



Stamp Creator PRO SERVICE MANUAL

MODEL: SC-2000

Version A



MECHANISMS & ELECTRONICS



**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 |

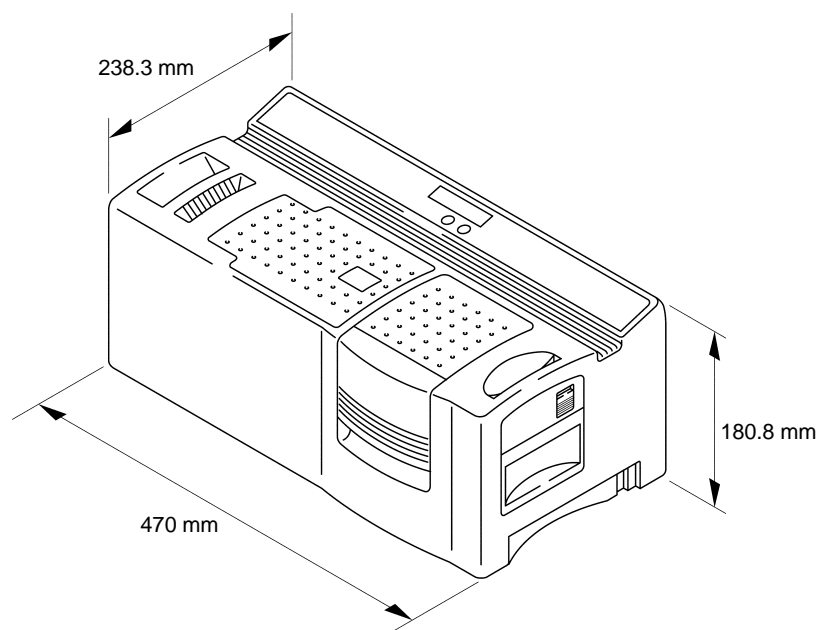


Fig. 1.1 External Dimensions

1.2 Input Specifications

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

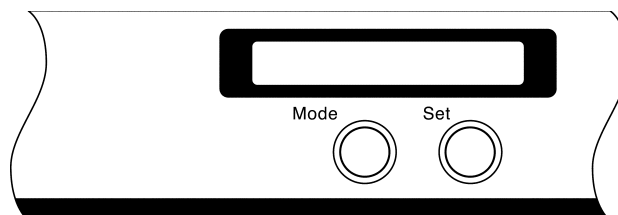


Fig. 1.2 Control Panel

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
Vertical pitch 0.0425 mm (1/600 inch)
Dimensions of a heating element
0.035 mm wide by
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
(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

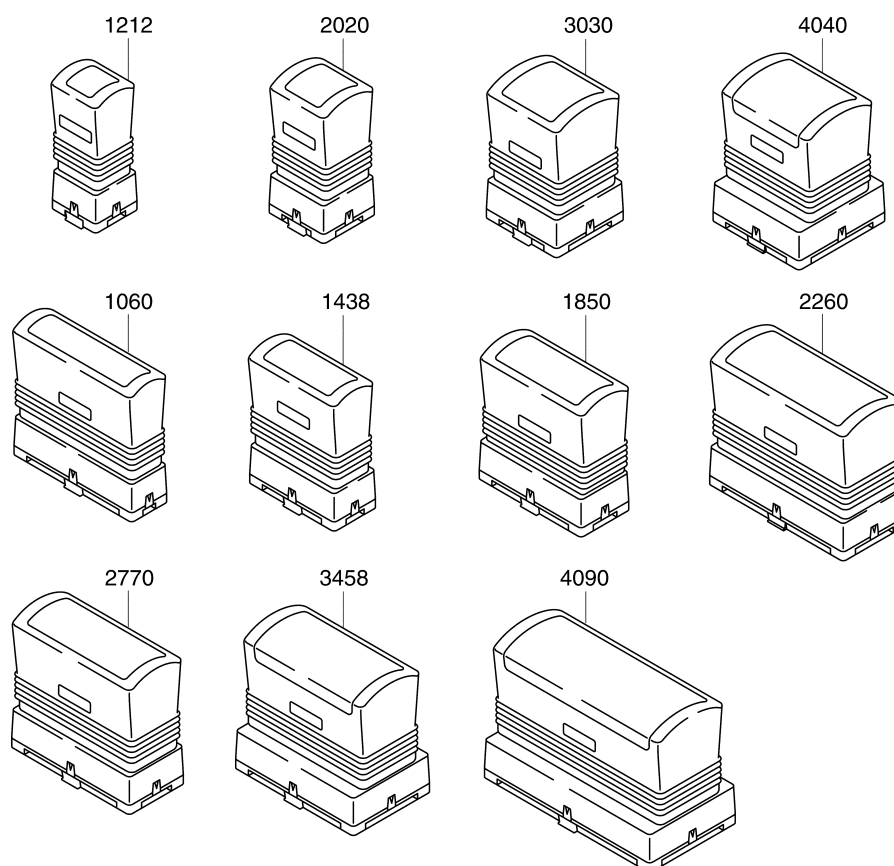


Fig. 1.3 Stamp Types

(2) Configuration

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

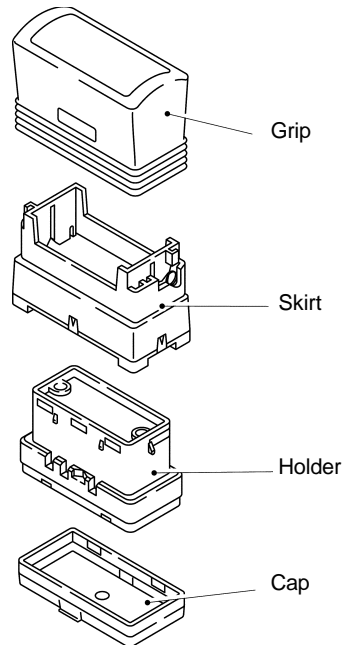


Fig. 1.4 Stamp Configuration

(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) |

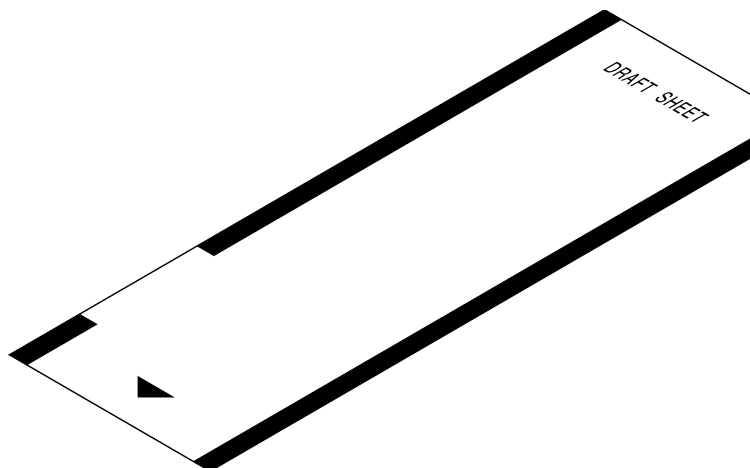


Fig. 1.5 Draft Sheet

1.11 ID Label Specifications

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

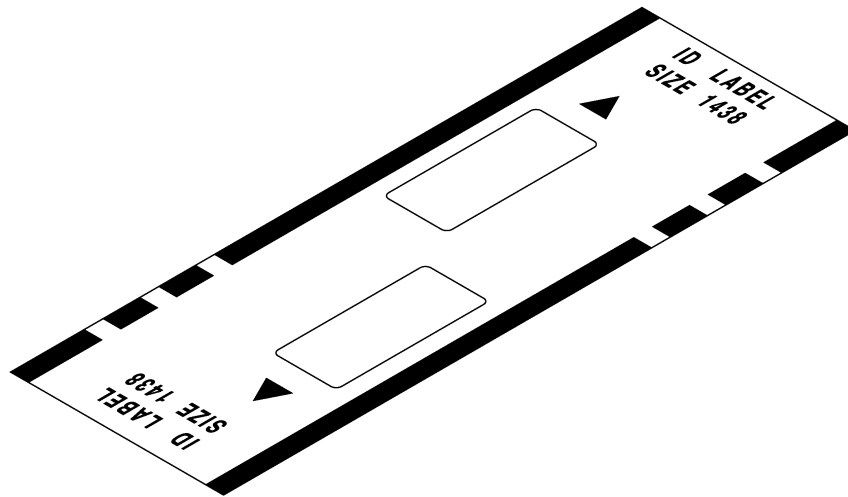


Fig. 1.6 ID Label 1438

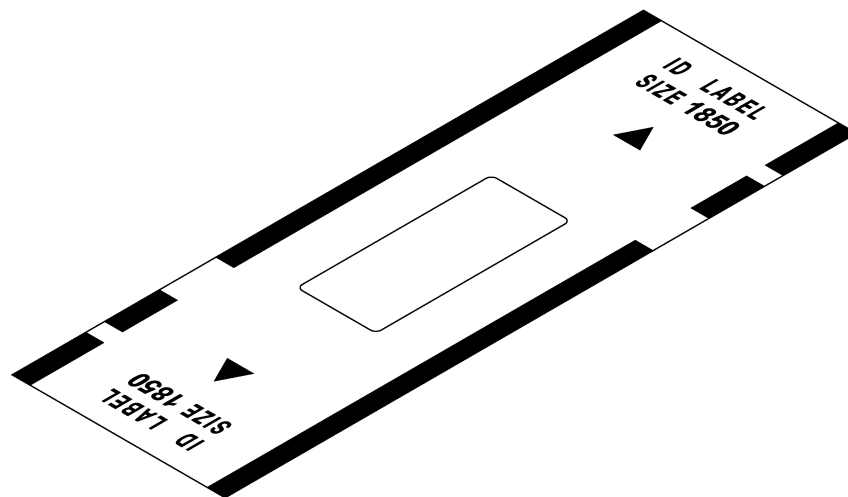


Fig. 1.7 ID Label 1850

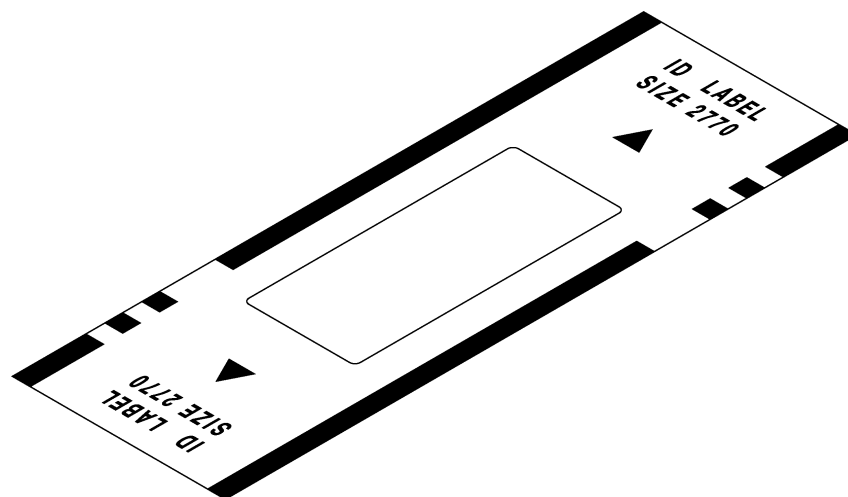


Fig. 1.8 ID Label 2770

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.

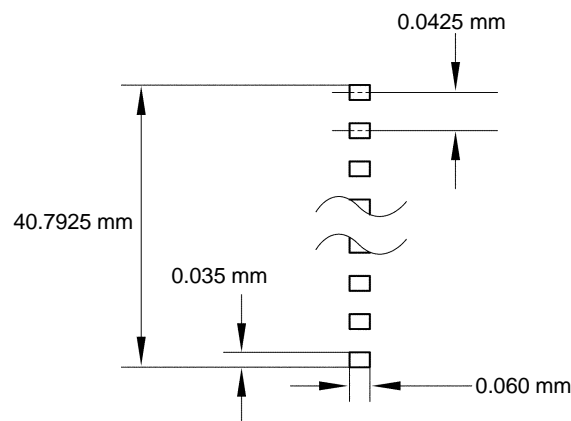


Fig. 2.1 Heating Elements of the Thermal Head

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.

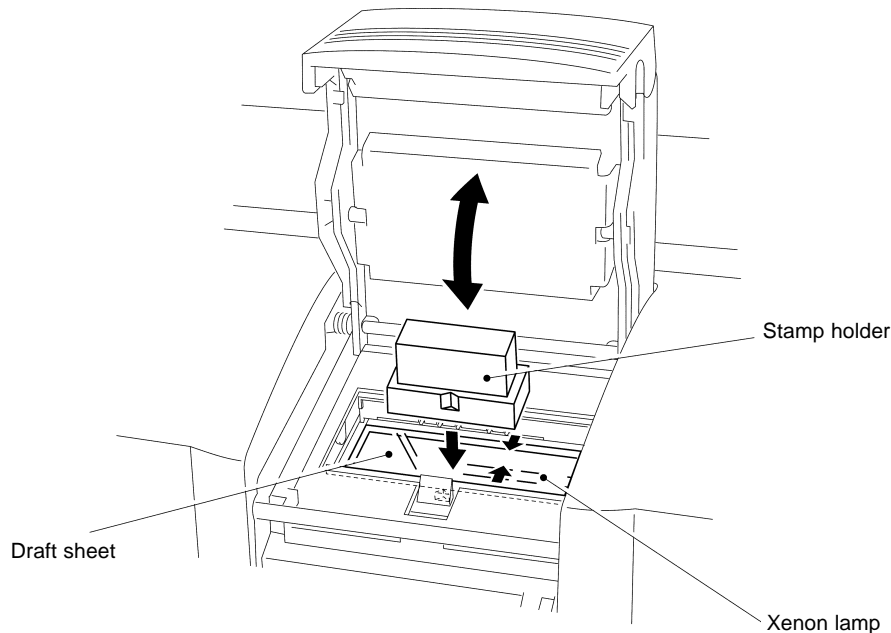
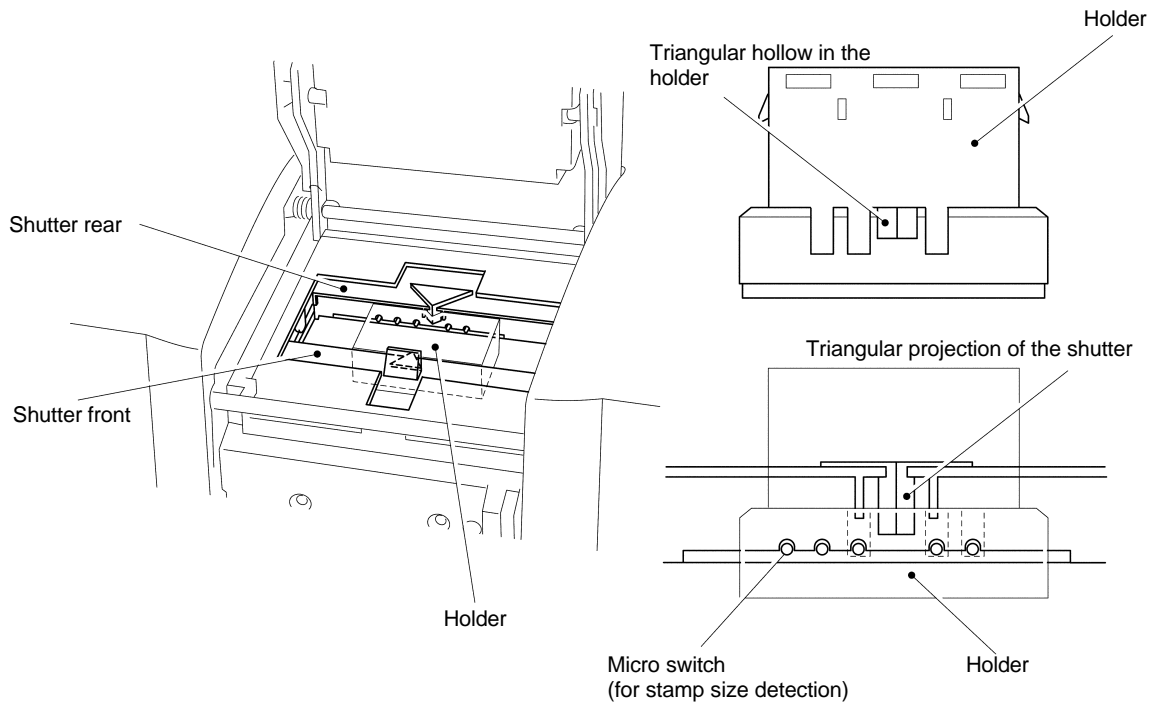


Fig. 2.2 Stamp Holder Mounting

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.

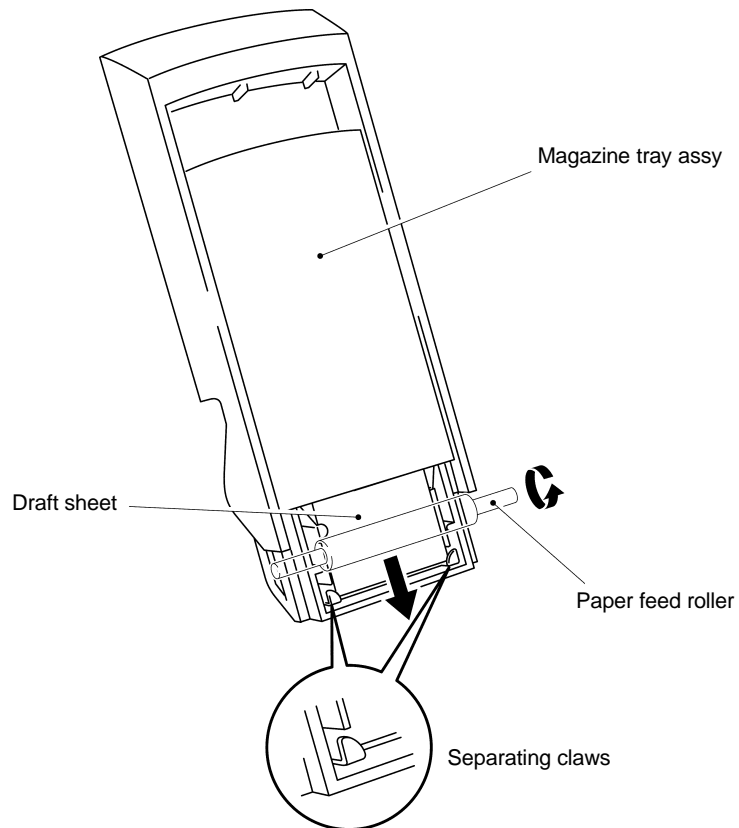


Fig. 2.4

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.

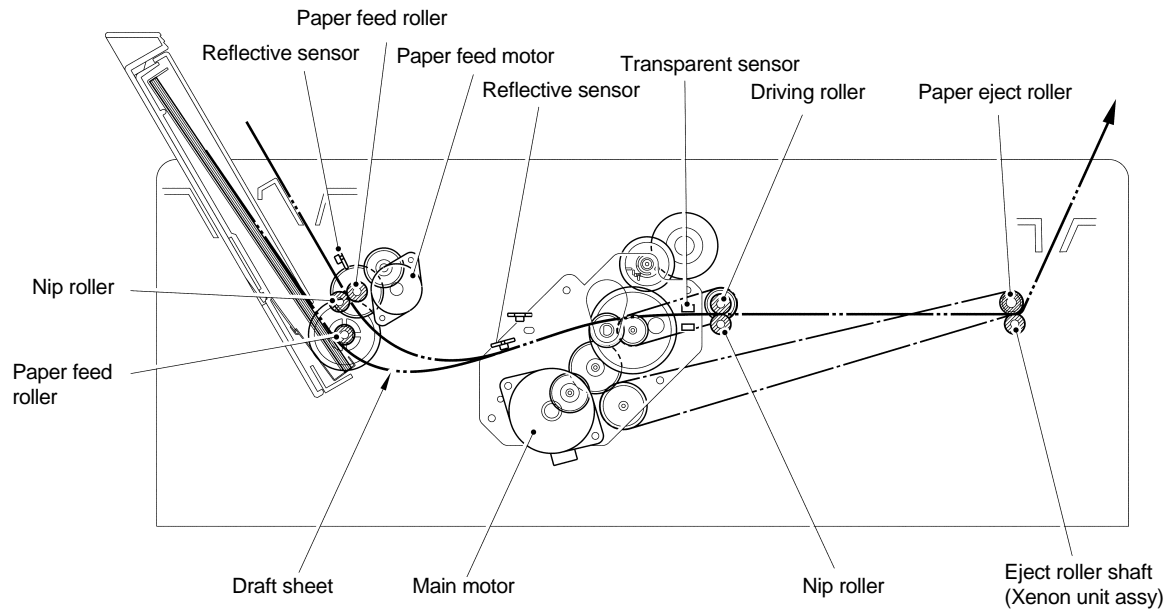


Fig. 2.5 Feeding Path

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.

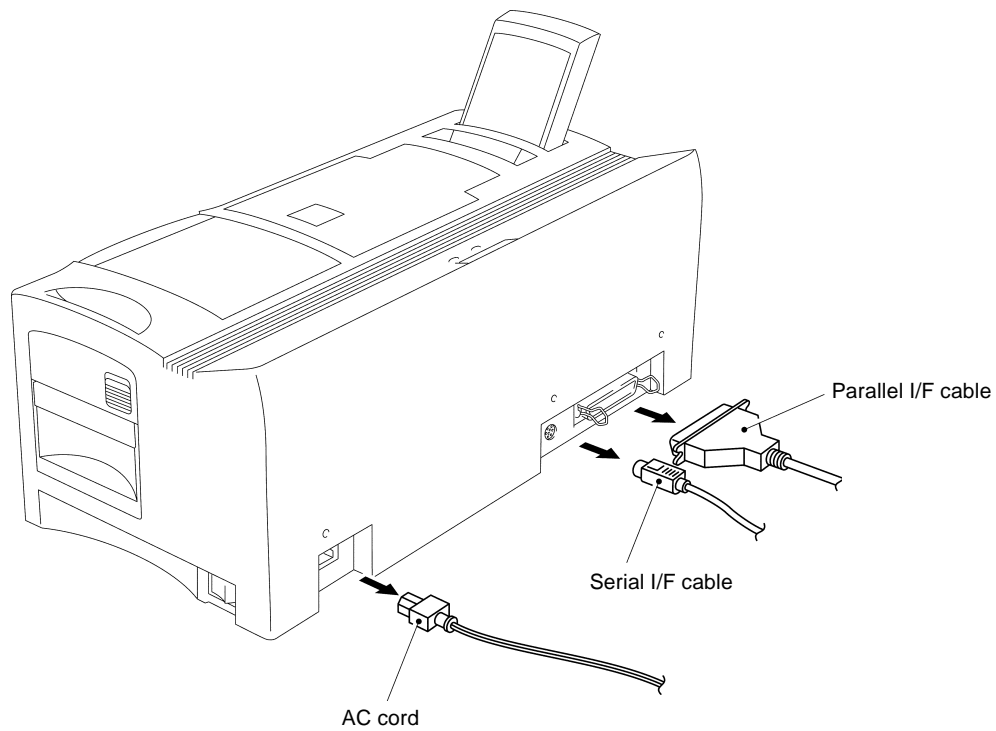


Fig. 3.1

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.

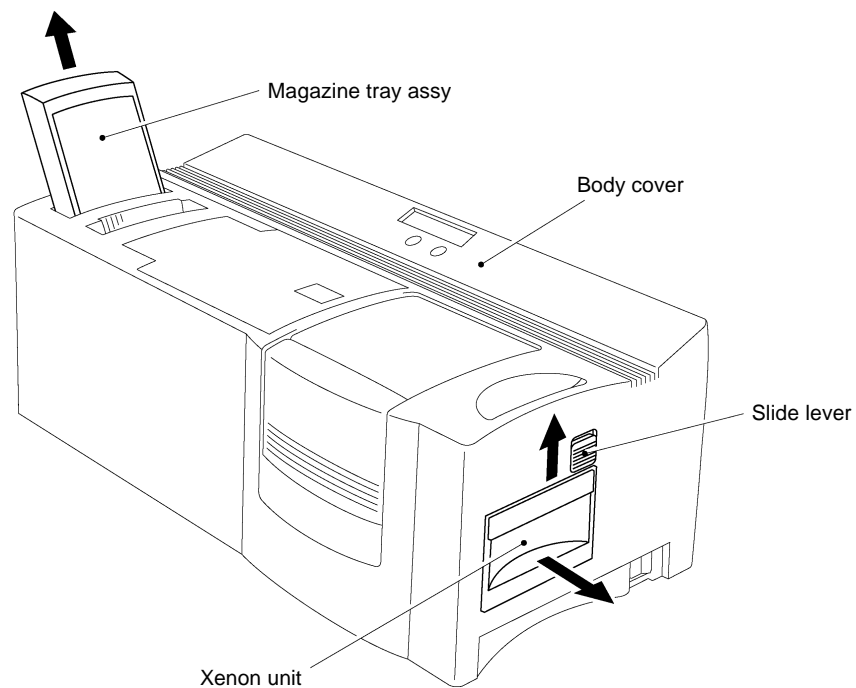


Fig. 3.2

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.

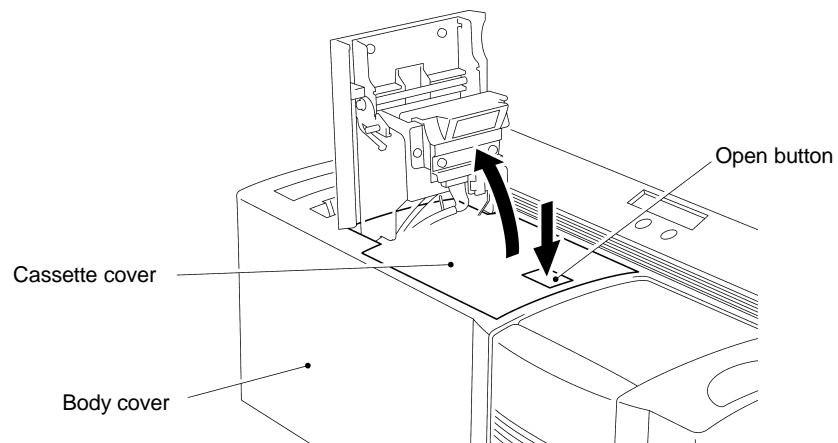


Fig. 3.3

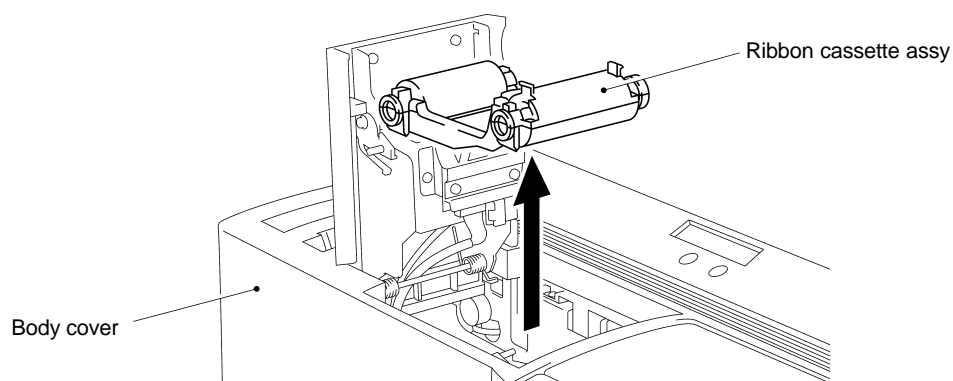


Fig. 3.4

1.4 Disassembly of the Main PCB Assy

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

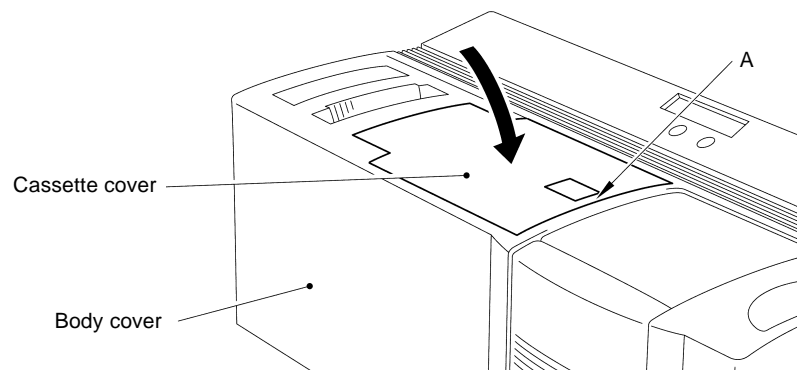


Fig. 3.5

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

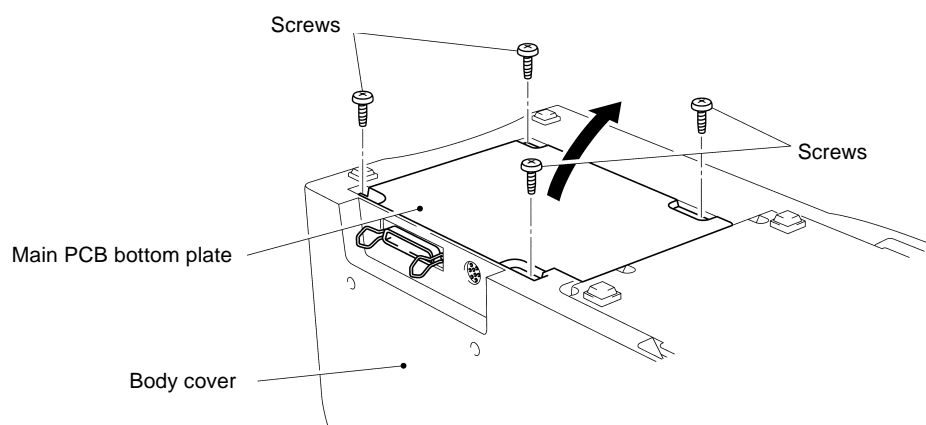


Fig. 3.6

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.

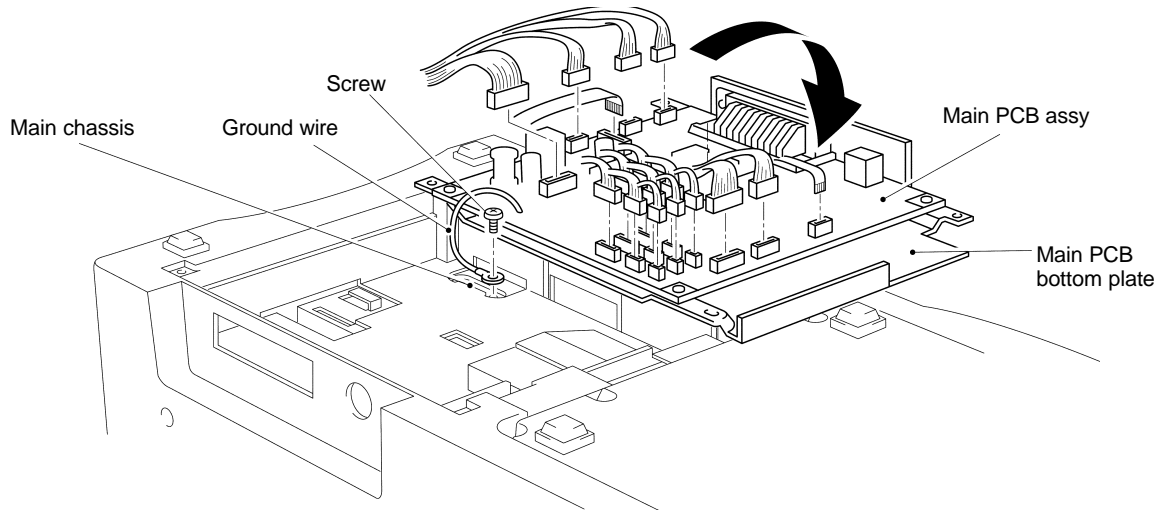


Fig. 3.7

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

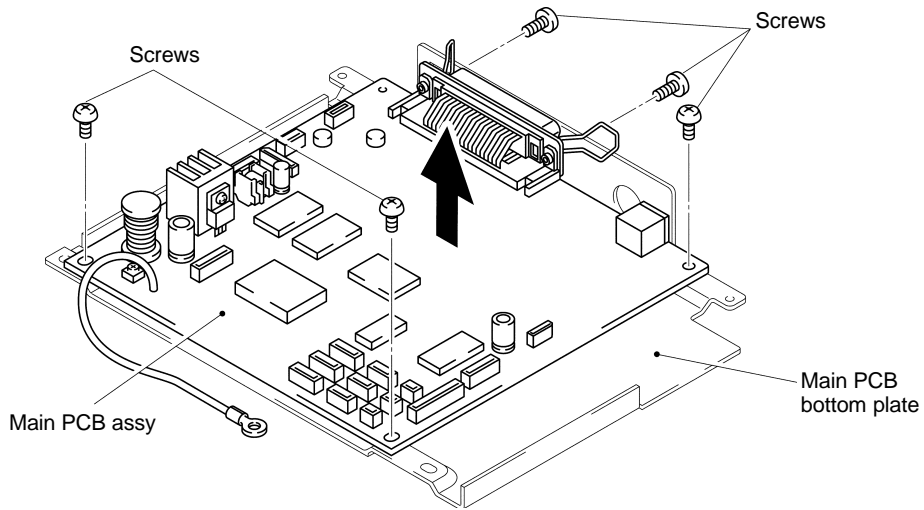


Fig. 3.8

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.

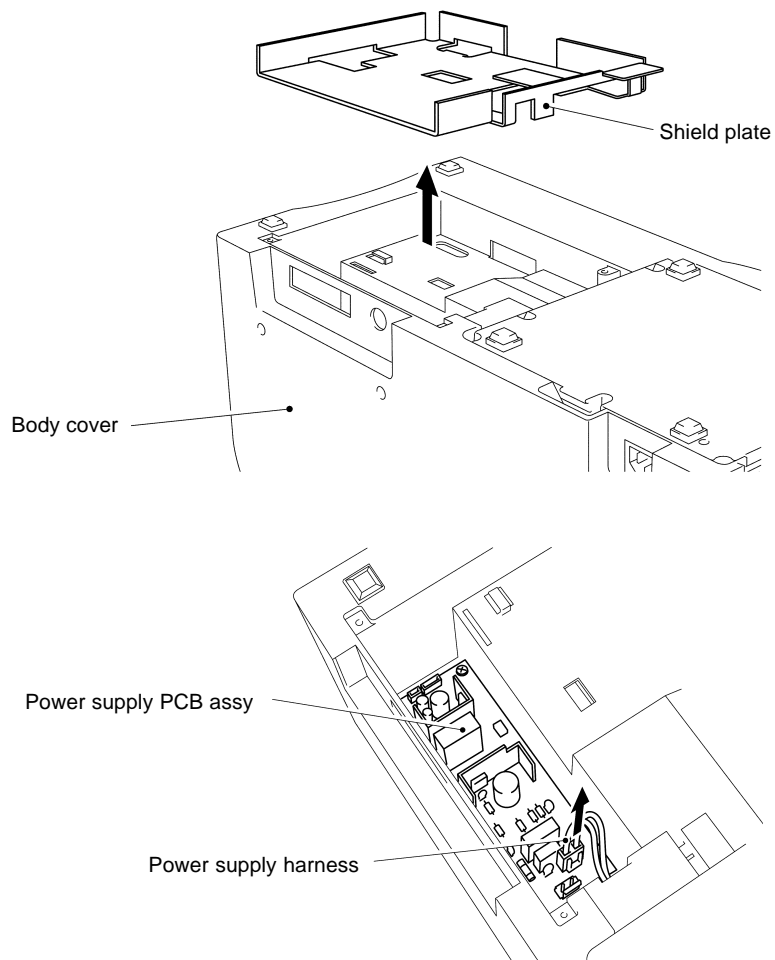


Fig. 3.9

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.

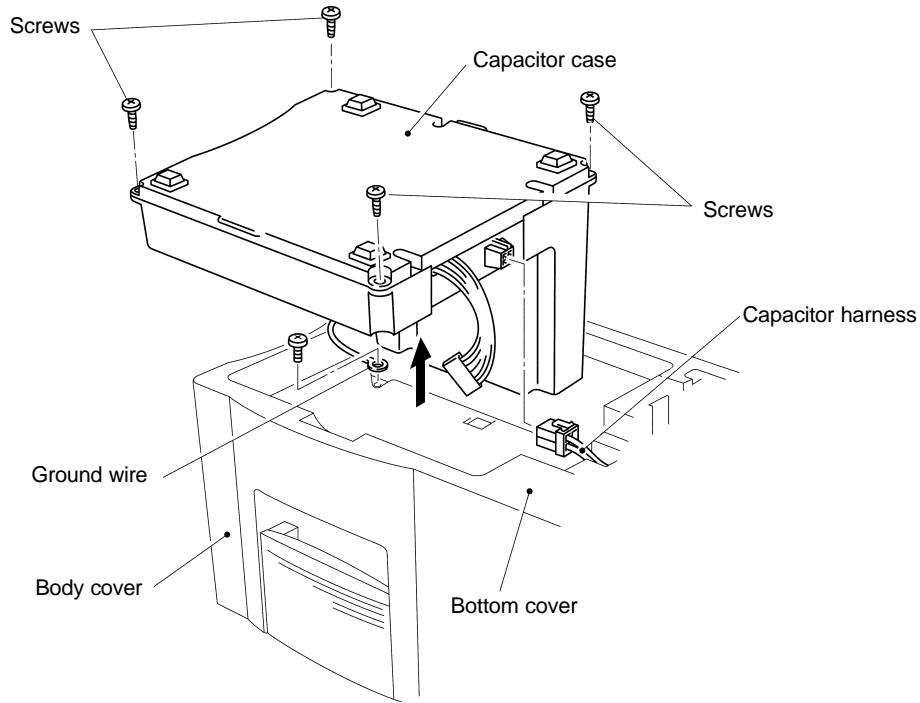


Fig. 3.10

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.

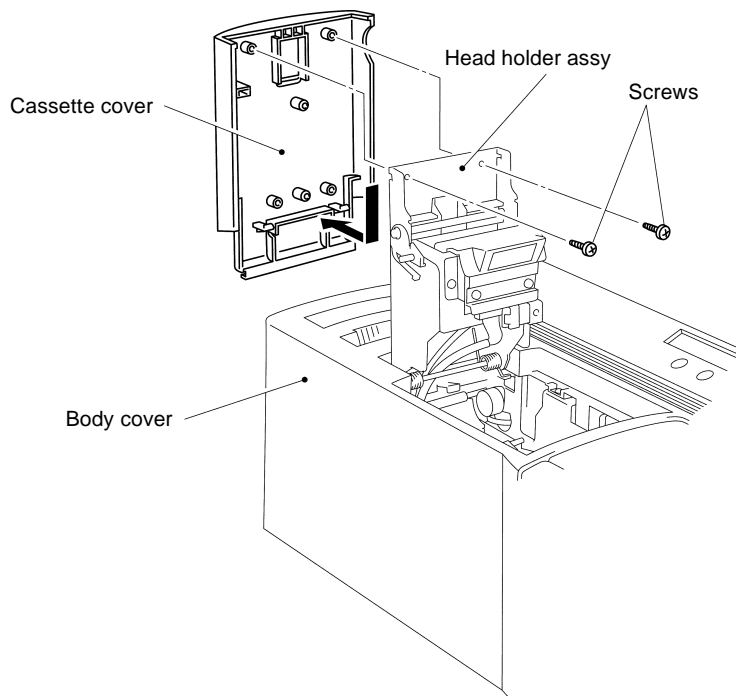


Fig. 3.11

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

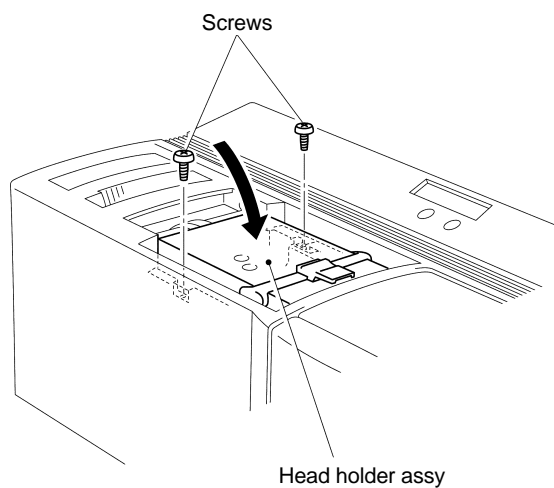


Fig. 3.12

Remove the eject cover and the screw.

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

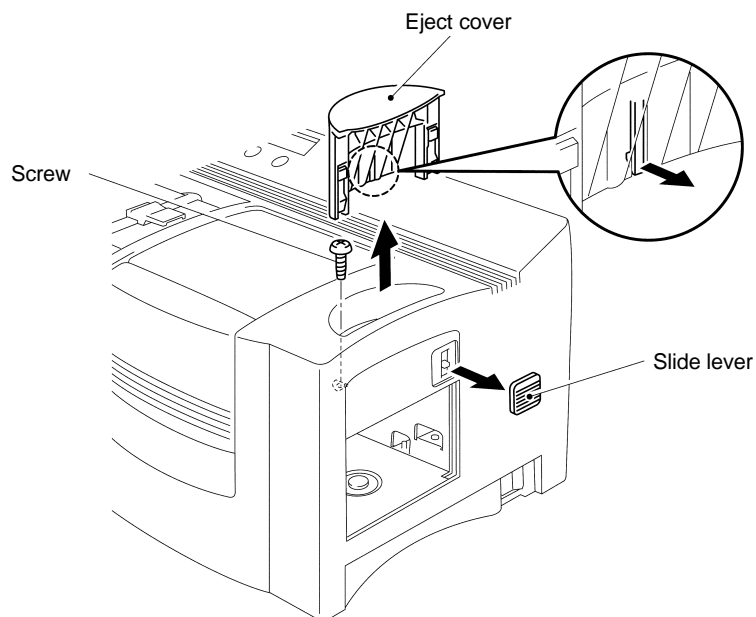


Fig. 3.13

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.

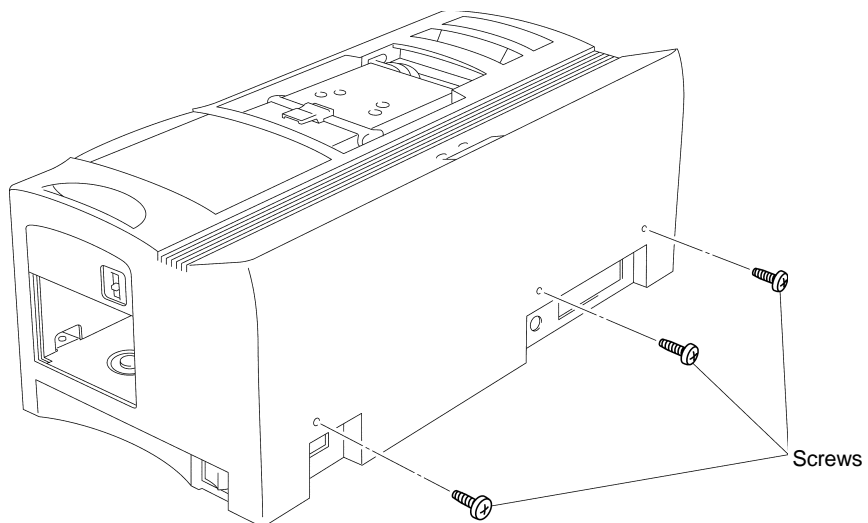


Fig. 3.14

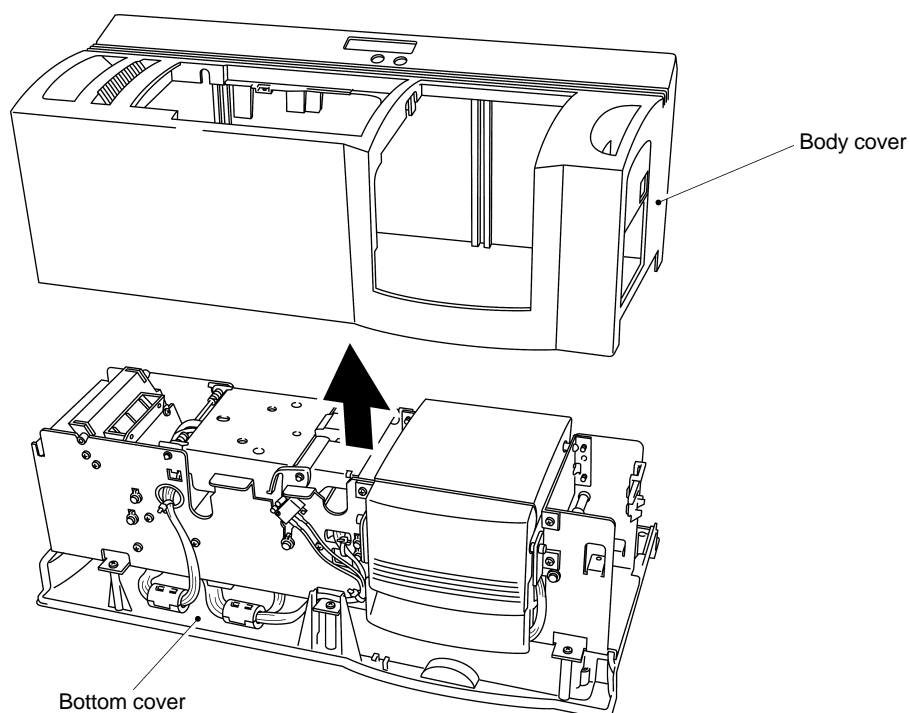


Fig. 3.15

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.

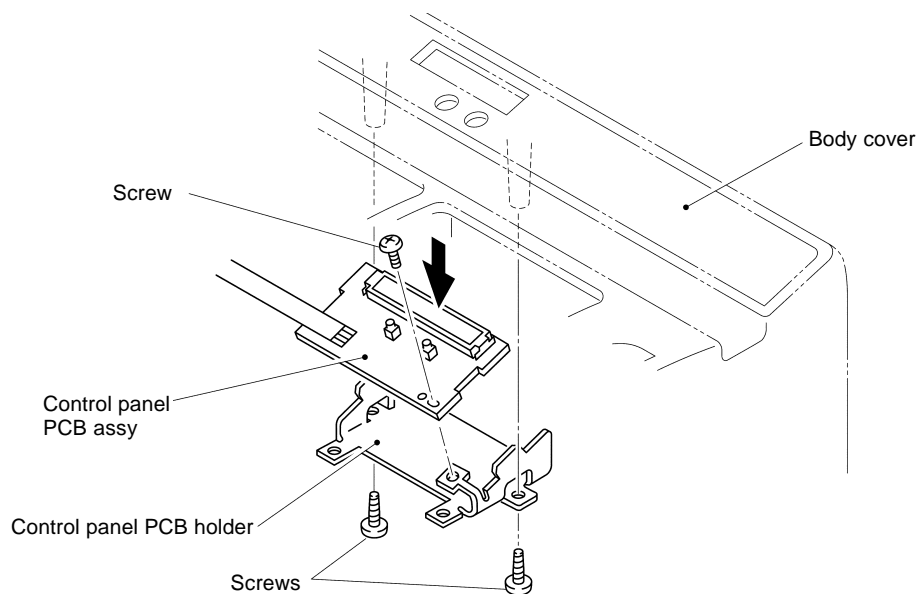


Fig. 3.16

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.

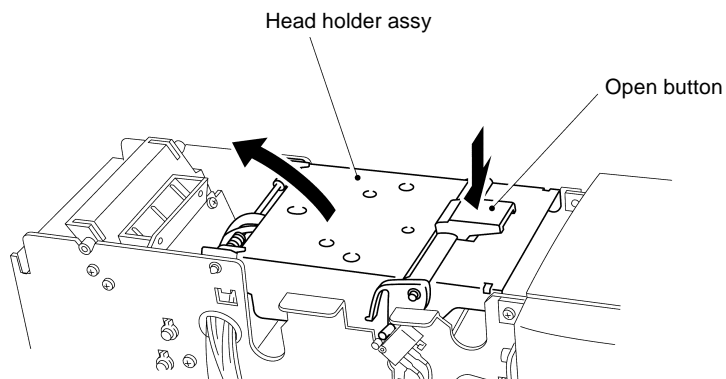


Fig. 3.17

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

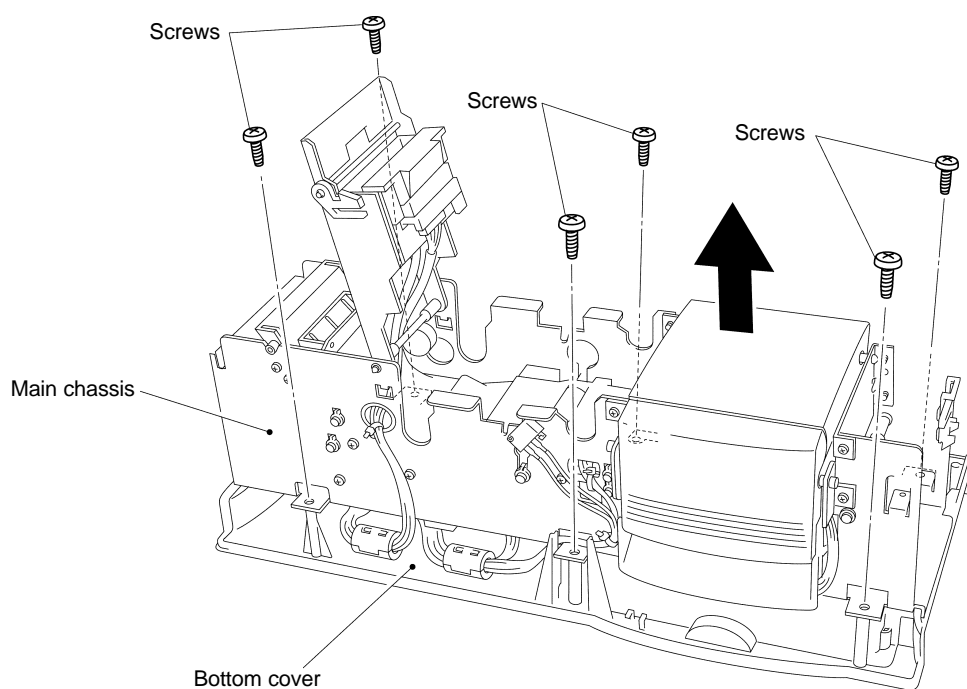


Fig. 3.18

Remove the two screws to remove the ground wire from the PS PCB shield plate and the main chassis, as shown in Fig. 3.19.

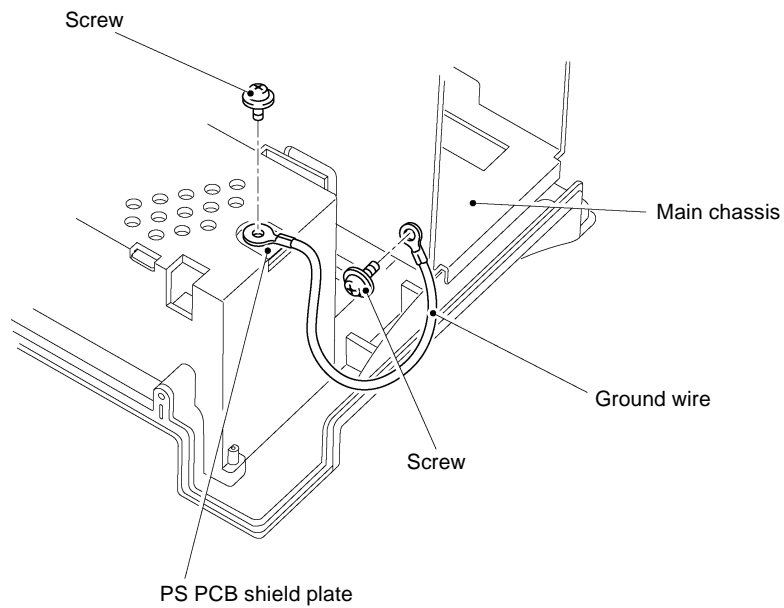


Fig. 3.19

Remove the size detection PCB harness from the bottom cover, as shown in Fig. 3.20.

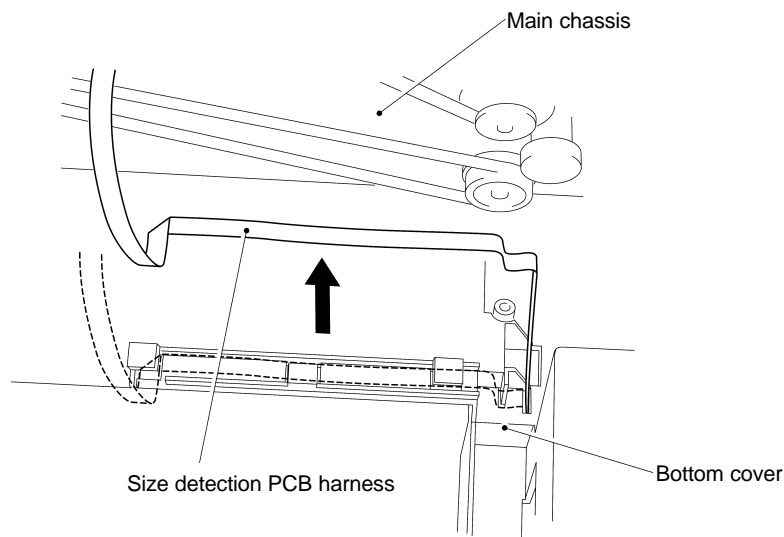


Fig. 3.20

Remove the harness coming out of the main chassis from the bottom cover, as shown in Fig. 3.21.

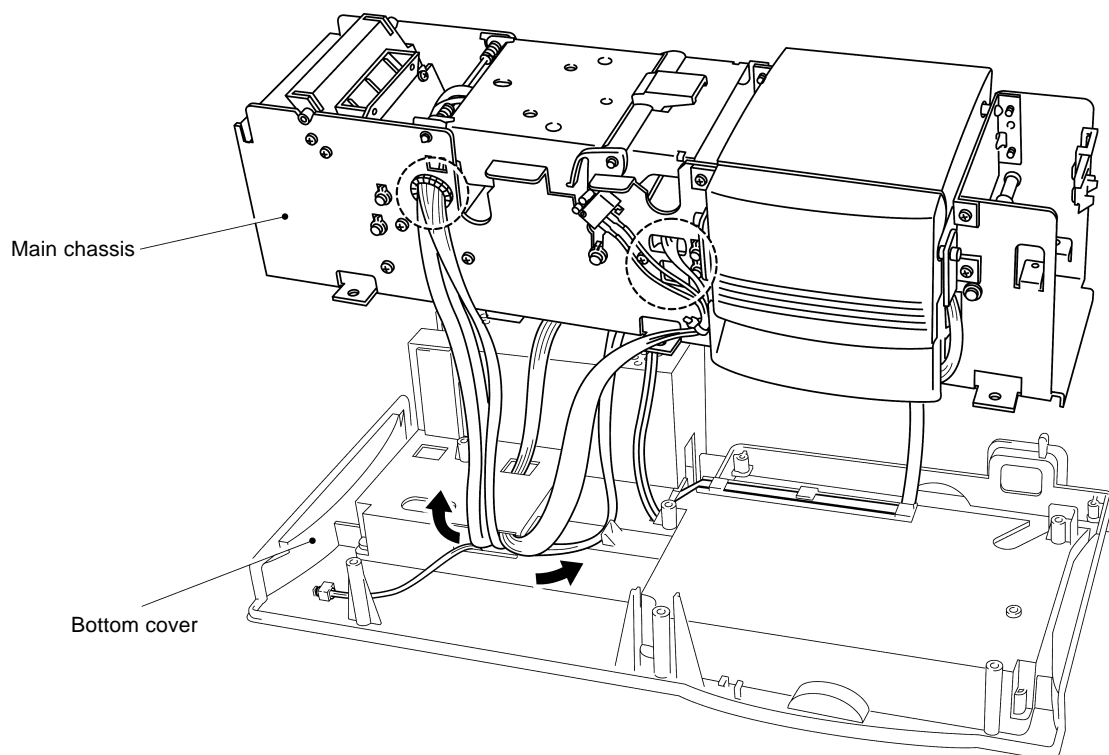


Fig. 3.21

1.8 Disassembly of the Power Supply PCB Assy

Turn the bottom cover over, and remove the two screws securing the power supply PCB assy on the bottom cover to remove the power supply PCB assy. Then, remove the PS PCB shield plate, as shown in Fig. 3.22.

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

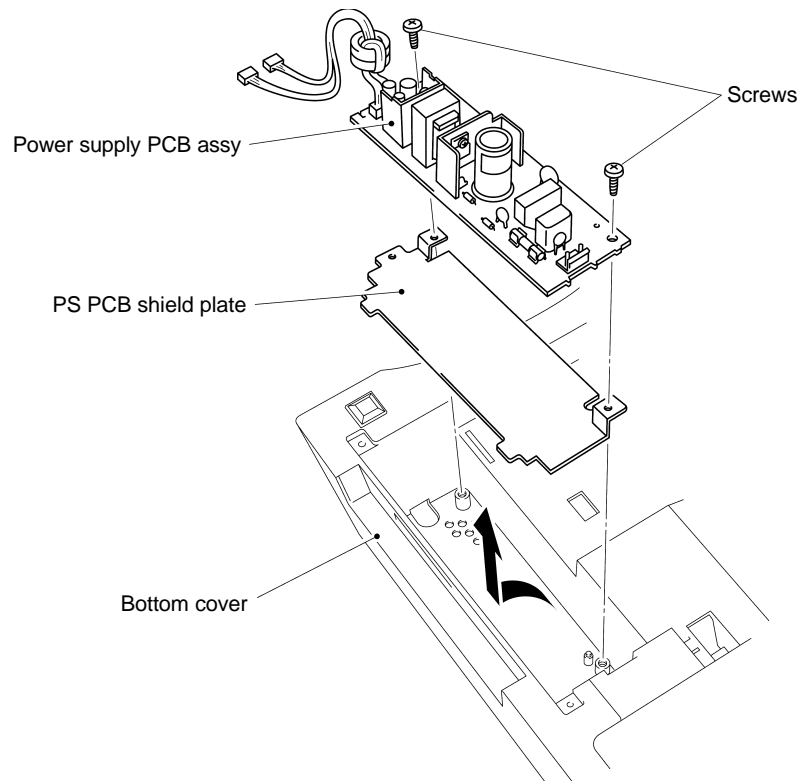


Fig. 3.22

1.9 Disassembly of the Thermal Head Unit

Cut two fastening bands L100 that secure the harness on the main chassis, as shown in Fig. 3.23.

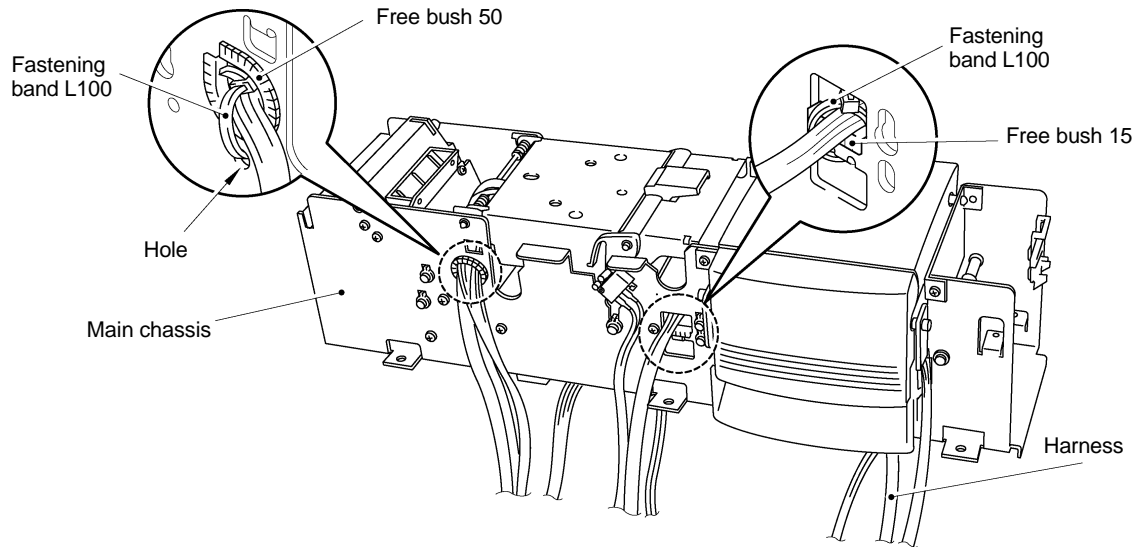


Fig. 3.23

Press the open button to open the head holder assy.

Pull parts A of the head protection cover in the direction of the arrow to remove it from the head guide shaft.

Remove the two screws to remove the thermal head unit from the head holder, as shown in Fig. 3.24.

Note: Take care not to touch the thermal head heat generating points.

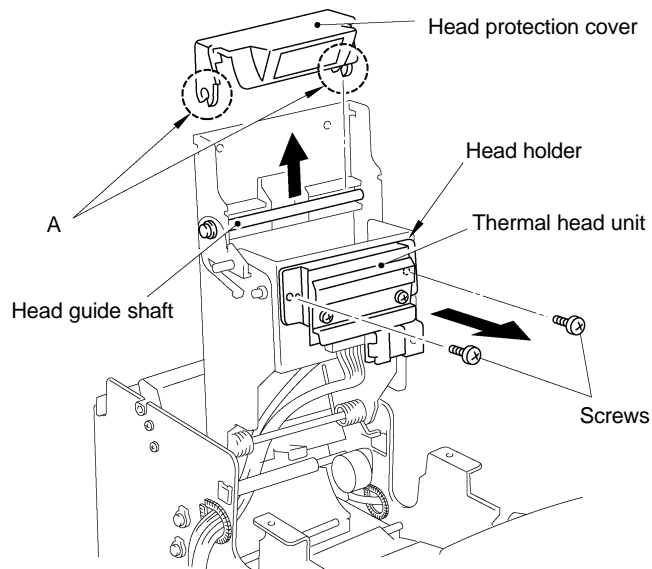


Fig. 3.24

1.10 Disassembly of the Sensor Assys

Remove the screw to remove reflective sensor assy A from the head holder.

Remove the screws to remove reflective sensor assys B and C from the sensor brackets.

Remove the screw to remove transparent sensor assy A from the film path.

Remove the screw to remove transparent sensor assy B from the presser unit assy, as shown in Fig. 3.25.

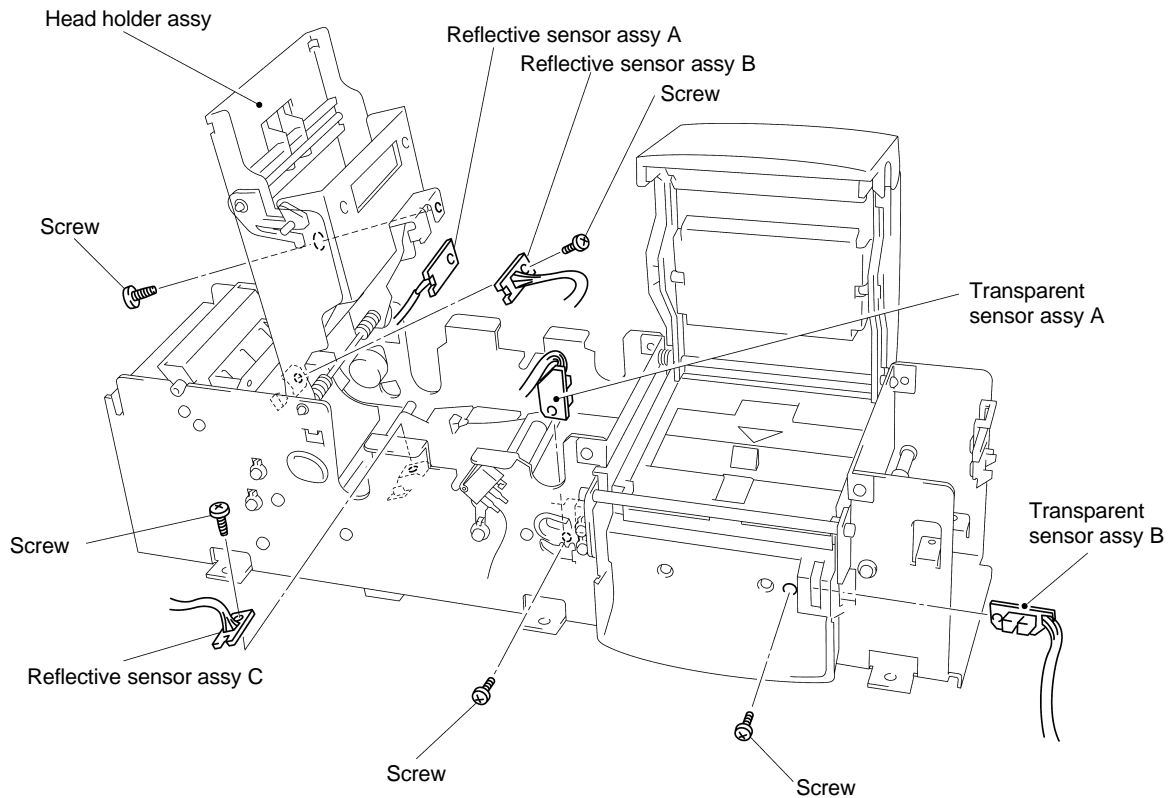


Fig. 3.25

1.11 Disassembly of the Micro Switches

Remove the screw to remove micro switch assy A for cassette cover open/close detection from the main chassis, as shown in Fig. 3.26.

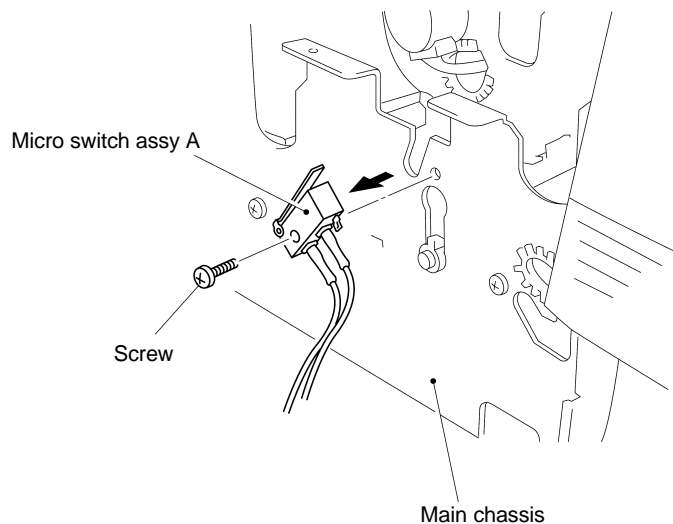


Fig. 3.26

Remove the screw to remove micro switch assy B for xenon reset from the main chassis.

Slide and pull out the xenon lock claw in the directions of arrows, as shown in Fig. 3.27.

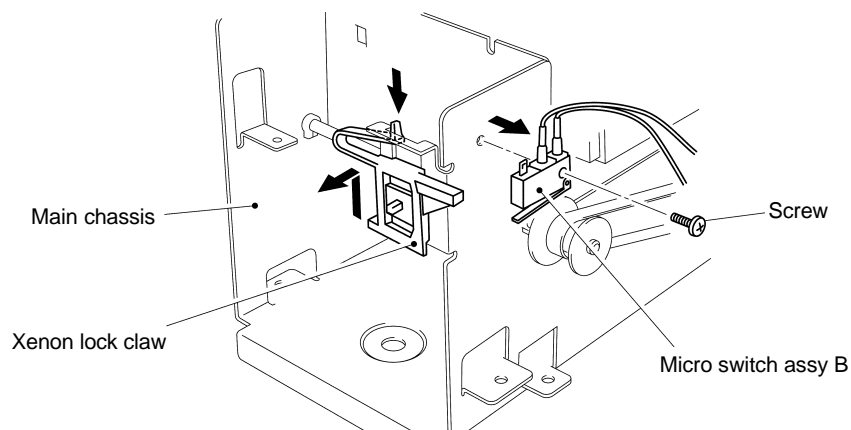


Fig. 3.27

1.12 Disassembly of the Platen Unit Assy

After removing the two screws, lift the platen unit assy in the directions of the arrows, as shown in Fig. 3.28.

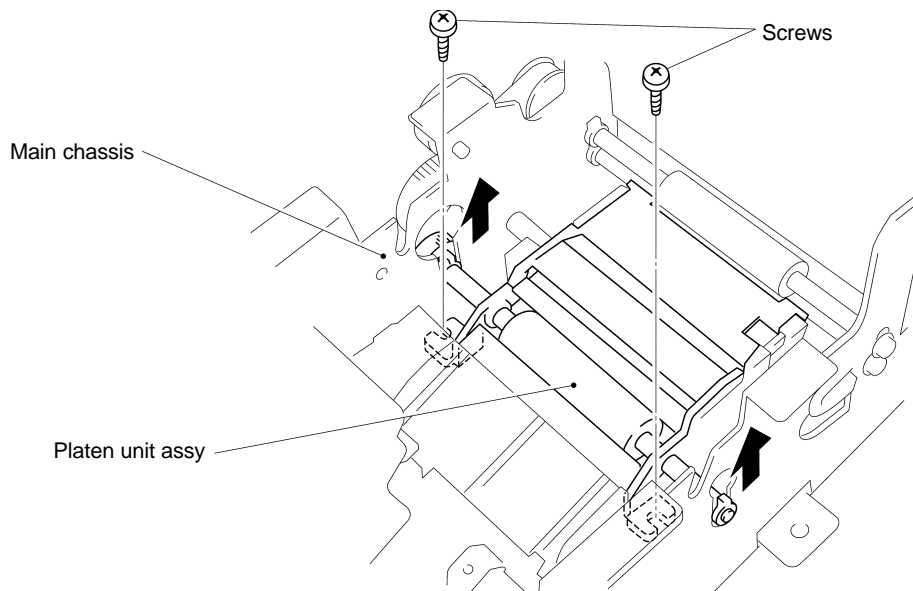


Fig. 3.28

Slide the platen unit assy in the direction of arrow 1, pass gear A through the hole in the main chassis, turn the projection of the bearing down, tilt the platen unit assy in the direction of arrow 2, and pull it out in the direction of arrow 3, as shown in Fig. 3.29.

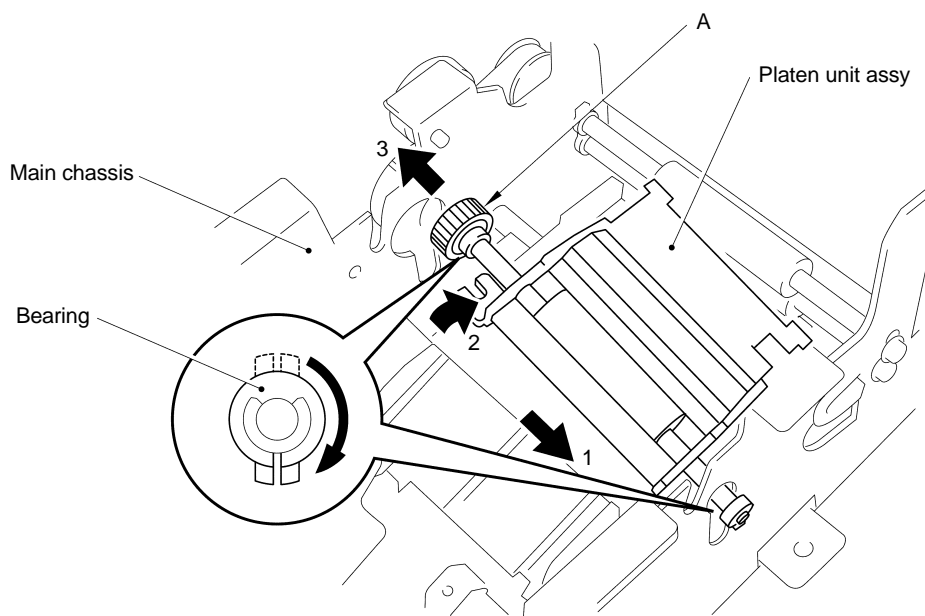


Fig. 3.29

Subsequently, separate the film guide from the platen unit, as shown in Fig. 3.30.

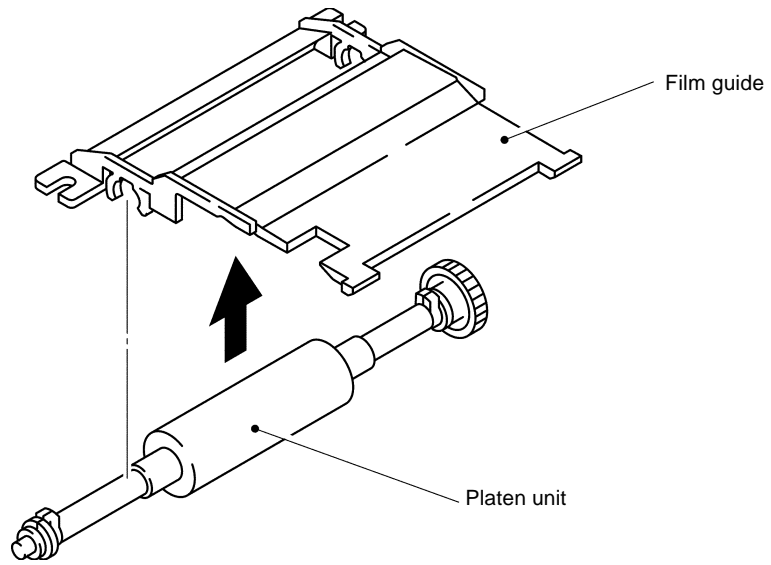


Fig. 3.30

1.13 Disassembly of the Presser Unit Assy

Open the presser unit cover in the direction of the arrow.

Remove the 12 screws securing the presser unit assy on the main chassis to remove the presser unit assy, as shown in Fig. 3.31.

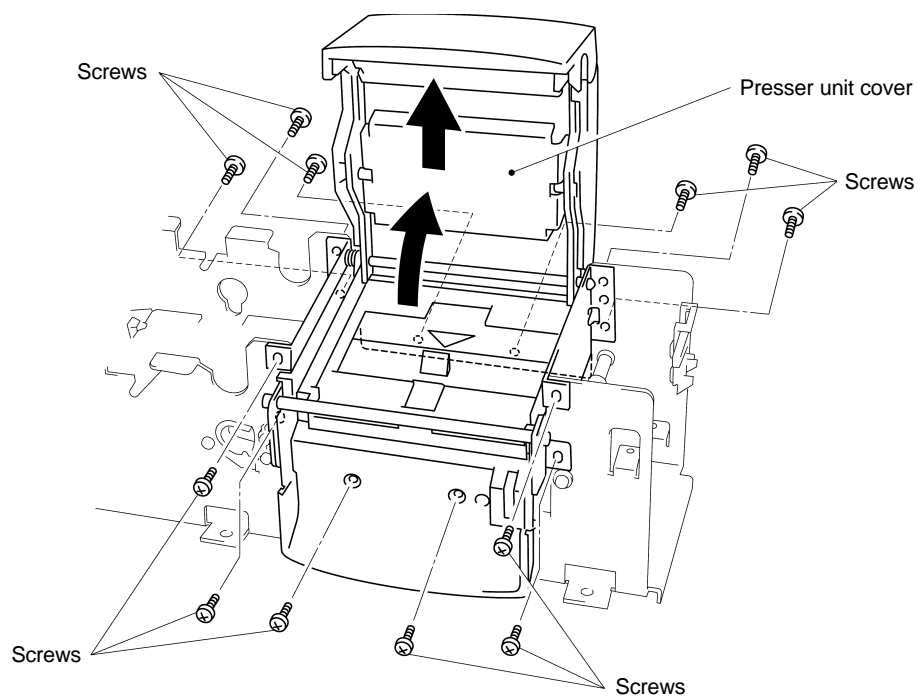


Fig. 3.31

Remove the four retaining rings to remove the presser plate hinge shaft from the presser frame sub assy, as shown in Fig. 3.32.

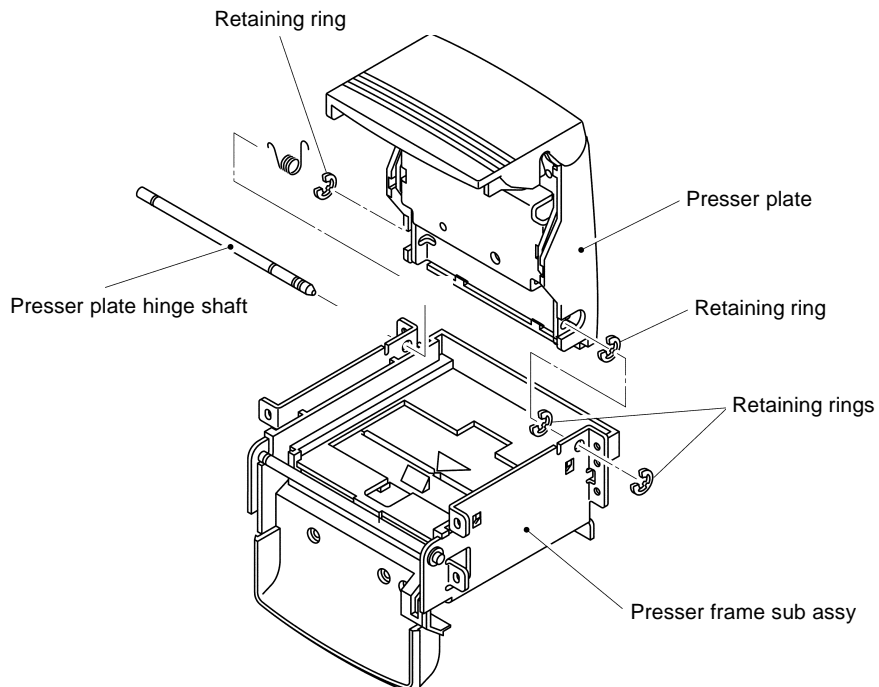


Fig. 3.32

While bending two claws A of the presser plate cover and the presser plate in the directions of the arrows, remove the presser plate cover, as shown in Fig. 3.33.

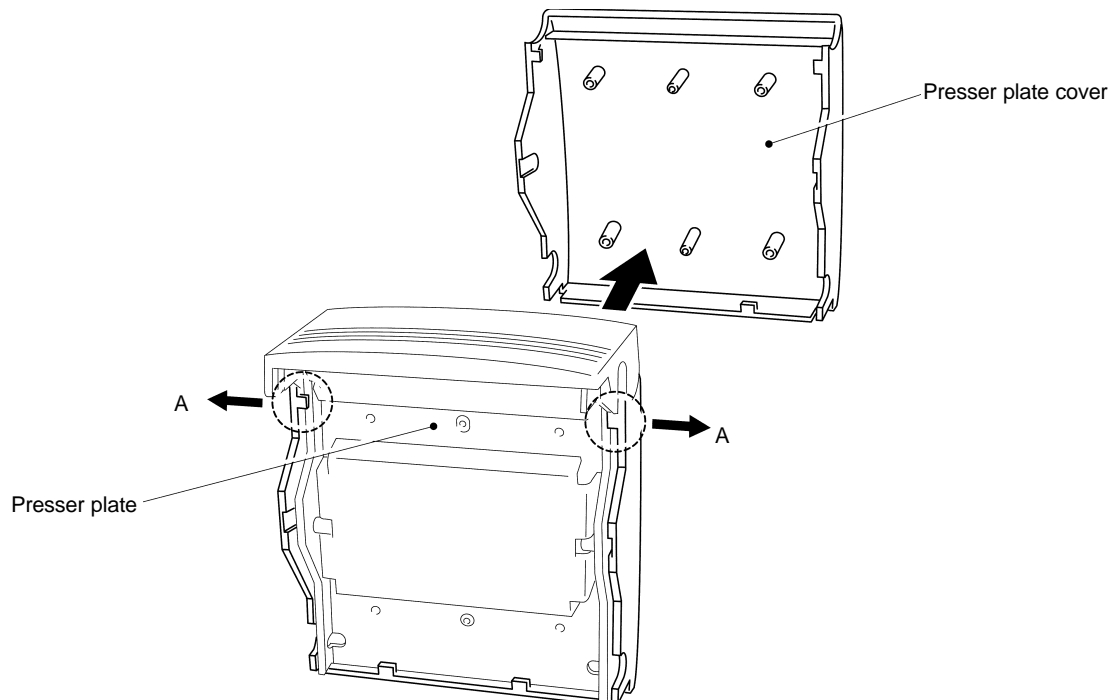


Fig. 3.33

Remove the two retaining rings to remove the presser plate positioning shaft from the presser plate.

While bending the four claws in the directions of the arrows, remove the presser lever cover, as shown in Fig. 3.34.

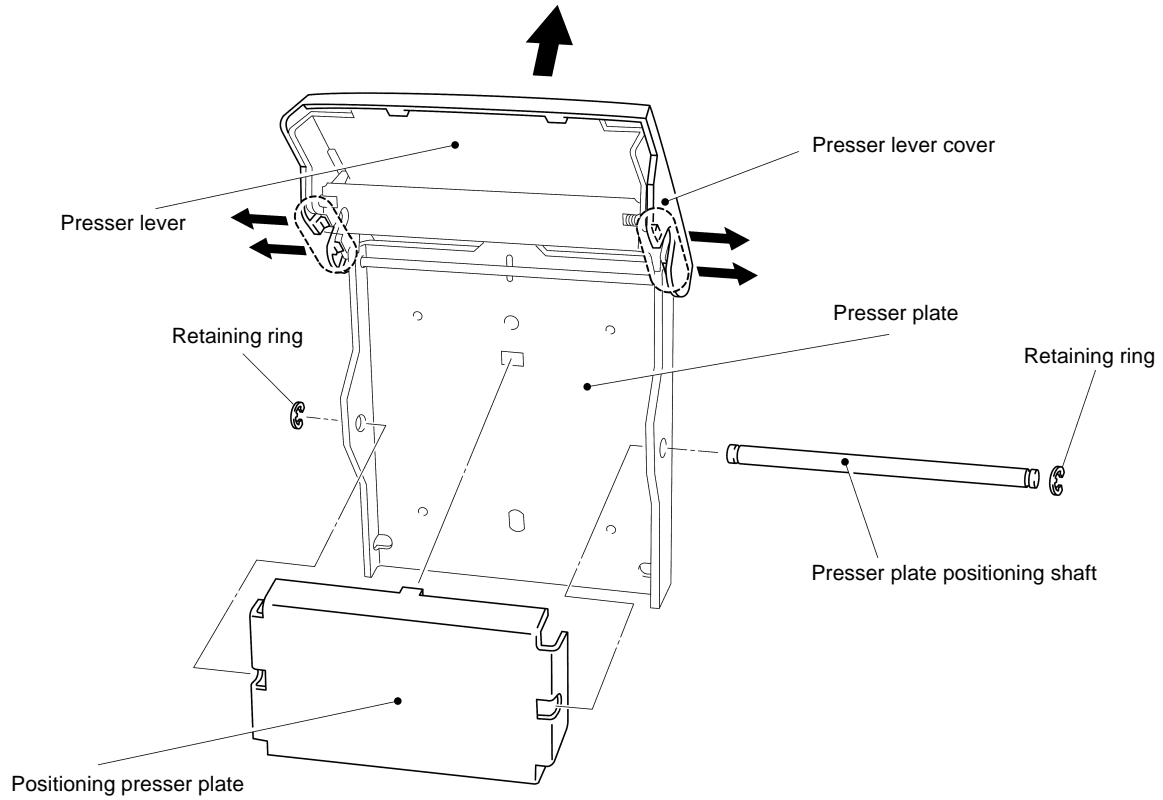


Fig. 3.34

Remove the two presser bearings, and then pull the presser plate lever shaft and presser plate lock shaft out from the presser lever, as shown in Fig. 3.35.

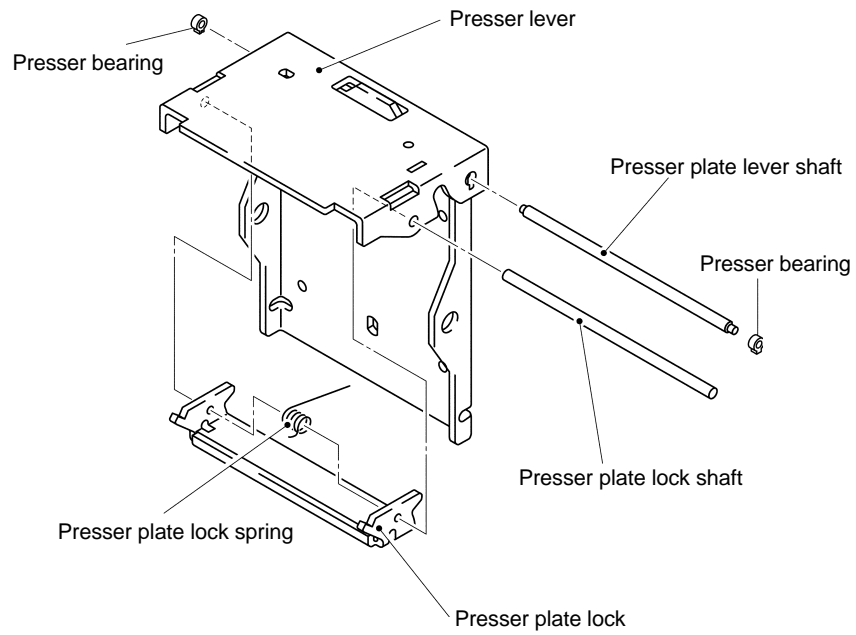


Fig. 3.35

Remove the two retaining rings and the two bearings to remove the presser frame shaft.

While bending the four claws and the two tongues, remove the shutter cover from the presser frame sub assy.

Remove the two shutter springs from the shutter front and the shutter rear.

Remove the shutter front, shutter rear, and the two pinions 14 from the presser frame sub assy.

Remove the three screws to remove the shield plate rear and the size detection PCB assy from the shutter rear, as shown in Fig. 3.36.

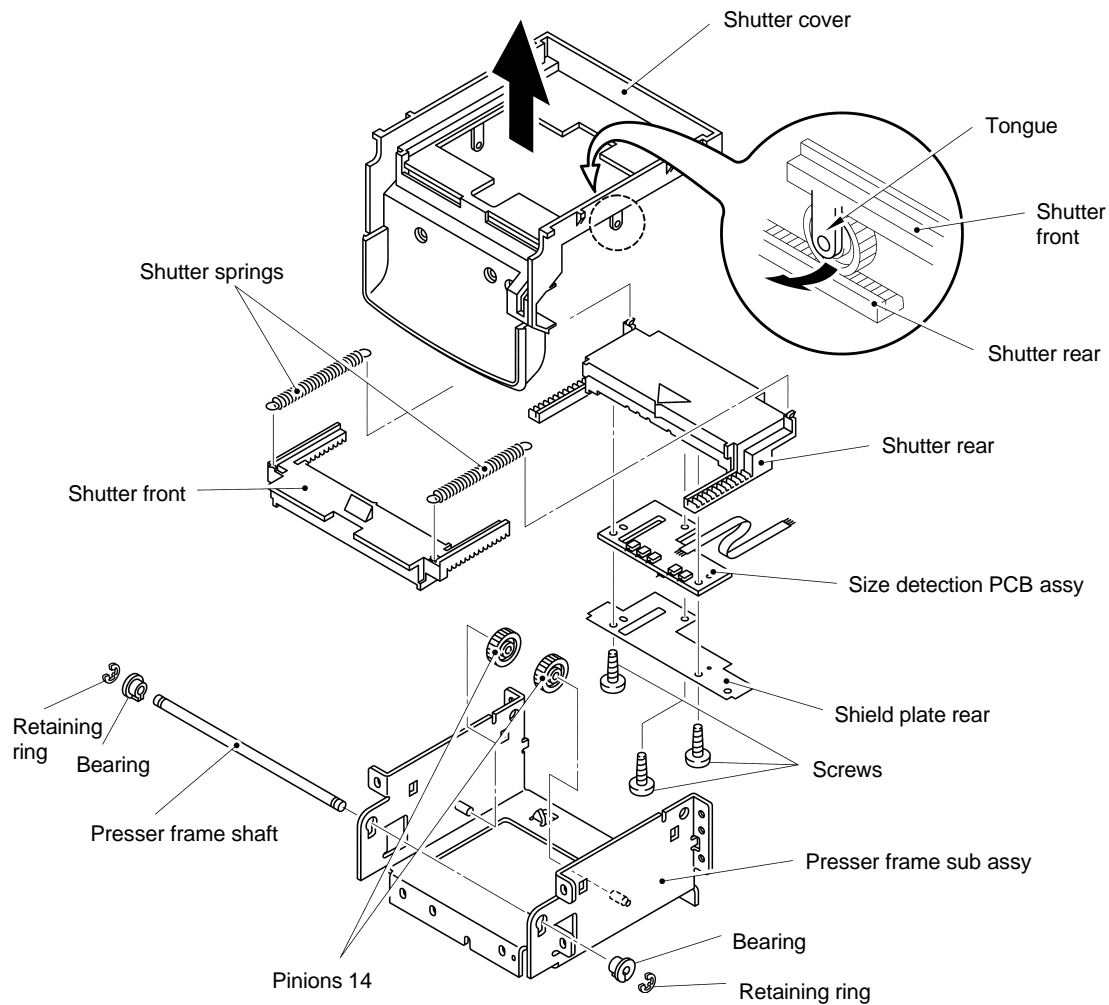


Fig. 3.36

1.14 Disassembly of the Head Holder Assy

Remove hooks A of the two head holder springs from the grooves of the main chassis.

Remove the two retaining rings and pull out the rotation shaft in the direction of the arrow, as shown in Fig. 3.37.

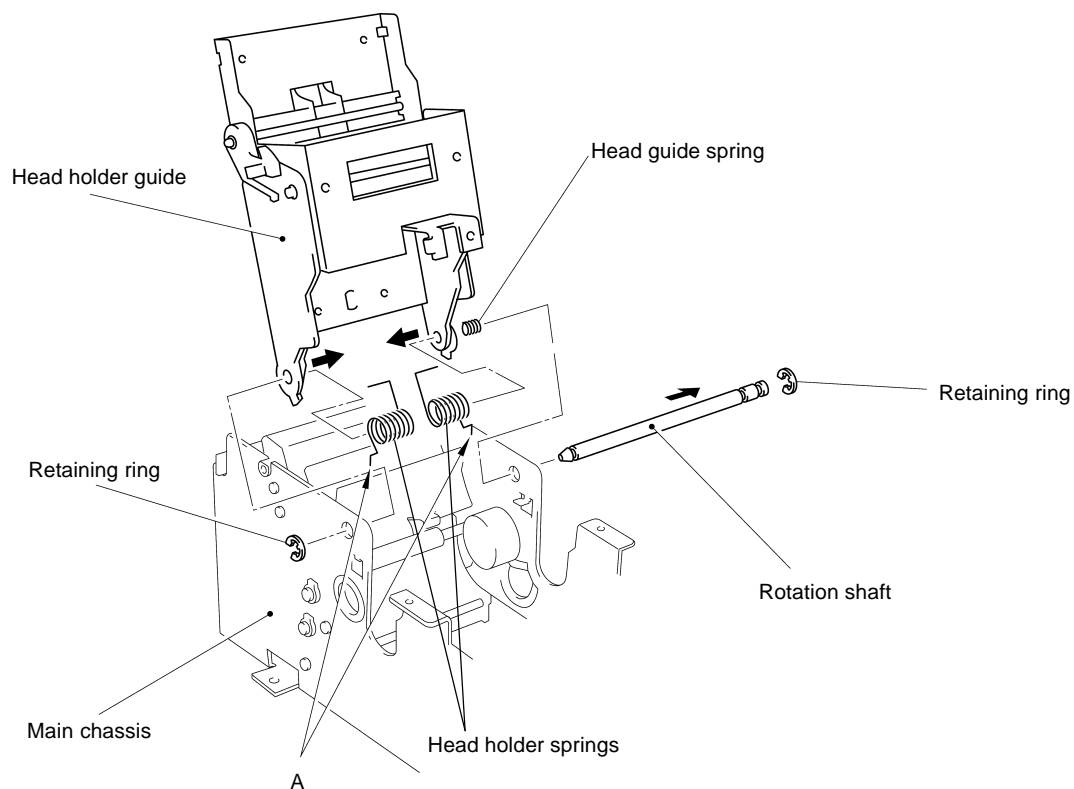


Fig. 3.37

Remove the two retaining rings and pull out the lever shaft in the direction of the arrow, and remove the lever hook.

Remove the two retaining rings and pull out the head guide shaft in the direction of the arrow, as shown in Fig. 3.38.

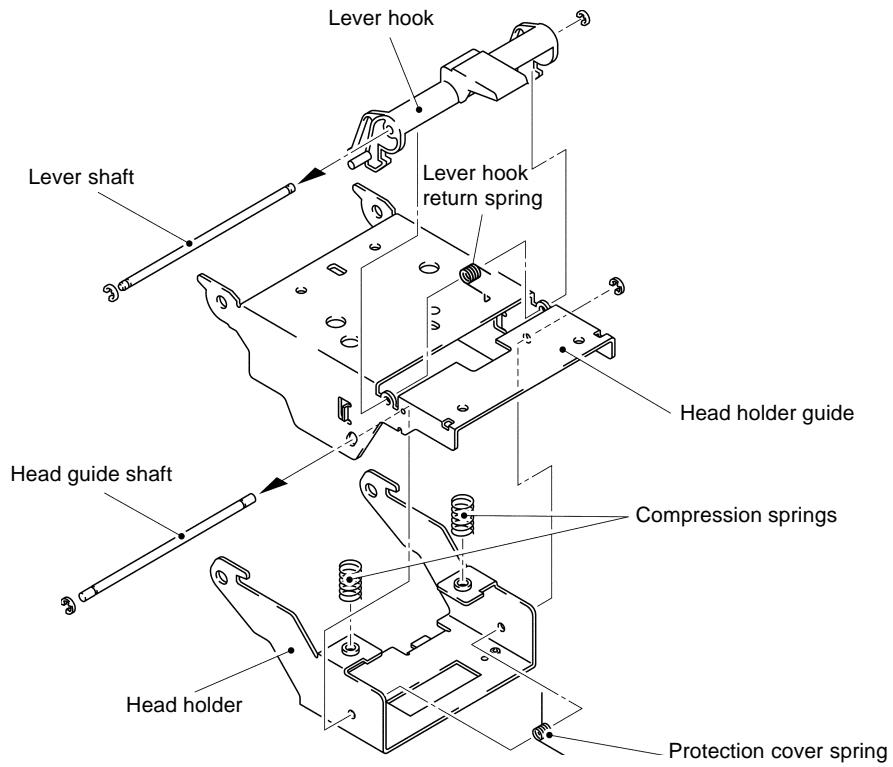


Fig. 3.38

1.15 Disassembly of the Gears and Pulleys

Remove the gears and pulleys in the numerical order shown in Fig. 3.39.

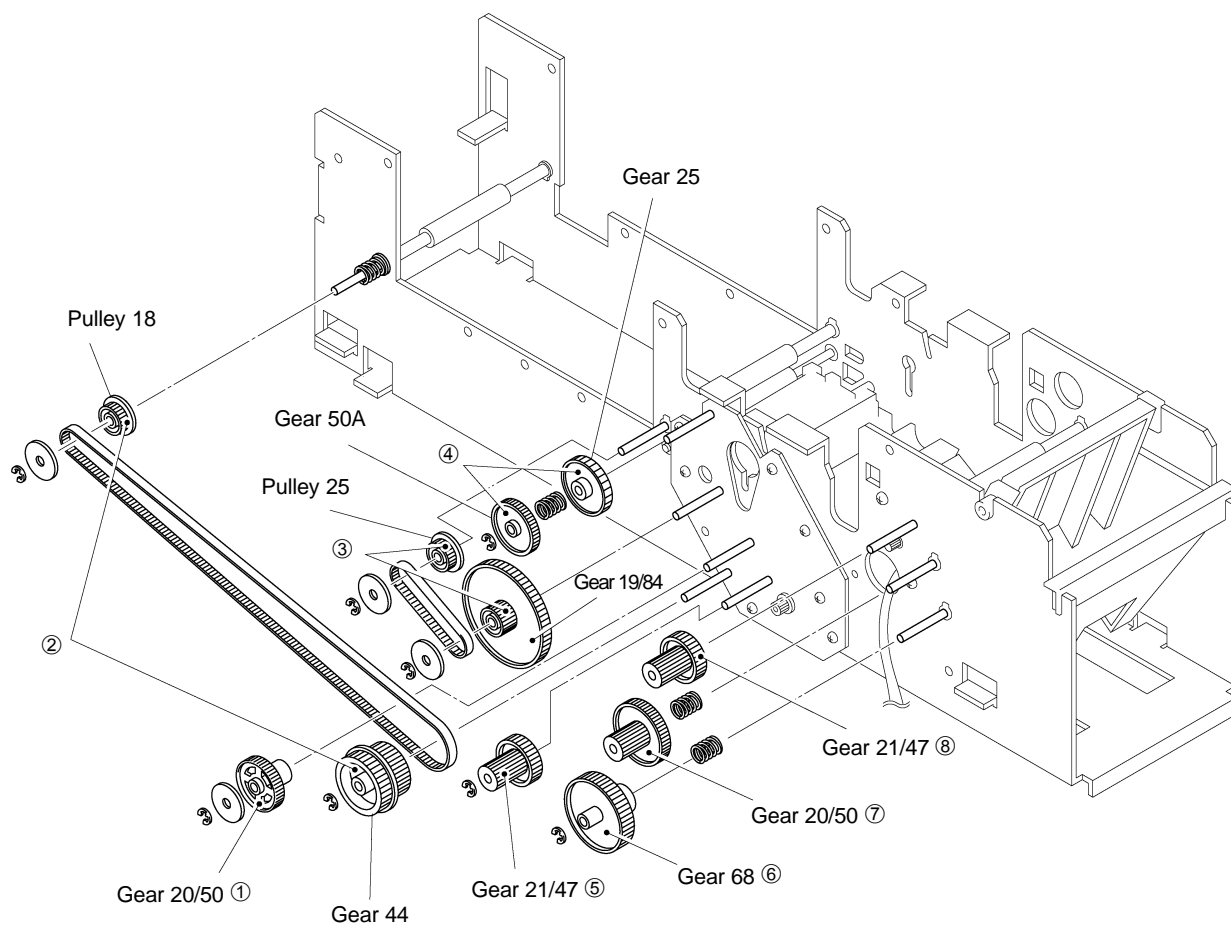


Fig. 3.39

1.16 Disassembly of the Motor Holder Assy and the Motors

Remove the three screws securing the motor holder sub assy on the main chassis to remove the motor holder sub assy.

Remove the two screws to remove the main motor from the motor holder sub assy.

Remove the two screws to remove the paper feed motor from the main chassis, as shown in Fig. 3.40.

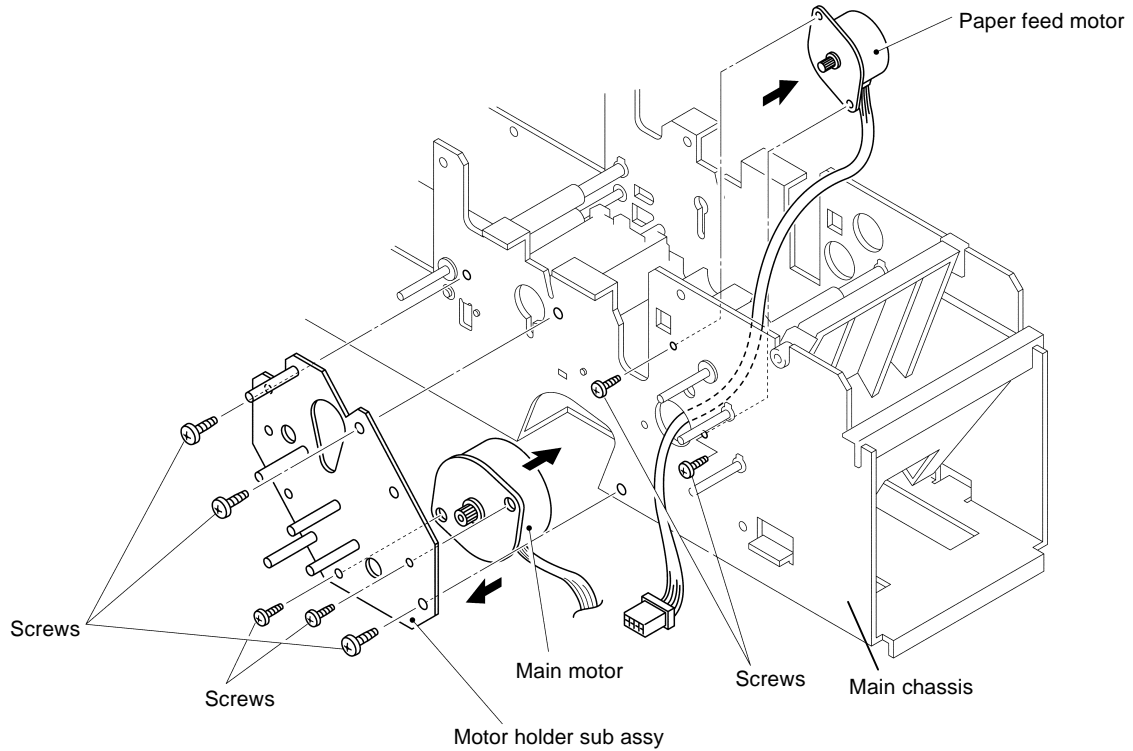


Fig. 3.40

1.17 Disassembly of the Rollers

Remove the two retaining rings and bearings to remove the driving roller.

Remove the retaining ring, paper eject roller spring, and two bearings to remove the paper eject roller.

Remove the two retaining rings and bearings to remove the paper feed roller.

Remove the clutch spring, the washer, and the retaining ring from the paper feed roller.

Remove the two retaining rings to remove the nip roller, as shown in Fig. 3.41.

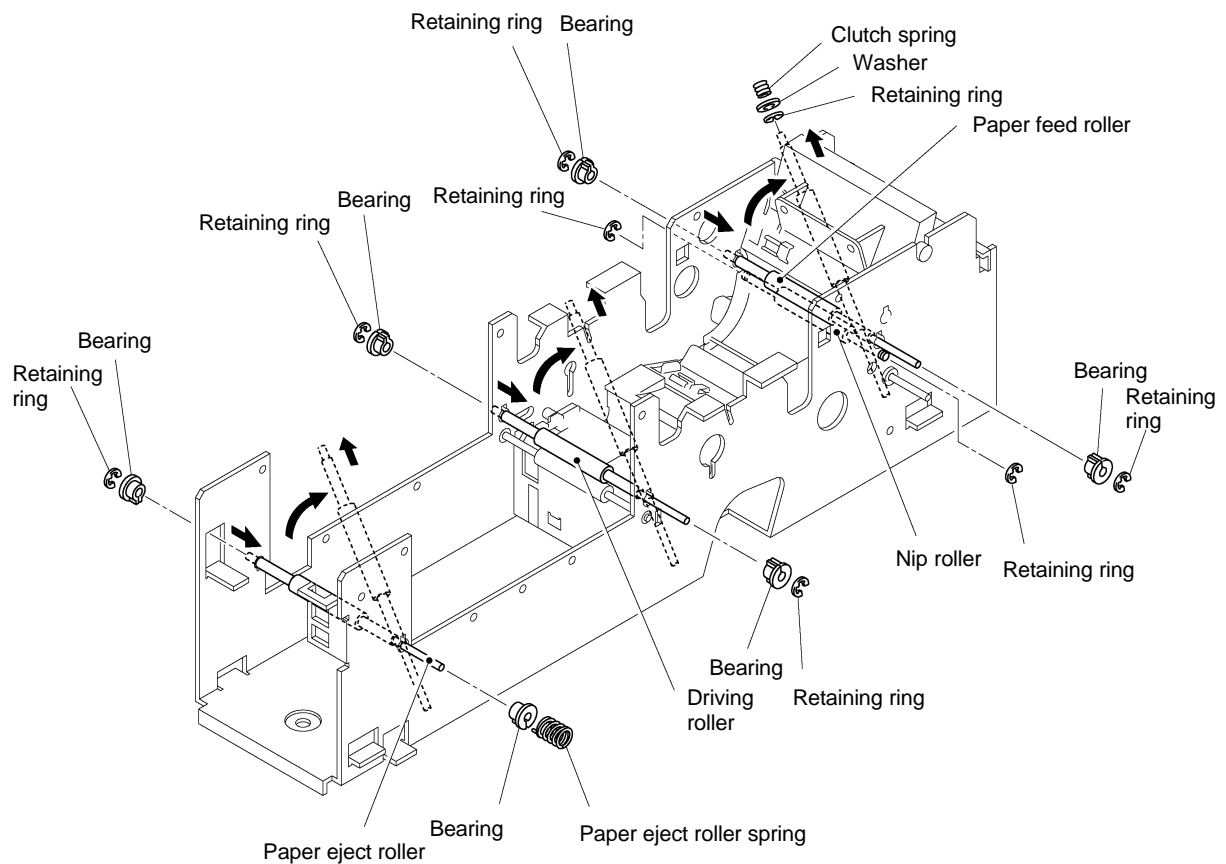


Fig. 3.41

1.18 Disassembly of the Label Guide Assy

Remove the five screws securing the label guide assy on the main chassis, and remove the label guide assy by pressing projections A and B of the label guide to release them from the holes, as shown in Fig. 3.42.

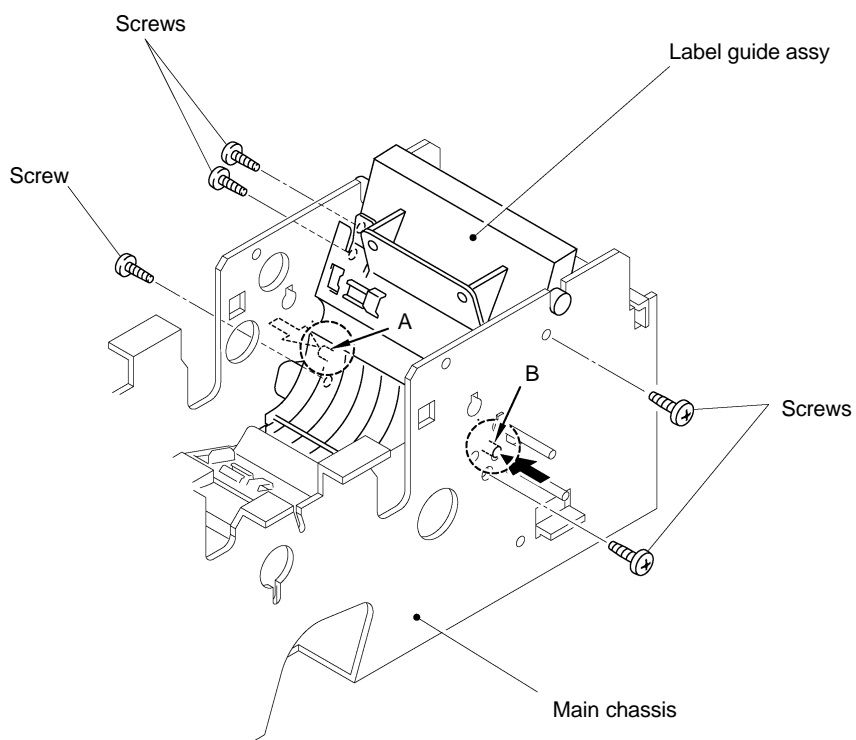


Fig. 3.42

Remove label nip springs R and L.

Remove the two screws to remove the sensor bracket from the label guide.

Remove the two retaining rings to remove the ribbon cassette shaft from the label guide, as shown in Fig. 3.43.

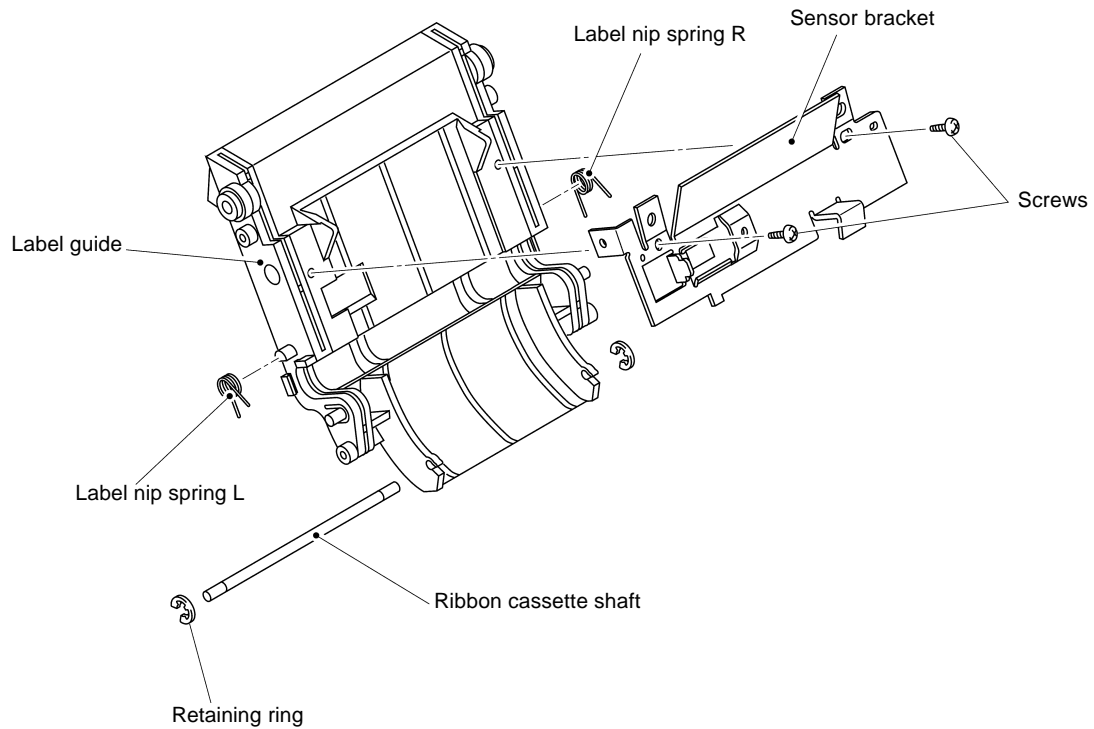


Fig. 3.43

1.19 Disassembly of the Film Path Assy

Remove the two retaining rings and bearings to remove the paper feed roller.

Remove the clutch spring, the washer, and the retaining ring from the paper feed roller.

Remove the seven screws securing the film path assy on the main chassis, press two projections A of the film path to release them from the holes, and remove the film path assy.

Remove torsion springs R and L.

Remove the two retaining rings to remove the nip roller, as shown in Fig. 3.44.

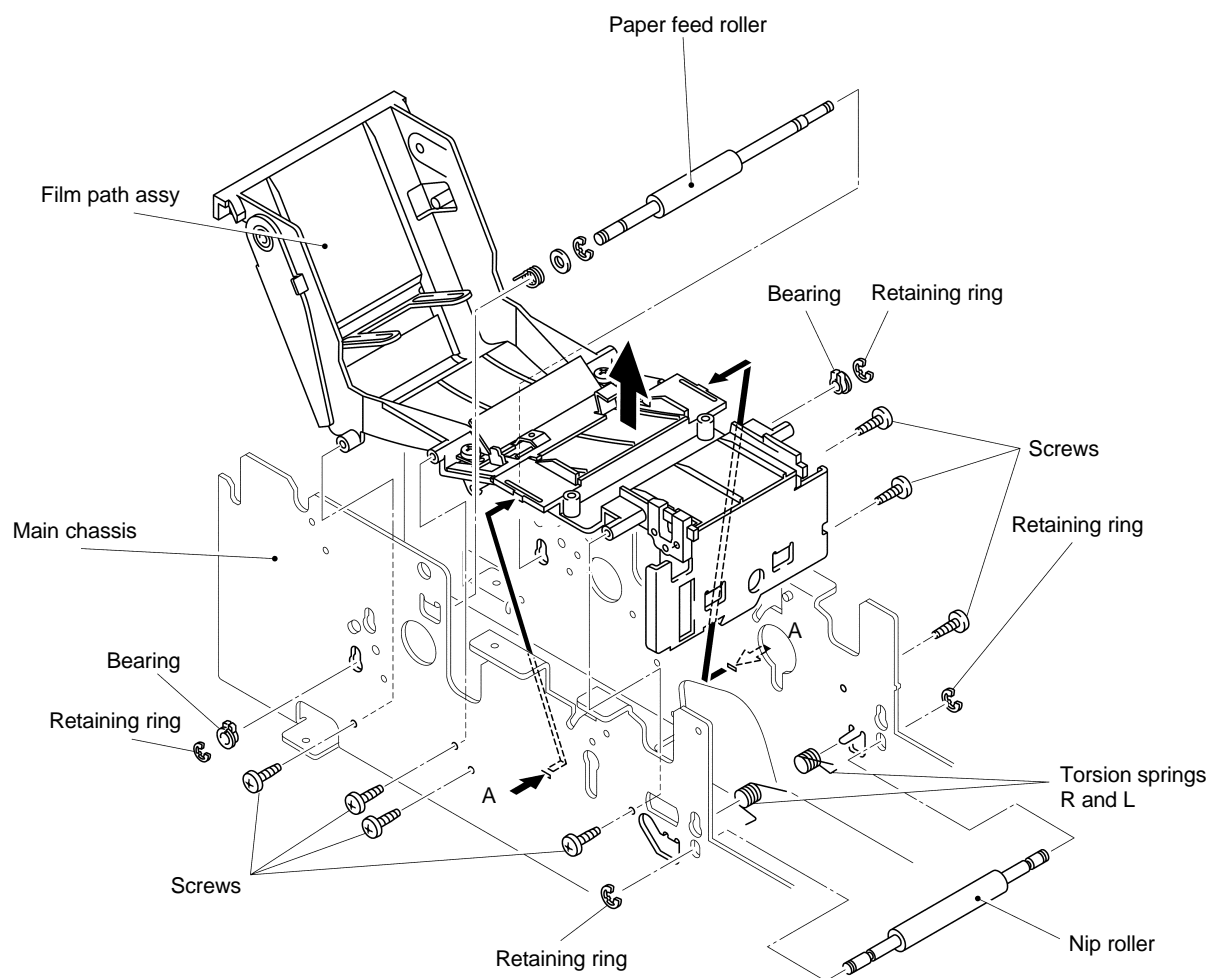


Fig. 3.44

Remove the retaining rings, pull out the two outer plate shafts, and remove the outer plate, the lock plate, and the two return springs.

Remove the two screws to remove the sensor bracket.

Remove the two magazine springs, and the magazine lift sub assy while pressing parts A and B of the film path to release them, as shown in Fig. 3.45.

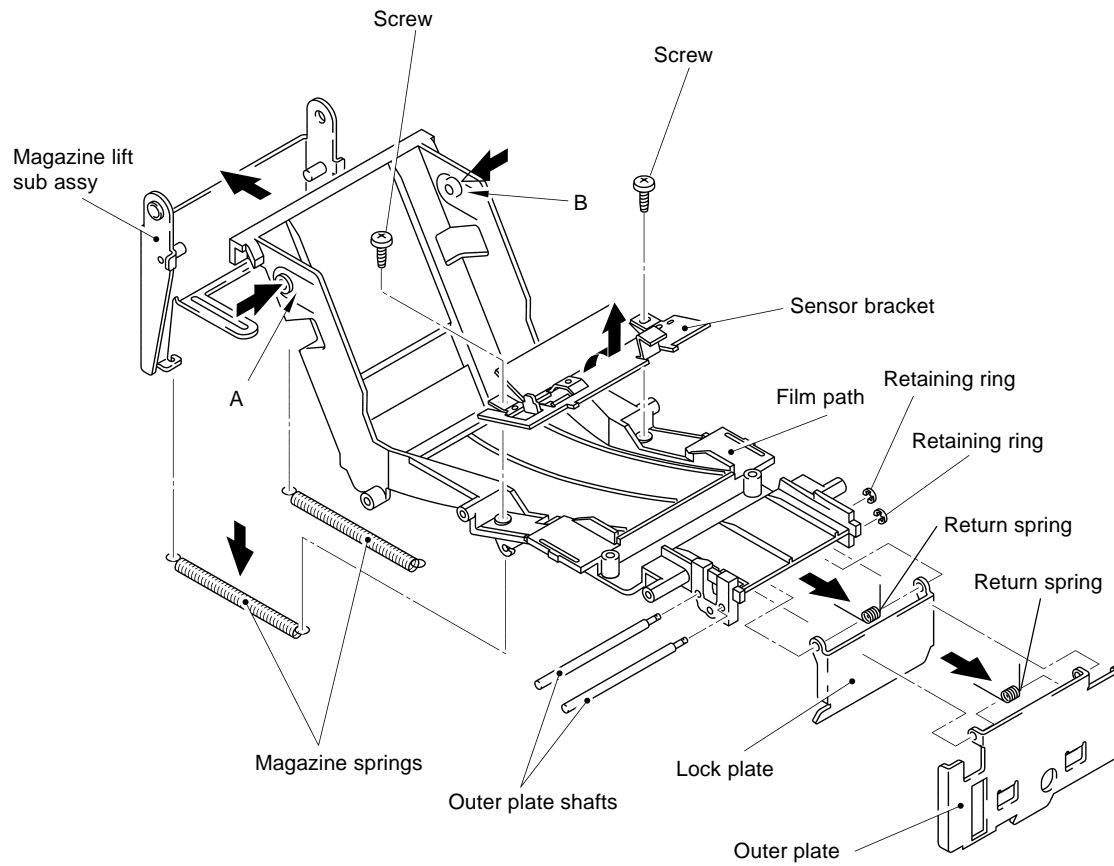


Fig. 3.45

1.20 Disassembly of the Drawer Connector

Remove the two screws to remove the drawer connector from the main chassis, as shown in Fig. 3.46.

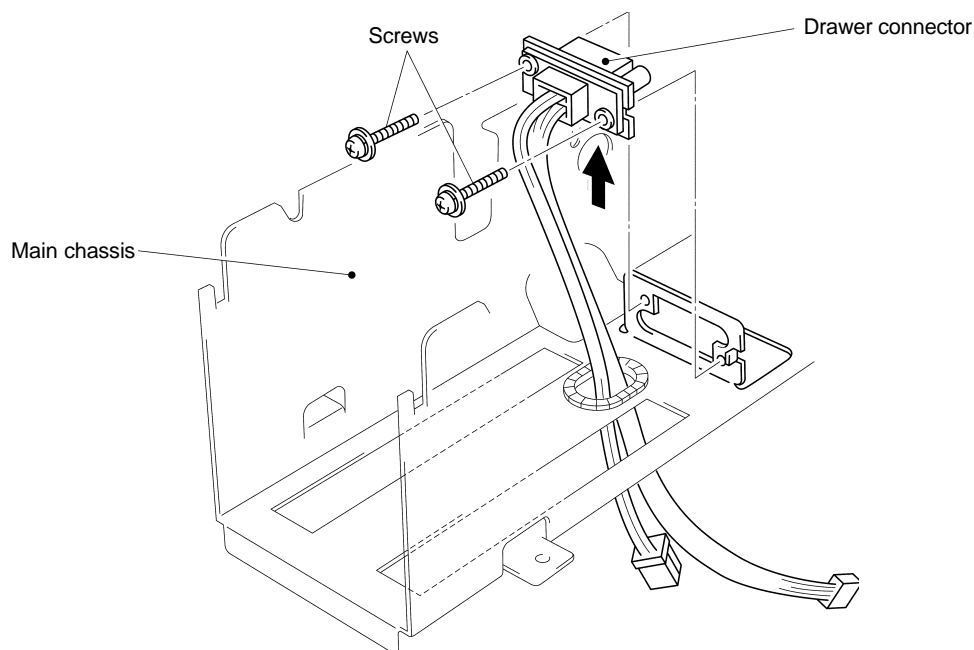


Fig. 3.46

Remove free bush 50, and free bushes 15 and 70, as shown in Fig. 3.47.

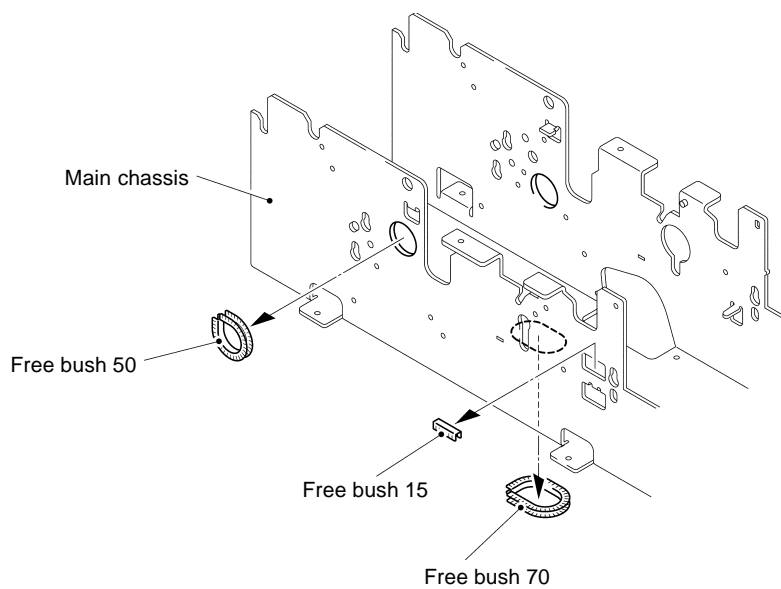


Fig. 3.47

2. REASSEMBLY PROCEDURES

2.1 Reassembly of the Drawer Connector

Set free bush 50, and free bushes 15 and 70 on the holes in the main chassis, as shown in Fig. 3.48.

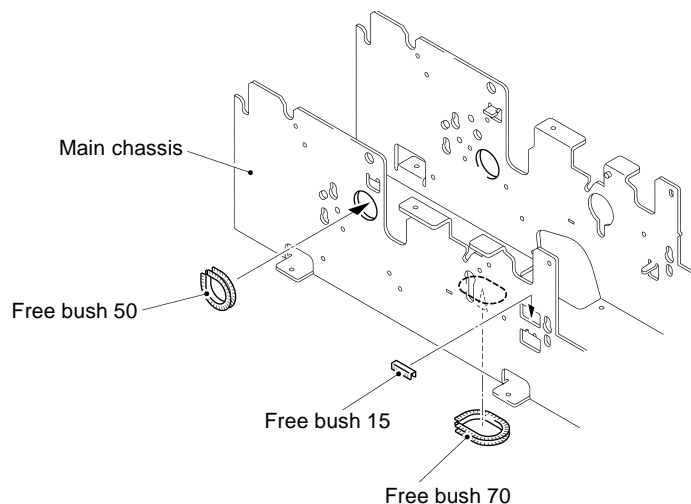


Fig. 3.48

Pass the drawer connector assy harness through hole A in the main chassis. Insert the drawer connector into hole B, and secure it with the two screws, as shown in Fig. 3.49.

Note: Insert the drawer connector so that its projection will be inserted into groove D of the main chassis.

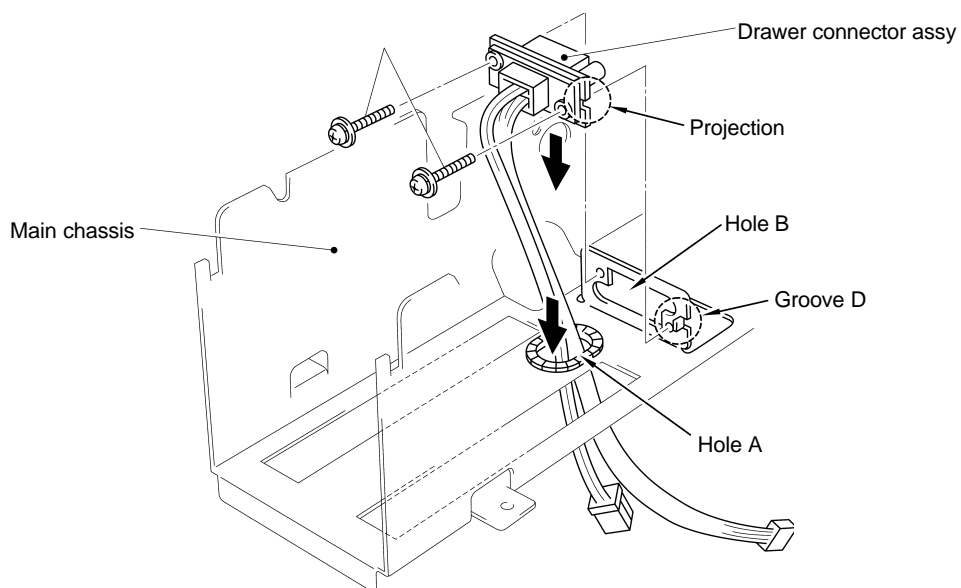


Fig. 3.49

2.2 Reassembly of the Film Path Assy

While bending two parts A of the film path in the directions of the arrows, insert them into the holes in the magazine lift sub assy, as shown in Fig. 3.50.

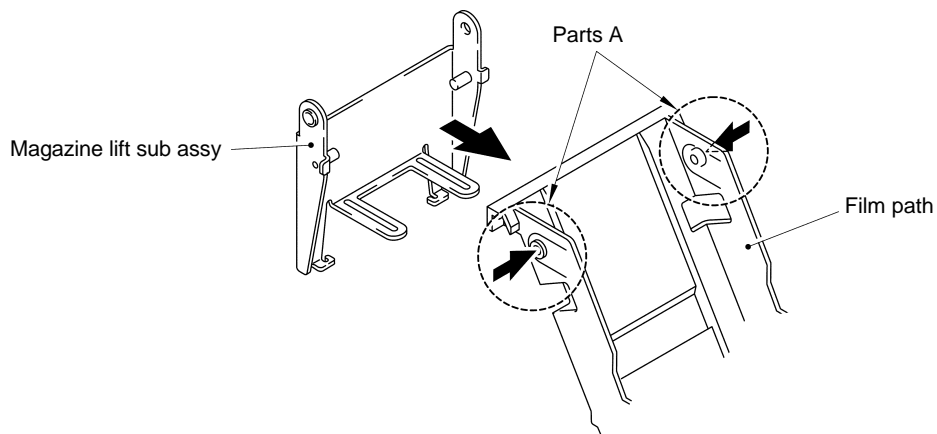


Fig. 3.50

Set the two magazine springs on two hooks B of the film path assy, and then two hooks C of the magazine lift sub assy, as shown in Fig. 3.51.

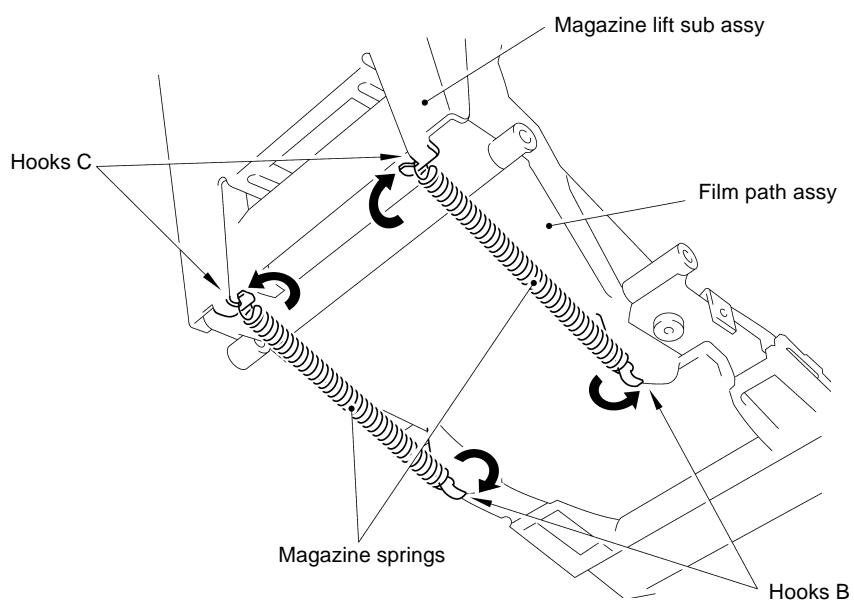


Fig. 3.51

After setting the sensor bracket on two parts D of the film path assy, set the film path assy so that the two locating pins on the film path assy will be inserted into holes E in the sensor bracket, and secure the film path assy with the two screws, as shown in Fig. 3.52.

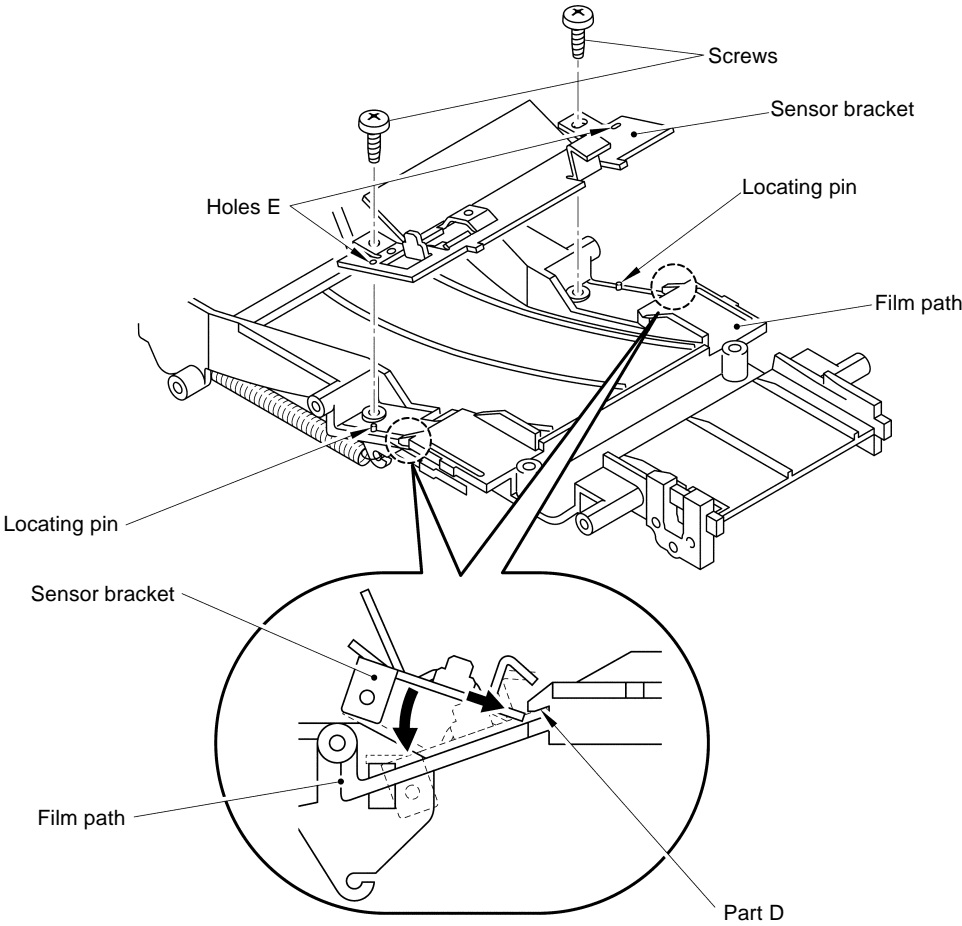


Fig. 3.52

Pass one outer plate shaft through the hole in the film path in the direction of the arrow, through the holes in the outer plate, the return spring, and the hole on the opposite side of the film path, before setting the retaining ring on the outer plate shaft.

Note 1: The hook of the return spring must be between the ribs of the film path, as shown in Fig. 3.53.

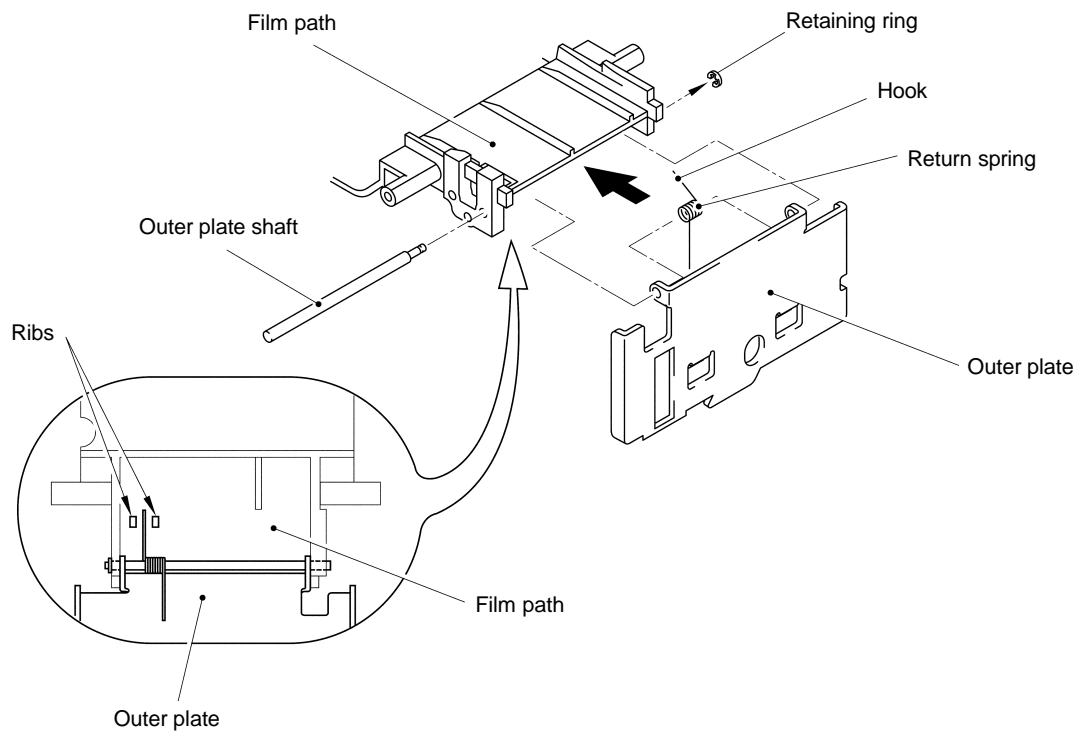


Fig. 3.53

In the same manner, pass the other outer plate shaft through the hole in the film path in the direction of the arrow, through the holes in the lock plate, the return spring, and the hole on the opposite side of the film path, before setting the retaining ring on the outer plate shaft.

Note 2: The hook of the return spring must be outside the rib of the film path, as shown in Fig. 3.54.

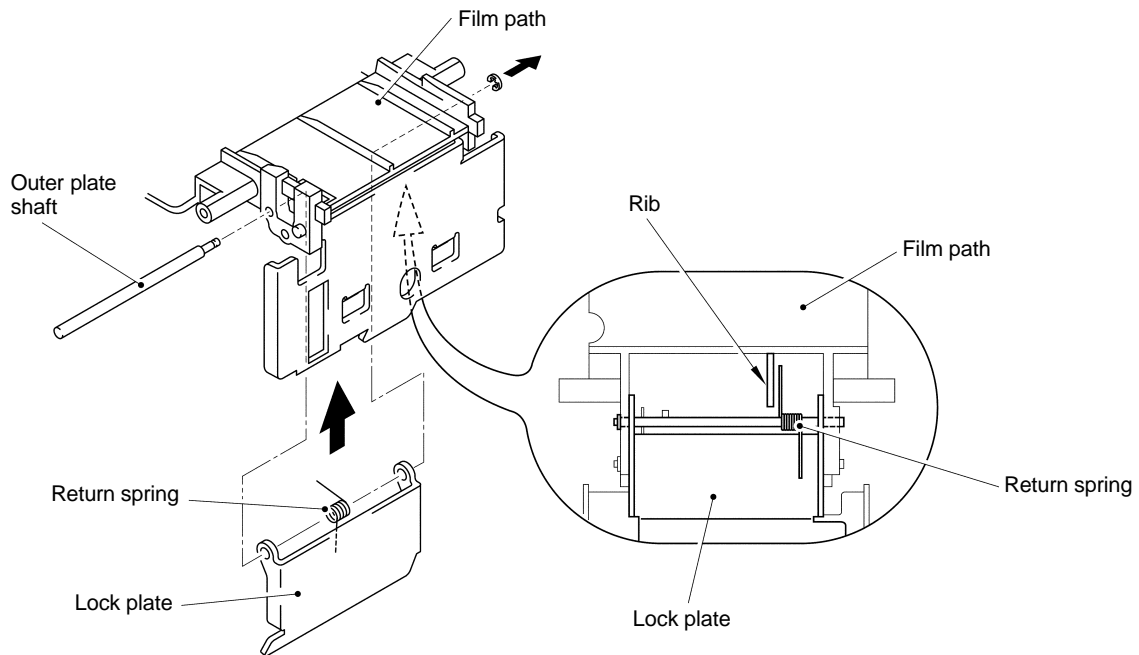


Fig. 3.54

Set torsion spring R on the projection of the main chassis so that hook A of torsion spring R will be inserted into the hole in the main chassis.

In the same manner, set torsion spring L on the opposite side.

Pass each end of the nip roller through the hole from the inside of the main chassis, and set the retaining rings on both ends of the nip roller from the outside of the main chassis.

Set the film path in the main chassis, and secure it with the seven screws.

Note 3: Insert the hooks of the torsion springs into the grooves of the nip roller.

Note 4: Make sure that part D of the outer plate is inserted into hole E in the main chassis, as shown in Fig. 3.55.

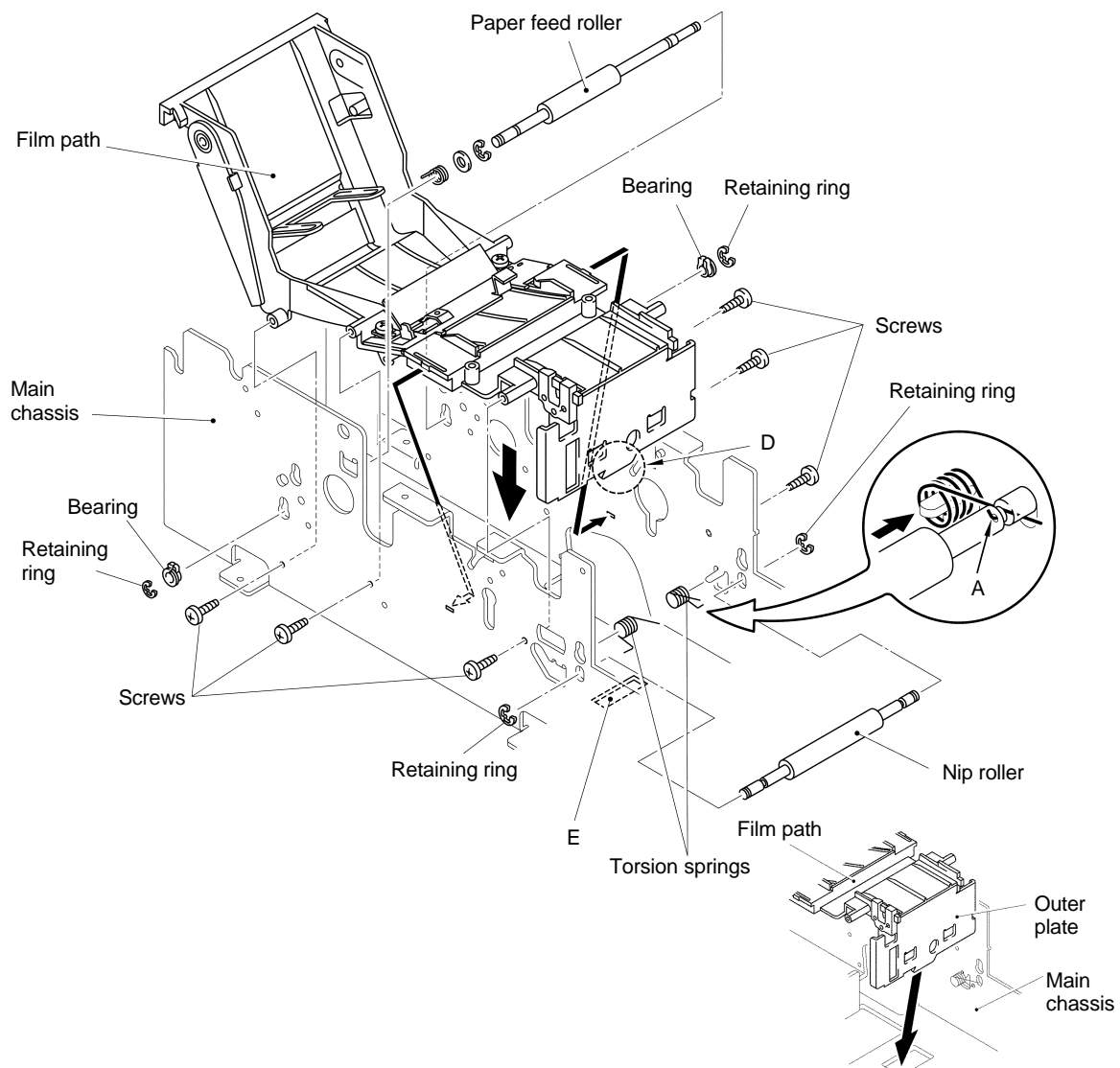


Fig. 3.55

2.3 Reassembly of the Label Guide Assy

Set the retaining ring, the washer, and the clutch spring on the paper feed roller shaft.

Note 1: Before setting the clutch spring, apply grease on the shaft.

Pass end A of the paper feed roller through the hole in the main chassis from the inside, and then pass end B through the hole on the opposite side of the main chassis.

Set the bearings and the retaining rings on both ends of the paper feed roller from the outside of the main chassis. (Insert the hook of the clutch spring into the groove of the bearing, as shown in Fig. 3.56.)

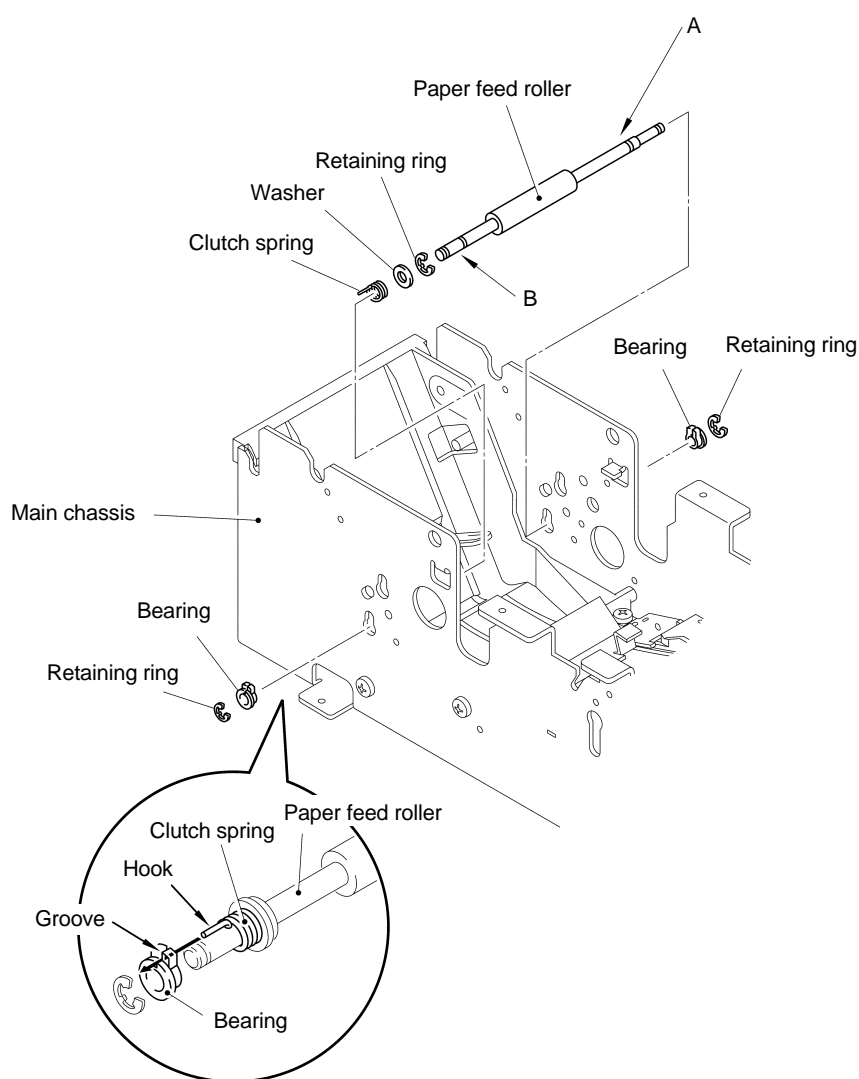


Fig. 3.56

Set the sensor bracket on the two locating pins on the label guide, and secure the sensor bracket on the label guide with the two screws.

Set label nip spring L on the pin on the label guide, and set the two hooks of the label nip spring L in hook A and then hook B of the label guide.

Set the ribbon cassette shaft on the label guide, and set the two retaining rings on the ribbon cassette shaft.

In the same manner, set label nip spring R, as shown in Fig. 3.57.

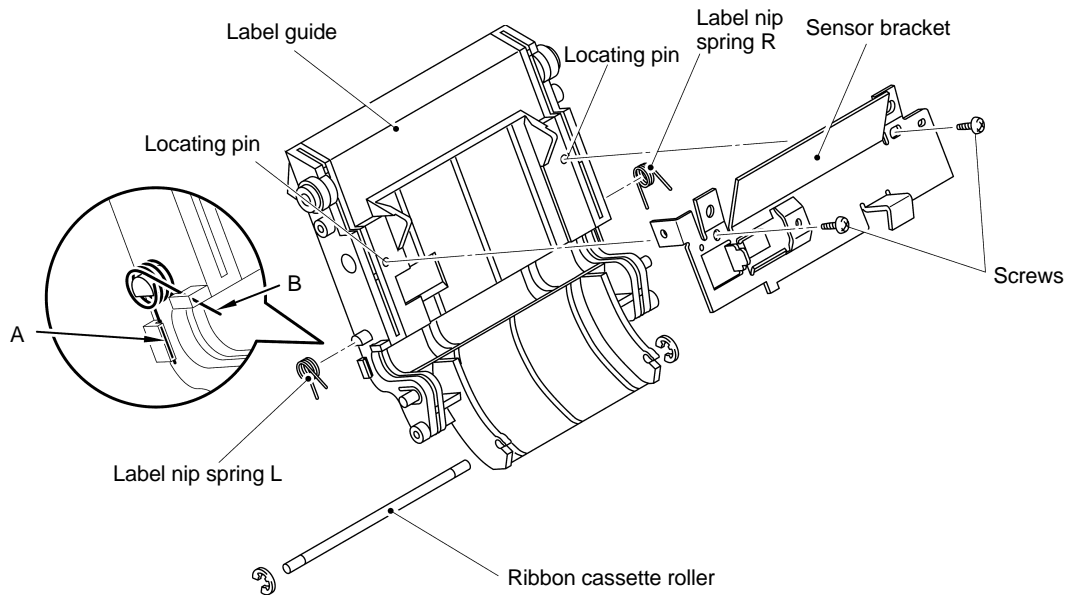


Fig. 3.57

While bending two parts D of the label guide assy to the inside, set the label guide assy in the main chassis.

Secure the label guide assy in the main chassis with the five screws.

Note 2: Make sure that two parts D of the label guide is properly inserted into the holes in the main chassis, as shown in Fig. 3.58.

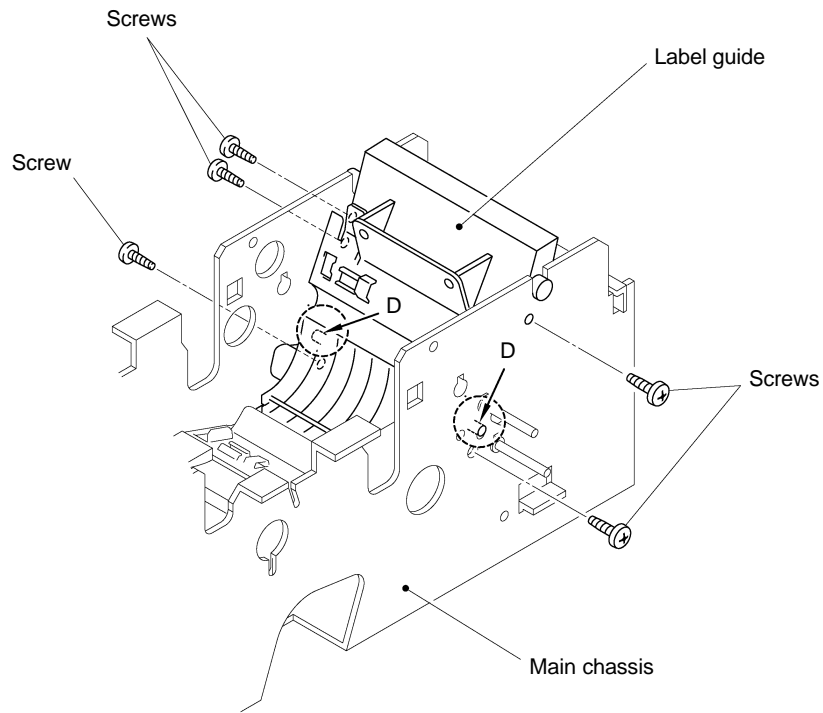


Fig. 3.58

2.4 Reassembly of the Rollers

While pressing ends A of the label nip springs in the directions of the arrows, pass each end of the nip roller through the hole from the inside of the main chassis.

Slide the label nip springs so that their ends A will contact parts B of the nip roller.

Note 1: Check that ends A of the label nip springs make contact with parts B of the nip roller, then apply grease to parts B of the nip roller.

Set the retaining rings on both ends of the nip roller from the outside of the main chassis. Then, set the paper guide on the sensor bracket, as shown in Fig. 3.59.

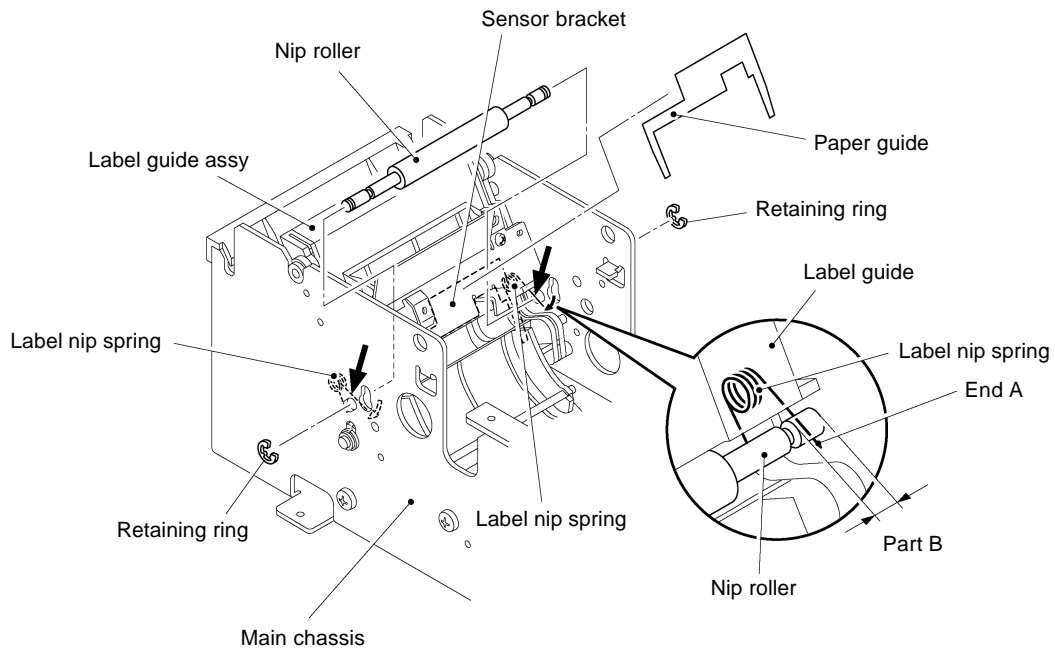


Fig. 3.59

Set the retaining ring, the washer, and the clutch spring on the paper feed roller.

Note 2: Before setting the clutch spring, apply grease to the portion on the paper feed roller where the clutch spring is to make contact with.

Insert end A of the paper feed roller into the hole in the main chassis from the inside, and end B of the paper feed roller into the hole on the opposite side of the main chassis, while pressing the nip roller.

Set the bearings and the retaining rings on both ends of the paper feed roller from the outside of the main chassis, as shown in Fig. 3.60.

(Insert the hook of the clutch spring into the groove of the bearing.)

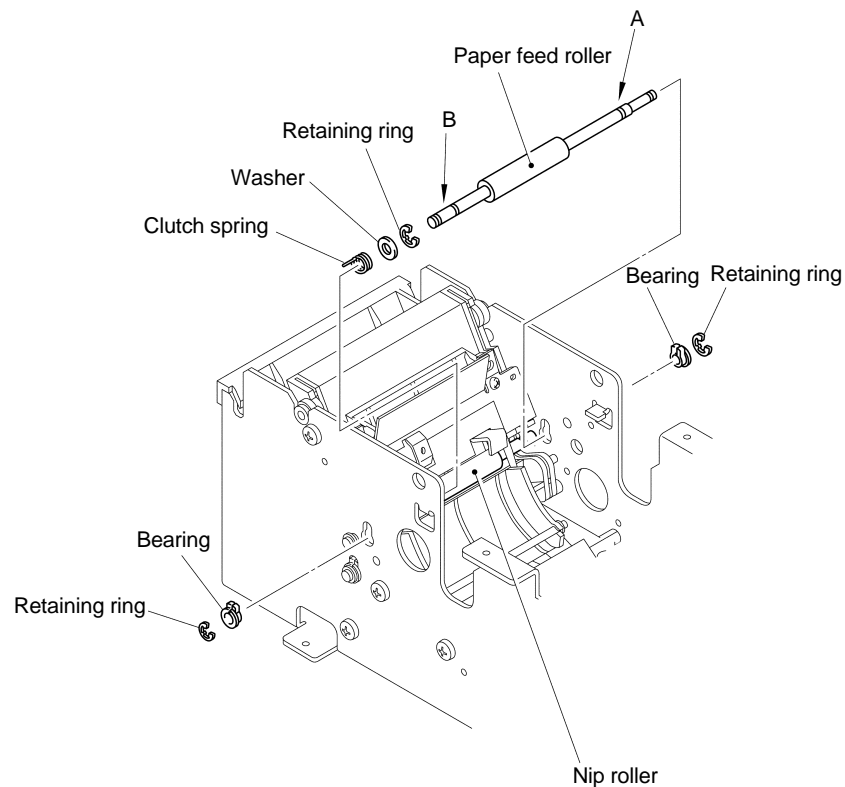


Fig. 3.60

Insert end A of the driving roller into the hole in the main chassis from the inside, and then insert end B of the driving roller into the hole on the opposite side of the main chassis.

Set the bearings and the retaining rings on both ends of the driving roller from the outside of the main chassis.

Insert both ends of the paper eject roller through the holes of the main chassis.

Set the bearings on both ends of the paper eject roller.

Set the retaining ring on the left end of the roller, and the paper eject roller spring on the other end of the roller, as shown in Fig. 3.61.

Note 3: Fit the end of the paper eject roller spring in the groove of the bearing.

Note 4: Before setting the paper eject roller spring, apply grease to the portion on the paper eject roller where the spring is to make contact with.

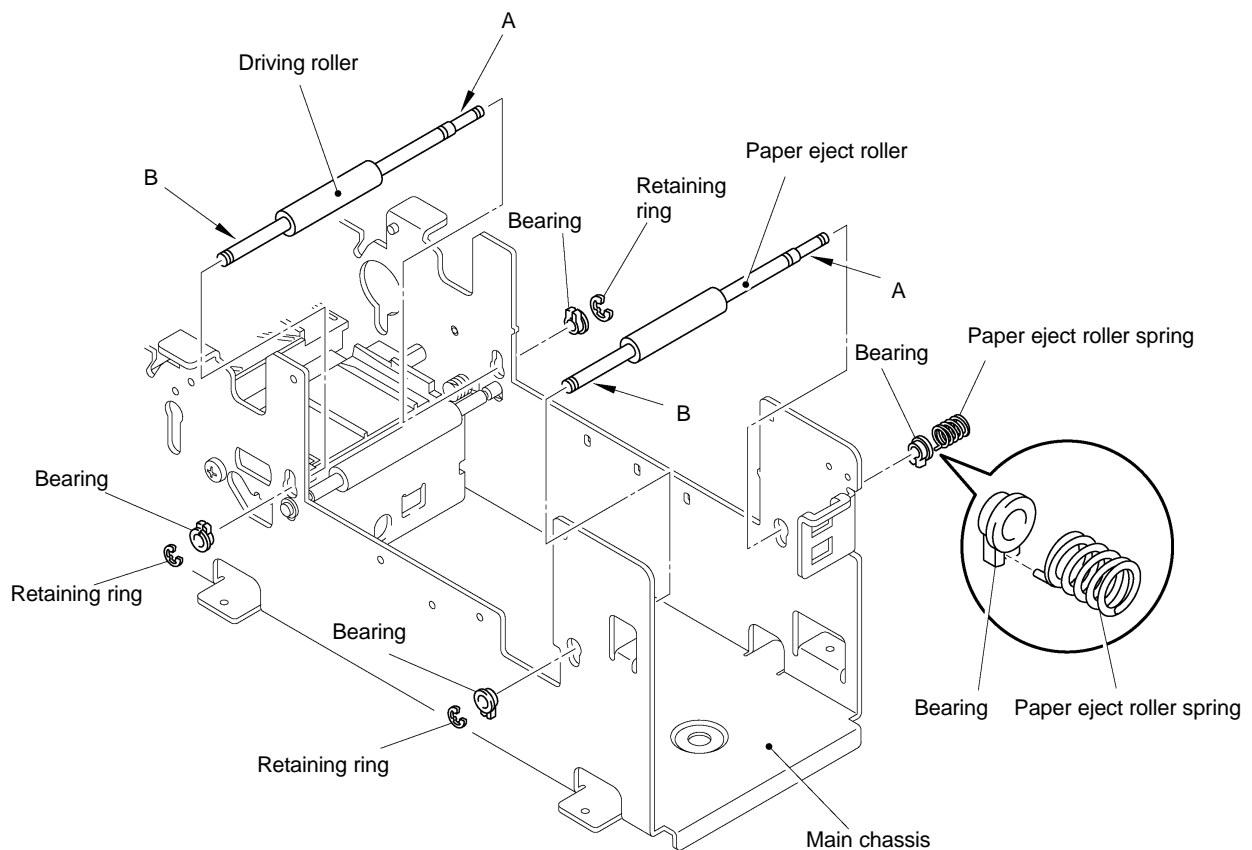


Fig. 3.61

2.5 Reassembly of the Motor Holder Assy and the Motors

Set the main motor in the hole in the motor holder sub assy so that the end of the harness will be at a lower position, and secure the main motor on the motor holder sub assy with the two screws.

Set the motor holder sub assy on locating embosses A on the main chassis, and secure the motor holder sub assy on the main chassis with the three screws.

Set the paper feed motor in the hole in the main chassis so that the end of the harness will be at a lower position, and secure the paper feed motor on the main chassis with the two screws.

Pass the paper feed motor harness to the outside of the main chassis through hole B from the inside of the main chassis, as shown in Fig. 3.62.

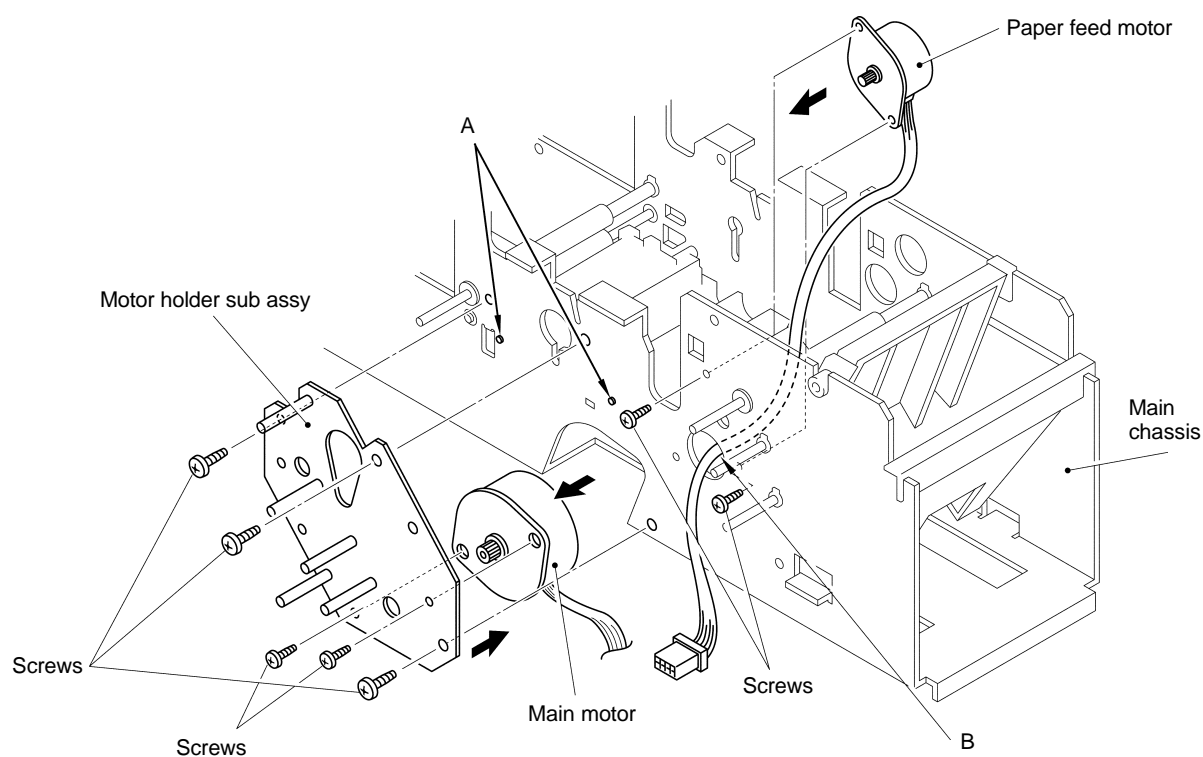


Fig. 3.62

2.6 Reassembly of the Gears and Pulleys

- (1) Set gear 21/47 on shaft A.
 - (2) After inserting shaft B through the clutch spring A, set gear 20/50.
 - (3) After inserting shaft C through the clutch spring A, set gear 68 and the retaining ring.
 - (4) Set gear 21/47 and the retaining ring on shaft D.
 - (5) Set the clutch spring C on gear 25, and set gear 25 and then gear 50A on shaft E.
Insert the hook of the clutch spring C into the groove of gear 50A, and set the retaining ring.
 - (6) Set pulley 25 and gear 19/84 on shafts F and G respectively, and set the timing belt (MXL belt B69) on pulley 25 and gear 19/84.
Set the flanges and the retaining rings on shafts F and G.
 - (7) Set pulley 18 on shaft H.
Set the timing belt (MXL belt 221) on shaft H and gear 44, and set gear 44 and the retaining ring on shaft I.
Set the flange and the retaining ring on shaft H.
- Note: Check that the end of the paper eject roller spring is fitted in the groove of the bearing.*
- (8) Set gear 20/50, the flange, and then retaining ring on shaft J, as shown in Fig. 3.63

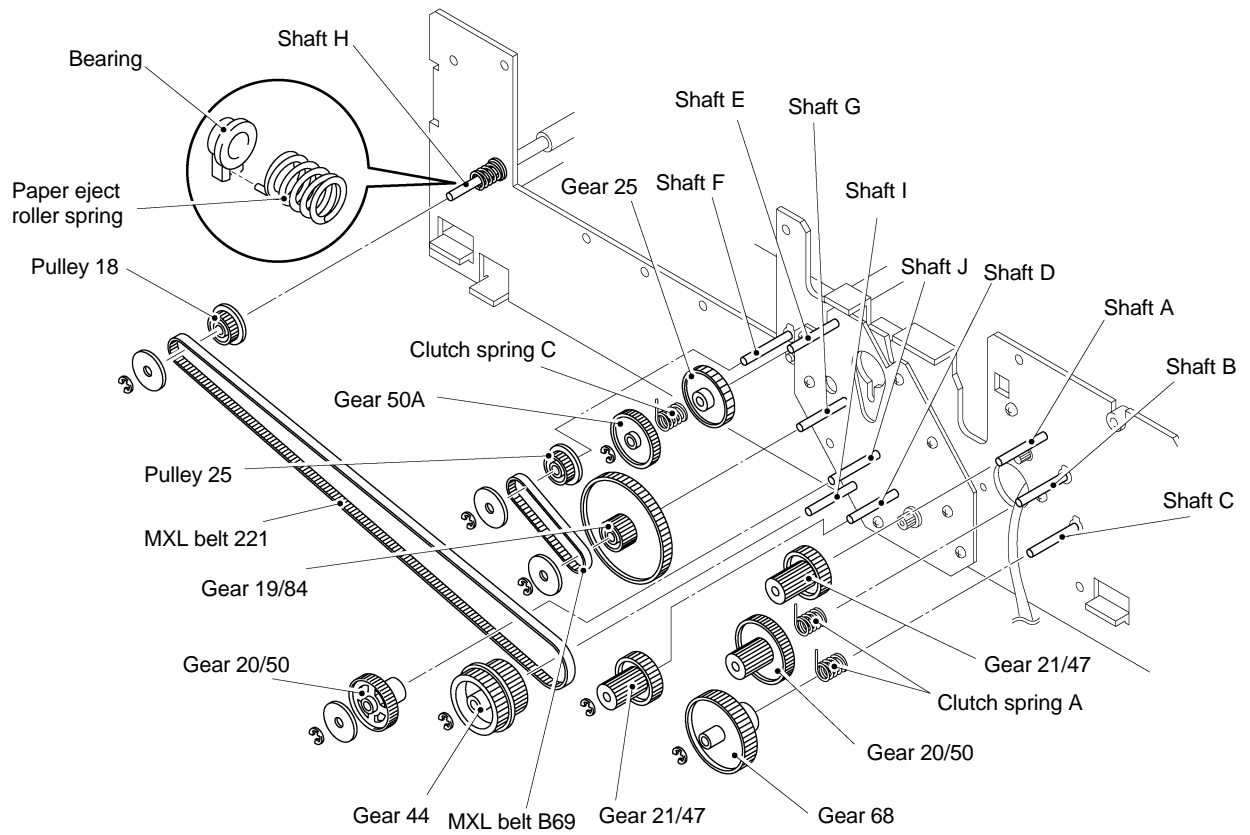


Fig. 3.63

2.7 Reassembly of the Head Holder Assy

Place two compression springs on two burrs of the head holder as shown in Fig.3.64. Hook two catches A of the head holder on the head holder guide, then fit two burrs of the head holder guide over the compression springs.

Lower the head holder guide. Insert the head guide shaft through the head holder guide, head holder, and protection cover spring, then mount the retaining rings on both ends of the shaft.

Move the protection cover spring toward the end of the shaft, then fit arm B of the protection cover spring in portion B of the head holder.

Assemble the head protection cover so that portions D fit over the head guide shaft, then fit arm C of the protection cover spring in the hook of the head protection cover.

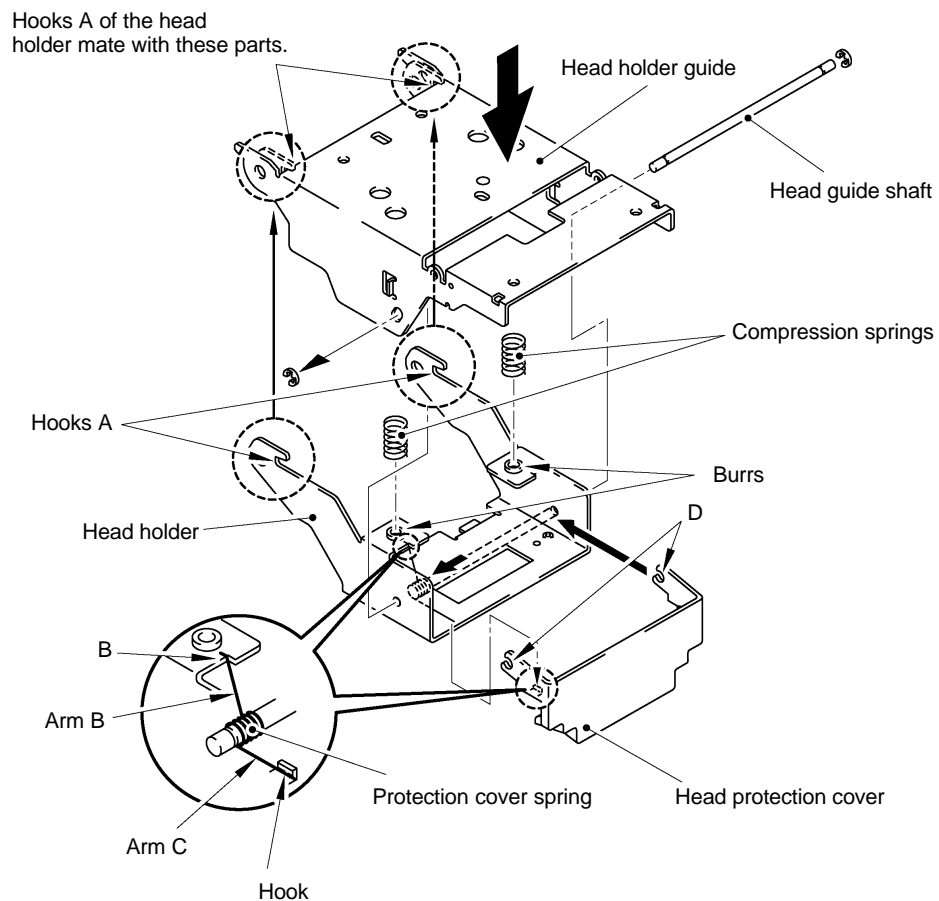


Fig. 3.64

Set the lever hook on the head holder guide, insert the lever shaft into the hole in the head holder guide, pass the lever shaft through the lever hook return spring, and insert the lever shaft into the hole on the opposite side of the head holder guide in the direction of the arrow. Then, set the retaining rings on both ends of the lever shaft, as shown in Fig. 3.65

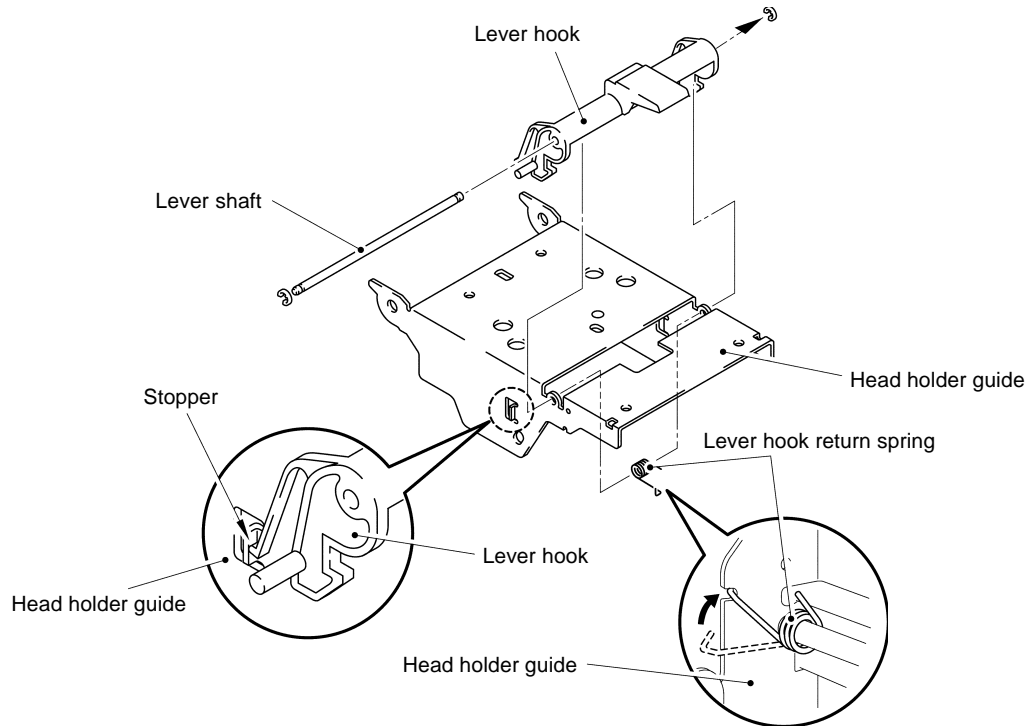


Fig. 3.65

Pass the rotation shaft through the hole in the main chassis from the outside in the direction of the arrow.

Pass the rotation shaft through the head guide spring, the head holder assy, head holder springs R and L, and the hole on the opposite side of the main chassis, and set the two retaining rings on the rotation shaft.

Set the hooks of head holder springs R and L on the projections of the main chassis, as shown in Fig. 3.66.

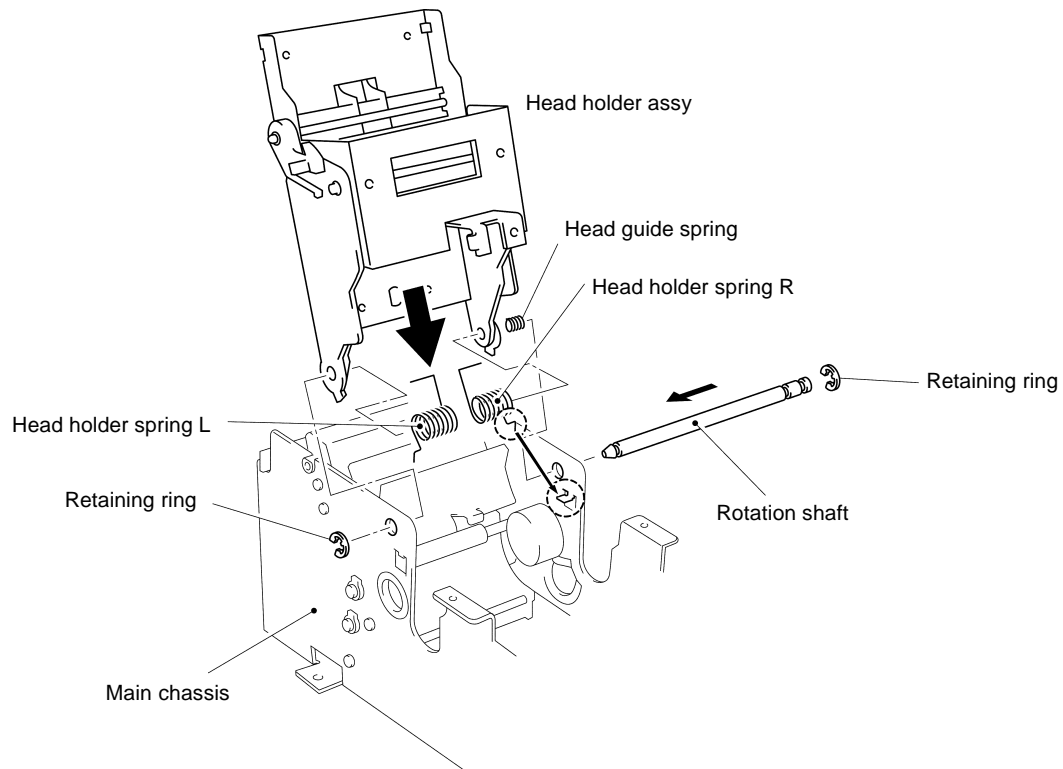


Fig. 3.66

2.8 Reassembly of the Presser Unit Assy

Set the size detection PCB assy and the shield plate rear on the shutter rear, and secure them with the three screws.

Set two pinions 14 on the two shafts in the presser frame sub assy.

Set the shutter rear and then the shutter front, as shown in Fig. 3.67.

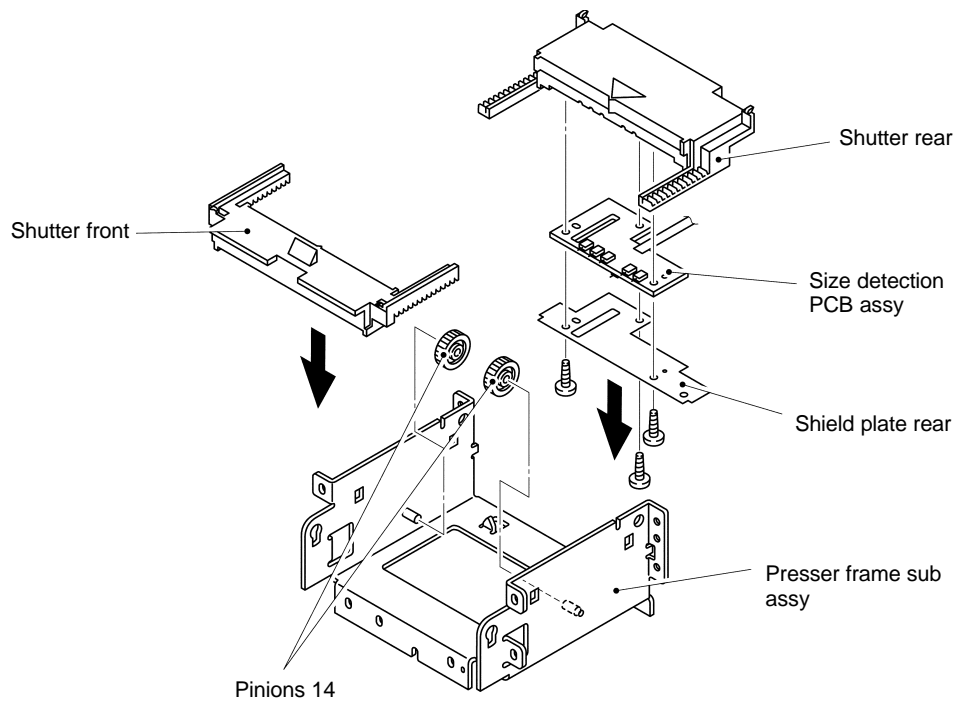


Fig. 3.67

Adjust the ends of the ribs of the shutter rear to the centers of the pinion shafts.

Set the shutter front so that there will be no clearance between the ends of the ribs of the shutter front and those of the shutter rear, as shown in Fig. 3.68.

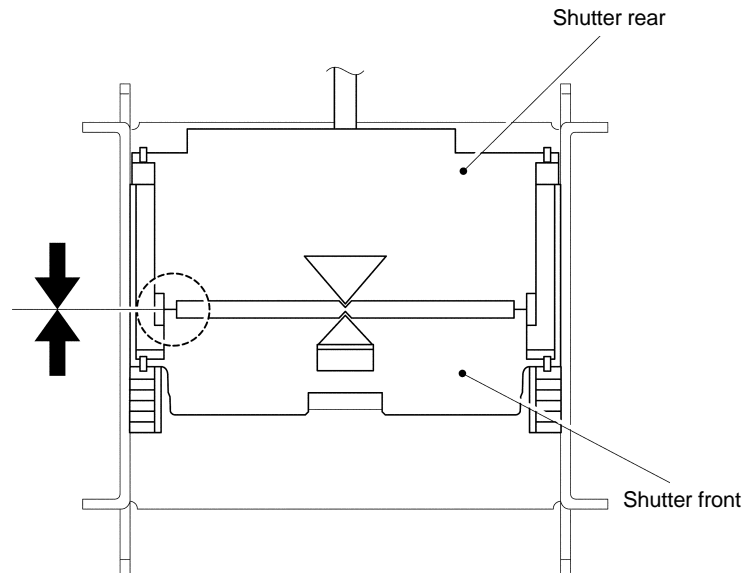


Fig. 3.68

Set the two shutter springs on the two hooks of the shutter front and the shutter rear.

Insert the four claws of the shutter cover into the holes in the presser frame sub assy.

Pass the presser frame shaft through the presser frame sub assy, and set the retaining rings and the bearings on both ends of the presser frame shaft.

Note 1: Make sure that the two pinion shafts of the presser frame sub assy are inserted into two holes A in the shutter cover, as shown in Fig. 3.69.

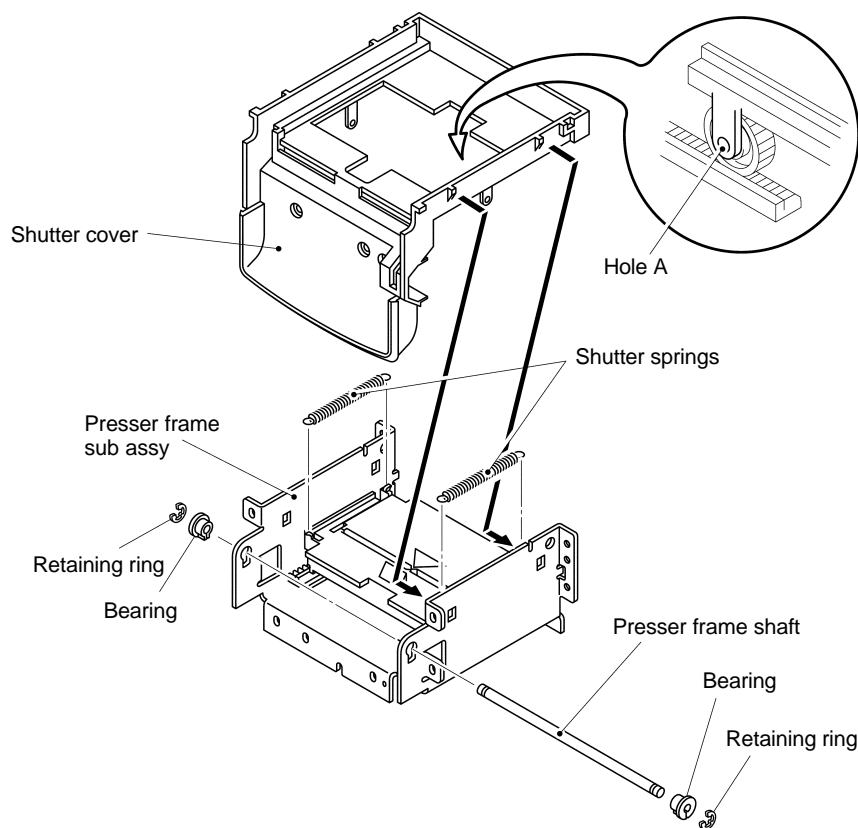


Fig. 3.69

Pass the positioning shaft through the presser plate and the positioning presser plate, and set the retaining rings on both ends of the positioning shaft.

Pass the presser plate lock shaft through the hole in the presser lever from the outside in the direction of the arrow.

Pass it through the presser plate lock, the presser plate lock spring, and through the hole on the opposite side of the presser lever.

Insert hook A of the presser plate lock spring into the hole C in the presser lever.

Pass the presser plate lever shaft through the presser plate and the presser lever.

Set the presser bearings on both ends of the presser plate lever shaft.

Set the presser lever cover on the presser lever.

Note 2: Make sure that two hooks B of the presser lever cover and the two locating pins are properly set, as shown in Fig. 3.70.

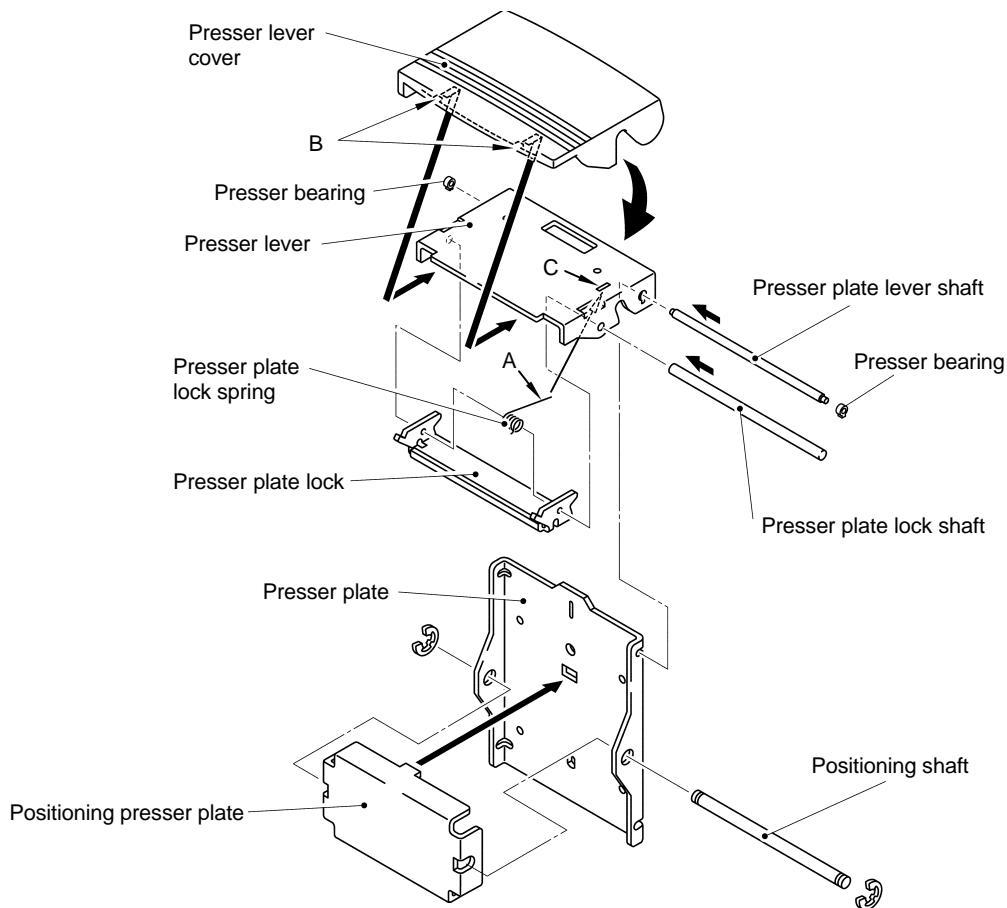


Fig. 3.70

Pass the hinge shaft through the hole in the presser frame sub assy from the outside in the direction of the arrow.

Pass it through the presser plate hinge spring, the presser plate, and the hole on the opposite side of the presser frame sub assy, and set the four retaining rings, as shown in Fig. 3.71.

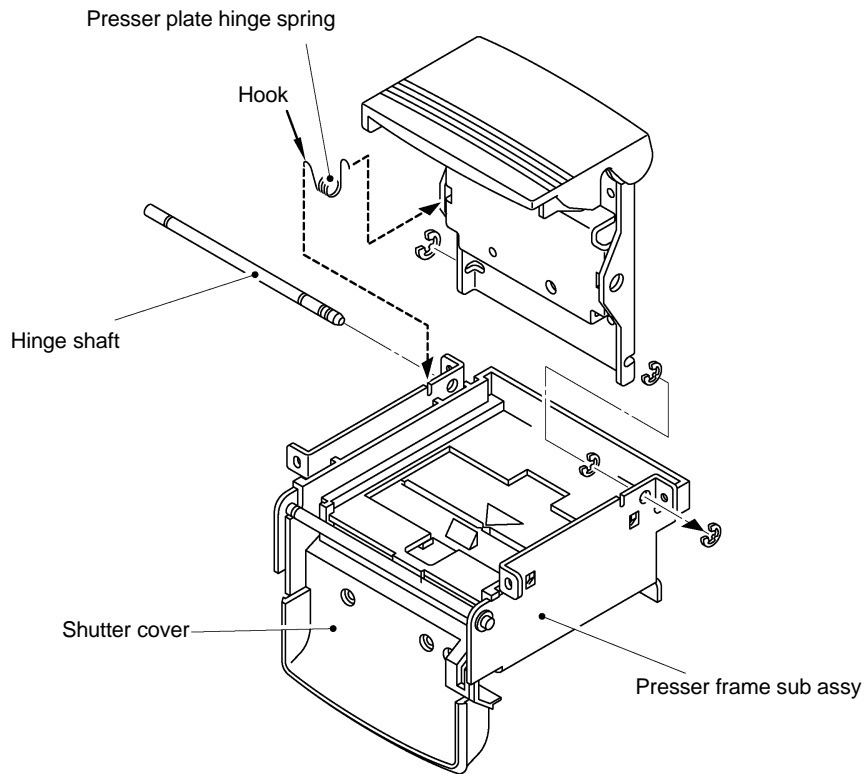


Fig. 3.71

On assembling the presser unit assy with the main chassis, adjust the position using the presser jig assy and adjustment jig according to the following steps.

Note 3: Use caution when handling and taking custody of the jigs.

- (1) Place the main chassis on the presser jig assy (part of the presser base assy) at the specified position, as shown in Fig. 3.72A.

Note 4: Check that there is not any gap (A) between the main chassis and presser jig assy.

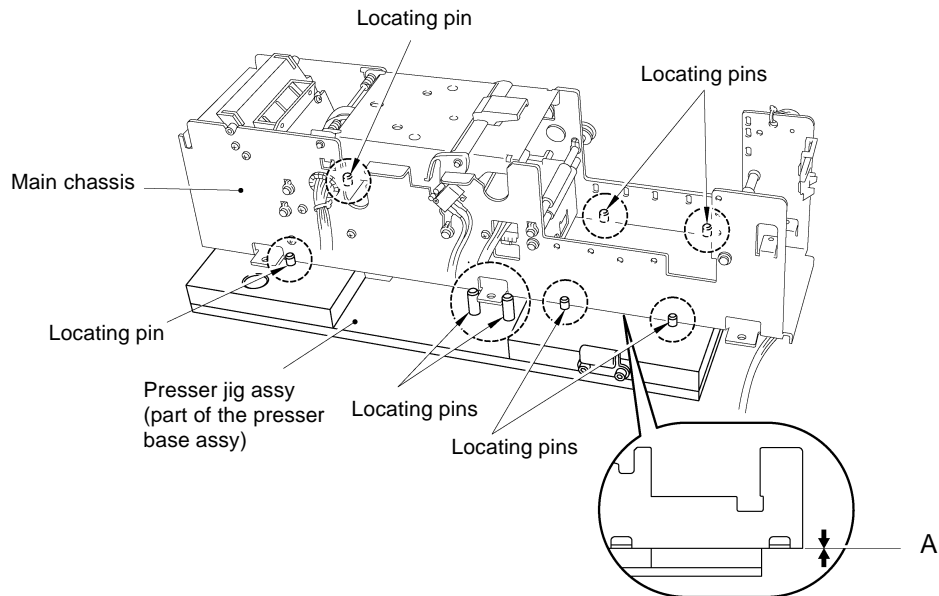


Fig. 3.72A

- (2) Place the presser sub unit assy on the main chassis, as shown in Fig. 3.72B.

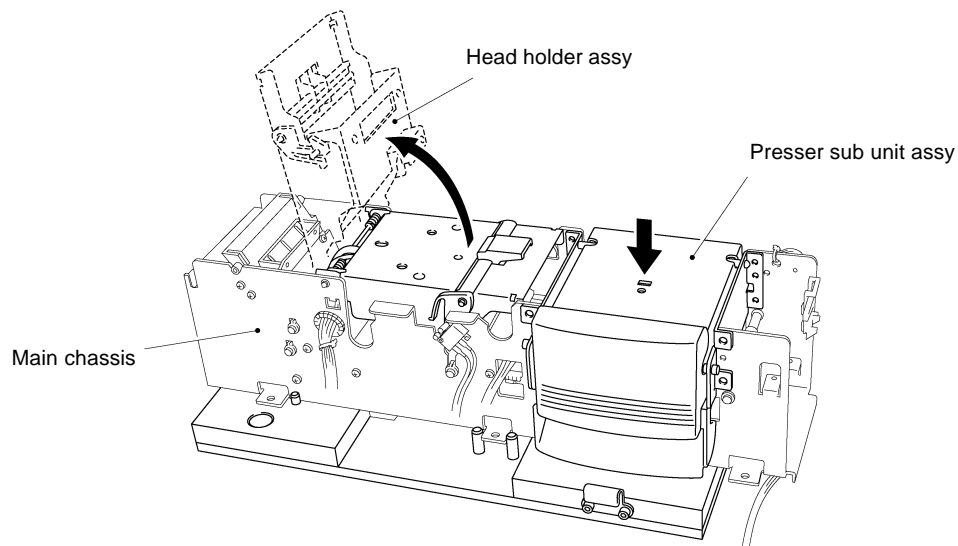


Fig. 3.72B

- (3) Open the presser plate, then place the adjustment jig in the presser sub unit assy, as shown in Fig. 3.72C.

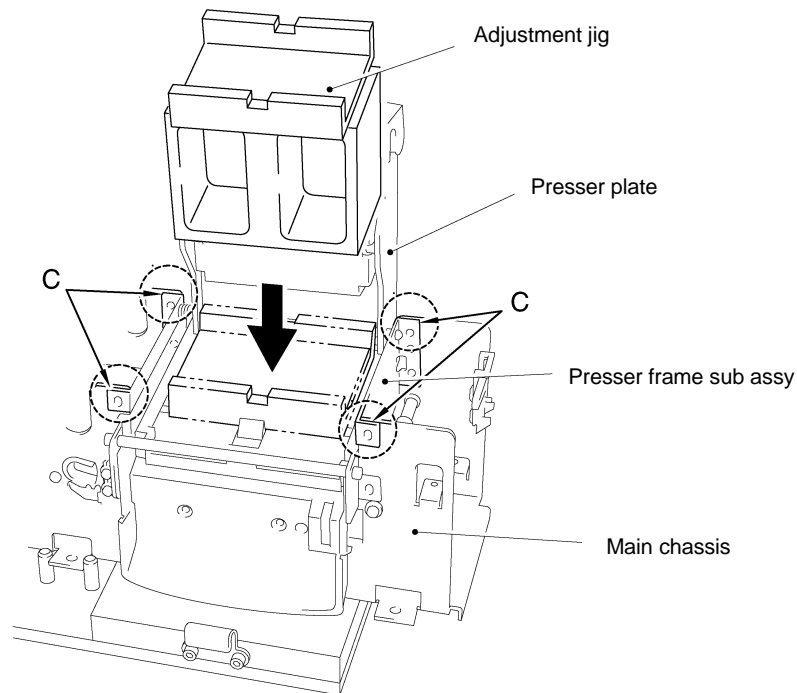


Fig. 3.72C

- (4) Close the presser plate.

Note 5: Check that the presser plate is locked (B), as shown in Fig. 3.72D.

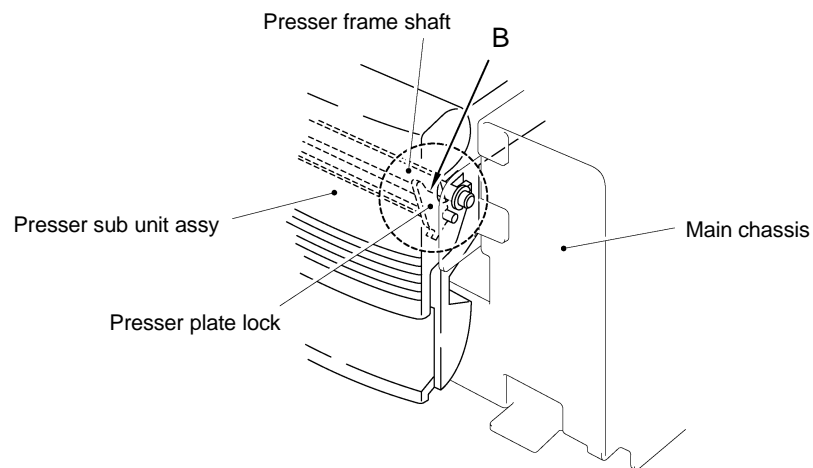


Fig. 3.72D

- (5) Align the presser frame sub assy with the main chassis at four portions (C), with no gap being allowed between them, as shown in Fig. 3.72C.

- (6) Place the presser jig assy on the presser frame sub assy, as shown in Fig. 3.73A.

Note 6: Before securing the presser jig assy, check the following items.

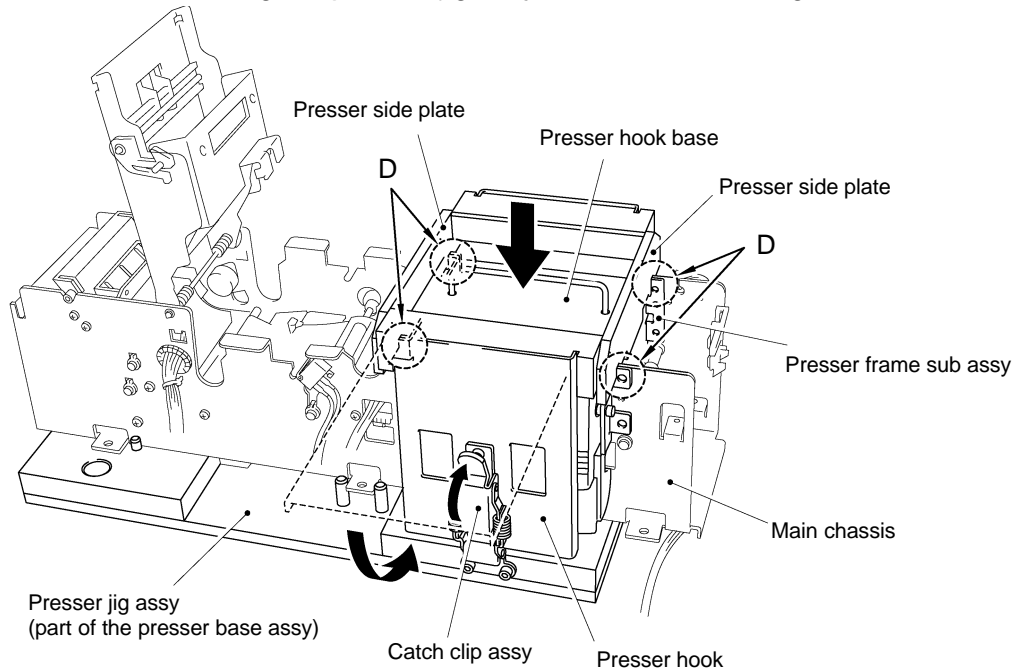


Fig. 3.73A

- * Check that the presser frame sub assy is aligned with the main chassis at four portions (C), with no gap being allowed between them, as shown in Fig. 3.72C.
- * Check that the harnesses including the FPC are not caught between the presser jig assy and presser frame sub assy.
- * Check that the presser frame sub assy and main chassis fit in four dented portions (D) on the presser side plates R/L of the presser jig assy, as shown in Fig. 3.73A and Fig. 3.73B.

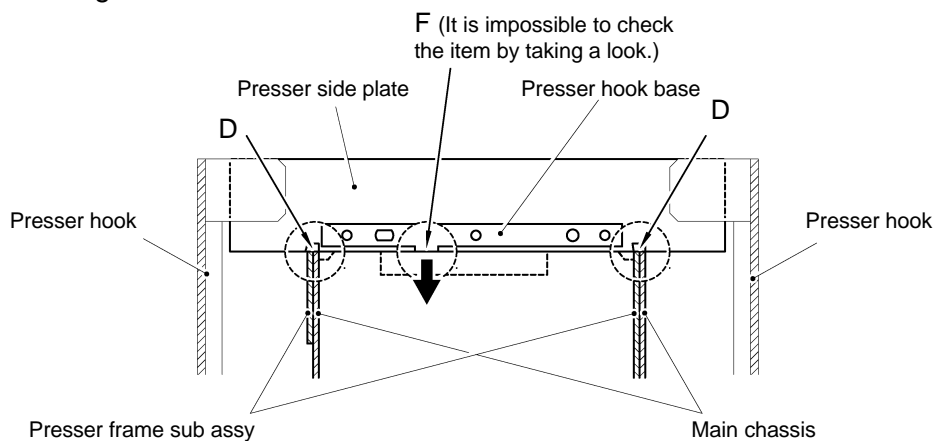


Fig. 3.73B

- * Check that the frame of the presser frame sub assy supports the side plates R/L of the presser jig assy from inside (E).
Also check that the protrusion (F) of the presser jig assy presses the frame of the presser frame sub assy downward by checking that D and E are properly set, as shown in Fig. 3.73A to Fig. 3.73C.

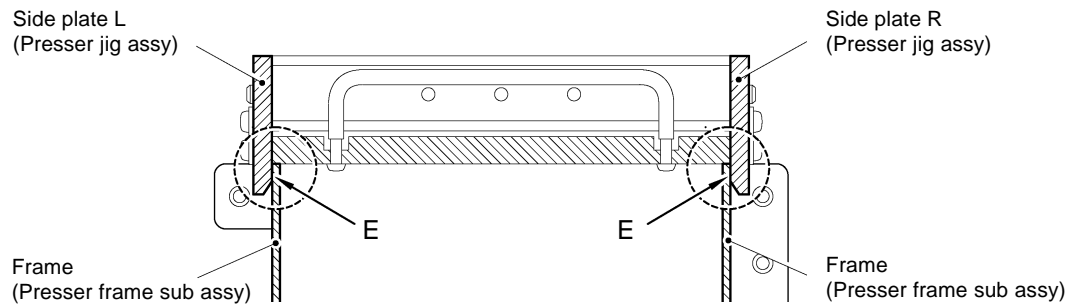


Fig. 3.73C

- * Check that the protrusion of the presser frame sub assy fit in the hole of the main chassis at two portions (G), as shown in Fig. 3.73D.

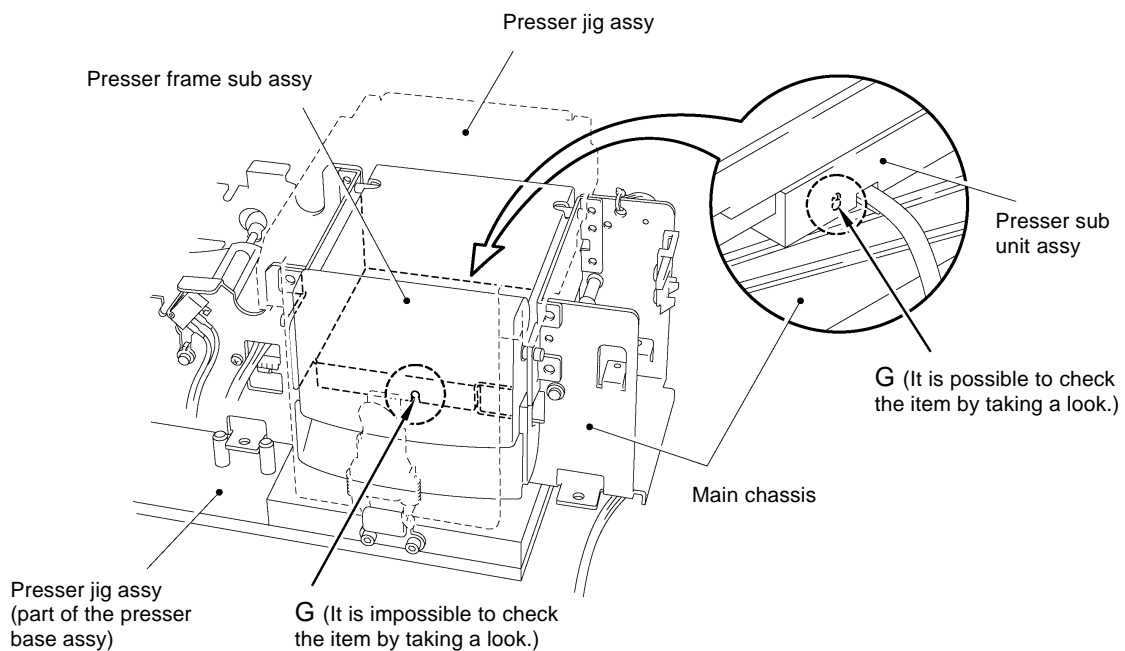


Fig. 3.73D

- (7) Secure the presser jig assy using two catch clip assys, as shown in Fig. 3.73A.

Note 7: Lock the presser jig assy at its front and rear in this order.

(8) Tighten ten screws in the order specified in Fig. 3.74A to 3.74B.

Note 8: Tighten those screws twice.

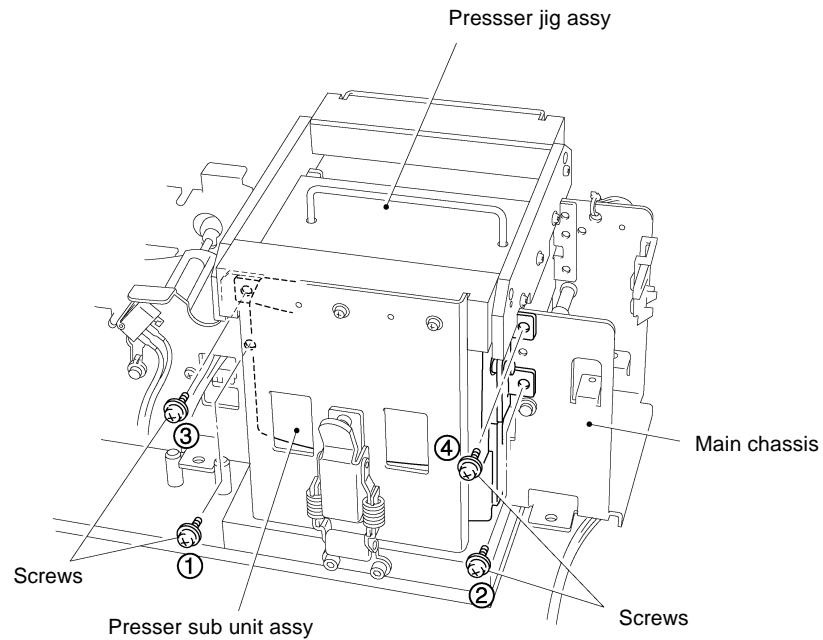


Fig. 3.74A

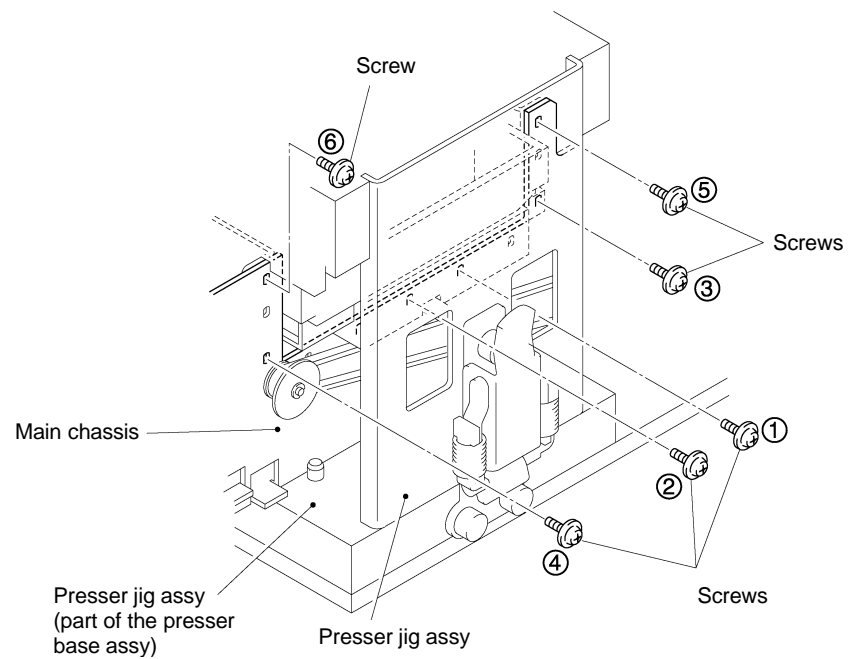


Fig. 3.74B

(9) Remove the presser jig assy.

(10) Open the presser plate, then tighten two screws, as shown in Fig. 3.74C.

Note 9: Tighten those screws twice.

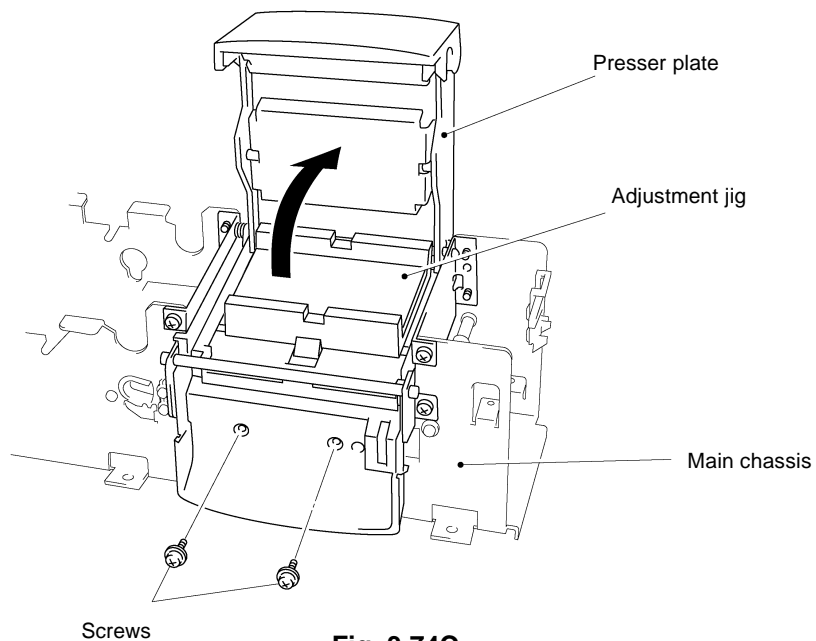


Fig. 3.74C

(11) Remove the presser jig assy (part of the presser base assy) and adjustment jig.

(12) Attach the presser plate cover to the presser plate, as shown in Fig. 3.74D.

Note 10: Check that two hooks and locating pins of the presser plate cover fit in the holes of the presser plate.

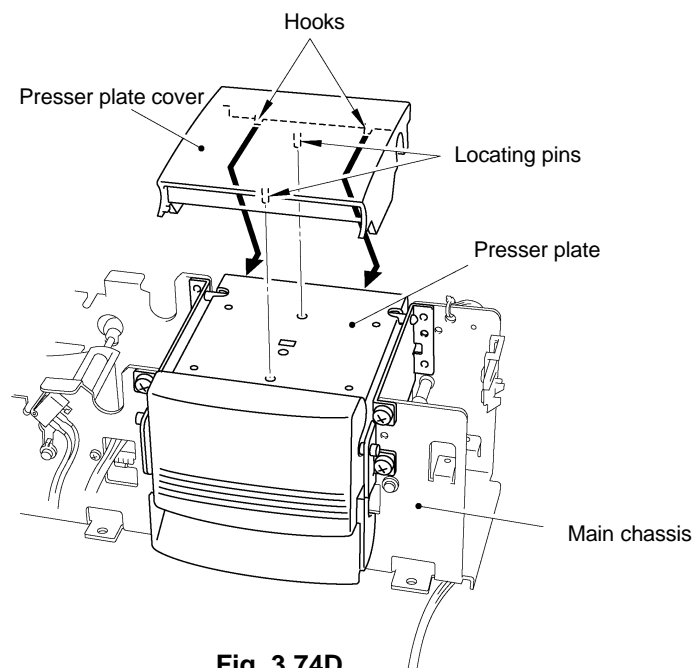


Fig. 3.74D

2.9 Reassembly of the Platen Unit Assy

Set the platen unit on the film guide, as shown in Fig. 3.75.

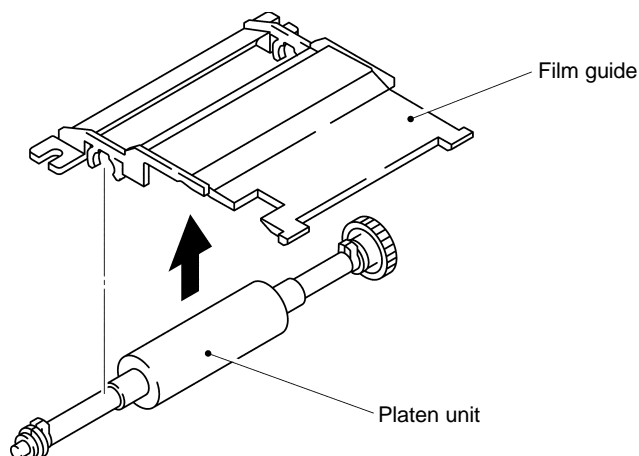


Fig. 3.75

Insert part A of the platen unit assy into the hole in the main chassis from the inside.

Then, insert part B of the platen unit assy into the hole on the opposite side of the main chassis, and insert the platen unit assy into the two grooves of the main chassis, with the projection of the bearing turned upwards, as shown in Fig. 3.76.

Set part C of the platen unit assy between the two ribs of the film path.

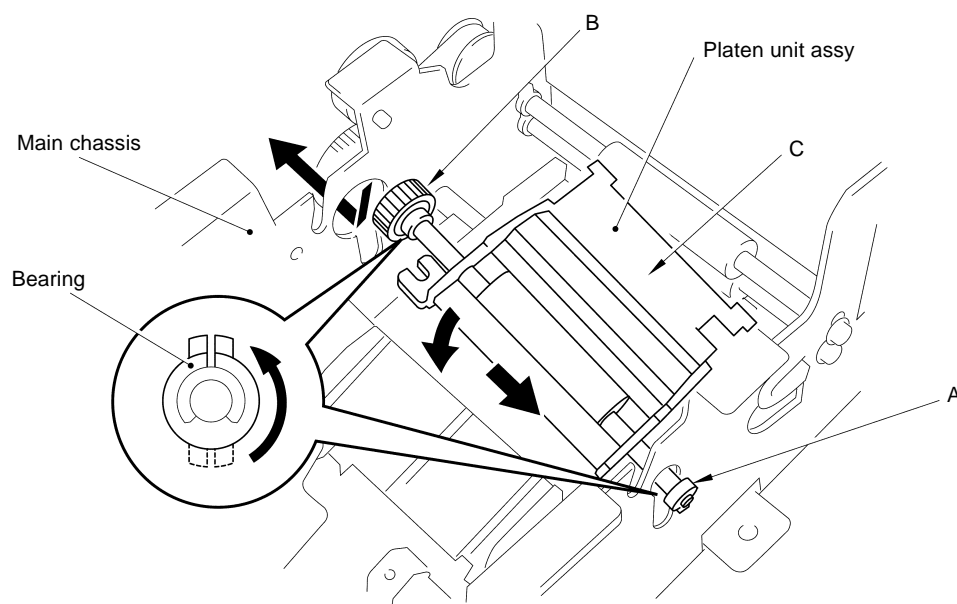


Fig. 3.76

Secure the platen unit assy with the two screws, as shown in Fig. 3.77.

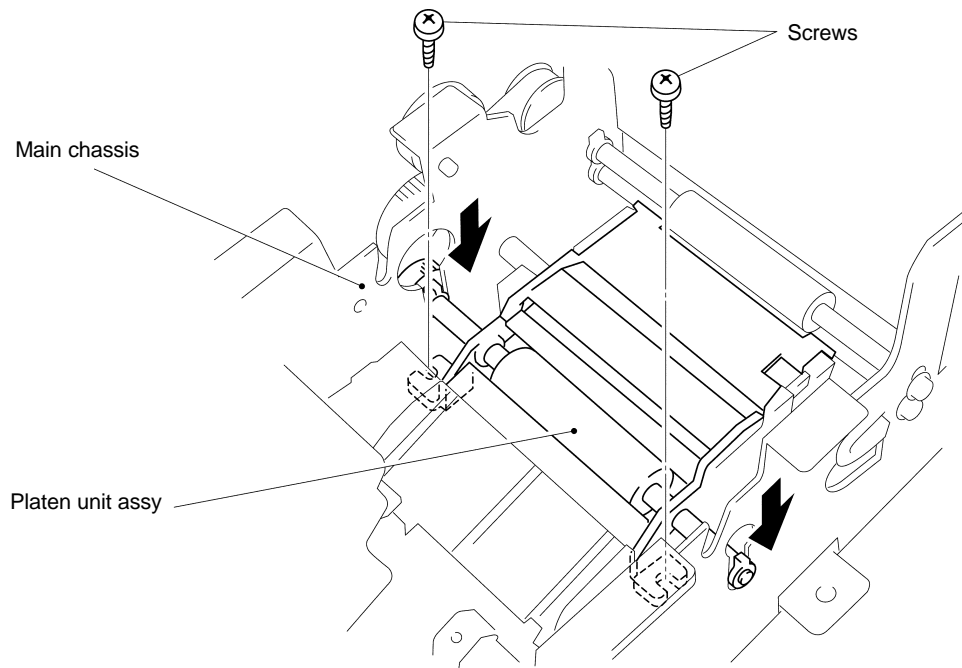


Fig. 3.77

2.10 Reassembly of the Micro Switches

Set hole A in the micro switch assy A for cassette cover open/close detection on the emboss on the main chassis.

Screw the switch on the main chassis where hole B in the switch and the hole in the main chassis overlap, as shown in Fig. 3.78.

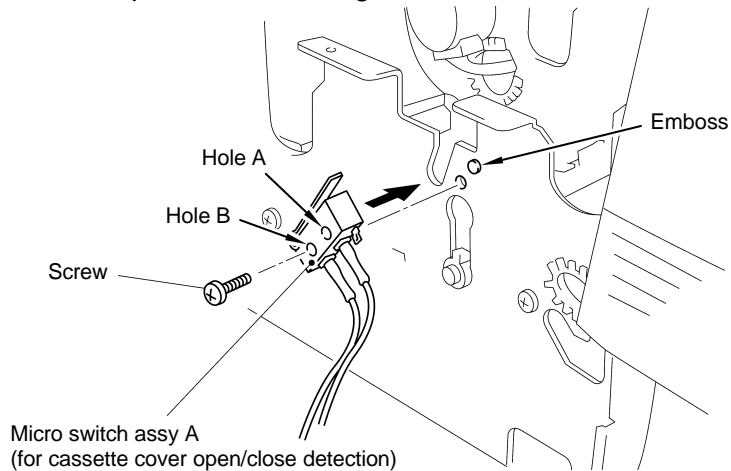


Fig. 3.78

Insert part A of the xenon lock claw into hole B in the main chassis.

While bending the resin spring, insert the two hooks of the xenon lock claw into two holes C in the main chassis.

Set hole D in the micro switch assy B for xenon reset on the emboss on the main chassis.

Screw the switch on the main chassis where hole E in the switch and the hole in the main chassis overlap. Then, secure the harness of the switch for xenon reset with the fastening band, as shown in Fig. 3.79.

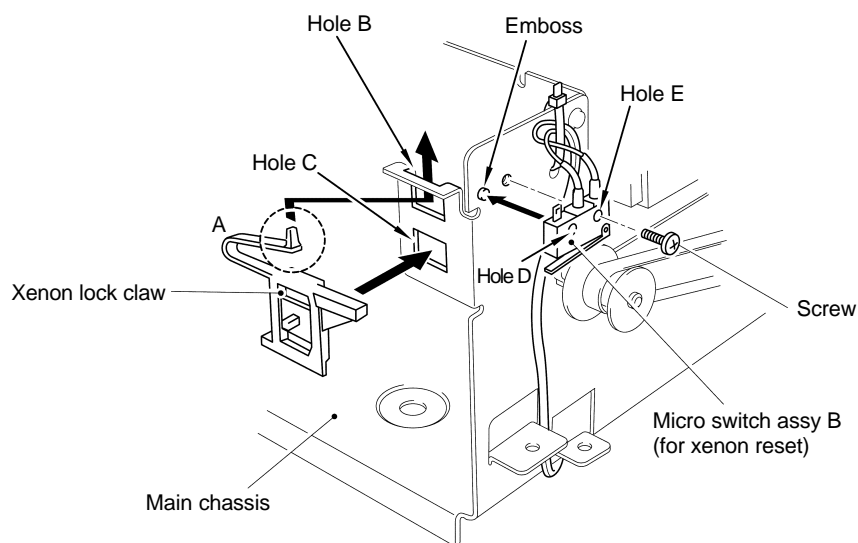


Fig. 3.79

2.11 Reassembly of the Sensor Assys

Secure reflective sensor assy A on the head holder with the screw.

Pass the reflective sensor assy A harness between the rotation shaft and the head holder guide, and pass it through hole E in the main chassis and to the outside.

Secure reflective sensor assys B and C on the sensor brackets with the screws.

Pass the harnesses of reflective sensor assys B and C through hole E in the main chassis and to the outside.

Secure transparent sensor assy A on the film path with the screw.

Pass the transparent sensor assy A harness through hole F in the main chassis and to the outside.

Insert transparent sensor assy B in the direction of the arrow, and secure it on the presser unit assy with the screw.

Pass fastening band L100 through holes E and F, and secure the harness coming out of hole E and F in the main chassis, as shown in Fig. 3.80.

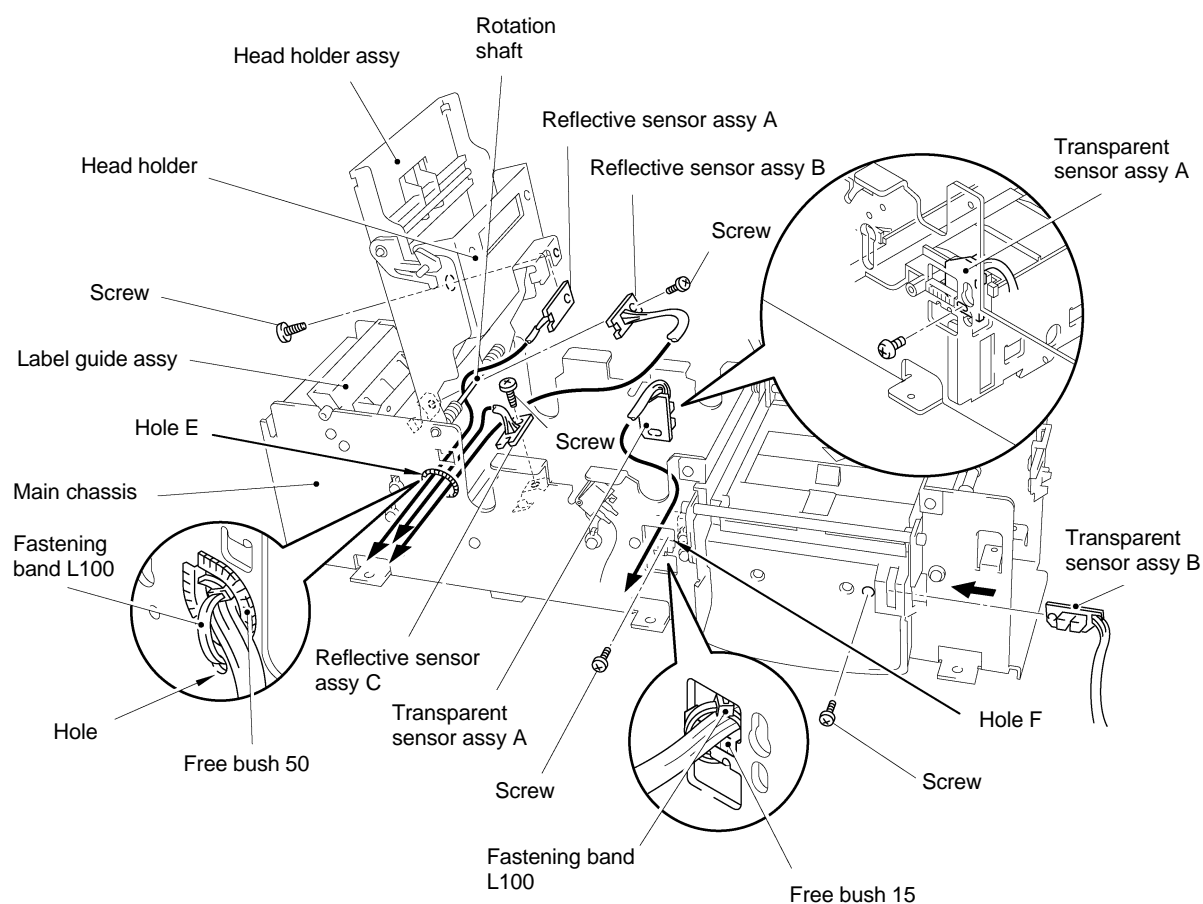


Fig. 3.80

2.12 Reassembly of the Thermal Head Unit

Fig. 3.81 shows the thermal head unit.

Caution: Take care not to touch the thermal head heat generating points.

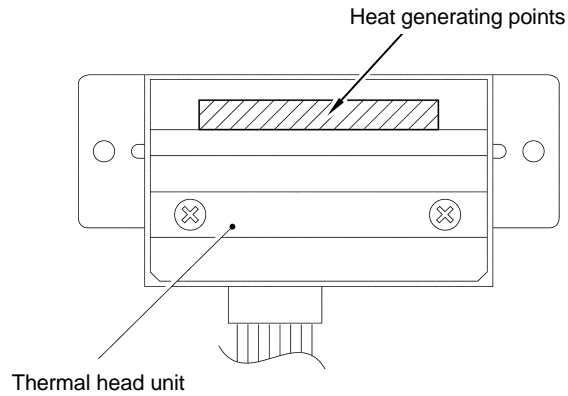


Fig. 3.81

Set the thermal head unit on the two embosses on the head holder, and secure it with the two screws.

Pass the thermal head unit harness between the rotation shaft and the head holder guide, and pass it through the hole in the main chassis and to the outside, as shown in Fig. 3.82.

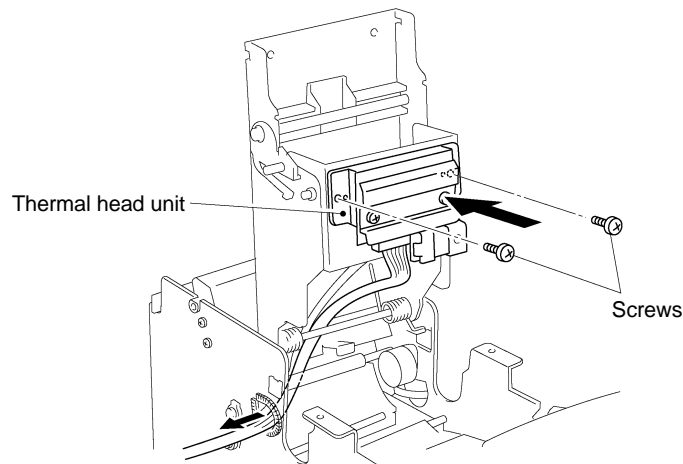


Fig. 3.82

Secure the thermal head unit harness on the main chassis with fastening band L100, that is also used to secure the sensor assy, as shown in Fig. 3.80.

2.13 Reassembly of the Power Supply PCB Assy

Insert two parts A of the PS PCB shield plate into two holes B in the bottom cover.

After setting the power supply PCB assy on the two hooks C of the bottom cover, set the power supply PCB assy on the locating boss on the bottom cover, and secure the power supply PCB assy on the bottom cover with the two screws, as shown in Fig. 3.83.

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

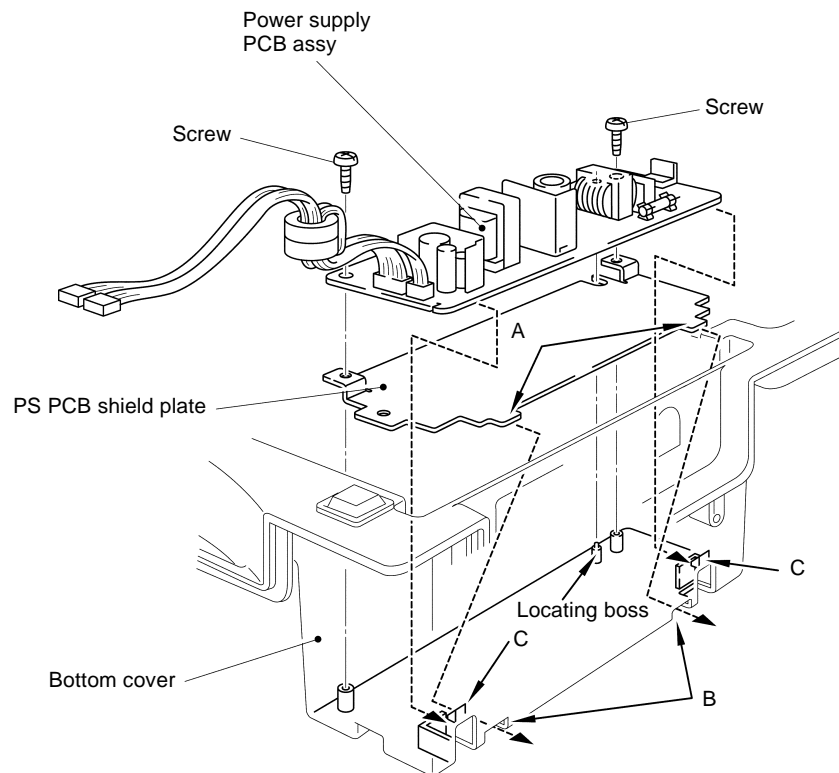


Fig. 3.83

2.14 Reassembly of the Bottom Cover and the Main Chassis

Insert the end of the size detection PCB harness into the hole in the bottom cover, and set it into hooks A, B, C, and D, as shown in Fig. 3.84.

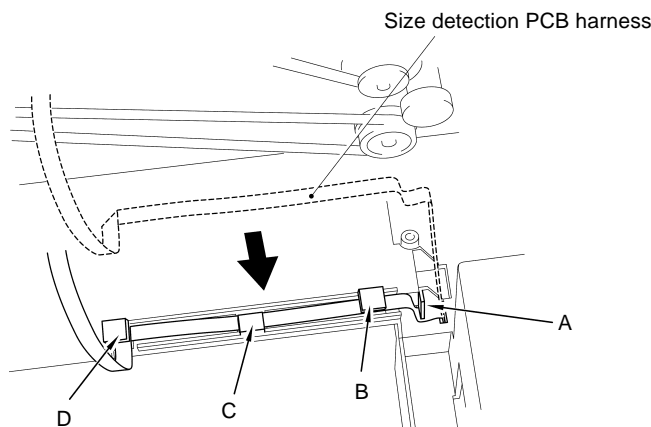


Fig. 3.84

Set the thermistor to the bottom cover and secure it in place using tape. Then, pass the connector through hole A.

Pass the paper feed motor harness through hole C in the bottom cover.

Pass the drawer connector harness through hole B in the bottom cover.

Bundle all other harnesses coming out of the main chassis, and pass them through hole A in the bottom cover.

Secure the harness of the transparent sensor assy B and the switch for the xenon cassette with the harness of the transparent sensor assy A and the switch for opening/closing the cover using fastening band L100, as shown in Fig. 3.85.

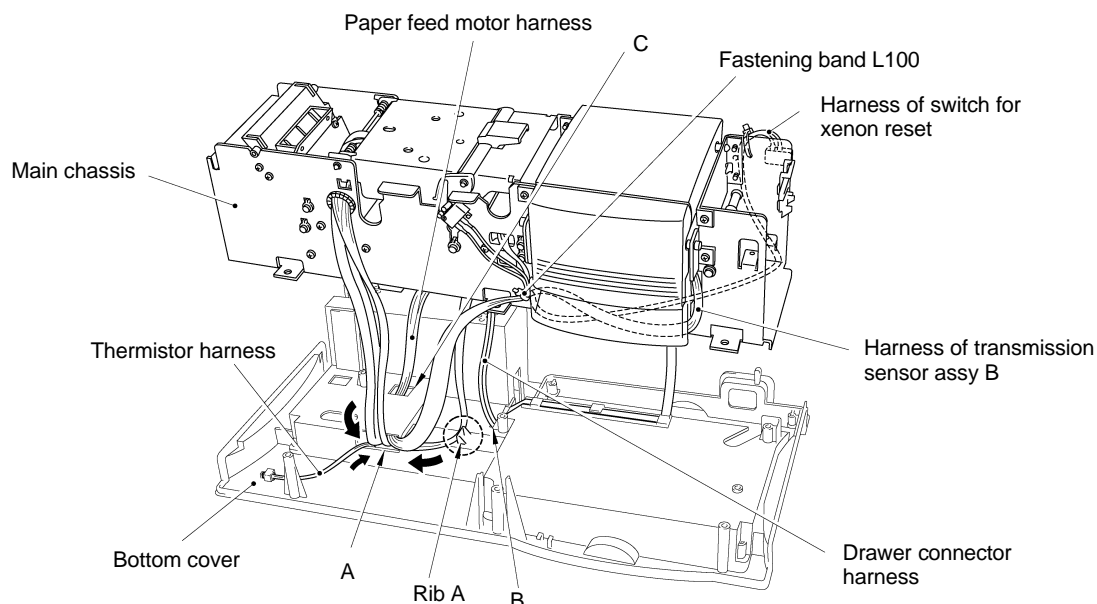


Fig. 3.85

Note: Arrange the harnesses at the left of rib A.

Set the main chassis assy on the two locating bosses on the bottom cover, and secure it on the bottom cover with the six screws. Then, set the two cores, as shown in Fig. 3.86.

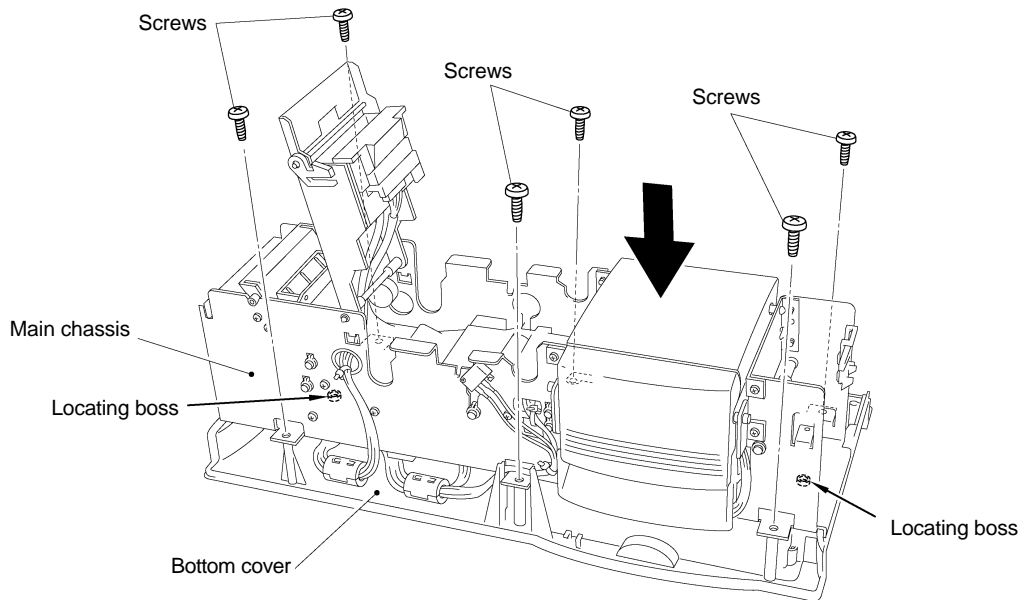


Fig. 3.86

Set the ground wire on the main chassis and the PS PCB shield plate with the two screws, as shown in Fig. 3.87.

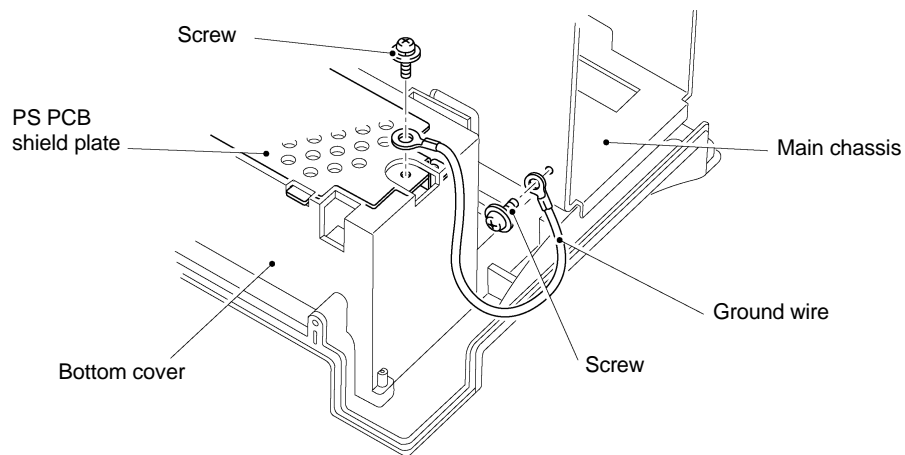


Fig. 3.87

2.15 Reassembly of the Body Cover

Set the control panel PCB assy on the control panel PCB holder, and secure it with the screw.

Set the control panel PCB assy on the back of the body cover, and secure it on the body cover with the two screws.

Attach the control panel PCB harness on the body cover with a tape at two positions, as shown in Fig. 3.88.

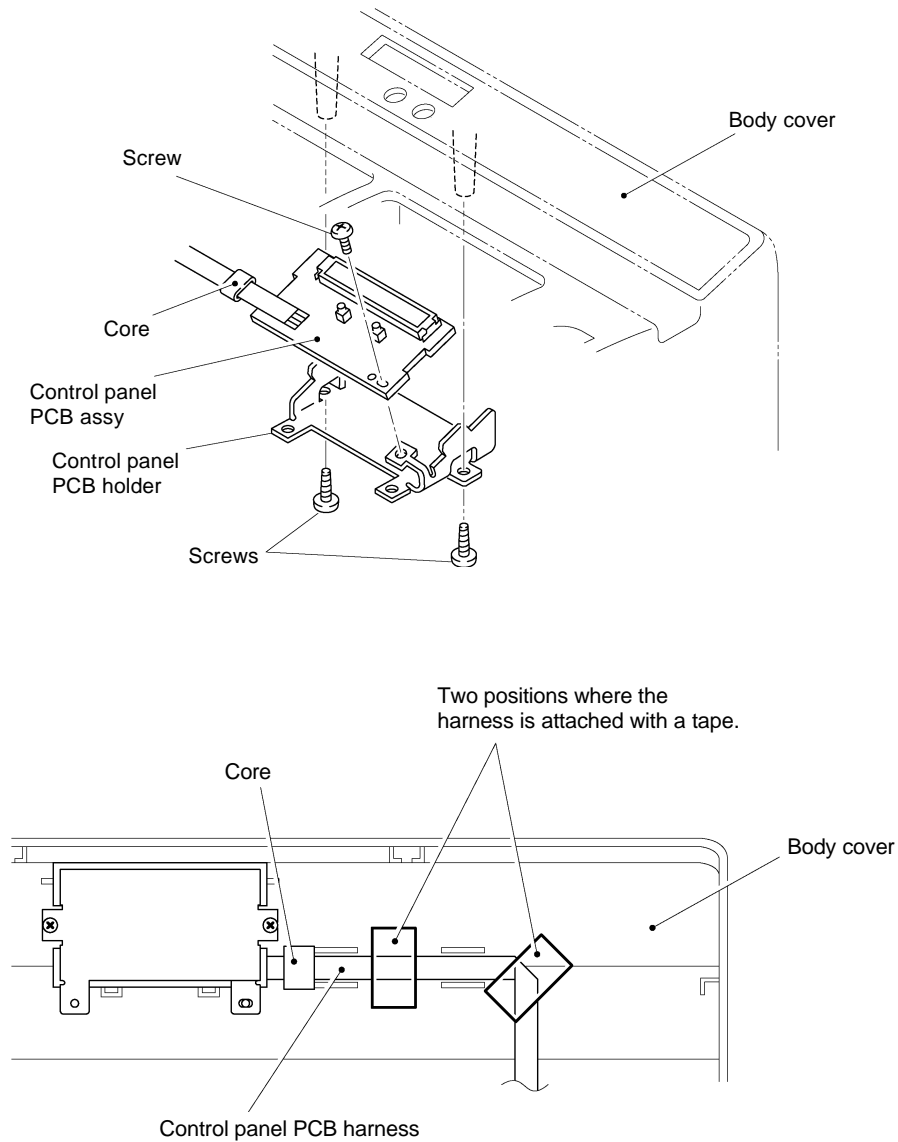


Fig. 3.88

After passing the control panel PCB harness through the hole in the bottom cover, set the body cover on the bottom cover, and secure it with the six screws.

Set the eject cover and the slide lever on the body cover, as shown in Fig. 3.89.

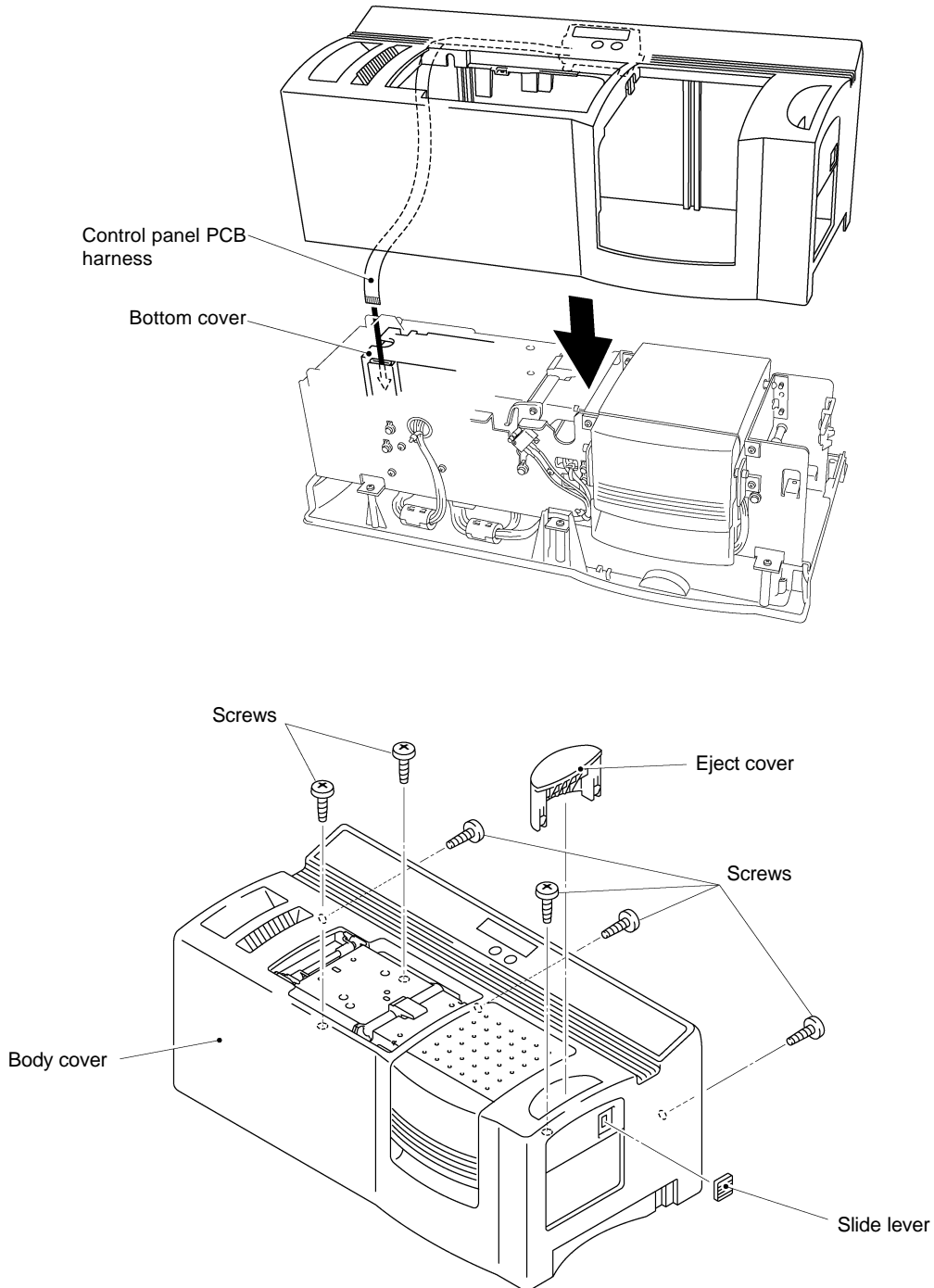


Fig. 3.89

Set the cassette cover on the head holder guide by setting the two hooks of the cassette cover on the head holder guide, and secure it with the two screws, as shown in Fig. 3.90.

Note: Make sure that the two locating bosses and hooks are properly set.

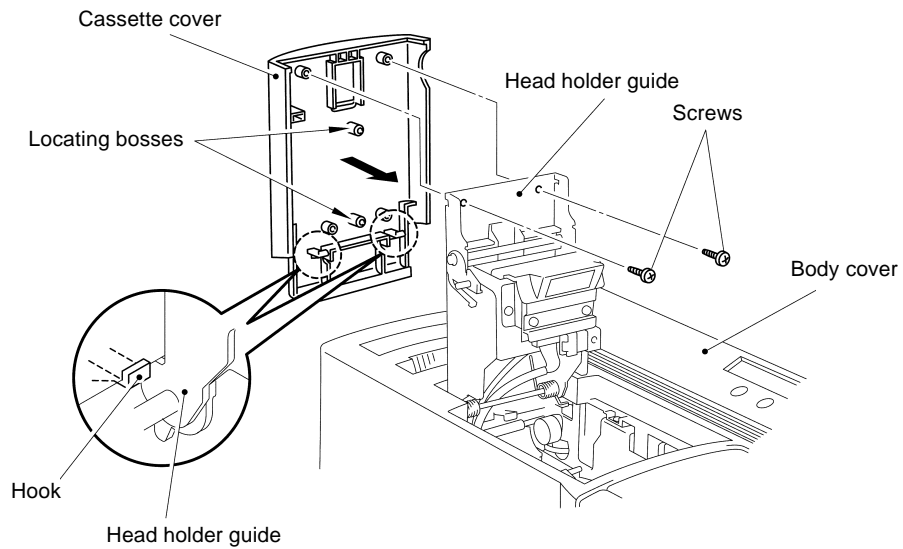


Fig. 3.90

2.16 Reassembly of the Capacitor Case

Set the ground wire of the capacitor case on the main chassis with the screw, pass connector A of the capacitor case through the hole in the bottom cover, and connect it to the connector of the power supply PCB Assy.

Connect connector D coming out of the bottom cover to connector B of the capacitor case.

Set the capacitor case on the bottom cover, and secure it with the four screws, as shown in Fig. 3.91.

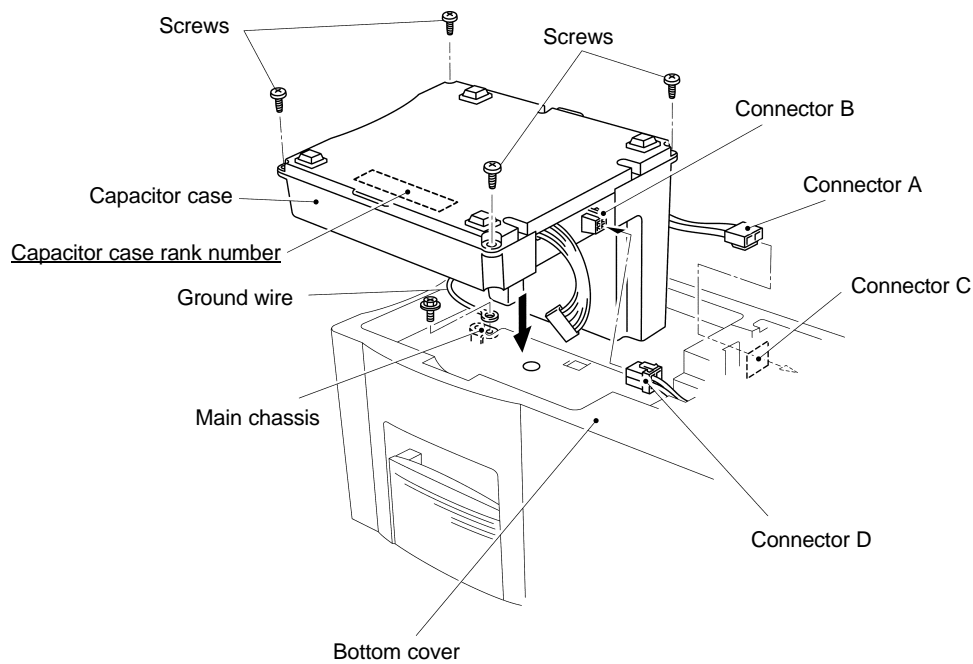


Fig. 3.91

2.17 Reassembly of the Main PCB Assy

Pass the harness through the hole of the shield plate, and set the shield plate on the bottom cover, as shown in Fig. 3.92.

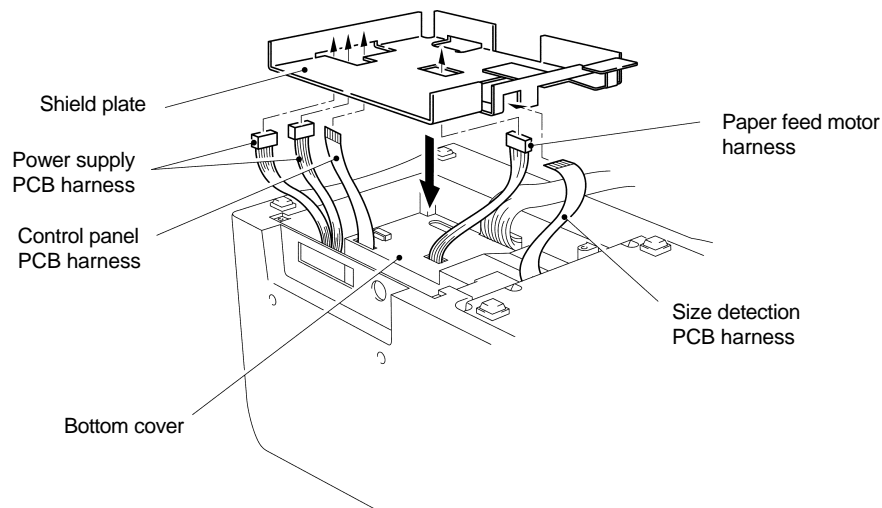


Fig. 3.92

Secure the main PCB assy on the main PCB bottom plate with the five screws, as shown in Fig. 3.93.

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

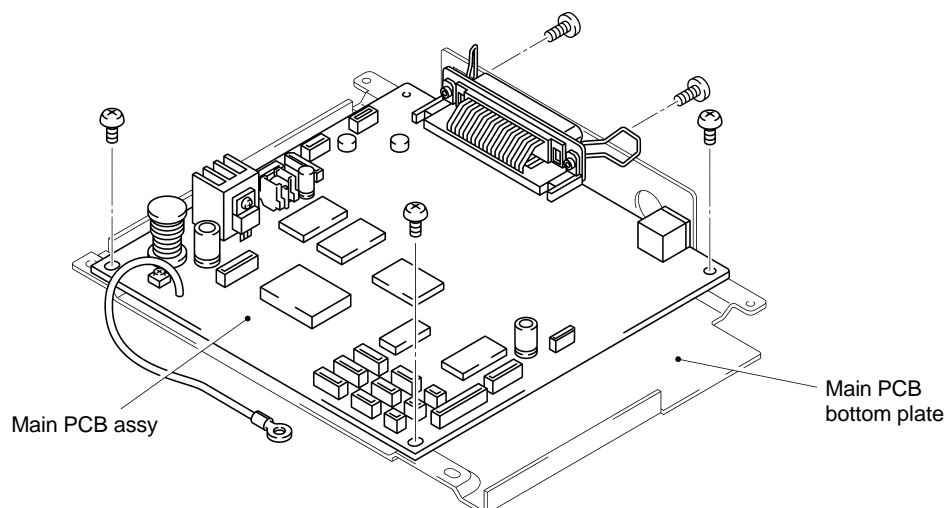


Fig. 3.93

Connect the harness to each connector on the main PCB assy, as shown in Fig. 3.94.

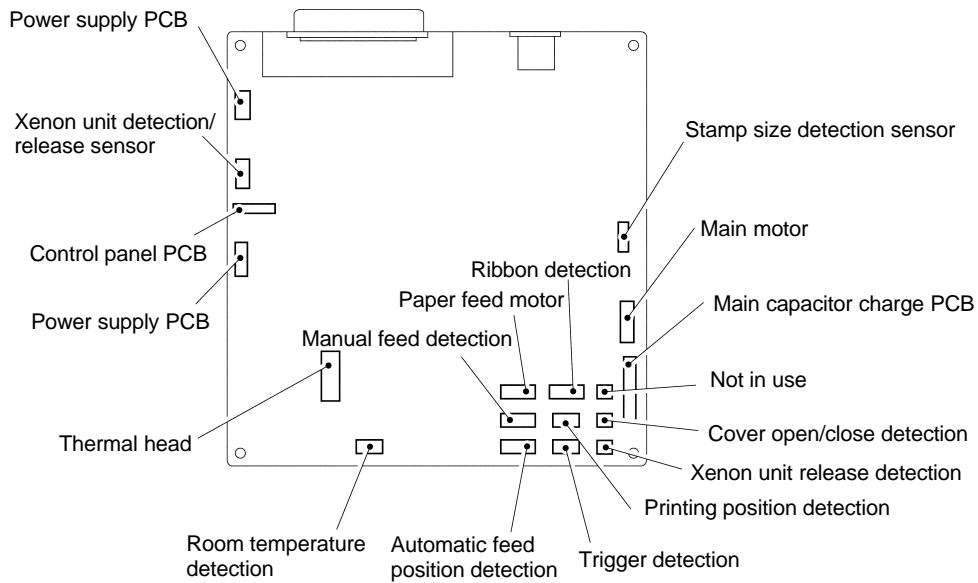


Fig. 3.94

Set the ground wire of the main PCB assy on the main chassis with the screw.
Secure harnesses A and B in hook C of the bottom cover, as shown in Fig.3.95.

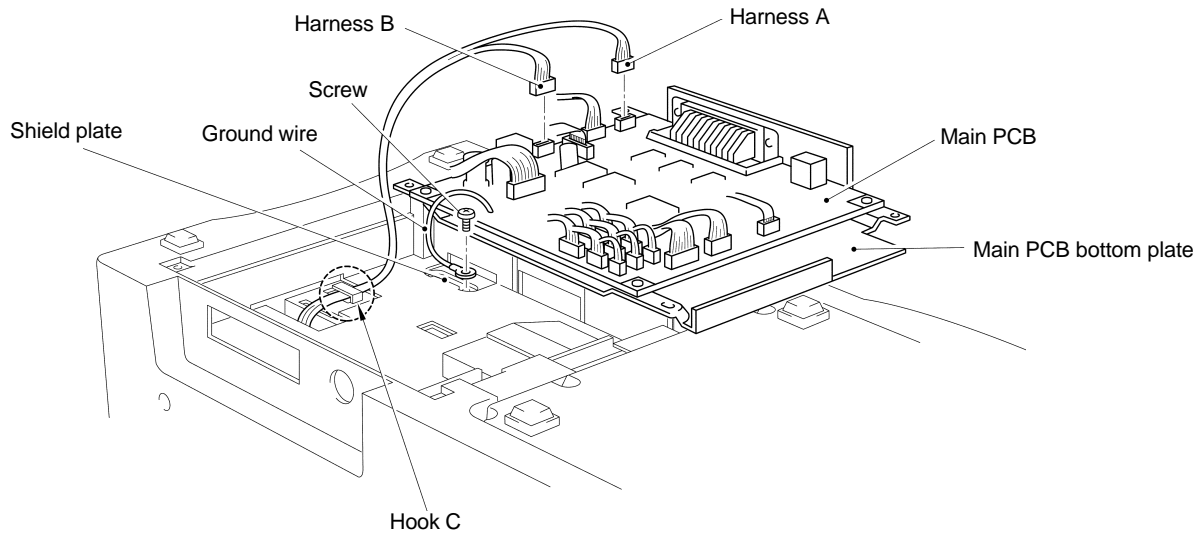


Fig. 3.95

Secure the main PCB bottom plate on the bottom cover with the four screws, as shown in Fig. 3.96.

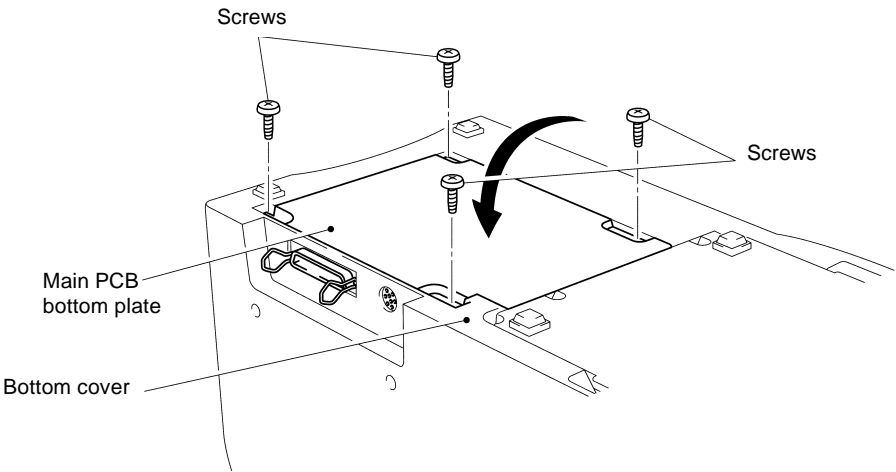


Fig. 3.96

2.18 Reassembly of the Ribbon Cassette Assy

Turn the machine over with the right side up, and press the open button on the cassette cover to open the cassette cover.

Set the ribbon cassette assy, and close the cassette cover, as shown in Fig. 3.97.

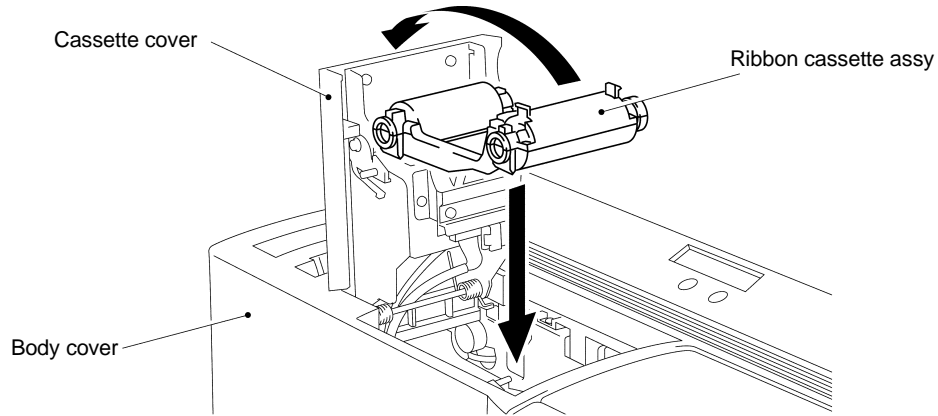


Fig. 3.97

2.19 Reassembly of the Xenon Unit Assy

Insert the xenon unit assy into the machine at its right side, as shown in Fig. 3.98.

Note: Insert the xenon unit assy all the way until it is locked.

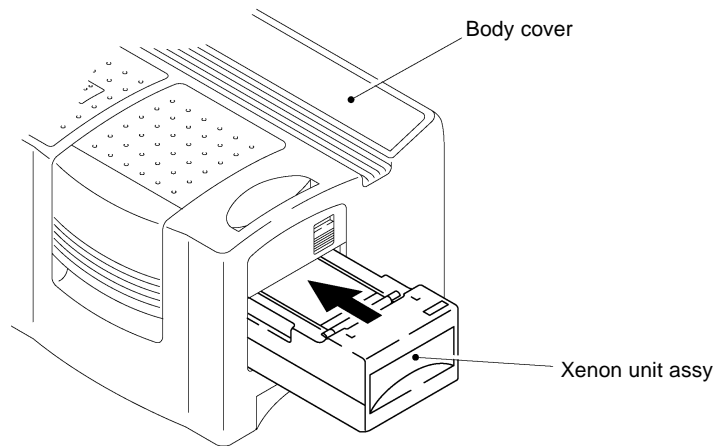


Fig. 3.98

2.20 Reassembly of the Magazine Tray Assy

Insert the magazine tray assy into the hole in the machine in the direction of the arrow, as shown in Fig. 3.99.

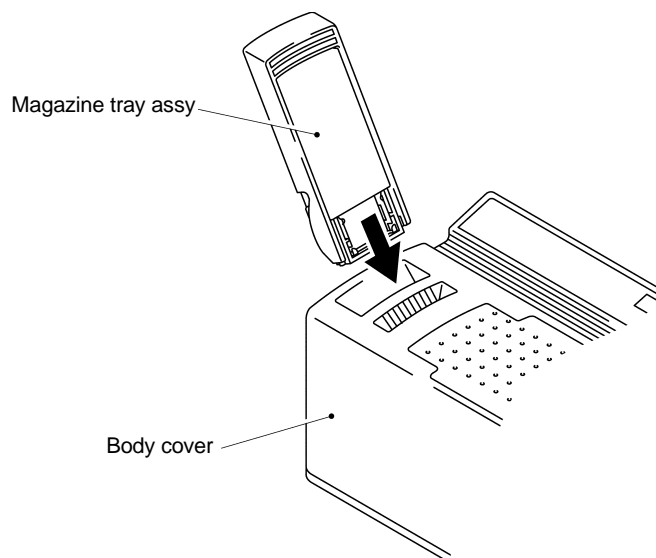


Fig. 3.99

2.21 Reassembly of the AC Cord and the I/F Cable

Set the AC cord and the I/F cable in the back of the machine, as shown in Fig. 3.100.

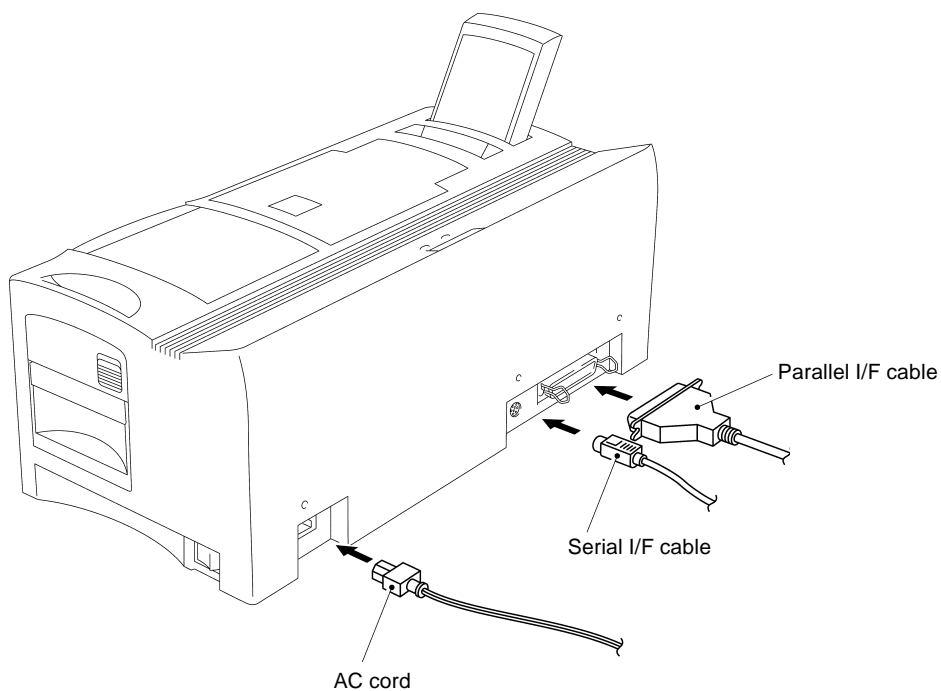


Fig. 3.100

2.22 Lubrication during Reassembly

Apply the grease specified below to the parts indicated in the Figs. 3.101 to 3.103 for the reassembly procedures. The amount of the grease to be applied is specified in the Figs. 3.101 to 3.103.

Specified grease: G501 (silicon grease)

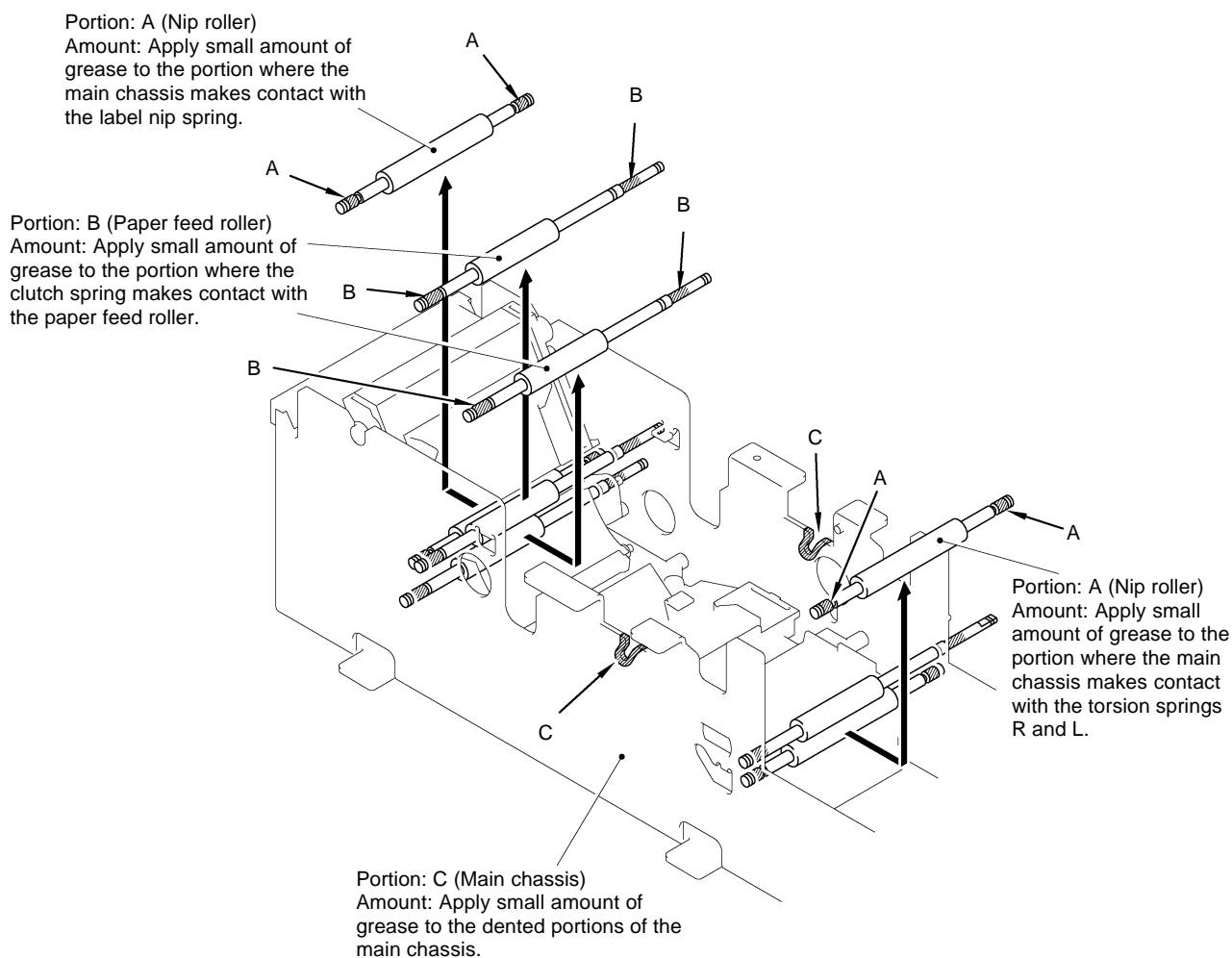


Fig. 3.101

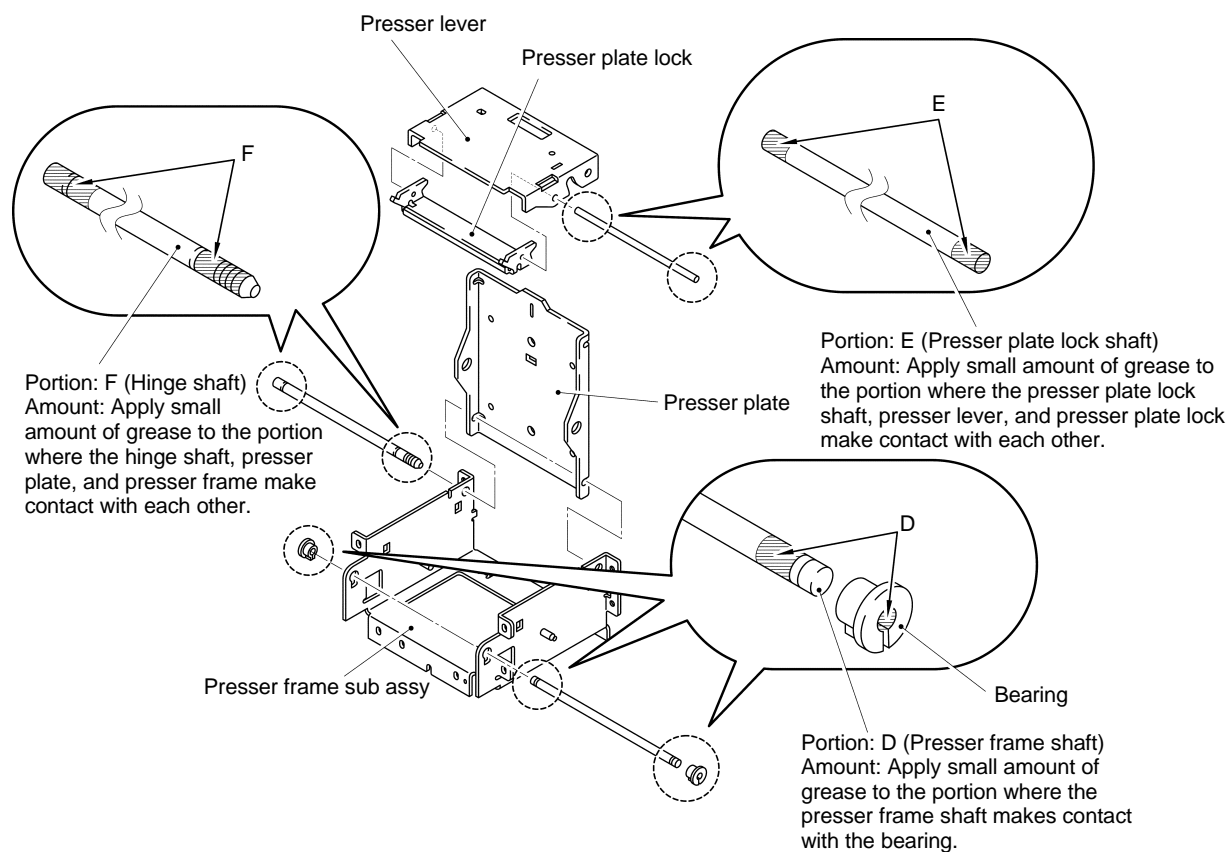


Fig. 3.102

Portion: G (Paper eject roller)
Amount: Apply small amount of grease to the portion where the paper eject roller makes contact with the paper eject roller spring.

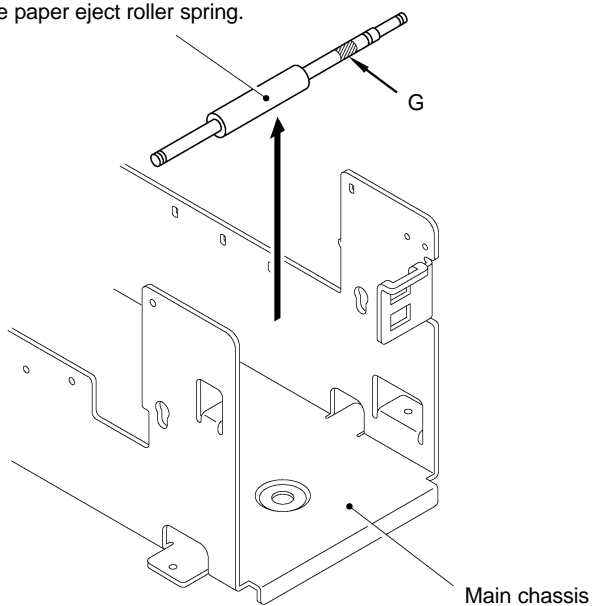


Fig. 3.103

CHAPTER IV TROUBLESHOOTING

1. GENERALS

This section provides a troubleshooting procedure for a machine failure. It is however impossible to foresee when and how a machine failure happens and is quite difficult to establish a troubleshooting procedure for a given machine failure. The troubleshooting procedure given here therefore lists only the limited cases. It is nevertheless necessary to understand and analyze these cases and the function of the components in case of an actual machine failure in order to be able to roughly locate and identify the trouble.

2. PRECAUTIONS ON REPAIRING

- (1) Identify the failure location (machine, ribbon cassette, draft sheet, or ID label), referring to the table of **Cause of Mechanical Error**.
- (2) Well understand the failure, and if it related to two or more components, well understand their relationship before carrying out the repair.
- (3) If the xenon tube does no emit light, possible causes are the failures of the xenon unit and the main capacitor charge PCB. The xenon unit can be disassembled. **However, never disassemble the main capacitor unit, as it poses a danger.**
- (4) In case of a failure related to the thermal head, keep the thermal head cable unplugged from the connector until the circuit functions correctly.
- (5) When checking electrical conduction with a tester, be sure to turn off the power supply switch or pull the plug out of a socket.

3. ACTIONS TO BE TAKEN AFTER REPAIRS

After identifying the cause and taking corrective actions, check the machine for its correct basic operations as to printing and engraving. Also check that the failures have been corrected. Note and keep the troubleshooting procedure actually followed for later troubleshooting.

Cause of Mechanical Error

Error mode	Checking method	Cause	Action	Service manual
The motor rotates, but a draft sheet or an ID label is not fed correctly.	Is a draft sheet or an ID label inserted into the end of the insertion opening?	Draft sheet or ID label set in the incorrect position	Remove and reinsert the draft sheet or the ID label.	—
	Does the size of an ID label match that of a stamp to be manufactured?	Incorrect size of an ID label	Set an ID label whose size matches the size of a stamp to be manufactured.	—
	Is a draft sheet or an ID label set with the right side up?	Draft sheet or ID label set with the wrong side up	Set a draft sheet or an ID label with the right side up.	—
	Is a draft sheet inserted in the correct direction?	Draft sheet inserted in the incorrect direction	Insert a draft sheet in the correct direction.	—
	Is a draft sheet set in the correct position of the magazine tray?	Draft sheet set in the incorrect position	Set the draft sheet in the correct position of the magazine tray.	—
	Does any draft sheet or ID label remain in the machine body?	Draft sheet or ID label remaining in the film path	Remove the draft sheet or the ID label.	—
	Is there any foreign matter present in the film path?	Foreign matter present in the film path	Remove the foreign matter.	—
	Does any dust adhere to the surface of the paper feed roller, the driving roller, or the platen?	Dirty roller	Insert a cleaning sheet.	—
	Is the platen unit set in the correct position?	Platen unit set in the incorrect position	Set the platen unit in the correct position.	CHAPTER III 1.12 Disassembly of the Platen Unit 2.9 Reassembly of the Platen Unit
	Is the motor gear or intermediate gear deformed or broken?	Deformed or broken gear	Replace the deformed or broken gear.	CHAPTER III 1.15 Disassembly of the Gears and Pulleys 2.6 Reassembly of the Gears and Pulleys

Error mode	Checking method		Cause	Action	Service manual
The motor rotates, but a draft sheet or an ID label is not fed correctly.	Is the clutch spring on the paper feed roller deformed or broken?		Deformed or broken clutch spring	Replace the deformed or broken clutch spring.	CHAPTER III 1.15 Disassembly of the Gears and Pulleys 1.17 Disassembly of the Rollers 2.4 Reassembly of the Rollers 2.6 Reassembly of the Gears and Pulleys
	Is the timing belt (MXL belt) cut?		Broken timing belt (MXL belt)	Replace the broken timing belt (MXL belt).	CHAPTER III 1.15 Disassembly of the Gears and Pulleys 2.6 Reassembly of the Gears and Pulleys
	Non of the above		Defective sensor or PCB	→	Electronic part
The paper feed motor or the main motor does not rotate, preventing a draft sheet or an ID label from being fed.	Is the connector of the paper feed motor or the main motor disconnected?	YES	Disconnected connector of the motor	Connect the disconnected connector of the motor.	CHAPTER III 2.17 Reassembly of the Main PCB Assy
		NO	Defective motor	Replace the defective motor.	CHAPTER III 1.16 Disassembly of the Motor Holder Assy and the Motors 2.5 Reassembly of the Motor Holder Assy and the Motors
			Defective PCB	→	Electronic part

Error mode	Checking method	Cause	Action	Service manual
Printing is not performed in the correct position of an ID label.	Is the transparent sensor assy A set in the correct position?	Sensor set in the incorrect position	Set the transparent sensor assy A in the correct position.	CHAPTER III 2.11 Disassembly of the Switches
A draft sheet is fed to the incorrect position for engraving stamp.	Is the thermal head unit set in the correct position?	Thermal head unit set in the incorrect position	Set the thermal head unit in the correct position.	CHAPTER III 2.12 Reassembly of the Thermal Head Unit
	Is a draft sheet or an ID label fed correctly?	Improperly fed draft sheet or ID label	→	CHAPTER II 3 Check items for abnormal feed in the mechanical part
	Non of the above	Defective sensor or PCB	→	Electronic part
Blurred or partial printing is performed.	Does any dust or thumb mark adhere to the printing surface of a draft sheet or an ID label?		Reprint on a new draft sheet or a new ID label.	—
	Is the ink ribbon wrinkled or torn?	Defective ink ribbon	Straighten the ink ribbon to reprint. If the ink ribbon is severely wrinkled or torn, replace the ink ribbon cassette.	—
	Is the head dirty?	Dirty head	Clean the head with a cleaning pen.	—
	Does any dust adhere to the surface of the paper feed roller, the driving roller, or the platen?	Dirty roller	Insert a cleaning sheet.	—
	Is the platen unit set in the correct position?	Improper contact of the platen roller and the head	Set the platen unit in the correct position.	CHAPTER III 2.9 Reassembly of the Platen Unit
	Is the head set in the correct position?	Thermal head unit set in the incorrect position	Set the thermal head unit in the correct position.	CHAPTER III 2.12 Reassembly of the Thermal Head Unit
	Non of the above	Defective head or PCB		Electronic part

Error mode	Checking method		Cause	Action	Service manual
A draft sheet or an ID label is fed, but no printing is performed.	Is the connector of the thermal head disconnected?	YES	Disconnected connector of the thermal head	Connect the connector of the thermal head.	CHAPTER III 2.17 Reassembly of the Main PCB Assy
		NO	Defective head or PCB	→	Electronic part
The presence or size of the holder can not be detected.	Does the size of a holder match that of a stamp to be manufactured?		Incorrect size of a holder	Set a holder whose size matches the size of a stamp to be manufactured.	—
	Is the holder set in the correct position?		Holder set in the incorrect position	Set the holder in the correct position.	—
	Non of the above		Defective PCB	→	Electronic part
The printing surface is insufficiently fused after engraving stamp.	Is the printing surface of the holder flawed or dented?		Defective printing surface of the holder	Engrave stamp with a new holder.	—
	Is the surface of the transparent plate of the xenon unit dirty?		Dirty surface of the transparent plate	Clean the surface with a soft cloth. (If the dirt or blur can not be removed, replace the xenon unit.)	—
	Is the presser unit set at a specified height?		Insufficient pressure	Adjust the height of the presser unit with the setting presser jig assy and adjustment jig.	CHAPTER III 2.8 Reassembly of the Presser Unit Assy
	Non of the above		Insufficient light emitted by the xenon lamp	Replace the xenon unit.	CHAPTER III 1.2 Disassembly of the Magazine Tray and the Xenon Unit 2.19 Reassembly of the Xenon Unit
				Replace the capacitor box.	CHAPTER III 1.5 Disassembly of the Capacitor Case 2.16 Reassembly of the Capacitor Case

Stamp Creator PRO SC-2000

Electronic Part

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CHAPTER I ELECTRONIC SPECIFICATIONS

1. CONTROL SPECIFICATIONS

(1) CPU	16-bit CPU M37702	
	ROM capacity	32 Kbytes
	RAM capacity	2048 bytes
(2) External memory		
RAM	2 Mbits	
EEPROM	2-wire serial EEPROM	
	Capacity	4 Kbits
	Min. data writing times	10 ⁵
	Data hold time	10 years

2. INTERFACE SPECIFICATIONS

(1) Windows interface Win95/NT	Bidirectional parallel interface Complies with IEEE1284-level 1 Operates in compatibility and nibble modes Connector: 36-pin Centronics (parallel) interface connector (with a 0.085-inch pitch)
(2) Mac interface	Serial interface Complies with RS-422A Transfer rate: 57600 bps Connector: 8-pin Mini-Din connector
(3) Win 95/NT	Serial interface Complies with RS-232C Transfer rate: 57600 bps Connector: 8-pin Mini-Din connector

3. POWER SUPPLY SPECIFICATIONS

- | | |
|---------------------------------------|---|
| (1) Power supply method | Switching regulator
Separate power supplies for 100V and 200V areas
Number of phase: Single |
| (2) Rated input voltage and frequency | 100V system: 120V AC 50/60 Hz
200V system: 230V AC 50/60 Hz |
| (3) Output voltage | 2 outputs
5V system: 8V DC
24V system: 25V DC $\pm 1.5V$ |
| (4) Power supply switch | Seesaw switch |

4. DISPLAY SPECIFICATIONS

- | | | |
|---------|---------------------------------|--------------------------------------|
| (1) LCD | Use: | Character type |
| | Number of characters displayed: | 15 columns \times 1 line |
| | Construction of a character: | 5 dots \times 7 dots + the cursor |
| | Number of guidances: | 14
(both vertical and horizontal) |
| | Display method: | TN type |
| | Lighting method: | Reflection method |
| | Display form: | Positive |
| | Dimensions: | |
| | Glass dimensions: | 67.5 mm (W) \times 18 mm (H) |
| | Dot dimensions: | 0.524 mm (W) \times 0.58 mm (H) |
| | Dot pitch: | 0.594 mm (W) \times 0.65 mm (H) |
| | Spacing with the cursor: | 0.5 mm |
| | Guidance dimensions: | 1.4 mm (W) \times 0.7 mm (H) |

5. SWITCH SPECIFICATIONS

- | | |
|----------|------------------------------|
| (1) Type | Metal contact tactile switch |
|----------|------------------------------|

6. CHARGE SPECIFICATIONS

- | | |
|-----------------------|--|
| (1) Output properties | Output voltage
Variable between 0V and 350V DC
11000 μ F electrolytic capacitor is charged in
approximately 45 seconds. |
|-----------------------|--|

7. DETECTION SPECIFICATIONS

- | | |
|---|----------------------|
| (1) Open cover | Micro switch |
| (2) Ribbon sensor | Photo-interrupter |
| (3) Position detection sensor | Photo-interrupter |
| (4) Manual feed detection sensor | Photo-interrupter |
| (5) Automatic feed position
detection sensor | Photo-interrupter |
| (6) Size detection sensor | 5 detection switches |
| (7) Stamp position detection sensor | Detection switch |
| (8) Open/closed shutter
detection sensor | Detection switch |
| (9) Trigger detection sensor | Photo-interrupter |
| (10) Room temperature
detection sensor | Thermistor |
| (11) Xenon unit release | Micro switch |
| (12) Xenon unit detection | Jumper wire |

CHAPTER II GENERALS

1. CONFIGURATION OF THE ELECTRONIC PART

Fig. 2.1 shows the configuration of the electronic part, which consists of seven PCBs, two motors, and a thermal head.

PCBs Main PCB, power supply PCB, charge PCB, control panel PCB, size detection PCB, reflective sensor assy, and transparent sensor assy.

Motors Main motor and paper feed motor.

2. ELECTRONIC PCB

(1) Main PCB

This PCB contains a 3-terminal regulator which stabilizes at +5V fluctuating DC current 8V voltage supplied by the power supply PCB. It also assures management of all of the following: LCD, motors, serial/parallel interfaces, thermal head, keyboard inputs, EEPROM, reflective and transparent sensors, charge/discharge, and size detection.

(2) Power supply PCB (100V or 200V system)

This PCB, equipped with a switching regulator, stabilizes at +8V and +25V fluctuating AC current voltage, and supplies it to the main PCB.

(3) Main Capacitor Charge PCB

This PCB charges the capacitor at 330V in response to charge signals output from the main PCB to cause the xenon tube to emit light, or forcibly discharges the capacitor in response to power supply OFF or discharge signals.

(4) Control panel PCB

This PCB sets each mode by using the Mode and Set keys, and displays the operation mode on the LCD.

(5) Size detection PCB

This PCB detects the size of a stamp. An error message appears when a stamp inappropriate for the set draft sheet size is equipped.

(6) Reflective sensor assy

This PCB detects the ribbon, automatic feed position, and manual feed.

(7) Transparent sensor assy

This PCB detects the printing position and a trigger for light emission by the xenon tube.

3. MOTOR

(1) Main motor

This motor feeds a draft sheet or an ID label from the platen to the eject opening. It is a $\phi 42$ bipolar motor at a drive voltage of 25V.

(2) Paper feed motor

This motor feeds a draft sheet or an ID label from the manual insertion opening or the magazine tray to the platen. It is a $\phi 25$ unipolar motor at a drive voltage of 25V.

4. THERMAL HEAD

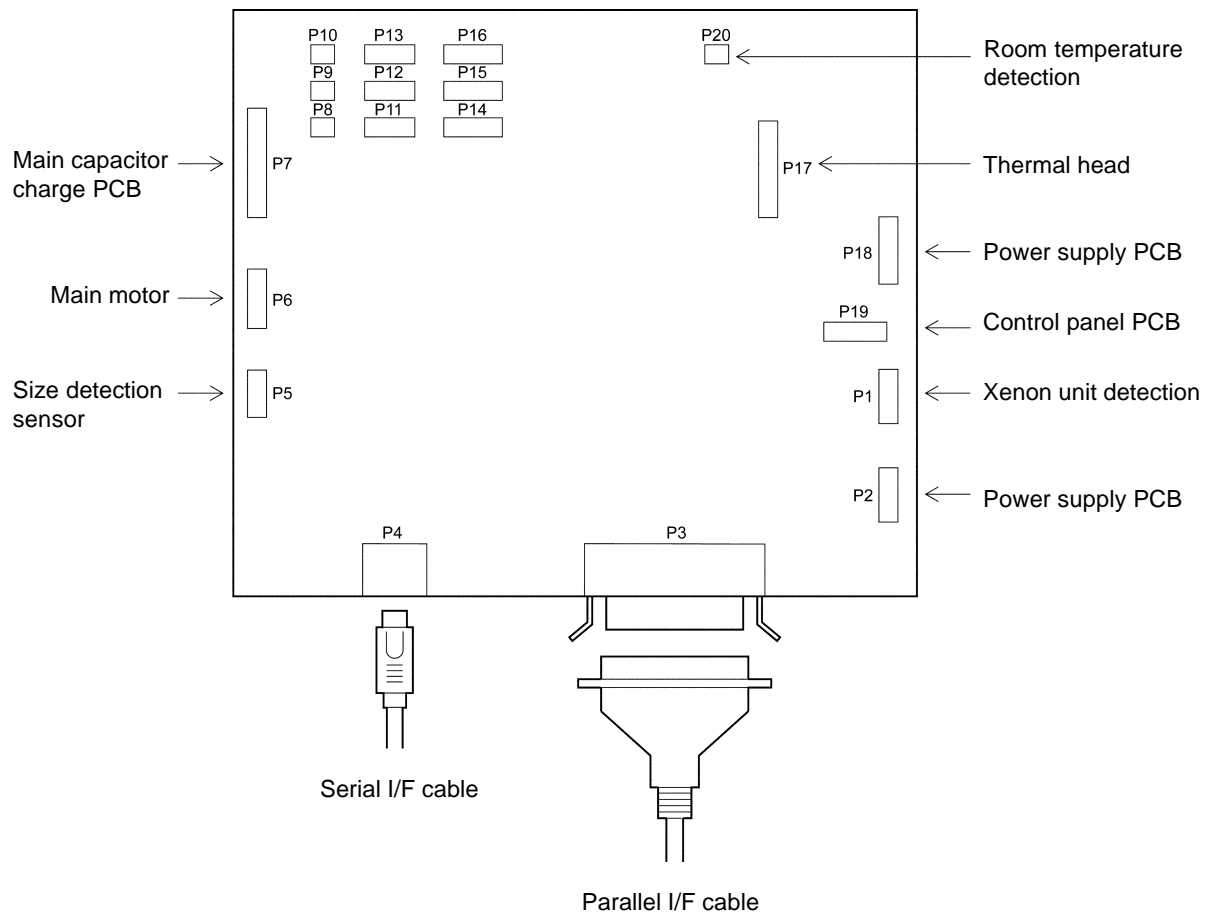
It is a thin film thermal printer head with a built-in driver circuit, consisting of 960 heating elements. These heating elements perform printing when they are energized (drive voltage: 19V).

5. LCD

It is a LCD that displays up to 15 columns \times 1 line and 14 guidances.

Fig. 2.2 shows the block diagram of the electronic part.

Positions of the Connectors on the Main PCB



P8: Not used.

P9: Open cover sensor

P10: Xenon unit release and detection sensor

P11: Ribbon sensor

P12: Printing position detection sensor

P13: Light emission trigger detection sensor

P14: Paper feed motor

P15: Manual feed detection sensor

P16: Automatic feed position detection sensor

Fig. 2.1 Configuration of the Electronic Part (Control)

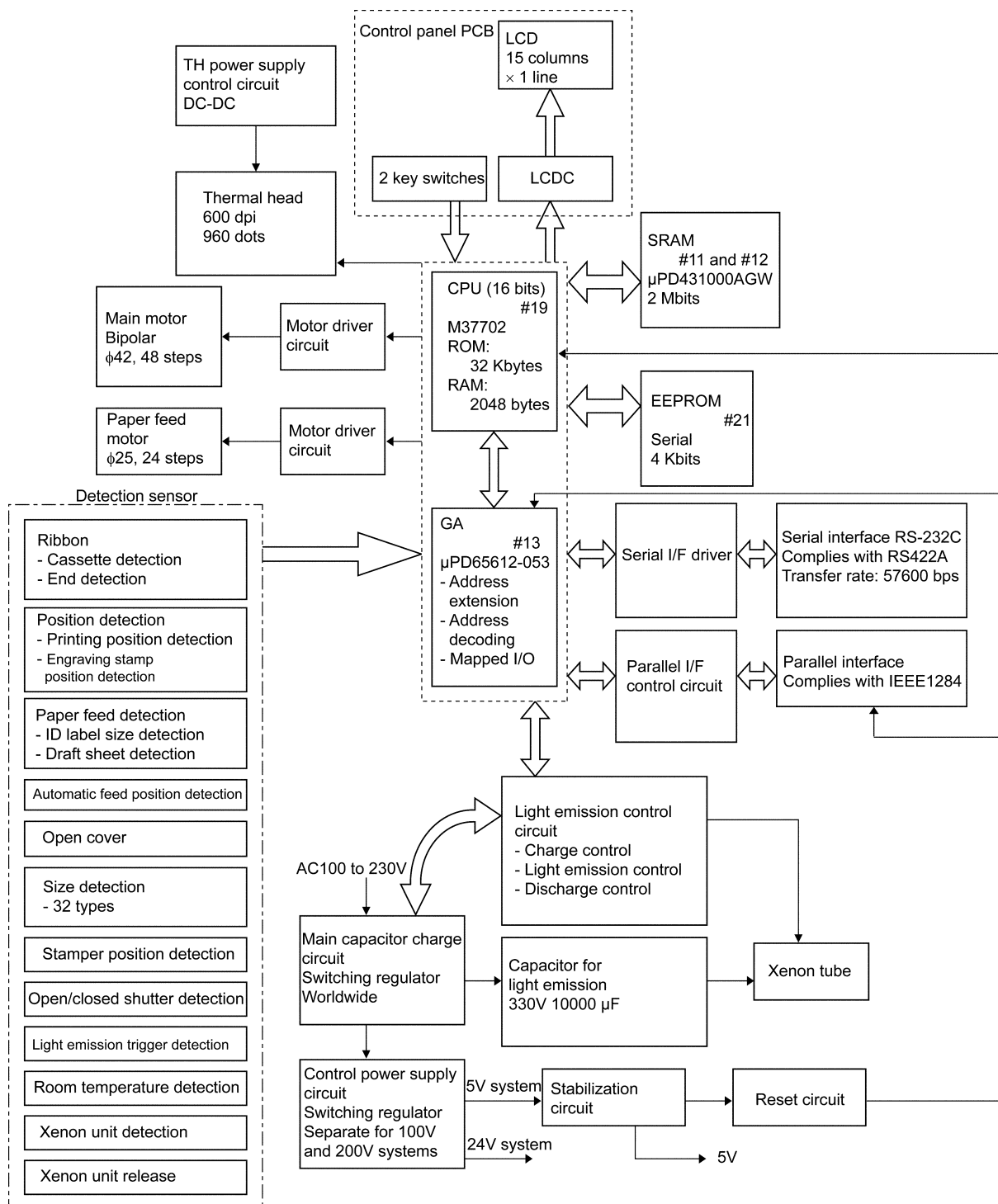


Fig. 2.2 Block Diagram of the Electronic Part

CHAPTER III THEORY OF OPERATION

1. MAIN PCB

1.1 Logic Components

(1) CPU

The CPU (#19: M37702) is a CMOS (16-bit) microprocessor, and controls and supervises the whole system.

This CPU contains a 32-Kbyte ROM and a 2048-byte RAM.

The external 8-bit data bus controls the SRAM and I/O. The internal data bus is of 16 bits.

(2) SRAM

Two 1-Mbit SRAMs (#11 and #12: μ PD431000AGW) or equivalents are used. These SRAMs serve as working areas for a printer buffer.

(3) Gate array

The gate array (#13: μ PD65612-053) provides an interface between the CPU and the SRAMs, controls the main motor and sensors, and provides a parallel interface and expanded I/O.

1.2 EEPROM Circuit

Fig. 3.1 shows the EEPROM circuit.

The EEPROM (#21) is a ROM into which data can be electrically written. It has initial values for each setting, which can be changed in the test mode.

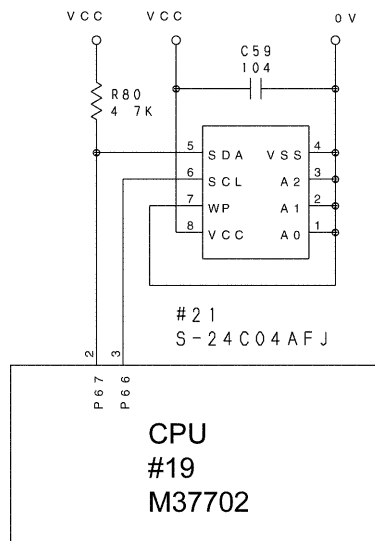


Fig. 3.1 EEPROM Circuit

1.3 Thermal Head Drive Circuit

Fig. 3.2 shows the thermal head drive circuit.

Printing data is synchronized with the CLK signal by the SO signal to be output to the thermal head. It is latched on the driver IC of the thermal head by the LAT signal, and the heating elements of the thermal head are energized by the STB signal.

The thermistor on the thermal head is connected to the analog input port AN0 of the CPU to detect the temperature of the heat radiation plate of the thermal head.

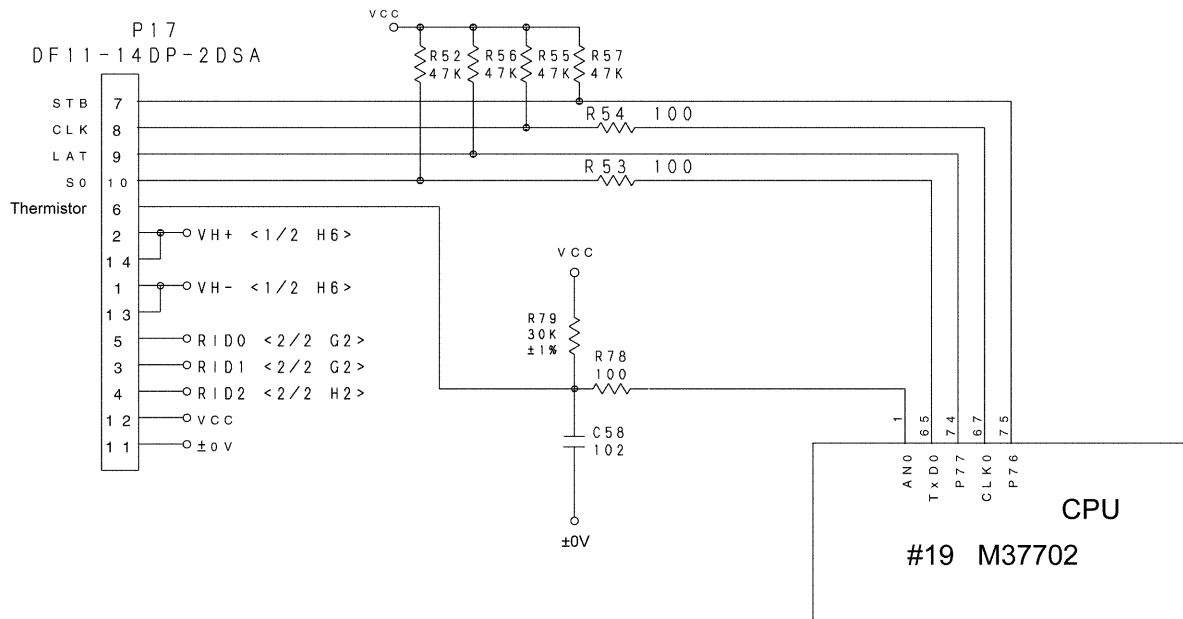


Fig. 3.2 Thermal Head Drive Circuit

1.4 Thermal Head Power Supply Control Circuit

Fig. 3.3 shows the thermal head power supply control circuit.

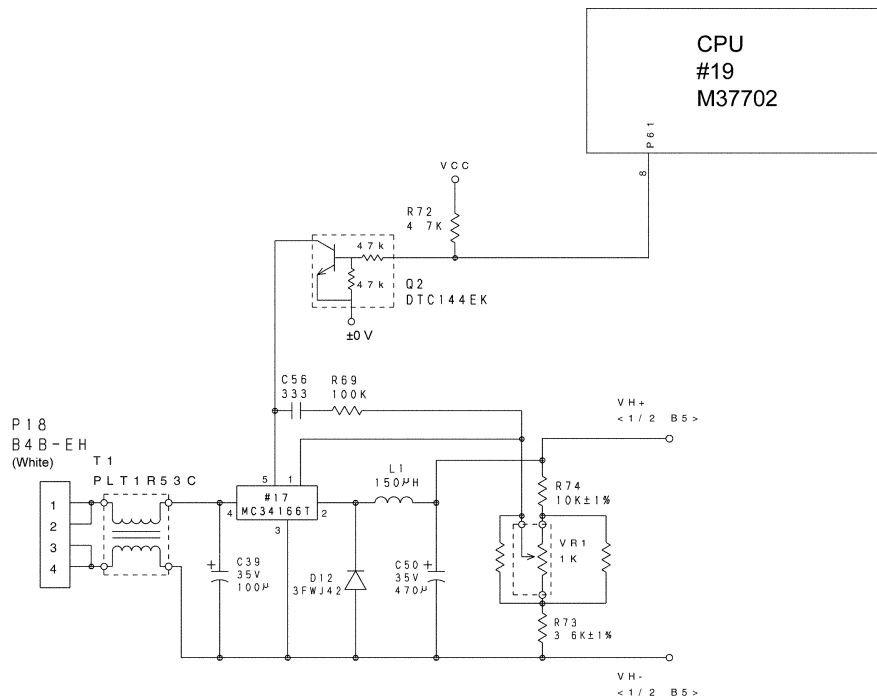


Fig. 3.3 Thermal Head Power Supply Control Circuit

Receiving the 25V input from the power supply PCB, the thermal head power supply control circuit generates the output voltage of the switching regulator (#17: MC34166T) according to the thermal head voltage control signal output from P61 of the CPU. By adjusting the volume resistance at VR1 (1K Ω), the thermal head voltage is set at approximately 19V.

1.5 Stepping Motor Drive Circuit (Main Motor)

Fig. 3.4 shows the main motor drive circuit.

The $\phi 42$, 48 division stepping motor is used to feed a draft sheet or an ID label from the platen to the eject opening.

The drive circuit is bipolar.

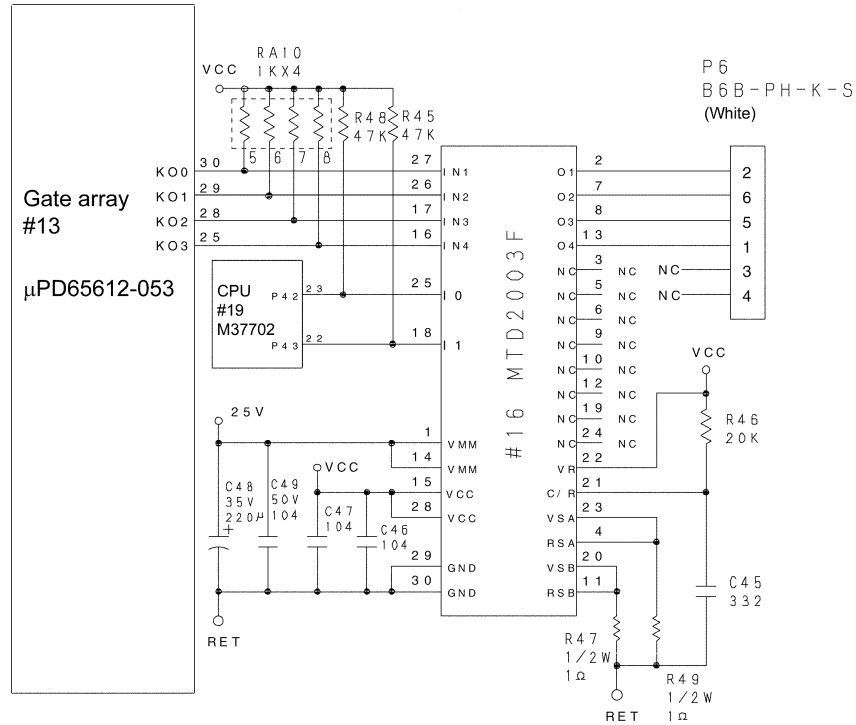


Fig. 3.4 Main Motor Drive Circuit

1.6 Stepping Motor Drive Circuit (Paper feed Motor)

Fig. 3.5 shows the paper feed motor drive circuit.

The $\phi 25$, 24 division stepping motor is used to feed a draft sheet or an ID label from the manual insertion opening or the magazine tray to the platen.

The drive circuit is unipolar.

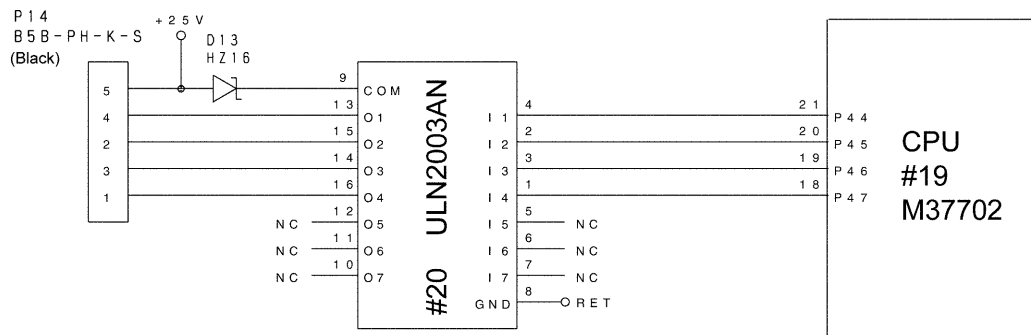


Fig. 3.5 Paper feed Motor Drive Circuit

1.7 Main Oscillation Circuit

Fig. 3.6 shows the main oscillation circuit.

This circuit contains an oscillator and generates an oscillation at 16 MHz (basic clock for the CPU).

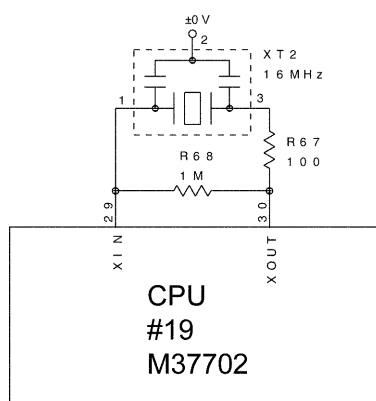


Fig. 3.6 Main Oscillation Circuit

1.8 Sub Oscillation Circuit

Fig. 3.7 shows the sub oscillation circuit.

This circuit generates a clock for a serial transfer.

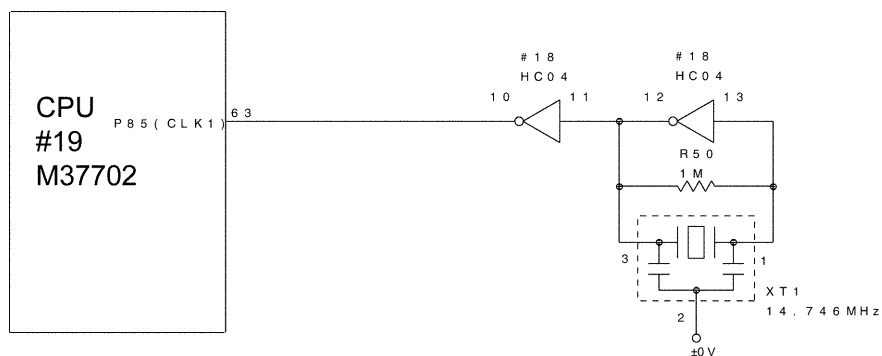


Fig. 3.7 Sub Oscillation Circuit

1.9 Reset Circuit

Fig. 3.8 shows the reset circuit.

The reset circuit prevents a logic circuit such as the CPU from malfunctioning when its power is turned on or off.

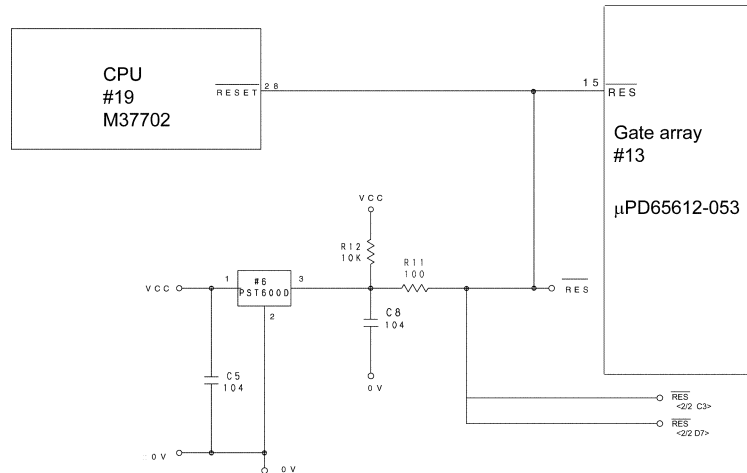


Fig. 3.8 Reset Circuit

Fig. 3.9 shows the signal timing for power on and power off.

The logic 5V power supply voltage (V_{CC}) increases when the power supply is supplied by the turning on of the power supply switch. When this V_{CC} reaches point A, the reset IC is activated and the signal at the RESET terminal passes from “L” level to “H”.

If the V_{CC} becomes less than 4.2V when the power supply is cut by the turning off of the power supply switch, the signal at the RESET terminal passes from “H” level to “L” at point B.

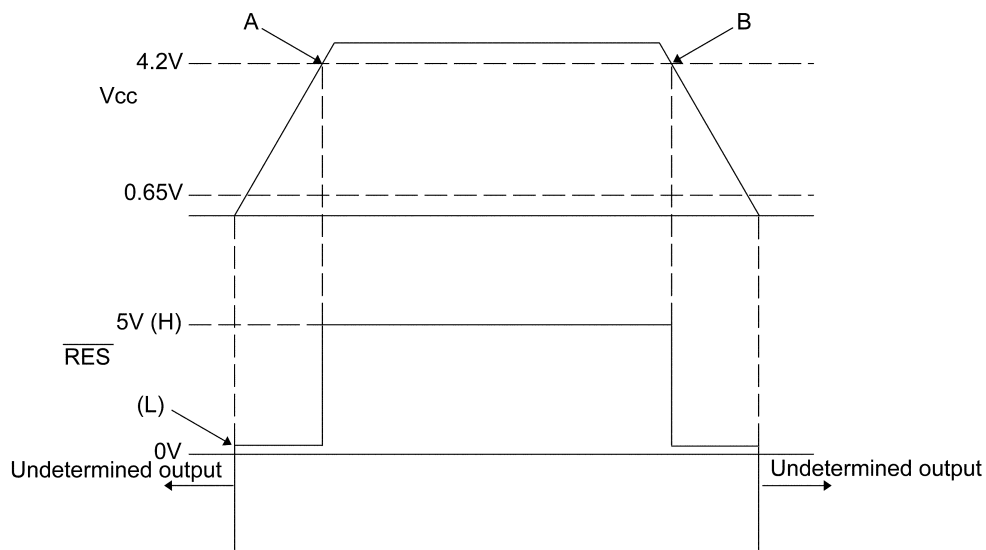


Fig. 3.9 Signal Timing for Power On and Power Off

1.10 Serial Interface Circuit

Fig. 3.10 shows the serial interface circuit.

#4 is a driver IC for RS-232C and converts logic level signals into RS-232C signals. The RXD- signal is a print data input signal from the computer and transferred at 57.6 K baud rate. The TXD- signal is a status information output signal to the computer, and the DTR signal is a busy signal. The RXD+ signal indicates that power is supplied to the SC-2000.

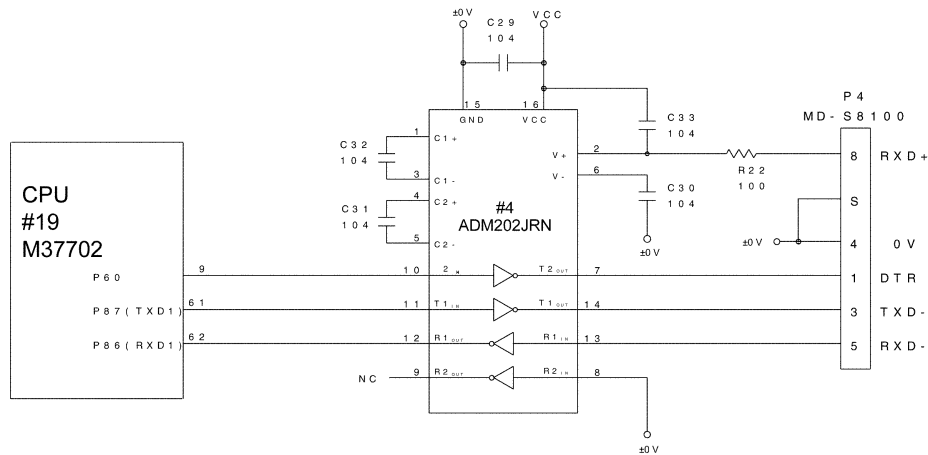


Fig. 3.10 Serial Interface Circuit

1.11 Parallel Interface Circuit

Fig. 3.11 shows the parallel interface circuit.

The address space for the gate array #13 is used to input and output data, which provides a Centronics (parallel) interface.

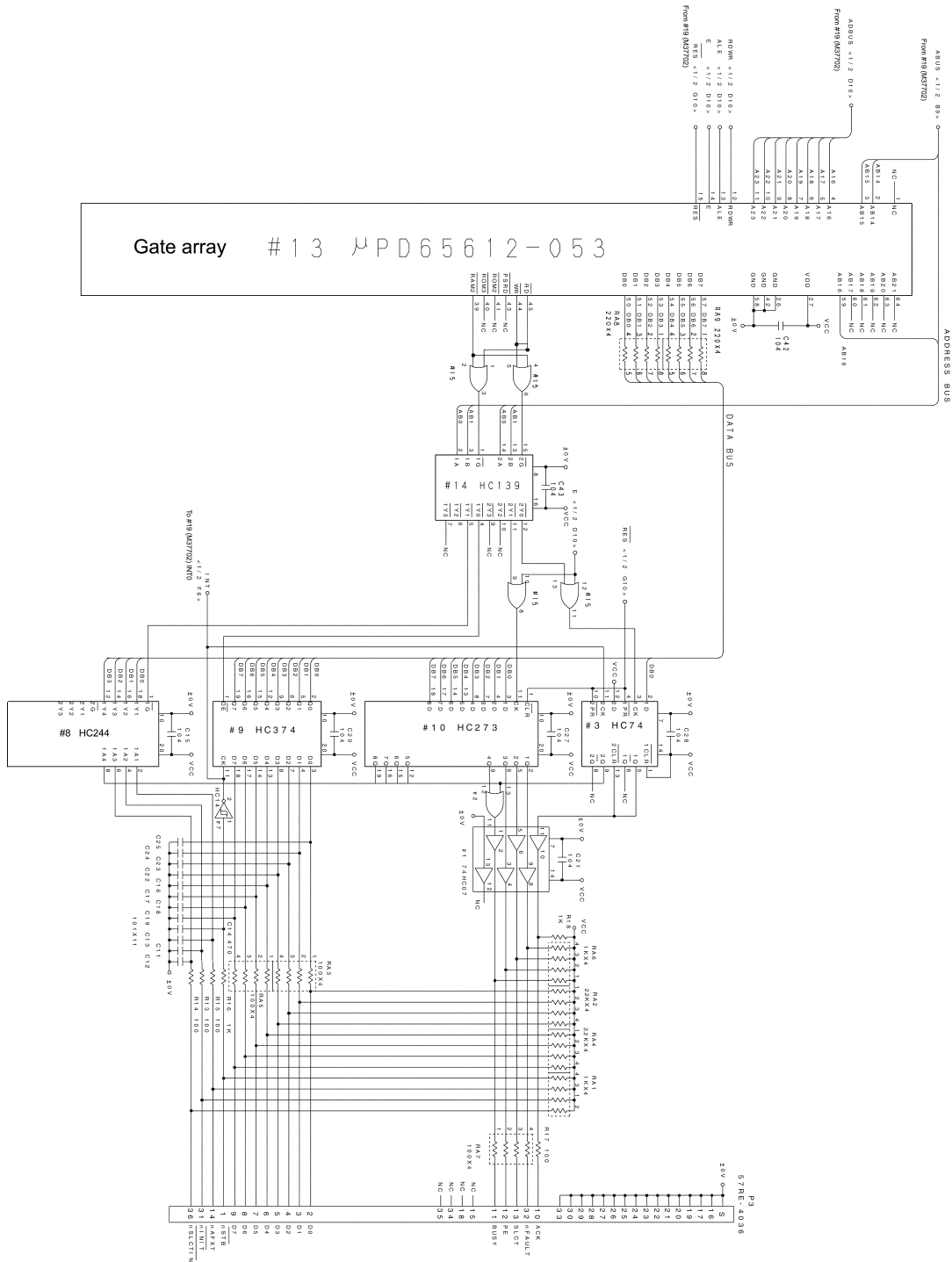


Fig. 3.11 Parallel Interface Circuit

1.12 5V Power Supply Circuit (Stabilization Circuit)

Fig. 3.12 shows the 5V power supply circuit.

3-terminal regulator (#5: S-81350), transistor Q1 (25B1427), and resistor R 10 (10 Ω) generate logic voltage Vcc (5V) from +8V supplied by the power supply PCB.

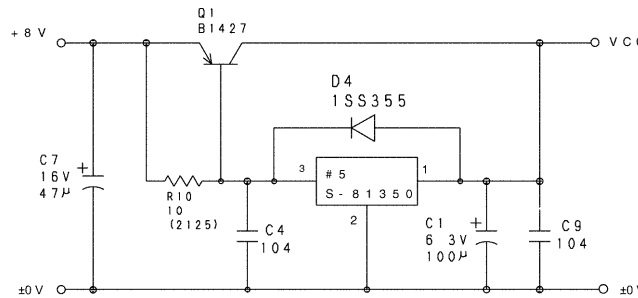


Fig. 3.12 5V Power Supply Circuit

1.13 LCD Control Circuit

Fig. 3.13 shows the LCD control circuit.

This circuit reads and writes the data/status by using 4-bit data signals LD4 - LD7 and control signals LCDC RS signal, LCDC R/W signal, and LCDC E signal, from the main PCB to the control panel PCB.

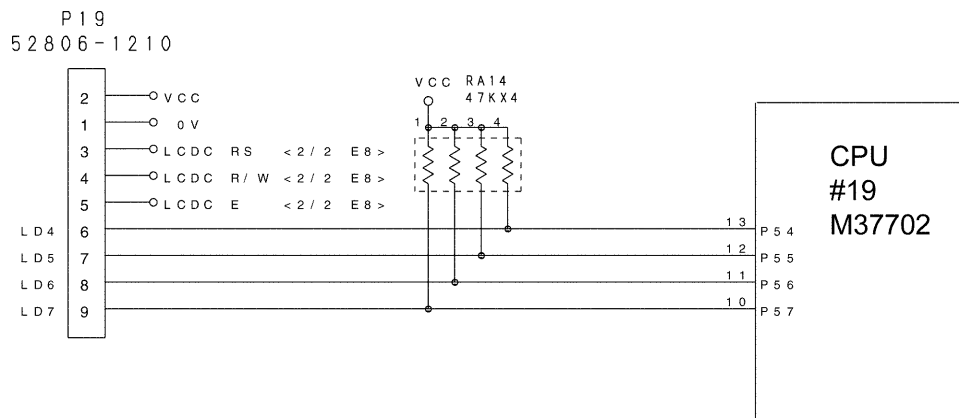


Fig. 3.13 LCD Control Circuit

See the control circuit for LCDC RS signal, LCDC R/W signal, and LCDC E signal.

1.14 Charge/Discharge Control Circuit

Fig. 3.14 shows the charge/discharge control circuit.

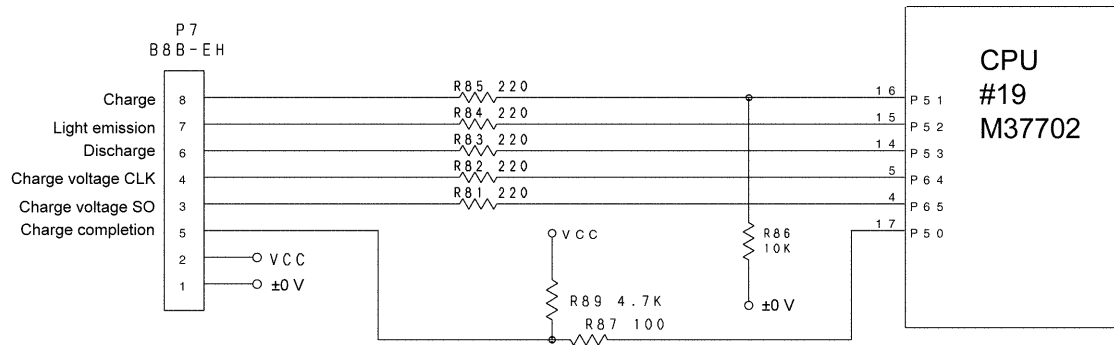


Fig. 3.14 Charge/Discharge Control Circuit

The active level for each signal is:

Charge signal: H

Light emission signal: H

Discharge signal: L

Charge completion signal: L

The charge voltage SO signal synchronized with the charge voltage CLK signal is used for the serial transfer of the charge voltage setting to the charge PCB.

1.15 Size Detection, Ribbon Cassette, Open Cover Detection, and Key Scanning Circuit

Table 3.1 shows a relationship between the stamp ID, its size, and the detection switches.

In terms of dimensions (width and height), ID labels come in 11 types (1212, 2020, 1438, 3030, 4040, 1060, 3458, 1850, 2260, 2770, and 4090), and draft sheets come in one type, totaling 12 types. These types are distinguished by ON/OFF signals output from switches 0-5 on the size detection PCB.

Table 3.1 Relationship between the Stamp ID, Its Size, and the Detection Switches

Stamp ID	Size	Status of the detection switches					
		0	1	2	3	4	5
0	-	○	×	×	×	×	×
1	1212	○	×	×	○	×	×
2	2020	○	×	×	×	○	×
3	-	○	×	×	○	○	×
4	1438	○	×	×	×	×	○
5	-	○	×	×	○	×	○
6	-	○	×	×	×	○	○
7	3030	○	×	×	○	○	○
8	-	○	×	○	×	×	×
9	-	○	×	○	○	×	×
10	-	○	×	○	×	○	×
11	-	○	×	○	○	○	×
12	-	○	×	○	×	×	○
13	-	○	×	○	○	×	○
14	-	○	×	○	×	○	○
15	4040	○	×	○	○	○	○

Stamp ID	Size	Status of the detection switches					
		0	1	2	3	4	5
16	1060	○	○	×	×	×	×
17	-	○	○	×	○	×	×
18	-	○	○	×	×	○	×
19	-	○	○	×	○	○	×
20	-	○	○	×	×	×	○
21	-	○	○	×	○	×	○
22	-	○	○	×	×	○	○
23	3458	○	○	×	○	○	○
24	1850	○	○	○	×	×	×
25	2260	○	○	○	○	×	×
26	2770	○	○	○	×	○	×
27	4090	○	○	○	○	○	×
28	-	○	○	○	×	×	○
29	-	○	○	○	○	×	○
30	-	○	○	○	×	○	○
31	Draft sheet	○	○	○	○	○	○

The size detection circuit reads the ON/OFF status through key scanning. It also detects the ribbon cassette and the open cover, and reads the ON/OFF status of the Mode and Set keys through key scanning.

Fig. 3.15 shows the size detection, ribbon cassette, open cover detection, and key scanning circuit.

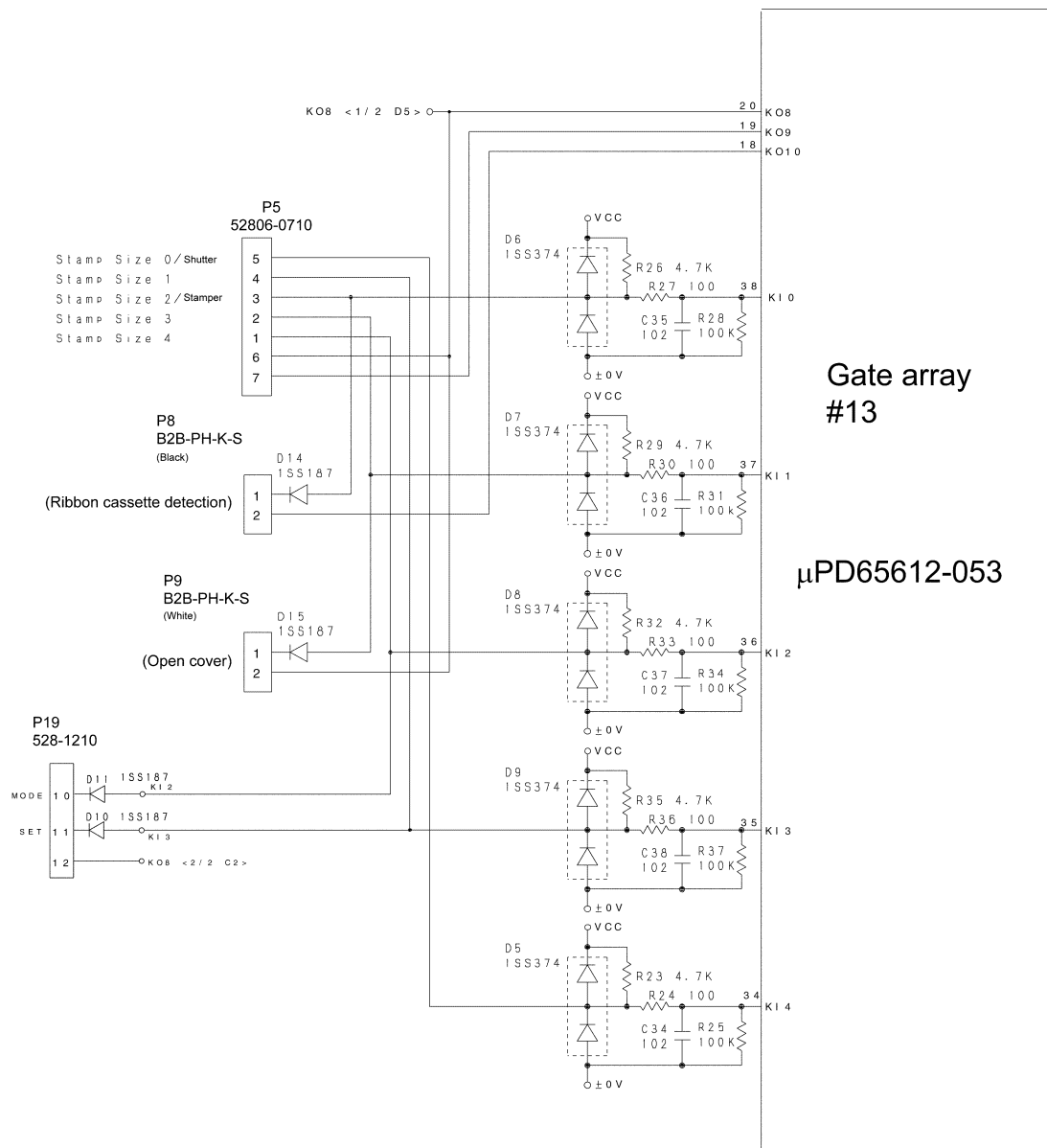


Fig. 3.15 Stamp Size Detection, Open Cover Detection, and Key Scanning Circuit

1.16 Room Temperature Detection Circuit

Fig. 3.16 shows the room temperature detection circuit.

The resistance value at the chip thermistor varies depending on temperature, while the resistance value at R77 ($47\text{ K}\Omega \pm 1\%$) is fixed. The potential at the R76 chip thermistor is output to the analog input port AN1 of the CPU to detect temperature.

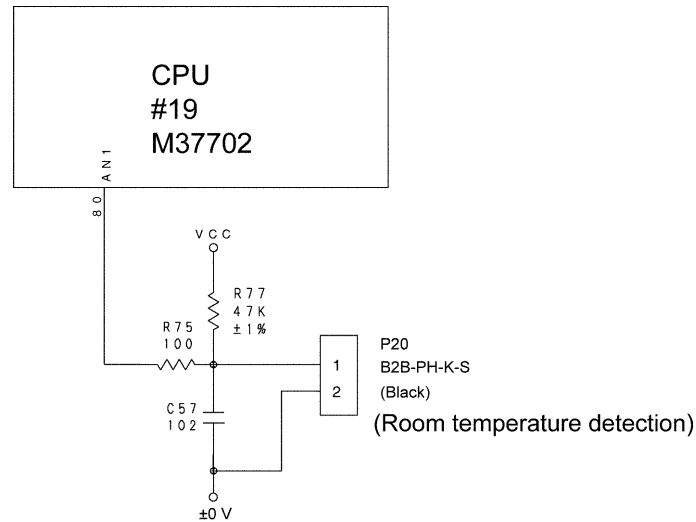


Fig. 3.16 Room Temperature Detection Circuit

1.17 Xenon Unit Release Detection Circuit

Fig. 3.17 shows the xenon unit release detection circuit.

The setting and removal of the xenon unit are detected by ON/OFF signals output from the micro switches.

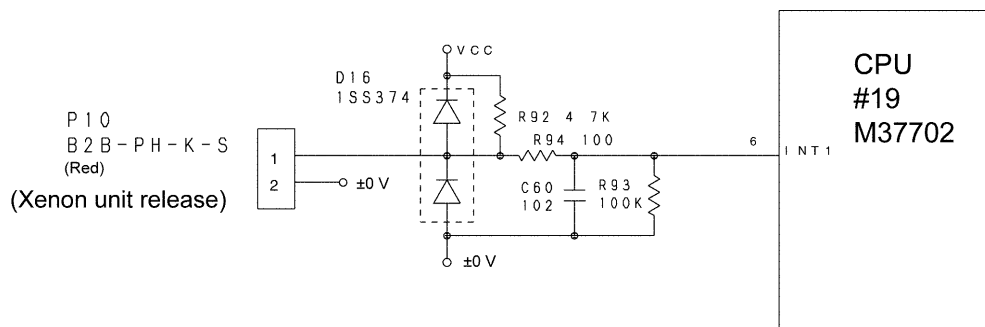


Fig. 3.17 Xenon Unit Release Detection Circuit

1.18 Xenon Unit Detection Circuit

Fig. 3.18 shows the xenon unit detection circuit.

With the xenon unit that connects each of xenon unit signals Xe UNIT 0-2 with Xe UNIT-, this circuit can handle different levels of the light of the xenon tube.

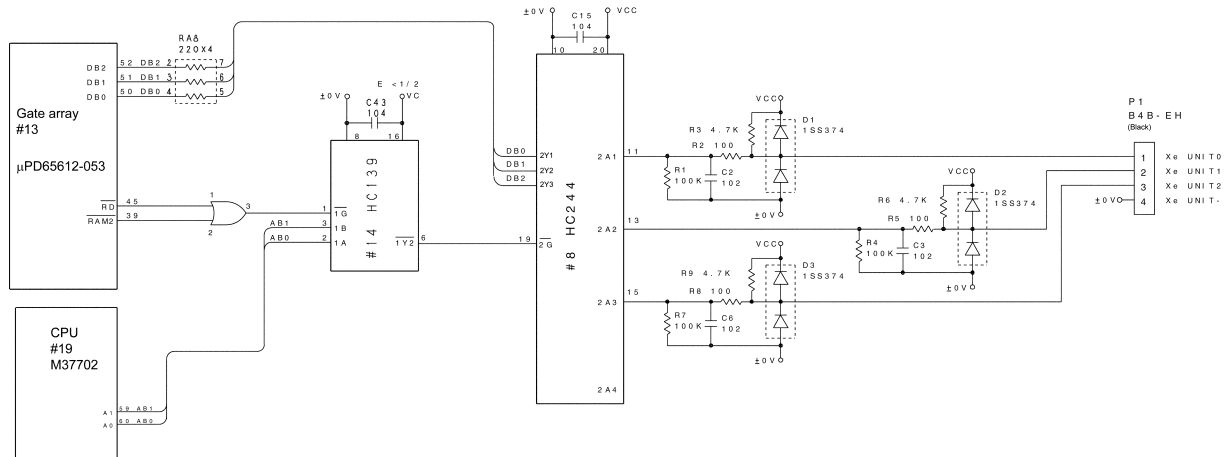


Fig. 3.18 Xenon Unit Detection Circuit

1.19 Reflective Sensor Circuit

Fig. 3.19 shows the reflective sensor circuit.

In the ribbon detection, the presence and the end of the cassette ribbon are detected.

In the automatic feed position detection, it is judged whether the feed position of a draft sheet or an ID label is correct.

In the manual feed detection, the presence of a draft sheet or an ID label that is fed manually and the size of an ID label are detected.

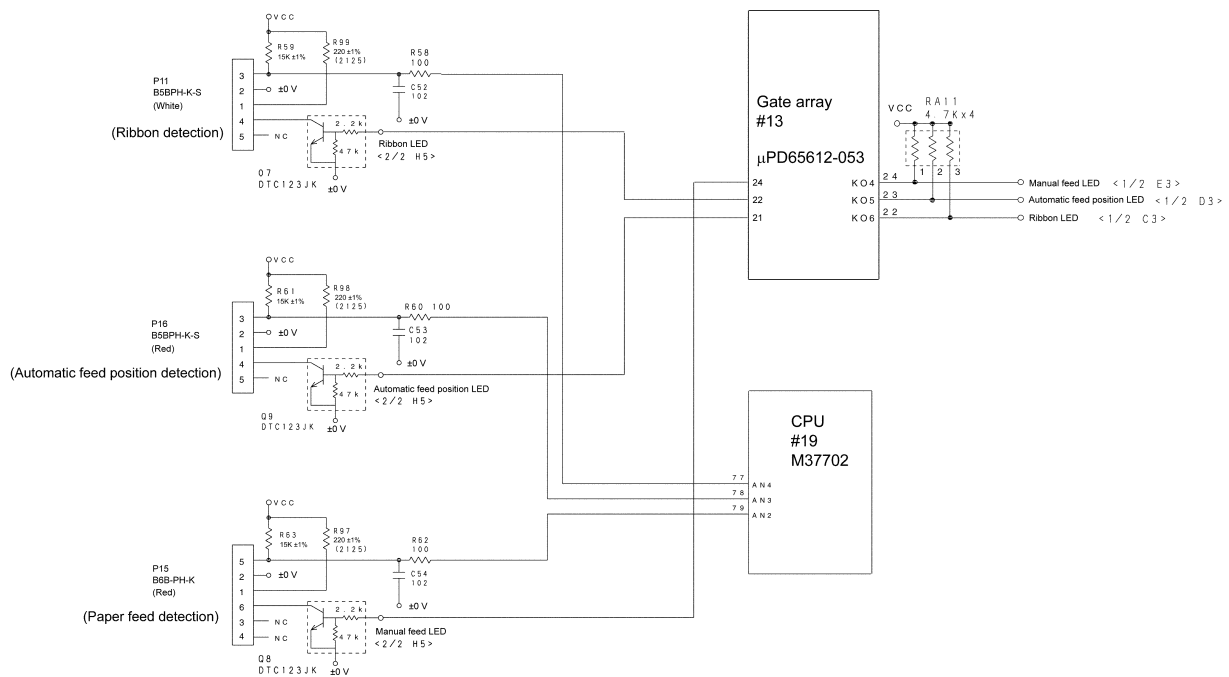


Fig. 3.19 Reflective Sensor Circuit

1.20 Transparent Sensor Circuit

Fig. 3.20 shows the transparent sensor circuit.

In the printing position detection, the printing start position is detected.

In the trigger detection, the light emission trigger of the xenon tube is detected by closing the presser unit cover.

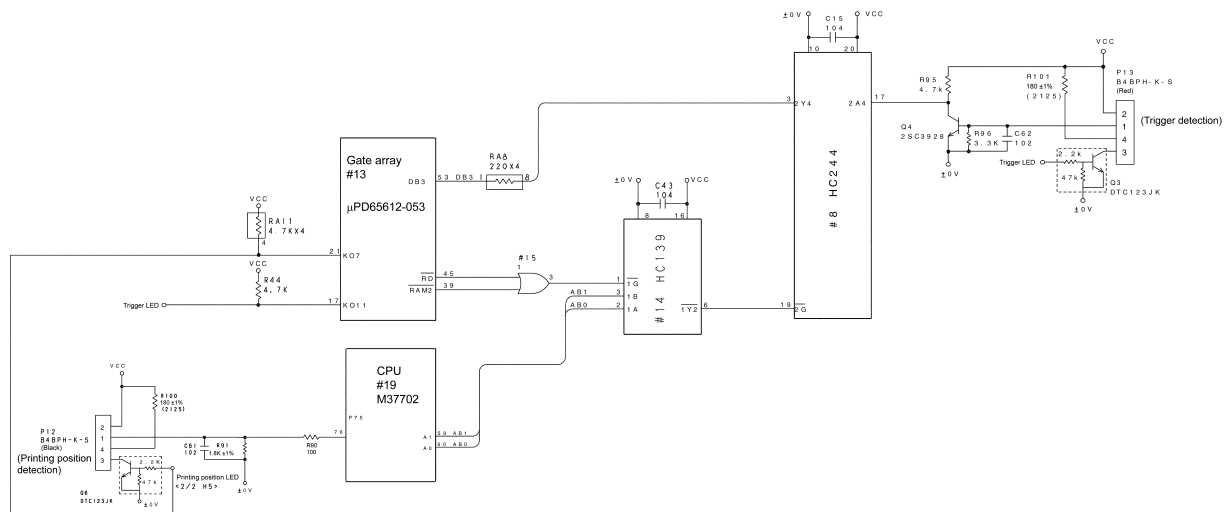


Fig. 3.20 Transparent Sensor Circuit

2. POWER SUPPLY PCB CIRCUIT

The power supply is divided into 100V AC and 200V AC systems.

APP-4 shows the 100V AC system power supply circuit.

APP-5 shows the 200V AC system power supply circuit.

AC input voltage is rectified by diodes D10-D13, and the rectified DC voltage on the primary side of transformer T1 is switched by Q1 that is FET. This generates stabilized 25V and 8V voltage on the secondary side. The 25V voltage of this power supply PCB is input into the main PCB to be applied to the main motor and the paper feed motor. It is also input into switching regulator MC34166 which generates the thermal head voltage.

3. CONTROL PANEL PCB CIRCUIT

Fig. 3.21 shows the control panel PCB circuit.

#1 is a dot matrix LCD driver/controller to display characters. 15 columns \times 1 line are displayed, with 5 dots \times 7 dots comprising one character.

The built-in oscillation circuits and R10 generate a basic clock for drive signals. Timing signals necessary to drive the LCD are generated on the basis of this basic clock.

Data bus signals DB4-7 are generated by P54-P57 signals of #19 (M37702) on the main PCB, and control signals (RES, R/W, and E) are generated by #13 (μ PD65612-053) and the logic circuit. The control panel PCB is equipped with the Mode key (SW2) and the Set key (SW1).

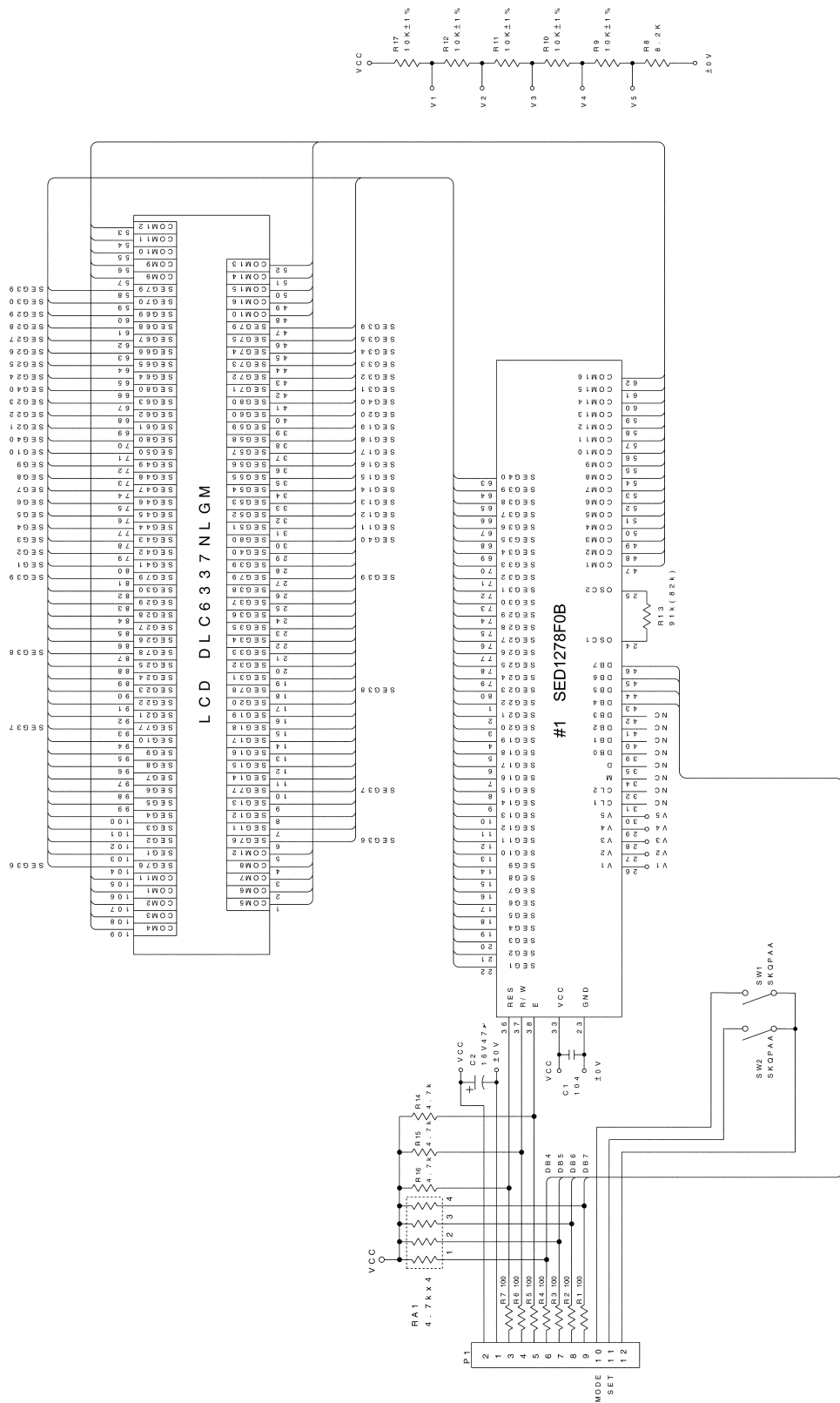


Fig. 3.21 Control Panel PCB Circuit

4. MAIN CAPACITOR CHARGE PCB CIRCUIT

APP-6 shows the main capacitor charge PCB circuit.

This main capacitor charge PCB can variably set to 200V-345V DC voltage for 100V-230V AC, 50/60 Hz input from the charge/discharge control circuit on the main PCB. The set voltage is used to charge the capacitor that stores energy necessary to cause the xenon tube to emit light, as electric charges. It is also used to discharge the electric charges stored in the capacitor.

5. SIZE DETECTION CIRCUIT

Fig. 3.22 shows the size detection circuit.

SW0 detects the shutter, and SW7 detects the stamp. SW1,2,3,4, and 5 detect the stamp sizes 0,1,2,3,4, respectively.

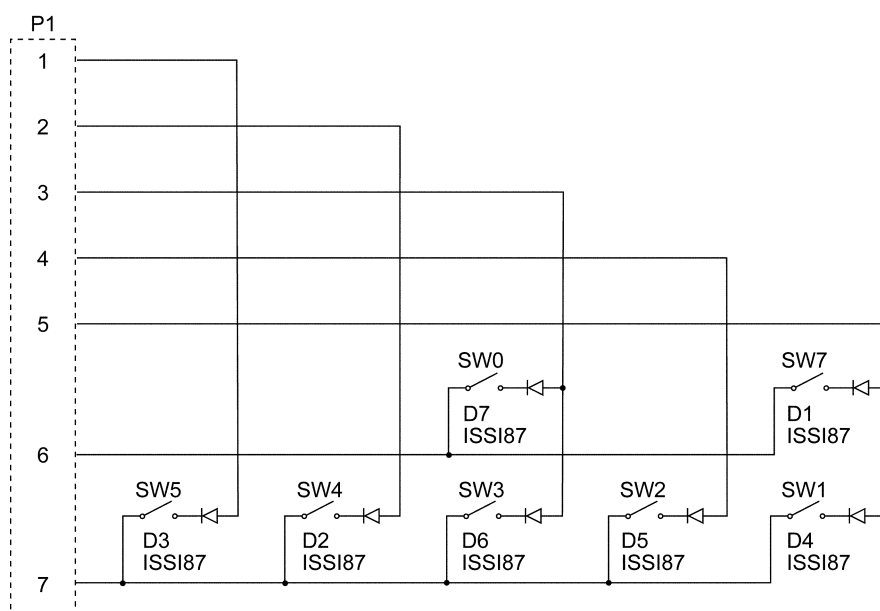


Fig. 3.22 Size Detection Circuit

6. REFLECTIVE SENSOR ASSY CIRCUIT

Fig. 3.23 shows the reflective sensor assy circuit.

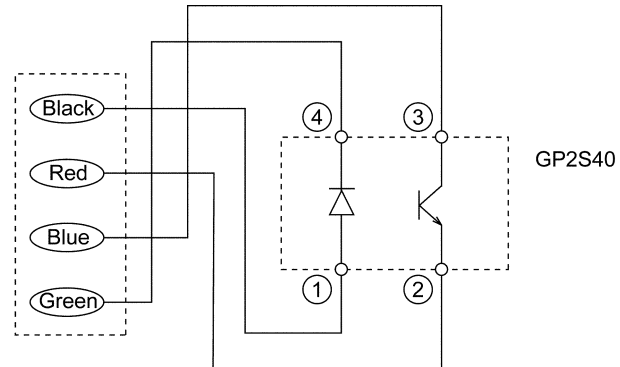


Fig. 3.23 Reflective Sensor Assy Circuit

7. TRANSPARENT SENSOR ASSY CIRCUIT

Fig. 3.24 shows the transparent sensor assy circuit.

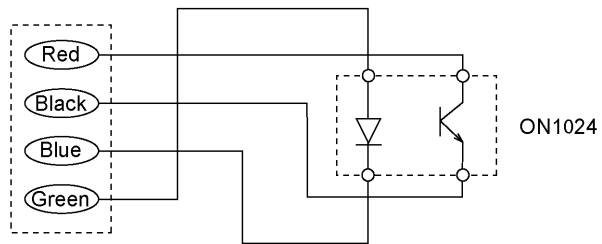


Fig. 3.24 Transparent Sensor Assy Circuit

CHAPTER IV TROUBLESHOOTING

1. GENERALS

This section provides a troubleshooting procedure for a machine failure. It is however impossible to foresee when and how a machine failure happens and is quite difficult to establish a troubleshooting procedure for a given machine failure. The troubleshooting procedure given here therefore lists only the limited cases. It is nevertheless necessary to understand and analyze these cases and the function of the components in case of an actual machine failure in order to be able to roughly locate and identify the trouble.

2. PRECAUTIONS ON REPAIRING

- (1) Identify the failure location (machine, ribbon cassette, draft sheet, or ID label), referring to the table of **Cause of Electronic Error**.
- (2) Well understand the failure, and if it related to two or more components, well understand their relationship before carrying out the repair.
- (3) If the xenon tube does not emit light, possible causes are the failures of the xenon unit and the main capacitor charge PCB. The xenon unit can be disassembled. **However, never disassemble the main capacitor unit, as it poses a danger.**
- (4) In case of a failure related to the thermal head, keep the thermal head cable unplugged from the connector until the circuit functions correctly.
- (5) When checking electrical conduction with a tester, be sure to turn off the power supply switch or pull the plug out of a socket.

3. ACTIONS TO BE TAKEN AFTER REPAIRS

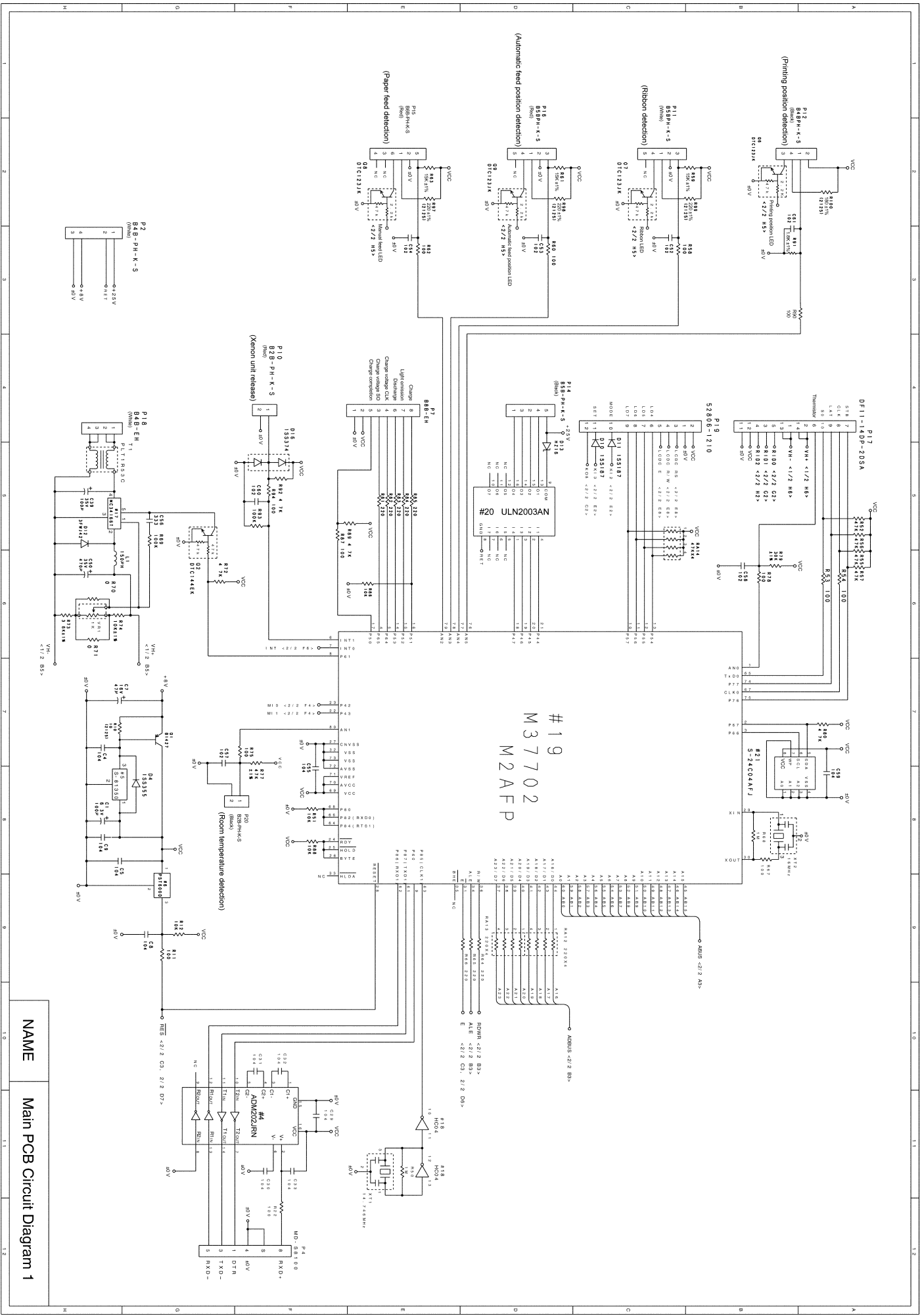
After identifying the cause and taking corrective actions, check the machine for its correct basic operations as to printing and engraving. Also check that the failures have been corrected. Note and keep the troubleshooting procedure actually followed for later troubleshooting.

Cause of Electronic Error

Error mode	Checking method		Cause	Action	Service manual
No key-in is possible.	Is there a key pressed?	YES	Defective control panel PCB assy. Improperly attached control panel	Replace the control panel PCB assy. Replace the control panel.	—
		NO	Defective #13	Replace the main PCB assy.	CHAPTER III 1.15 Size Detection, Ribbon Cassette, Open Cover Detection, and Key Scanning Circuit
Printing is performed with a given dot omitted.	Is the thermal head dirty?	YES	Dirty thermal head	Clean the thermal head.	—
		NO	Defective thermal head	Replace the thermal head.	—
No printing is performed.	Is the thermal head voltage within $19V \pm 0.1V$ when printing?	YES	Defective thermal head	Replace the thermal head.	CHAPTER III 1.3 Thermal Head Drive Circuit
		NO	Defective #17 and #19	Replace the main PCB assy.	CHAPTER III 1.4 Thermal Head Power Supply Control Circuit
The size of a stamp can not be correctly detected.	Are the stamp size detection switches properly turned on/off?	YES	Defective #13	Replace the main PCB assy.	CHAPTER III 1.15 Size Detection, Ribbon Cassette, Open Cover Detection, and Key Scanning Circuit
		NO	Defective size detection PCB assy	Replace the size detection PCB assy.	CHAPTER III 5 SIZE DETECTION CIRCUIT
A draft sheet or an ID label that is fed manually can not be detected.	Does the manual feed detection reflective sensor function correctly?	YES	Defective #19	Replace the main PCB assy.	CHAPTER III 1.19 Reflective Sensor Circuit
		NO	Defective reflective sensor assy	Replace the reflective sensor assy.	CHAPTER III 6 REFLECTIVE SENSOR ASSY CIRCUIT

Error mode	Checking method		Cause	Action	Service manual
The automatic feed position of a draft sheet or an ID label can not be correctly detected.	Does the automatic feed position detection reflective sensor function correctly?	YES	Defective #19	Replace the main PCB assy.	CHAPTER III 1.19 Reflective Sensor Circuit
		NO	Defective reflective sensor assy	Replace the reflective sensor assy.	CHAPTER III 6 REFLECTIVE SENSOR ASSY CIRCUIT
The printing start position of a draft sheet or an ID label can not be correctly detected.	Does the printing position detection transparent sensor function correctly?	YES	Defective #19	Replace the main PCB assy.	CHAPTER III 1.20 Transparent Sensor Circuit
		NO	Defective transparent sensor assy	Replace the transparent sensor assy.	CHAPTER III 7 TRANSPARENT SENSOR ASSY CIRCUIT
The xenon tube does not emit light.	Does the light emission trigger detection sensor function correctly?	YES	Defective xenon unit or main capacitor unit	Replace the xenon unit or the main capacitor unit.	CHAPTER III 4 MAIN CAPACITOR CHARGE PCB CIRCUIT
		NO	Defective transparent sensor assy	Replace the transparent sensor assy.	CHAPTER III 7 TRANSPARENT SENSOR ASSY CIRCUIT
The LCD displays no information.	Do #13 and #19 function correctly?	YES	Defective control panel PCB assy	Replace the control panel PCB assy.	CHAPTER III 3 CONTROL PANEL PCB CIRCUIT
		NO	Defective main PCB assy	Replace the main PCB assy.	CHAPTER III 1.13 LCD Control Circuit
No information is displayed.	Are 8V and 25V outputs from the power supply PCB assy correct?	YES	Same as the above cause of the LCD displaying no information	←	←
		NO	Defective power supply PCB assy	Replace the power supply PCB assy.	CHAPTER III 2 POWER SUPPLY PCB CIRCUIT

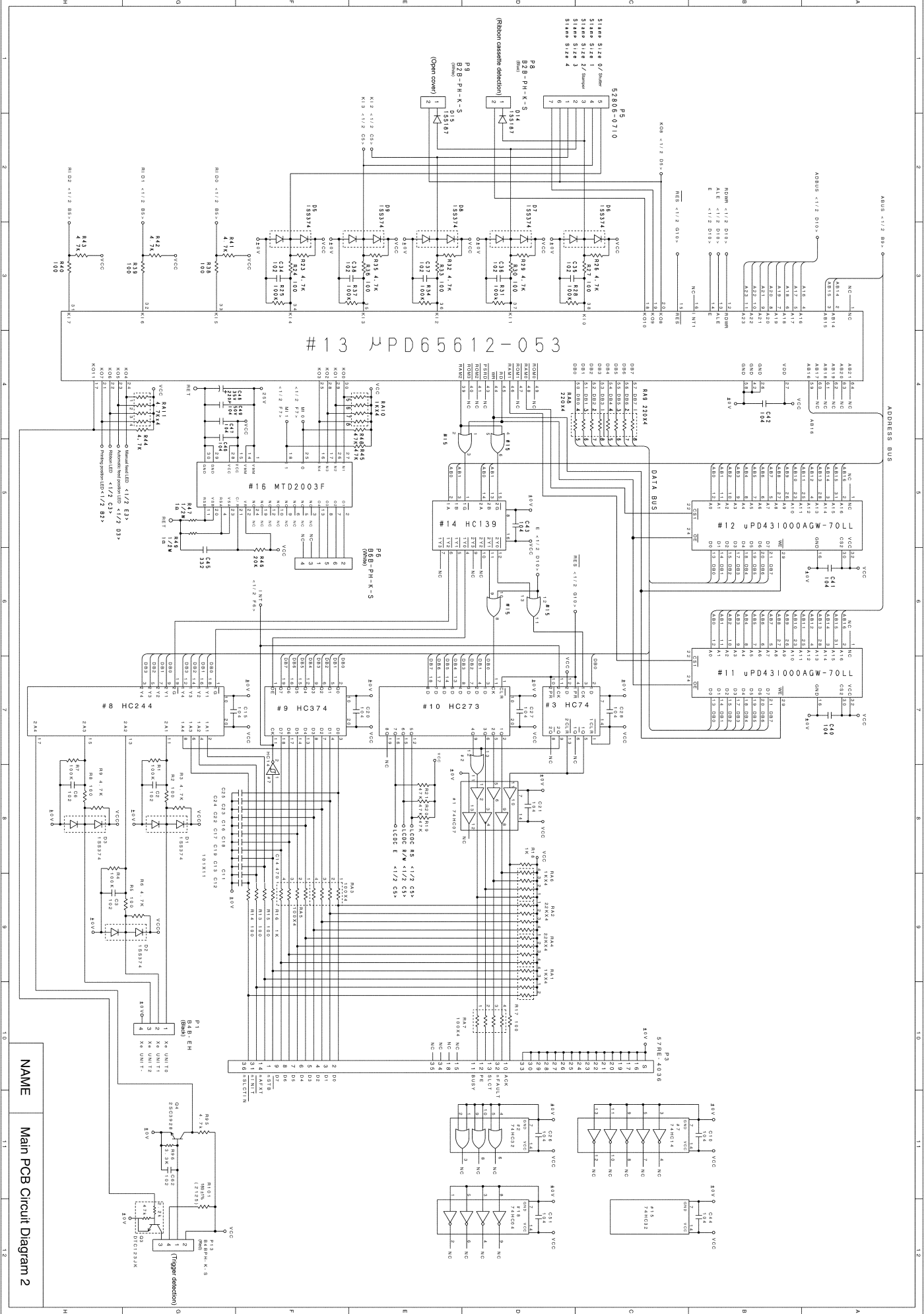
A. Main PCB Circuit Diagram (1/2)



NAME

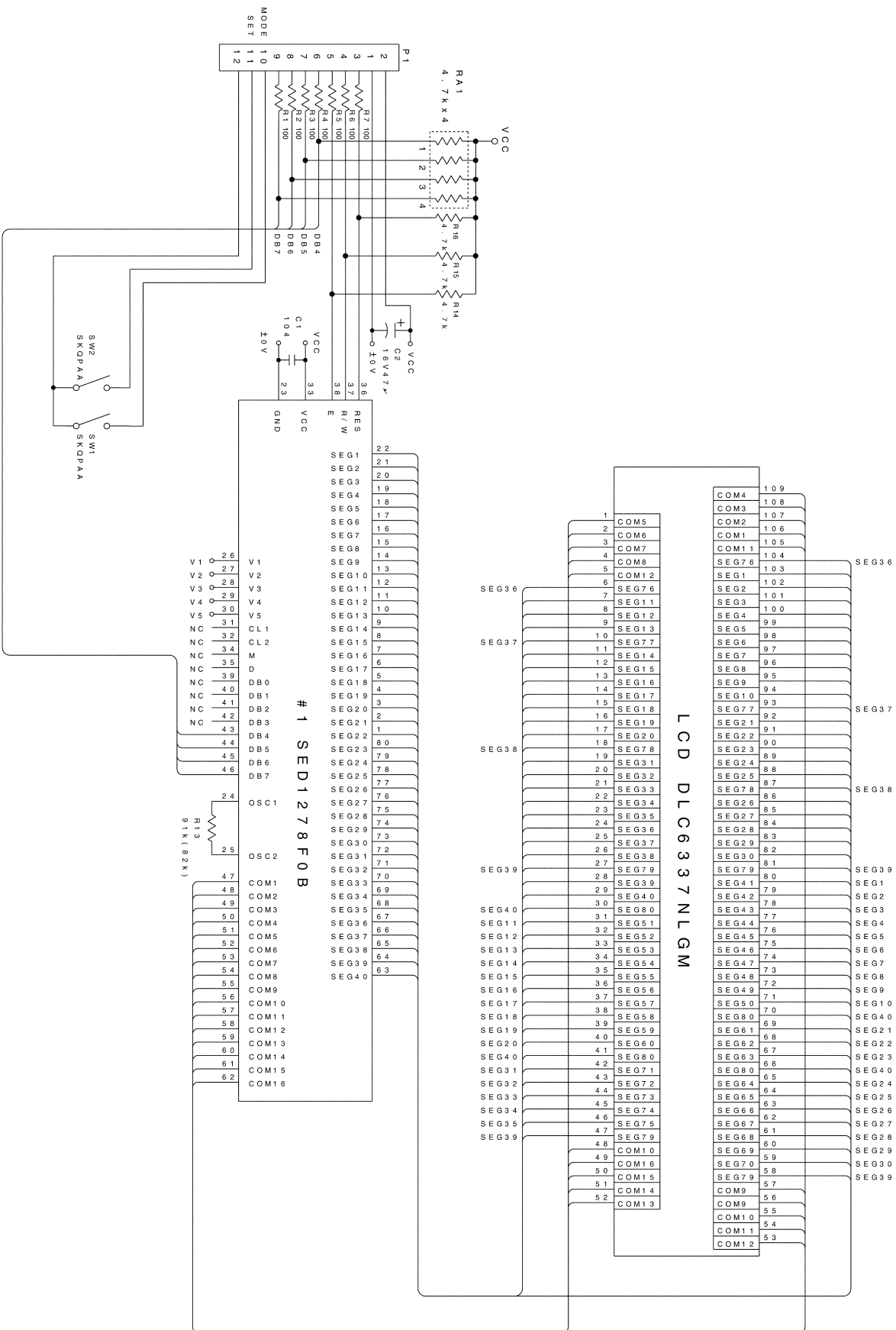
Main PCB Circuit Diagram 1

B. Main PCB Circuit Diagram (2/2)

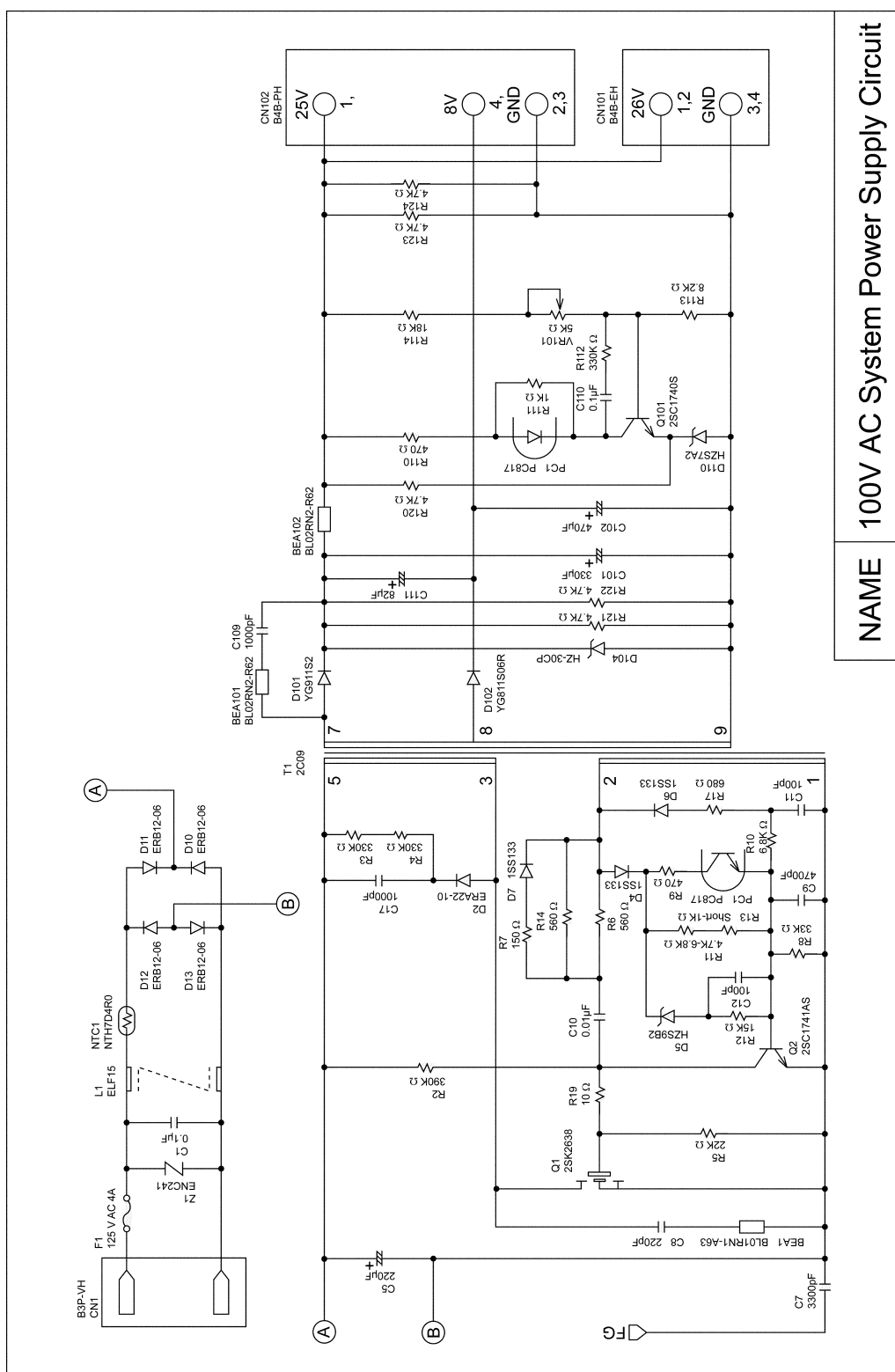


NAME Main PCB Circuit Diagram 2

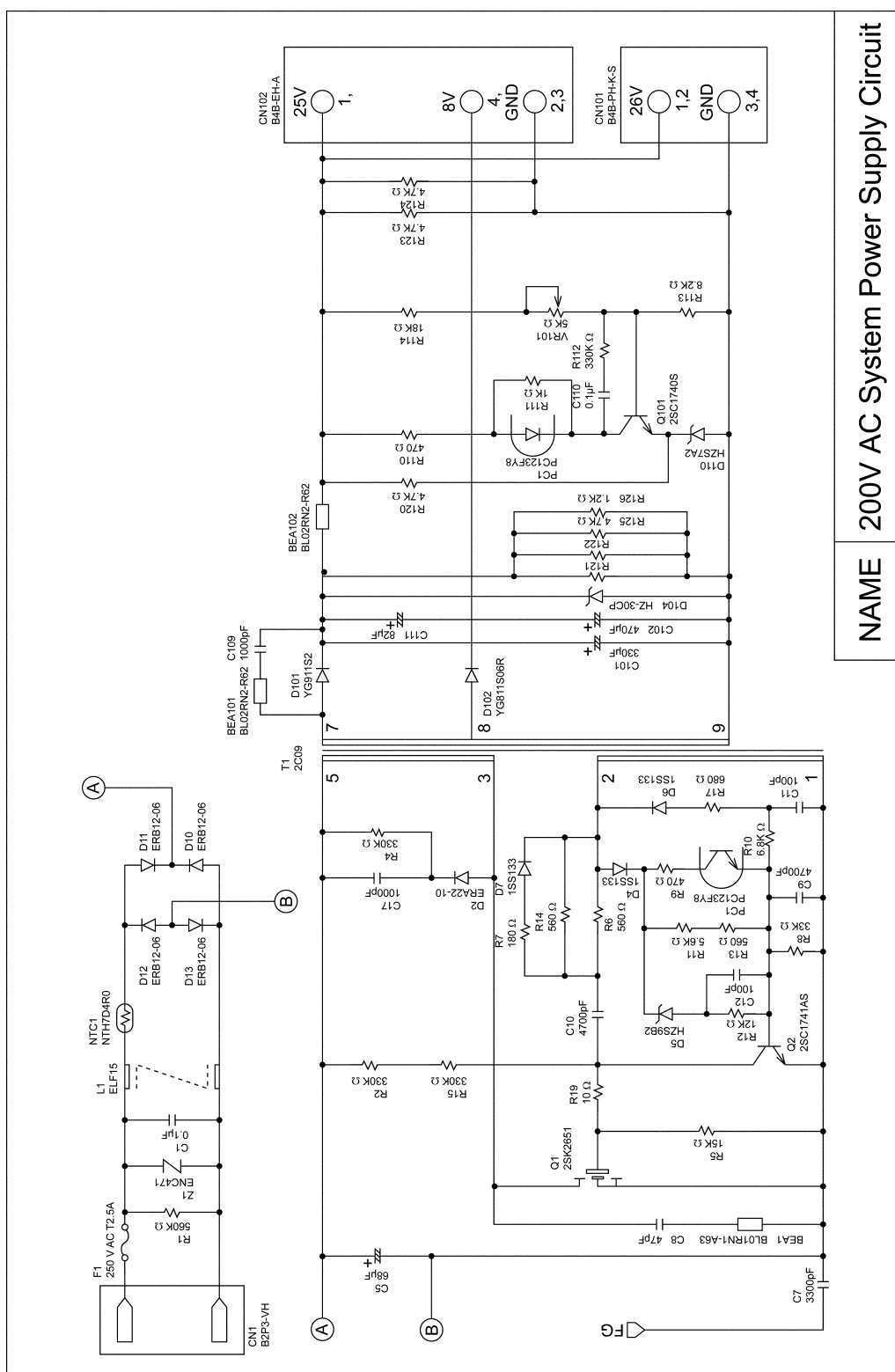
C. Control Panel PCB Circuit

NAMEControl Panel PCB Circuit

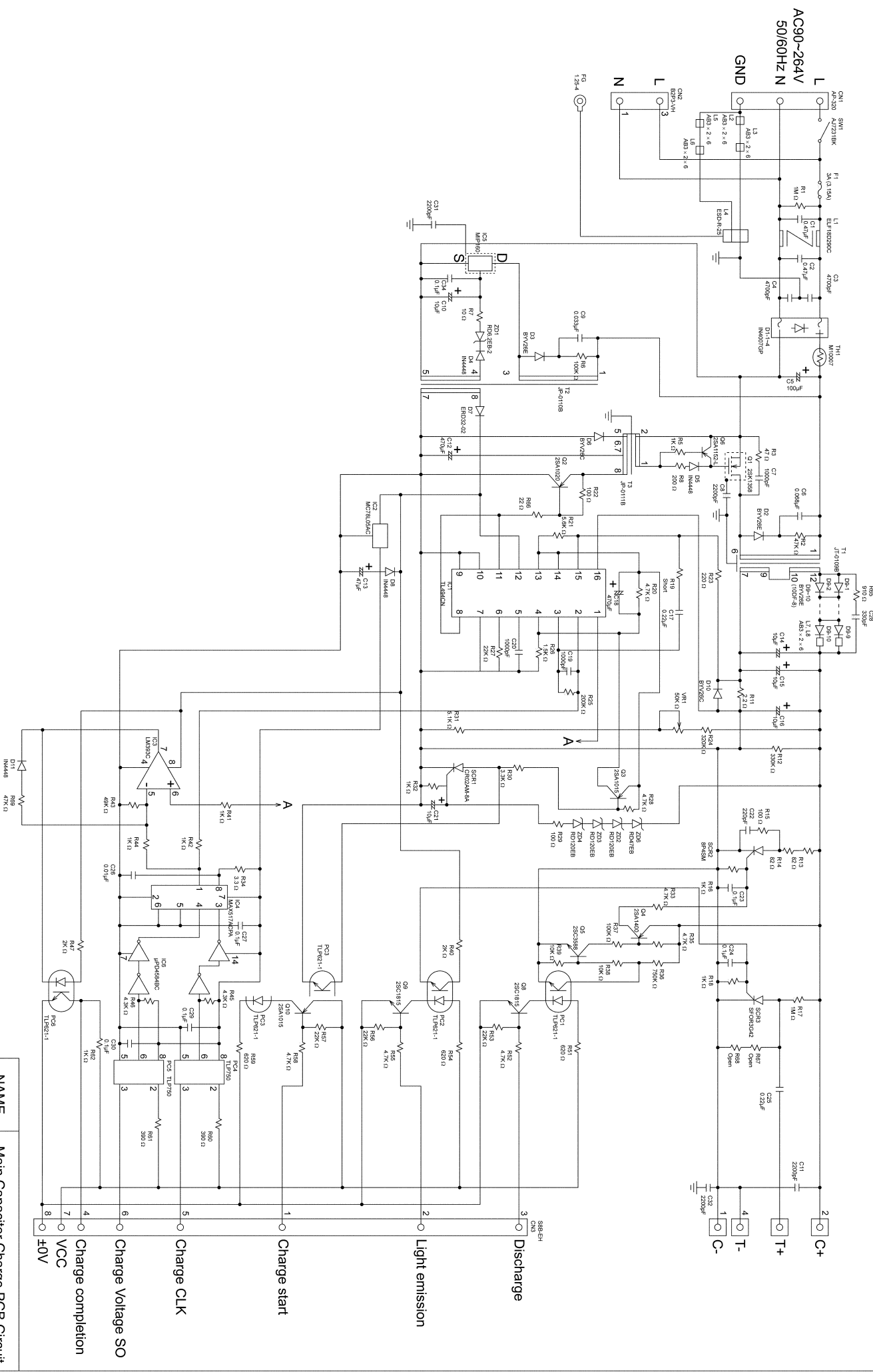
D. 100V AC System Power Supply Circuit



E. 200V AC System Power Supply Circuit



F. Main Capacitor Charge PCB Circuit



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