CHAPTER 10: MASTER REMOVAL SECTION

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Mechanism

1. Master Removal Mechanism

Masters on the print drum are removed as follows.

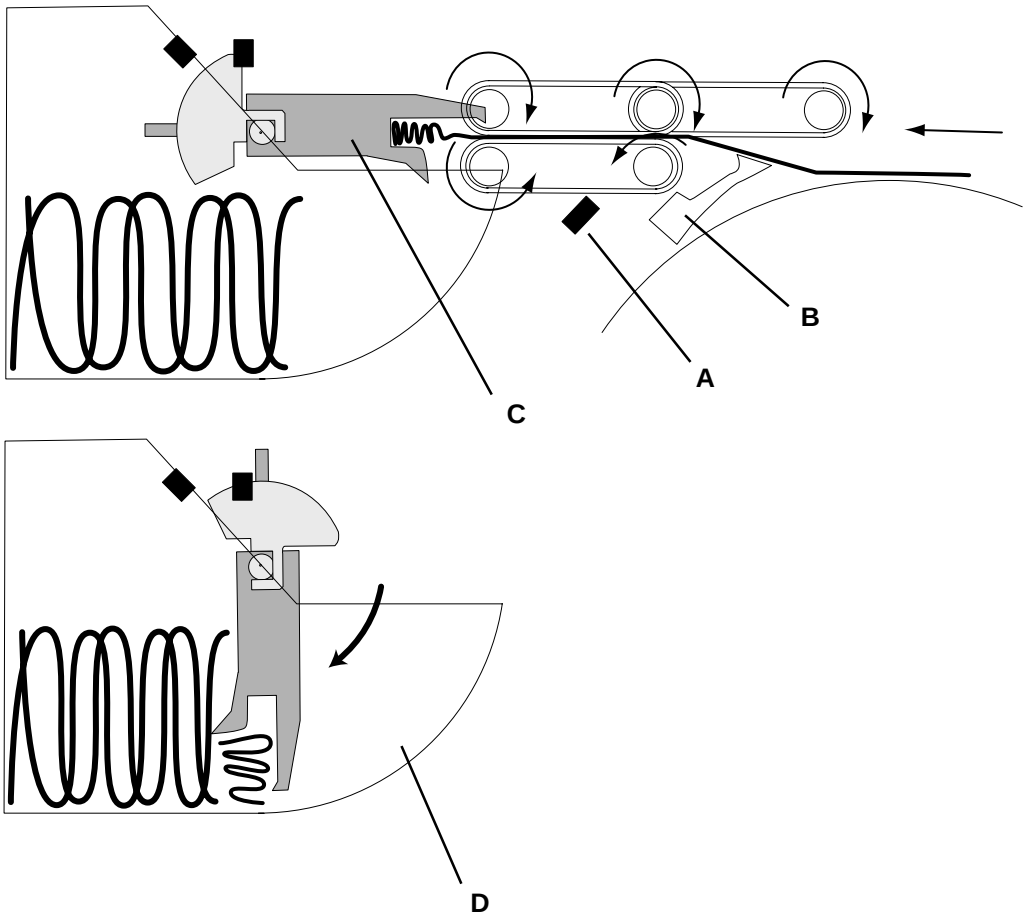
(1) At the start of master removal, the Master sensor [A] checks whether the master to be removed on the print drum actually exists.

(2) The clamp plate master removal operation is performed with the print drum at position A to release the leading edge of the master from the clamp plate.

(3) The Master removal hook [B] then detaches the master from the print drum as the drum is rotated.

(4) The removed master is fed into the Master compression plate [C].

(5) The removed master is then compressed, and disposed of in the Master disposal box [D].

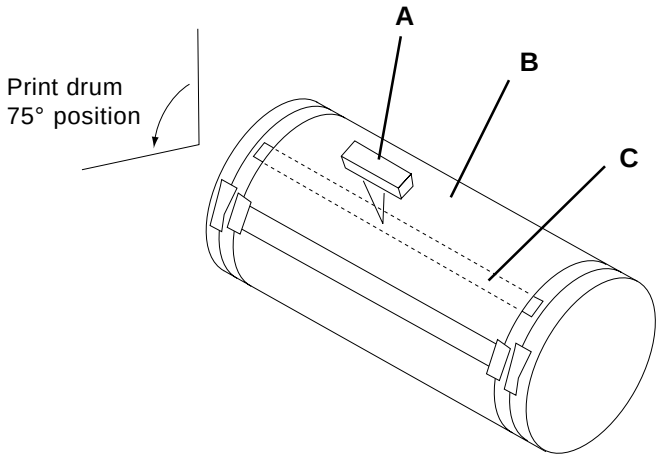


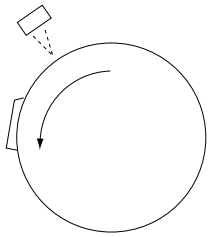
A: Master sensor
B: Master removal hook
C: Master compression plate
D: Master disposal box

2. Master on the Drum (before Master Removal) Check Mechanism

When creating confidential or normal masters, the print drum moves to position A, and with the print drum at the 75° position, the Master sensor [A] checks whether or not there is a master [B] on the drum. (The check operation is not performed if information that a master is present has already been stored in the machine's memory.) The drum rotation angle for the check can be adjusted using test mode No. 580.

If the light from the Master sensor [B] is reflected back, (master present), the master removal sensor checks whether the master is sent to the master disposal box or not during the master removal.





A: Master sensor
B: Master
C: Light absorber strip

3. Removed Master Vertical Transport Mechanism

When the clamp unit is operated to release the leading edge of the master from the clamp plate, the Master removal motor [A] activates, rotating the Vertical transport rollers [B, C, D, E, F]. The main motor also rotates the print drum at the same time.

The master is fed between the rollers and pushed into the Master compression plate [H].

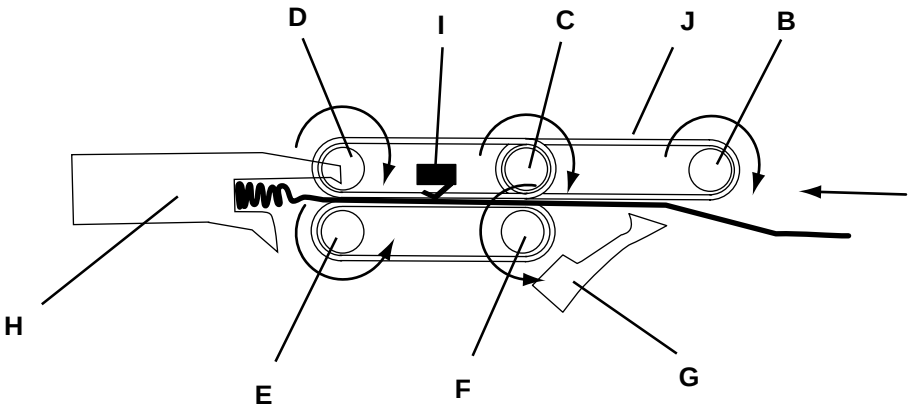
The master is guided here by the Master removal hook [G] and G belt [J].

The main motor and Master removal motor [A] stop once the print drum has rotated to position-A. (The time at which the master removal motor stops can be adjusted using test mode No. 382.)

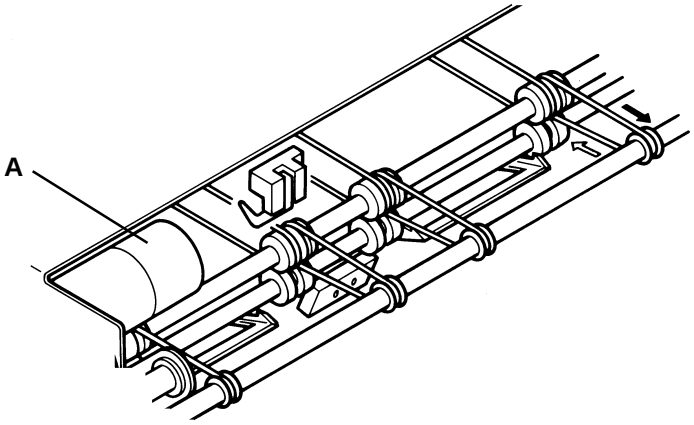
When the print drum reaches the 70° and 90° positions, the Master removal sensor [I] checks whether the master is being fed correctly to the master disposal box. (These drum angles can be adjusted using test modes No. 380 and 381.)

The master removal hook is normally located at a fixed position close to the print drum, but shifts away from the drum when the drum is pulled out.

The print drum rotation speed during master removal can be adjusted using test mode No. 387.



A: Master removal motor
B: Pulley shaft
C: Master removal roller (top)
D: Master removal pulley (top)
E: Master master removal pulley (bottom)
F: Master removal roller (bottom)
G: Master removal hook
H: Master compression plate
I: Master removal sensor
J: G belt



4. Disposed Master Compression Mechanism

1) Initializing

- If the light path on the Master compression sensor [B] is open when the power is switched ON or when everything is reset, the master compression motor operates in the compression direction, and when the light path to the master compression sensor is blocked, it operates in reverse until the light path is open again.
- If the light path to the Master compression sensor [B] is blocked when the power is switched ON or when everything is reset, the master compression motor operates in the return direction until the light path is open again.
- If the light path to the Master compression sensor [B] is blocked when starting master removal, the master compression motor operates in the return direction until the light path is open. (The initializing operation is not performed if the light path to the master compression sensor is open when starting master removal.)

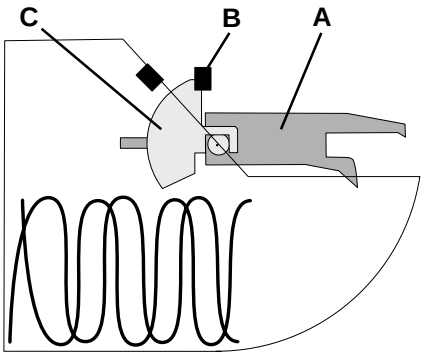
2) Master compression

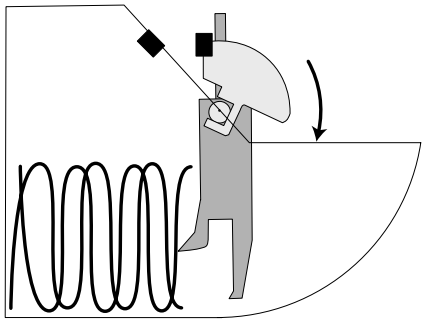
Once the removed master vertical transport operation is complete, the master compression motor operates in the compression direction to lower the Master compression plate [A]. The light path to the master compression sensor is briefly blocked by the Master compression sensor plate [C].

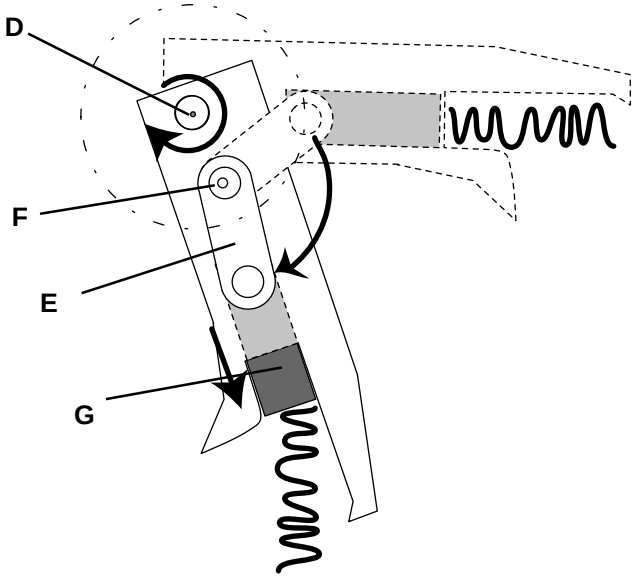
When the light path to the master compression sensor is subsequently opened again, the master compression motor stops (the stop time can be adjusted using test mode No. 384), and then operates in the return direction to return the master compression plate to its home position.

3) Ejection of removed master

The master removed by the vertical transport operation is pushed inside the Master compression plate [A]. Compression is performed by the master removal motor rotating the Master compression plate [A] on the Pivot shaft [D]. The Piston shaft link [E] also rotates, but it rotates on the Piston shaft [F] rather than on the Pivot shaft [D]. This causes the Piston block [G] to move in the direction in which the master ejects out.







A: Master compression plate
B: Master compression sensor
C: Master compression sensor plate
D: Pivot shaft
E: Piston shaft link
F: Piston shaft
G: Piston block

4) Disposed-master-full detection

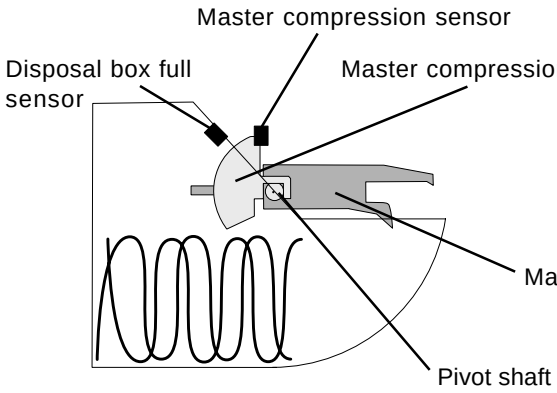
The removed-master-full detection is performed using the following two mechanisms, and a master-full indication is displayed by either.

(1) The number of masters removed after resetting following the previous master-full indication is counted, and the master disposal box is determined as full when the count reaches the preset value.

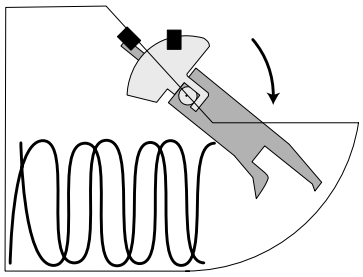
* The preset master-full count can be set using test mode No. 386.

The master count is not incremented if a master removal error occurs or if the master to be removed is not detected on the print drum.

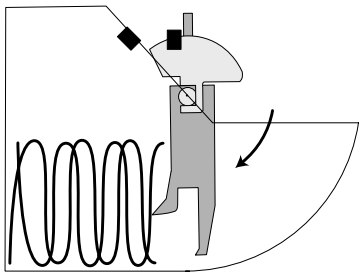
(2) Mechanism for mechanically determining that the master disposal box is full (see below.)



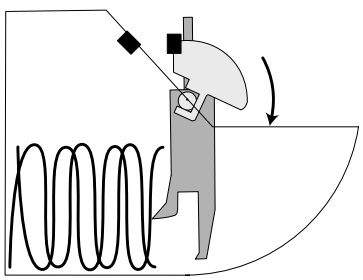
At the start of compression, the light paths to the master compression sensor and disposal box full sensors are open.



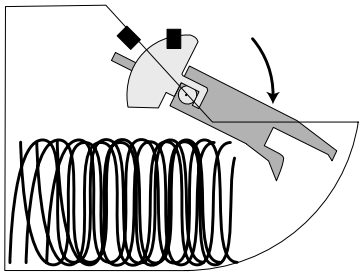
When the master compression motor operates to start master compression, the master compression sensor is immediately blocked by the master compression sensor plate. As the operation continues, the disposal box full sensor is briefly blocked by the master compression plate, but is then opened.



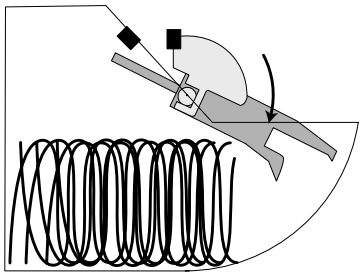
Once the master inside the master disposal box has been sufficiently compressed, the master compression plate stops rotating, but the master compression sensor plate continues to rotate. (The master compression plate is mounted to the pivot shaft via a spring, whereas the master compression sensor plate is mounted directly to the pivot shaft.)



Once the light beam of the master compression sensor is blocked by the master compression sensor plate, the compression operation stops, and the master compression plate returns to the home position.



When the master disposal box becomes full, the master compression plate stops rotating before the removed-master-full sensor is blocked.



When the light path to the master compression sensor is open and the removed-master-full sensor is not blocked, the master-disposal-box-full indication is displayed.

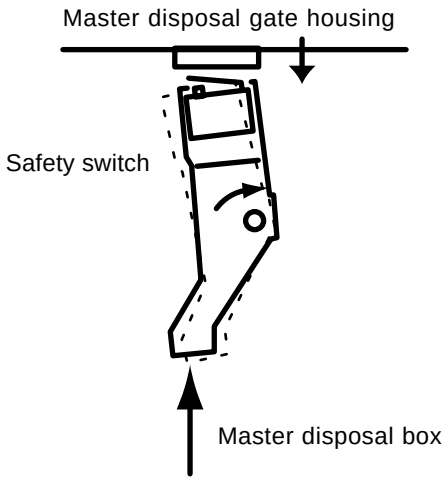
5. Disposal Box Safety Switch

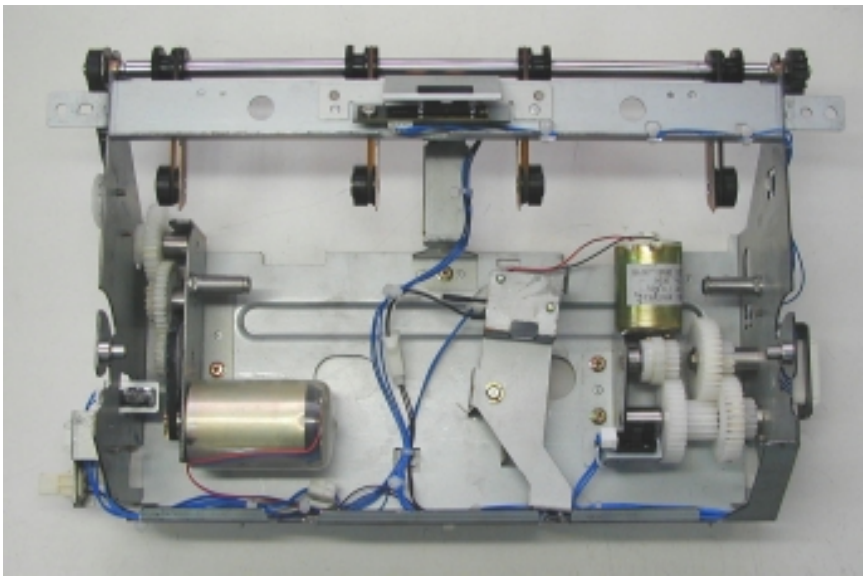
The master disposal box safety switch checks whether the master disposal box and master disposal gate housing are properly positioned.

If the master disposal gate housing is locked and correctly set, the bracket on the master disposal gate housing is positioned close to the safety switch.

When the master disposal box is mounted, the safety switch unit moves back, and the safety switch is pushed against the master disposal gate housing.

The master disposal box full indication is reset if the master disposal box safety switch is released (the master disposal box removed) for more than 5 seconds. The master disposal box count memory is also reset to zero.





Removal and Assembly

1. Removing the Master Removal Hook

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

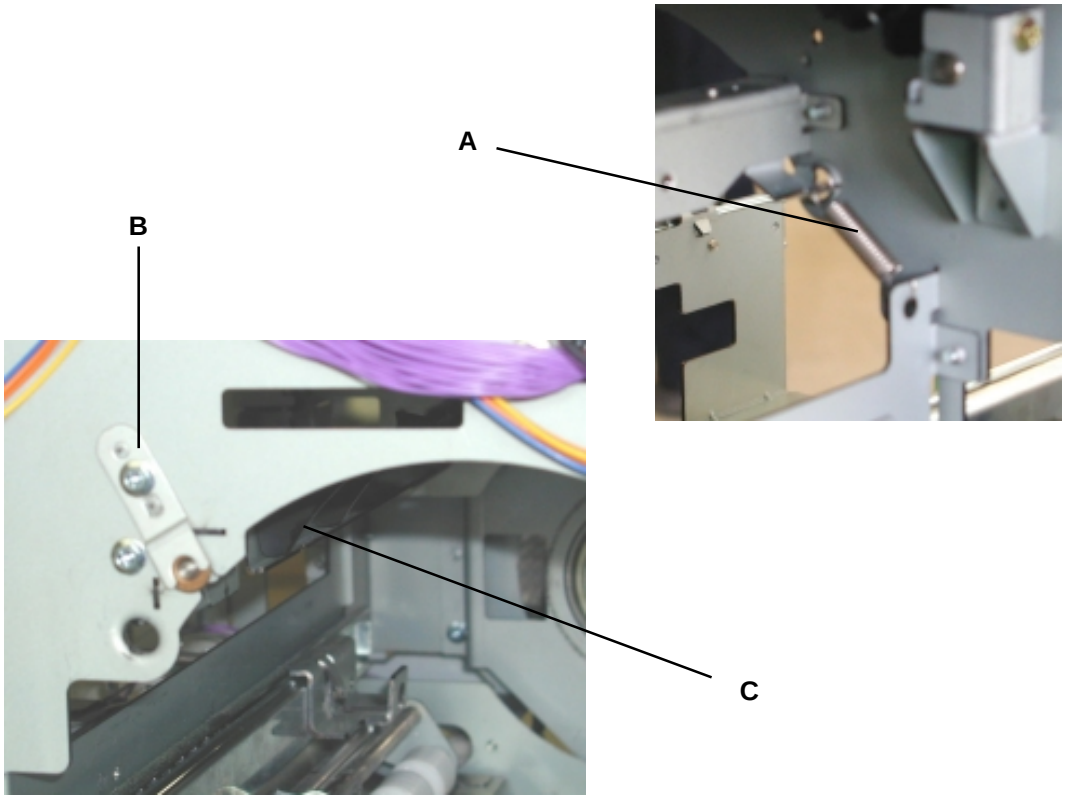
(2) Remove the spring [A] from the master removal hook bracket.

(3) Remove the bearing fixing plate [B]. (M4 x 8: 1 pc)

(4) Remove the Master removal hook [C] together with the master removal hook bracket. (If it cannot be removed, it is caught on the front screw of the master removal unit mounting screws. Remove this screw.)

[Precautions on Reassembly]

- Do not drop the inside bearing when mounting the master removal hook bracket.



A: Spring of the master removal hook bracket
B: Bearing fixing plate
C: Master removal hook bracket and master removal hook

2. Removing the Master Removal Unit

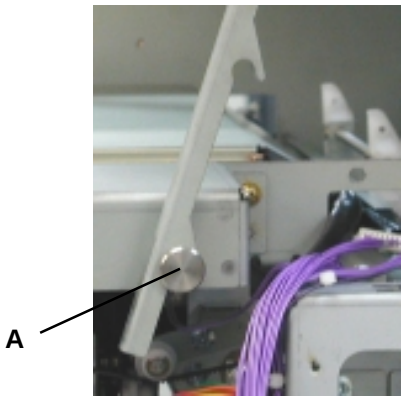
(1) Move the scanner table to the servicing position [A].

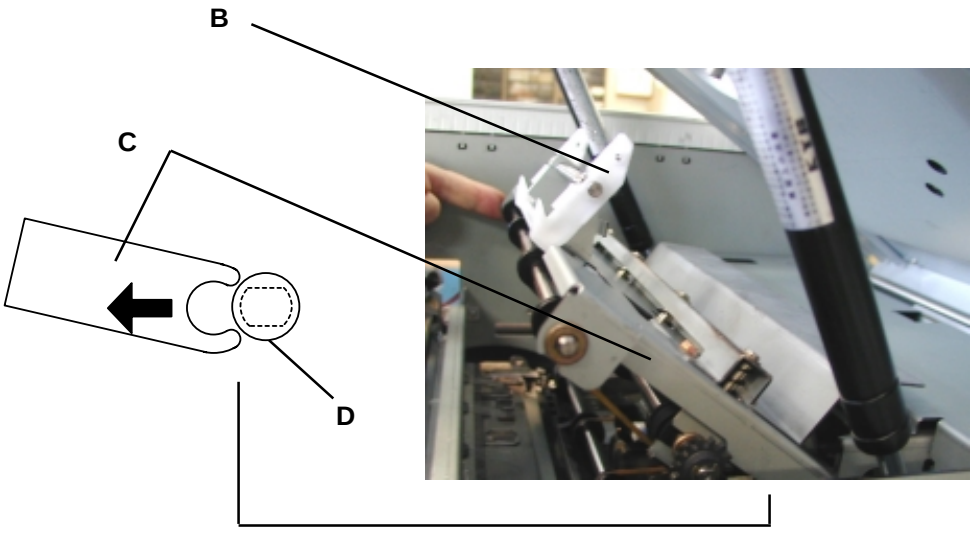
(2) Remove the front and rear covers.

(3) Remove the upper housing cover (master removal unit cover). (M3 x 6: 2 pcs)

(4) Unlock the Release lever [B], fully open the Master disposal gate housing [C], and pull out the master disposal gate housing horizontally in the direction of paper ejection. The master disposal gate housing is slotted into the Pivot shafts [D] on both sides. The shafts are cut as shown in the diagram below, and so the master disposal gate housing can be pulled out provided it is opened sufficiently.

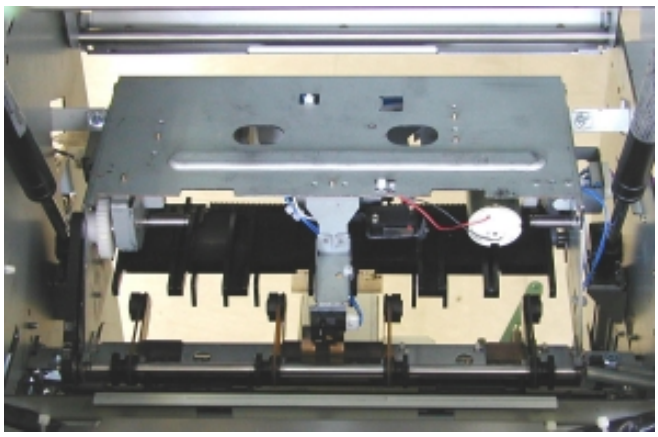




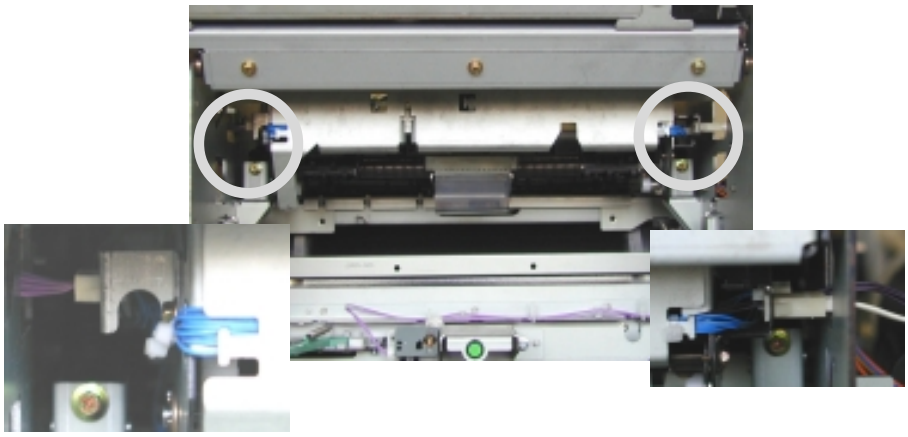


A: Servicing position
B: Release lever
C: Master disposal gate housing
D: Pivot shaft

(5) Remove the master removal unit mounting screws (M4 x 8: 4 pcs).



(6) Detach the connectors on both sides, and remove the master removal unit.

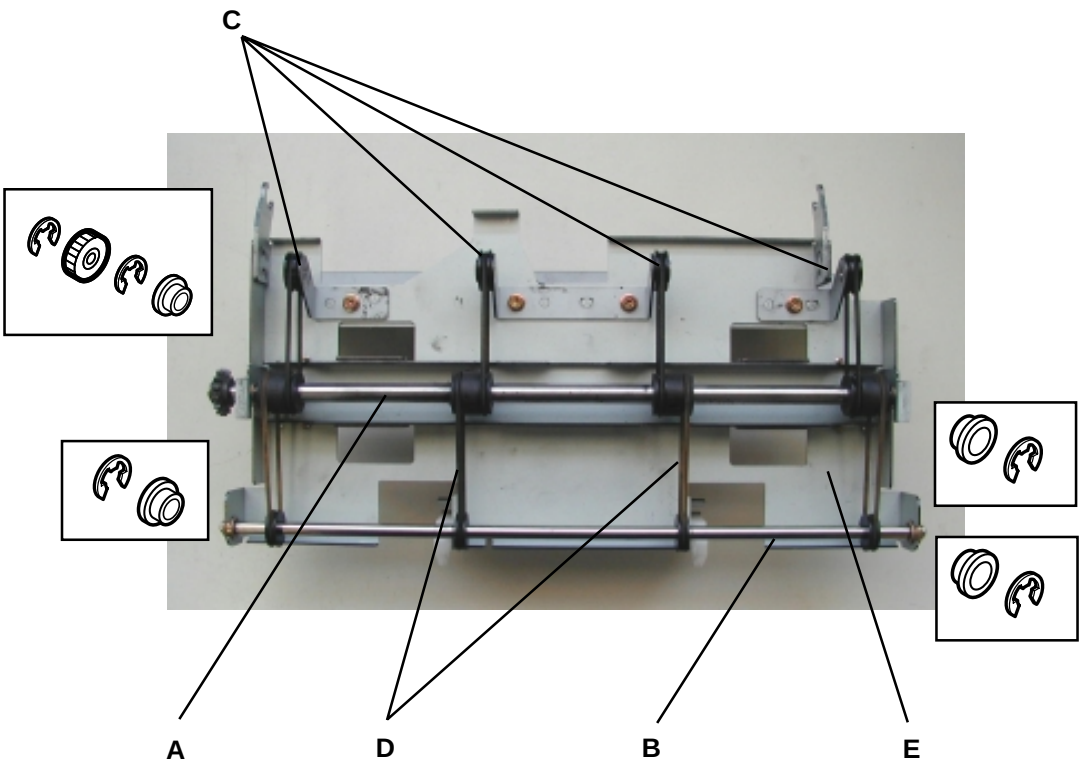


3. Removing the Master Disposal Gate Housing

(1) Remove the E-rings and bearings on both sides of the Pulley shaft [B], and remove the Pulley shaft.

(2) Remove the E-rings, bearings, and gears on both sides of the Master removal roller (top) [A], and remove the roller.

(3) Remove the G belts [D] from the Master removal pulleys (top) [C].



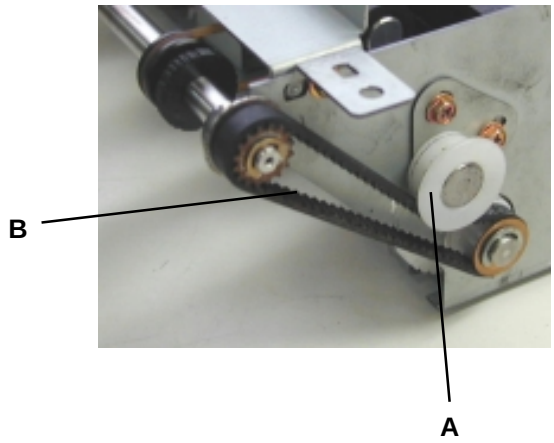
A: Master removal roller (top)
B: Pulley shaft
C: Master removal pulleys (top)
D: G belts
E: Master disposal gate housing

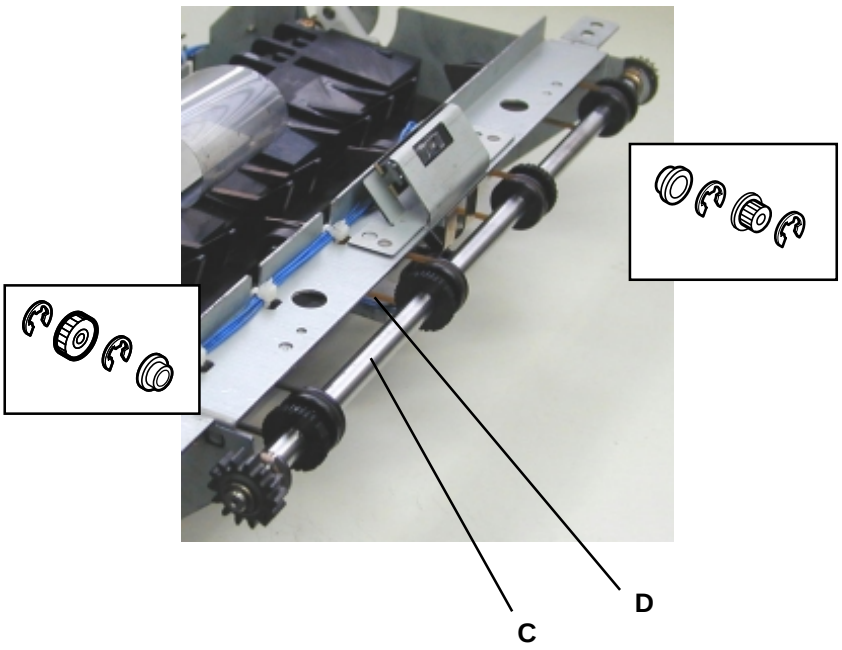
4. Removing the Master Removal Roller (Bottom)

(1) Loosen the screws on the Tension roller [A], and remove the belt [B]. (M3 x 6: 2 pcs)

(2) Remove the E-rings, bearings, gears, and pulleys on both sides of the Master removal roller (bottom) [C], and remove the roller.

(3) Remove the G belts [D].





A: Tension roller
B: Belt
C: Master removal roller (bottom)
D: G belt

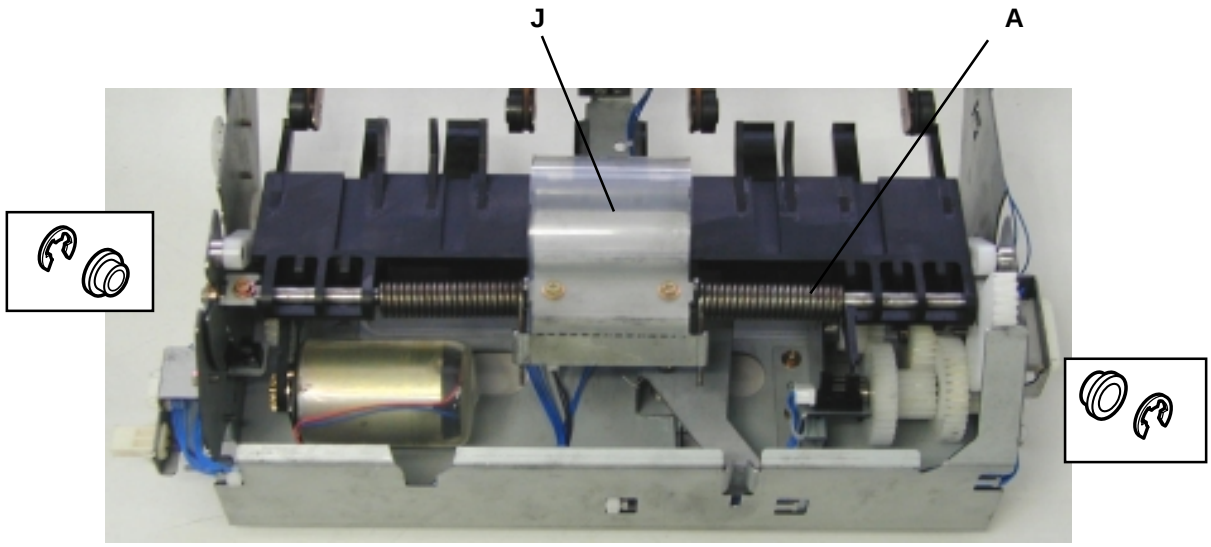
5. Removing the Master Compression Plate

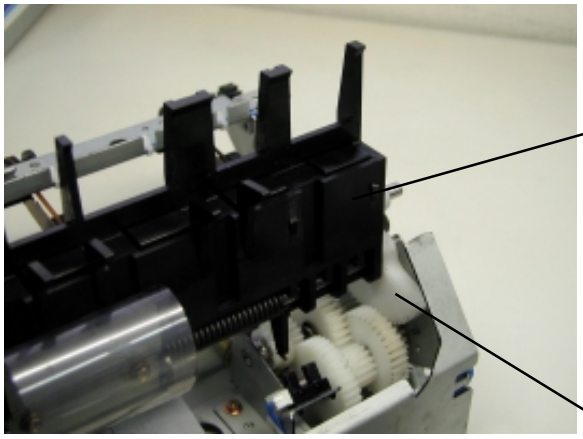
(1) Remove the E-rings and bearings from both sides of the compression shaft [A].

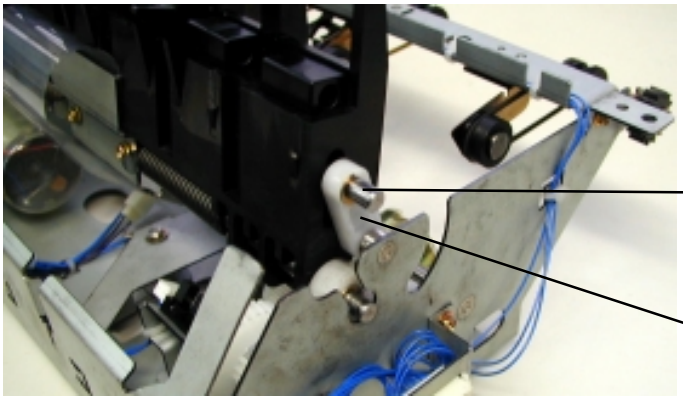
(2) Rotate the compression shaft to move the master Compression plate [C] to the master compressing position.
Lifting up the compression gear [B] together with the shaft, to disengage the gear, allowing the shaft to be rotated.

(3) Remove the E-rings on both sides of the Piston shaft [D], and remove the shaft.

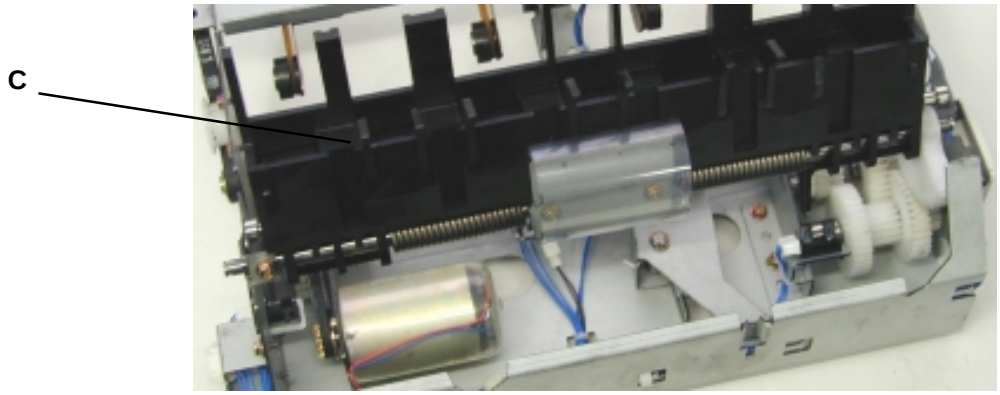
(4) Remove the Piston shaft links [E] on both sides.







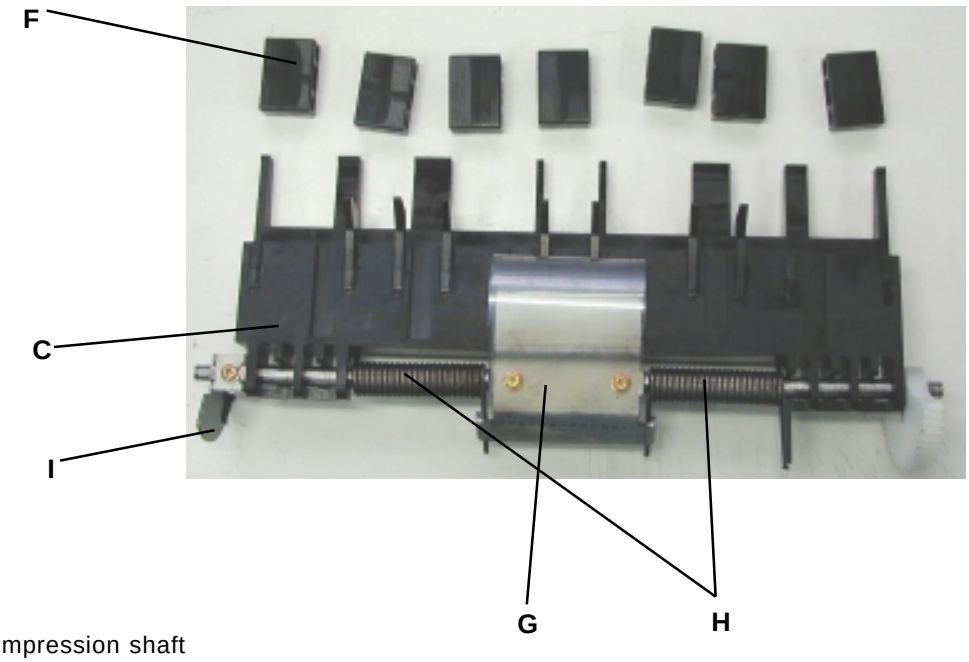
(5) Remove the shaft from the unit, with the master compression plate attached.



(6) Remove the Piston blocks [F].

(7) Unhook the Compression spring [H] from the Compression plate holder [G], and then remove the compression plate holder from the Compression shaft [A].

(8) Remove the Master compression sensor plate [I] and then separate the Master compression plate from the compression shaft.



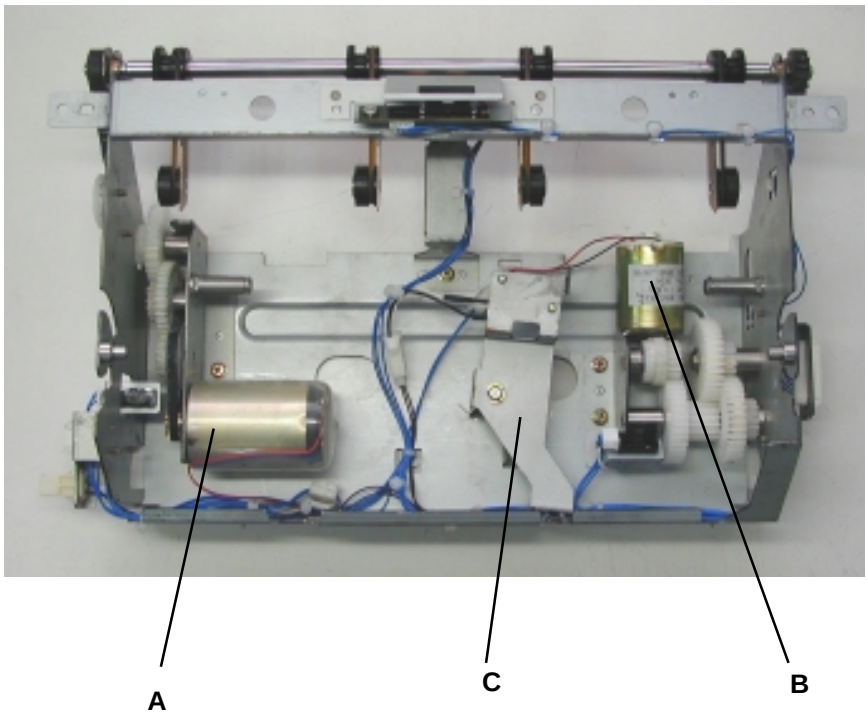
A: Compression shaft
B: Compression gear
C: Master compression plate
D: Piston shaft
E: Piston shaft link
F: Piston block
G: Compression plate holder
H: Compression spring
I: Master compression sensor plate
J: Compression plate guard cover (* master anti-clamping component)

6. Removing the Motors

(1) Remove the Master removal motor [A]. (Mounting screws M4 x 6: 2 pcs)

(2) Remove the Compression motor [B]. (Mounting screws M4 x 6: 2 pcs)

(3) Remove the E-rings, and then remove the Safety switch unit [C].



A: Master removal motor
B: Compression motor
C: Safety switch unit