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## Stamp Creator PRO SERVICE MANUAL

MODEL: SC-2000

Version A



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### MECHANISMS & ELECTRONICS

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**Stamp Creator PRO  
SERVICE MANUAL**

**MODEL: SC-2000**

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# Stamp Creator PRO SC-2000

## Mechanical Part

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# CHAPTER I SPECIFICATIONS

## 1. MECHANICAL SPECIFICATIONS

### 1.1 Overview

- (1) External view See Fig. 1.1.
- (2) Dimensions 470 mm (W) × 238.3 mm (D) × 180.8 mm (H)  
(without the magazine tray assy)
- (3) Weight Approx. 8 kg
- (4) Total weight (machine and package) Approx. 11 kg

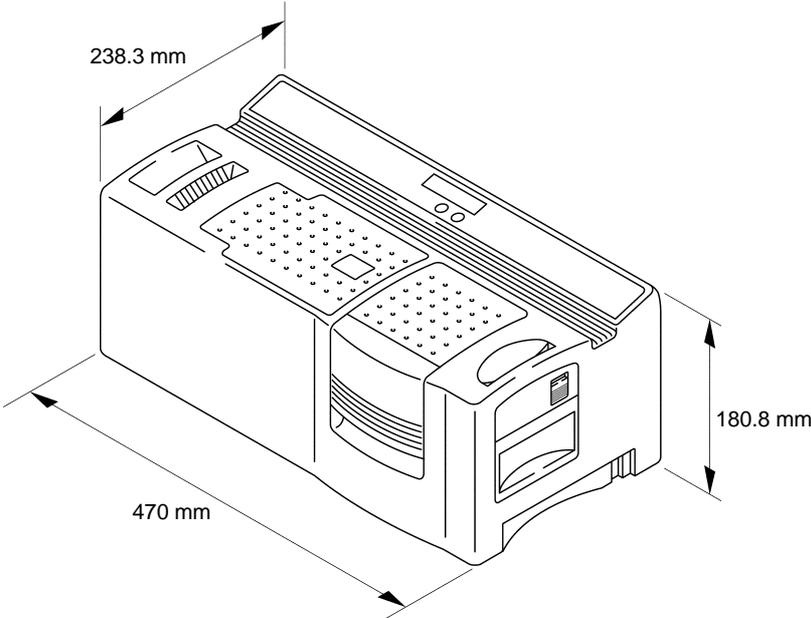


Fig. 1.1 External Dimensions

## 1.2 Input Specifications

- |                    |                |
|--------------------|----------------|
| (1) Type of keys   | Tactile switch |
| (2) Number of keys | 2              |
| (3) Key layout     | See Fig. 1.2   |

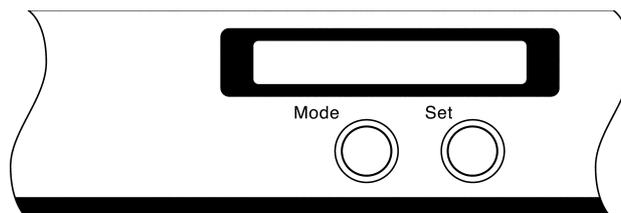


Fig. 1.2 Control Panel

## 1.3 Display Specifications

- |                          |                                     |
|--------------------------|-------------------------------------|
| (1) Display method       | Character type LCD                  |
| (2) Number of characters | 15 columns $\times$ 1 line          |
| (3) Dots CG construction | 5 dots $\times$ 7 dots + the cursor |
| (4) Dot size             | 0.58 mm wide by 0.524 mm high       |
| (5) Dot pitch            | 0.65 mm wide by 0.594 mm high       |

## 1.4 Printing Specifications

- |                               |   |
|-------------------------------|---|
| (1) Printing type             | Thermal fusion and printing method by thermal head  |
| (2) Printing speed            | 99.2 dots/sec. (4.2 mm/sec.)  |
| (3) Thermal head construction | Thin film thermal head 960 dots $\times$ 1 dot<br>Vertical pitch 0.0425 mm (1/600 inch)<br>Dimensions of a heating element<br>0.035 mm wide by<br>0.060 mm high |

### **1.5 Engraving Stamp Specifications**

- |                            |                              |
|----------------------------|------------------------------|
| (1) Engraving stamp method | Light engraving stamp method |
| (2) Operation load         | 98 N (10 kgf) or lower       |
| (3) Light source           | Xenon lamp (xenon unit)      |

### **1.6 Xenon Unit Specifications**

- |                                  |   |
|----------------------------------|---|
| (1) Light source                 | Xenon lamp  |
| (2) Light emission times         | 2000 times or more                                    |
| (3) Construction                 | Xenon tube, reflector, acrylic plate, and glass plate |
| (4) Packaged standard xenon unit | Yes (1 piece)   |

### **1.7 Ribbon Cassette Specifications**

- |   |  |
|---|--|
| (1) Ink color                             | Black  |
| (2) Printing times                        | 150 or more printing surfaces<br>(1 printing surface includes both an ID label and a draft sheet.) |
| (3) Packaged standard ink ribbon cassette | Yes (1 piece)  |

### **1.8 Magazine Tray Specifications**

- |                                     |                            |
|-------------------------------------|----------------------------|
| (1) Capacity                        | 50 draft sheets            |
| (2) Separation method               | Separation method by claws |
| (3) Packaged standard magazine tray | Yes (1 piece)              |

# 1.9 Stamp Specifications

(1) Types and sizes of stamp

Size	Dimensions (mm)
1212	28 × 31
2020	36 × 39
3030	47 × 50
4040	57 × 60
1060	26 × 79
1438	30 × 57
1850	34 × 69
2260	38 × 79
2770	43 × 90
3458	51 × 78
4090	57 × 110

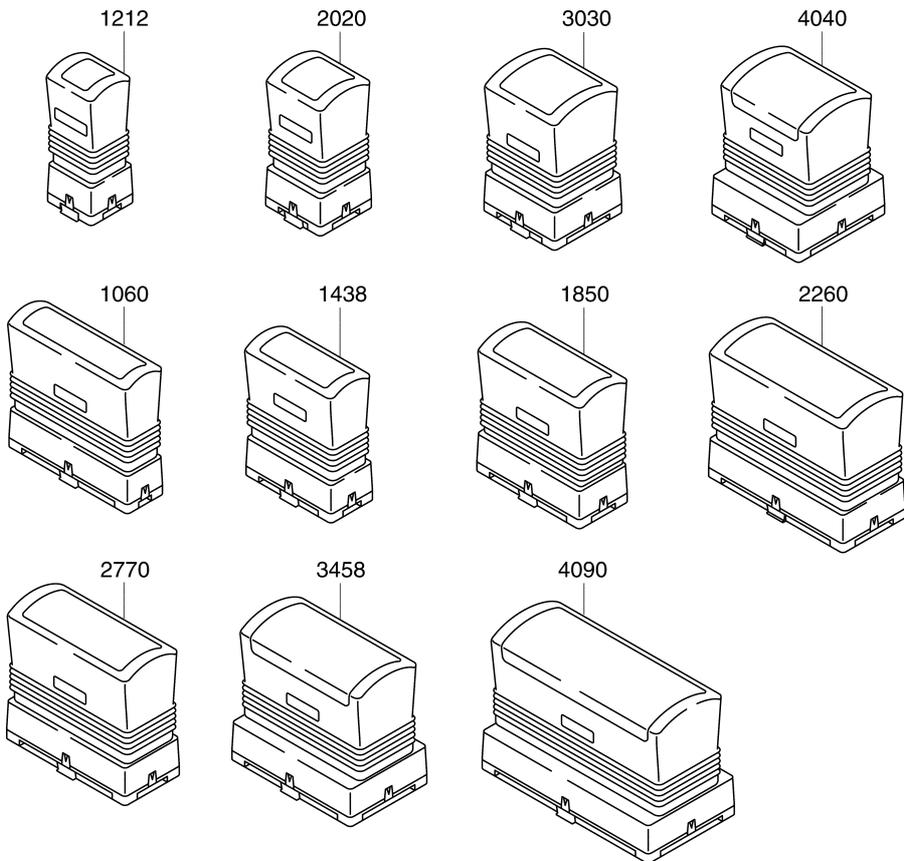
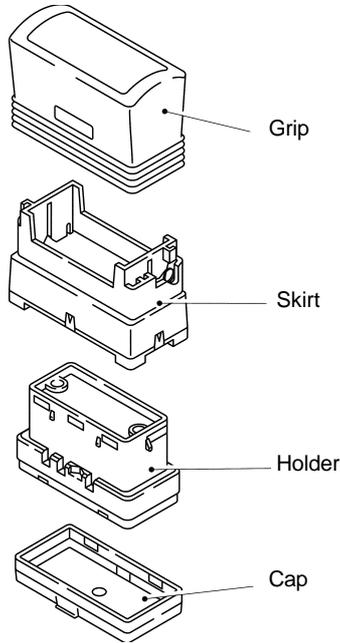


Fig. 1.3 Stamp Types

(2) Configuration

Grip, skirt, holder, and cap  
(The holder consists of printing material, an absorption sheet, an ink pack, and an inside plate.)



**Fig. 1.4 Stamp Configuration**

(3) Effective printing area

Size	Dimensions (mm)
1212	9.9 × 9.8
2020	18.0 × 18.0
3030	27.2 × 27.1
4040	37.4 × 37.3
1060	7.8 × 57.9
1438	11.9 × 36.2
1850	16.0 × 47.8
2260	19.0 × 56.9
2770	23.8 × 67.1
3458	31.3 × 54.9
4090	37.4 × 86.7

(4) Ink color (for each size)

Black, red, and blue

(5) Packaged standard stamp

Yes (1438 and 1850: 2 pieces,  
2770: 1 piece)

### 1.10 Draft Sheet Specifications

- |                                   |                         |
|-----------------------------------|-------------------------|
| (1) Dimensions                    | 58 mm × 172 mm × 0.1 mm |
| (2) Material                      | PET film                |
| (3) Packaged standard draft sheet | Yes (150 sheets)        |

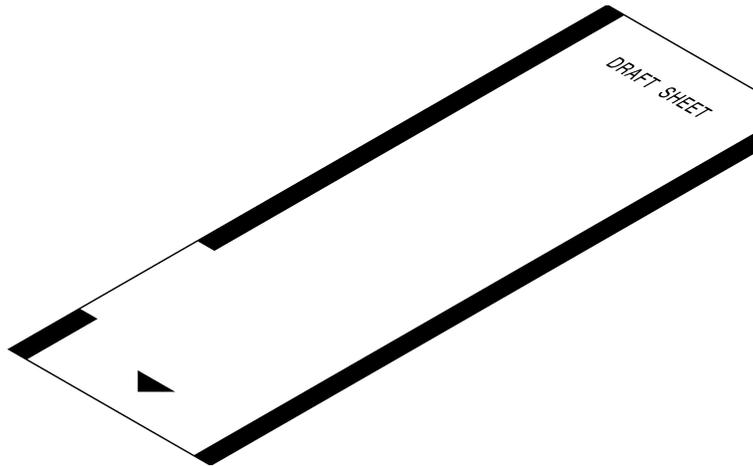


Fig. 1.5 Draft Sheet

### 1.11 ID Label Specifications

- |                                |  |
|--------------------------------|--|
| (1) Dimensions                 | 58 mm × 170 mm × 0.15 mm   |
| (2) Material                   | White PET film<br>(with adhesive and a separator on the back)                                    |
| (3) Type                       | A total of 11 types (1212, 2020, 3030, 4040,<br>1060, 1438, 1850, 2260, 2770, 3458, and<br>4090) |
| (4) Packaged standard ID label | Yes (1438 and 1850: 2 labels,<br>2770: 1 label)  |

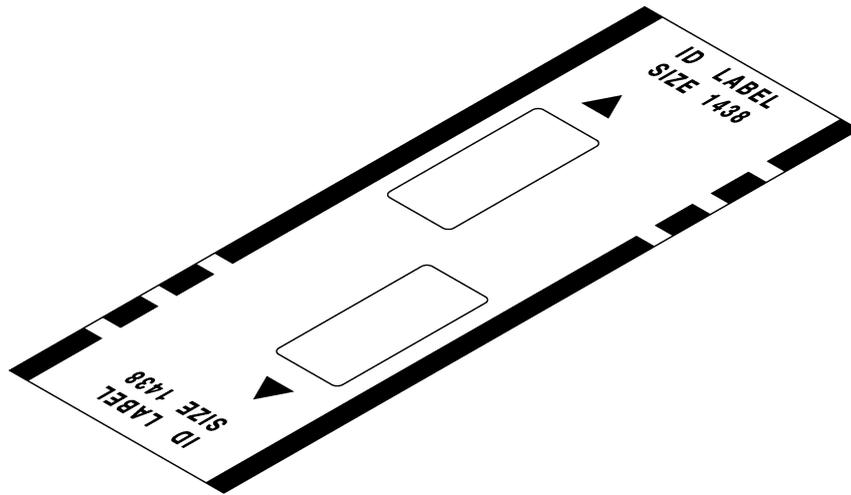


Fig. 1.6 ID Label 1438

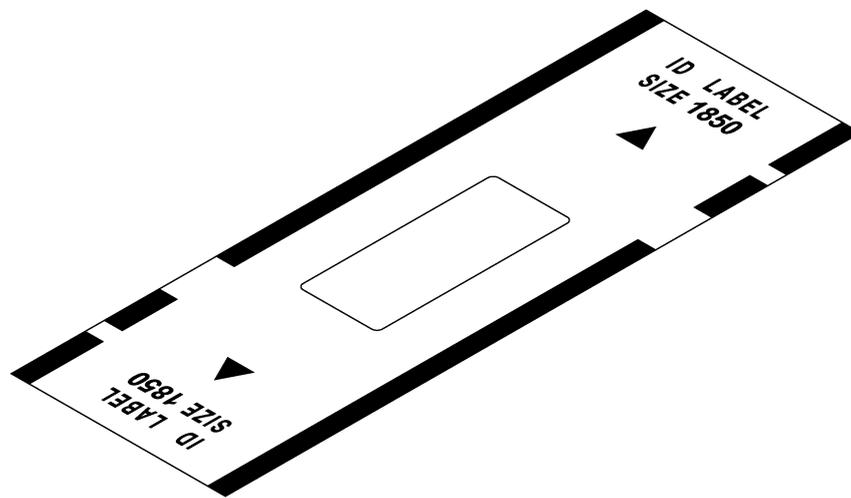


Fig. 1.7 ID Label 1850

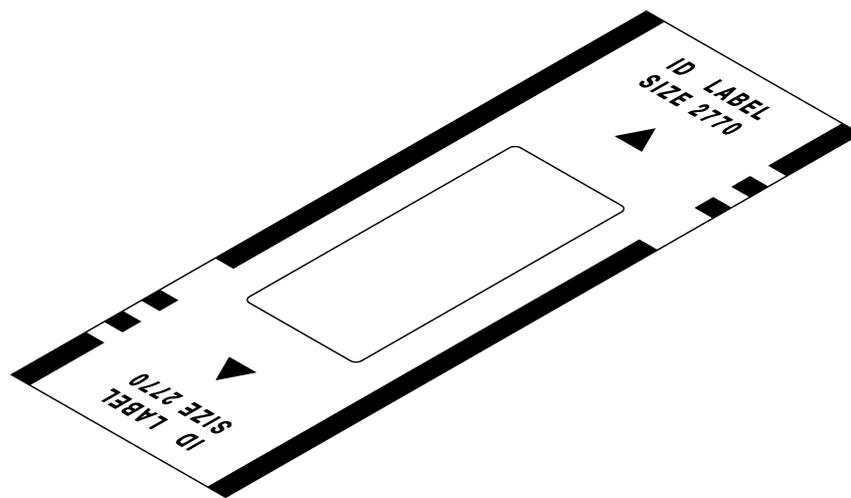


Fig. 1.8 ID Label 2770

# CHAPTER II THEORY OF MECHANISM OPERATION

## 1. PRINTING MECHANISM

### 1.1 Construction of Thermal Head

The thermal head contains 960 heating elements vertically arranged. The size of one heating element is 0.035 mm wide by 0.060 mm high, as shown in Fig. 2.1.

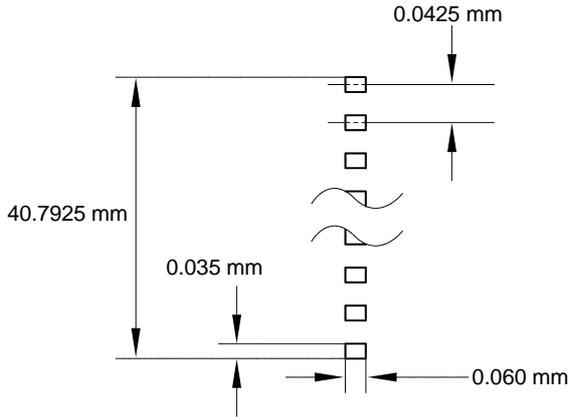


Fig. 2.1 Heating Elements of the Thermal Head

### 1.2 Theory of Printing

During printing operation, the thermal head crimps the ink ribbon and a draft sheet (or an ID label) on the cylindrical rubber platen. In this state, the CPU selects the required heating elements out of the 960 heating elements to energize them. When the energized heating elements are heated, the ink in the ink ribbon is fused, and the ink is transferred to an adhered draft sheet (or an ID label) to print dots. The ink ribbon and the draft sheet (or the ID label) are fed to the next printing position simultaneously at the same speed to start the next printing cycle. By repeating the printing cycles in this manner, a character and graphics is printed on the surface of a draft sheet (or an ID label).

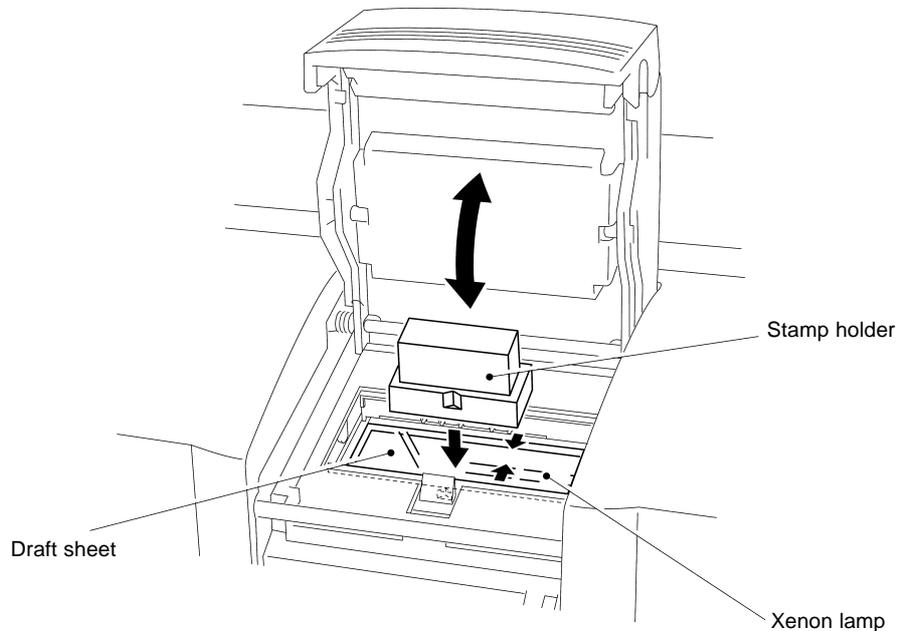
### 1.3 Configuration of Character and Graphics

The driving motor continuously feeds a draft sheet (or an ID label) and the ink ribbon by 0.0423 mm in 9 ms, during which the CPU heats the thermal head once to print a character and graphics.

## 2. ENGRAVING STAMP MECHANISM

### 2.1 Theory of Engraving Stamp

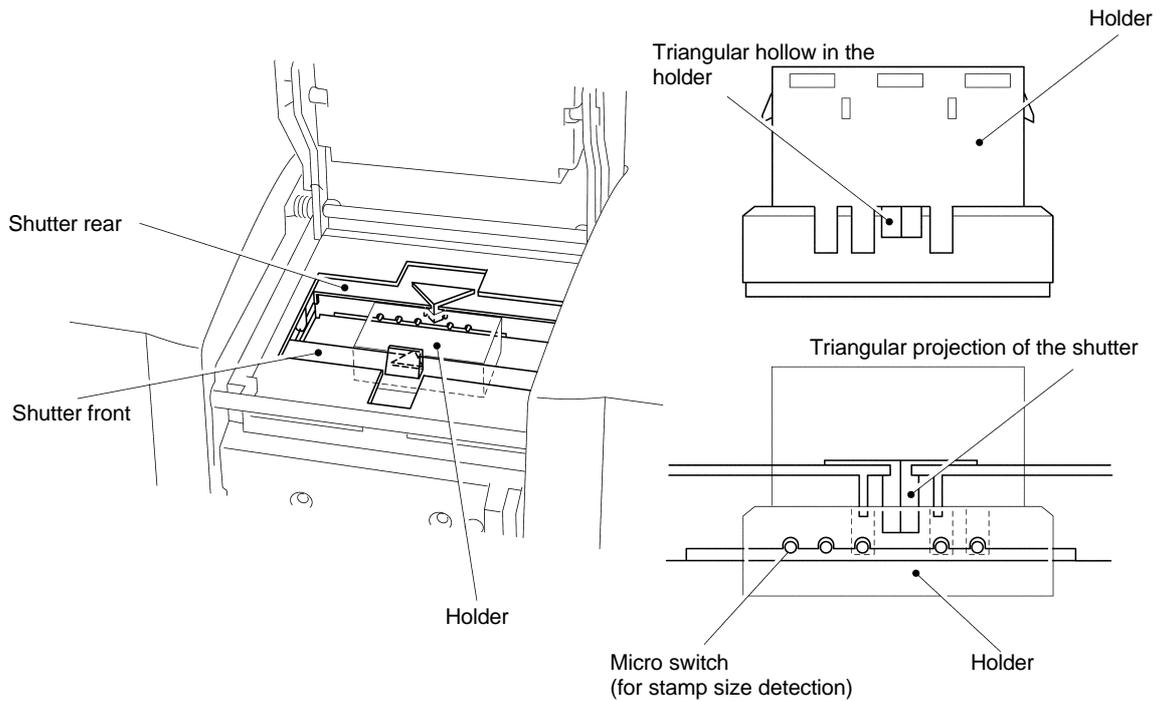
The draft sheet printed with a character and graphics is fed onto the transparent plate on the light emitting part of the xenon unit. Position the holder on the draft sheet with the printing material (made of porous resin) facing down, and apply a load on the holder by closing the engraving stamp cover to cause the xenon lamp to emit light. As for the draft sheet's area printed with no character or graphics, the light is directly irradiated on the printing surface. The light heats the carbon contained in the printing material to thermally fuse the printing material, and the pressure closes up the holes in the printing material. This manufactures the printing surface with holes left only on the area with a character and graphics. After engraving stamp, setting the grip on the holder fills the inside of the holder with the ink from the ink pack to enable imprinting.



**Fig. 2.2 Stamp Holder Mounting**

## 2.2 Positioning the Holder

The holder is positioned at the engraving stamp position by the two interlocked shutters that open and close back and forth and the triangular projections in the centers of the shutters. At this time, the six micro switches send ON/OFF signals according to the shapes of the hollows in the holder, which depend on the size of the holder, to detect the size of the holder, as shown in Fig. 2.3.



*Note: The above shows holder 1850.*

**Fig. 2.3**

### 3. FEED MECHANISM

#### 3.1 Feeding Draft Sheet

The draft sheets, set in the magazine tray assy, are fed one by one from the side contacting the paper feed roller, and then separated by the separating claws, as shown in Fig. 2.4.

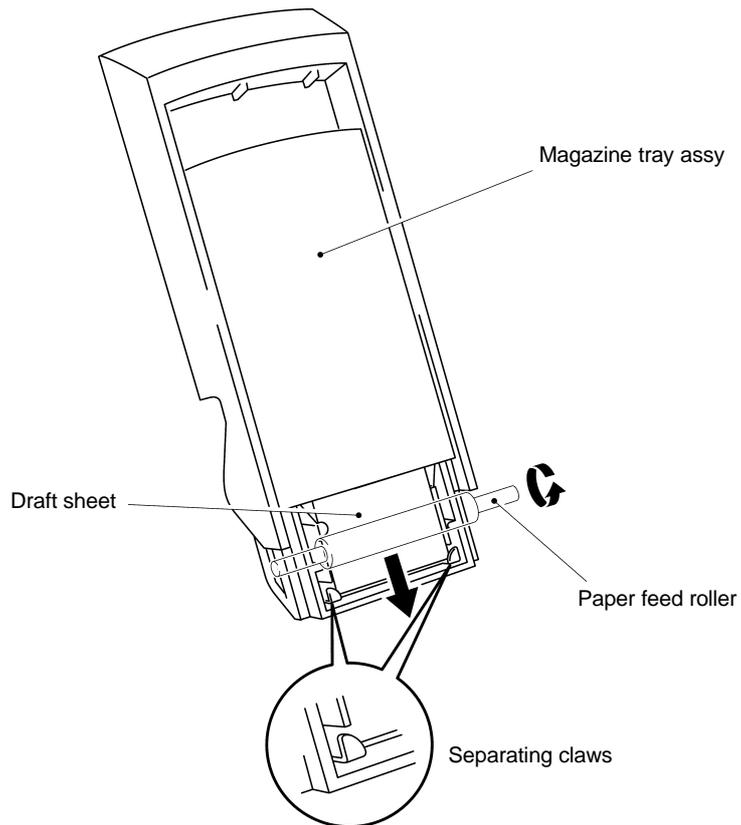
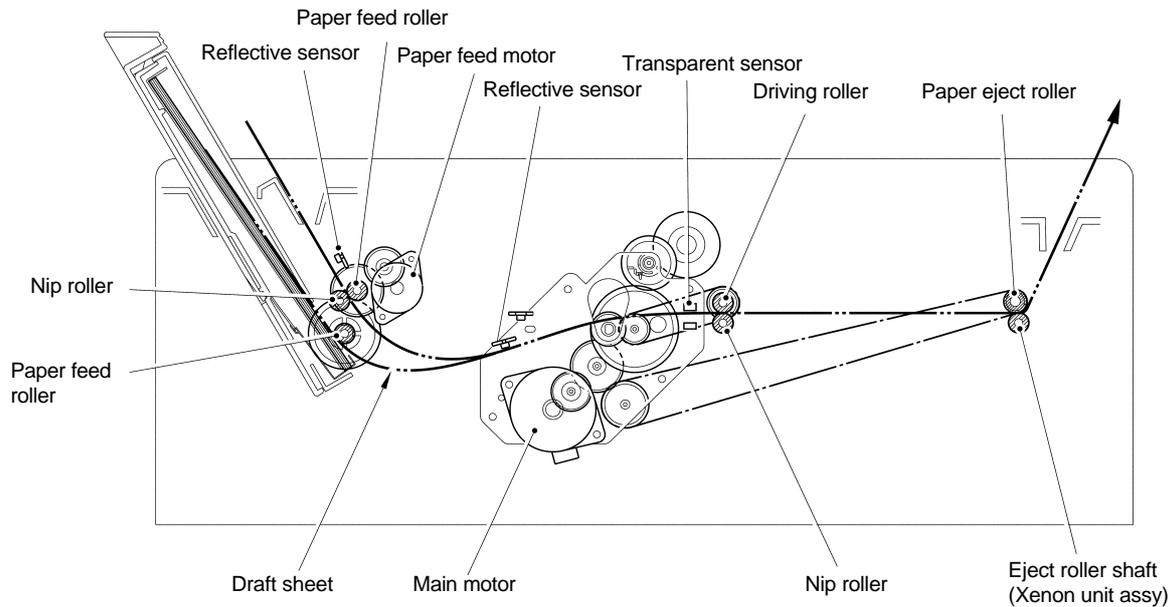


Fig. 2.4

### 3.2 Feeding Draft Sheet and ID Label

The driving motor rotates each roller via a gear train and the timing belt (MXL belt) to feed a draft sheet and an ID label, as shown in Fig. 2.5. The feeding position of the draft sheet is detected by the transparent sensors to control the printing start position and the engraving stamp position.



**Fig. 2.5 Feeding Path**

## CHAPTER III DISASSEMBLY AND REASSEMBLY

### Precautions on Safety

- (1) Disassemble and reassemble the machine on a grounded antistatic sheet. Touching electronic components such as an LSI with an electrified hand will break them, as they are easily affected by static electricity.
- (2) Wrap the machine in an electrically conductive aluminum sheet before carrying it.
- (3) When using heating tools such as soldering iron, take care not to thermally break resin components such as a wire, a PCB, and a cover.
- (4) Take care not to lose small components, such as a screw and a washer, which have been removed to replace other components.
- (5) **Never remove main capacitor charge PCB from the capacitor case since the PCB may be charged with high voltage.**

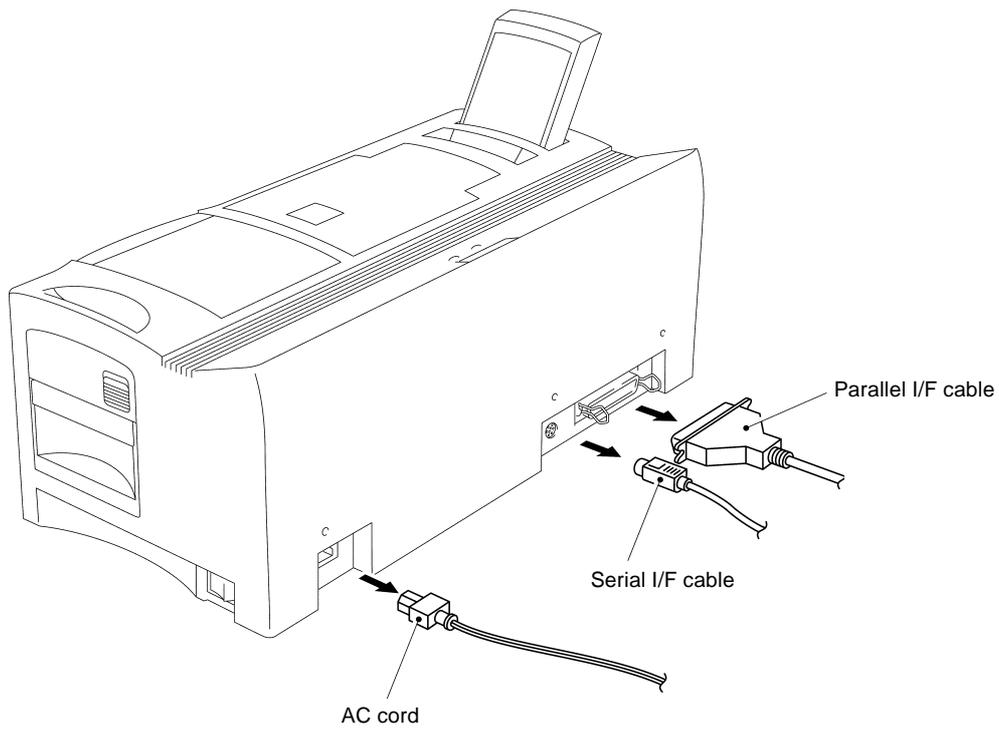
### List of Tightening Torque

Position	Screw	Qty.	Tightening torque N·cm (kgf·cm)
Paper feed motor	Screw, bind M2.6 × 5	2	49 ± 9.8 (5 ± 1)
Main motor	Screw, bind M3 × 5	2	58.8 ± 9.8 (6 ± 1)
Motor holder sub assy	Screw, bind M3 × 5	3	58.8 ± 9.8 (6 ± 1)
Presser unit assy	Screw, pan (S/P washer) M3 × 6DB	12	117.6 ± 9.8 (12 ± 1)
Presser unit assy (front: shutter cover)	Screw, pan (S/P washer) M3 × 6DB	2	117.6 ± 9.8 (12 ± 1)
Thermal head unit	Screw, bind M3 × 5	2	58.8 ± 9.8 (6 ± 1)
Main chassis	Taptite, bind B M3 × 12	6	78.4 ± 9.8 (8 ± 1)
Control panel PCB holder	Taptite, bind B M3 × 12	2	78.4 ± 9.8 (8 ± 1)
Body cover (rear)	Screw, bind B M3 × 12	3	78.4 ± 9.8 (8 ± 1)
Body cover (top)	Screw, bind M3 × 5	1	58.8 ± 9.8 (6 ± 1)
	Screw, bind M3 × 8	2	58.8 ± 9.8 (6 ± 1)
Main capacitor unit assy	Screw, bind B M3 × 12	4	78.4 ± 9.8 (8 ± 1)

# 1. DISASSEMBLY PROCEDURES

## 1.1 Disassembly of the I/F Cable and the AC Cord

Remove the I/F cable and the AC cord in the back of the machine, as shown in Fig. 3.1.

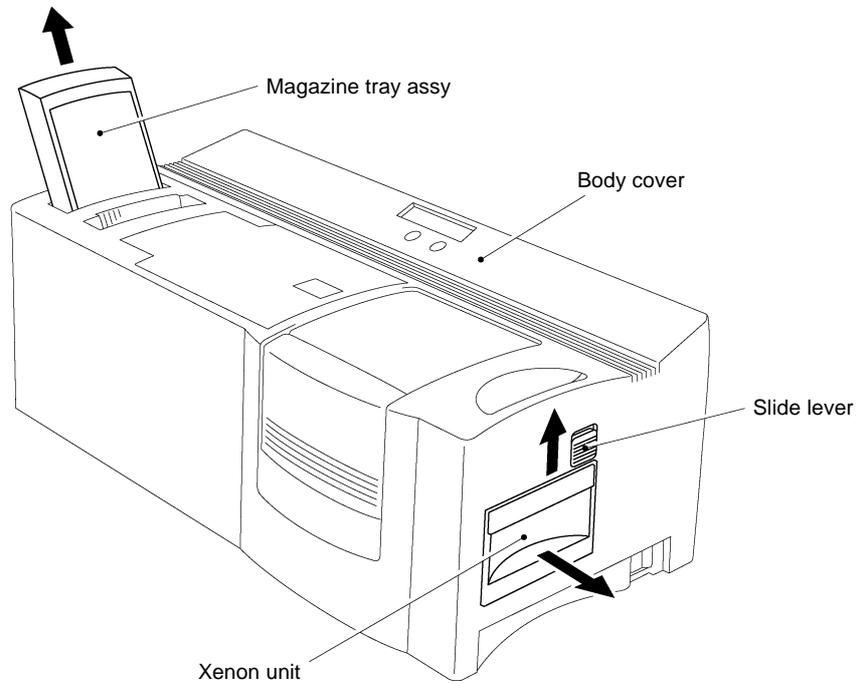


**Fig. 3.1**

## 1.2 Disassembly of the Magazine Tray Assy and the Xenon Unit

Remove the magazine tray assy by lifting it diagonally.

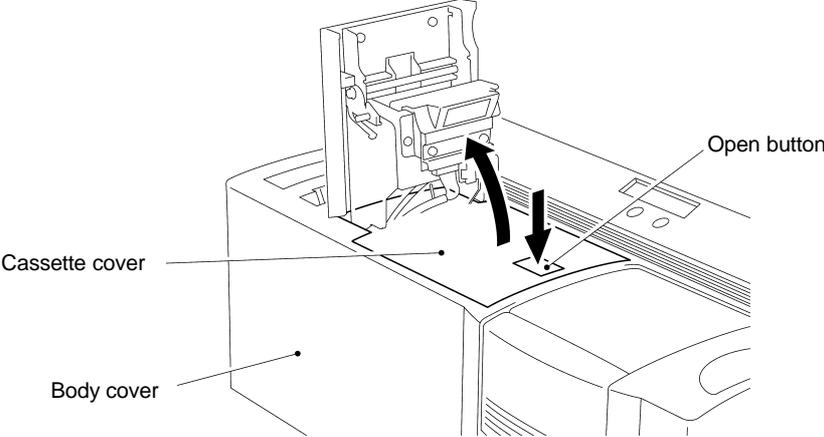
While sliding the slide lever on the side of the machine upwards, pull out the xenon unit, as shown in Fig. 3.2.



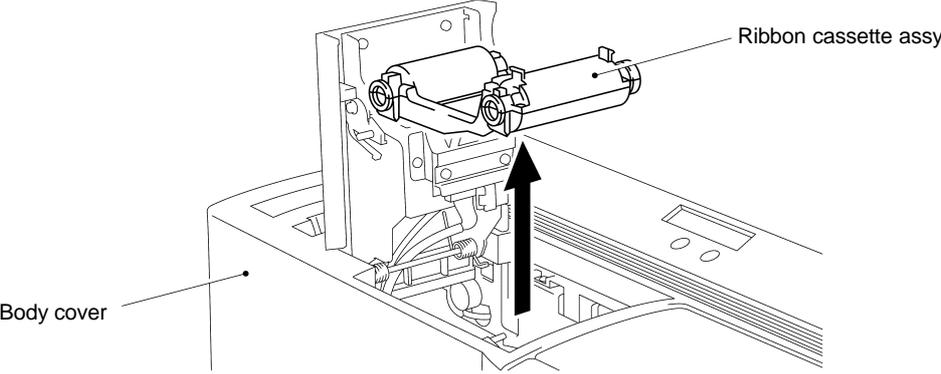
**Fig. 3.2**

**1.3 Disassembly of the Ribbon Cassette Assy**

Press the open button on top of the machine to open the cassette cover, and remove the ribbon cassette assy, as shown in Figs. 3.3 and 3.4.



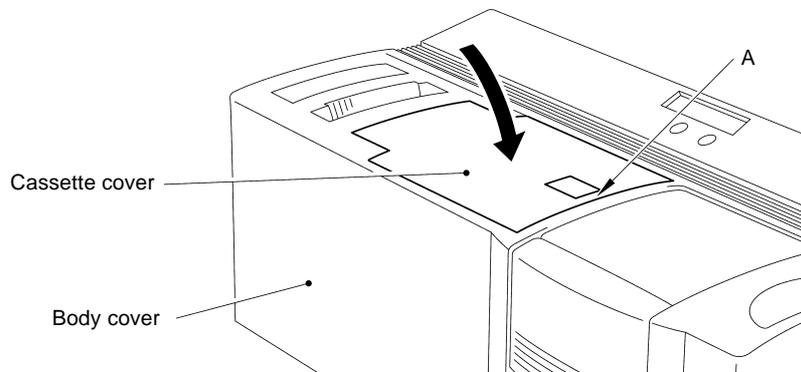
**Fig. 3.3**



**Fig. 3.4**

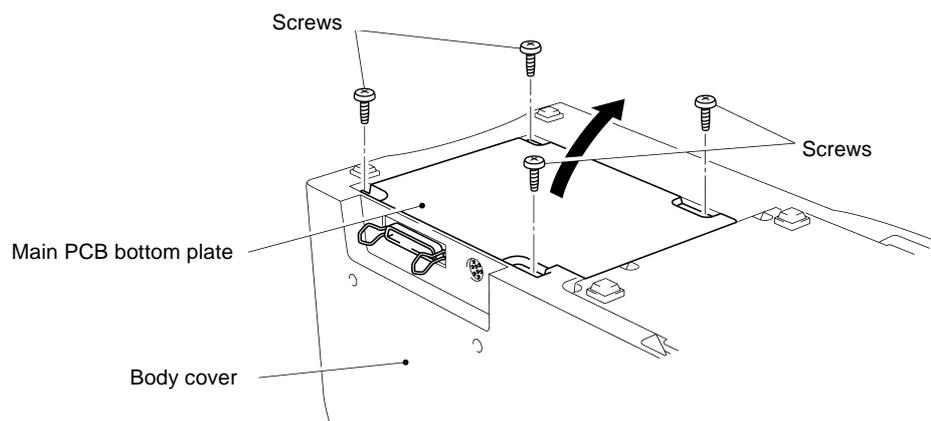
## 1.4 Disassembly of the Main PCB Assy

Press part A of the cassette cover to close it, as shown in Fig. 3.5.



**Fig. 3.5**

Turn the machine over and remove the four screws to remove the main PCB Assy, as shown in Fig. 3.6.

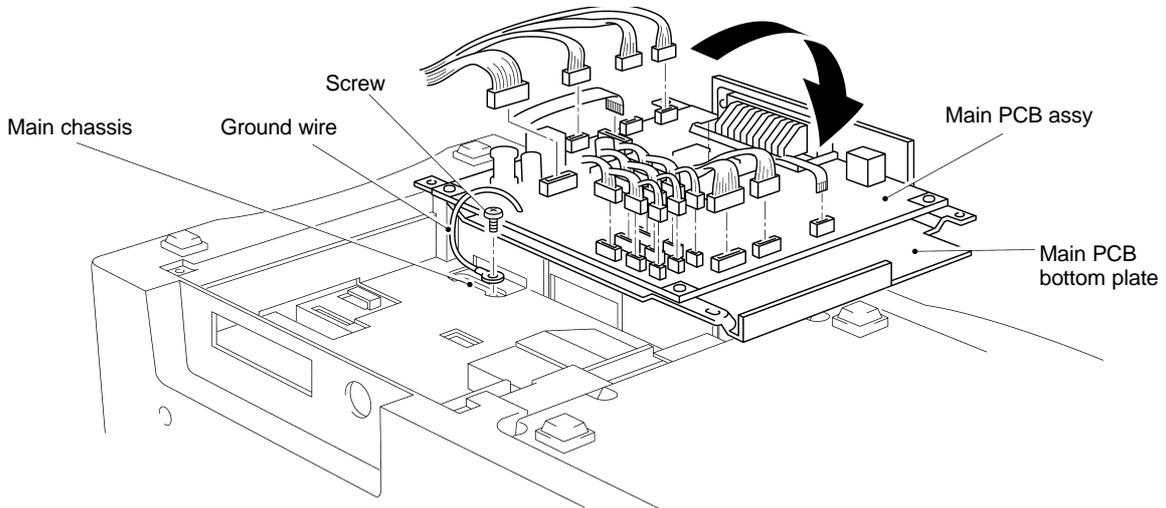


**Fig. 3.6**

Pull out the connectors from the main PCB assy.

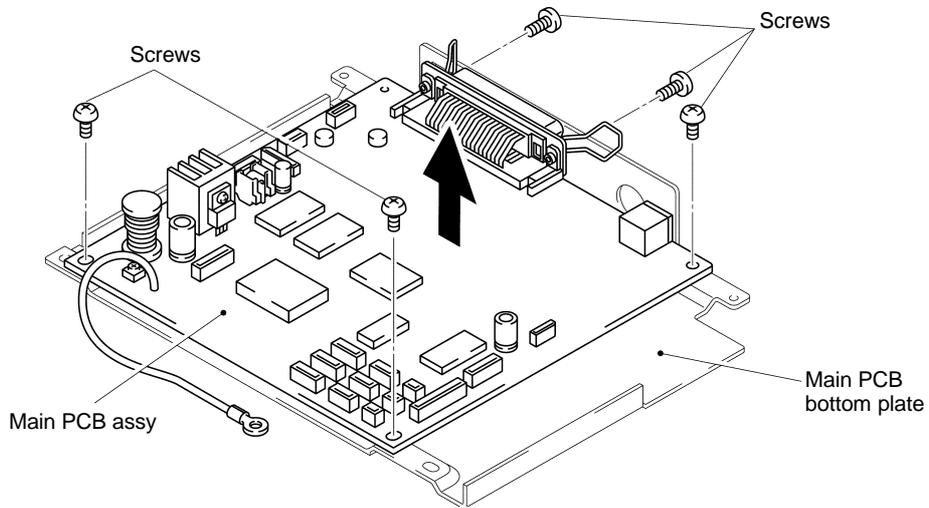
Remove the screw to remove the ground wire from the main chassis, as shown in Fig. 3.7.

*Note: Put on a static control wrist band before handling PCBs.*



**Fig. 3.7**

Remove the five screws to remove the main PCB assy from the main PCB bottom plate, as shown in Fig. 3.8.



**Fig. 3.8**

### 1.5 Disassembly of the Capacitor Case

Remove the shield plate and pull out the connector of the power supply harness from the power supply PCB assy, as shown in Fig. 3.9.

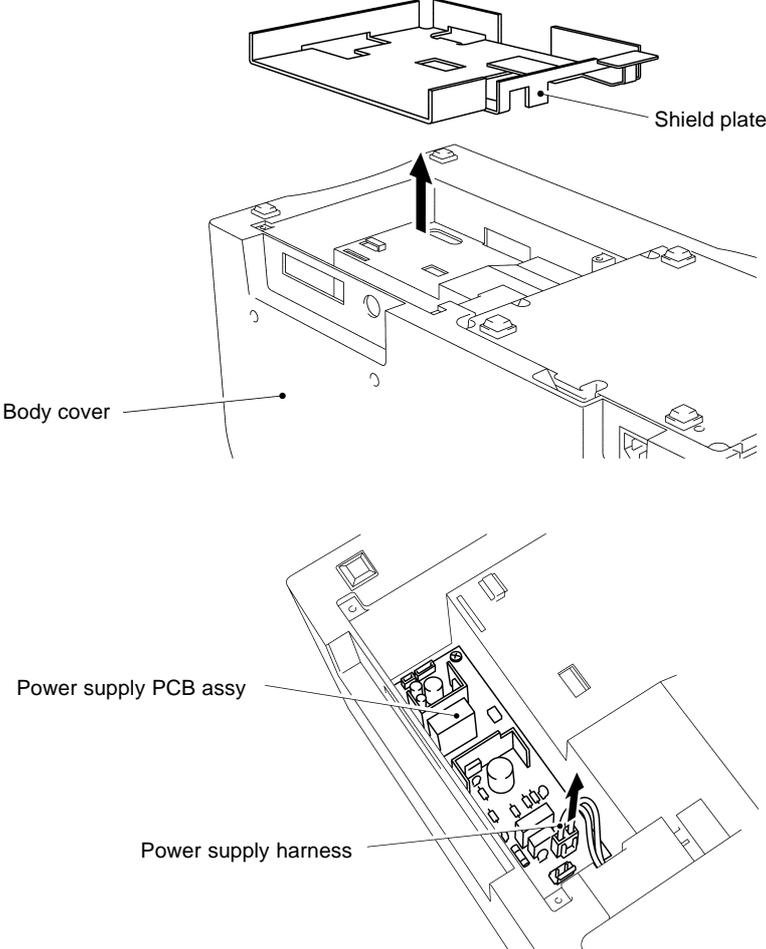
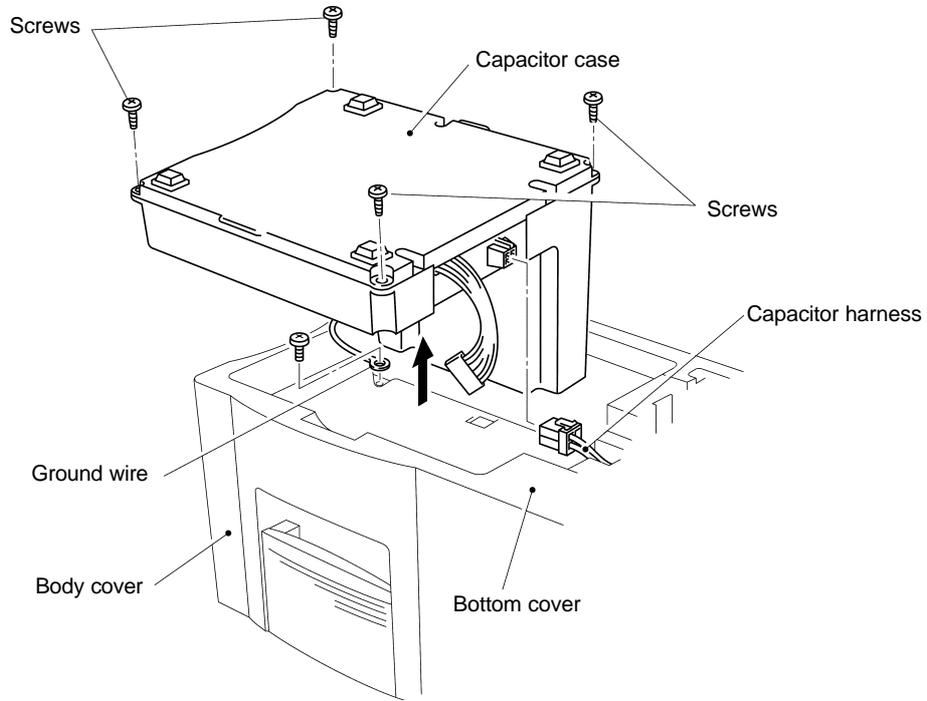


Fig. 3.9

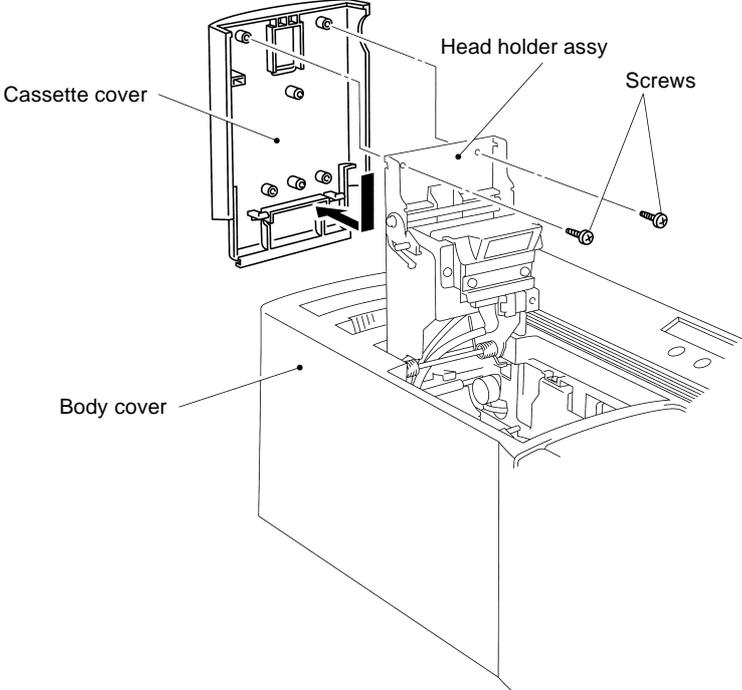
Remove the four screws to remove the capacitor case from the bottom cover. Remove the capacitor harness from the connector of the capacitor case, and remove the screw to remove the ground wire, as shown in Fig. 3.10.



**Fig. 3.10**

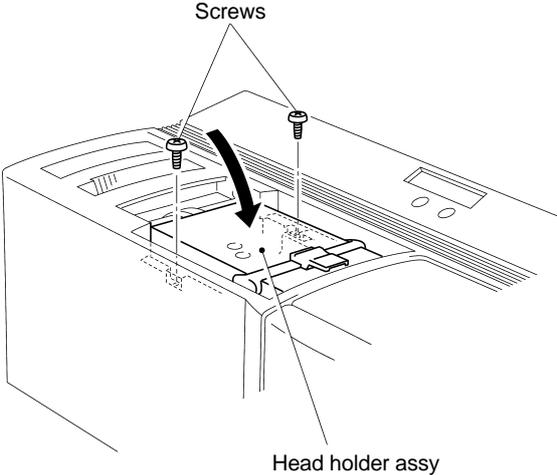
**1.6 Disassembly of the Body Cover**

Turn the machine over with the right side up, open the cassette cover, and remove the two screws to remove the cassette cover, as shown in Fig. 3.11.



**Fig. 3.11**

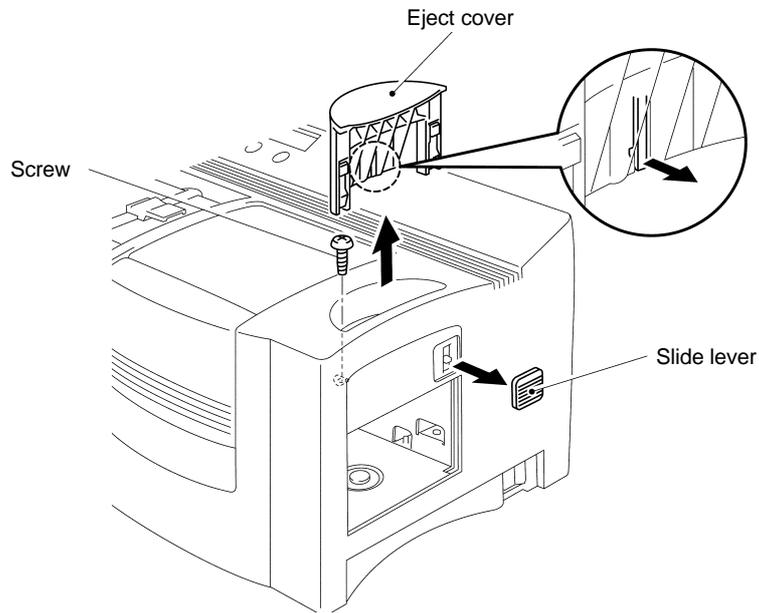
Close the head holder assy and remove the two screws, as shown in Fig. 3.12.



**Fig. 3.12**

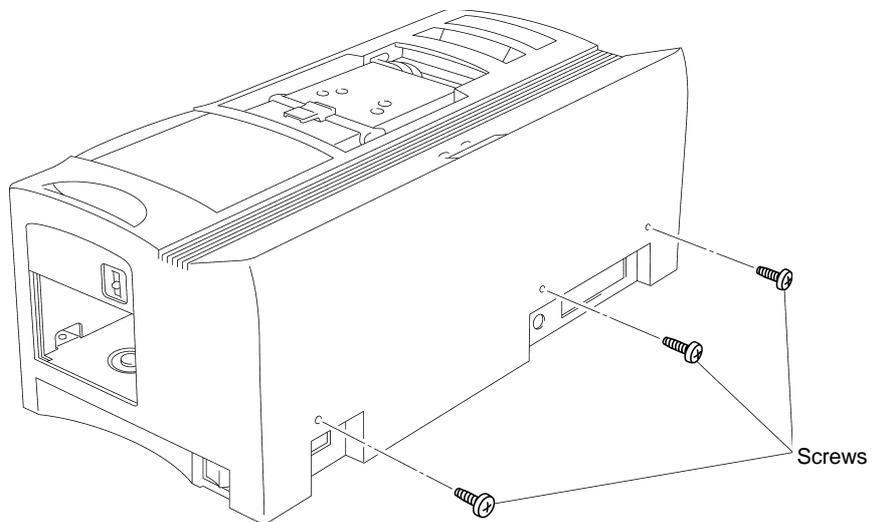
Remove the eject cover and the screw.

Remove the slide lever, as shown in Fig. 3.13.

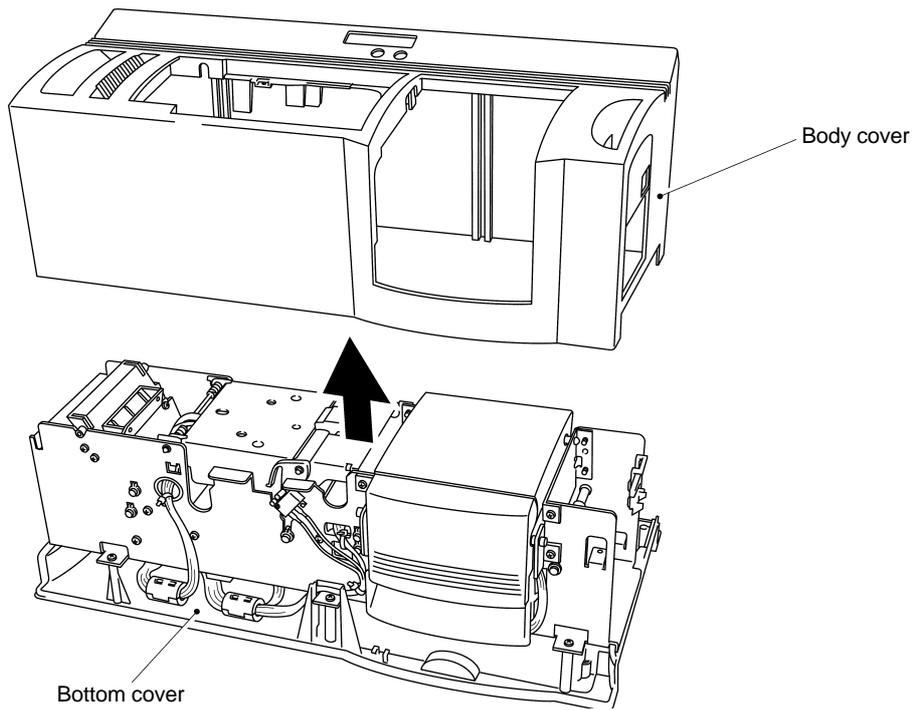


**Fig. 3.13**

Remove the three screws in the back of the cover, and remove the body cover by lifting it, as shown in Figs. 3.14 and 3.15.

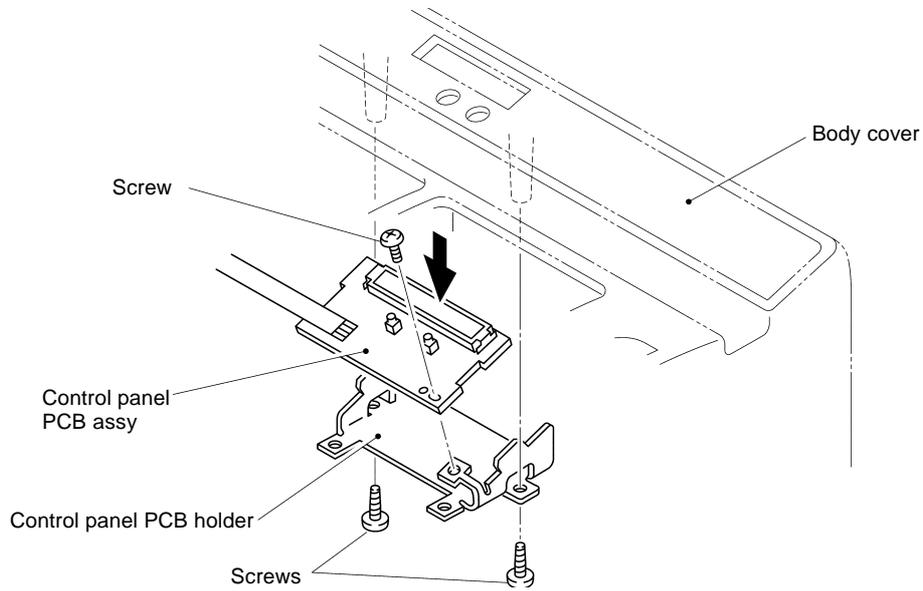


**Fig. 3.14**



**Fig. 3.15**

Remove the two screws to remove the control panel PCB holder from the body cover. Remove the screw from the control panel PCB holder to remove the control panel PCB assy, as shown in Fig. 3.16.



**Fig. 3.16**

### 1.7 Disassembly of the Main Chassis and the Bottom Cover

Press the open button to open the head holder assy, as shown in Fig. 3.17.

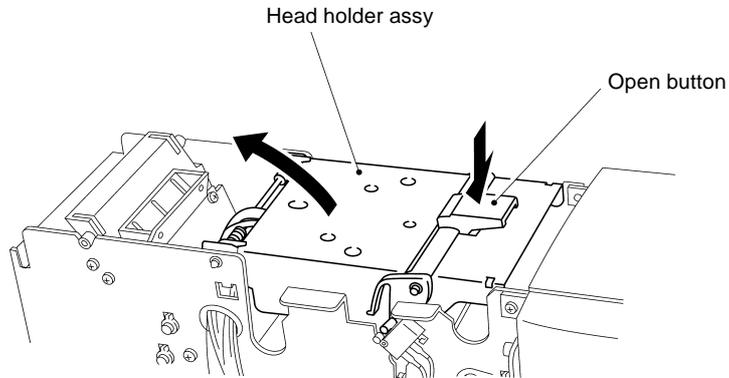


Fig. 3.17

Remove the six screws to remove the main chassis from the bottom cover, and remove the two cores, as shown in Fig. 3.18.

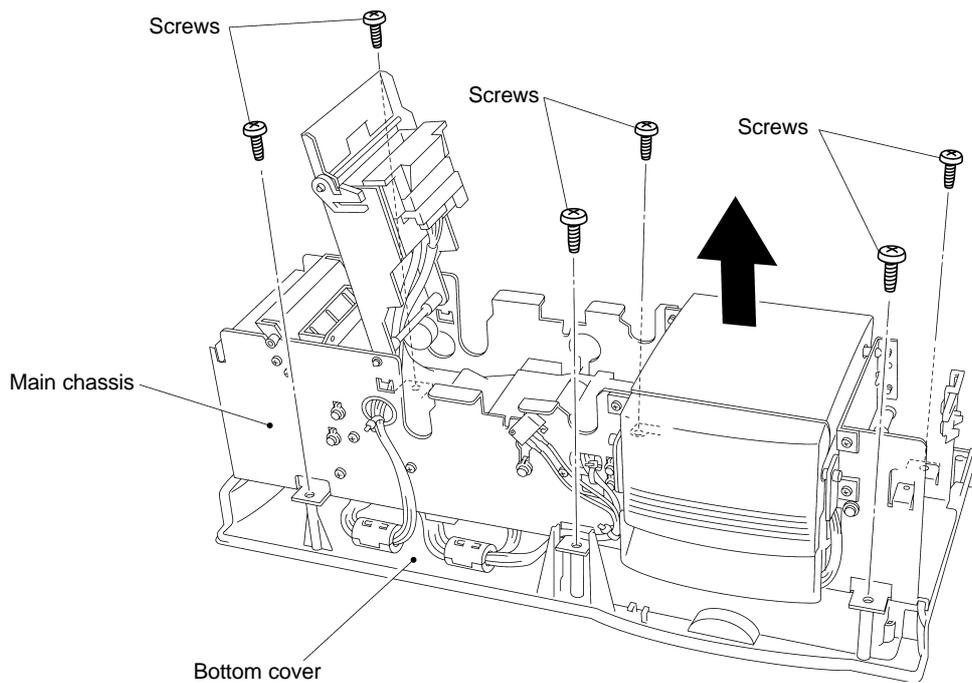


Fig. 3.18