

# OKI

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## OKIPAGE 4w Plus /4m LED Page Printer

### Maintenance Manual

OEL/INT
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Approval

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*All specifications are subject to change without notice.*

40245101TH

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# PREFACE

This Maintenance Manual describes the field maintenance methods for LED Page Printers.

This manual is written for use by service persons. Please note that you should refer to the Printer Handbook for the handling and operating methods of the equipment.

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# 1. CONFIGURATION

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## 1.1 System Configuration

The OKIPAGE 4w Plus/4m consists of a control block, a power supply unit, and an engine block.  
(See Figure 1-1.)

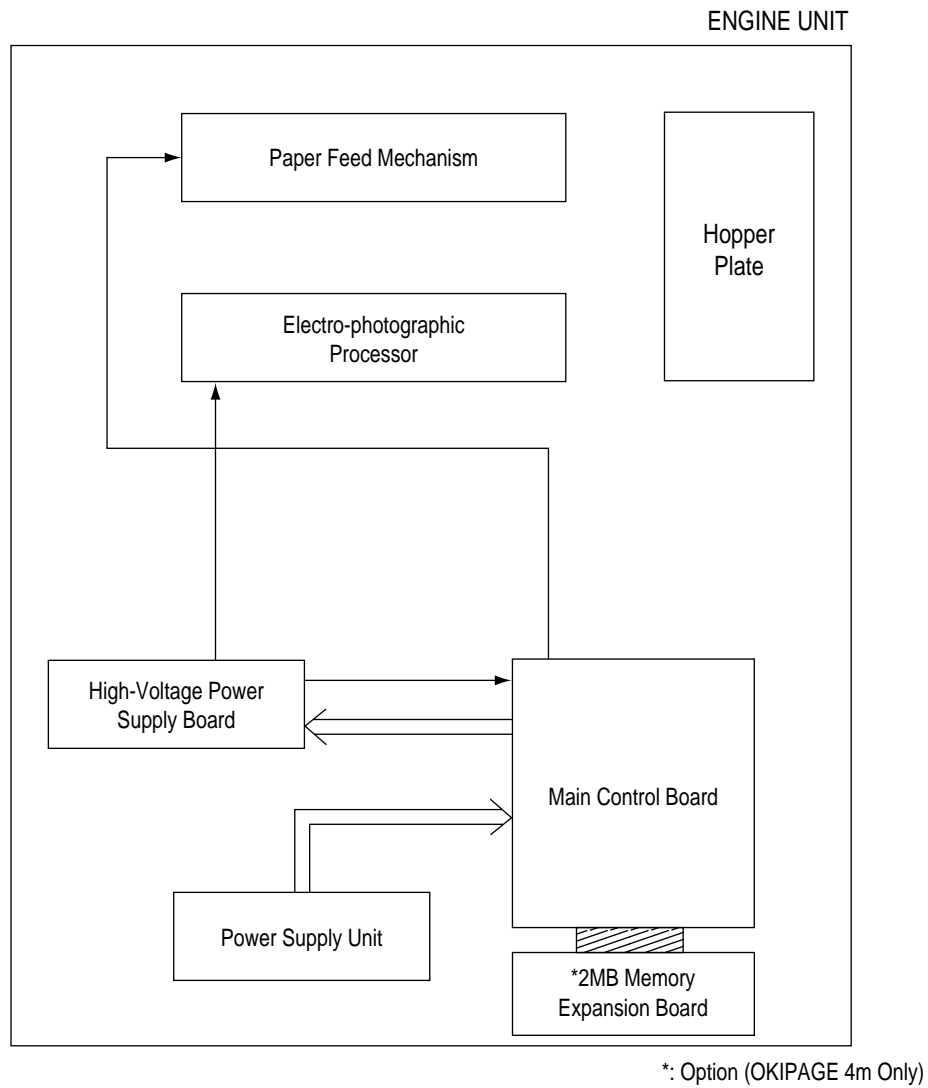


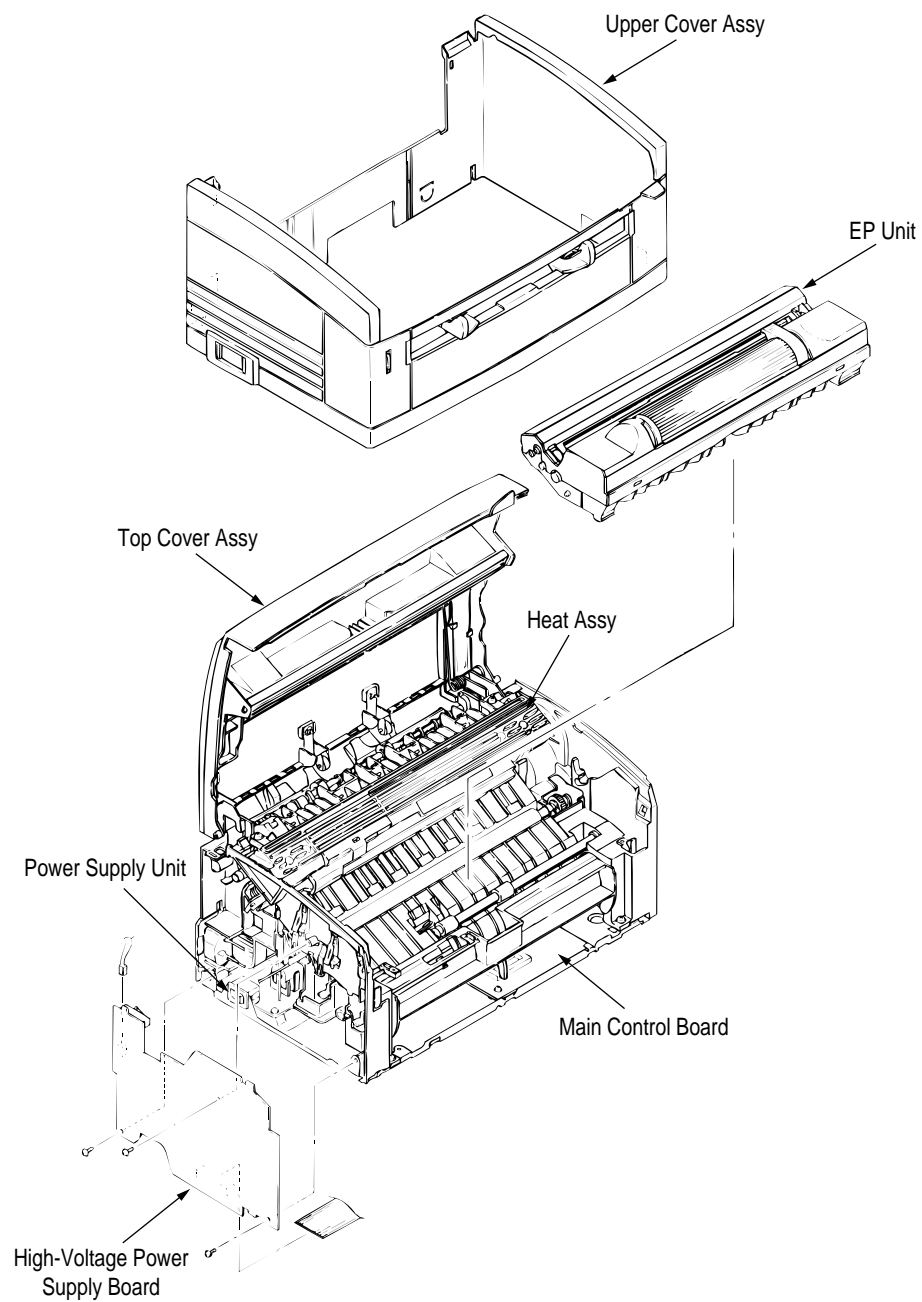
Figure 1-1

## 1.2 Printer Configuration

The printer unit consists of the following five hardware components:

- Electro-Photographic Processor
- Paper Feeder
- Main Control Board
- High-Voltage Power Supply Board
- Power Supply Unit

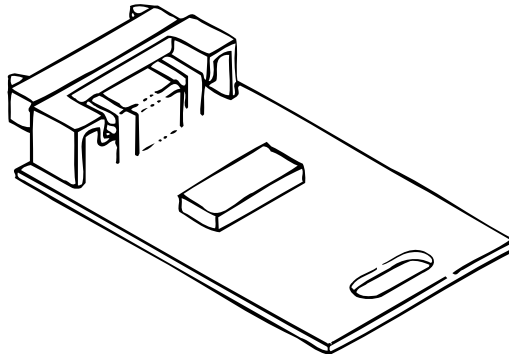
Figure 1-2 is the configuration of the printer unit.





### 1.3 Option

(1) 2MB HBRB-PCB Option Memory Board(Only OKIpage 4m)



## 1.4 Specification

(1) Type	Desktop
(2) Outside dimensions (excludes protruding portion)	Height 5.9" (150 mm) Width 12.2" (310 mm) Depth 7.5" (191 mm)
(3) Weight	3.8 kg
(4) Development method Exposure method	Dry non-magnetic development system LED stationary head
(5) Paper used	<Type> <ul style="list-style-type: none"><li>• Standard paper<ul style="list-style-type: none"><li>– Xerox 4200 (20 lbs)</li></ul></li><li>• Application paper (manual face-up feed)<ul style="list-style-type: none"><li>– Label</li><li>– Envelope</li><li>– OHP paper (Transparency)</li></ul></li></ul> <Size> 14" (355.6 mm) (Max.) x 8.5" (215.9 mm)<Thickness> <ul style="list-style-type: none"><li>– Automatic feed: 16 to 28 lbs (60 to 90 g/m<sup>2</sup>)</li><li>– Manual feed: Label, Envelope, OHP paper (transparency)</li></ul>
(6) Printing speed	First print: 23 seconds (A4) (after warm-up) Continuous print: 4 sheets/minute (A4) Warm-up time: 40 seconds (120 VAC for ODA, 230 VAC for OEL/INT) (at room temperature 77 °F (25 °C))
(7) Paper feeding method	Automatic paper feed or manual paper feed
(8) Paper delivery method	Face down
(9) Resolution	300 dpi x 300 dpi, 600 dpi x 600 dpi (quasi)
(10) Power input	230 VAC +15%, -14% (for OEL/INT) 120 VAC +6%, -15% (for ODA)
(11) Power consumption	Peak: 450W Typical operation: 100W Idle: 30W Power save mode: 5W

(12) Temperature and humidity

	Temperature	Humidity
During operation	10 to 32 °C	20 to 80% RH (relative humidity)
In storage	-10 to +43 °C	10 to 90% RH (relative humidity) No condensation is permissible.

**Caution:** Temperature and humidity in storage are measured with the OKIPAGE 4w plus/4m being packed; they are valid for one year.

(13) Noise

During operation: 48 dB (A) or less  
Standby: 38 dB (A) or less

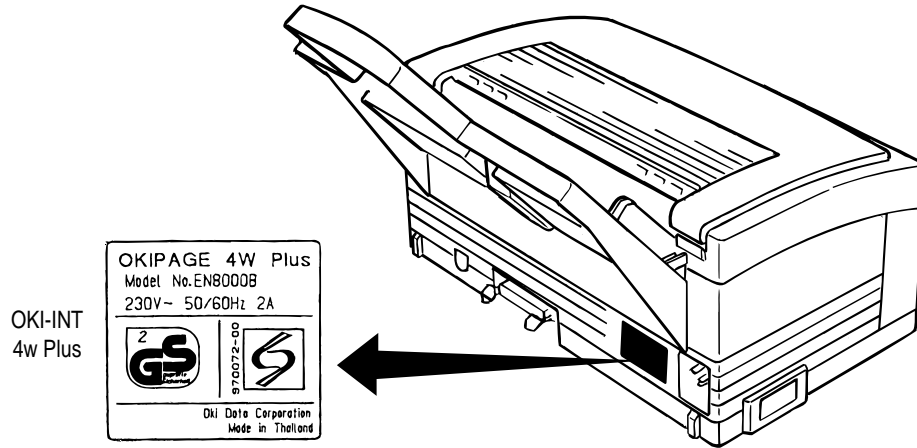
(14) Consumables

Toner cartridge kit 1,000 (5% duty)  
Image drum cartridge 10,000 (at continuous printing)

## 1.5 Safety Standards

### 1.5.1 Certification Label

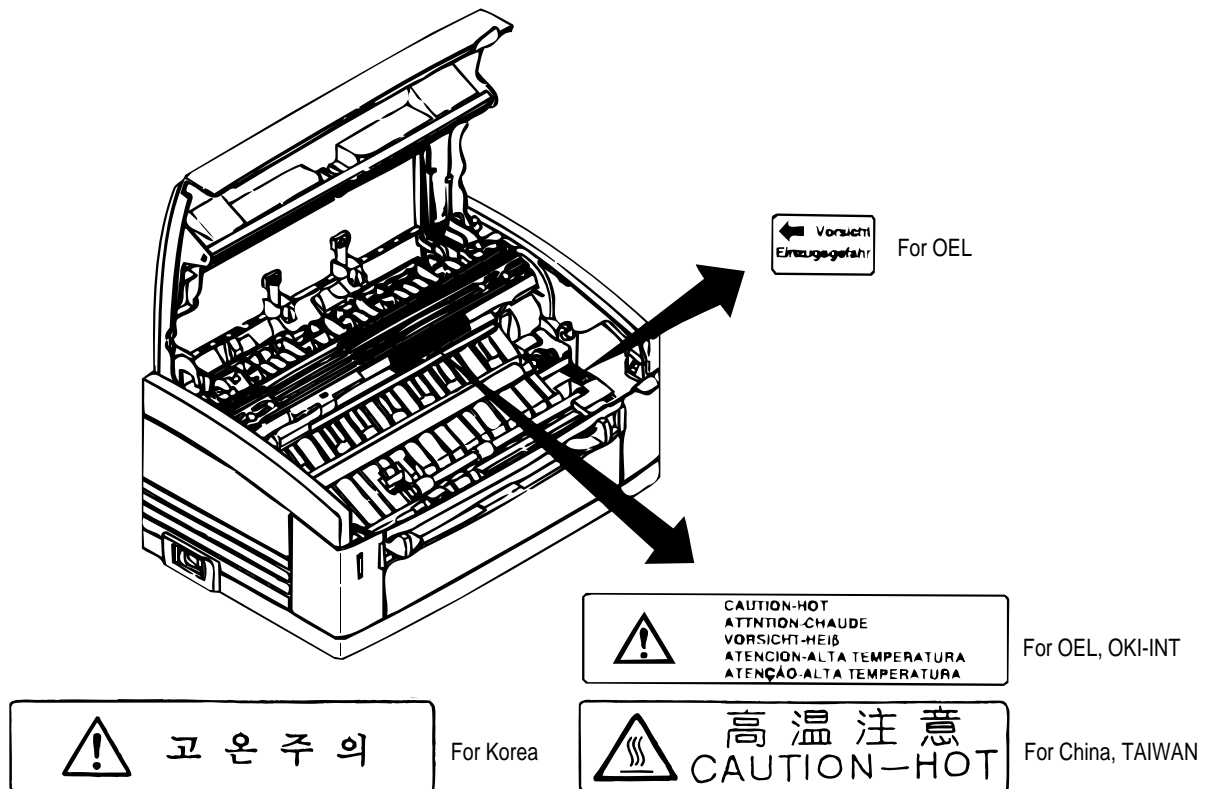
The safety certification label is affixed to the following location of the OKIPAGE 4w:



### 1.5.2 Warning Label

Warning labels are affixed to the locations that may cause bodily injury.

During maintenance, do work with enough care while following instructions on these warning labels.



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## **2. OPERATION DESCRIPTION**

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The OKIPAGE 4w Plus/4m consists of a main control board, a high-voltage power supply board, a power supply unit, and an electro-photographic processor. The OKIPAGE 4w Plus/4m receives print data from a higher-level interface and sequentially stores it in memory. The OKIPAGE 4w Plus/4m decodes and edits the received data while storing print data from the interface in memory. It sequentially transfers the edited data to the LED head for each dot line. The electro-photographic processor then prints the data on sheets of paper.

The display of the higher-level host is used for device operation and status display.

Figure 2-1 is the block diagram of the OKIPAGE 4w Plus/4m.

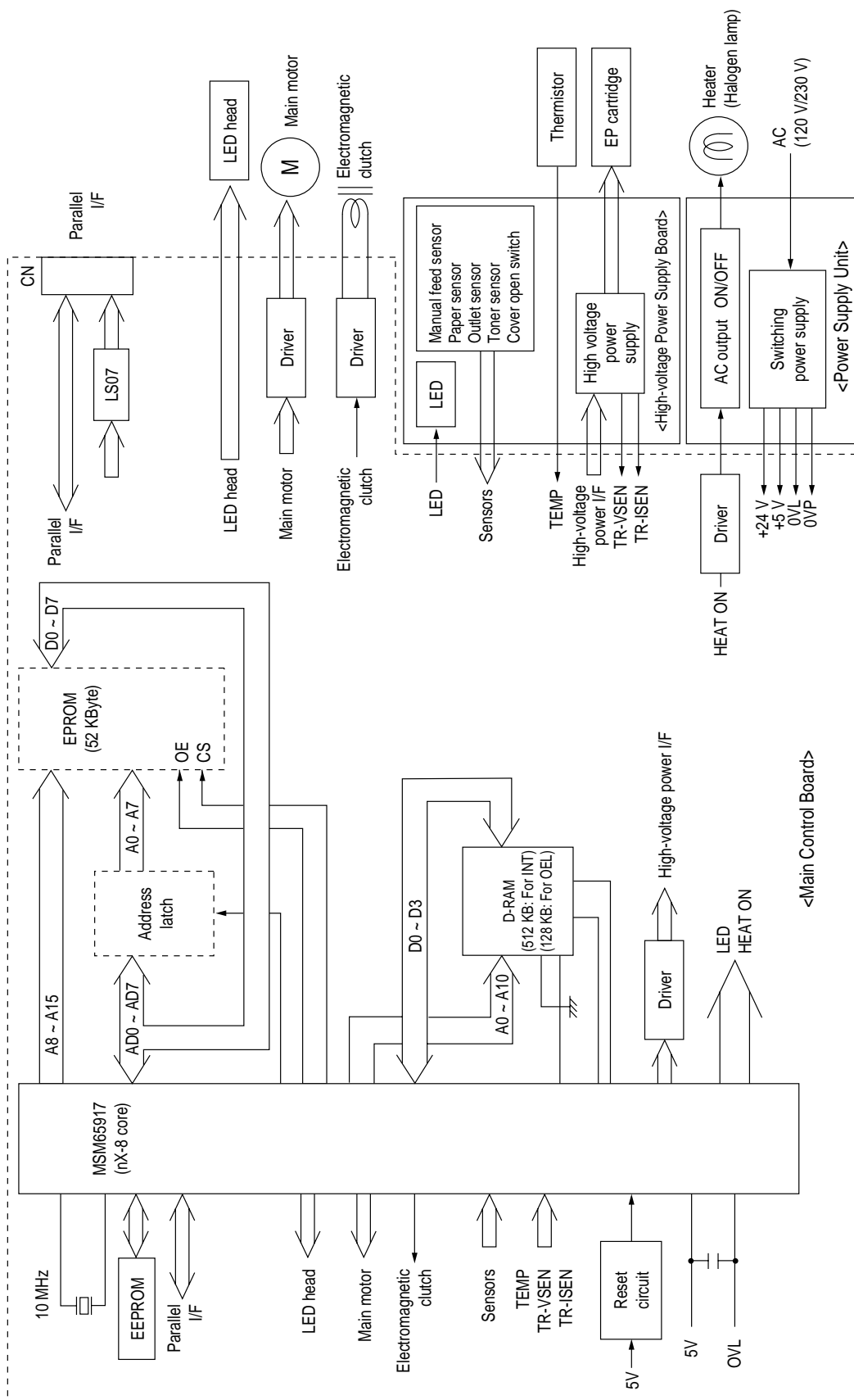


Figure 2-1 Block Diagram (OKIPAGE 4w Plus)

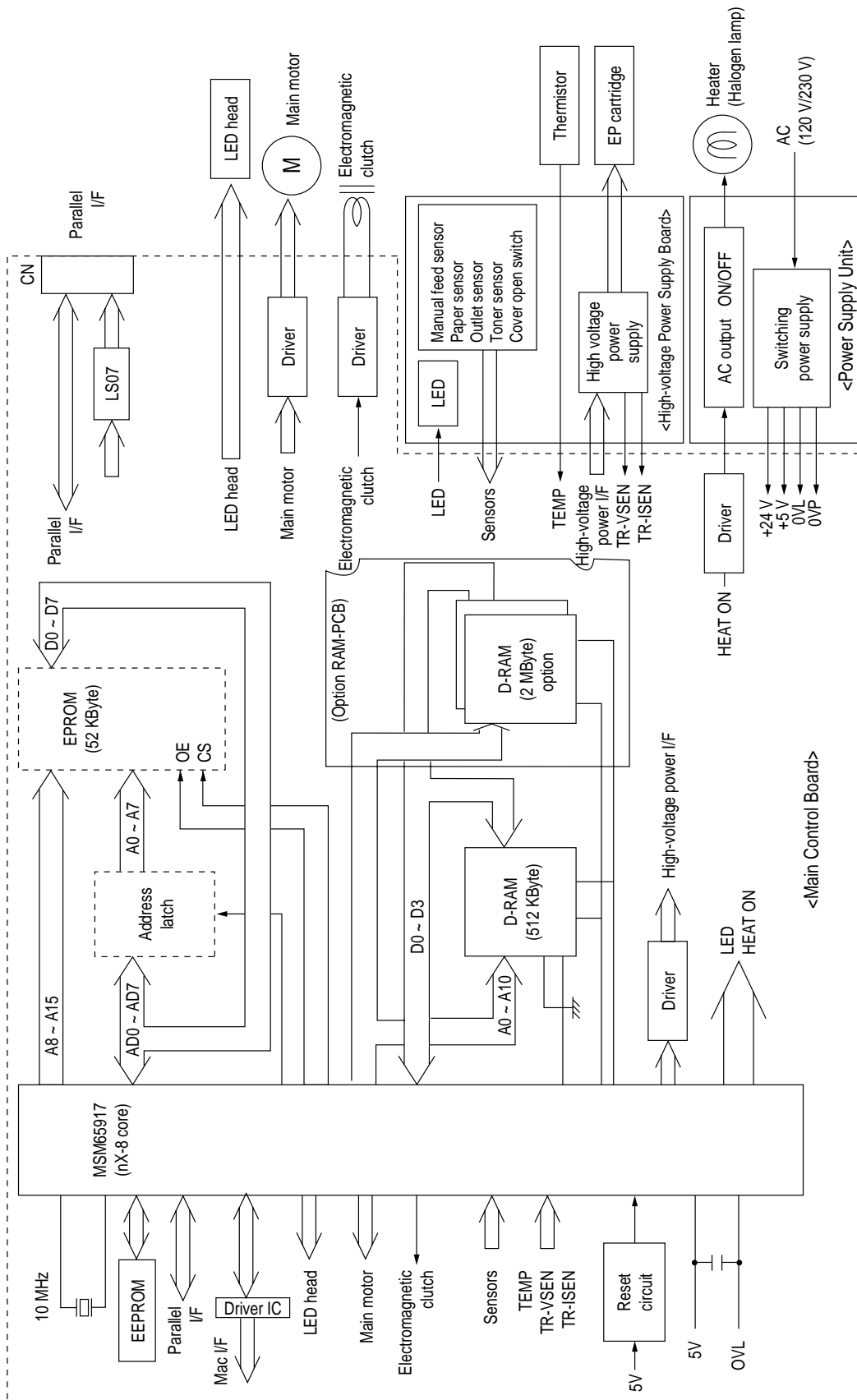


Figure 2-1 Block Diagram (OKIPAGE 4m)



## 2.1 Main Control Board

The main control board consists of a one-chip CPU, a program ROM, a DRAM, an EEPROM, a host interface circuit, and a mechanism driving circuit. The mechanism driving circuit consists of a LED head, a main motor, and an electromagnetic clutch.

### (1) One-chip CPU

The one-chip CPU is a custom CPU (8-bit internal bus, 8-bit external bus, 10-MHz clock) incorporating mask ROM and CPU peripheral devices. This CPU has the functions listed in the table below.

Built-in Device	Function
DRAM controller	Controls DRAM.
DMA controller	Transfers image data from Parallel I/F to DRAM, from DRAM to a video output port and between CPU and DRAM.
Parallel interface controller	Controls the parallel interface.
Video output port LED STB output port	Controls LED head.
Timer	Generates various control timings for monitoring paper feeding and a paper size.
I/O port	Inputs and outputs the sensor signals and motor signals, etc. Also performs I/O for EEPROM.
A/D converter	Inputs the feedback signals from a high-voltage generation circuit and thermistor signal.

### (2) Program ROM

Program ROM contains a program for the equipment. EPROM is used as program ROM. When mask ROM in the one-chip CPU explained in (1) above is valid, the EPROM is not mounted. (For details on short wiring setting, see Section 7.2.)

### (3) DRAM

DRAM is used as resident memory.

### (4) EEPROM

EEPROM holds the following data:

- Menu data
- Counter value
- Adjustment value

### (5) Parallel interface

The parallel interface receives parallel data from the host; it conforms to the IEEE1284 specification.

### (6) Macintosh interface <only OKIPAGE 4m>

Macintosh interface receives serial data from the host ; it conforms to the IEEE1284.

## 2.2 Power Supply Unit

The power supply unit supplies +5 V and +24 V to the main control board according to 230 VAC /120 VAC.

Output voltage	Application
+5 V	Used to generate a logic circuit and a high voltage.
+24 V	Used to drive the motor and electromagnetic clutch.

The power supply unit also contains a heater drive circuit.

## 2.3 High-Voltage Power Supply Board

### (1) High-Voltage power supply circuit

The high-voltage power supply circuit generates the following voltages required for the electro-photographic processor from +5 V according to the control sequence from the main control board. When the cover is open, +5 V supply is automatically interrupted to stop high-voltage output.

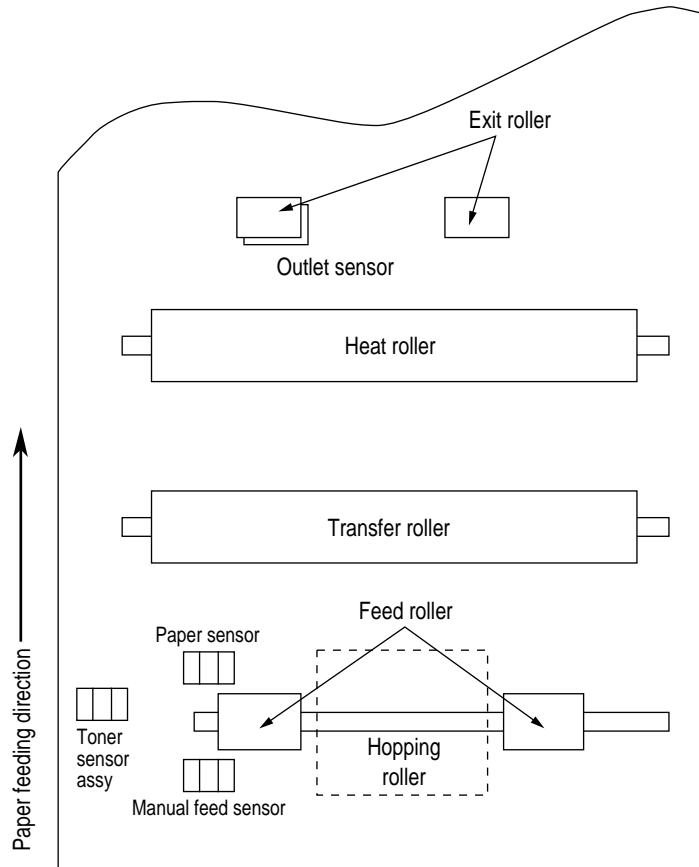
Output	Voltage	Application
CH	-1.35 KV	Voltage to be applied to a charge roller.
DB	-300 V/+300 V	Voltage to be applied to a developing roller.
SB	-450 V/ 0 V	Voltage to be applied to a sponge roller.
CB	+400 V	Voltage to be applied to a cleaning roller.
TR	+500 V ~ +3.5 KV/-750 V	Voltage to be applied to a transfer roller.

**Caution:** The TR voltage varies with medium and transfer roller impedance.

(2) Sensors

The high-voltage power supply board consists of the high-voltage power supply circuit that supplies power to the electro-photographic processor system and the photosensor that detects a paper feeding system and toners.

Figure 2-2 shows the sensor layout drawing.



**Figure 2-2**

Sensor	Function	Sensing State
Manual feed sensor	Monitors whether paper was inserted into the manual feed sensor section.	ON: Paper exists. OFF: No paper exists.
Paper sensor	Detects the leading part of the paper. Monitors paper feeding.	ON: Paper exists. OFF: No paper exists.
Outlet sensor	Monitors paper feeding and the paper size according to the paper sensor arrival and passing time.	ON: Paper exists. OFF: No paper exists.
Toner sensor	Detects the low toner status.	ON (long): Toner low OFF (short): Toner High

## 2.4 Electro-Photographic Processor

The electro-photographic processor prints out the image data to be sent from the main control board on sheets of paper. Figure 2-3 shows the layout drawing of the electro-photographic processor.

### (1) Image drum unit

The image drum unit makes a toner adhere to the formed electrostatic latent image with static electricity. This electrostatic latent image is formed by the lights irradiated from LED heads.

### (2) Electromagnetic clutch

The electromagnetic clutch controls the rotation of the hopping roller according to signals from the control block.

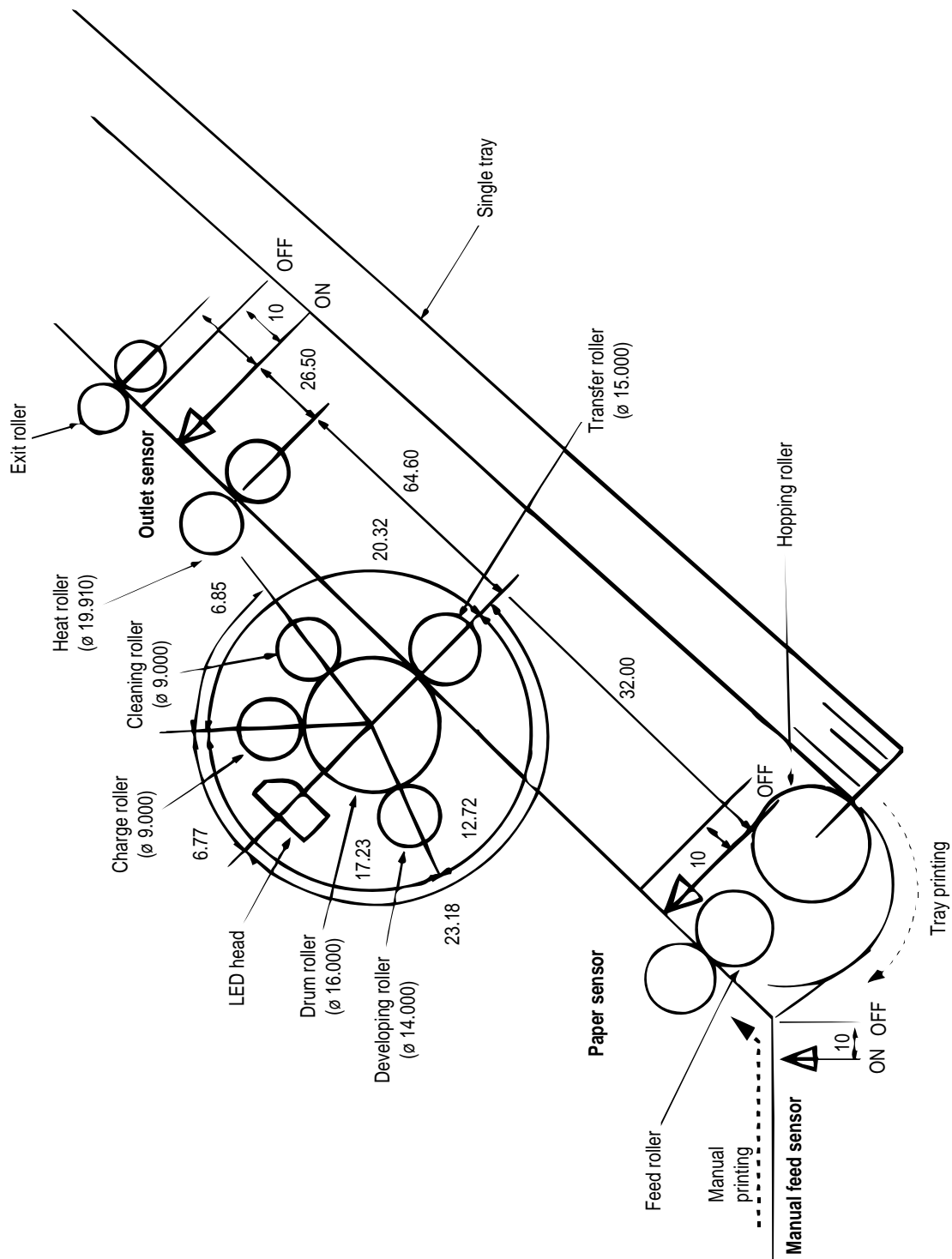


Figure 2-3 Layout Drawing of Electro-Photographic Processor

(3) Pulse motor (Main)

This pulse motor of 48 steps/rotation is two-phase excited by the signal from the main control board; it performs feeding control by switching normal rotation to reverse rotation or vice versa and turning on/off the electromagnetic clutch. The relationship between the main motor, electromagnetic clutch, resist gear, drum gear, hopping roller is shown in the table below and on the subsequent pages.

Main Motor	Electromagnetic Clutch	Hopping Roller	Regist Gear	Drum Gear	Operation
Normal rotation	OFF	Non-rotation	Non-rotation	Rotation	Warm-up
Reverse rotation	ON	Rotation	Rotation	Rotation	Hopping
	OFF	Non-rotation	Rotation	Rotation	Printing

(4) LED head

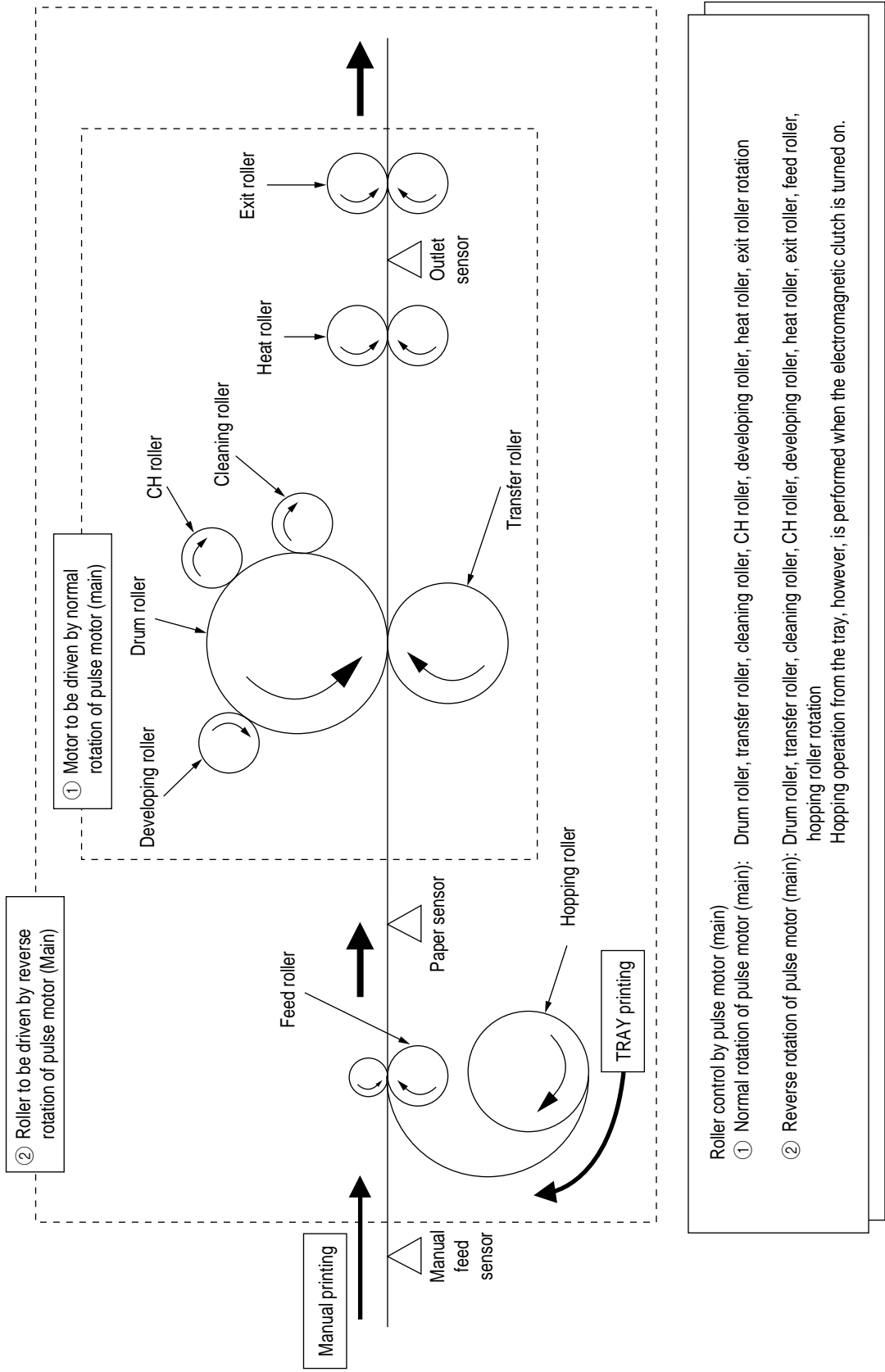
The shift and latch registers receive image data from the main control board for each dot line. 2,560 or 2,496 LEDs are driven to radiate the image drum.

(5) Heat Assy

The heat Assy consists of a heater, a heat roller, a thermistor, and a thermostat.

The power supply unit supplies AC voltage to the heater according to the HEATON signal from the main control board to heat the heat roller. The main control board monitors the heat roller temperature via the thermistor and keeps the temperature constant by turning on/off the heater AC voltage supply.

If the heat roller temperature rises abnormally, the thermostat of the heater voltage supply circuit functions to forcibly suspend the AC voltage supply.



**Figure 2-4 Schematic Drawing of OKIPAGE4w Plus/4m Paper Feeding**

## 2.5 Electro-Photographic Process

### (1) Electro-photographic process

The electro-photographic process is outlined below.

#### ① Charging

The surface of the OPC drum is charged negatively and uniformly by applying the DC voltage to the CH roller.

#### ② Exposure

Light emitted from the LED head irradiates the negatively charged surface of the OPC drum. The surface potential of the irradiated surface attenuates to form the electrostatic latent image corresponding to the image signal.

#### ③ Development and residual toner recovery

The negatively charged toner is brought into contact with the OPC drum, adhering to the electrostatic latent image on the OPC drum by static electricity. This adhesion causes the electrostatic latent image to change to a visible image.

At the same time, the residual toner on the OPC drum is attracted to the developing roller by static electricity.

#### ④ Transfer

When paper is placed over the image drum surface, the positive charge which is opposite in polarity to that of the toner, is applied to the reverse side by the transfer roller. The toner is attracted by the positive charge and is transferred onto the paper. This results in the transfer of the toner image formed on the image drum onto the paper.

#### ⑤ Cleaning

The cleaning roller temporarily attracts the residual toner on the transferred OPC drum with static electricity, then returns the toner to the OPC drum.

#### ⑥ Fusing

The transferred unfused toner image is fused to a sheet of paper by applying heat and pressure to the image.

Figure 2-5 is a flow for the electro-photographic process.



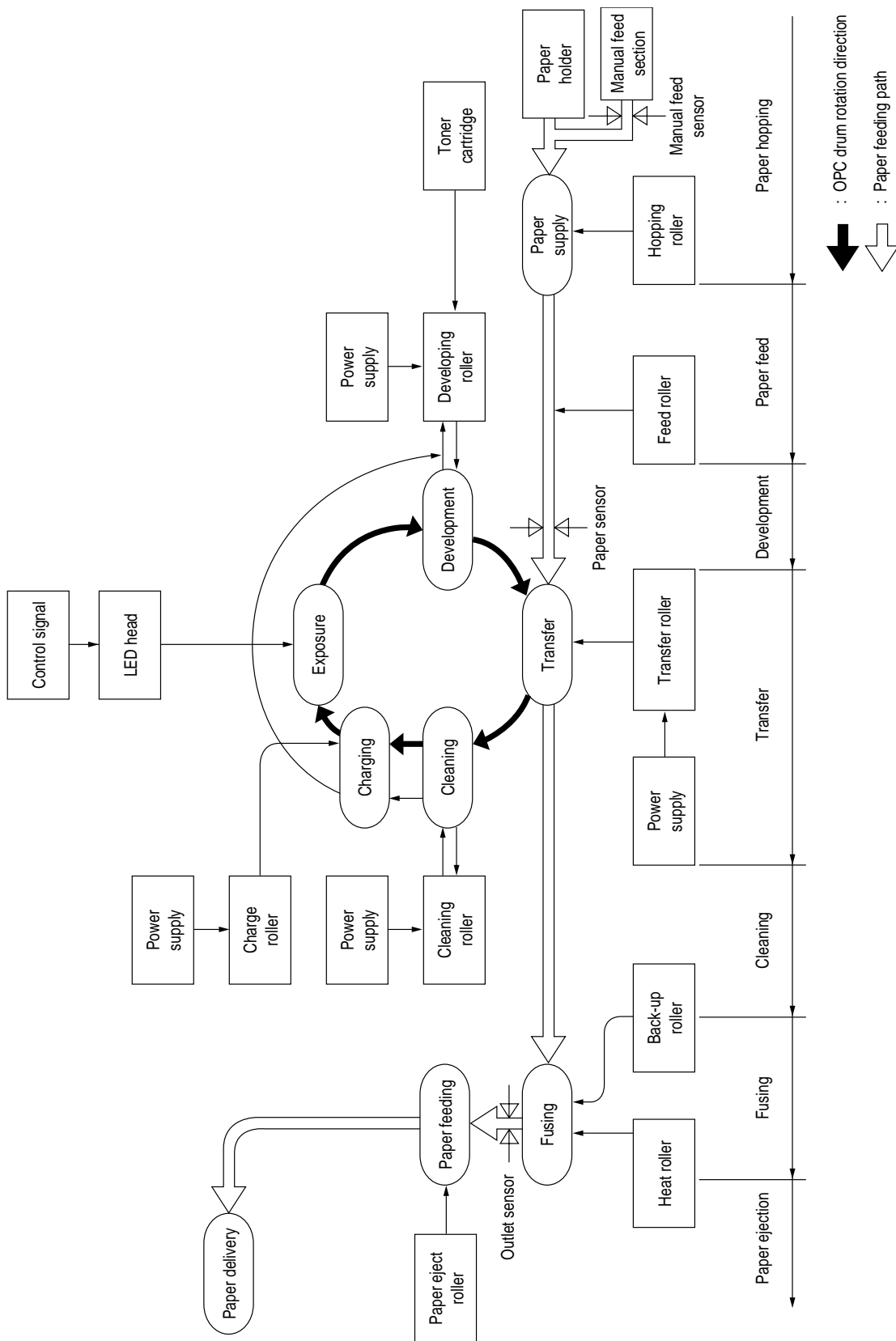


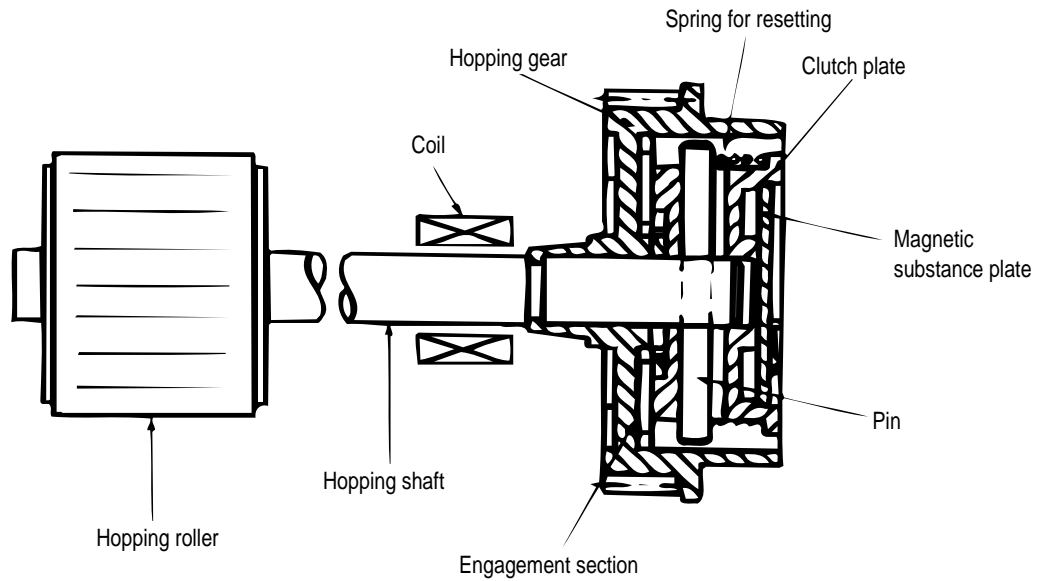
Figure 2-5 Flow for Electro-Photographic Process

## 2.5.1 Explanation of Each Process Operation

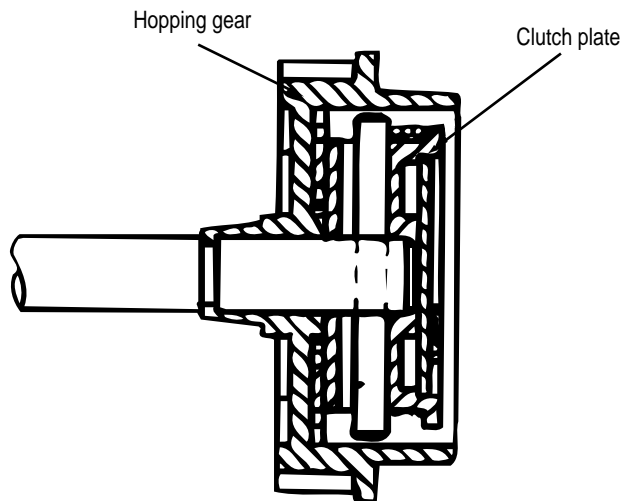
### (1) Hopping

As shown in the figure below, the clutch for hopping is turned on/off according to current ON/OFF to a coil.

When the clutch is OFF



When the clutch is ON

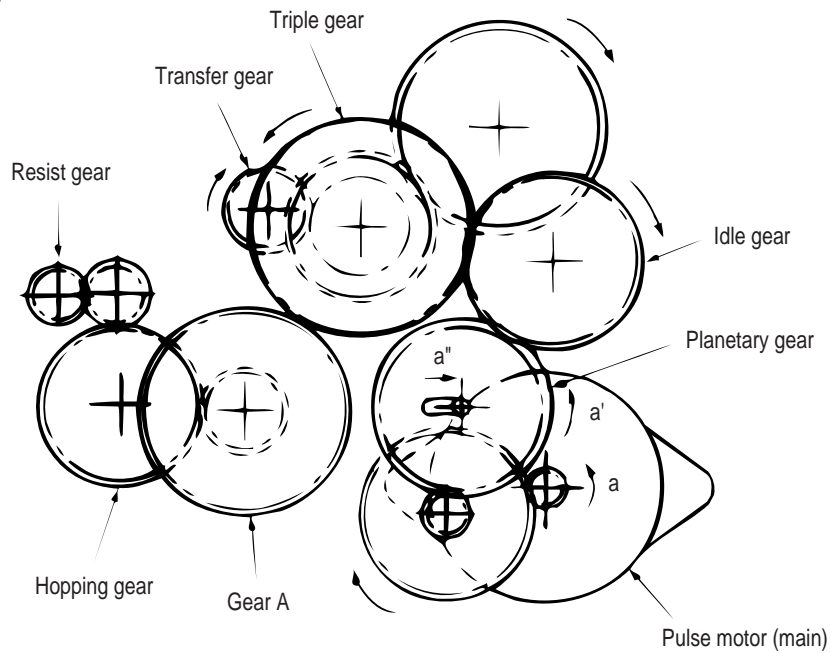


When the clutch is on, the hopping gear engages with the clutch plate to rotate the hopping roller.

When the clutch is off, the hopping gear is separated from the clutch plate by the spring for resetting, disabling the rotation of the hopping roller.

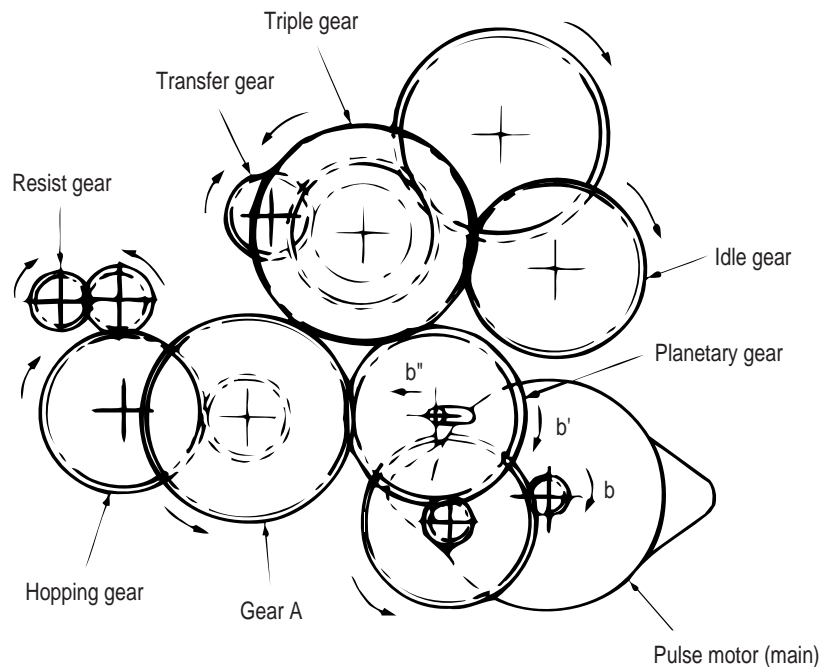
(2) Printing and warm-up

At warm-up



Rotate the pulse motor (main) in the  $a$  direction. The planetary gear rotates in the  $a'$  direction, dislocating its position in the  $a''$  direction. This causes the planetary gear to be separated from gear A. The hopping gear will not rotate. The triple gear and transfer gear rotate via the idle gear to drive the EP unit.

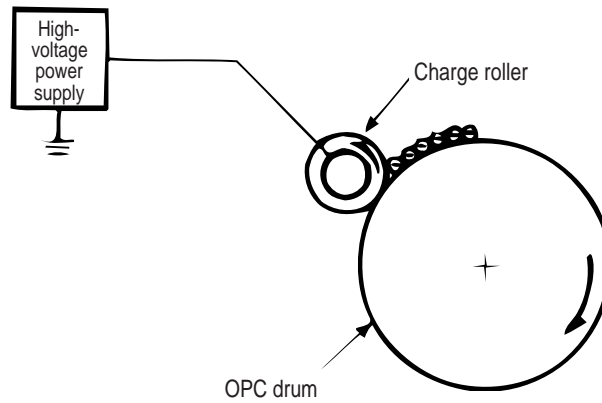
At printing



The paper is further advanced in synchronization to the print data.

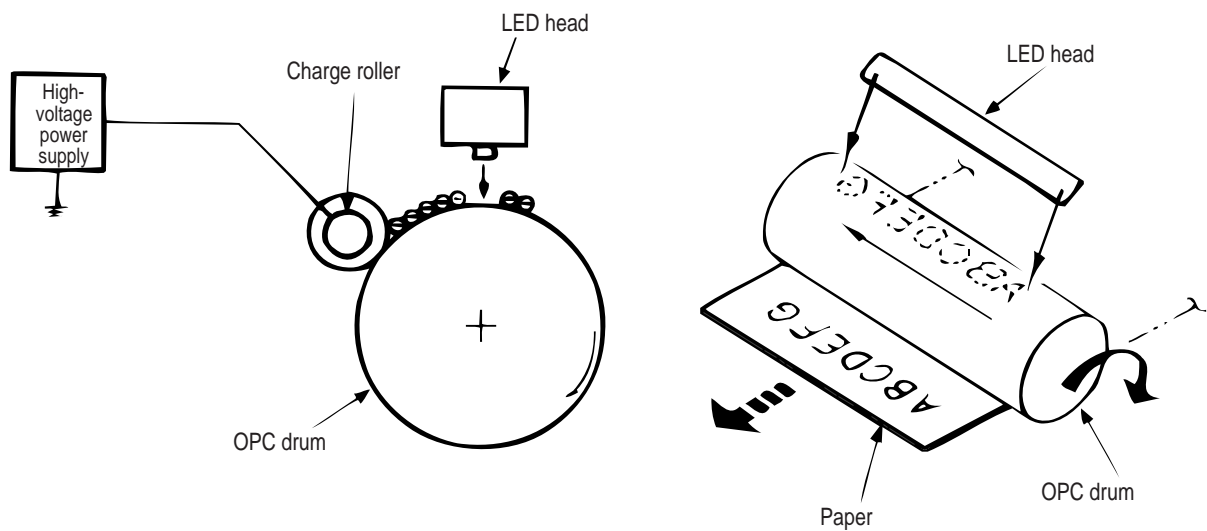
### (3) Charging

Charging is performed by applying DC voltage to the charge roller that is in contact with the surface of the OPC drum.



### (4) Exposure

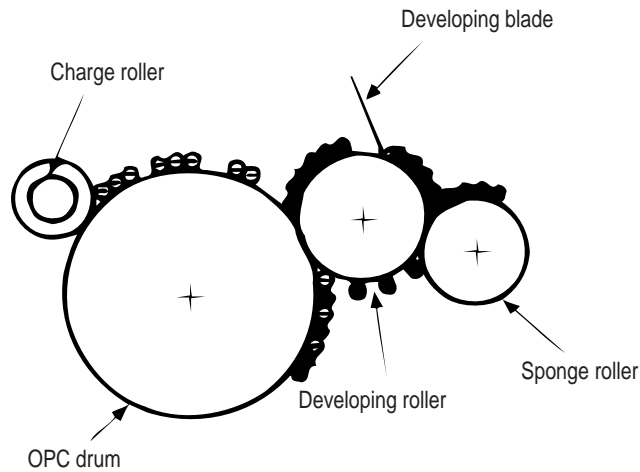
Light emitted from the LED head irradiates the negatively charged surface of the OPC drum. The surface potential of the irradiated surface attenuates to form the electrostatic latent image corresponding to the image signal.



(5) Development

The electrostatic latent image on the surface of the OPC drum is changed to a visible toner image by applying a toner to it. Development is performed in the contact part between the OPC drum and developing roller.

- ① The sponge roller negatively charges a toner and applies it to the developing roller.



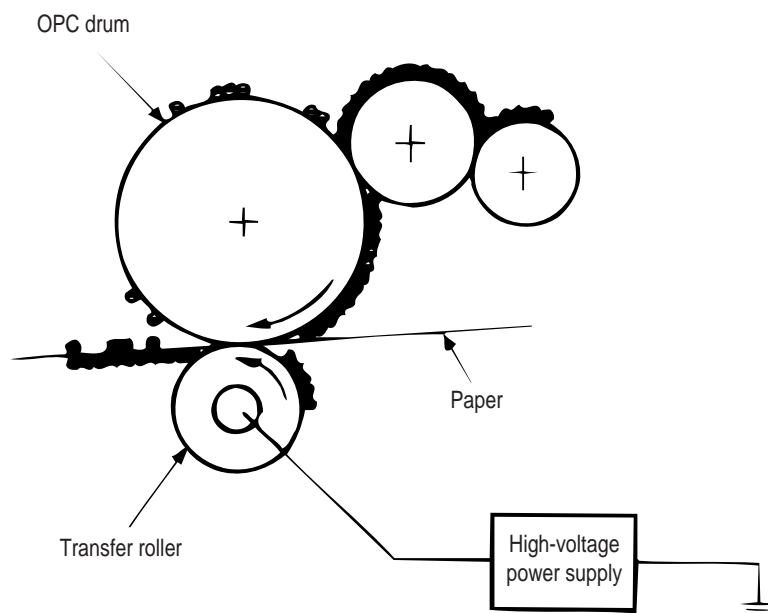
- ② The toner applied to the developing roller is thin-coated by the developing blade.
- ③ A toner adheres to the exposure part of the OPC drum in the contact part between the OPC drum and developing roller. This causes the electrostatic latent image to be changed to a visible image.

(6) Transfer

The transfer roller is composed of conductive sponge material. This roller is set so that the surface of the OPC drum and sheets of paper will adhere closely.

A sheet of paper is placed on the surface of the OPC drum and the positive charge opposite to the negative charge of a toner is applied from the reverse side by the transfer roller.

When a high negative voltage is applied from the power supply to the transfer roller, the positive charge induced on the surface of the transfer roller moves to the paper side at the contact part between the transfer roller and the sheet of paper. The positive charge on the lower side of the sheet of paper then causes the negatively charged toner adhering to the surface of the OPC drum to move to the upper side of the sheet. This enables transfer to the sheet of paper.

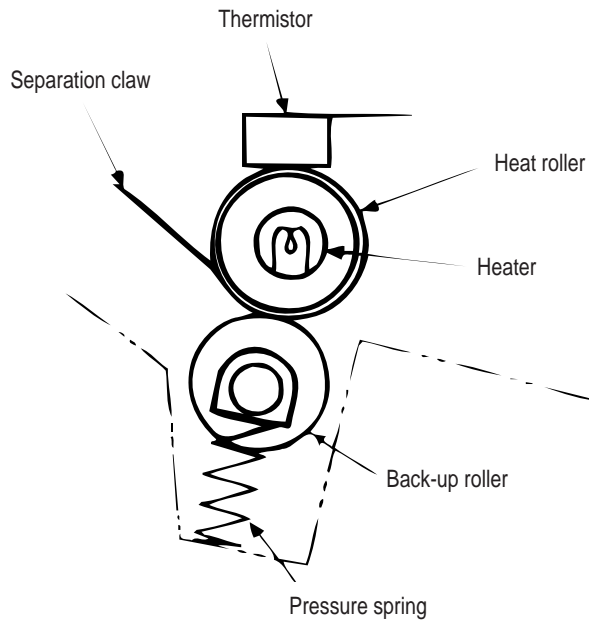


(7) Fusing

The transferred unfused toner image is fused to a sheet of paper because heat and pressure are applied when it passes between the heat roller and back-up roller.

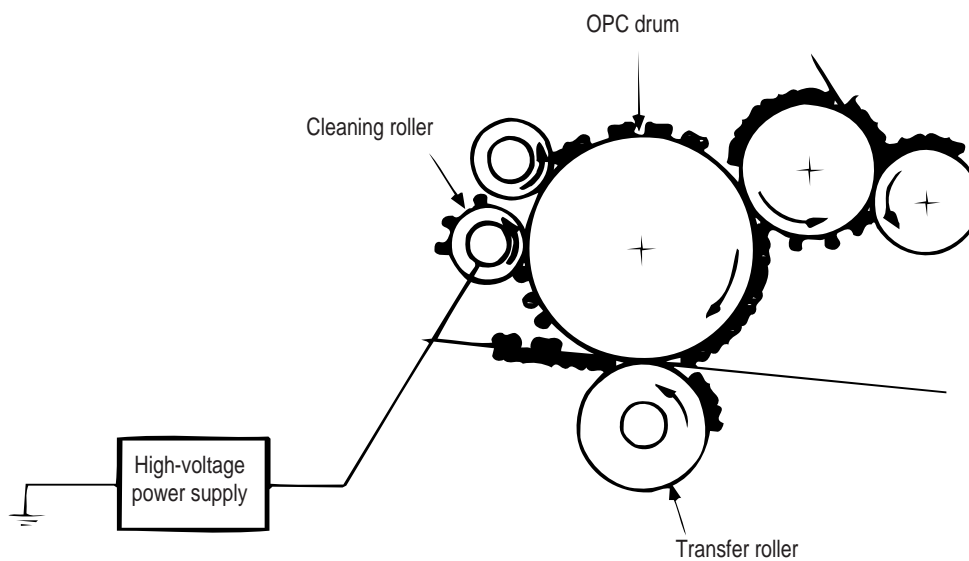
The Teflon-coated heat roller contains a 400 W heater (Halogen lamp) that heats the heat roller. The thermistor on the surface of the heat roller keeps the temperature of the heat roller constant. A thermostat is also installed for safety. If temperature rises abnormally, this thermostat opens to suspend voltage supply to the heater.

The back-up roller is pressurized to the heat roller by the pressure spring on each side.



(8) Cleaning

After transfer has terminated, the cleaning roller temporarily draws in the untransferred residual toner adhering to the OPC drum with static electricity and then returns it to the OPC drum.



## 2.6 Paper Jam Detection

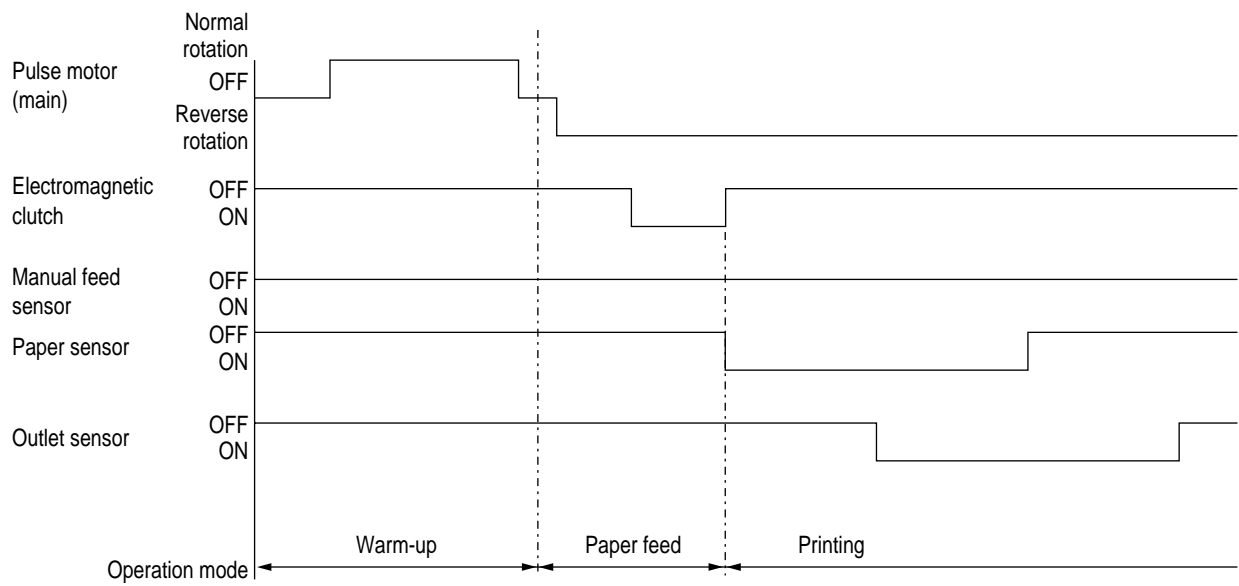
The OKIPAGE 4w Plus/4m monitors the paper status when the power supply is on and during printing. In the following cases, the OKIPAGE 4w Plus/4m interrupts the printing process as a paper jam. Printing can be recovered by opening the cover, removing the jammed paper, and closing the cover.

Error	Cause of Error
Paper inlet jam	<ul style="list-style-type: none"> <li>Only the manual feed sensor detects "Paper exists" when the power supply is on.</li> <li>The leading part of the paper does not reach the paper sensor although hopping operation was performed three time.</li> </ul>
Paper feed jam	<ul style="list-style-type: none"> <li>The leading part of the paper does not reach the outlet sensor within a fixed time after it has passed the paper sensor.</li> </ul>
Paper outlet jam	<ul style="list-style-type: none"> <li>The trailing part of the paper does not pass the outlet sensor within L mm after the leading part of the paper has passed the outlet sensor.</li> </ul> <p>2.52" (64 mm) ≤ L ≤ 15.77" (400.6 mm)</p>
Paper size error	<ul style="list-style-type: none"> <li>The trailing part of the paper does not pass the paper sensor within L mm after the leading part of the paper has passed the paper sensor.</li> </ul> <p>2.52" (64 mm) ≤ L ≤ 15.77" (400.6 mm)</p>

Type of Error	Supervisory Sensor	Reference Value	Error	
			Pluse	Minus
Paper feed error	Electromagnetic clutch ON/ Paper sensor ON	69.8	35	—
Paper feed jam1	Paper sensor ON/ Outlet sensor ON	122.9	20.0	—
Paper size error	Paper sensor ON/ Paper sensor OFF	2.52" (64 mm) ≤ L ≤ 15.77" (400.56 mm)	—	—
Paper outlet jam	Outlet sensor ON/ Outlet sensor OFF	2.52" (64 mm) ≤ L ≤ 15.77" (400.56 mm)	45.0	45.0
Paper feed jam 2	Paper end sensor OFF/ Outlet sensor OFF	121.9	20.0	20.0

Unit: mm



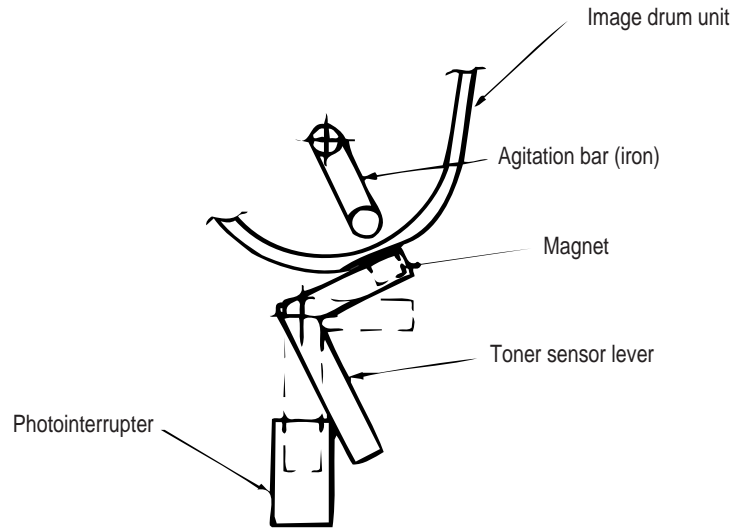


**Timing Chart for Paper Feed (Tray Feed)**

Paper Feed Check List  
2.7 Toner Low Detection

- Hardware configuration of toner sensor

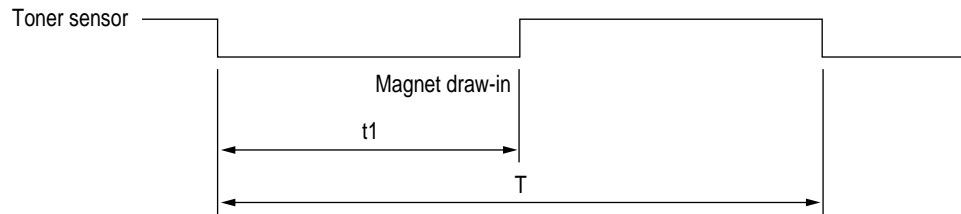
The figure below shows the hardware configuration of the toner sensor.



**Hardware Configuration of Toner Sensor**

- Toner detection method

(1) Toner sensor monitoring conditions are shown in the figure below.



**Caution:** The toner sensor is not monitored when the drum is inactive.

- When the toner-low state continues twice, Toner Low occurs. (This state is monitored at a cycle of 40 milliseconds.)
- When the toner-full state continues twice, Toner Low is released. (This state is monitored at a cycle of 40 milliseconds.)
- When the toner sensor does not change over two cycles ( $T \times 2$ ), the toner sensor alarm state occurs.
- After the EP unit has been replaced (after the drum counter has been reset), Toner Low is not detected when the drum counter indicates 1 to 100 counts.

(2) The basic rotation cycle of the toner sensor is as follows:

	T time
Basic rotation cycle of toner sensor	4.9 sec.
Toner low time	$t_1 > 1.2 \text{ sec.}$
Toner full time	$1.2 \text{ sec.} > t_1 > 0.28 \text{ sec.}$

## 2.8 Cover Open

Opening the stacker cover turns off the microswitch on the high-voltage power supply board to suspend +5 V supply to the high voltage power supply. This results in the stop of all high-voltage outputs. At the same time, the CVOPN signal is issued to notify the main control board of the switch status and cover open processing is executed.

---

### **3. PARTS REPLACEMENT**

### 3. PARTS REPLACEMENT

This chapter explains how to replace parts, assemblies, and units in the field.

The replacement procedures to be explained here include dismantling, not mounting. When mounting parts, assemblies, and units, reverse the dismantling steps.

#### 3.1 Precautions for Parts Replacement

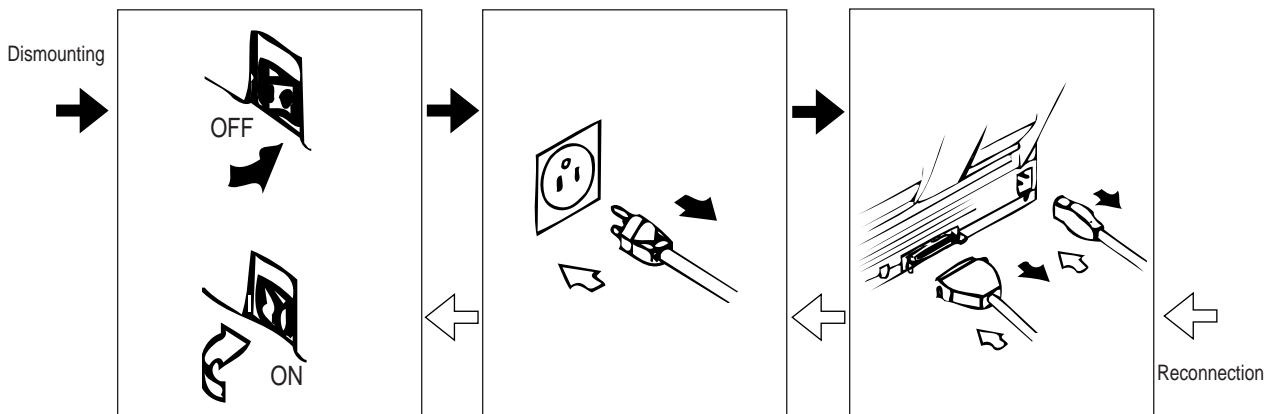
(1) Be sure to dismantle the AC cord and interface cable before replacing parts.

(a) Be sure to dismantle the AC cord in the following procedures:

- i) Turn off the POWER switch of the printer ("0").
- ii) Disconnect the AC inlet plug of the AC cord from the AC receptacle.
- iii) Disconnect the AC cord and interface cable from the printer.

(b) Be sure to reconnect the printer in the following procedures:

- i) Connect the AC cord and interface cable to the printer.
- ii) Connect the AC inlet plug to the AC receptacle.
- iii) Turn on the POWER switch of the printer ("I").



(2) Do not disassemble parts as long as the printer is operating normally.

(3) Minimize disassembling. (Only the parts indicated in the parts replacement procedures can be dismantled.)

(4) Use only the specified maintenance tools.

(5) Disassemble parts in the specified sequence; otherwise, parts may be damaged.

(6) Temporarily tighten small parts such as screws and collars to the original locations because they tend to be lost easily.








(7) When handling ICs such as CPUs, ROM, and RAM and PC boards, do not wear gloves that easily cause static electricity.

(8) Do not place PC boards directly on devices and floors.

[Maintenance Tools]


Table 3-1 lists the maintenance tools necessary for parts replacement.

**Table 3-1 Maintenance Tools**

No.	Maintenance Tools	Q'ty	Use	Remarks
1	 No. 1-100 Philips screwdriver	1	2~2.5 mm screw	
2	 No. 2-100 Philips screwdriver	1	3~5 mm screw	
3	 No. 3-100 Philips screwdriver	1		
4	 No. 5-200 screwdriver	1		
5	 Digital multimeter (tester)	1		
6	 Pliers	1		
7	 Handy cleaner	1		

[Maintenance Utility]

**Table 3-2 Maintenance Utility**

No.	Maintenance Utility	Q'ty	Use	Remarks
1	 Maintenance utility	1		

### 3.2 Parts Layout

This section explains the layout of main parts.

[Upper Cover Assy]

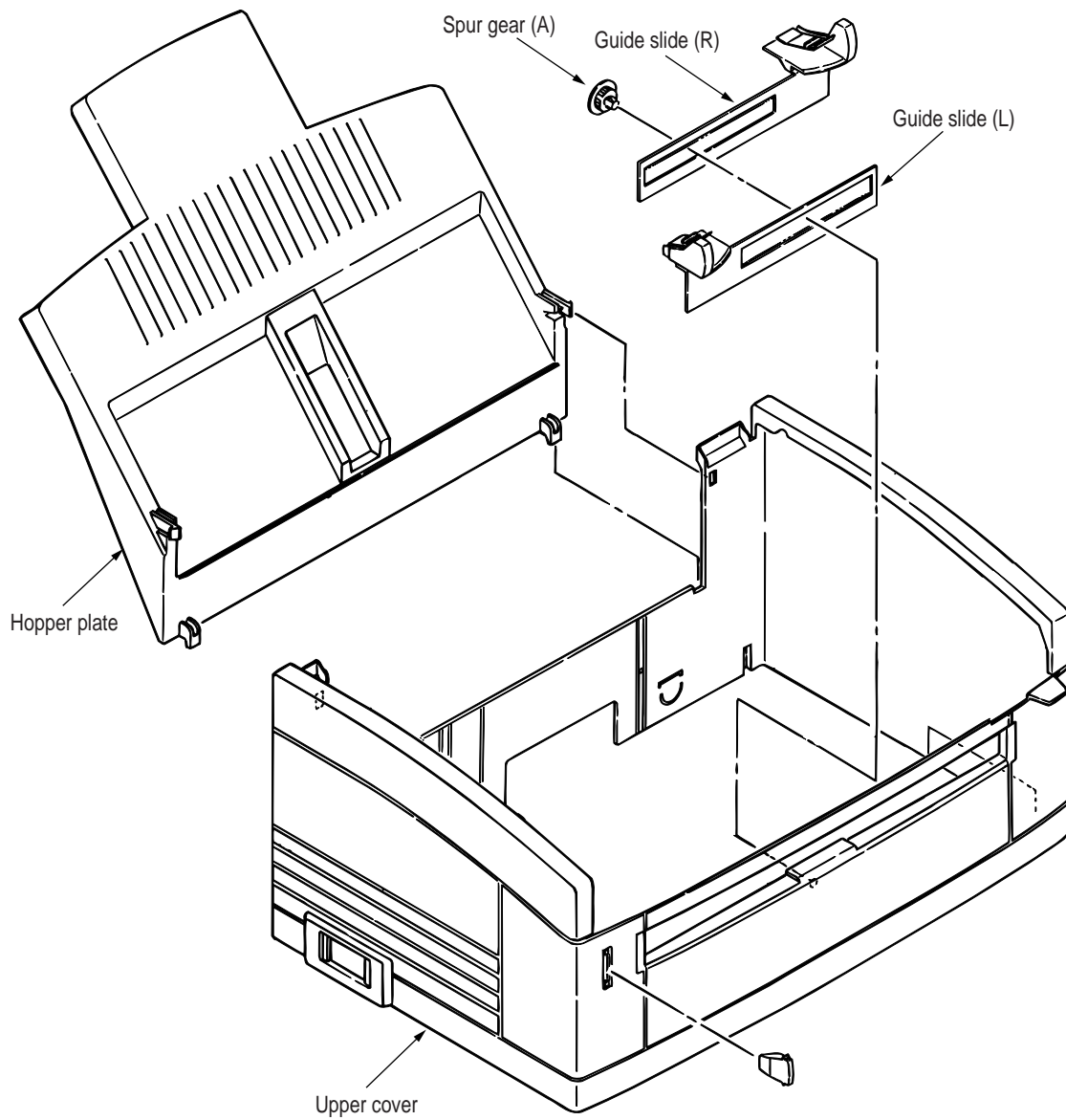


Figure 3-1

[Base Frame Unit]

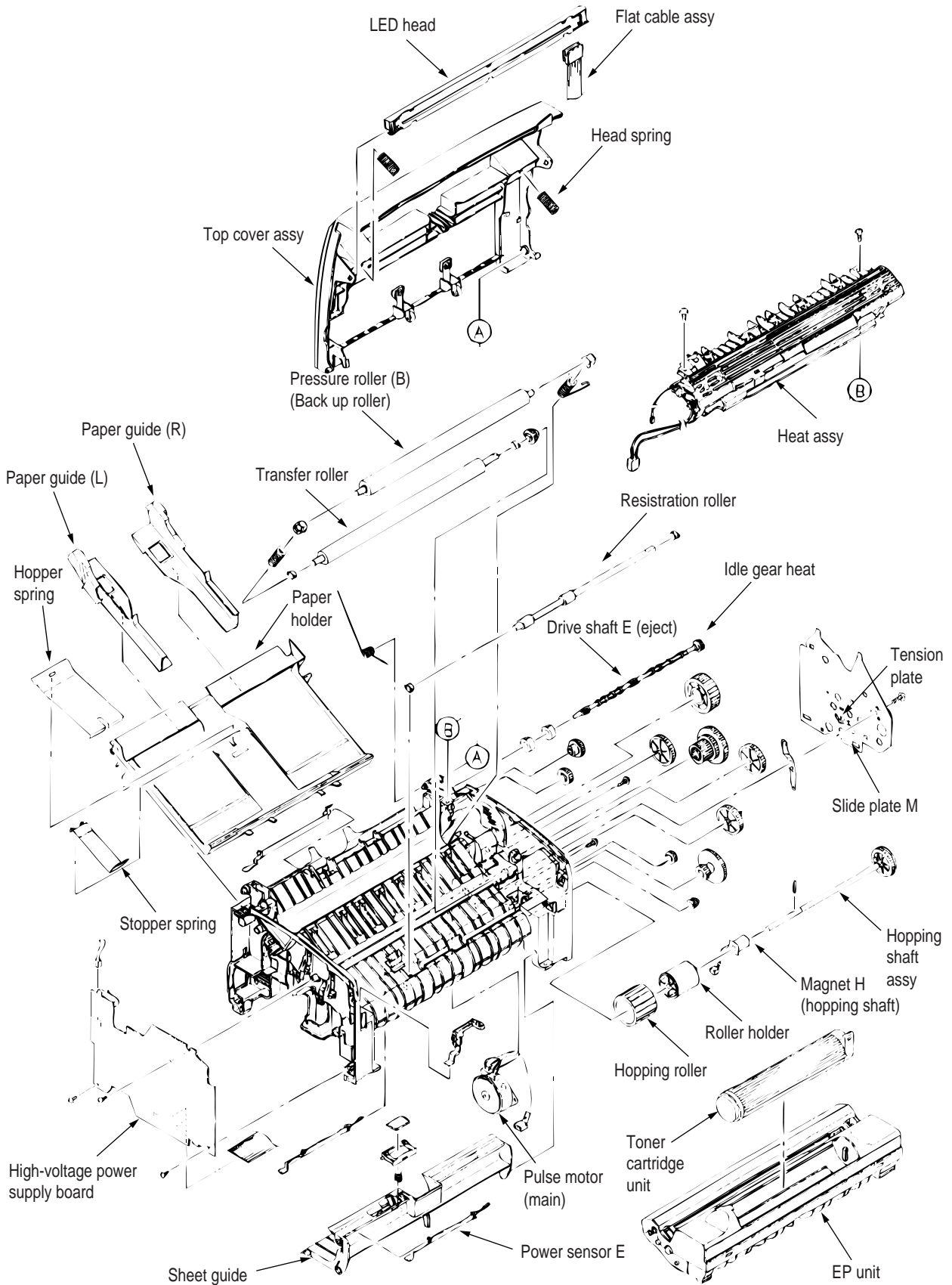


Figure 3-2



[Base Plate Unit]

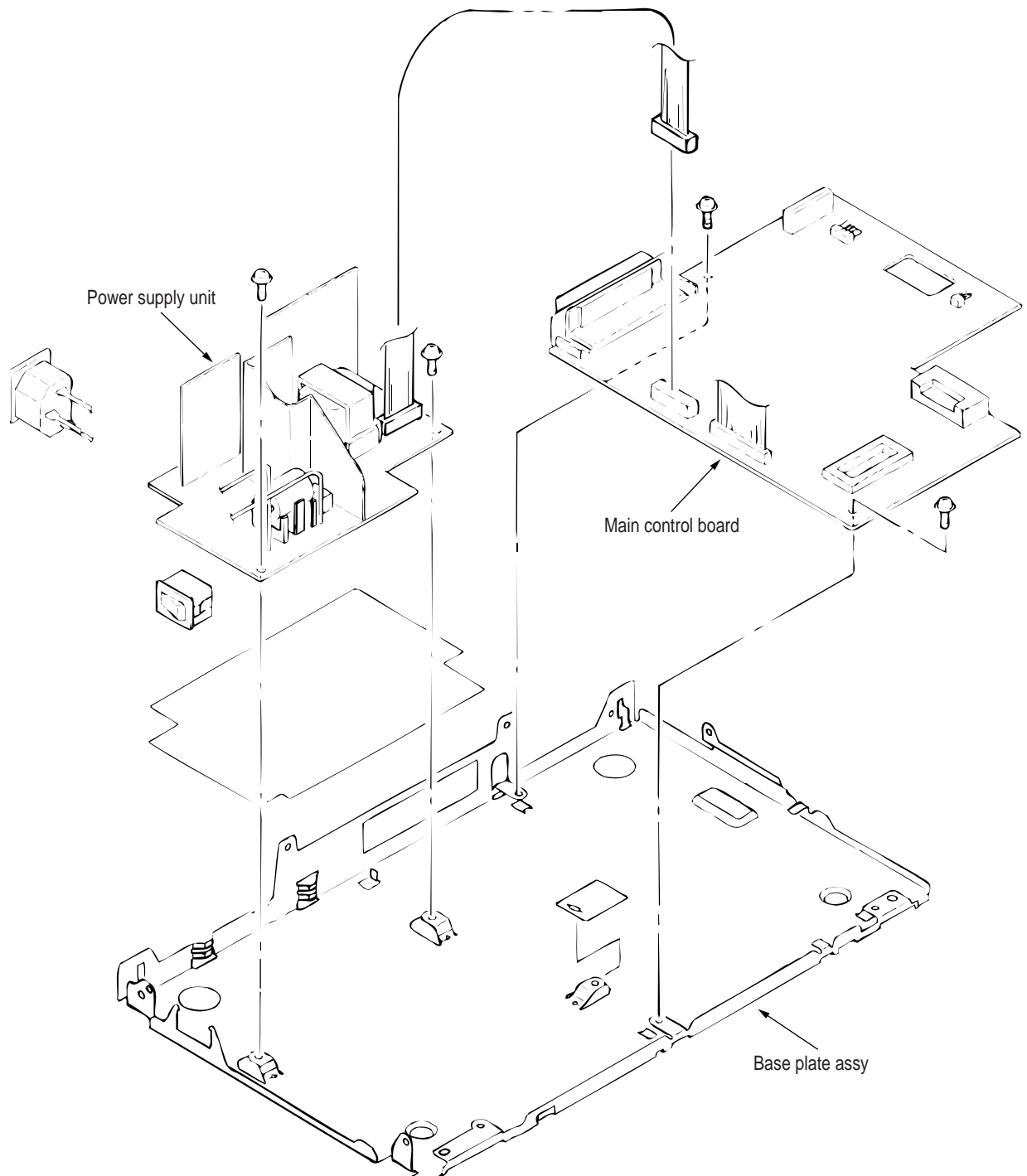


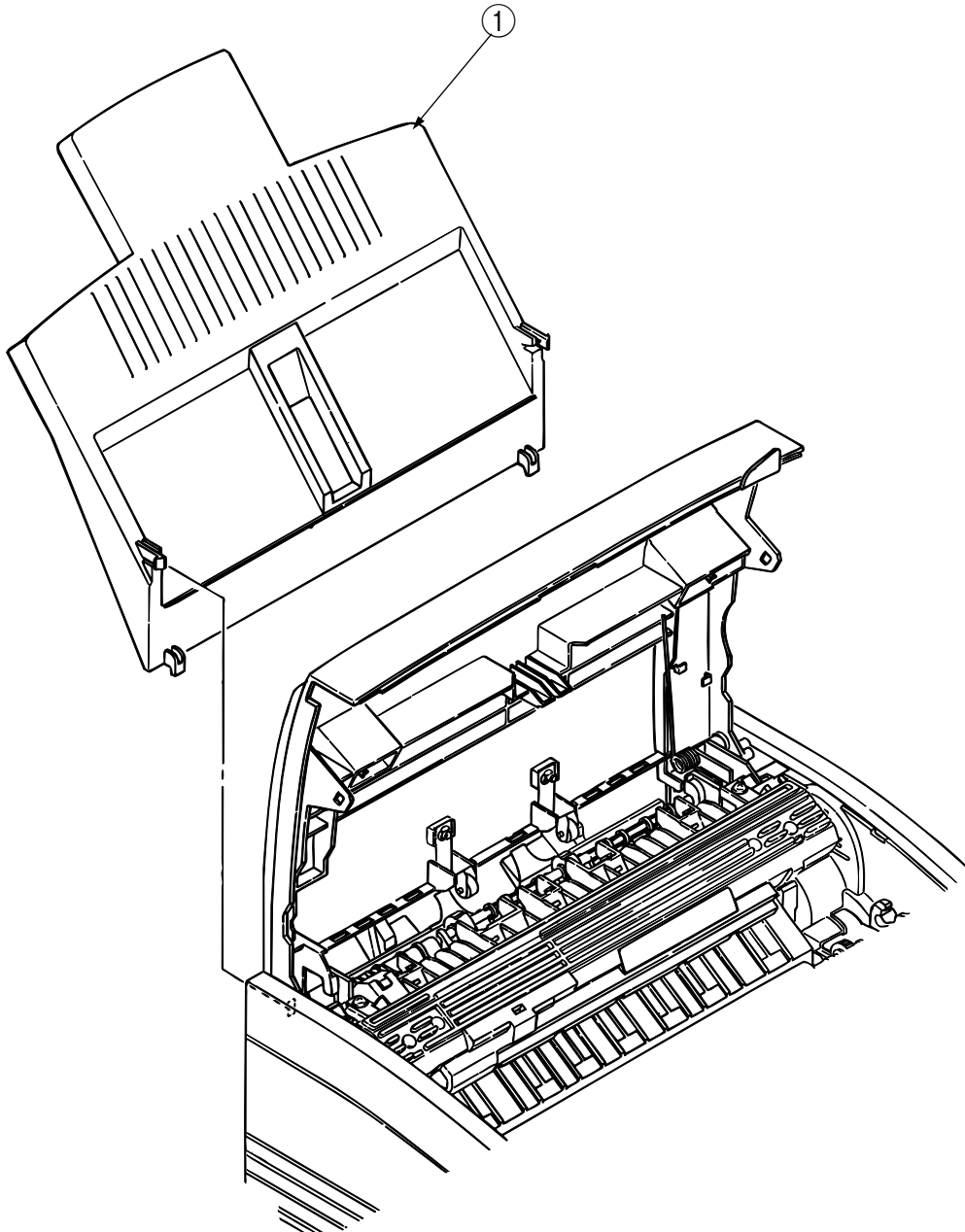
Figure 3-3

### 3.3 Replacing Parts

This section explains how to replace parts and assemblies.

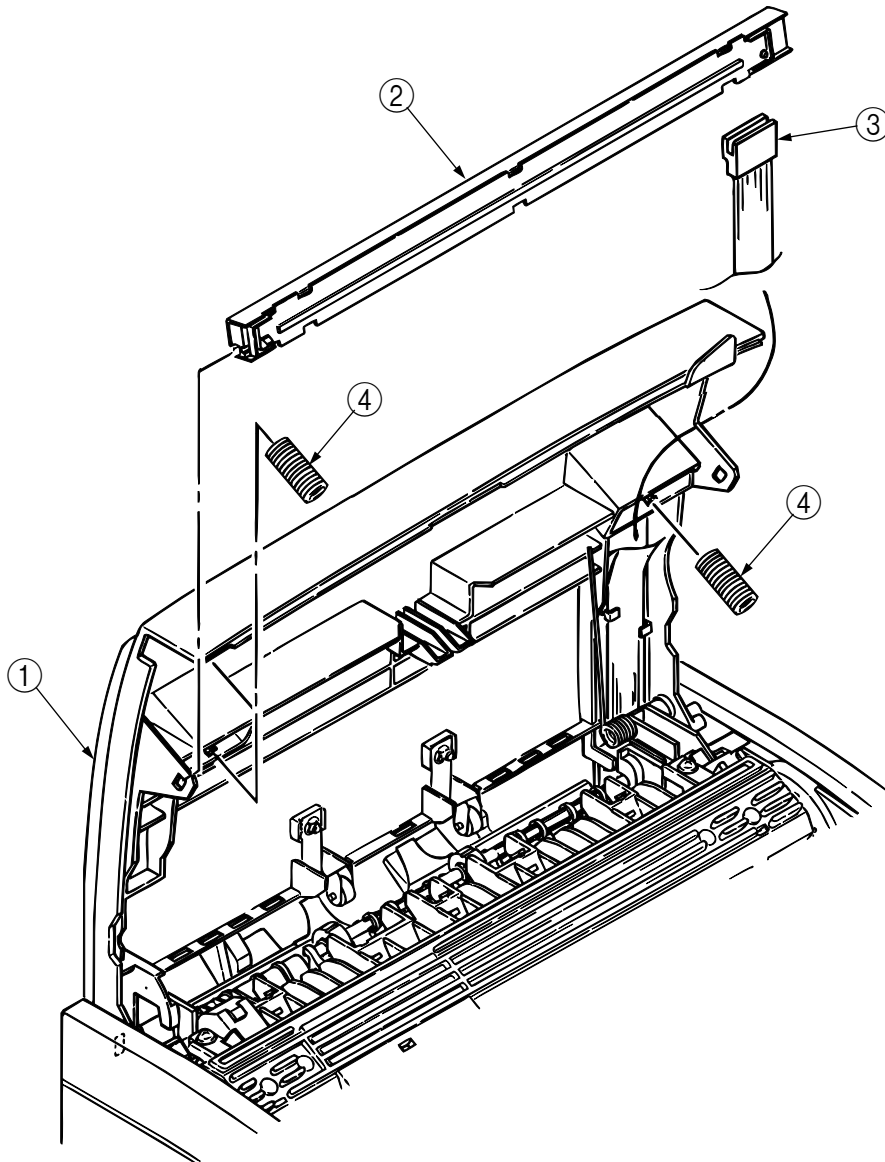
#### 3.3.1 Hopper Plate

(1) Remove two claws and dismount hopper plate ①.



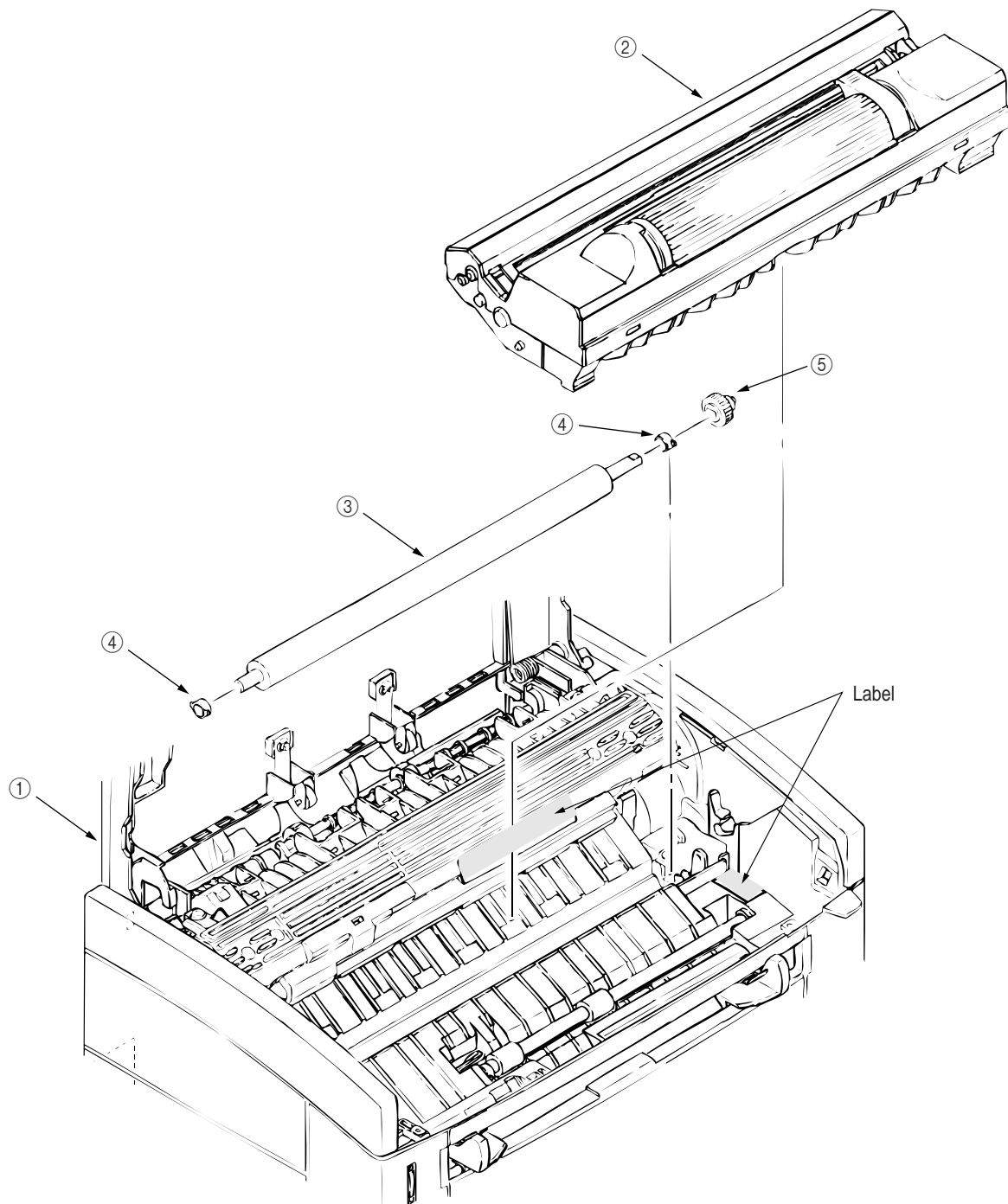
### 3.3.2 LED Head and Head Spring

- (1) Open top cover assy ①.
- (2) Dismount the left clamp and LED head ②. Then, dismount flat cable assy ③.
- (3) Dismount two head springs ④.



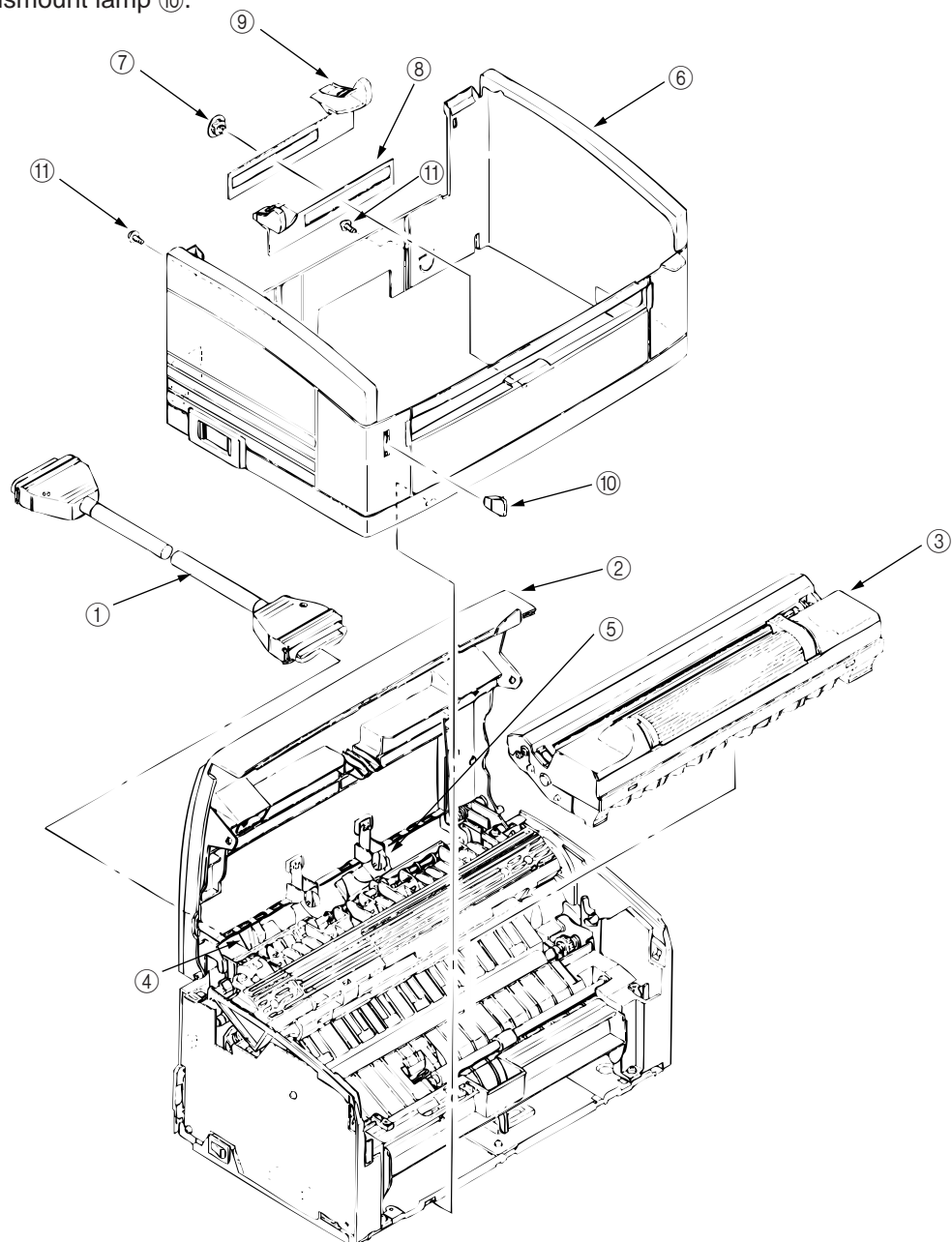
### 3.3.3 Transfer Roller

- (1) Open top cover assy ① and dismount EP unit ②.
- (2) Remove the right claw. Then, dismount transfer roller ③, two resist bearings ④, and gear T⑤.



### 3.3.4 Upper Cover Assy

- (1) Turn off the power switch and unplug the AC cord from the AC socket.
- (2) Disconnect interface cable ①.
- (3) Open top cover assy ② and dismount EP unit ③.
- (4) Move paper guide (L) ④ and paper guide (R) ⑤ on the rear of the printer to the center.
- (5) Remove two front claws of upper cover assy ⑥ and two rear screws ⑪ and lift upper cover assy ⑥.
- (6) Dismount spur gear (A) ⑦, guide slide (L) ⑧, and guide slide (R) ⑨.
- (7) Dismount lamp ⑩.

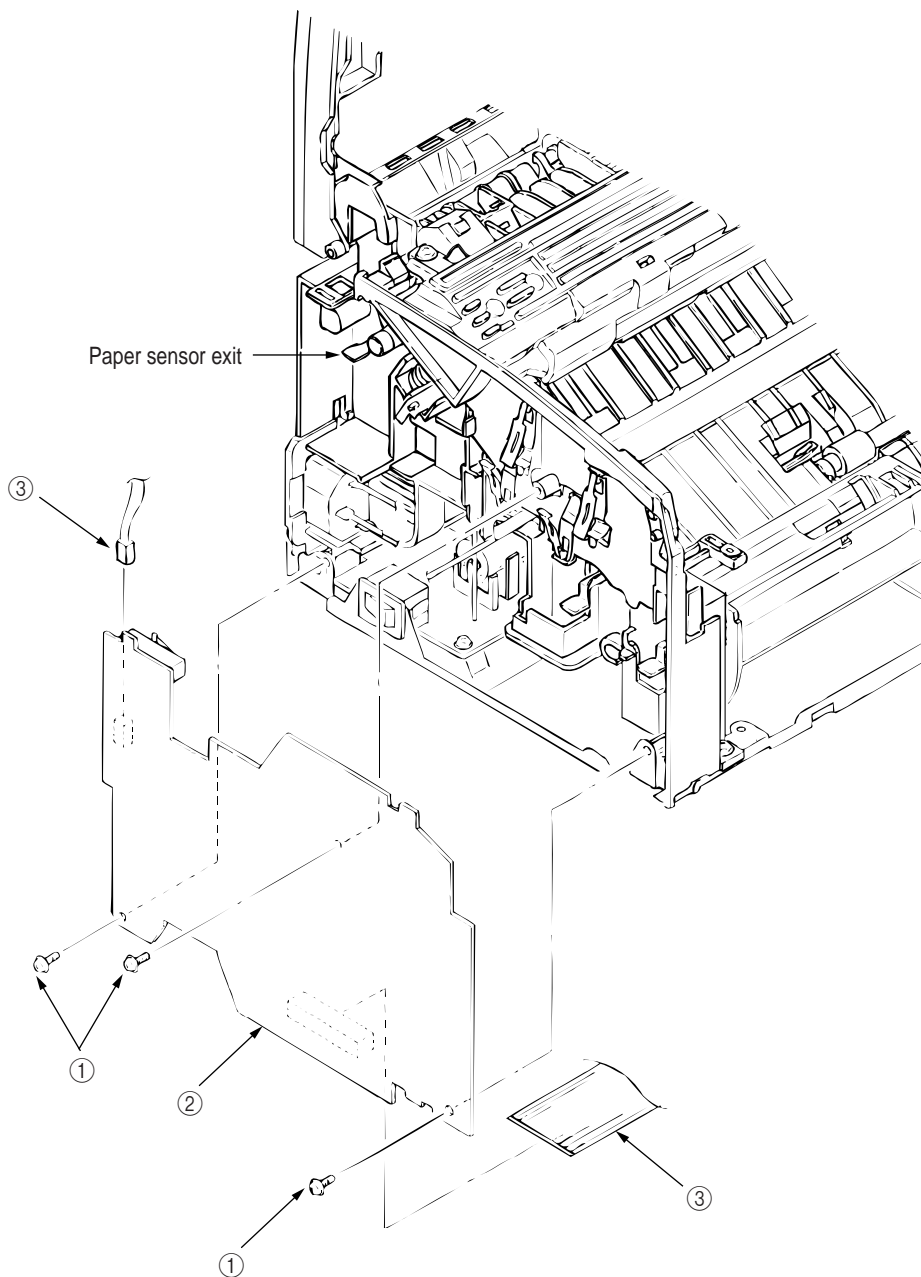


### 3.3.5 High-Voltage Power Supply Board

- (1) Dismount upper cover assy. (See Section 3.3.4.)
- (2) Remove three screws ① and draw out high-voltage power supply board ②.
- (3) Disconnect all the cables ③ from high-voltage power supply board ② and dismount high-voltage power supply board ②.

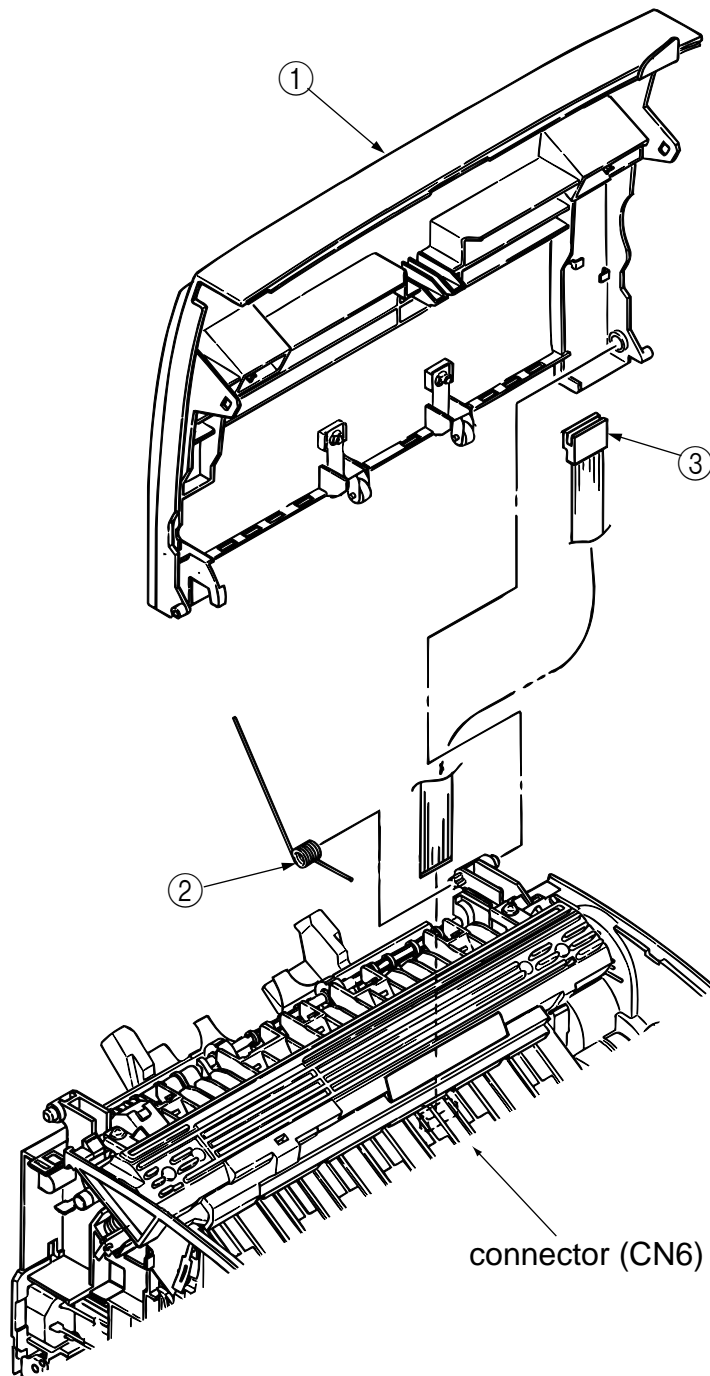
**Caution:** Note the following when assembling the high-voltage power supply board:

- Mount the high-voltage power supply board with top cover assy removed or open.
- Take care that cable ③ will not interfere with the paper sensor exit when it is connected.



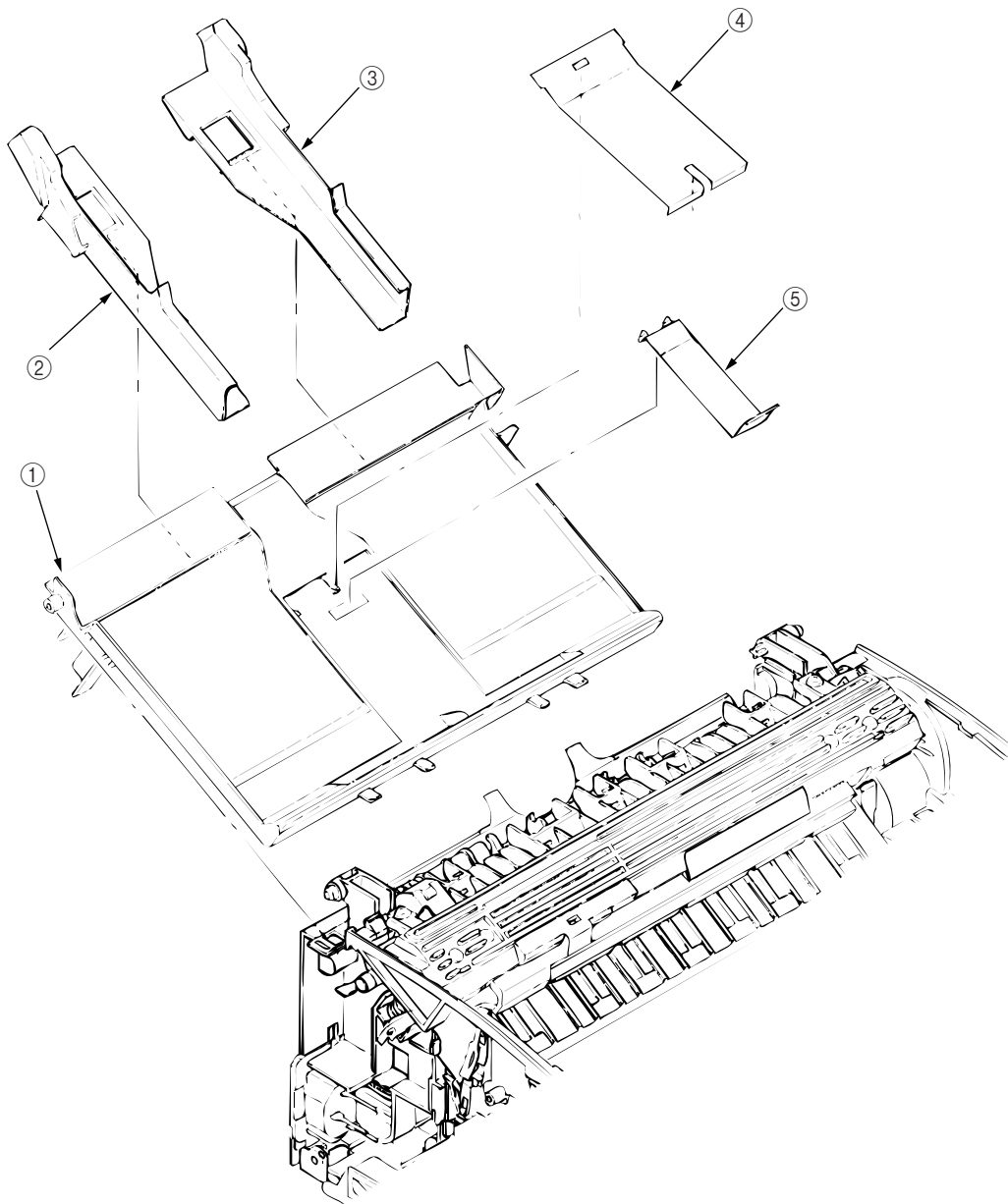
### 3.3.6 Top Cover Assy and Flat Cable Assy

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount the LED head. (See Section 3.3.2.)
- (3) Press the left clamp outward and dismount the engagement and top cover assy ①. (Tension spring ② also comes off at the same time.)
- (4) Disconnect connector CN6 and dismount flat cable assy ③.



### 3.3.7 Paper Holder

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount paper holder ①.
- (3) Unlock and dismount paper guide (L) ② and paper guide (R) ③.
- (4) Remove the claw and dismount hopper spring ④.
- (5) Remove the claw and dismount stopper spring ⑤.

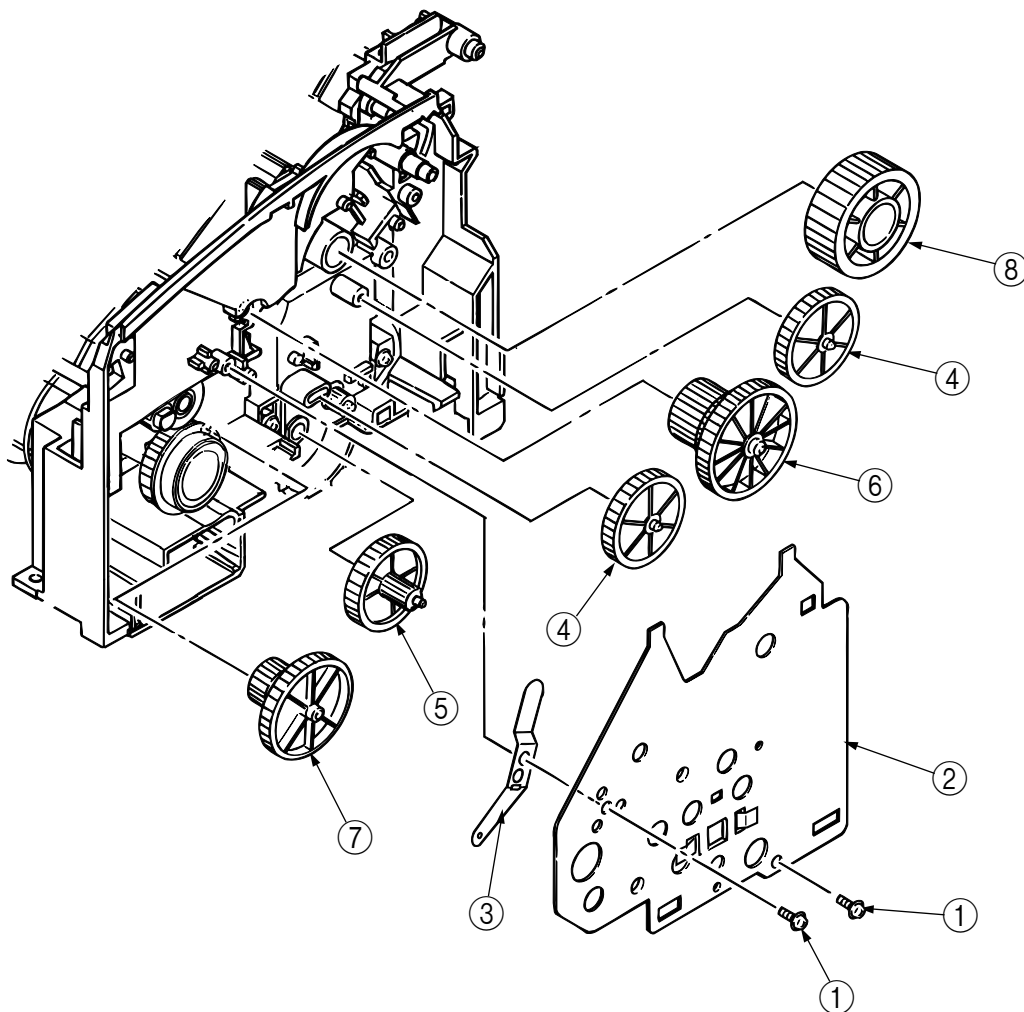




### 3.3.8 Side Plate M and Idle Gear

Perform parts replacement while making the base frame assy stand so that side plate M will face upward.

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Remove two screws ① and two claws, then dismount plate side M②.
- (3) Dismount earth plate ③, two idle gears P④, idle gear M⑤, idle gear 3R⑥, idle gear 2R⑦, and idle gear heat ⑧.



### 3.3.9 Heat Assy

This section explains how to dismantle the heat assembly and parts in the assembly.

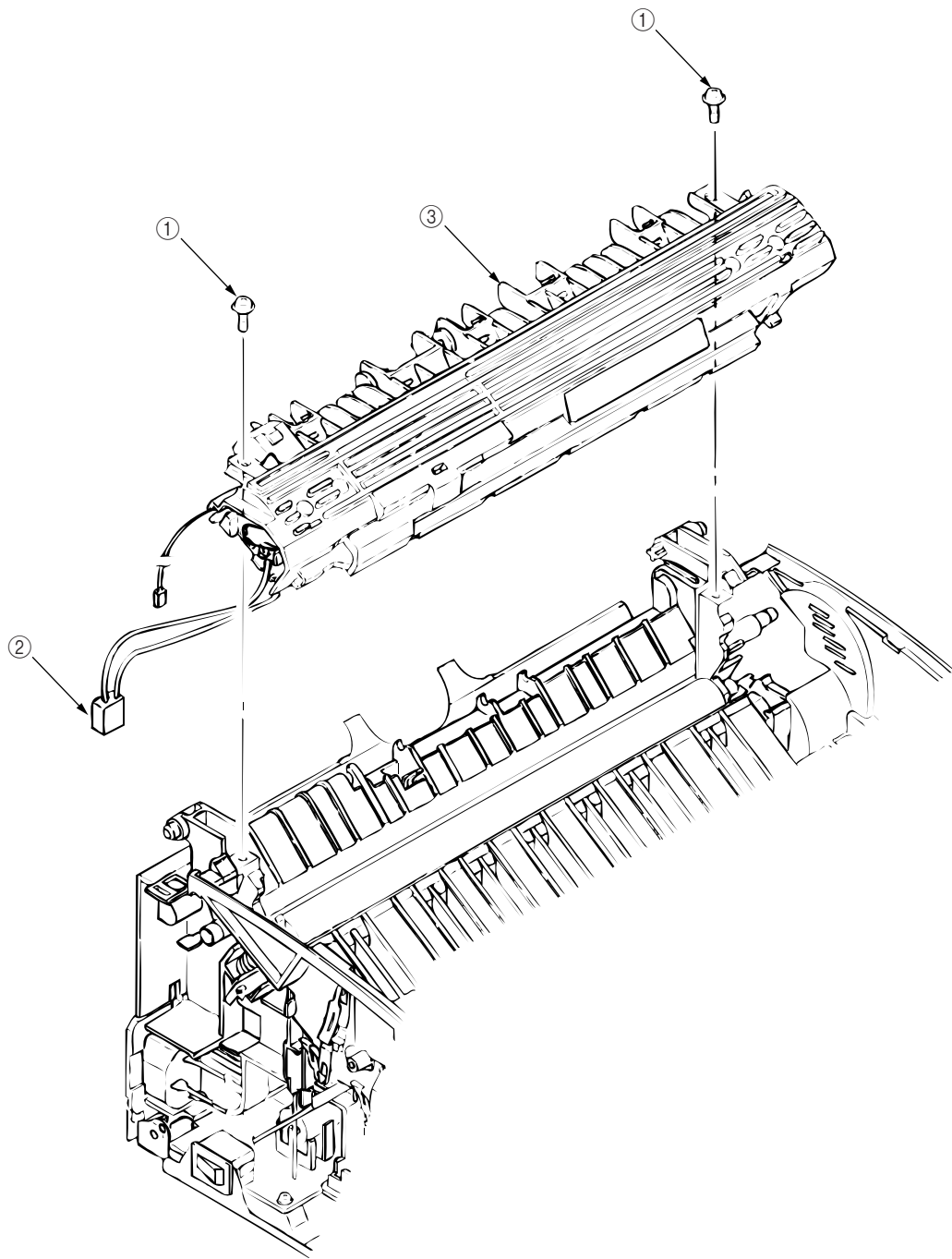
<Dismounting the heat assembly>

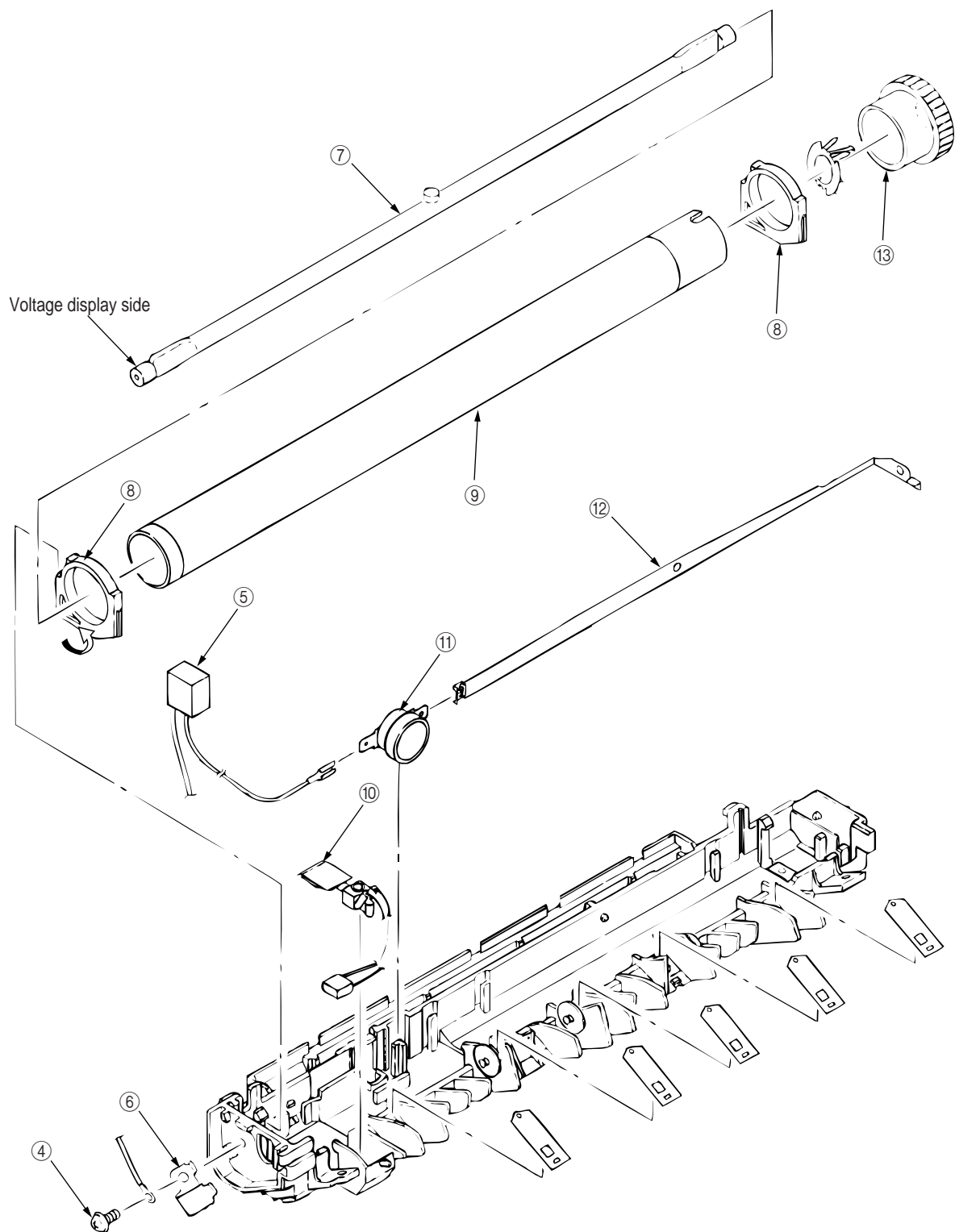
- (1) Dismount the upper cover assembly. (See Section 3.3.4.)
- (2) Dismount the high-voltage power supply board. (See Section 3.3.5.)
- (3) Remove two screws ①, disconnect connector ②, and dismantle heat assembly ③.

<Dismounting parts in heat assembly>

- (4) Dismount heat separator ⑭.
- (5) Remove screw ④ and dismantle terminal plate ⑥. (Handle heat assembly ③ carefully because Halogen lamp ⑦ comes off.)
- (6) Turn left and right heat bearings ⑧ in the arrow direction to unlock. Then, dismantle Halogen lamp ⑦, heat bearing ⑧, heat roller ⑨, and heat gear ⑬ together. (Take care not to drop Halogen lamp ⑦.)
- (7) Dismount thermistor ⑩.
- (8) Dismount the clamp, then thermostat ⑪, heat contact ⑫, and heat cord ⑤ together.
- (9) Dismount heat contact ⑫ and heat cord ⑤ from thermostat ⑪.

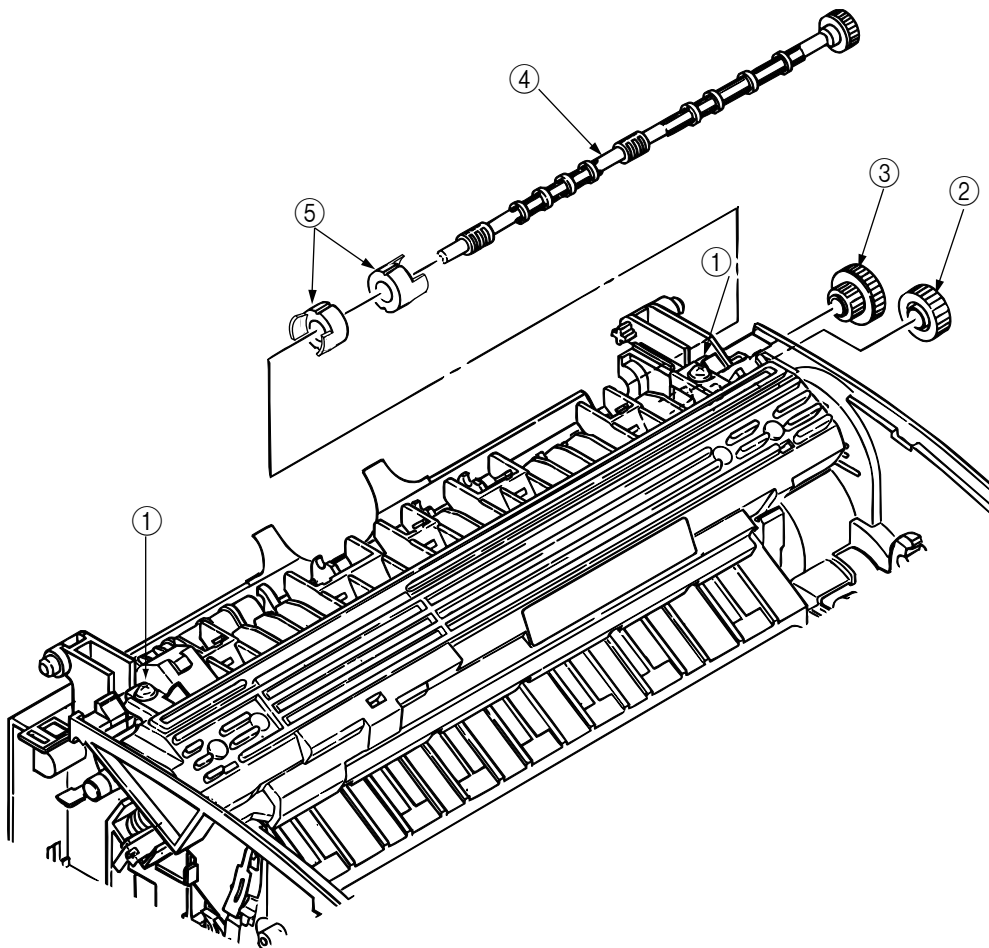
**Caution:** Take care not to bend the claw when dismantling heat bearing ⑧.





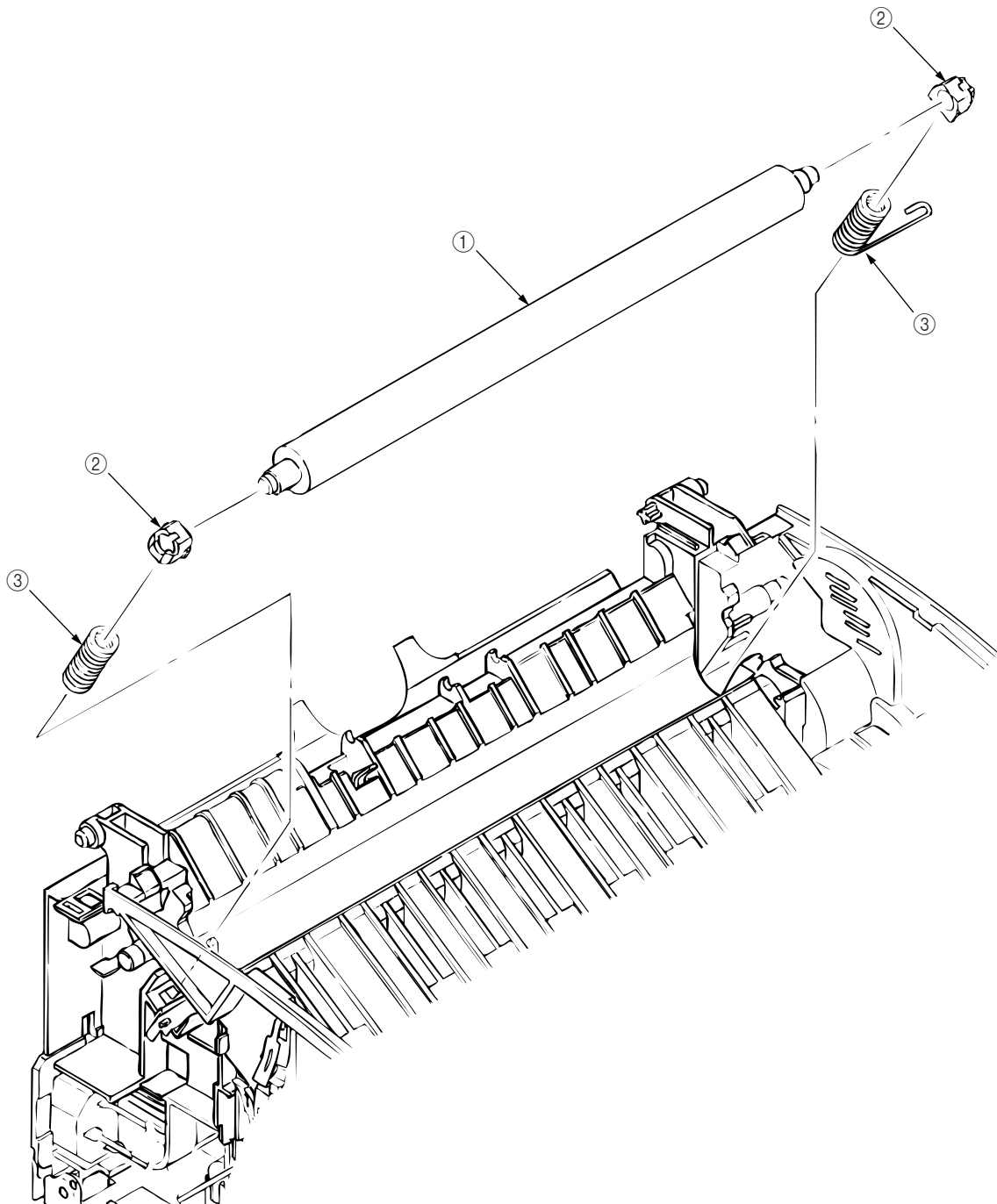
### 3.3.10 Drive Shaft E (Eject) and Eject Roller

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount top cover assy. (See Section 3.3.6.)
- (3) Remove two screws ① from heat assy (Section 3.3.9), lift the heat assy, and dismount idle gear E (A) ② and idle gear E (B) ③.
- (4) Unlock and dismount drive shaft E (Eject) ④.
- (5) Dismount two eject rollers ⑤.



### 3.3.11 Pressure Roller B (Back Up Roller)

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount the high-voltage power supply board. (See Section 3.3.5.)
- (3) Dismount the heat assy. (See Section 3.3.9.)
- (4) Dismount the engagement with the left ground, then pressure roller B ①. (Two bearing BUs ② and two bias springs ③ also come off at the same time.)



### 3.3.12 Separator Guide

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount the high-voltage power supply board. (See Section 3.3.5.)
- (3) Remove four screws ①.
- (4) Dismount inlet ② from base frame ③.

<Dismounting inlet ②>

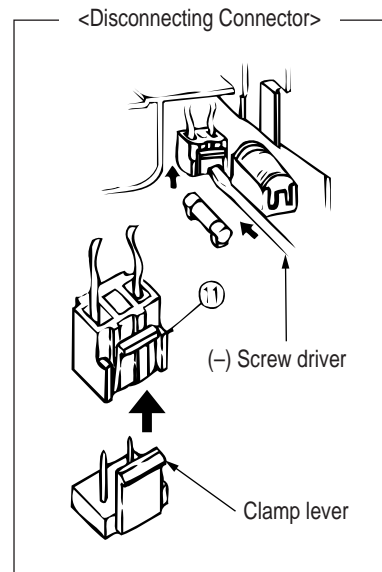
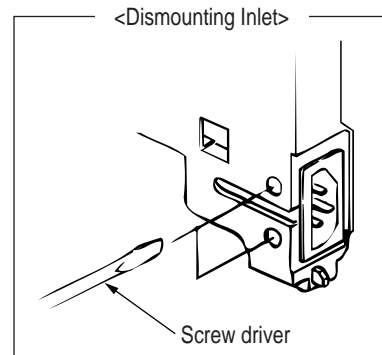
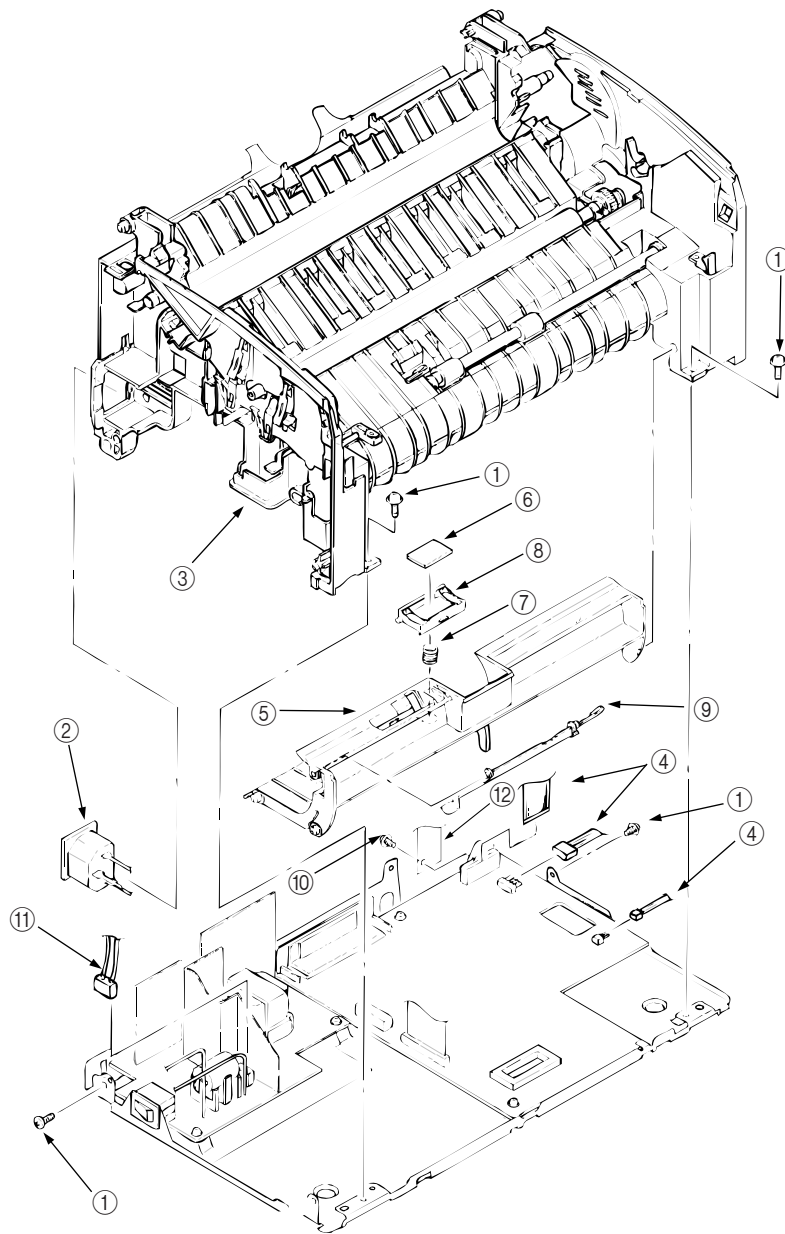
Insert a screwdriver into the hole on the side of base frame ③, remove the inlet claw from base frame ③, and dismount inlet ②.

- (5) Disconnect three cables ④ and connector ⑪ and dismount base frame ③. Then, remove screw ⑩ and disconnect FG cable ⑫.

<Disconnecting connector ⑪>

Dismount connector ⑪ by drawing it upward while pushing the clamp lever with a standard screwdriver.

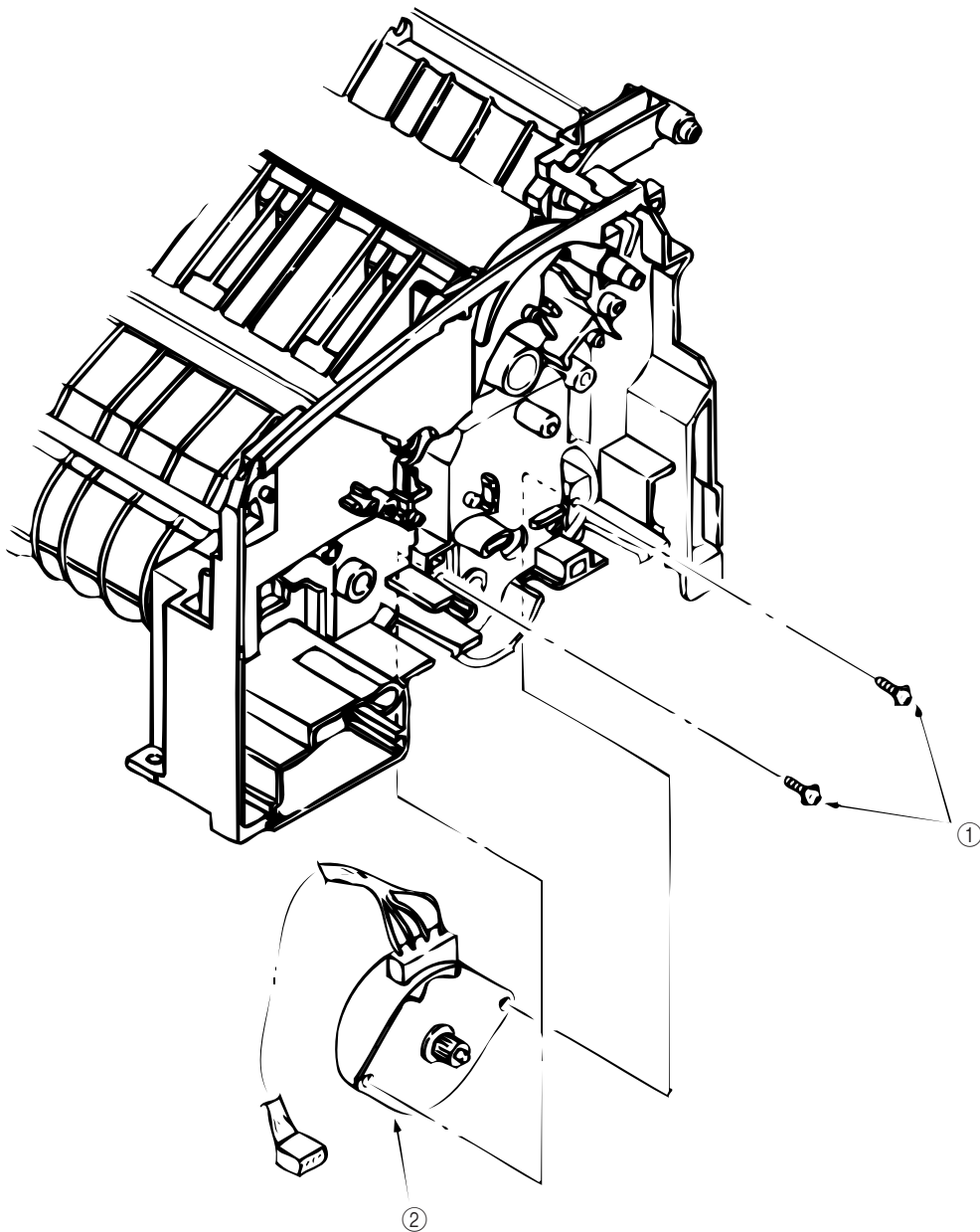
- (6) Dismount the paper holder assy. (See Section 3.3.7.)
- (7) Dismount two engagements and sheet guide ⑤.
- (8) Dismount friction pad ⑥, compression spring S⑦, and separator guide ⑧.
- (9) Dismount paper sensor E⑨.





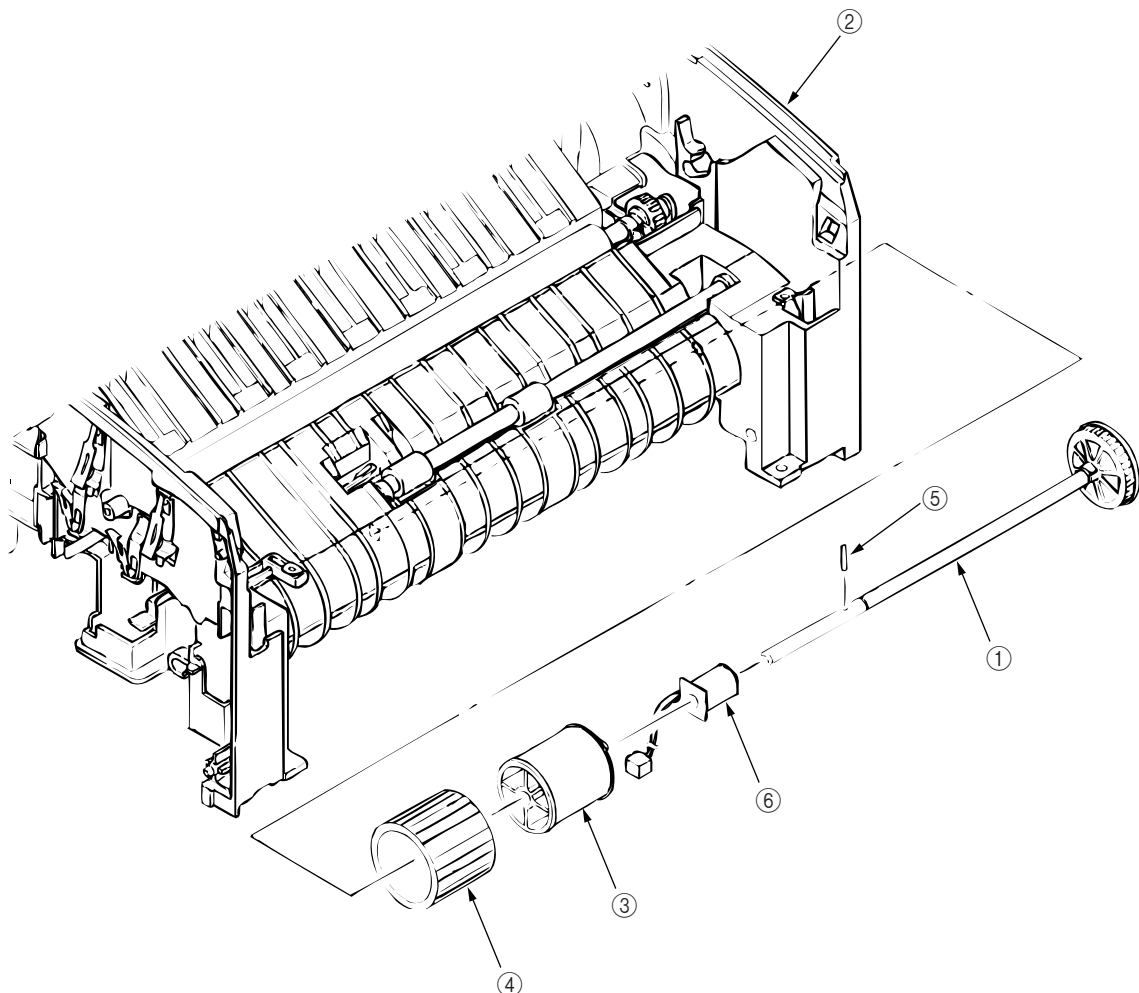
### 3.3.13 Pulse Motor (Main)

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount the high-voltage power supply board. (See Section 3.3.5.)
- (3) Dismount side plate M. (See Section 3.3.8.)
- (4) Dismount the base frame. (See Section 3.3.12.)
- (5) Remove two screws ① and dismount pulse motor (main) ②.



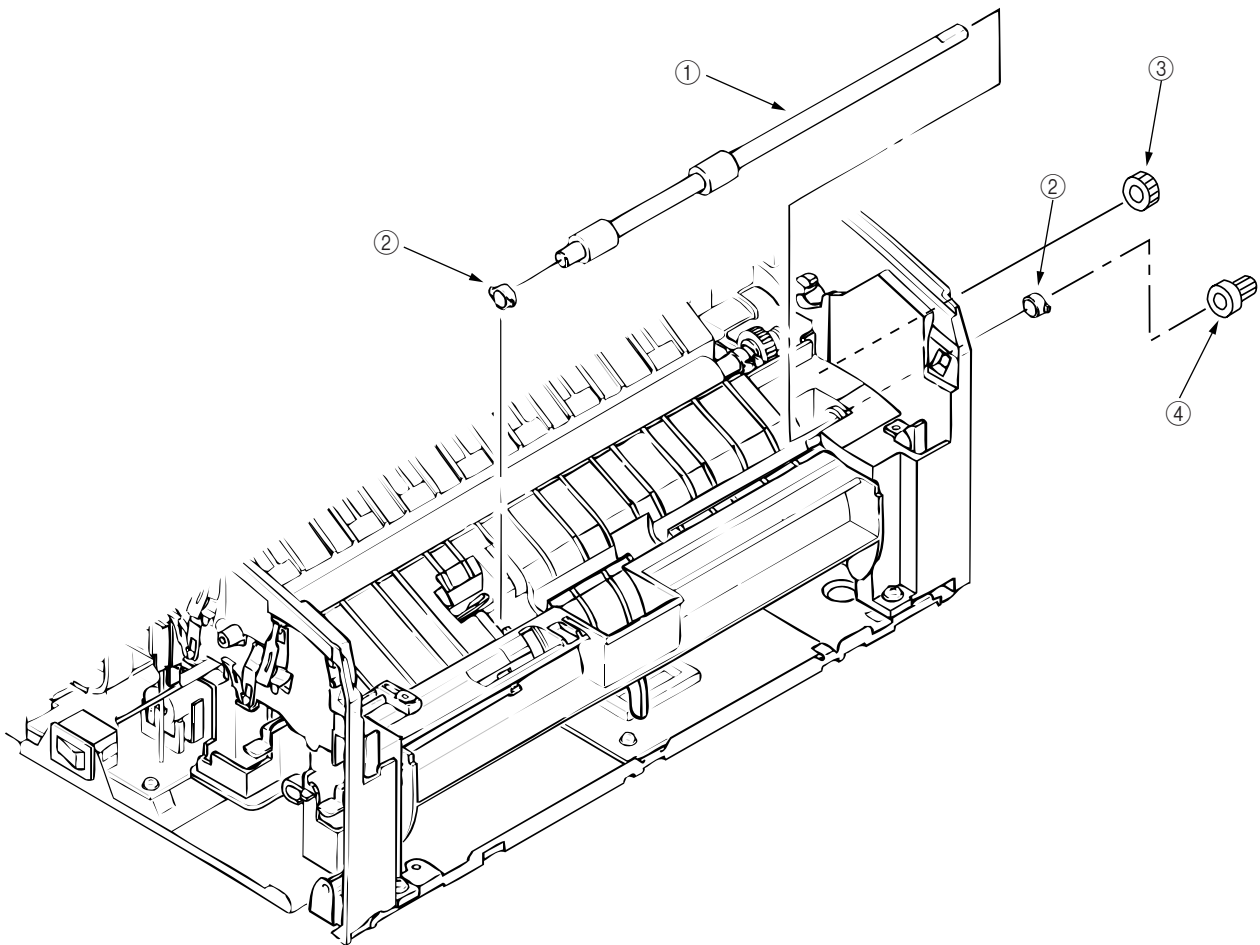
### 3.3.14 Hopping Shaft Assy

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount the high-voltage power supply board. (See Section 3.3.5.)
- (3) Dismount the base frame. (See Section 3.3.12.)
- (4) Dismount the paper holder assy. (See Section 3.3.7.)
- (5) Dismount the sheet guide. (See Section 3.3.12.)
- (6) Dismount side plate M. (See Section 3.3.8.)
- (7) Raise up roller holder ③, slide hopping shaft assy ①, and dismount roller holder ③ and hopping roller ④. (Knock pin ⑤ also comes off at the same time. Take care not to lose it.)
- (8) Draw out hopping shaft assy ① to the right and dismount magnet H⑥.



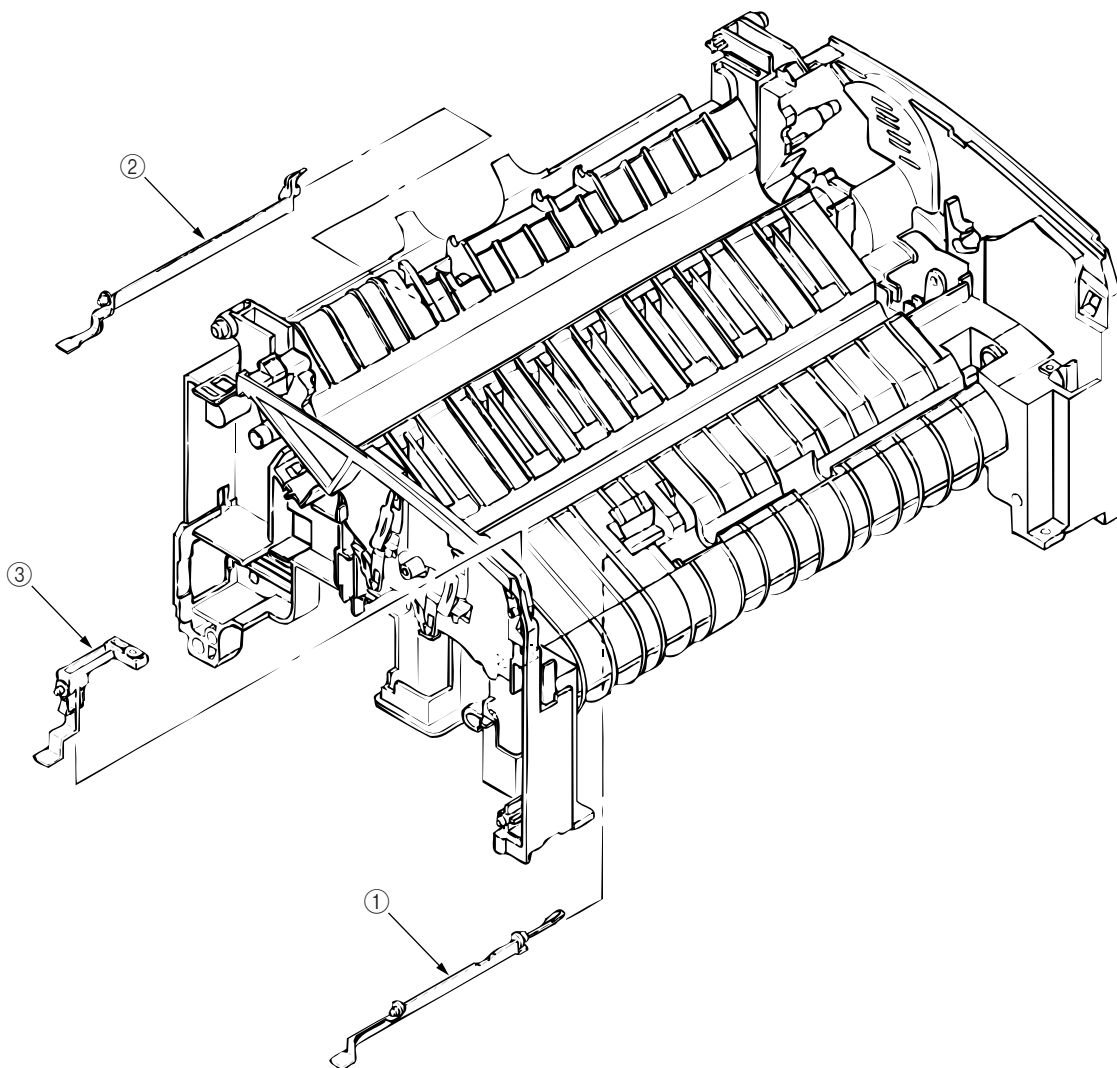
### 3.3.15 Resist Roller

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount Idle gear R ③ and Gear R ④.
- (3) Move resist roller ① to the right and dismount it by lifting. (Two resist bearings ② also come off at the same time. Take care not to lose them.)



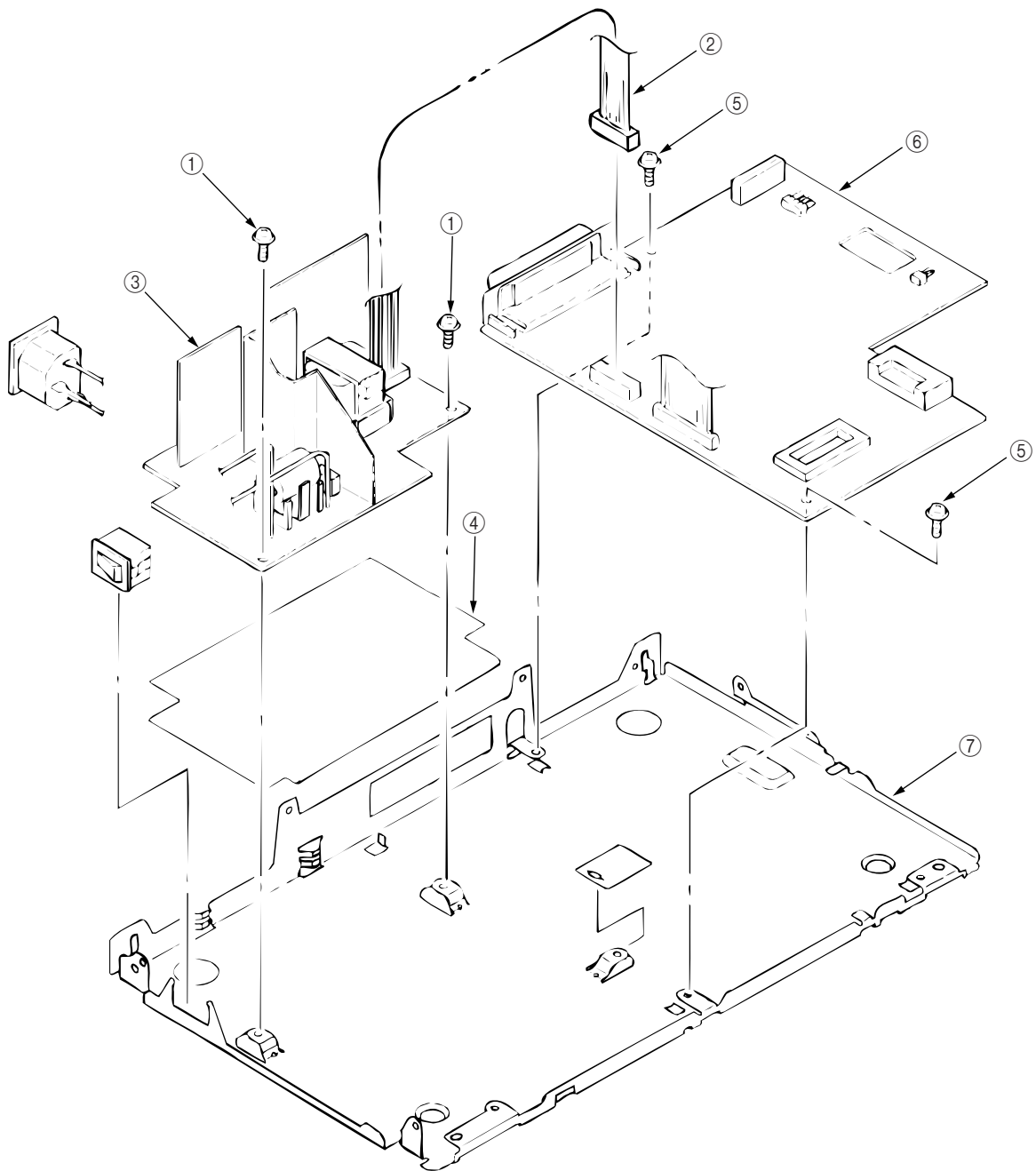
### 3.3.16 Paper Sensor E, Paper Sensor Exit and Toner Sensor Assy

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount the high-voltage power supply board. (See Section 3.3.5.)
- (3) Dismount the base frame. (See Section 3.3.12.)
- (4) Dismount the paper holder assy. (See Section 3.3.7.)
- (5) Dismount the sheet guide. (See Section 3.3.12.)
- (6) Dismount the heat assy. (See Section 3.3.9.)
- (7) Dismount drive shaft E. (See Section 3.3.10.)
- (8) Dismount paper sensor E①.
- (9) Dismount paper sensor exit ②.
- (10) Dismount toner sensor assy ③.



### 3.3.17 Base Plate

- (1) Dismount the upper cover assy. (See Section 3.3.4.)
- (2) Dismount the base frame. (See Section 3.3.12.)
- (3) Remove two screws ①, disconnect connector ②, and dismount power supply unit ③.
- (4) Dismount insulation sheet ④.
- (5) Remove two screws ⑤ and dismount main control board ⑥ from base plate ⑦.



---

## **4. ADJUSTMENT**

## 4. ADJUSTMENT

This chapter explains adjustment necessary when a part is replaced.

This adjustment is made by changing the parameters values set in EEPROM on the main control board. The printer driver or maintenance utility can be used to change these values.

Only servicemen and maintenance personnel can use the maintenance utility. This utility cannot be made public for printer end users.

### 4.1 Adjustment Types and Functions

#### 4.1.1 Printer Driver (For Microsoft Windows)

This printer driver has the following functions:

- Drum counter reset
- Charge roller cleaning



Figure 4-1

#### (1) Drum counter reset

This function resets the life of the drum counter when the EP unit is replaced. Clicking the “clear” button resets the life.

#### (2) Charge roller cleaning

This function cleans the charge roller of the EP unit; it is used when printing is unclear. For details on how to operate this function, refer to “User’s Manual.”

(For Macintosh) <only OKIPAGE4m>

**^0 Print Option**

**Printer Memory:**

**Density:**

**Image Enhancement:**

**Power Save:**

**X-Position Adjust:**

**Y-Position Adjust:**

**Save**

**Cancel**

**Help**

**Default**

---

**Cleaning Page:**  **Drum Count:**

(1) Drum counter reset

This function resets the life of the drum counter when the EP unit is replaced. Clicking the "Reset" button resets the life.

(2) Charge roller cleaning

This function cleans the charge roller of the EP unit; it is used when printing is unclear. For details on how to operate this function, refer to "User's Manual."



#### 4.1.2 Engine Maintenance Utility

See Appendix D.

### 4.2 Adjustment When Replacing a Part

The table below lists the parts that requires adjustment when they are replaced.

Part to be Replaced	Adjustment
LED head	Set the LED head drive time. Set the LED head dot count.
EP unit	Reset the drum counter. (Refer to "User's Manual".)
Main control board	Upload or download EEPROM data.

#### 4.2.1 Setting LED Head Drive Time

**Caution:** When the liminous intensity of a new LED head is the same as that of the old LED head, do not set the LED head drive time.

Use "LED Head Making No." in the engine menu tab of the maintenance driver to set the luminous intensity displayed on the LED head as the LED head drive time. (See Figure 4-2.)

- Luminous intensity of LED head

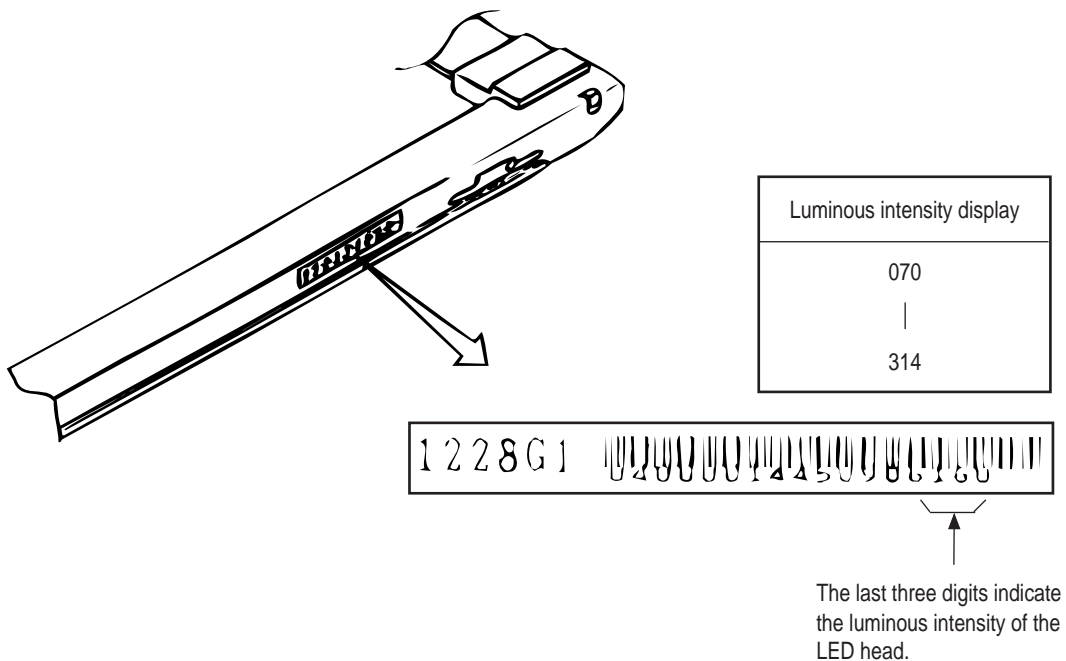


Figure 4-2

#### 4.2.2 Setting the LED Head Dot Count

There are two types of LED head dot count. Use the following label to identify these types. Use "LED Head Width" in the engine menu table to set the LED head dot count. (See Figure 4-2.)

- Identifying the types of LED head dot count

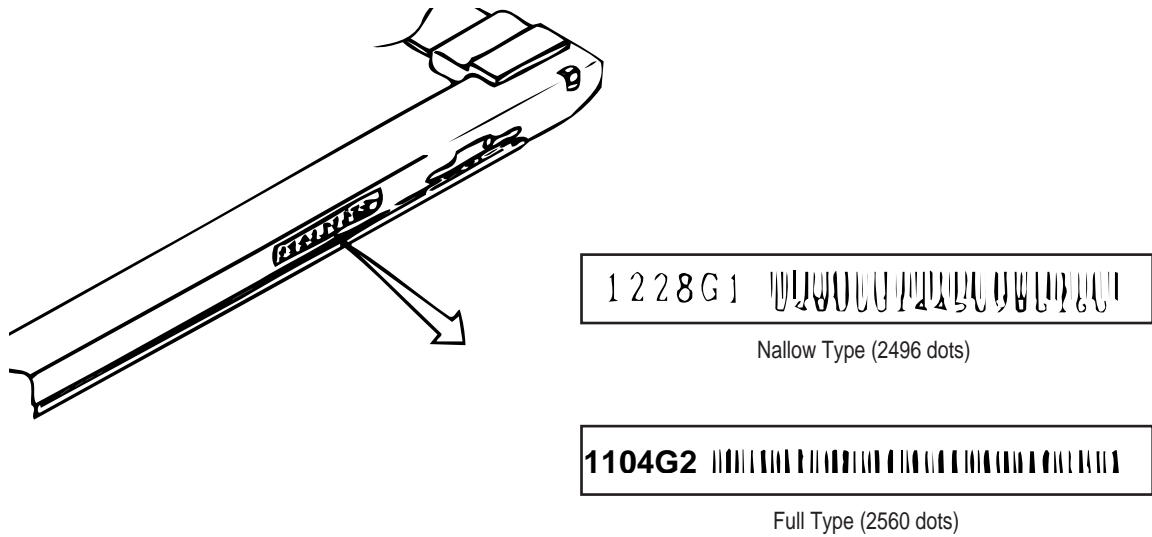


Figure 4-3

### 4.2.3 Uploading and Downloading EEPROM Data

When the main control board is replaced, EEPROM data must be reflected on a new main control board. Use "EEPROM Operations" in the option tab of the maintenance utility to reflect EEPROM data on the new main control board. (See Figure 4-4.)

Reflect EEPROM data on the new main control board in the following procedures:

- (1) Check that the printer and PC are connected by the parallel I/F, then execute the maintenance utility.
- (2) Click the "Option" button in "Main Menu Dialog".
- (3) Click the "Upload" button (Upload EEPROM Data) in "EEPROM Operations." (EEPROM data read is completed.)
- (4) The read EEPROM data is displayed in "Dialog" of the maintenance driver.
- (5) Leave the display of the maintenance driver as is and replace the main control board.
- (6) Click the "Download" button (Download EEPROM Data) in "EEPROM Operations". (EEPROM data write is completed.)

Depending on the level of a main control board failure (parallel I/O failure, etc.), however, EEPROM data may be unable to be uploaded.

In such a case, use the maintenance utility to perform the following adjustment after replacing the main control board:

- Setting the LED head drive time (Section 4.2.1)
- Setting the LED head dot count (Section 4.2.2)
- Setting specifications (ODA/OEL/INT-A/INT-L)

---

## **5. PERIODICAL MAINTENANCE**

## 5. PERIODICAL MAINTENANCE

### 5.1 Periodical Replacement Parts

Table 5-1 lists the part and unit to be replaced periodically.

**Table 5-1 Routine Replacement Parts**

Part Name	Replacement Time	Part to be Checked Simultaneously	Remarks
Toner cartridge	When "Toner Low" is displayed.	LED head	Consumables
EP unit	When "Change Drum" is displayed.		Consumables

**Caution:** Also reset the drum counter when replacing the EP unit.

### 5.2 Cleaning

Remove any toner or dirt and clean the circumference and inside of the printer with a waste cloth.

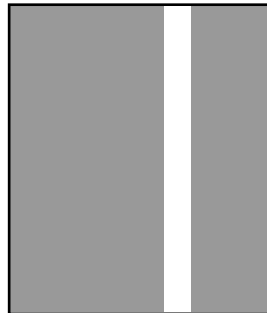
**Caution:** Do not touch the OPC drum, LED lens array, and connector block of the LED head.

#### 5.2.1 Cleaning the LED Lens Array

When a white belt or a white stripe (void, light printing) occurs in the vertical direction of the print surface, clean the LED lens array or replace the toner cartridge.

**Caution:** Be sure to use an LED head cleaner to clean the LED lens array.

White belt or stripe  
(void, light printing)



**Figure 5-1**

- (1) Set the LED head cleaner in the LED lens array, as shown in the figure below, and slide the cleaner left and right several time to clean the head.

**Caution:** Do not press the LED head cleaner against the LED lens array.

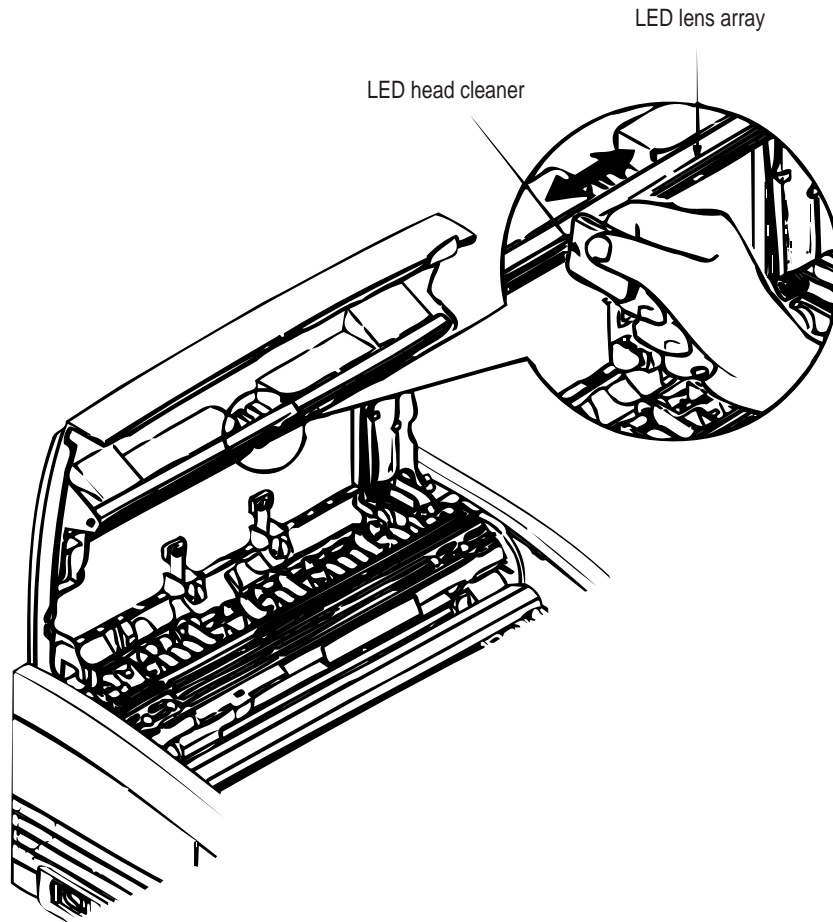


Figure 5-2

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## **6. TROUBLESHOOTING PROCEDURES**

## 6. TROUBLESHOOTING PROCEDURES

### 6.1 Troubleshooting Tips

- (1) Check the basic check points written in the user's manual.
- (2) Gather detailed failure information as much as possible from the customer.
- (3) Check the printer under the condition close to that under which the failure occurred.

### 6.2 Check Points Before Correcting Image Problems

- (1) Is the printer running in proper ambient conditions?
- (2) Are consumables (toner and EP unit) replaced correctly?
- (3) Are sheets of paper normal?
- (4) Is the EP unit set correctly?

### 6.3 Notes When Correcting Image Problems

- (1) Do not touch the surface of the OPC drum nor place foreign matter on it.
- (2) Do not expose the OPC drum to direct sunlight.
- (3) Do not touch the fuser because it heats up during operation.
- (4) Do not expose the image drum to light for more than five minutes at room temperature.

### 6.4 Preparation Before Troubleshooting

#### (1) Message display

The failure status of the OKIPAGE 4w plus /4m is displayed on the status monitor of the PC.

Take proper action according to the message displayed on the status monitor.

#### (2) LED display

The OKIPAGE 4w plus /4m is equipped with only one LED. This LED indicates one of the following statuses:

Printer Status	LED Indication
Ready	Lighting
Printing in progress	Blink (*1)
Recoverable alarm	Blink (*2)
Unrecoverable alarm	Blink (*3)

\*1: The LED blinks at a cycle of 1 second (0.5s ON) from data reception to printing end.

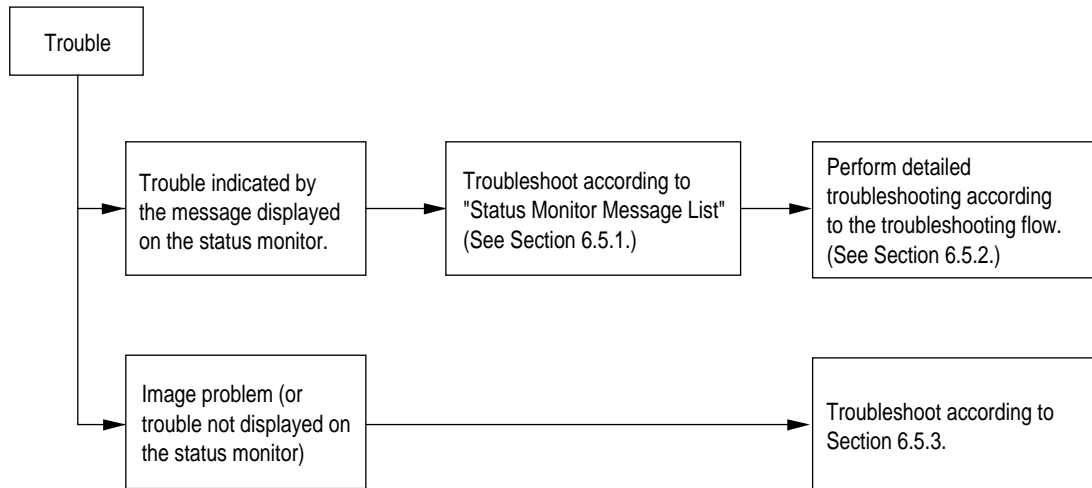
\*2: The LED blinks at a cycle of 0.24 second (0.12s ON).

\*3: The LED blinks at a cycle of 0.24 second (0.12s ON).



## 6.5 Troubleshooting

If a trouble occurs in the OKIPAGE 4w Plus/4m, troubleshoot according to the following procedures:



### 6.5.1 Status Monitor Message List

Table 6-1 lists the statuses and troubles to be displayed on the status monitor in the message format.

Table 6-1

Category	Status Message	Status Code	Display Content	Remedy
Normal status	Warming Up	18 00	Warming-up status	Normal operation
	Online (Ready)	00 10	Online (ready) status	Normal operation
	Power Save Mode	00 20	Power save status	Normal operation
	Toner Low	10 00	The toner amount of the toner cartridge is small.	Normal operation
	Toner Sensor	10 01	The EP unit is not installed or the toner sensor is faulty.	Replace the toner cartridge.
	Change Drum	10 02	Life of EP drum	Install the EP unit or replace the toner sensor.
	Manual Paper In	12 20	The paper is in the manual feed mode.	Replace the EP unit. <b>(Note:</b> Be sure to reset the drum counter after replacing the EP unit.)
	Printing In Progress	14 20	Printing in progress	Normal operation
	Ejection In Progress	14 30	Ejection in progress	Normal operation
	Manual Request Executive Letter Legal 14 Legal 13 A6 A5 A4 B5 Monarch COM-10 DL C5 COM-9	16 01 16 02 16 03 16 04 16 18 16 19 16 1A 16 21 16 50 16 51 16 5A 16 5B 16 7F	Request the paper to be set in the manual feed mode.  The paper sizes are as follows: Executive, Letter, Legal 14, Legal 13, A4, A5, A6, B5, Monarch, DL, C5, COM-10, COM-9	Set the requested paper in the manual feed mode.

Table 6-1 (Cont'd)

Category	Status Message	Status Code	Display Content	Remedy
Paper size error	Paper Size Error	30 00	Paper of improper size was fed. 2.52" (64 mm) L 15.77" (400.56 mm)	Check the paper. Also check whether more than one sheet of paper were fed simultaneously. To release the error display, open the cover, then close it. If this error occurs frequently, see Section 6.5.2 3.
Paper jam	Paper Input Jam	31 00	A paper jam occurred when sheets of paper were being supplied.	Check the paper. To release the error display, close the cover, then close it. If this error occurs frequently, see Section 6.5.2 2-1.
	Paper Feed Jam	32 00	A paper jam occurred during paper feeding.	Open the cover, then remove the jammed paper. To release the error display, close the cover. If this error occurs frequently, see Section 6.5.2 2-2.
	Paper Exit Jam	33 00	A paper jam occurred during paper ejection.	Open the cover, then remove the jammed paper. To release the error display, close the cover. If this error occurs frequently, see Section 6.5.2 2-3.
Cover open	Cover Open	4F 00	The upper cover is open.	To release the error display, close the cover. If this error occurs frequently, replace the power supply board.
Buffer overflow	Page Buffer Overflow	40 01	The page buffer overflowed because there are a large number of print data.	To release the error display, press the reset button on the status motor of the printer driver. Install option RAM or reduce the number of print data.
	Print Over Run	40 10	A print overrun occurred because print data is complicated.	To release the error display, press the reset button on the status motor of the printer driver. Simplify the print data format.
Device configuration error	Program ROM Check Error	60 10	An error occurred during program ROM check.	Replace program ROM or the main control board. (When replacing the main control board, also adjust EEPROM data.) (See Section 4.2.4.)
	Resident RAM Check Error	60 30	An error occurred during resident RAM check.	Replace the main control board. (When replacing the main control board, also adjust EEPROM data.) (See Section 4.2.4.)

Table 6-1 (Cont'd)

Category	Status Message	Status Code	Display Content	Remedy
Device configuration error	EEPROM Check Error	60 40	An error occurred during EEPROM check.	Replace the main control board. (When replacing the main control board, also adjust EEPROM data.) (See Section 4.2.4.)
	Option RAM Check Error	60 60	An error occurred during option RAM check.	Check the connection of the Option RAM PC board. If the option RAM PC board is faulty, replace it.
	Fuser Error	60 80	A heater timeout error occurred.	See Section 6.5.2 4.
	Thermistor Error	60 90	A thermistor error occurred.	Replace the thermistor of the heater Assy.
	Thermister Open Check Error	60 91	The thermistor is open.	Replace the thermistor of the heater Assy.
	Thermister Short Check Error	60 92	A thermistor short occurred.	Replace the thermistor of the heater Assy.
	Watch Dog Timeout Error	60 C0	A watchdog timeout occurred.	To release the error display, turn on the power supply again. Replace the main control board.

## 6.5.2 Status Message Troubleshooting

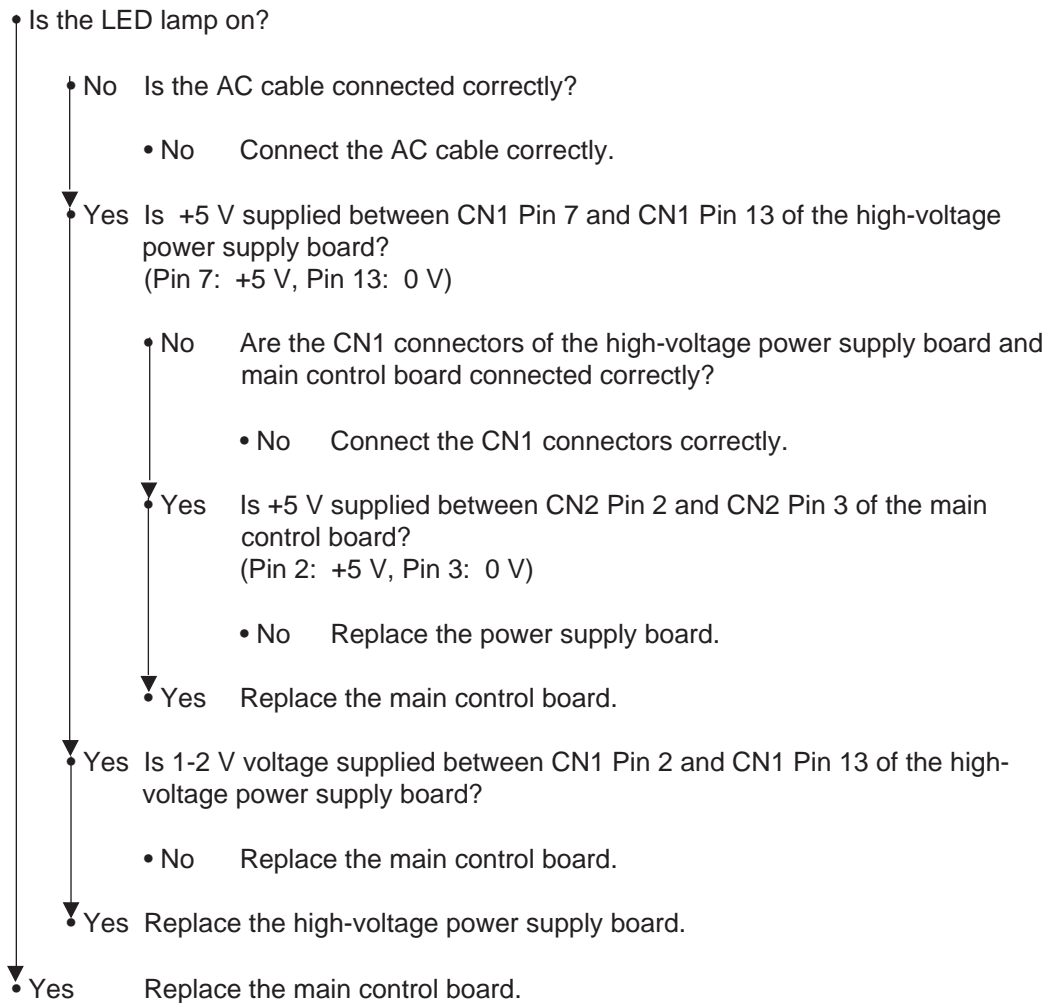
Some failures cannot be corrected according to the status message trouble list. Troubleshoot these failures according to the following troubleshooting flowcharts:

No.	Item	Flowchart No.
1.	The OKIPAGE 4w Plus/4m malfunctions after the power supply has been turned on.	①
2.	Jam error ├ Paper input jam ├ Paper feed jam └ Paper exit jam	②-1 ②-2 ②-3
3.	Paper size error	③
4.	Fusing error	④

**Caution:** When replacing the main control board troubleshooted according to the troubleshooting flowcharts, also adjust EEPROM data. (See Section 4.2.4.)

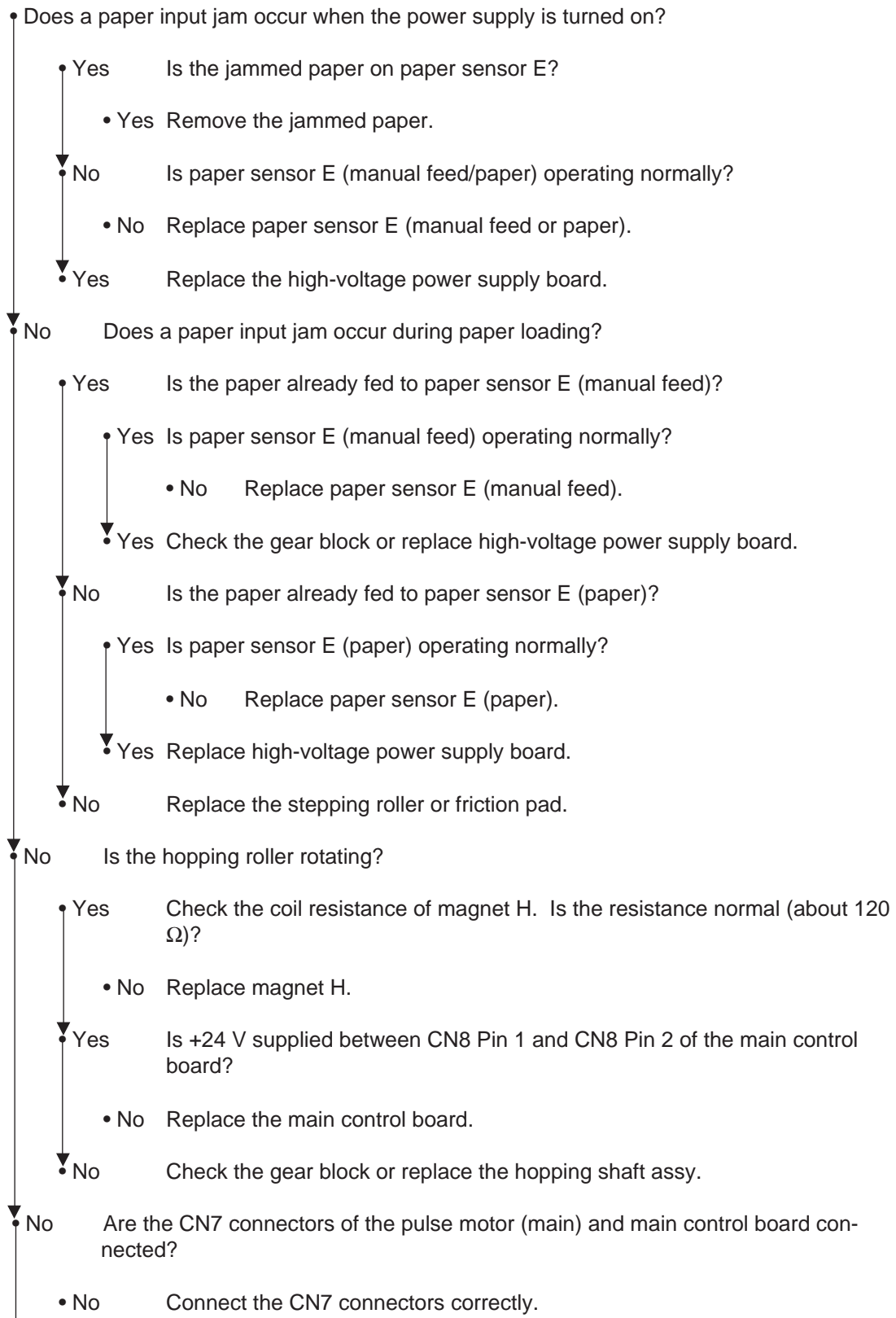
① The OKIPAGE 4w Plus/4m malfunctions after the power supply has been turned on.


- Turn the power supply off, then on again.



## [JAM error]

### ②-1 Paper input jam

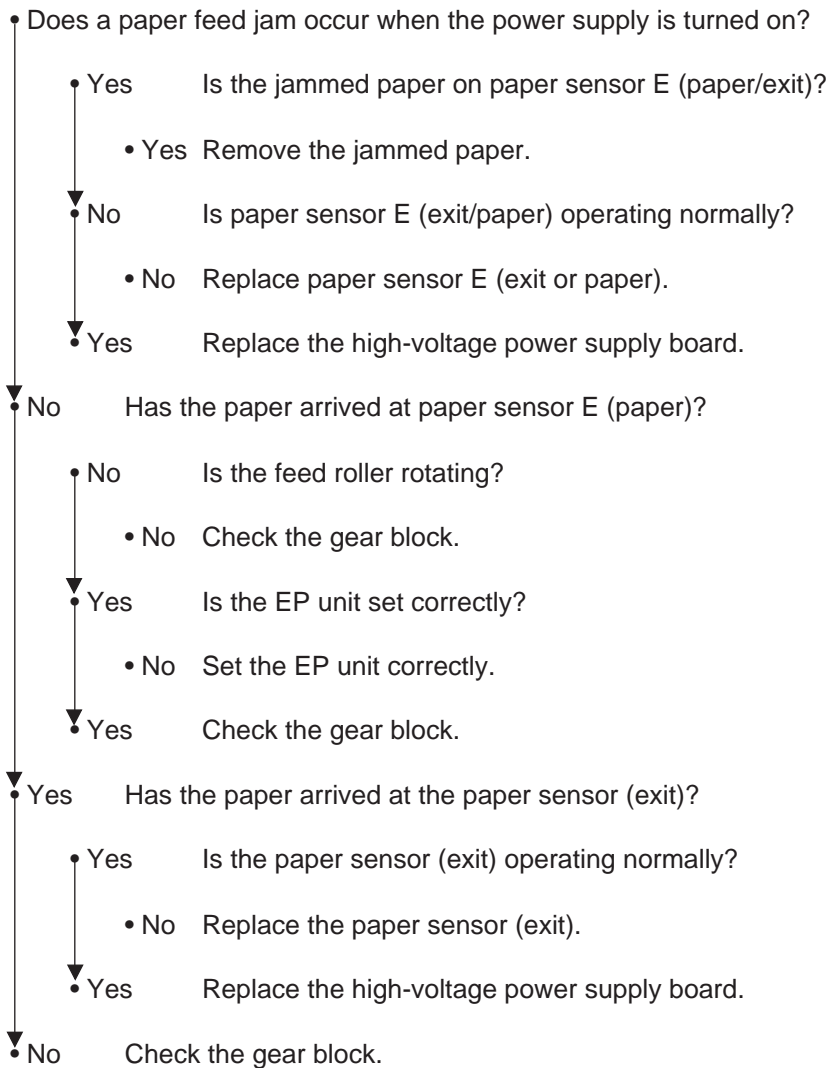


- 
- Yes    Measure the resistance of the pulse motor (main). Is the resistance normal (about 12.6  $\Omega$ )?
    - No        Replace the pulse motor (main).
  - Yes    Replace the main control board.

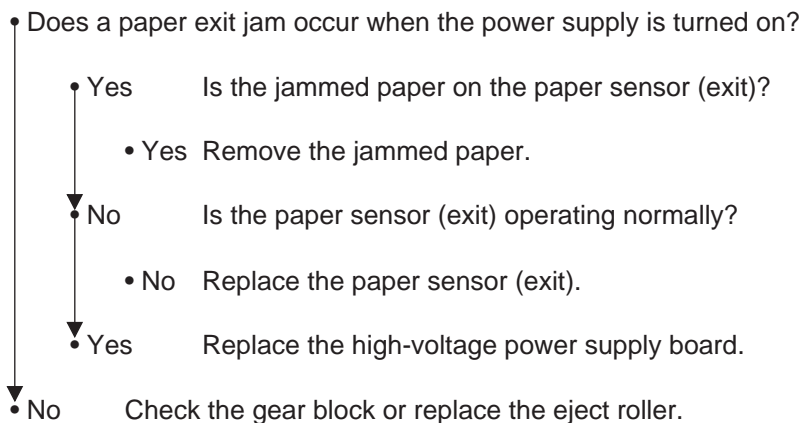


[JAM error]

②-2 Paper feed jam

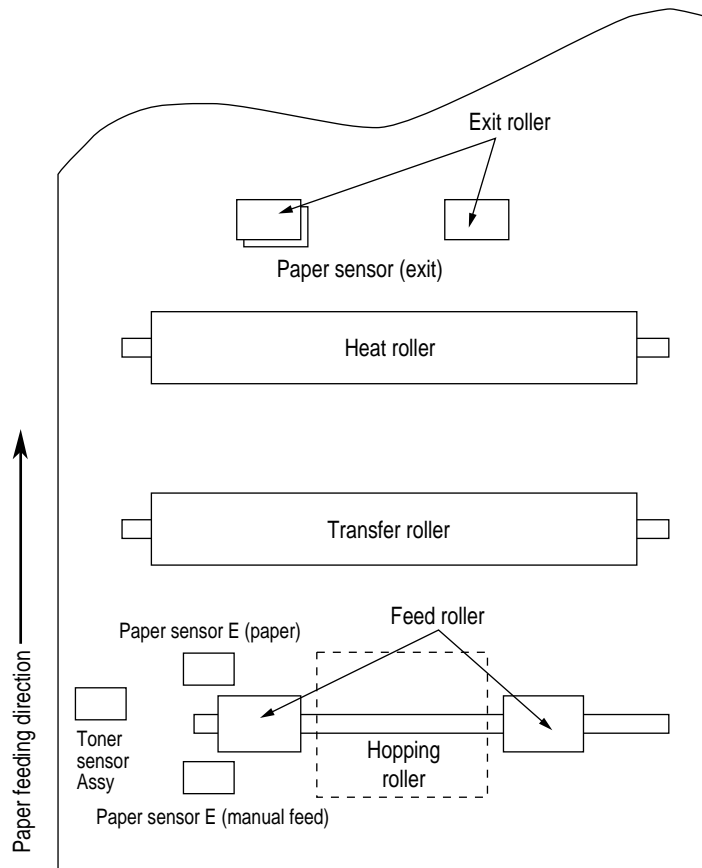


②-3 Paper exit jam



③ Paper size error

- Is the paper of the specified size being use?
  - No Use paper of the specified size.
- Yes Is paper sensor E (paper) operating normally?
  - No Replace paper sensor E (paper) or clean the inlet sensor on the high-voltage power supply board.
- Yes Is the paper sensor (exit) operating normally?
  - No Replace the paper sensor (exit) or clean the outlet sensor on the high-voltage power supply board.
- Yes Replace the high-voltage power supply board.



④ Heat assy error

- Turn the power supply off, then on again.

• Does the Halogen lamp of the heat assy go on?

• No Is the Halogen lamp or thermostat disconnected?

- Yes Replace the heat assy, Halogen lamp, or thermostat.

• No Replace the power supply unit.

• Yes Are the CN2 connectors of the power supply unit and main control board connected correctly?

- No Connect the CN2 connectors correctly.

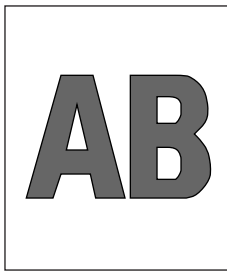
• Yes Replace the main control board.

### 6.5.3 Image Troubleshooting

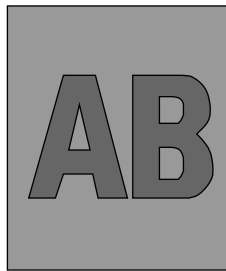
This section explains how to troubleshoot when an image problem is output as a result of the printing.

Figure 6-3 is an example of image problem output.

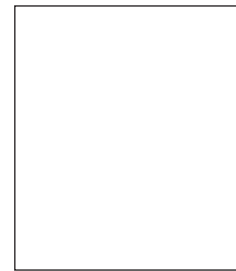
Symptom	Flowchart No.
An image is light or blurred entirely. (Figure 6-3, (A))	①
Dark background density (Figure 6-3, (B))	②
A blank paper is output. (Figure 6-3, (C))	③
Vertical block belt/black stripe (Figure 6-3, (D))	④
Cyclical defect (Figure 6-3, (E))	⑤
Print void	⑥
Poor fusing (An image is blurred or peeled off when it is touched.)	⑦
Vertical white belt/white stripe (Figure 6-3, (F))	⑧



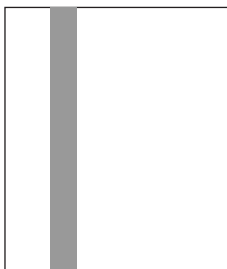
(A) Light or blurred images entirely



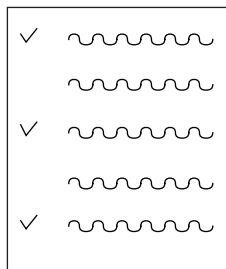
(B) Dark background density



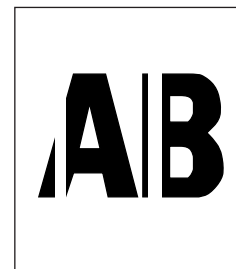
(C) Blank paper



(D) Black vertical stripes



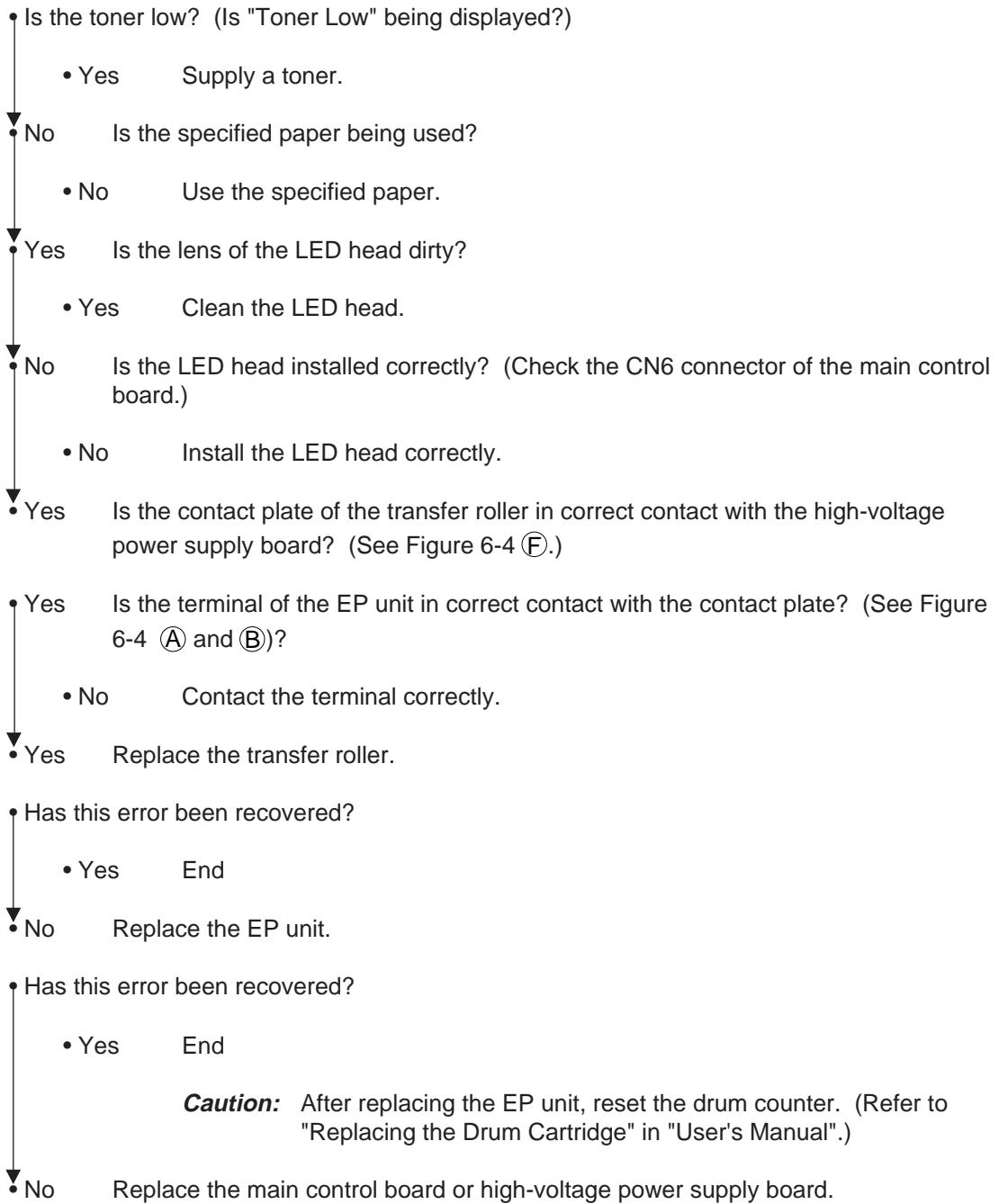
(E) Cyclical defect



(F) White vertical belts or streaks

**Figure 6-3 Image Problems**

① An image is light or blurred entirely.



## ② Dark background density

- Has the OPC drum being exposed to external light?
  - Yes Set the OPC drum in the OKIPAGE 4w Plus/4m and wait for about 30 minutes.
- ▼ No Is the heat roller of the heat assy dirty?
  - Yes Clean the heat roller.
- ▼ No Is the terminal of the EP unit in correct contact with the contact plate? (See Figure 6-4 ④ and Figure 6-5 ④.)
  - No Contact the terminal correctly.
- ▼ Yes Replace the EP unit.
- Has this error been recovered?
  - Yes End

**Caution:** After replacing the EP unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)
- ▼ No Replace the main control board or high-voltage power supply board.

## ③ A blank paper is output.

- Is the LED head connected correctly. (Check the CN6 connector of the main control board.)
  - No Connect the LED head correctly.
- ▼ Yes Is the terminal of the EP unit in correct contact with the contact plate? (See Figure 6-5 ⑤.)
  - No Contact the terminal correctly.
- ▼ Yes Replace the LED head.
- Has this error been recovered?
  - Yes End

**Caution:** Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)
- ▼ No Replace the main control board or high-voltage power supply board.

④ Vertical black belt/stripe

- Replace the EP unit.

• Has this error been recovered?

- Yes      End

**Caution:** After replacing the EP unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

▼ No      Replace the LED head.

• Has this error been recovered?

- Yes      End

**Caution:** Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)

▼ No      Replace the main control board or high-voltage power supply board.

⑤ Cyclic defect

	Cycle	Remedy
EP drum	1.98" (50.3 mm)	Clean or replace the EP unit.
Developing roller	1.44" (36.6 mm)	Replace the EP unit.
Toner supply roller	2.63" (66.8 mm)	Replace the EP unit.
Charge roller	0.81" (20.6 mm)	Replace the EP unit.
Cleaning roller	0.81" (20.6 mm)	Replace the EP unit.
Transfer roller	1.71" (43.4 mm)	Replace the EP unit.
Heat roller	2.46" (62.5 mm)	Replace the heat roller.
Pressure roller B	1.98" (50.3 mm)	Replace pressure roller B.

**Caution:** After replacing the EP unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

⑥ A blank paper is output.

• Is the contact plate of the transfer roller in correct contact with the high-voltage power supply board?

- No Contact the contact plate of the transfer roller correctly.

▼ Yes Replace the transfer roller.

• Has this error been recovered?

- Yes End

▼ No Is the terminal of the EP unit in correct contact with the contact plate? (See Figure 6-4 (A) (B) (C) (D) (E) and Figure 6-5 (A) (B) (C) (D) (E).)

- No Contact the terminal of the EP unit correctly.

▼ Yes Replace the EP unit.

• Has this error been recovered?

- Yes End

**Caution:** After replacing the EP unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "Users Manual".)

▼ No Is the LED head installed correctly? (Check the CN6 connector the main control board.)

- No Contact the LED head correctly.

▼ Yes Replace the LED head

• Has this error been recovered?

• Yes End

**Caution:** Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)

▼ No Replace the main control board or high-voltage power supply board.



⑦ Poor fusing

• Is the specified paper being used?

- No Use the specified paper. (xerox 4200 (20 lbs))

▼ Yes Is the bias spring normal? (Tension: 2.5 kg)

- No Replace the bias spring.

▼ Yes Are the heater connector of the heat assy and the CN1 connector of the power supply unit connected correctly.

- No Connect the connectors correctly.

▼ Yes Replace the heat assy.

• Has this error been recovered?

- Yes End

▼ No Replace the main control board or high-voltage power supply board.

⑧ Vertical white belt/spripe

• Is the lens of the LED head dirty?

- Yes Clean the LED head.

▼ No Is the contact plate of the transfer roller in correct contact with the high-voltage power supply board? (See Figure 6-5 (E).)

- No Contact the contact plate of the transfer roller correctly.

▼ Yes Replace the transfer roller.

• Has this error been recovered?

- Yes End

▼ No Is the LED head installed correctly? (Check the CN6 connector of the main control board.)

- No Install the LED head correctly.

▼ Yes Replace the LED head.

• Has this error been recovered?

- Yes End

**Caution:** Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)

▼ Yes Replace the EP unit.

• Has this error been recovered?

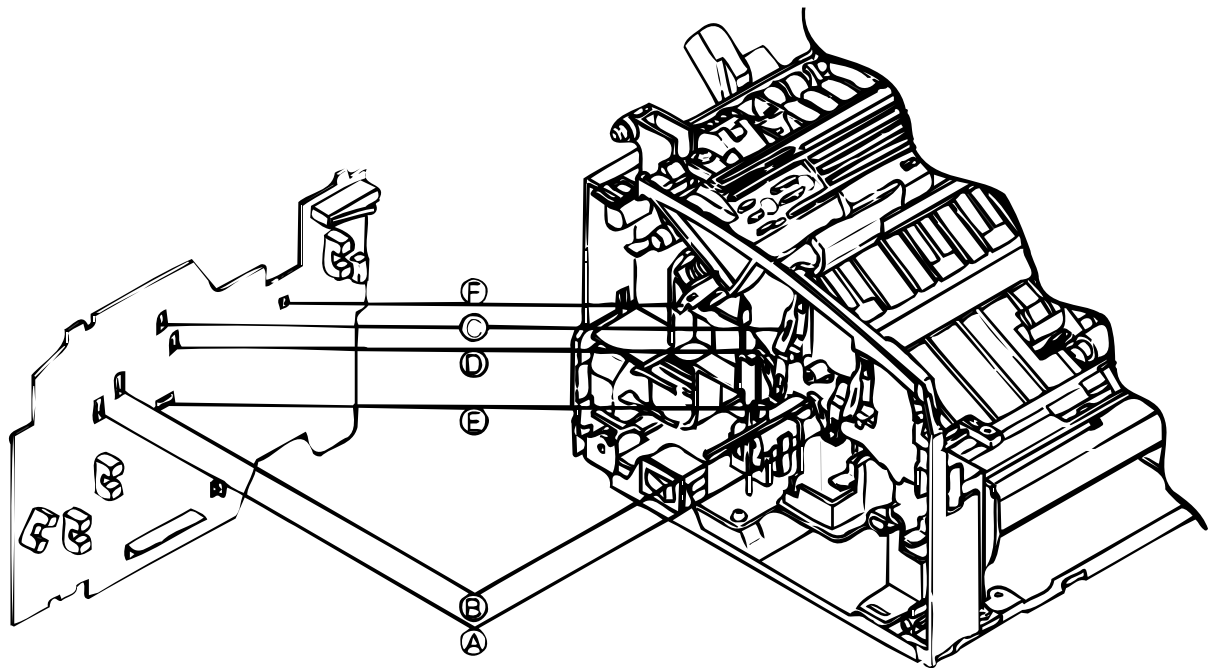
- Yes End

**Caution:** After replacing the EP unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

▼ No Replace the main control board or high-voltage power supply board.

## Contents

- Ⓐ: Toner Supply Roller
- Ⓑ: Developing Roller
- Ⓒ: Charge Roller
- Ⓓ: Cleaning Roller
- Ⓔ: Transfer Roller
- Ⓕ: Heat Roller



**Figure 6-4**

## Contents

- (A): Toner Supply Roller
- (B): Developing Roller
- (C): Charge Roller
- (D): Cleaning Roller
- (E): Ground (Drum)

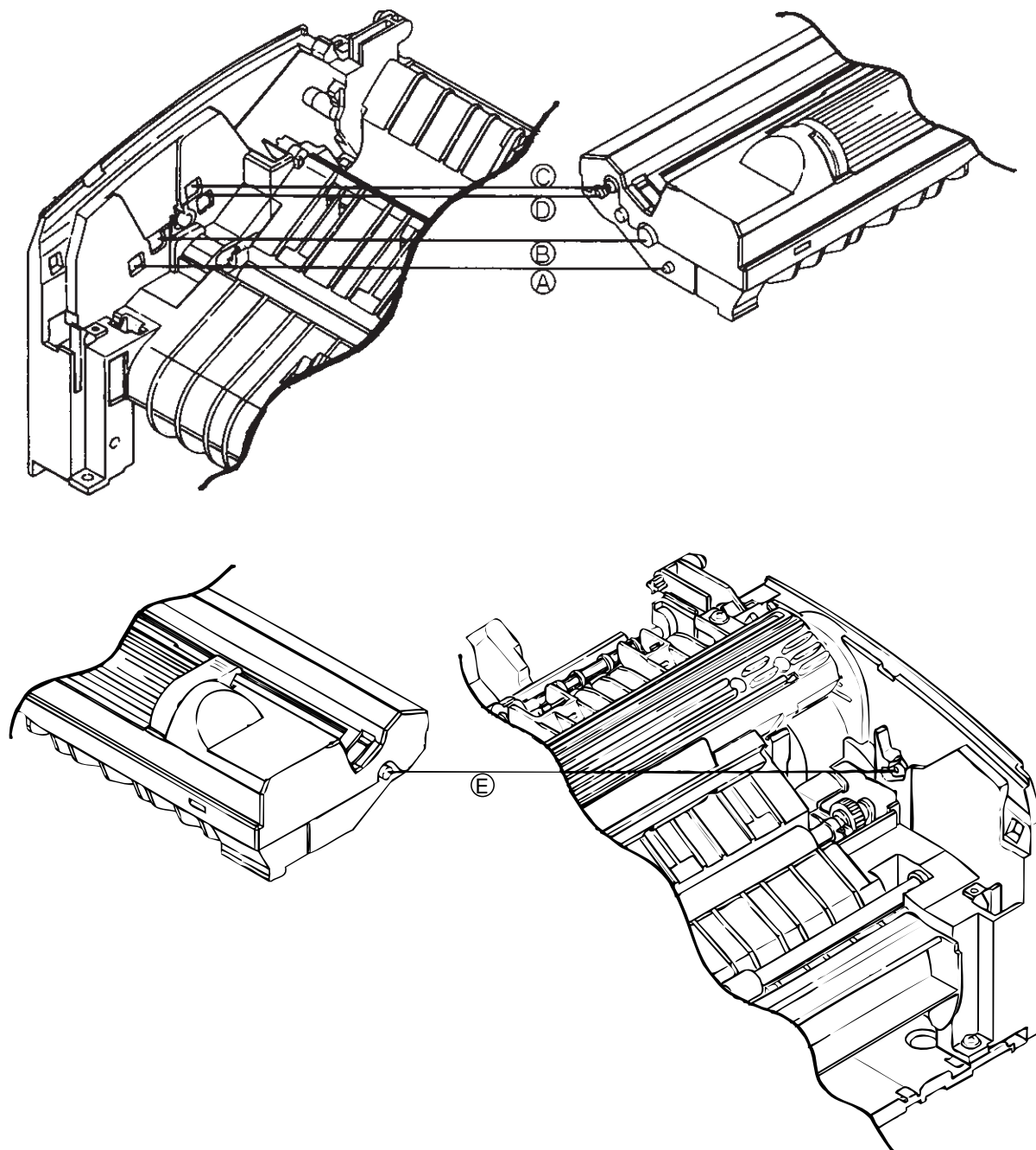


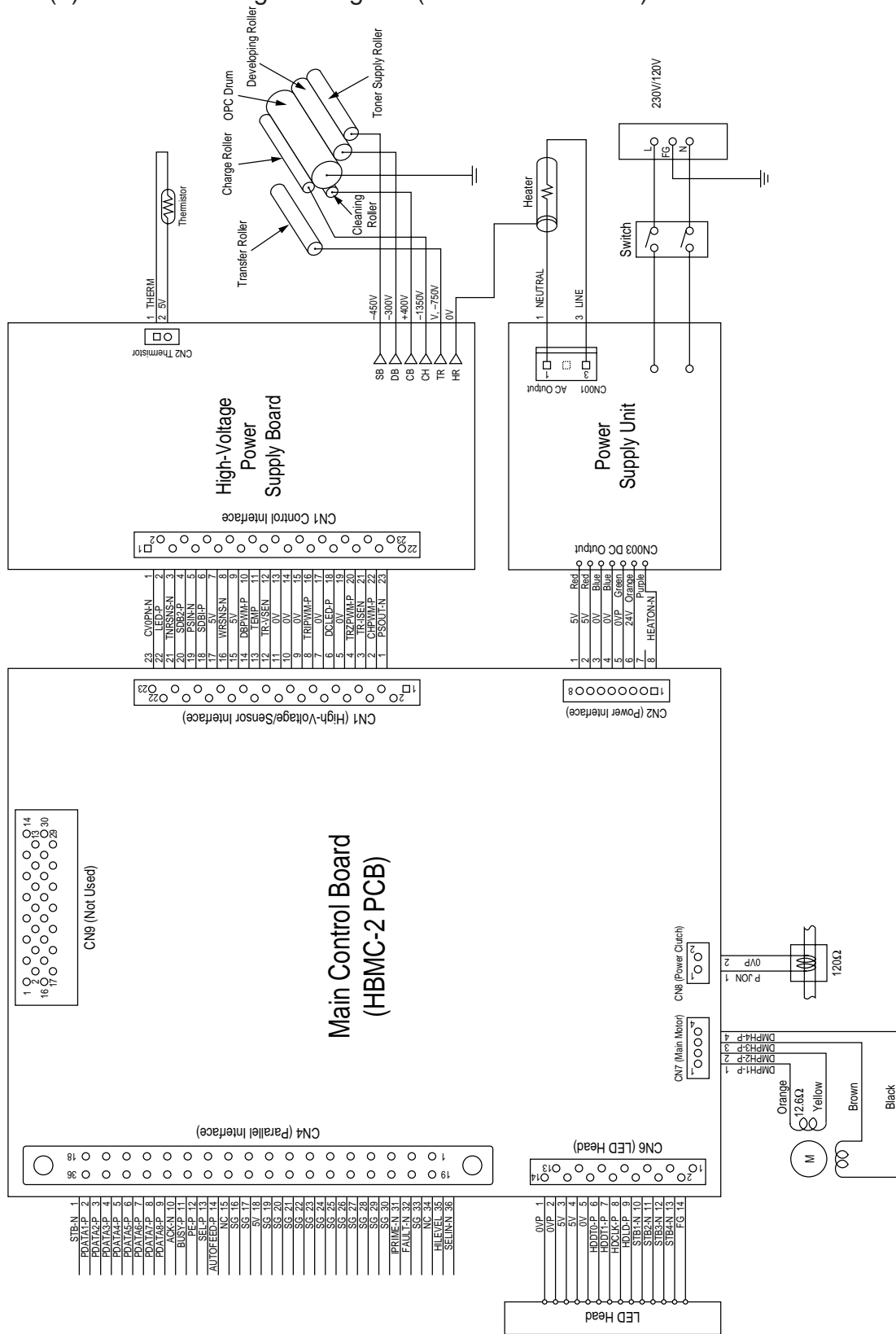
Figure 6-5

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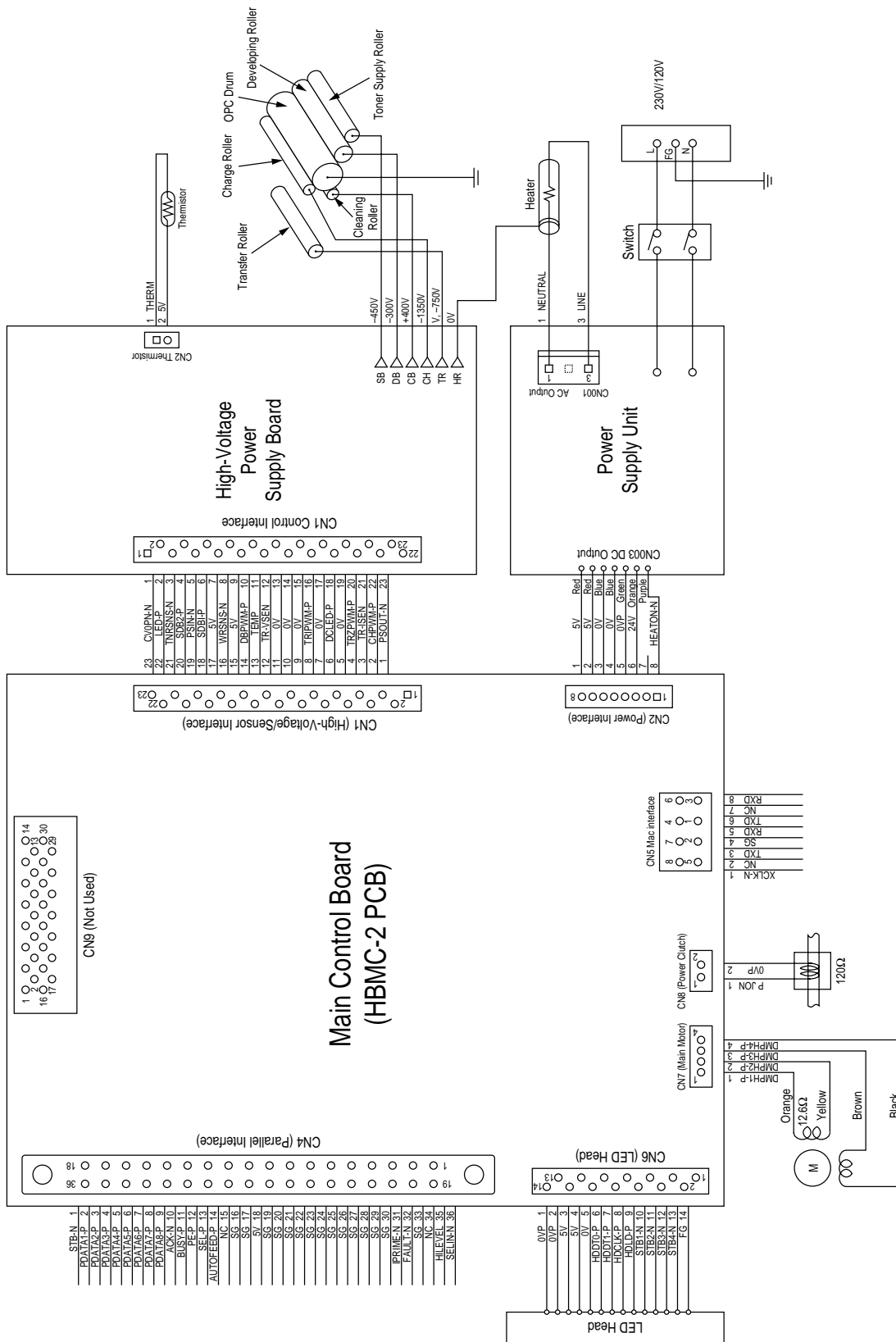
## **7. WIRING DIAGRAM**

## 7. WIRING DIAGRAM

### 7.1 (a) Interconnect Signal Diagram (OKIPAGE 4w Plus)

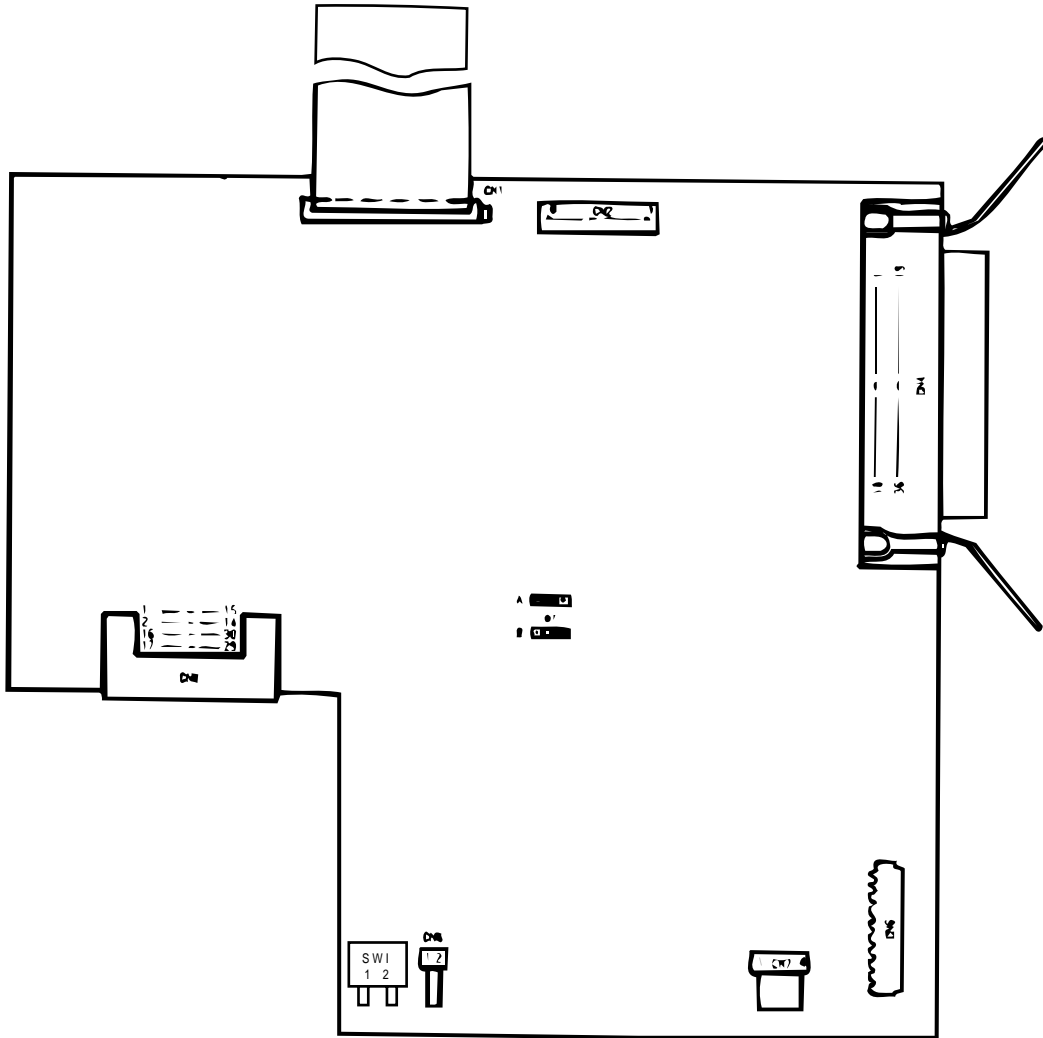


# 7.1 (b) Interconnect Signal Diagram (OKIPAGE 4m)



## 7.2 PCB Layout

### 7.2.1 Main Control Board (HBMC-2 PCB) (OKIPAGE 4w Plus)

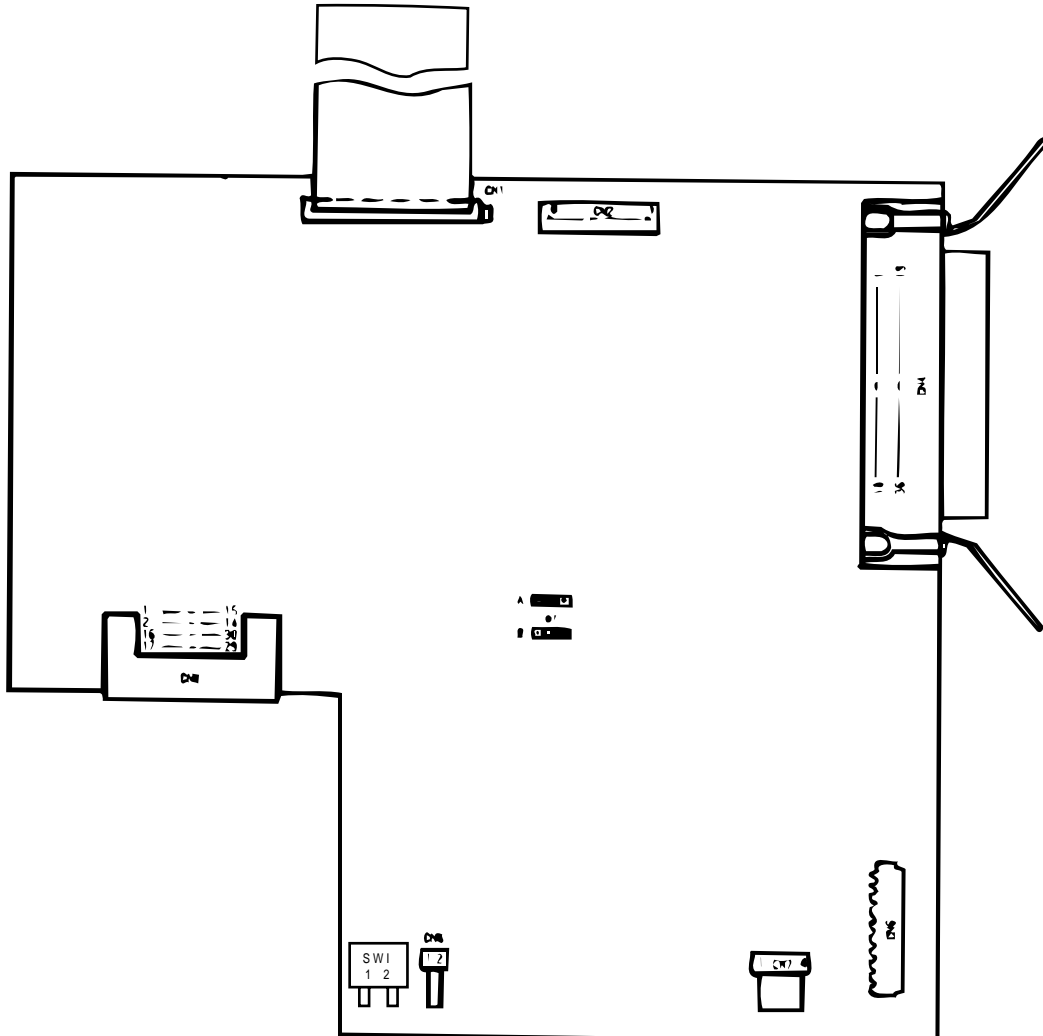


Short Plug	Plug Setting	Content	Remarks
SP1	A	External EPROM is valid.	For a Chinese product and all maintenance parts.
	B	Mask ROM in the CPU is valid.	For all products except Chinese product.



## 7.2 PCB Layout

### 7.2.2 Main Control Board (HBMC-3 PCB) (OKIPAGE 4m)

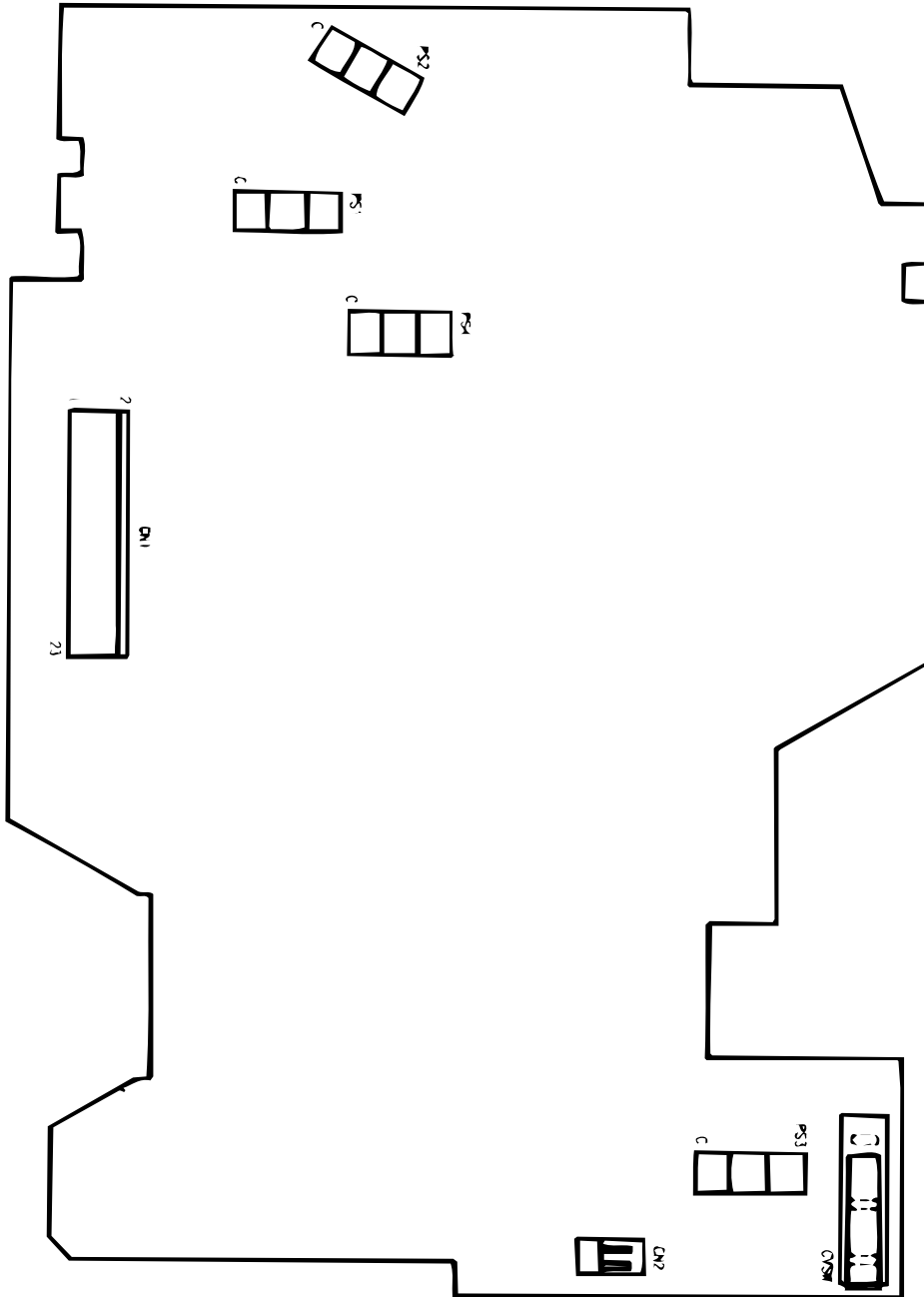


Short Plag	Plag Setting	Content	Remarks
SP1	A	External EPROM is valid.	
	B	Mask ROM in the CPU is valid.	not used

DIP Switch	Switch Setting	Content
SW1-1	UPPER SIDE*	AUTO I/F
	LOWER SIDE	FIX I/F (By SW2-2)
SW1-2	UPPER SIDE*	FIX PARALLEL I/F
	LOWER SIDE	FIX MAC I/F

\*Default setting. Do not change.

### 7.2.3 High-Voltage Power Supply Board



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## **8. PARTS LIST**

## 8. PARTS LIST

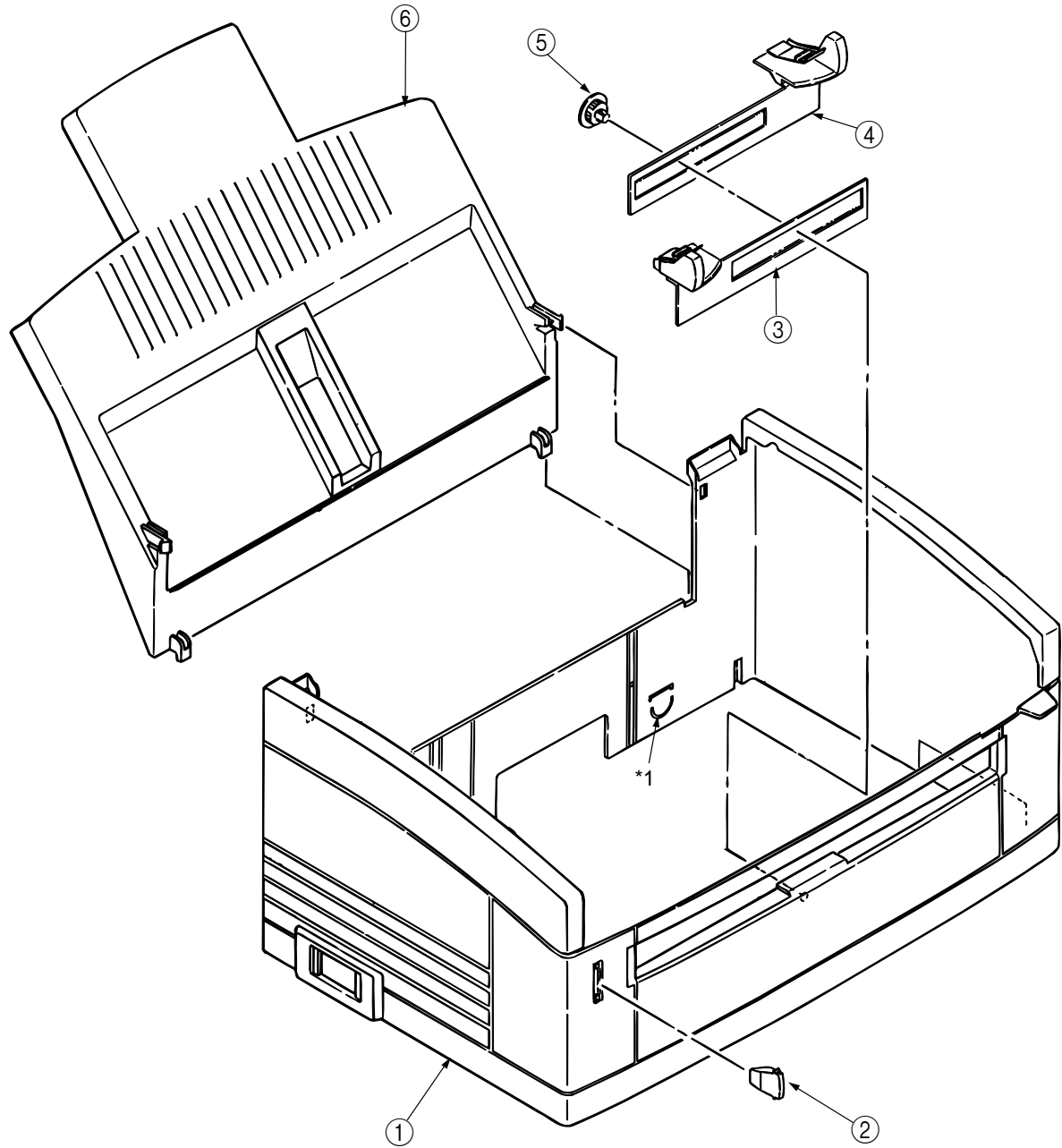


Figure 8-1 Cover Assy Upper

**Table 8-1 Cover Assy Upper**

No.	Part Name	Part No.	Q'ty	Remarks
1	Upper Cover	1PP4128-1251P1	1	
2	Lamp	3PP4128-1255P1	1	
3	Guide Slide (L)	2PP4128-1256P1	1	
4	Guide Slide (R)	2PP4128-1257P1	1	
5	Spur Gear (A)	4PP4128-1260P1	1	
6	Hopper Plate	40249301	1	

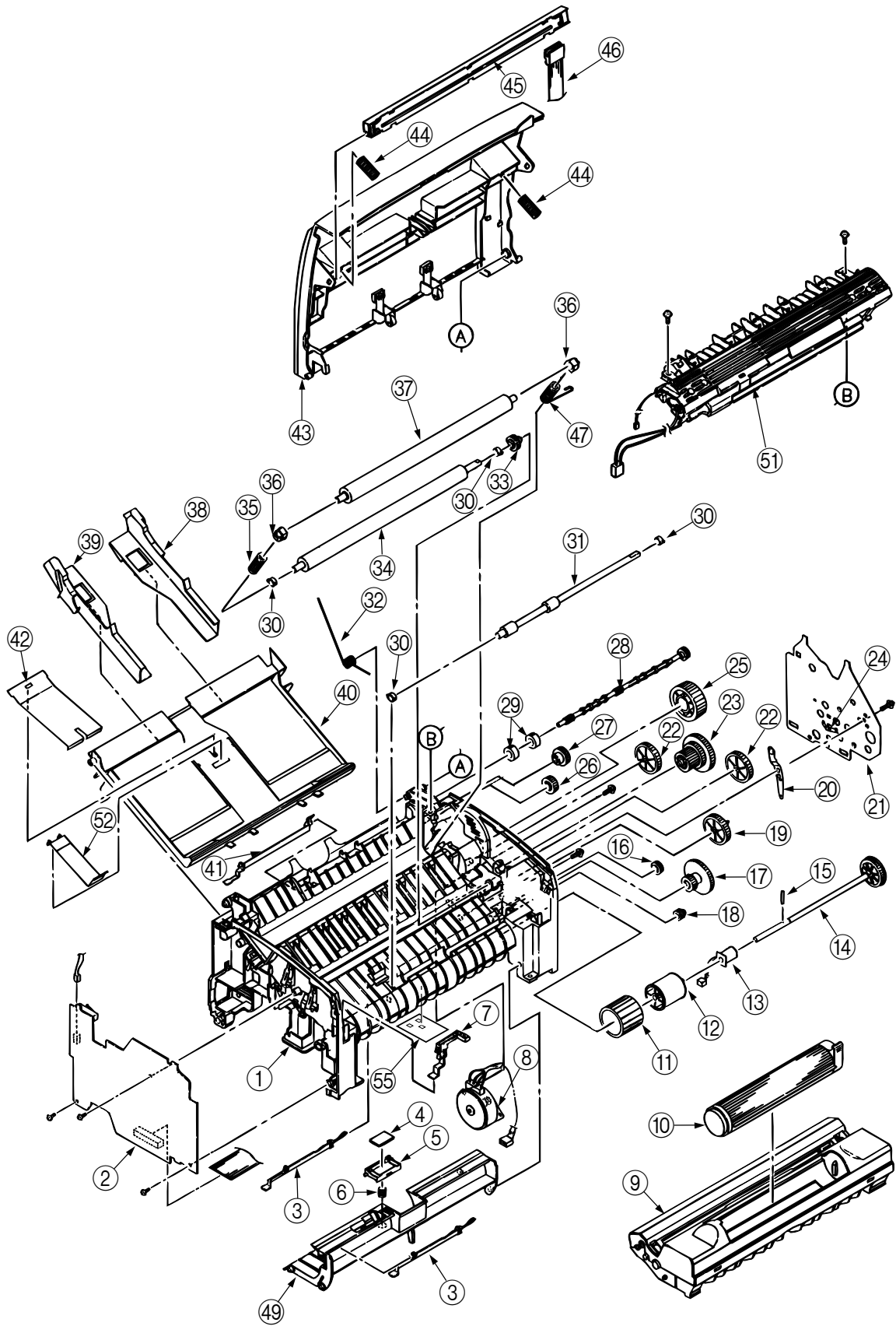


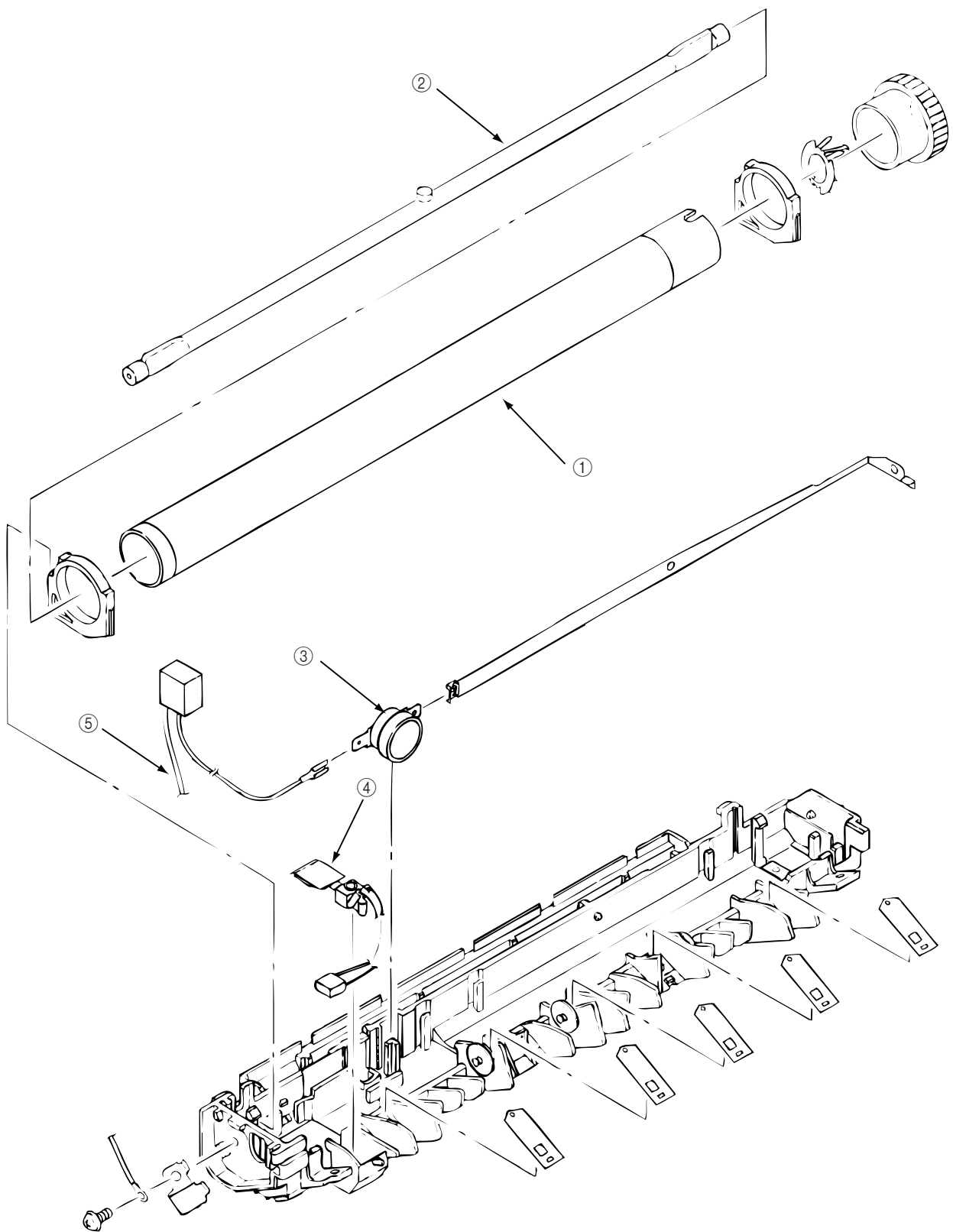
Figure 8-2 Base Frame Unit

**Table 8-2 Base Frame Unit**

No.	Part Name	Part No.	Q'ty	Remarks
1	Base Frame Assy	2PP4083-1502G1	1	
2	High-Voltage Power Supply Board	4YA4130-1024G1	1	
3	Paper Sensor E	3PP4083-1191P1	2	
4	Friction Pad	4PB4083-1245P1	1	
5	Separator Guide	3PP4083-1244P1	1	
6	Compression Spring S	4PP4083-1246P1	1	
7	Toner Sensor Assy	3PA4083-1193G1	1	
8	Pulse Motor	4PB4083-1172P1	1	
9	Ep Unit	_____	1	Consumable
10	Toner Cartridge Unit	_____	1	Consumable
11	Hopping Roller	4PB4083-1129P1	1	
12	Roller Holder (Hopping Roller)	3PP4083-1128P1	1	
13	Magnet H (Hopping Shaft)	3PB4083-1127P1	1	
14	Hopping Shaft Assy	3PA4083-1133G1	1	
15	Knock Pin	NK2-10-SUS	1	
16	Idle Gear R	4PP4083-1143P1	1	
17	Idle Gear 2R	3PP4083-1184P1	1	
18	Gear R	3PP4083-1142P1	1	
19	Idle Gear M	3PP4083-1181P1	1	
20	Earth Plate A	3PP4083-1189P1	1	
21	Side Plate M	3PP4083-1188P1	1	
22	Idle Gear P	3PP4083-1182P1	2	
23	Idle Gear 3R	3PP4083-1183P1	1	
24	Tension Plate	4PP4083-1165P1	1	
25	Idle Gear Heat	3PP4083-1185P1	1	
26	Idle Gear E (A)	4PP4083-1186P1	1	
27	Idle Gear E (B)	3PP4083-1187P1	1	
28	Drive Shaft E (Eject)	3PP4083-1170P1	1	
29	Eject Roller	40074601	2	
30	Resist Bearing	3PP4083-1141P1	4	
31	Resist Roller	3PB4083-1140P1	1	
	Resist Roller	40457001	1	For China
32	Tension Spring	4PP4083-1252P1	1	
33	Gear T	3PP4083-1151P1	1	

No.	Part Name	Part No.	Q'ty	Remarks
34	Transfer Roller	3YB4083-1150P1	1	
	Transfer Roller	40456901	1	For China
35	Bias Spring (L) (Back Up Roller)	4PP4083-1136P1	1	
36	Bearing BU (Back Up Roller)	3PP4083-1161P1	2	
37	Pressure Roller B (Back Up Roller)	3PB4083-1160P2	1	
38	Paper Guide (R)	40249501	1	
39	Paper Guide (L)	40249401	1	
40	Paper Holder	1PP4083-1231P1	1	
41	Paper Sensor Exit	3PP4083-1192P1	1	
42	Hopper Spring	4PP4083-1247P1	1	
43	Top Cover Assy	40271102	1	For OEL/OKI-INT, CHINA, TAIWAN (OKIPAGE 4W plus)
	Top Cover Assy	40271104	1	For KOREA (OKIPAGE 4W plus)
	Top Cover Assy	40271106	1	For OEL (OKIPAGE 4m)
44	Head Spring	4PP4083-6168P1	2	
45	LED Head	4YA4116-1228G1	1	
46	Flat Cable Assy	4YX4083-1134G1	1	
47	Bias Spring (R) (Back Up Roller)	4PP4083-1137P1	1	
48	_____	_____	_____	
49	Sheet Guide	1PP4083-1241P1	1	
50	_____	_____	_____	
51	Heat Assy	1YX4083-1200G1	1	120V
	Heat Assy	1YX4083-1200G2	1	230V
	Heat Assy	40116102	1	For CHINA
	Heat Assy	40116103	1	For KOREA
	Heat Assy	40116104	1	For TAIWAN
52	Stopper Spring	40034001	1	
53	Caution Label (TR)	4PB4091-6047P1	1	230V
54	Ferrite Core	105A1034C0002	1	
55	Film Guide	4PP4083-1139P1	1	

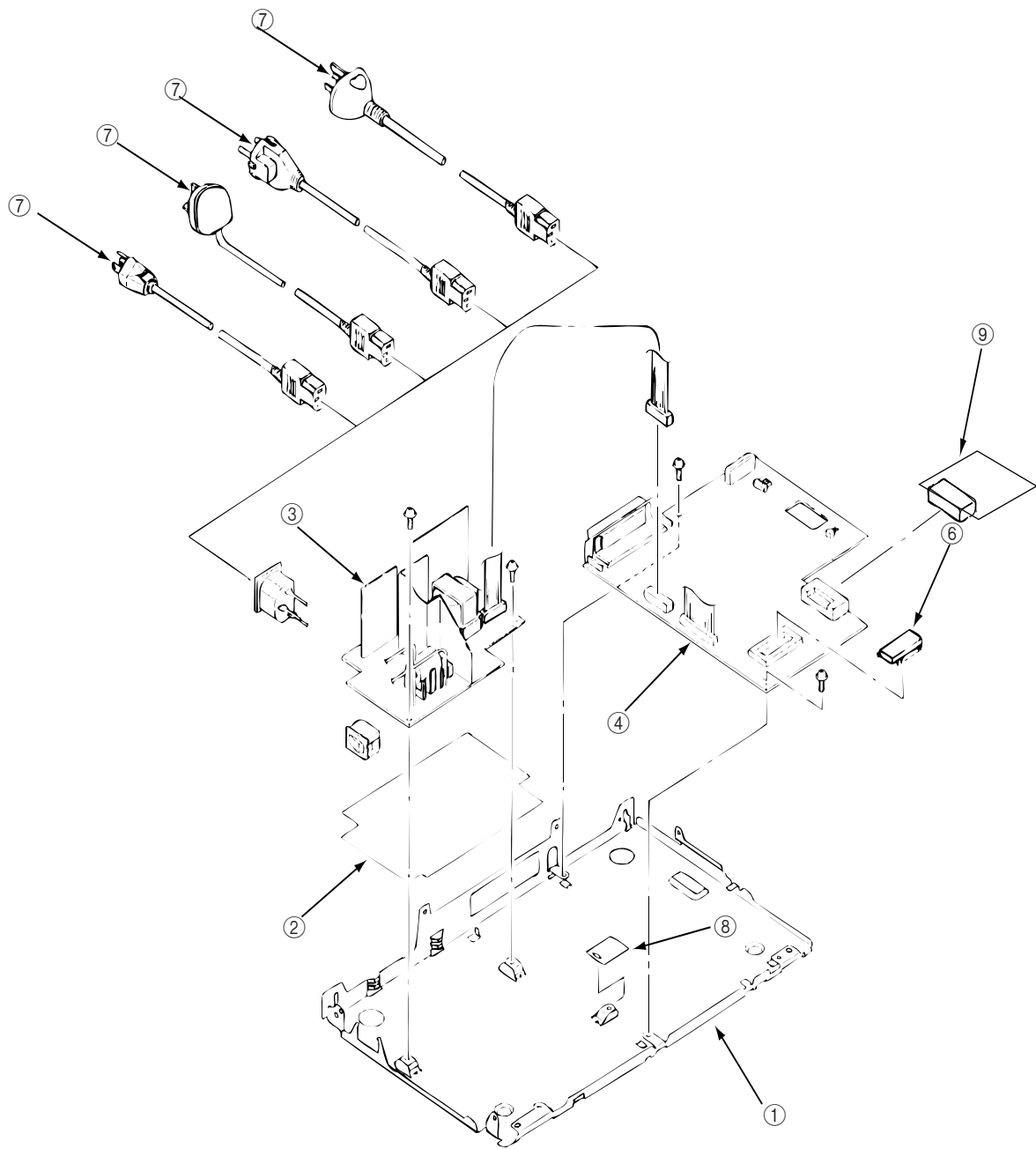




**Figure 8-3 Heat Assy**

**Table 8-3 Heat Assy**

No.	Part Name	Part No.	Q'ty	Remarks
1	Heat Roller	3PB4083-1202P1	1	
2	Halogen Lamp	3PB4083-6103P4	1	120V
	Halogen Lamp	3PB4083-6103P5	1	230V
3	Thermostat	4PB4083-1204P1	1	
4	Thermistor	4PB4083-1205P1	1	
5	Heat Cord	4PB4083-1213P1	1	



**Figure 8-4 Base Plate Unit**

**Table 8-4 Base Plate Unit**

No.	Part Name	Part No.	Q'ty	Remarks
1	Base Plate Assy	3PA4083-1135G1	1	
2	Insulation Sheet	3PB4083-1251P1	1	
3	Power Supply Unit	4YB4049-1853P1	1	120V
	Power Supply Unit	4YB4049-1854P1	1	230V
4	Main Control Board (HBMC-2 PCB)	4YA4121-2516G2	1	For OP4W Plus Without ROM
	Main Control Board (HBMC-3 PCB)	4YA4121-2516G3	1	For OP4m With Mask ROM
5	_____	_____	_____	
6	Program ROM	4YR4077-1670G1	1	OP4w Plus EPROM
	Program ROM	40406201	1	OP4w Plus EPROM For China
	Program ROM	8170649M0002	1	OP4m MaskROM
7	AC Cord	3YS4011-1315P1	1	USA (TAIWAN)
	AC Cord	3YS4011-1266P1	1	Continental
	AC Cord	3YS4011-1270P1	1	U.K.
	AC Cord	40398702	1	Australia
	AC Cord	40483802	1	China
8	Insulation Sheet B	40043001	1	
9	Option RAM Board (HBRB-PCB)	4YA4121-2502G005	1	OP4m

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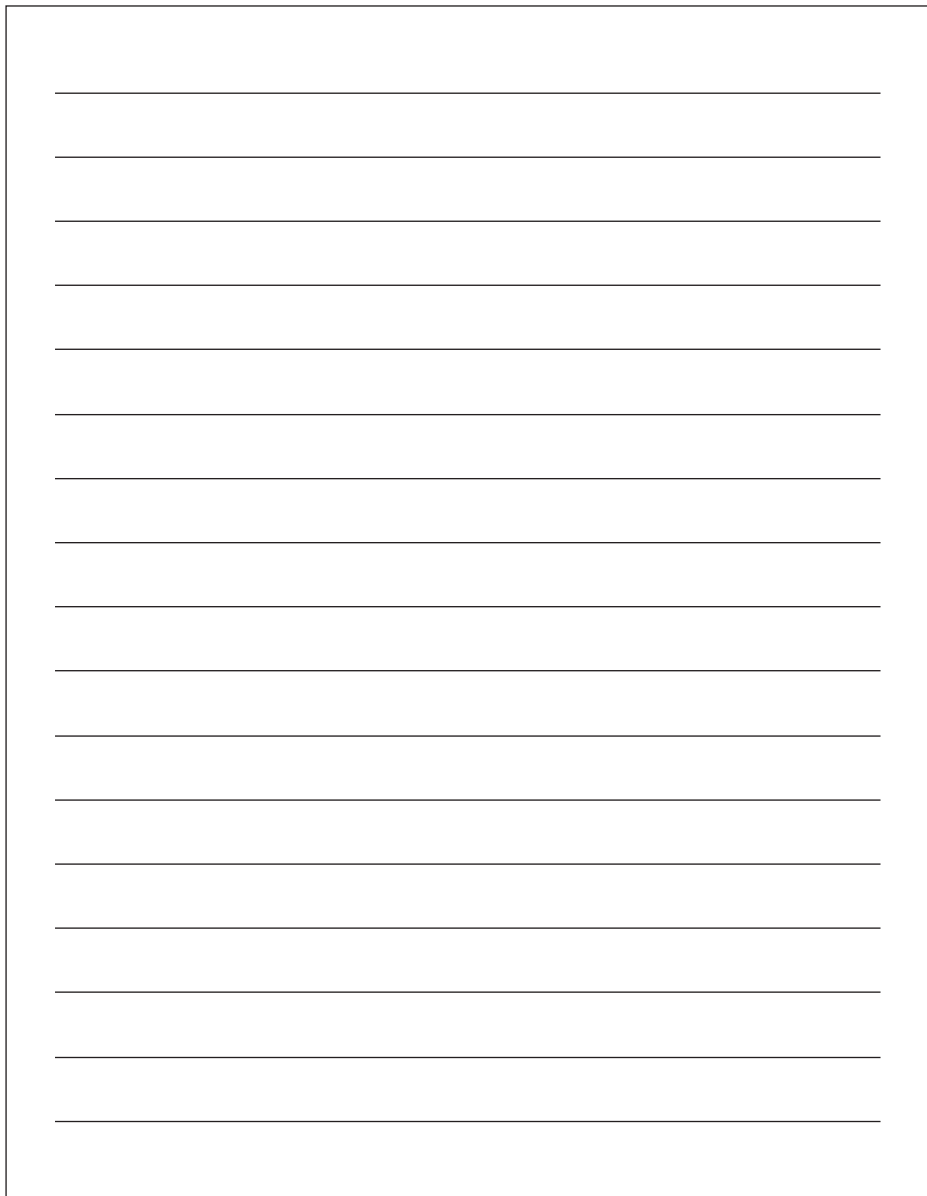
## APPENDIX

## Appendix A LOCAL PRINTING

(1) The following operation enables the OKIPAGE 4w Plus/4m to print data by itself.

<Operation>

With the cover open, turn on the AC switch and then close the cover. The following print patterns are printed.



## Appendix B PARALLEL INTERFACE

### (1) Connector

- Printer side : 36-pin receptacle  
Type: 57RE-40360-730B-D29A (Daiichi Denshi) or equivalent
- Cable side : 36-pin plug  
Type: 57-30360 (Daiichi Denshi) or equivalent

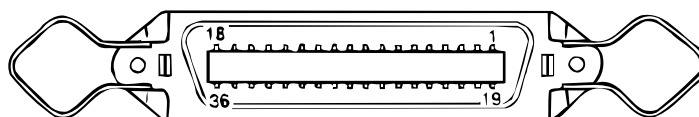
### (2) Cable

- Cable length : 6 feet (1.8 m) max.  
(A Shielded cable composed of twisted pair wires is recommended for noise prevention.)

(3) Parallel I/F signals

Pin No.	Signal Name	Direction	Function (Compatible Mode)
1	DATA STROBE	→ PR	Parallel data sampling strobe
2	DATA BIT - 1		
3	DATA BIT - 2		
4	DATA BIT - 3		
5	DATA BIT - 4	↔ PR	Printer parallel input/output data
6	DATA BIT - 5		
7	DATA BIT - 6		
8	DATA BIT - 7		
9	DATA BIT - 8		
10	ACKNOWLEDGE	← PR	Completion of input data reception
11	BUSY	← PR	The OKIPAGE 4w is not ready to receive data.
12	PAPER END	← PR	Paper end detection
13	SELECT	← PR	Select state (Online)
14	AUTOFD	→ PR	Carriage return control
15	-		Not used
16	0V		Grounding for signals
17	CHASSIS GROUND		Frame ground
18	+5V	← PR	50 mA max.
19	⋮		
⋮	0V		Grounding for signals
⋮			
30			
31	INPUT PRIME	→ PR	Initialization signal
32	FAULT	← PR	Paper end or alarm
33	0V		Grounding for signals
34	-		Not used
35	-		High level (3.3 kΩ)
36	SELIN	→ PR	Data input enable or disable

- Connector pin arrangement



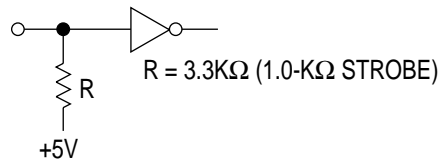


(4) Signal level

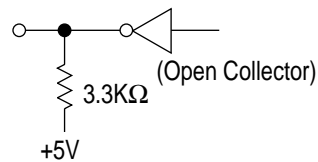
- LOW : 0 V to +0.8 V
- HIGH : +2.4 V to 5.0 V

(5) Interface circuit

a) Receiving circuit

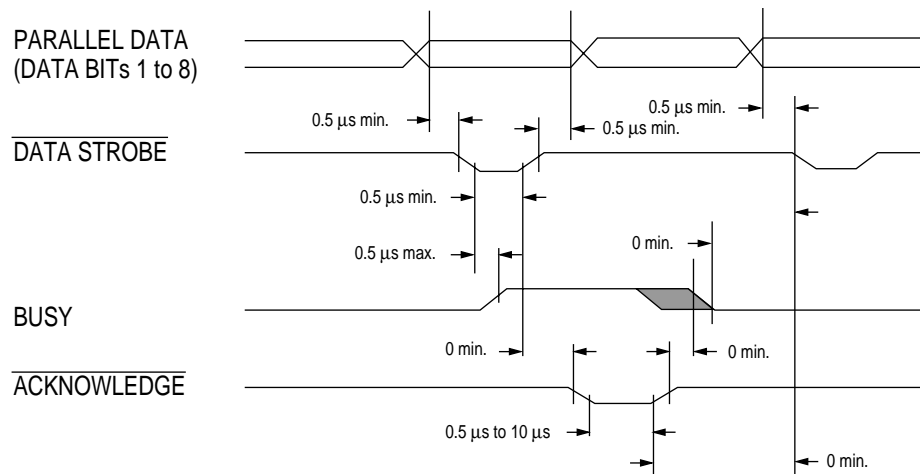


b) Sending circuit

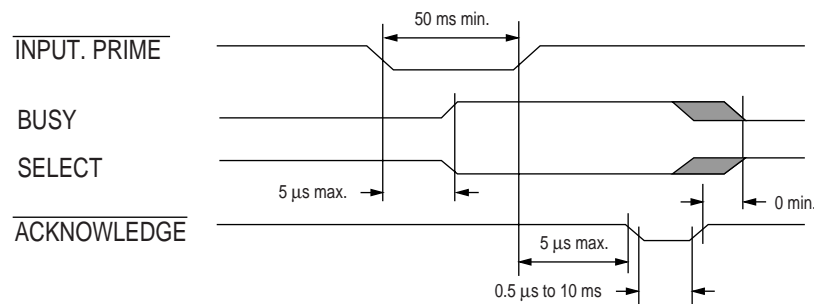


(6) Timing charts

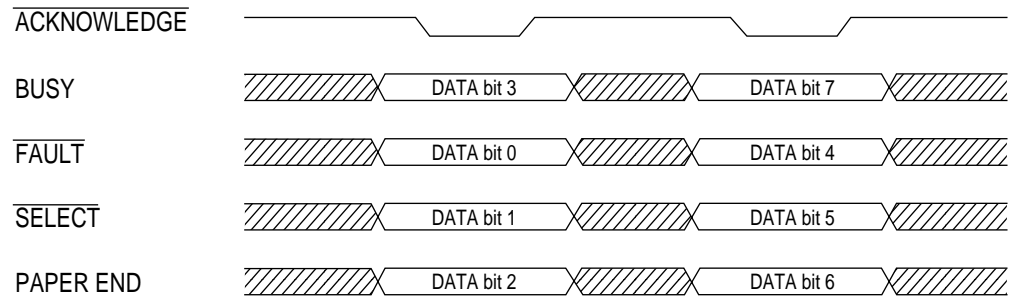
a) Data receiving timing (compatible mode)



b) INPUT PRIME timing (when the INPUT PRIME signal is enabled)



c) Data sending timing (nibble mode)



## AppendixC Macintosh INTERFACE (OKIPAGE 4m)

### 1) Connector

- Printer side : 8-pin mini DIN receptacle  
Type TCS7187-01-201 (made by HOSHIDEN) or equivalent
- Cable side : 8-pin mini DIN plug  
Type TCP7180-01-110 (made by HOSHIDEN) or equivalent

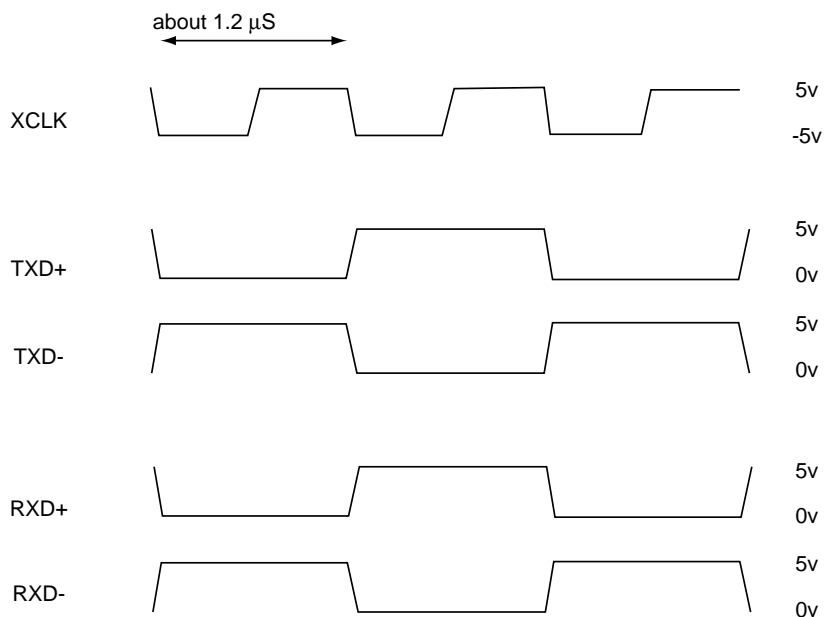
### 2) Cable

Apple system peripheral-8 cable  
(M0197 LL / B : made by Apple)

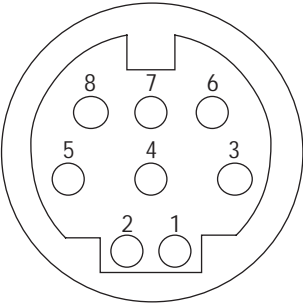
### 3) Interface signal

Pin No.	Signal Name	Abbreviation	Signal Direction	Description
1	XCLOCK	XCLK	← PR	Transfer clk
2	–	–		
3	Transmit data minus	TxD-	← PR	Transmit data minus polarity
4	Signal ground	SG		Signal ground
5	Receive data minus	RxD-	→ PR	Receive data minus polarity
6	Transmit data plus	TxD+	← PR	Transmit data plus polarity
7	–			(Not used)
8	Receive data plus	RxD+	→ PR	Receive data plus polarity

### 4) Timing chart and level



5) Connector Pin Arrangement



(As viewed from the cable side)

## **Appendix D      MAINTENANCE UTILITY**

### **1.      OUTLINE OF MAINTENANCE UTILITY**

The maintenance utility is an application program that operates on Microsoft Windows 3.1 or higher.

The maintenance utility has the following functions:

- Transmission of menu setting command to initialize and change setting values
- Printer RAM check
- Test printing
- Printer information display
- Printer EEPROM read/write

### **2.      ROLE OF MAINTENANCE UTILITY**

The maintenance utility is a collection of command send/receive functions to realize the printer maintenance functions.

For this reason, only servicemen and maintenance personnel can use the maintenance utility. This utility cannot be made public for printer end users.

### **3.      OUTLINE OF MAINTENANCE UTILITY FUNCTIONS**

The maintenance utility is classified into the following functional units and displayed:

- Engine Menu Setting : Used to display and change engine menu settings.
- Engine Counter : Used to display and initialize the engine counter.
- Printer Status : Used to display the printer status.
- Test Print : Used to execute test printing.
- Option : Special function
- About : Used to display engine maintenance utility information and printer information.
- Reload : Used to reload menu setting values.

## 4. DETAIL OF EACH FUNCTION

### 4.1 Engine Menu Setting

Engine Menu Setting is used to set, display, and change the following menu items: (See Figure D-1.)

(1) Print Position

Used to adjust the print start position.

(2) LED Head Marking No.

Used to adjust the exposure time of the LED head.

(3) LED Head Width

Used to specify the LED head dot count.

(4) LED Head Wire

Used to specify whether the data wire of the LED head is 300-1W, one-wire (non-adjustment) type or 300-2W two-wire (adjustment) type. (This printer, however, can use only one-wire type.) Do not use D600W4.

(5) Setting or Humidity

Used to adjust transfer current.

(6) Head Type

Do not use in this printer.

(7) Wait Table

Do not use in this printer.

(8) Page Prt

Do not use in this printer.

(9) Entry

Used to reflect the engine menu setting values on the printer.

(10) Cancel

Used to clear unreflected items. (Items for which Entry is not specified.)

### 4.2 Engine Counter

Engine Counter is used to display and initialize the following count values: (See Figure C-1.)

(1) Drum Count

Number of revolutions of mounted EP drum

(2) Total Drum Count

Total number of revolutions of EP drum after shipment

(3) Page Count

Total number of printed pages after shipment clicking the "Reset" button cleans each counter.

(4) Reset All

Used to clear all counters.

#### 4.3 Printer Status

Printer Status is used to display the printer status. (See Figure D-1.)

#### 4.4 Test Print

Test Print is used to check whether the printer can print data normally after the maintenance utility has terminated. (See Figure D-2)

#### 4.5 Option

Option is used to execute the following functions: (See Figure D-3)

(1) Printer Engine Reset

Used to initialize the engine menu and counter.

(2) EEPROM Upload

Used to upload EEPROM contents to the file.

(3) EEPROM Download

Used to download data from the file to EEPROM.

(4) Printer RAM Check

Used to check printer RAM.

(5) Printer Name Set

Used to set a printer name, "OKIPAGE 4w" or "OKIPAGE 4w plus".

(6) User

Used to set a destination default (ODA, OEL, INTL, INTA). See Figure D-3.

## 4.6 About

About is used to display the following information:

- Engine maintenance utility version information
- Printer version information and memory size information
- Printer device ID information

See figure D-4.

## 4.7 Reload

Reload is used to reload menu setting values.

## 4.8 Exit

Clicking the Exit button terminates the maintenance utility.



<Engine Maintenance Driver GUI>

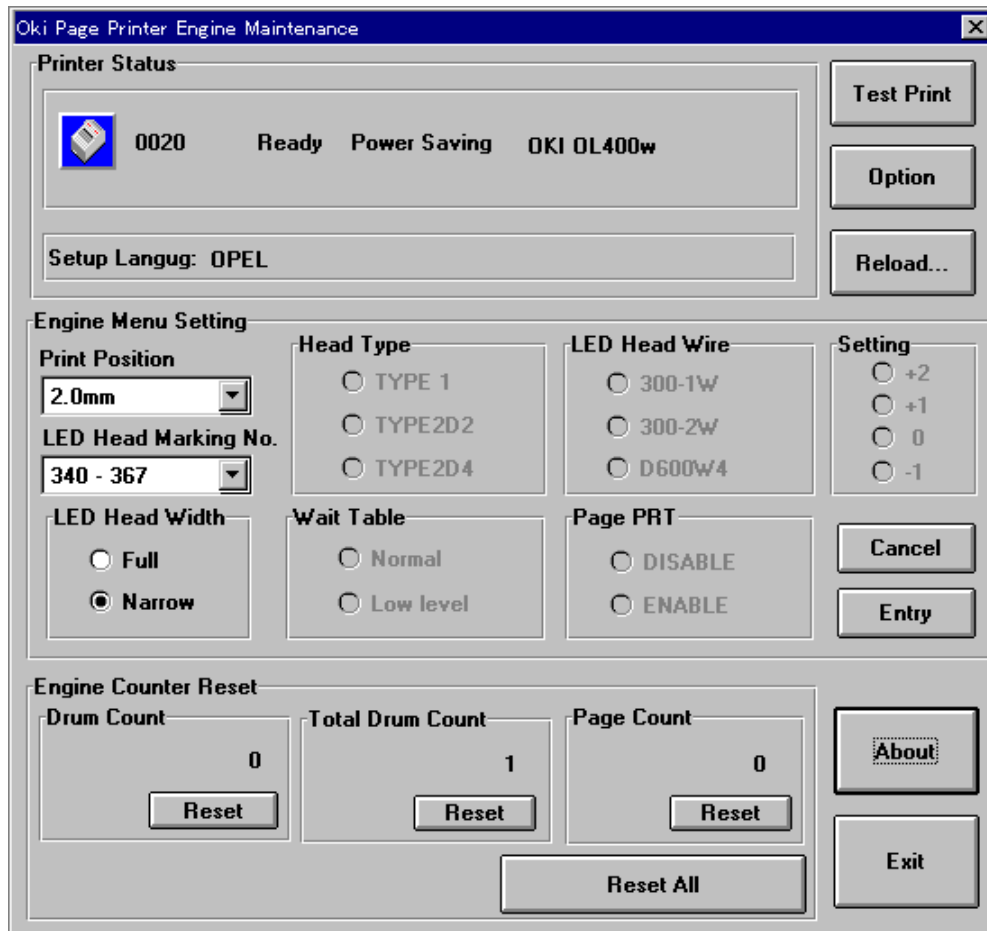


Figure D-1 Main Menu Dialog

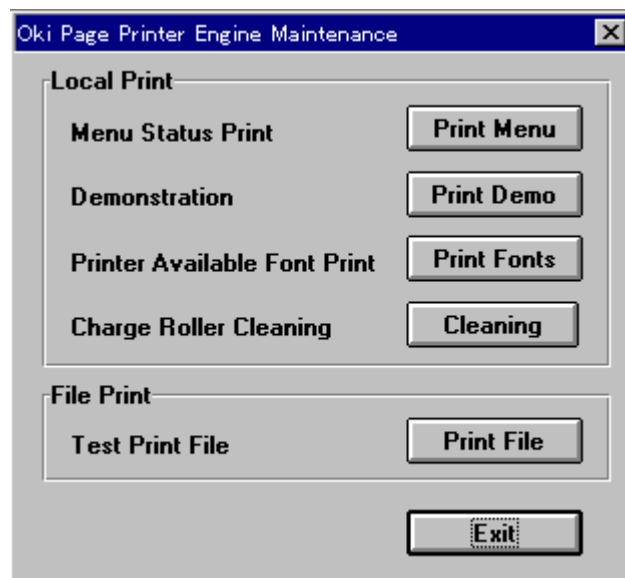


Figure D-2 Test Print Dialog

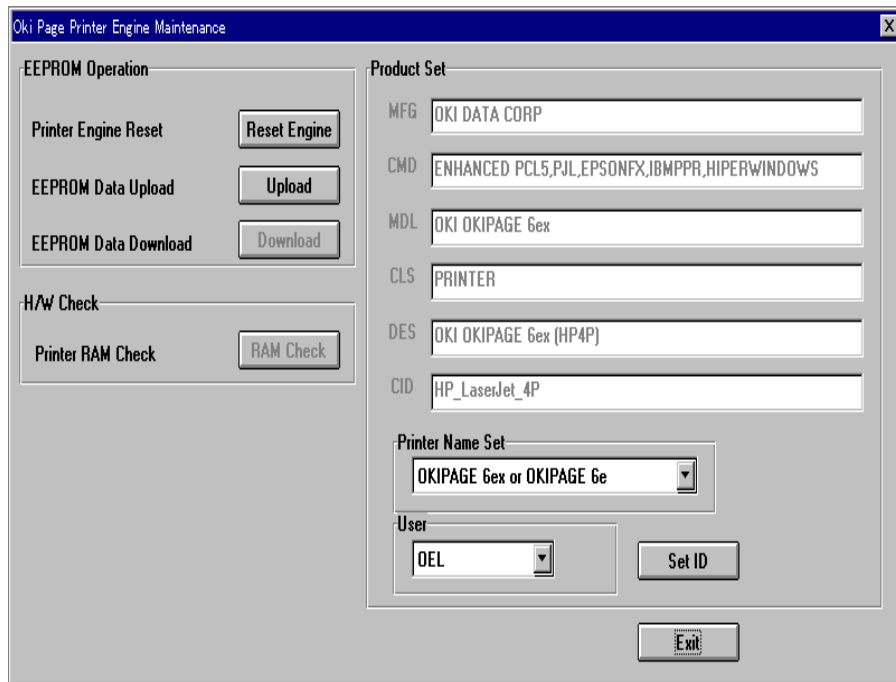


Figure D-3 Option Menu

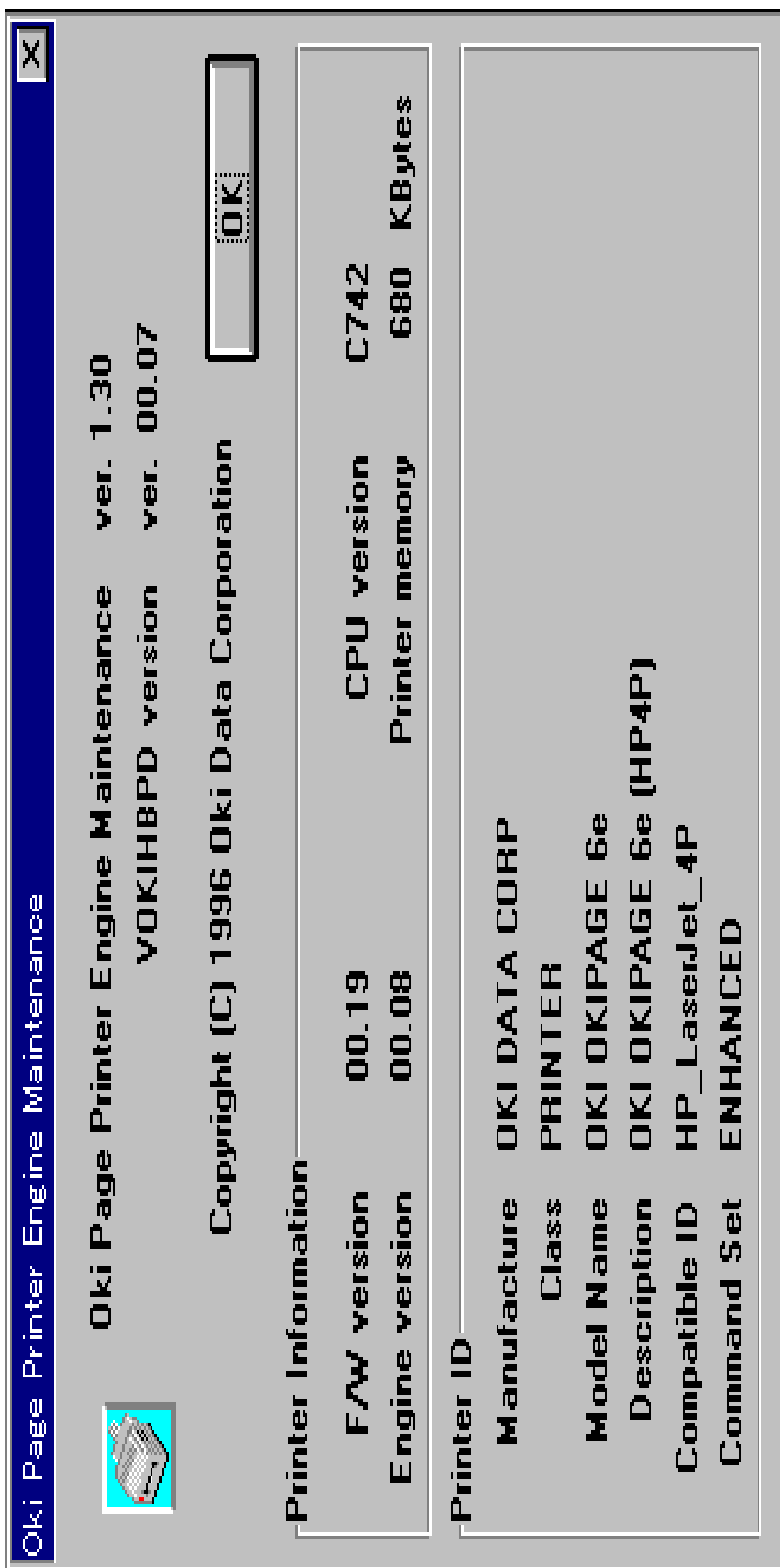


Figure D-4 About Dialog

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# OKI

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