

## CHAPTER 3. MECHANICAL DESCRIPTION

### [1] Mechanical description

#### 1. Facsimile block

##### 1-1. Document feed block and diagram

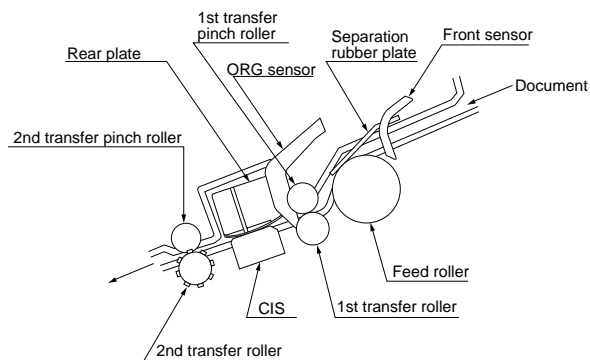


Fig. 1

#### 2. Document feed operation

- 1) As shown in Fig.1, the document set in the hopper (the front sensor is on) is fed with the let out roller and paper feed roller which rotate together with the pulse motor.
- 2) When a specified number of pulses are received from the document sensor after the document lead edge is sensed, scanning will be started.
- 3) When a specified number of pulses are received from the document sensor after the document rear edge is sensed, scanning will be ended to discharge the document to the tray.
- 4) If the front sensor is on (the document is set up in the hopper), the next document is supplied and fed nearly when the last document is completely read and discharged. If the front sensor is off (no document is set up in the hopper), the drive will be stopped when the document is discharged to the tray.

#### 3. Hopper mechanism

##### 3-1. General view

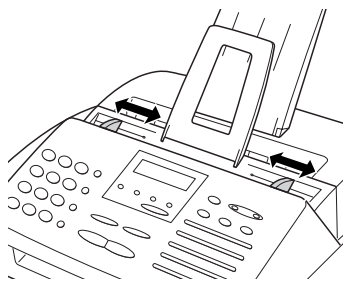


Fig. 2

The hopper is used to align documents with the document guides adjusted to the paper width.

NOTE: Adjust the document guides before and after inserting the document.

##### 3-2. Automatic document feed

- 1) The structure with secure paper feed of the transfer roller and secure separation of the separation rubber plate system is employed. The transfer roller is semicircular as to be rotated only when the paper feed roller is driven with the 2-step paper feed clutch mechanism. Moreover, the separation is securely done by running the paper feed and transfer rollers more slowly than the feed roller.

- 2) Document separation system:  
Friction + speed reduction ratio + roller backlash separation system

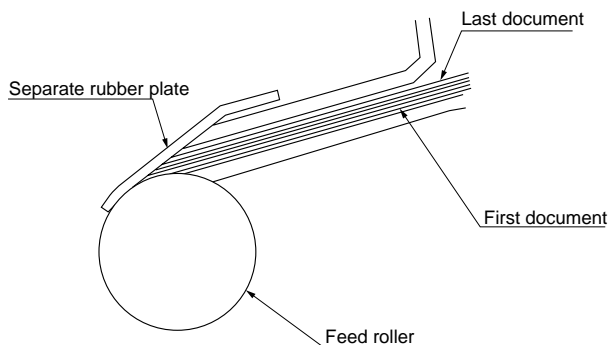


Fig. 3

##### 3-3. Loading the documents

- 1) Make sure that the documents are of suitable size and thickness, and free from creases, folds, curls, wet glue, wet ink, clips, staples and pins.
- 2) Place documents face down in the hopper.
  - Adjust the document guides to the document width.
  - Align the top edge of documents and gently place them into the hopper. The first page under the stack will be taken up by the feed roller to get ready for transmission.

NOTE: 1) Curled edge of documents, if any, must be straighten out.

- 2) Do not load the documents of different sizes and/or thicknesses together.

##### 3-4. Documents applicable for automatic feed

		Product specifications	
		Indication	
Weight indication	Metric system indication	Lower Limit	Upper Limit
			52g/m <sup>2</sup>
Thickness indication	Metric system indication	0.06mm	0.1mm
Document size	Document size Range	Minimum (148mm × 128mm)	
		A4 (210mm × 297mm)	
		Letter (216mm × 279mm)	
		Legal (216mm × 356mm)	
Number of ADF sheets	Document size Weight	Minimum ~ Letter/A4 size 20sheets	
		Legal	1 sheet
		More than 90 kg Below 135kg	1 sheet
Paper quality	Kind	Paper of fine quality/bond paper/ Kent paper	

NOTE: Double-side coated documents and documents on facsimile recording paper should be inserted manually.

Documents corresponding to a paper weight heavier than 90kg and lighter than 135kg are acceptable for manual feed.

Documents heavier than 135kg in terms of the paper weight must be duplicated on a copier to make it operative in the facsimile.

#### 4. Paper Path

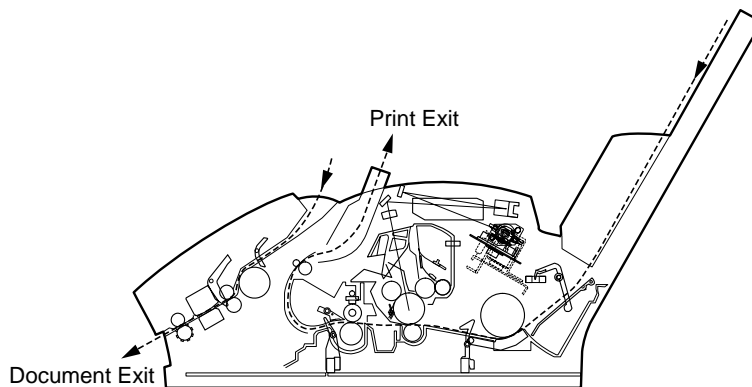


Fig. 4

#### 5. Components Layout

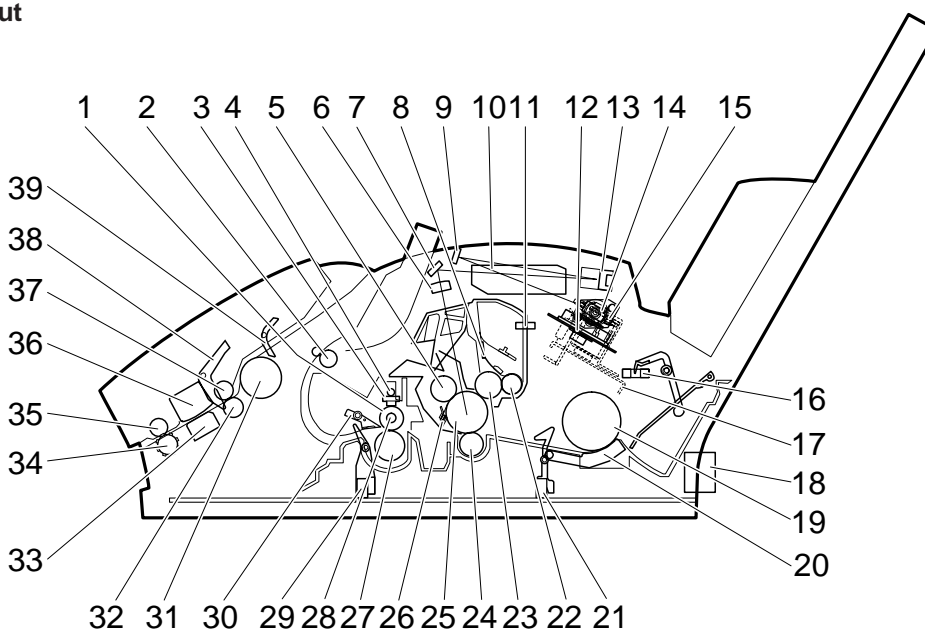


Fig. 5

No.	PARTS NAME	No.	PARTS NAME
1	Fusing temperature sensor (thermistor)	21	PIN sensor
2	Face-down paper exit roller	22	Toner supply roller
3	Temperature fuse(187°C)	23	Developing roller
4	Temperature fuse(132°C)	24	Transfer charger roller
5	Main charger roller	25	Photoconductor drum
6	Cylinder lens	26	Discharge brush
7	Third mirror	27	Pressure roller
8	Developing doctor	28	Heat roller
9	First mirror	29	Paper exit detector
10	Laser start position sensor	30	Separation pawl
11	Toner sensor	31	Feed roller
12	Scanner motor	32	1st. transfer roller
13	Second mirror	33	CIS
14	Scanner mirror	34	2nd. transfer roller
15	Laser unit	35	2nd. transfer pinch roller
16	Paper empty detector	36	Rear plate
17	Paper feed clutch solenoid	37	1st. transfer pinch roller
18	Fan motor	38	ORG sensor
19	Paper feed roller	39	Front sensor
20	Paper separation sheet		

## 6. Switch, Sensor Layout

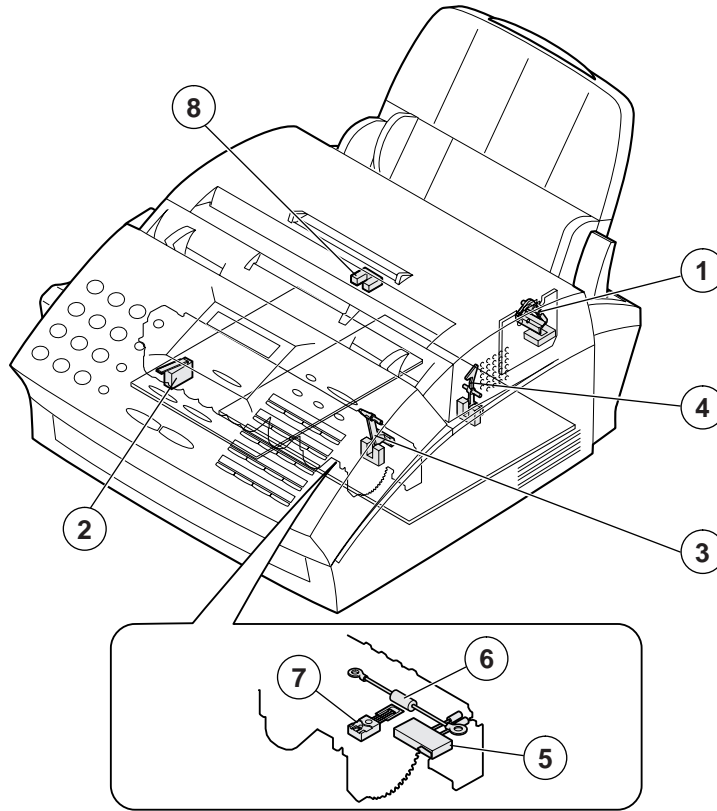


Fig. 6

No.	PARTS NAME	TYPE	DESCRIPTION
①	PE sensor (Paper Empty sensor)	Photo transistor (Transmission type)	Detects presence of paper on the multi-purpose paper tray.
②	Front cover open detector	Microswitch	24V line safety switch. When the front cover is opened, this switch is turned off to cut the 12V line except for "ERROR" and "ON LINE" LED. By this, the main motor, the heater lamp, and the high voltage power source is turned off.
③	POUT sensor (Paper OUT sensor)	Photo transistor (Transmission type)	Detects paper out, and paper jams.
④	PIN (Paper In) sensor	Photo transistor (Transmission type) (Common with the 2nd PIN sensor)	When this switch is turned on, paper transport and image transfer from the drum are started. This is also used for detection of paper jam.
⑤	Temperature fuse 187°C	Thermal fuse	When the heat roller temperature rises abnormally, this fuse cuts off the power relay power line(12V line)
⑥	Temperature fuse 132°C	Thermal fuse	When the heat roller temperature rises abnormally, this fuse cuts off the heater lamp power line.
⑦	Thermistor	Thermistor	This thermistor detects the temperature on the heat roller.
⑧	Toner sensor	Photo coupler	This photo coupler detects toner quantity.

## 7. PRINT PROCESS

### 7-1. Image forming process

Normal paper is used as print paper. A laser beam is used to expose on the OPC surface to form latent electrostatic images, which are developed into visible images (toner images) and are transferred on paper. The basic operation is composed of the five processes: charging, exposure, development, transfer, and cleaning.

### 7-2. System diagram

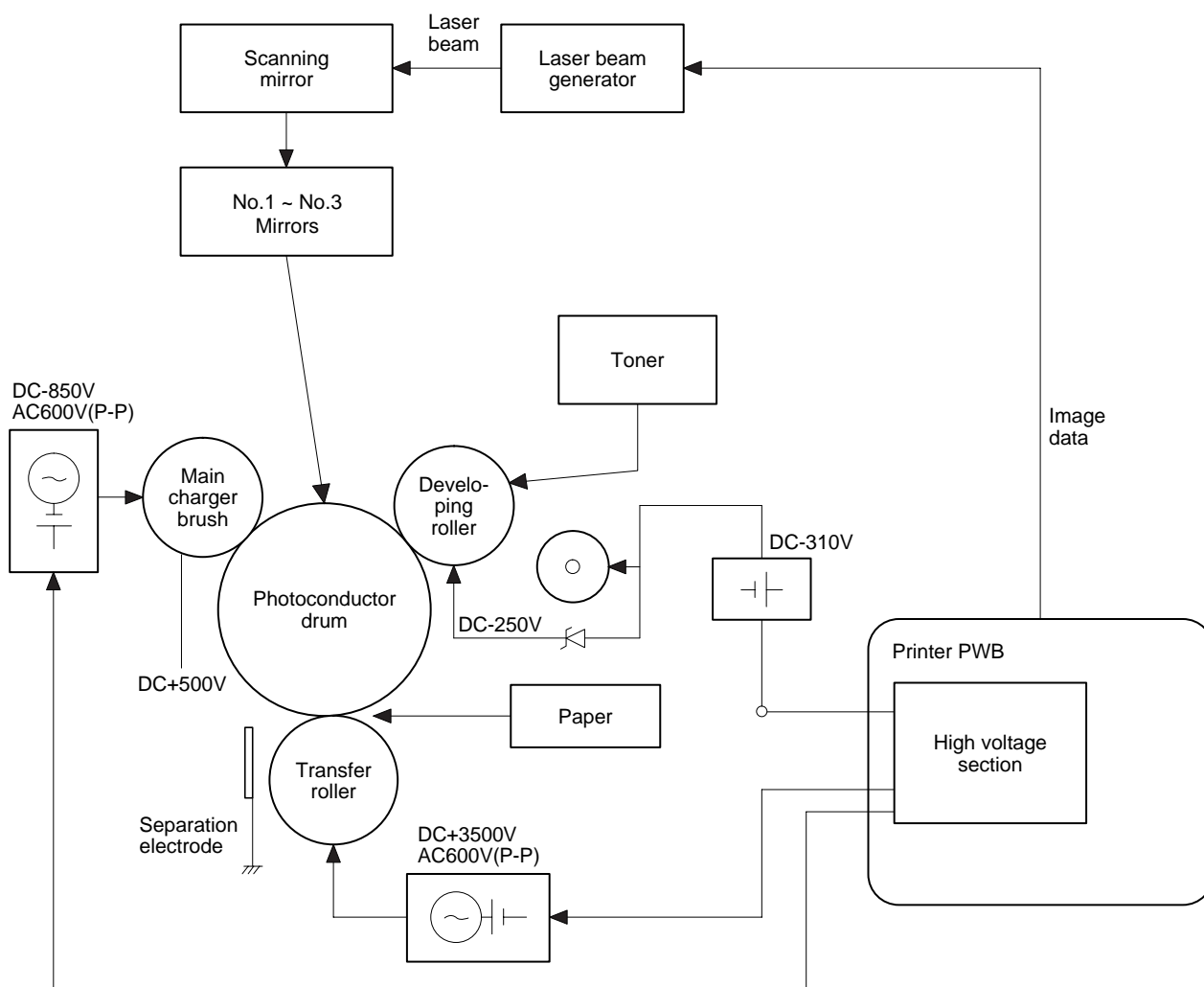


Fig. 7

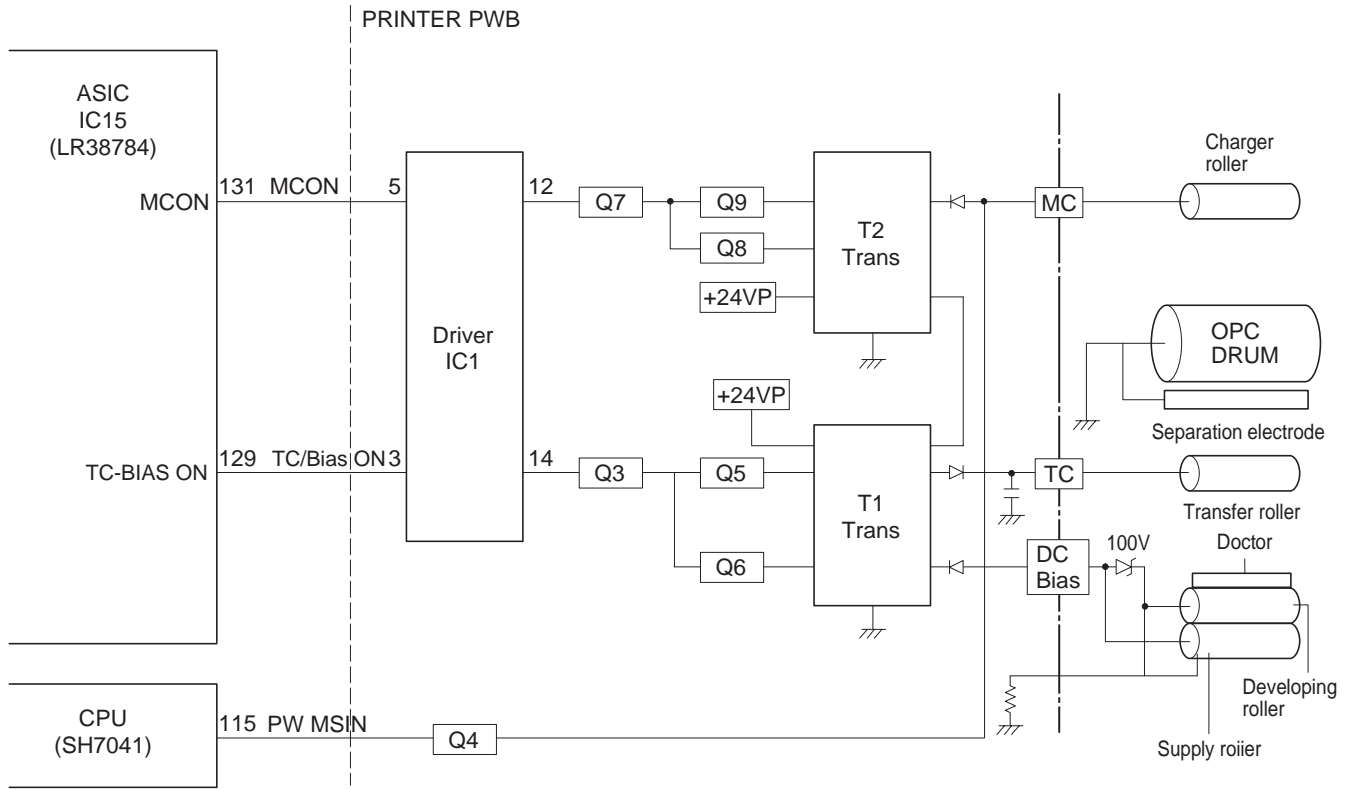


Fig. 8

### 7-3. Image forming process diagram

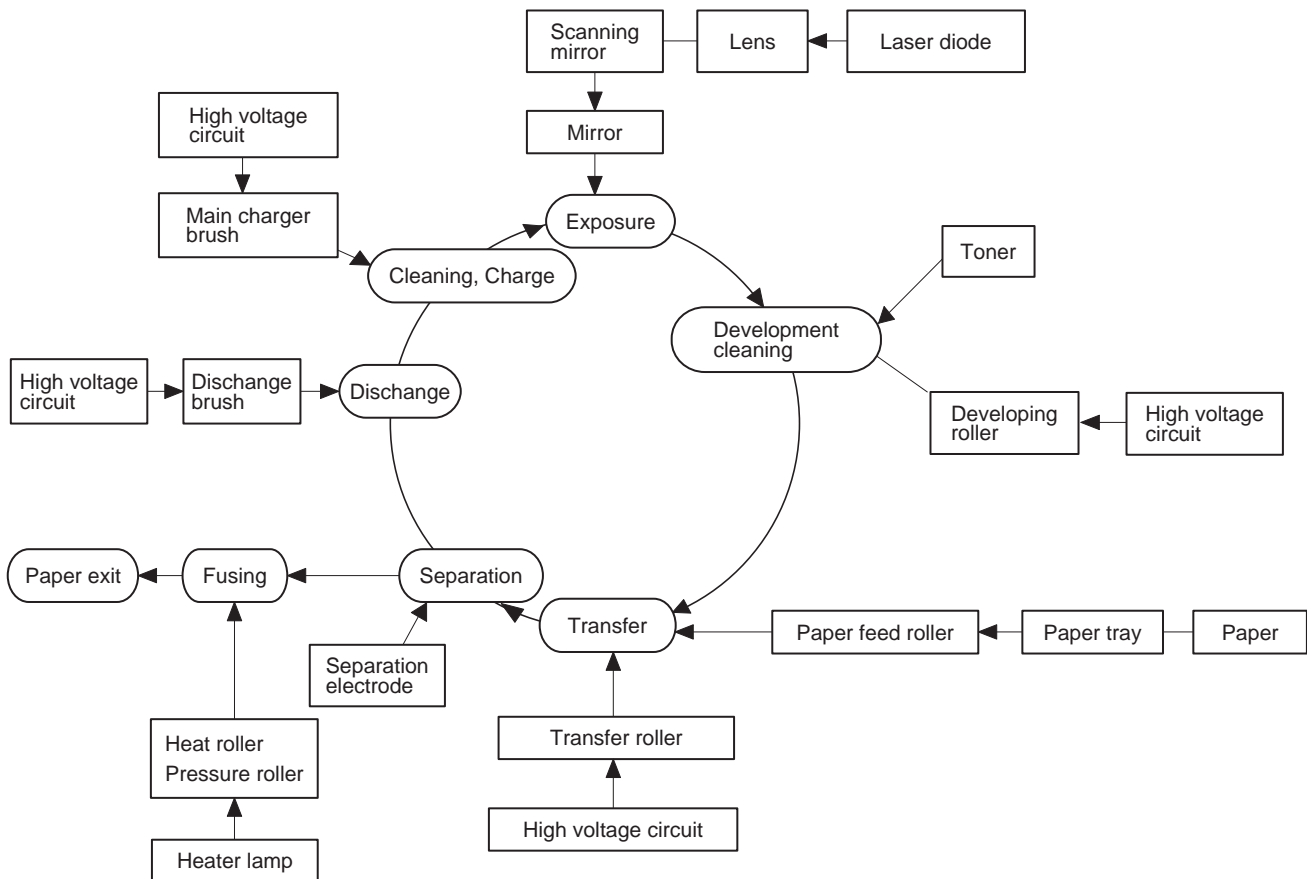


Fig. 9

## 7-4. Functions and operations of major parts

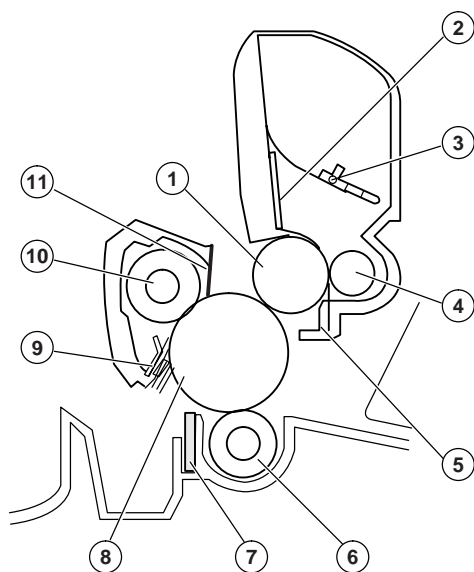


Fig. 10

①	Developing roller	⑤	Toner seal	⑨	Discharge brush
②	Doctor	⑥	Transfer roller	⑩	Main charger brush
③	Toner stirring plate	⑦	Separation electrode	⑪	Toner seal
④	Toner supply roller	⑧	OPC drum		

### (1) OPC drum unit

The OPC drum is charged and latent electrostatic images are formed on it and developed into visible toner images.

#### a. OPC drum

Latent electrostatic images are formed and developed into toner images on the OPC drum.

Organic Photo Conductor is used. The OPC surface is charged negatively by the main charger brush.

When the OPC is exposed to laser beam, the electric resistance of the exposed section falls and electric charge is generated in the OPC. As a result, electric charge on the OPC surface is removed. This principle is used to form latent electrostatic images.

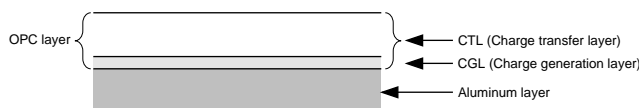


Fig. 11

#### b. Main charger brush

The main charger brush charges the OPC drum surface. It is composed of brush fibre, and is in the shape of a roller. A high voltage of AC 600V (P-P) and DC-850V are applied to charge the brush.

The main charger brush is in contact with the OPC drum. BY applying electric charge to the OPC drum, the OPC drum is charged to about 1kV.

#### c. Toner seal

The OPC drum unit is provided with two toner seals, which prevent leakage of toner remaining in the OPC drum unit.

### (2) Developing unit

Latent electrostatic images formed by laser beam on the OPC drum are developed to visible images by the developing unit. Toner is filled in the developing unit.

#### a. Developing roller

The developing roller is made of urethane and has a high electric resistance. It is flexible and is in close contact with the OPC drum. Toner on the developing roller is attached to latent electrostatic images on the OPC drum to form visible images on the OPC drum.

A voltage of DC-250V is applied the developing roller.

#### b. Doctor

The doctor is in close contact with the developing roller. It adjusts toner quantity on the developer roller surface.

The doctor is made of conductive material.

#### c. Toner supply roller

Toner is supplied to the developing roller by the sponge roller which is connected to the developing roller.

#### d. Toner stirring plate

This plate stirs toner in the developing unit to transport it to the developing roller smoothly.

#### e. Toner seal

The toner seal prevents toner from leaking outside the developing unit.

### (3) Transfer charger roller

The transfer charger roller is made of urethane and has a high electric resistance. It is flexible and is in close contact with the OPC drum.

A high voltage of AC 600V (P-P) and DC +3500V are applied to charge.

It positively charges paper transported from the paper feed section, which transfers negatively charged toner on the OPC drum onto the paper.

### (4) Separation electrode

This electrode is connected to the drum ground. It discharges paper which was positively charged in the transfer section to reduce the potential difference with the OPC drum to reduce static electricity between the paper and the OPC drum, thus facilitating separation of paper.

### (5) High voltage unit (in the Printer PWB)

A high voltage is generated by the inverter system, and is supplied to the main charger unit, the transfer charger unit, and the developing roller.

### 7-5. Image forming operation

**STEP 1 (Cleaning, Charging):** Residual toner the OPC drum is stirred and negative charges are scattered evenly on the OPC drum. (The OPC drum surface is evenly charged.)

The main charger is a rotating brush roller. The main charger removes residual toner from the OPC drum by its rotating sweeping action and causes it to stick to the brush. At the same time, a high voltage of  $-850V$  is applied to the main charger roller to generate a discharge of electricity between the roller and the OPC drum, generating positive and negative charges. The negative charges are attracted to the OPC drum, and evenly distributed on the OPC drum. (The OPC drum surface is evenly charged.)

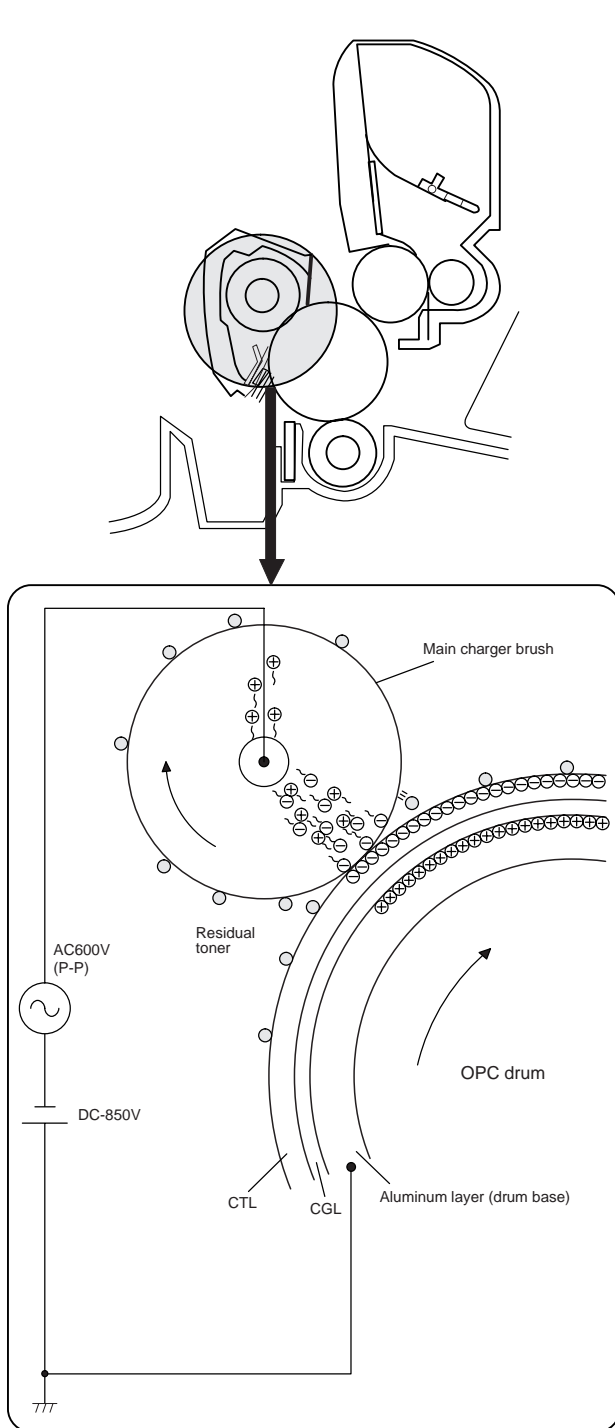


Fig. 12

**STEP 2 (Exposure):** Laser beam scanning light corresponding to the print data is radiated on the OPC drum.

Positive and negative charges are generated in the OPC drum CGL exposed with the laser beam.

Positive charges generated in the CGL are attracted toward the OPC drum surface (negative charges), and negative charges toward the aluminum layer (positive charges).

Therefore, the positive and negative charges neutralize each other in the laser-exposed area of the OPC drum surface and the aluminum layer, decreasing the potential of the OPC drum surface.

The area which is not exposed to laser beam has no change, and the OPC drum surface remains negatively charged to keep a high potential. As a result, latent electrostatic images are formed on the OPC drum.

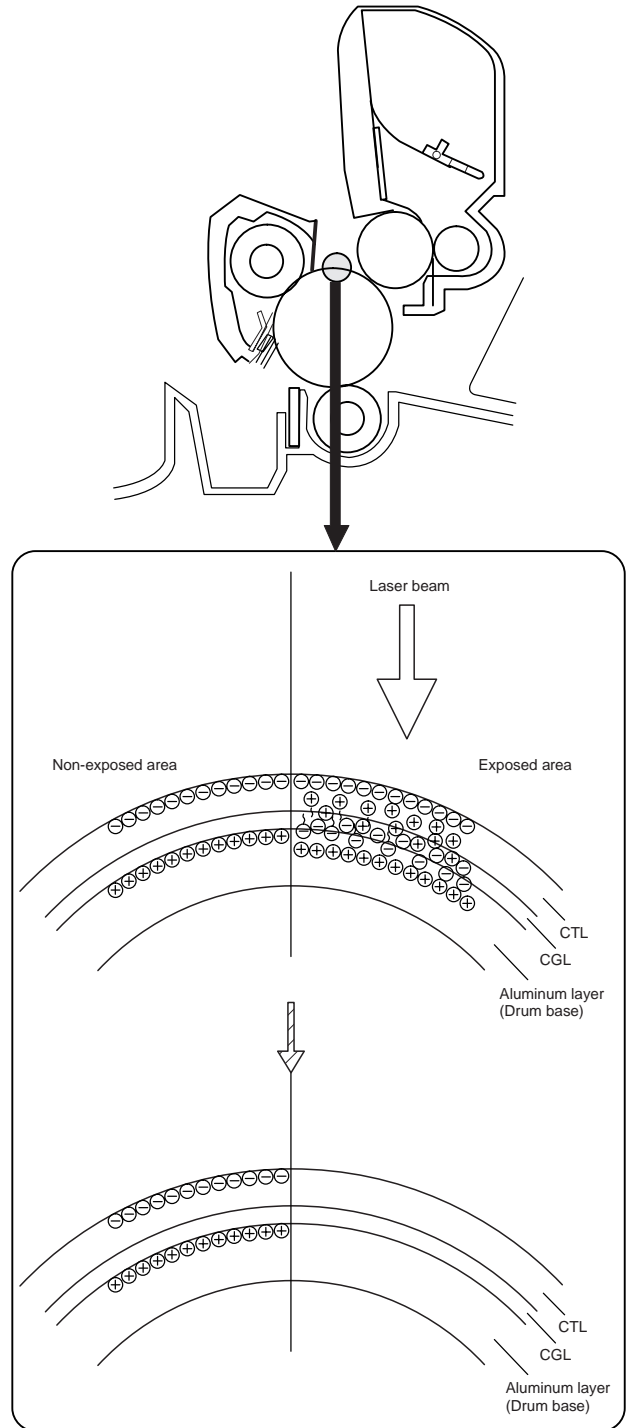


Fig. 13

**STEP 3 (Development):** Toner is attached to the latent electrostatic images on the OPC drum to form visible images.

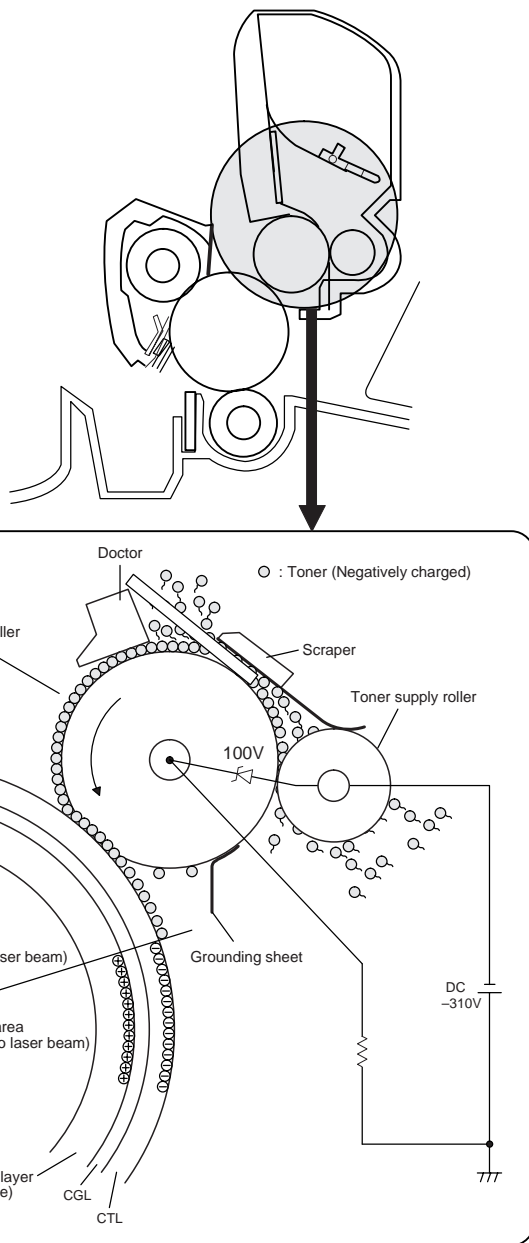


Fig. 14

Toner is transported to the scraper area by the toner supply roller and the developing roller. The quantity of toner to be transported to the doctor section is controlled by the scraper. Toner transported to the doctor section is then passed between the developing roller and the doctor to form a thin toner layer on the developing roller by the pressure applied by the doctor.

When toner passes between the developing roller and the doctor, it is charged negatively by friction.

When an area of OPC drum which was exposed to laser beam and lost its charge comes in contact with the developing roller, toner moves from the developing roller to the OPC drum surface.

The principle of toner movement from the developing roller to the OPC drum surface is as follows.

The bias voltage of DC-310V is applied to the developing roller. Toner is charged negatively by the difference (electrical energy) between the bias voltage and the OPC drum surface potential and is attracted to the OPC drum surface which is positively charged.

At that time, the potential of the area of the OPC drum which was exposed to the laser beam and lost its charge is higher than that of the developing roller.

On the other hand, when an area of OPC drum which was not exposed to the laser beam and did not lose its charge comes in contact with the developing roller, any residual toner attached to the OPC drum is transferred to the developing roller which is more positively charged.

As a result, unnecessary toner on the OPC drum is collected by the developing unit.

The operating principle for that case is contrary to that for transfer of toner from the developing roller to the OPC drum surface. (The electric field energy direction is contrary.)

**STEP 4 (Transfer):** Visible images of toner on the OPC drum are transferred to the paper.

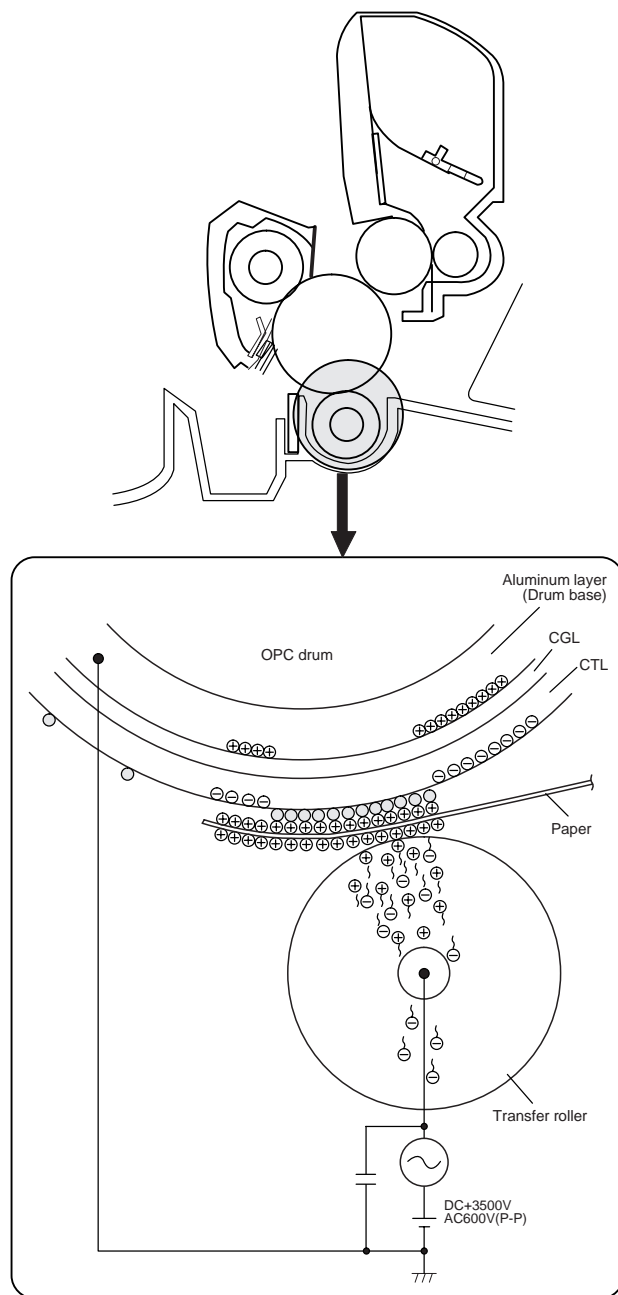


Fig. 15

The high voltage of DC+3500V plus AC600V (P-P) is applied to the transfer roller to generate electric discharge between the roller and the OPC drum, generating positive and negative charges. Positive charges are attracted to the OPC drum and attached to the paper transported between the transfer roller and the OPC drum. Therefore the paper has a strong positive charge.

Negatively charged toner on the OPC drum is attracted by the paper which is positively charged, and the visible images of toner are transferred onto the paper.



**STEP 5 (Paper separation):** The paper is separated from the OPC drum.

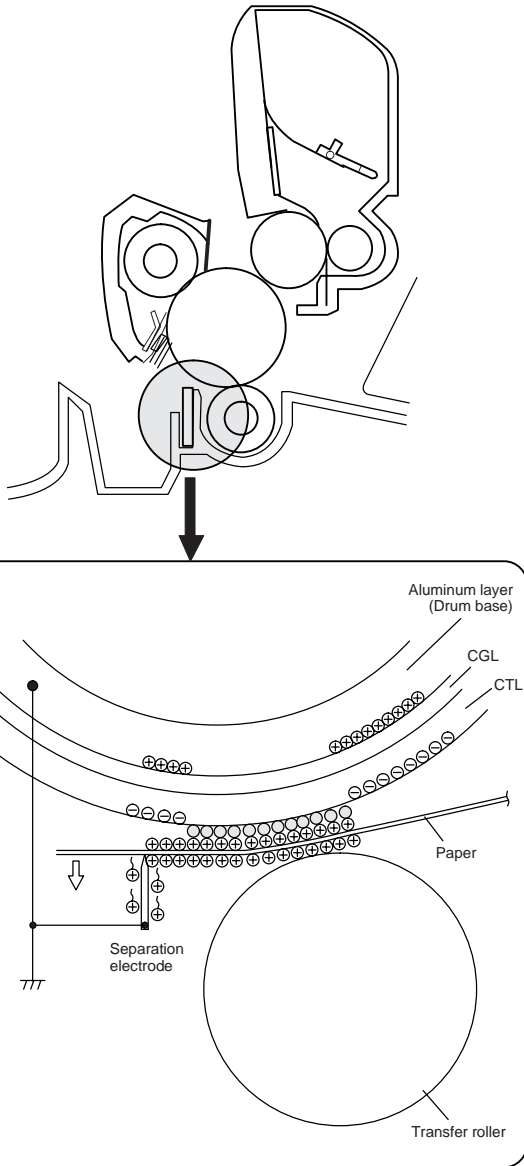


Fig. 16

There is an electrostatic force between the paper which is positively charged in transfer operation and the OPC drum which is negatively charged. The positive charge on the paper is released to the separation electrode, which is the same potential as the aluminum layer of the OPC drum, to reduce the potential difference between the OPC drum and the paper, reducing the electrostatic force.

This operation facilitates separation of the paper from the OPC drum.

**STEP 6 (Discharge):** The drum surface is discharged to facilitate cleaning of the drum surface. (The remaining toner is easily collected by the main charger roller.)

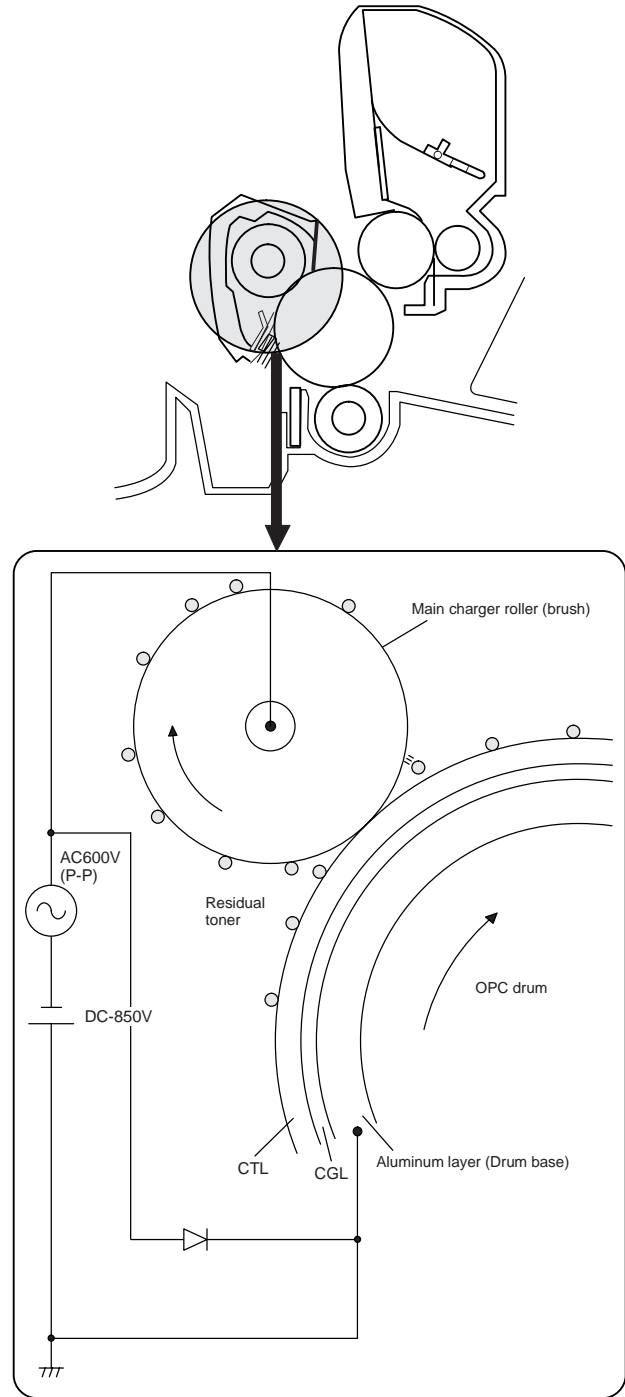


Fig. 17

**STEP 7 (Cleaning):** Residual toner on the OPC drum is removed. The main charger is a rotating brush roller.

The main charger removes residual toner from the OPC drum by its rotating sweeping action and causes it to stick to the brush. The main charger brush is in close contact with the mesh-type brush cleaning plate which removes toner and paper dust from the main charger brush mechanically.

### 7-6. OPC drum surface potential

#### (1) Transition of OPC drum surface potential by print operation

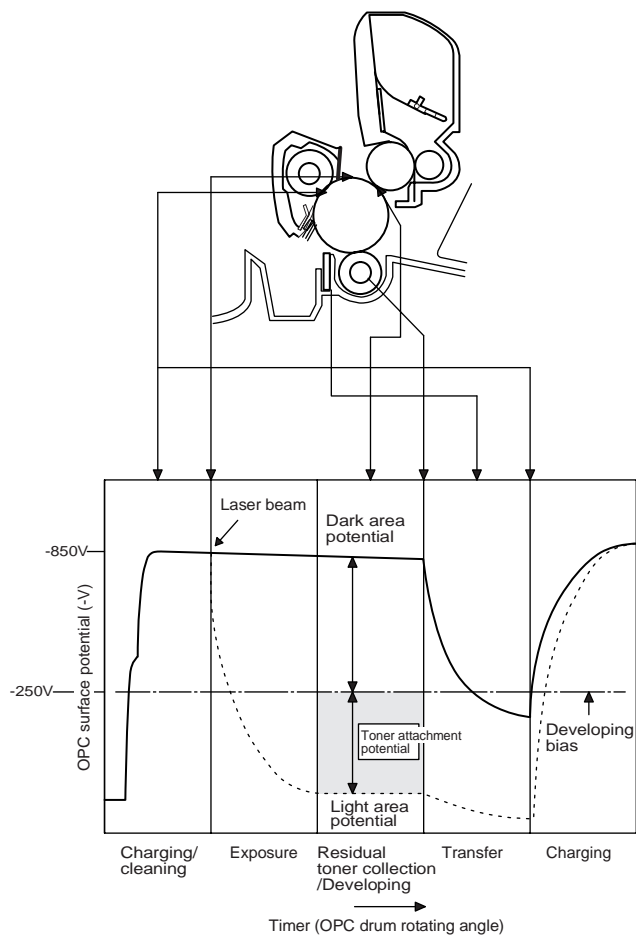


Fig. 18

#### (2) OPC drum surface potential and developing bias voltage in development

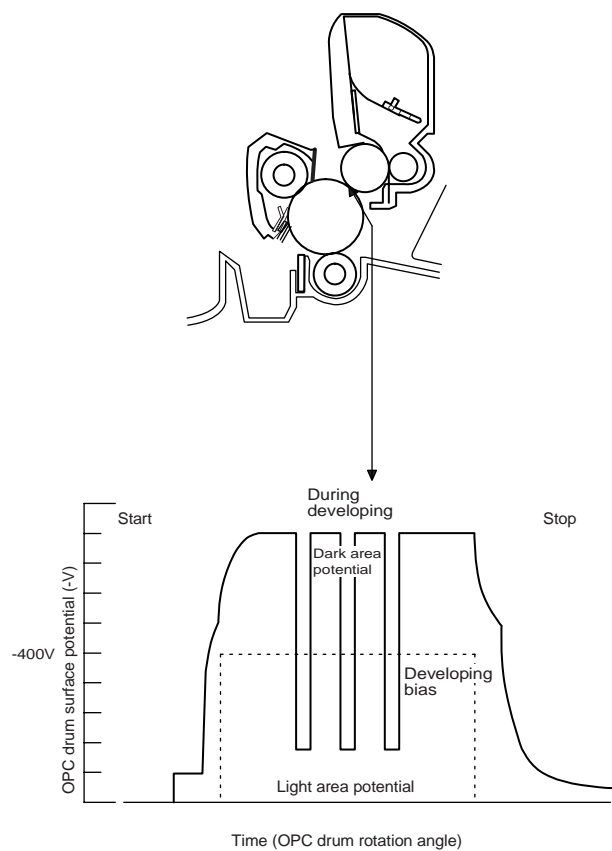


Fig. 19

## [2] Disassembly, assembly, lubrication

This chapter describes the disassembly, assembly, and lubrication procedures.

(Contents)

This chapter describes the disassembly procedures of parts. For assembly, reverse the disassembly procedures.

If a special care is required, a note is provided.

1. Panel unit
2. Top cabinet, rear cabinet
3. Control PWB unit, TEL/LIU PWB unit, Printer unit
4. Printer PWB unit, Power supply PWB unit
5. Feed guide unit, Scanner bracket
6. Document guide lower, Scanner unit
7. Panel unit, Document guide upper unit
8. Drive unit
9. Upper frame unit (optical frame unit)
10. Main motor
11. Paper feed roller
12. Paper feed solenoid
13. Sleeve release lever
14. PE lever (Paper Empty lever)
15. Lock lever
16. Fan belt
17. Fusing unit
18. Separate nails
19. Heat roller, heater lamp
20. Thermal fuses
21. Thermistor
22. AC connection wire
23. Paper exit roller upper
24. Transfer roller
25. Fusing roller
26. Separation electrode
27. PIN actuator (Paper in detection lever)
28. POUT actuator (Paper Out detection lever)
29. Separate plate ass'y
30. High voltage terminal DR-MC (High voltage terminal: Photoconductor drum main charger)
31. High voltage terminal TC (High voltage terminal: transfer charger)
32. DV bias electrode

(Necessary tools)

No special tools are required for disassembly and assembly of this machine.

As general tools, screwdrivers (+) (-) (Large/small), spring hook, and tweezers are used.

(Grease)

The following grease is used in this machine.

No.	Parts code	Price rank	Part name
1	UKOG-0168FCZZ	AR	Conductive grease
2	UKOG-0238FCZZ	BB	Floil G-484

Major points to be greased are as follows.

[Conductive grease]

- Apply a small quantity of grease to the transfer roller and the high voltage terminal TC.

[Floil G-484]

- Inner circumference and tooth surface of the fusing clutch gear
- Tooth surface of the main motor gear.
- Paper feed roller gear, Clutch R sleeve, Clutch spring
- The shaft and tooth surface of the other gears.
- Developer drive gear A tooth peripheral
- PU idle gear A tooth peripheral

When any parts which require greasing up are disassembled or replaced, be sure to grease them when reassembling.

①

**Note:** Be careful not to apply grease to the fan belt.

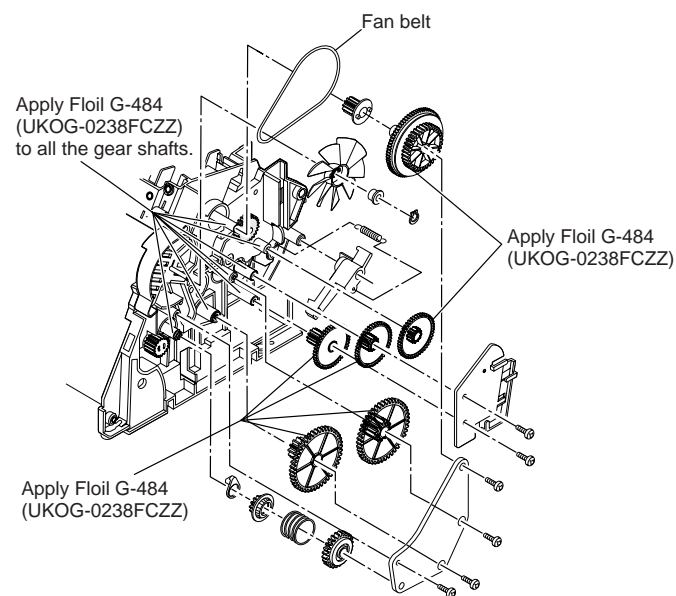


Fig. 1

- ② Apply Floil G-484 (UKOG-0238FCZZ) to the fusing clutch gear teeth and the inside.

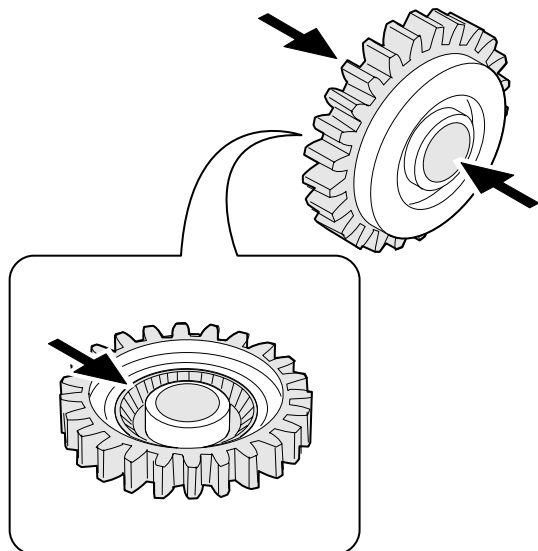


Fig. 2

- ③ Apply Floil G-484 (UKOG-0238FCZZ) to the gear teeth of the main motor.

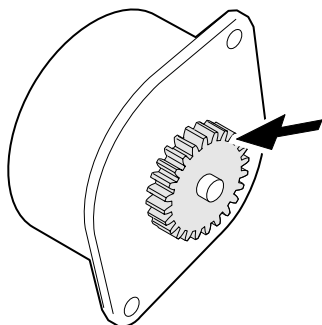


Fig. 3

- ④ Apply Floil G-381 (ZGLYC-00003GC) to the sections shown with arrows in the figure below.

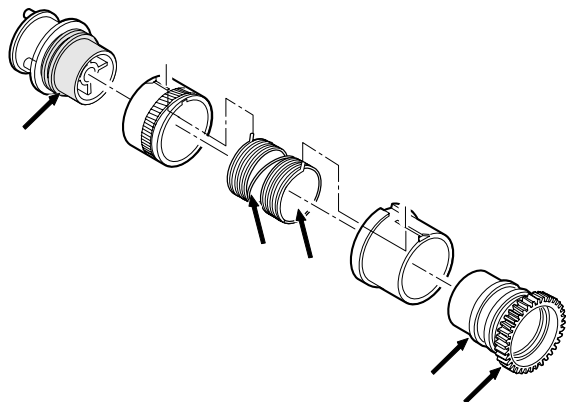


Fig. 4

- Apply grease to the paper feed roller gear teeth peripheral and the side.
- Apply grease to the whole surface of the clutch spring.
- Apply grease the side of the clutch R sleeve.

- ⑤ Apply Floil G-484 (UKOG-0238FCZZ) to the drum lock lever.

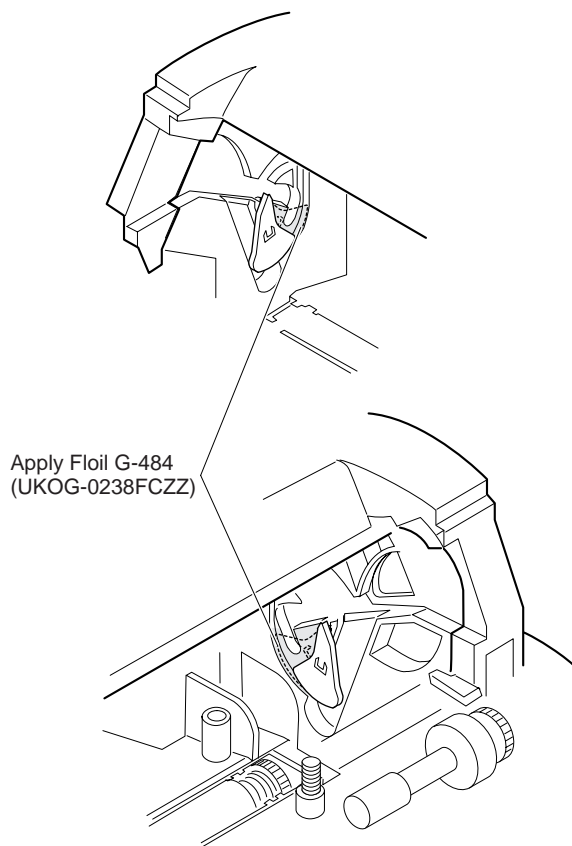


Fig. 5

- ⑥ Apply Floil G-484 (UKOG-0238FCZZ) to the fan shaft.

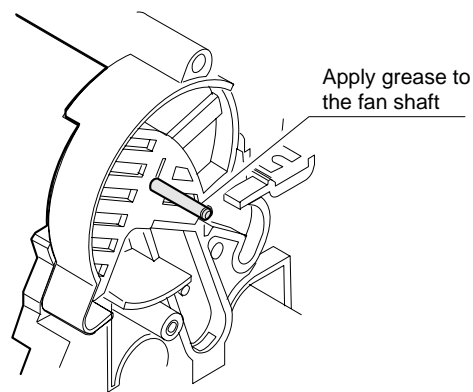


Fig. 6

**Note:** For disassembly and assembly, be careful of the following items.

- The units and parts which should be replaced in maintenance are described.
- The screws which are difficult to be found and the units and parts which require certain disassembly sequence or special technique are described. The units and parts which can be disassembled easily are not described.
- The cables and clamps are not described unless any special note is required. When removing them, remember the positions.
- Remove the imaging cartridge and the drum cartridge before disassembly.
- The parts which are not described in the parts guide must not be disassembled.
- The optical system require precise adjustments, which are not performed in the market. Replace the unit of the optical system which are attached to the upper frame, and do not disassemble it.

### 1. Panel unit

- ① Remove screw, and remove ROM cover. (Hook x 5)
- ② Remove three screws.
- ③ Remove screw.
- ④ Remove four cables, and remove Panel unit.
- ⑤ Remove two screws, and remove Inner cabinet.

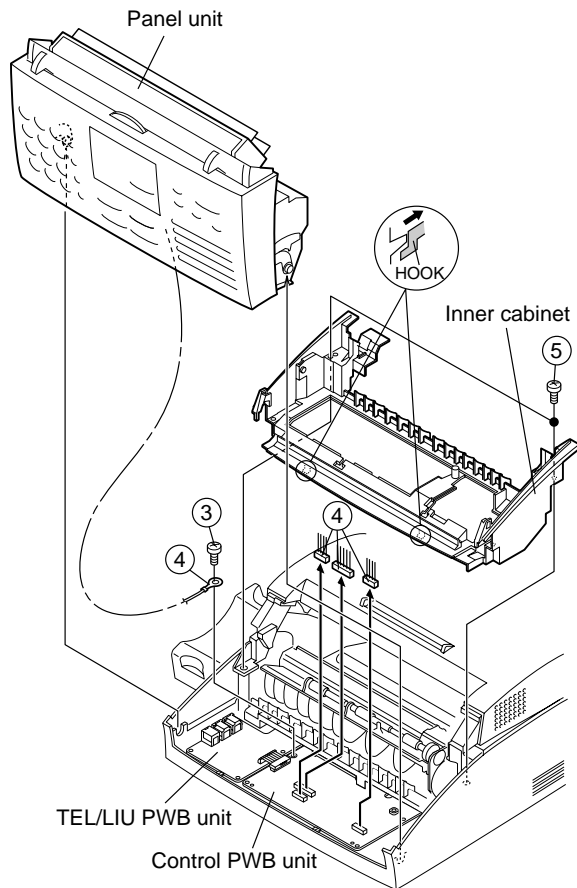
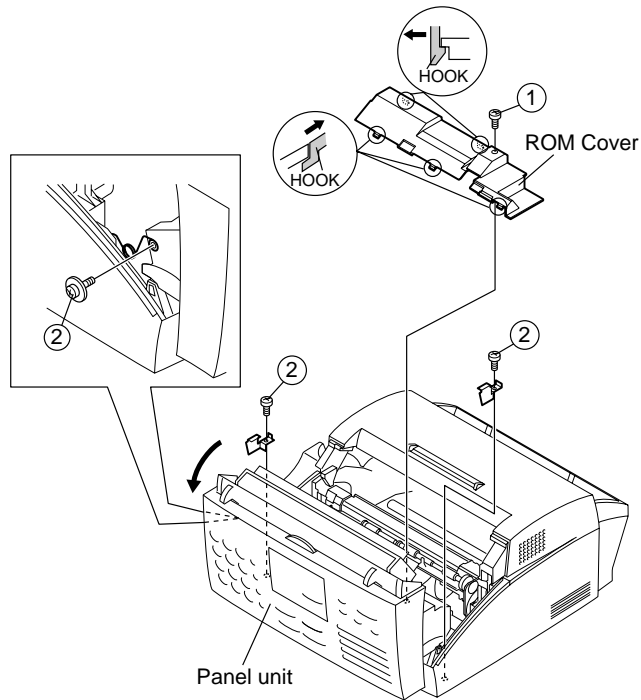


Fig. 7

### 2. Top cabinet, rear cabinet

- ① Remove two screws, and remove top cabinet. (Hook x 2)
- ② Remove rear cabinet. (Hook x 5)

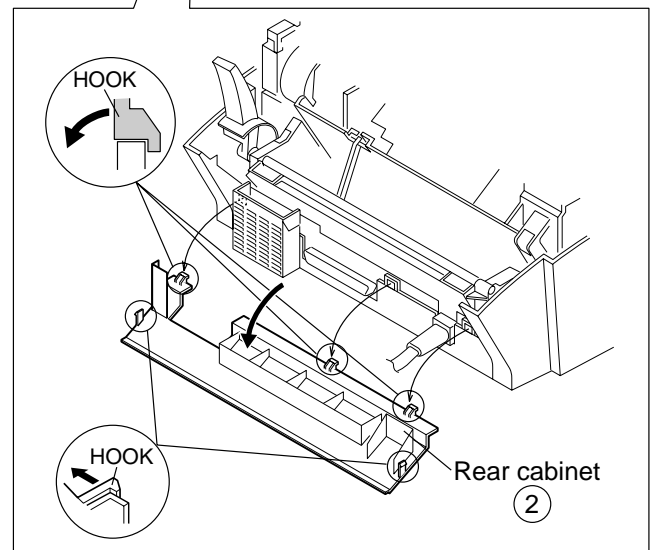
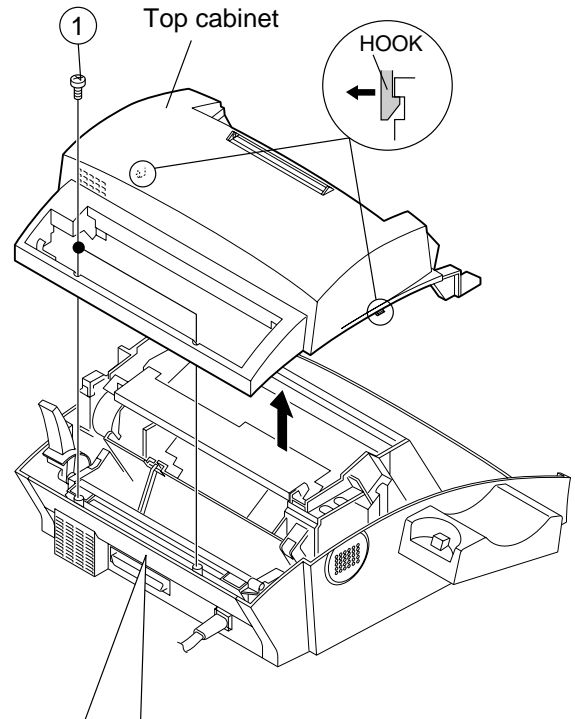


Fig. 8

### 3. Control PWB unit, TEL/LIU PWB unit, Printer unit

- ① Remove six screws.
- ② Remove four cables.
- ③ Remove two connectors, and remove Control PWB unit and TEL/LIU PWB unit.
- ④ Remove five screws, and remove printer unit.

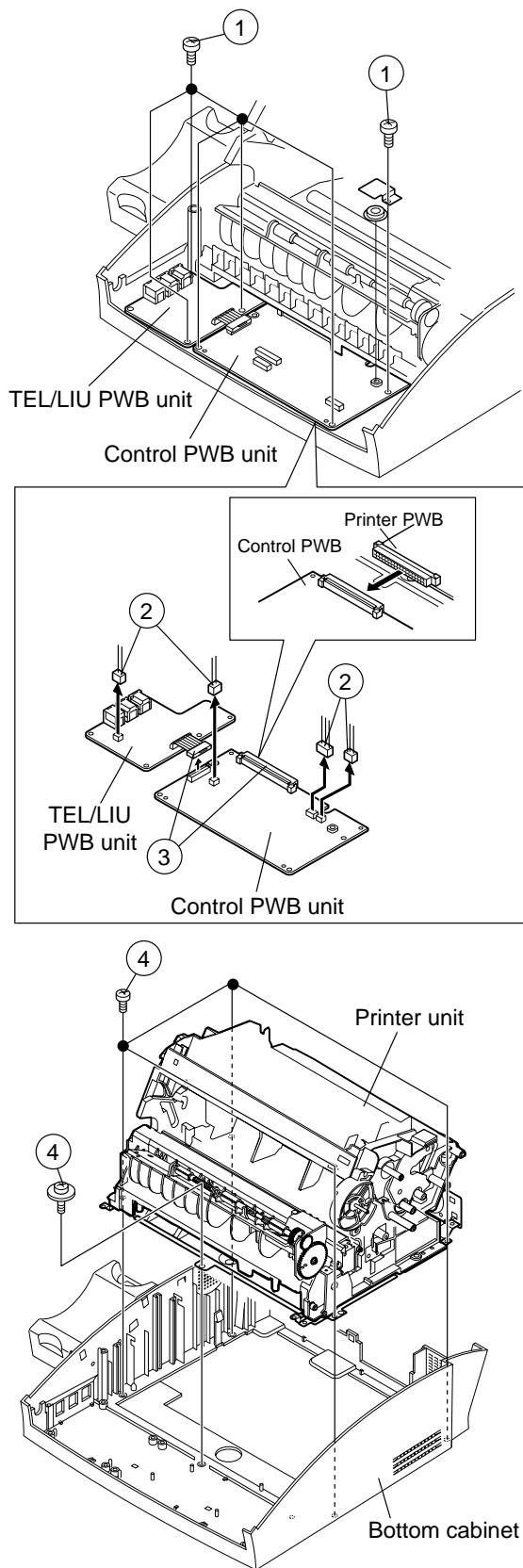


Fig. 9

### 4. Printer PWB unit, Power supply PWB unit

- ① Remove four screws, and remove Printer unit.
- ② Remove four cables.
- ③ Remove five screws.
- ④ Remove fan motor cable, and remove Printer PWB unit.
- ⑤ Remove five screws, and remove Power supply PWB unit.
- ⑥ Remove connector of AC cord.

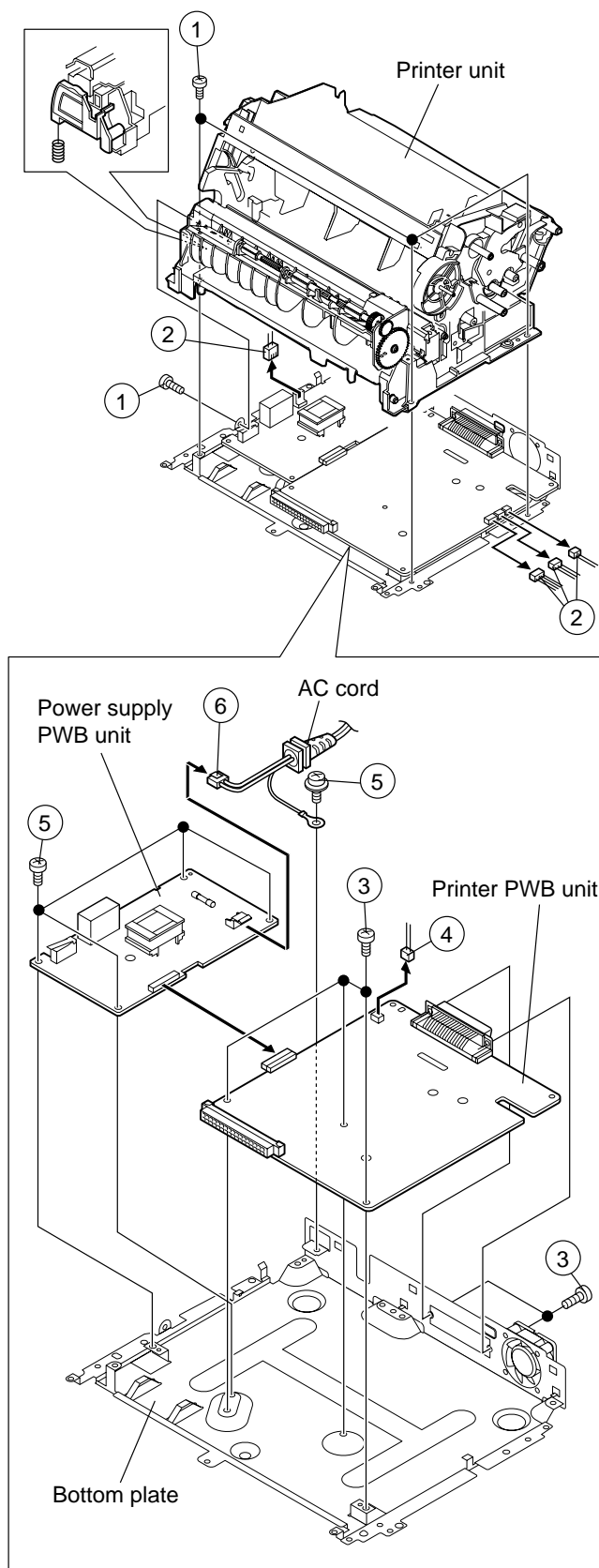


Fig. 10

### 5. Feed guide unit, Scanner bracket

- ① Remove two screws, and remove Feed guide unit. (Hook x 7)
- ② Remove two screws.
- ③ Remove three cables.
- ④ Remove two screws, and remove Scanner bracket.
- ⑤ Remove two screws.

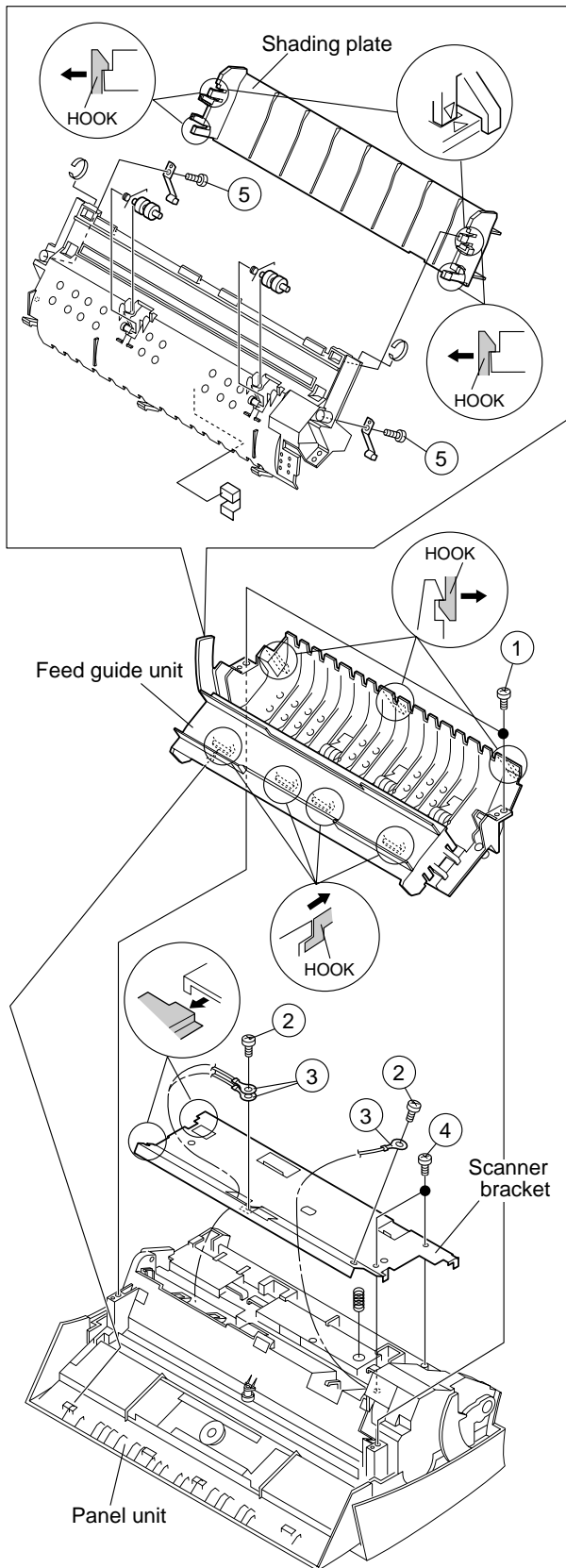


Fig. 11

### 6. Document guide lower, Scanner unit

- ① Remove three screws, and remove Document guide lower. (Hook x 2)
- ② Remove screw.
- ③ Remove screw.

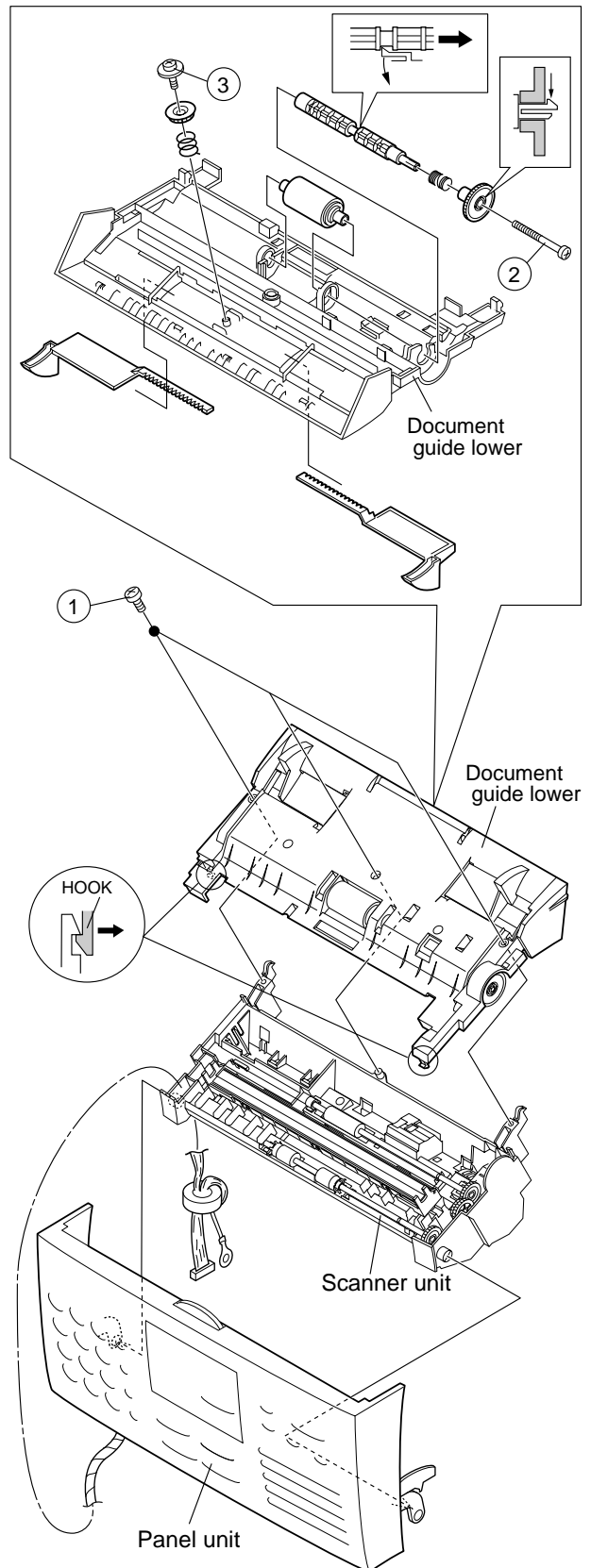


Fig. 12

### 7. Panel unit, Document guide upper unit

- ① Remove two screws, and remove document guide upper unit.

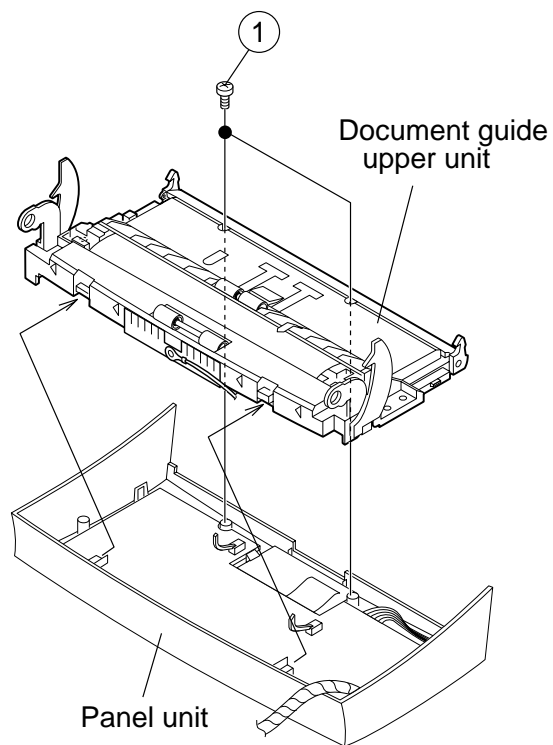


Fig. 13

### 8. Drive unit

- ① Remove two screws, and remove Drive unit.
- ② Remove two screws.

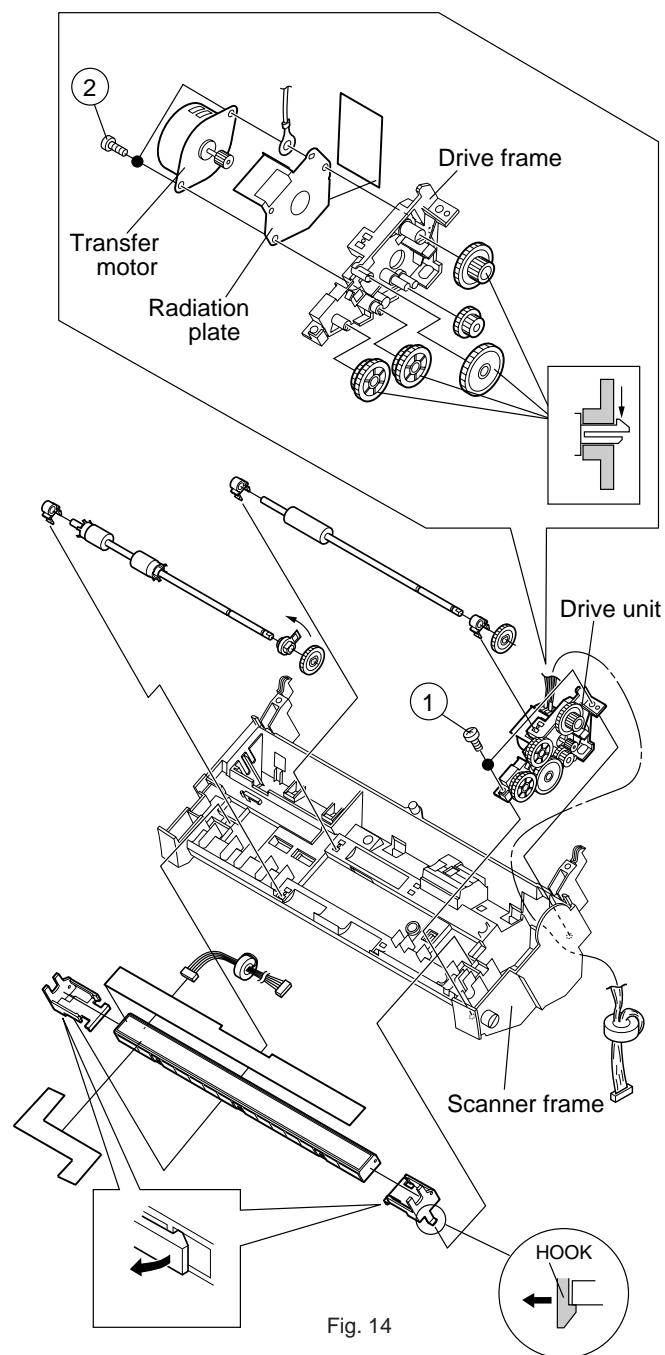


Fig. 14



### 9. Upper frame unit (optical frame unit)

- ① Remove three connectors.
- ② Remove four screws, and remove gear plate.  
At that time, fusing clutch gears and fusing clutch spring are also disassembled.
- ③ Remove motor idle gear.
- ④ Remove fan belt from developer drive gear A, and pull out the developer drive gear A.  
At that time, developer drive gear B is also disassembled.
- ⑤ Remove four screws.

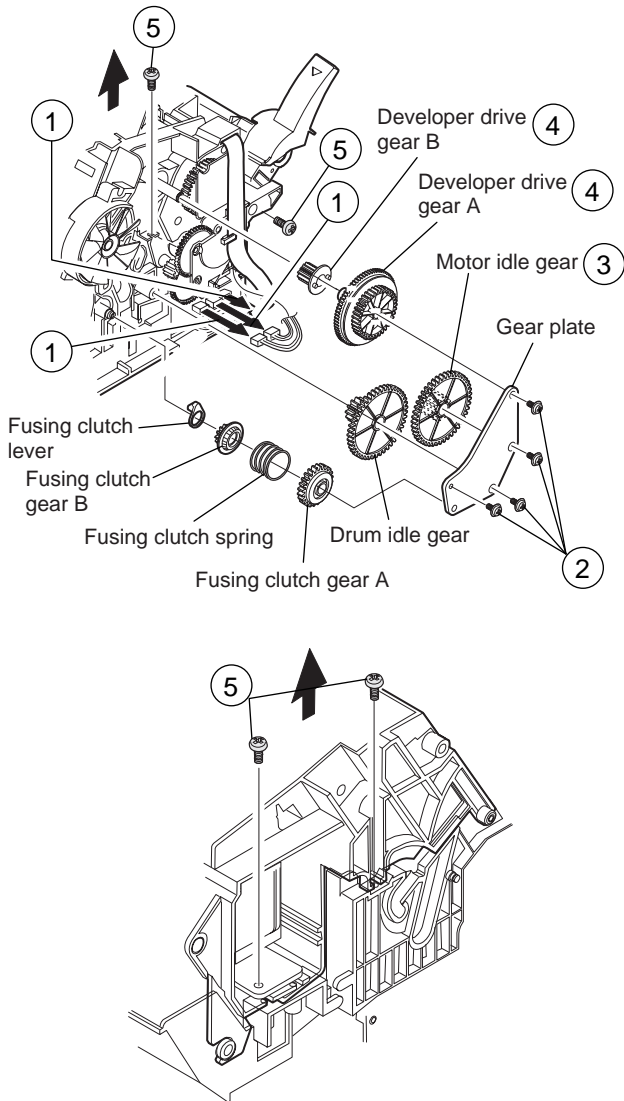


Fig. 15

- ⑥ Remove the arm of upper frame unit from the lower frame boss.
- ⑦ Rotate upper frame unit in the direction of arrow (B) so that the arm can be disassembled from the lower frame boss.

#### Note for assembly

- When attaching the upper and the lower frames, be careful not to pinch the cables.

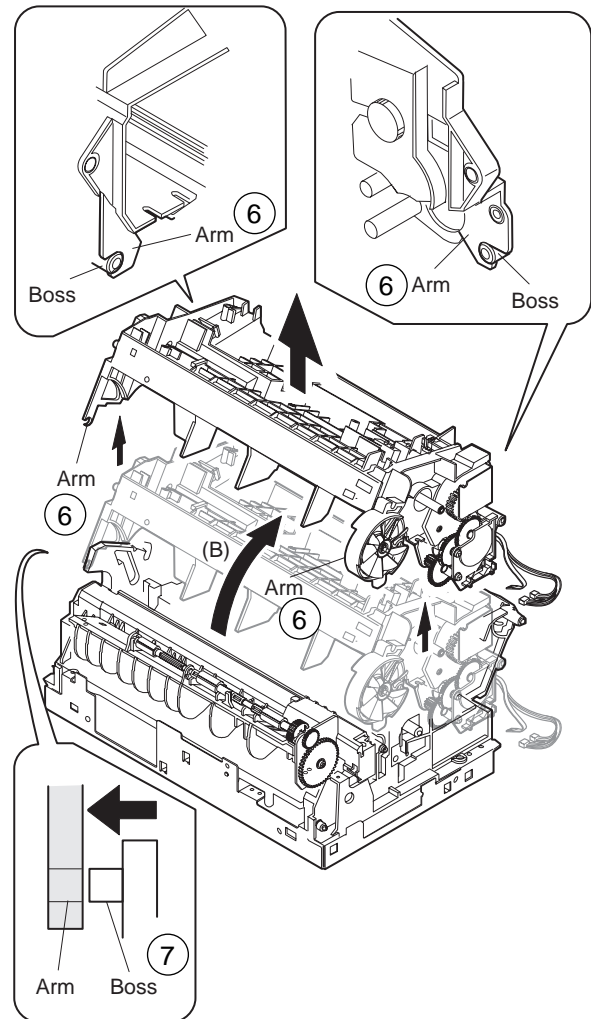


Fig. 16

### 10. Main motor

- ① Remove two screws and remove fusing gear cover.
- ② Remove PU idle gears.
- ③ Remove two screws.
- ④ Slide and remove main motor from the notch in the upper frame.
  - At that time, be careful not to damage or bend the shading sheet.

#### Note for assembly

- When attaching main motor, put the cable to the right side.

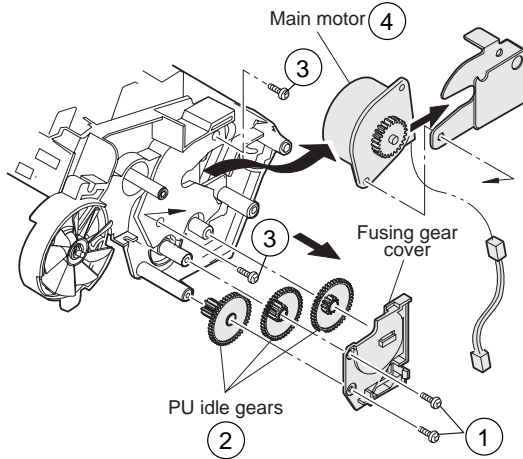


Fig. 17

### 11. Paper feed roller

- ① Remove two screws and remove gear cover.
- ② Remove PU idler gears.

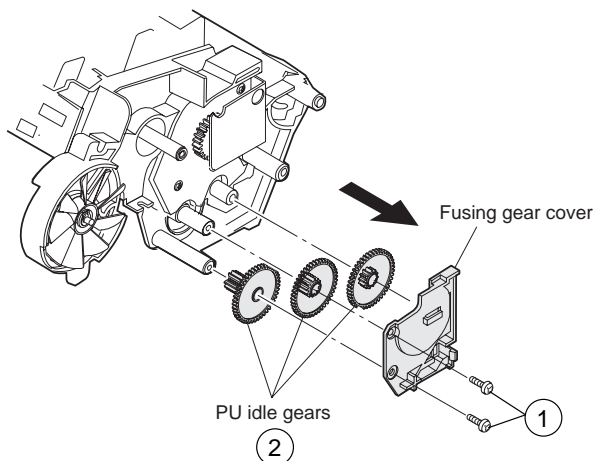


Fig. 18

- ③ Remove the tray lock lever.

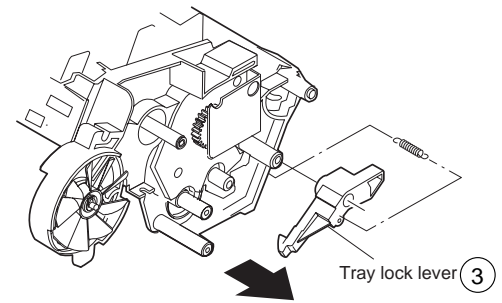


Fig. 19

The clearance between the clutch boss and the clutch gear must be  $0.1(+0.02/-0.03)$ mm

- ④ Remove the red reversing screw from the paper feed roller shaft.
- ⑤ Remove the paper feed clutch gear.
- ⑥ Pull out the paper feed roller.
- ⑦ Pull out the clutch sleeve, the clutch spring, the clutch R sleeve, and the paper feed roller boss from the paper feed roller shaft at the same time.

#### Note for assembly

- When assembling the paper feed roller boss, the clutch R sleeve, the clutch spring, and the clutch sleeve to the paper feed roller, be careful to the directions of the parts. Insert one of the bent section (I) of the clutch spring into the hole (II) in the clutch R sleeve, and insert the other bent section into the hole (III) in the clutch sleeve securely.

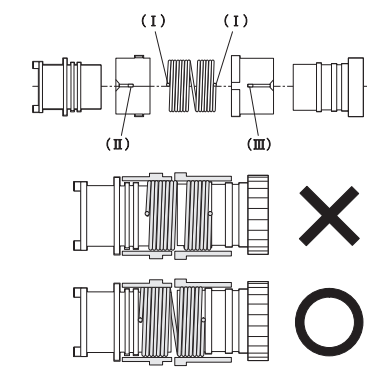
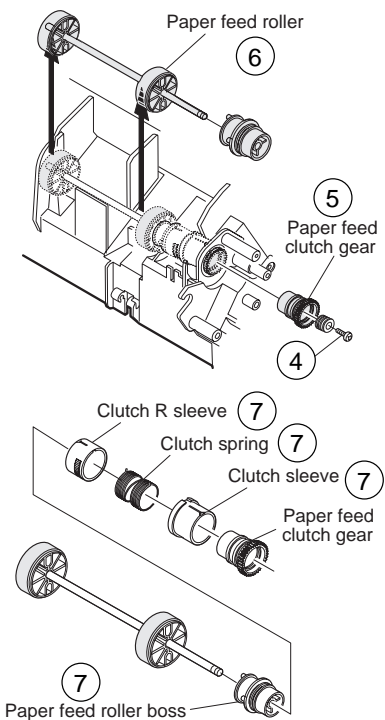


Fig. 20

## 12. Paper feed solenoid

- ① Remove connector.
- ② Remove lever release spring which is attached to sleeve release lever.
- ③ Remove one screw.
- ④ Slide paper feed solenoid and remove it from between curved mirror ass'y and the upper frame.

**Note:** At that time, do not disassemble curved mirror ass'y. (Never loosen the fixing screw.) If it is removed or shifted, precise adjustments are required, which cannot be performed in the market.

### Note for assembly

- When lever release spring is completely removed, and when it is attached again, hang the one side of lever release spring on paper feed solenoid before attaching paper feed solenoid to the upper frame.
- When attaching the paper feed solenoid, refer to the above figure for the correct fixing position.
- Be careful that the arm of paper feed solenoid is under sleeve release lever.

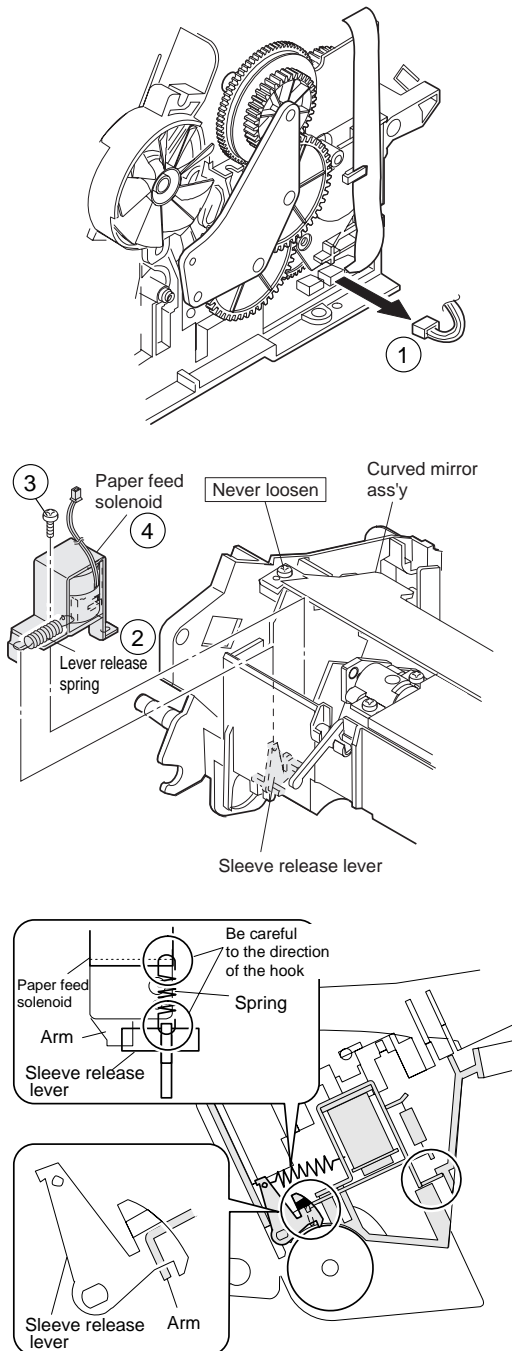


Fig. 21

## 13. Sleeve release lever

- ① Rotate sleeve release lever in the direction (A) and remove the shaft of sleeve release lever from the notch of the upper frame and remove it from the upper frame.

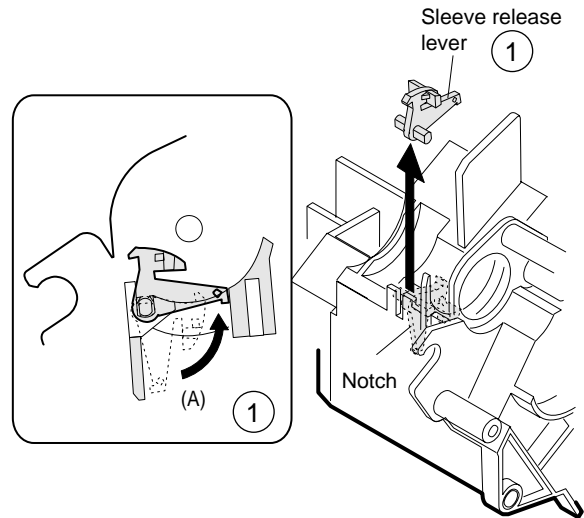


Fig. 22

## 14. PE lever (Paper Empty lever)

- ① Slightly turn the PE lever in the direction of arrow (A), and slide it in the direction of arrow (B).
- ② Remove the notch section of PE lever shaft from the notch section of the upper frame as shown in arrow (C), and remove PE lever.

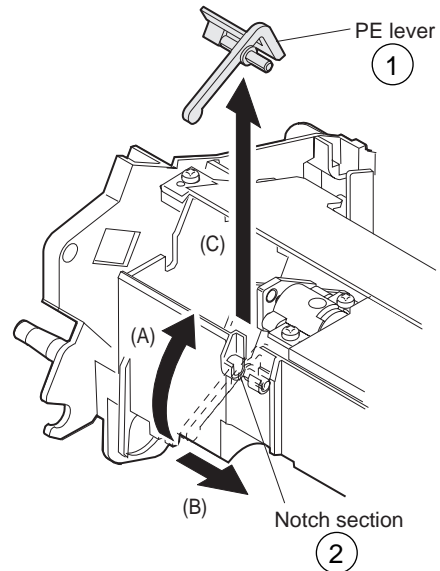


Fig. 23

### 15. Lock lever

- ① Remove connectors, and remove the cables from fusing gear cover.
- ② Remove two screws, and remove fusing gear cover.
- ③ Remove lock lever spring, and pull out lock lever from the upper frame.

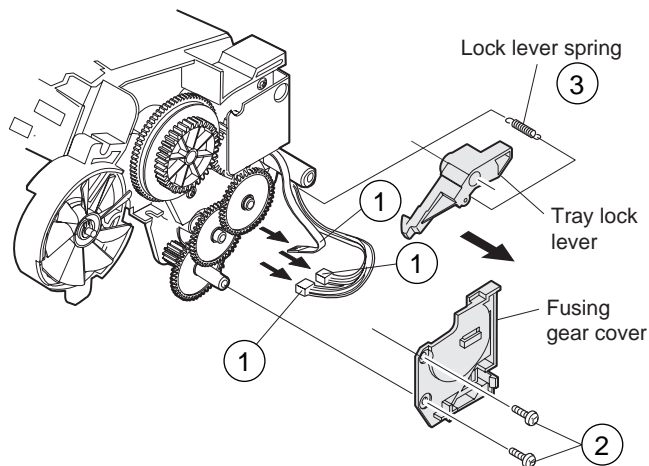


Fig. 24

### 16. Fan belt

- ① Remove four screws, and remove gear plate. At that time, fusing clutch gear A and fusing clutch spring are also disassembled
- ② Pull out motor idle gear.
- ③ Remove fan belt from developer drive gear A.
- ④ Remove fan belt from between fan and fan cover.

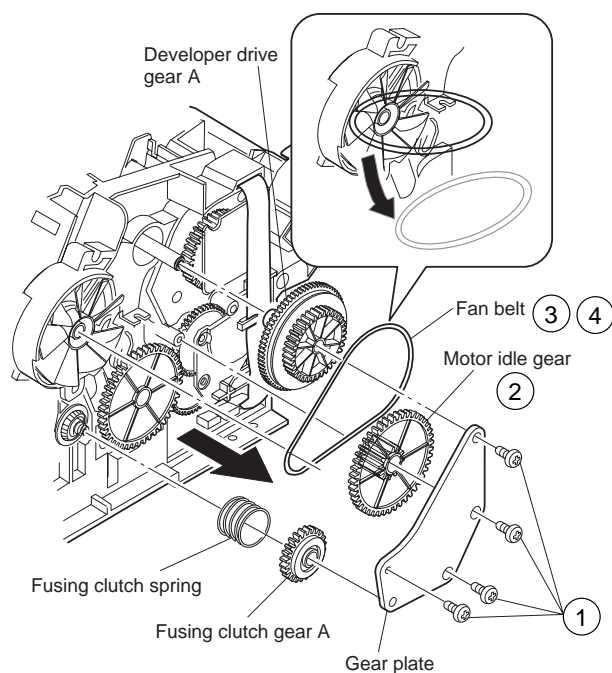


Fig. 25

### 17. Fusing unit

- ① Remove connectors.
- ② Release the protect of the cable connected to ① from the lower frame.
- ③ Remove two fixing screws of fusing harness (white, black).

Power	Thermal fuse (upper)	Heater lamp (lower)
100V series	Black	White

- ④ Remove two screws of the fusing section.
- ⑤ Pull out the fusing unit.

#### Note for assembly

- When attaching the fusing harness, be careful to the color and do not attach reversely.

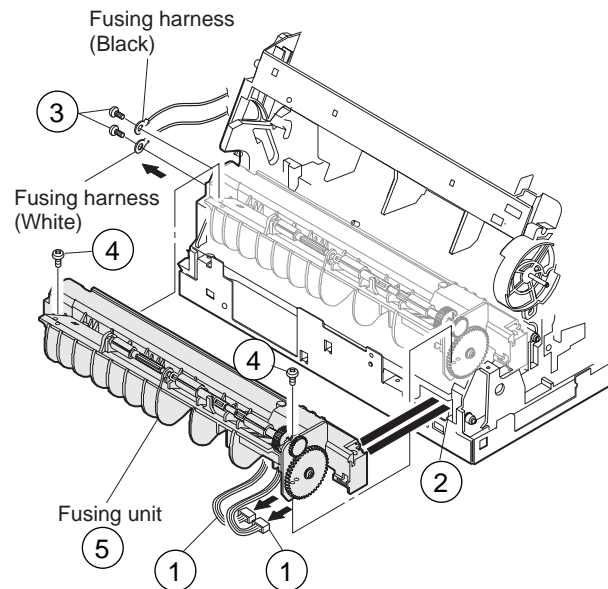


Fig. 26

### 18. Separate nails

- ① Remove four springs and remove four separate nails.

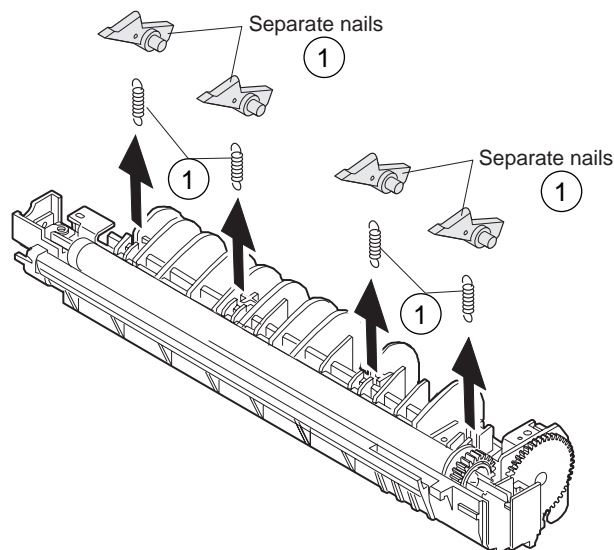


Fig. 27

### 19. Heat roller, heater lamp

- ① Remove two screws.
- ② Lift up the heat roller together with heater lamp, and slide it in the direction of arrow (A) and remove from fusing cover. Insert paper between the separate nail and the heat roller not to damage the heat roller surface. At that time, fusing gear and fusing bearing are also disassembled.
- ③ Remove heater lamp from heat roller.

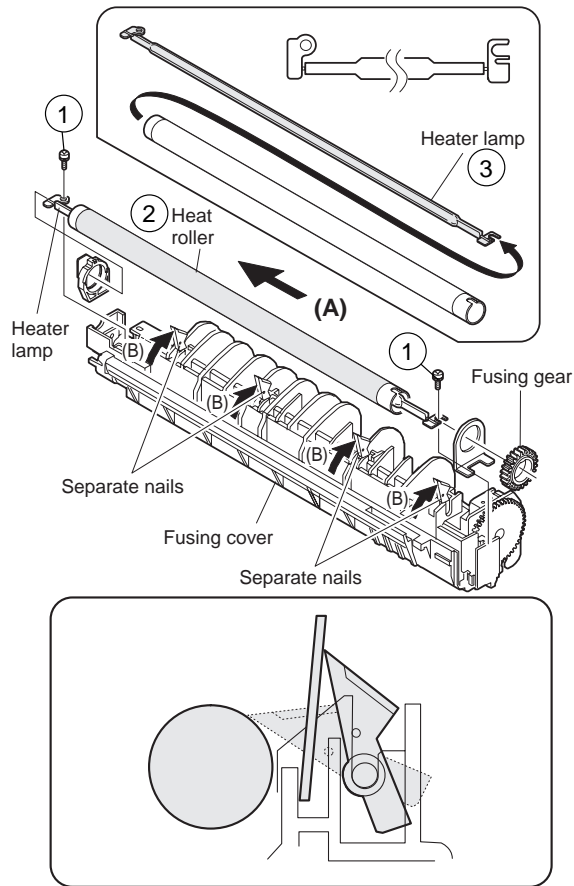


Fig. 28

#### Note for assembly (additional phrase)

When assembling the heat roller, insert a paper between the separate nail and the heat roller in order not to scratch the heat roller surface.

- When attaching heat roller to fusing cover, lift up the 4 parts of the separate nails.
- When inserting heater lamp into heat roller, check the inserting direction. (Check the shape of the terminal.)
- When attaching fusing gear, check the direction as follows.

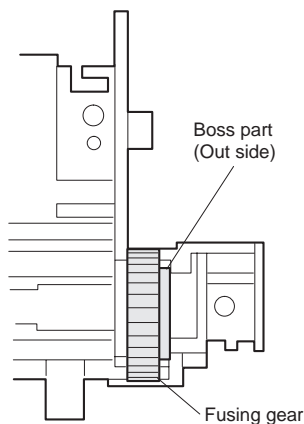


Fig. 29

- When passing heat roller through fusing gear, pass the notch of heat roller through the convex part of fusing gear as shown.

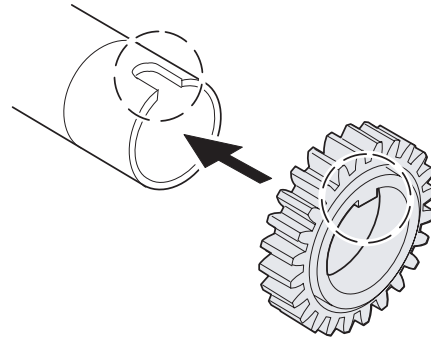


Fig. 30

### 20. Thermal fuses

- ① Remove one screw.
- ② Remove the temperature fuse holder from the fusing cover.
- ③ Release the protect of the temperature fuse holder cable, and remove the temperature fuse holder.
- ④ Remove the fuse sheet.
- ⑤ Remove two screws. (One from the back, and one from the front.)
- ⑥ Remove the temperature fuse from the fusing cover.

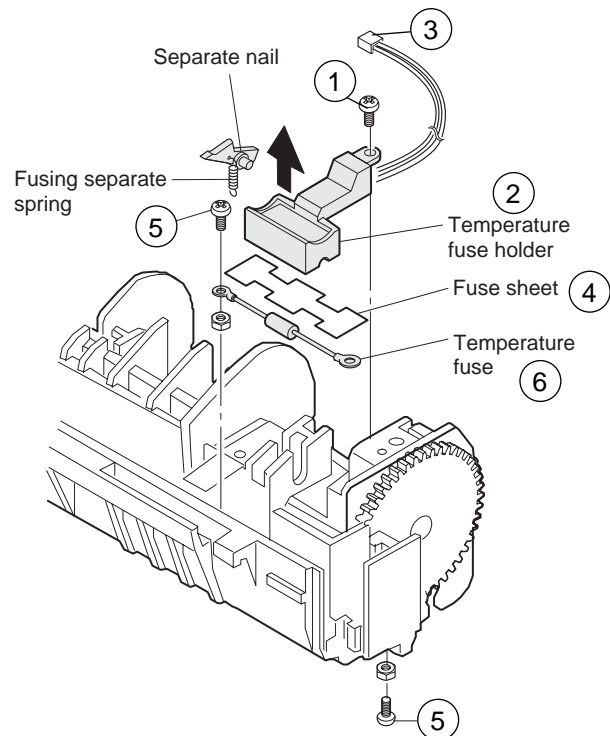


Fig. 31

## 21. Thermistor

- ① Remove one screw, remove the protect of the thermistor cable, and remove the thermistor.

**Note:** Be careful not to mistake the installing direction of the thermistor. Attach so that the thermistor orange cover side is on the front side of the heat roller.

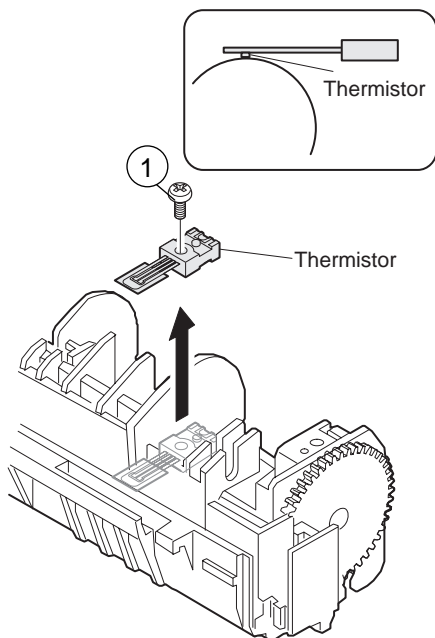


Fig. 32

## 22. AC connection wire

- ① Remove one screw.
- ② Remove AC connection wire in the direction of arrow (A). At that time, pull out the bent section of AC connection wire from the notch of the fusing cover.

### Note for assembly

- When installing the wire, the nut is attached.

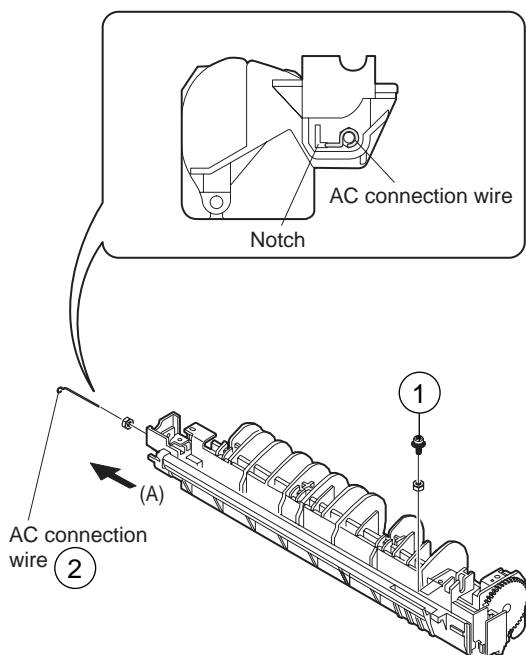


Fig. 33

## 23. Paper exit roller upper

- ① Bend the shaft of paper exit roller upper A, and disengage it from the Hook of fusing cover and remove it in the direction of arrow (A).
- ② Remove the shaft of paper exit roller upper A from the notch of fusing cover, and remove paper exit roller upper A.
- ③ Use tweezers to disengage the hook of fusing knob, separate it into two sections, and remove it from paper exit roller upper.
- ④ Remove paper exit roller upper B in the direction of arrow (B), and remove it from fusing cover.

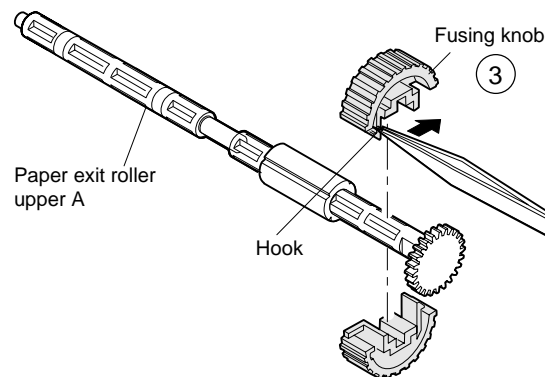
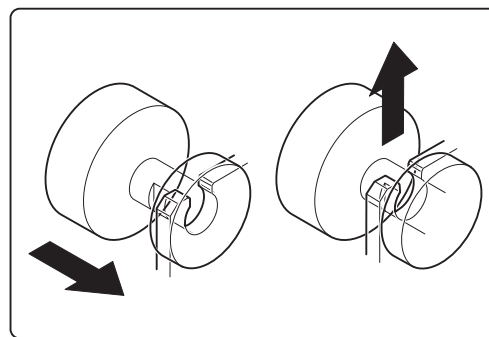
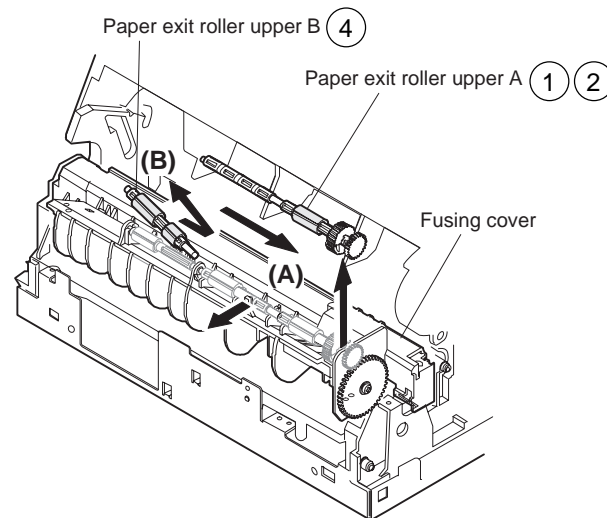


Fig. 34

## 24. Transfer roller

- ① Insert a screwdriver into the bearing installation hole on the nondrive side and remove the bearing.
- ② Remove the transfer roller from the main body.

**Note:** When installing the transfer roller, install the pressure springs (2 pcs.) . Be careful not to scratch the transfer roller or not to attach foreign materials.

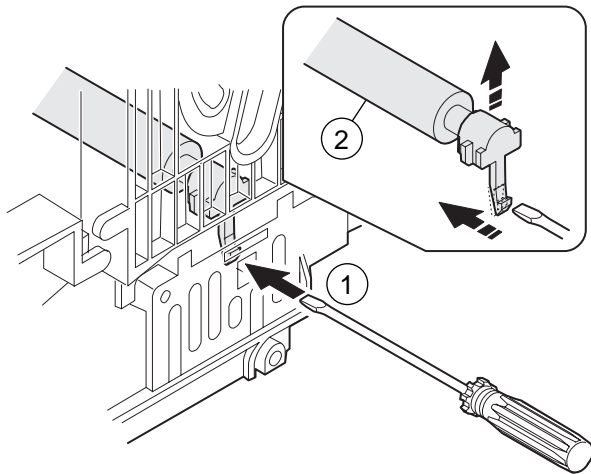


Fig. 35

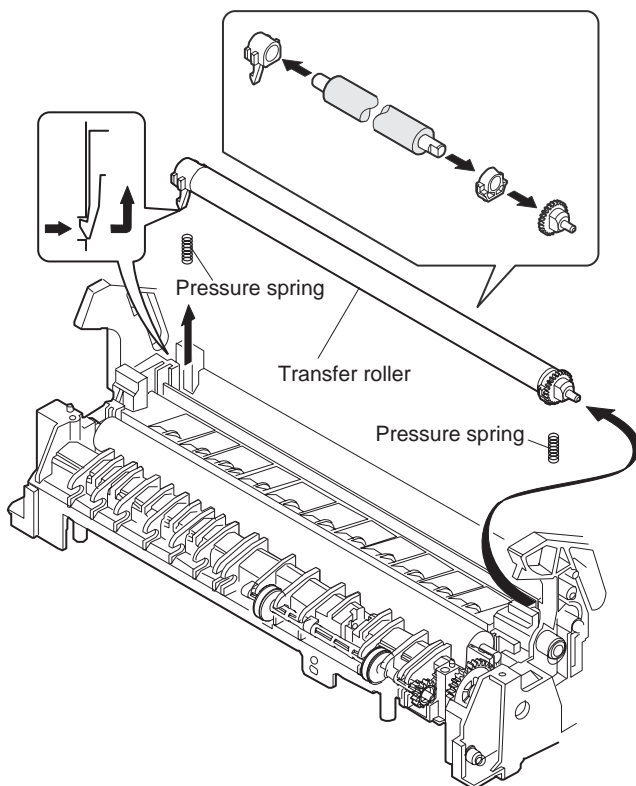


Fig. 36

## 25. Fusing roller

- ① Remove the fusing roller.

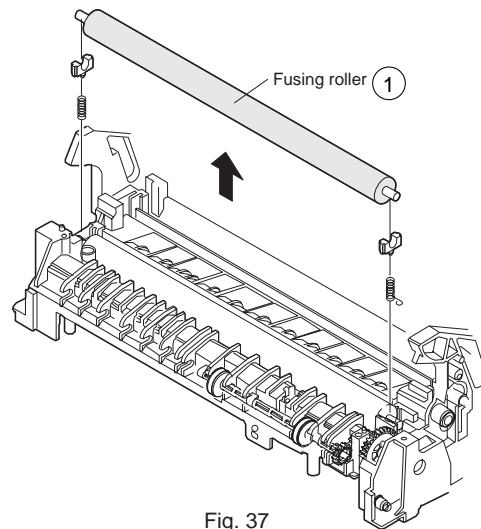


Fig. 37

## 26. Separation electrode

- ① Remove four screws, and remove gear plate.  
At that time, fusing clutch gear A and fusing clutch spring are also disassembled.
  - ② Pull out motor idle gear and remove drum idle gear.
  - ③ Remove earth terminal fixing screw.
  - ④ Slide the earth terminal in the direction of A and remove it from the main body frame.
- When pulling out the grounding section of separation electrode lastly, the bent section of electrode is caught by the lower frame. Therefore, use a screwdriver (-) to hold the electrode section of separation electrode so as not to be caught as follows (Fig. 39).

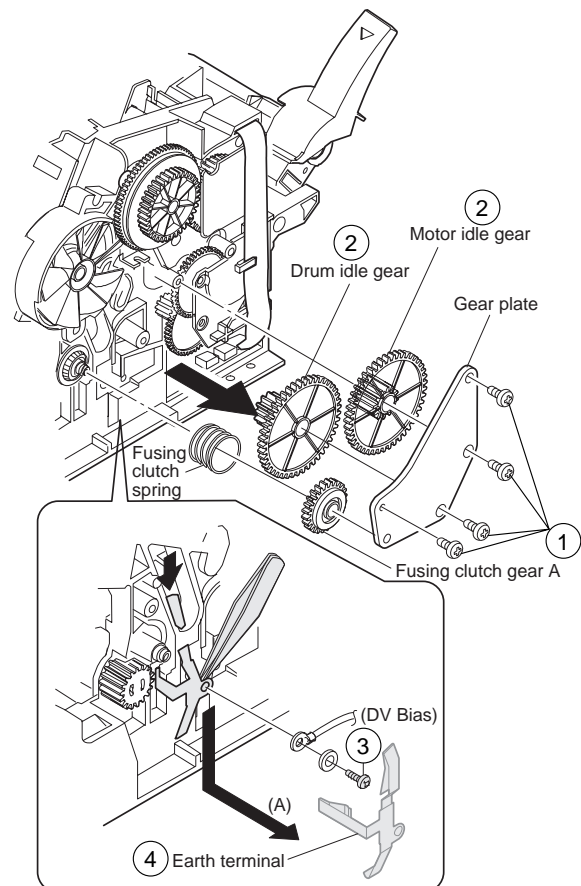


Fig. 38

## 27. PIN actuator (Paper in detection lever)

- ① Turn the PIN actuator and slide the thin section of the shaft in the arrow (A) direction and remove it from the lower frame.

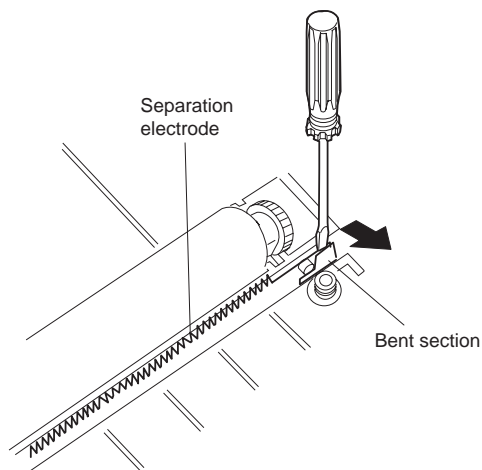


Fig. 39

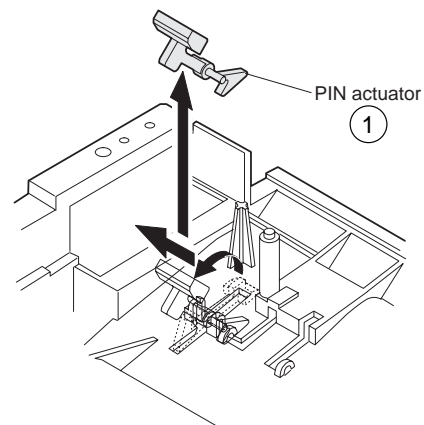


Fig. 42

- ⑤ Hold the right side of separation electrode with tweezers and disengage it from the lower frame boss and remove upward as follows.

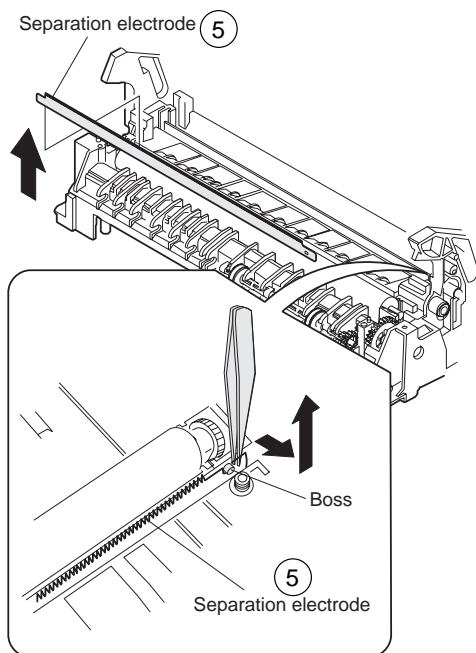


Fig. 40

## 28. POUT actuator (Paper OUT detection lever)

- ① Turn the POUT actuator and slide the thin section of the shaft in the arrow (A) direction and remove it from the lower frame.

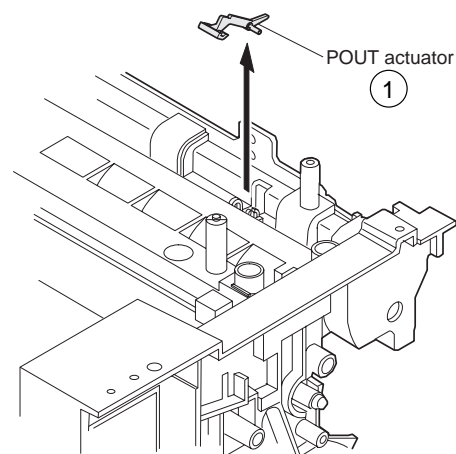


Fig. 43

### Note for assembly

- When attaching the PWB unit to the lower frame, put the lower frame upside down. Face the PIN actuators and POUT actuator as shown in the figure below.

**Note :** Drum earth electrode so that it is on the terminal on the PWB unit as follows.

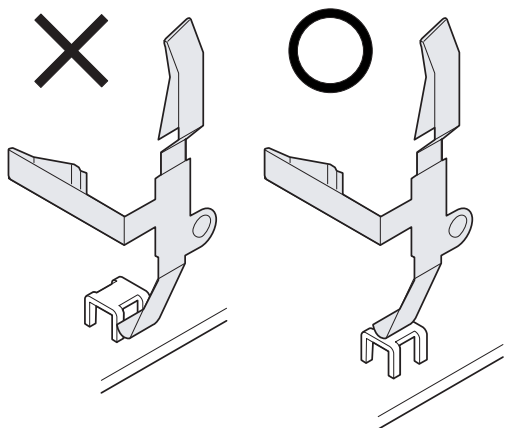


Fig. 41

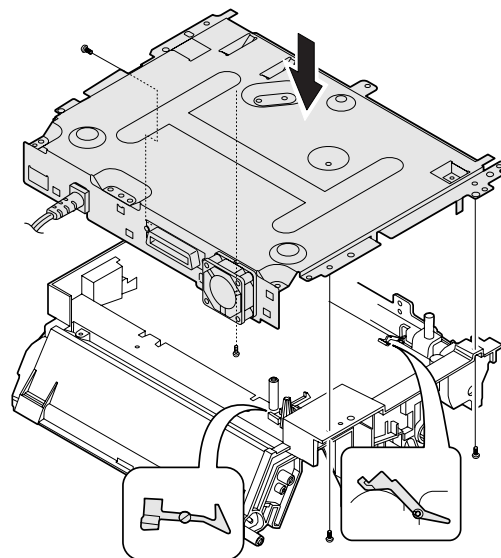


Fig. 44



### 29. Separate plate ass'y

- ① Insert a screwdriver (→) between the separate plate unit arm and the lower frame from the lower frame paper passing side, and drive it in the direction of arrow (A) to remove the temporal fixing stopper and remove the separate plate upward (in the direction of arrow (B)).
- ② Pull out the other separate plate ass'y toward you in the same manner.
- ③ Remove spring, and remove separate plate ass'y.

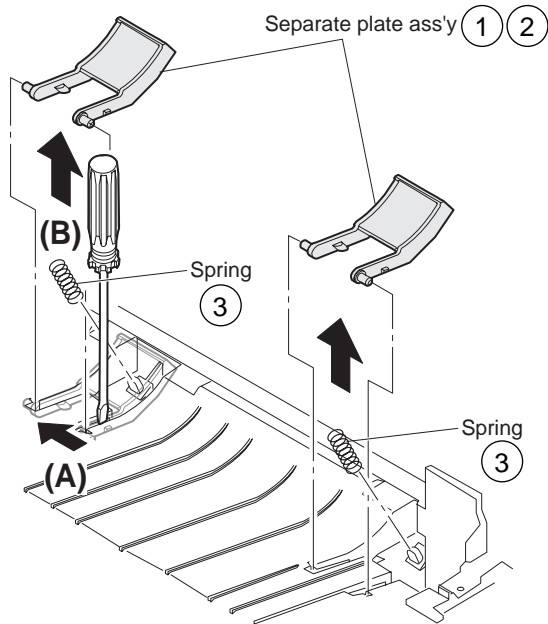


Fig. 45

### 30. High voltage terminal DR-MC (High voltage terminal: Photoconductor drum main charger)

- ① Remove high voltage terminal DR-MC.  
• Terminal cover is included.

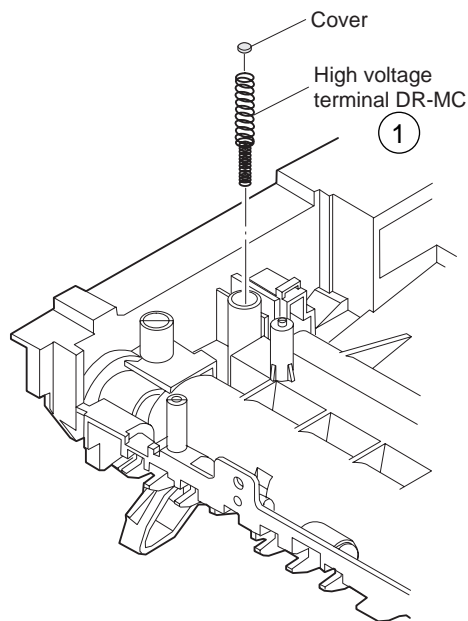


Fig. 46

### 31. High voltage terminal TC (High voltage terminal:transfer charger)

- ① Use tweezers to pick up the projection of high voltage terminal TC, and remove high voltage terminal TC.

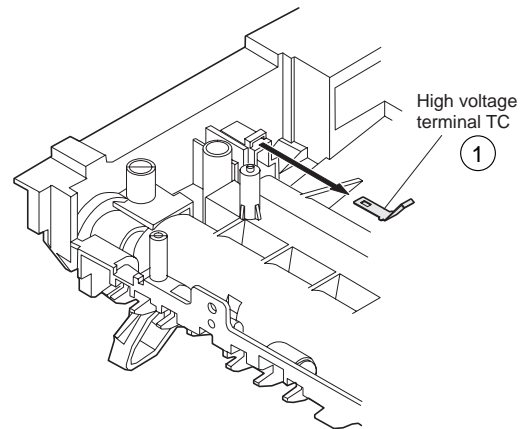


Fig. 47

### 32. DV bias electrode

- ① Remove two screws, and remove fusing gear cover.
- ② Remove PU idle gears.

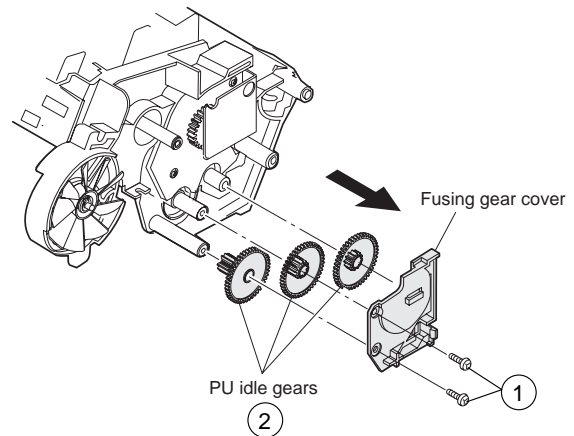


Fig. 48

- ③ Remove four screws, and remove gear plate. Then fusing clutch gear A and fusing clutch spring will come off.
- ④ Pull out motor idle gear.

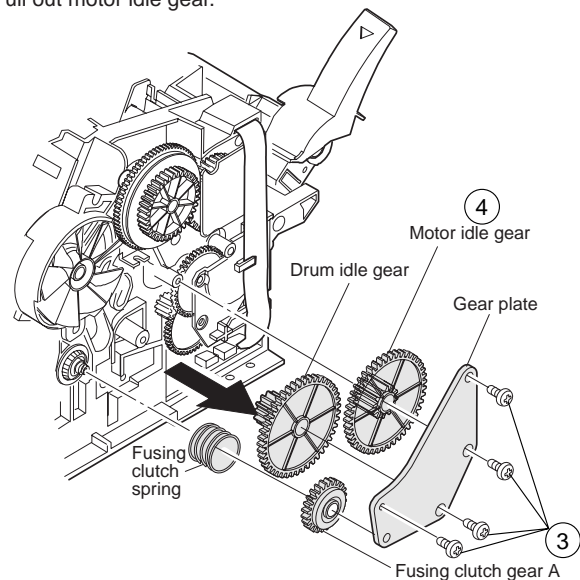


Fig. 49

- ⑤ Remove two screws.
- ⑥ Pull DV bias electrode toward you, and remove it from the lower frame.

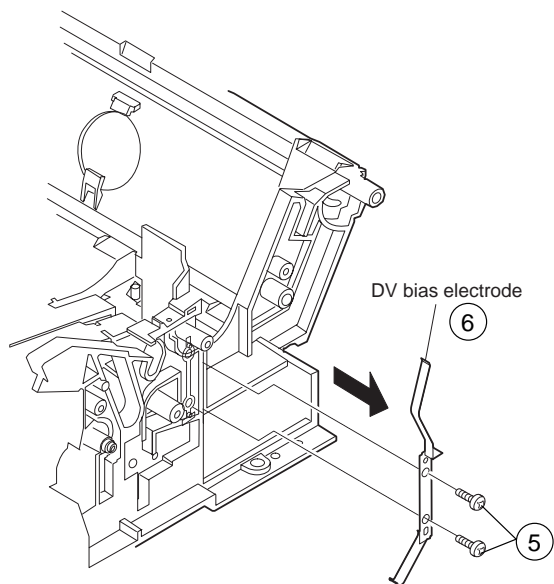


Fig. 50

**Note for assembly**

- When attaching DV bias electrode, adjust so that the contact is over the DC-BIAS electrode of the PWB unit.

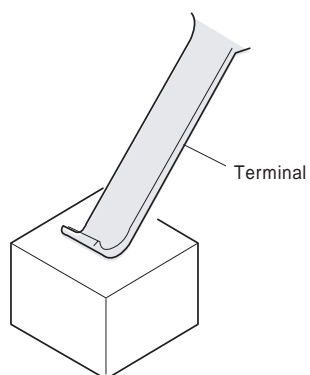


Fig. 51

**Note**

Fusing section:

- When fixing the cable of the temperature fuse and the thermistor, put it neat inside the projection of the frame. If not, paper jams may be resulted.

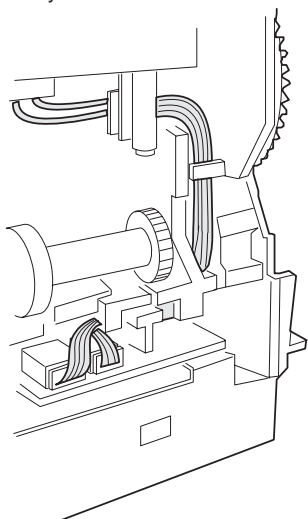


Fig. 52

Optical section

- Do not touch the mirror fixing screw in the optical section. If touched, the mirror bracket may change, causing a shift in the print image position or vague images. The mirror angle cannot be adjusted in the market.
- Do not touch the volume attached. If touched, normal images cannot be produced. This adjustment cannot be made in the market.

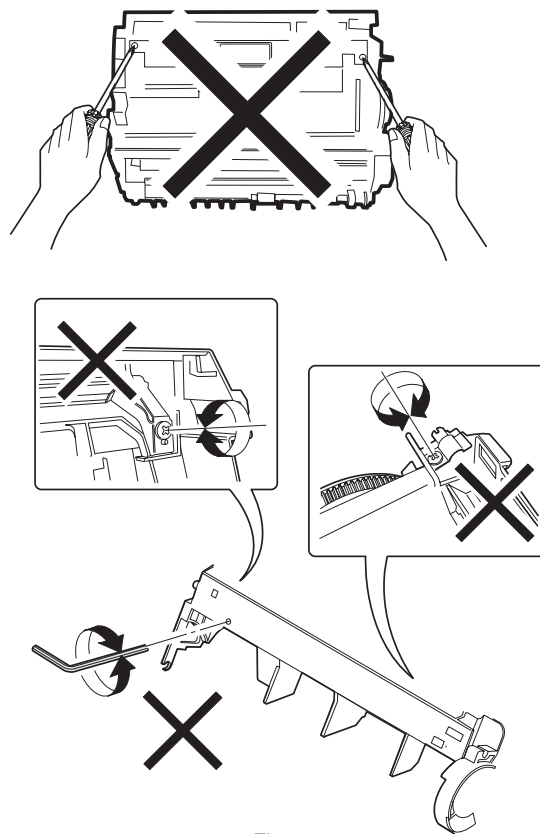


Fig. 53

**33. Wire treatment**

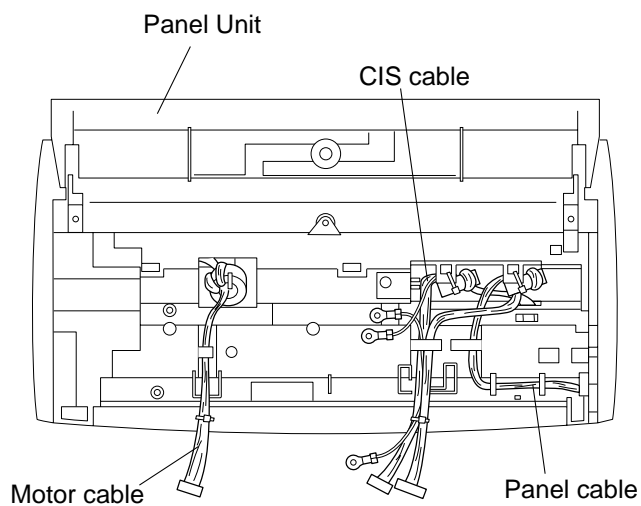


Fig. 54