CHAPTER 7: PAPER EJECTION SYSTEM

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Mechanism

1. Paper Ejection Mechanism

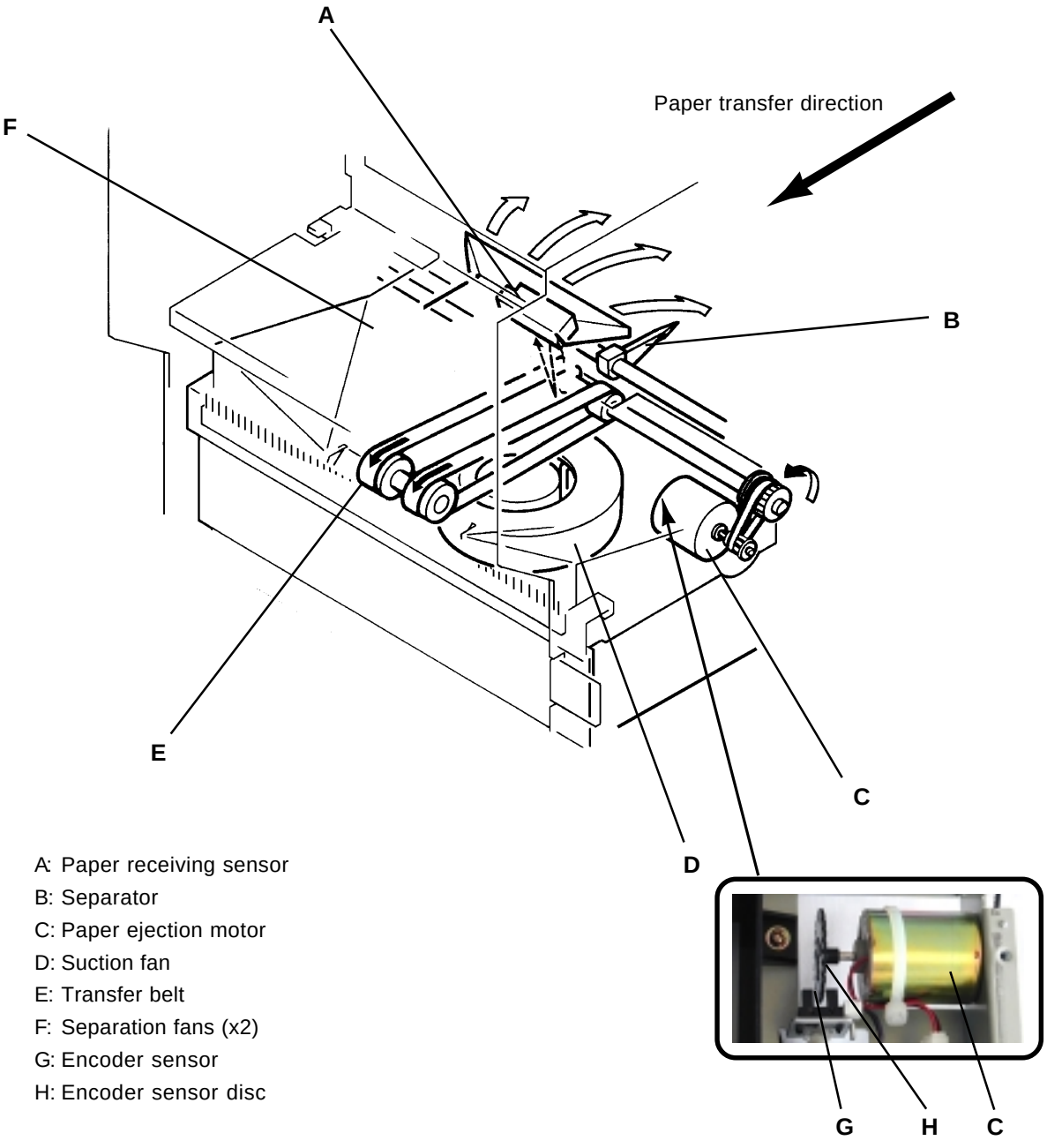
Printed paper is first detached from the print drum by the Separator [B] and two Separation fans [F]. It is then sent to the paper receiving tray by the Transfer belts [E].

The transfer belts [E] are driven by the Paper ejection motor [C].

Two Suction fans [D] are located below the Transfer belts [E], and these suck the paper onto the transfer belts [E].

The Paper receiving sensor [A] checks whether the paper is ejected correctly.

The Encoder sensor [G] checks the rotation of the Encoder sensor disc [H] to ensure that the transfer belt speed is slightly faster than the corresponding print drum rotation speed and ensure smooth paper ejection from the print drum.

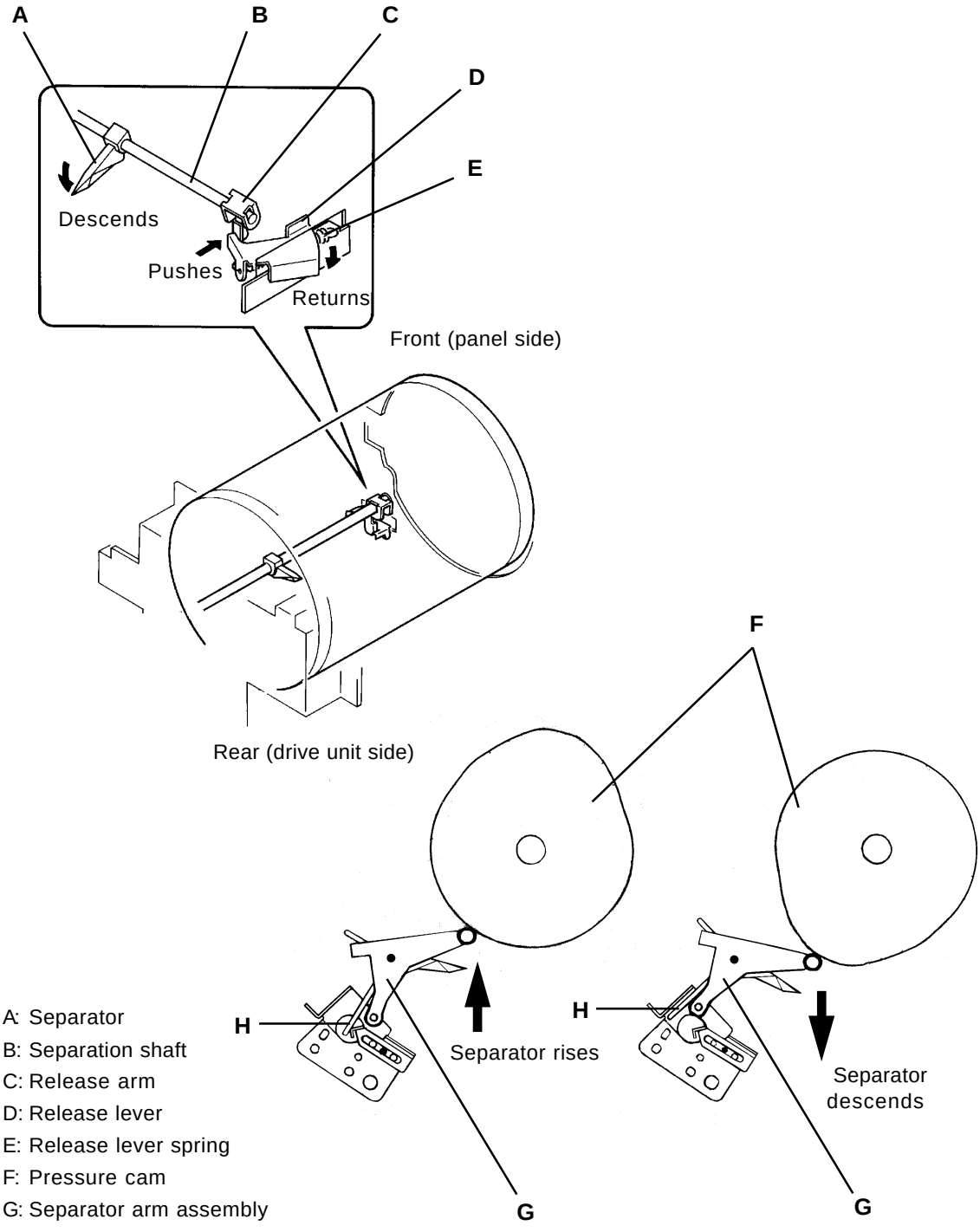


A: Paper receiving sensor
B: Separator
C: Paper ejection motor
D: Suction fan
E: Transfer belt
F: Separation fans (x2)
G: Encoder sensor
H: Encoder sensor disc

2. Paper Separator Mechanism

The Separator [A] is close to the print drum when the paper is being detached from the print drum. As the print drum rotates and the clamp plate base approaches the Separator [A], the Separator arm ass'y [G] is pushed by the Pressure cam [F] on the Print drum pulley. This also pushes the Separator lever [H], and the Separation shaft [B] rotates, causing the Separator [A] to move away from the print drum.

Likewise, when pulling out the print drum, the Release lever [D] is returned by the Release lever spring [E]. And when the Release arm [C] is pressed, the Separation shaft [B] rotates, causing the Separator [A] to move away from the print drum.



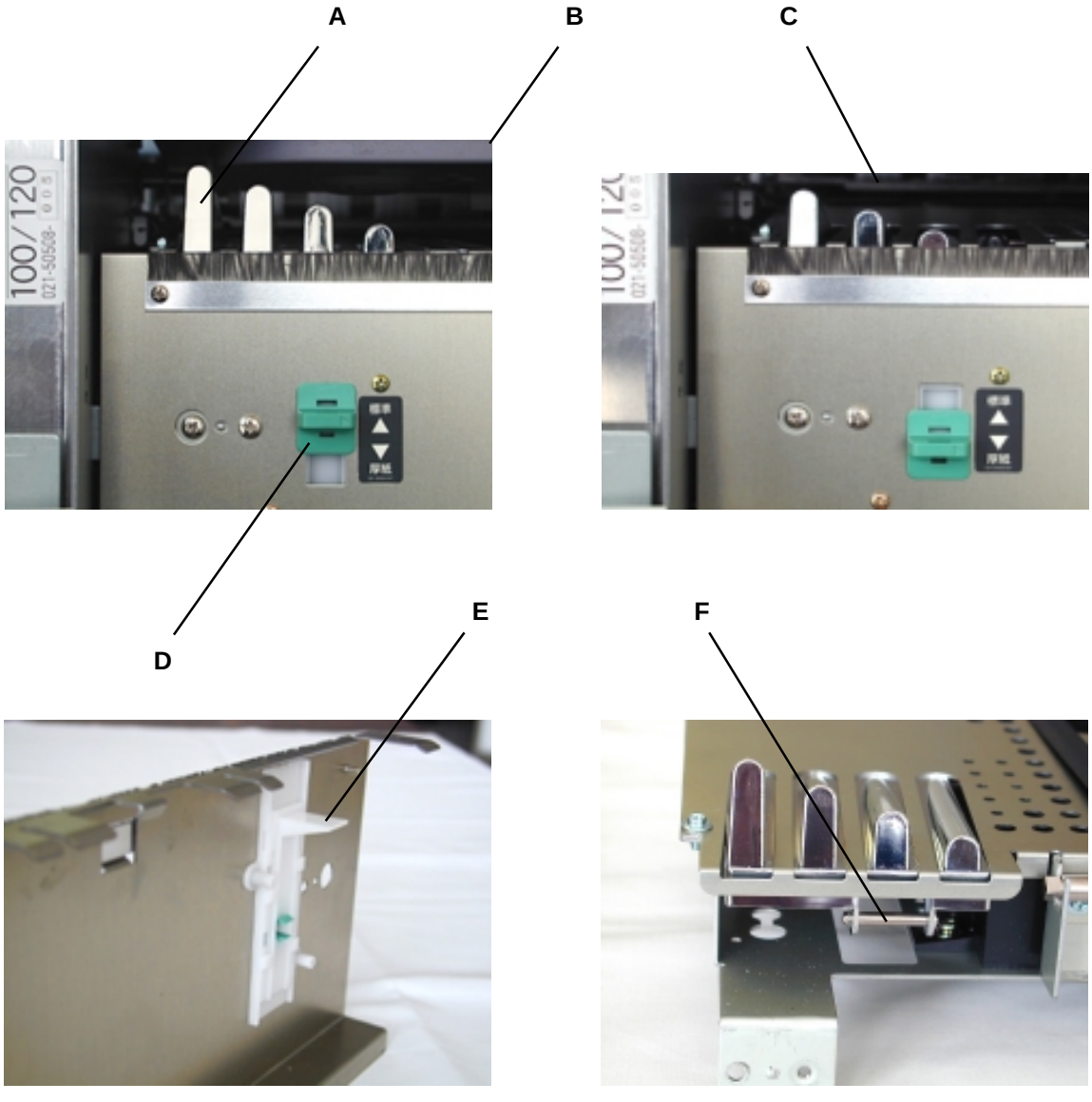
A: Separator
B: Separation shaft
C: Release arm
D: Release lever
E: Release lever spring
F: Pressure cam
G: Separator arm assembly
H: Separator lever

3. Paper Ejection Wing Mechanism

The left- and right-hand ejection wings on the Suction unit can be set manually to the raised [B] or lowered [C] positions to suit the paper ejection requirements. Normally, the ejection wings are raised [B] for regular paper and lowered [C] for cards.

The ejection wings are raised and lowered by moving the Wing position knob [D] located below the left-hand Ejection wing [A] up or down.

The Wing position knob [D] has a protruding tab [E] inside, which engages with the catch [F] on the left-hand Ejection wing [A]. Moving the Wing position knob [D] up and down therefore moves the Ejection wings up and down.



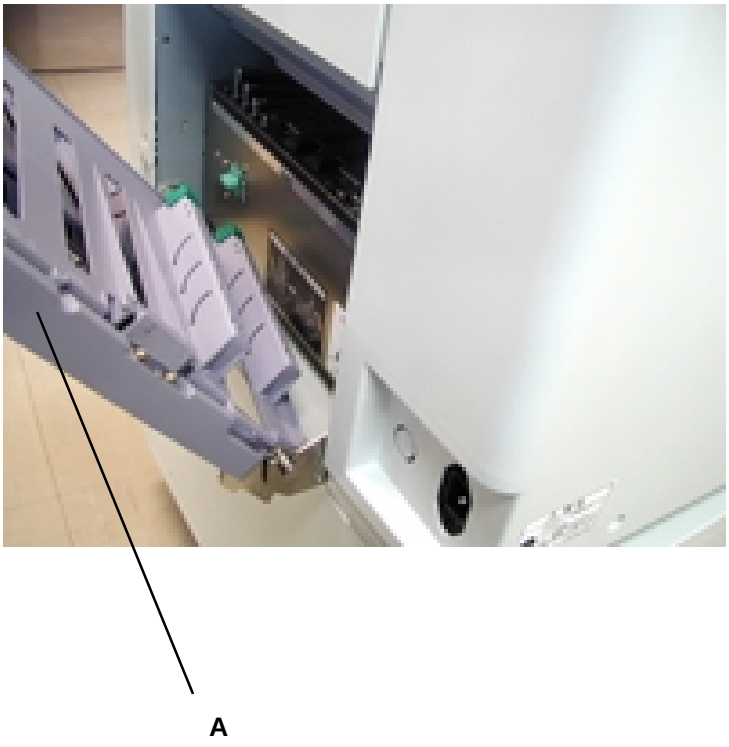
A: Paper ejection wing (left)
B: Ejection wing position when raised
C: Ejection wing position when lowered
D: Wing position knob
E: Tab or rear of knob
F: Knob catch

Removal and Assembly

1. Removing the Paper Receiving Tray

(1) Fold down the fences of the Paper receiving tray [A], and close the Paper receiving tray [A] to an angle of about 45°.

(2) Lifting the paper receiving tray [A] vertically upwards at this angle detaches it from the machine.



A: Paper receiving tray

2. Removing the De-electricity Plate and Suction Unit

Removing the De-electricity Plate

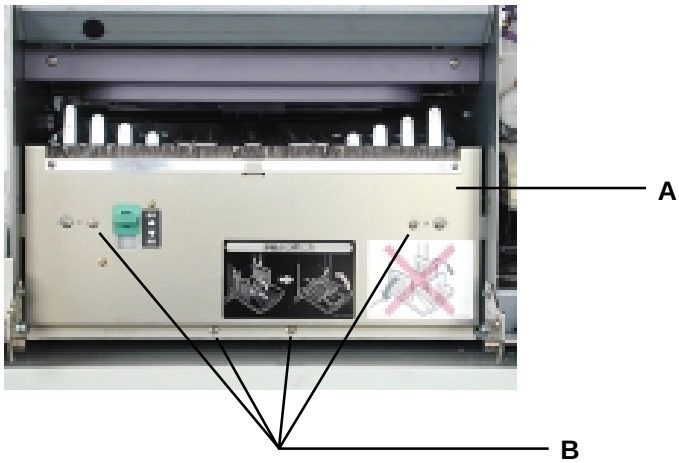
(1) Switch off the power, remove the rear cover, and remove the following components.

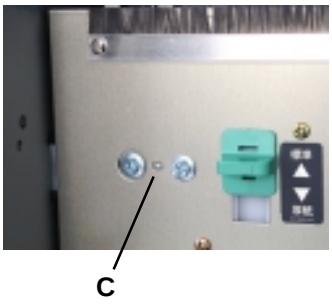
- Paper receiving tray

(2) Remove the mounting screws (M4 x 8: 4 pcs) [B] on the De-electricity Plate [A], and then remove the De-electricity Plate [A].

[Precautions on Reassembly]

- Align the half-pierce [C] when mounting the De-electricity Plate [A].



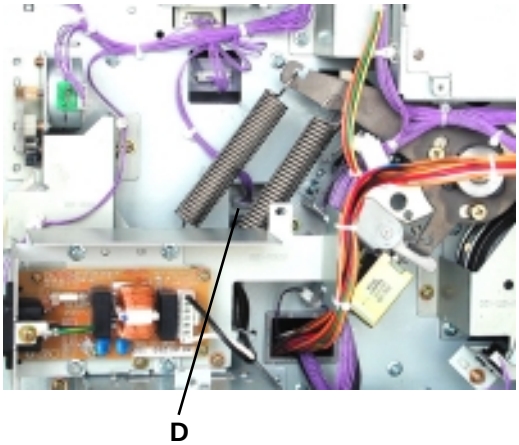


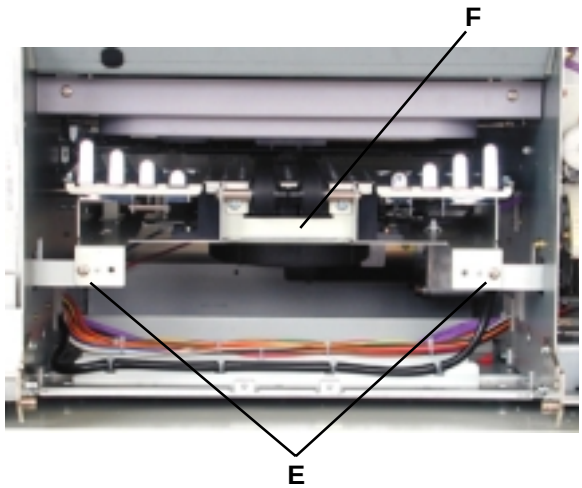
A: De-electricity Plate
B: Mounting screws (M4 x 8: 4 pcs)
C: Half-pierce

Removing the Suction Unit

(3) Unplug the suction unit connector [D].

(4) Remove the mounting screws (M4 x 8: 2 pcs) [E] on the Suction unit [F], and then remove the Suction unit [F] in the same direction that paper is ejected.



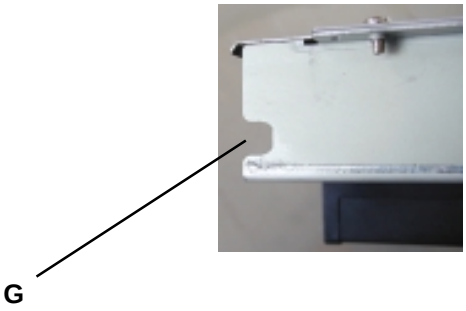


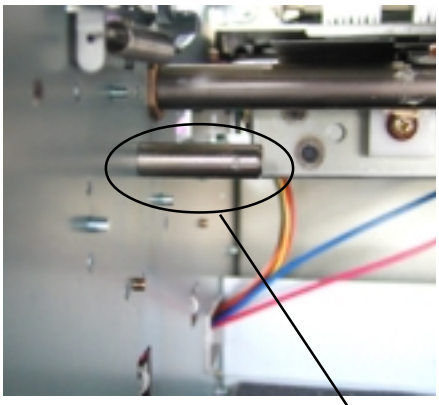
D: Suction unit connector
E: Mounting screws (M4 x 8: 2 pcs)
F: Suction unit

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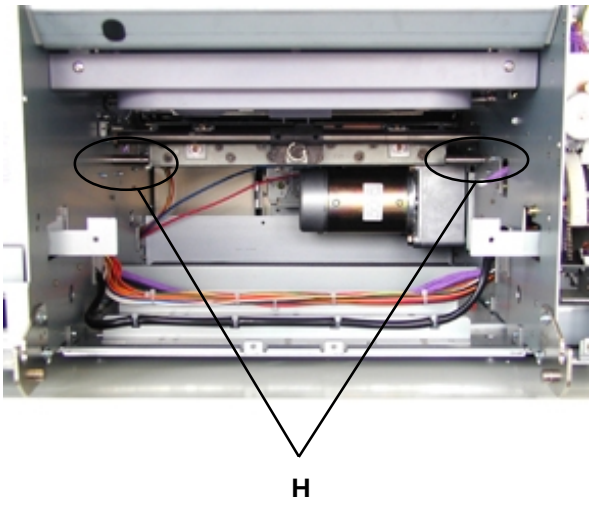
[Precautions on Reassembly]

- Mount the suction unit by hooking the left- and right-hand side front edges [G] onto the brackets [H] on the machine side frames.





(Enlarged view)



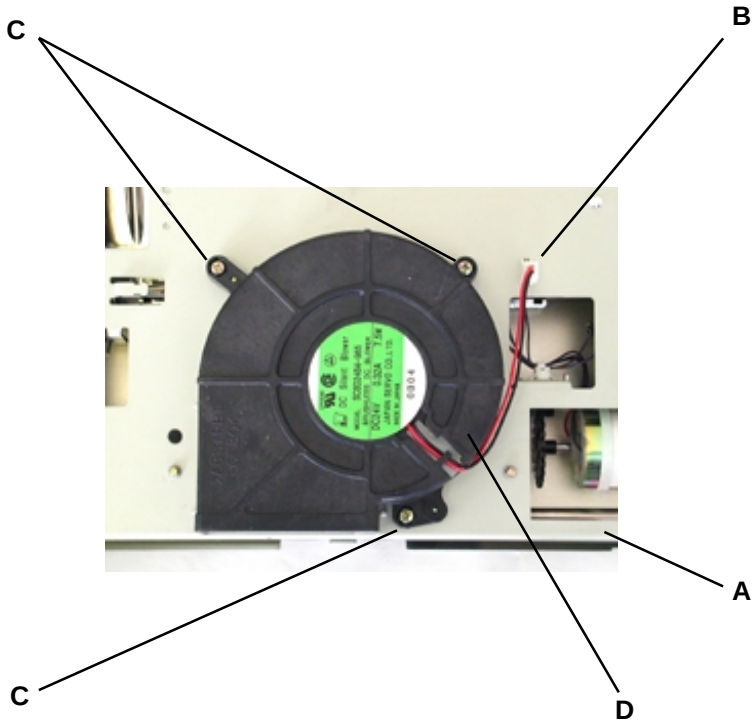
G: Suction unit front edge
H: Brackets

3. Removing the Suction Fan

(1) Switch off the power, remove the rear cover, and remove the following components.
- Paper receiving tray
- De-electricity Plate
- Suction unit

(2) Turn the Suction unit [A] upside down, and unplug the suction fan connector [B].

(3) Remove the mounting screws (M4 x 10: 3 pcs) [C], and remove the Suction fan [D].



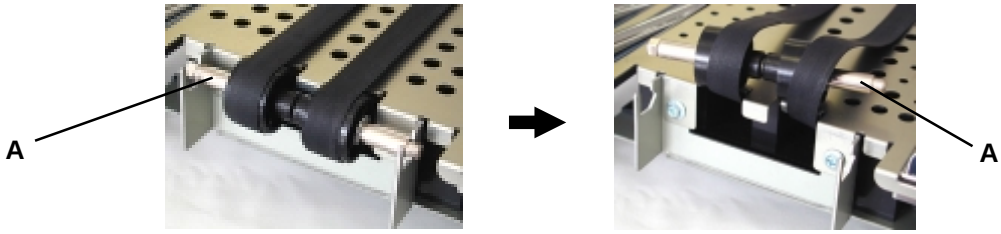
A: Suction unit
B: Connector
C: Mounting screws (M4 x 10: 3 pcs)
D: Suction fan

4. Removing the Paper Ejection Wing

(1) Switch off the power, remove the rear cover, and remove the following components.

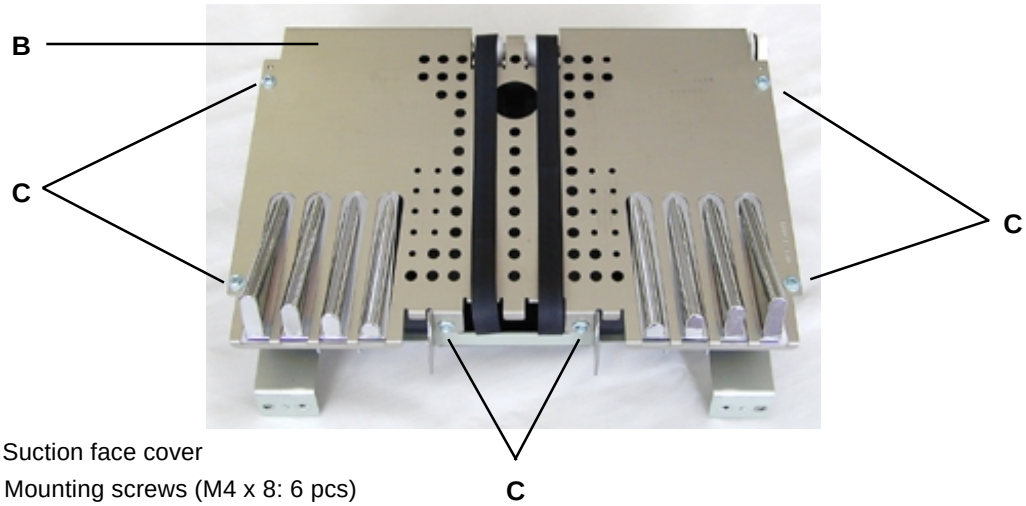
- Paper receiving tray
- De-electricity Plate
- Suction unit

(2) Lift up the belt driven pulley ass'y [A] with your fingers, unhook from the suction unit, and remove.



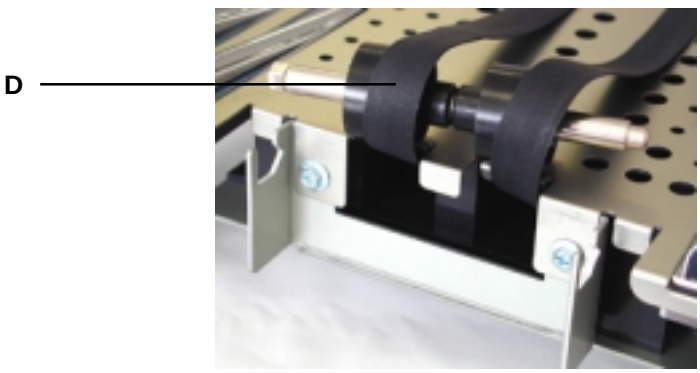
A: Belt driven pulley ass'y

(3) Remove the mounting screws (M4 x 8: 6 pcs) [C] on the Suction face cover [B].



B: Suction face cover
C: Mounting screws (M4 x 8: 6 pcs)

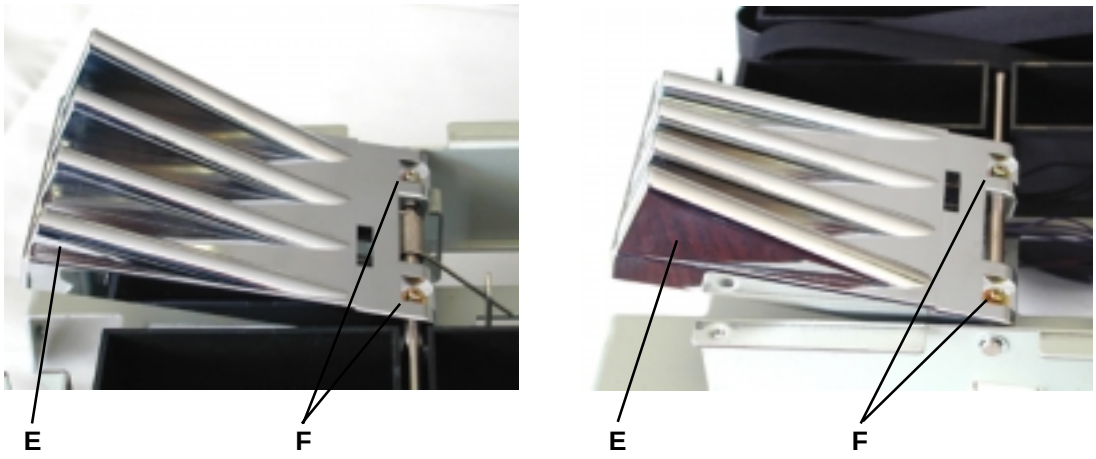
(4) Remove the Suction face cover from the Suction unit while threading it beneath the two transfer belts [D].



D: Transfer belts

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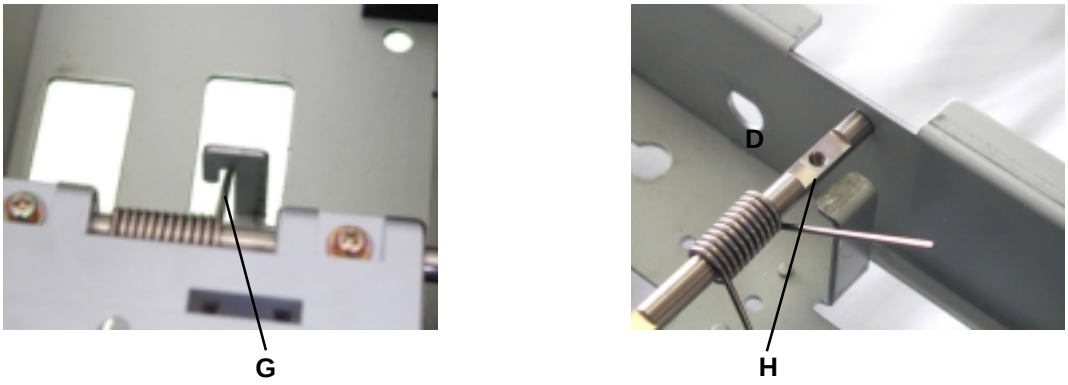
(5) Remove the mounting screws (M3 x 8: 2 pcs) [F] from both the left- and right-hand Ejection wings [E], and remove the ejection wings.



E: Ejection wings (left, right)
F: Mounting screws (M3 x 8: 2 pcs each)

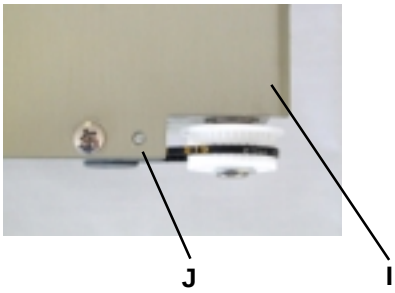
[Precaution on Reassembly]

- Securely engage the spring [G] beneath the left-hand ejection wing.
- When mounting the ejection wings onto the shaft, mount them on the flat cut surface [H] of the shaft.



G: Spring
H: Flat cut surface

- Locate the Face cover [I] securely onto the half-pierce [J] before screwing on.



I: Face cover
J: Half-pierce

5. Removing the Paper Ejection Motor and Encoder Sensor

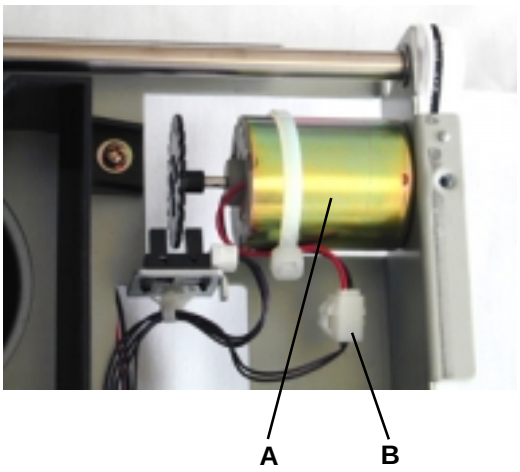
Removing the Paper Ejection Motor

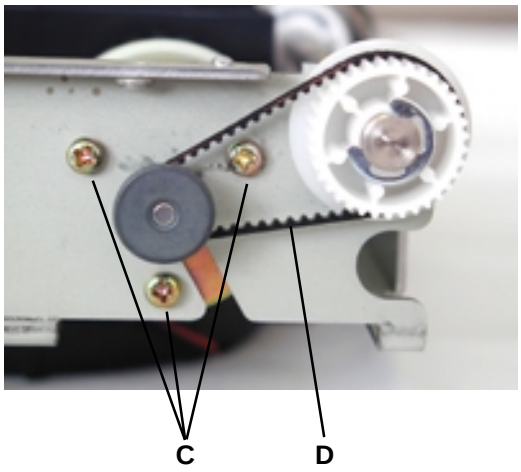
(1) Switch off the power, remove the rear cover, and remove the following components.

- Paper receiving tray
- De-electricity Plate
- Suction unit
- Ejection wings

(2) Unplug the paper ejection motor connector [B].

(3) Remove the Paper ejection motor belt [D], remove the paper ejection motor mounting screws (M3 x 5: 3 pcs) [C], and then remove the Paper ejection motor [A].

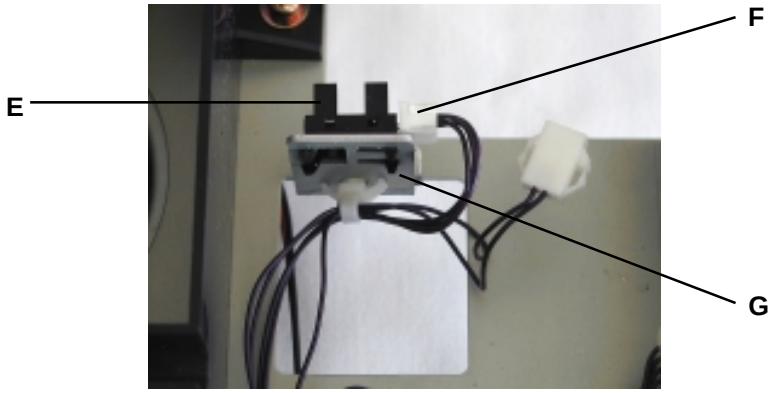




A: Paper ejection motor
B: Paper ejection motor connector
C: Mounting screws (M3 x 5: 3 pcs)
D: Paper ejection

Removing the Encoder Sensor

(4) Unplug the encoder sensor connector [F], remove the sensor hooks [G] from the mounting bracket, and then remove the encoder sensor [E].



E: Encoder sensor
F: Connector
G: Sensor hooks

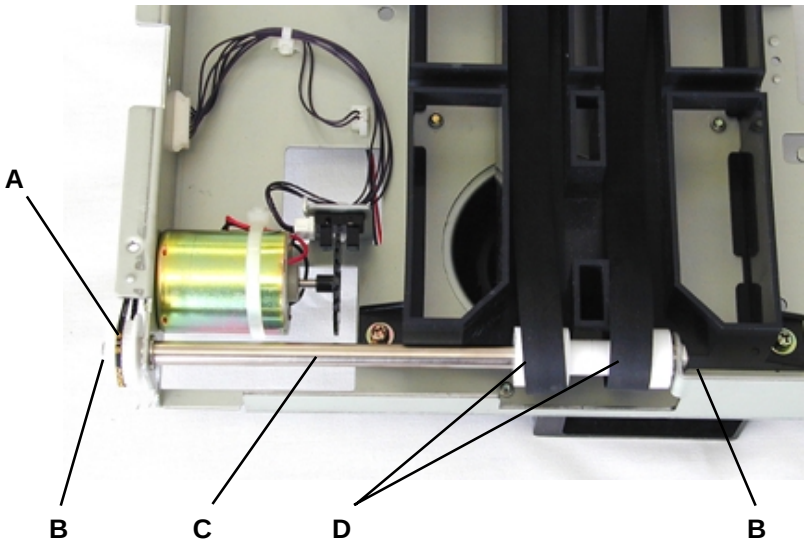
6. Removing the Transfer Belts

(1) Switch off the power, remove the rear cover, and remove the following components.

- Paper receiving tray
- De-electricity Plate
- Suction unit
- Ejection wings

(2) Remove the Paper ejection motor belt [A].

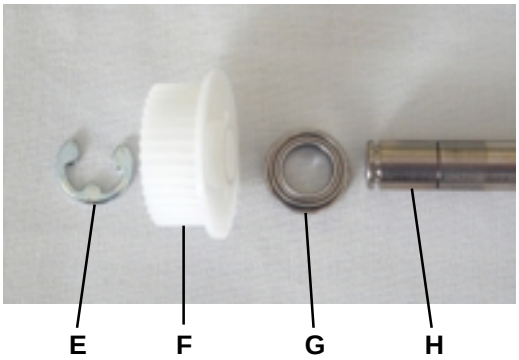
(3) Remove the E-rings [B] on the left and right of the Belt pulley shaft [C], and remove the Transfer belts [D] by sliding them off the Belt pulley shaft [C].

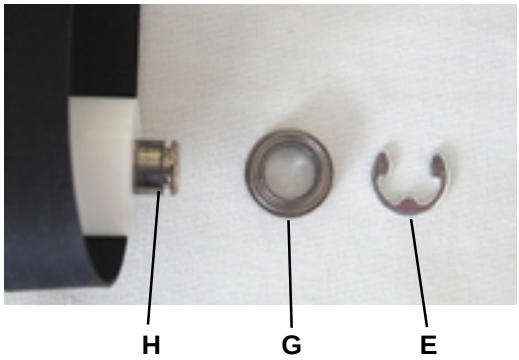


A: Paper ejection motor belt
B: Left and right belt pulley shaft E-rings
C: Belt pulley shaft
D: Transfer belt

[Precautions on Reassembly]

- Fit the left and right bearings [G] and E-rings [E] on the belt pulley shaft from outside the mounting brackets.
- Mount the pulley [F] on the left-hand end of the Belt pulley shaft [H] with the flange facing inwards.





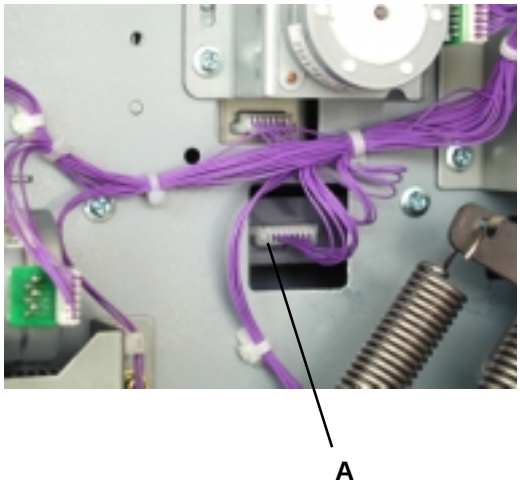
E: E-ring
F: Pulley
G: Bearing
H: Belt pulley shaft

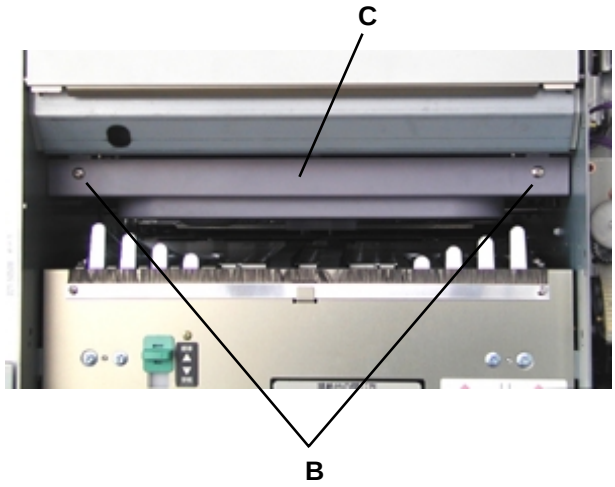
7. Removing the Separation Fan Unit

(1) Switch off the power and remove the rear cover.

(2) Unplug the separation fan unit connector [A].

(3) Remove the mounting screws (M4 x 8: 2 pcs) [B] on the Separation fan unit [C], and remove the separation fan unit by sliding it in the same direction that paper is ejected.





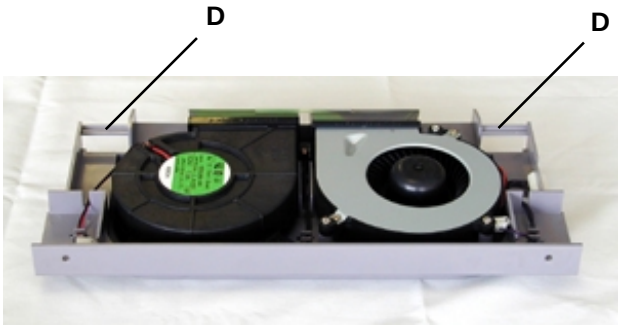
A: Separation fan unit connector

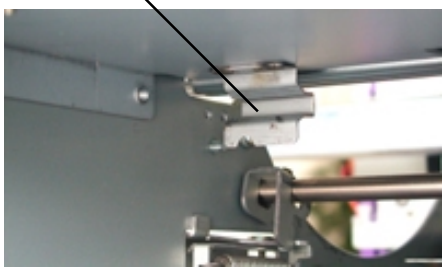
B: Mounting screws (M4 x 8: 2 pcs)

C: Separation fan unit

[Precautions on Reassembly]

- Engage the hooks [D] on the Separation fan unit into the slots [E] inside the machine.







D: Hooks on the Separation fan unit

E: Slots inside the machine

8. Removing the Separator Fan and Paper Receiving Sensor

Removing the Separator Fan

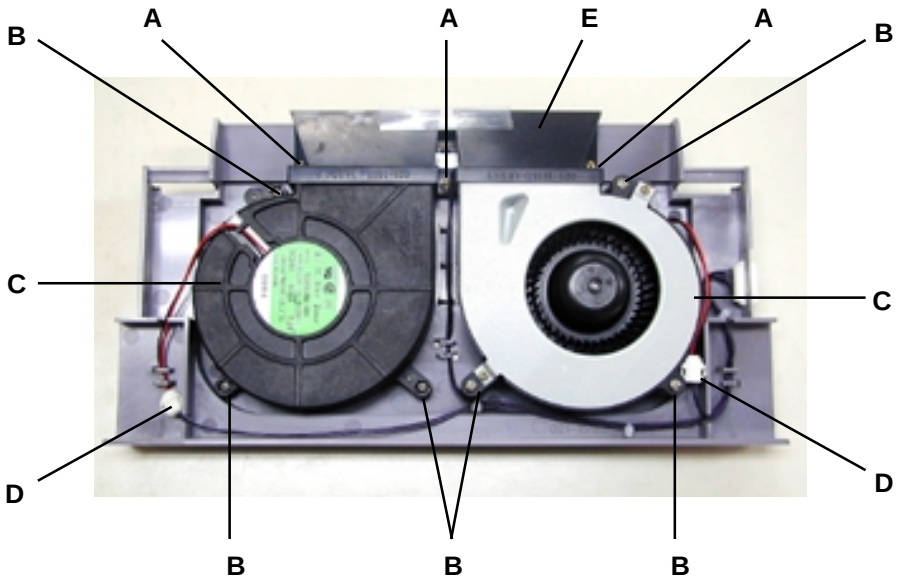
(1) Switch off the power, remove the rear cover, and remove the following component.

- Separation fan unit

(2) Remove the nozzle mounting screw (tapping screw M3 x 10: 3 pcs) [A], and remove the Nozzle [E].

(3) Unplug the two separation fan connectors [D].

(4) Remove the mounting screws (M3 x 12: 3 pcs each) [B] from the two Separation fans [C], and remove both Separation fans [C].

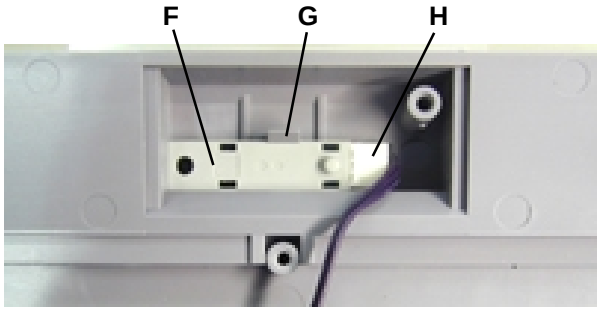


A: Nozzle mounting screw (tapping screws M3 x 10: 3 pcs)
B: Separation fan mounting screws (M3 x 12: 3 pcs each)
C: Separation fan
D: Separation fan connectors
E: Nozzle

Removing the Paper Receiving Sensor

(5) Disengage the Paper receiving sensor [F] from the hook [G] and remove the Paper receiving sensor [F].

(6) Unplug the Paper receiving sensor connector [H].



F: Paper ejection sensor
G: Hook
H: Connector

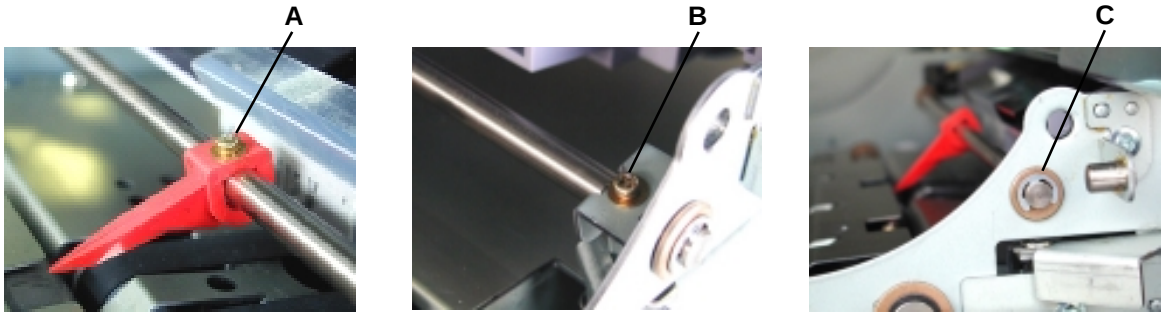
9. Removing the Separator

(1) Pull out the print drum, switch off the power, and remove the front cover.

(2) Remove the separator mounting screw (M3 x 8: 1 pc) [A].

(3) Remove the release arm mounting screw (M3 x 8: 1 pc) [B].

(4) Remove the E-ring [C] on the end of the separation shaft, and remove the bearing bush.



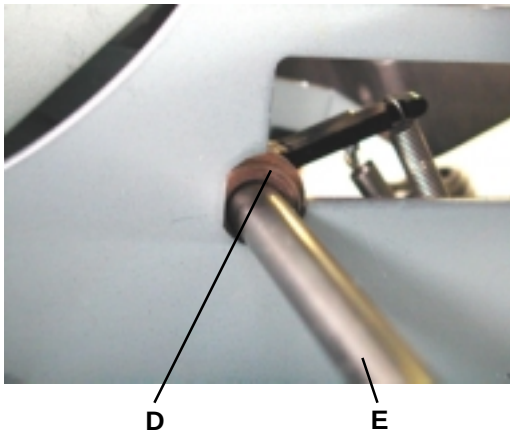
A: Separator mounting screw (M3 x 8: 1 pc)

B: Release arm mounting screw (M3 x 8: 1 pc)

C: Separation shaft end E-ring

(5) Push the Separation shaft [E] back slightly, and remove the rear bearing bush from the machine side frame. Do not push back the shaft more than necessary. To prevent the components mounted on the rear from detaching, stop pushing back the shaft once the bush in the rear has been removed.

(6) Slide the Separator [F] and Release arm [G] forward and remove both of these parts off the machine.

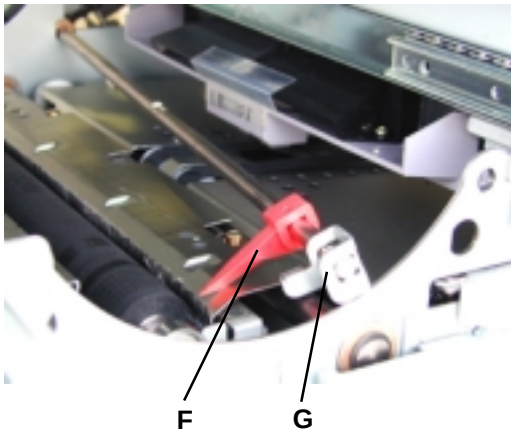


D: Separation shaft rear bearing bush

E: Separation shaft

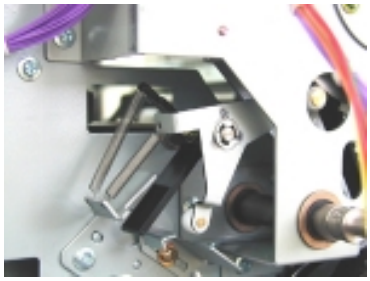
F: Separator

G: Release arm



[Reference]

Photograph of separator assembly and rear mount (machine drive side)



Adjustment

1. Separator Mounting Position

(1) Using test chart No.15, create a master and make prints. Check that the paper does not jam on the drum and that there is no black line through the center of the paper caused by the Separator touching the print drum. The Separator position is OK if there is no paper jamming on the print drum with 5 mm white margin on the top of the prints.

(2) If the paper sticks to the print drum or black line appears on the printed sheet, stop the print drum at *position-A,* switch off the power, remove the rear cover, and then remove the following component.

- Separation fan unit

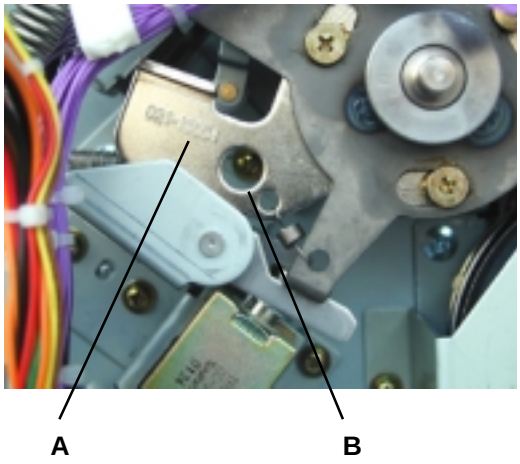
(3) Insert a screwdriver through the insertion point [B] at the bottom left of Pressure lever A [A], and loosen the retaining screw [D] on the Separator positioning plate[C].

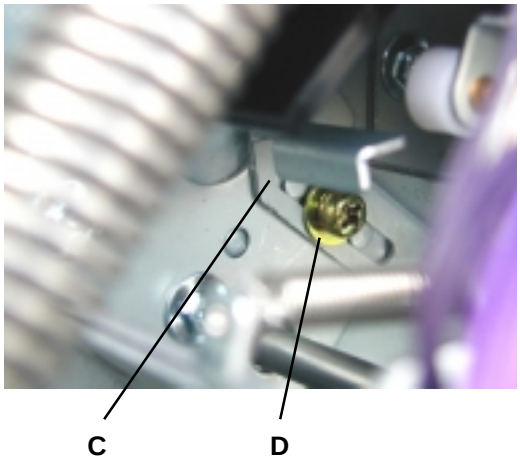
(4) Insert a penlight inside the machine, on top of the suction unit, and inspect the tip of the Separator [E] through the square opening in the machine side frame located just above Pressure lever A [A].

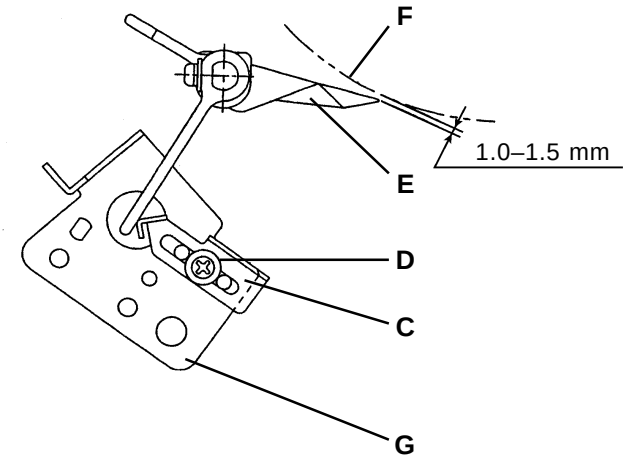
(5) Move the Separator positioning plate [C] and tighten the separator positioning plate retaining screw [D] so that the gap between the Separator [E] tip and the Print drum surface [F] is *1.0 mm to 1.5 mm*.

Symptoms

- If the tip of the Separator [E] touches the Print drum surface [F], it will scratch the surface of the master, causing a black line on the printed sheets.
- Conversely, if the gap is too wide, the paper will not be properly released from the print drum, and sticks onto the print drum.







A: Pressure lever A
B: Screwdriver insertion point
C: Separator positioning plate
D: Separator positioning plate retaining screw
E: Separator
F: Print drum surface
G: Separator positioning plate base