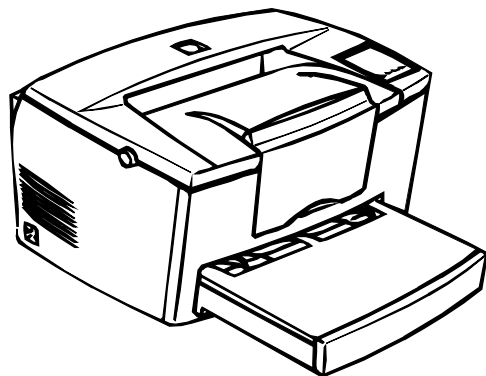


# SERVICE MANUAL



Page Printer  
**EPSON EPL-5700**



**EPSON®**

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# PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1) Personal injury and 2) damage to equipment.

**DANGER** Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

**WARNING** Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

## **DANGER**

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NOWORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIER WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.

## **WARNING**

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NONAPPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

# PREFACE

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of EPL-5700. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page. The chapters are organized as follows:

## **CHAPTER 1. PRODUCT DESCRIPTIONS**

*Provides a general overview and specifications of the product.*

## **CHAPTER 2. OPERATING PRINCIPLES**

*Describes the theory of electrical and mechanical operations of the product.*

## **CHAPTER 3. TROUBLESHOOTING**

*Provides the step-by-step procedures for troubleshooting.*

## **CHAPTER 4. DISASSEMBLY AND ASSEMBLY**

*Describes the step-by-step procedures for disassembling and assembling the product.*

## **CHAPTER 5. ADJUSTMENTS**

*Provides Epson-approved methods for adjustment.*

## **CHAPTER 6. MAINTENANCE**

*Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.*

## **APPENDIX**

*Provides the following additional information for reference:*

- Connector pin assignments
- Electric circuit boards components layout
- Exploded diagram
- Electrical circuit boards schematics

# REVISION STATUS

Rev.	Date	Page(s)	Contents
A	1998/05/06	All	First release

# TABLE OF CONTENTS

---

## PRODUCT DESCRIPTION

<b>1.1 FEATURES</b> .....	<b>1-1</b>
<b>1.2 PAPER SPECIFICATION</b> .....	<b>1-6</b>
<b>1.3 PANEL OPERATION</b> .....	<b>1-8</b>
<b>1.3.1 Power Switch</b> .....	<b>1-8</b>
<b>1.3.2 Control Panel</b> .....	<b>1-8</b>
1.3.2.1 Switches .....	1-8
1.3.2.2 Lights.....	1-8
<b>1.3.3 List of Panel Setting</b> .....	<b>1-9</b>
<b>1.3.4 Special(alternative) Operation</b> .....	<b>1-13</b>
1.3.4.1 Operation at Power On.....	1-13
1.3.4.2 Up-dating ROM Program.....	1-14
<b>1.4 OPTIONS AND CONSUMABLE</b> .....	<b>1-15</b>

# OPERATING PRINCIPLES

<b>2.1 OPERATING PRINCIPLES OF MECHANISM</b> .....	<b>2-1</b>
<b>2.1.1 Overview</b> .....	<b>2-1</b>
<b>2.1.2 Paper Path</b> .....	<b>2-2</b>
<b>2.1.3 Paper Feed Mechanism</b> .....	<b>2-3</b>
2.1.3.1 Paper Feed Operation.....	2-3
2.1.3.2 Paper Empty Sensor.....	2-4
<b>2.1.4 Second Paper Feed Unit(Optional)</b> .....	<b>2-4</b>
2.1.4.1 Mechanism.....	2-4
2.1.4.2 Paper Empty Sensor.....	2-5
2.1.4.3 Cassette Type Sensor.....	2-5
<b>2.1.5 Laser Exposure</b> .....	<b>2-6</b>
2.1.5.1 Sub Scanning Direction(Vertical scanning direction).....	2-6
2.1.5.2 Main Scanning Direction(Horizontal scanning direction).....	2-7
2.1.5.3 Printable Area.....	2-7
<b>2.1.6 Charging Process</b> .....	<b>2-7</b>
2.1.6.1 Overview (Refer to Figure2-9 on the next page).....	2-7
2.1.6.2 Cleaning OPC drum.....	2-8
<b>2.1.7 Developing</b> .....	<b>2-9</b>
2.1.7.1 Overview.....	2-9
2.1.7.2 Function of each parts in the development part.....	2-9
<b>2.1.8 Transfer Process</b> .....	<b>2-10</b>
2.1.8.1 Overview.....	2-10

<b>2.1.9 Fusing Process</b> .....	<b>2-11</b>
2.1.9.1 Overview .....	2-11
2.1.9.2 Fusing Temperature Control Circuit .....	2-11
2.1.9.3 Prevention of paper bent from the fusing .....	2-12
<b>2.1.10 Paper Eject</b> .....	<b>2-13</b>
2.1.10.1 Face up/Face down disengage mechanism .....	2-13
<b>2.2 ELECTRIC CIRCUIT</b> .....	<b>2-14</b>
<b>2.3 CONTROLLER OPERATING PRINCIPLES</b> .....	<b>2-16</b>

## TROUBLESHOOTING

<b>3.1 OVERVIEW</b> .....	<b>3-1</b>
<b>3.2 ELECTRIC CHECK POINT</b> .....	<b>3-1</b>
3.2.1 Rating of Power Fuse F1 .....	3-1
3.2.2 Coil Resistance of Main Motor .....	3-1
3.2.3 Checking Sensors .....	3-2
<b>3.3 PRINTER CONDITION</b> .....	<b>3-3</b>
<b>3.3.1 Indication</b> .....	<b>3-3</b>
3.3.1.1 “Status” Conditions .....	3-3
3.3.1.2 “Error” Conditions .....	3-4
3.3.1.3 “Warning” Conditions .....	3-6
3.3.1.4 Service Req. Error .....	3-7
<b>3.3.2 Paper Jam Sensor</b> .....	<b>3-9</b>
3.3.2.1 Overview .....	3-9
3.3.2.2 Paper Jam Sensor Conditions .....	3-9
3.3.2.3 Resetting the Paper Jam .....	3-9



<b>3.4 TROUBLESHOOTING</b> .....	<b>3-10</b>
<b>3.4.1 Handling Paper Jam</b> .....	<b>3-10</b>
3.4.1.1 Paper Jam at power on .....	3-10
3.4.1.2 Paper Jam at Paper Feed and Transporting .....	3-10
<b>3.4.2 Troubleshooting for Abnormal Operations</b> .....	<b>3-11</b>
3.4.2.1 Abnormal Laser .....	3-11
3.4.2.2 Abnormal Polygon Motor .....	3-11
3.4.2.3 Abnormal Fusing .....	3-11
3.4.2.4 Power can not be turned on .....	3-11
<b>3.4.3 Troubleshooting Print Quality Problems</b> .....	<b>3-12</b>
<b>3.4.4 Horizontal Lines</b> .....	<b>3-14</b>

## DISASSEMBLY AND ASSEMBLY

<b>4.1 OVERVIEW</b> .....	<b>4-1</b>
4.1.1 Precaution for Disassembly and Assembly.....	4-1
4.1.2 Recommended Tools .....	4-2
4.1.3 Specification for Screws .....	4-2
4.1.4 Work Completion Check .....	4-2
<b>4.2 DISASSEMBLY PROCEDURE</b> .....	<b>4-3</b>
4.2.1 Preparation Before Disassembly.....	4-4
4.2.2 Right Cover Removal.....	4-5
4.2.3 Paper Feed Roller Removal .....	4-6
4.2.4 Paper Empty Sensor Removal(PE1).....	4-6
4.2.5 ROM(C215PROG-B) Exchange .....	4-7
4.2.6 Control Panel Removal.....	4-8
4.2.7 Front Cover Removal.....	4-9

<b>4.2.8 Interlock Switch Removal .....</b>	<b>4-10</b>
<b>4.2.9 Main Control Board Removal.....</b>	<b>4-11</b>
<b>4.2.10 Left Cover Removal .....</b>	<b>4-12</b>
<b>4.2.11 Print Head Unit Removal .....</b>	<b>4-13</b>
<b>4.2.12 Paper Feed Roller Unit Removal .....</b>	<b>4-14</b>
<b>4.2.13 Paper Feed Solenoid Removal .....</b>	<b>4-15</b>
<b>4.2.14 Top Cover Removal .....</b>	<b>4-16</b>
<b>4.2.15 Rear Cover Removal.....</b>	<b>4-17</b>
<b>4.2.16 Fusing Unit Removal .....</b>	<b>4-18</b>
<b>4.2.17 Disassembling the Fusing Unit .....</b>	<b>4-19</b>
4.2.17.1 Heater Lamp Removal .....	4-19
4.2.17.2 Thermister, Thermostat Removal.....	4-21
4.2.17.3 Paper Eject Sensor(PS3) .....	4-22
<b>4.2.18 Transfer Roller Exchange .....</b>	<b>4-23</b>
<b>4.2.19 Power Board Removal.....</b>	<b>4-24</b>
<b>4.2.20 High Voltage Board Removal.....</b>	<b>4-26</b>
<b>4.2.21 Paper Sensor(PS1) Removal.....</b>	<b>4-27</b>
<b>4.2.22 Main Motor Removal.....</b>	<b>4-27</b>
<b>4.2.23 Driving Unit Removal.....</b>	<b>4-28</b>
<b>4.3 DISASSEMBLY AND ASSEMBLY FOR OPTIONAL SECOND PAPER FEED UNIT.....</b>	<b>4-29</b>
<b>4.3.1 Second Paper Feed Roller Exchange .....</b>	<b>4-29</b>

## ADJUSTMENT

5.1 ADJUSTMENT.....	5-1
5.1.1 Interlock Switch Position Adjustment.....	5-1

## MAINTENANCE

6.1 MINTENANCE .....	6-1
6.1.1 User Maintenance .....	6-1
6.1.2 Service Maintenance .....	6-1

## APPENDIX

7.1 CONECTOR PIN ASSIGMENTS .....	7-1
7.2 CIRCUIT BOARD COMPONENT LAYOUT .....	7-6
7.3 EXPLODED DIAGRAM.....	7-7
7.4 CIRCUIT DIAGRAM.....	7-17



**CHAPTER**

**1**

**PRODUCT DESCRIPTION**



## 1.1 FEATURES

EPL-5700 is a small and compact A4 size page printer that semiconductor laser beam scanning is applied for. Following shows features.

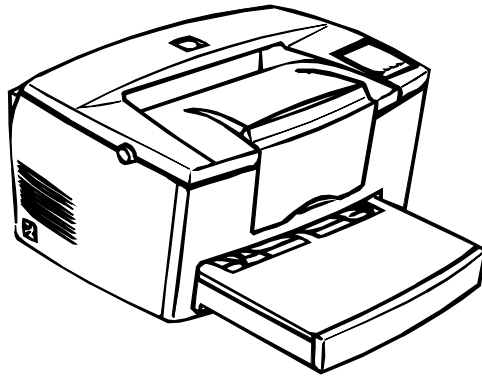


Figure 1-1. Exterior View

### PROCESS SPECIFICATION

- Method: Dry mono-component xerographic method
- Light source: Semiconductor laser
- Photoelectric unit: OPC drum(organic photoconductor)
- Charge: Rotating brush charging type
- Developer: Exposed section developer system
- Toner: Mono-component nonmagnetic toner
- Transfer method: Roller transfer
- Fixing: Heat roller system
- Density regulator: Developer bias variation system(user can regulate)

### PRINT SPEED

- Resolution: 600 dpi
  - Print Speed: 8ppm(A4/LTR/B5/A5),  
6.9ppm(legal)
- \*1:Same with optional cassette

\*2:Regarding printing with custom size(non-standard size)paper, the printing speed will become faster because cleaning takes place automatically.

- First print: 19 seconds(A4/LTR), 18.2 seconds(B5)  
17.3 seconds(A5), 20.2 seconds(legal)
- Warm-up time: 20 seconds or less (at 23 degree Celsius, standard voltage)

### PRINTABLE AREA

- Print area Area within margins of 4mm from each side.  
(Refer to Figure 1-2)  
*Note*) The printable area may change depending on the print mode.

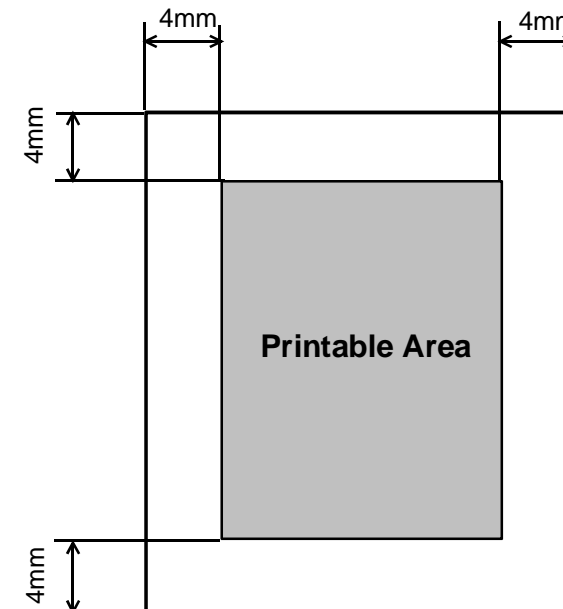


Figure 1-2. Printable Area

## PAPER HANDLING

Table 1-1. Paper Handling

Paper supply method	Capacity	Supplied paper size	Permissible paper thickness
Multipurpose tray	150 sheets*1	Standard paper types are those that fall within the range of those usable sizes given below. 76.2 x 127~ 215.9 x355.6 mm (A4, JIS-B5,A5, Letter, Government letter, Executive, Legal, Government Legal, F4, Half Letter) or Custom size (optional size that falls within the range of standard paper sizes)	Normal paper 60 to 90g/m <sup>2</sup> (16 to 24lb)
	50sheets 20sheets	Japanese official post card*2 Japanese official post card*2 (when printing on back)	Special paper 190g/m <sup>2</sup>
	10 sheets	Envelopes Monarch, C10, DL, C5,C6 International-B5 Labels/OHP/thick pages	Normal paper 60 to 90g/m <sup>2</sup> (16 to 24lb) Thick paper 90 to 157 g/m <sup>2</sup> Special paper (labels, OHP)

Note) \*1 For 20lb(75g/m<sup>2</sup>) paper.

\*2 When printing on the back file of the paper using manual printing, since the paper may curl, a maximum of 20 pages can be set.

Table 1-2. Paper Handling (Cont.)

Paper supply method	Capacity	Supplied paper size	Permissible paper thickness
Manual Feed slot*4	1 sheet	Standard or Custom paper sizes that fall within the range of usable sizes given below. 100x148~215.9x355.6 mm	Normal paper 60 to 90g/m <sup>2</sup> (16 to 24lb) Thick paper 90 to 157g/m <sup>2</sup> Special paper (labels, OHP)
Lower cassette *1,*5	500 sheets*1	A4, LG, LT	Normal paper 60 to 90g/m <sup>2</sup> (16 to 24lb)

Note) \*1: For 20lb(75g/m<sup>2</sup>) paper.

\*4: Manually fed papers are inserted one page at a time above the cover of the paper tray.

\*5: Cassette trays can be used for each of the standard paper sizes. The maximum size of the paper supply including the paper tray is 650 sheets.

## CONSUMABLES

- Name: Developer and Toner cartridge  
Organic Photoconductor Unit
- Life1\* Developer equipment  
(Black colored mono component nonmagnetic toner: Average 6000 sheets.)  
OPC drum(organic photo conductor unit):20000 sheets.

Note 1\*) These number represent the number of printed pages that can be printed assuming continuous printing on an A4 page with print duty of 5%. The life will change based on the print duty and method of printing (continuous printing, intermittent printing, printing density, toner economizing)



**CONTROLLER SPECIFICATION**

- CPU RISC VR4300 100MHz
- RAM Standard 4MB(EDO type)  
SIMM option: 1  
32MB, 16MB, 8MB, 4MB (EDO type, 1 slot)  
Maximum 36MB(4MB(standard) + 32MB(expansion  
SIMM slot)
- ROM Font: 2Mbytes(mounted on main board)  
Program: 4Mbytes (mounted on ROM DIMM board)
- Host interface Standard, Centronics, Bi-direncional parallel  
IEEE-1284 nibble  
ECP  
RS232C Serial  
Type-B I/F: 1 slot

**SOFT SPECIFICATION**

- Control Code Bi-direction EJP
- Emulation ESC/Page mode  
PCL5E mode  
GL/2 mode  
FX mode  
ESC/P2 mode  
I239x  
Post Script level 2(Option)

**ENVIRONMENTAL CONDITION****[Usage conditions including expendable parts]**

- Temperature: 10 to 35 °C
- Humidity: 15% to 85% without condensation
- Air pressure(altitude): 760hPa or more(2500 meters or less)
- Surface angle: 1 degree incline or less (for both front  
to rear and side to side)
- Luminosity: 3000 lux or less(not exposed to direct  
sunlight)

**[Environmental conditions for storage and transportation]**

Temperature	Normal		0 to 35 °C
	Extremes (1/3 of total holding period)	High	35 to 40 °C
		Low	-20 to 0 °C
Humidity	Normal		30 to 85%
	Extremes (1/3 of total holding period)	High	85 to 95%
		Low	10 to 30%
Holding Period			18 months after manufacture

- Shipping Air Pressure: 460 to 760 hPa
- Resistance to shock: For JIS Z0200 1987 Level 1 with no  
abnormalities.  
Dropping direction: 1 corner, 6 sides, 3 edges

**ELECTRICAL SPECIFICATION**

- Power supply:
  - 120 model  
120V +/- 10%, 50-60Hz +/-3Hz
  - 200V model  
220 to 240V +/- 10%, 50-60Hz +/- 3Hz
- Electrical characteristic
  - 1) AC line noise:
    - Pulse width: 50 to 1000 ns
    - Pulse polarity:  $\pm$
    - Repeat: non-simultaneous
    - Modes: common/normal
    - Voltage: 1kv

However, the parts can withstand up to 2kv without damage.
  - 2) Instant cutoff: DIP 100%(for standard voltage-10%) for one cycle with normal print quality.
  - 3) Electrostatic durability:
    - up to  $\pm$  10kv: no hardware errors
    - no unrecoverable software errors for the operator
    - up to  $\pm$  15kv: without damage to components
  - 4) Rush current: 1/2 cycle, 50A or less
  - 5) Insulation resistance: 10 M  $\Omega$  or less
  - 6) Dielectric strength: Assuming the following voltages are input for one minute with no breakdowns.
    - 120V model: AC 1000V(duration of one surge)
    - 200V model: AC1500V(duration of one surge)
  - 7) Leakage current:
    - 3.5mA or less (120V model)
    - 3.5mA or less (200V model)

**DIMENSIONS**

- Dimensions: Main unit 397(W)mm x 463(L)mm x251(H) mm
- Weight: Approximately 7.5Kg(not including expendable or optional parts)

**RELIABILITY AND DURABILITY**

- Product life: Approximately 180000 printed pages or five years, whichever comes first.
- MPBF: 25000 sheets or more  
*Note)* This is the average number of sheets before a breakdown will occur that either requires the change of parts or for which the user is unable to resolve.
- MTBF: 3000 hrs(10 months) or more
- Paper Feed Reliability(for recommended paper or normal paper)
  - Jam rate: 1/2000 or less(not including multiple pages)
  - Misfeed: 1/2000 or less
  - Multiple page feed rate: 1/500 or less
  - Paper wrinkling: 1/1000 or less
  - Paper leading edge folds: 1C or more, 1/1000 or less  
Instances of only 1C excluded\*1  
*Note)\*1:* 1C signifies a corner folded 1mm.

## APPLICABLE CERTIFICATION STANDARDS AND REGULATIONS

The specification of this engine meet the certification standards and regulations below. There are cases in which the standards and regulations that apply differently to products, including the controller, depending on their destination.

### [Safety Standards]

**Table 1-3. Safety Standards**

Model Name	Applicable certification
120V model	UL 1950 CSA 22.2 No.950
200V model	TÜV-GS(EN60950) NEMKO(EN60950)

### [Safety Regulations]

**Table 1-4. Safety Regulations**

Model Name	Applicable certification
120V model	FDA(NCDRH) Class 1
200V model	TÜV-GS(EN60825) NEMKO(EN60825)

### [EMC]

**Table 1-5. EMC**

Model Name	Applicable certification
100V model	CNS 13438 CISPR22(Taiwan) FCC Part15 Subpart B Class B/CSA C108.8 Class B
200V model	EC EMC Directive 89/336/PEC EN55022 Class B EN61000-3-2 EN61000-3-3 EN50082-1 AS 3548(Australia)

- Power consumption: In compliance with international Energy Star standards.
- Others:
  - Toner: Do not effect on human body(in accordance with OSHA, TSCA, EINECS and CSCL)
  - OPC: Does not effect human body(in accordance with OSHA)
  - Ozone emissions: Conforms to UL 478, 5th version.
  - Materials: Conforms to Swiss environmental protection laws(does not include CdS)
- Ozone: 0.02 ppm or less.
- Potential toxicity: OPC, toner, and plastic parts are nontoxic.
- Noise: Stand-by 30 dB(A) or less.  
In operation, 47.0 dB(A) or less.

## POWER CONSUMPTION

- Power consumption

		120V model	220-240V model
Standard Maximum current		5.3A	3.0A
Power consumption	Maximum(during warming up)	580W	580W
Average during continuous printing		Less than 200W	Less than 210W
Standby mode (average)	heater on	Less than 40W	Less than 40W
	heater off*1	Less than 15W	Less than 15W

Note)\*1 Energy star compliant.

- Resistance to vibration: Vibration frequency, 5 to 100Hz, 100 to 5 Hz.  
Acceleration:1G  
Cleaning time:10 minutes(one way)  
Added vibration direction: 3 directions  
Added vibration time: 60 minutes in each direction X,Y, and Z, for 180 minutes total.
- Output paper: Face-down-maximum 100 sheets (for 20lb. (75g/m<sup>2</sup>)paper)  
Face up-maximum 20 sheets(for 20lb. (75g/m<sup>2</sup>) paper, when using the optional face up tray)  
Use the lever on the right side of the printer to switch the front and rear sides of the paper when changing the face up orientation.

## 1.2 PAPER SPECIFICATION

Useable paper types are mentioned below.

### PAPER TYPES

- Normal Paper 60g/m<sup>2</sup> to 90g/ m<sup>2</sup> (16 lbs. to 24 lbs.)  
Copy, bond, and recycled paper in general use.
- Special Paper Labels, Japanese official post cards, OHP film, Color paper, thick paper(90 to 157 g/ m<sup>2</sup>), special DTP paper, letterhead.

Note) lbs:ream weight= ib./500 pages/17x22 g/m<sup>2</sup>:1g/m<sup>2</sup>=0.2659763 lbs.

### CAUTION

- **The paper type listed below can not be used with this printer. They will result in bad printouts, paper jams, and can damage the printer.**
- **Carbon paper, non-carbon paper, thermal transfer paper, impact paper, acidic paper.**
  - **Paper that has gone through a thermal transfer or ink-jet printer.**
  - **Paper that is too thick or too thin.**
  - **Wet(damp) paper.**
  - **Paper to which a special coating has been applied, or colored paper that has gone through surface process.**
  - **Paper that has been lubricated(too smooth or slippery), too rough, or whose texture is different on the front and back.**
  - **Paper with holes for binders or perforations.**
  - **Folder, curled, or damaged paper.**
  - **Paper of irregular shape or not cut with right angles.**
  - **Paper with labels that come off and stick easily.**
  - **Paper with glue, staples, or paper clips attached.**



- *Special ink-jet paper(surface fine paper, glossy paper, glossy film, etc).*

## PAPER CLASSIFICATIONS

Table 1-6.Paper Classification

Paper supply	Standard paper	Normal Paper (60 to 90 g/m <sup>2</sup> )	Special Paper				
			1*	2*	3*	4*	5*
Paper Tray	O	◆	♣	♣	♣	♣	♣
Lower Cassette**	O	◆	X	X	X	X	X

- Note) 1\* OHP  
 2\* Government postcards.  
 3\* Labels.  
 4\*Thick paper(90 to 157g/m2)  
 5\* Envelopes(MON, C10, DL, C5, C6, International-B5)  
 O: Can guarantee paper feed reliability and image quality.  
 ◆: Can guarantee paper feed reliability and image quality. However, this is limited to those paper types used generally.  
 ♣: Can print characters. However, this is limited to those paper types used generally.  
 X: Can not feed.  
 \*\*:Option.

## PAPER SIZE

Table 1-7.Paper Size and Paper Feeding

Paper Type	Paper	Size	Paper Tray	Manual Feed Slot	Optional Lower Cassette
Normal Paper	A4	210x297	O	O	O*
	A5	148x210	O	O	
	JIS-B5	182x257	O	O	
	Letter	(8.5)x(11)	O	O	O*
	Half Letter	(5.5)x(8.5)	O	O	
	Legal	(8.5)x(14)	O	O	O*
	EXE	(7.25)x(10.5)	O	O	
	Government Legal	(8.5)x(13)	O	O	
	Government Legal	(8)x(10.5)	O	O	
	F4	210x330	O	O	
3x5"	3x5" (76.2x127)		O		

- Note) O: O.K  
 \*: Depends on destinations.

Table 1-8. Paper Size and Paper Feeding(Cont.)

Paper Type	Paper	Paper Size (mm/inch)	Paper Tray	Manual Feed Slot
Special Paper	Post Card	100x148	O	O
	Monarch(MO)	98.43x190.5	O	O
	C10	104.78x241.3	O	O
	DL	110x220	O	O
	C5	162x229	O	O
	C6	114x162	O	O
	International-B5	176x250	O	O
	16MO	198x275	O	O

## 1.3 PANEL OPERATION

### 1.3.1 Power Switch

Power switch is located left rear side of the printer. It controls power On/Off.

### 1.3.2 Control Panel

The control panel of EPL-5700 is located right edge of the front printer. There are six LED lights and four non lock type switches.

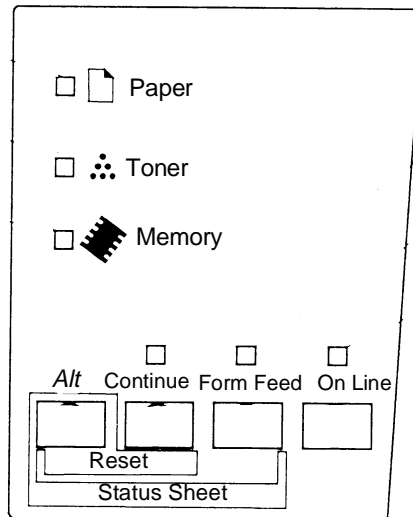


Figure 1-3. Control Panel

#### 1.3.2.1 Switches

- ❑ On line switch: Switches the printer between on line and off line status.
- ❑ Form feed switch: When the printer is off line and data remains in the printer's memory, prints out the data and clears the buffer. If used in combination with the Alt button, a status sheet is printed.
- ❑ Continuous switch: Enables the printer to resume printing after certain maintenance-required conditions or errors have been cleared. If used in combination with the Alt button, the printer is reset.
- ❑ Alternate switch: Use this button in combination with the Continue button in order to stop printing and reset (Warm boot). In the reset condition, if both Alt switch and Continue switch are pressed more than 5 seconds, the printer goes to "Reset All" condition.

#### 1.3.2.2 Lights

- ❑ On Line LED(green): Displays a non-flashing light when the printer is on line, indicating the printer can receive print data. When the printer is off line, this light is off. The light flashes as the system switches between on-line and off-line status.
- ❑ Form Feed LED(yellow): Comes on when data is received and stored in the printer's buffer prior to printing. Flashing indicates the printer is processing data. When no data remains in the printer buffer(the section of memory reserved for receiving data), this light is off.
- ❑ Continue LED(red): Flashes when an error is detected or a maintenance procedure must be performed.
- ❑ Paper LED(yellow): Displays a non-flashing light when a general paper error, or "Printer Open" error has occurred.
- ❑ Toner LED(yellow): Displays a non-flashing light when it is time to change the developer cartridge (toner). Flashes to indicate the toner is low.

- ❑ Memory LED(yellow): Displays a non-flashing light when either a Print Overrun or Mem Overflow error has occurred. Flashes when the resolution is reduced from 600 to 300 dpi, because of lack of memory size.

Refer to Chapter 3 for error conditions.

### ⚠ CAUTION

***This printer has EEPROM to maintain the function setting. Data-writing to EEPROM can not be guaranteed, if the power is turned off during writing. Therefore, sometimes service error call occurs or the panel setting returns to the initial setting by all reset or at the next power on. In order to prevent this, do not turn off the printer at the following conditions, since data-writing to EEPROM is performed.***

- ***From the power is turned on until the On Line light stays on.***
- ***When On-line light is flashing.***

### 1.3.3 List of Panel Setting

This printer has no LCD display in the control panel, so it is not possible to make function settings from the control panel, excluding toner left quantity reset and OPC drum life reset by the special operation and status sheet. Function settings can be performed using "RCP"(remote control panel). In the Table below, note that the bold and italic value in the "Value" column indicates the factory default setting.

Table 1-9. Function Setting for Control Panel

Menu	Item	Value
Test Menu	<ul style="list-style-type: none"> <li>• Status sheet</li> <li>• ESC/Page Font Sample.</li> <li>• LJ4 Font Sample.</li> <li>• ESCP2 Font Sample.</li> <li>• FX Front Sample</li> <li>• 1239X Front Sample.</li> <li>• PS Status Sheet<sup>*1</sup></li> <li>• PS Font Sample<sup>*1</sup></li> <li>• PS Fact Sheet<sup>*1</sup></li> </ul>	
Emulation Menu	<ul style="list-style-type: none"> <li>• Parallel</li> <li>• Serial</li> <li>• AUX<sup>*2</sup></li> </ul>	<b><i>LJ4, ESCP2, I239X, PS<sup>*1</sup>, GL2, AUTO</i></b>
Printing Menu	<ul style="list-style-type: none"> <li>• Paper Source</li> <li>• Page Size</li> <li>• Wide A4</li> <li>• Orientation</li> <li>• Copies</li> <li>• Manual Feed</li> <li>• Resolution</li> <li>• Skip Blank Page</li> </ul>	<ul style="list-style-type: none"> <li>• <b><i>Auto</i></b>, MP, LC1<sup>*3</sup>.</li> <li>• <b><i>A4<sup>*10</sup></i></b>, A5, B5, <b><i>LT<sup>*17</sup></i></b>, HLT, LGL, GLT, GLG, EXE, F4, MON, C10, DL, C5, C6, IB5, CTM.</li> <li>• <b><i>Off, ON</i></b></li> <li>• <b><i>Port</i></b>, Land</li> <li>• <b><i>1-999</i></b></li> <li>• <b><i>Off, On</i></b></li> <li>• <b><i>600, 300</i></b></li> <li>• <b><i>Off, On<sup>*14</sup></i></b></li> </ul>

Table 1-10. Function Setting for the Control Panel(Cont.)

Menu	Item	Value
Tray Size Menu	<ul style="list-style-type: none"> <li>MP Tray Size</li> <li>LC1 Size<sup>*3</sup></li> </ul>	<ul style="list-style-type: none"> <li><b>A4</b><sup>*16</sup>, A5, B5, <b>LT</b><sup>*17</sup>, HLT, LGL, GLT, GLG, EXE, F4, MON, C10, DL, C5, C6, IB5.</li> <li><b>A4</b>, LT, LGL.</li> </ul>
Config Menu	<ul style="list-style-type: none"> <li>RItech</li> <li>Toner Save</li> <li>Density</li> <li>Top Offset, Left Offset</li> <li>Size Ignore</li> <li>Auto Cont</li> <li>Page Protect</li> <li>Image Optimum</li> <li>Paper Type<sup>*5</sup></li> </ul>	<ul style="list-style-type: none"> <li><b>On</b>, Off.</li> <li><b>Off</b>, On.</li> <li><b>3</b>, 4, 5, 1, 2</li> <li>-9.0, <b>-0.0</b>, -99.0 mm step 0.5mm.</li> <li><b>Off</b>, On</li> <li><b>Off</b>, On</li> <li><b>Auto</b>, On</li> <li><b>Auto</b>, Off, On</li> <li><b>Normal</b>, Thin<sup>*5</sup>, Thick, Transprnc.</li> </ul>
Setup Menu	<ul style="list-style-type: none"> <li>Interface</li> <li>Time Out</li> <li>Standby</li> <li>Language</li> <li>Toner</li> <li>Page Count</li> <li>SelectType Init</li> </ul>	<ul style="list-style-type: none"> <li><b>Auto</b>, Parallel, Serial, AUX<sup>*2</sup>.</li> <li>0, 5-<b>60</b>-300</li> <li><b>Enable</b>, Disable</li> <li><b>English</b>, Francais, Deutsch, ITALIANO, ESPANOL, SVENSKA, Dansk, Dederl., SUOMI, Portugues.</li> <li>0~100</li> <li>0~999999999</li> </ul>
Parallel Menu	<ul style="list-style-type: none"> <li>Speed</li> <li>Bi-D</li> <li>Buffer Size</li> </ul>	<ul style="list-style-type: none"> <li><b>Fast</b>, Normal</li> <li><b>Nibble</b>, ECP, Off</li> <li><b>Normal</b>, Maximum, Minimum.</li> </ul>

Table 1-11. Function Setting for the Control Panel(Cont.)

Menu	Item	Value
Serial Menu	<ul style="list-style-type: none"> <li>Word Length</li> <li>Baud Rate</li> <li>Parity</li> <li>Stop Bit</li> <li>DTR</li> <li>Xon/Xoff</li> <li>Buffer Size</li> </ul>	<ul style="list-style-type: none"> <li><b>8</b>, 7</li> <li><b>9600</b>, 19200, 38400, 57600, 300, 600, 1200, 2400, 4800</li> <li><b>None</b>, Even, odd</li> <li><b>1</b>, 2</li> <li><b>On</b>, Off</li> <li><b>On</b>, Off, Robust</li> <li><b>Normal</b>, Maximum, Minimum.</li> </ul>
AUX Menu <sup>*2</sup>	<ul style="list-style-type: none"> <li>Buffer Size</li> </ul>	<b>Normal</b> , Maximum, Minimum.
ESC/Page Menu <sup>*4</sup>	<ul style="list-style-type: none"> <li>Auto CR</li> <li>Auto FF</li> <li>CR Function</li> <li>LF Function</li> <li>FF Function</li> <li>Error Code</li> <li>Avoid Error</li> </ul>	<ul style="list-style-type: none"> <li><b>On</b>, Off</li> <li><b>On</b>, Off</li> <li><b>CR</b>, CR+LF</li> <li><b>LF+CR</b>, LF</li> <li><b>FF+CR</b>, FF</li> <li><b>Ignore</b>, Space</li> <li><b>Off</b>, On</li> </ul>
LJ4 Menu	<ul style="list-style-type: none"> <li>Font Source</li> <li>Font Number</li> <li>Pitch<sup>*15</sup></li> <li>Height<sup>*15</sup></li> <li>SymSet<sup>*7</sup></li> <li>Form</li> <li>Source SymSet<sup>*7</sup></li> </ul>	<ul style="list-style-type: none"> <li><b>Resident</b>, DIMM, Download.</li> <li><b>0</b> ~ available(Max 65535)</li> <li>0.44~<b>10.00</b>~99.99 cpi step 0.01 cpi</li> <li>4.00~<b>12.00</b>~999.75pt step 0.25 pt</li> <li><b>IBM-US</b>, Roman-8, ECM94-1, 8859-2 ISO, 8859-9 ISO, IBM-DN, PcMuktiling, PcE. Europe, PcTk437, WiAnsi, WiE.Europe, WiTurkish, DeskTop, PsText, VeInternati, VeUS, MsPublishin, Math-8, PsMath, PiFont, Legal, UK, ANSI ASCII, Swedis2, Intalian, Spanish, German,Norweg1, Fench2, Windows.</li> <li>5~<b>60</b><sup>*17</sup>~<b>64</b><sup>*16</sup>~128 Lines.</li> <li>0~<b>277</b>~3199</li> </ul>



Table 1-12. Function Setting for the Control Panel(Cont.)

Menu	Item	Value
LJ4 Menu	Dest Symset	0~277~3199
GL2 Menu	<ul style="list-style-type: none"> <li>GL-Mode</li> <li>Scale</li> <li>Origin</li> <li>Pen</li> <li>End</li> <li>Join</li> <li>Pen0</li> <li>Pen1</li> <li>Pen2<sup>*6</sup></li> <li>Pen3<sup>*6</sup></li> <li>Pen4<sup>*6</sup></li> <li>Pen5<sup>*6</sup></li> <li>Pen6<sup>*6</sup></li> </ul>	<ul style="list-style-type: none"> <li>GLlike, <b>LJ4GL2</b></li> <li><b>Off</b>, A0, A1, A2, A3</li> <li><b>Corner</b>, Center</li> <li><b>Pen0</b>, Pen1, Pen2<sup>*6</sup>, Pen3<sup>*6</sup>, Pen4<sup>*6</sup>, Pen5<sup>*6</sup>, Pen6<sup>*6</sup></li> <li><b>Butt</b>, Square, Triangular, Round.</li> <li><b>Mitered</b>, Miteredbeveled, Triangular, Round, Beveled, None.</li> <li>0.05~<b>0.35</b>~5.00mm step 0.05mm.</li> <li>0.05~<b>0.35</b>~5.00mm step 0.05mm.</li> <li>0.05~<b>0.35</b>~5.00mm step 0.05mm.</li> <li>0.05~<b>0.35</b>~5.00mm step 0.05mm.</li> <li>0.05~<b>0.35</b>~5.00mm step 0.05mm.</li> <li>0.05~<b>0.35</b>~5.00mm step 0.05mm.</li> <li>0.05~<b>0.35</b>~5.00mm step 0.05mm.</li> </ul>
PS Menu	<ul style="list-style-type: none"> <li>Error Sheet</li> <li>Protect Level</li> <li>MicroGray</li> </ul>	<ul style="list-style-type: none"> <li><b>Off</b>, On</li> <li><b>1</b>~5</li> <li><b>On</b>, Off</li> </ul>

Table 1-13. Function Setting for the Control Panel(Cont.)

Menu	Item	Value
ESCP2 Menu	<ul style="list-style-type: none"> <li>Font</li> <li>Pitch</li> <li>Condensed</li> <li>T. Margin</li> <li>Text</li> <li>CGTable<sup>*7</sup></li> <li>Country</li> <li>Auto CR</li> <li>Auto LF</li> <li>Bit Image</li> <li>ZeroChar</li> </ul>	<ul style="list-style-type: none"> <li><b>Courier</b>, Prestige, Roman, Sans, serif, Roman T, Orator S, Sans H, Script, OCR A, OCR B.</li> <li><b>10cpi</b>, 12cpi, 15cpi, Prop.</li> <li><b>Off</b>, On</li> <li>0.40~<b>0.50</b>~1.50 inch step 0.05 inch</li> <li>1~<b>62</b><sup>*17</sup> <b>66</b><sup>*16</sup>~available (Max 81) Lines</li> <li><b>PcUSA</b>, Italic, PcMultiln, PcPortugue, PcCanFrenc, PcNordic, PcTurkish2, PcE. Europe, BpBRASCII, BpAbicomp</li> <li><b>USA</b>, France, Germany, UK, Denmark, Sweden, Italy, Spain1, Japan, Norway, Denmark2, Spain2, LatinAmeric, Korea, Legal.</li> <li><b>On</b>, Off</li> <li><b>Off</b>, On</li> <li><b>Dark</b>, Light, BarCode</li> <li><b>0</b>, <math>\phi</math></li> </ul>
FX Menu	<ul style="list-style-type: none"> <li>Font</li> <li>Pitch</li> <li>Condensed</li> <li>T.Margin</li> <li>Text</li> <li>CGTable</li> <li>Country</li> </ul>	<ul style="list-style-type: none"> <li><b>Courier</b>, Prestige, Roman, Sans serif, Script, Orator S, OCR A, OCR B</li> <li><b>10cpi</b>, 12cpi, 15cpi, Prop.</li> <li><b>Off</b>, On</li> <li>0.40~<b>0.50</b>~1.50 inch step 0.05 inch</li> <li>1~<b>62</b><sup>*17</sup> <b>66</b><sup>*16</sup>~available (Max 81) Lines</li> <li><b>PcUSA</b>, Italic, PcMultiln, PcPortugue, PcCanFrenc, PcNordic, PcTurkish2, PcE. Europe, BpBRASCII, BpAbicomp</li> <li><b>USA</b>, France, Germany, UK, Denmark, Sweden, Italy, Spain1, Japan, Norway, Denmark2, Spain2, LatinAmeric</li> </ul>

Table 1-14. Function Setting for the Control Panel(Cont.)

Menu	Item	Value
FX Menu	<ul style="list-style-type: none"> <li>Auto CR</li> <li>Auto LF</li> <li>Bit Image</li> <li>ZeroChar</li> </ul>	<ul style="list-style-type: none"> <li><b>On</b>, Off</li> <li><b>Off</b>, On</li> <li><b>Dark</b>, Light, BarCode</li> <li><b>0</b>, <math>\phi</math></li> </ul>
1239X Menu	<ul style="list-style-type: none"> <li>Font</li> <li>Pitch</li> <li>Code Page</li> <li>Text</li> <li>Auto CR</li> <li>Auto LF</li> <li>Alt.Graphic</li> <li>Bit Image</li> <li>ZeroChar</li> <li>CharacterSet</li> </ul>	<ul style="list-style-type: none"> <li><b>Courier</b>, Prestige, Roman, Sans serif, Script, Orator S, OCR A, OCR B</li> <li><b>10cpi</b>, 12cpi, 15cpi, 17cpi, 20cpi, 24cpi, Prop.</li> <li><b>437</b>, 850, 860, 863, 865</li> <li>0.30~<b>0.40</b>~1.50 inch step 0.05 inch</li> <li>1~<b>63</b><sup>*17</sup>~<b>67</b><sup>*16</sup>~available (Max111)Lines</li> <li><b>Off</b>, On</li> <li><b>Off</b>, On</li> <li><b>Off</b>, On</li> <li><b>Dark</b>, Light, BarCode</li> <li><b>0</b>, <math>\phi</math></li> <li><b>1</b>, <b>2</b></li> </ul>

## Note)

- \*1: Can only be selected when Parrot-V option.
- \*2: Can only be selected when Type-BI/F option is installed.
- \*3: Can only be selected when optional lower cassette is installed.
- \*4: These item will not be displayed on the panel and can not select or change from the RCP etc. And these items will not be printed on status sheet. Also these items will be hidden to the users.
- \*5: Normal Select when using normal paper.  
Thin Invalid for EPL-5700. This setting is only possible to change by EPL command, but if printer receive this command, internal setting will force to set to Normal setting.  
Thick Select when using narrow media such as envelopes, postcards, etc.
- \*6 Can only be selected in GLlike mode.
- \*7 When the NLSP font DIMM is added, the selectable SymSet and CGTable for RCP for DOS are added. Following symbol set will be added.  
For LJ4 mode:  
Pclcelandic<sup>\*8</sup>, PCLt774<sup>\*8</sup>, PcTurk1<sup>\*8\*9</sup>, PcPortugues<sup>\*8</sup>, PcEt850<sup>\*8</sup>, PcTurk2<sup>\*8\*9</sup>, PcCanFrench<sup>\*8</sup>, PcSI437<sup>\*8</sup>, PcNordic<sup>\*8</sup>, 8859-3ISO<sup>\*8</sup>, 8859-4ISO<sup>\*8</sup>, WiBaltic<sup>\*8</sup>, WiEstonian<sup>\*8</sup>, WiLantvian<sup>\*8</sup>, Mazowia<sup>\*8\*12</sup>, CodeMJK<sup>\*8\*12</sup>, BpBRASCI<sup>\*8</sup>, BPAbicomp<sup>\*8</sup>, PcGk437<sup>\*8\*10</sup>, PcGk851<sup>\*8</sup>, PcGk869<sup>\*8\*10</sup>, 8859-7ISO<sup>\*8\*10</sup>, WiGreek<sup>\*8</sup>, Europe3<sup>\*8</sup>, PcCy855<sup>\*8\*11</sup>, PcCy866<sup>\*8\*11</sup>, PCLt866<sup>\*8</sup>, 8859-5ISO<sup>\*8</sup>, WiCyrillic<sup>\*8</sup>, Bulgarian<sup>\*8\*11</sup>, PcUkr866<sup>\*8</sup>, Hebrew7<sup>\*8</sup>, 8859-8ISO<sup>\*8</sup>, Bebrew8<sup>\*8</sup>, PcHe862<sup>\*8</sup>, Arabic8<sup>\*8</sup>, PcAr864<sup>\*8</sup>, 8859-6ISO<sup>\*8</sup>, OCR A<sup>\*8</sup>, OCR B<sup>\*8</sup>
- For ESCP2 mode:  
PcSI437<sup>\*8</sup>, PCTurkish1<sup>\*8</sup>, Pclceiandic<sup>\*8</sup>, 8859-ISO<sup>\*8</sup>, Mazowia<sup>\*8</sup>, CodeMJK<sup>\*8</sup>, PcGk437<sup>\*8</sup>, PcGk851<sup>\*8</sup>, PcGk869<sup>\*8</sup>, 8859-7ISO<sup>\*8</sup>, PcCy855<sup>\*8</sup>, PcCy866<sup>\*8</sup>, Bulgarian<sup>\*8</sup>, PcUkr866<sup>\*8</sup>, Hebrew7<sup>\*8</sup>, Hebrew8<sup>\*8</sup>, PcAr864<sup>\*8</sup>, PcHe862<sup>\*8</sup>.
- \*8 Indicated only when NLSP Bitmap3 Font ROM for Turkey<sup>\*13</sup>.
- \*9 Indicated only when NLSP EDG OEM Scalable Font ROM for Turkey<sup>\*13</sup>.

- \*10 Indicated only when NLSP EDG OEM Scalable Font ROM for Greek\*<sup>13</sup>.
- \*11 Indicated only when NLSP EDG OEM Scalable Font ROM for Cyrillic\*<sup>13</sup>.
- \*12 Indicated only when NLSP EDG OEM Scalable Font ROM for Latin\*<sup>13</sup>.
- \*13 When changing the "SymSet" to this value, "Font Source" and "Font Number" is set to "Resident" and "0". So it is necessary to change "Font Source" and "Font Number" to the font which supports this symbol set.
- \*14 Only applied to LJ4 and ESC/Page mode.
- \*15 Either pitch or height will be displayed.(decided by selected font)
- \*16 Factory setting for Europe and Pacific.
- \*17 Factory setting for North America.

## 1.3.4 Special(alternative) Operation

### 1.3.4.1 Operation at Power On

After turning the power on while pressing a particular button, and keep pressing the switch until the paper feed lamp, toner lamp and memory lamp are turned on, following function will start.

- Hexadecimal Damp
  - Turn on the power while pressing the Form Feed switch, then the printer will enter damp mode. The received data is converted by hexadecimal ASCII and printed out.
  - This function is canceled by Warm Boot(see page 1-8) or turning power again.
- Toner Reset
  - Turn on the power while pressing On Line switch and Form Feed switch, the left toner quantity is reset and becomes toner full condition. (E■■■■F)
  - Then, printer returns to the normal condition.
- OPC Drum life reset
  - Turn on the power while pressing On-line switch and Continue switch. The printer sets OPC drum life 100%.
  - Then, printer returns to the normal condition.

Following is not opened to the users.

- Initialization of EEPROM
  - Turn on the power while pressing On-line switch, Continue Switch and Alt switch. Then, EEPROM setting returns to the original settings, which were set at the factory. All setting including the total print count is cleared.
  - Then, printer goes to Warm Boot and returns to the normal condition.

- ❑ Initialization of Panel Setting Values
  - Turn on the power while pressing Continue switch, then the printer resets panel setting values to the original setting which were set at the factory.
  - Then, printer goes to Warm Boot and returns to the normal condition.

### 1.3.4.2 Up-dating ROM Program

Since the ROM programs, which were produced during the initial mass-production, are using Flash-ROM, they can be up-dated through the parallel interface from the host computer, when it becomes necessary to up-date.

- ❑ Procedure for up-dating
  1. Connect the printer and host computer by parallel interface cable.
  2. Turn the power of the printer on, while pressing On-line, Form Feed and Continue switches.
  3. Stop pressing switches after Paper, Toner and Memory lights turn on. Continue light and Form Feed light turns off 3 seconds after other lights turn on with flashing On-line light. The printer is ready to receive the program data from the host computer.
  4. Transfer the program data by COPY command of DOS from the host computer, as it is shown below.

>COPY\_/B\_File Name\_LPT1 press Return key.

Note) ”\_” above means to take one space.

#### ✓CHECK POINT

***Printer should be receiving condition before the data is sent from the host computer.***

The printer indicates that old program is being erased, turning the Toner, Memory and Form Feed lights on and blinking the on-line light. Then, the printer indicates that new program is being written, turning the Memory and Form Feed lights on and blinking On-line light.

5. On-line light blinks and other lights turns off after up-date process is completed normally.
6. Press On-line switch and re-boot the printer.

#### ⚠CAUTION

***If you fail to up-date the program ROM correctly, Service Req. Error appears and the printer will not be able to start.***

- ❑ Solution when error occurs.
 

If up-dating ROM fails, error is indicated and goes to Check SUM error (service req. error) without appropriate operations.

  - Write Error
 

Because of defective device of Flash-ROM or defective confection with DIMM slot, Paper, Continue and Form Feed lights turn on while writing or erasing program, then On-line light blinks and light error is indicated. Operation is canceled by pressing Alt switch. In this case, old program still remains and transferred data is red but abandoned. Up-date is proceeded by pressing On-line switch, but the printer does not operate well.
  - Data Error
 

Data error is indicated by turning Toner, Continue and Form Feed lights on and blinking On-line light. Operation is canceled by pressing Alt switch. In this case, old program still remains and transferred data is red but abandoned. Up-date is proceeded by pressing On-line switch, but the printer does not operate well.
  - Address Error
 

This error occurs when writing address to program ROM is done out of range. Address error is indicated by turning Toner, Continue and Form Feed lights on and blinking On-line light. Operation is canceled by pressing Alt switch. In this case, old program still remains and transferred data is red but abandoned. Up-date is proceeded by pressing On-line switch, but the printer does not operate well.
  - Check SUM Error of Program ROM
 

When up-dating ROM fails, Check SUM error appears. Memory and Continue lights turn on and On-line light blinks to indicate Check SUM error. Press On-line switch and re-boot the printer.

## 1.4 OPTIONS AND CONSUMABLE

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Following shows options and consumable for EPL-5700.

**Table 1-15. Printer Options**

Name	Code
500 Sheet Lower Paper Cassette	C81287*
Face Up Tray	C81286*
Operational memory module	Refer to Reference Guide
EPSON Script Level 2 module	C83229*
Optional Interface Cards;	
• Optional Ethernet Card	• C82357*/C82362*
• 32KB Serial Interface Card	• C82307*
• 32KB Parallel Interface Card	• C82310*
• Coax Interface Card	• C82314*
• Twinax Interface Card	• C82315*
• AppleTalk Interface Card	• C82312*
• GPIB Interface Card	• C82313*

*Note*)\* The asterisk(\*) is a substitute for the last digit of the product number, which varies by country.



**CHAPTER**

**2**

**OPERATING PRINCIPLES**





## 2.1 OPERATING PRINCIPLES OF MECHANISM

### 2.1.1 Overview

Mechanism part of this printer consists of rollers, gears and main motor, which causes driving power in order to load the paper.

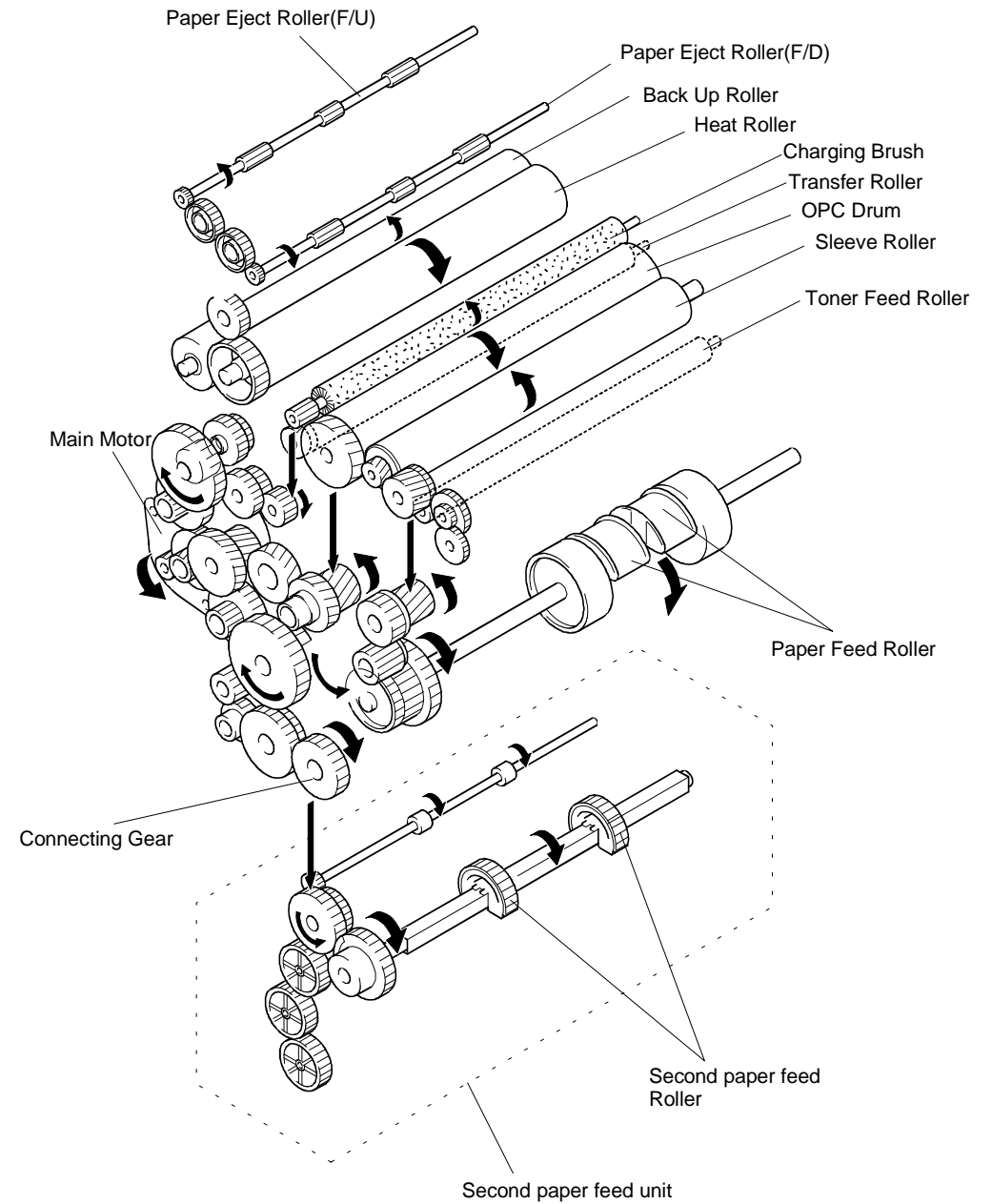


Figure 2-1. Mechanism Parts

## 2.1.2 Paper Path

There are 2 kinds of paper feedings; multi paper feed tray(150 sheets) and manual feed(1 sheet). Optional second paper feed unit(500 sheets) can be installed.

The paper once loaded is carried to the transfer roller → Fusing roller → Paper eject roller → Paper eject tray.

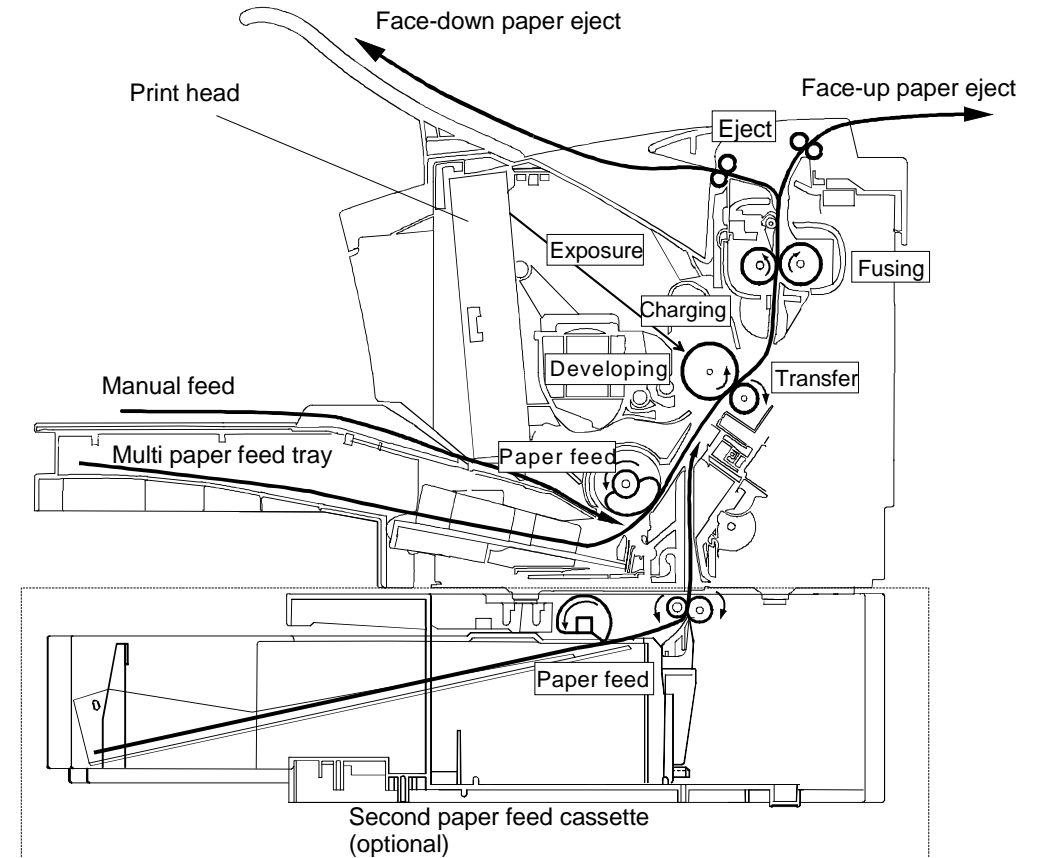


Figure 2-2. Paper Path

## 2.1.3 Paper Feed Mechanism

Paper feed mechanism is shown below.

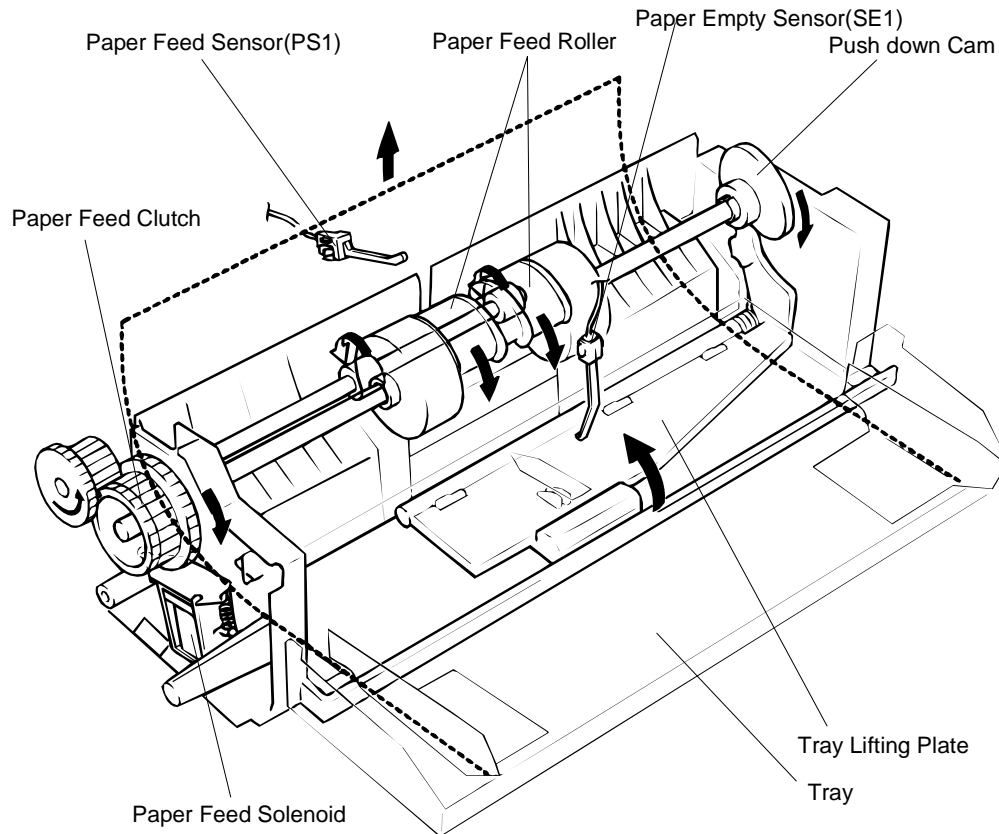


Figure 2-3. Paper Feed Mechanism

### 2.1.3.1 Paper Feed Operation

1. When the paper feed solenoid(SL1) is turned on, the driving power from main motor(M1) is transmitted to the paper feed roller through the paper feed clutch(one way clutch), then, the paper feed roller rotates.
2. At the same time, the push down cam also rotates, then, the tray lifting plate stands up. The paper in the tray is carried into the printer by the paper feed roller. (see figure2-4)

3. Separation pad method is used in order to separate each paper and prevents of feeding the second paper together.
4. Since there is no paper size sensor mechanism in the multi paper feed tray, the printer detects the length of paper by ON time of paper feed sensor(PS1), and judges the paper size. So, even if the paper has the same length, the printer judges the paper as the same size even its width is different.

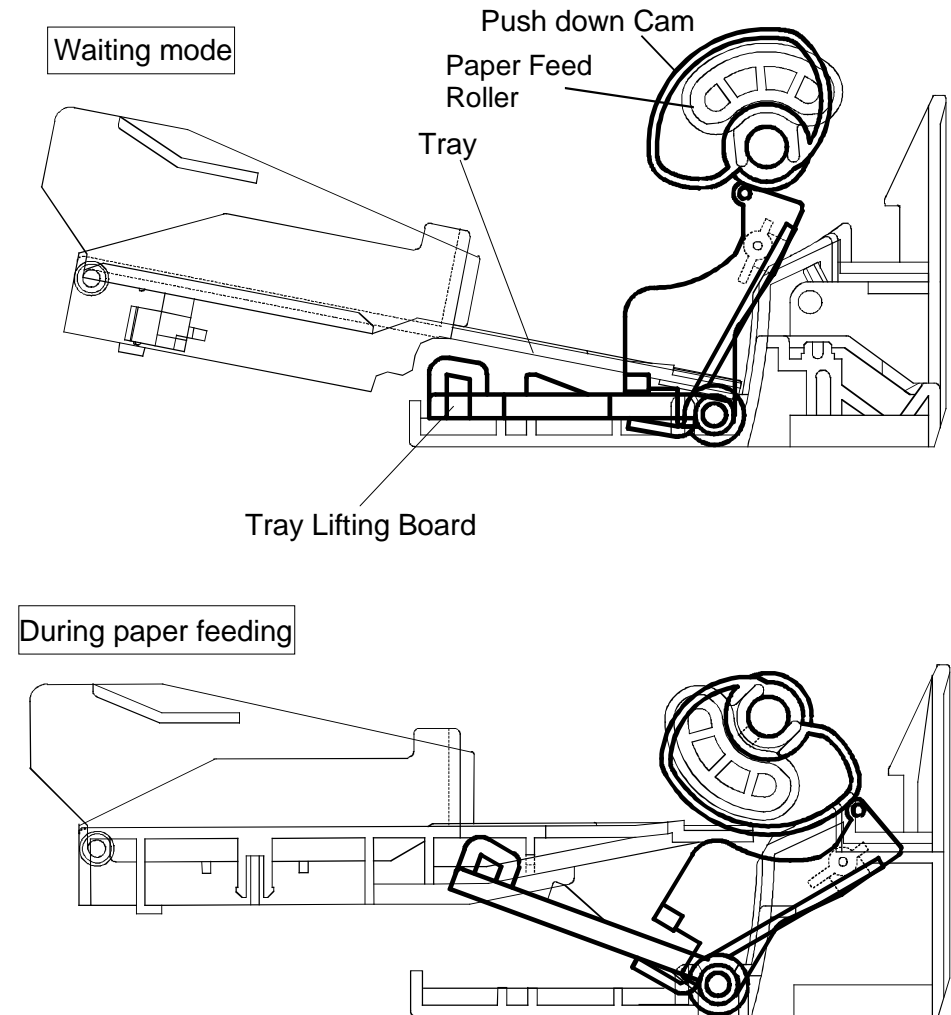


Figure 2-4. Paper Feed Operation

### 2.1.3.2 Paper Empty Sensor

Paper empty sensor(PE1) is mounted at the upper parts of the multi paper feed tray and detects if there is any paper in the tray or not.

If there is a paper in the tray, actuator stands up and the sensor goes to OFF condition. Also, if there is no paper, actuator falls into the hole of tray, and the sensor goes to ON condition.

### 2.1.4 Second Paper Feed Unit(Optional)

#### 2.1.4.1 Mechanism

Since second paper feed unit does not have driven motor, the motive power for feeding paper and carrying paper is transferred from the connecting gear on the main motor. Paper feed method is the same as from multi paper feed tray.

As separation method, separation pad method is used for multi paper feed tray, but the separator claw is used for the second paper feed unit.

The separator claw is the method that uses elasticity between the separator installed at the paper feed cassette and the paper. Only one paper is fed at one time paper feed operation. Therefore, it is not good for the thick paper, but it is good for thin paper. Paper feed solenoid(SL21) is controlled from printer body side through the relay board of the second paper feed unit.

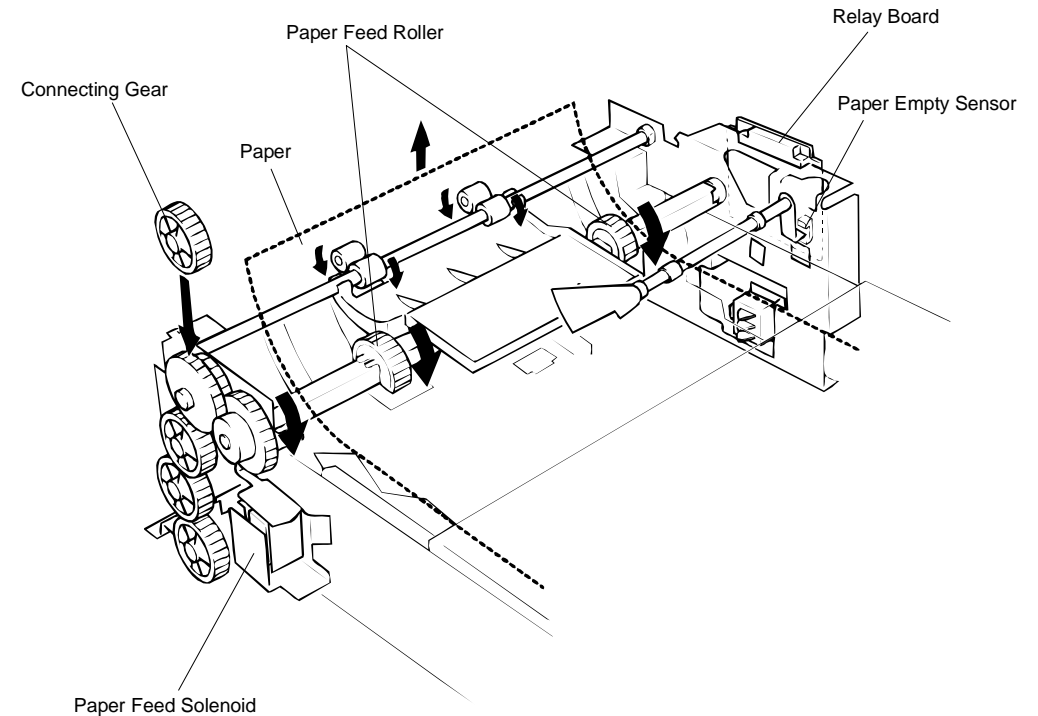


Figure 2-5. Second Paper Feed Unit Mechanism

### 2.1.4.2 Paper Empty Sensor

On the relay board, the paper empty sensor is mounted and detects if there is any paper in the paper feed cassette. If there is any paper in the cassette, the actuator is stood up, and the sensor goes to OFF condition. If there is no paper, the actuator falls into the hole on the paper lifting up plate, and the sensor is turned ON.

### 2.1.4.3 Cassette Type Sensor

Cassette type sensor switch with sector-shaped lever is mounted on the second paper feed unit. When the cassette for each paper size is inserted, the switch presser on the right side of each cassette pushes the lever according to the paper size. Then, the cassette type sensor switch is turned On or Off. This switch is the 3-consecutive switch, and the printer distinguishes the cassette type (paper size) by combination of ON/OFF condition of each switch.

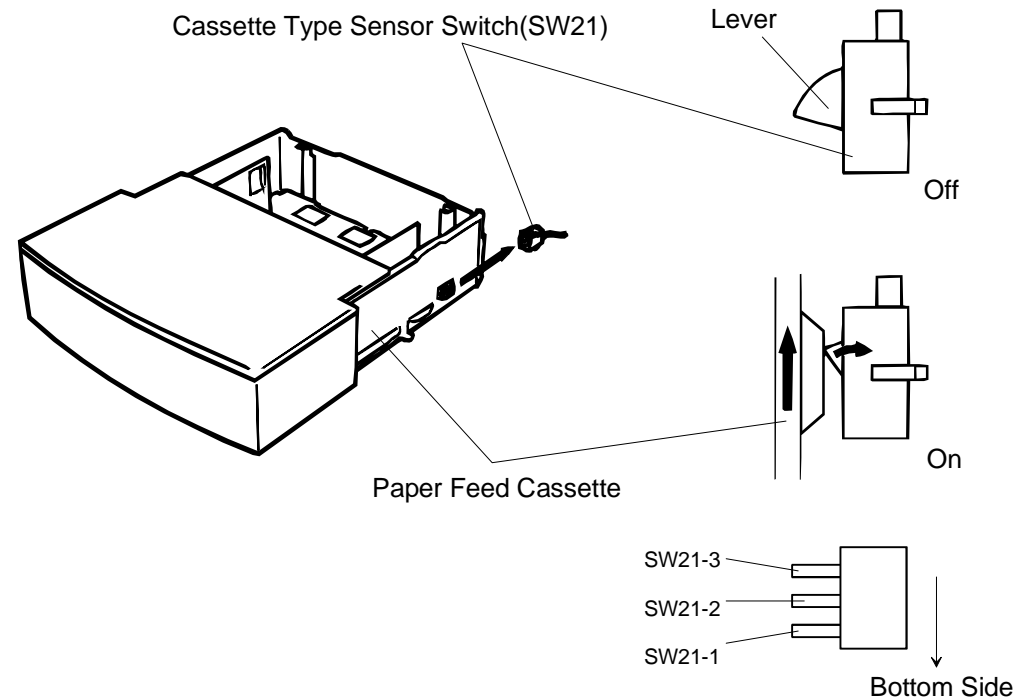


Figure 2-6. Cassette Type Sensor Mechanism

## 2.1.5 Laser Exposure

An electrostatic latent image is created on the OPC drum by the laser beam emitted from the print head. In order to count appropriate timing to print the image, following control is performed.

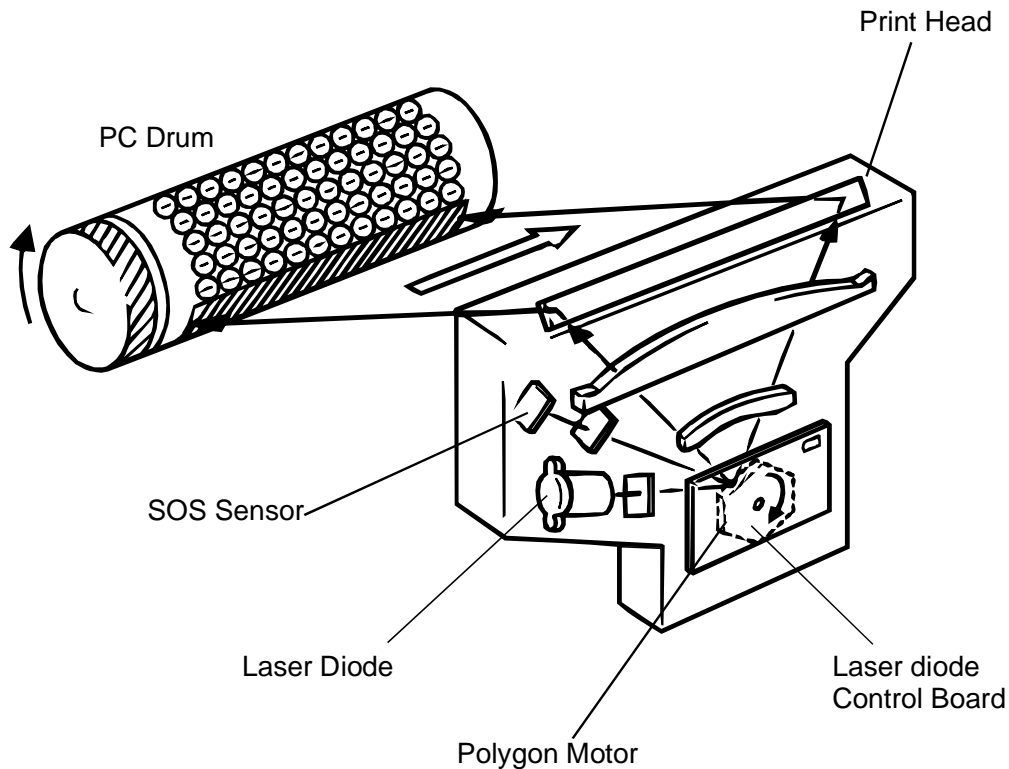


Figure 2-7. Exposure Mechanism

### 2.1.5.1 Sub Scanning Direction(Vertical scanning direction)

1. After the printer receives printing signal, the polygon motor(M2) and main motor(M1) rotate, and paper feeding starts.
2. After the fed paper tip turns ON the paper feed sensor(/TOD signal), main control circuit sends /VIDEO signal to the print head, and printing starts.
3. When the print starting position moves from the first line to the second line, it is moved down by delaying emitting time of the /VIDEO signal.

### 2.1.5.2 Main Scanning Direction(Horizontal scanning direction)

In order to make the timing of laser emission, which is emitted every one line is scanned, SOS sensor is mounted on the laser diode control board.

### 2.1.5.3 Printable Area

1. Controller sends /VIDEO signal, which suits the paper size, to the engine.
2. Controller determines print starting position by /TOD signal(sub scanning direction) sent from engine and /HSYNC signal.
3. Print head starts laser exposure after receiving /VIDEO signal.

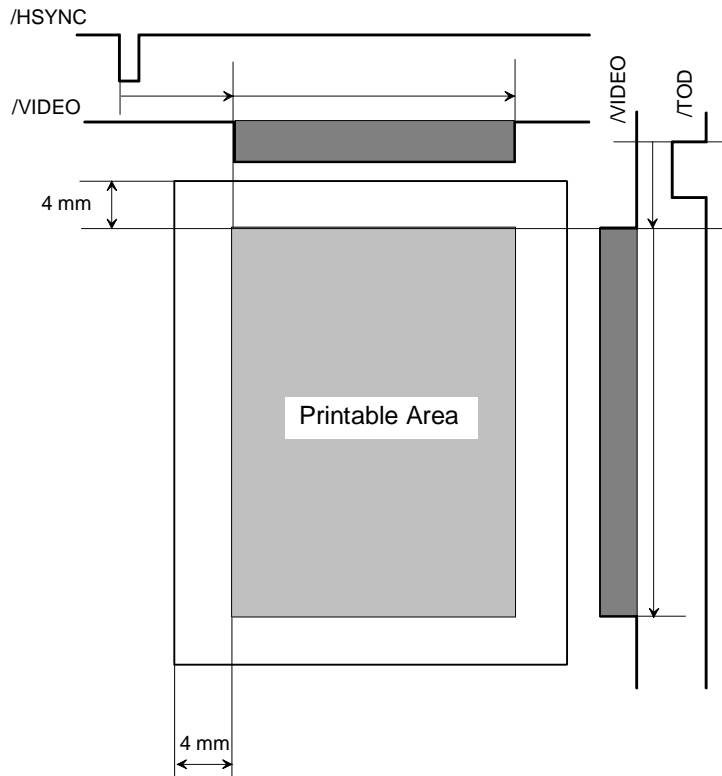


Figure 2-8. Printable Area

### 2.1.6 Charging Process

#### 2.1.6.1 Overview (Refer to Figure2-9 on the next page)

It is charged by giving static electricity to OPC drum(Organic Photoconductor) before laser exposure.

Surface of OPC drum is charged by rotation brush and pre-charging film. Electric potential on the surface of OPC drum after charging is about 800 V. Charging by rotation brush and pre-charging film has low rate of ozone occurrence by corona discharge, and also has low voltage because of direct charging to the OPC drum. Also, it is excellent in uniformity of charge potential and stability. Rotation brush is rotated when the driving power is transmitted from main motor(M1) to the gear of the rotation gear. The surface of the brush is charged by pulse(40Hz) duration -1286 VDC and -336 V.

Before charging by rotation brush, pre-charging film performs charging in advance in order to improve efficiency of charging. -1280VDC is provided to pre-charging film through the diode from pulse, which is charged to the rotation brush. Paper powder cleaner removes paper dust attached at the OPC drum. The surface abrasive removes obstacles on the OPC drum that can not be removed by paper powder cleaner so that it does not give bad influence on the printing quality.

### 2.1.6.2 Cleaning OPC drum

Toner which is not transferred to the paper because of paper jam or paper size error needs to be cleaned since it remains on the OPC drum and makes its surface dirty. Cleaning sequence is as follows.

1. Although toner on the OPC drum is collected by the rotation brush, since it is accumulated on the surface, toner which is charged plus is changed to minus by charging bias  $-1280\text{VDC}$  to the rotation brush. At this time, reversed bias ( $-1\text{KV}$ ) is charged to the transfer roller.
2. Toner moves down to the OPC drum side whose electric potential is low, and is collected in the development part.

It goes to this cleaning at the idling state when the cover is closed after the paper jam is cleared. Also, it goes to this cleaning sequence at the size error.

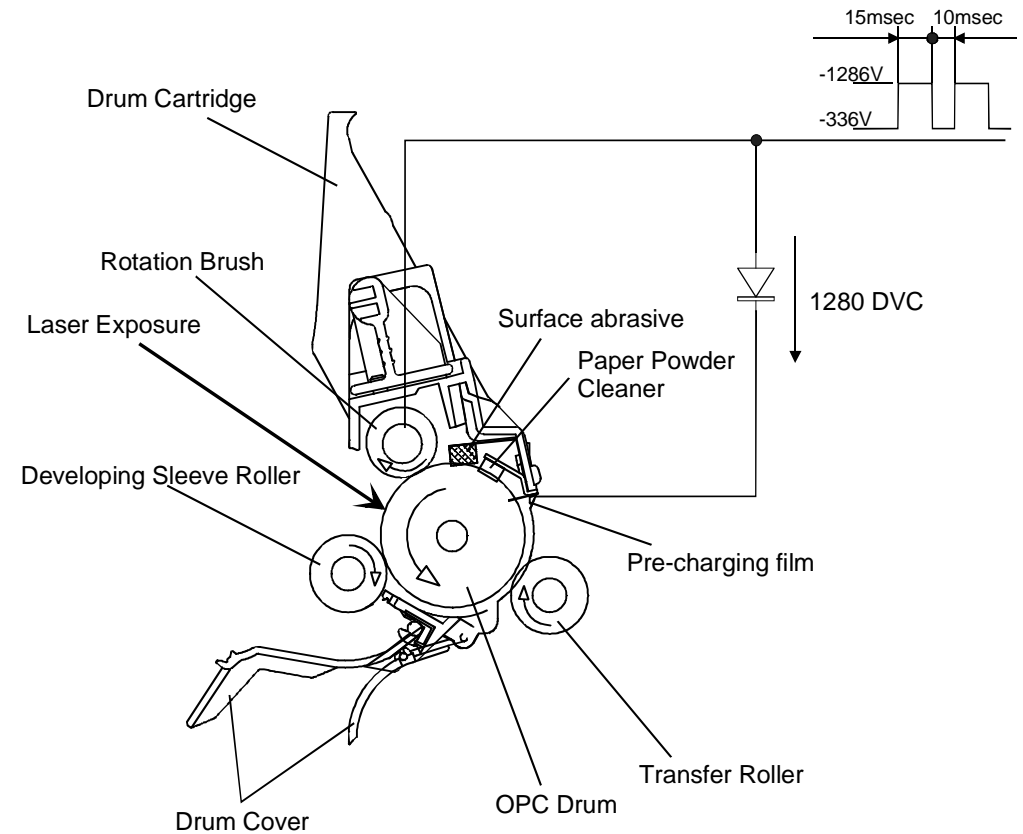


Figure 2-9. Charging Mechanism



## 2.1.7 Developing

### 2.1.7.1 Overview

Toner image is created by giving toner to the electrostatic image on the OPC drum.

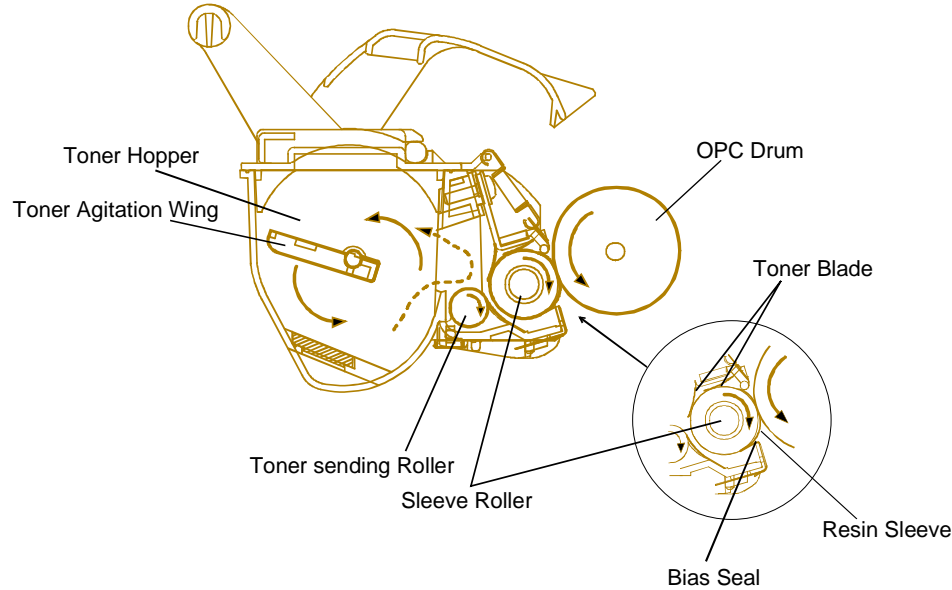


Figure 2-10. Developing Mechanism

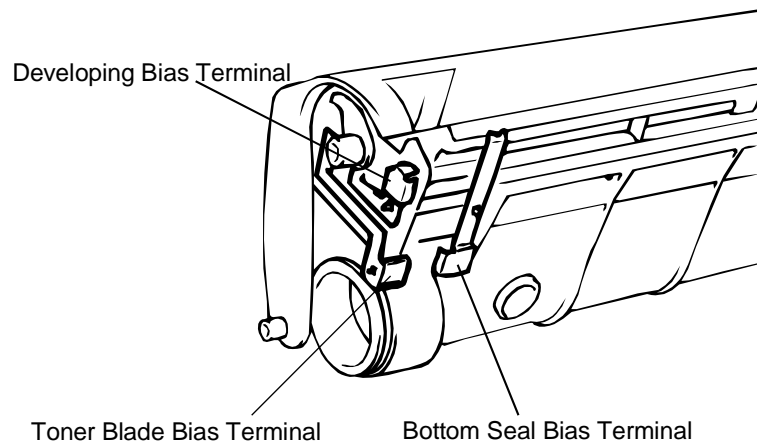


Figure 2-11. Bias Terminals

### 2.1.7.2 Function of each parts in the development part

Table below shows each parts with its function.

Table 2-1. Parts of Developing Mechanism

Name	Function
Toner Hopper	Toner is in.
Toner agitation wing	It agitates toner hopper inside, and sends toner to the roller part.
Toner sending roller	Transfers toner to the sleeve roller part.
Sleeve roller	Rotates resin sleeve.
Resin sleeve	Transfers toner to the OPC drum surface.
OPC drum	Creates image on the surface by laser beam. Performs development by resin sleeve, and transports the developed image to the paper surface.
Toner blade	Put the toner thin and evenly on the resin sleeve. Charges toner minus between toner blade and resin sleeve.
Bias seal	Collects toner which does not attach to the OPC drum.

The developing bias changes voltage as follows, in order to enable the printer to adjust printing tones.

Table 2-2. Tone Adjustment by Developing Bias Changes

	+100V	Developing Off (Reversed bias)
1	-240V	Light
2	-260V	↑ Initial Value ↓
3	-280V	
4	-300V	
5	-313V	Dark
6	-326V	
7	-339V	

Note) During the print start or cleaning, reversed bias is charged in order to prevent the toner of developing part from moving to the OPC drum.

## 2.1.8 Transfer Process

### 2.1.8.1 Overview

This process is to transfer the toner image, which is created on the developing process, to the OPC drum. Transfer roller is charged with transfer bias(+3KV).

Transfer method is not the corona transfer but roller transfer method by the transfer roller. In the roller transfer, ozone caused by corona discharge does not occur, and chances of dislocation for the transferred image is very small, since the paper is always sandwiched between drum and transfer roller during printing.

The transfer current is adjusted from 6 to 10  $\mu$  A (8  $\mu$  A is initial value), according to the paper type and printing duty. This can improve the effectiveness of the transfer, especially under the high temperature with high humidity environment. Left over electric potential on the paper is removed by the discharge needle. Since the left toner from OPC drum attach to the transfer roller, it is necessary to clean the transfer roller. In the cleaning, the reversed bias(-1KVDC) is charged on the transfer roller and returns the toner to the OPC drum. This cleaning sequence is performed with OPC drum cleaning. Even at the cleaning of the transfer roller before printing, the reversed bias(-1KV) is charged on the transfer roller.

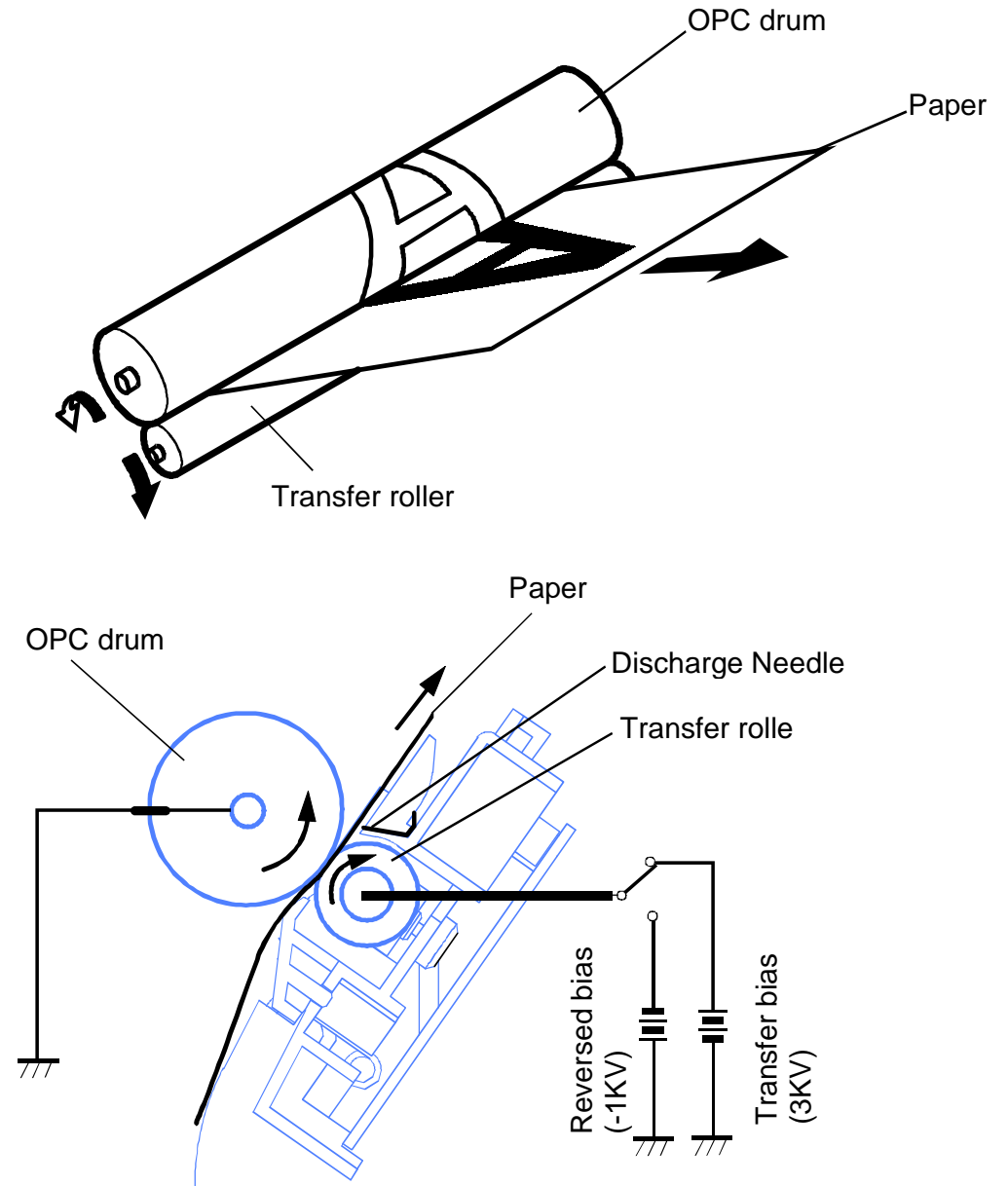


Figure 2-12. Transfer Mechanism

## 2.1.9 Fusing Process

### 2.1.9.1 Overview

In this process, toner which is transferred to the paper in the transfer process is fused to the paper. Fusing system this printer uses is the heat roller fusing system. The toner on the paper is melted by pressure from the paper traveling through the back up roller and the heat roller, which is heated up by the heater lamp. The heat roller is mounted at 200M  $\Omega$ . This prevents the transfer current from leaking along with the paper (electrostatic offset).

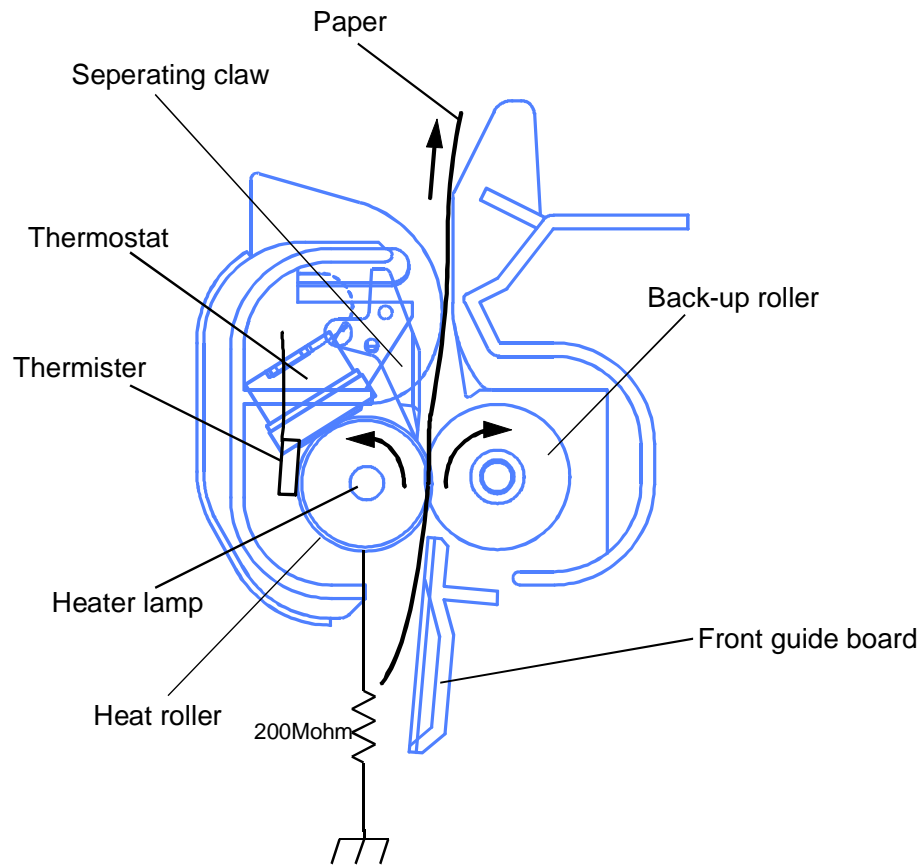


Figure 2-13. Fusing Mechanism

### 2.1.9.2 Fusing Temperature Control Circuit

The thermister (TH1) detects the surface temperature of the fusing heat roller, and input analog voltage into IC201-78. According to the detected temperature, the heater lamp (H1) is turned On or Off by the heater lamp On/Off signal, which is input by IC201-55, and controls the temperature of the fusing part.

The heater lamp is 450W. 3 different voltages are used according to the destination; 100V, 120V and 230V.

If the heat lamp is not turned off even when the thermister detects abnormally high temperature, thermostat turns off the heater current as soon as the temperature of the heat roller reaches 195 °C, and prevents the heat roller from increasing its temperature.

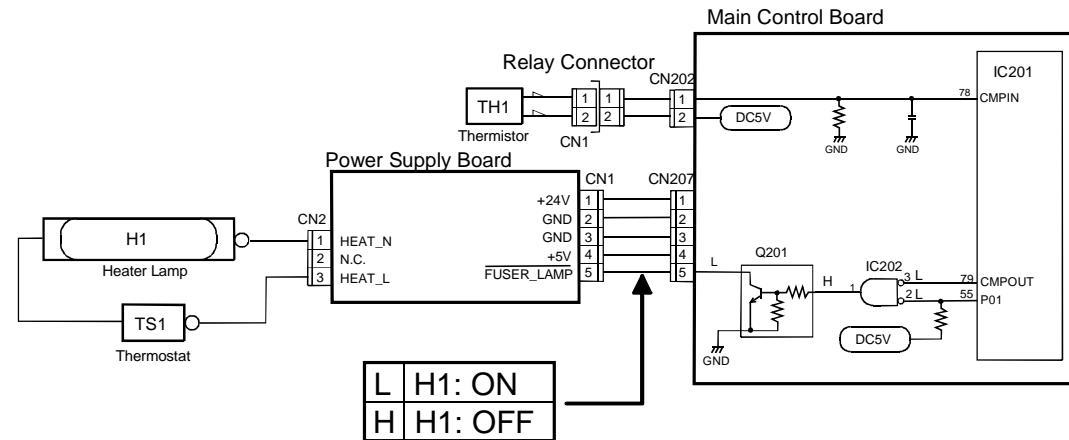


Figure 2-14. Fusing Temperature Control Circuit

When the power switch is turned on, warm-up starts after the printer performs initialization, then, the heater lamp is turned on. The heater lamp stays On until the temperature of the heat roller reaches about 185 °C, and the following temperature controls are performed.

#### □ Temperature control mode1

This mode controls the temperature to maintain 185 °C during printing and 105 °C during waiting mode. This mode goes to mode2 after 45 seconds.

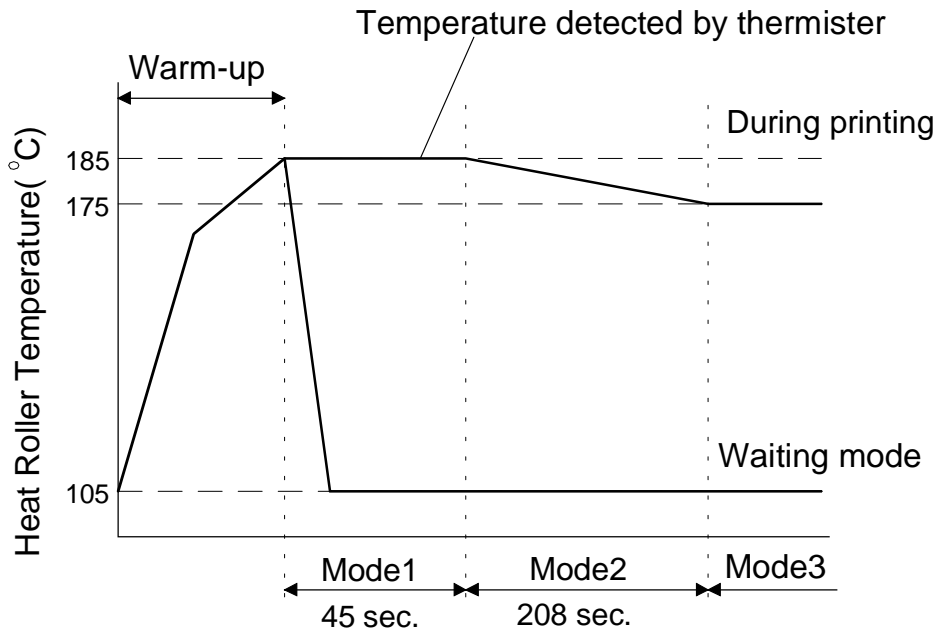


Figure 2-15. Heat Roller Temperature Control

❑ Temperature Control Mode2.

This mode goes to mode 3 after 208 seconds. The temperature of the fusing roller decreases gradually approximately from 185 °C to 175 °C.

❑ Temperature Control Mode3.

This mode controls the temperature to maintain 175 °C during printing and 105 °C during waiting mode. Unless the upper cover is opened or error happens, this mode is maintained.

Table 2-3. Heat Roller Temperature Control

Temperature control before it is interrupted.	Temperature right after the temperature control started.		
	Less than 50 °C.	More than 50°C less than 100 °C.	More than 100 °C.
Mode1	Mode1		
Mode2, 3, or power is off.	Mode1	Mode2	Mode3

### 2.1.9.3 Prevention of paper bent from the fusing

Sometime the paper ejected from the fusing is bent in wave shape. The reason why this happens is that the temperature around the fusing roller is not even. In order to prevent this, the printer rotates the half circle after the printer receives the printing order, and makes the temperature around the fusing roller even.

## 2.1.10 Paper Eject

### 2.1.10.1 Face up/Face down disengage mechanism

The paper which passed the fusing is ejected either face-up or face-down by the disengage mechanism. By operating the disengage lever manually, which is located at the paper eject mouth, tray disengage guide in the printer also operates and changes over the face-up eject or face-down eject.

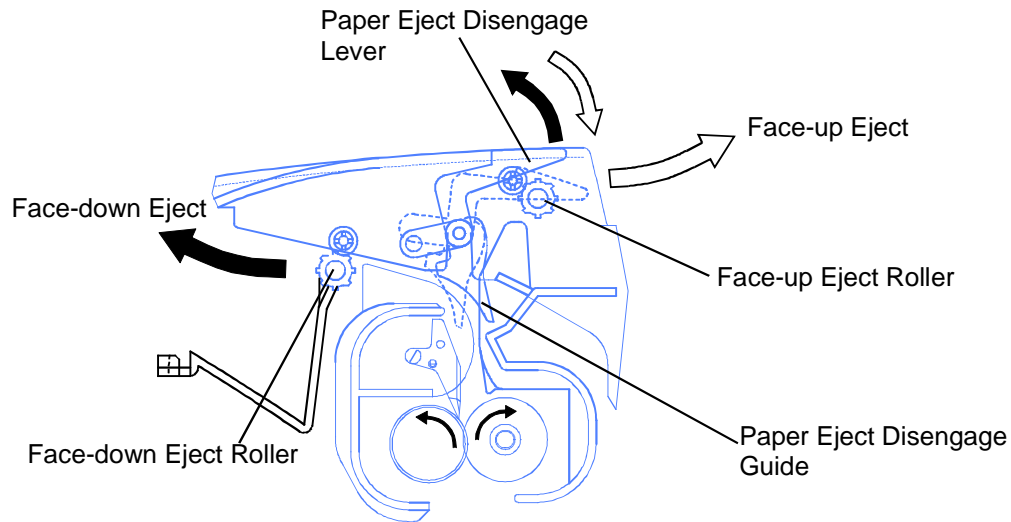


Figure 2-16. Paper Eject Mechanism

#### □ Face-down eject

Paper is ejected to the face down tray located upper side of the printer.

#### □ Face-up eject

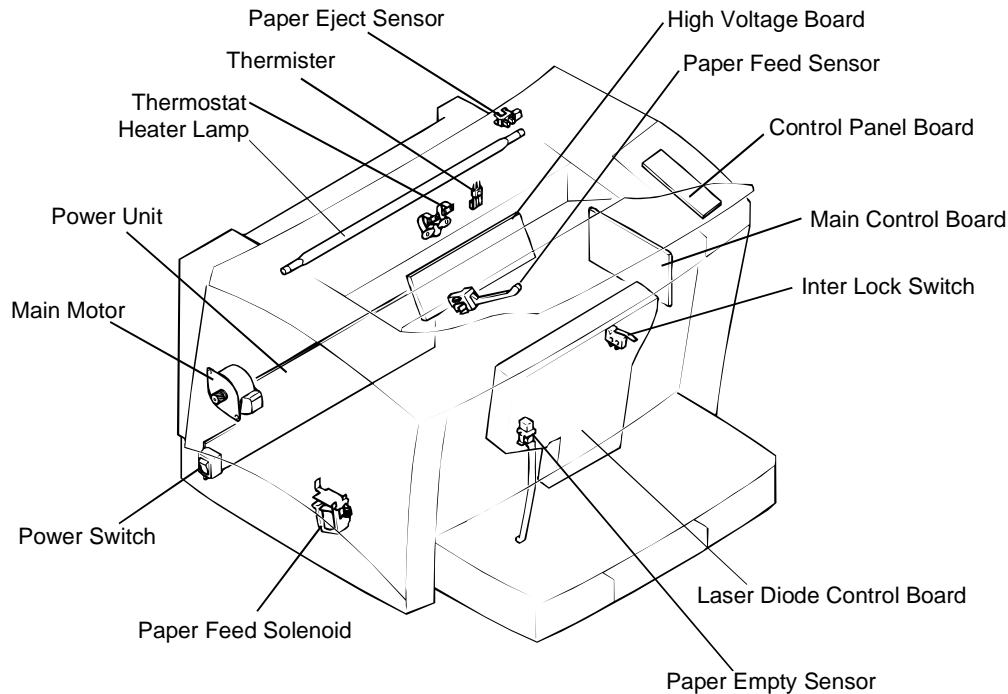
Paper is ejected to the optional face-up tray. Face-up paper eject is available even without optional face up tray. Since the resistance is least against the paper path when the paper is ejected, it is good for thick paper.

Table 2-4. Paper volume in the tray

Paper volume that each tray can hold(Regular paper)	
Face down tray	100 sheets
Face up tray	20 sheets

## 2.2 ELECTRIC CIRCUIT

Electric circuit of this printer consists of main control circuit, power supply unit, high voltage board, laser diode control board(in the print head unit). Following shows location of electric circuit, sensors and motors. Table2-6 shows function of each circuit and board.



**Figure 2-17. Locations of Electric Parts in the Printer**

**Table 2-5. Function of Each Electric Parts**

Name	Function
Heater lamp	Heats up the heat roller.
High voltage board	Provides following voltages to each following unit. <ul style="list-style-type: none"> <li>• Rotation charge brush: Charging voltage</li> <li>• Sleeve roller: Developing bias voltage.</li> <li>• Toner regulation board: Developing blade voltage.</li> <li>• Toner collecting board: Collecting blade voltage.</li> <li>• Transfer roller: Transfer voltage.</li> </ul>
Main motor	Driving power source for the printer.
Paper empty sensor(PE1)	Detects if there is any paper or not. <ul style="list-style-type: none"> <li>• Paper in: Low</li> </ul>
Paper Feed sensor(PS1)	<ul style="list-style-type: none"> <li>• Detects the paper is fed.</li> <li>• In order to judge the paper size, PS1 detects the paper length. But paper width can not be detected.                             <ul style="list-style-type: none"> <li>•Paper in: Low</li> </ul> </li> </ul>
Paper eject sensor (PS3)	Detects the paper is ejected to judge the paper jam.
Power unit	<ul style="list-style-type: none"> <li>• Provides power supply voltage to each circuit in the printer, generating dc voltage from ac power.</li> <li>• AC power is supplied to the heater lamp.</li> </ul>
Main control board	This board has video controller part and engine controller. This board communicates with host computer through the interface, and controls all operations.
Operation panel board	Switches to operate the printer are mounted on this board.

Table 2-6. Function of Each Electric Parts(Cont.)

Name	Function
Inter lock switch (S2)	Detects open/close condition of the upper cover and blocks output power except DC5V, when the cover is opened. <ul style="list-style-type: none"> <li>• Cover is closed; On</li> </ul>
Laser diode control board	Detects printing start position by emission of the laser diode and SOS sensor, and emits the laser beam to the OPC drum by image signal.
Paper feed solenoid (SL1)	Transmits driving power of the main motor to the paper feed roller.
Thermister (TH1)	Detects the surface temperature of the heat roller and feeds back to the main control board.
Thermostat(TS1)	Blocks electricity to the heater lamp when the temperature of the fusing part increases abnormally.(195 °C)

Following shows position of electric parts functions of the optional second paper feed unit.

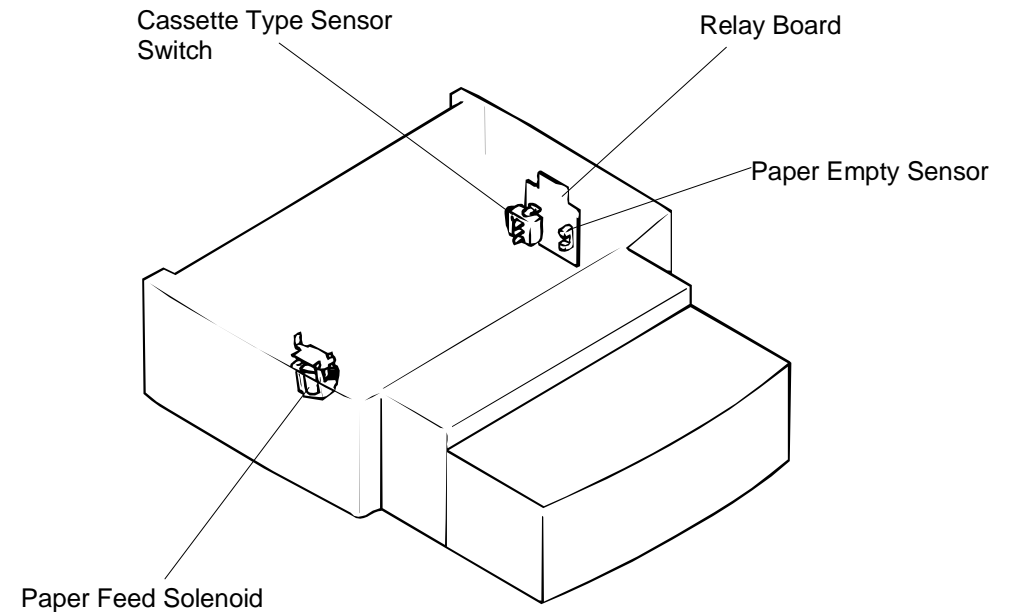


Figure 2-18. Location of Electric Parts in the Second Paper Feed Cassette

Table 2-7. Function of Electric Parts of Second Paper Feed Cassette

Name	Function
Paper feed solenoid (SL21)	Controls gear/clutch, which transmits driving force of the main motor to the paper feed roller. <ul style="list-style-type: none"> <li>• Solenoid On: Transmission of driving force.</li> </ul>
Cassette type sensor switch	3 consecutive switches detect the difference of the cassette type determined by paper size.
Paper empty sensor(on the relay board)	Detects paper empty. <ul style="list-style-type: none"> <li>• Paper in: LOW.</li> </ul>
Relay board	Receives control signal or power supply from the printer body and sends them to the electric parts in the second paper feed unit.

## 2.3 CONTROLLER OPERATING PRINCIPLES

C234 Main-B board, the controller of this printer consists of main controller part and engine controller part. The main controller part processes printing order from the host computer and generates video signal. The engine controller part drives the engine according to the video signal from the main controller and performs printing.

- Main functions of the main controller part;
  - Communication with host computer (Receiving printing data and sending status)
  - Processing printing data(Analyzing command and generating video signal)
  - Sending video signal to engine controller
  - Monitoring panel or switch conditions
- Main functions of the engine controller;
  - Receiving the video signal and sending the engine status
  - Monitoring sensors
  - Controlling each mechanism of the engine
  - Controlling the optional lower cassette

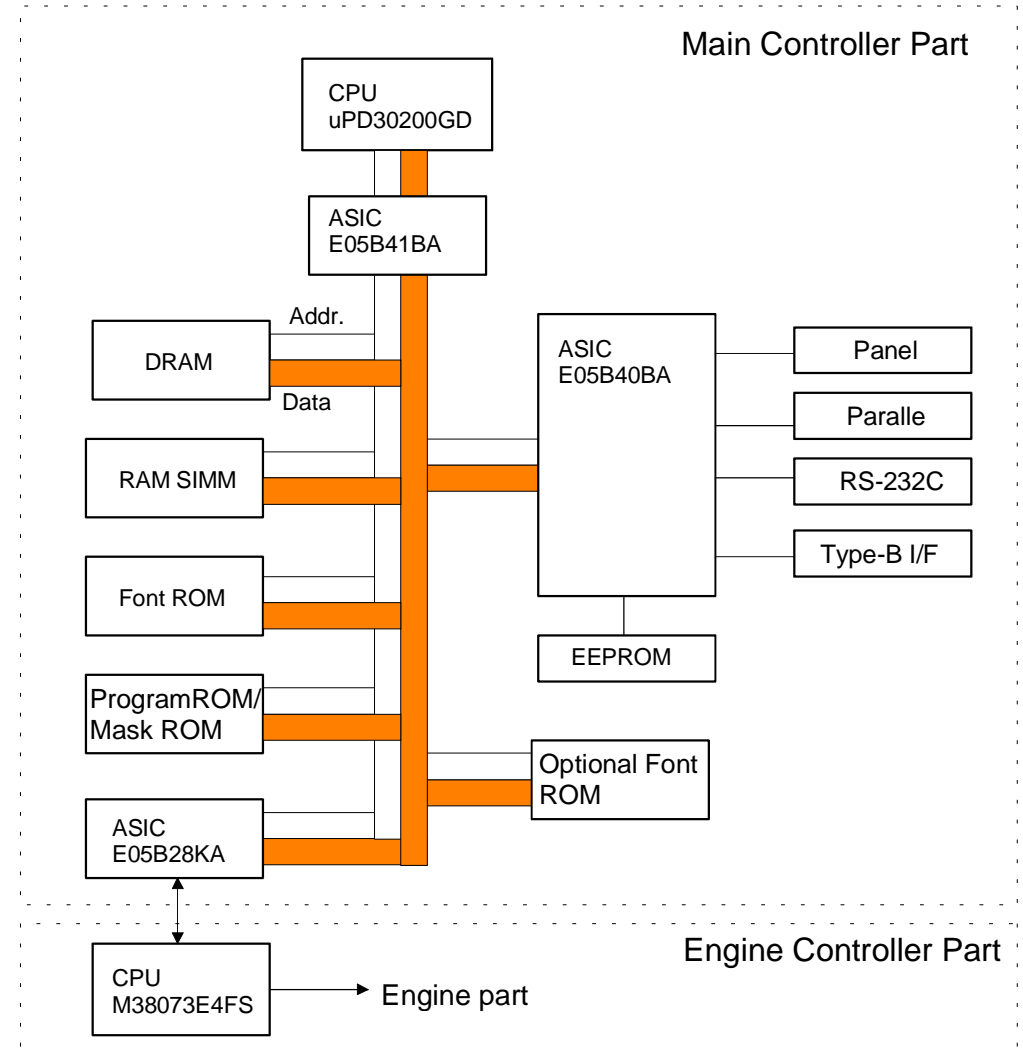


Figure 2-19. Block Diagram of C234 Main-B circuit board



Main composition elements and functions of C234 Main-B board are following.

**Table 2-8. Main elements of main controller in C234 Main-B board**

Name	Location	Function
CPU μPD30200GD	IC1	RISC-CPU
ASIC E05B41BA	IC4	This ASIC controls following; <ul style="list-style-type: none"> <li>• Memory control(RAM/ROM)</li> <li>• DMA control (Video, I/O)</li> </ul>
ASIC E05B41BA	IC10	This ASIC controls following; <ul style="list-style-type: none"> <li>• Host I/F control</li> <li>• Control panel</li> <li>• Interruption control</li> </ul>
ASIC E05B28KA	IC16	This ASIC controls following; <ul style="list-style-type: none"> <li>• RIT(Resolution Improvement Tech.)/PGI(Photo Grade Improvement) function control</li> <li>• Video I/F control(communication with engine controller)</li> </ul>
Program ROM/Mask ROM	CN3	DIMM module which stores control program. Flash-ROM(C215PROG) is built in the initially mass produced printers. Mask ROM(C215PROGB) is built in later mass produced printers.
DRAM	IC14/15	2 16Mbit(x16)s are mounted and operates as standard memory.
Mask ROM	IC5/6	2 8Mbit(x16)s are mounted and stores font data.
EEPROM NM93C86A	IC9	Memorizes each setting information and status information with 16Kbit(x16) capacity.
Option Font ROM	CN2	Stores optional font in 4MB ROM DIMM.

**Table 2-9. Main elements of main controller in C234 Main-B board**

Name	Location	Function
CPU M38073E4FS	IC201	Engine control
Motor Drive IC TEA3718SDP	IC204/205	Main motor driving



**CHAPTER**

**3**

**TROUBLESHOOTING**



### 3.1 OVERVIEW

Like other page printers, there are many error modes in this printer, making identification of failed parts or component more difficult. In order to solve this problem, this chapter shows how to check and identify malfunction from the major components, and how to identify the causes from the errors or abnormal symptom.

### 3.2 ELECTRIC CHECK POINT

**CAUTION**

- Use the recommended fuses.
- Avoid checking the IC terminal directly by the tester. Check the connector on the board to judge if it is not defective or not.

#### 3.2.1 Rating of Power Fuse F1

Table below shows rated power fuse F1.

Table 3-1. Rated Power Fuse

Power Voltage	F1
100V type	8A 125V
200V type	4A 250V

#### 3.2.2 Coil Resistance of Main Motor

By measuring the coil resistance of the main motor, the motor can be checked if it is working all right or not. Following table shows how to measure the coil resistance.

Table 3-2. Coil Resistance of the Motor

Motor	Measuring Point	Measuring	Value of coil resistance
Main Motor	Pin1 and Pin2, or Pin3 and Pin4.	Set the multi-meter to the resistance measuring range. Connect the one lead to one pin, and connect the other side of lead to the another pin then measure the coil resistance.	2.4 Ω ± 10% (25 °C)

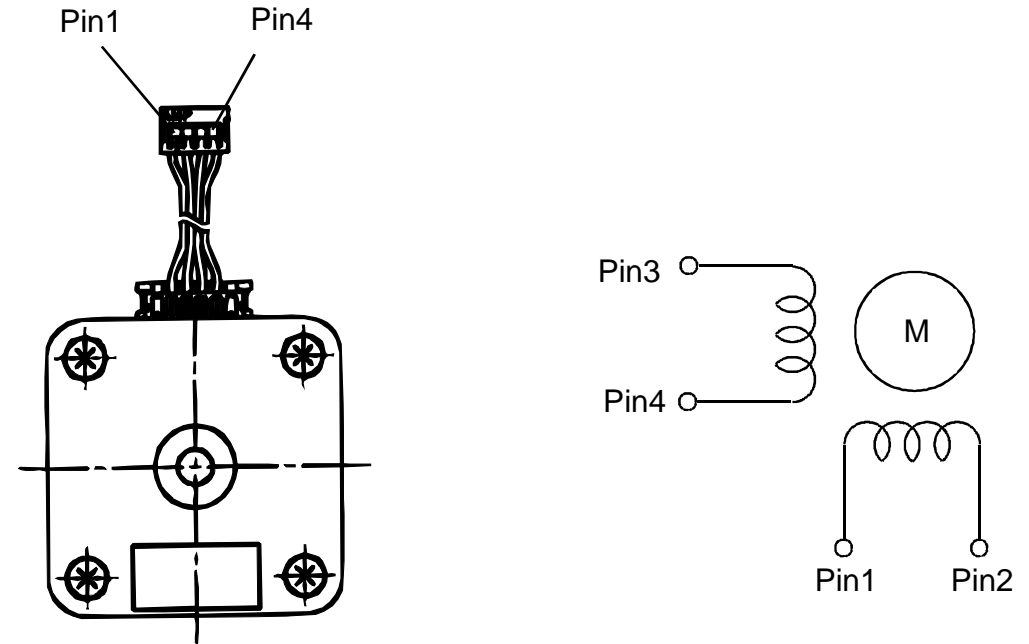


Figure 3-1. Motor Connection

### 3.2.3 Checking Sensors

Table below shows the easy way to check the various sensors in this printer.

**Table 3-3. Sensor Check List**

Sensor Name	Measuring Terminals	Signal Level	Sensor Condition
Paper Empty Sensor	Connector CN212/Pin1 and Pin2	High	Paper in
		Low	Paper out
Paper Feed Sensor	Connector CN210/Pin1 and Pin2	High	Paper out
		Low	Paper in
Paper Eject Sensor	Connector CN208/Pin2 and Pin3	High	Paper out
		Low	Paper in
Interlock switch	Power board connector CN3	---	On/Off by switch operation.
Thermister	Connector CN202/Pin1 and Pin2	Analog output	1.7M $\Omega$ (20 °C)
Paper empty sensor(in the second paper feed unit)	Connector CN211/Pin5 and Pin6	High	Paper in
		Low	Paper out
Cassette type sensor switch(in the second paper feed unit)	Connector CN211/Pin7, Pin8 and Pin9.	Refer to Chapter2 "Second Paper Feed Unit".	

## 3.3 PRINTER CONDITION

### 3.3.1 Indication

This printer always monitors its condition and indicate it on the control panel by necessity. Indication of the printer condition are classified following as follows.

- Status: No error.
- Error: Error occurs.
- Warning : Warning occurs.
- Service Req. Error: Service Req. Error occurs and requires service by service man.

**Table 3-4. Printer Message List**

Condition	Indication	Status
Turn on	All lights On.	Status
System Check	Memory light On, then goes Off.	Status
Reset all	All lights are On.	Status
Reset	Paper, toner, memory light are On.	Status
Warming-up	On-line light flashes.	Status
Paper Jam/ Feed Jam/Exiting Jam	Paper and Continue lights On.	Error
Printer open	Paper and Continue lights On.	Error
Paper out	Paper light flashes, and Continue light On..	Error
Paper set	Paper and Continue lights are on.	Error

**Table 3-5. Printer Message List (Cont.)**

Condition	Indication	Status
Toner out	Toner and Continue lights On.	Error
Memory Overflow	Memory light On. Continue light flashes.	Error
Print Overrun	Memory light On. Continue light flashes.	Error
Service Req. Error	All lights flash(0.8 sec.) and off(0.2 sec), then individual light flashes on and off in a repeating cycle.	Service Req. Error
Check paper size	Paper light flashes.	Warning
Image optimum	Memory light flashes.	Warning
Need Memory	Memory light flashes.	Warning
Toner Low	Toner light blinks.	Warning

#### 3.3.1.1 "Status" Conditions

Here explains each status condition.

- System Check: Printer is checking condition, or performing initialization.
- Reset All: Printer is processing warm boot.
- Reset: Printer is processing reset.
- Warm-up: Printer is warming up.

### 3.3.1.2 “Error” Conditions

Here explains error condition and procedure to recover from it.

#### ❑ Paper Jam.

Paper is jammed in the printer path.

- Open the top cover(printer cover) and clear the jammed paper.
- After jam is cleared and warming-up is completed, the jammed page's print data is automatically printed.

#### ❑ Exit Paper Jam.

Paper jam occurs around the OPC drum(photo conductor unit). This error is also indicated when the paper jam occurs around the paper exit area.

- This error is cleared after you open the top cover and remove the jammed paper, and close the cover.
- After jam is cleared and warming-up is completed, the jammed page's print data is automatically printed.

#### ❑ Feed Jam.

Paper is not feeding into the printer from the tray or optional cassette, or has jammed on its way into the printer.

- Remove all the paper from the paper tray along with any sheets that have fed part way into the printer. Open the top cover(printer cover) and make sure that there is no jammed or torn-off paper left in the printer. Then, close the cover.
- After jam is cleared and warming-up is completed, the jammed page's print data is automatically printed.

#### ❑ Printer Open

The top cover is open.

- Close the top cover.

#### ❑ Paper Out

There is no paper in the specified paper source.

- Load paper of the indicated size into the source.

#### ❑ Paper Set

This error appears if “Size Ignore” is off in the printer driver and the paper loaded in the tray does not match the required paper size.

- Replace the paper with the correct size of paper and press Continue switch on the control panel, or turn on “Size Ignore” in the printer driver.
- If “Auto Cont” on the panel setting is set off(refer to page1-10), replace the paper with correct size of paper and press Continue switch on the control panel.
  - Or, press Continue switch without replacing paper.
  - Perform reset or warm boot.
- If “Auto Cont” on the panel setting is set on, this error is canceled automatically after a while.

#### ❑ Toner Out

This error indicates toner is not installed, or need to replace the toner cartridge.

- This error is canceled after installing a new toner and closing the top cover. Toner counter is reset as soon as the Continue switch is pressed. However, the toner counter is reset as long as Continue switch is pressed after closing the top cover, even if you do not actually change with a new toner.



#### ❑ Memory Overflow

The printer has insufficient memory available for the current task.

- If “Auto Cont” on the panel setting is set off(refer to page1-10), Press the Continue switch on the control panel. If the error occurs because the current task data exceeds the buffer capacity, the printer prints out the page forcibly, which was made before the error occurs. If the errors occurs because of failing to register particular fonts, or micro-pattern, the printer ignores those command and continue processing.
- If “Auto Cont” on the panel setting is set on(refer to page1-10), this error is canceled automatically after a while. If the error occurs because the current task data exceeds the buffer capacity, the printer prints out the page forcibly, which was made before the error occurs. If the errors occurs because of failing to register particular fonts, or micro-pattern, the printer ignores those command and continue processing.
- Refer to table below for recommended memory module, if you need to add more memory.

**Table 3-6. Memory Module**

RAM Capacity	Function
No RAM installation	Printing up to 600dpi is possible.
4MB installation	Printing is possible in all printing conditions

#### ❑ Print Overrun

The required time to process the print data exceeds the print engine speed because the current page is too complex.

- Turn on “Page Protect” on the printer setting dialog of the panel menu of your printer driver, or use the remote control panel to change this setting.
- If “Auto Cont” on the panel setting is set off(refer to page1-10), Press the Continue switch on the control panel.
  - If there is no memory capacity, or if error occurs again, the printer erase that data and goes to the next page.
  - Perform reset or warm boot.

- If “Auto Cont” on the panel setting is set on(refer to page1-10), this error is canceled automatically after a while. After the error is canceled, if there is memory capacity, the printer tries to print that data one time. However, If there is no memory capacity, or if error occurs again, the printer erase that data and goes to the next page.

#### ❑ Service Req. Error

A controller error or a print engine error has been detected.

- Turn off the printer, and wait at least five seconds then turn it back on. If this message still occurs, refer to section 3.3.1.4 Service Call Error.

### 3.3.1.3 “Warning” Conditions

Here explains warning conditions and how to cancel it. Even if warning conditions occur, they do not effect on the printer’s operation.

#### ❑ Check Paper Size

The paper size setting is different from the size loaded in the printer. Check to see if the correct size of paper is loaded in the tray, then,

- Press Continue switch.
- Perform reset or warm boot.

*Note)* If “Size Ignore” is On in the printer driver, this warning does not occur.

This printer detects paper length for paper size. Therefore, following paper might not be able to detect its size difference.

**Table 3-7. Mistakable Papers**

Type	Paper Size	Paper Length(mm)	Mistakable paper size
Regular Paper	A4	297	LT
	A5	210	MON, HLT, DL
	JIS-B5	257	GLT, EXE, I-B5, C10
	LT	294(11”)	GLT, EXE, A4
	HLT	215.9(8.5”)	DL, A5, C5
	LGL	355.6(14”)	---
	EXE	266.7(10.5”)	LT, GLT, JIS-B5, I-B5
	GLG	330.2(13”)	F4
	GLT	266.7(10.5”)	LT, EXE, JIS-B5, I-B5
	F4	330	GLG
Special Paper	3x5”	127(5”)	---
	Post Card	148	---
	MON	190.5(7-1/2”)	A5
	C10	241.3(9-1/21”)	C5, JIS-B5, I-B5
	DL	220	HLT, C5, A5
	C5	229	C10, HLT, DL
	C6	162	---
I-B5	250	GLT, EXE, JIS-B5, C10	

#### ❑ Toner Low

The printer is almost out of toner or the toner left level reaches “0”, and printing will be stopped. This error is canceled by pressing Continue switch.

- Exchange with new toner and close the top cover. Pressing Continue switch resets the toner counter automatically. However, even if you don’t replace with a new toner and press Continue switch after closing the top cover, the toner counter is reset.

#### ❑ Image Optimum

The printer can not print at the requested quality level because of insufficient memory, and the printer reduces the quality automatically so that the printer can continue printing.

- Add more memory, or set Print Quality to 300 dpi and Page Protect to Off temporarily in the printer driver.
- Press “Continue” switch on the panel to cancel this warning indication.

#### ❑ Need Memory

The printer has insufficient memory available for the current task.

- Add more memory to the printer.
- Press “Continue” switch on the control panel to cancel this indication.
  - If the printer escape from this warning during the data processing, perform reset or warm boot.

### 3.3.1.4 Service Req. Error

If this error is detected, turn off the printer, wait at least 5 seconds and turn it back on. If this error still occurs, refer to the error code list below for troubleshooting.

Table 3-8. Service Req. Error List

Cause	Paper Light	Toner Light	Memo ry	On - line	Form Feed	Contin ue
<b>Engine Related Errors</b>						
Abnormal Fusing	●					●
Abnormal Main Motor		●				●
Abnormal Polygon Motor	●	●				●
Abnormal Laser	●		●			●
Engine Communication Error		●	●			●
<b>Controller Related Errors</b>						
CPU Error((unsupported interrupt)				●		●
CPU Error	●			●		●
CPU Error		●		●		●
CPU Error	●	●		●		●
CPU Error (address misalignment)			●	●		●
CPU Error (address misalignment)	●		●	●		●
CPU Error		●	●	●		●
CPU Error	●	●	●	●		●
CPU Error					●	●

Note) ● means light is on.

Table 3-9. Service Req. Error List(cont.)

Cause	Paper Light	Toner Light	Memo ry	On - line	Form Feed	Contin ue
<b>Controller Related Errors</b>						
CPU Error	●				●	●
CPU Error		●			●	●
CPU Error	●	●			●	●
CPU Error			●		●	●
CPU Error	●		●		●	●
CPU Error		●	●		●	●
CPU Error	●	●	●		●	●
CPU Error			●	●	●	●
CPU Error	●		●	●	●	●
CPU Error(break error)		●	●	●	●	●
IPL Error (controller failure)	●					
Standard RAM Error(RAM not recognized)			●			
Standard RAM Error(Minimum stack unrecognized)	●		●			
Standard RAM Error(Memory address less than 4MB)		●	●			
Optional RAM Error(Memory address 4MB or more)	●	●	●			

Table 3-10. Service Req. Error List(cont.)

Cause	Paper Light	Toner Light	Memory	On-line	Form Feed	Continue
<b>Controller Related Errors</b>						
Rom checksum error (bit 0 to 15, font)				●		
Rom checksum error (bit 16 to 31, font)	●			●		
Rom checksum error (bit 0 to 7, program)		●		●		
Rom checksum error (bit 8 to 15, program)	●	●		●		
Rom checksum error (bit 16 to 23, program)			●	●		
Rom checksum error (bit 24 to 31, program)	●		●	●		
Cartridge access error	●		●		●	
EEPROM write error		●	●		●	
EEPROM write counter overflow	●	●	●		●	
Engine initialization error				●	●	
Other hardware error		●	●	●	●	
Software error	●	●	●	●	●	

Note) ● means light is on.

Abnormal Laser

Laser diode emits light forcibly 200m sec after the polygon motor starts rotation, and adjusts its power. During this power is adjusted, this error is detected when the adjustment signal goes out of normal value.

Abnormal Polygon Motor

- /SSCAN signal is not detected within 0.8 second after polygon motor is turned on.
- The rotational number of polygon motor does not reach the range of  $\pm 0.5\%$  within 5.5 seconds after the polygon motor is turned on.
- After polygon motor is turned on and the rotational number of polygon motor settles within  $\pm 0.5\%$ , that rotational number reaches 5.5 seconds continuously and go beyond  $\pm 3\%$ .

Abnormal Fusing

- When the thermister detects that the temperature exceeds 210 °C for 50m sec, this error is detected.
- Thermister error is detected if the temperature difference by the thermister is below the standard value and lasts for 50m sec, comparing the temperature by the thermister from 8 to 12 seconds after warming-up and the temperature by the thermister just when the warming-up starts.
- If the temperature by the thermister does not reach the setting temperature within 45 seconds after warming-up starts, fusing abnormal rising temperature is detected.
- At each mode, when the temperature by the thermister goes below the setting temperature for 50m sec consecutively, fusing abnormal low temperature error is detected.

## 3.3.2 Paper Jam Sensor

### 3.3.2.1 Overview

This sensor checks if there is any paper in the printer or not by detecting the conditions of signals from paper feed sensor and paper eject sensor. The paper jam sensor during the paper passing in the printer monitors condition by detecting rise and fall of paper feed sensor signal and paper eject sensor signal. All the operation is turned off when the paper jam is detected(except for continuous printing and single printing).

#### ❑ Continuous Printing

The paper jam is detected if the paper feed sensor is not turned On within 2.8 seconds after the paper feed starting(in other words, the paper feed roller starts rotating by turning on the paper feed solenoid) from multi-paper feed tray or second paper feed unit. If there is any transporting paper in the printer, all driving is turned off after the all papers in the printer are ejected.

#### ❑ Single Printing

The paper jam is detected if the paper feed sensor is not turned On within 2.8 seconds after the paper feed starting(in other words, the paper feed roller starts rotating by turning on the paper feed solenoid) from multi-paper feed tray or second paper feed unit. If there is no paper in the fusing mechanism, the heater light is not turned off but other driving is turned off.

### 3.3.2.2 Paper Jam Sensor Conditions

- ❑ The paper feed sensor is not turned On within 2.8 seconds after the paper feed starting(in other words, the paper feed roller starts rotating by turning on the paper feed solenoid) from multi-paper feed tray or second paper feed unit.
- ❑ The paper eject sensor is not turned Off within 8.2 seconds after the paper's heading tip reaches the paper feed sensor(in other words, the paper feed sensor is turned on).
- ❑ The paper eject sensor is not turned on within 2.84~3.79 seconds after the paper's heading tip reaches the paper feed sensor(in other words, the paper feed sensor is turned on).
- ❑ The paper eject sensor is not turned Off within 2.6 ~3.63 seconds after the paper's ending tip passes the paper feed sensor(in other words, the paper feed sensor is turned off).
- ❑ When the power switch is On, or upper cover is closed, the paper feed sensor is On.
- ❑ When the power switch is On, or the upper cover is closed, the paper eject sensor is On.

### 3.3.2.3 Resetting the Paper Jam

After the paper jam is cleared, the error is canceled by closing the upper cover.

## 3.4 TROUBLESHOOTING

Follow the number in the Check Item so that you can find out malfunction parts easily and perform necessary repair service.

### 3.4.1 Handling Paper Jam

#### 3.4.1.1 Paper Jam at power on

Table 3-11. Handling the Paper Jam 1

Check Item		Remedy
1. Is there any paper left?	Yes	Remove all papers.
2. Does the actuators of paper feed sensor, paper eject sensor work?	No	Check the lever operation and re-assemble it or replace with necessary parts.
	Yes	Replace sensor, relay board(in case of paper feed sensor in the second paper feed unit), or replace the main control board.

#### 3.4.1.2 Paper Jam at Paper Feed and Transporting

Table 3-12. Handling the Paper Jam2

Check Item		Remedy
1. Do the Paper feed roller and second paper feed roller rotate?	No	Exchange the paper feed solenoid.
2. Is the paper recommended paper?	No	Use the recommended paper.
3. Is the paper bent or wrinkle, or wet?	Yes	<ul style="list-style-type: none"> <li>Exchange the paper.</li> <li>Advise the user about paper storage.</li> </ul>
4. Is the paper feed roller deformed? Or is there any dirt by paper dust or friction?	Yes	Exchange the paper feed roller.
5. Does the actuator of the paper feed sensor work normally?	No	<ul style="list-style-type: none"> <li>Check the lever operation and re-assemble.</li> <li>Exchange the necessary parts.</li> </ul>
	Yes	<ul style="list-style-type: none"> <li>Replace the sensor, relay board(in case of the paper feed sensor in the second feed unit), or replace the main control board.</li> </ul>
6. Is the transform roller deformed? Or is there any worn-out by friction or any dirt?	Yes	Exchange the transfer roller.
7. Is the fusing roller deformed? Or is there any worn-out by friction or any dirt?	Yes	Exchange the fusing unit.
8. Does the paper eject roller rotate?	No	Exchange the upper cover.
9. Does the actuator of the paper eject sensor operate normally?	No	Check the lever operation and re-assemble it or replace with necessary parts.
	Yes	Exchange the fusing unit, sensor, or main control board.

## 3.4.2 Troubleshooting for Abnormal Operations

### 3.4.2.1 Abnormal Laser

Table 3-13. Remedy for Abnormal Laser 1

Check Item		Remedy
1.Laser diode is abnormal.	---	<ul style="list-style-type: none"> <li>• Exchange the print head unit.</li> <li>• Exchange main control board.</li> </ul>

### 3.4.2.2 Abnormal Polygon Motor

Table 3-14. Remedy for Abnormal Laser 2

Check Item		Remedy
1.Polygon motor is abnormal.	---	<ul style="list-style-type: none"> <li>• Exchange the print head unit.</li> <li>• Exchange main control board.</li> </ul>

### 3.4.2.3 Abnormal Fusing

Table 3-15. Remedy for Abnormal Laser 3

Check Item		Remedy
1.Is the heater light turned on when the power is turned on?	Yes	<ul style="list-style-type: none"> <li>• Exchange thermister or fusing unit.</li> <li>• Exchange the main control board.</li> <li>• Exchange the power unit.</li> </ul>
2.Is there continuity between Pin1 and Pin3 of the Connector CN2 on the fusing unit.	No	<ul style="list-style-type: none"> <li>• Exchange the fusing unit.</li> <li>• Exchange he heater light.</li> <li>• Exchange the thermostat.</li> </ul>
	Yes	<ul style="list-style-type: none"> <li>• Exchange the main control board.</li> <li>• Exchange the power unit.</li> </ul>

### 3.4.2.4 Power can not be turned on

Table 3-16. Remedy for Abnormal Laser 4

Check Item		Remedy
1.Is the power switch On?	No	Turn the power switch On.
2.Is the power code connected to the printer body?	No	Connect the power code well.
3.Is the power code connected to the plug?	No	Connect the power code to the plug.
4.Is the interlock switch On?	No	Adjust the position of the interlock switch.
5.Does the interlock switch operate normally?	No	Exchange the interlock switch.
6.Is the fuse F1 in the power unit disconnected?	No	<ul style="list-style-type: none"> <li>• Exchange the power unit.</li> <li>• Exchange the main control unit.</li> </ul>
	Yes	Exchange the fuse F1.

### 3.4.3 Troubleshooting Print Quality Problems

When the print quality problems occur, exchange the toner cartridge and drum cartridge first, then, find out that its cause comes from each cartridge or from the printer.

Table 3-17. Print Quality Problems

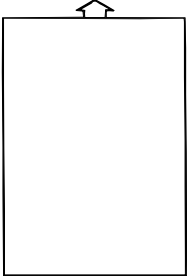
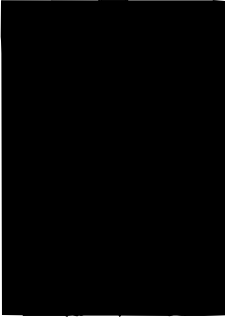
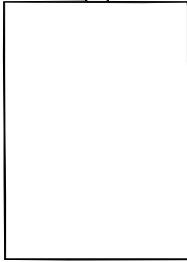
Symptom	Possible cause	Solution
All white.  <b>Figure 3-2. All white. No printing.</b>	No toner cartridge.	Install the toner cartridge.
	No toner in the toner cartridge.	Exchange the toner cartridge.
	No drum cartridge.	Install the drum cartridge.
	Defective OPC drum	Exchange OPC drum.
	Abnormal laser emission.	<ul style="list-style-type: none"> <li>• Exchange the print head.</li> <li>• Exchange the main control board.</li> </ul>
	Improper transfer.	<ul style="list-style-type: none"> <li>• Exchange the transfer roller.*</li> <li>• Exchange the high voltage board.</li> <li>• Exchange the main control board.</li> </ul>

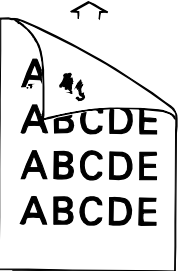
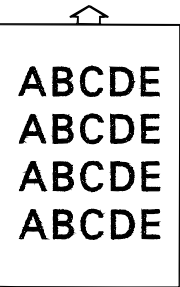
Table 3-18. Print Quality Problems

Symptom	Possible cause	Solution
All black.  <b>Figure 3-3. All black.</b>	Abnormal laser emission.	<ul style="list-style-type: none"> <li>• Exchange the Print head.</li> <li>• Exchange the main control board.</li> </ul>
	Abnormal charging.	<ul style="list-style-type: none"> <li>• Exchange the high voltage board.</li> <li>• Exchange the main control board.</li> </ul>
All white.  <b>Figure 3-4. All white. No printing.</b>	The paper is wet.	Exchange the paper.
	Improper transfer.	<ul style="list-style-type: none"> <li>• Exchange the transfer roller.*</li> <li>• Exchange the high voltage board.</li> <li>• Exchange the main control board.</li> </ul>

Note\*) Since the life span of the fusing unit and the transfer roller are same, if you need to exchange either one of them, make sure to exchange both of them.

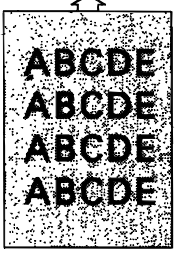
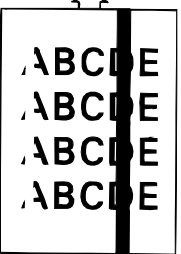
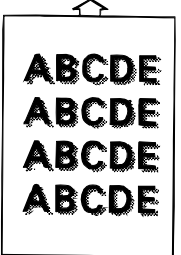


Table 3-19. Print Quality Problems

Symptom	Possible Cause	Solution
Back of the paper is dirty.   Figure 3-5. Dirty spot on the back.	Fusing roller is dirty.	*Exchange the fusing roller or fusing unit. (Refer to <i>Note*</i> below)
	Transfer roller is dirty.	*Exchange the transfer roller. (Refer to <i>Note*</i> below)
	Paper path is dirty.	Clean the paper path.
Low image density.   Figure 3-6. Low image density.	No toner in the toner cartridge.	Exchange the toner cartridge.
	End of life of OPC drum.	Exchange the drum cartridge.
	Defective developing bias.	Exchange the high voltage board.

*Note\*)* Since the life span of the fusing unit and the transfer roller are same, if you need to exchange either one of them, make sure to exchange both of them.

Table 3-20. Print Quality Problems

Symptom	Possible Cause	Solution
Foggy background.   Figure 3-7. Foggy background.	Defective developing bias.	Exchange the high voltage board.
	End of life of OPC drum	Exchange drum cartridge.
White line, Black line   Figure 3-8. White or black line.	There is scar or damage on the OPC drum.	Exchange the OPC drum.
	Abnormal print head.	Exchange the print head.
Offset image   Figure 3-9. Offset.	Defective fusing roller. (Abnormal 200M Ω resistance)	Exchange the fusing roller.*
	Defective transfer roller.	Exchange the transfer roller.*
	Defective OPC drum, or end of life.	Exchange the drum cartridge.

### 3.4.4 Horizontal Lines

If the phenomenon shown below that black lines appear with certain spaces is caused by drum or rollers, defective parts can be determined by measuring its space between lines, as it is shown in Table 3-21.

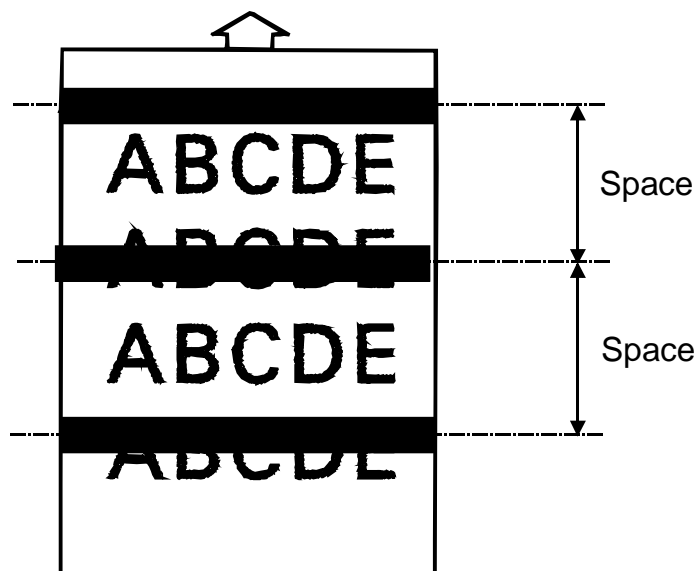


Figure 3-10. Horizontal Lines with Spaces

Table 3-21. Finding defective parts

Parts Name		Diameter of each roller/Space
Toner cartridge	Sleeve	φ15.8mm/49.6mm
Drum cartridge	OPC drum	φ30mm/94mm
Transfer roller	Roller	φ16mm/50.2mm
Fusing unit	Heat roller	φ20mm/62.8mm
	Back-up roller	φ21.6mm/67.8mm

**CHAPTER**

**4**

**DISASSEMBLY AND ASSEMBLY**



## 4.1 OVERVIEW

This Chapter shows procedure for disassembly and assembly.

### 4.1.1 Precaution for Disassembly and Assembly

Read following caution and warning carefully before starting disassembly and assembly.

#### WARNING

- **Make sure to plug off the power cable before starting.**
- **Do not touch the fusing unit right after turning the printer off, since the unit remains hot for a while after the printer stops printing.**
- **If it is necessary to plug in the power cord and operate the printer after removing the cover, keep your hands and clothing well away from operating or rotating parts, such as rollers, fan motors, etc.**
- **Never touch electric terminals or high-voltage components such as the charger and the high voltage unit.**
- **If it is necessary to plug in or off connectors, do so after making sure that the power is turned off. Do not plug in or off any kind of connectors when the printer is on. Also, when plugging in or off the connector, do so holding the connector housing. Do not plug in or off the distribution code. Doing so may cause imperfect contact.**
- **Read following warnings when handling the laser mechanism.**
  - **Make sure to plug off the power cable when handling the print head unit and laser-related parts around OPC drum.**
  - **It is dangerous to insert the tools which have high possible reflection rate, into the laser path. Especially handle those tools carefully at the users' places.**

#### WARNING

- **If you can not turn off the power because your service requires power, take off rings and watches, and wear laser protective goggles. When you using the protective goggles, use the one which meets following specifications.**

<b>Maximum. Power:</b>	<b>5mW</b>
<b>Output wave-length:</b>	<b>780-810nm</b>

#### CAUTION

- **In order to guarantee electric continuity, install earth line and earth plate correctly. Also, after removing the out-teethed washers, make sure to re-install them. Do not replace them with other kind of screws or washers.**
- **Do not disassemble the toner cartridge and OPC drum unit.**
- **Do not disassemble the print head unit (optics unit).**
- **To prevent damage to ICs from static electricity, do not touch the ICs on the circuit board or the terminals of peripheral electrical components with you bare hands. (If necessary, use the earth band)**
- **Use only the recommended tools to ensure safe and efficient maintenance work.**
- **When transporting the printer, pack it using the original packing material.**
- **Handling the OPC drum:**
  - **OPC drum is very sensitive to light and it takes some time to recover from light exposure. Therefore, do not open the protection cover and expose the OPC drum to light for long time.**
  - **Do not let finger prints, grease and chemicals to attach on the OPC drum surface.**
  - **Do not damage the OPC drum surface.**

Other precautions such as CHECKPOINT or ADJUSTMENT are mentioned at each procedure.

### 4.1.2 Recommended Tools

Use the tools listed in Table below for disassembling and assembling the printer.






Table 4-1. Recommended Tools

Name	Availability	Code
+ Screw driver #1	○	B743800100
+ Screw driver #2	○	B743800500
Screw driver	○	B743000100
Tweezers	○	B641000100
Round-nose pliers	○	B740400100

### 4.1.3 Specification for Screws

Abbreviations are used for small parts such as screws and washers. Table below shows these abbreviations.

Table 4-2. Specification for Screws

Abbreviation	Appearance	Name
CBS		+ Bind S tight screw
CP(O)		Cross-recessed Pan head with spring washer and plain washer.
CBB		+ Bind B tight screw
CS		+ Cup screw
CSB		+ Cup B tight screw

### 4.1.4 Work Completion Check

If any service is made to the printer, use the check list shown below, to confirm that all works are completed properly and the printer is ready to return to the user.

Table 4-3. Check Sheet

Category	Parts	Check Points	Status
Operation	Control Panel	Are the indication of LED, LCD and their operations normal?	<input type="checkbox"/> OK <input type="checkbox"/> NG
	Heater lamp	Does it operate normal?	<input type="checkbox"/> OK <input type="checkbox"/> NG
	Status sheet printing	Does the printer print normally?	<input type="checkbox"/> OK <input type="checkbox"/> NG
	Data printing	Can data be printed normally at the all operation modes(ESC/Page, ESC/P and ESC/PS)?	<input type="checkbox"/> OK <input type="checkbox"/> NG
Adjustment	Printing position adjustment	Does printing position meet the specification?	<input type="checkbox"/> OK <input type="checkbox"/> NG
	Interlock switch positioning adjustment	Does the interlock switch work?	<input type="checkbox"/> OK <input type="checkbox"/> NG
ROM version	---	Is it newest version?	Version:
Cleaning	---	<ul style="list-style-type: none"> <li>No obstacles on the paper path?</li> <li>Is the surface of paper feed clean?</li> <li>No obstacles on the surface of the fusing roller?</li> <li>Is the exterior case clean?</li> </ul>	<input type="checkbox"/> OK <input type="checkbox"/> NG
Packing	---	<ul style="list-style-type: none"> <li>Is everything in the package?</li> <li>Is packing condition OK?</li> </ul>	<input type="checkbox"/> OK <input type="checkbox"/> NG

## 4.2 DISASSEMBLY PROCEDURE

This section explains disassembly procedure for major mechanism and unit, which composes this printer. Refer to the flow chart. The assembly procedures are not described, except for special notes where necessary, because assembly can be accomplished by performing disassembly in reverse order. Refer to the exploded diagram in the end of this book when you need to disassemble the parts, which are not mentioned.

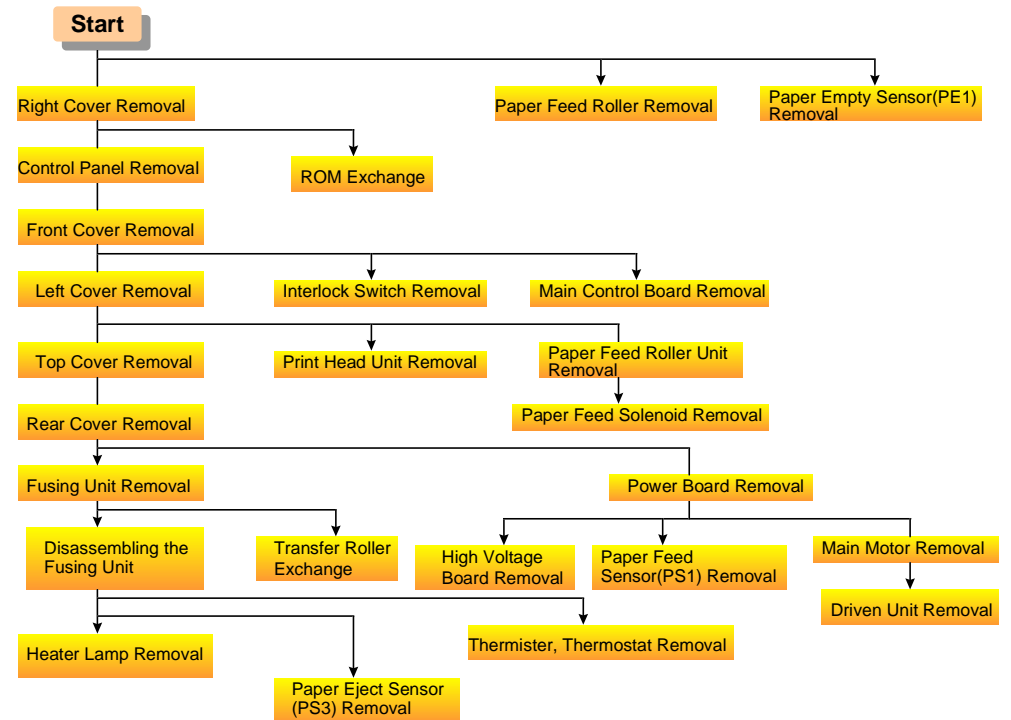


Figure 4-1. Flow Chart of Disassembly

## 4.2.1 Preparation Before Disassembly

Before disassembling the printer, it is necessary to perform following preparation.

1. Push the release button located left side of the top cover, and open the top cover.
2. Take the toner cartridge out of the printer.
3. Take the drum cartridge out of the printer.
4. Remove the paper feed tray.
5. If the optional face-up tray is attached, remove it.

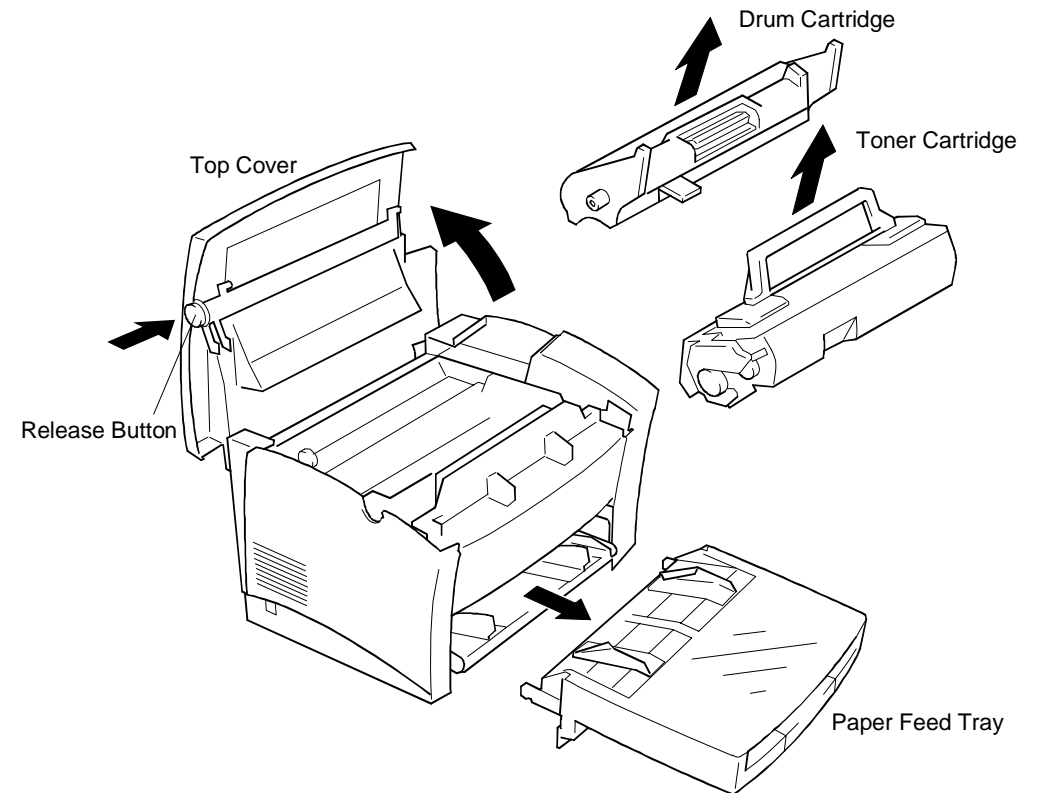


Figure 4-2. Preparation Before Disassembly



## 4.2.2 Right Cover Removal

1. Lift up the tab part of the cover a little bit, which is fixing the right cover to the hook of the shield cover, and release the fixing.
2. Pushing the right cover toward back a little bit, remove the cover to the right side.

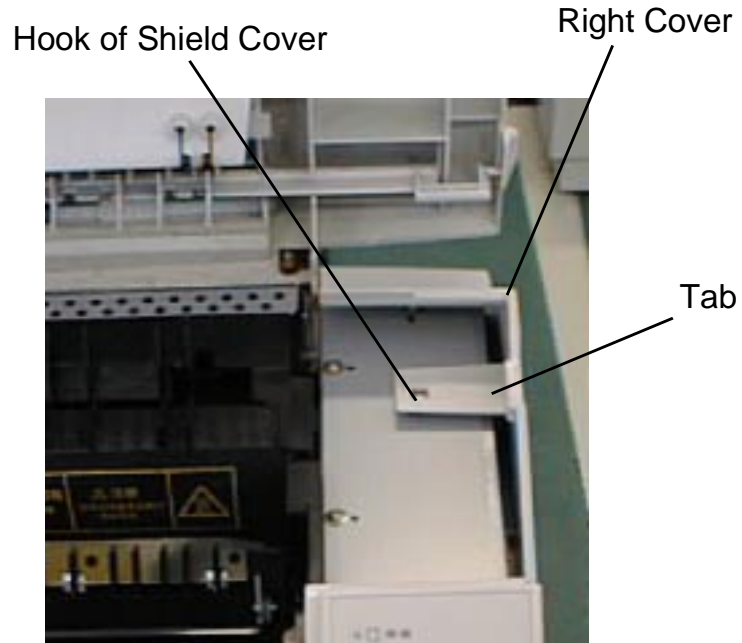


Figure 4-3. Right Cover Removal

### ✓CHECK POINT

*When assembling the right cover, attach it so that two hooks of the cover can match with the corresponding holes on the printer side (shield cover). Refer to figure4-4.*

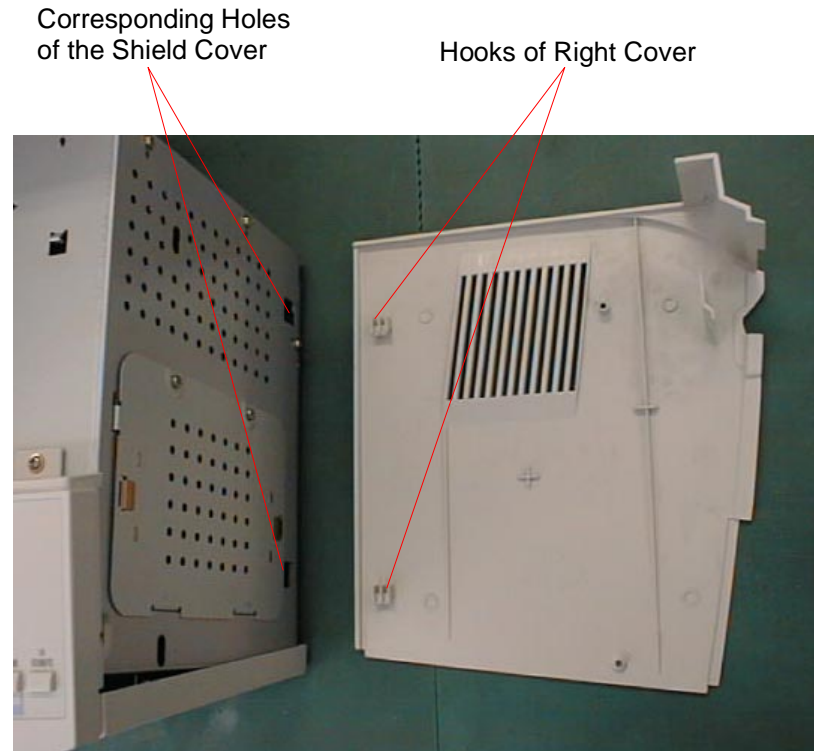


Figure 4-4. Installing the Right Cover

### 4.2.3 Paper Feed Roller Removal

1. Open the paper feed roller cover.
2. Remove one CP(O) screw(3x8) securing the paper feed roller to the shaft.
3. Remove the paper feed roller.

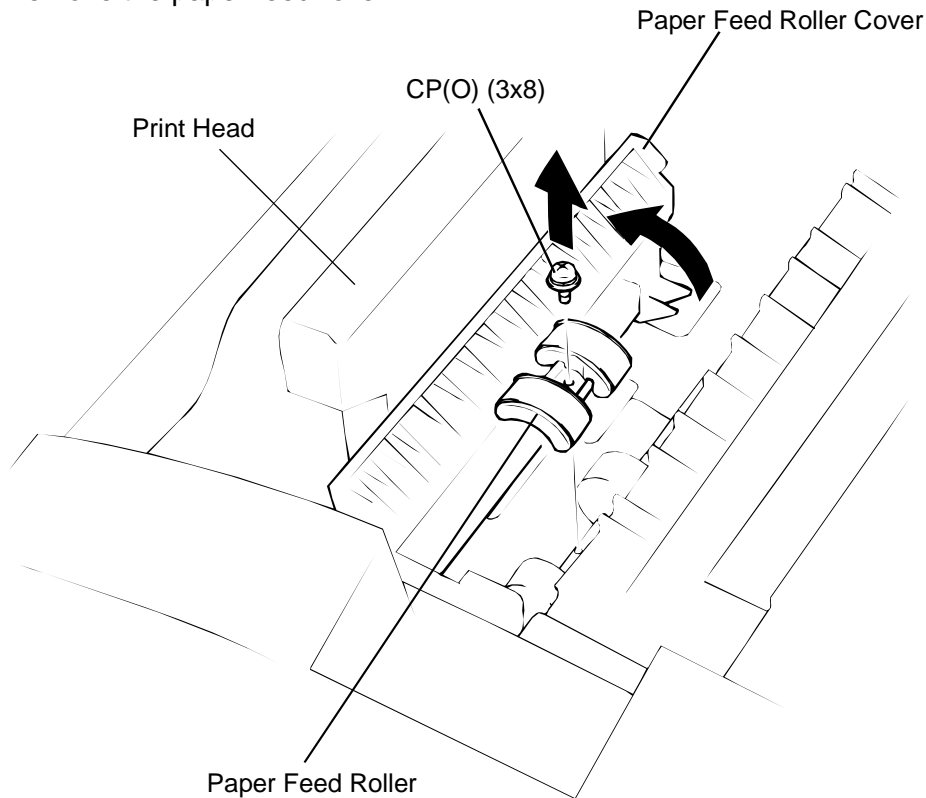


Figure 4-5. Paper Feed Roller Removal

**✓CHECK POINT**

*When installing the paper feed roller, tighten the screw after checking the pin on the roller back side is in the hole of the shaft.*

### 4.2.4 Paper Empty Sensor Removal(PE1)

1. Release the hook connecting the paper feed roller cover and the printer, opening the paper feed roller cover, and remove it, sliding it to the left side.
2. Release the hook securing the paper empty sensor to the mechanism frame of the printer, and remove it upward.
3. Remove the sensor harness from the paper empty sensor.

**✓CHECK POINT**

*When installing the paper feed roller cover, install the spring as it is shown in figure4-6.*

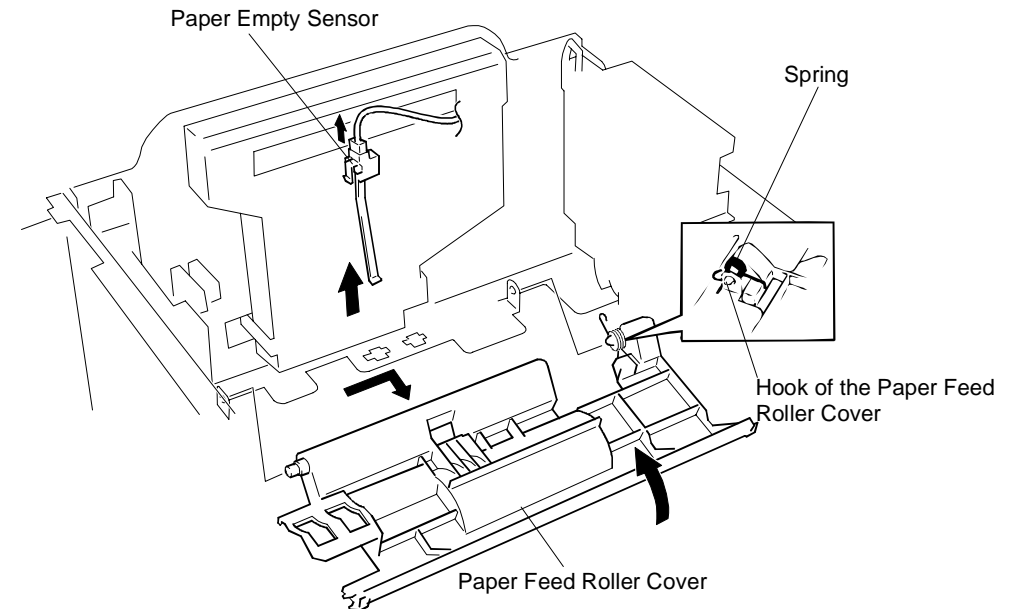


Figure 4-6. Paper Empty Sensor Removal

## 4.2.5 ROM(C215PROG-B) Exchange

1. Remove the right cover.(Refer to section .4.2.2)
2. Loosen two CBB screws(3x6) securing ROM cover to the shield cover of the main control board, and remove the cover.

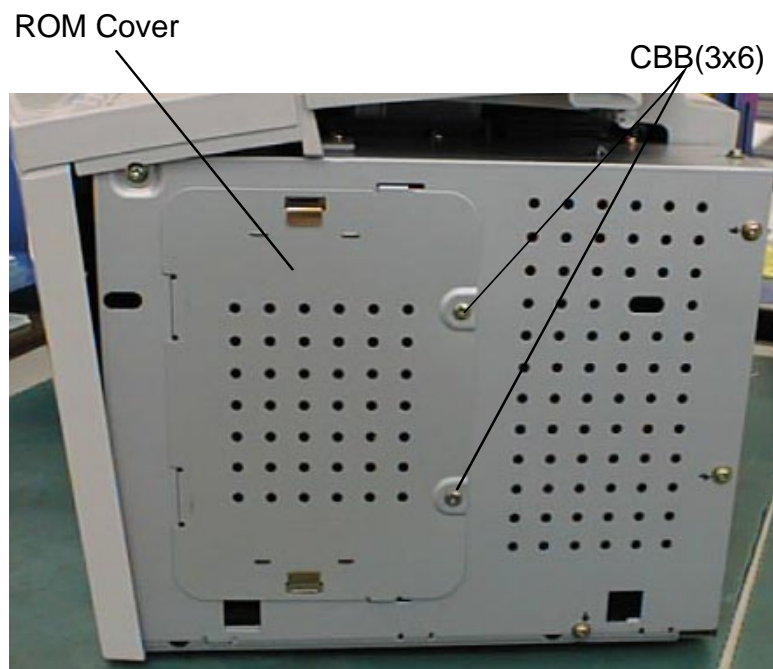


Figure 4-7. ROM Cover Removal

3. Push the lever of ROM connector securing ROM board, and remove the ROM board.
4. Insert the new version's ROM board to the connector.

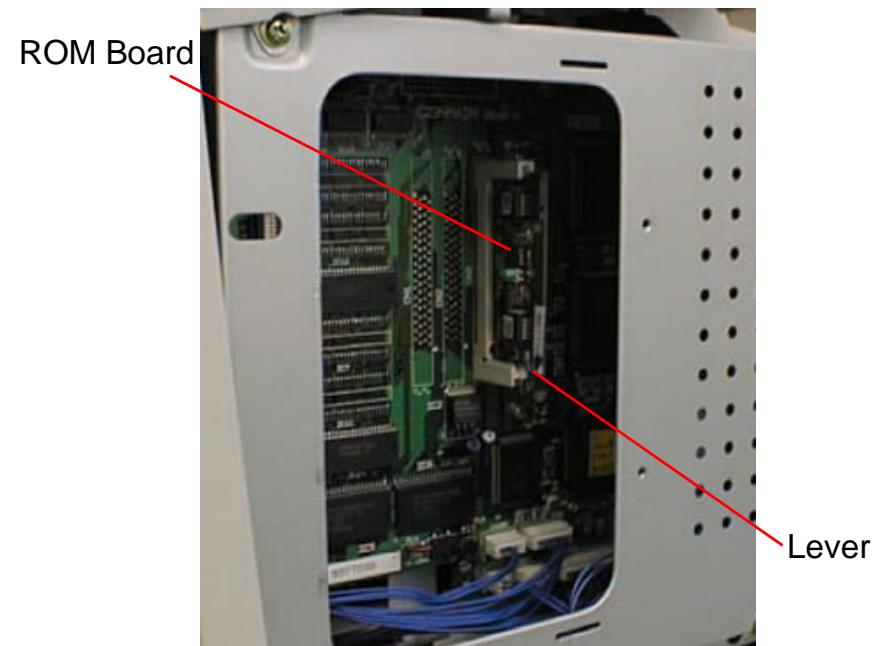


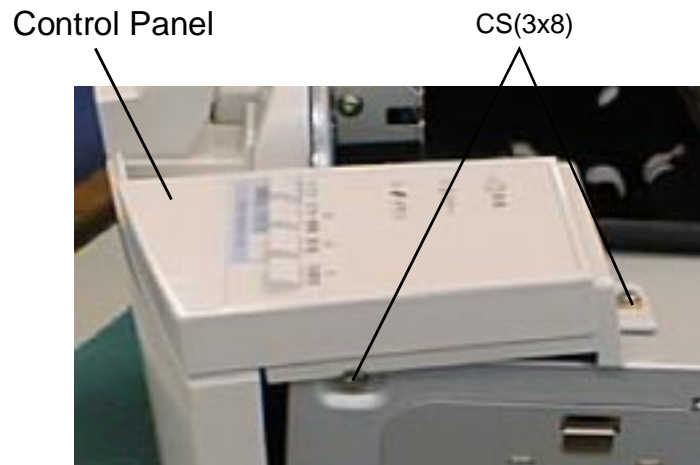
Figure 4-8. ROM Board Removal

**✓CHECK POINT**

*If ROM is Flash-ROM(C215PROG), up-date ROM program by power on operation on the control panel. (See Chapter 1)*

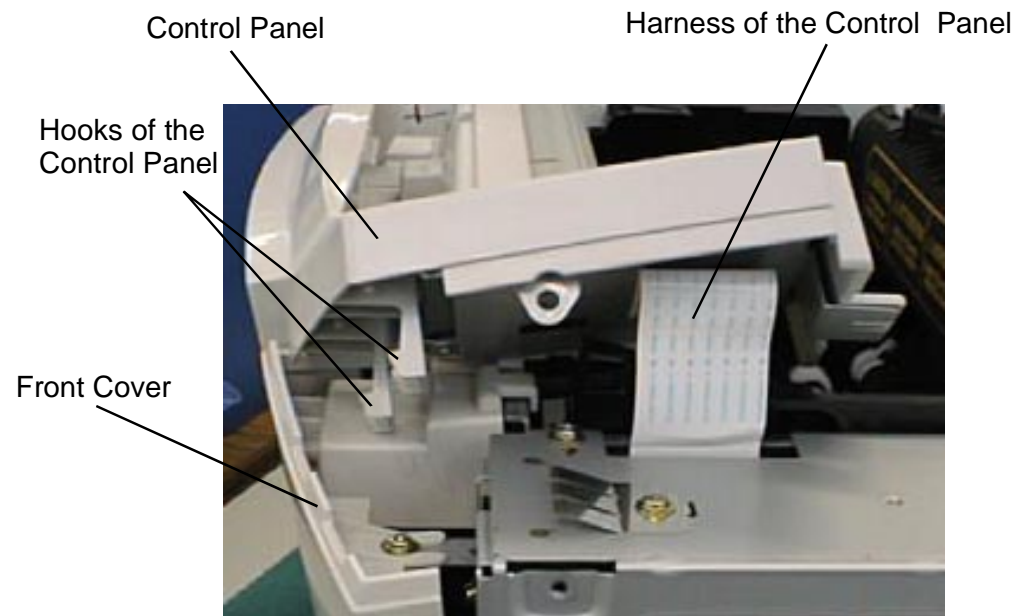
## 4.2.6 Control Panel Removal

1. Remove the right cover. (Refer to section 4.2.2)
2. Remove two CS screws(3x8) securing the control panel to the shield cover of the main board.(One screw is on the side of the cover and the other one is on the top surface)



**Figure 4-9. Fixing Screws for Control Panel**

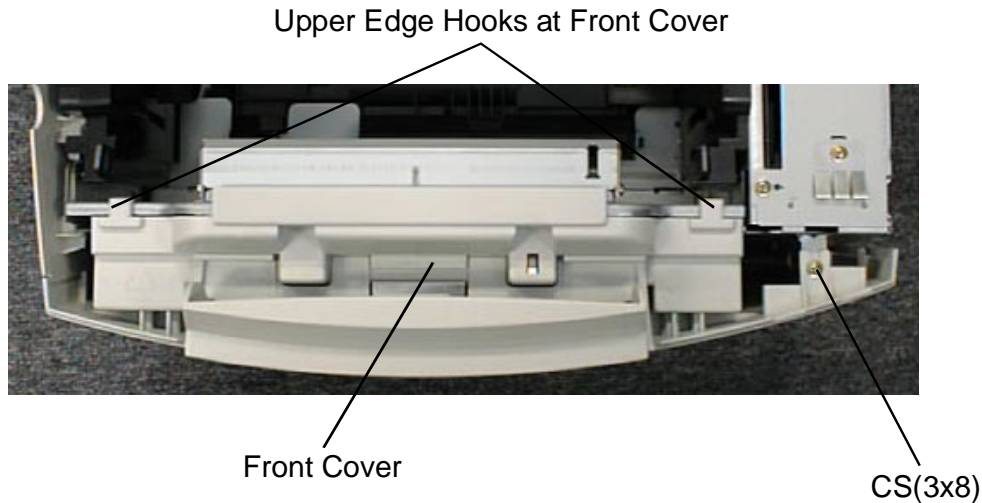
3. Push the control panel back once and release the connection between the front cover and hook of the control panel. Then, lift up the control panel a little bit.
4. Remove the harness of the control panel from the connector on the main board, and remove the control panel.



**Figure 4-10. Control Panel Removal**

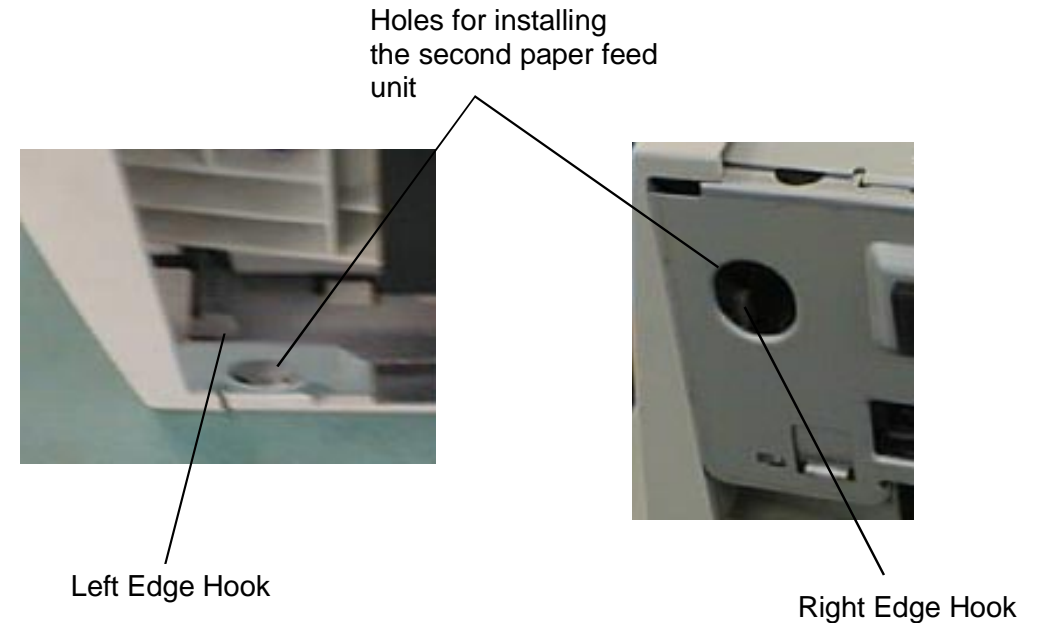
## 4.2.7 Front Cover Removal

1. Remove the right cover.(See section. 4.2.2)
2. Remove the control panel. (Refer to section.4.2.6)
3. Remove one CS screw(3x8) securing the front cover to the shield cover of the main control board.



**Figure 4-11. Fixing Screws at the Front Cover**

4. Release two lower edge hooks(one is located right bottom side, the other is located left bottom) securing the front cover to the printer mechanism by inserting the shaft of the driver from the holes, which are for installing the optional second paper feed unit, and remove the front cover from the bottom side.



**Figure 4-12. Lower Edge Hooks of the Front Cover**

**✓CHECK POINT**

***When installing the front cover to the printer, first, hand the upper hooks of the front cover on the mechanism, and install two lower hooks of the cover to the mechanism.***

## 4.2.8 Interlock Switch Removal

1. Remove the right cover.(See section 4.2.2)
2. Remove the control panel. (See section 4.2.6)
3. Remove the front cover. (See section 4.2.7)
4. Remove the harness of the inter lock switch from the switch.
5. Remove one CS screw(3x5) securing inter lock switch bracket to the printer.
6. Remove two CP(O) screws securing the inter lock switch to the bracket, and remove the inter lock switch.

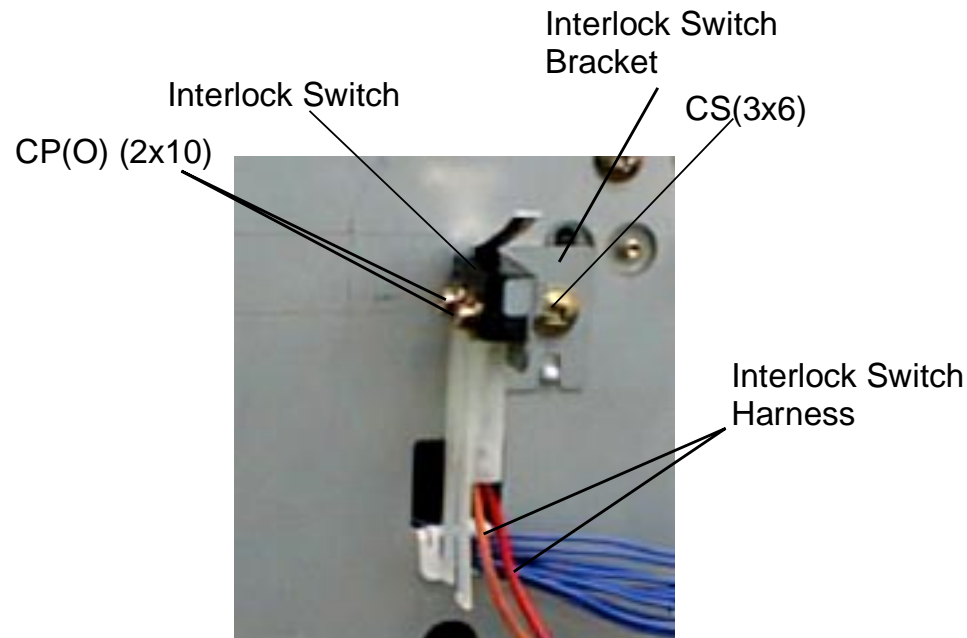


Figure 4-13. Interlock Switch Removal

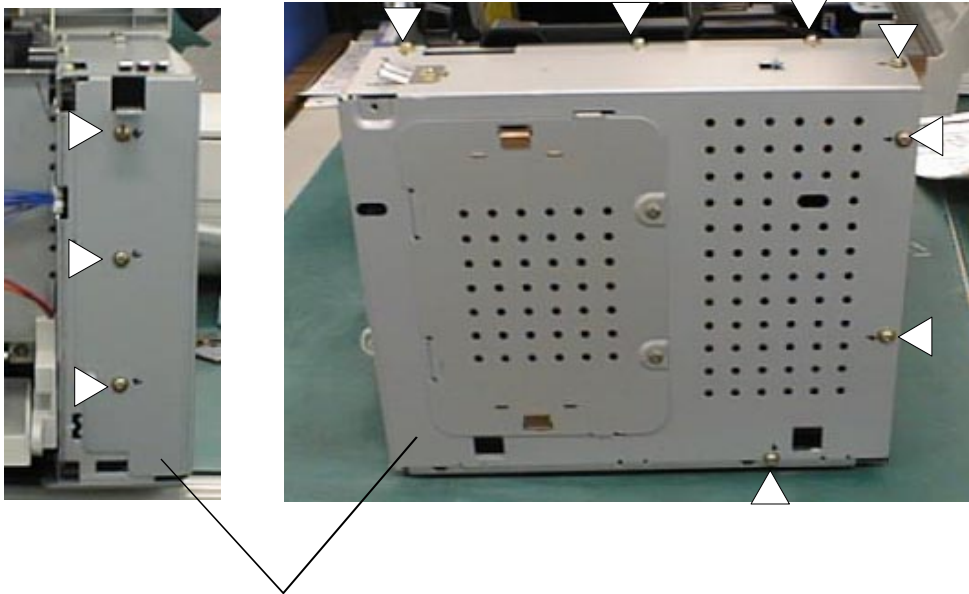
### ADJUSTMENT ►

*In case of removing the inter lock switch, make sure to perform interlock switch positioning adjustment when assembling. (Refer to Chapter5)*



## 4.2.9 Main Control Board Removal

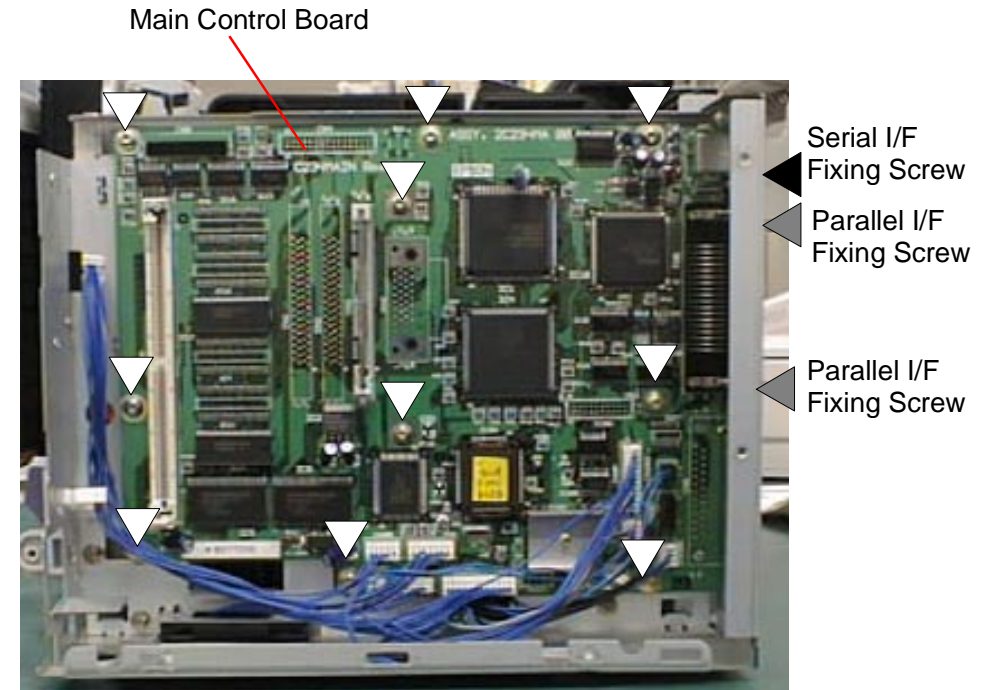
1. Remove the right cover.(See section 4.2.2)
2. Remove the control panel.(See section 4.2.6)
3. Remove the front cover. (See section 4.2.7)
4. Remove ten CBS screws(3x6) securing the shield cover of the main control board to the printer, and remove the shield cover.  
(In the figure, CBS screws are marked with ▽)



Shield Cover

**Figure 4-14. Shield Cover Removal**

5. Remove harnesses which are connected to the connector on the main control board.
6. Remove ten CS screws(3x6) securing the main control board to the printer.
7. Remove one CP fixing screw for serial interface (3x6) and two CP fixing screws(3x6) for parallel interface, and remove the board.



**Figure 4-15. Fixing Screws on the Main Control Board**

## 4.2.10 Left Cover Removal

1. Remove the right cover. (See section 4.2.2)
2. Remove paper feed roller cover. (See section 4.2.4)
3. Remove the control panel.(See section 4.2.6)
4. Remove the front cover. (See section 4.2.7)
5. Remove two CS screws(3x8) securing the left cover to the printer.
6. Lift up the left cover a little bit, and remove it to left side.

**✓CHECK POINT**

*When installing the left cover, install it so that 2 hooks of the left cover are inserted to the corresponding holes on the printer side.*

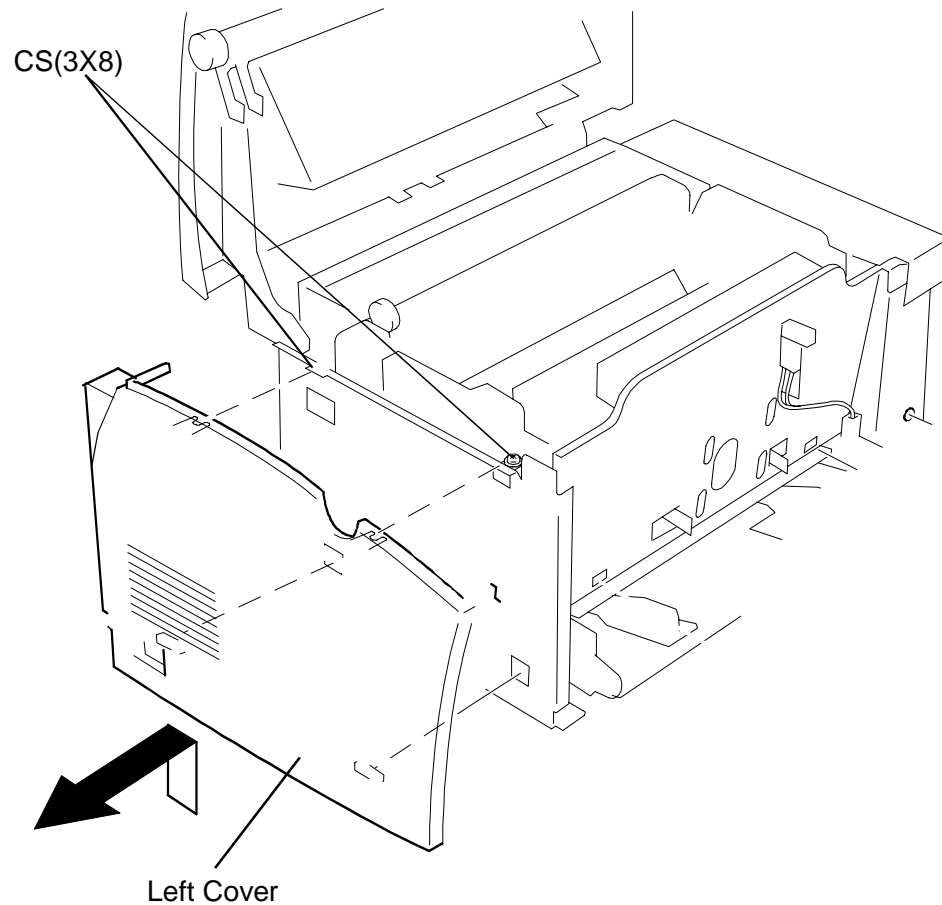


Figure 4-16. Left Cover Removal

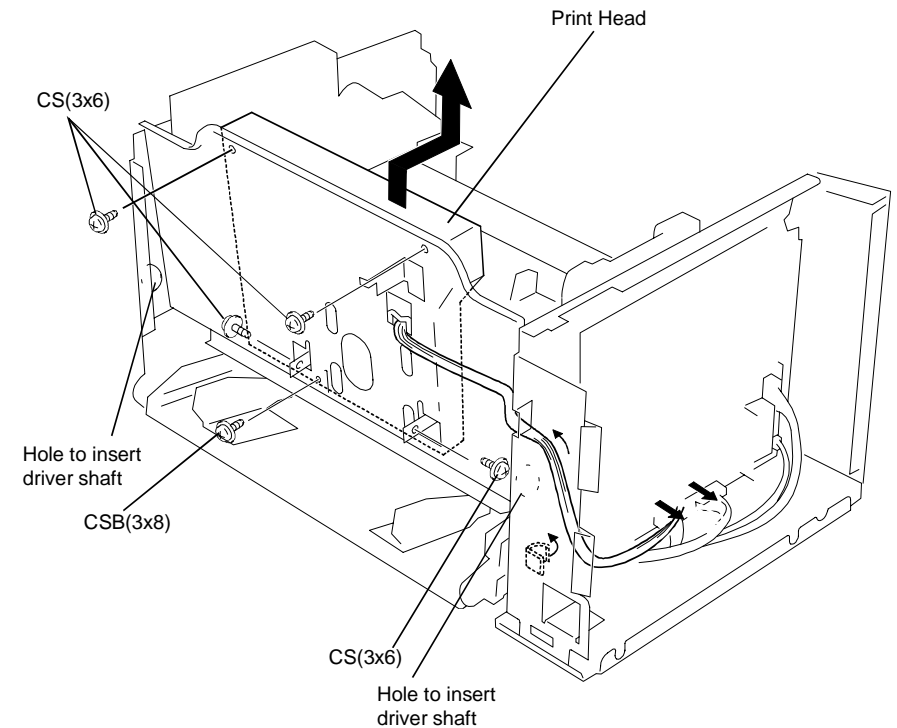


### 4.2.11 Print Head Unit Removal

1. Remove the right cover.(See section 4.2.2)
2. Remove the paper empty sensor.(See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover.(See section 4.2.7)
5. Remove the left cover. (See section 4.2.10)
6. Remove the shield cover of the main control board. (See section 4.2.9)
7. Remove the harness of the print head unit from CN205 and CN209 on the board.
8. Remove one CSB screw(3x8) and four CS screws(3x6) securing the print head unit to the printer.
9. Remove the harness from two clamps, which are securing the harness to the printer, and remove the print head unit.

#### ✓CHECK POINT

***If you need to remove the fixing screw located at the bottom of the print head unit(two CS screws), insert the driver shaft from the holes located both right and left sides.***



**Figure 4-17. Print Head Unit Removal**

## 4.2.12 Paper Feed Roller Unit Removal

1. Remove the right cover. (See section 4.2.2)
2. Remove the paper empty sensor.(See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover.(See section 4.2.7)
5. Remove the left cover. (See section 4.2.10)
6. Remove two CS screws(3x6) securing the manual feed guide to the frame of the printer, and remove the manual feed guide.

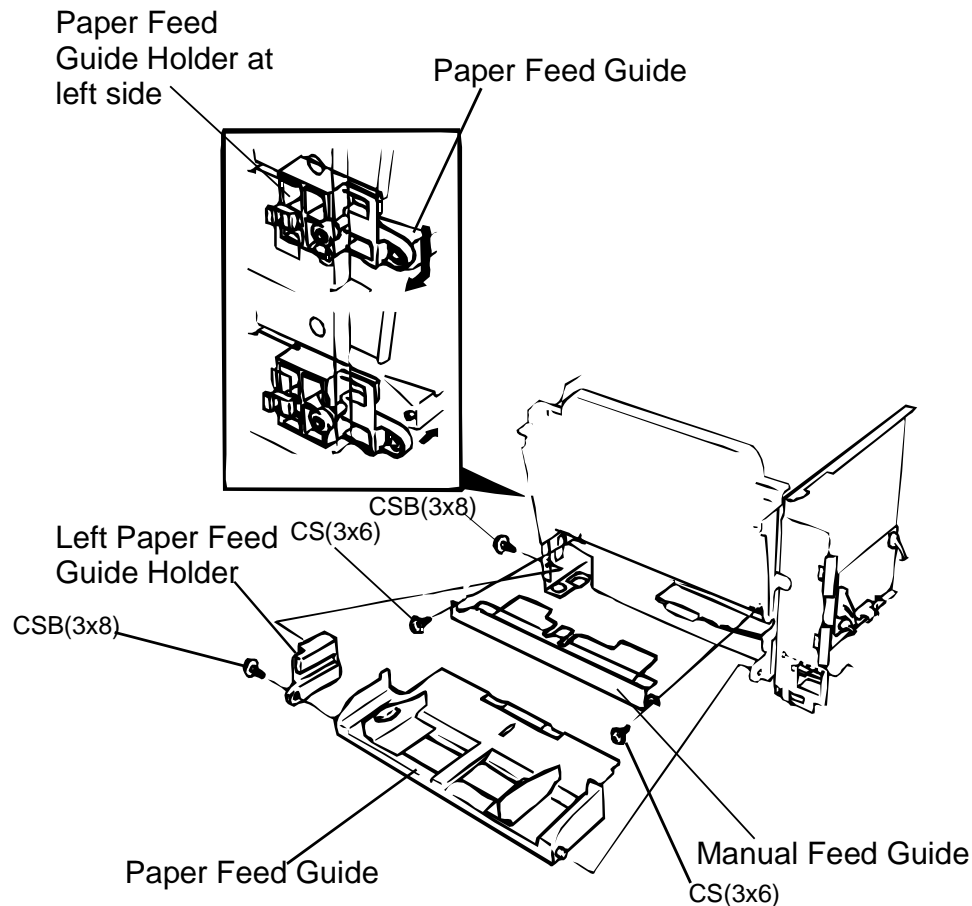


Figure 4-18. Paper Feed Guide Removal

7. Remove one CSB screws(3x8) securing the left paper feed guide holder to the left frame of the printer.
8. Remove one CSB screw(3x8) securing the paper feed guide holder and paper feed guide.
9. Release the connection between the paper guide and holder, pushing down the left paper guide holder, and remove the paper guide.
10. Locate the printer's back side bottom so that printer's bottom side comes side. Remove two CSB screws (3x8), one CS screw (3x6) and one fixing screw , securing the paper feed unit to the frame of the printer.

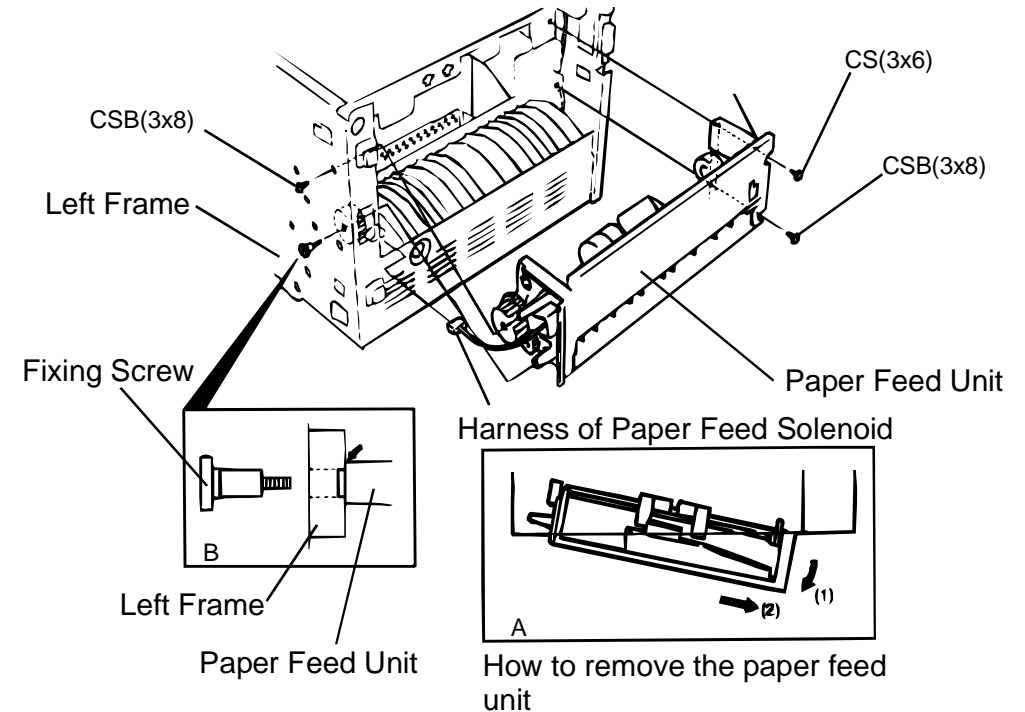


Figure 4-19. Paper Feed Unit Removal

11. Pull the right side of the paper feed unit toward yourself(1), and remove it, moving the whole unit to right side.(2) (See "A" in figure4-19)

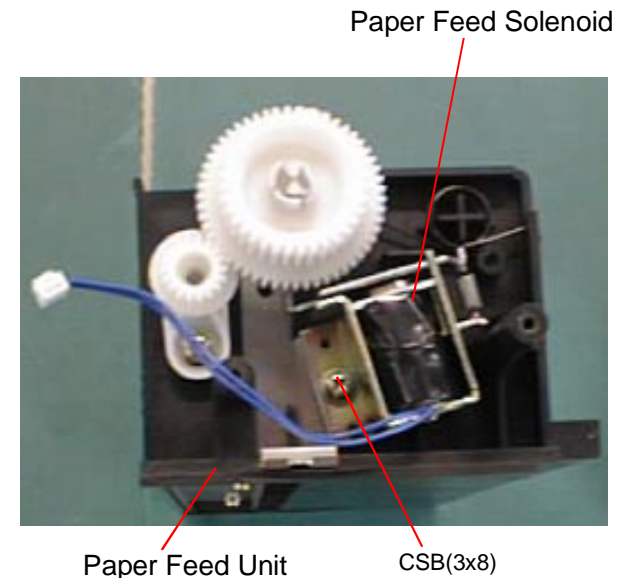
12. Remove the harness of paper feed solenoid, which is connected to the paper feed unit, from the connector at the paper guide.

**✓CHECK POINT**

***When installing the fixing screw, make sure that the paper feed unit is in the frame.(See "B" in figure4-19)***

### 4.2.13 Paper Feed Solenoid Removal

1. Remove the right cover. (See section 4.2.2)
2. Remove the paper empty sensor.(See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover.(See section 4.2.7)
5. Remove the left cover. (See section 4.2.10)
6. Remove paper feed unit. (See section 4.2.12)
7. Remove one CSB screw(3x8) securing the paper feed solenoid to the paper feed unit, and remove the paper feed solenoid.



**Figure 4-20. Paper Feed Solenoid Removal**

## 4.2.14 Top Cover Removal

1. Remove the right cover. (See section 4.2.2)
2. Remove the paper empty sensor.(See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover.(See section 4.2.7)
5. Remove the left cover.(See section 4.2.10)
6. Push both left and right hinges of the top cover toward arrow directions in figure 4-21 and remove the top cover.

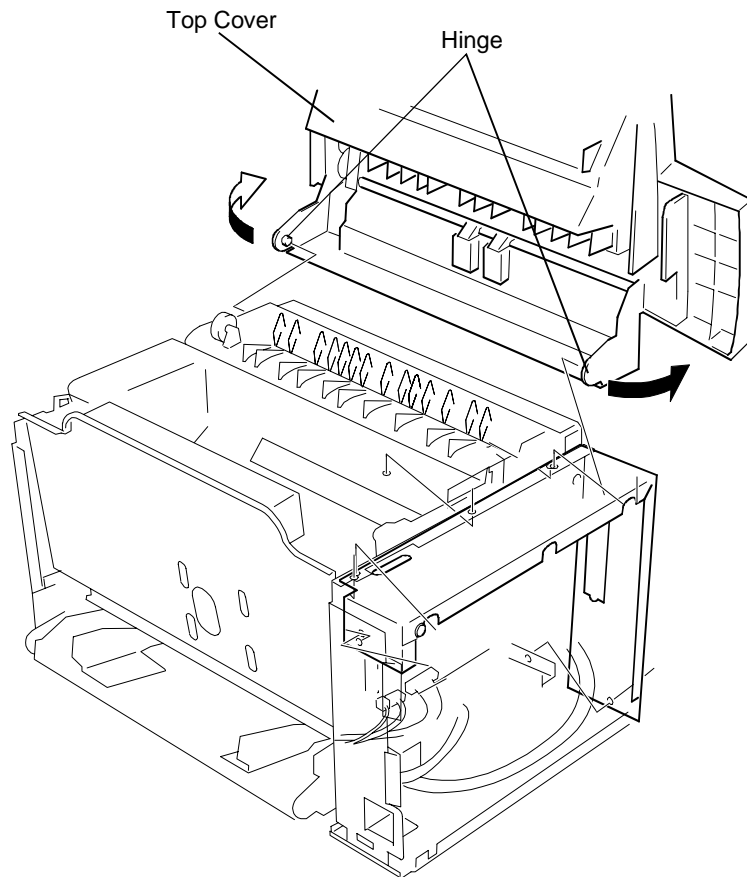


Figure 4-21. Top Cover Removal

### ADJUSTMENT ►

*If top cover is exchanged, be sure to perform Interlock Positioning Adjustment. (Refer to Chapter5).*

## 4.2.15 Rear Cover Removal

1. Remove the right cover. (See section 4.2.2)
2. Remove the paper empty sensor.(See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover.(See section 4.2.7)
5. Remove the left cover.(See section 4.2.10)
6. Remove the top cover. (See section 4.2.14)
7. Remove two CBB screws(3x8), three CS screws(3x6) and one CP screw with out-teeth washer securing the rear cover to the printer.
8. Lift up the rear cover once and remove it.

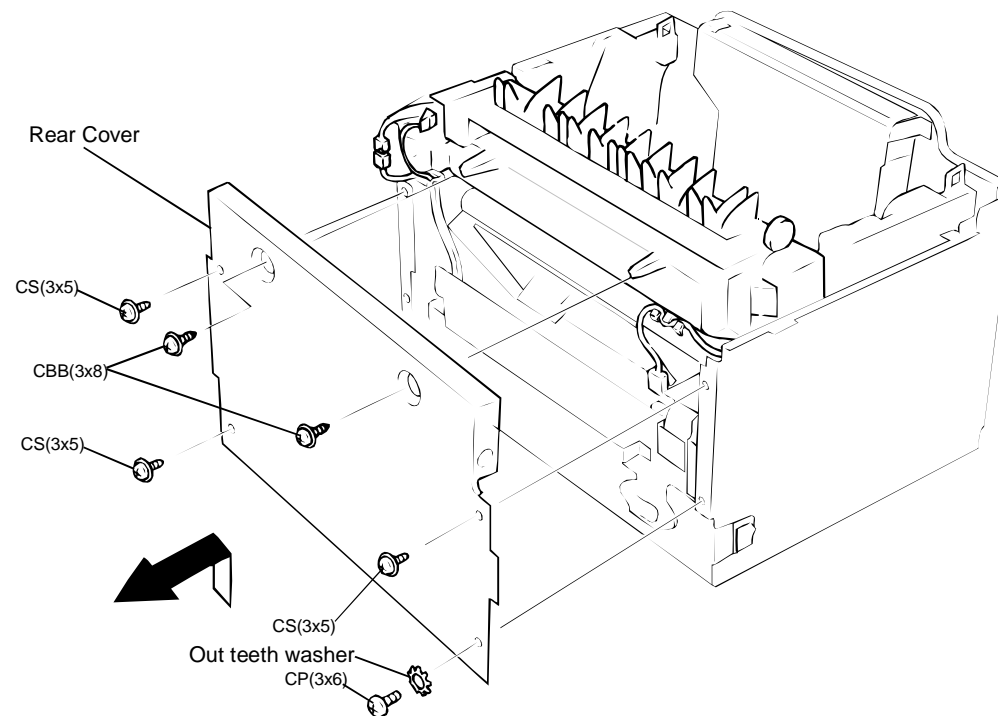


Figure 4-22. Rear Cover Removal

## 4.2.16 Fusing Unit Removal

It is necessary to exchange the fusing unit every 50000 sheets.

### CAUTION

*The life span of the transfer roller and fusing unit are same. So, if you need to exchange the fusing roller because of worn-out or etc., make sure to exchange the transfer roller too. (See section 4.2.18)*

1. Remove the right cover. (See section 4.2.2)
2. Remove the paper empty sensor.(See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover.(See section 4.2.7)
5. Remove the left cover.(See section 4.2.10)
6. Remove the top cover. (See section 4.2.14)
7. Remove the rear cover. (See section 4.2.15)
8. Remove harness of the paper eject sensor at the fusing unit from the connector part of the paper eject sensor.
9. Remove the harness of the thermister from the relay connector.
- 10.Remove the harness of the heater lamp from the clamp of the paper guide, and also remove it from the connector on the power board.
- 11.Remove two CS screws(3x8) and one CSB screw (3x8)securing the fusing unit to the printer, and also remove the spacer.
- 12.Remove the fusing unit upward.

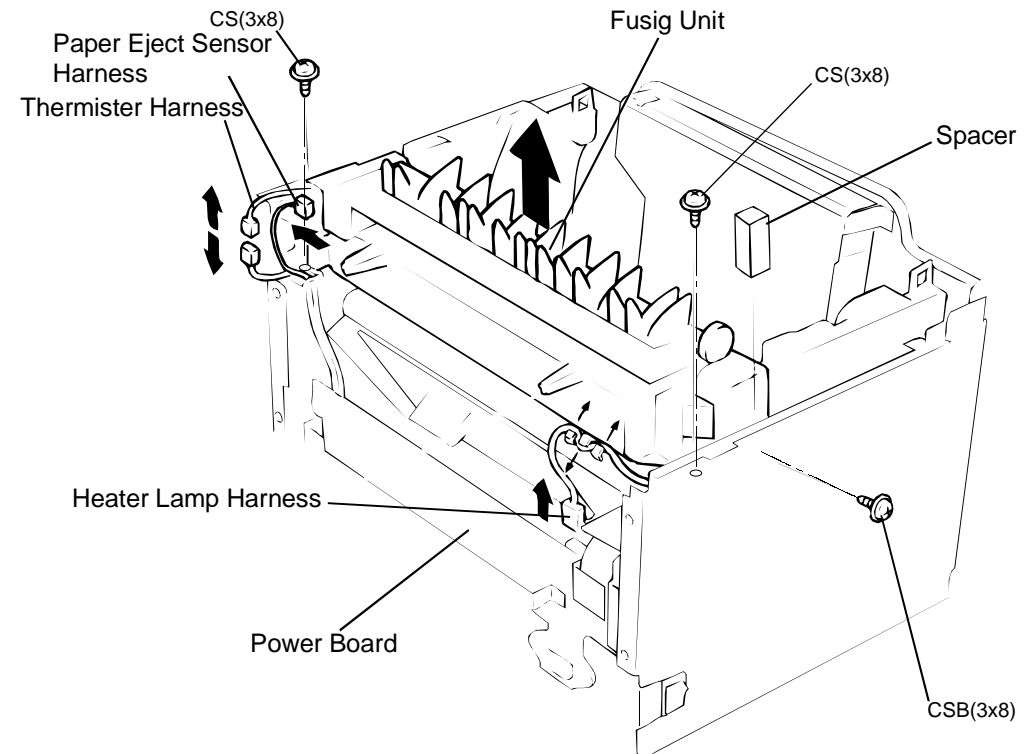


Figure 4-23. Fusing Unit Removal

## 4.2.17 Disassembling the Fusing Unit

If you need to disassemble the fusing unit because of image quality problems and defective parts, follow the procedure below.

### 4.2.17.1 Heater Lamp Removal

1. Remove the fusing unit. (See section 4.2.16)
2. Remove two CSB screws(3x8) securing the fusing unit.
3. Release the right and left hooks connecting the fusing unit, and separate the fusing unit.

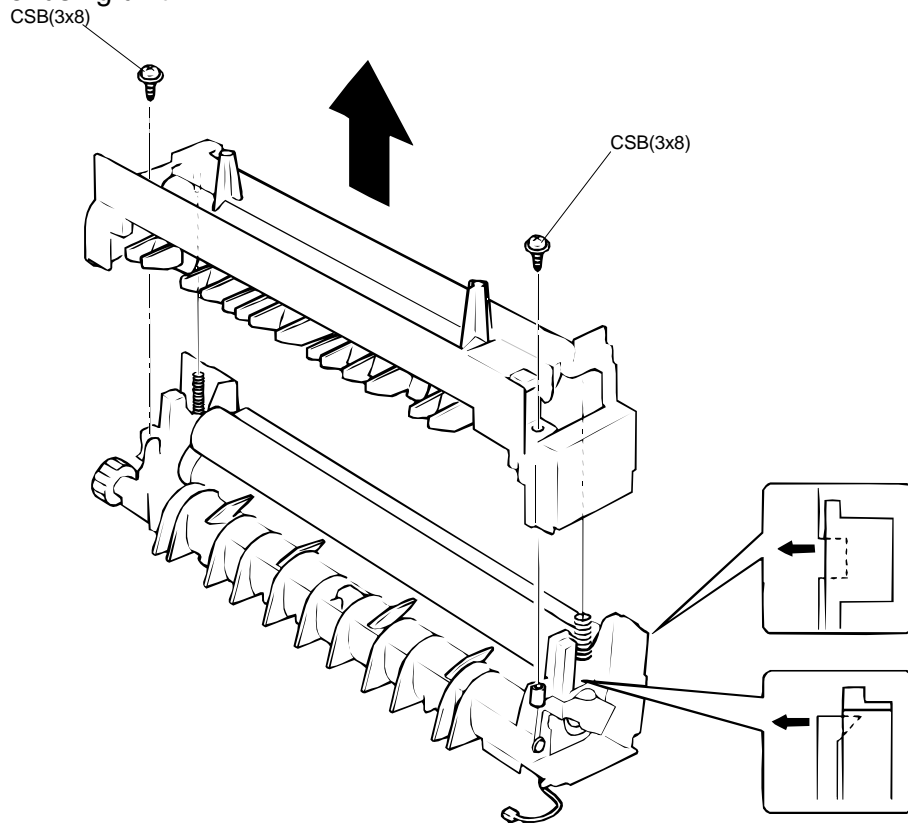


Figure 4-24. Separation of the Fusing Unit

4. Remove the backup roller.
5. Refer to Figure4-25. 1)Move the front fusing guide board to the left side once, 2)remove the right side of the guide board, 3) remove the left side of the guide board.

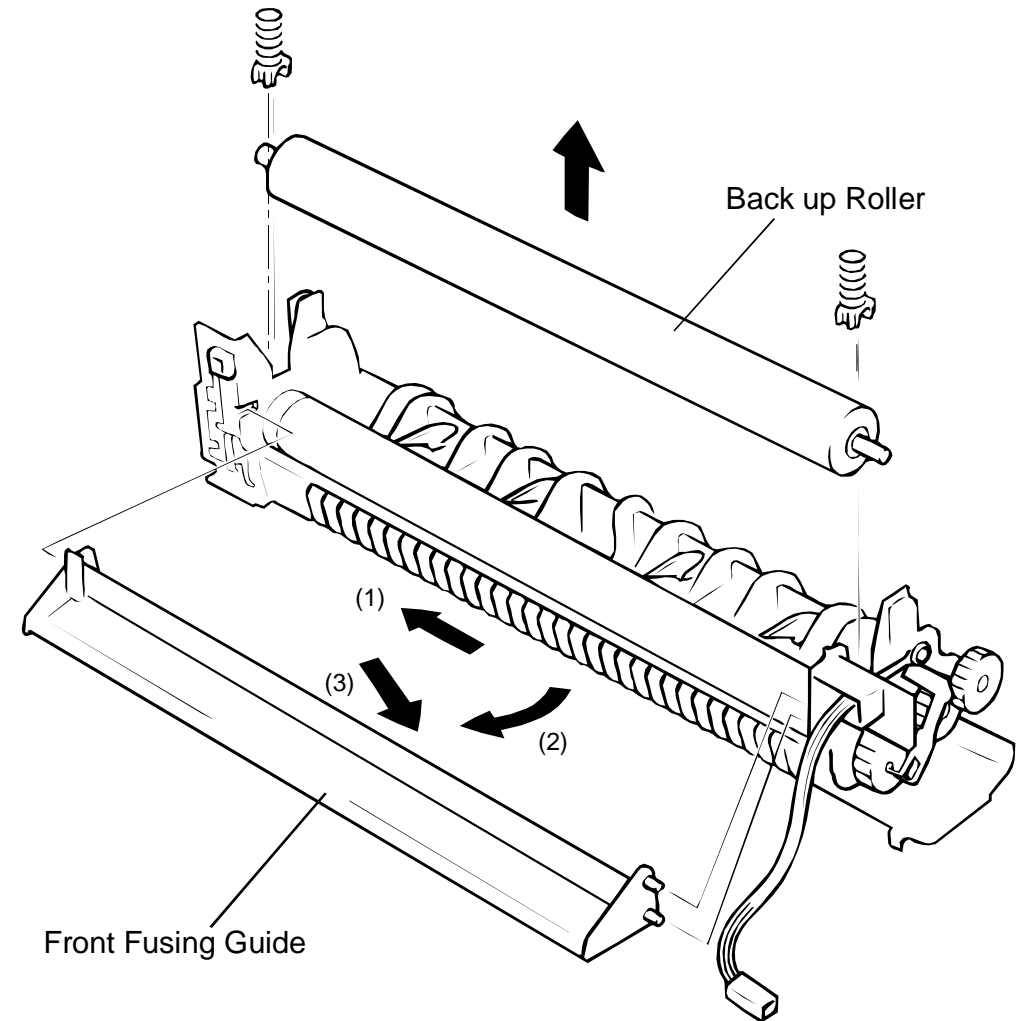


Figure 4-25. Backup Roller and Front Fusing Guide Removal

6. Remove one CP(O) screw(3x6) and one CSB screw(3x8) securing the terminal board to the fusing unit.
7. Remove the heater lamp.

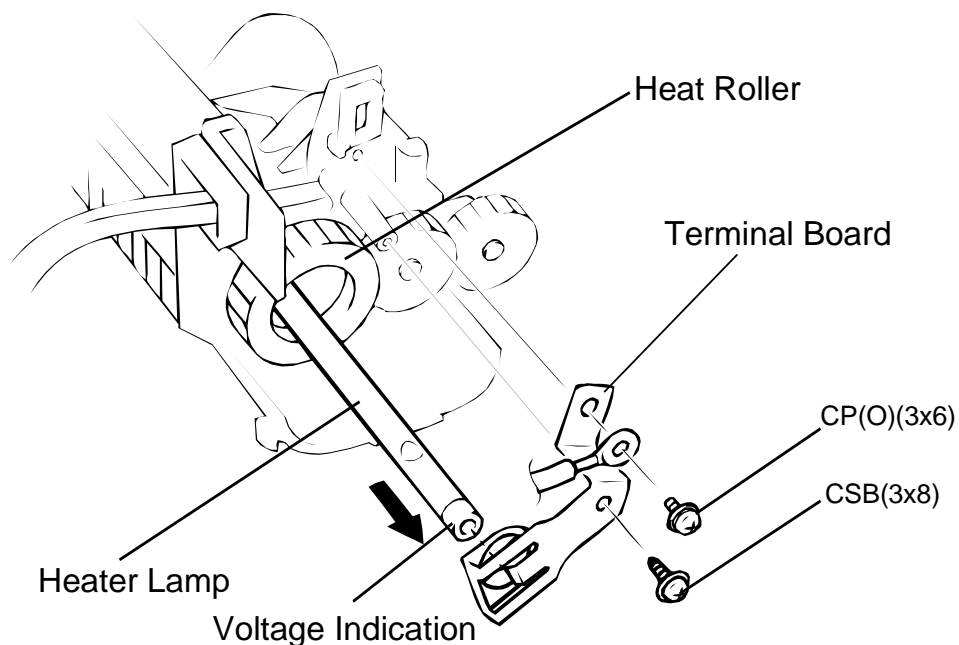


Figure 4-26. Heater Lamp Removal

**✓CHECK POINT**

- *Do not touch the glass surface of the heater lamp with your bare-hands.*
- *When installing the heater lamp, the side that indicates lamp voltage should come to the terminal board side.*



#### 4.2.17.2 Thermister, Thermostat Removal

1. Remove the fusing unit. (See Section 4.2.16)
2. Remove the heater lamp.(See section 4.2.17.1)
3. Remove the driven gear from the heat roller.
4. 1)Move the heat roller to the right side once, 2)Move it to (2) direction shown in the figure, 3) Pull the roller out toward (3) direction.

#### ✓CHECK POINT

*In order to avoid damaging the heat roller surface by the fusing separation claw, perform disassembly and assembly of the roller by lifting it up a little bit.*

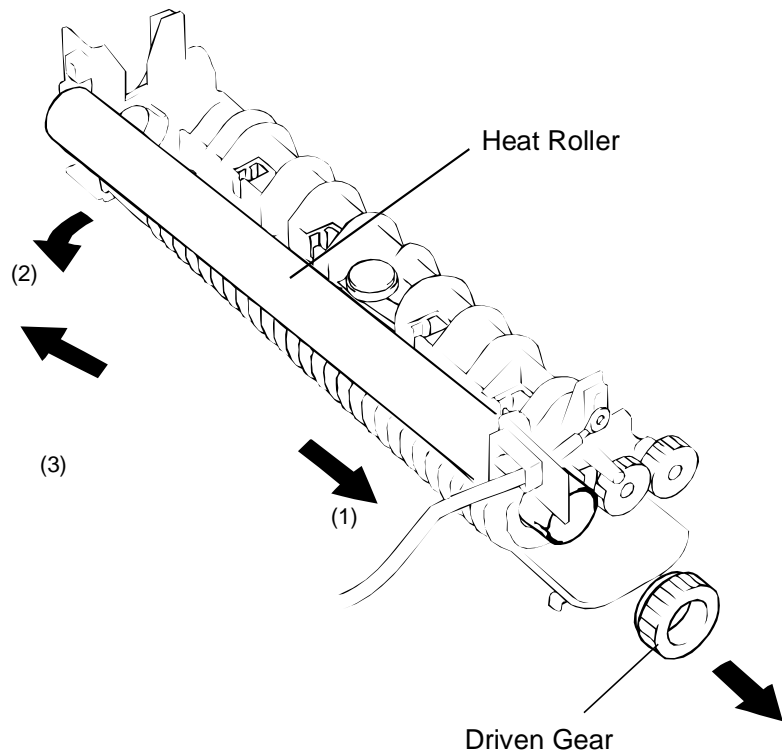


Figure 4-27. Heat Roller Removal

5. Remove four fusing unit separation claws.
6. Remove one CSB(3x8) screw securing the thermister to the fusing unit, and remove the thermister from the fusing unit.
7. Remove two CP(O) screws(3x8) securing the thermostat to the fusing unit, and remove the thermostat.

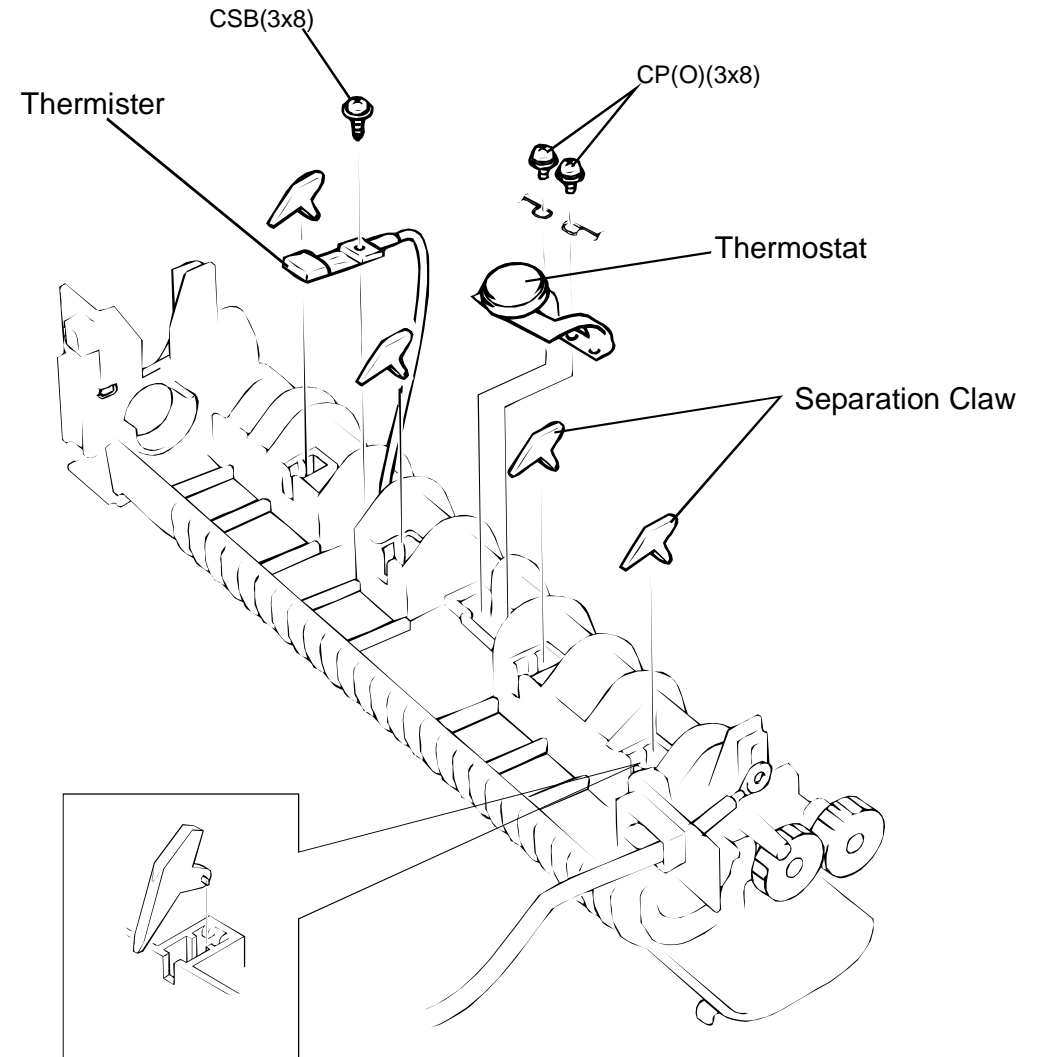


Figure 4-28. Thermister and Thermostat Removal

**✓CHECK POINT**

- Face down the sharp side of the separation claws as it is shown in Figure4-28, when removing or installing them.
- Lay the harness of the thermister, as it is shown figure4-29.

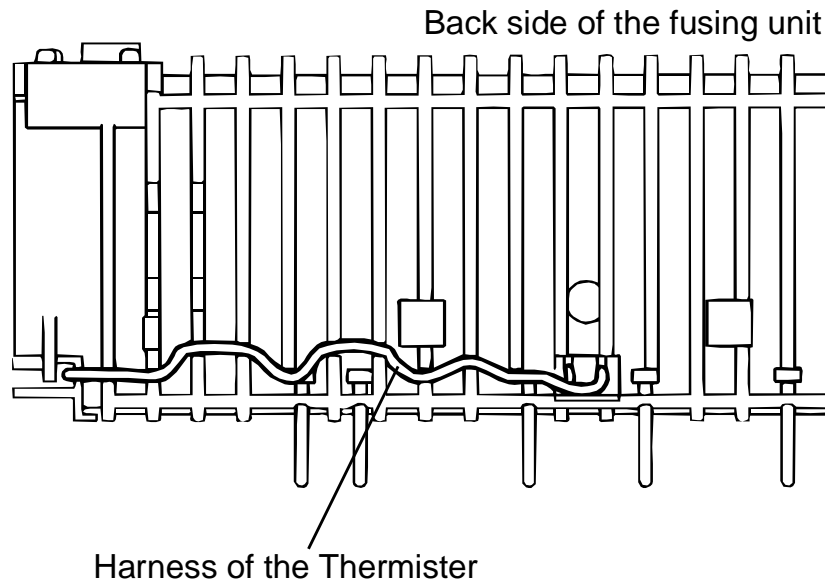
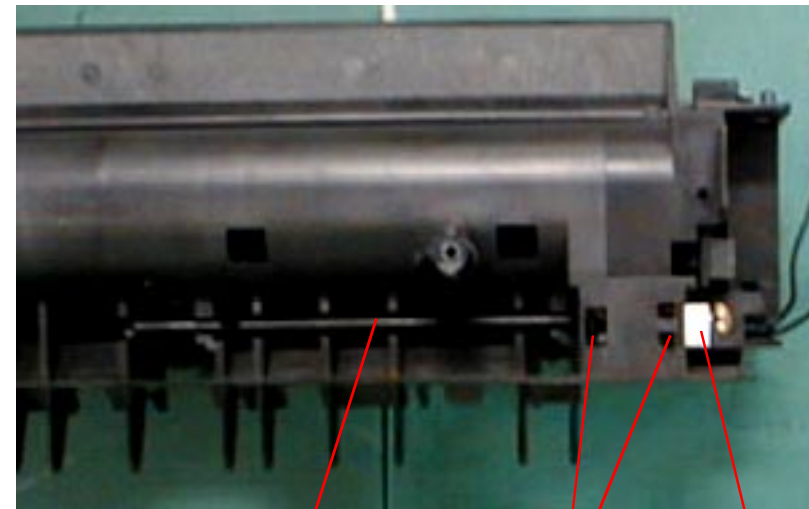


Figure 4-29. Locating Harness of the Thermister

#### 4.2.17.3 Paper Eject Sensor(PS3)

1. Remove the fusing unit. (See section 4.2.16)
2. Release the connection between the sensor and lever, moving the lever of the paper eject sensor.
3. Release the hook of sensor securing the sensor to the fusing unit, and remove the sensor.



Sensor Lever      Sensor Hook      Paper Eject Sensor

Figure 4-30. Paper Eject Removal

### 4.2.18 Transfer Roller Exchange

It is necessary to exchange the transfer roller, approximately every 50000 sheets.

**CAUTION**

- *Since the life span of the transfer roller and fusing unit are same, if you need to exchange the transfer roller because of worn-out or etc., make sure to exchange the fusing unit.*
- *Since dents and dirt on the surface of the roller transfer give bad influence on the printing quality, do not let chemicals or toner attach on the roller surface.*
- *When you handle the transfer roller, handle it, holding the shaft of the roller or shaft support.*

1. Remove fusing unit.(See section 4.2.16)
2. Remove two CBB screws(3x8) securing the front cover transferring to the printer. Remove the front cover transferring.

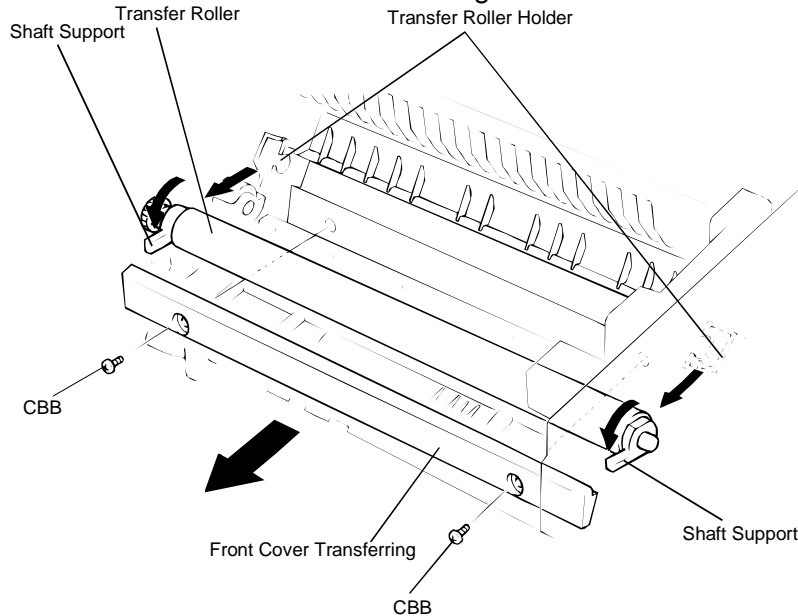


Figure 4-31. Transfer Roller Removal

3. Push down the lever of right and left transfer roller supports(white) toward front side, and remove the transfer roller from the transfer roller holder.
4. Remove left and right shaft support and gear from the removed transfer roller, and install them to the new transfer roller.

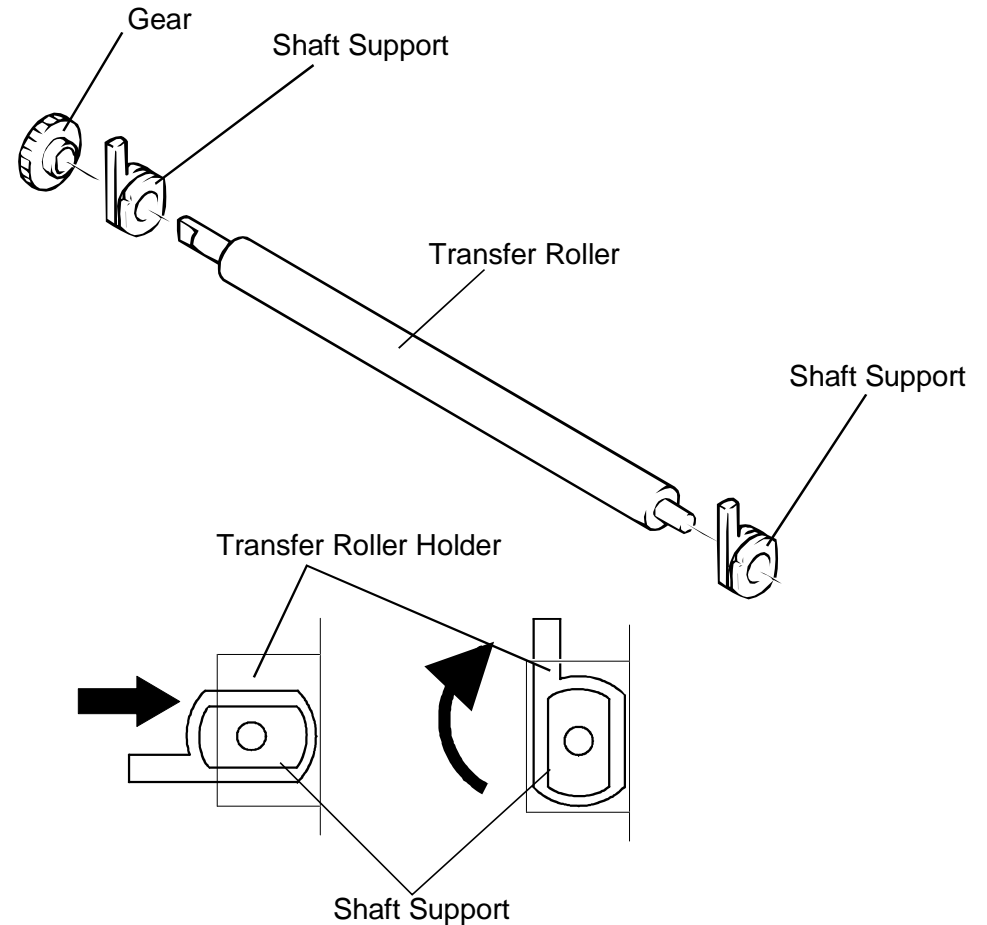


Figure 4-32. Installing the Transfer Roller

**✓CHECK POINT**

*Remove the fusing unit once so that the transfer roller can be removed easily.*

## 4.2.19 Power Board Removal

1. Remove the right cover. (See section 4.2.2)
2. Remove the paper empty sensor. (See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover.(See section 4.2.7)
5. Remove the shield cover of the main control board. (See section 4.2.9)
6. Remove the left cover.(See section 4.2.10)
7. Remove the top cover. (See section 4.2.14)
8. Remove the rear cover. (See section 4.2.15)
9. Remove the harness of the heater lamp from connector CN2 on the power board. (Refer to section 4.2.16)
- 10.Remove the harness of the inter lock switch from connector CN3 on the power board.
- 11.Remove the harness of the main control board from connector CN207 on the main board.
- 12.Remove two CP(O) screws(3x6) and two CS screws(3x6) securing the power board unit to the right and left frames of the printer, and remove the power board unit.

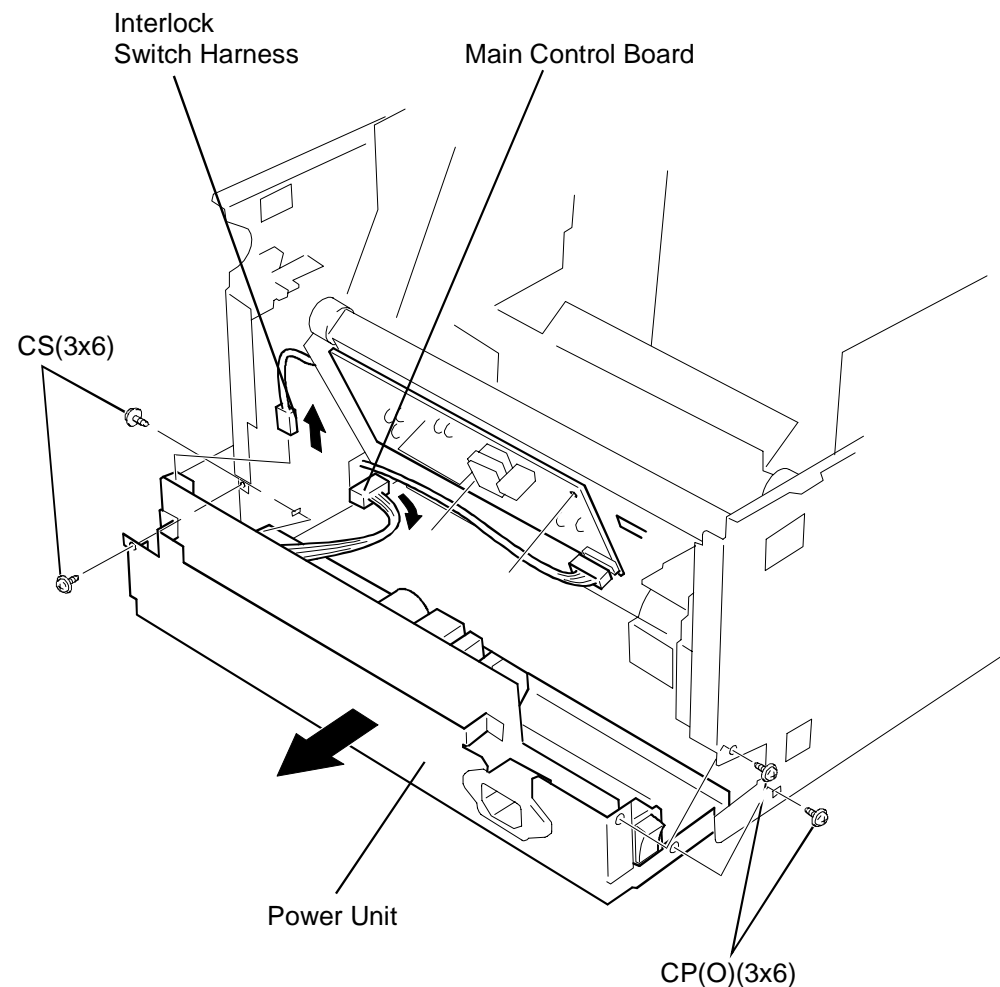


Figure 4-33. Power Unit Removal

13. Remove 2 CS screws(3x8), one CP(O) screw(3x6), one CP screw(4x6) and one out-teethed washer securing the power board to the power installation board, and remove the power board.

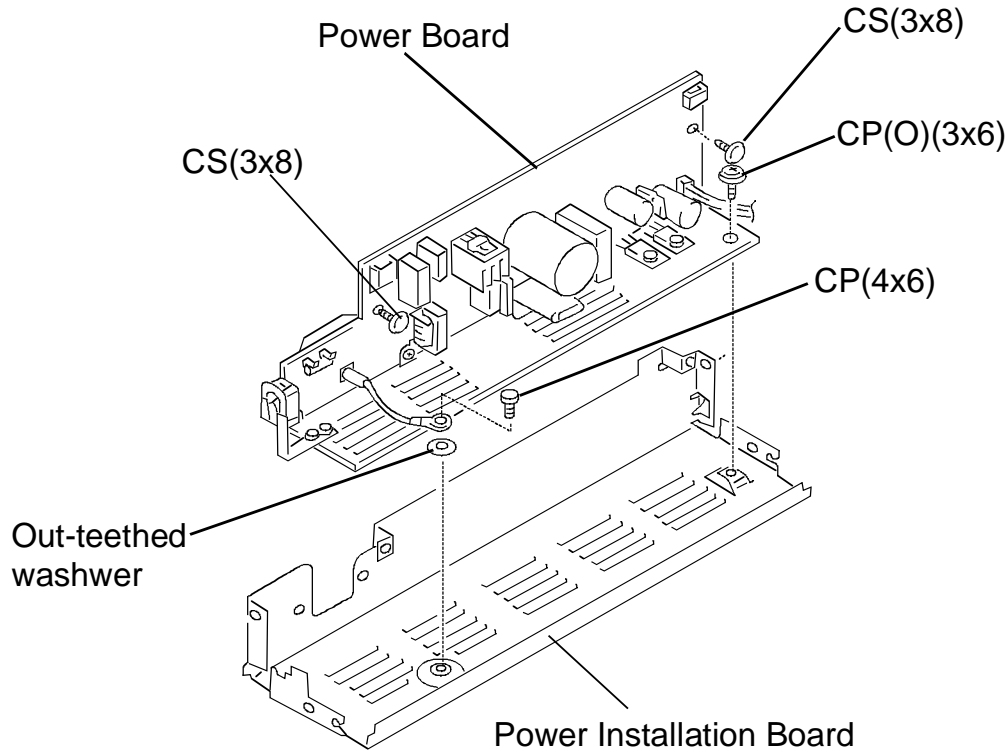


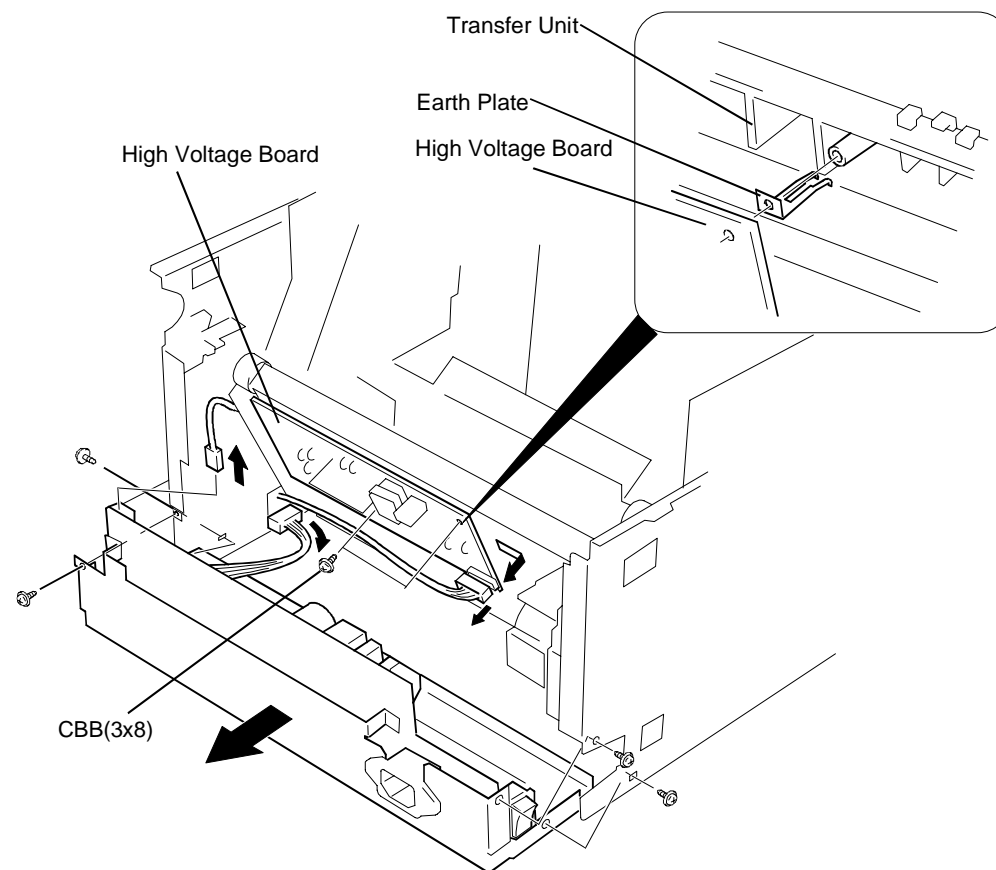
Figure 4-34. Power Board Removal

## 4.2.20 High Voltage Board Removal

1. Remove the right cover. (See section .4. 2.2)
2. Remove the paper empty sensor. (See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover. (See section 4.2.7)
5. Remove the shield cover of the main control board. (See section 4.2.9)
6. Remove the left cover.(See section 4.2.10)
7. Remove the top cover. (See section 4.2.14)
8. Remove the rear cover. (See section 4.2.15)
9. Remove the power unit. (See section 4.2.19)
- 10.Remove the harness coming out of the main control board from the connector of the high voltage board.
- 11.Remove two CBB screws(3x8) securing the high voltage board to the transfer unit.
- 12.Remove the high voltage board and earth plate.

### ✓CHECK POINT

***When installing the high voltage board, install the earth plate between high voltage board and transfer unit.***



**Figure 4-35. High Voltage Board Removal**

### 4.2.21 Paper Sensor(PS1) Removal

1. Remove the right cover.(See section 4.2.2)
2. Remove the paper empty sensor. (See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover. (See section 4.2.7)
5. Remove the shield cover of the main control board. (See section 4.2.9)
6. Remove the left cover.(See section 4.2.10)
7. Remove the top cover. (See section 4.2.14)
8. Remove the rear cover. (See section 4.2.15)
9. Remove the power unit. (See section 4.2.19)
10. Release the hook of sensor securing the paper feed sensor to the paper guide, and remove the sensor.
11. Remove the harness of the sensor from the connector of the paper feed sensor.

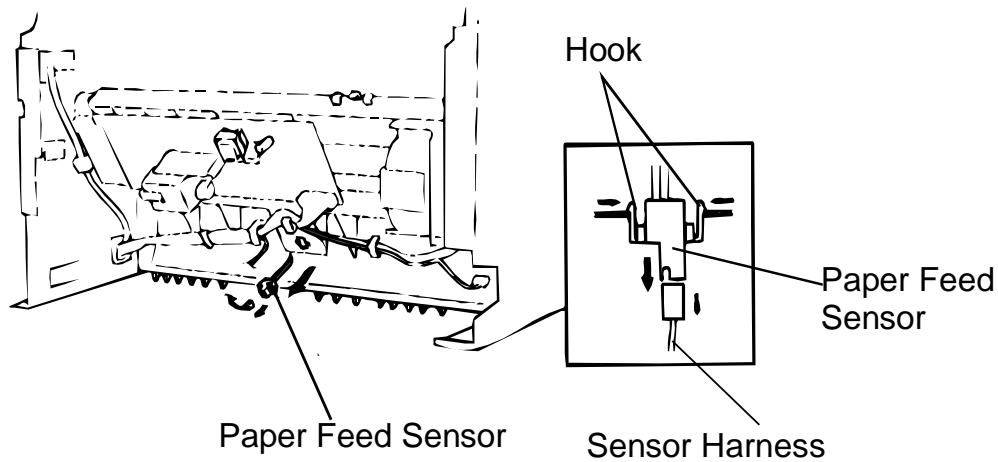


Figure 4-36. Paper Feed Sensor Removal

### 4.2.22 Main Motor Removal

1. Remove the right cover. (See section .4. 2.2)
2. Remove the paper empty sensor. (See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover. (See section 4.2.7)
5. Remove the shield cover of the main control board. (See section 4.2.9)
6. Remove the left cover.(See section 4.2.10)
7. Remove the top cover. (See section 4.2.14)
8. Remove the rear cover. (See section 4.2.15)
9. Remove the power unit. (See section 4.2.19)
10. Remove the main motor harness from connector CN206 on the main control board.
11. Remove the main motor harness from the clamp part of the paper guide.
12. Remove two CP(O) screws securing the main motor to the left frame.
13. Remove the main motor from the printer inside.

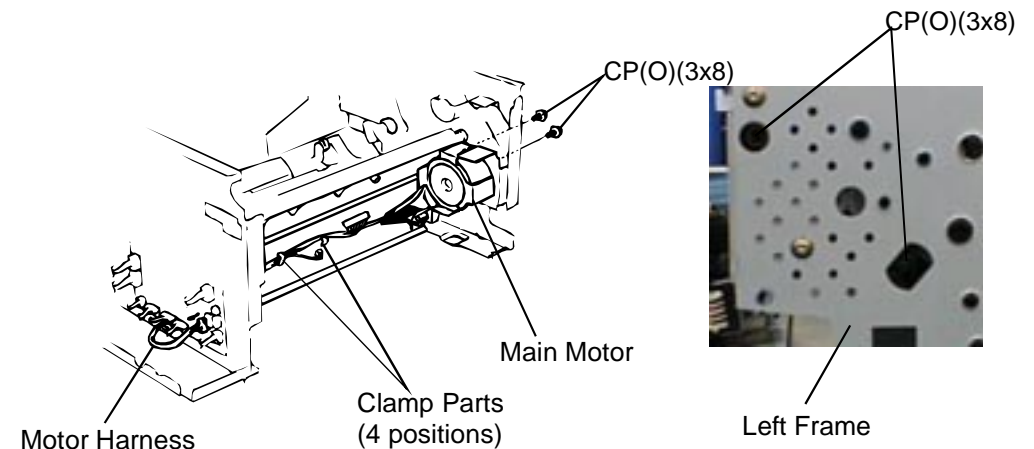
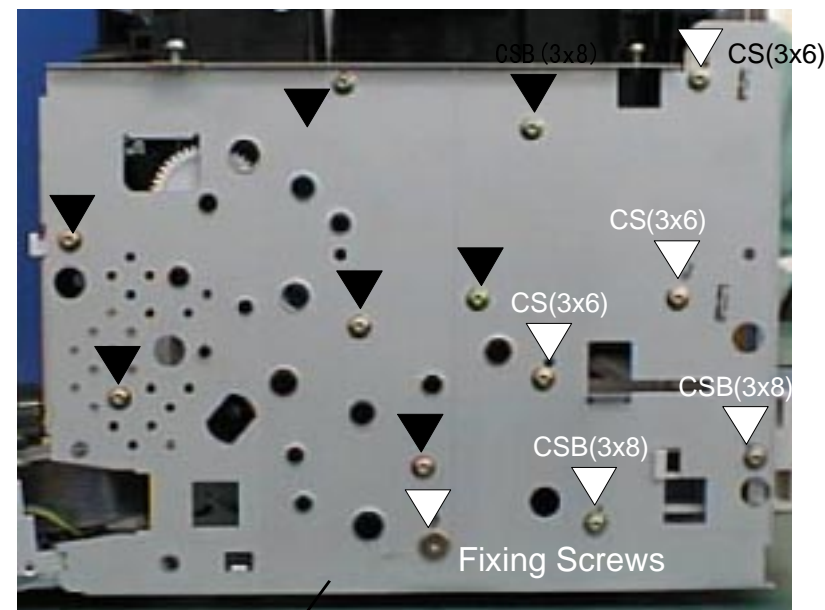


Figure 4-37. Main Motor Removal

### 4.2.23 Driving Unit Removal

1. Remove the right cover. (See section. 4. 2.2)
2. Remove the paper empty sensor. (See section 4.2.4)
3. Remove the control panel. (See section 4.2.6)
4. Remove the front cover. (See section 4.2.7)
5. Remove the shield cover of the main control board. (See section 4.2.9)
6. Remove the left cover.(See section 4.2.10)
7. Remove the top cover. (See section 4.2.14)
8. Remove the rear cover. (See section 4.2.15)
9. Remove the fusing unit. (See section 4.2.16)
- 10.Remove the power unit. (See section 4.2.19)
- 11.Remove the screw for main motor. (See section 4.2.22)
- 12.Remove three CS screws(3x6), one paper feed fixing screw, two CSB screws (3x8) and remove unit, securing the driving unit to the printer.  
(Parts marked with ▽)
- 13.Remove seven CSB screws(3x8) securing the driving unit to the left frame.(Parts marked with ▼)



Left Frame

Figure 4-38. Left Frame Removal



## 4.3 DISASSEMBLY AND ASSEMBLY FOR OPTIONAL SECOND PAPER FEED UNIT

### 4.3.1 Second Paper Feed Roller Exchange

1. Lift up the tab of the paper feed roller. (1)
2. Move the paper feed roller to (2) direction.
3. Remove the paper feed roller toward (3) direction.
4. Install the new paper feed roller in reverse order.

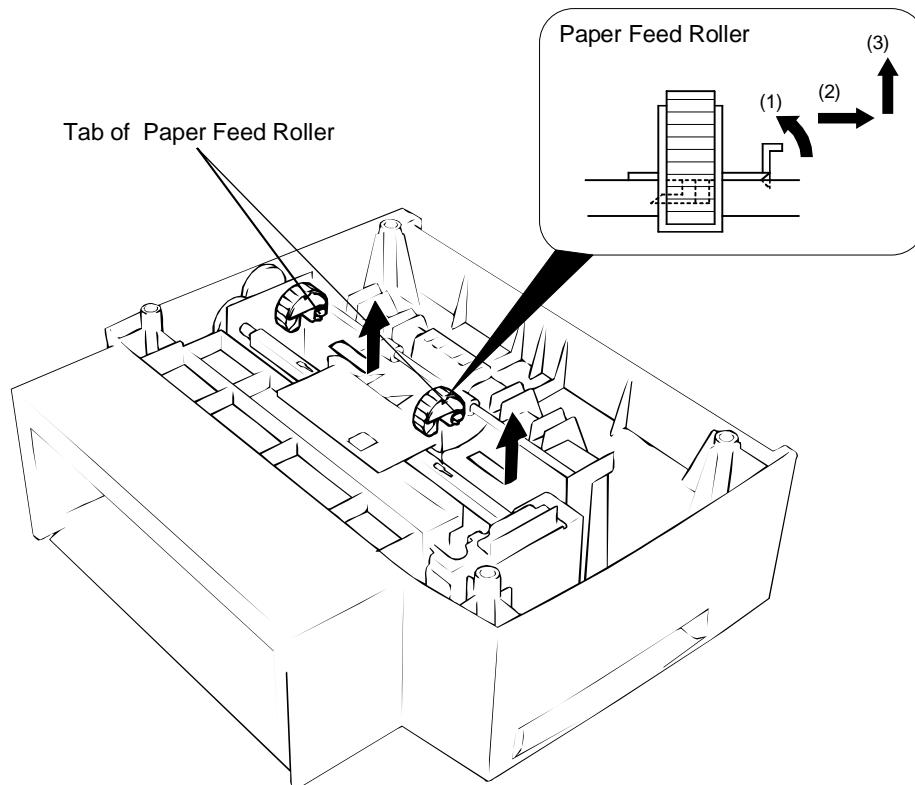


Figure 4-39. Second Paper Feed Roller Removal



**CHAPTER**

**5**

**ADJUSTMENT**



## 5.1 ADJUSTMENT

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This chapter explains adjustment procedure. Adjustment should be done after components and parts are exchanged.

### 5.1.1 Interlock Switch Position Adjustment

If the printer power does not turn on when the top cover is closed even at the power switch on, perform the position adjustment of interlock switch by the following procedures.

1. Remove right cover, left cover and front cover.
2. Loosen the screw which is fixing interlock switch, and close the top cover completely.
3. Move the interlock switch up and down, and tighten the screw at the position that the switch turns on.

Refer to Chapter4 Disassembly and Assembly.



**CHAPTER**

**6**

**MAINTENANCE**





## 6.1 MINTENANCE

This section gives information necessary for maintaining the printer in its optimum condition. Periodical user maintenance and service maintenance are necessary in order to maintain high printing quality.

Maintenance items described in this section are divided into two subsections: user maintenance and service maintenance.

Since toner cartridge and OPC drum are pre-installed on the printer, other all consumables belong to user maintenance.

### 6.1.1 User Maintenance

**Table 6-1. Instructions for User Maintenance**

Item	Occasion	Procedure
Paper Feed Roller	Abnormal paper path	Clean the surface of paper feed roller with soft cloth damped with water. (Do not use alcohol)
Toner Cartridge Exchange	Approximately 3000 sheets (Consecutive printing*)	Refer to User's manual.
Drum Cartridge Exchange	Approximately 20000 sheets (Consecutive printing*)	Refer to User's manual.

*Note\**) In case of intermittent printing, its occasion is 80% of consecutive printing.

### 6.1.2 Service Maintenance

Following maintenance should be done by qualified repair service men.

**Table 6-2. Instructions for Service Maintenance**

Parts. Unit	Occasion	Procedure
Transfer Roller* (Approximately 50000 sheets)	Abnormal symptom appear.	Clean it or exchange it.
Fusing Unit* (Approximately 50000 sheets)	Abnormal symptom appear.	Clean it or exchange it.
Paper Feed Roller	Abnormal symptom appear.	Clean it or exchange it.

*Note\**) If you exchange the fusing roller, make sure to replace the transfer roller too, since the life span of transfer roller and fusing unit are same.



**CHAPTER**

**7**

**APPENDIX**



## 7.1 CONECTOR PIN ASSIGMENTS

Figure below shows interconnections with main board.

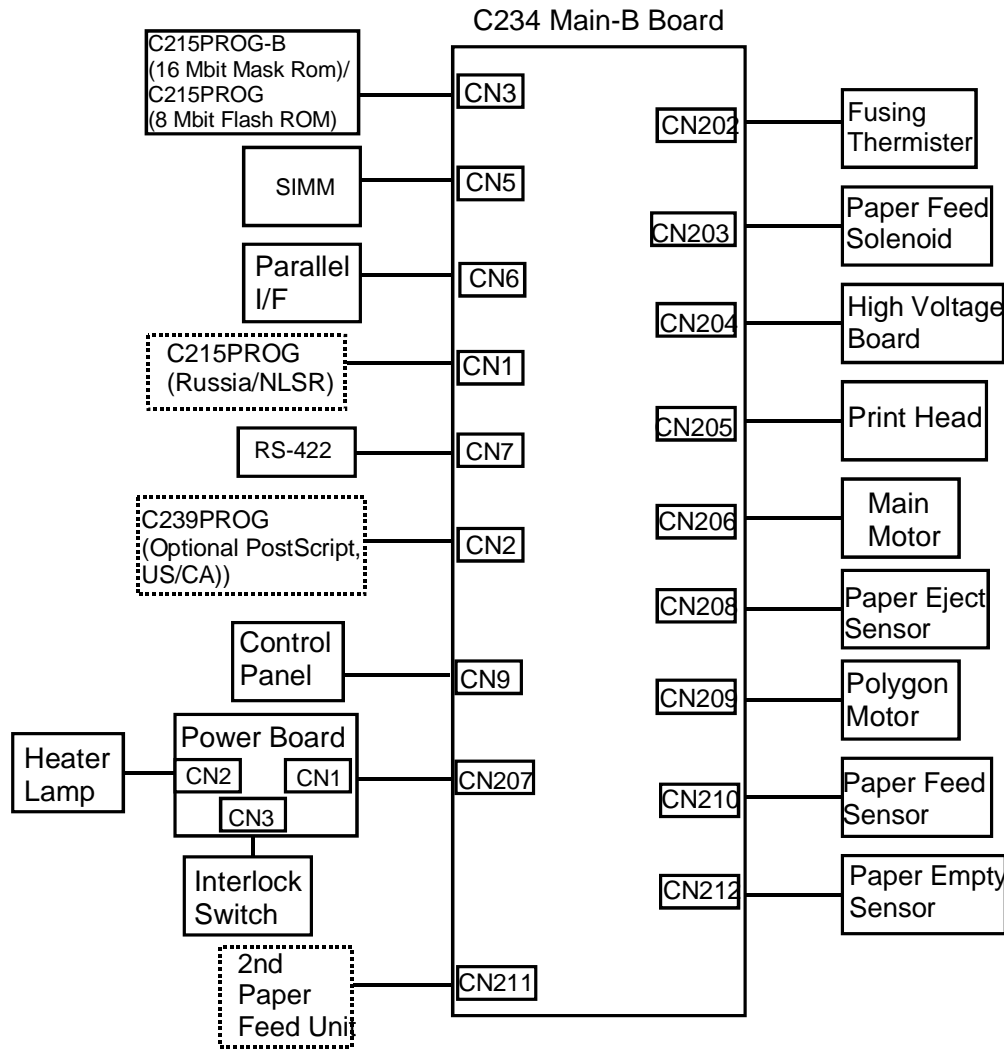


Figure 7-1. Interconnection with Main Board

Table 7-1. Connector List

Connector	Function	Pins	Reference Tables
<b>C234 Main Board</b>			
CN1	ROM DIMM(not used)	---	---
CN2	ROM DIMM(optional font)	---	---
CN3	ROM DIMM	72	Table7-2~7-4
CN4	SCSI(not used)	---	---
CN5	RAM SIMM	72	Table7-5~7-7
CN6	Parallel Interface	36	Table7-8
CN7	RS-422	8	Table 7-9
CN8	RS-232C(not used)	---	---
CN9	Control Panel	26	Table7-10
CN10	Type-B(not used)	----	---
CN11	Video Connector(not used)	---	---
CN202	Fusing Thermister	2	---
CN203	Paper Feed Solenoid	2	---
CN204	High Voltage Board	11	---
CN205	Print Head	7	---
CN206	Main Motor	4	---
CN208	Paper Eject Sensor	3	---
CN209	Polygon Motor	5	---
CN210	Paper Feed Sensor	2	---
CN211	Optional 2 <sup>nd</sup> Paper Feed Unit	12	---
CN212	Paper Empty sensor	4	---
<b>High Voltage Board</b>			
CN1	Main Control Board	11	----
<b>Power Board</b>			
CN1	Main Control Board	5	----
CN2	Fusing Heater Lamp	2	----
CN3	Interlock Switch	3	---

Table 7-2. Connector CN3 Pin

Pin	Signal Name	I/O	Description
1	GND	---	Ground
2	D0	I/O	32bit data bus
3	D1	I/O	32bit data bus
4	D2	I/O	32bit data bus
5	D3	I/O	32bit data bus
6	D4	I/O	32bit data bus
7	D5	I/O	32bit data bus
8	D6	I/O	32bit data bus
9	D7	I/O	32bit data bus
10	Vcc	---	Power
11	A20	O	Address bus
12	A0	O	Address bus
13	A1	O	Address bus
14	A2	O	Address bus
15	A3	O	Address bus
16	A4	O	Address bus
17	A5	O	Address bus
18	A6	O	Address bus
19	A10	O	Address bus
20	A12	O	Address bus
21	D8	I/O	32bit data bus
22	D9	I/O	32bit data bus
23	D10	I/O	32bit data bus
24	D11	I/O	32bit data bus
25	D12	I/O	32bit data bus
26	D13	I/O	32bit data bus
27	D14	I/O	32bit data bus
28	A7	O	Address bus
29	A11	O	Address bus

Table 7-3. Connector CN3 Pin(Cont.)

Pin	Signal Name	I/O	Description
30	Vcc	---	Power
31	A8	O	Address bus
32	A9	O	Address bus
33	A13	O	Address bus
34	RDX	O	Lead Signal
35	D15	I/O	32 bit data bus
36	A14	O	Address Bus
37	D16	I/O	32bit data bus
38	D17	I/O	32bit data bus
39	GND	---	Ground
40	BE0X	O	Bite enable signal
41	BE2X	O	Bite enable signal
42	BE3X	O	Bite enable signal
43	BE1X	O	Bite enable signal
44	CSX	O	Select signal
45	A15	O	Address bus
46	A16	O	Address bus
47	WR0X	O	Light Signal
48	WR1X	O	Light Signal
49	D18	I/O	32bit data bus
50	D19	I/O	32bit data bus
51	D20	I/O	32bit data bus
52	D21	I/O	32bit data bus
53	D22	I/O	32bit data bus
54	D23	I/O	32bit data bus
55	A17	O	Address bus
56	D24	I/O	32bit data bus
57	D25	I/O	32bit data bus

Table 7-4. Connector CN3 Pin(Cont.)

Pin	Signal Name	I/O	Description
58	D26	I/O	32bit data bus
59	D28	I/O	32bit data bus
60	D27	I/O	32bit data bus
61	Vcc	---	Power
62	D29	I/O	32bit data bus
63	D30	I/O	32bit data bus
64	D31	I/O	32bit data bus
65	A18	O	Address bus
66	A21	O	Address bus
67	A22	O	Address bus
68	A23	O	Address bus
69	IDX	I	ROM DIMM in/out signal
70	NC	---	Not used
71	A19	O	Address bus
72	GND	---	Ground

Table 7-5. Connector CN5 Pin

Pin	Signal Name	I/O	Description
1	GND	---	Ground
2	D0	I/O	32bit data bus
3	D16	I/O	32bit data bus
4	D1	I/O	32bit data bus
5	D17	I/O	32bit data bus
6	D2	I/O	32bit data bus
7	D18	I/O	32bit data bus
8	D3	I/O	32bit data bus
9	D19	I/O	32bit data bus
10	Vcc	---	Power
11	NC	O	Not used
12	A0	O	DRAM Address bus
13	A1	O	DRAM Address bus
14	A2	O	DRAM Address bus
15	A3	O	DRAM Address bus
16	A4	O	DRAM Address bus
17	A5	O	DRAM Address bus
18	A6	O	DRAM Address bus
19	A10	O	DRAM Address bus
20	D4	O	Address bus
21	D20	I/O	32bit data bus
22	D5	I/O	32bit data bus
23	D21	I/O	32bit data bus
24	D6	I/O	32bit data bus
25	D22	I/O	32bit data bus
26	D7	I/O	32bit data bus
27	D23	I/O	32bit data bus
28	A7	O	DRAM Address bus
29	NC	---	Not used
30	Vcc	---	Power
31	A8	O	DRAM Address bus

Table 7-6. Connector CN5 Pin(Cont.)

Pin	Signal Name	I/O	Description
32	A9	O	DRAM Address bus
33	RAS3X	O	Row Address Strobing Signal
34	RAS2X	O	Row Address Strobing Signal
35	MP2	I/O	Parity Data Bus(not used)
36	MP0	O	Parity Data Bus(not used)
37	MP1	I/O	Parity Data Bus(not used)
38	MP3	I/O	Parity Data Bus(not used)
39	GND	---	Ground
40	CAS0X	O	Column Address Strobing signal
41	CAS2X	O	Column Address Strobing signal
42	CAS3X	O	Column Address Strobing signal
43	CAS1X	O	Column Address Strobing signal
44	RAS0X	O	Row Address Strobing signal
45	RAS1X	O	Row Address Strobing signal
46	NC	O	Not used
47	WEX	O	DRAM light enable signal
48	NC	O	Not used
49	D8	I/O	32bit data bus
50	D24	I/O	32bit data bus
51	D9	I/O	32bit data bus
52	D25	I/O	32bit data bus
53	D10	I/O	32bit data bus
54	D26	I/O	32bit data bus
55	D11	O	32bit data bus
56	D27	I/O	32bit data bus
57	D12	I/O	32bit data bus
58	D28	I/O	32bit data bus
59	Vcc	---	Power
60	D29	I/O	32bit data bus
61	D13	I/O	32bit data bus

Table 7-7. Connector CN5 Pin (Cont.)

Pin	Signal Name	I/O	Description
62	D30	I/O	32bit data bus
63	D14	I/O	32bit data bus
64	D31	I/O	32bit data bus
65	D15	O	32bit data bus
66	NC	---	Not used
67-70	PD0-PD3	I	Presence detect pin(not used)
71	NC	---	Not used
72	Vcc	---	Power

Table 7-8. Connector CN6 Pin

Pin	Signal Name	I/O	Description
1	/STB	I	Latch pulse to read print data.
2-9	DATA1 --- DATA8	I/O	Data bit1~8
10	/ACK	O	Pulse to acknowledge that data is transferred from the host.
11	BUSY	O	Printer is unable to receive the data.
12	PE	O	Paper Jam, or Paper out.
13	SELOLT	O	Always HIGH.
14	/AUTO	I	Signal to request 1284 Mode.
15	NC	---	Not used.
16	GND	---	Ground
17	CG	---	Chassis Ground
18	NC	---	Not used
19-30, 33	GND	---	Ground
31	/INIT	I	BUSY state until it is canceled when /INT is LOW.
32	/ERR	O	Error occur.
34	NC	---	Not used.
35	+5	---	+5V
36	/SELIN	I	Always LOW.



Table 7-9. Connector CN7 Pin

Pin	Signal Name	I/O	Description
1	HSKo	O	Serial synchronizing clock
2	HSKi	I	Transmission permission signal from host.
3	TXD-	O	Serial data output signal
4	GND	--	Ground
5	RXD+	I	Serial data input signal
6	TXD+	O	Serial data output signal
7	GPI	O	Signal to let the host know that communication is available.
8	RXD+	I	Serial data input signal

Table 7-10 . Connector CN9 Pin

Pin	Signal Name	I/O	Description
1	VCC	---	+5V
2	VCC	---	+5V
3	LCDX	O	LCD Controller enable signal (not used)
4	A1	O	Control/Data select signal of LCD controller.
5	LCDWRX	O	LCD controller writing signal (not used)
6	DB3	O	Data bus to LCD (not used)
7	DB2	O	Data bus to LCD (not used)
8	DB1	O	Data bus to LCD (not used)
9	DB0	O	Data bus to LCD (not used)
10	SW5X	I	Panel switch(not used)
11	SW6X	I	Panel switch(not used)
12	SW7X	I	Panel switch(not used)
13	SW8X	I	Panel switch(not used)
14	LED4X	O	LED light On signal
15	LED5X	O	LED light On signal
16	LED6X	O	LED light On signal
17	GND	---	Ground
18	LCDCLK	O	LCD Clock signal(not used)
19	GND	---	Ground
20	SW3X	I	Panel switch
21	SW2X	I	Panel switch
22	SW1X	I	Panel switch
23	SW0X	I	Panel switch
24	LED3X	O	LED light On signal
25	LED2X	O	LED light On signal
26	LED1X	O	LED light On signal

## 7.2 CIRCUIT BOARD COMPONENT LAYOUT

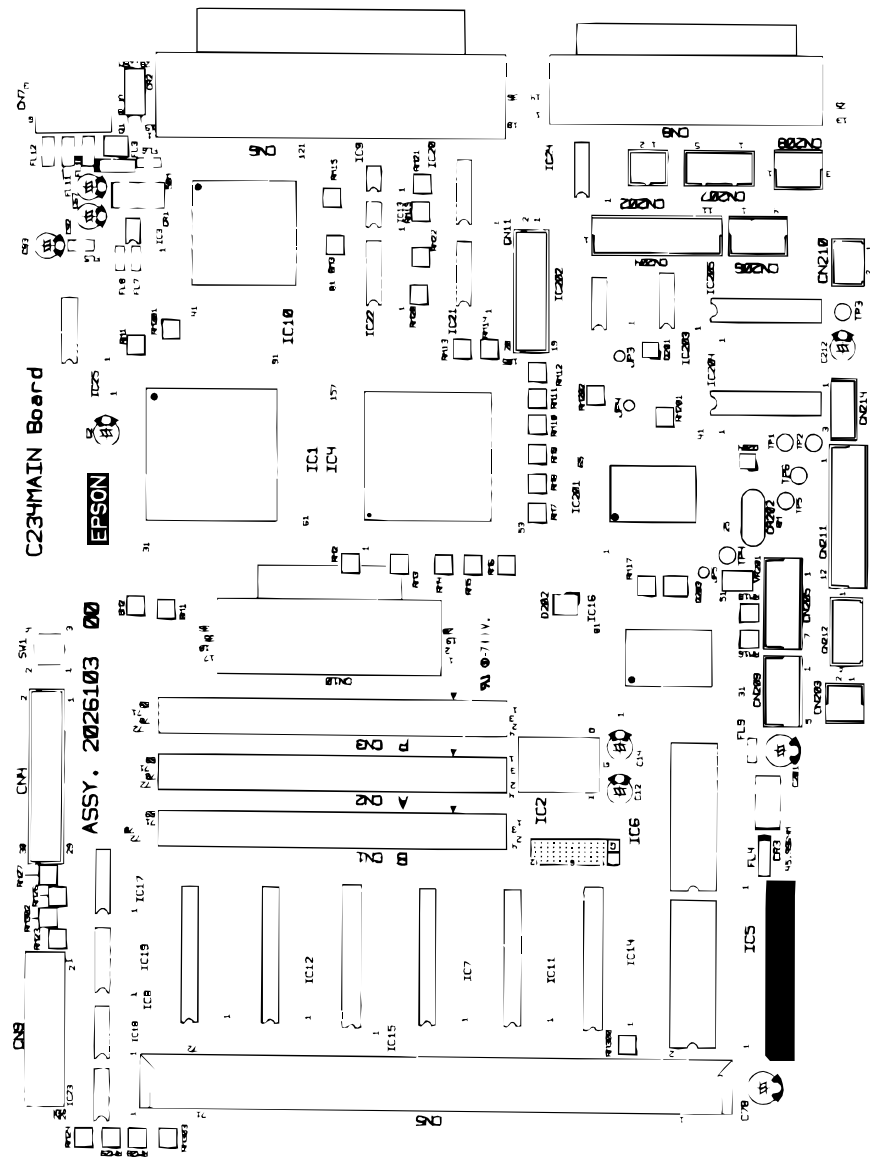


Figure 7-2. C234 Main Control Board Component Layout(Front)

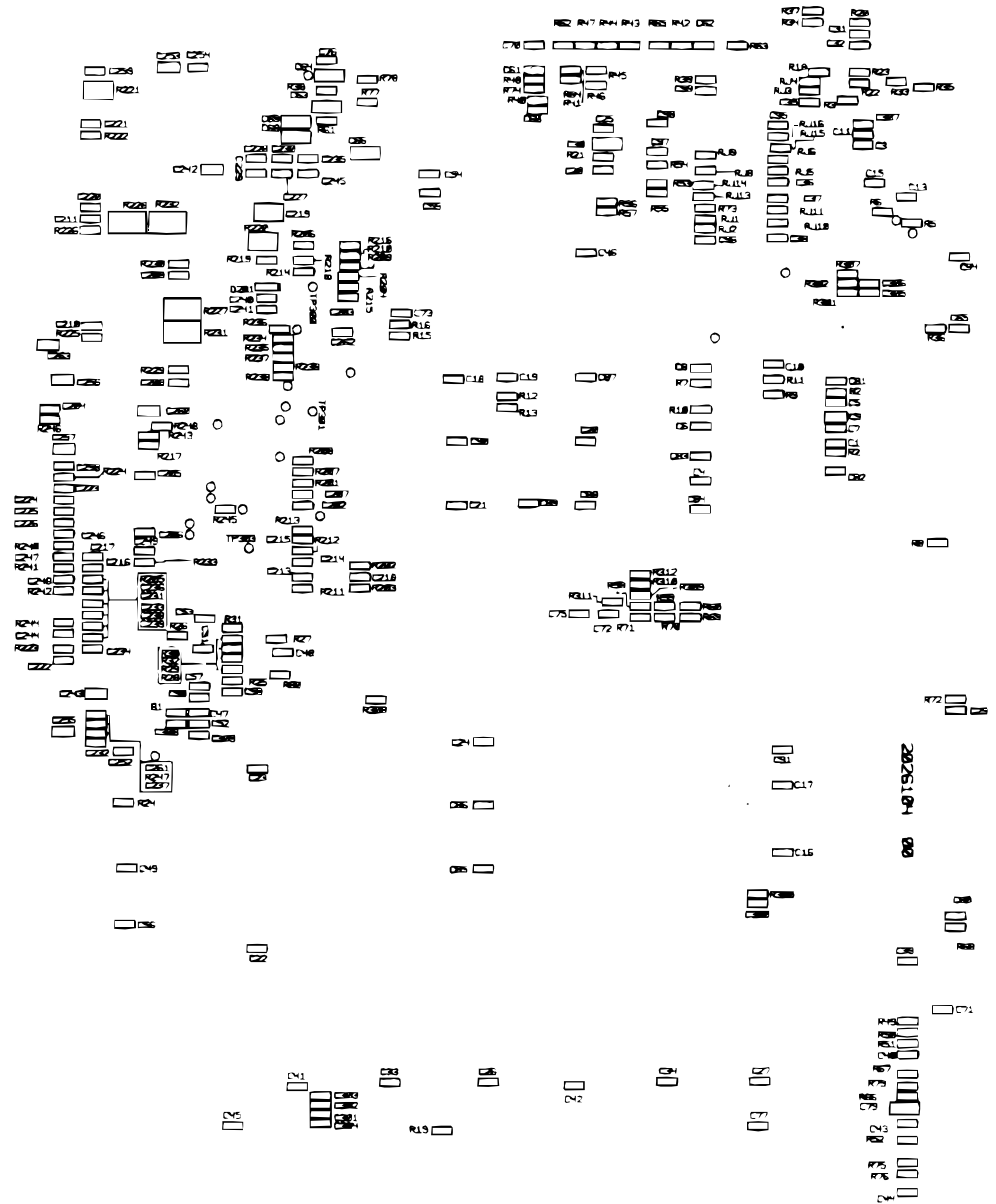


Figure 7-3. C234 Main Control Board Component Layout(Rear)

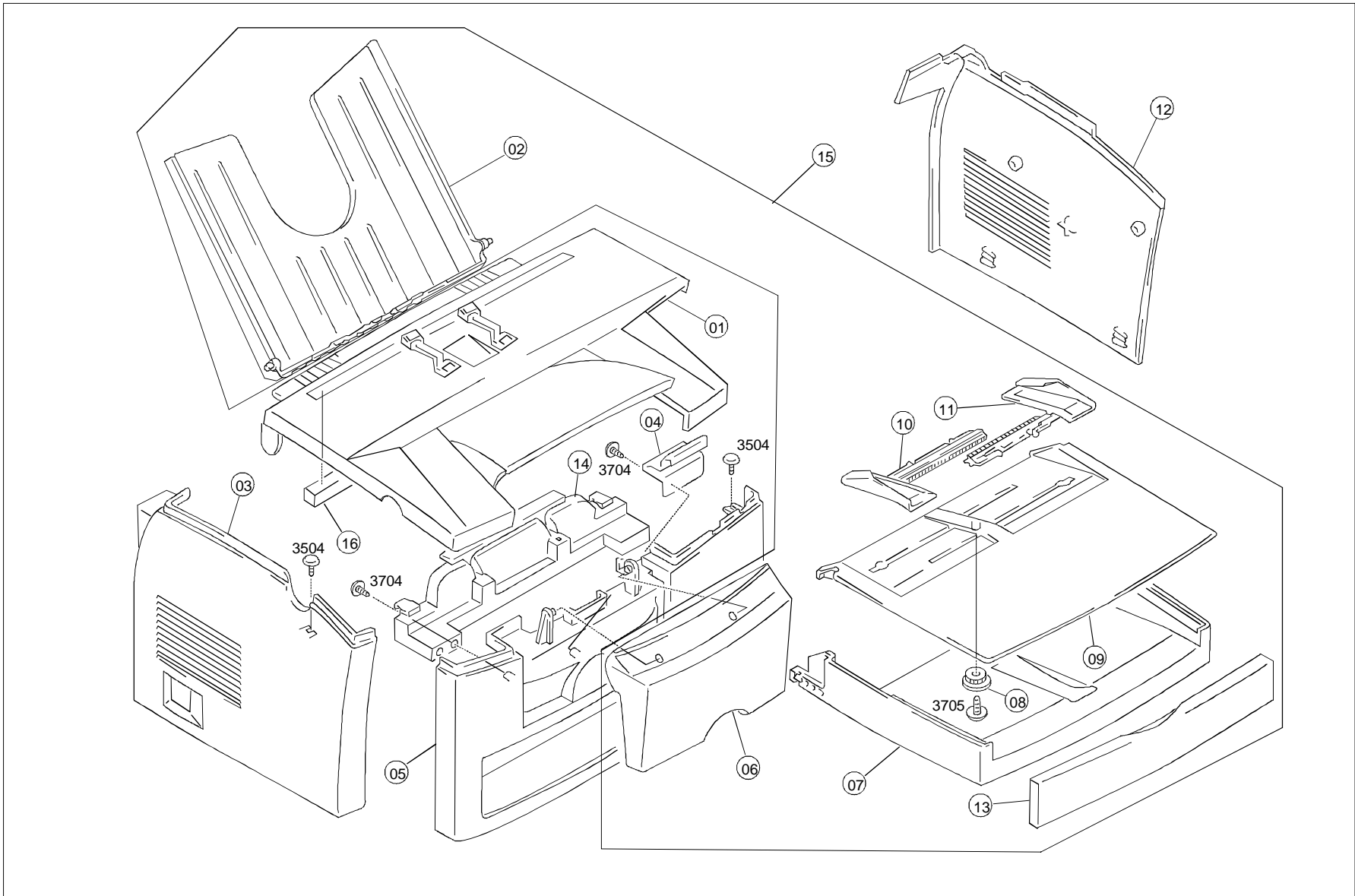
## 7.3 EXPLODED DIAGRAM

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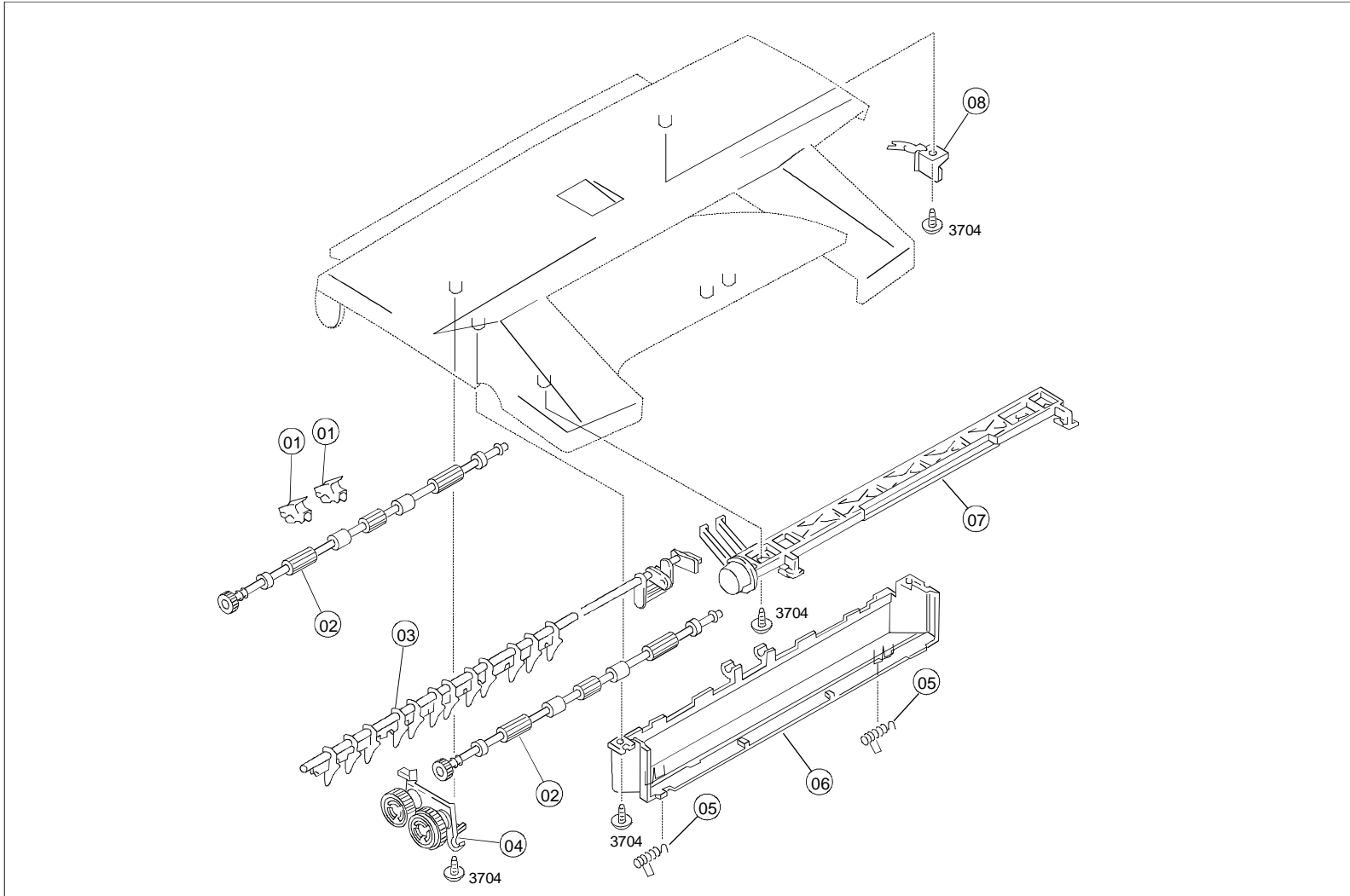
Following pages show exploded diagrams of EPL-5700.

1. Housing
2. Paper Exit Section
3. Paper Take-Up Section
4. Fusing Unit
5. Drive/Transfer Unit
6. Frames I
7. Frames II
8. Optional 2 nd Lower Paper Feeding Section I
9. Optional 2 nd Lower Paper Feeding Section II

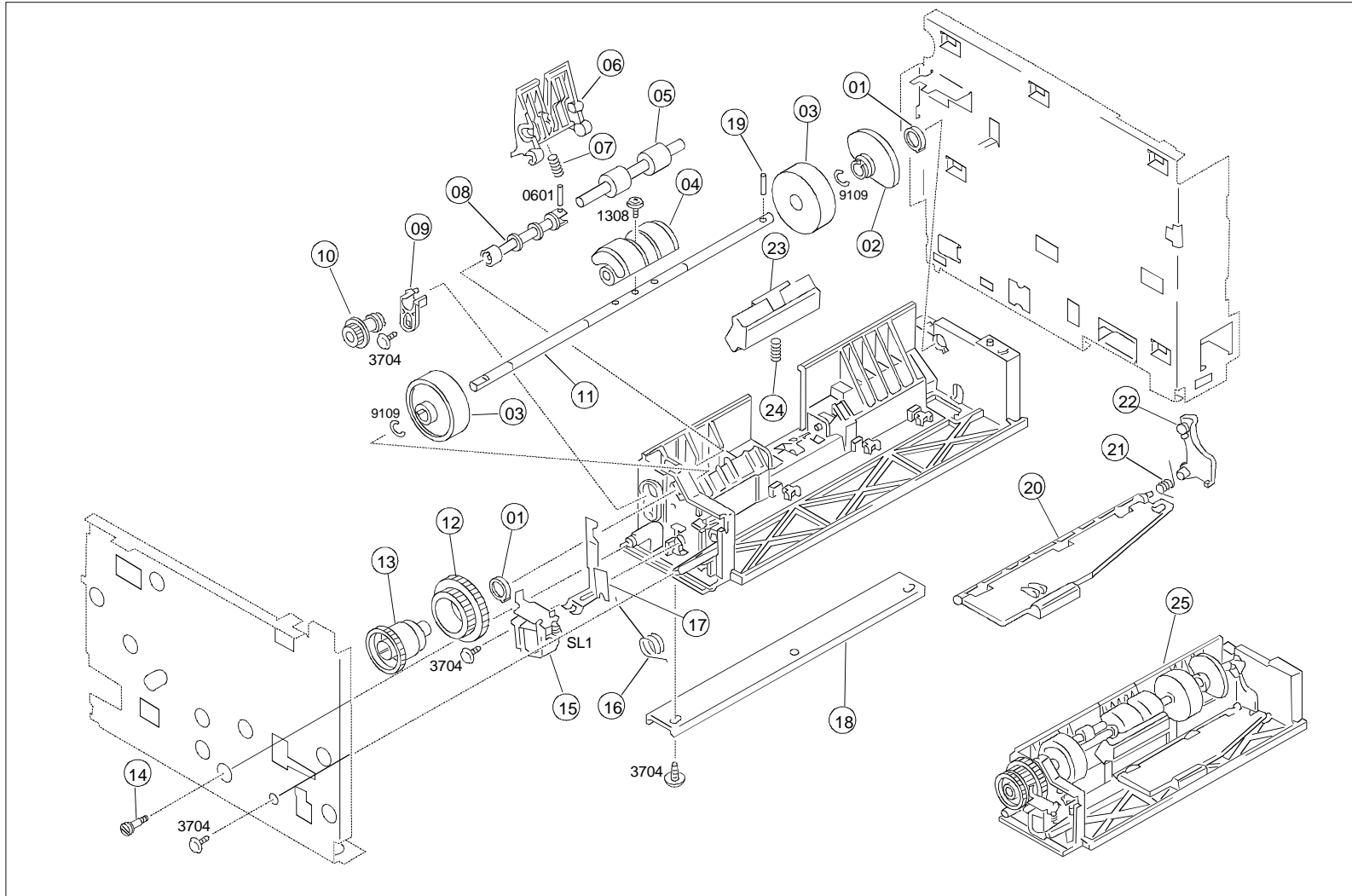
# 1 HOUSING



## 2 PAPER EXIT SECTION

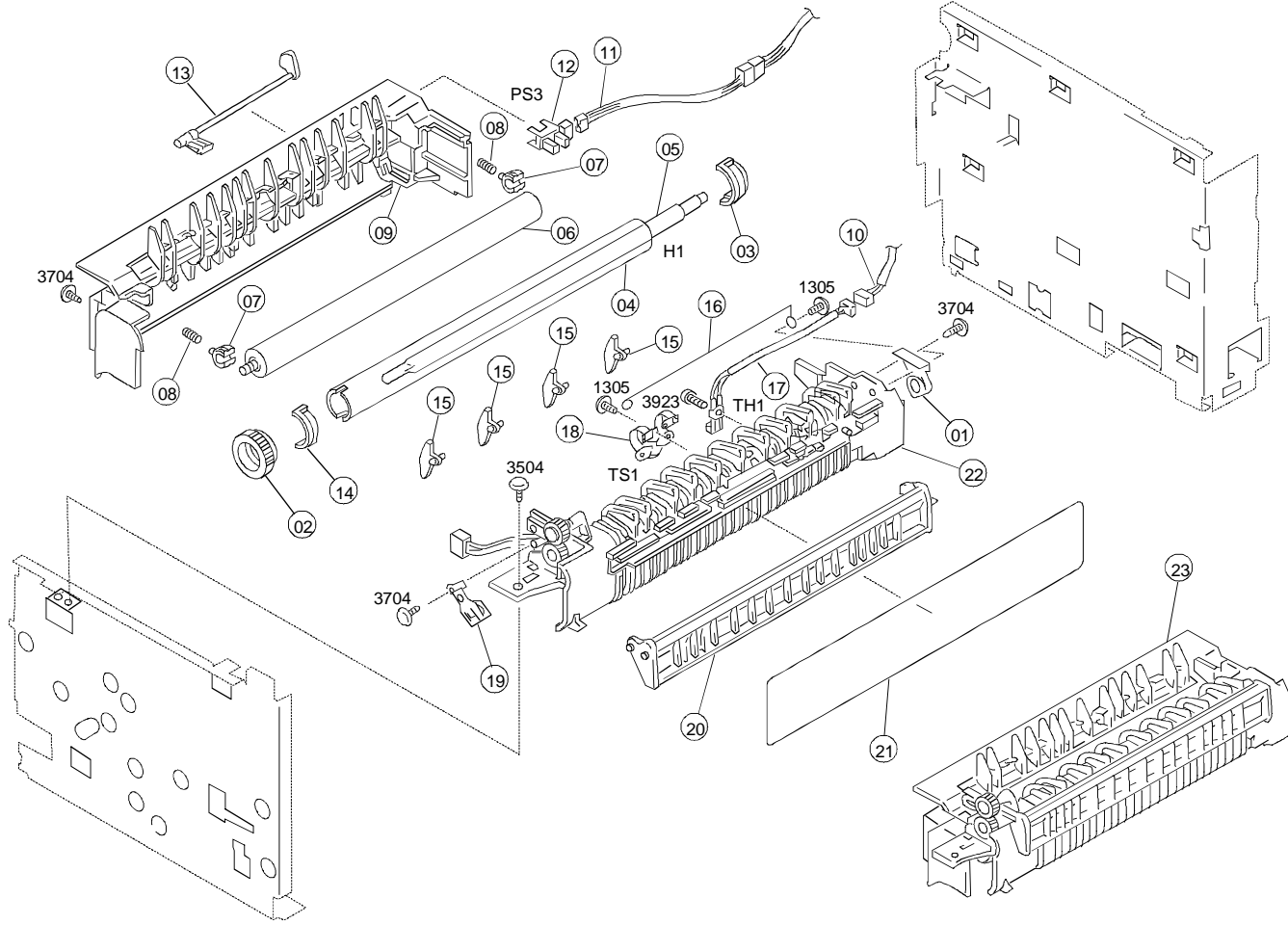


### 3 PAPER TAKE-UP SECTION

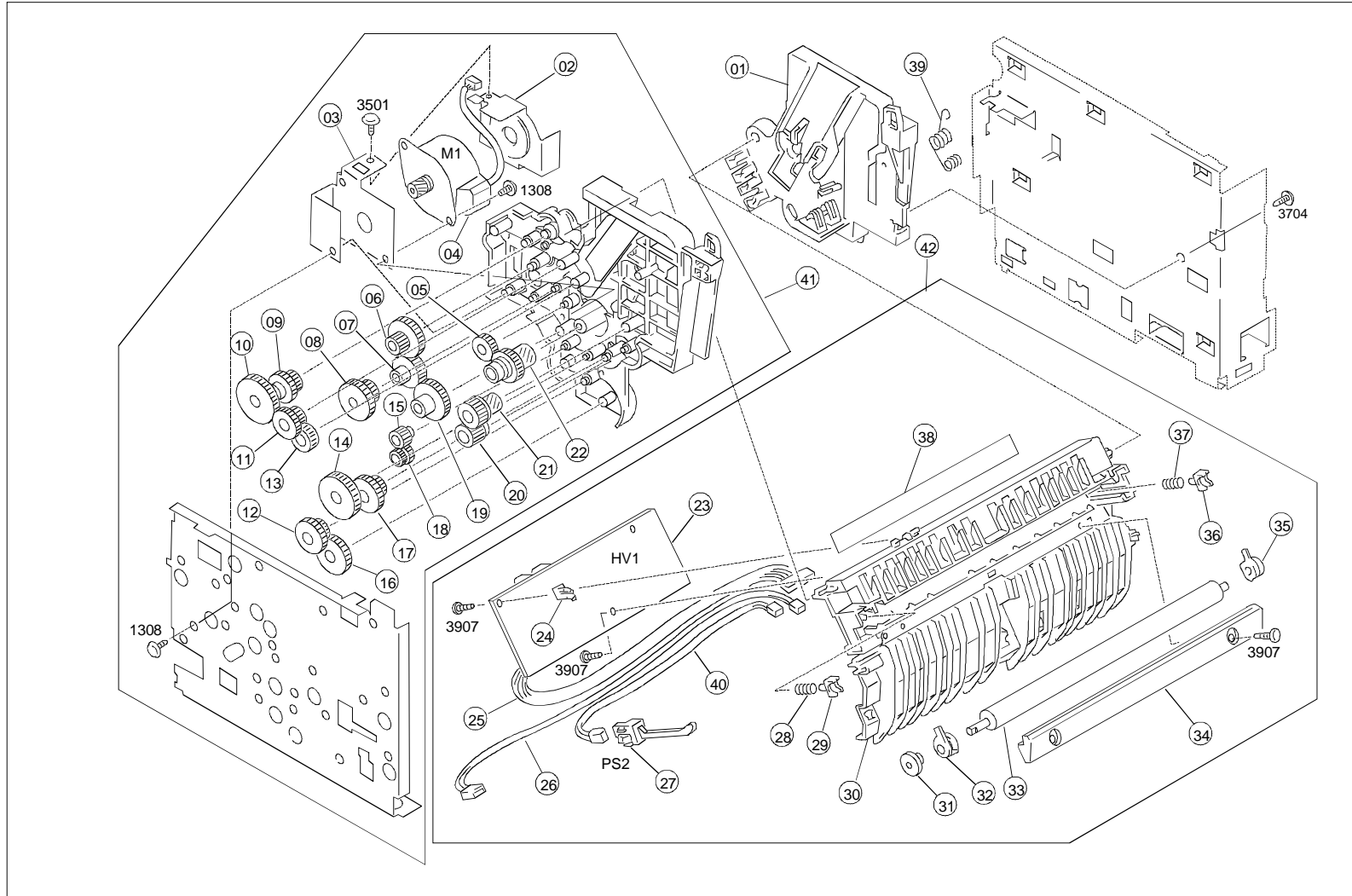


4

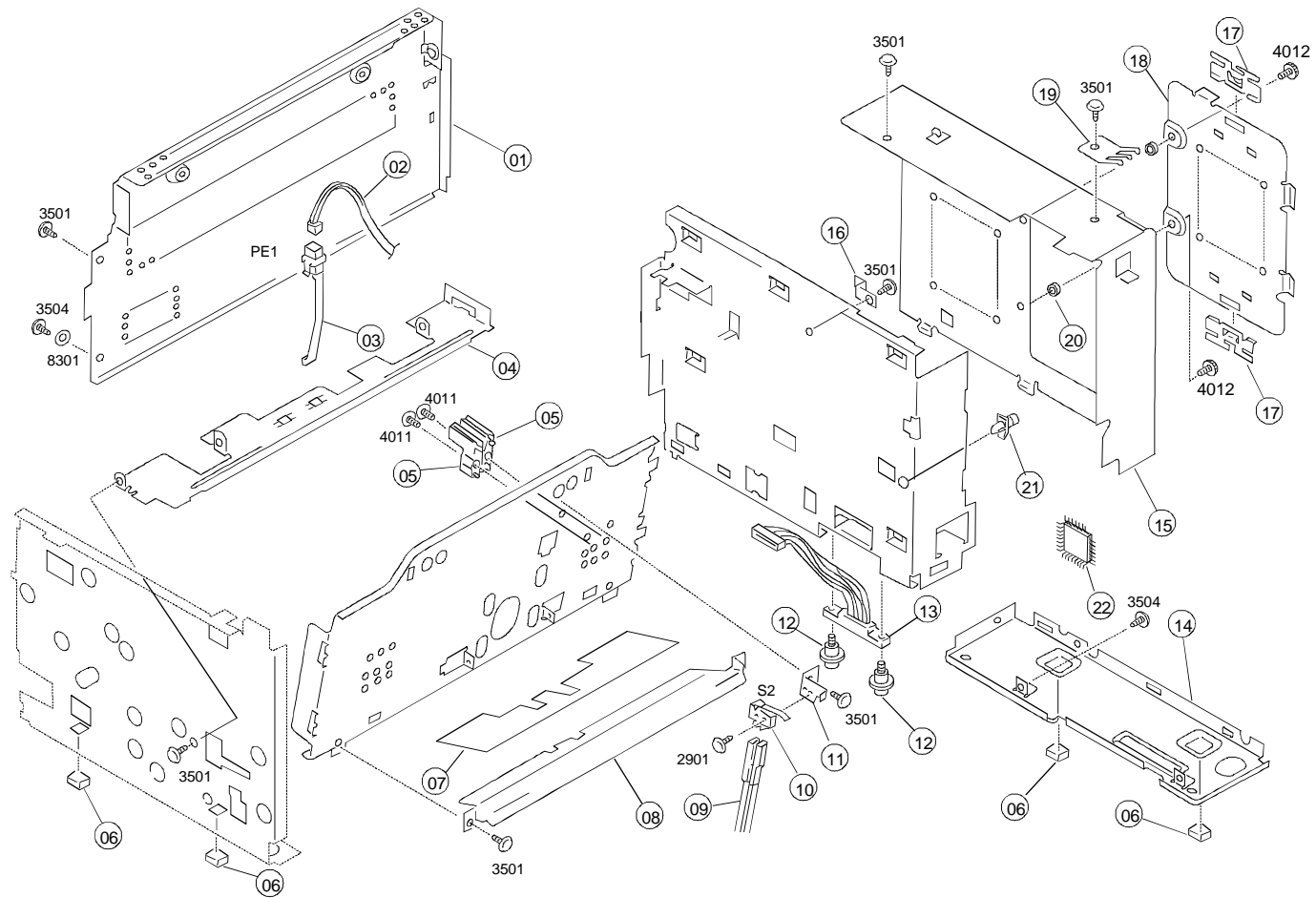
FUSING UNIT

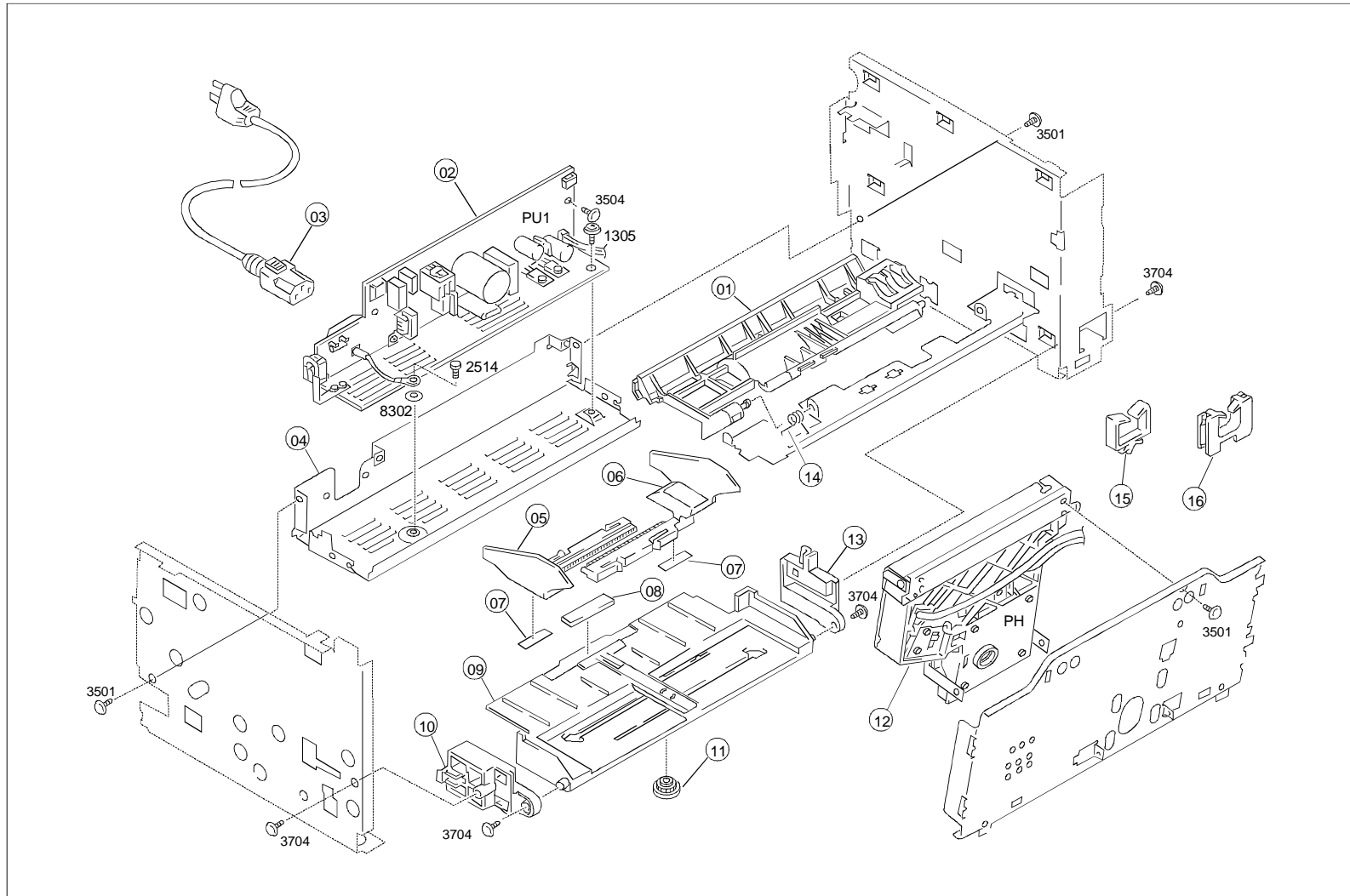


**5** DRIVE/TRANSFER UNIT

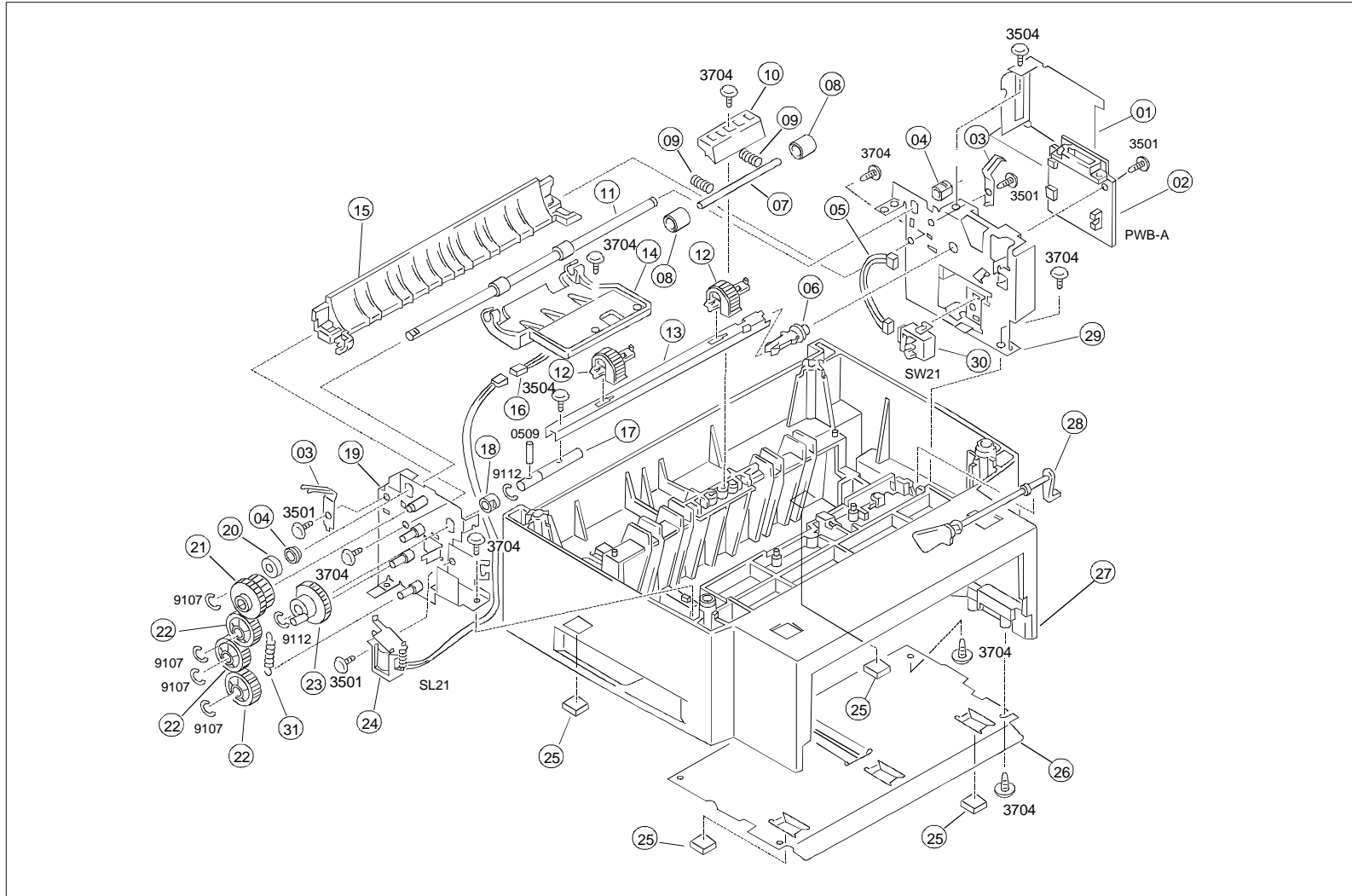




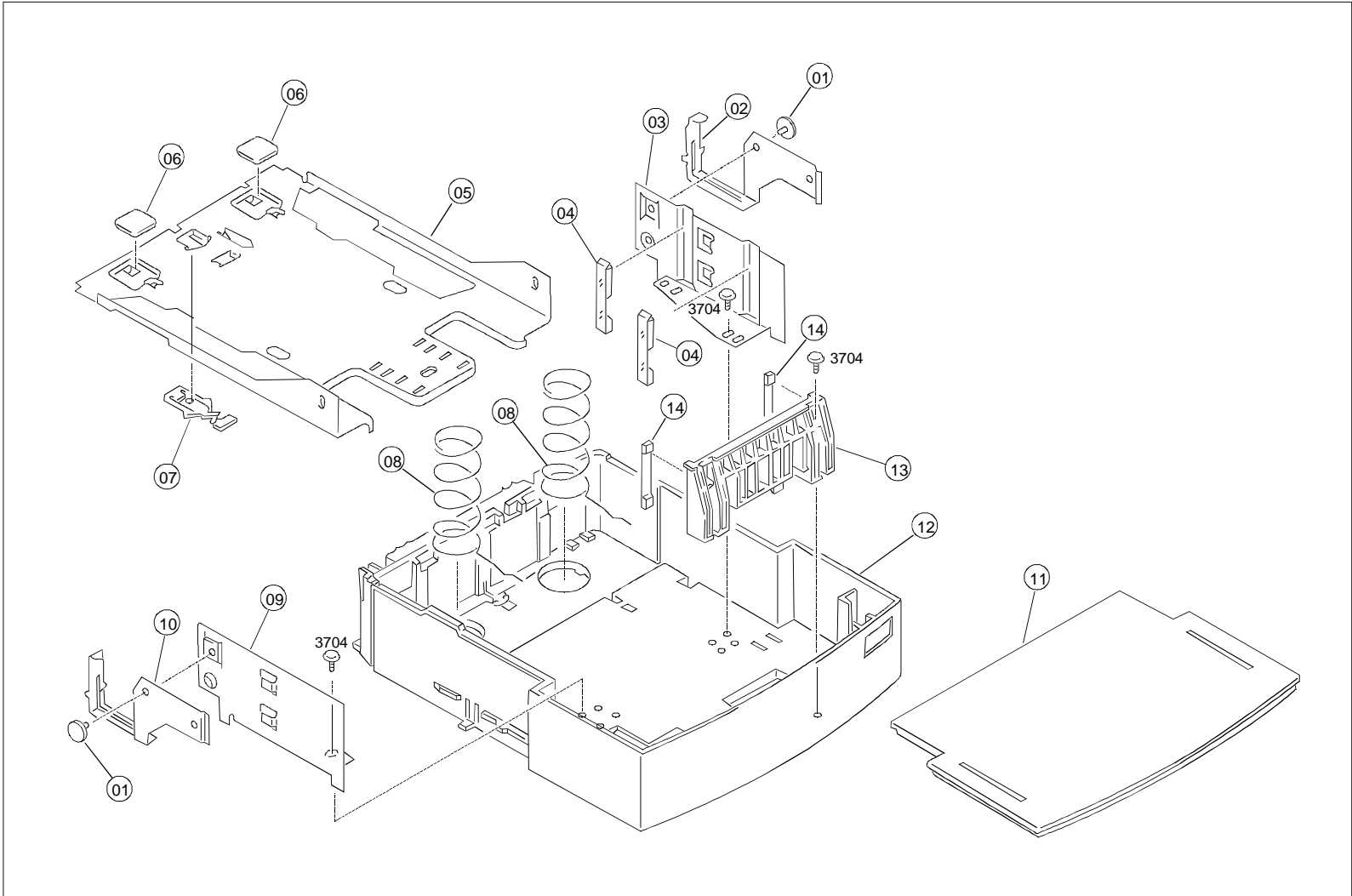




8 2ND PAPER TAKE-UP I(OPTION)



**9 2ND PAPER TAKE-UP II(OPTION)**

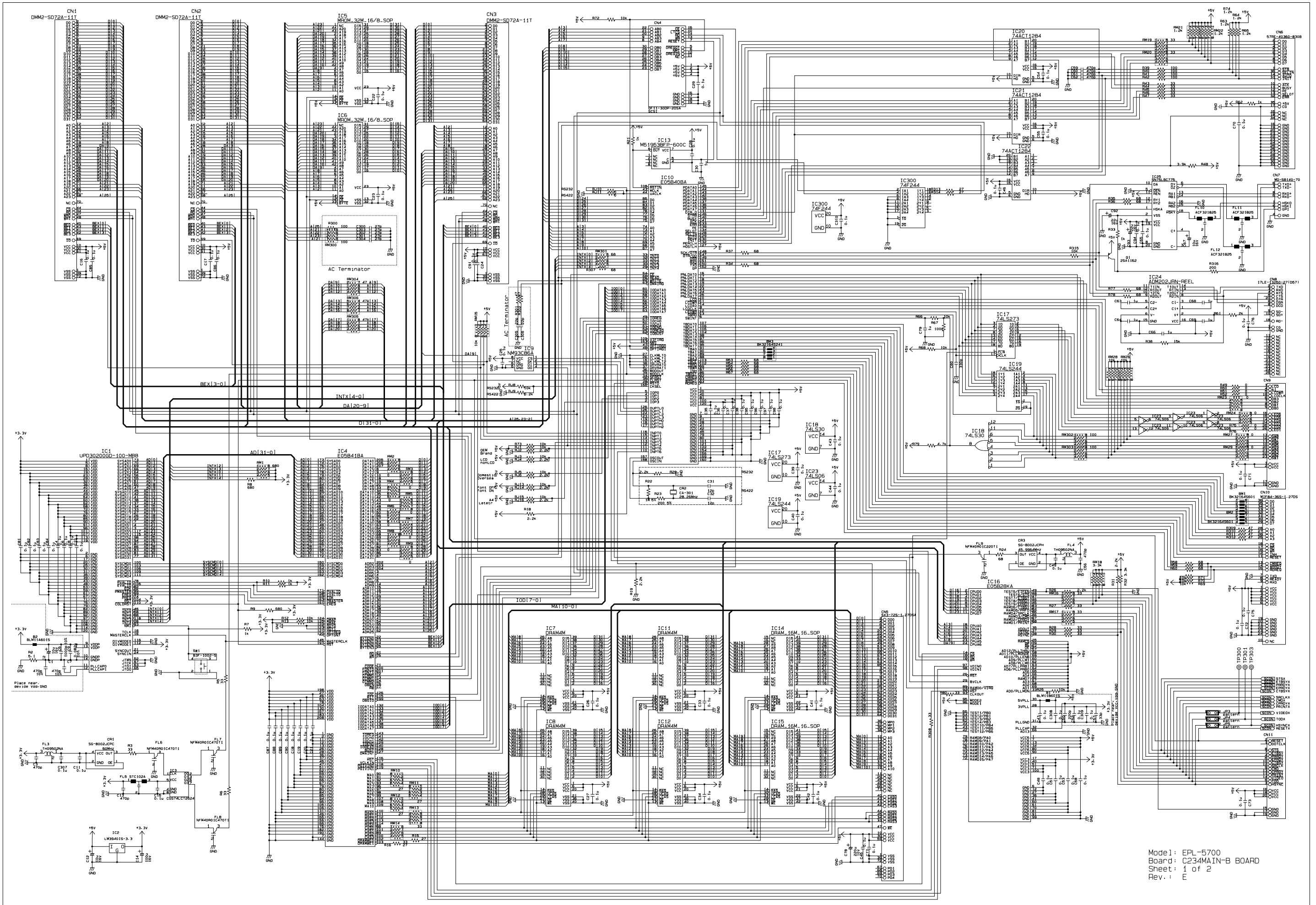


## 7.4 CIRCUIT DIAGRAM

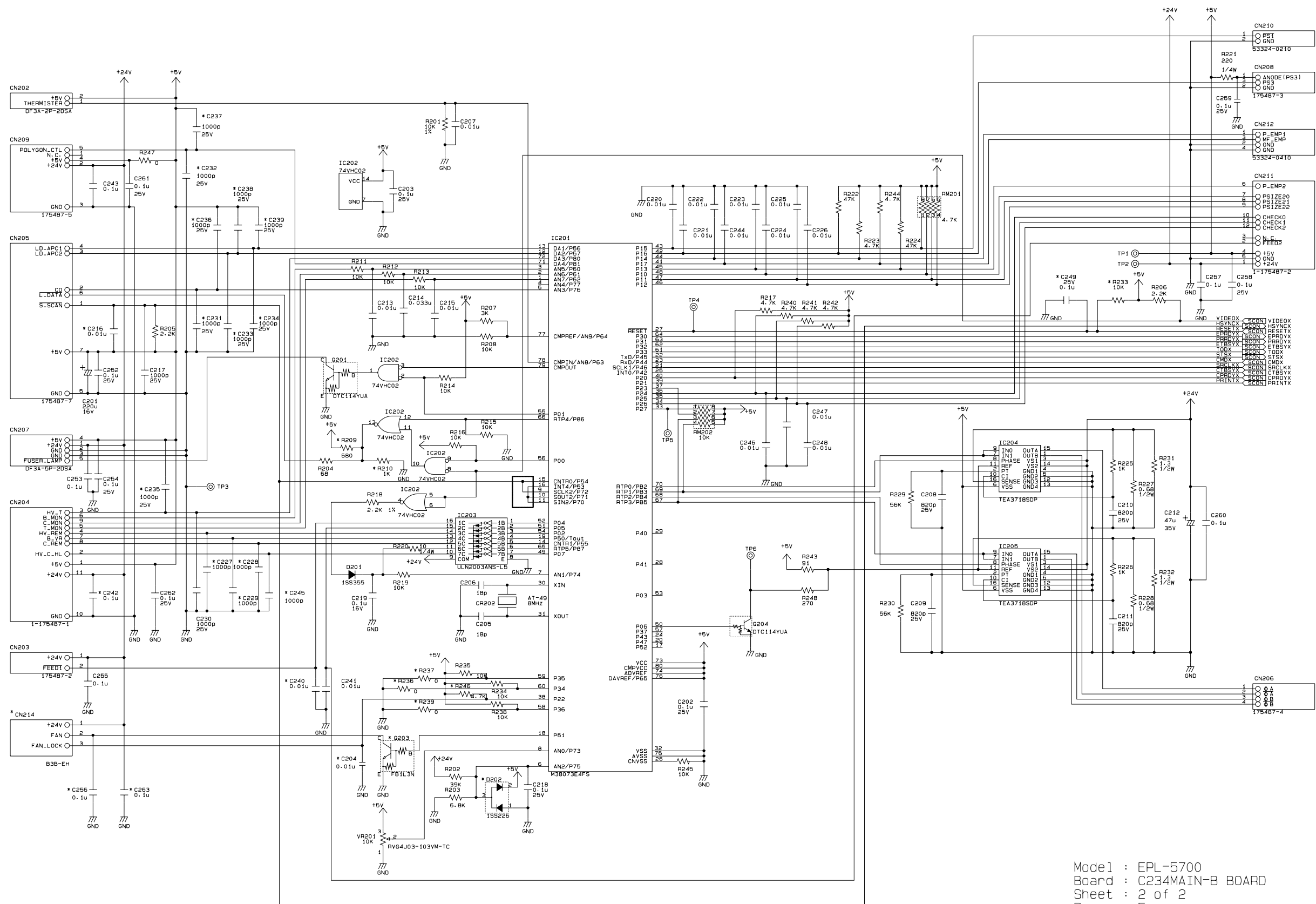
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Circuit diagram of C234 main board is on the next pages.

1. C234 Main Board 1/2
2. C234 Main Board 2/2
3. C239 PROG Board(Depending on destinations)

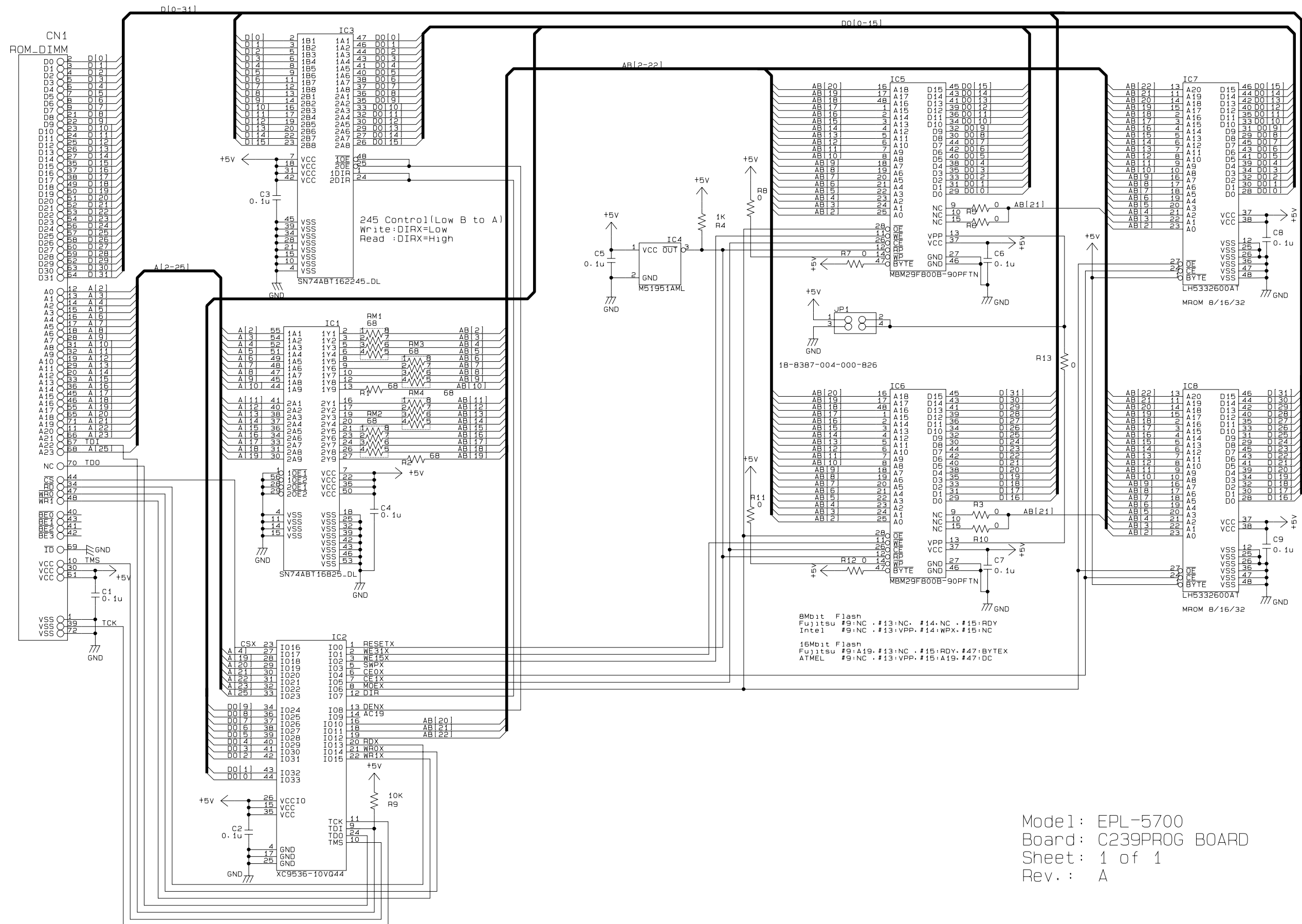


Mode1: EPL-5700  
 Board: C234MAIN-B BOARD  
 Sheet: 1 of 2  
 Rev.: E



Mode1 : EPL-5700  
 Board : C234MAIN-B BOARD  
 Sheet : 2 of 2  
 Rev. : E

Note)  
 1: All components marked with asterisk '\*' are not mounted.  
 2: All capacitors without rating are of 50V input type.



Model: EPL-5700  
Board: C239PROG BOARD  
Sheet: 1 of 1  
Rev.: A