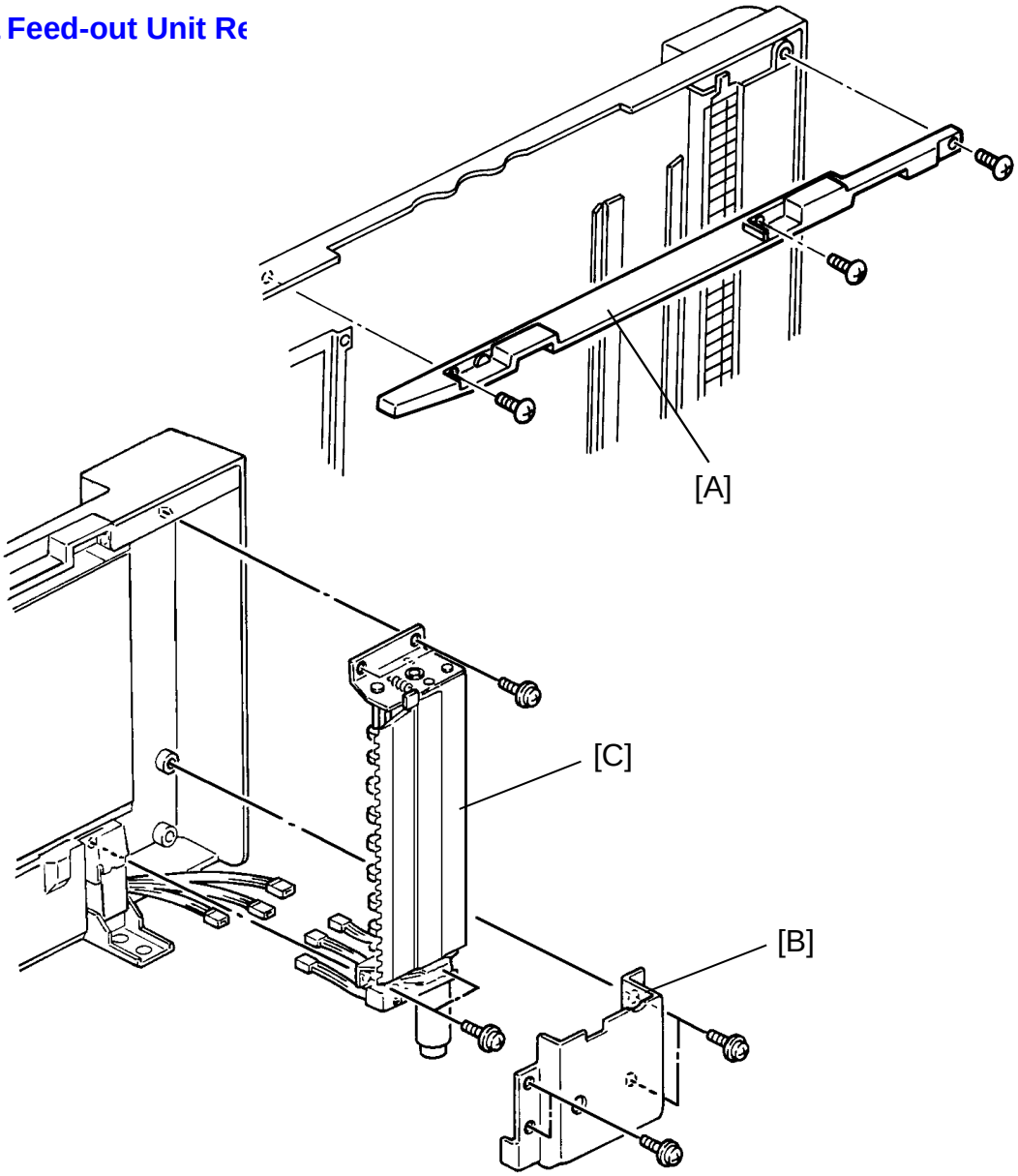

1. Turn off the main switch.
2. Remove the seal cover [A] on top of the DF cover.
3. Remove the friction belt assembly [B] (1 screw).
4. Remove the friction belt [C] (2 springs, 1 pin).

**NOTE:** a) When installing the friction belt assembly, make sure the friction roller [D] is set in the correct position (See illustration).

b) If the seal cover becomes dirty or deformed, replace it with a new one.

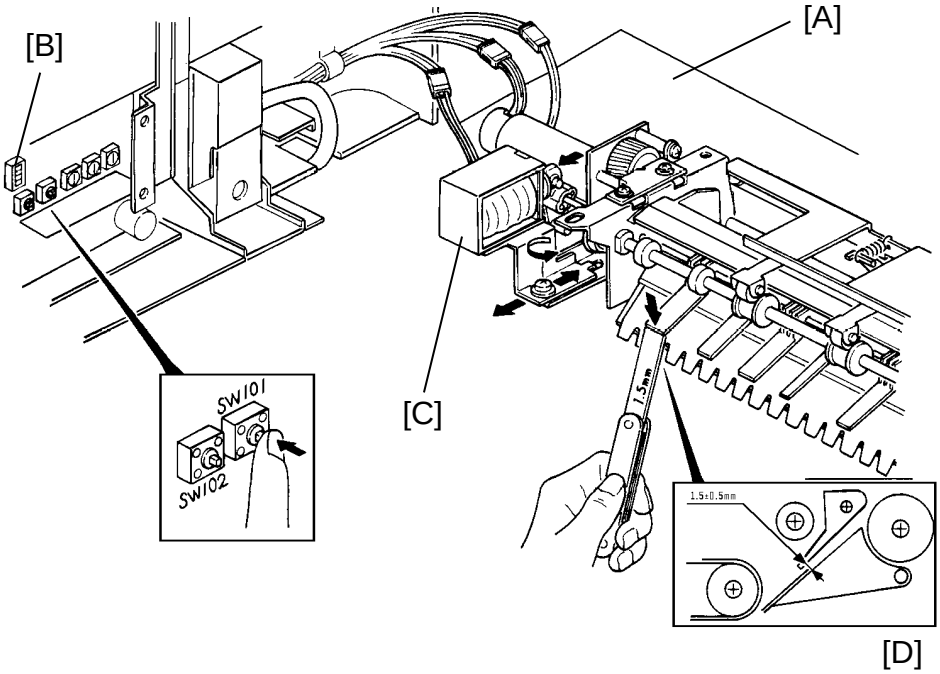
## 12.2 FEED-OUT UNIT

### 12.2.1 Feed-out Unit Re



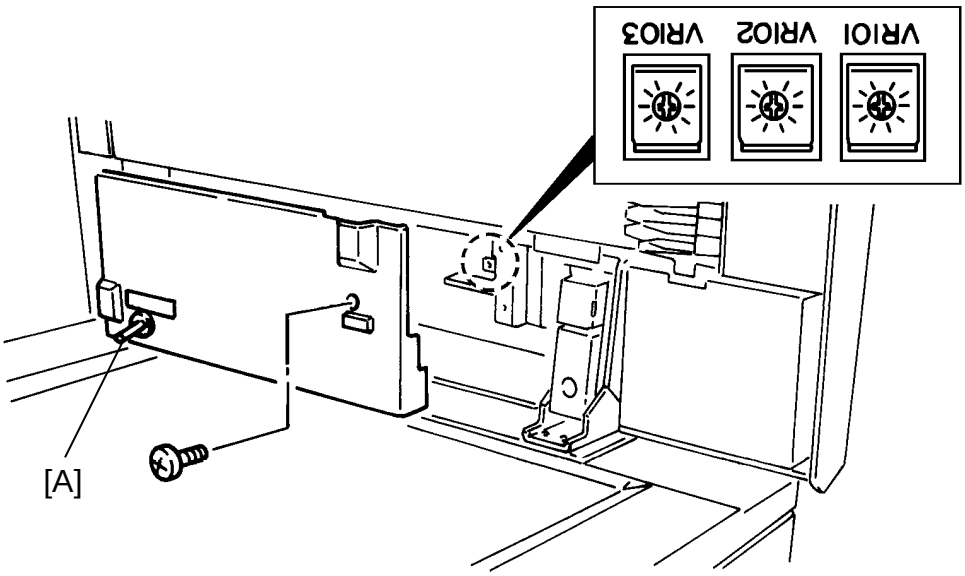

1. Turn off the main switch.
2. Remove the DF grip [A] (3 screws).
3. Remove the feed-out motor cover [B] (4 screws).
4. Remove the feed-out unit [C] (4 screws, 3 connectors).

## 12.2.2 Inverter Solenoid Adjustment




1. Turn off the main switch.
2. Place several sheets of paper [A] over the exposure glass area.
3. Lower the feed-out unit (See Feed-out Unit Removal) without disconnecting the three connectors.
4. Check that the DPS101 is set for the normal mode (1 = ON, 2 = ON, 3 = OFF, 4 = OFF).
5. Turn on the main switch.
6. Turn off DPS101-1 and 2, then turn on DPS101-3 and 4 [B].
7. Loosen the screw securing the inverter solenoid [C].
8. Press SW101 on the DF main PCB (to engage all DF solenoids), and adjust the position of the solenoid until the gap [D] (See illustration) is within 1.5 ±0.5 mm.
9. Press SW102 on the DF main PCB to turn off all DF solenoids.
10. Turn off DPS101-3 and 4, then turn on DPS101-1 and 2.

### 12.2.3 DF Leading Edge Registration Adjustment




1. Using the DF test chart, make a copy in the platen cover mode (A4 width).
2. Confirm that the original select switch [A] is in the thin mode and again using the test chart, make a copy in the DF mode (A4 width).
3. Compare the leading edge registration of both copies, and check that the difference between the two copies is within 2.5 mm.

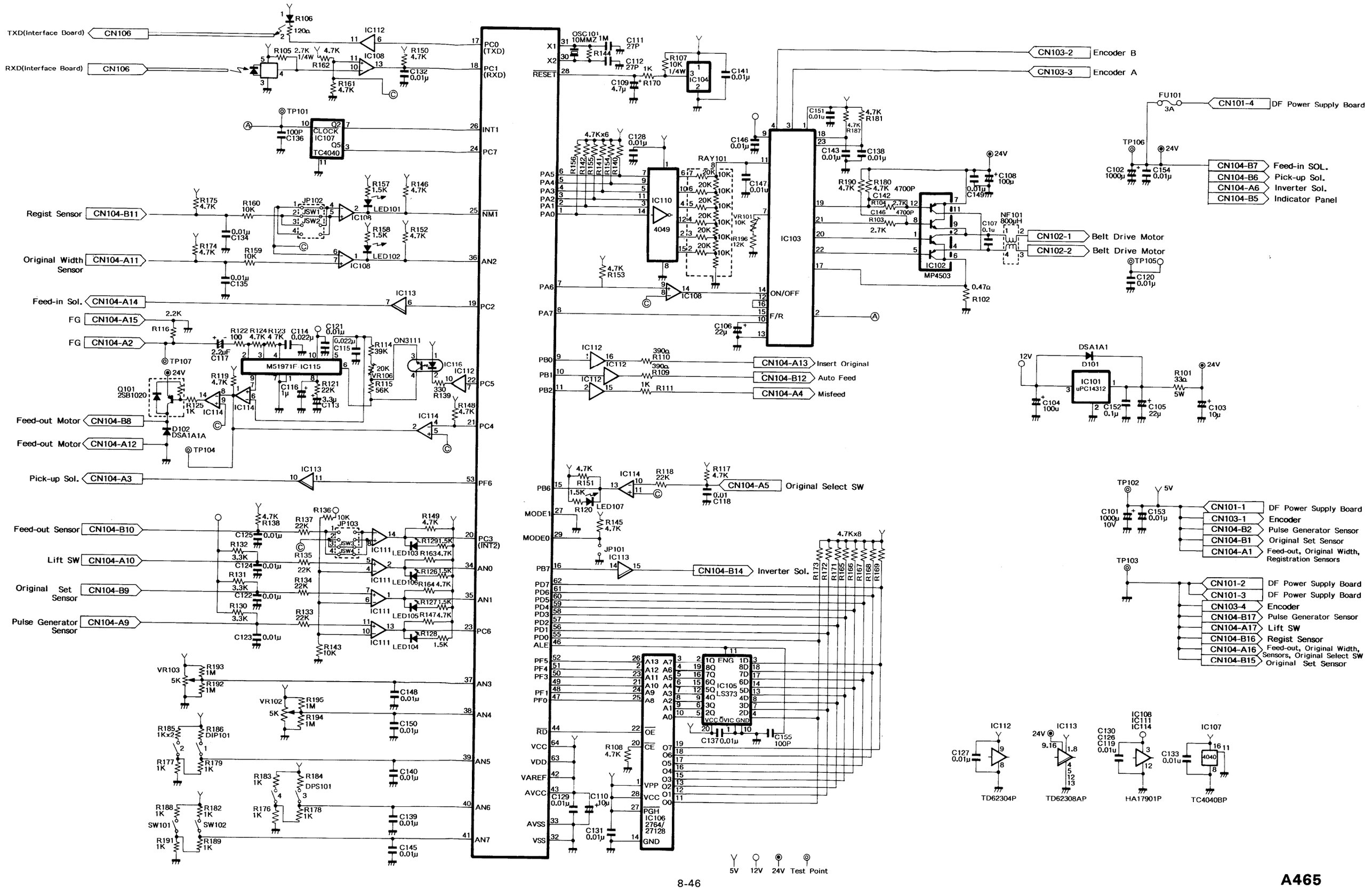
4. If the difference is more than 2.5 mm, remove the DF main PCB cover (1 screw) and adjust VR102 on the DF main PCB until the leading edge registration is within specification.

**NOTE:** Turning VR102 clockwise results in stopping the original later.

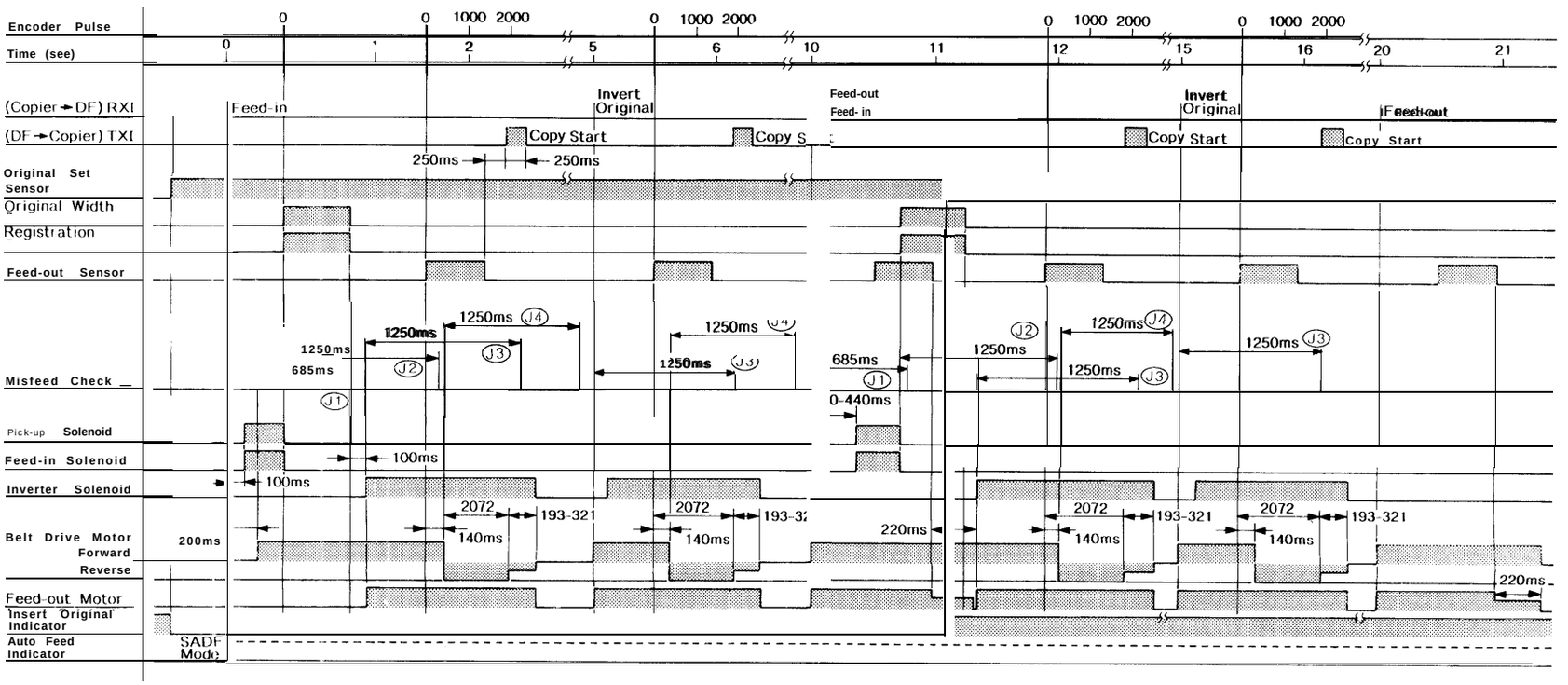
5. Using the DF test chart, make a copy in the DF two sided-original mode. (Insert the original face down.)
6. Compare the leading edge registration with that of the platen cover mode copy, and check that the difference between the two copies is within 2.00 mm.
7. If out of specification, adjust VR103 on the DF main PCB until the leading edge registration is correct.

**NOTE:** a) The test sheet stops pressed against the left scale in DF two-sided original mode.

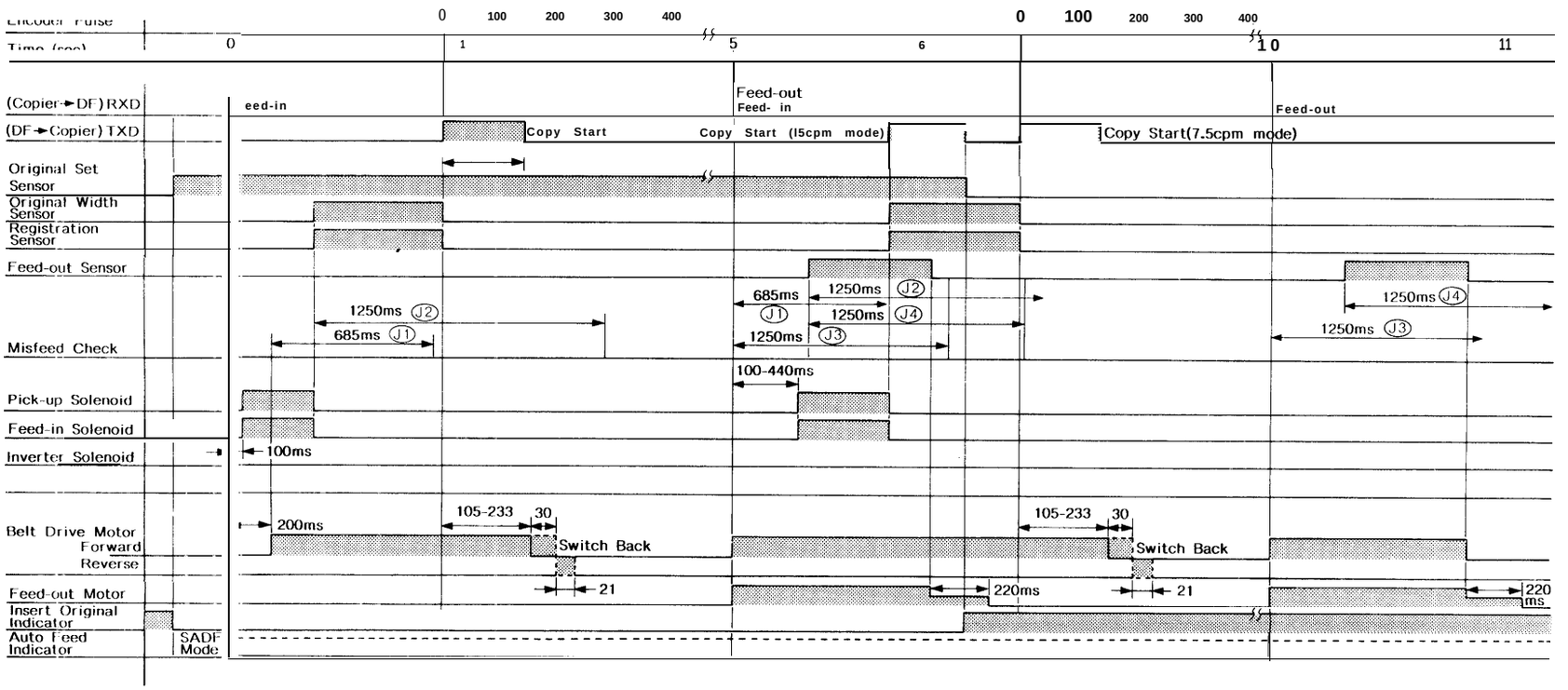
b) Turning VR103 clockwise results in the original stopping later.


TXD(Interface Board) CN106
RXD(Interface Board) CN106
R106 120Ω
IC112
IC108
R105 2.7K 1/4W
R162 4.7K
R150 4.7K
C132 0.01μ
R161 4.7K
PC0 (TXD)
PC1 (RXD)
TP101
Q2 CLOCK IC107 Q5 TC4040
100P C136
INT1
PC7
Regist Sensor CN104-B11
Original Width Sensor CN104-A11
R175 4.7K
R174 4.7K
R160 10K
R159 10K
0.01μ C134
0.01μ C135
JP102
JSW1
JSW2
R157 1.5K
R158 1.5K
R146 4.7K
R152 4.7K
LED101
LED102
IC108
NM1
AN2
Feed-in Sol. CN104-A14
IC113
PC2
FG CN104-A15
FG CN104-A2
2.2K R116
2.2μF C117
R122 100
R124 4.7K
R123 4.7K
C114 0.022μ
C121 0.01μ
0.022μ C115
M51971F IC115
R114 39K
20K VR106
R115 56K
ON3111
IC116
IC112
330 R139
R148 4.7K
PC5
TP107
24V
Q101 2SB1020
R119 4.7K
R125 1K
IC114
C116 1μ
R121 22K
3.3μ C113
Feed-out Motor CN104-B8
Feed-out Motor CN104-A12
D102 DSA1A1A
TP104
PC4
IC113
Pick-up Sol. CN104-A3
PF6
Feed-out Sensor CN104-B10
Lift SW CN104-A10
Original Set Sensor CN104-B9
Pulse Generator Sensor CN104-A9
4.7K R138
C125 0.01μ
R132 3.3K
C124 0.01μ
R131 3.3K
C122 0.01μ
R130 3.3K
C123 0.01μ
R136 10K
JP103
R137 22K
R135 22K
R134 22K
R133 22K
R143 10K
JSW3
JSW4
IC111
R149 4.7K
R129 1.5K
LED103
R163 4.7K
R126 1.5K
LED106
R164 4.7K
R127 1.5K
LED105
R147 4.7K
R128 1.5K
LED104
PC3 (INT2)
AN0
AN1
PC6
VR103 5K
R193 1M
R192 1M
VR102 5K
R195 1M
R194 1M
C148 0.01μ
C150 0.01μ
AN3
AN4
R185 1Kx2
R186 DIP101
R177 1K
R179 1K
R183 1K
R184
DPS101
R176 1K
R178 1K
C140 0.01μ
C139 0.01μ
AN5
AN6
R188 1K
R182 1K
SW101
SW102
R191 1K
R189 1K
C145 0.01μ
AN7
X1
X2
RESET
OSC101 10MMZ
1M R144
C111 27P
C112 27P
C109 4.7μ
1K R170
R107 10K 1/4W
IC104
C141 0.01μ
PA5
PA4
PA3
PA2
PA1
PA0
4.7Kx6
R156
R142
R155
R141
R154
R140
C128 0.01μ
IC110
4049
RAY101
20K
10K
VR101 10K
VR196 12K
PA6
PA7
4.7K R153
IC108
PB0
PB1
PB2
IC112
390Ω R110
390Ω R109
1K R111
CN104-A13 Insert Original
CN104-B12 Auto Feed
CN104-A4 Misfeed
PB6
MODE1
MODE0
4.7K R151
1.5K R120
LED107
IC114
R118 22K
R117 4.7K
CN104-A5 Original Select SW
0.01 C118
R145 4.7K
JP101
IC113
PB7
CN104-B14 Inverter Sol.
4.7Kx8
R173
R172
R171
R165
R166
R167
R168
R169
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
ALE
PF5
PF4
PF3
PF1
PF0
RD
VCC
VDD
VAREF
AVCC
AVSS
VSS
C129 0.01μ
C110 10μ
C131 0.01μ
R108 4.7K
VPP
VCC
PGH
IC106 2764/ 27128
GND
A13 A7
A12 A6
A11 A5
A10 A4
A9 A3
A8 A2
A1
A0
OE
CE
O7 O6 O5 O4 O3 O2 O1 O0
IC105 LS373
1Q ENG 1D
8Q 7Q 6Q 5Q 4Q 3Q 2Q
8D 7D 6D 5D 4D 3D 2D
VCC GND
C137 0.01μ
C155 100P
IC103
C146 0.01μ
C151 0.01u
4.7K R181
4.7K R187
C143 0.01μ
C138 0.01μ
C147 0.01μ
ON/OFF
F/R
C106 22μ
R190 4.7K
R180 4.7K 4700P
C142
R104 2.7K
C146 4700P
R103 2.7K
IC102 MP4503
24V
C108 100μ
0.01μ C149
C107 0.1u
NF101 800μH
0.47Ω R102
CN102-1 Belt Drive Motor
CN102-2 Belt Drive Motor
TP105
C120 0.01μ
CN103-2 Encoder B
CN103-3 Encoder A
FU101 3A
CN101-4 DF Power Supply Board
TP106
C102 1000μ
C154 0.01μ
CN104-B7 Feed-in SOL.
CN104-B6 Pick-up Sol.
CN104-A6 Inverter Sol.
CN104-B5 Indicator Panel
12V
DSA1A1
D101
IC101 uPC14312
C104 100u
C152 0.1μ
C105 22μ
R101 33Ω 5W
C103 10μ
TP102
5V
C101 1000μ 10V
C153 0.01μ
CN101-1 DF Power Supply Board
CN103-1 Encoder
CN104-B2 Pulse Generator Sensor
CN104-B1 Original Set Sensor
CN104-A1 Feed-out, Original Width, Registration Sensors
TP103
CN101-2 DF Power Supply Board
CN101-3 DF Power Supply Board
CN103-4 Encoder
CN104-B17 Pulse Generator Sensor
CN104-A17 Lift SW
CN104-B16 Regist Sensor
CN104-A16 Feed-out, Original Width, Sensors, Original Select SW
CN104-B15 Original Set Sensor
IC112
C127 0.01μ
TD62304P
IC113
24V
9.16
1.8
TD62308AP
IC108
IC111
IC114
C130
C126
C119 0.01μ
HA17901P
IC107
C133 0.01μ
4040
TC4040BP
5V 12V 24V Test Point

## [ One-sided Original Mode 1



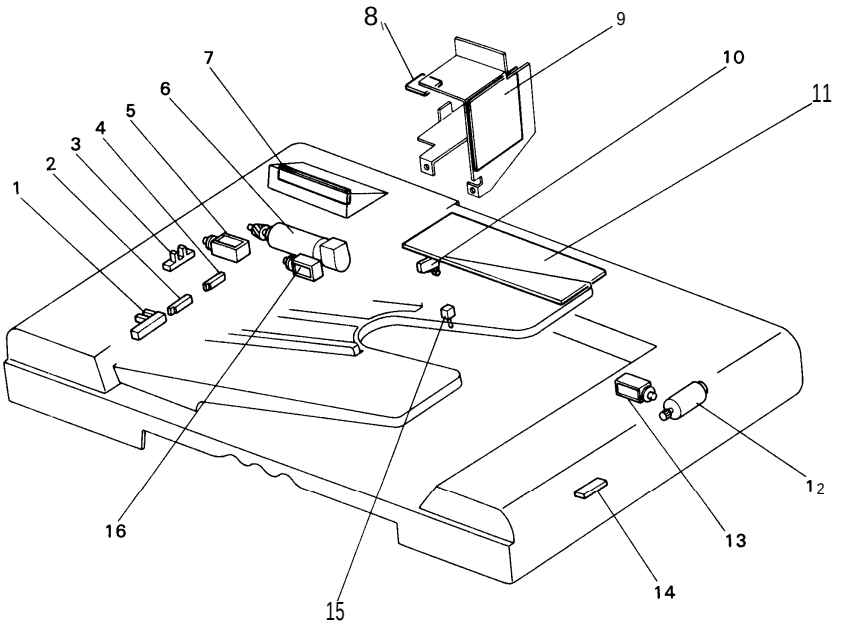

## [Two-sided Original Mode]

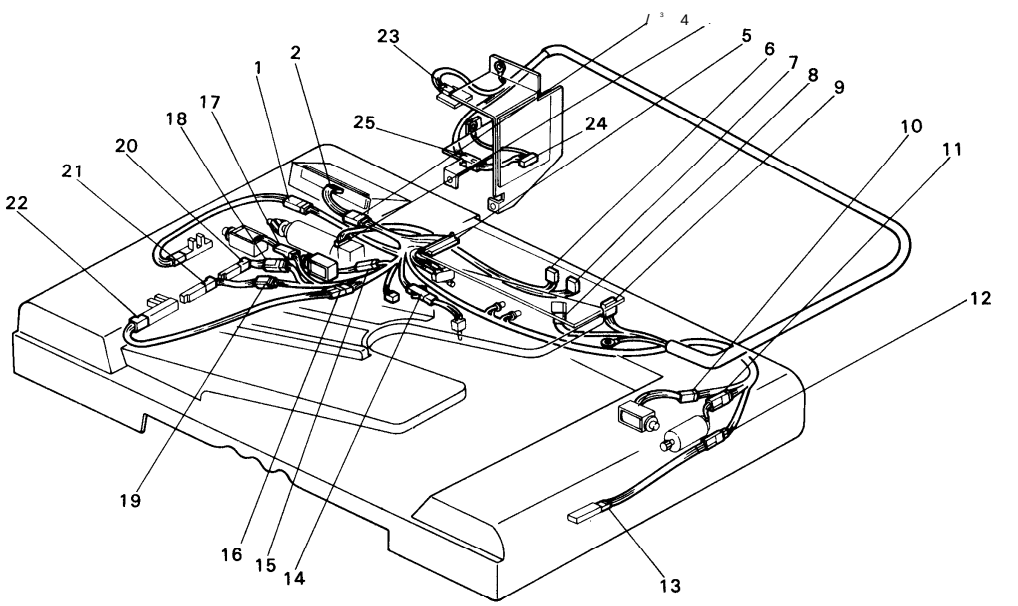



**JAM CHECK**

- **J1 : Registration Sensor ON Check**
- **J2 : Registration Sensor OFF Check**
- **J3 : Feed-out Sensor ON Check**
- **J4 : Feed-out Sensor OFF Check**

# ELECTRICAL COMPONENTS AND CONNECTOR LAYOUT-DF




| Index No. | Description | Symbol | P to P |
|---|---|---|---|
| 1. | Original Set Sensor | S1 | A8 |
| 2. | Registration Sensor | S2 | A9 |
| 3. | Pulse Generator Sensor | S4 | A8 |
| 4. | Original Width Sensor | S3 | A9 |
| 5. | Pick-up Solenoid | SOLI | A1O |
| 6. | Belt Drive Motor | M I | A7 |
| 7. | Indicator Panel | PCB2 | A1O |
| 8. | Interface Board | PCB3 | B7-C7 |
| 9. | DF Power Supply Board | PCB4 | H9 |
| 10. | Lift Switch | S W I | A1O |
| 11. | DF Main Board | PCB1 | A7-B11 |
| 12. | Feed-out Motor | M2 | A8 |
| 13. | Inverter Solenoid | SOL3 | A I I |
| 14. | Feed-out Sensor | S5 | A9 |
| 15, | Original Select Switch | SW2 | A1O |
| 16. | Feed-in Solenoid | SOL2 | Al 1 |

| Index No. | CN No. | Component | Symbol | Type | P to P |
|---|---|---|---|---|---|
| 1. | CN118 | – | — | 3P/R | A8 |
| 2. | CN200 | Indicator Panel | PCB2 | 4P/W | A1O |
| 3. | CN119 | – | — | 6P/W | A1O |
| 4. | CN111 | Belt Drive Motor | M I | 6P/W | A7 |
| 5. | CN I04 | DF Main Board | PCB1 | 34P/B | A8-A11 |
| 6. | CN103 | DF Main Board | PCB1 | 4P/W | A7 |
| 7. | CN I02 | DF Main Board | PCB1 | 2P/W | A7 |
| 8. | CN106 | DF Main Board | PCB1 | 2P/B | B8 |
| 9. | CN101 | DF Main Board | PCB1 | 5P/W | B1 1 |
| 10. | CN11O | Inverter Solenoid | SOL3 | 2P/R | Al 1 |
| 11. | CN108 | Feed-out Motor | M2 | 4P/W | A8 |
| 12. | CN109 | – | — | 3P/W | A9 |
| 13. | CN119 | Feed-out Sensor | S5 | 3P/W | A9 |
| 14. | CN120 | Original Select Switch | SW2 | 2P/W | A1O |
| 15. | CN115 | Feed-in Solenoid | SOL2 | 2P/Y | Al 1 |
| 16. | CN116 | – | — | 3P/W | A8 |
| 17. | CN114 | Pick-up Solenoid | SOL1 | 2P/R | A1O |
| 18. | CN121 | – | — | 3P/W | A9 |
| 19. | CN117 | – | — | 3P/Y | A9 |
| 20. | CN31 | Original Width Sensor | S3 | 3P/B | A9 |
| 21. | CN27 | Registration Sensor | S2 | 3P/B | A9 |
| 22. | CN26 | Original Set Sensor | S1 | 3P/W | A8 |
| 23. | CN251 | Interface Board | PCB3 | 2P/B | C7 |
| 24. | CN201 | DF Power Supply Board | PCB4 | 12P/T | H9 |
| 25. | CN120 | – | — | 4P/W | H1O |