# DUAL JOB FEEDER
# (Machine Code: A376)

# 1. SPECIFICATIONS

Original Feed Mode:

Automatic document feed mode
Automatic reverse document feed mode
Semi-automatic document feed mode
Mixed sized mode (Not applicable with the A109)
Pasted original mode (Not applicable with the A109)
Preset mode
Combine originals mode

Original Size, Weight and Table Capacity:

| | Paper Weight | 40.7 g/m$^2$ | 46.5 | 52.8 | 64.0 | 81.4 | 104.7 | 128.0 |
|---|---|---|---|---|---|---|---|---|
| | | 11 lb | 12.5 | 14 | 17 | 22 | 28 | 34 |
| | Maximum number of originals to be set | 50 | 50 | 50 | 50 | 50 | 30 | 25 |
| A4/A3 version | A3 lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | A4 lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | A4 sideways | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | A5 sideways | ✳ | ✳ | ❍ | ❍ | ❍ | ❍ | ✳ |
| | B4 lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | B5 lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | B5sideways | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | F (8" x 13") lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| LT/DLT version | 11" x 17" lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 8 1/2 x 14" lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 8 1/2 x 11" lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 8 1/2 x 11" sideways | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 5 1/2" x 8 1/2" lengthwise | ✳ | ✳ | ❍ | ❍ | ❍ | ❍ | ✳ |
| | 5 1/2" x 8 1/2" sideways | ✳ | ✳ | ✳ | ✳ | ✳ | ✳ | ✳ |
| | 8" x 13" (F) lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 8 1/2 x 13" (F4) lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 8" x 10 1/2" lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 8" x 10" lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 8" x 10" sideways | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 10" x 14" lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |
| | 11" x 15" lengthwise | ✳ | ✳ | ● | ● | ● | ❍ | ✳ |

●: Mixed Original mode
Preset mode
ADF mode (1 sided originals mode)
ARDF mode (2 sided original(s) mode)
SADF mode

❍: ADF mode, ARDF mode, SADF mode

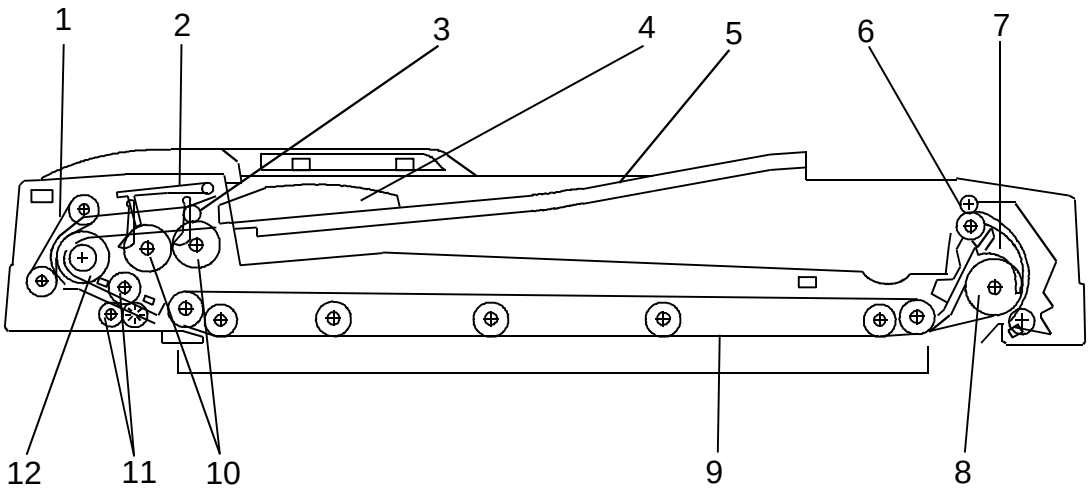
✳: ADF mode, SADF mode

Dual Job Feeder

| | |
|---|---|
| Original Standard Position: | Rear left |
| Original Separation: | Feed and friction belt |
| Original Transport: | One flat belt |
| Power Source: | DC24V from the copier, 2.0A (average) |
| Power Consumption: | 70W |
| Dimensions (W x D x H): | 680 x 508 x 116mm<br>(26.8" x 20.0" x 4.6") |
| Weight: | 13kg (28.7lb) |

# 2. COMPONENT LAYOUT

## 2.1 MECHANICAL COMPONENT LAYOUT




1. Friction Belt
2. Original Stopper
3. Press Roller
4. Side Fence
5. Original Table
6. Exit Roller
7. Inverter Pawl
8. Inverter Roller
9. Transport Belt
10. Pick-up Rollers
11. Pull-out Roller
12. Feed Roller

# 3. ELECTRICAL COMPONENT DESCRIPTION

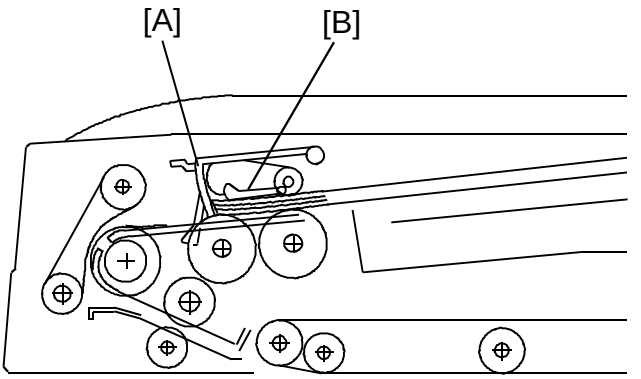
Refer to the electrical component layout on the reverse side of the attached Point to Point for symbols and index numbers.

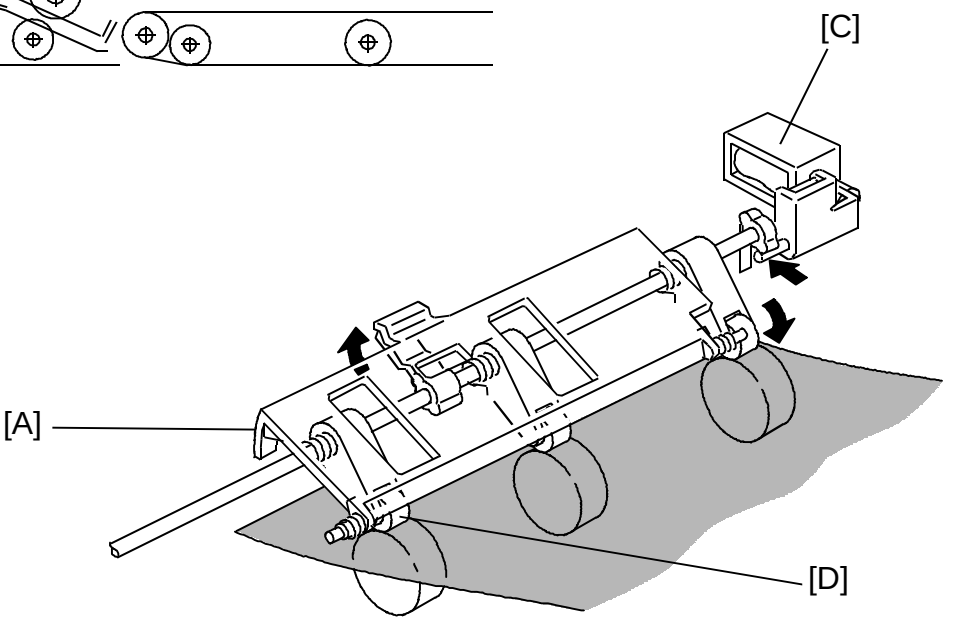
| Symbol | Name | Function | Index No. |
|---|---|---|---|
| **Motors** | | | |
| M1 | Feed-in | Drives the feed-in system (pick-up, feed, pull-out rollers, separation belts) | 1 |
| M2 | Belt Drive | Drives the transport belt. | 2 |
| M3 | Feed-out | Drives the feed-out and the inverter system. | 5 |
| **Sensors** | | | |
| S1 | DF Position | Informs the CPU when the DJF is being closed so that original size detection sensors can check the original size. | 7 |
| S2 | Feed-out | Checks for original misfeeds and sets original stop timing when in auto-reverse mode. | 8 |
| S3 | Registration–2 | Detects the leading edge of the original to turn off the feed-in clutch and to change the feed-in, belt drive motors speed. Also detects the original length. | 10 |
| S4 | Original Width–3 | Detects the original width. | 11 |
| S5 | Original Width–1 | Detects the original width. | 12 |
| S6 | Original Width–2 | Detects the original width. | 13 |
| S7 | Registration–1 | Detects the trailing edge of the original to change the belt-drive motor speed. Also, detects the original length and original jam. | 14 |
| S8 | Original Feed | Detects if the originals reach the feed roller or not. | 15 |
| S9 | Original Set | Detects if the originals are set on the feed table. | 16 |

| Symbol | Name | Function | Index No. |
|---|---|---|---|
| S10 | Pulse Count | Counts the pulses generated by the pulse generator disc to determine the original length. | 19 |
| **Solenoids** | | | |
| SOL1 | Inverter | Energizes to invert the original when copying two sided originals. | 4 |
| SOL2 | Stopper | Lifts the original stopper and lowers the press roller to feed the set of originals to the feed roller. | 9 |
| SOL3 | Separation | Transmits drive to the separation belts. | 18 |
| **PCBs** | | | |
| PCB1 | DF Main Board | Controls all DJF functions. | 3 |
| PCB2 | Indicator Panel Board | Contains operator indicators. | 21 |
| **Switches** | | | |
| SW1 | Lift | Informs the CPU when the DJF is lifted and also serves as the jam reset switch for the DJF. | 6 |
| SW2 | Feed Cover | Detects if the feed cover is closed. | 17 |
| **Clutches** | | | |
| MC1 | Feed-in | Transmits the feed-in motor drive to the pick-up and feed rollers, and to the separation belts. | 20 |

# 4. BASIC OPERATION

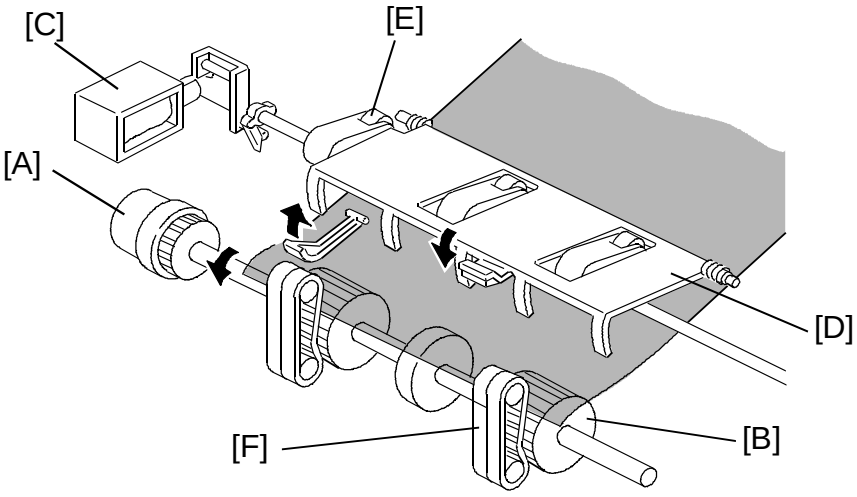
## 4.1 ONE-SIDED ORIGINAL FEED

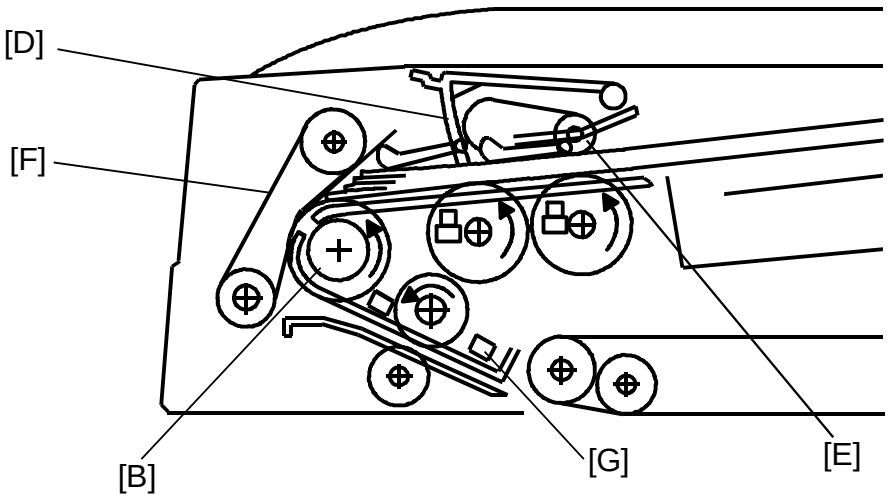



When an original is set on the DJF feed table, the leading edge is stopped by the stopper [A], and the feeler [B] activates the original set sensor. The Insert Original indicator light goes out and the DJF informs the copier's CPU that the originals have been set.

When the Start key is pressed, the copier's CPU sends the feed-in signal to the DJF. On receipt of this signal, the stopper solenoid [C] activates to raise the stopper to allow the originals to be fed in, and to lower the press rollers [D] to press the originals against the pick-up rollers as shown.

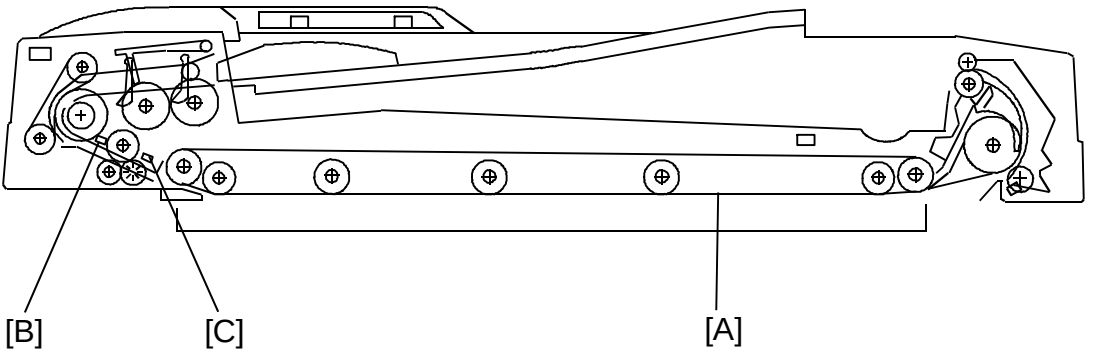



The feed-in clutch [A] activates when the DJF receive the feed-in signal. 200ms after the feed-in clutch activate, the feed-in motor feeds all originals to the feed roller [B].

When the originals reach the feed roller, the stopper solenoid [C] de-activates to lower the original stopper [D] and to lift up the original press rollers [E].

When the originals pass through (between the separation belt [F] and feed roller), only the lowest original is separated and fed onto the exposure glass. Until then, the feed-in motor rotates slowly (372mm/sec) to ensure proper original feeding. When the leading edge of the original activates registration sensor - 2 [G], the feed-in clutch [A] turns off to reduce the mechanical load and prevent the next original from feeding. Also, the feed motor rotates more quickly (1250mm/sec).

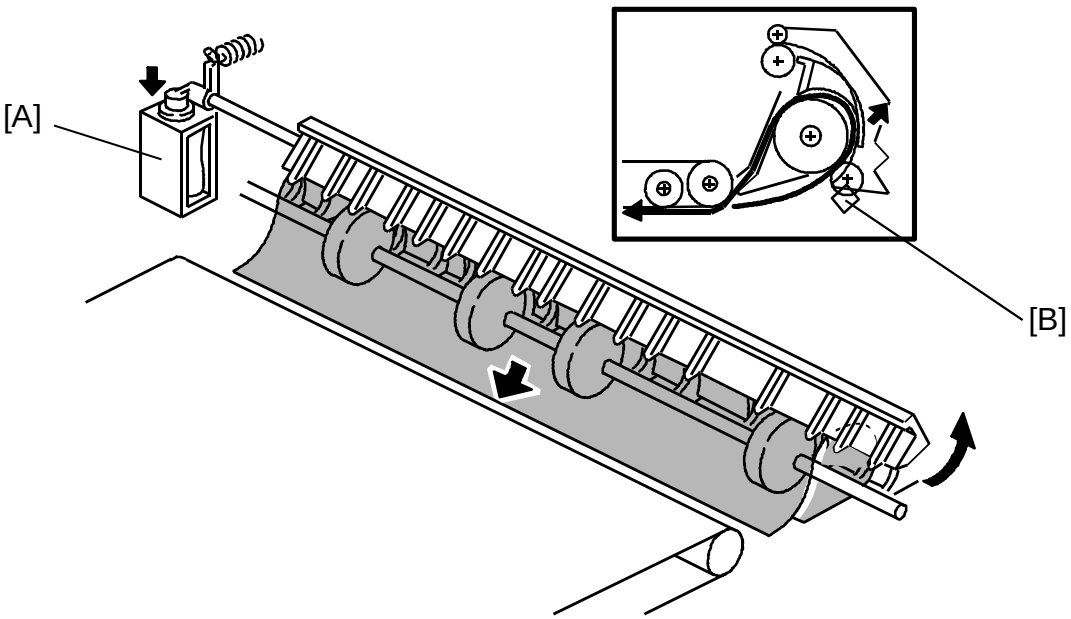



When the leading edge of the original reaches the exposure glass, the original is transported by the transport belt [A] (belt drive motor turns on 200 ms after the start key is pressed).
When the trailing edge of the original passes through registration sensor - 1 [B], the feed-in motor turns off. When the trailing edge of the original passes through registration sensor - 2 [C], the belt drive motor gradually decreases its speed to stop the original at the proper place on the exposure glass.
200ms after the belt drive motor turns off, the feed-in motor turns on until the next original activates registration sensor - 1 [B], the next original waits until the first original copy jobs complete. This operation reduces the original feed in time.

When the scanner reaches the return position, the copier's CPU sends the feed-out and feed-in signals to the DJF CPU in order to exchange the original for the next original.
When the DJF receives the feed-out signal, the belt drive and feed-out motors turn on.
When the scanner reaches the return position after scanning the last original, the copier's CPU sends only the feed-out signal to feed-out the last original.

If the original is smaller than A4 sideways, the original just copied is transported to the right side of the exposure glass then waits until the next original copying is completed. Then the previous original is delivered. This operation also reduces the original feed-in time.

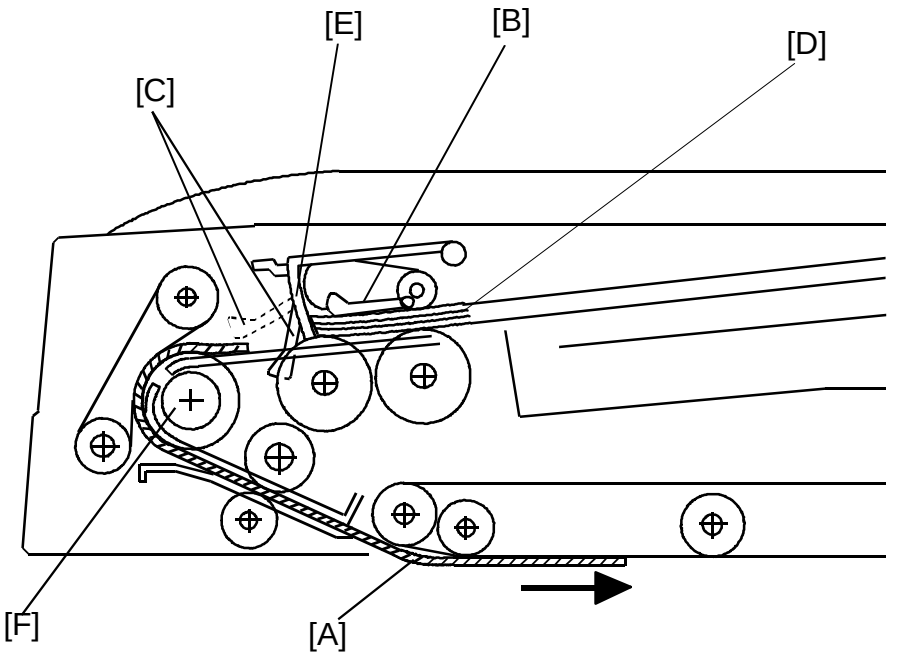
## 4.2 TWO-SIDED ORIGINAL FEED




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 belt drive motor continues rotating until the original reaches the inverter section. The DJF CPU also energize the feed-out motor and the inverter solenoid [A] for a short time.
After the inverter mechanism inverts the original (10 pulses after the feed-out sensor [B] activates), the belt drive motor reverses and the original is fed towards the original scale. It is stopped at the correct position on the exposure glass, and the DJF CPU sends the copy start signal.
When the scanner reaches the return position, the copier's CPU sends the invert original signal to the DJF CPU in order to make a copy of the front side. The original is inverted in the same way as for back side copying.

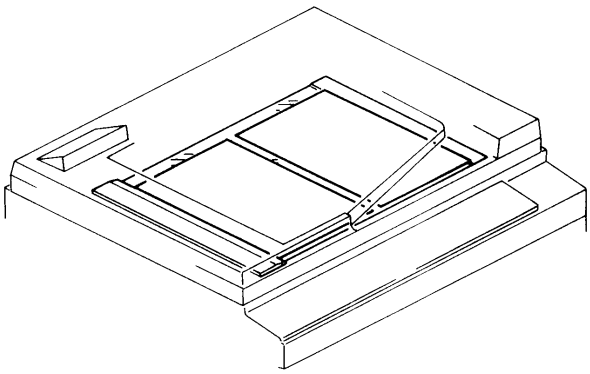
## 4.3 PRESET MODE



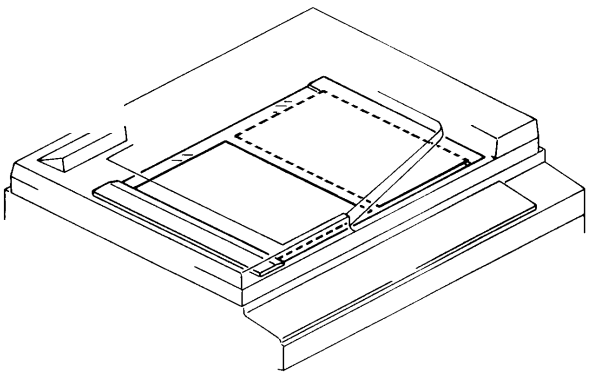

Two sets of originals for independent copy jobs can be set on the original tray at the same time.
While the first set of originals [A] remains on the original tray, both the original set sensor feeler [B] and original feed sensor feeler [C] are actuated. If the second set of originals [D] has been set (stopped by the original stopper [E]) and the first set of originals [A] are all fed-in, the original set sensor feeler [B] is still actuated and only the original feed sensor is deactuated. Therefore, the copier's CPU recognizes that the first job is completed.
If the second job is already preset, the second set of originals is automatically fed to the feed roller [F] in the same manner as the first set of originals was.

# 4.4 COMBINE 2 ORIGINALS MODE

## 4.4.1 Overview



**[Fig.1]**



**[Fig.2]**

2 originals are fed onto the exposure glass at once in the combine 2 originals mode as shown in figure 1. This allows copying 2 originals onto one sheet of paper automatically either in the full size mode or in the reduction mode.

If odd numbered originals are placed on the original table, the first original is placed on the exposure glass as shown in figure 2.

Only 1-sided originals can be used, and Auto Paper Select (APS) and Auto Reduce/Enlarge modes cannot be used with this mode.

### 4.4.2 Operation

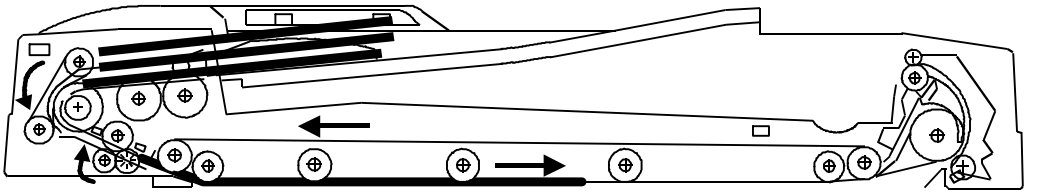


**Figure 1**

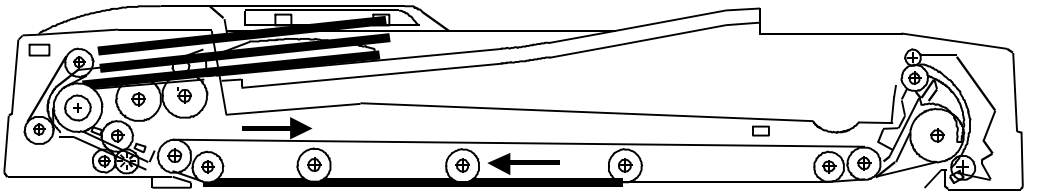


**Figure 2**

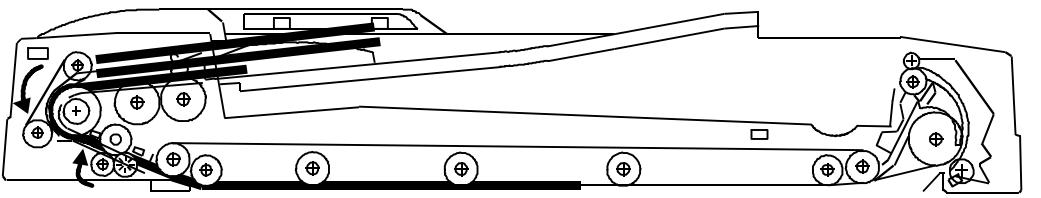


**Figure 3**

The DF operation in the combine 2 original mode is as follows:

**[Figure 1]**

The first original is fed in the same manner as the one-sided original mode. When registration sensor-2 detects the trailing edge of the first original, the feed-in and the belt drive motors stop once and the feed-in clutch turns on again to prepare for the second original feed.

**[Figure 2]**

As soon as the feed-in and the belt drive motor turn off, the belt drive motor starts rotating in reverse to align the first original against the original scale. Then the belt drive motor turns off.

**[Figure 3]**

50ms after the feed-in motor turns off, the feed-in motor turns on again at a lower speed (372mm/sec) to feed the second original.

A few pulses (0 ~ 14 pulses: depends on the DIP switch combinations 102-1 ~ -4) after the registration sensor-2 is activated by the leading edge of the second original, the feed-in motor and the feed-in clutch turn off.

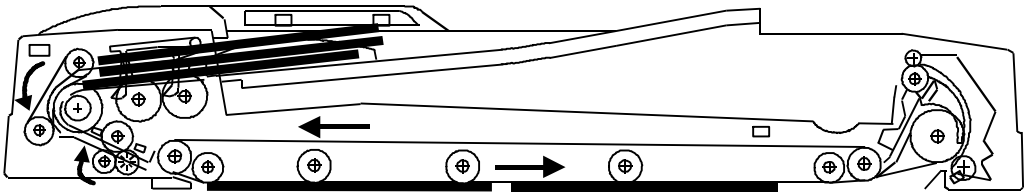


**Figure 4**

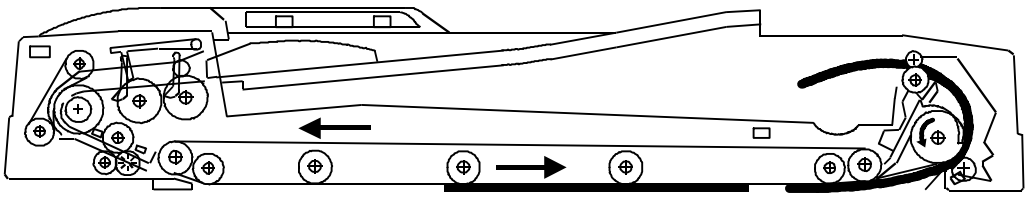


**Figure 5**

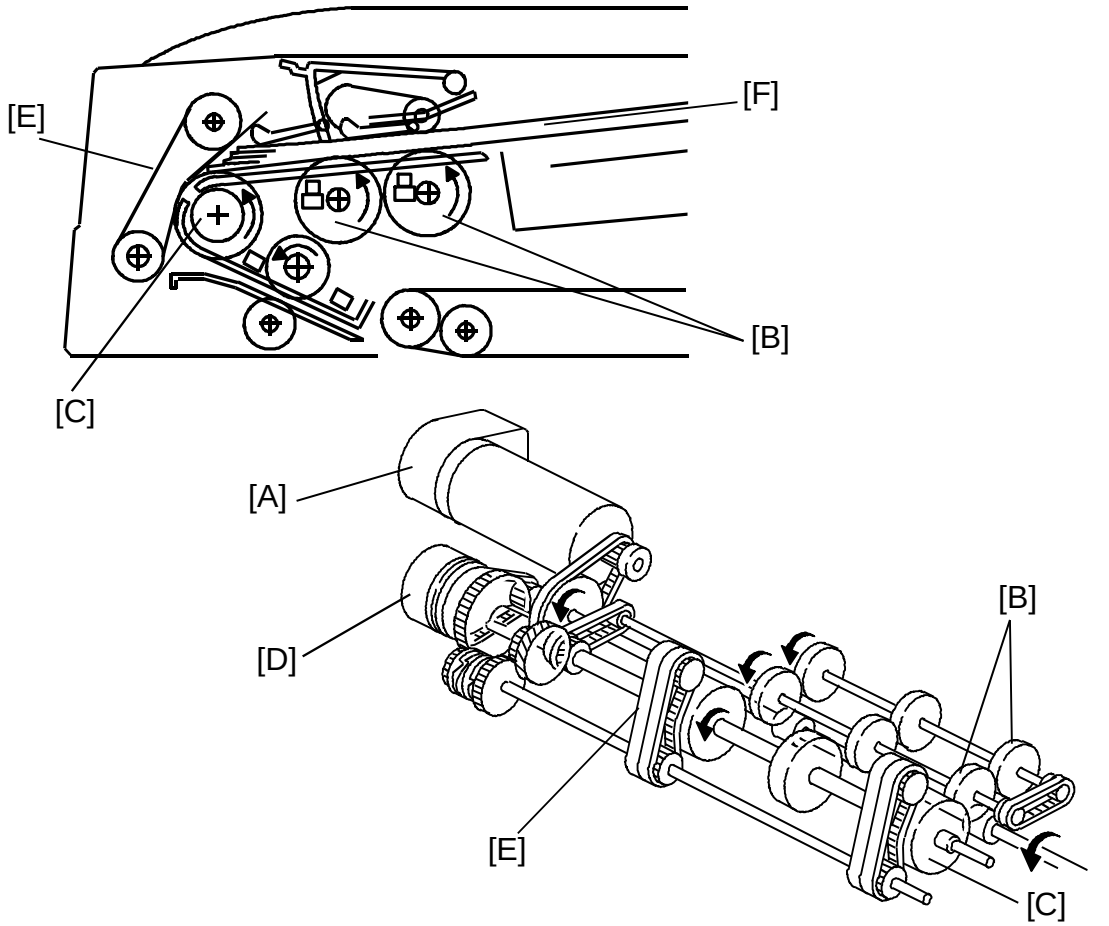
**[Figure 4]**

Soon after the feed-in motor turns off, both the feed-in and the belt drive motors turn on again at the lower speed (372mm/sec).
After registration sensor-2 detects the trailing edge of the second original, the feed-in and the belt drive motors turn off and gradually the belt drive speed reduces to stop the original at the proper place on the exposure glass.

**[Figure 5]**

After the copying of these originals is finished, the belt drive motor and the feed-out motor turn on to feed out the originals. 50mm before the trailing edge of the first original de-activates the feed-out sensor, both the belt drive and the feed-out motor rotate at the lower speed to improve original stacking.
48 pulses after, the belt drive motor turns off and 60 pulses after the feed-out sensor detect the trailing edge of the second original, the feed-out motor turns off.

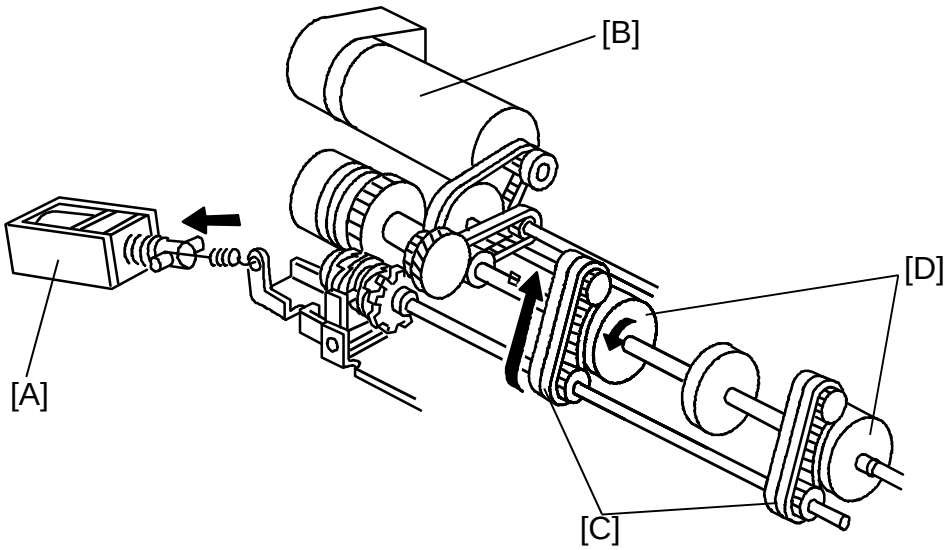
# 5. ORIGINAL SEPARATION




The drive from the feed-in motor [A] is transmitted to the pick-up rollers [B] and the feed roller [C] through the feed-in clutch [D] as shown. The feed roller and the friction belts [E] are used to feed-in and separate the originals [F]. Only the bottom original is fed because the friction belt prevents any other original 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 separation 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.

# 6. SEPARATION BELT DRIVE MECHANISM




Normally the separation belt is not driven. When the copy job is completed, the separation solenoid [A] activates for 100ms. to transmit the drive from the feed-in motor [B] to the separation belts [C] as shown.
By this operation, the part of the friction belt that contacts the feed roller [D] or the original changes to prevent multiple feeding.

When the pasted original mode is selected, the separation solenoid turns on to drive the separation belt in the same direction as the feed rollers.
This disables the separation function to reduce the friction between the original surface and the separation belt.

# 7. THIN / THICK ORIGINAL MODES

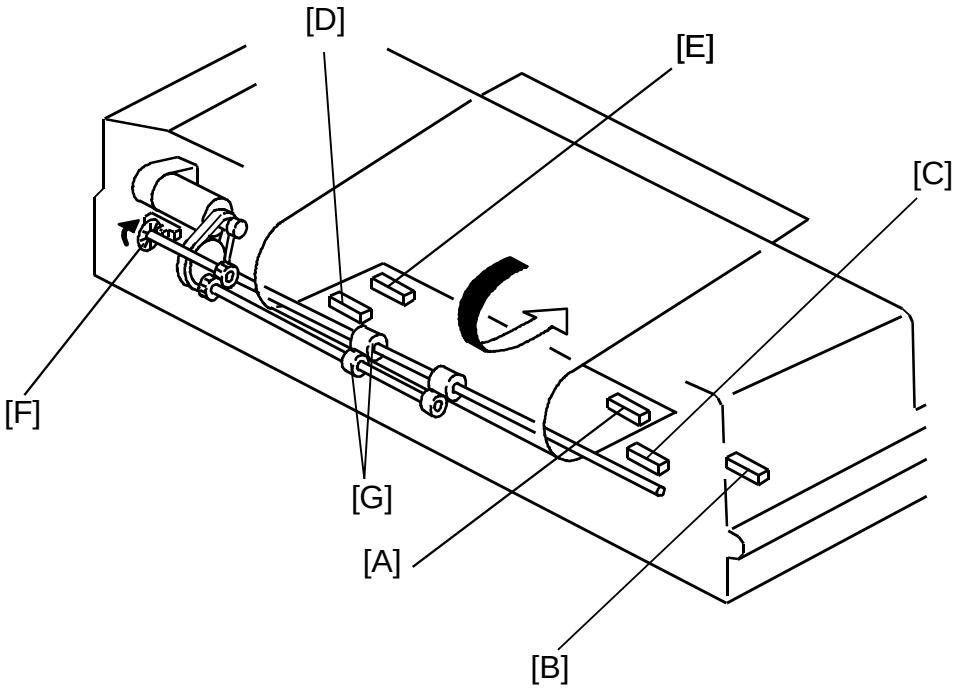
This document feeder has two different ways of stopping originals at the correct position on the exposure glass. They are called the thin original mode and the thick original mode. The mode used is determined by using the copier's User Tool No.12.

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 registration sensor - 2. (Exact timing depends on registration adjustment.)
   In the pasted original mode, the DJF automatically selects this mode.

2. Thick Original Mode
   When thick original mode is selected, the belt drive motor remains energized to carry the original approximately 10 mm pass the left scale. Then, the belt drive motor pauses and reverses to feed the original back against the original scale. This forces the original against the left scale and thus aligns the trailing edge of the original with the scale.
   Thick original mode is selected at the factory.

# 8. ORIGINAL SIZE DETECTION




The DJF detects original width through the on/off combination of the three original width sensors -1 [A], -2 [B], -3 [C], it also detects the original length through the use of the registration sensors -1 [D], -2 [E] and the pulse count sensor [F].

The DJF CPU counts the pulses between registration sensor - 2 [E] on timing and registration sensor - 1 [D] off timing.
Based on this pulse count, the CPU determine the original length.

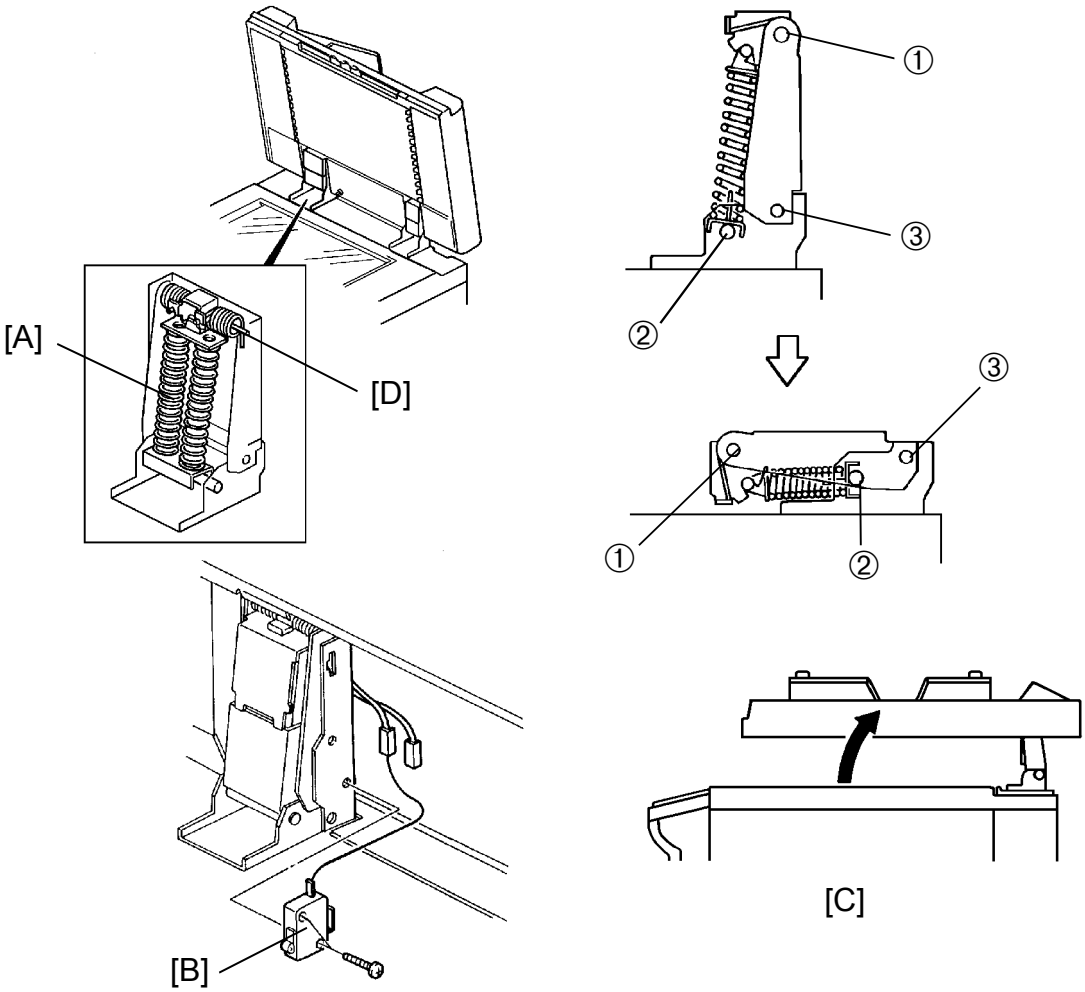
The reason for using two registration sensors are:

1) Registration sensor -2 [E] is used to stop the pre-fed original to wait until the previous original is fed out. For precise control, the original stop position must be after the pull out rollers [G]. Therefore, registration sensor -2 is placed after the pull-out roller.

2) Registration sensor -1[D] checks the trailing edge of the original. This check is used to place the original on the exposure glass.
Enough distance is required between the sensor and the original scale.
Therefore, registration sensor -1 is placed 34.9 mm before sensor -2.

The original size is determined by the combination of the detected original width and the length.

# 9. LIFT MECHANISM




When the DJF is opened, the lift springs [A] provide enough force to ensure that the DJF does not fall onto the exposure glass. When the DJF is closed, points "①", "②", and "③" are aligned and no upward force is provided to the DJF.

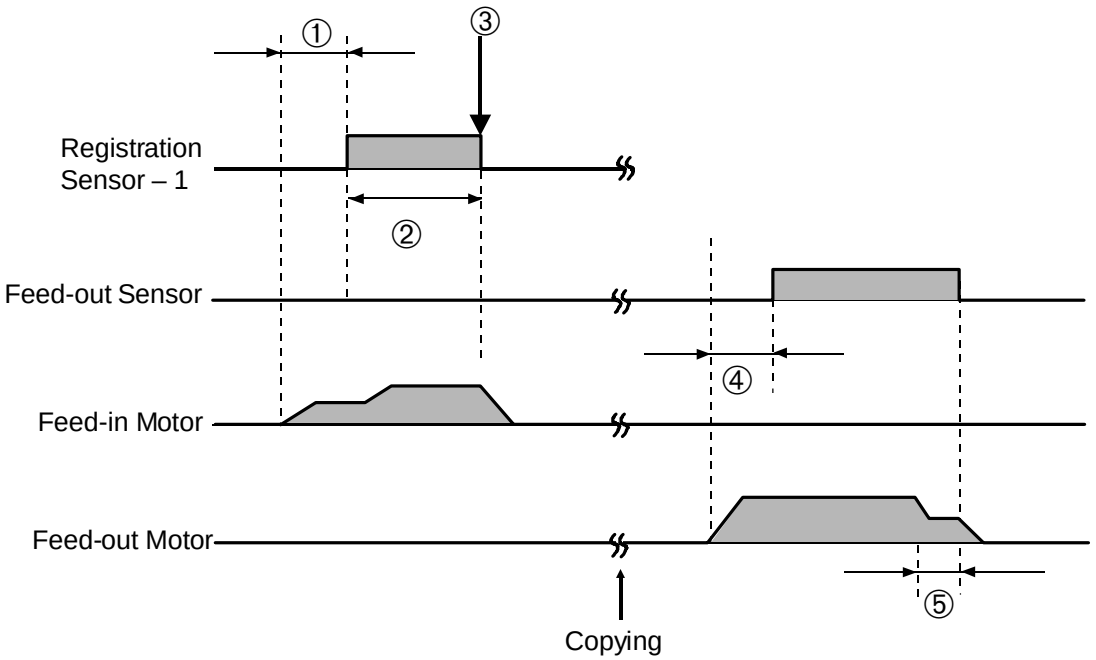
The lift switch [B] is actuated when the DJF is closed. The copier then shifts to the document feeder mode. The lift switch also serves as the reset switch for DJF misfeeds.

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

# 10. ORIGINAL MISFEED DETECTION

Registration sensor -1 and the feed-out sensor are used for misfeed checks to light the original misfeed indicator.

1. One sided original




①: If registration sensor -1 does not activate within 150 pulses after the feed-in motor starts turning, the CPU determines that the original will not arrive (ON check).

②: If registration sensor -1 does not de-activate within 120 pulses, the CPU determines that the original is still there (OFF check).

③: If the current paper size data is 40mm longer or 80mm shorter than the previous original size data (this check is disabled in the mixed size original mode).

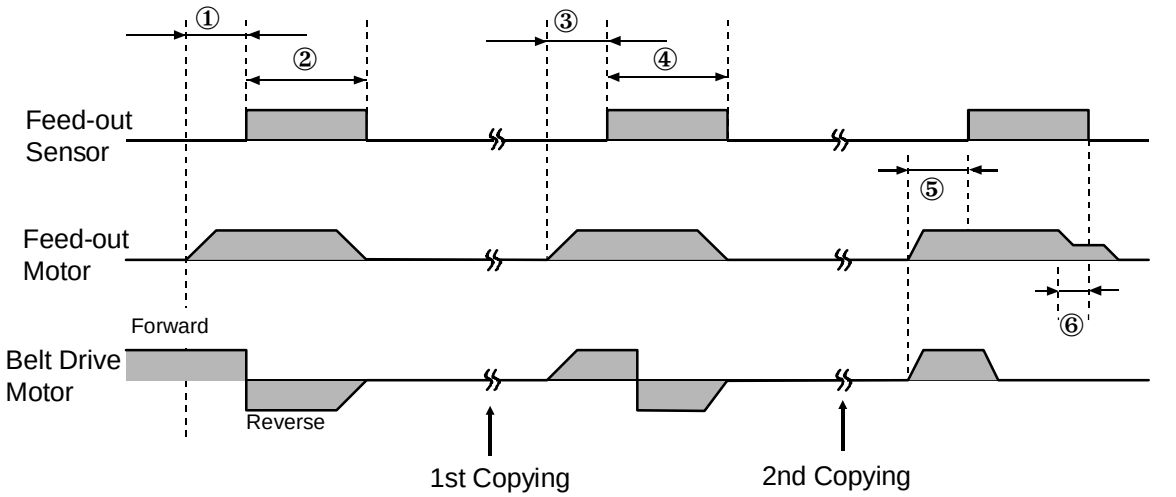
④: If the feed out sensor does not activate within 125 pulses after the feed-out motor starts turning, the CPU determines that the original will not arrive (ON check).

⑤: If the feed-out sensor does not de-activate within 60 pulses after the feed out motor slows down, the CPU determines that the original is still there (OFF check).

2. Two sided original

Registration sensor -1 and the feed-out sensor are used for misfeed checks to light the original misfeed indicator.

Registration ON/OFF check is the same as for one-sided originals.




①: If the feed-out sensor does not activate within 130 pulses after the feed-out motor starts turning, the CPU determines that the original will not arrive (ON check).

②: If the feed-out sensor does not de-activate within 200 pulses, the CPU determines that the original is still there (OFF check).

③: If the feed-out sensor does not activate within 130 pulses after the feed-out motor starts turning, the CPU determines that the original will not arrive (ON check).

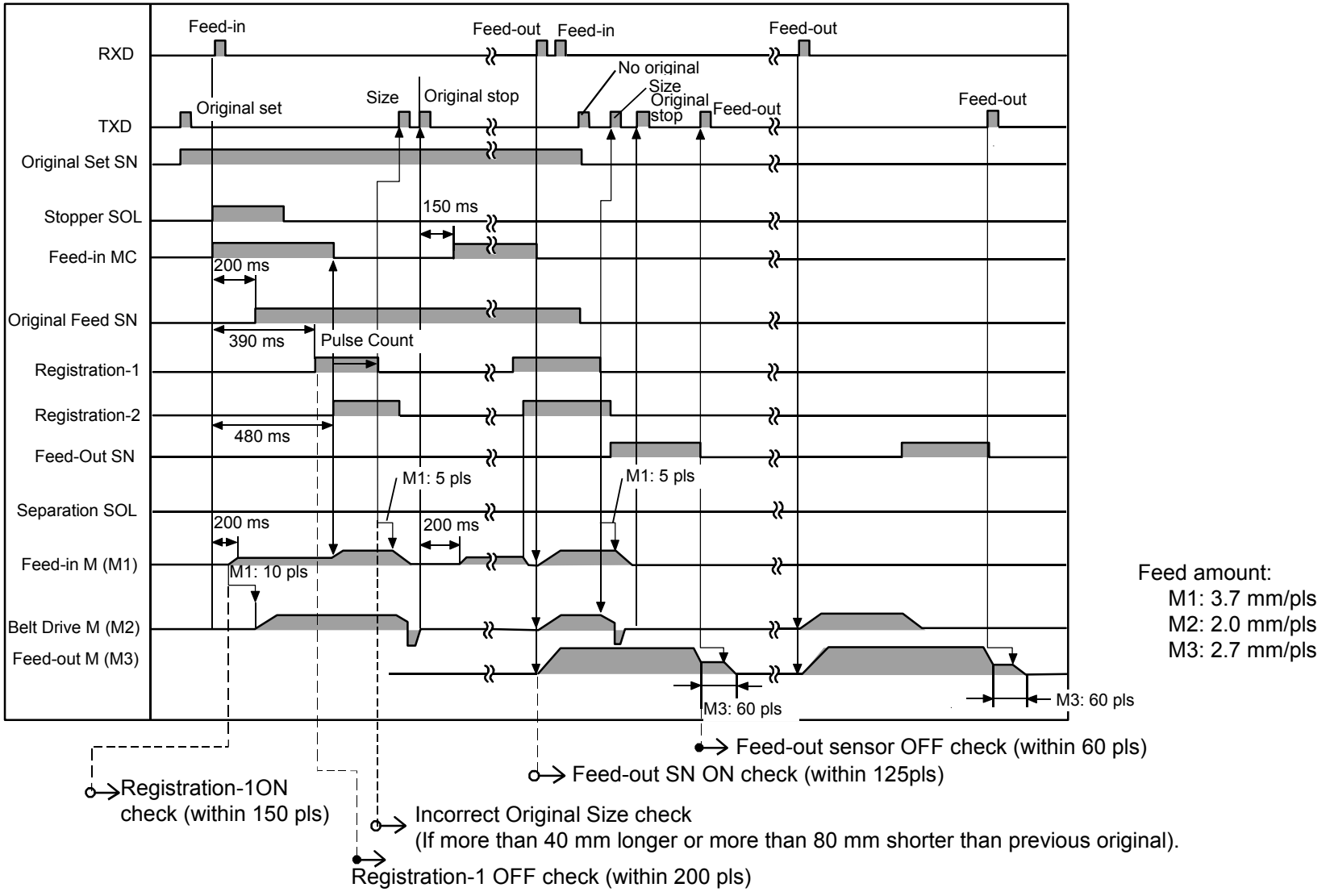
④: If the feed-out sensor does not de-activate within 200 pulses, the CPU determines that the original is still there(OFF check).

⑤: If the feed out sensor does not activate within 125 pulses after the feed-out motor starts turning, the CPU determines that the original will not arrive (ON check).

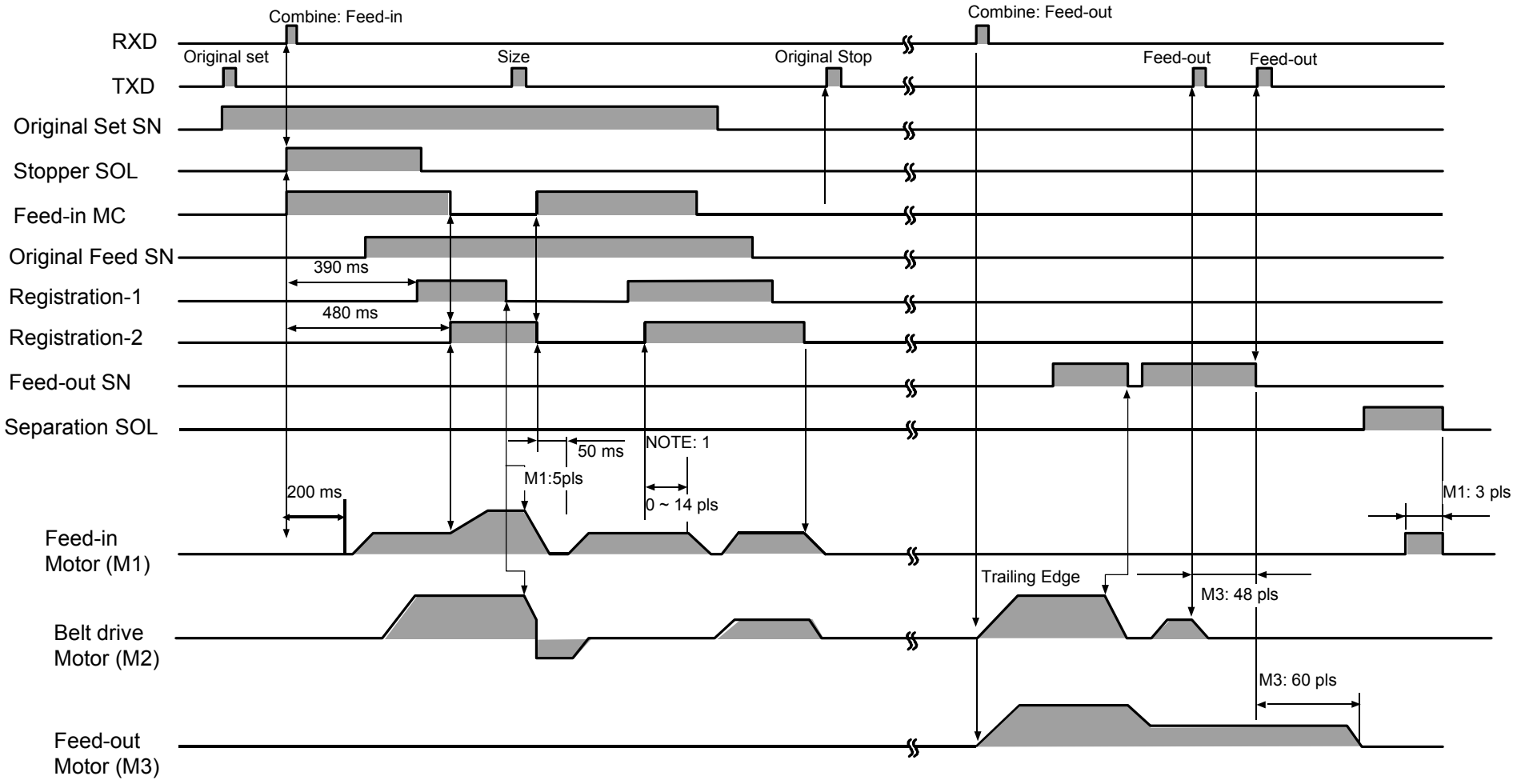
⑥: If the feed-out sensor does not de-activate within 60 pulses after the feed out motor slows down, the CPU determines that the original is still there (OFF check).

# 11. TIMING CHART

## 11.1 DJF Timing Chart (1 sided original mode)



## 11.2 DJF TIMING CHART (COMBINE 2 ORIGINALS MODE)




NOTE: Adjustable (0 ~ 14 pls) by DIP SW102

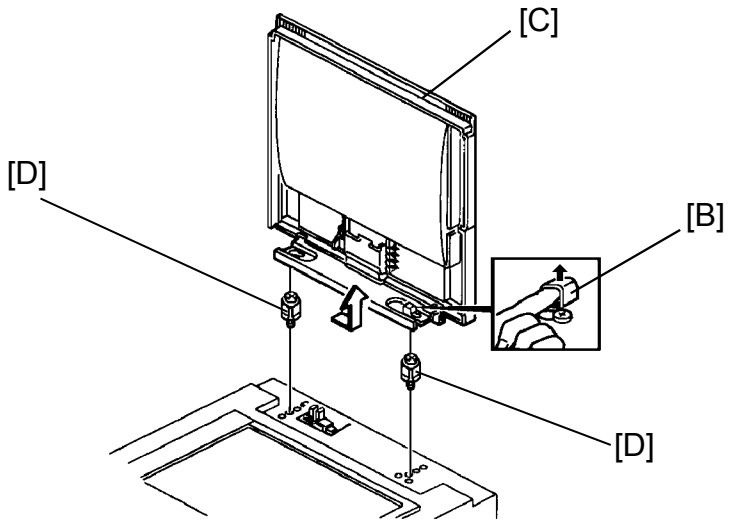
# 12. INSTALLATION

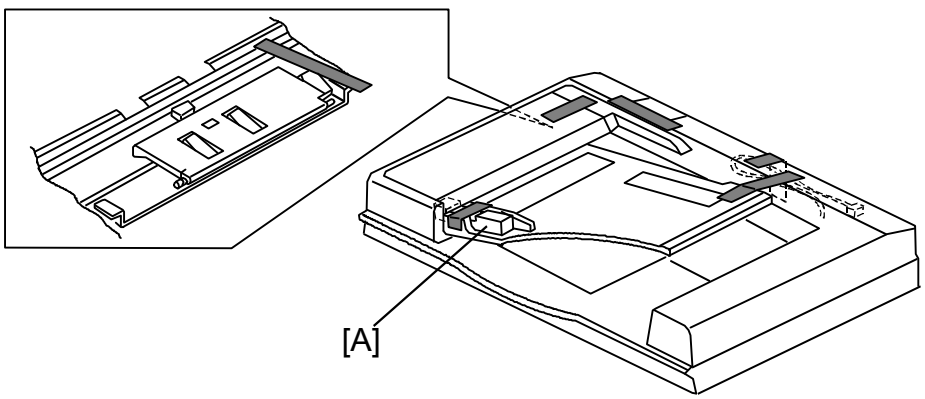
## 12.1 ACCESSORY CHECK

Check the accessories according to the following list:

| Description | Q'ty |
|---|---|
| 1. Installation procedure | 1 |
| 2. Stepped screw | 2 |
| 3. Philips screw with flat washer - M5 x 10 | 2 |
| 4. New equipment condition report (for -17, -27 machine only) | 1 |
| 5. Envelope (for -17 machine only) | 1 |

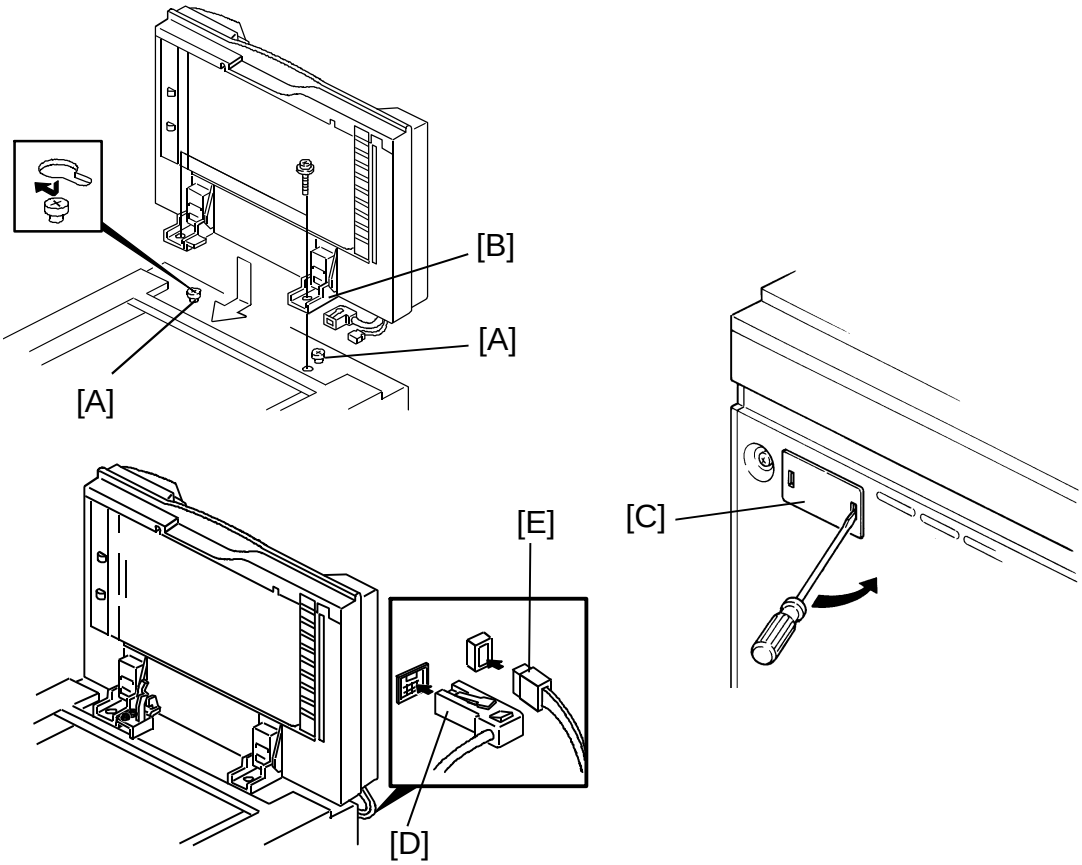
## 12.2 INSTALLATION PROCEDURE



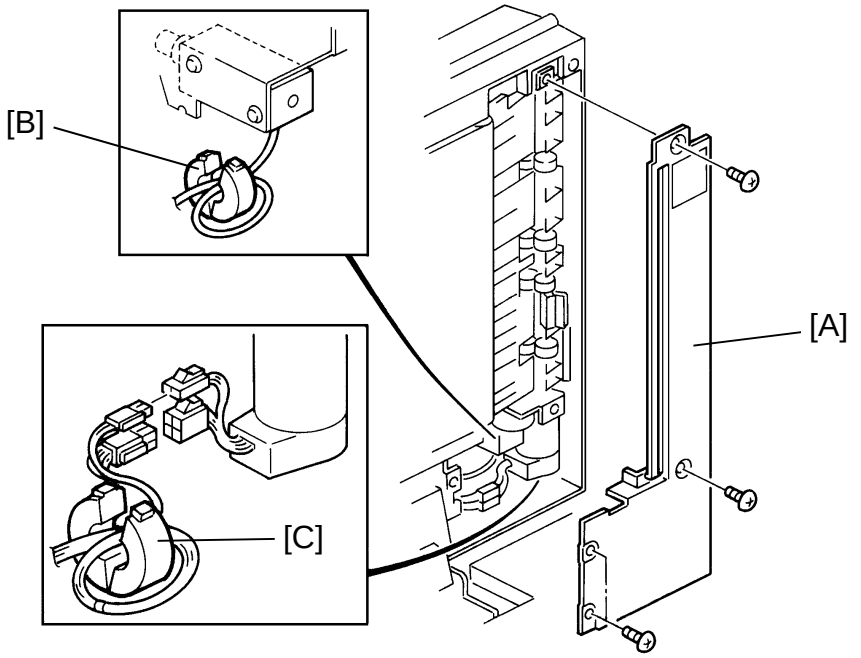




CAUTION: When installing the Dual Job Feeder (DJF), make sure that the copier is unplugged.

1. Remove the tape strips and the cushion [A].
2. While raising the lock plate [B], slide the platen cover [C] to the right and remove it from the copier.
3. Remove the platen cover mounting screws [D].




4. Install two stepped screws [A] to hook the DJF.
5. Mount the DJF to the two stepped screws by aligning the holes in the DJF hinge [B] and the stepped screws, then slide the DJF to the front as shown.
6. Secure the DJF to the copier (2 screws - M 5 x 10).
7. Remove the small cap [C] on the upper rear cover of the copier then connect the connector [D] and the fiber optic cable connector [E].




8. Install the 2 ferrite cores to the DJF as follows. (-22, -26, -27, machines only)

   **NOTE:** The 2 ferrite cores are accessories of the copier.

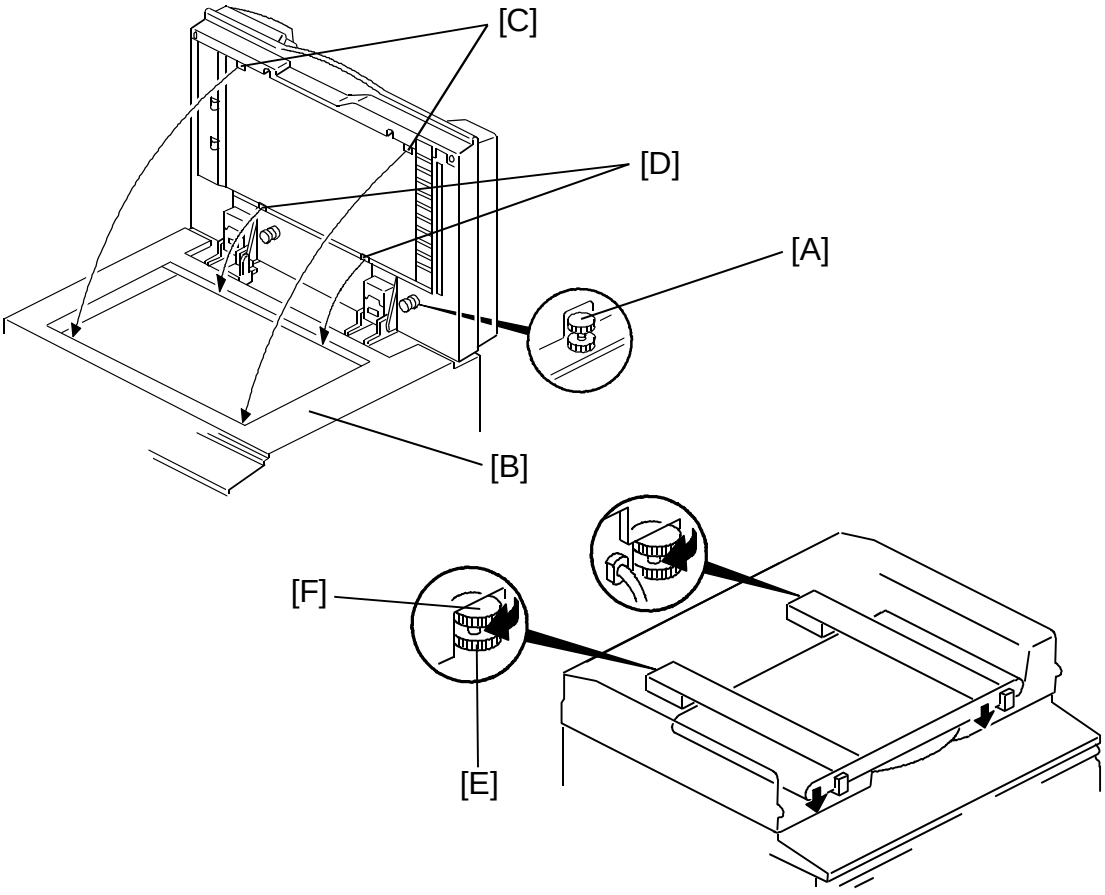
   The following procedures have been added when installing the optional DJF (machine code A376) to this copier. Locate 2 ferrite cores inside the plastic bag for the screws.

   - Lift the DJF and remove the lower exit cover [A] (4 screws).
   - Attach the ferrite core-small [B] to the solenoid harness as shown.
   - Attach the ferrite core-large [C] to the 2 motor harnesses as shown.

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

   **NOTE:** The copier automatically recognizes that the DJF has been installed.

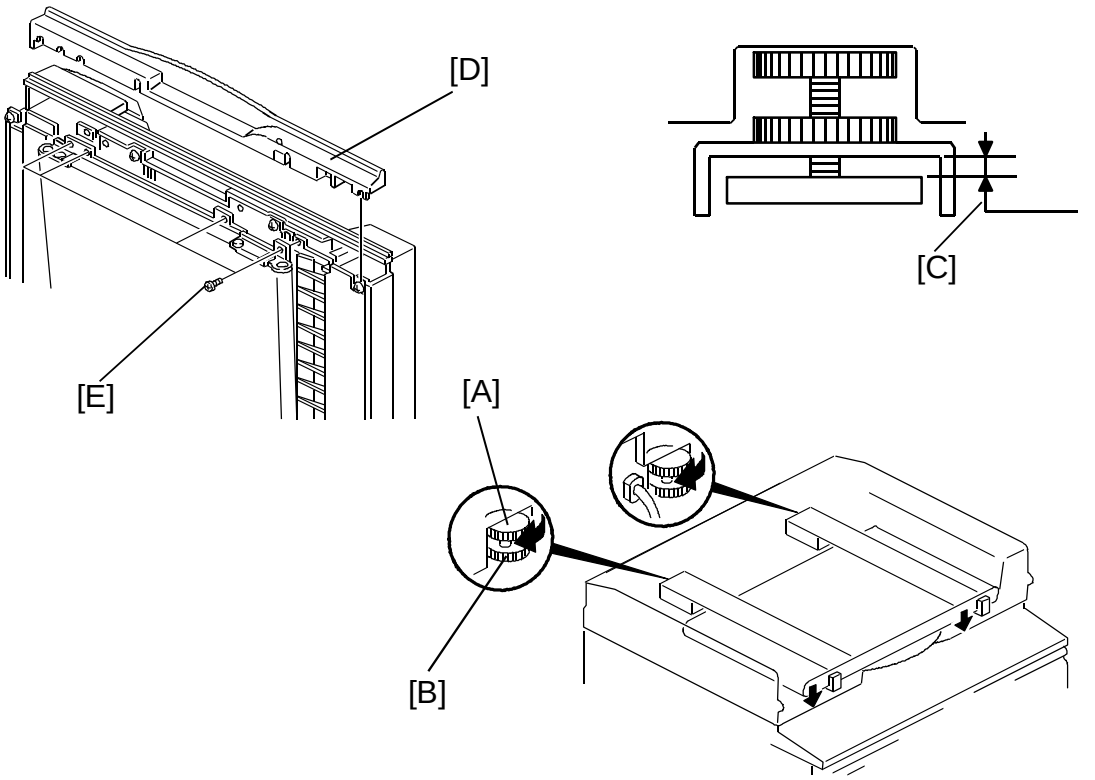
10. Make copies using the DJF and confirm the copy image.




**NOTE:** Only when the original skew occur, perform the following adjustment.

8. Adjust the height of the DJF by using the adjusting dials [A]. Repeat the following procedure for each adjustment dial.
   1) Close the DJF.
   2) Confirm whether or not the copier upper cover [B] and all four stoppers [C and D] are in contact.
   3) If not, loosen the lower dial [E] (rotate counterclockwise) and adjust the height of the DJF by rotating the upper dial [F].

   **NOTE:** 1. First, adjust the DJF height so that the two front stoppers [C] contact the upper cover, then adjust the DJF height so that all four stoppers [C and D] contact the upper cover [B].
   2. Rotate the right adjusting dial clockwise to lower the left front side of the DJF. (Black arrow in the illustration)
   3. Rotate the left adjusting dial clockwise to lower the right front side of the DJF (White arrow in the illustration)
   4. If the height adjustment is not correct, then original skew will occur.




4) Lock the adjusting (upper) dials [A] by fully rotating the lock (lower) dials [B] clockwise.

**NOTE:** Mostly, height will be proper when the gap [C] is 2 mm. If the height adjustment is not completed even if the gap [C] is less than 2 mm, remove the cover [D] (4 screws) then loosen 4 screws [E], and tighten again. Then adjust the height again.

# 13. SERVICE TABLES

## 13.1 DIP SWITCHES AND SWITCHES

0: OFF 1: ON ↓: Push

| Modes | DPS101 | | | | DPS102 | | | | SW | | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 101 | 102 | |
| Motor ON (speed Adj.) | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | – | – | Feed-in motor activates |
| | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | – | – | Belt drive motor activates |
| | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | – | – | Feed-out motor activates |
| MC, SOL Test | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | Stopper solenoid activates |
| | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | Separation solenoid activates |
| | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | Feed clutch activates |
| | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Reverse solenoid activates |
| Original Feed (Registration Adj.) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | ↓ | 0 | Feeds the original (thick mode) |
| | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | ↓ | 0 | Feeds the original (thin mode) |
| | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0/1 | 0 | ↓ | Delivers the original |
| | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | ↓ | 0 | Feeds the original (2 sided mode) |
| | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | ↓ | Reverses the original / Exits the original |
| | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | ↓ | 0 | Feeds the original (pasted original mode) |
| | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | ↓ | Exits the original (pasted original mode) |
| Free run with original | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | ↓ | 0 | Thick / 1 sided original mode |
| | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | ↓ | 0 | Thin / 1 sided original mode |
| | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | ↓ | 0 | Thick / 2 sided original mode |
| | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | ↓ | 0 | Thin / 2 sided original mode |
| | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | ↓ | 0 | Thick / mixed size original mode |
| | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | ↓ | 0 | Thin / mixed size original mode |
| | 1 | 0 | 0 | 1 | 0 | 0 | 1 | – | ↓ | 0 | Combine 2 originals mode |
| | 1 | 0 | 0 | 1 | – | – | – | – | 0 | ↓ | Stops the free run |
| Free run | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | ↓ | 0 | Starts the free run |
| | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | ↓ | Stops the free run |
| Original Distance Adj. (Combine Originals) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | – | – | Shift value +3.5 mm |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | – | – | Shift value +7.0 mm |
| | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | – | – | Shift value +10.5 mm |
| | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | – | – | Shift value +14.0 mm |
| | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | – | – | Shift value –3.5 mm |
| | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | – | – | Shift value –7.5 mm |
| | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | – | – | Shift value –10.5 mm |
| | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | – | – | Shift value –14.0 mm |
| Standard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Standard setting |

## 13.2 VARIABLE RESISTORS

| VR NO. | FUNCTION |
|---|---|
| 101 | Adjusts the registration in 1 sided original mode |
| 102 | Adjusts the registration in 2 sided original mode |
| 103 | Adjusts feed-in motor speed |
| 104 | Adjusts belt drive motor speed |
| 105 | Adjusts feed-out motor speed |

## 13.3 LEDs

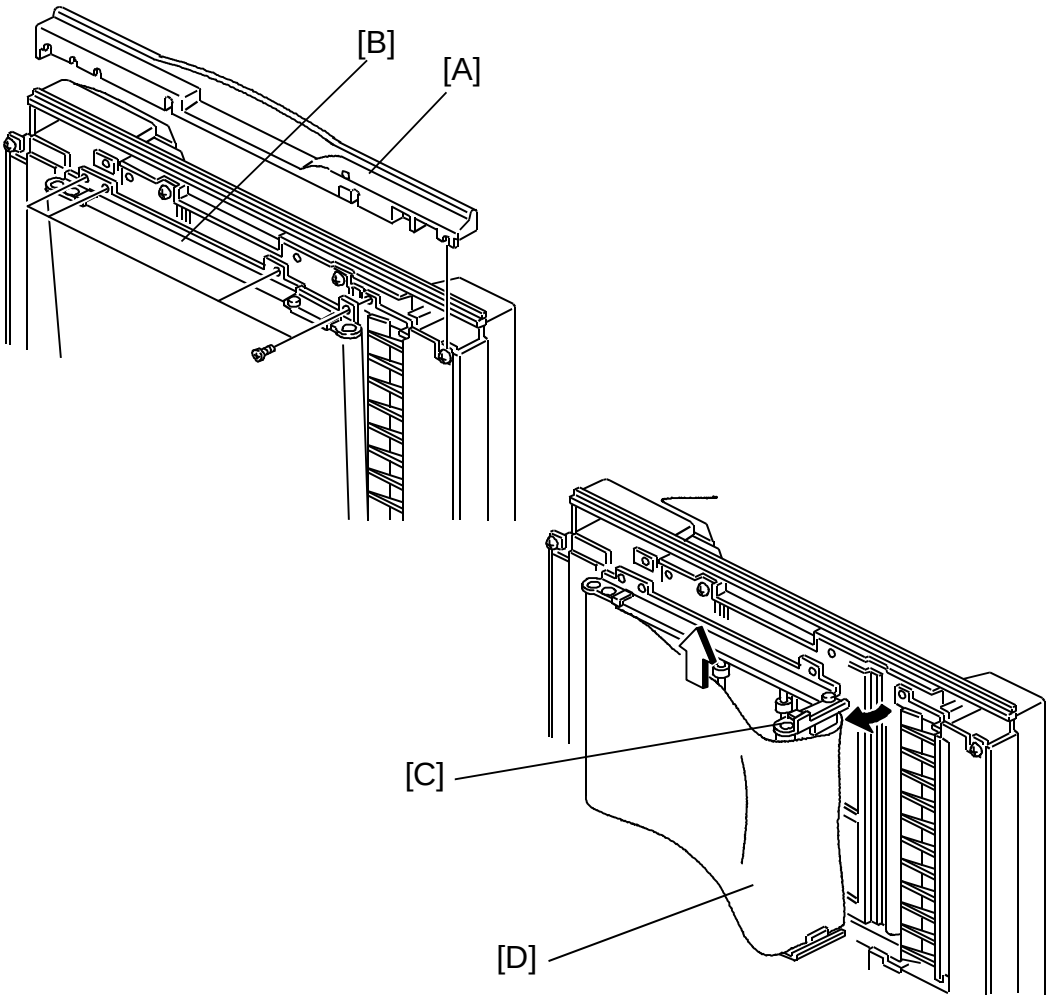
| LED NO. | FUNCTION |
|---|---|
| 101 | Monitors the motor speed (too fast) |
| 102 | Monitors the motor speed (normal) |
| 103 | Monitors the motor speed (too slow) |

## 13.4 FUSEs

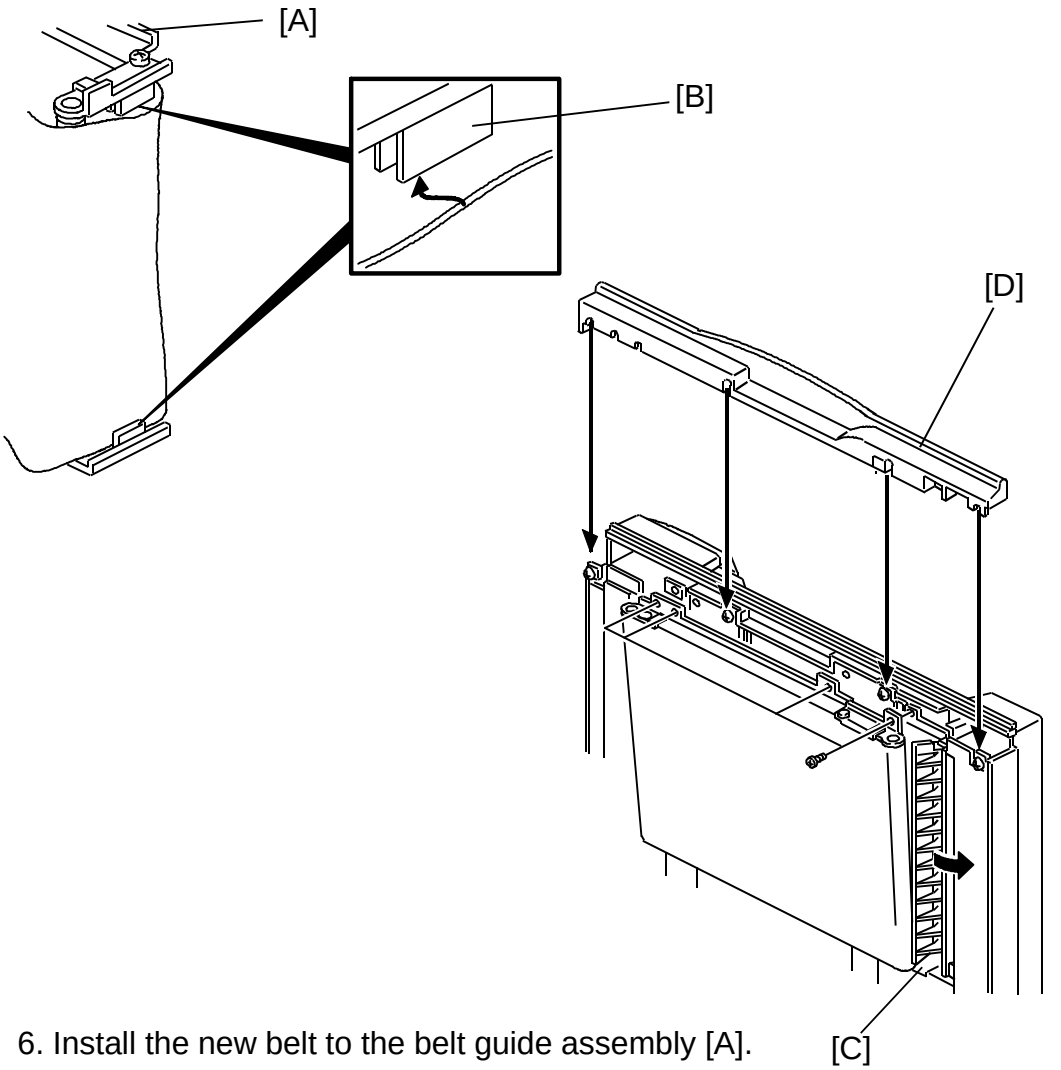
| FUSE NO. | FUNCTION |
|---|---|
| 101 | Protects the 5 V line |
| 102 | Protects the 12 V line |
| 103 | Protects the 24 V line from feed-in motor failure |
| 104 | Protects the 24 V line from belt drive motor failure |
| 105 | Protects the 24 V line from feed-out motor failure |

# 14. REPLACEMENTS AND ADJUSTMENTS

## 14.1 TRANSPORT BELT REPLACEMENT




1. Turn off the copier's main switch.
2. Fully raise the DJF, then remove the front cover [A] (loosen 4 screws).
3. Remove the four screws fixing the transport belt guide assembly [B].
4. Fold the stay [C] as shown.
5. Remove the transport belt [D].




6. Install the new belt to the belt guide assembly [A].

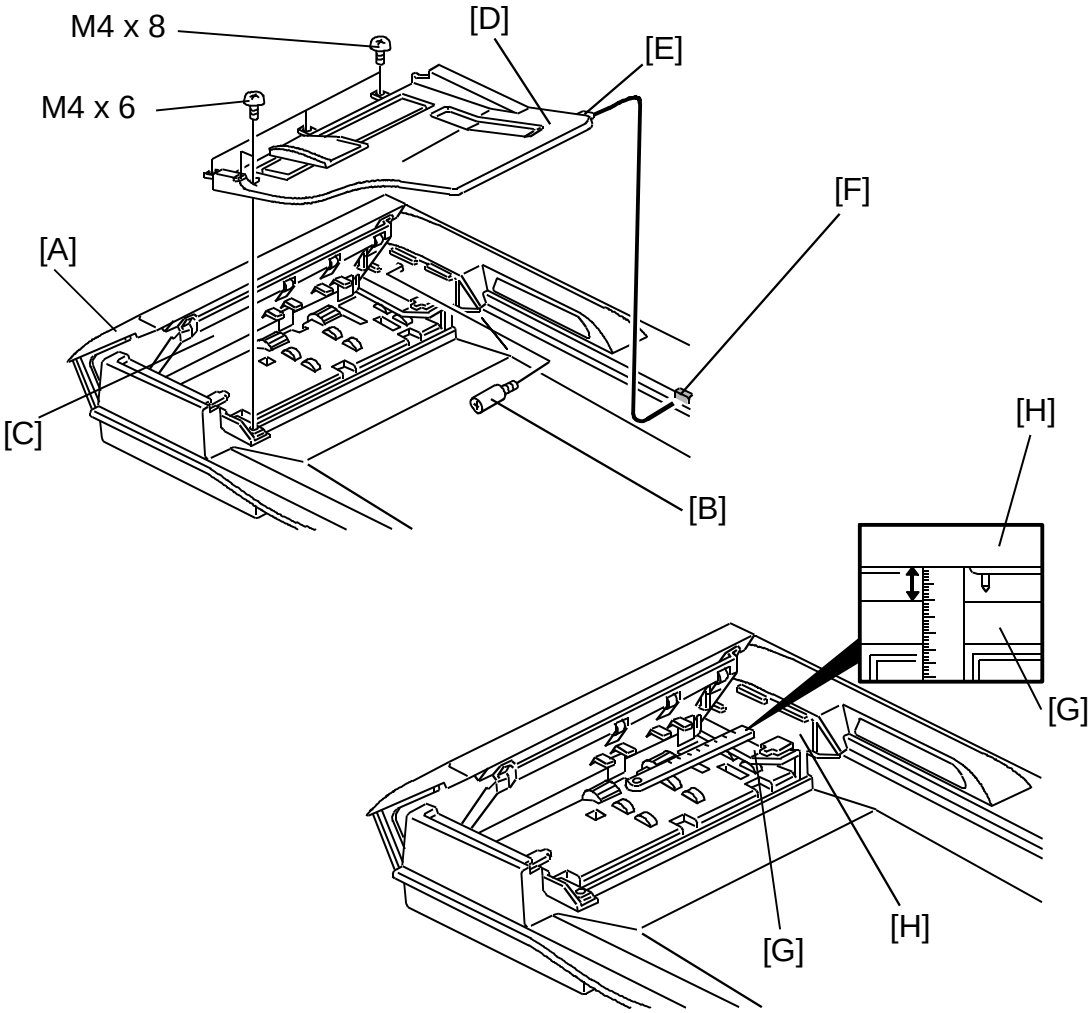
   **NOTE:** When setting the new belt, set the belt between the belt guides [B].

7. While opening the original guide [C], install the belt guide assembly to the DJF (4 screws).

8. Install the front cover [D].

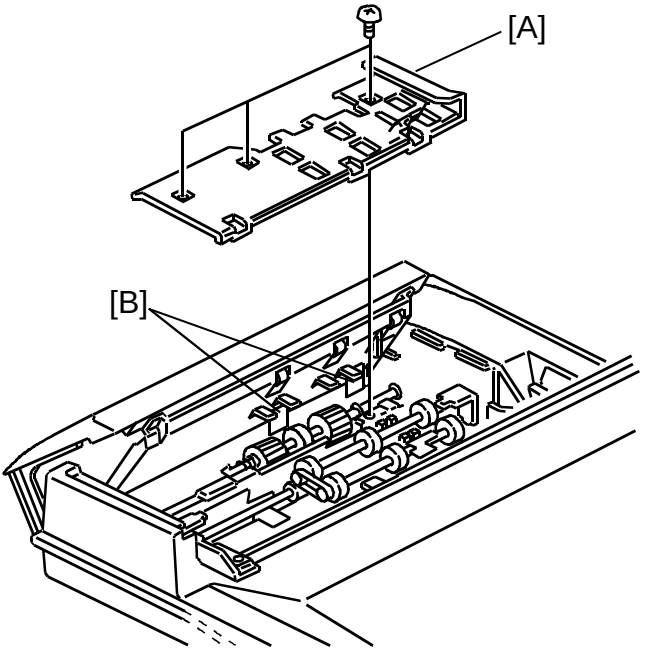
9. Confirm the DJF height. (Refer to step 9 of the installation procedure.)

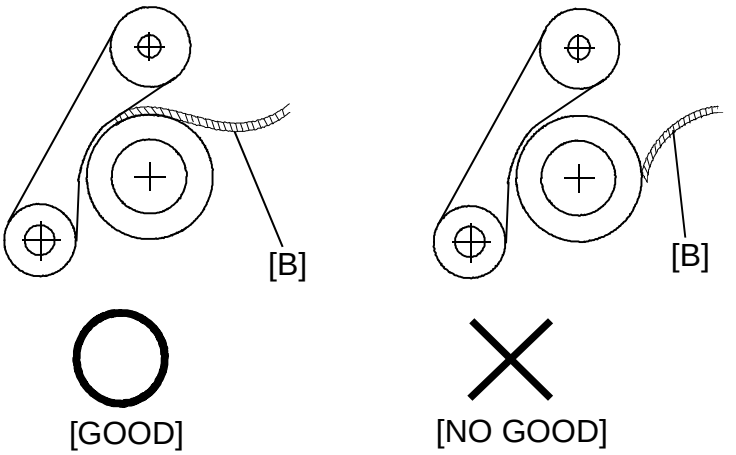
## 14.2 ORIGINAL TABLE / ORIGINAL GUIDE REMOVAL




1. Turn off the main switch then open the feed cover [A].
2. Remove the stopper screw [B] then open the original stopper [C].
3. Remove the original table [D] (5 screws).

   **NOTE:** When installing the original table, be sure to set the hook [E] in the hole [F].
4. Before removing the original guide [G], measure and remember the distance between the original guide and the rear frame [H] as shown. This is to keep the same original side-to-side registration after the re-installation.



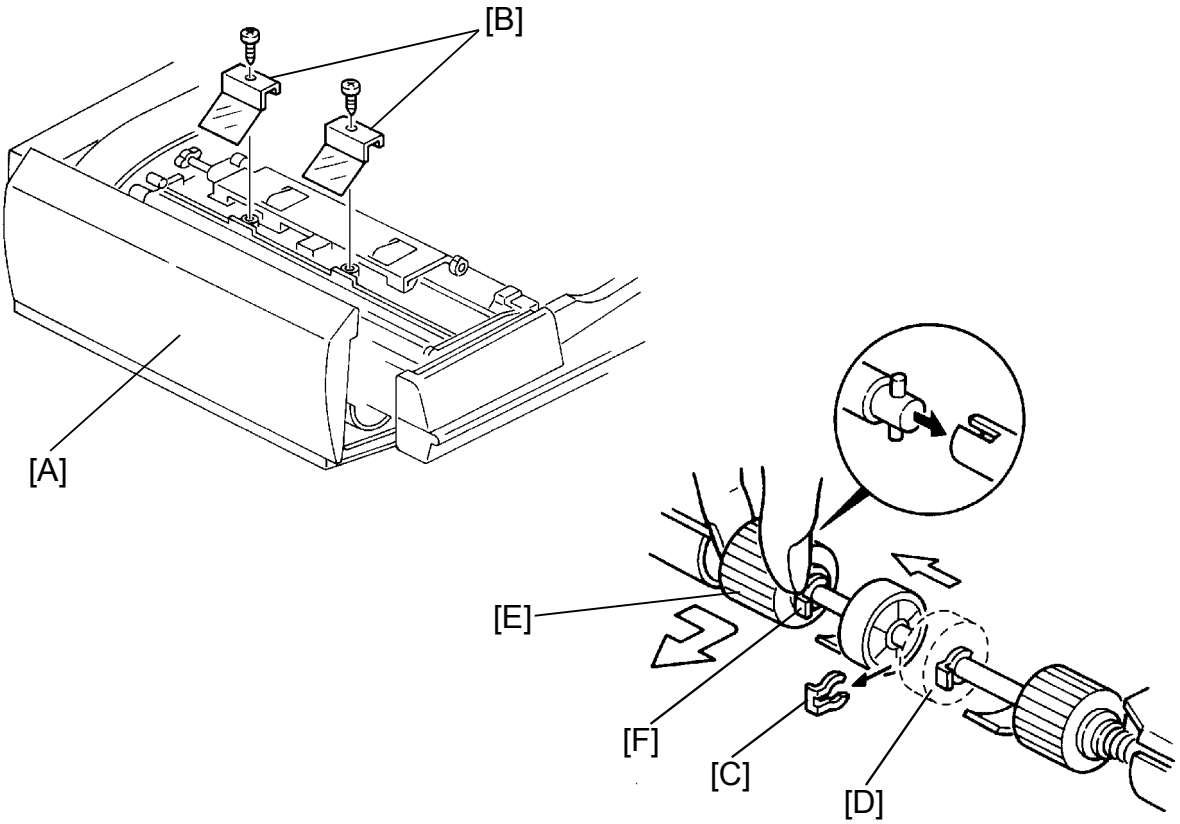

5. Remove the original guide [A] (3 screws).

**NOTE:** 1. When working around the feed rollers, be careful not to damage the guide mylars [B], and set the guide mylars correctly as shown.

2. Do not touch the feed roller surface with oily hands.

3. After this replacement, adjust the side-to-side original registration if necessary.

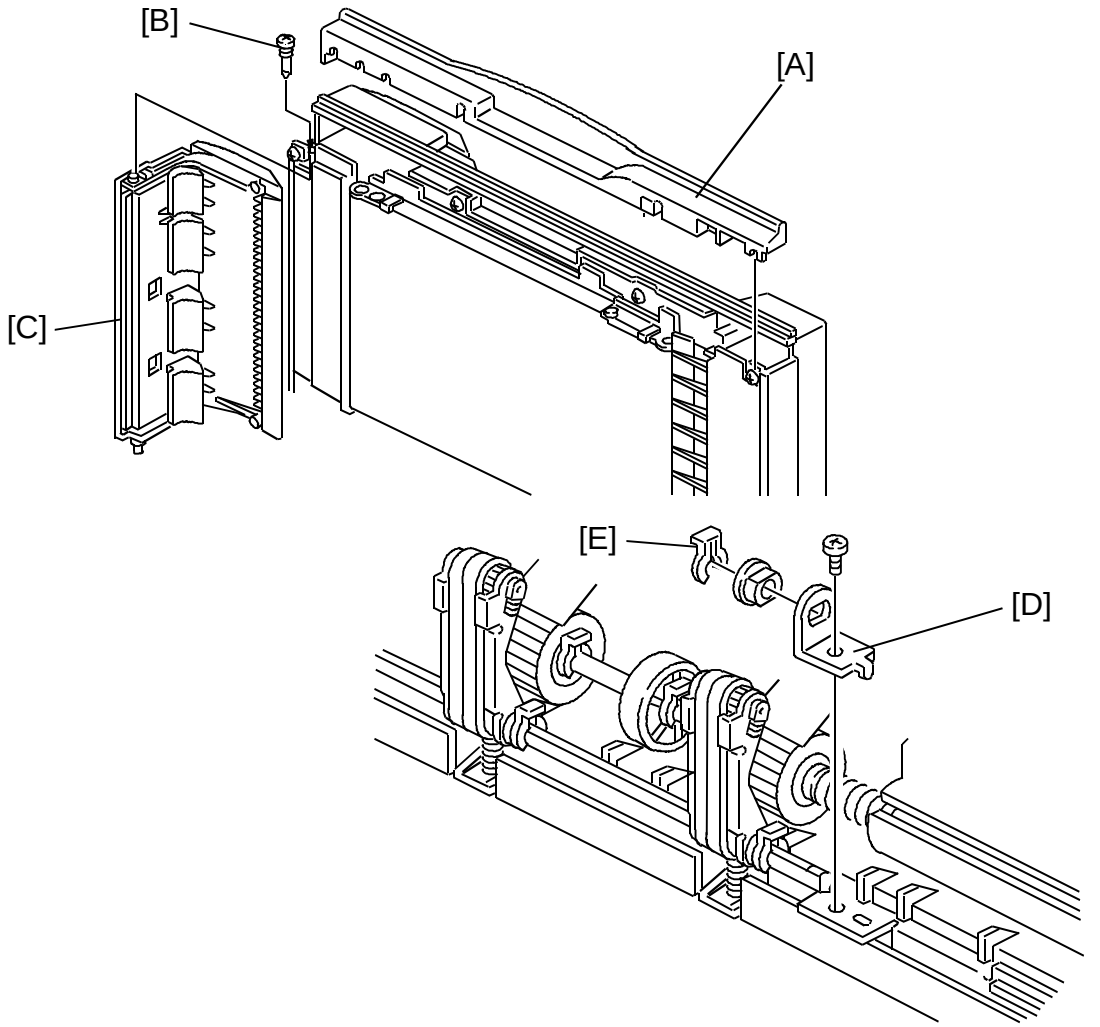
## 14.3 FEED ROLLER REPLACEMENT



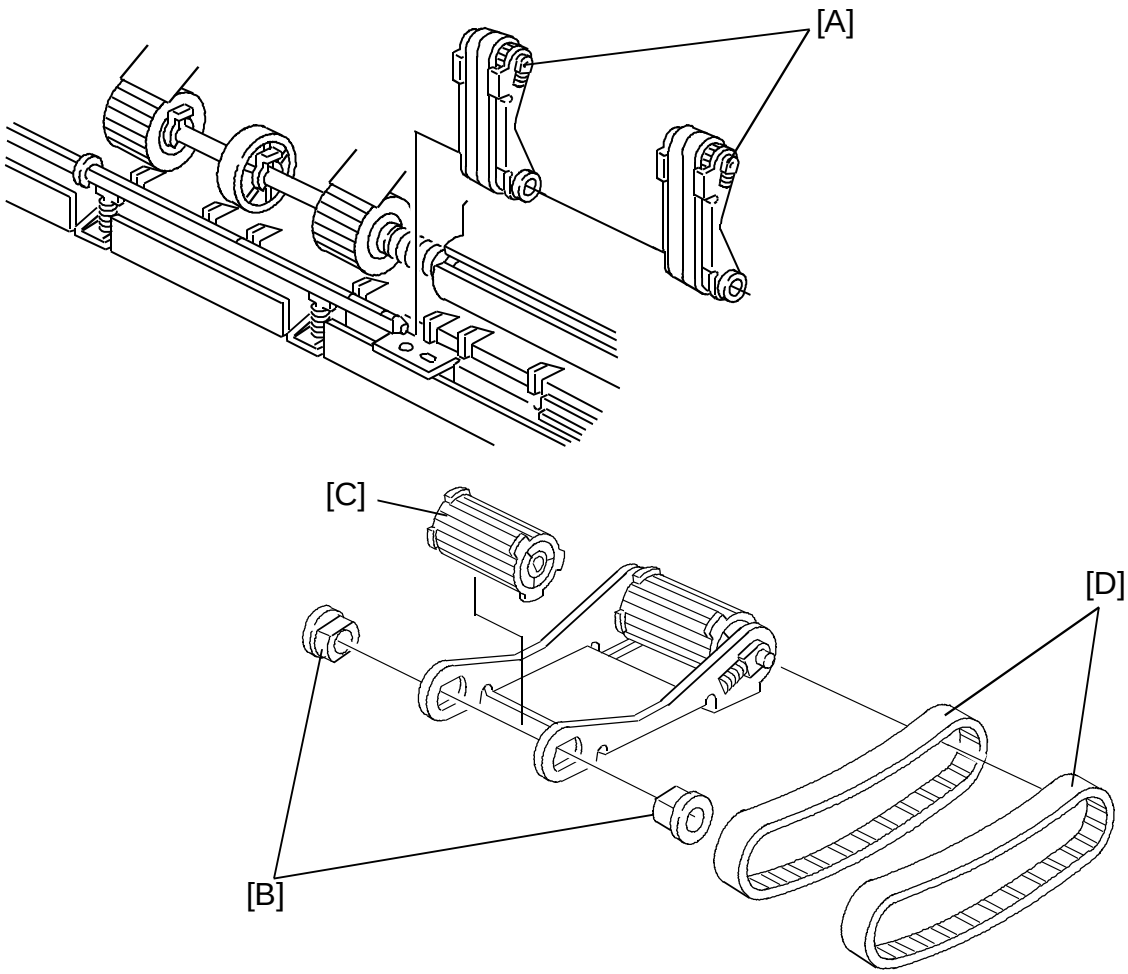

1. Turn off the main switch then open the feed cover [A].
2. Remove the guide mylars [B] (1 screw each).
3. Remove the snap ring [C].
4. Slide the roller [D] to the rear.
5. Hold the feed roller [E] then slide the shaft to the front, then remove the feed roller assembly as shown.
6. Remove the four snap rings [F], then remove the feed rollers.
7. Install the new feed rollers, then re-assemble the machine.

NOTE: When installing the feed roller, be sure that the one way bearing (silver color) is located in the front side (the roller must rotate only counter-clockwise when the shaft is fixed).

## 14.4 SEPARATION BELT REPLACEMENT



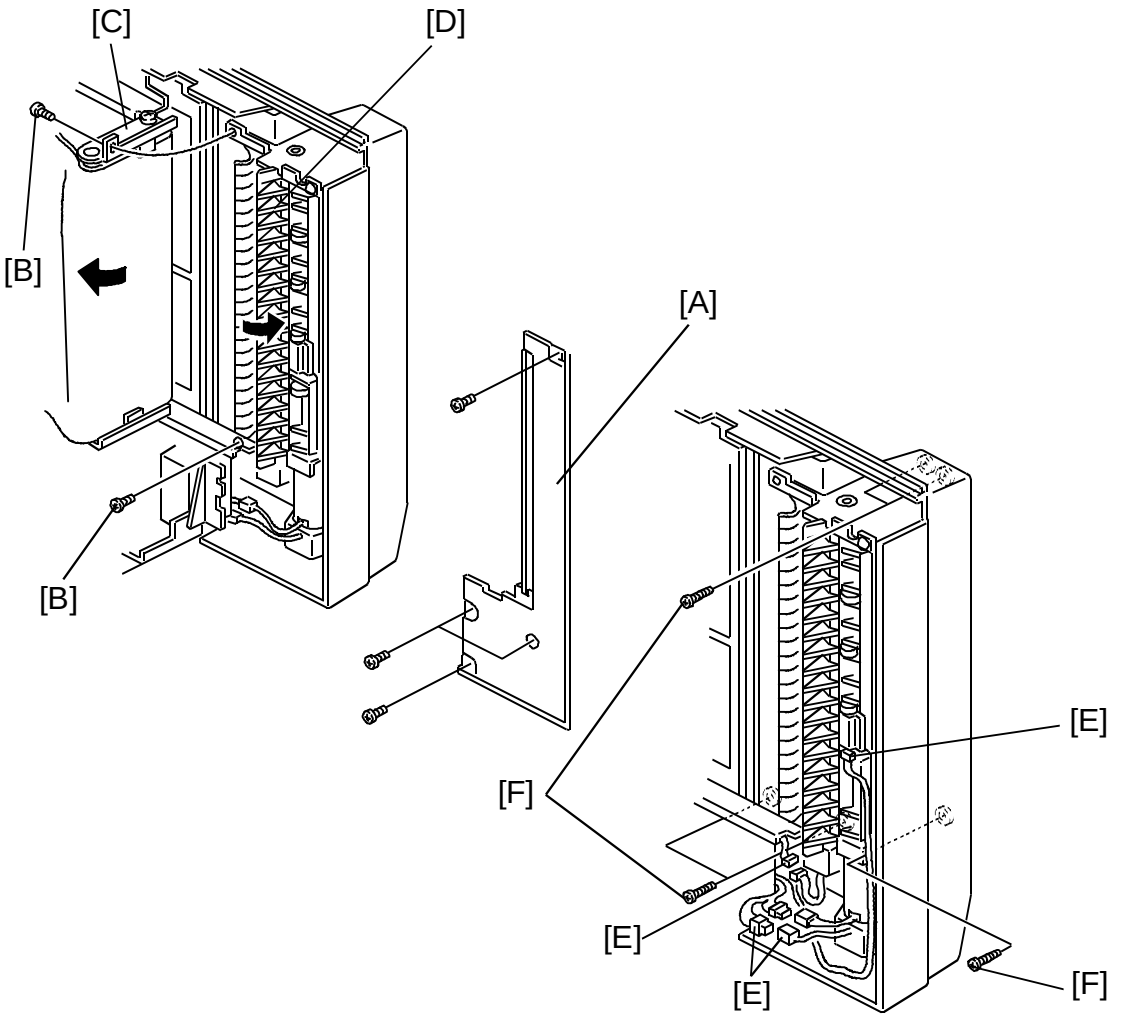

1. Turn off the main switch.
2. Fully raise the DJF, then remove the front cover [A] (loosen 4 screws).
3. Remove the screw [B], then remove the feed cover [C].
4. Remove the bracket [D] (1 screw).
5. Remove the four snap rings [E].



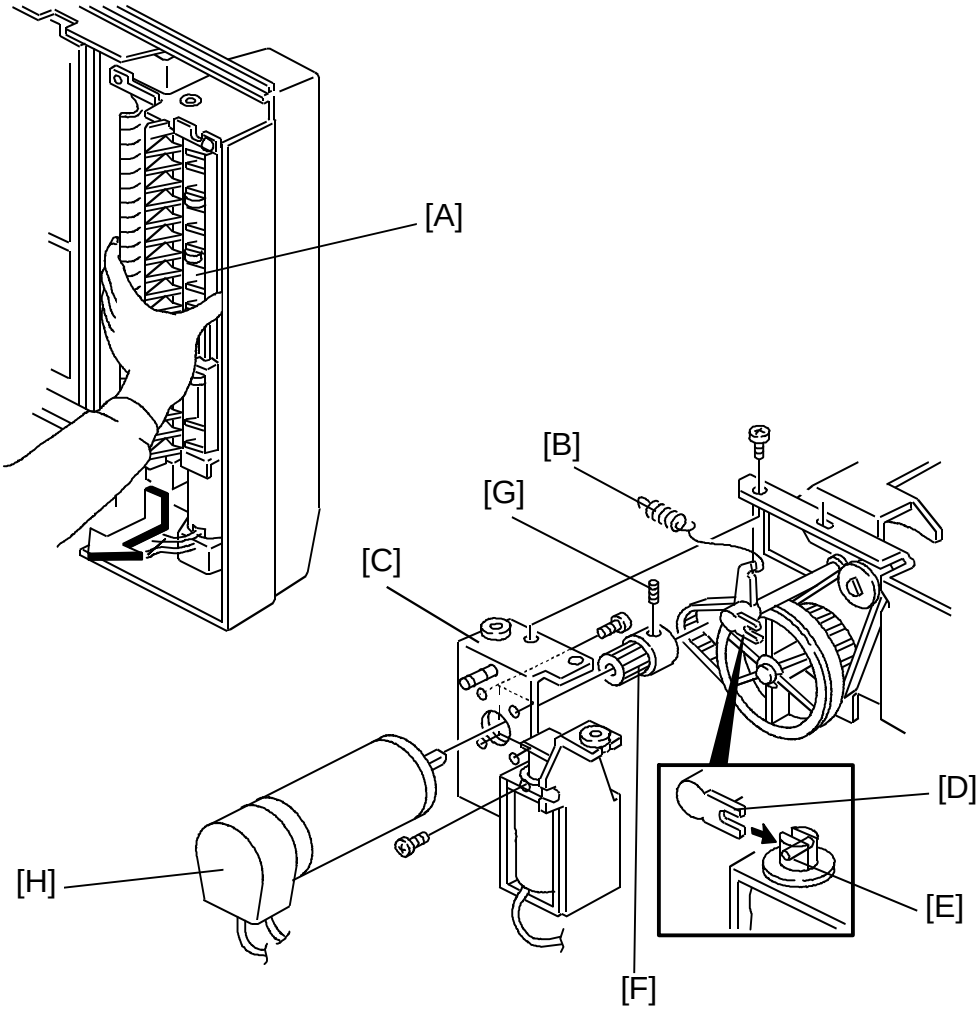

6. Slide the separation belt assembly [A] to the front and remove them.
7. Remove the bushings [B].
8. Remove the pulley [C].
9. Replace the separation belts [D].

   **NOTE:** Do not touch the separation belt with oily hands.

## 14.5 FEED-OUT MOTOR (FEED-OUT UNIT) REMOVAL



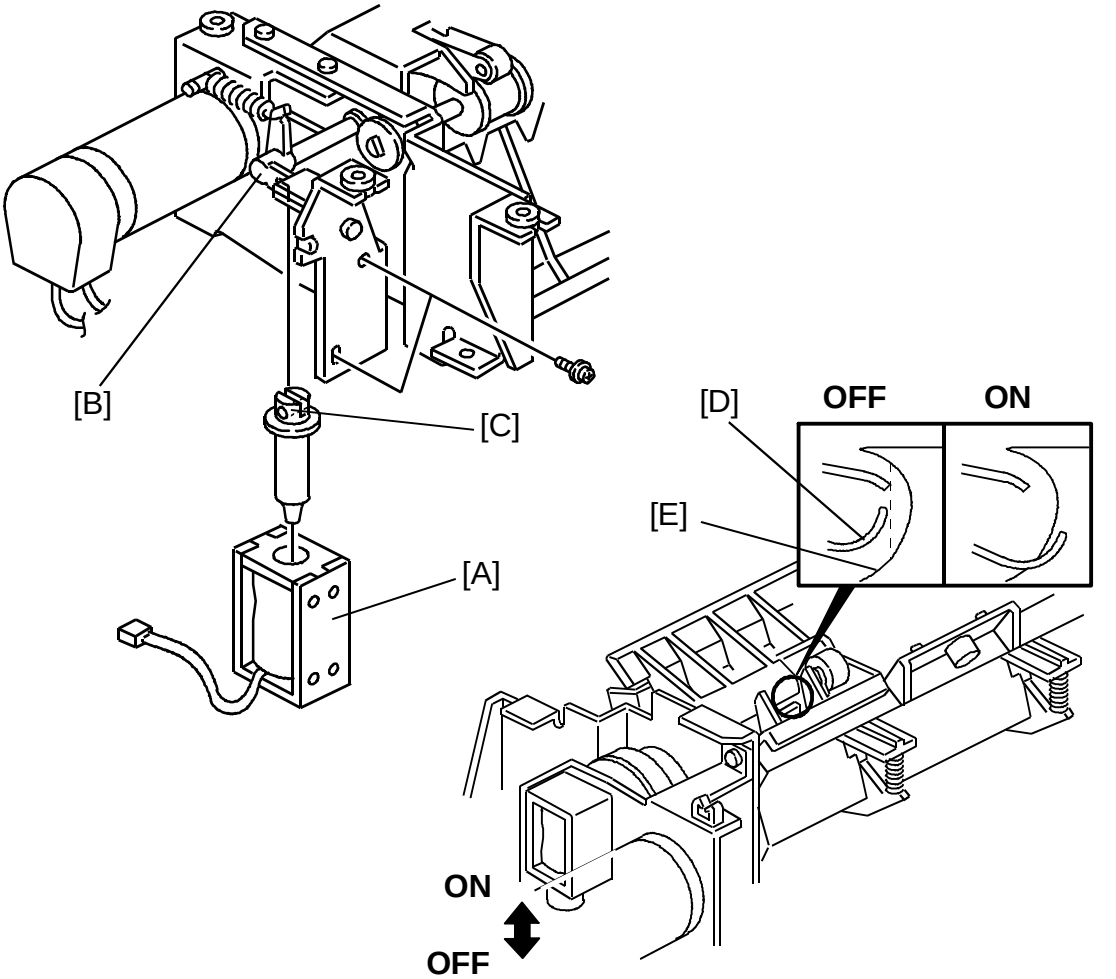

1. Fully raise the DJF then remove the front cover. (Refer to Transport Belt Replacement.)
2. Remove the right cover [A] (4 screws).
3. Remove the two screws [B] fixing the transport belt assembly, then fold the transport belt stay [C] as shown.
4. Open the original guide [D].
5. Disconnect the four connectors [E].
6. Remove the five screws [F].




7. Remove the feed-out unit [A] as shown.
8. Remove the spring [B].
9. Remove the bracket [C] with the feed-out motor from the feed-out unit (3 screws).

   **NOTE:** When re-installing the bracket, be sure to set the arm [D] on the plunger pin [E].
10. Remove the pulley [F] (1 Allen screw [G]).
11. Remove the feed-in motor (4 screws) [H].

## 14.6 INVERTER SOLENOID REMOVAL AND ADJUSTMENT



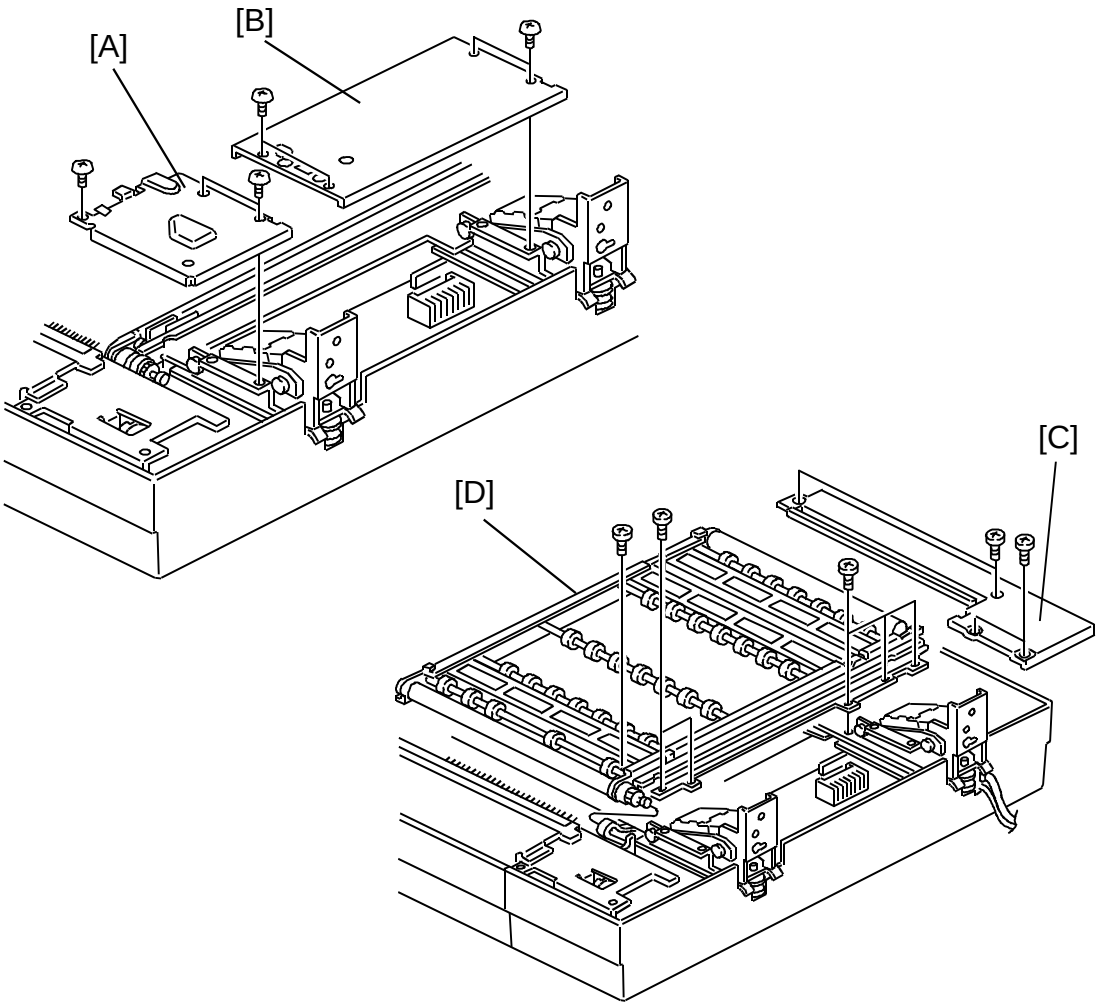

1. Remove the feed-out unit. (Refer to Feed-out Motor Removal.)

2. Remove the inverter solenoid [A] (2 screws).

**NOTE:** When installing the inverter solenoid, confirm the following:

1) The arm [B] must be set on the plunger pin [C].
2) Manually pull the inverter solenoid plunger and confirm that when the inverter solenoid does not activate (OFF), the inverter guide [D] is inside the outer inverter guide [E] and when the inverter solenoid activates (ON), the inverter guide is outside the outer inverter guide, as shown.

## 14.7 BELT DRIVE MOTOR REPLACEMENT

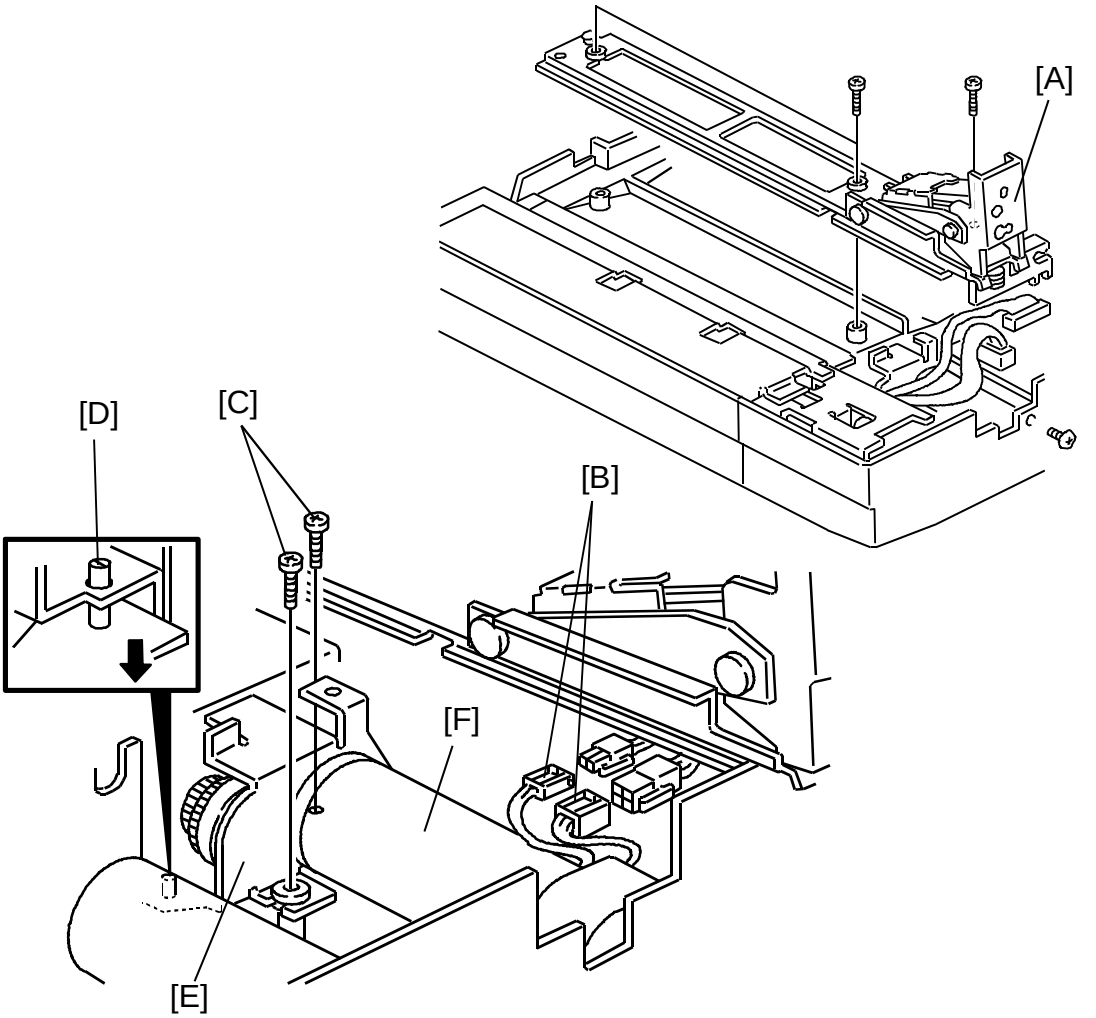



1. Remove the DJF from the copier (2 screws, 2 connectors, 2 hooks) and place it on a stable place.

**CAUTION: Before disconnecting the connectors, turn off the main switch of the copier.**

2. Remove the motor cover [A] (3 screws).
3. Remove the DF main control board cover [B] (4 screws).
4. Remove the transport belt. (Refer to the The Transport Belt Replacement.)
5. Remove the right cover [C] (4 screws).
6. Remove the belt guide assembly [D] (6 screws).

**NOTE:** After re-installing the belt guide assembly, confirm the DJF height (Refer to the procedure 9 of the Installation Procedure.)




7. Remove the left hinge stay [A] (4 screws, 3 connectors).

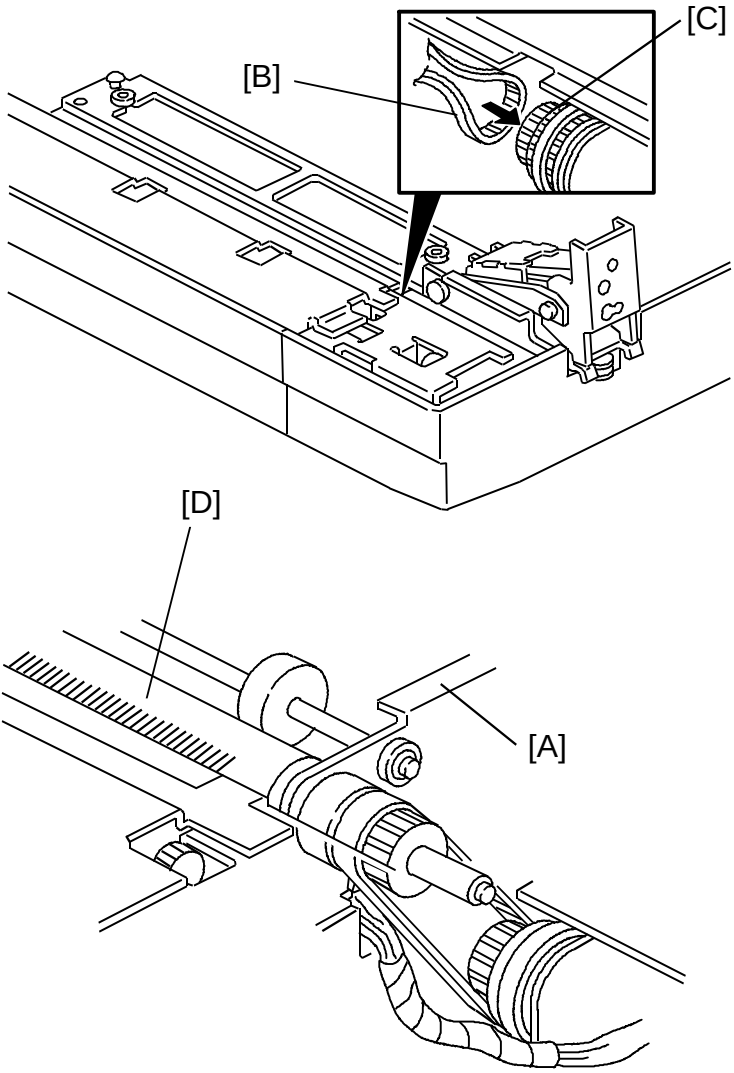
   **NOTE:** When re-installing the hinge stay, be sure not to pinch the harness.

8. Remove the two connectors [B].

9. Remove the two screws [C] fixing the belt drive motor bracket.

10. While unhooking the pin [D] from the hole on the feed-in motor bracket, remove the bracket [E] with the belt drive motor [F].

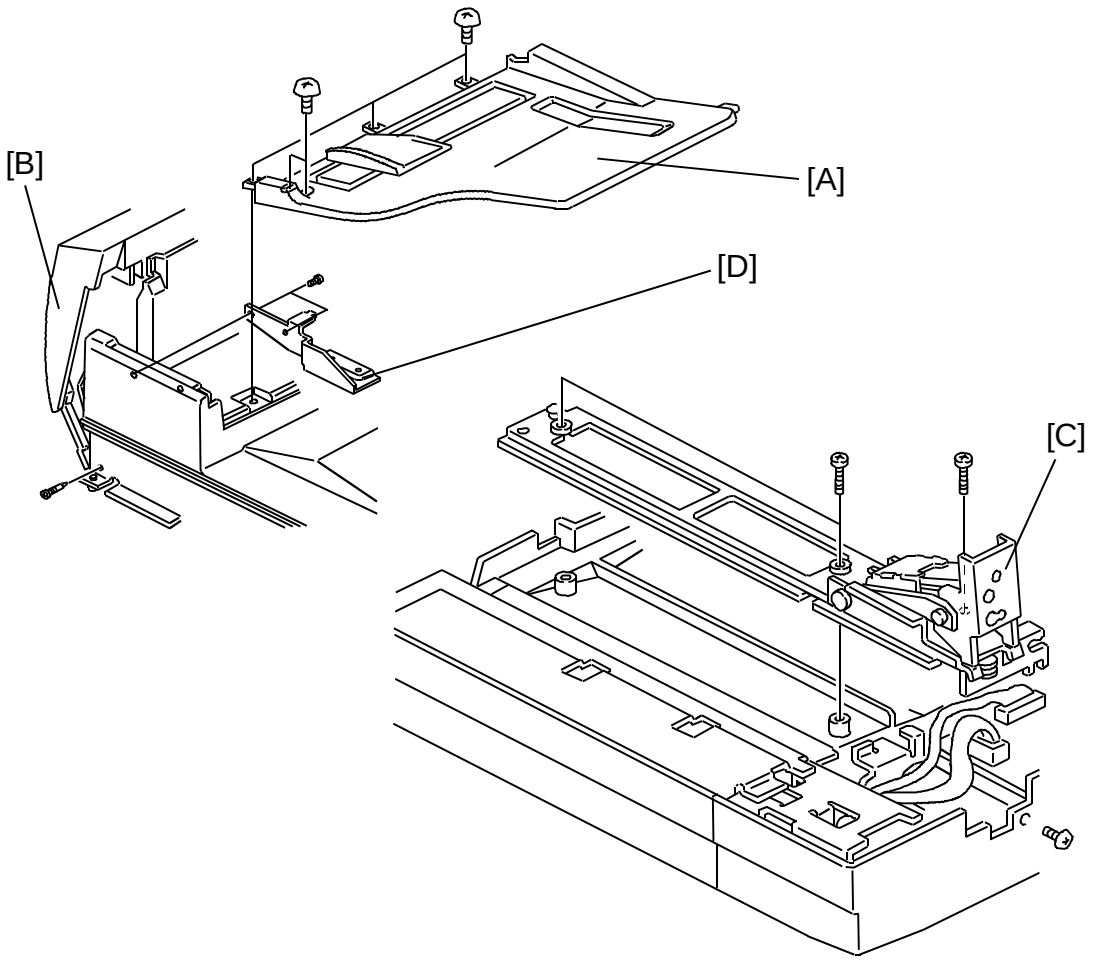
11. Remove the drive pulley (1 Allen screw) then replace the belt drive motor (4 screws).




12. Re-assemble the machine.

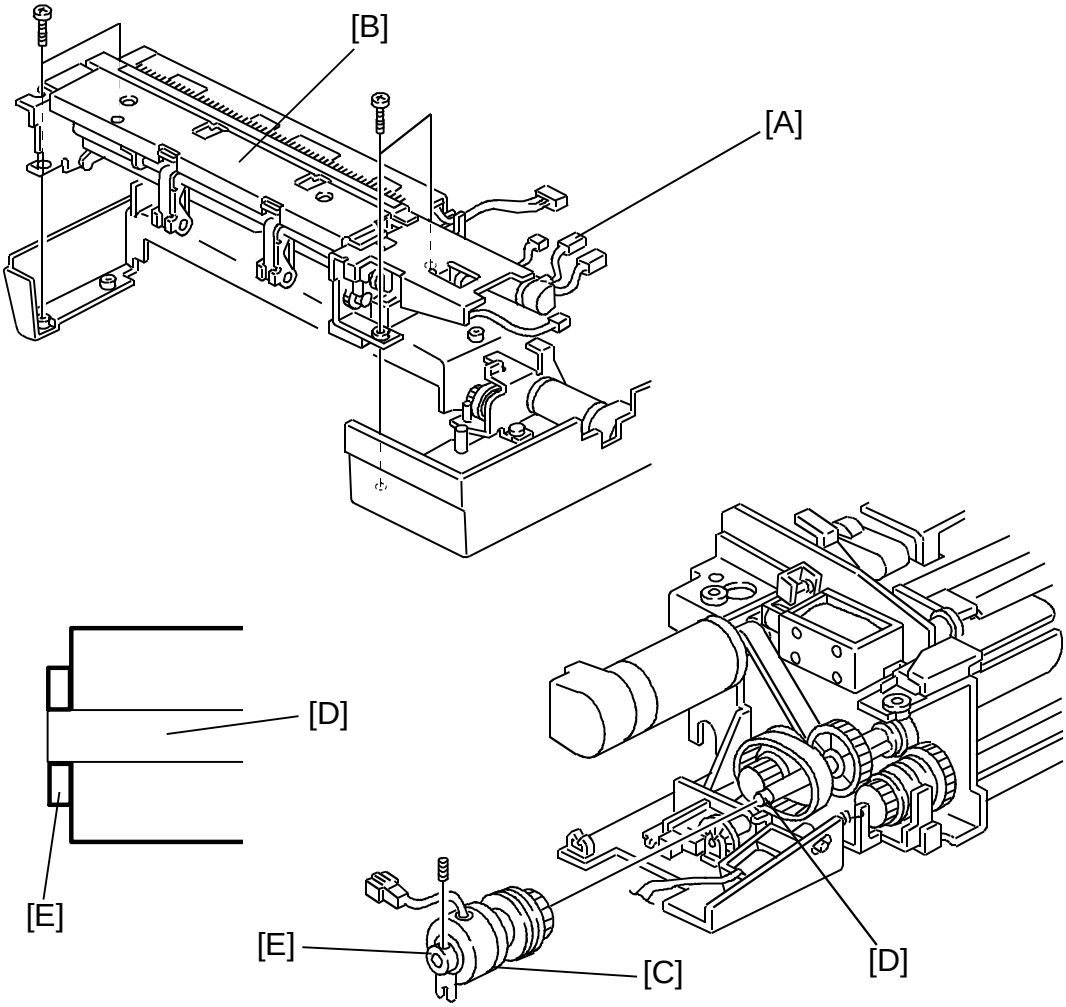
**NOTE:** 1) Before installing the belt guide assembly [A] to the DJF, set the timing belt [B] on the drive pulley [C].
2) Make sure that the timing belt does not touch any harness.
3) Do not bend the anti-static brush [D].

## 14.8 FEED-IN CLUTCH (FEED-IN UNIT) REMOVAL




1. Remove the following parts:
   1) Original table [A] (refer to Feed Roller Replacement),
   2) Feed cover [B] (refer to Separation Belt Replacement),
   3) Left hinge stay [C] (refer to Belt Drive Motor Replacement).

2. Remove the table bracket [D] (2 screws).



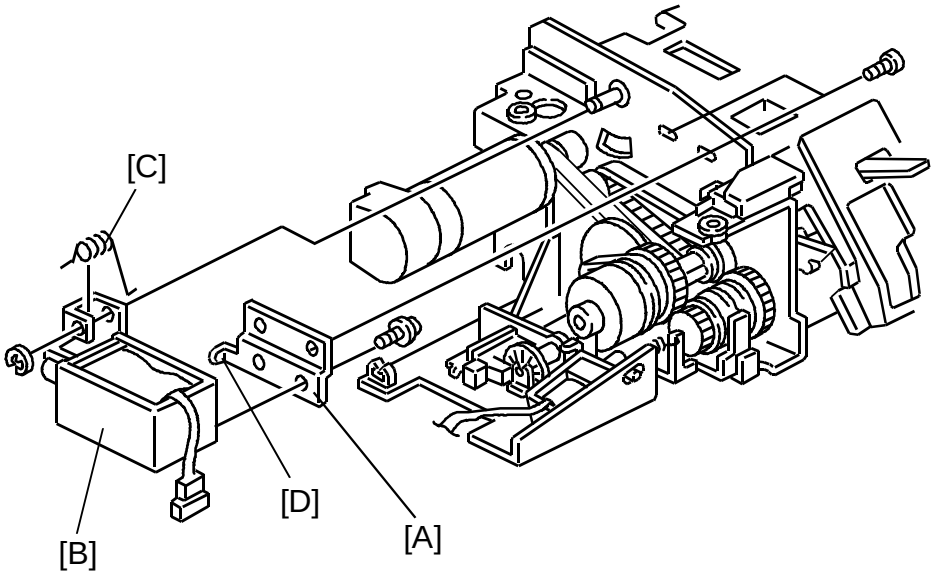

3. Disconnect the connectors [A].

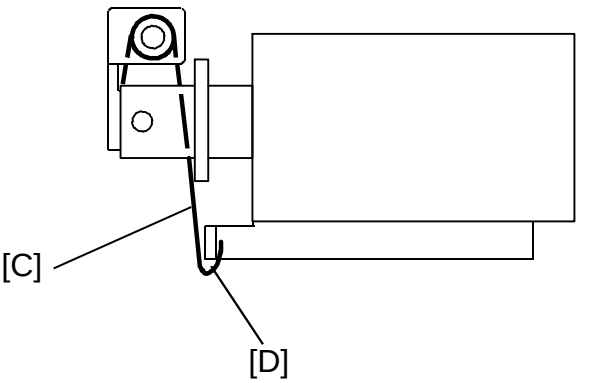
4. Remove the feed-in unit [B] (4 screws).

5. Replace the feed-in clutch [C] (1 Allen screw).

**NOTE:** When installing the clutch on the shaft [D], align the surface of the clutch stopper [E] and the head of the shaft [D], as shown.

## 14.9 STOPPER SOLENOID REPLACEMENT



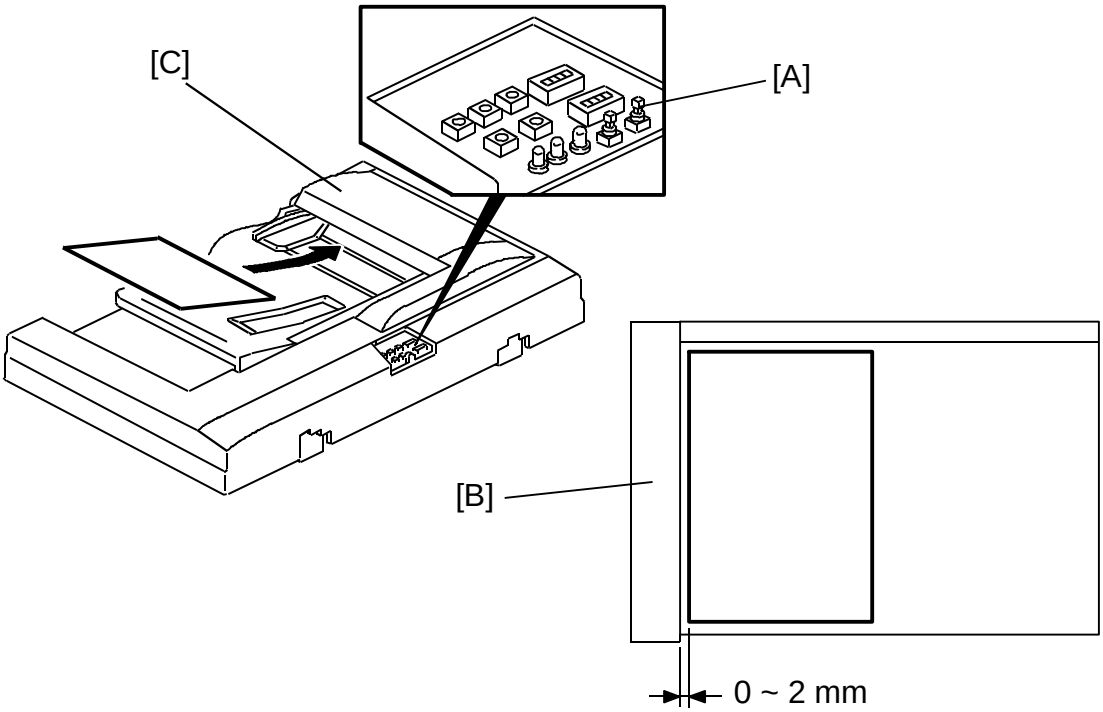

1. Remove the feed-in unit. (Refer to Feed-in Clutch Replacement)
2. Remove the bracket [A] with the stopper solenoid (2 screws).
3. Replace the stopper solenoid [B] (2 screws).

**NOTE:** When installing the stopper solenoid, pay attention to the following points:

1) The spring [C] must be correctly hooked to the stopper [D], as shown.
2) Manually pull the stopper solenoid plunger to confirm that the press rollers firmly contacts the pick-up rollers. When the pick-up rollers are manually rotated, the press rollers also rotate. If not, adjust the stopper solenoid position.

# 14.10 VERTICAL REGISTRATION ADJUSTMENT

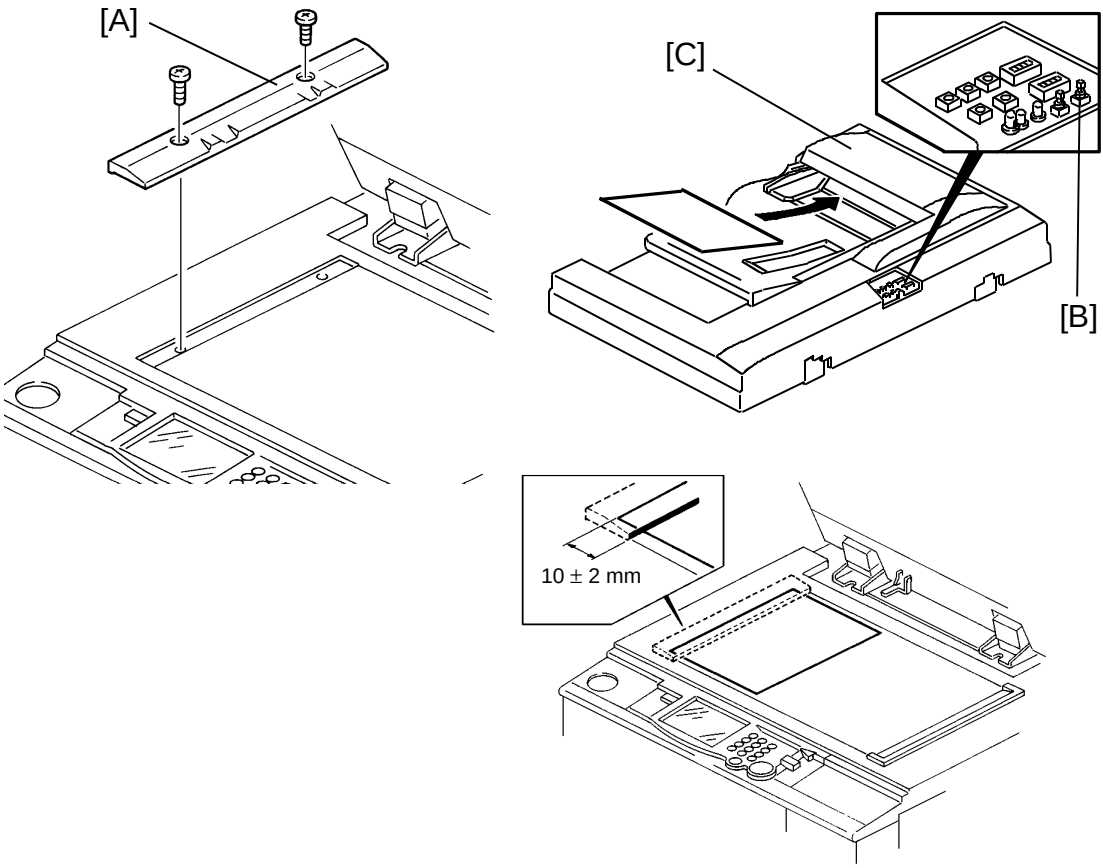
## 14.10.1 One Sided Original Mode




1. Remove the small cover at the rear side on the upper DJF cover.
2. Turn on DIP-SW No. 101-2, 4 and 102-4.
3. Set a sheet of A4 / 8 1/2" x 11" (53 ~ 80 g/m$^2$ / 14 ~ 22 lb)sideways paper on the original table.
4. Push SW 101 [A].
5. After the original stop on the exposure glass, gently raise the DJF so that the original does not move.
6. Confirm that the gap between the trailing edge of the paper and the original left scale [B] is within 2 mm.
7. It the gap is larger than 2 mm, adjust the registration by using the copier SP mode (1 SP Adjustment - PAGE 6).

**NOTE:** 1. Before setting the original on the original table again, open and close the feed unit cover [C].
2. After completing the adjustment, return the DIP switches to the original condition.

### 14.10.2 Two Sided Original Mode




1. Remove the copier's left scale [A] (2 screws).
2. Remove the small cover at the rear side on the upper DJF cover then turn on DIP SW 101-2, 101-4 and 102-1.
3. Set a sheet of A4 / 8 1/2" x 11" (53 ~ 80 g/m$^2$ / 14 ~ 22 lb) sideways paper on the original table.
4. Push SW 101 [B].
5. After the original stops on the exposure glass, gently raise the DJF so that the original does not move.
6. Confirm that the gap between the trailing edge of the paper and the left edge [C] of the original rear scale is 10 ± 2 mm.
7. It the gap is not within specification, adjust the registration by using the copier SP mode (1 SP Adjustment - PAGE 6).

**NOTE:** 1. Before setting the original on the original table again, open and close the feed unit cover [C].
2. After completing the adjustment, return the DIP switches to their original condition.

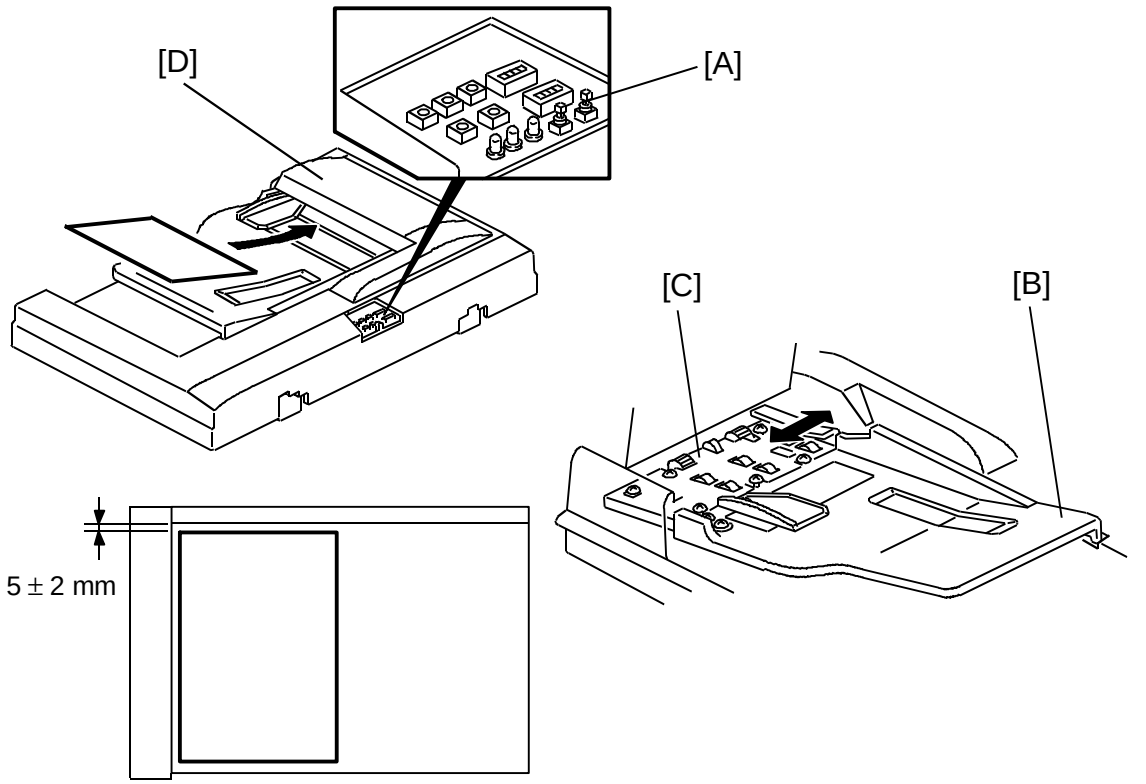
### 14.10.3 Combine 2 Originals Mode

1. Make a copy in combine 2 originals mode.
2. Adjust the gap between the first original and the second original. It should be as small as possible. (Do this by changing the DIP SW 102 combination, 3.5mm/step, as shown in the table)

**NOTE:** Factory settings are all "0" (OFF).
If DIP SW 102-4 is "0" (OFF), the distance between the 1st and 2nd copies is wider (+).

| 102-4 | 102-3 | 102-2 | 102-1 | Shift value |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | + 3.5 mm |
| 0 | 0 | 1 | 0 | + 7.0 mm |
| 0 | 0 | 1 | 1 | +10.5 mm |
| 0 | 1 | 0 | 0 | +14.0 mm |
| 1 | 0 | 0 | 1 | - 3.5 mm |
| 1 | 0 | 1 | 0 | - 7.0 mm |
| 1 | 0 | 1 | 1 | -10.5 mm |
| 1 | 1 | 0 | 0 | -14.0 mm |

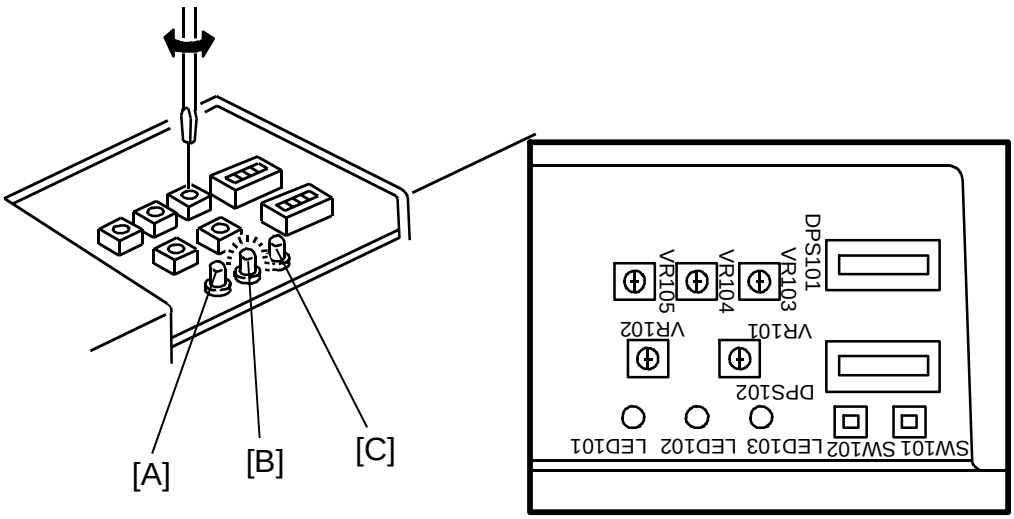
## 14.11 SIDE TO SIDE REGISTRATION ADJUSTMENT




1. Remove the small cover at the rear side on the upper DJF cover.
2. Turn on DIP SW 101-2 and 101-4.
3. Set a sheet of A4 / 8 1/2" x 11" (53 ~ 80 g/m$^2$ / 14 ~ 22 lb) sideways paper on the original table.
4. Push SW 101 [A].
5. After the original stops on the exposure glass, gently raise the DJF so that the original does not move.
6. Confirm if the gap between the rear edge of the paper and the original rear scale is 5 ±2 mm.
7. If the gap is not within the specification, adjust the registration by using copier's SP mode (1 SP Adjustment - PAGE 4).
8. It the gap is not within specification by using SP mode, loosen the eight screws fixing the original table [B] and the original guide [C] and shift the original table and the original guide position accordingly.

   **NOTE:** Before setting the original on the original table again, open and close the feed unit cover [D].

## 14.12 MOTOR SPEED ADJUSTMENT




1. Close the DJF and remove the small cover at the rear side on the upper DJF cover.
2. Turn on DIP-SW No. 101-1, -2 and -4.
3. Turn on the appropriate DIP switch corresponding to the adjusting motor to be adjusted (see the table below).
4. Rotate the appropriate VR (see the table below) so that LED102 (green) [A] lights.

   **NOTE:** If the motor rotation speed is too high, LED101 (red) [B] lights and if too slow, LED 103 (red) [C] lights.
5. Return the DIP switches to their original condition.

| Motor | DIP SW | VR |
|---|---|---|
| Feed-in | 102-1 | 103 |
| Belt drive | 102-2 | 104 |
| Feed-out | 102-3 | 105 |