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Front Cover

Oki Data

Service Guide

OKIPAGE 10e

To propel your company into the future, you need technology that fits the way you work. You need the OKIPAGE® 10ex, the best-featured desktop printer in its class. This digital LED printer combines professional performance with excep-tional value, for years of high-quality documents and low ongoing operating costs.

Adobe Acrobat printable reference copy
of the OKIDATA Service Training Manual.
05/13/98

Note: This Adobe Acrobat version of the Okidata Service Training Manual was built with the pictures rendered at 300 dpi, which is ideal for printing, but does not display well on most displays.

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Chapter 0 Introduction

Introduction

This Service Handbook describes the field maintenance methods for OKIPAGE 10e Digital LED Printer. This manual is written for use by the maintenance personnel. Please note that you should refer to the Printer Handbook and Printer Setup for the handling and operating methods of the equipment.

1.1 System Configuration

OKIPAGE 10e consists of control and engine blocks in the standard configuration, as shown in Figure 1-1.

In addition, the options marked with asterisk (*) are available.

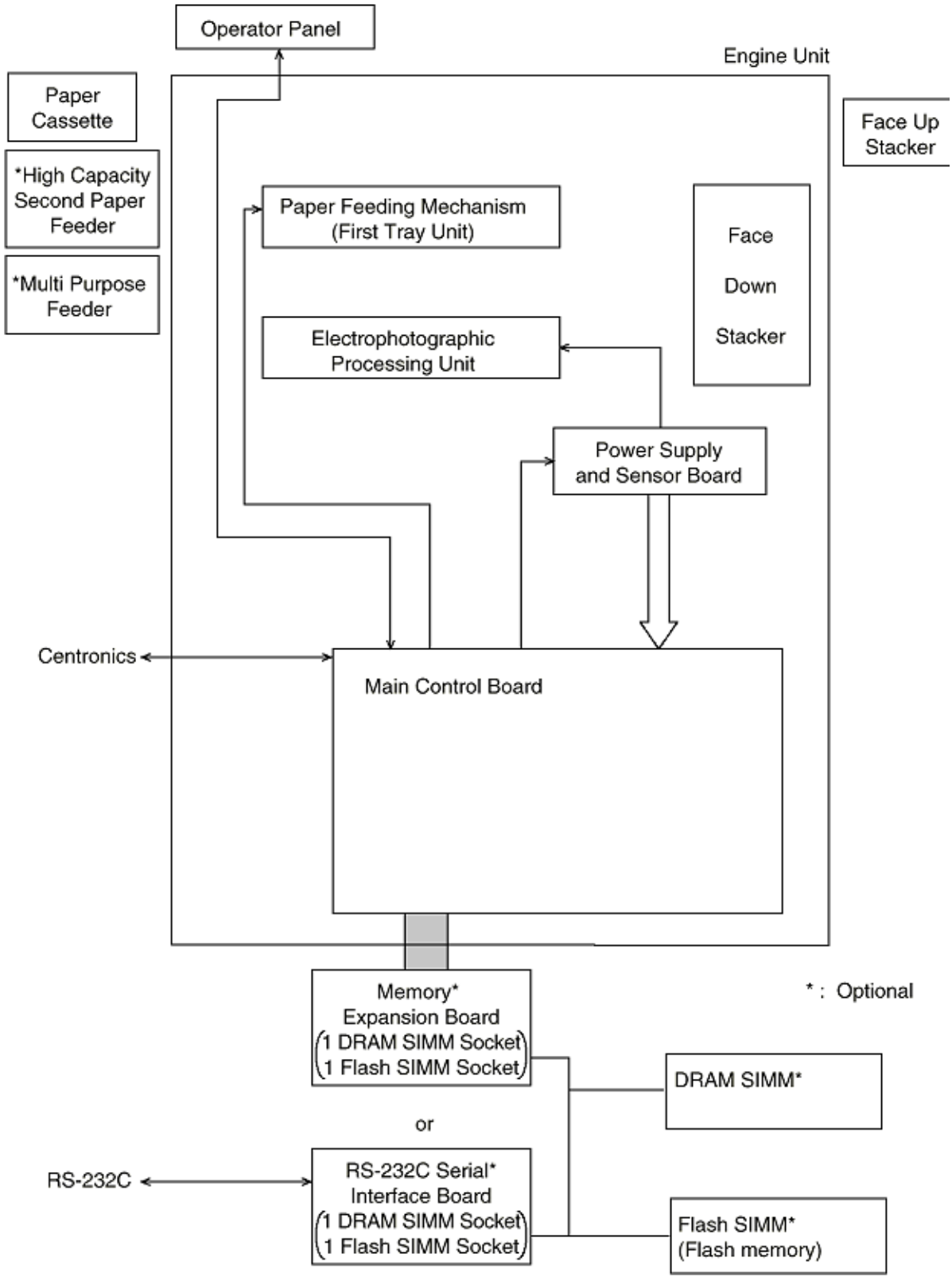

Operator Panel
Engine Unit
Paper Cassette
*High Capacity Second Paper Feeder
*Multi Purpose Feeder
Face Up Stacker
Paper Feeding Mechanism (First Tray Unit)
Face Down Stacker
Electrophotographic Processing Unit
Power Supply and Sensor Board
Centronics
Main Control Board
Memory* Expansion Board (1 DRAM SIMM Socket 1 Flash SIMM Socket)
* : Optional
DRAM SIMM*
or
RS-232C
RS-232C Serial* Interface Board (1 DRAM SIMM Socket 1 Flash SIMM Socket)
Flash SIMM* (Flash memory)

Figure 1-1

1.2 Printer Configuration

The printer unit consists of the following hardware components:

- Electrophotographic Processor
- Paper Feeder
- Controller
- Operator Panel
- Power Supply Unit

The printer unit configuration is shown in Figure 1-2.

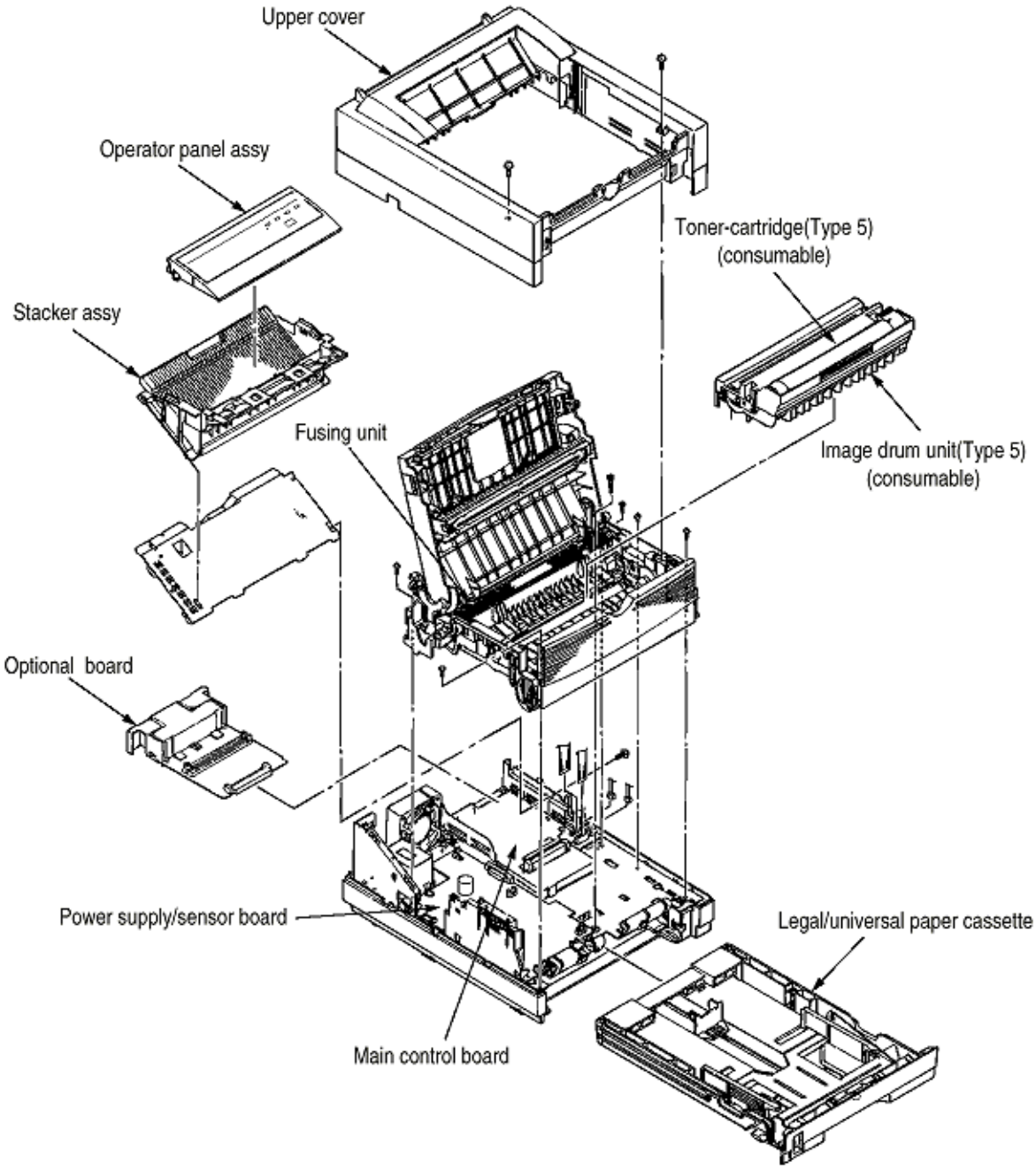
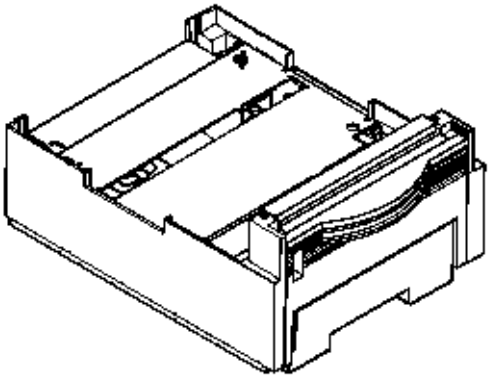


Figure 1-2

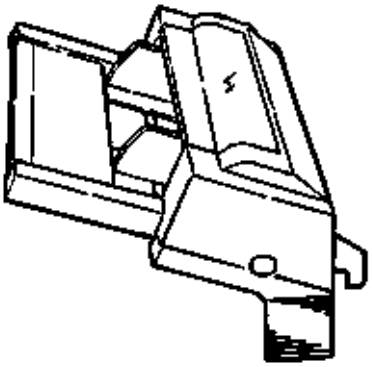
1.3 Optional Configuration

The options shown below are available for use with OKIPAGE 10e. These are available separately from the printer unit.

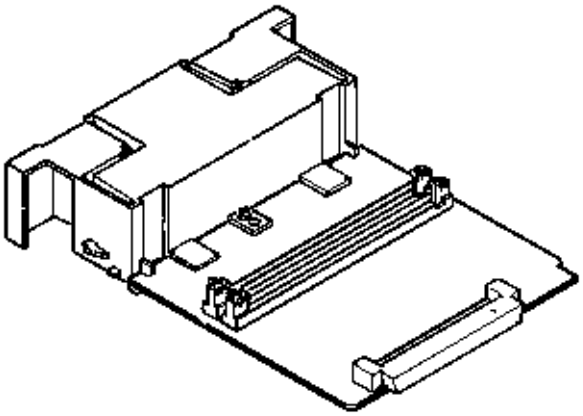
(1) High Capacity Second Paper Feeder



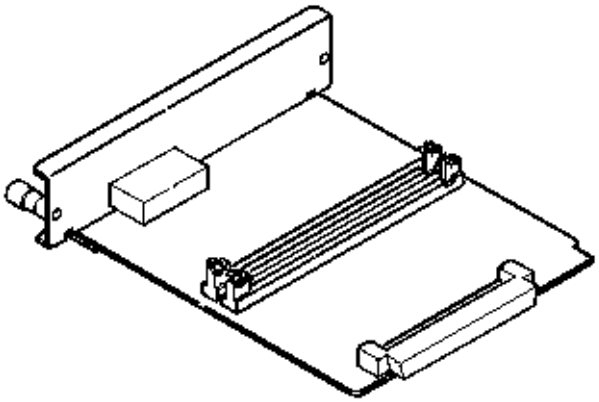
(2) Multi-Purpose Feeder



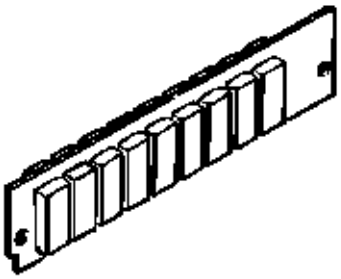
(3) 1 MB Memory Expansion Board



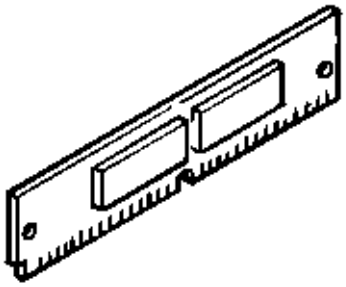
(4) RS-232C Serial Interface Board



(5) DRAM SIMM Memory
DRAM SIMM memory is available with memory of 2, 8, 8, 16 or 32 MB. The access time of SIMM memories are 60ns, 70ns, 80ns, and 100ns.



(6) Flash SIMM
Flash SIMM is available with memory of 4 MB and 8 MB.



1.4 Specification

(1)	Type:	Desktop
(2)	Outside dimensions	Height: 7.9" (200 mm) Width 13.0" (330 mm) Depth 15.6" (395mm)
(3)	Weight	22 lbs. (10 kg)
(4)	Development method Exposure method	Dry electrophotography LED stationary head
(5)	Paper used	<Type> ● Standard paper - Xerox 4200 (20 lbs) ● Application paper (manual face-up feed) - Label - Envelope - OHP paper (Transparency) <Size> ● Standard Letter Legal * [*Without Mutli-Purpose Feeder (Option)] Legal-13* Executive -COM-10** [**manual feed and Multi-Purpose Feeder (Option) only] Monarch** DL** C5** A4 A5 B5 (JIS) A6 ● Applicable sizes - Width: 3.87" x 8.5" (116 to 216 mm) - Length: 5.83" to 14" (148 to 355.6 mm) <Thickness> - Automatic feed: 16 to 28 lbs (60 to 135 g/m^2) - Manual feed: Label, OHP paper (transparency), Envelope (24 to 28 lbs.)

(6) Printing speed: Continuous print: 10 pages per minute with Letter size paper. [Except Second Paper Feeder (8.8 PPM), Multi-Purpose Feeder (8.3 PPM)]
Warm-up time: 60 seconds typical at room temperature [68° F (20° C), AC 120/230 V].
First print: 12 seconds typical for the Letter size paper after warm-up

(7) Paper feeding method Automatic paper feed or manual paper feed

(8) Paper delivery method Face down/face up

(9) Resolution 300 x 300 dots/inch (true)
300 x 1200 dots/inch (graphics)

(10) Power input 120 VAC + 5.5%, -15%
230 VAC +/- 10%

(11) Power consumption Peak: Approx. 460W
Typical operation: Approx. 215W
Idle: Approx. 61W
Power save mode: Approx. 18W

(12) Temperature and humidity

	In operation	Power off mode	During Storage	Unit
Temperature	50-90 (10-32)	32-110 (0-43)	14-110 (-10-43)	°F °C
Humidity	20-80	10-90	10-90	%RH
Maximum wet bulb temperature	77 (25)	80.4 (26.8)	-----	°F °C
Minimum difference between wet and dry bulb temperatures	35.6 (2)	35.6 (2)	-----	°F °C

1. Storage conditions specified above apply to printers in packed condition.
2. Temperature and humidity must be in the range where no condensation occurs.

(13) Noise During operation: 50 dB (A) or less
Standby: 38 dB (A) or less
Quite mode: Back ground level

(14) Consumables Toner cartridge kit - 2,000 (5% duty) ---- 45g cartridge kit
Image drum cartridge - 20,000 (at continuous printing); 14,000 (3 page/job) without Power Save

1.5 Safety Standards

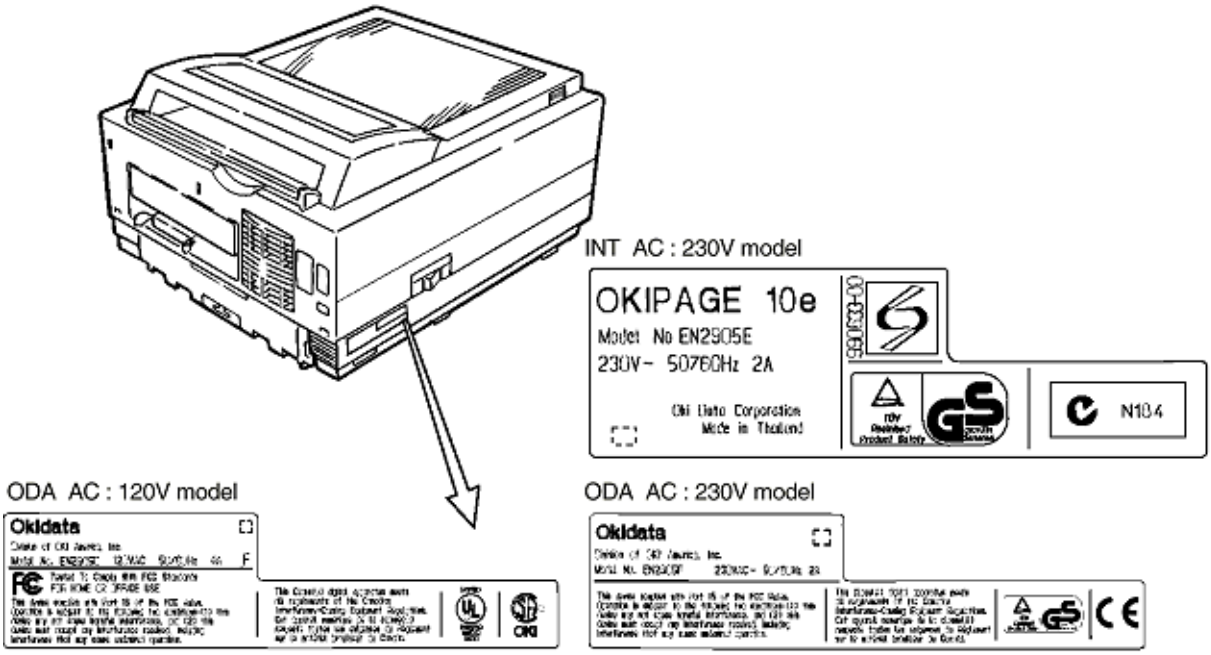
1.5.1 Certification Label

1.5.2 Warning Label

1.5.3 Warning/Caution Marking

1.5.1 Certification Label

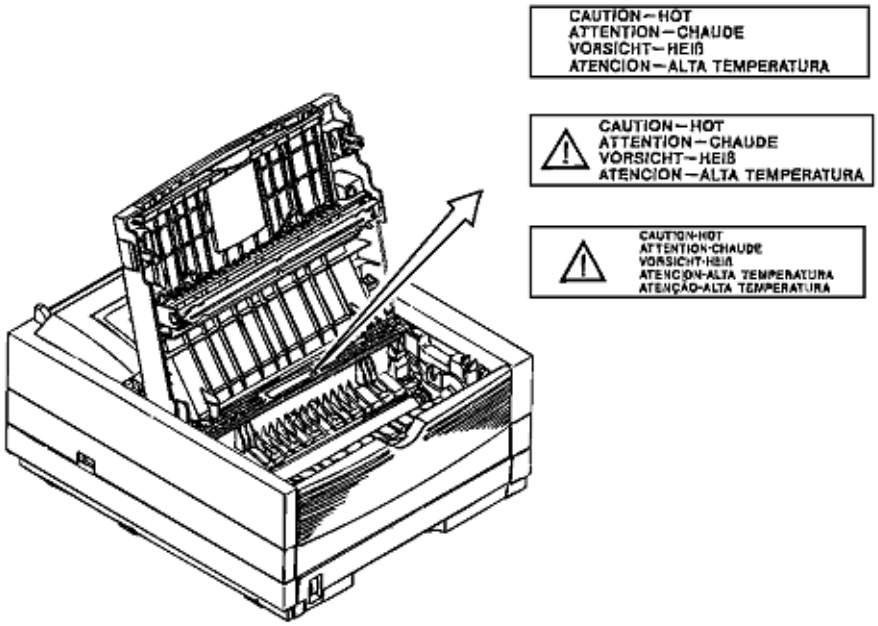
The safety certification label is affixed to the printer in the position described below.



1.5.2 Warning Label

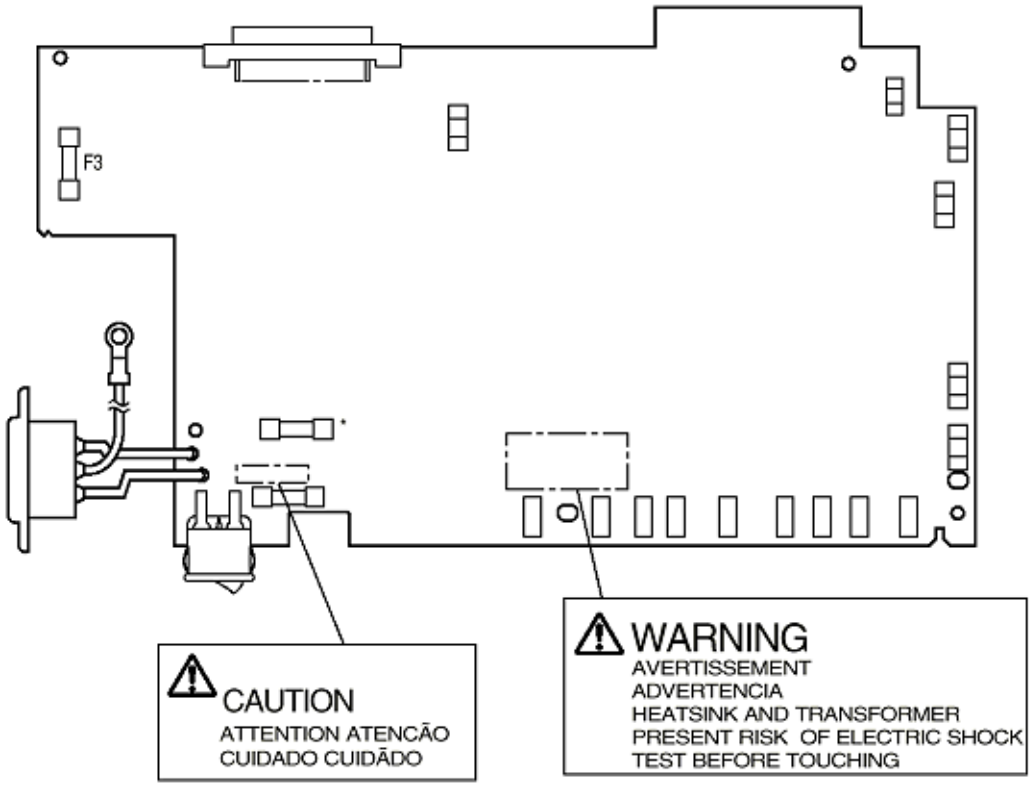
The warning labels are affixed to the sections which may cause bodily injury.

Follow the instructions on warning labels during maintenance.



1.5.3 Warning/Caution Marking

The following warning and caution markings are made on the power supply/sensor board.



* No fuse is mounted here for 200V series

ENGLISH - Heatsink and transformer core present risk of electric shock. Test before touching.

FRENCH - Le dissipateur thermique et le noyau du transformateur présentent des risques de choc électrique. Testez avant de manipuler.

SPANISH - Las disipadores de color el núcel del transformador pueden producir un choque eléctrico. Compruebe antes de tocar.

PORTUGUESE - O dissipador de calor e o núcleo do fransiormador apresentam risco de choque elétrico. Teste antes de focar.

ENGLISH - Circuits maybe live after fuses open.

FRENCH - Il se peut que les circuits soient sous tension une fois que les fusibles ont éfé rerirés.

SPANISH - Las circuitos pueden estar activos una vez que se hayan abierio los fusibles.

PORTUGUESE - Os circuitos podem estar energizados após os fusiveis se queimarem.

Operation Description

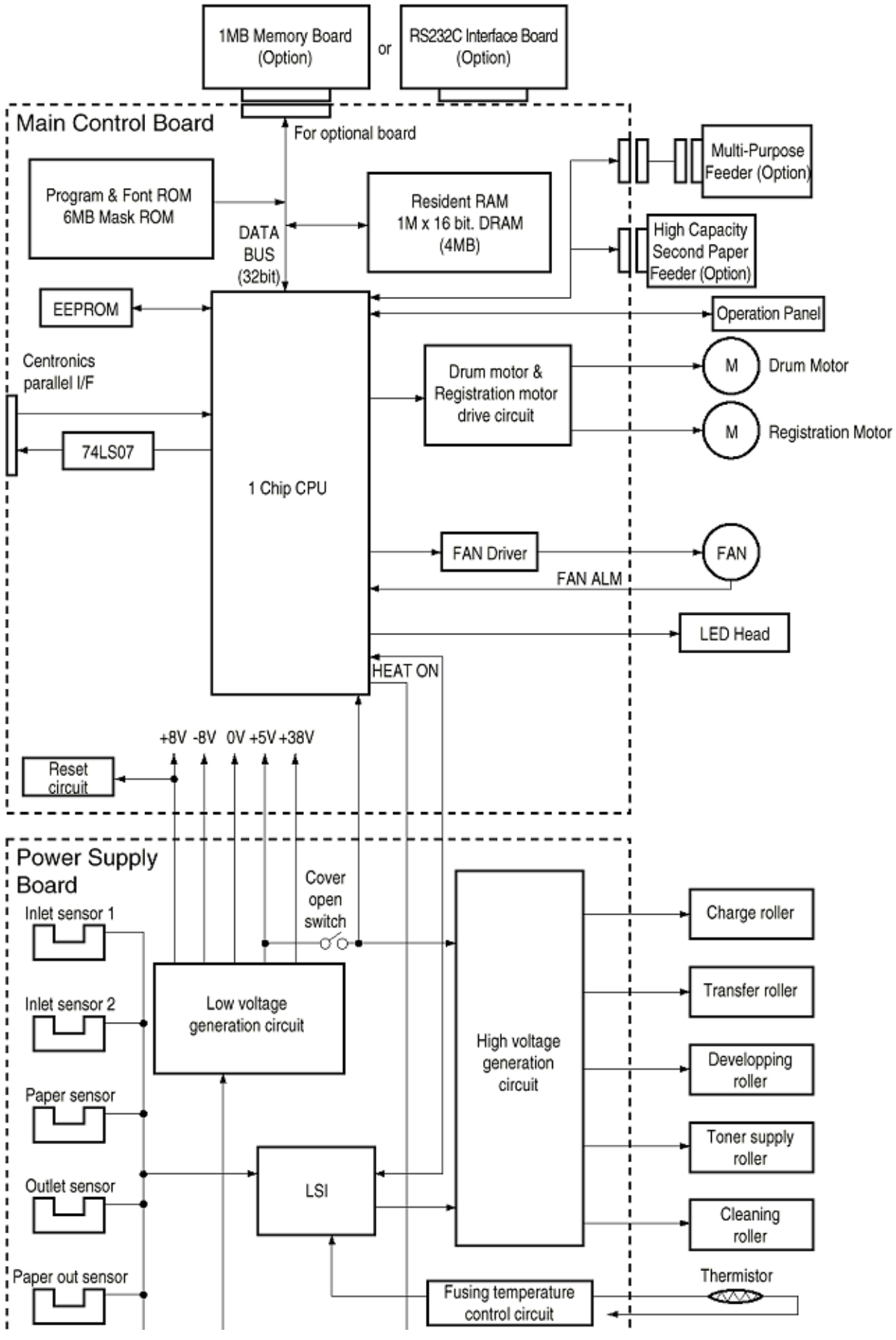
OKIPAGE 10e consists of a main control board, a power supply/sensor board, an operator panel, an electrophotographic process mechanism, and revision for illumination of LED head.

The main control board receives data via the host I/F, it then decodes, edits and stores the data in memory. After completing the editing of a single page of data, it references the font memory and generates bit image data, which is transferred to the LED head in one dot line units.

Through the electrophotographic process mechanism, the data is printed on the paper.

The operator panel is used for operations and status display.

OKIPAGE 10e block diagram is shown in Figure 2-1.


1MB Memory Board (Option)
or
RS232C Interface Board (Option)
Main Control Board
For optional board
Program & Font ROM 6MB Mask ROM
DATA BUS (32bit)
Resident RAM 1M x 16 bit. DRAM (4MB)
Multi-Purpose Feeder (Option)
High Capacity Second Paper Feeder (Option)
EEPROM
Operation Panel
Centronics parallel I/F
Drum motor & Registration motor drive circuit
M
Drum Motor
M
Registration Motor
74LS07
1 Chip CPU
FAN Driver
FAN
FAN ALM
LED Head
HEAT ON
+8V -8V 0V +5V +38V
Reset circuit
Power Supply Board
Cover open switch
Inlet sensor 1
Inlet sensor 2
Low voltage generation circuit
High voltage generation circuit
Charge roller
Transfer roller
Developping roller
Toner supply roller
Cleaning roller
Paper sensor
Outlet sensor
LSI
Paper out sensor
Thermistor
Fusing temperature control circuit

2.1 Main Control Board

The main control board consists of a single chip CPU, two program/font ROMs, four DRAMs, an EEPROM, a host interface circuit, and a mechanism driving circuit.

(1) Single chip CPU
The single chip CPU is a custom CPU (32-bit internal bus, 32-bit external bus, 28.24-MHz clock, with input frequency from a 7.06-MHz clock) which incorporates the RISC CPU and its peripheral devices, and has the following functions:

Built-in Device	Function
Chip select controller Bus controller DRAM controller	Control of ROM, DRAM and I/O device.
DMA controller	Transfer of image data from DRAM to video output port.
Parallel interface controller	Control of Centronics parallel interface.
Serial interface controller	Control of RS-232C serial interface.
Video output port LED STB output port	Controls LED head.
Timer	Generation of various control timing Monitoring of paper running and paper size.
I/O Port	Input and output of sensor and motor signals.

(2) Program and Font ROMs
The Program and Font ROMs store the equipment program and various types of fonts. Mask ROM is used as Program and Font ROMs. The mounting locations of these Program and Font ROMs vary depending on the type of the ROMs.

(3) DRAM
The DRAM is a 4MB resident memory on the main control board that stores edited data, image data, DLL data and macro data.

(4) EEPROM
4Kbit Electrically Erasable PROM (EEPROM), is loaded with the following kinds of data:

- Menu data
- Various counter data (page counter, drum counter)
- Adjusting parameters (LED head drive time, print start position, paper feed length)

(5) Parallel Interface
Parallel data is received from a host system via parallel interface which conforms to the IEEE 1284 specification.

2.2 Power Supply/Sensor Board

The power supply/sensor board consists of an AC filter circuit, a low voltage power supply circuit, a high voltage power supply circuit, heater drive circuit, and photosensors.

(1) Low Voltage Power Supply Circuit
This circuit generates the following voltages.

Output voltage	Application
+5 V	Logic circuit supply voltage.
+38 V	Motor and fan drive voltage and source voltage for high-voltage supply.
+ 8 V	RS-232C line voltage.
- 8 V	RS-232C line voltage and PS board supply voltage.

(2) High Voltage Power Supply Circuit
This circuit generates the following voltages required for electrophotographic process from +5 V, according to the control sequence from the main control board. When cover open state is detected, +5 V supply is interrupted automatically to stop the supply of all high-voltage outputs.

Output	Voltage	Application
CH	-1.3 KV	Voltage to be applied to charge roller.
DB	-265 V/+300 V	Voltage to be applied to a developing roller.
SB	-500 V/ 0 V	Voltage to be applied to a sponge roller.
CB	+400 V/+3.5 KV	Voltage to be applied to a cleaning roller.
TR	+500 V to +3.5 KV/-1100 V	Voltage to be applied to a transfer roller. (Variable)

(3) Photosensor
The photosensor mounted on this power supply/sensor board monitors the status of paper being fed through the printer during printing.

The sensor layout diagram is shown in Figure 2-2 below.

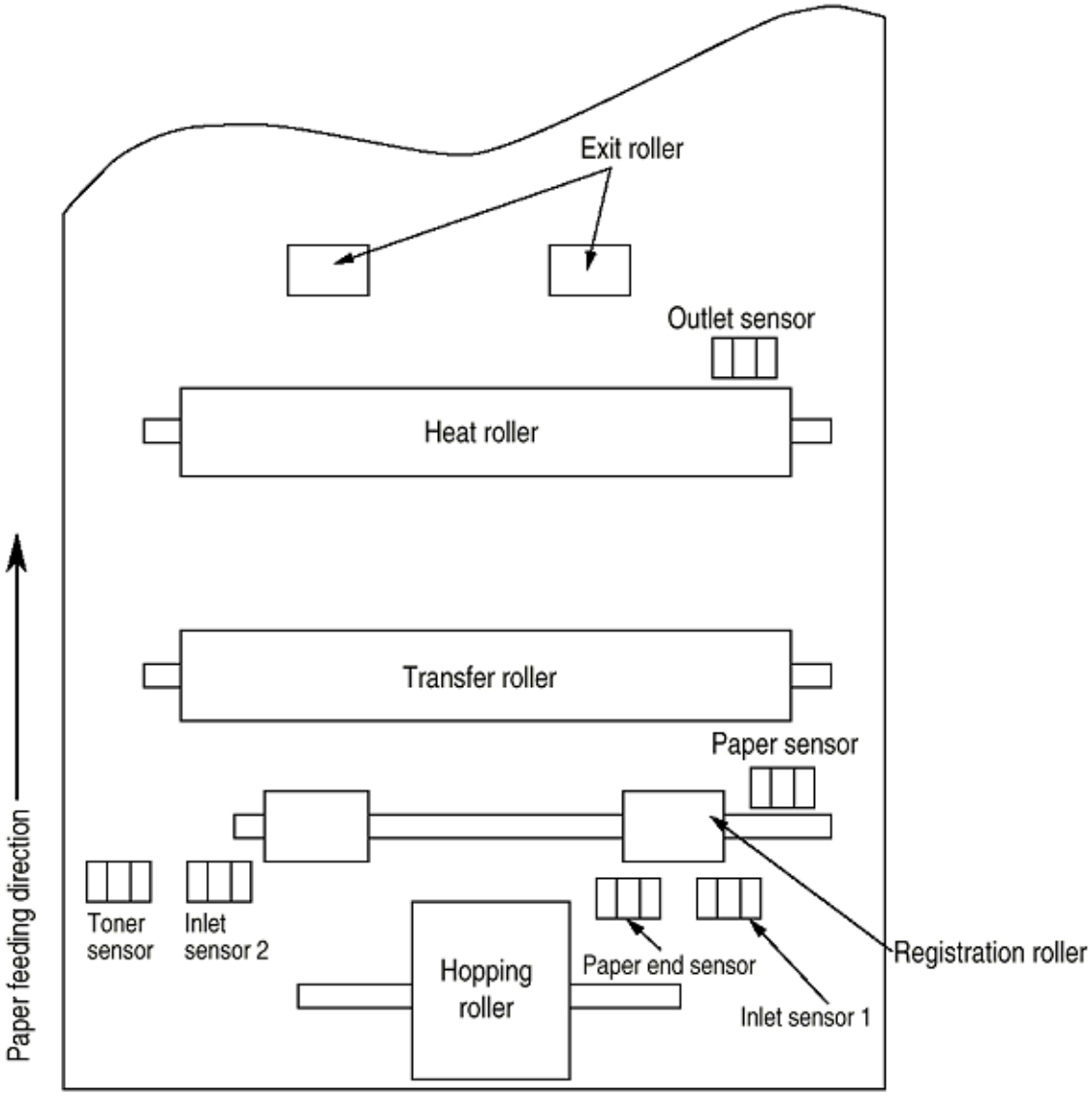


Figure 2-2

Sensor	**Function**	**Sensing State**
Inlet sensor 1	Detects the leading part of the paper and gives the monitor timing for switching from hopping operation to feeding operation. Monitors paper feeding situation and paper size based on the paper arrival time and running time.	ON: Paper exists. OFF: No paper exists.
Inlet sensor 2	Detects the paper width.	ON: A4 or larger. OFF: Smaller than A4.
Paper sensor	Detects the leading portion of the paper. Monitors paper feeding situation.	ON: Paper exists. OFF: No paper exists.
Output sensor	Monitors paper feeding and size according to the time of arrival to and leaving past the sensor.	ON: Paper exists. OFF: No paper exists.

Toner sensor	Detects the lack of toner.	- - - - -

2.3 Electrophotographic Process

2.3.1 Electrophotographic Process Mechanism

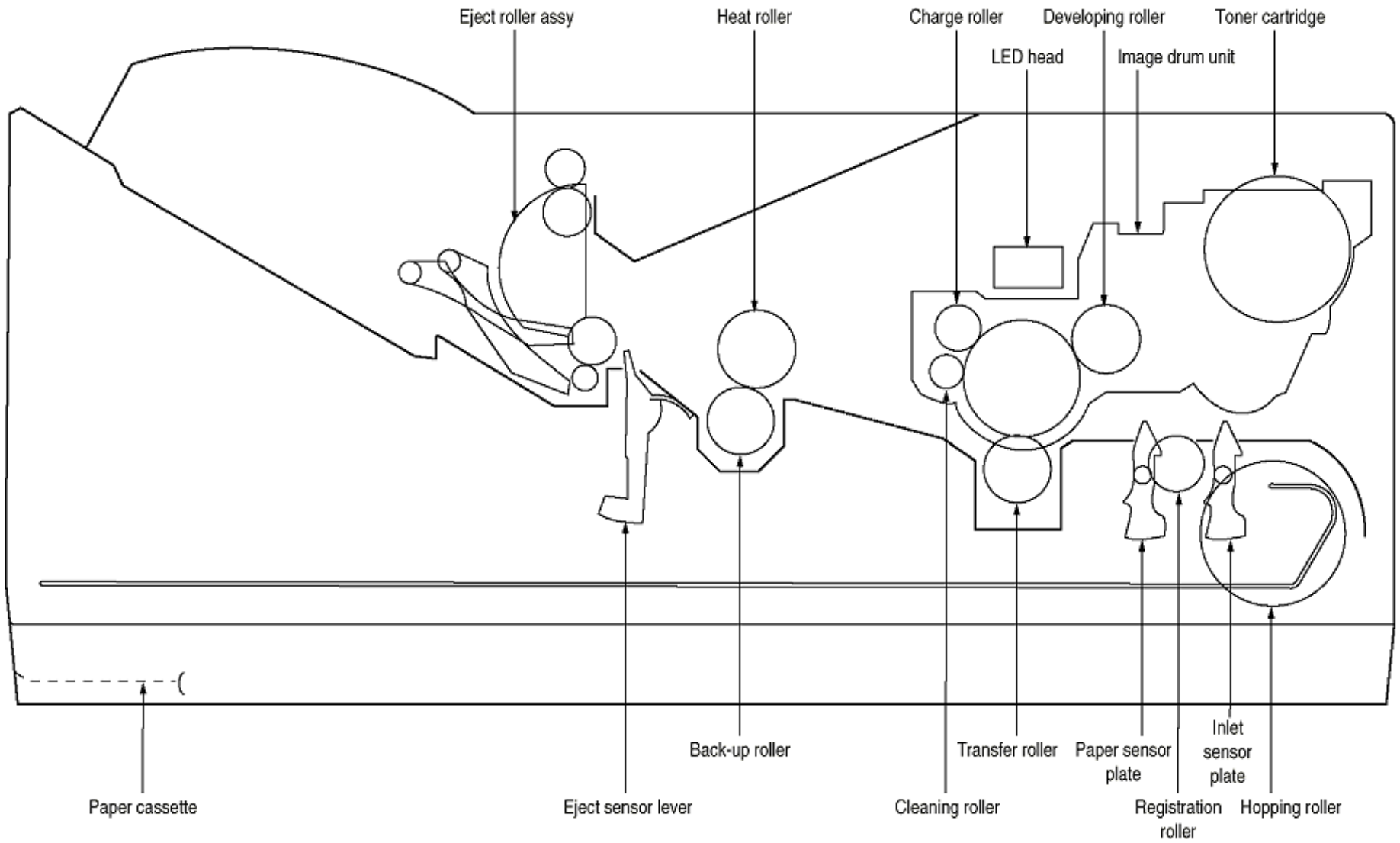
2.3.2 Electrophotographic Process

2.3.3 Process Operation Descriptions

2.3.1 Electrophotographic Process Mechanism

This mechanism actuates the printing of image data supplied by the main control board on the paper by electrophotographic process.

The layout of the electrophotographic process mechanism is shown in Figure 2-3.


Eject roller assy
Heat roller
Charge roller
Developing roller
Toner cartridge
LED head
Image drum unit
Paper cassette
Eject sensor lever
Back-up roller
Cleaning roller
Transfer roller
Paper sensor plate
Registration roller
Inlet sensor plate
Hopping roller

(1) Image Drum Unit
The image drum unit consists of a sensitive drum, a charger, and a developer. The unit forms a toner image on the sensitive drum, using a electrostatic latent image formed by the LED head.

(2) Registration Motor
The registration motor is a pulse motor of 48 steps/rotation with two-phase excitement by the signal from the main control board. It drives the hopping and registration rollers via two one-way clutches according to the direction of rotation.

(3) Main (Drum) Motor
The main or drum motor is a pulse motor of 48 steps/rotation with two-phase excitement by the signal from the main control board and is the main motor of this mechanism.

(4) LED Head
Image data for each dot line from the main control board is received by the shift register and latch register. The 4992 LED's are driven to radiate the image data on the image drum.

(5) Fuser
The fuser consists of a heater, a heat roller, a thermistor and a thermostat.

The AC voltage from the power supply/sensor board is applied to the heater controlled by the HEATON signal from the main control board. This AC voltage heats the heater. The main control board monitors the heat roller temperature via the thermistor, and regulates the heater roller to keep it at a designated temperature in the menu, depending on the thickness of the paper (tray 1&2: light=165°C, medium light=170°C, medium=175°C, medium heavy and heavy=195°C; manual feeding and power envelope feeder: light=175°C, medium light=180°C, medium=185°C, medium heavy=190°C, heavy=195°C, transparency = 160°C) by connecting or disconnecting the AC voltage supply to the heater.

When an abnormal rise of the heater roller temperature takes place, the thermostat of the heater voltage supply circuit becomes active and forcibly cuts the AC voltage supply.

The temperature setting of the fuser can be changed through operator panel setting.

2.3.2 Electrophotographic Process

The electrophotographic processing is outlined below. The electrophotographic printing process is shown in Figure 2-4 (see below).

1 Charging
The surface of the image drum is charged uniformly with a negative charge by applying the negative voltage to the charge roller.

2 Exposure
Light emitted from the LED head irradiates the negatively charged surface of the image drum. The surface potential of the irradiated portion of the image drum surface becomes lower, forming the electrostatic latent image associated with the print image.

3 Developing and toner recovery
When the negatively charged toner is brought into contact with the image drum, it is attracted to the electrostatic latent image by static electricity, making the image visible. At the same time, the residual toner on the image 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 of the paper 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 Temporary cleaning
Residual toner which remains on the image drum without being transferred is evened out by the cleaning roller and is temporarily attracted to the cleaning roller by static electricity.

6 Fusing
The toner image transferred onto the paper is fused to the paper by heat and pressure.

An electrophotographic process timing chart is shown in Figure 2-5 (see last chart below).

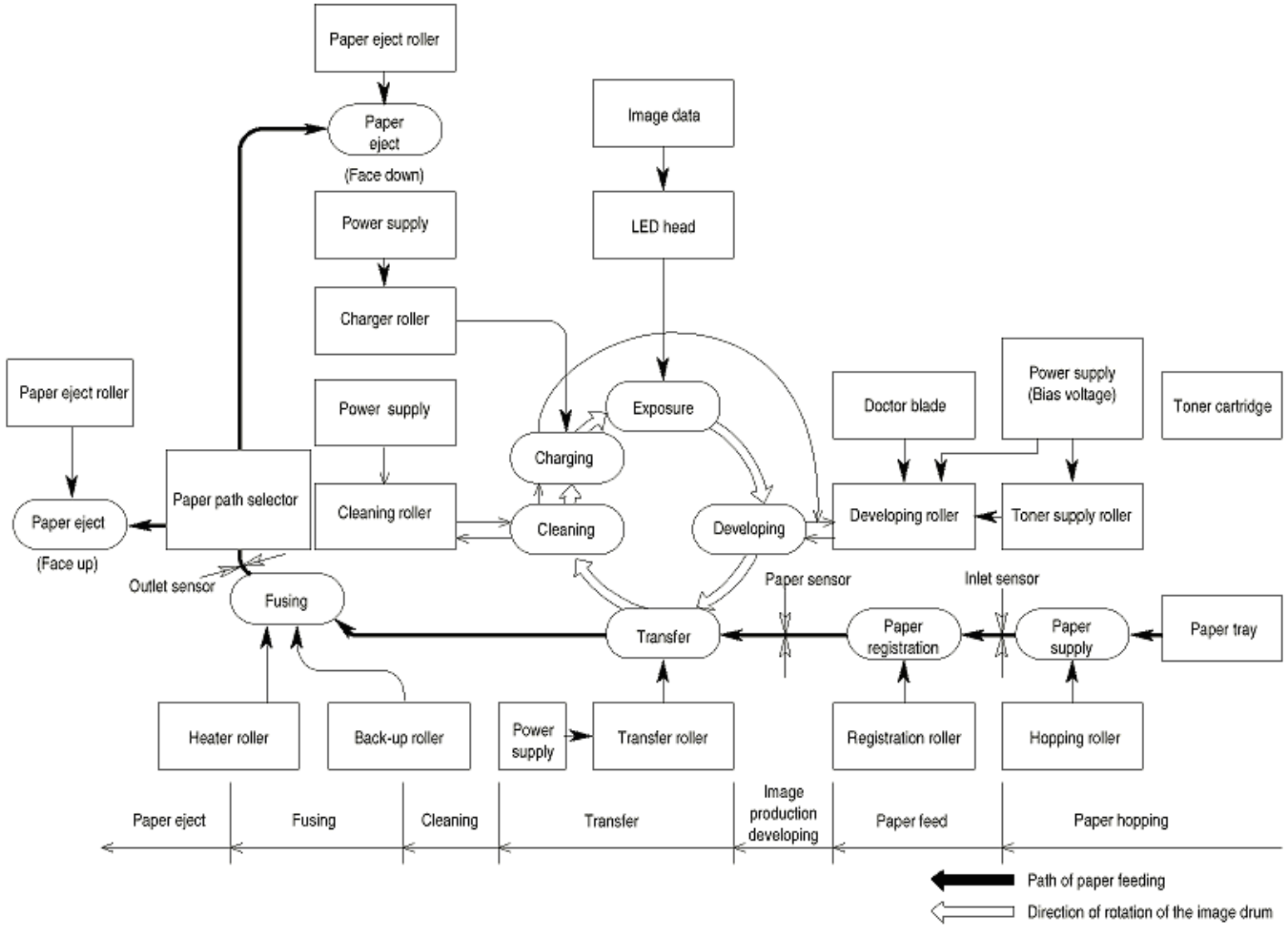

Paper eject roller
Paper eject
(Face down)
Image data
Power supply
LED head
Charger roller
Paper eject roller
Power supply
Exposure
Doctor blade
Power supply (Bias voltage)
Toner cartridge
Charging
Paper path selector
Cleaning roller
Cleaning
Developing
Developing roller
Toner supply roller
Paper eject
(Face up)
Outlet sensor
Fusing
Paper sensor
Inlet sensor
Transfer
Paper registration
Paper supply
Paper tray
Heater roller
Back-up roller
Power supply
Transfer roller
Registration roller
Hopping roller
Paper eject
Fusing
Cleaning
Transfer
Image production developing
Paper feed
Paper hopping
Path of paper feeding
Direction of rotation of the image drum

Figure 2-4

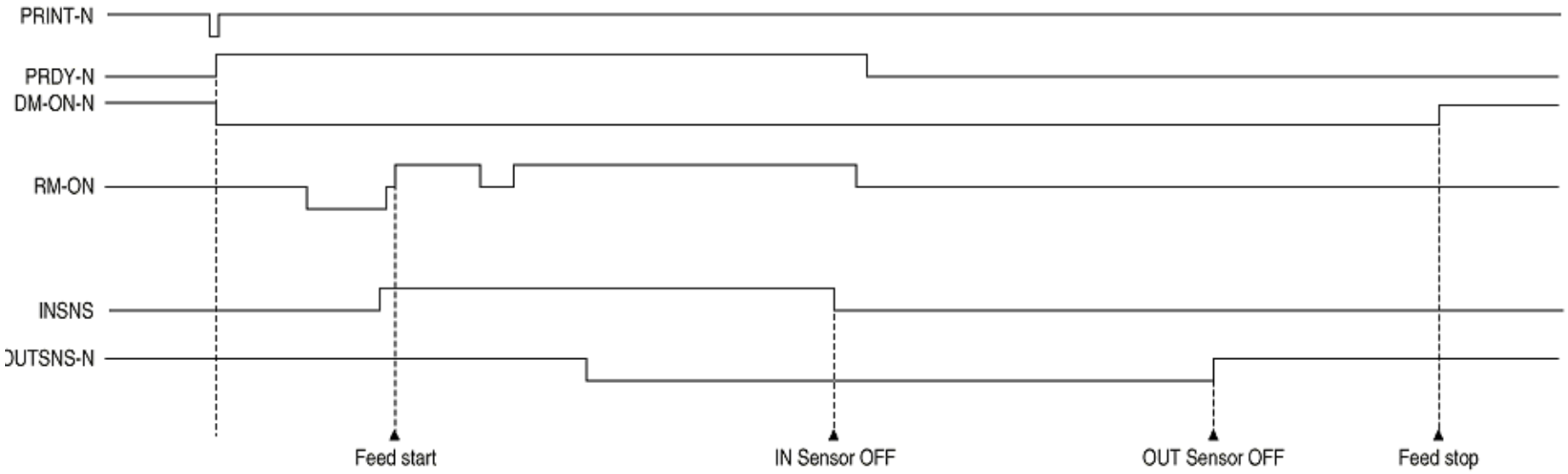
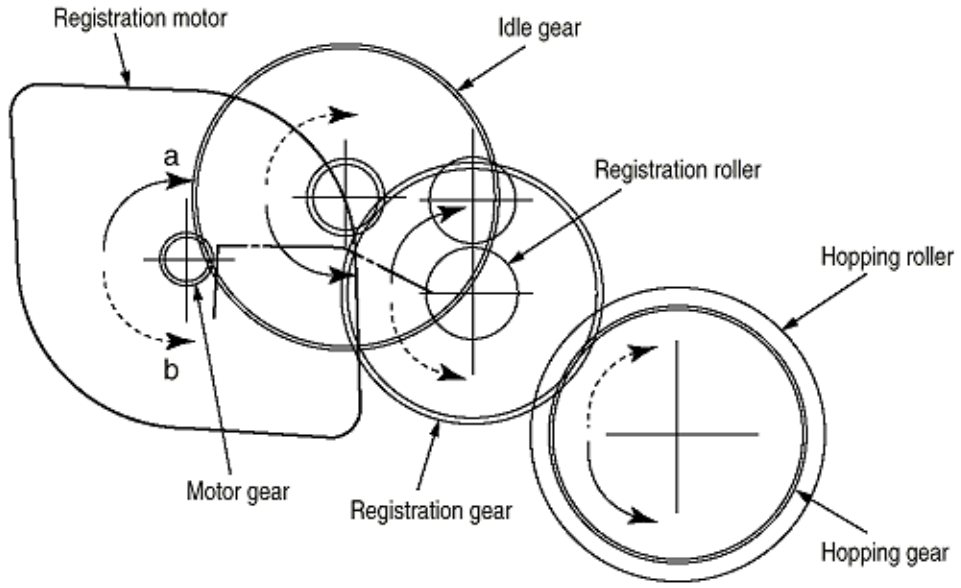

PRINT-N
PRDY-N
DM-ON-N
RM-ON
INSNS
OUTSNS-N
Feed start
IN Sensor OFF
OUT Sensor OFF
Feed stop

Figure 2-5

2.3.3 Process Operation Descriptions

(1) Hopping and Feeding

Hopping and feeding motions are actuated by a single registration motor in the mechanism as shown below:

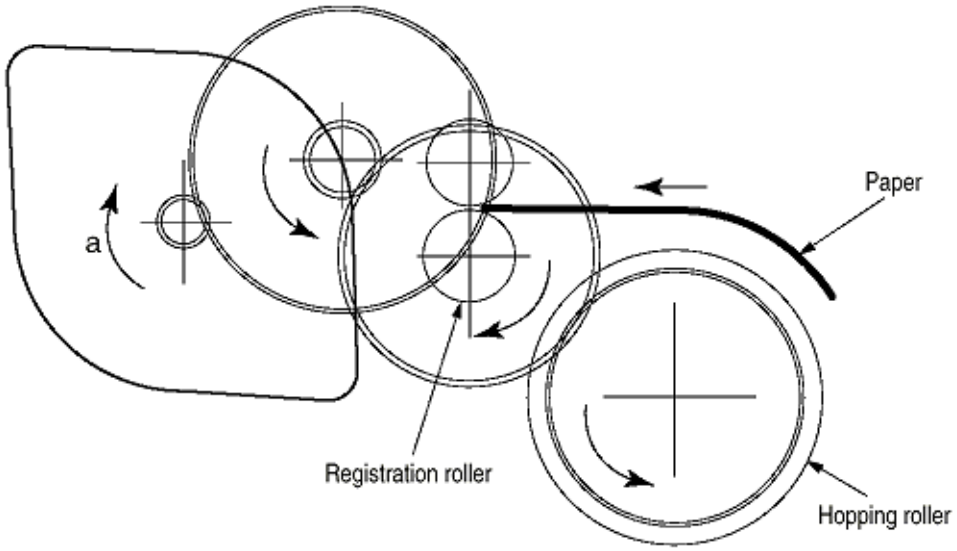


The registration motor turning in direction "a" drives the hopping roller. The registration motor turning in direction "b" drives the registration roller. The registration and hopping gears have one-way bearing, so turning any of these gears in the reverse direction will not transmit the motion to the corresponding roller.

(a) Hopping

1 For hopping, the registration motor turns in direction "a" (clockwise direction) and drives the hopping roller to advance the paper until the inlet sensor turns on (in this case, the registration gear also turns, but the registration roller is prevented from
turning by the one-way bearing).

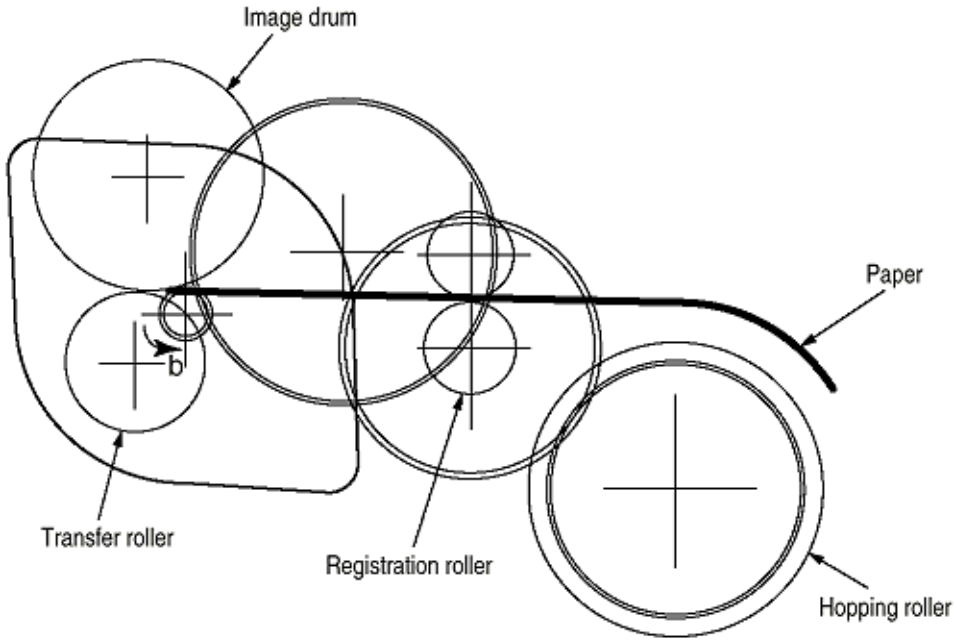
2 After inlet sensor is turned on by the paper advance, the paper is further advanced to a predetermined distance until the paper hits the registration roller (the skew of the paper can thus be corrected).



(b) Feeding

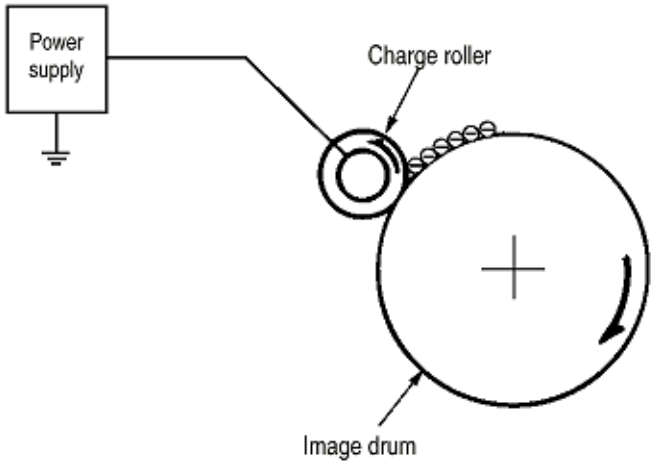
1 When hopping is completed, the registration motor turning in direction "b" (counter-clockwise direction) drives the registration roller to advance the paper (in this case, the hopping gear also turns, but the hopping roller is prevented from turning by the one-way bearing).

2 The paper is further advanced in synchronization with the print data.

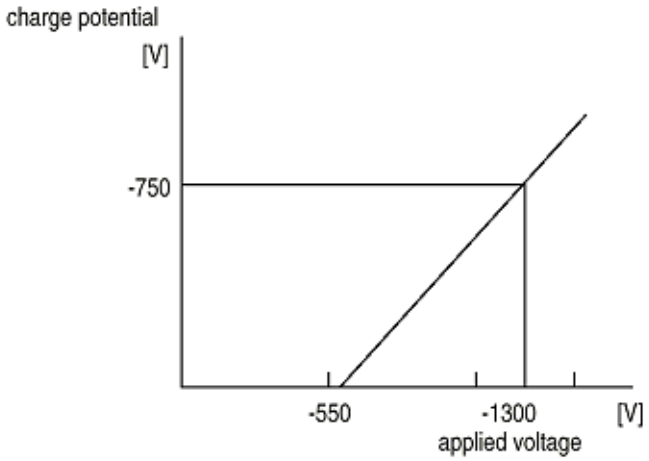


(2) Charging

Charging is actuated by the application of the DC voltage to the charge roller that is in contact with the image drum surface.

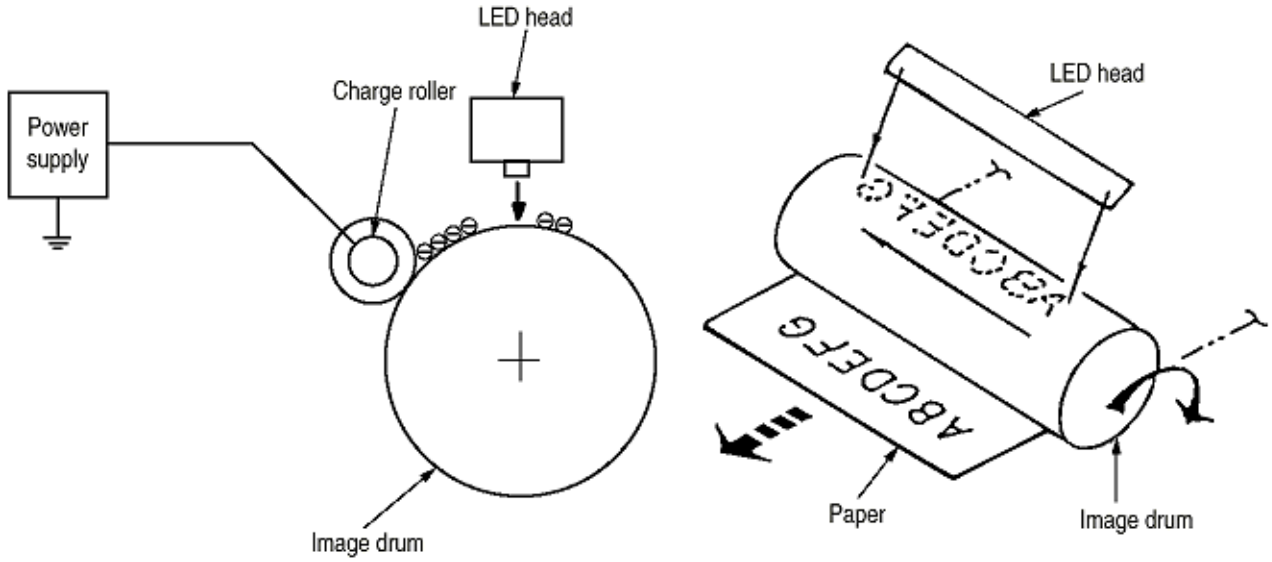


The charge roller is composed of two layers, a conductive layer and a surface protective layer, both having elasticity to secure good contact with the image drum. When the DC voltage applied by the power supply exceeds the threshold value, charging begins. The applied voltage is proportional to the charge potential, with offset of approximately -550V.

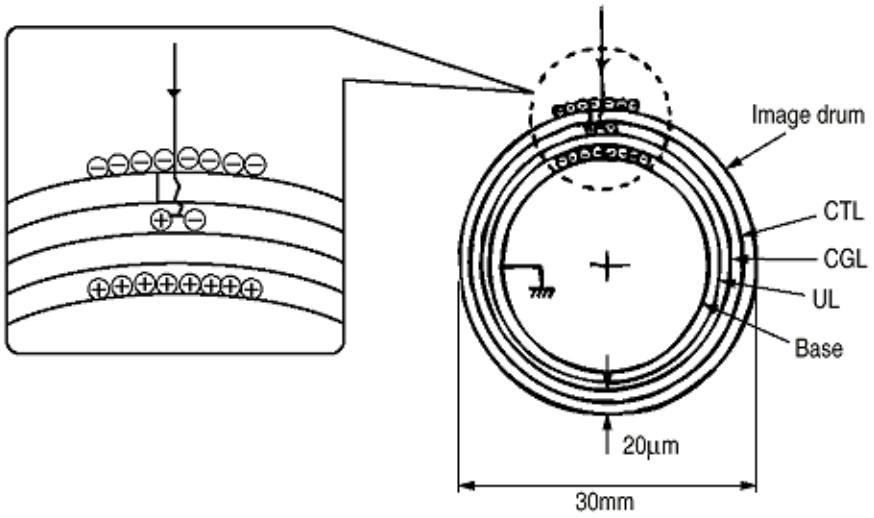


(3) Exposure

Light emitted by the LED head irradiates the image drum surface with a negative charge. The surface potential of the irradiated portion of the image drum drops, forming an electrostatic latent image associated with the image signal.



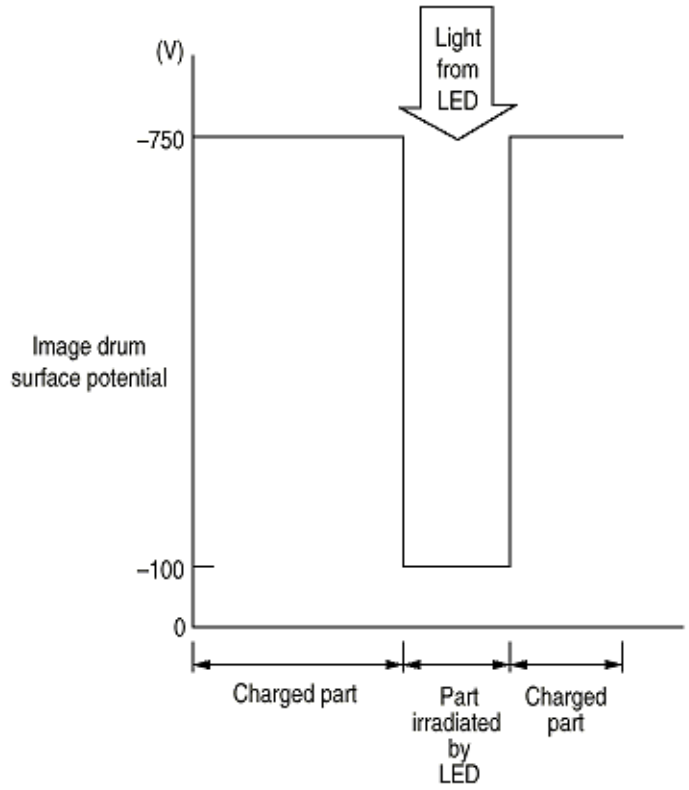
The image drum is coated with an underlayer (UL), a carrier generation layer (CGL), and carrier transfer layer (CTL) on aluminum base. The organic photo conductor layer (OPC), comprising CTL and CGL, is about 20 mm thick.



The image roller surface is charged to about -750 V by the contact charge of the charge roller.

When the light from the LED head irradiates the image drum surface, the light energy generates positive and negative carriers in the CGL. The positive carriers are moved to the CTL by an electrical field acting on the image drum. Likewise, the negative carriers flow into the aluminum layer (ground).

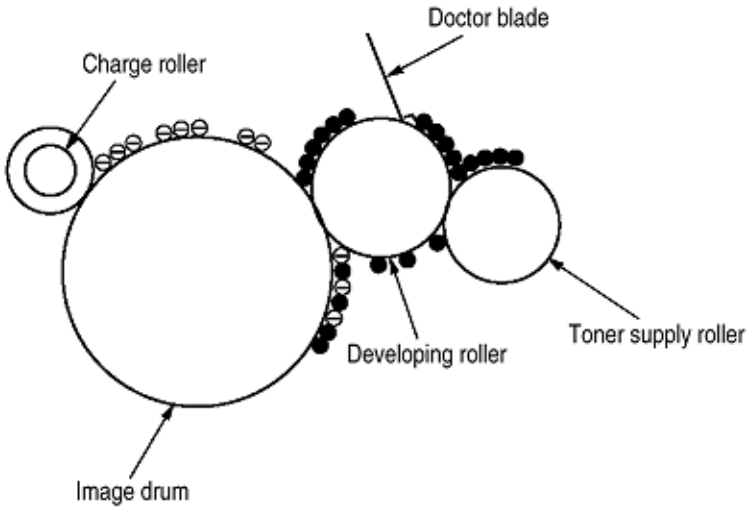
The positive carriers moved to the CTL combine with the negative charges on the image drum surface accumulated by the contact charge of the charge roller, lowering the potential on the image drum surface. The resultant drop in the potential of the irradiated portion of the image drum surface forms an electrostatic latent image on it. The irradiated portion of the image drum surface is kept to about -100 V.



(4) Developing

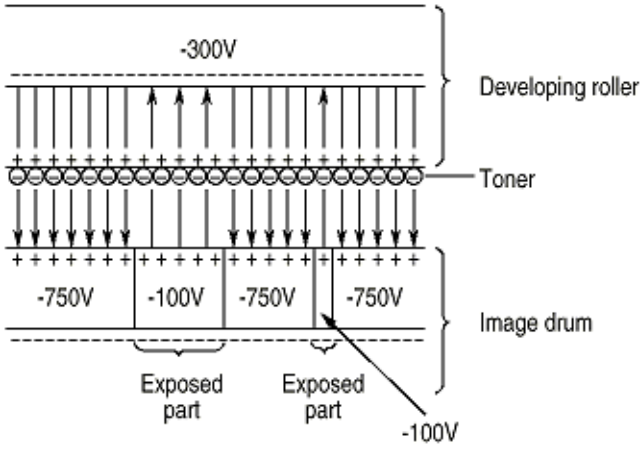
Toner is attracted to the electrostatic latent image on the image drum surface, converting it into a visible toner image. Developing takes place through the contact between the image drum and the developing roller.

1 As the toner supply roller rotates while rubbing on the developing roller, a friction charge is generated between the developing roller and the toner, allowing the toner to be attracted to the developing roller (the developing roller surface is charged positive and the toner, negative).



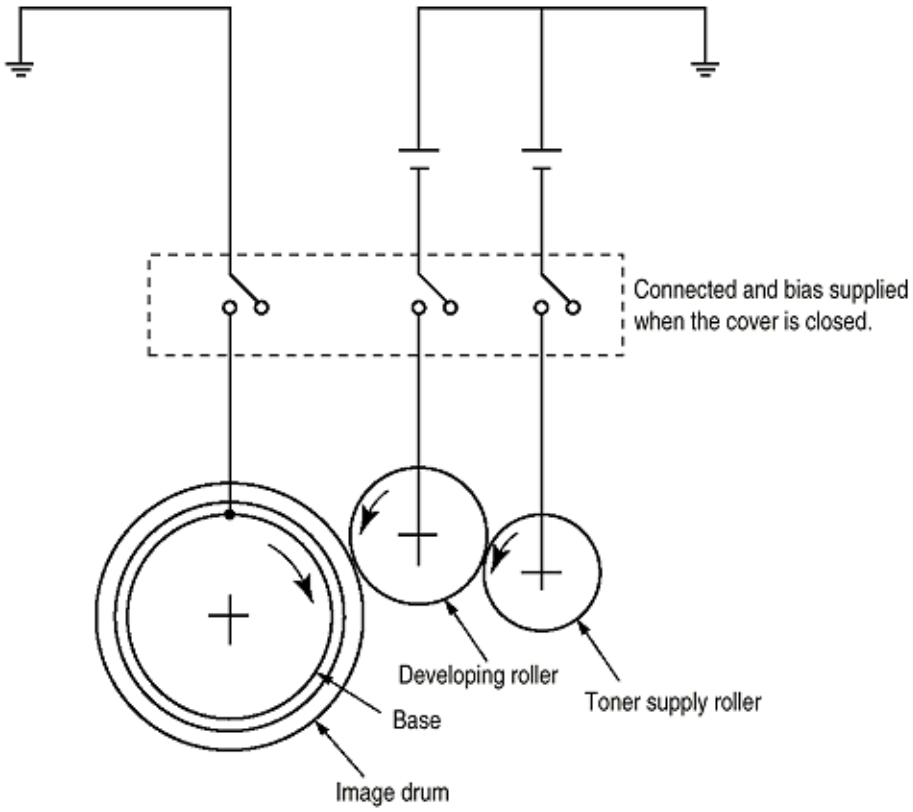
2 The toner attracted to the developing roller is scraped off by the doctor blade, forming a thin coat of toner on the developing roller surface.

3 Toner is attracted to the exposed portion (low-potential part) of the image drum at the contact of the image drum and the developing roller, making the electrostatic latent image visible.



An illustration of activities at the contact point of the image drum surface and the developing roller (arrow marks denote the direction of the electrical field).

Note: The bias voltage required during the developing process is supplied to the toner supply roller and the developing roller, as shown below. -500 VDC is supplied to the toner supply roller, -265 VDC to the developing roller.

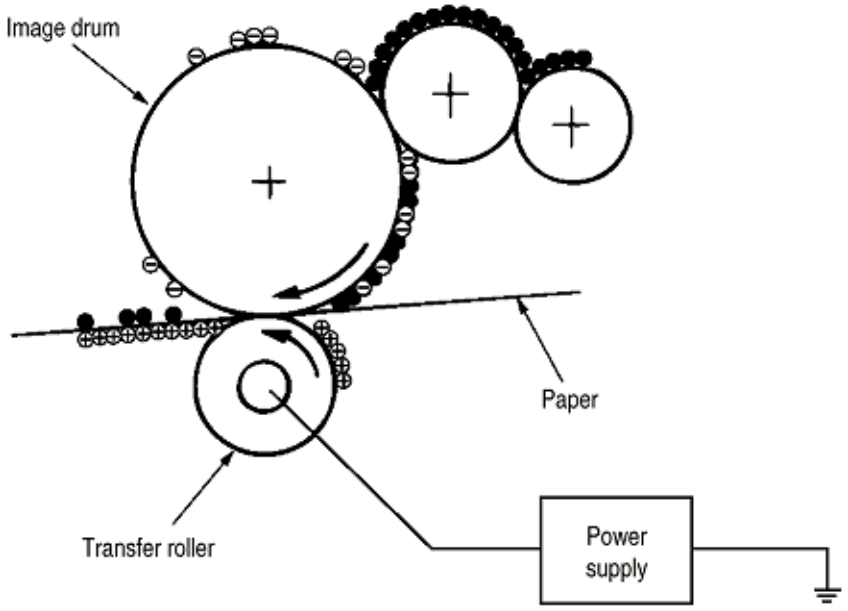


(5) Transfer

The transfer roller is composed of conductive sponge material, and is designed to get the image drum surface and the paper in a close contact.

Paper is placed over the image drum surface, and the positive charge, opposite in polarity to that of the toner, is applied to the paper from the reverse side.

The application of a high positive voltage from the power supply to the transfer roller causes the positive charge inducement on the transfer roller surface, transferring the charge to the paper as it contacts the transfer roller. The toner with negative charge is attracted to the image drum surface, and it is transferred to the upper side of the paper due to the positive charge on the reverse side of the paper.

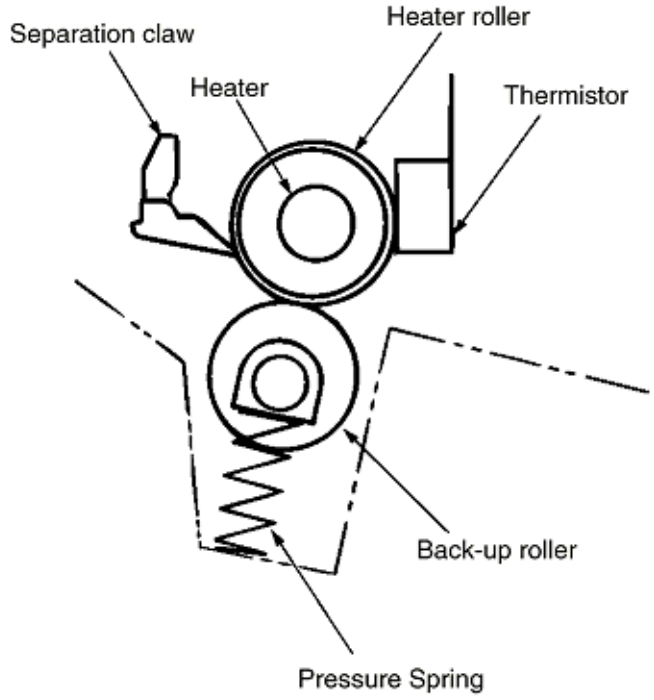


(6) Fusing

When the transfer is completed, the toner image is fused to the paper by heat and pressure as the paper with unfused toner image passes between the heater roller and the back-up roller. The heater roller with Teflon coating incorporates a 400W heater (Halogen lamp), which generates heat.

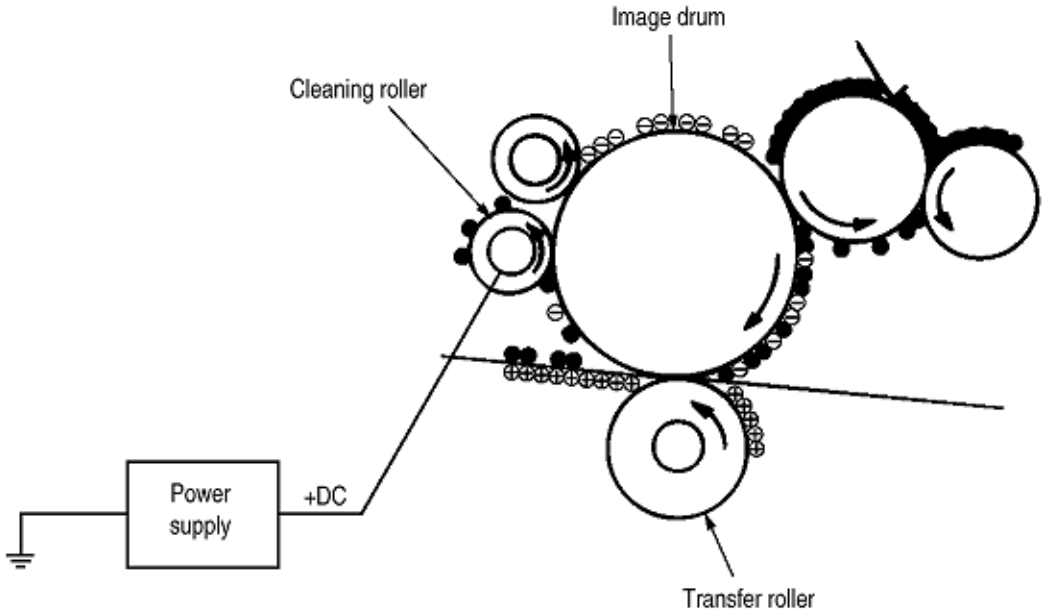
A thermistor which is in contact with the heater roller regulates the temperature of the heater roller to a designated temperature in the menu, depending on the thickness of the paper (tray 1&2: light=165°C, medium light=170°C, medium=175°C, medium heavy and heavy=195°C/manual feeding and power envelope feeder: light=175°C, medium light=180°C, medium=185°C, medium heavy=190°C, heavy=195°C, transparency = 160°C). A safety thermostat cuts voltage supply to the heater off by opening the thermostat in the event of abnormal temperature rises.

The back-up roller is held under a pressure of 3.76 kg applied by the pressure spring on each side.



(7) Cleaning

When the transfer is completed, the residual toner left on the image drum is attracted to the cleaning roller temporarily by static electricity, and the image drum surface is cleaned.



(8) Cleaning of rollers

The charge, transfer and cleaning rollers are cleaned for the following cases:

- Warming up when the power is turned on.

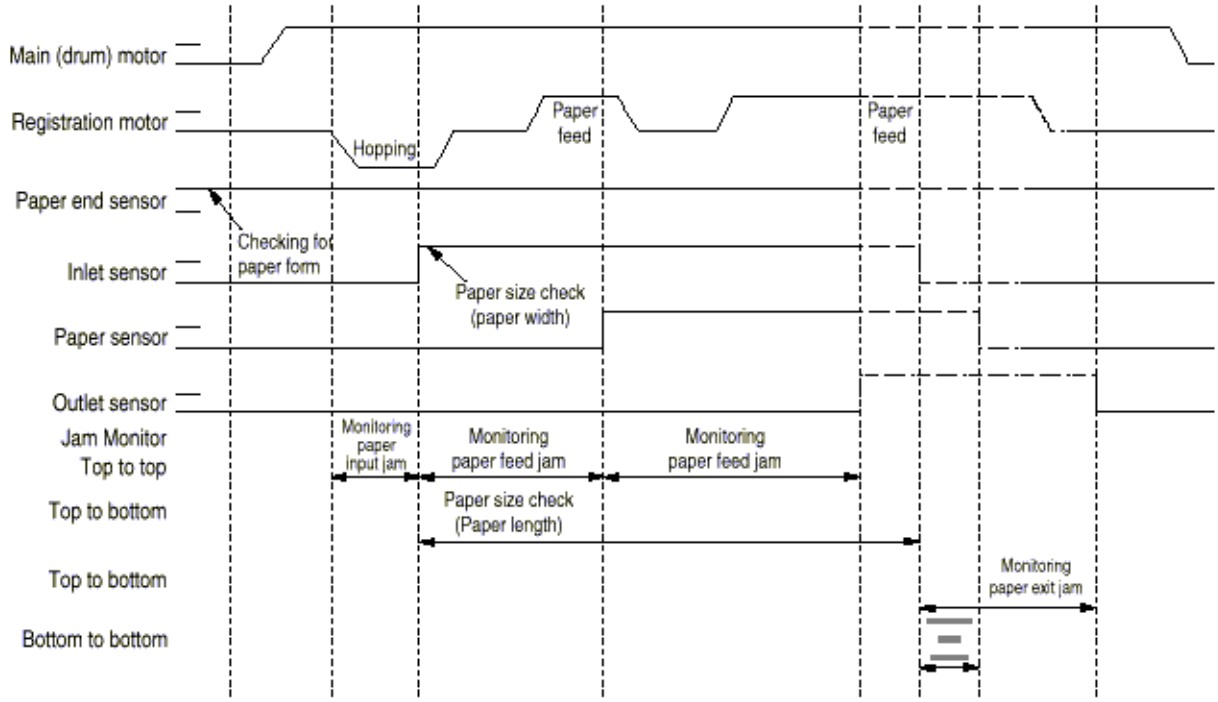
- Warming up after the opening and closing of the cover.
- When the number of sheets accumulated reaches 10 or more, and the printout operation ends.

Changes in bias voltage applied to each roller move the attaching toner off the roller to the image drum and return it to the developer.

2.4 Paper Jam Detection

The paper jam detection function monitors the paper condition when the power is turned on and during printing. When any of the following conditions arises, this function interrupts the printing process. If any of the following errors is encountered, printing can be recovered by removing the jammed paper (by opening the upper cover, removing the jammed paper and closing the upper cover).

Error	Cause of error
Paper input jam	● The paper is in contact with the inlet sensor when the power is turned on. ● After hopping operation is attempted three times, the leading edge of the paper does not reach the inlet sensor.
Paper feed jam	● The paper is in contact with the paper sensor when the power is on. ● The leading edge of the paper does not reach the paper sensor within a predetermined feeding distance since the paper has reached the inlet sensor. ● The leading edge of paper does not reach the outlet sensor within a predetermined feeding distance after the paper has reached the paper sensor.
Paper exit jam	● The paper is in contact with the outlet sensor when the power is turned on. ● The paper does not pass over the outlet sensor within a predetermined feeding distance after the leading edge of the paper has reached the outlet sensor. ● The paper size check for manual feeding finds that the paper size is free size.
Paper size error	● The size of the paper is monitored by the inlet sensor 1. The paper is not detected by the inlet sensor 1 within predetermined feeding distance. ● The inlet sensor 2 detects that the size of the loaded paper is A4 or larger, or smaller than A4. ● The detected paper size differs from the paper size set by command or menu. ● The paper size check for manual feeding finds that the paper size is free size.



Paper Feed Timing Chart

Paper Feed Check List

Type of error	Monitor	Standard Value	Error Plus	Error Minus
Paper feed error	Hopping start to In Sensor on	72.0	36.0	-
Paper feed jam	In sensor on to Write sensor on	20.0	22.0	-
Paper feed jam	Write sensor on to Out sensor on	140.5	25.0	-
Paper size error	In sensor on to Out sensor on	Depends on the paper length	45.0	45.0
Paper exit jam	Out sensor on to Out sensor off	Depends on the paper length	45.0	45.0
Paper feed jam	In sensor off to Write sensor off	22.2	22.0	-

Note: Hyphen "-" in the table represents "not checked".

Paper Length List

Type	Paper length	Check range Min.	Check range Max.
A4	297.0	252.0	342.0
A5	210.0	165.0	255.0
B5	257.0	212.0	302.0
LETTER	279.4	234.4	324.4
LEGAL 13	330.2	285.2	375.2
LEGAL 14	355.6	310.6	400.6
EXEC	266.7	221.7	311.7
A6	148.0	103.0	193.0
Monarch	190.5	145.5	235.5
COM-9	225.4	180.4	270.4
COM-10	241.3	196.3	286.3
DL	220.0	175.0	265.0
C5	229.0	184.0	274.0
Free	110.1-355.6	65.0	400.6

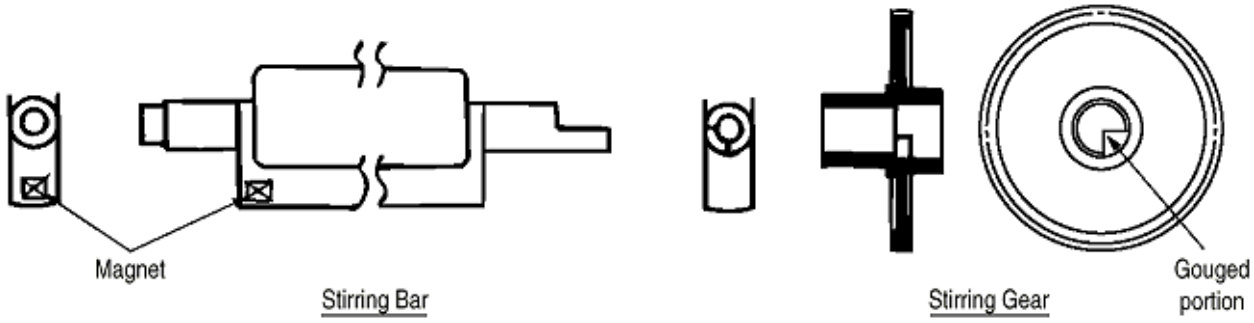
Unit: mm

2.5 Cover Open

When the stacker cover is opened, the cover open microswitch on the power supply/sensor board is turned off to cut +5V supply to the high voltage power supply circuit. This results in the interruption of all high-voltage outputs. At the same time, the CVOPN signal is sent to the main control board to notify that the microswitch is off, and the main control board carries out the cover open process.

2.6 Toner Low Detection

- **Device**
  The Toner Low Detection device consists of a stirring gear which rotates at a constant rate, a stirring bar and a magnet on the stirring bar. The stirring bar rotation is driven by the link to the protrusion in the stirring gear.

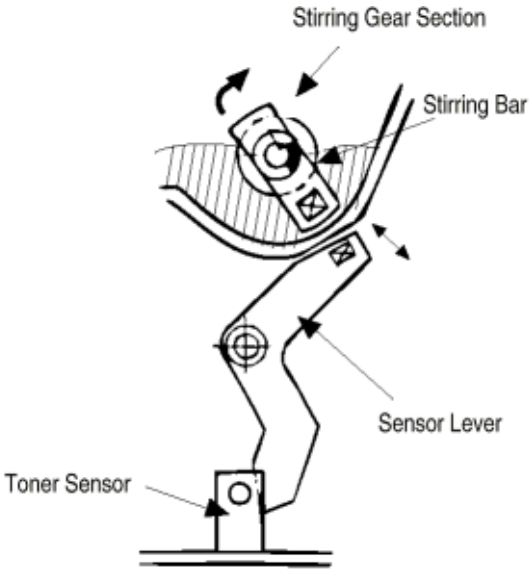


- **Operation**

Toner Low is detected by monitoring the time interval of the encounter of the magnet set on the sensor lever and the magnet on the stirring bar.

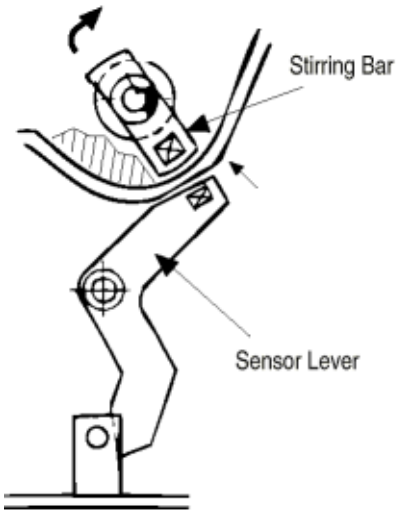
Operation during toner full state

- The stirring bar rotates due to the interlocking with the stirring gear.
- Even when the magnet on the stirring bar reaches the maximum height, since the other side is being dipped in the toner, the stirring bar is pushed by the stirring gear.

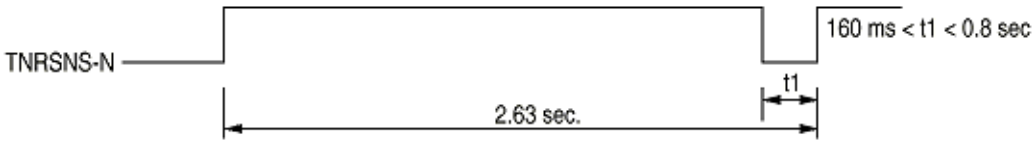


Operating during toner low state

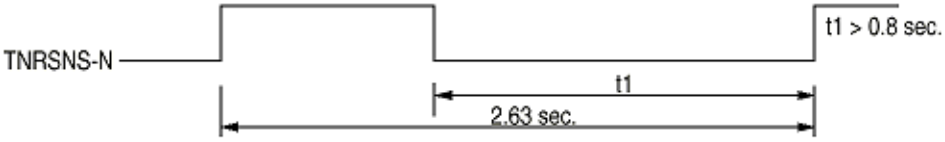
- When the stirring bar reaches the maximum height, since there is no resistance provided by the toner on the other side, it falls to the minimum height due to its own weight. Because of this, the time interval during which it is in encounter with the magnet of the sensor lever becomes long. By monitoring this time interval, toner low can be detected.



TONER FULL state



TONER LOW state



- When the toner low state is detected 2 times consecutively, Toner Low is established.
- When the toner full state is detected 2 times consecutively, Toner Low is canceled.
- When there is no change with the toner sensor for 2 cycles (2.63 sec. x 2) or more, then the Toner Sensor Alarm is activated.
- The toner sensor is not monitored while the drum motor is in halt.

3.1 Precautions for Parts Replacement

The section explains the procedures for replacement of parts, assemblies, and units in the field. Only the disassembly procedures are explained here. For reassembly, reverse the steps of disassembly procedure.

(1) Before starting the parts replacement, remove the AC power cord and interface cable.

(a) Remove the AC power cord in the following sequence:

i) Turn off ("o") the power switch of the printer.

ii) Disconnect the AC inlet plug of the AC power cord from the AC receptacle.

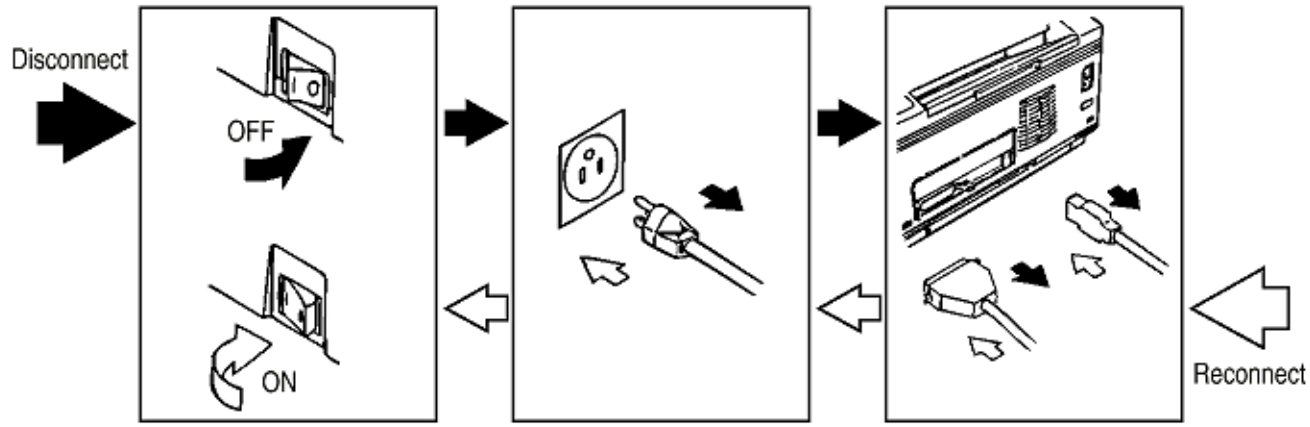
iii) Disconnect the AC power cord and interface cable from the printer.

(b) Reconnect the printer in the following sequence.

i) Connect the AC power cord and interface cable to the printer.

ii) Connect the AC inlet plug to the AC receptacle.

iii) Turn on ("I") the power switch of the printer.



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

(3) Do not remove parts which do not need to be touched; try to keep the disassembly to a minimum.

(4) Use specified service tools.

(5) When disassembling, follow the procedure in sequence laid out in this manual. Parts may be damaged if these sequences are not followed.

(6) Since screws, collars and other small parts are likely to be lost, they should temporarily be attached to the original positions during disassembly.

(7) When handling IC's such as microprocessors, ROM's and RAM's, or circuit boards, do not wear gloves that are likely to generate static electricity.

(8) Do not place printed circuit boards directly on the equipment or floor.

[Service Tools]

The tools required for field replacement of printed circuit boards and units are listed in Table 3-1.

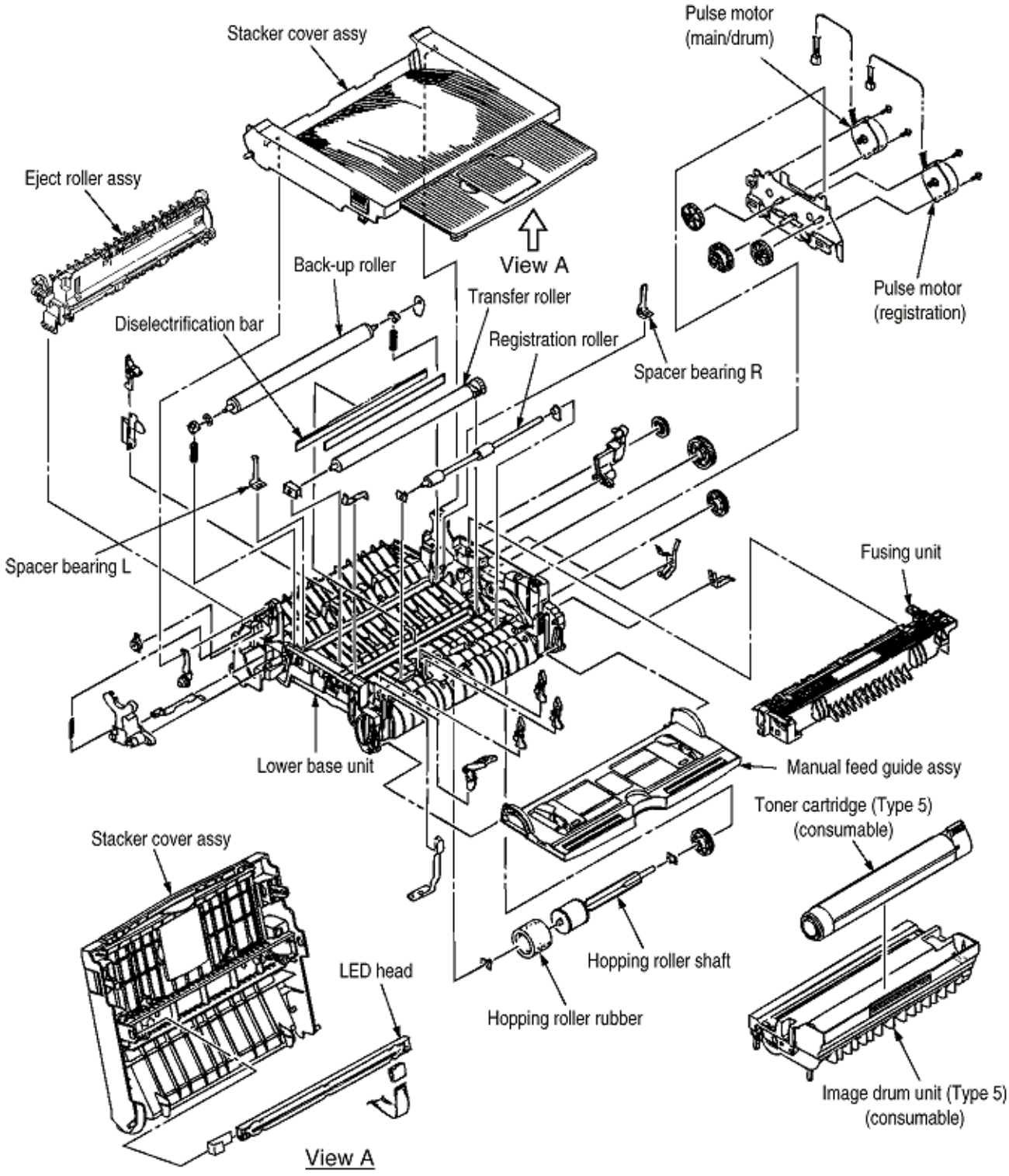
Table 3-1 Service Tools

No.	Service Tools		Q' ty	Application	Remarks
1		No. 1-100 Philips screwdriver	1	2~2.5 mm screws	
2		No. 2-100 Philips screwdriver	1	3~5 mm screws	
3		No. 3-100 screwdriver	1		
4		No. 5-200 screwdriver	1		
5		Digital multimeter	1		
6		Pliers	1		
7		Handy cleaner	1		
8		LED Head cleaner	1	Cleans LED head	

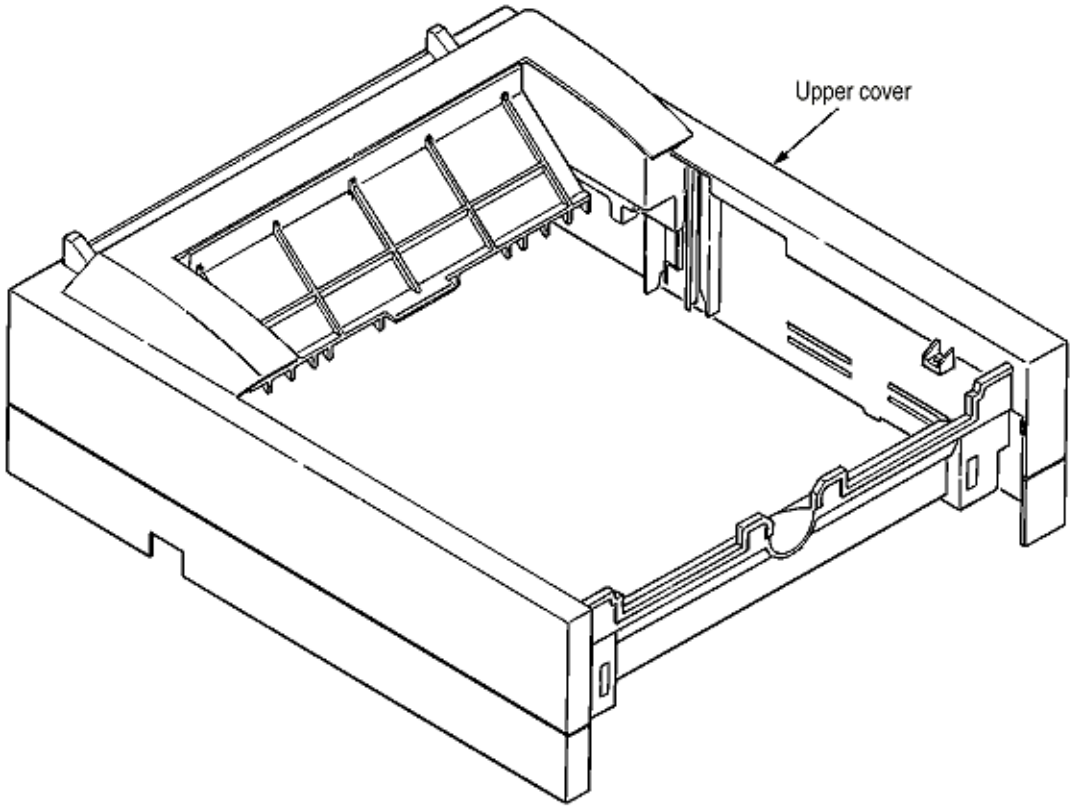
3.2 Parts Layout - [Lower base unit]

This section describes the layout of main parts of the equipment.

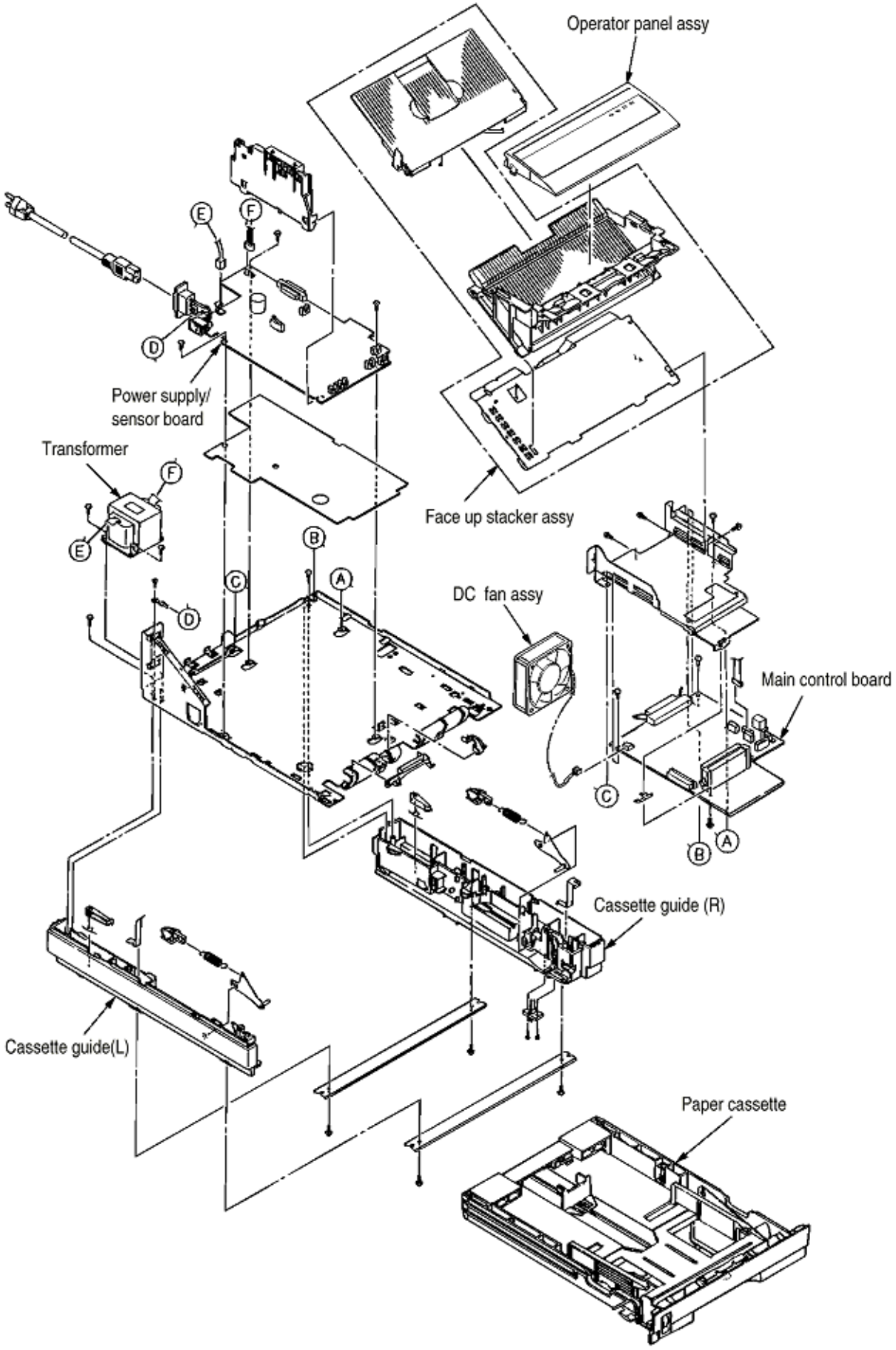
[Lower base unit]



[Upper cover unit]



[Base unit]


Operator panel assy
Power supply/
sensor board
Transformer
Face up stacker assy
DC fan assy
Main control board
Cassette guide (R)
Cassette guide(L)
Paper cassette
A
B
C
D
E
F

3.3 How to Change Parts

This section explains how to change parts and assemblies listed in the disassembly diagram below.

3.3.1 Upper cover

3.3.2 IC Card Cover

3.3.3 LED head

3.3.4 Operator Panel Assy

3.3.5 Lower Base Unit

3.3.6 Pulse Motor (Main/Drum)

3.3.7 Pulse Motor (Registration)

3.3.8 Face Up Stacker Assy

3.3.9 Eject Roller Assy

3.3.10 Motor Assy

3.3.11 Hopping Roller Shaft Assy

3.3.12 Stacker Cover Assy

3.3.13 Registration Roller

3.3.14 Back-up roller

3.3.15 Sensor plate (inlet)

3.3.16 Toner sensor

3.3.17 Sensor plate (outlet)

3.3.18 Manual feed guide assy

3.3.19 Sensor plate (Paper supply)

3.3.20 Main control PCB

3.3.21 Power supply board and contact assy

3.3.22 Transformer

3.3.23 Power supply/sensor board and contact assy

3.3.24 Cassette guide (L)

3.3.25 Cassette guide (R)

3.3.1 Upper Cover Assy

(1) With the power switch turned off, unplug the AC power cord from the outlet.

(2) Disconnect the interface cable (1).

(3) Press the knobs (2) on left and right sides and open the stacker cover assy (3).

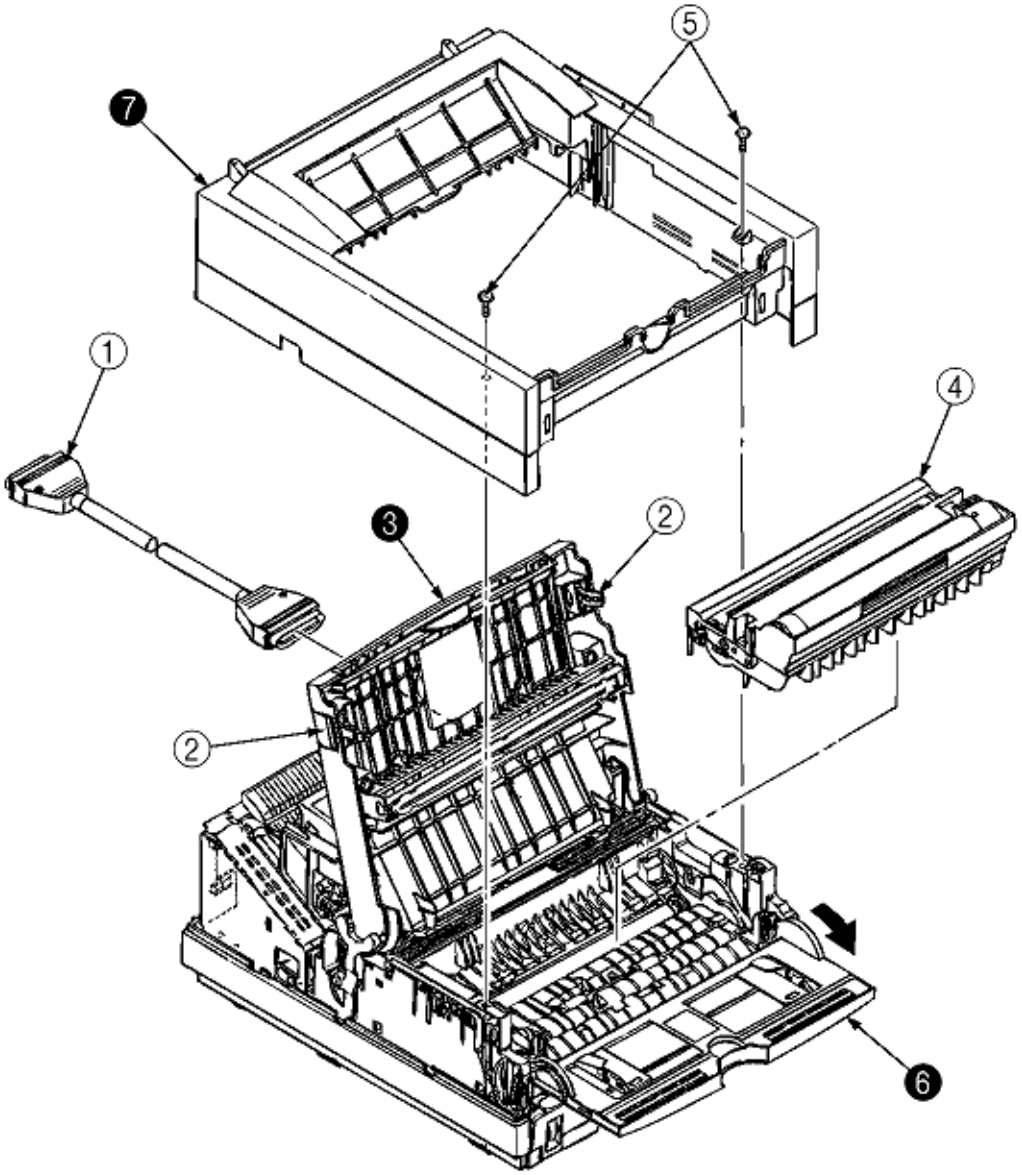
(4) Take out the image drum unit (4).

(5) Remove two screws (5), and open the manual feed guide assy (6). Lift the front side of the upper cover (7) up and unlock the latches at two locations on the back side. Lift and remove the upper cover assy (7).

Notes:

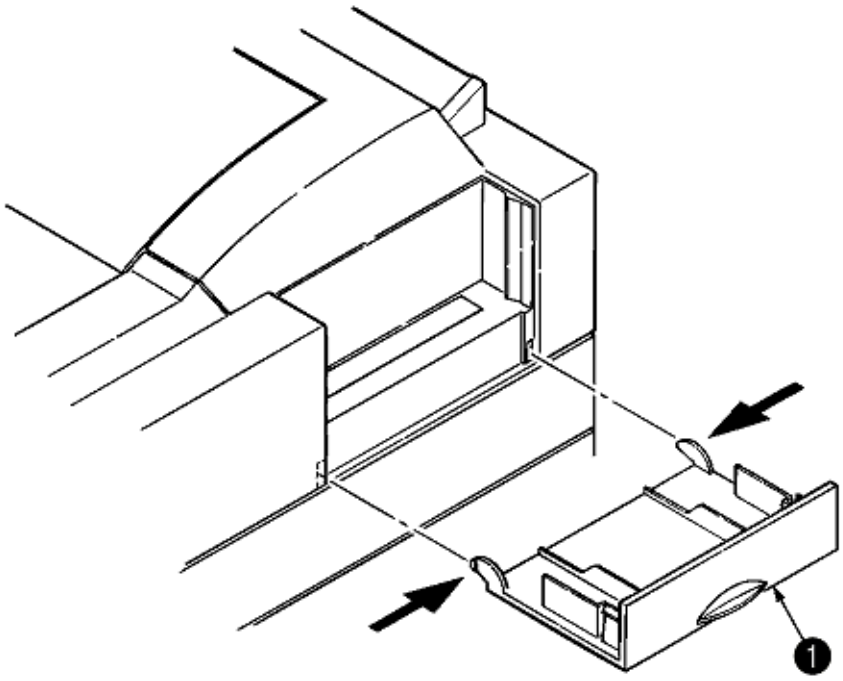
1. When removing or reinstalling the upper cover, be careful not to get the motor cables tangled or caught.

2. When reinstalling the screws (5), be sure to direct the screws into preexisting threads.



3.3.2 IC Card Cover

(1) Open the IC card cover (1), press it from both sides at the hinges in the directions of arrows shown below and remove it.



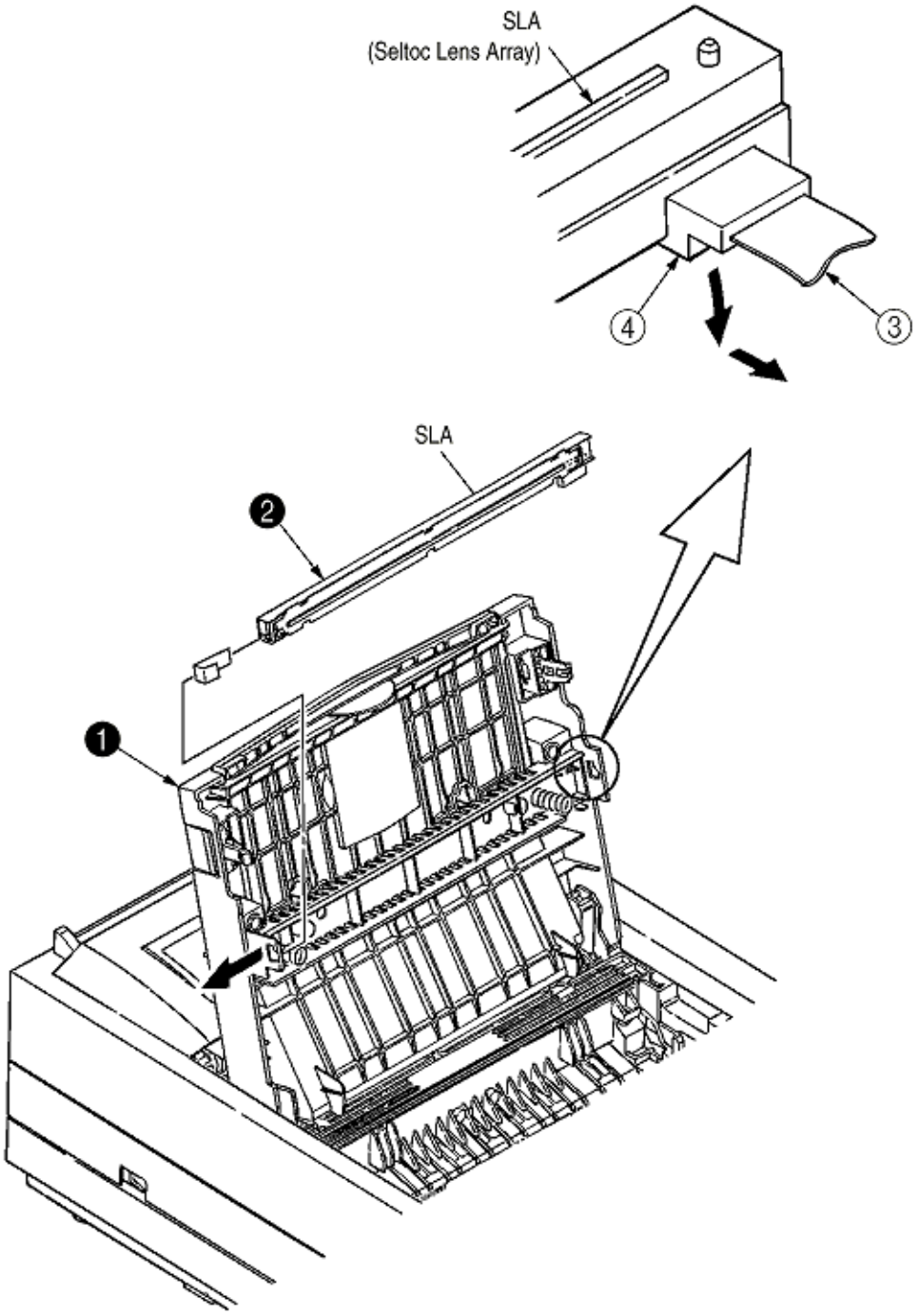
3.3.3 LED Head

(1) Press the knobs on left and right sides and open the stacker cover assy (1).

(2) Open the hook section on the left side of the stacker cover and remove the LED head (2).

Note:

- Be sure not to touch directly or push on the SLA part of the LED head.
- Do not remove the LED cable (3) from the connector.
- Remove connector (4) and cable (3) together as an assembly from the LED head.
- After mounting the new LED head and reinstalling the cable, set drive time of the LED head according to the marking on the LED head (see 4.2.1).

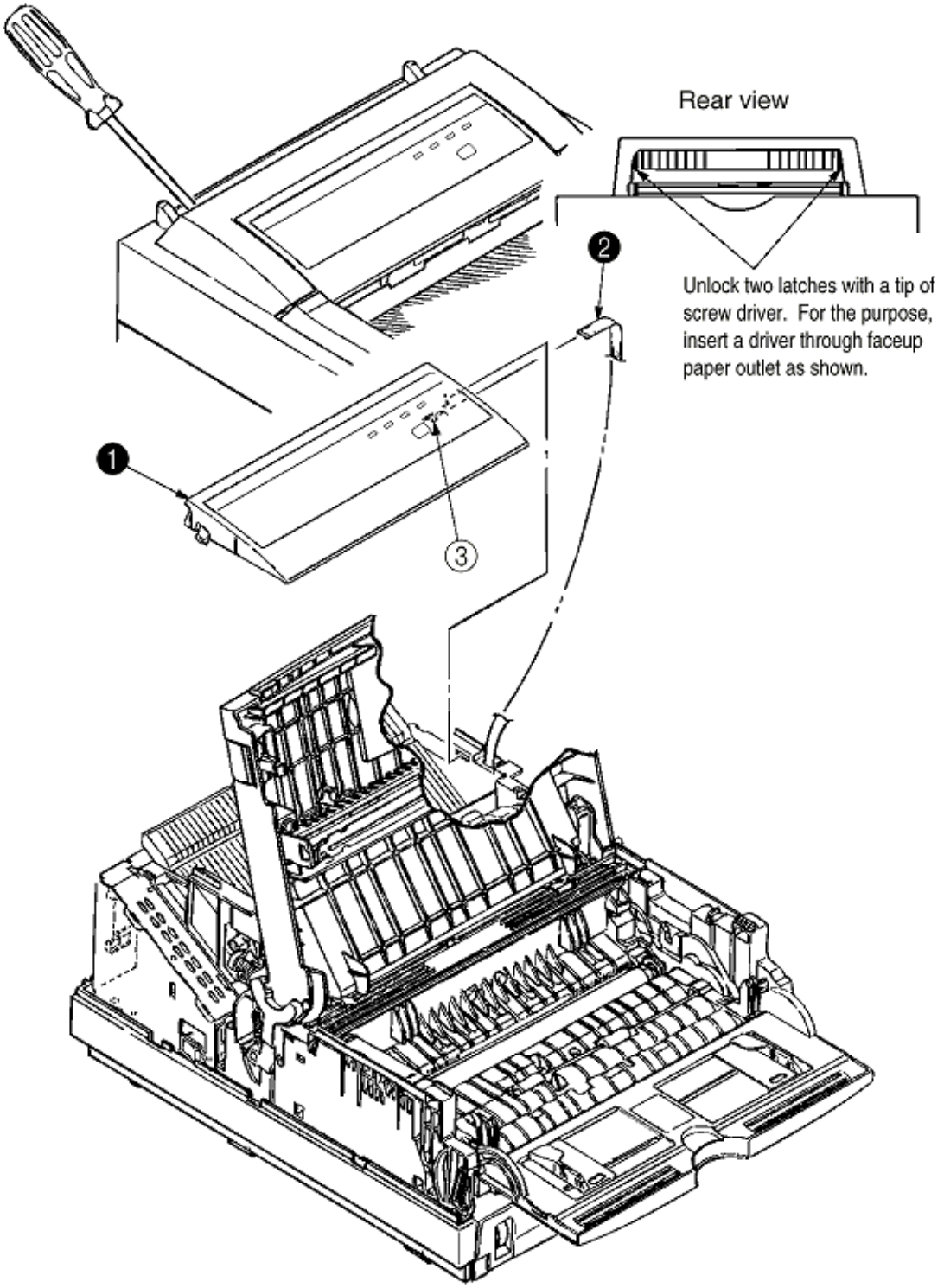


3.3.4 Operator Panel Assy

(1) Unlock two latches on the upper cover from the rear side, lift the operator panel assy (1) from the back and remove it.

(2) Remove the Sumi card (operator panel) (2) from the connector (CN1) (3).

Note: You can remove the operator panel assy while the upper cover installed on the unit. However, it is much easier to remove the panel assy after removal of upper cover.



3.3.5 Lower Base Unit

(1) Remove the upper cover (see 3.3.1).

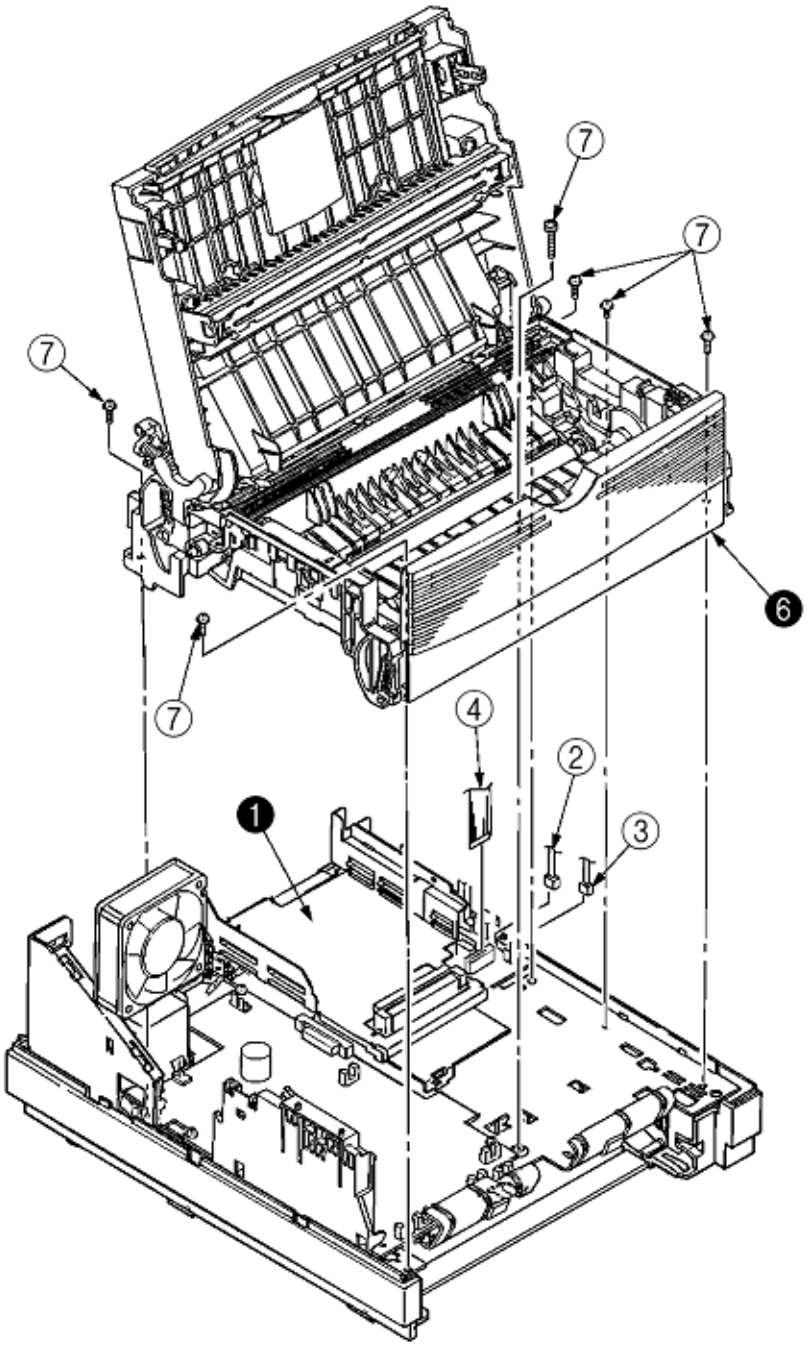
(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8)

(4) Remove the connecting cables (2) and (3) of the pulse motors from the connectors (DM, RM) of the M5G-PCB (1).

(5) Remove the LED head cables (4) from the connectors (HEAD1).

(6) Open the manual feed guide assy, remove six screws (7), then remove the lower base unit (6).

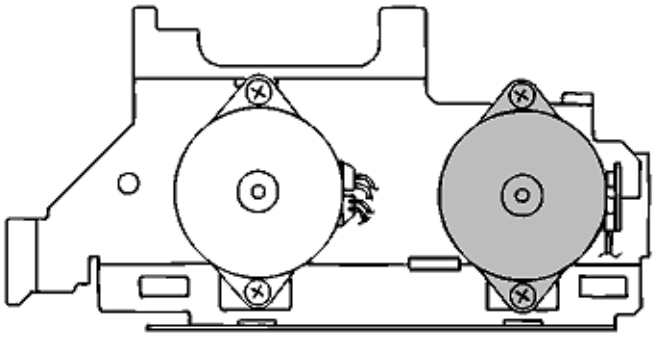


3.3.6 Pulse Motor Main/Drum

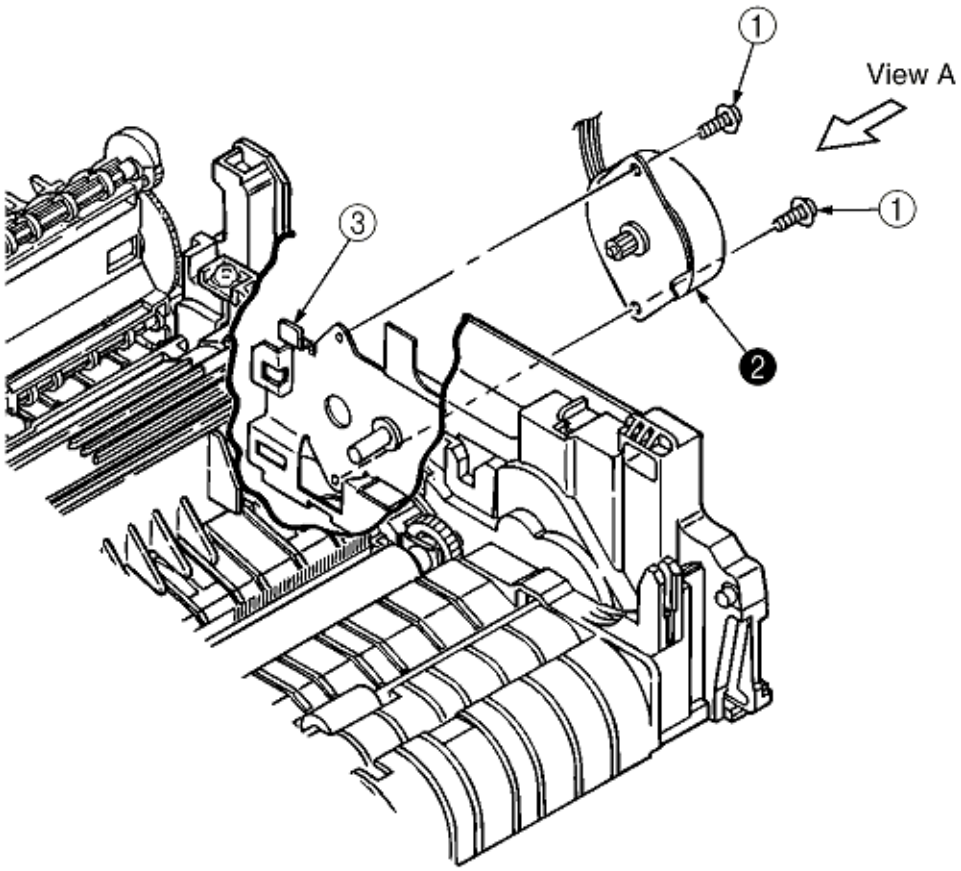
(1) Remove the upper cover (see 3.3.1).

(2) Remove the lower base unit (see 3.3.5).

(3) Remove two screws (1) and remove the pulse motor (main drum) (2) from the motor bracket (3).



View A

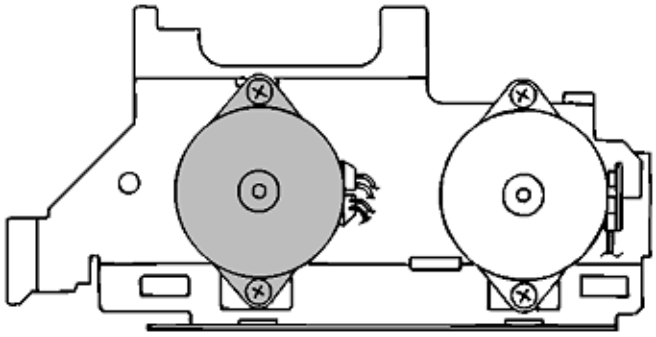


3.3.7 Pulse Motor (Registration)

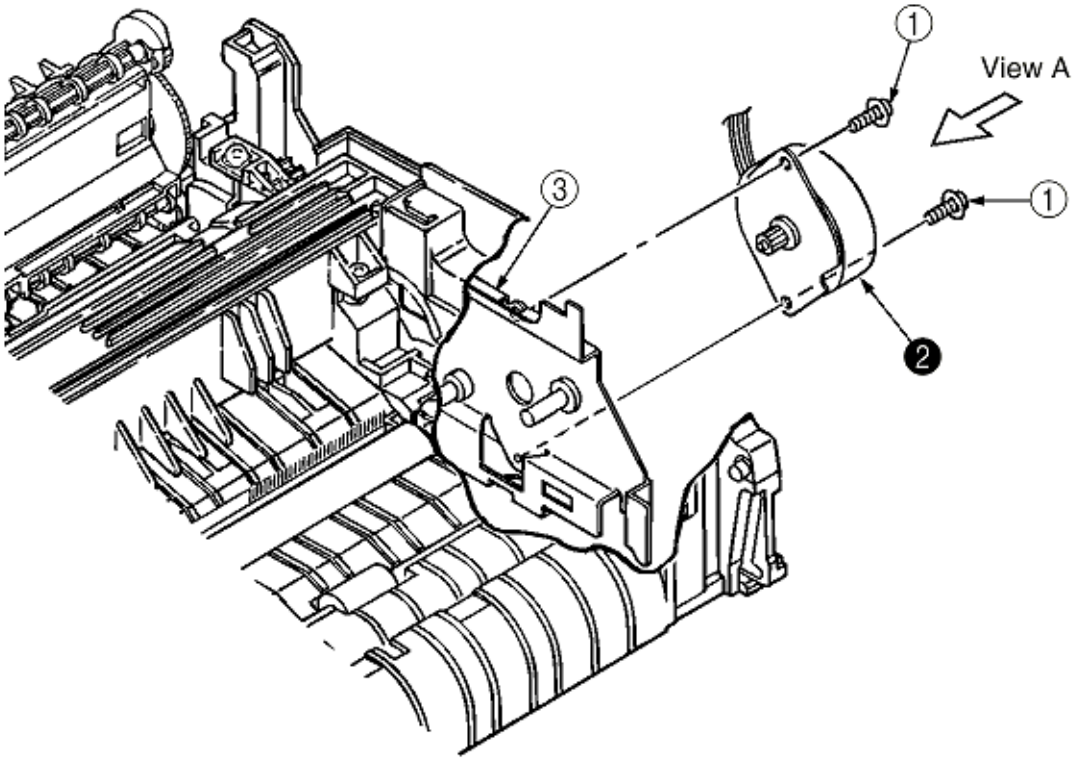
(1) Remove the upper cover (see 3.3.1).

(2) Remove the lower base unit (see 3.3.5).

(3) Remove two screws (1) and remove the pulse motor (registration) (2) from the motor bracket (3).



View A



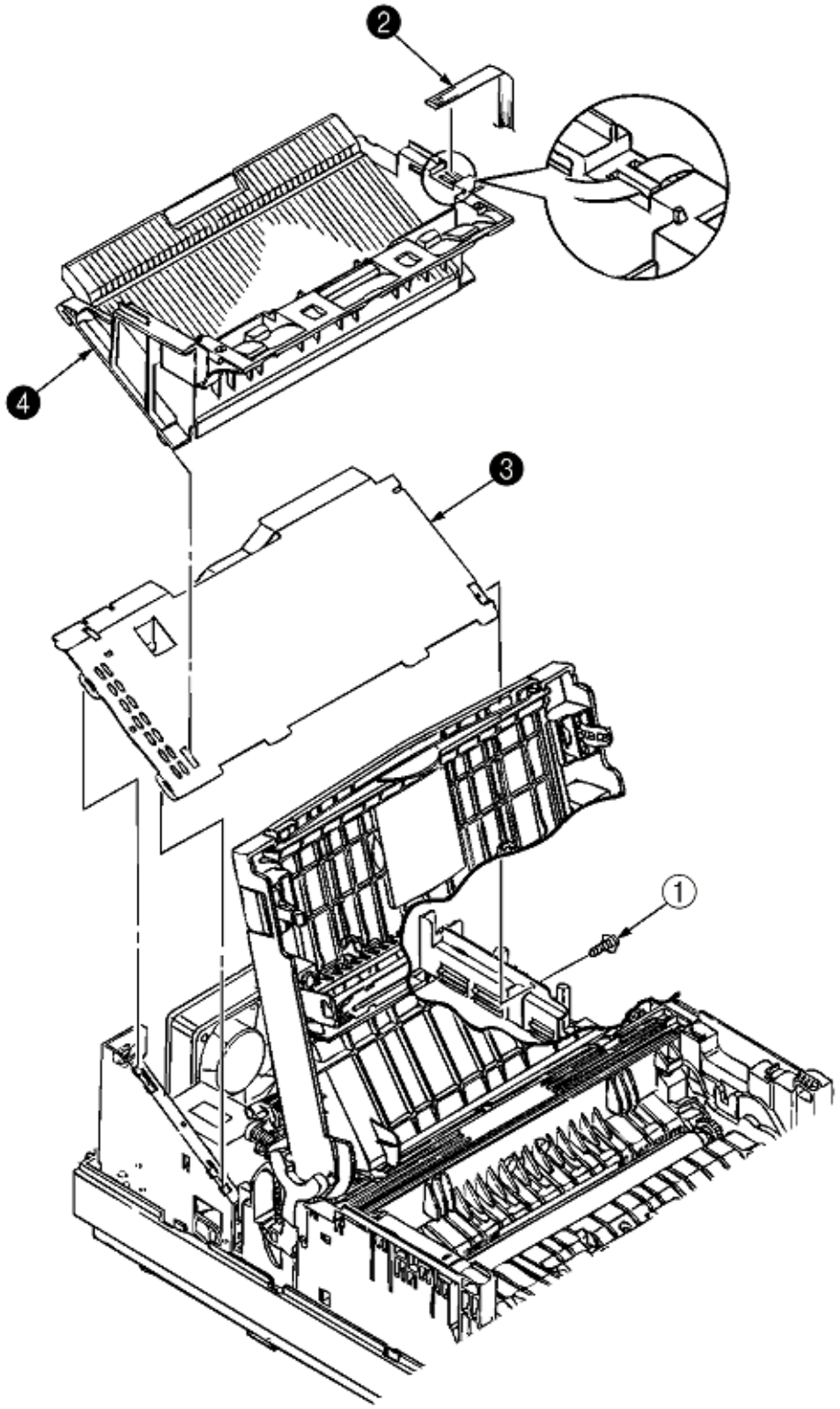
3.3.8 Face Up Stacker Assy

(1) Remove the upper cover (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the screw (1) and remove the Sumi card (operator panel cable) (2) off the latch section of face up stacker (4). Remove both the shield plate (3) and face up stacker (4) together.

(4) Unlock the latches at two locations, and remove the face up stacker (4).



(BPX) for any updates to this material. (http://bpx.okidata.com)

3.3.9 Eject Roller Assy

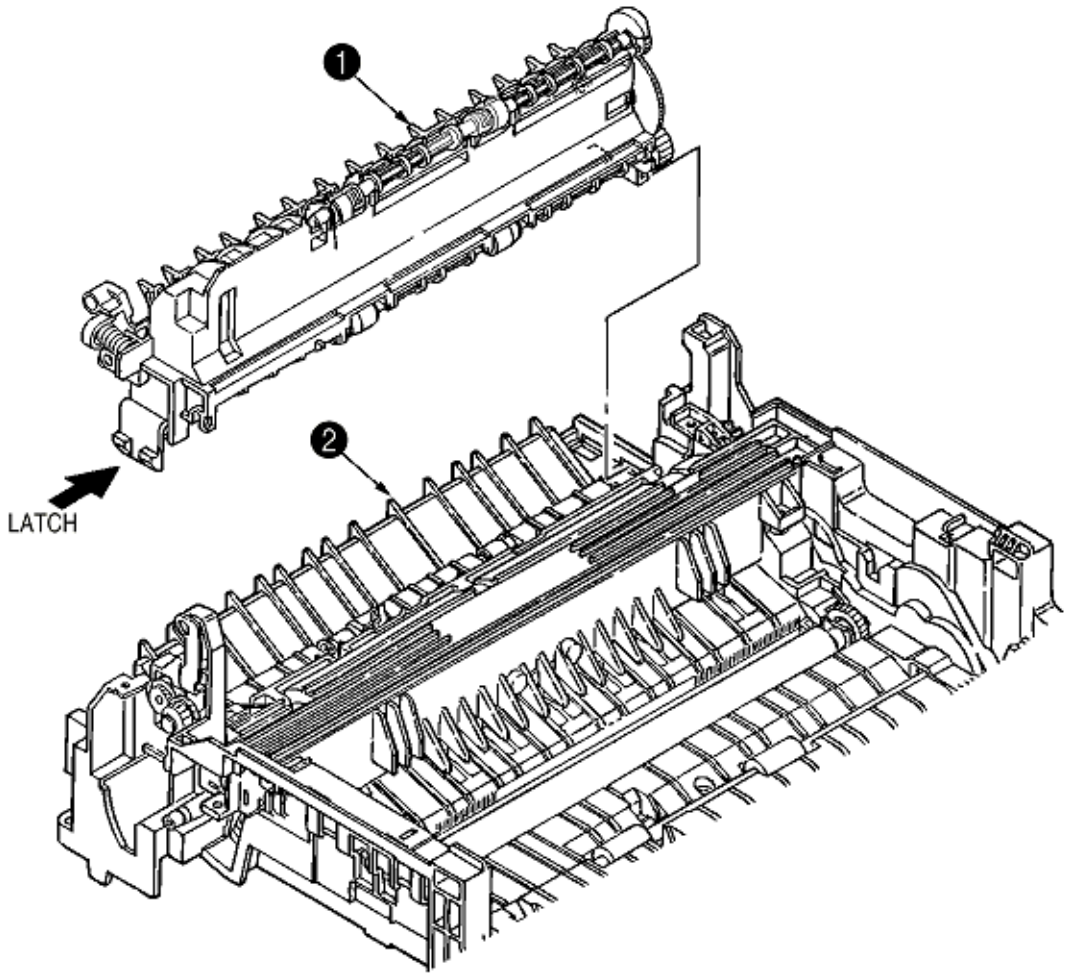
(1) Remove the upper cover assy (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the lower base unit (see 3.3.5).

(5) Disengage the eject roller assy (1) from the lower base (2) by pressing the latch section of the eject roller assy (1) in the direction of the arrow shown below, and remove the eject roller assy (1).



3.3.10 Motor Assy

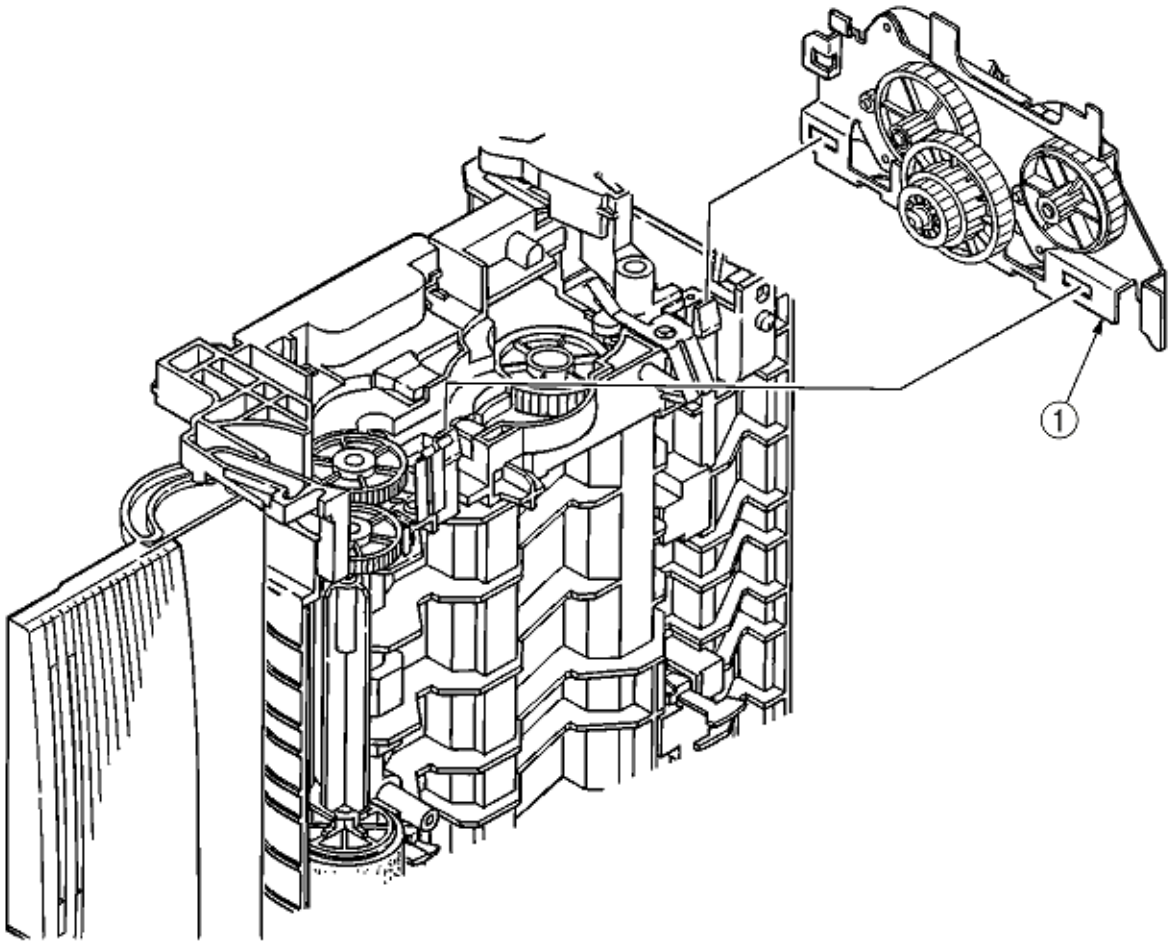
(1) Remove the upper cover assy (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the lower base unit (see 3.3.5).

(5) Stand the lower base unit on its side as shown, and unlock two latches, then remove the motor assy (1).



(1) Remove the upper cover assy (see 3.3.1).

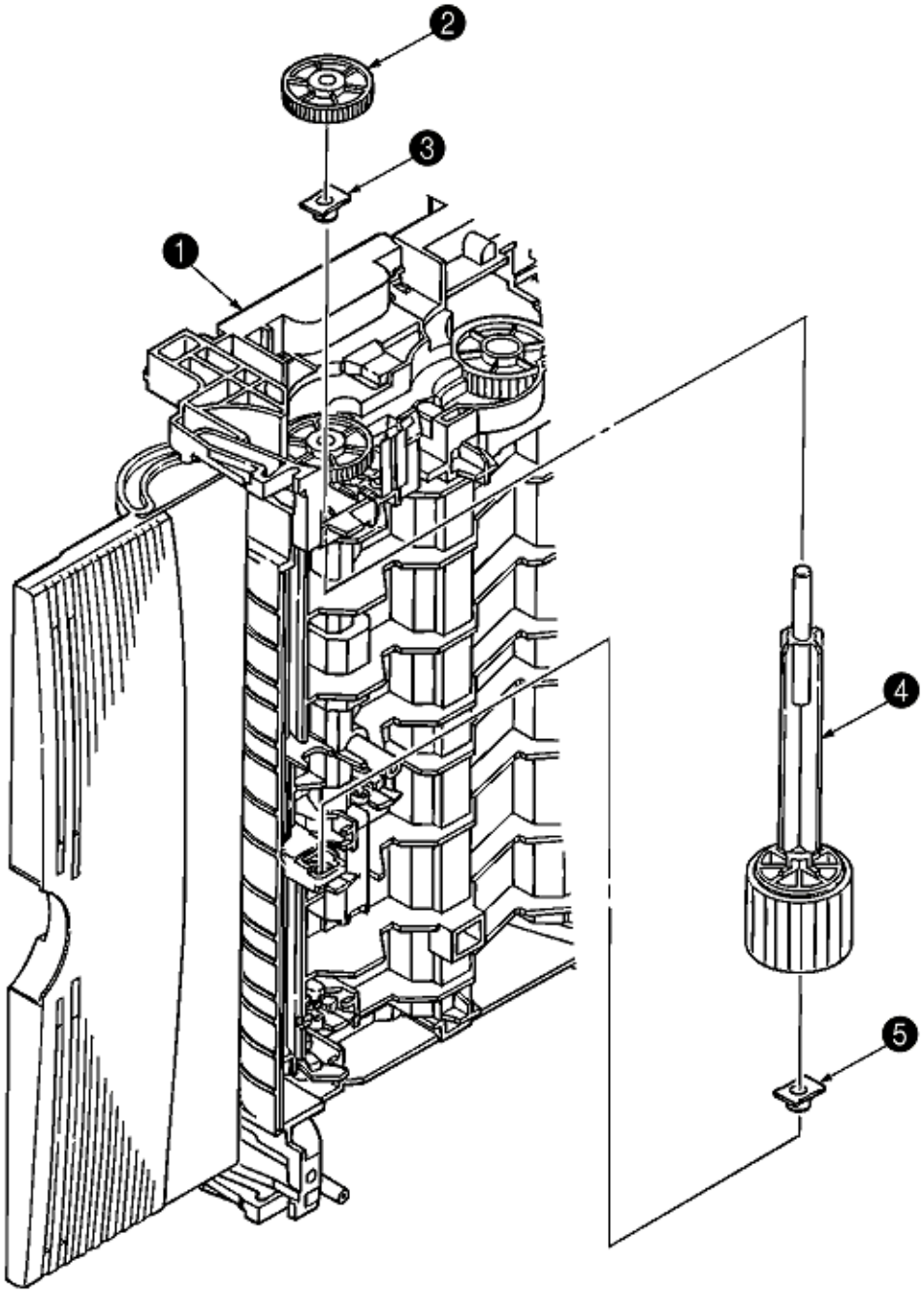
(see 3.3.4).

(3) Remove the face up stacker assy

(4) Remove the lower base unit (see 3.3.5).

(see 3.3.10).

(6) With the lower base unit (1) standing on its side, remove the one-way clutch gear (2) and the bearing (A) (3).



3.3.12 Stacker Cover Assy

(1) Remove the upper cover assy (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

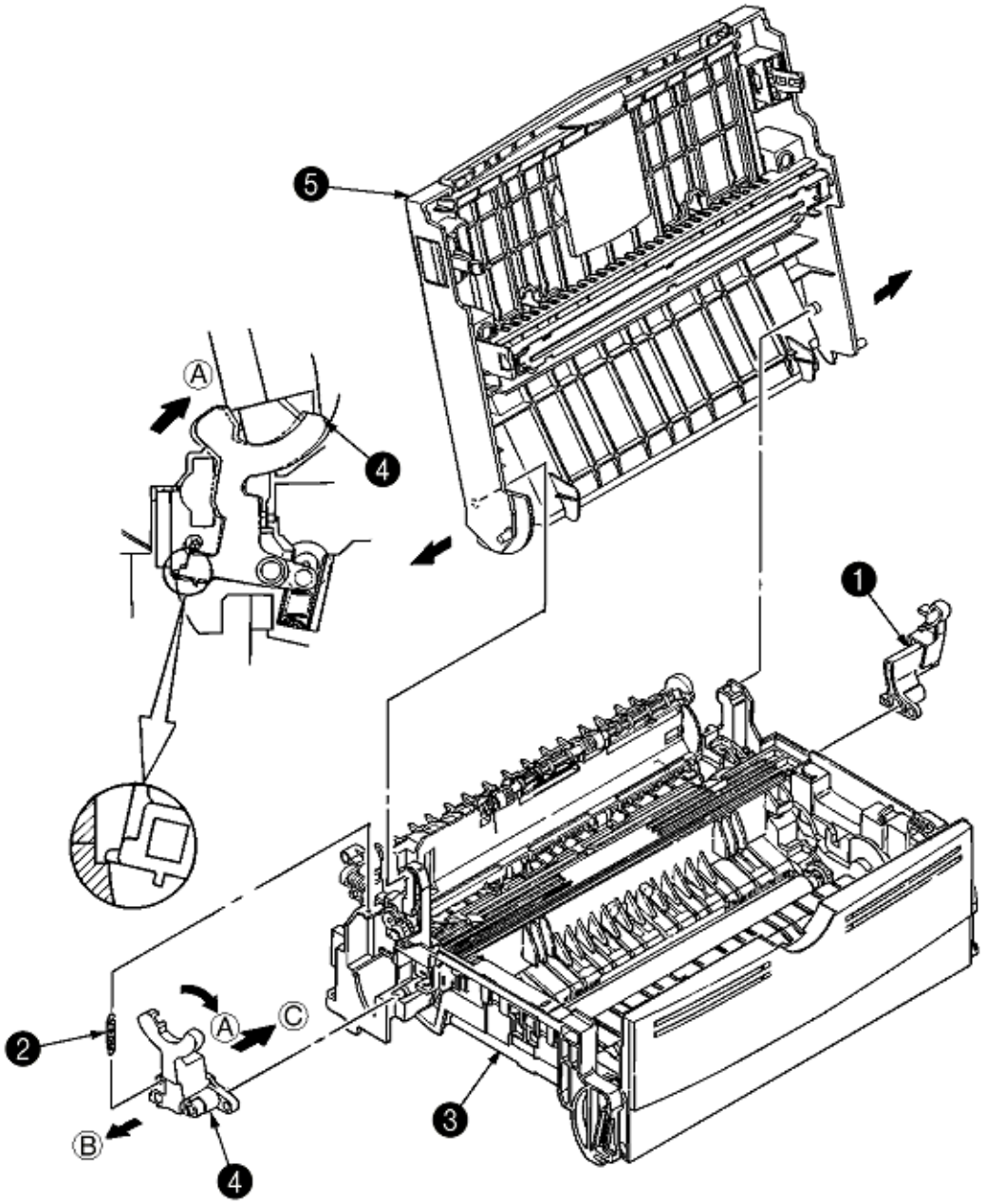
(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the reset lever R (1).

(5) Detach the reset spring (2) from the lower base unit (3), turn the reset lever L (4) in the direction of arrow (A) until it stops, and remove it in the direction of arrow (B).

(6) Unlock two latches of the lower base unit (3), then remove the stacker cover assy (5).

Note: When reinstalling the reset level L (4), fit it onto the guide of the lower base unit (3), turn it in the direction of arrow (C) while pressing down the shaft of back up roller, and engage the reset lever L (4).



3.3.13 Registration Roller

(1) Remove the upper cover (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8).

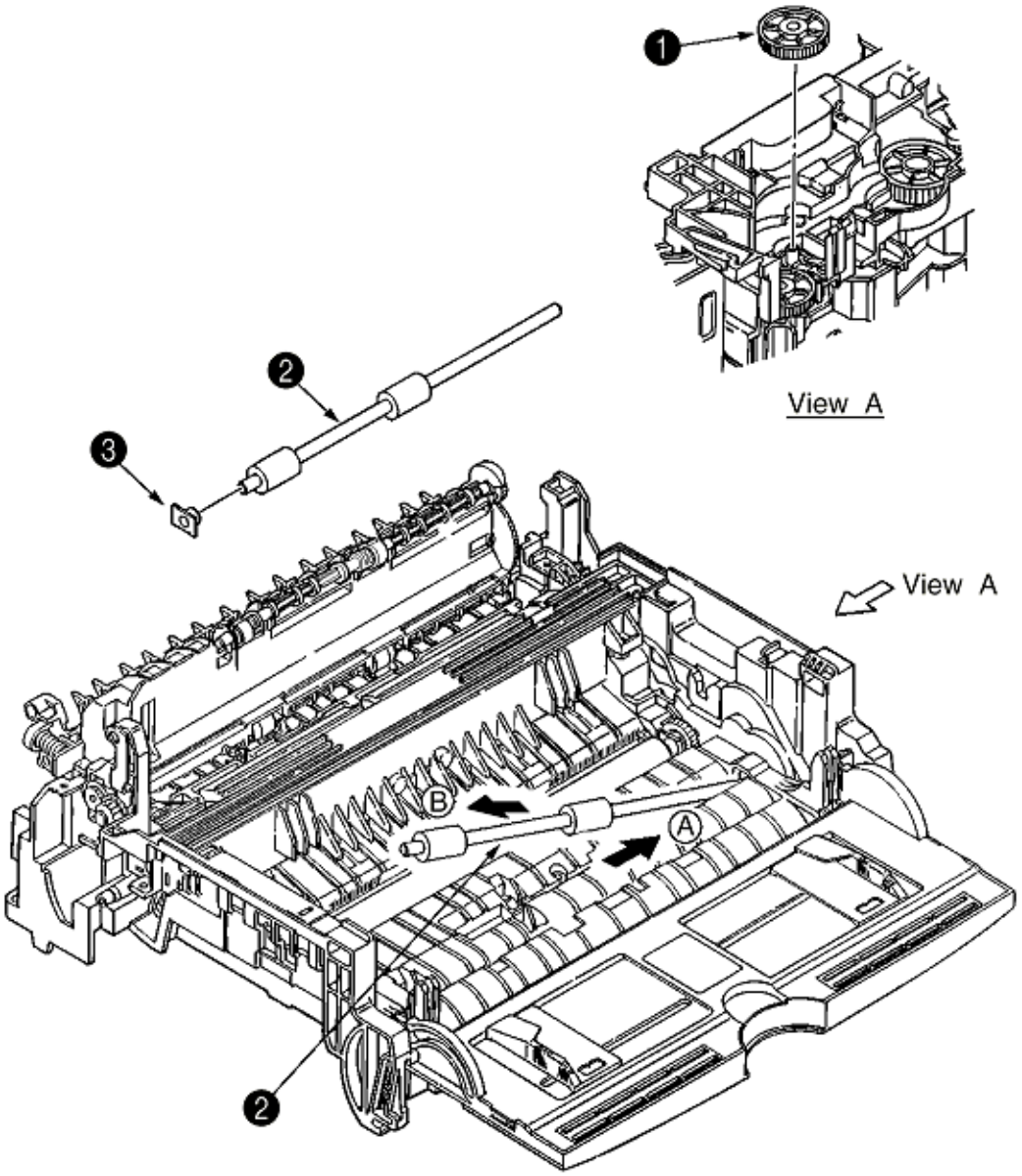
(4) Remove the lower base unit (see 3.3.5).

(5) Remove the motor assy (see 3.3.10).

(6) With the lower base unit standing on its side, remove the one-way clutch gear (1).

(7) Press the registration roller (2) in the direction of arrow (A) and lift up the left side of it, then remove the registration roller (2) and the bearing (registration) (3).

(8) Pull out the registration roller (2) in the direction of arrow (B).



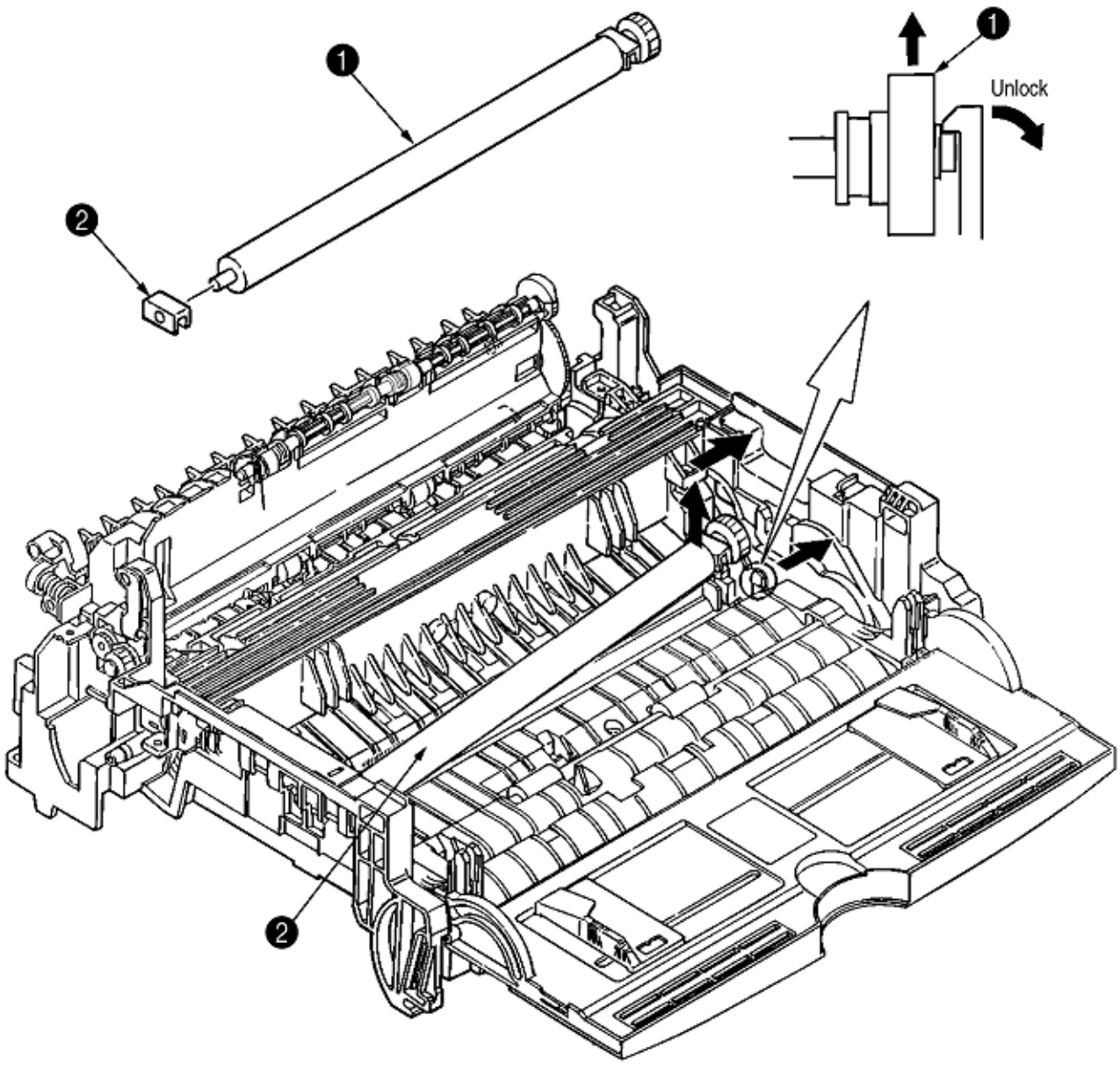
3.3.14 Transfer Roller Assy

(1) With the power switch turned off, unplug the AC cord from the outlet.

(2) Open the stacker cover.

(3) Release the roller transfer assy (1) by unlocking the latch of the main unit (never apply excessive force when unlocking the latch).

(4) Lift the right side of the roller transfer assy (1), and shift it to the right side, then pull it out from the main unit (at this time, the bearings (2) of the left and right sides of the roller transfer assy (1) will also come off).



3.3.15 Fusing Unit

(1) Remove the upper cover assy (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the lower base unit (see 3.3.12).

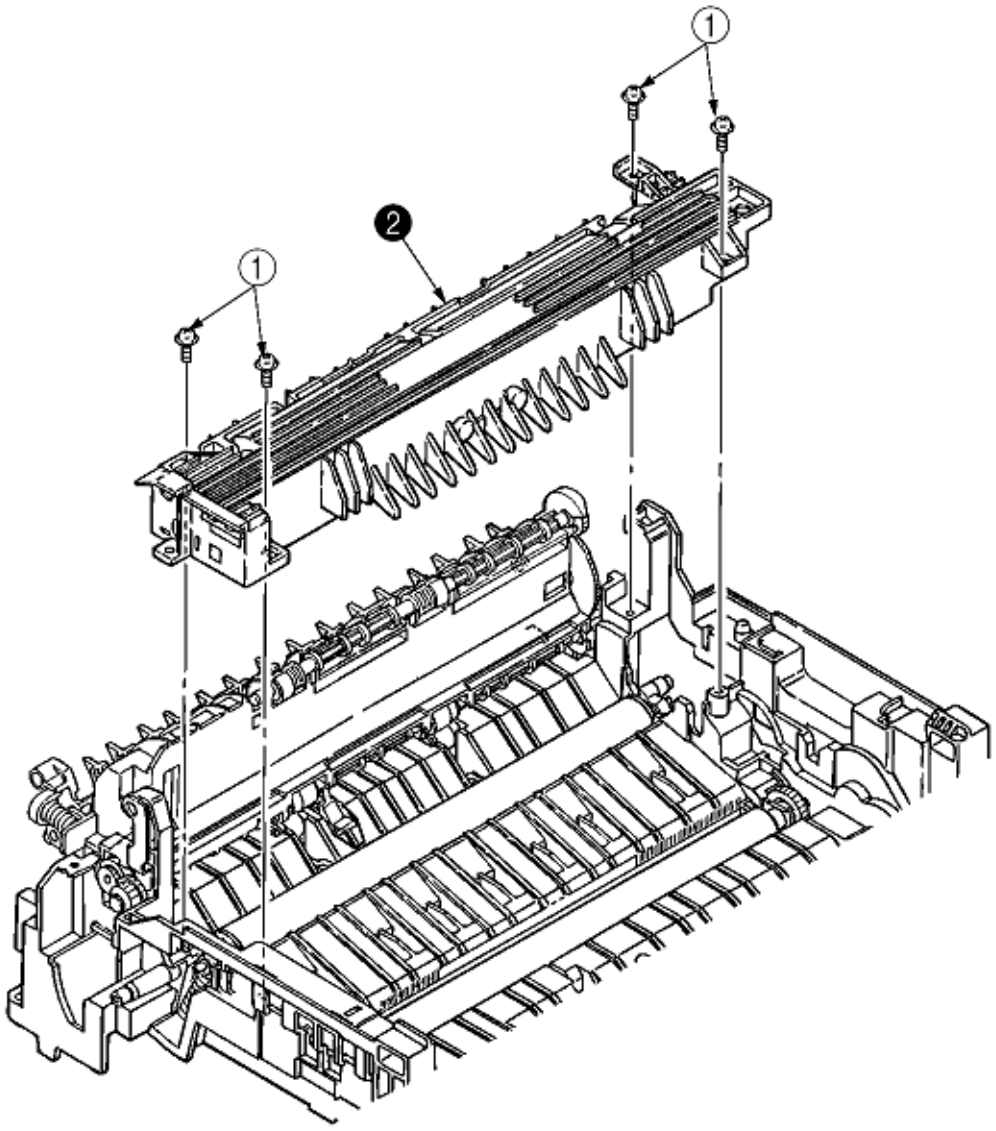
(5) Remove the four screws (1), lift and remove the fusing unit (2).

Caution: Fusing unit may be hot. Use care when handling.

Notes:
1. When reinstalling or removing the fusing unit, tighten or loosen the screws while holding the fusing unit assy (2) down with your hand (it is being pushed up by back up roller).

2. When reinstalling the screws (1), be sure to direct the screws into preexisting thread and avoid damaging the threads.

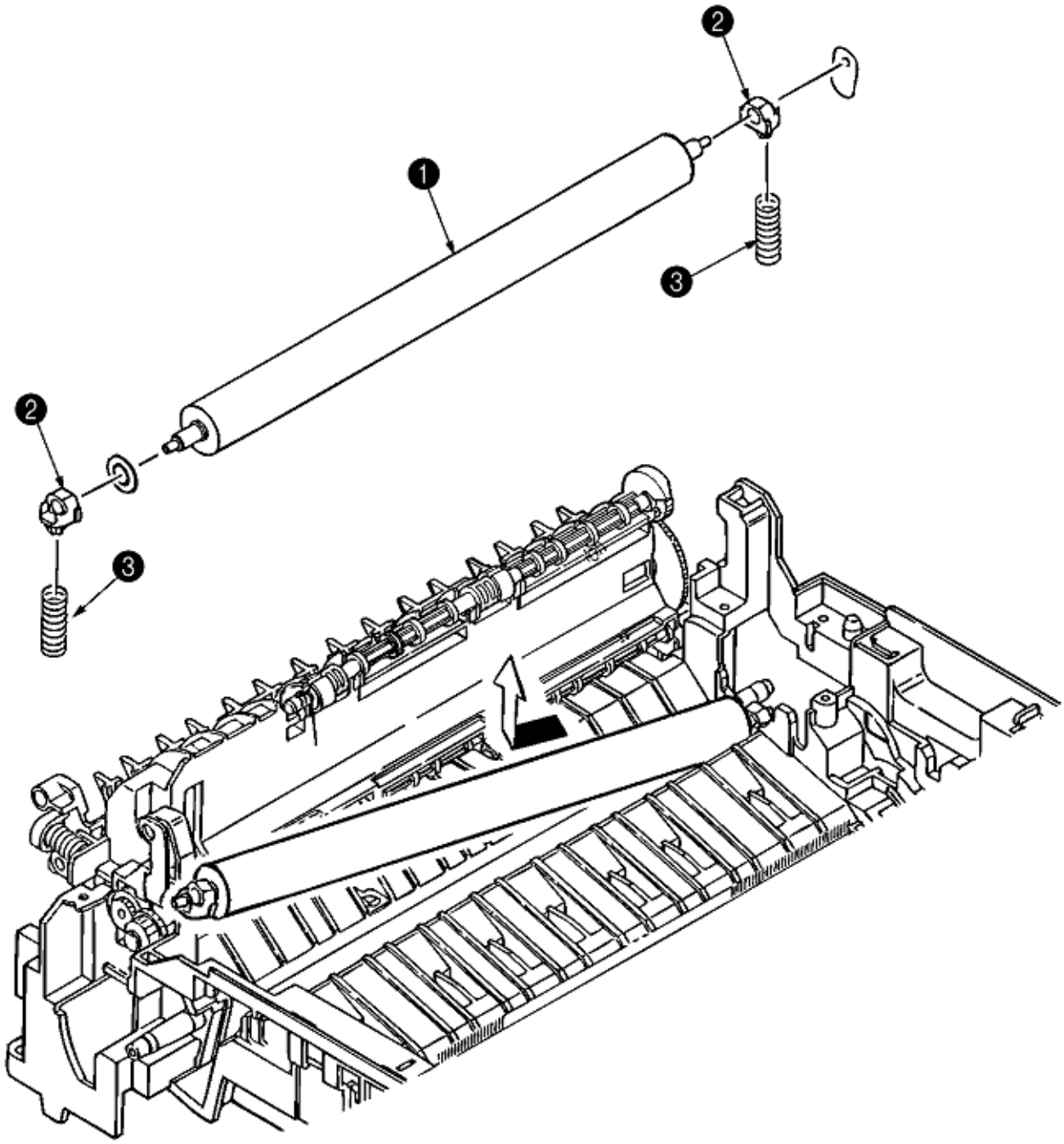
3. Do not apply excessive torque when tightening the screws (1).



3.3.16 Back-up Roller

(1) Remove the fusing unit assy (see 3.3.15).

(2) Lift the left side of the back-up roller (1), and pull it out to the left side (at this time, two bushings (back-up) (2) and the bias springs (back-up) (3) will also come off).



3.3.17 Sensor Plate (Inlet)

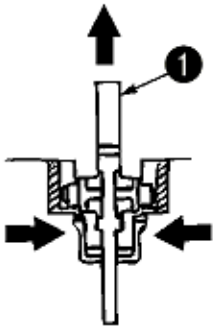
(1) Remove the upper cover (see 3.3.1).

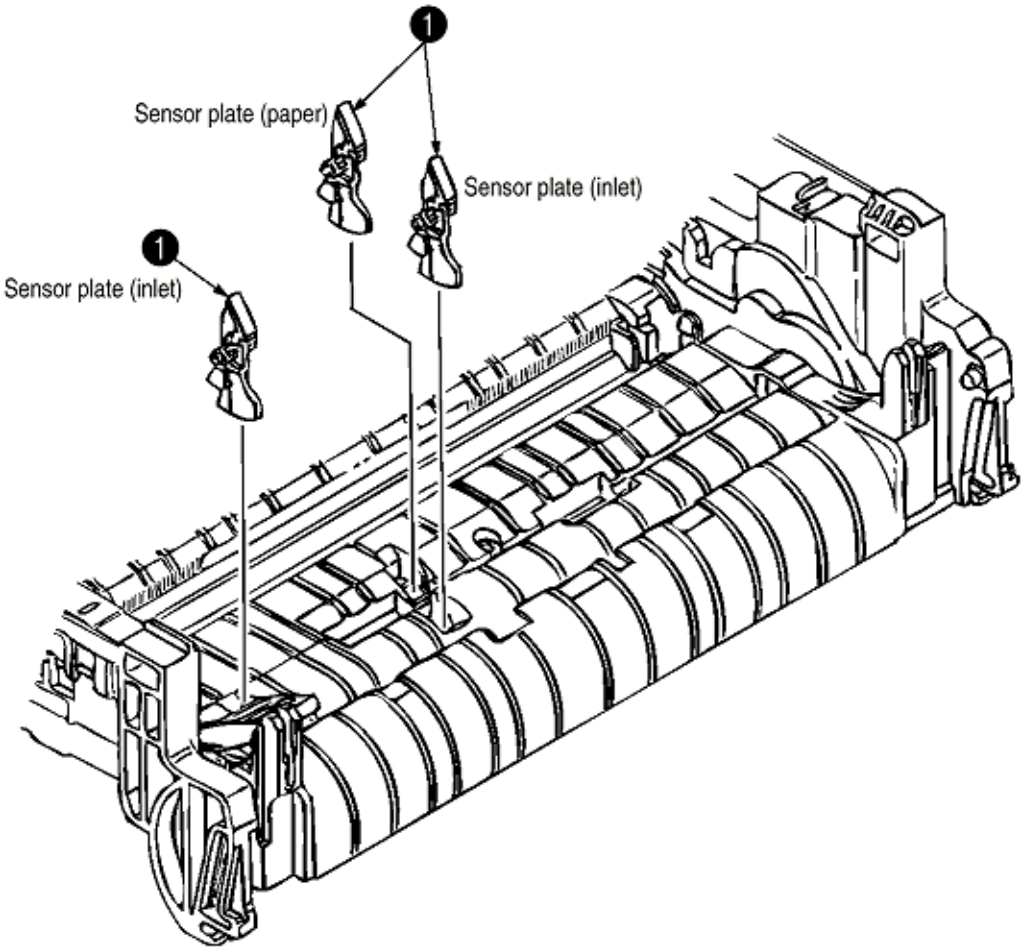
(2) Remove the eject roller assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the lower base unit (see 3.3.5).

(5) Press the clamps of three sensor plates (inlet and paper) (1), and remove them by pressing them upward from the bottom.





3.3.18 Sensor Plate (Outlet)

(1) Remove the upper cover (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

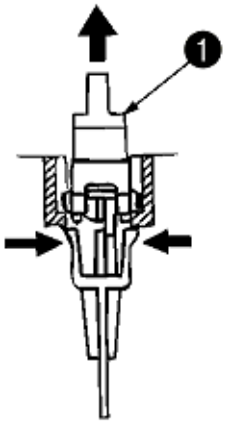
(3) Remove the eject roller assy (see 3.3.9).

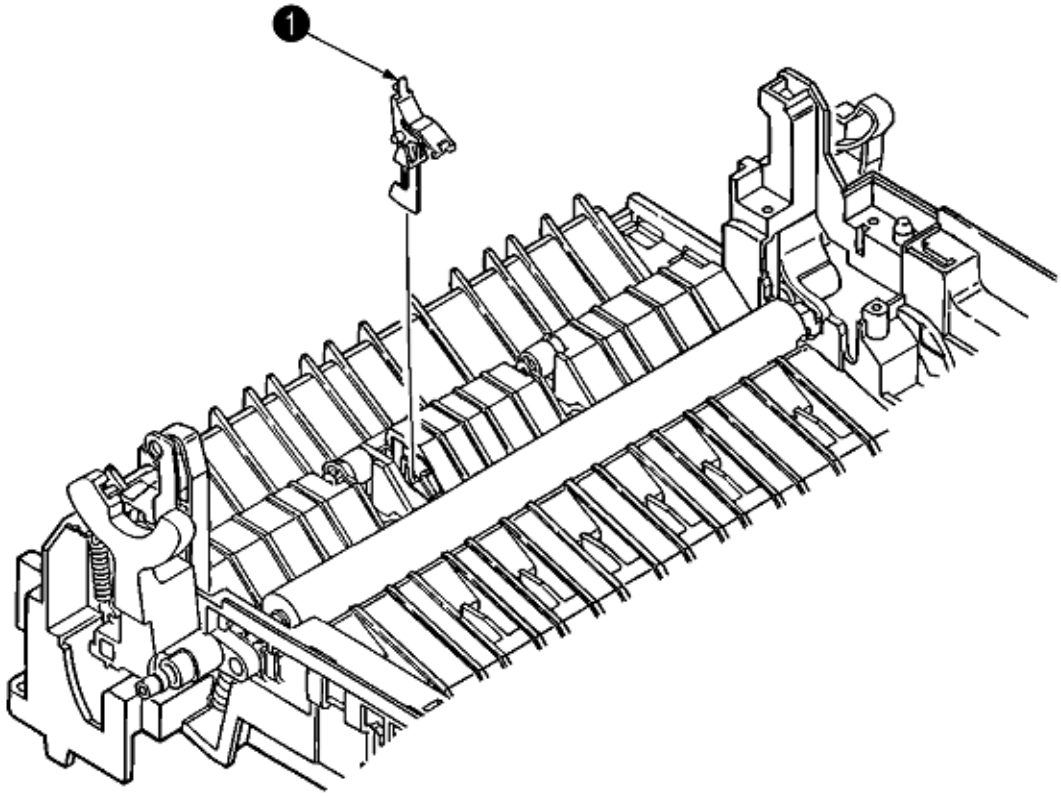
(4) Remove the face up stacker assy (see 3.3.8).

(5) Remove the lower base unit (see 3.3.5).

(6) Remove the fusing unit assy (see 3.3.15).

(7) Press the clamps of the sensor plate (outlet) (1), and remove the sensor plate by pushing it up.



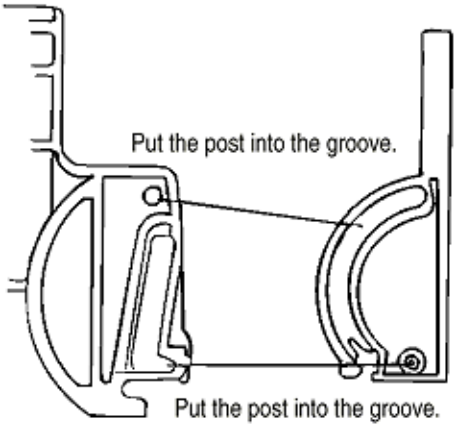


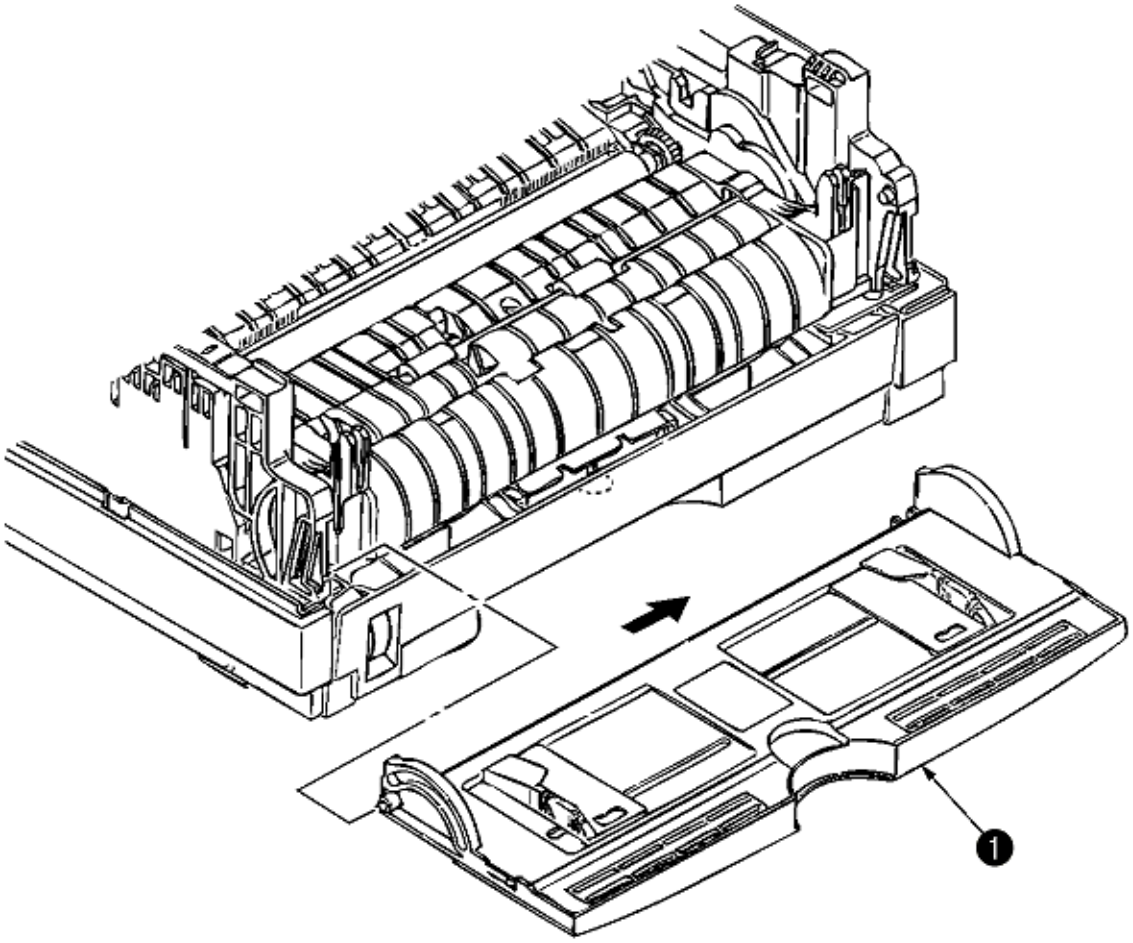
3.3.19 Manual Feed Guide Assy

(1) Remove the upper cover (see 3.3.1).

(2) Open the manual feed guide assy (1), and release the engagement on both sides with the main unit by carefully bending the manual feed guide assy (1).

Note: At the time of mounting, verify the proper the engagements as shown in the diagram.





3.3.20 Sensor Plate (Paper Supply)

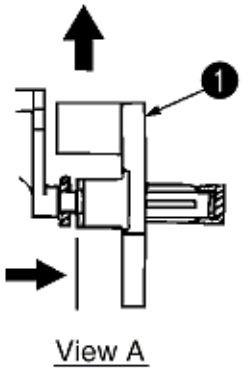
(1) Remove the upper cover (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

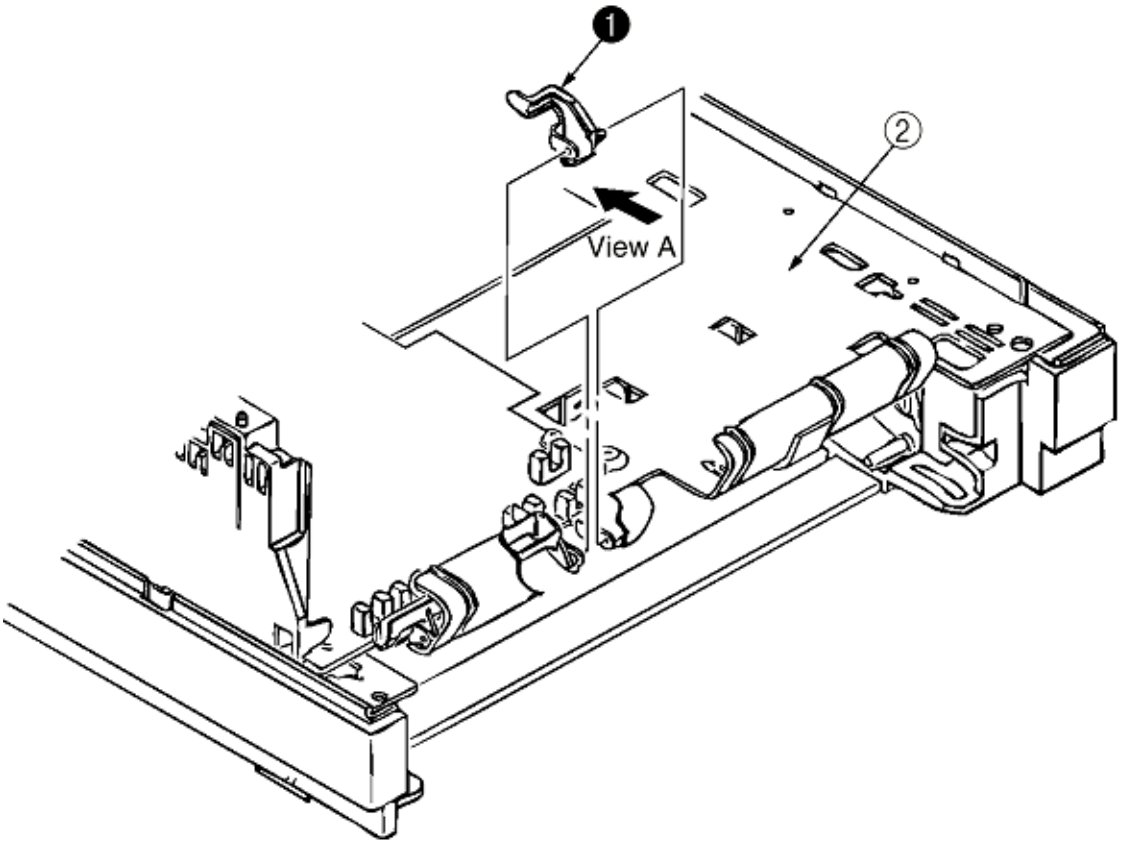
(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the lower base unit (see 3.3.5).

(5) Press the clamps of the sensor plate (paper supply) (1) to unlock the latch, and remove it from the base plate (2).



View A



3.3.21 Main Control M5G-PCB

(1) Remove the upper cover (see 3.3.1).

(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the lower base unit (see 3.3.5).

(5) Remove the connector (2NDTRAY) (6).

(6) Remove the screws (1).

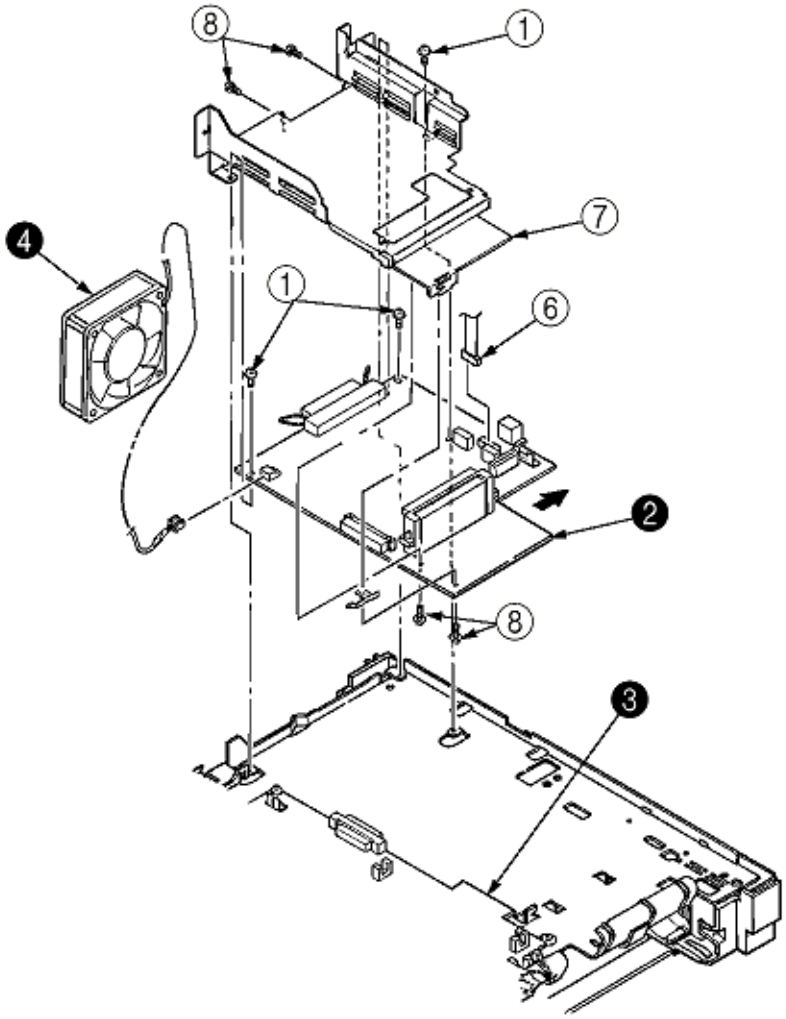
(7) Move the M5G-PCB Main Control Board (2) in the direction of arrow to disconnect it from the power supply/sensor board (3).

(8) Remove the connector FAN, and disconnect the fan motor (4).

(9) Remove the M5G-PCB Main Control Board (2), together with the PCB guide plate (remove the fan motor (4) at the same time).

(10) Remove three screws (8) and remove the PCB guide plate (7) from the M5G-PCB Main Control Board (2).

Note: When reinstalling the M5G-PCB (2) onto the guide plate (7), be careful not to bend the base plate (it is desirable to place a block underneath it to prevent bending).



3.3.22 Transformer

(1) Remove the upper cover (see 3.3.1).

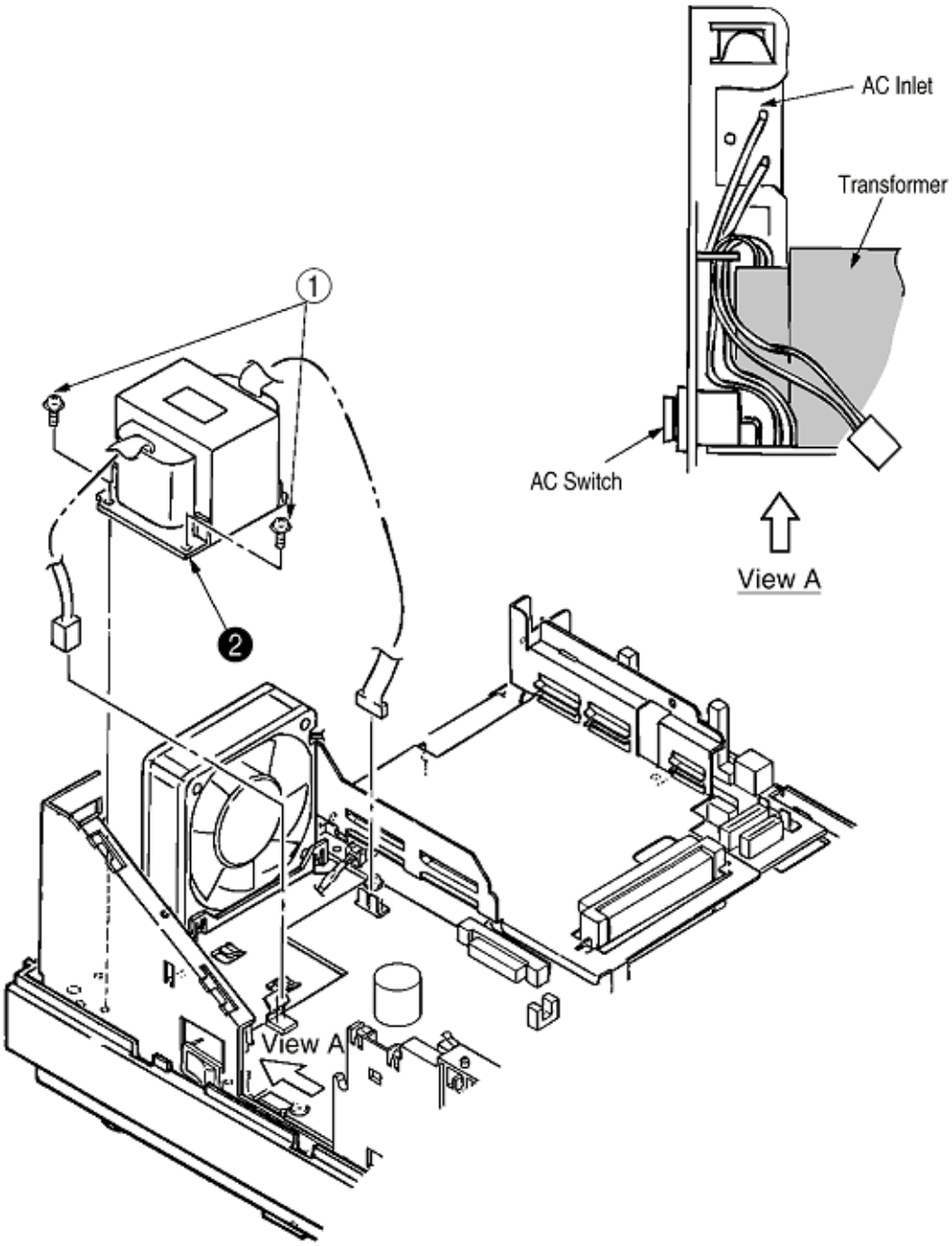
(2) Remove the operator panel assy (see 3.3.4).

(3) Remove the face up stacker assy (see 3.3.8).

(4) Remove the connectors (CN1 and CN2).

(5) Remove two screws (1), and remove the transformer.

Note: When reinstalling the transformer, be sure to lay the AC and transformer's primary side cables under the divider (see view A diagram below).



3.3.23 Power Supply/Sensor Board and Contact Assy

(1) Remove the upper cover (see 3.3.1).

(2) Remove the lower base unit (see 3.3.5).

(3) Remove the M5G-PCB Main Control Board (see 3.3.21).

(4) Remove the transformer (see 3.3.22).

(5) Remove the AC inlet (1) from the base plate (2).

(6) Remove the screw (3) and remove the grounding (earth) wire (4).

(7) Remove three screws (5), and remove the power supply/sensor board (6) and contact assy (7) together.

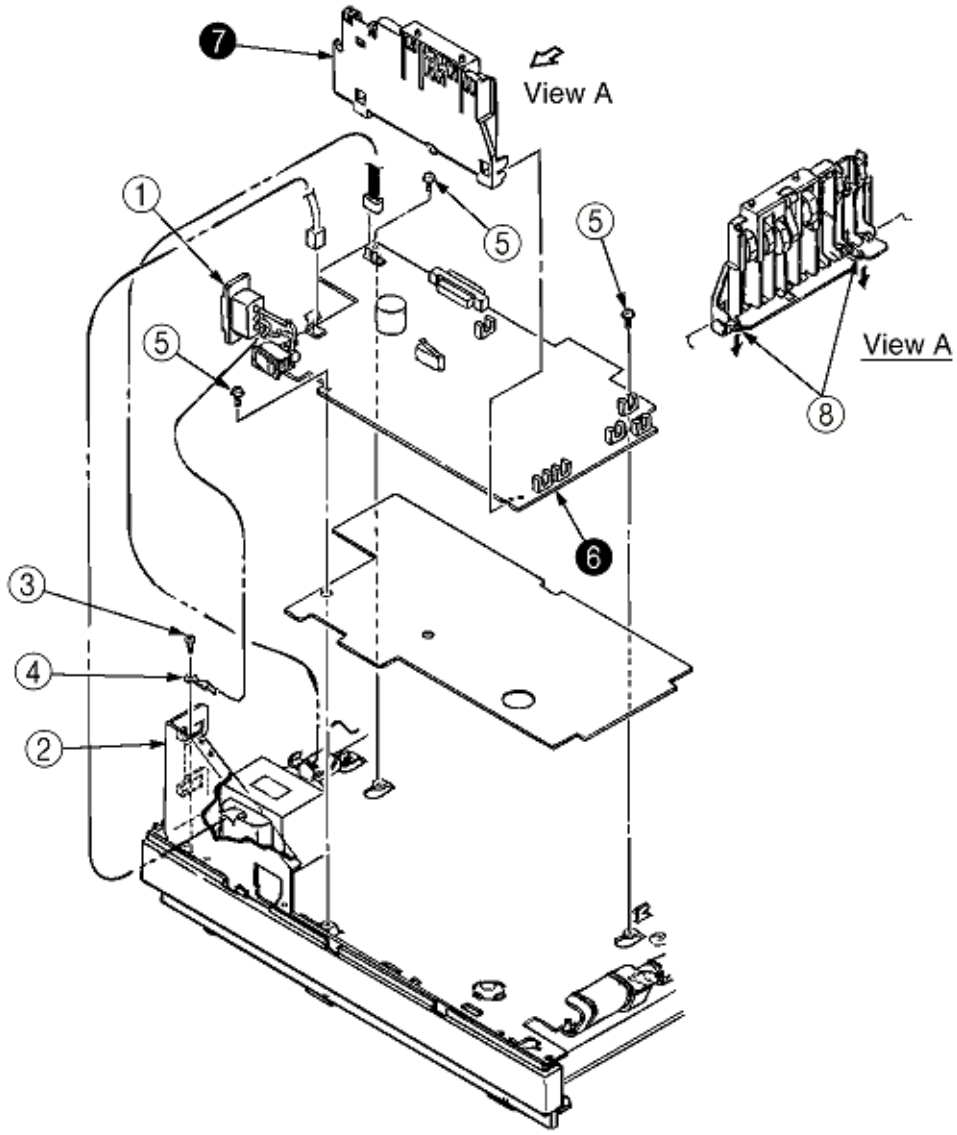
(8) Unlock two latches (8), and remove contact assy (7) from the power supply/sensor board.

Notes:

1. Be careful about the sensor (paper supply) when reinstalling the lower base.

2. Make sure that no excessive force is applied to the power supply switch.

3. When installing the power supply/sensor onto the base plate, be careful not to bend the base plate (it is desirable to place a block underneath it to prevent bending).



3.3.24 Cassette Guide L Assy

(1) Remove the paper cassette.

(2) Remove the upper cover (see 3.3.1).

(3) Remove the lower base unit (see 3.3.5).

(4) Remove the Main Control M5G-PCB (see 3.3.21).

(5) Remove the transformer (see 3.33.22).

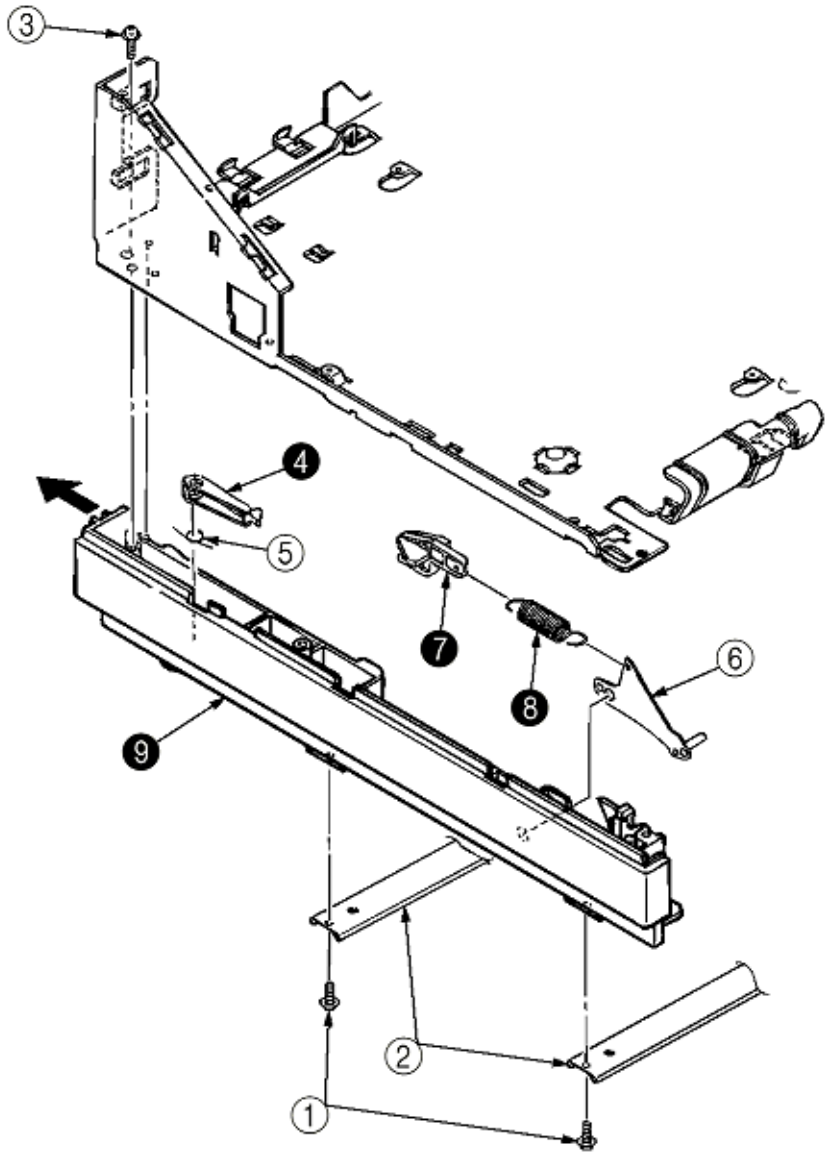
(6) Remove the power supply/sensor board (see 3.3.23).

(7) Remove two screws (1), and remove the guide rails (2).

(8) Remove the screw (3), and remove the cassette guide L (9) by shifting it in the direction of the arrow as shown below.

(9) Remove cassette lock lever (4) and torsion spring (5).

(10) Remove cassette lock lever spring (8) then remove the sheet link (L) (6) and Pull block (7).



3.3.25 Cassette Guide R

(1) Remove the paper cassette.

(2) Remove the upper cover (see 3.3.1).

(3) Remove the lower base unit (see 3.3.5).

(4) Remove the Main Control M5G-PCB (see 3.3.21).

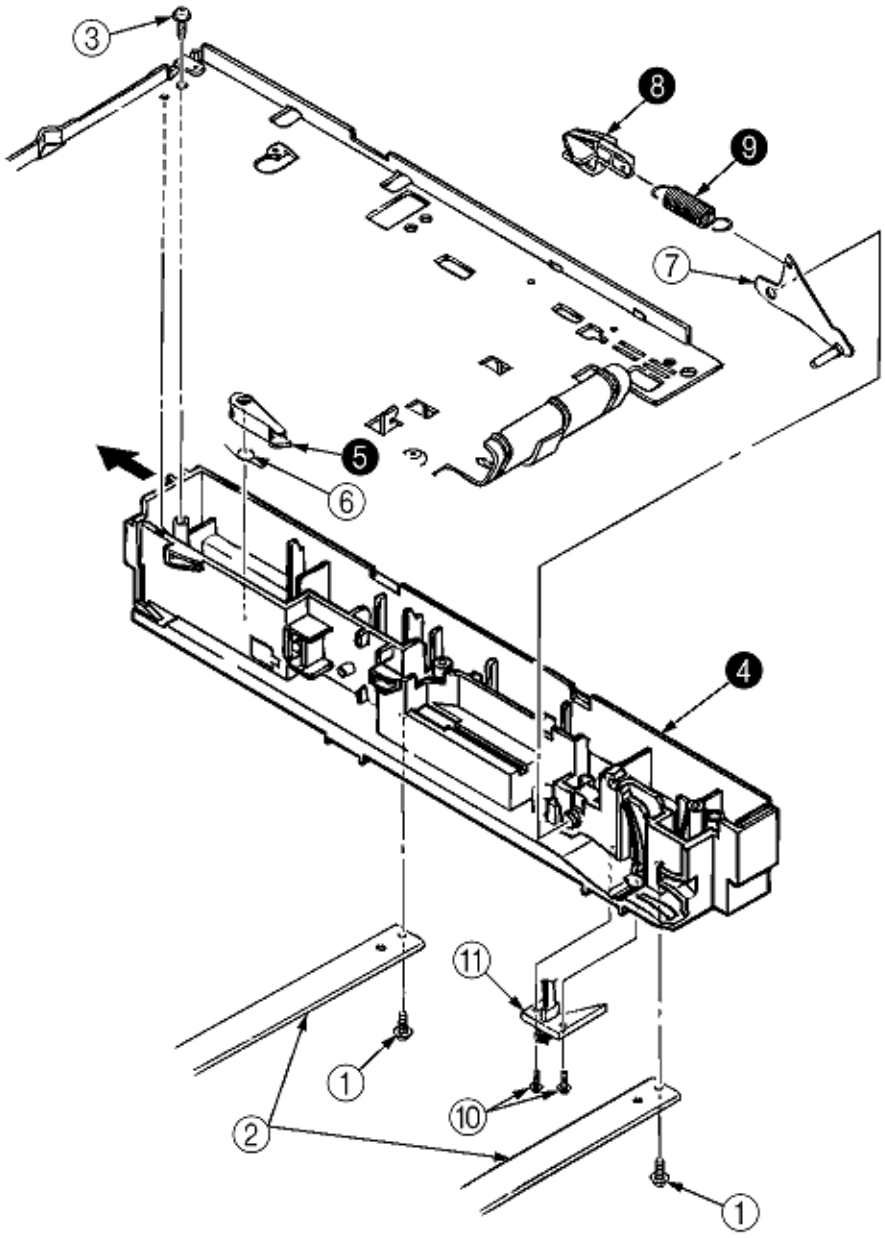
(5) Remove the two screws (1), and remove the guide rails (2).

(6) Remove the screw (3), and remove the cassette guide R (4) by shifting it in the direction of arrow.

(7) Remove the cassette lock lever (5) and torsion spring (6).

(8) Remove the cassette lock lever spring (9), then remove the sheet ink (R) (7) and link pull block (8).

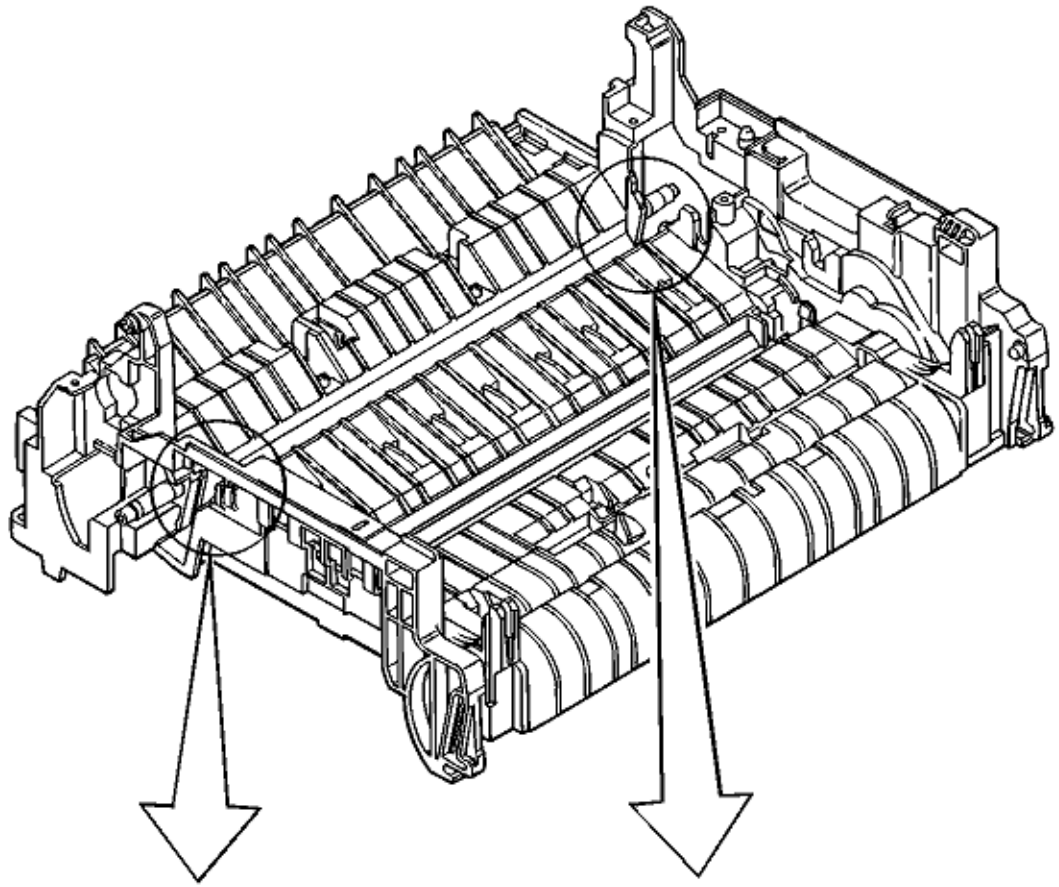
(9) Remove two screws (10), and remove the square-shaped connector (11).

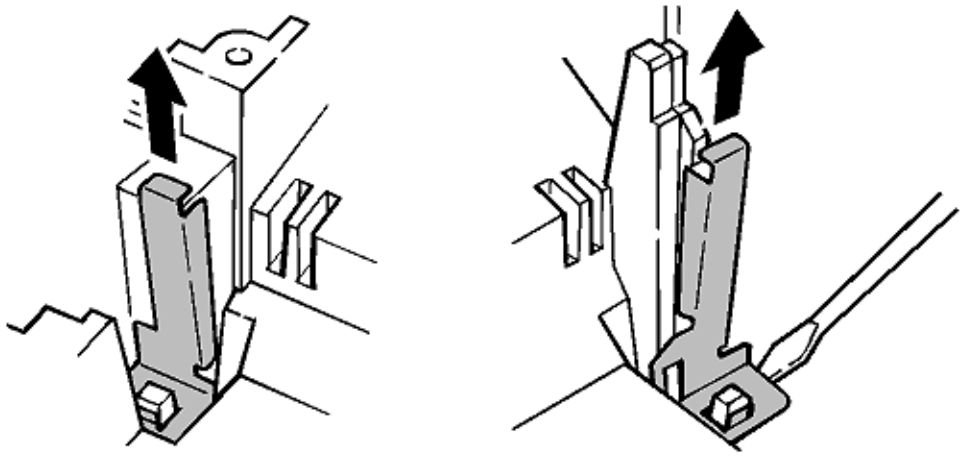


3.3.26 Spacer Bearing (L/R)

(1) Remove the back-up roller (see 3.3.16).

(2) Remove spacer bearing (L/R) with a tip of screw driver.





Spacer bearing L

Spacer bearing R

4. Adjustment

This chapter provides explanations concerning the adjustment necessary when replacing a part. The adjustment is made by changing the parameter value set in EEPROM on the main control board. The parameter can be set by the key operation from the operator panel. This printer has three kinds of maintenance modes, and it is necessary to select one of the modes when replacing any parts.

4.1 Adjustment Types & Functions

4.2 Adjustment When Replacing a Part

4.1 Adjustment Types & Functions

4.1.1 Status Monitor

4.1.2 Engine Maintenance Utility

4.1.1 Status Monitor

(For Microsoft Windows)

This status monitor has the following functions:

- Drum counter reset
- Charge roller cleaning

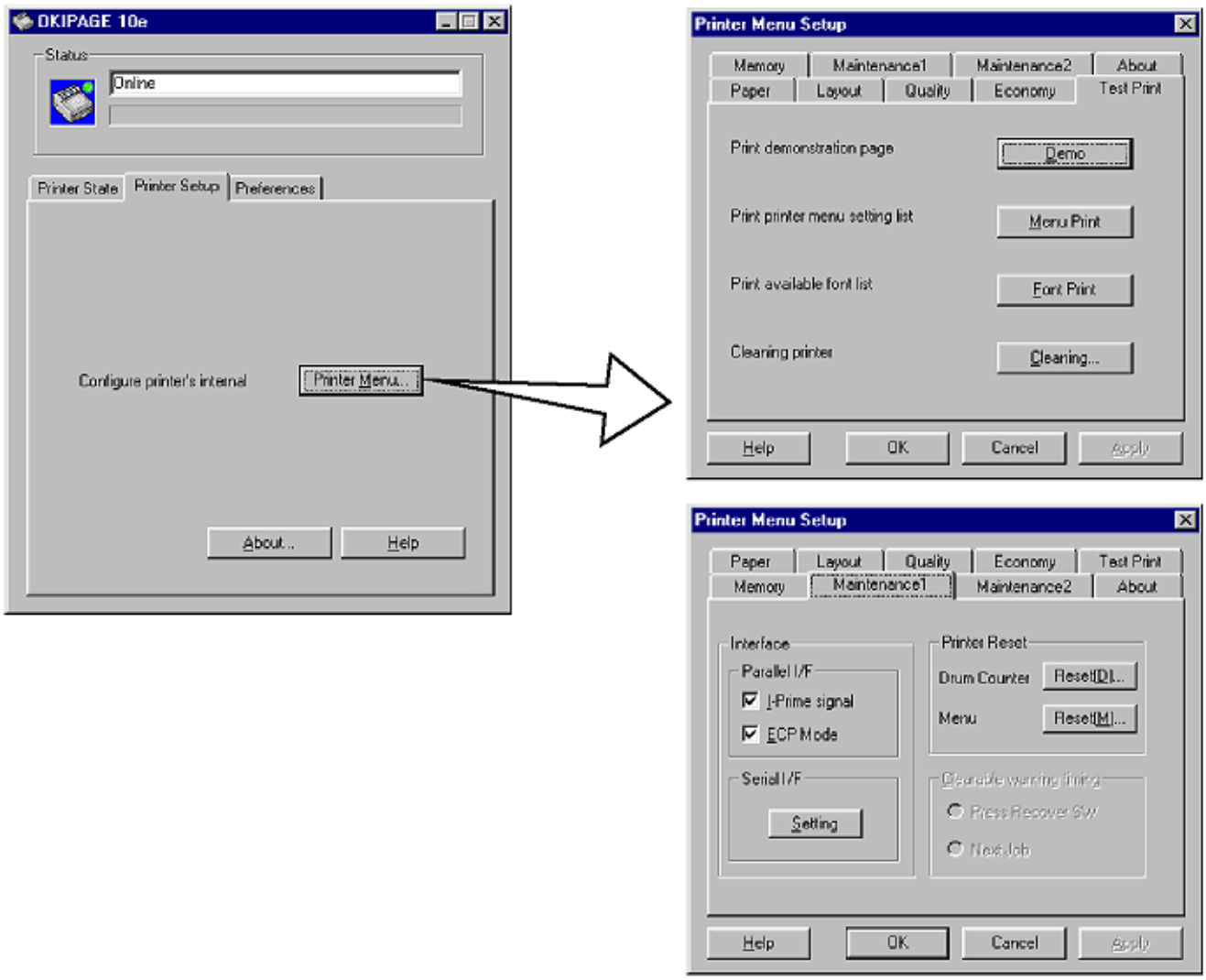


Figure 4-1

(1) Drum counter reset

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

(2) Cleaning Page Function

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 "5.2.2".

4.1.2 Engine Maintenance Utility

See Appendix C (Diagnostics Test).

4.2 Adjustment When Replacing a Part

Adjustment is necessary when replacing any of the following parts.

Part Replaced	Adjustment
LED Head	Set the LED head drive time.
Image Drum Cartridge	Reset the image drum counter (Refer to User's Manual)
Main Control Board	EEPROM data Upload / Download

4.2.1 Setting of LED Head Drive Time

Caution: When the luminous 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 Marking 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 below).

- Luminous Intensity Marking Label

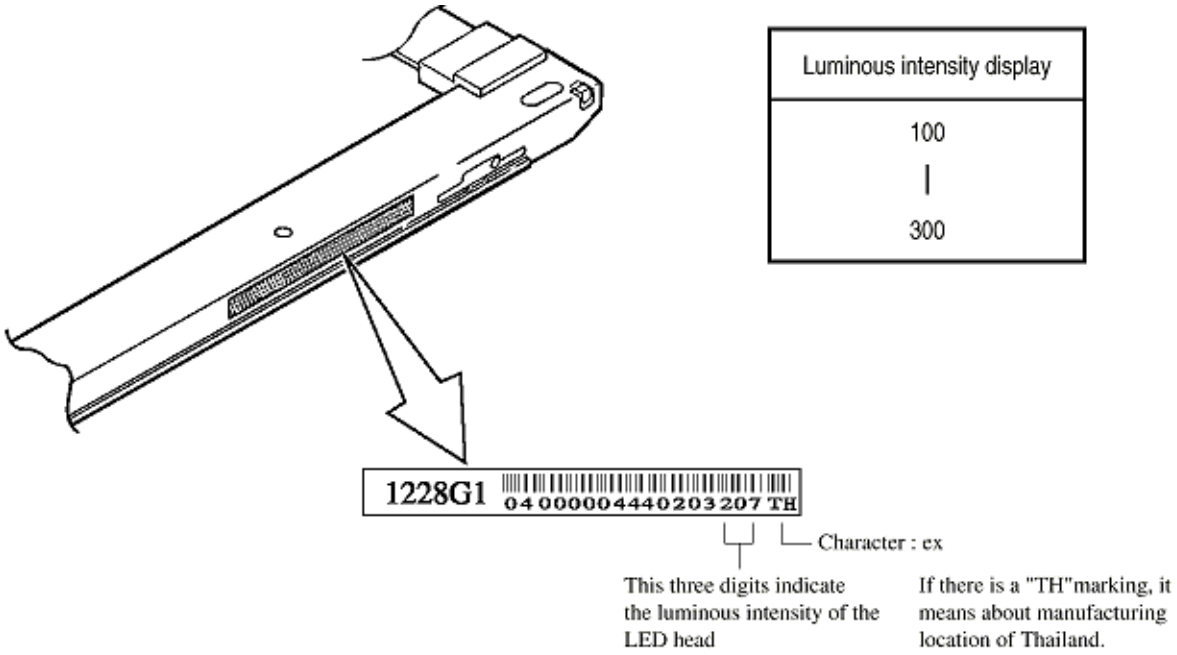


Figure 4-2

- Changing of LED Head Marking No.

(1) Connect the printer with the PC.

(2) Turn on the printer and the PC.

(3) Start the maintenance utility on the PC.

(4) Choose the LED Head, mounted on the printer in the List Box of LED Head Marking No. (See P.130).

(5) Press <Entry> button to see up the LED Head for the printer.

(6) Press <Exit> button to end.

4.2.2 Uploading/Downloading EEPROM data

When the controller printed circuit board is replaced, the contents of the old EEPROM shall be copied to the new EEPROM on the new board to preserve customer settings. For the purpose, use the EEPROM operation on the Option of the Maintenance Utility. To copy follow the steps below.

(1) Be sure to confirm that the printer and the PC are connected with a centronics I/F cable. Then execute the Maintenance Utility. (Note: Printer driver shall be deinstalled.)

(2) Select the Option on the Maintenance Utility.

(3) Click the "UPLOAD EEPROM" button on the "EEPROM Operations".

(4) The contents of the EEPROM data is displayed on the "DIALOG" of the Maintenance Utility. The contents of the old EEPROM is now copied into the memory of the PC.

(5) Replace the controller P.C.B. with a new one while it displays the above "DIALOG".

(6) After the replacement, click "Download EEPROM" on the "EEPROM Operations". EEPROM upload has been 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 (See 4.2.1)
- Setting the LED Head Width
- Setting the LED Head Wire
- Setting the Head type
- Setting specifications (ODA/OEL/INT-A/INT-L)

5.1 Periodical Replacement Parts

Part name	Condition for replacement	Cleaning	Remarks
Toner cartridge (Type 5)	About 2,000 sheets of paper have been printed	LED head	Consumables
Image drum cartridge (Type 5)	About 20,000 sheets of paper have been printed. See 1.4 (14)		Consumables

5.2 Cleaning

Remove any toner or dust accumulated inside the printer. Clean in and around the printer with a piece of cloth when necessary. Use the handy cleaner (service tool) to clean inside the printer.

Note: Do not touch the image drum, LED lens array, or LED head connector block.

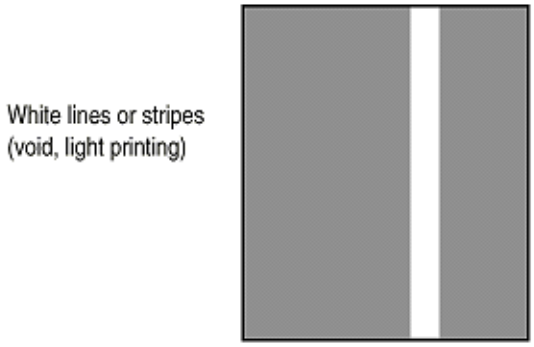
5.2.1 Cleaning of LED Lens Array

5.2.2 Cleaning Page Function

5.2.1 Cleaning of LED Lens Array

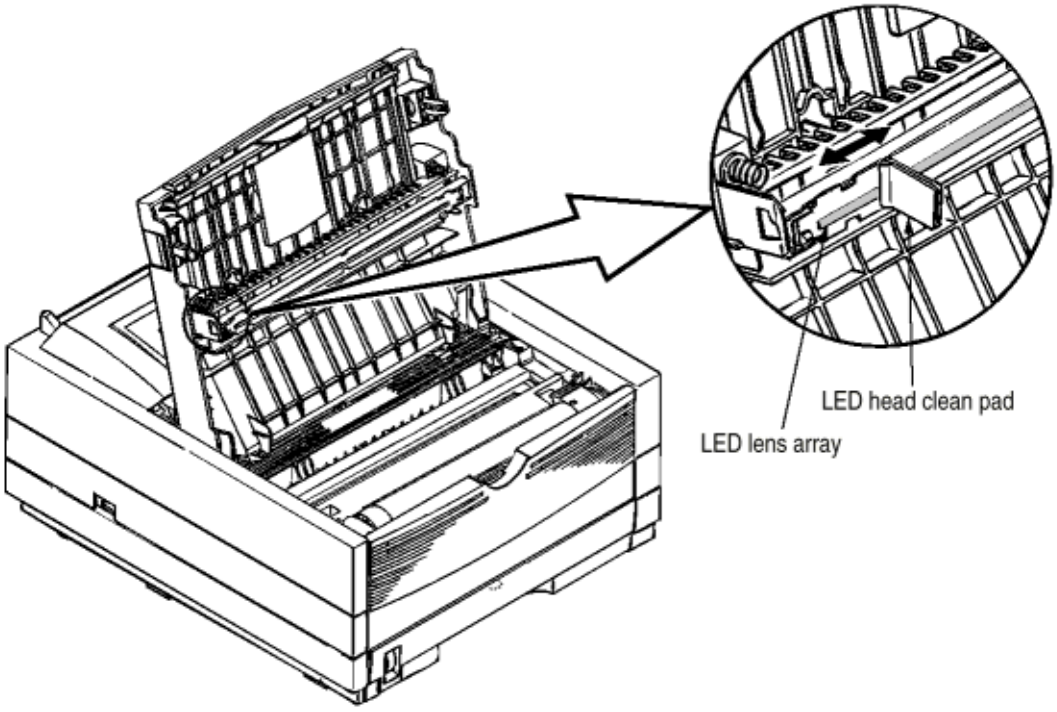
Clean the LED lens array or replace the toner cartridge when white lines or stripes (void, light printing) are generated vertically down the page, as shown below.

Note: The LED lens array must be cleaned with an LED head cleaner included in the replacement toner kit.



(1) Set the LED head cleaner to the LED lens array as shown in the figure, then slide the cleaner back and forth horizontally several times to clean the head.

Note: Gently press the LED head cleaner onto the LED lens array.



(2) Throw the cleaner pad away.

5.2.2 Cleaning Page Function

There is a charge roller cleaning function with this printer, which can be executed by the user.

(1) While the printer is in off-line mode, press both ◀ and ▶ keys simultaneously for at least 2 seconds. The printer enters the cleaning mode.

(2) This Ready lamp and Manual lamp blink.

(3) Insert a sheet of paper into the manual feeder slot.

(4) Toner attached to the image drum is transferred onto the inserted sheet, and the sheet is ejected with the toner residues printed.

(5) The printer returns to off-line mode.

6.1 Troubleshooting Tips

(1) Check the problem solving section in the user's manual.

(2) Gather as much failure information as much as possible from the customer.

(3) Gather the printer under the condition close to that under which the failure occurred.

6.2 Points to Check before Correcting Image Problems

(1) Is the printer being run in proper ambient conditions?

(2) Are supplies (toner) and routine replacement part (image drum cartridge) being replaced properly?

(3) Is the printing paper normal (acceptable quality)?

(4) Is the image drum cartridge being loaded properly?

6.3 Tips for 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 for Troubleshooting

(1) Message display

The failure status of printer is displayed on the status monitor of the PC. Take proper action according to the message displayed on the status monitor.

(2) LED display

Printer is equipped with three LED. These LED indicates one of the following status conditions:

Status	Error (red)	Manual Feed (amber)	Ready (amber)	Remark
Ready	Undefined	OFF	ON	
During suspending data processing (in OFF-LINE) (Data is left in the buffer)	Undefined	OFF	Flash 1	Printing contents of buffer by pressing switch two seconds. Clearing buffer by pressing switch five seconds.
During receiving data or processing data	Undefined	OFF	Flash 2	
Manual request	OFF	Flash 2	Undefined	
Low toner	Flash 1	OFF	Undefined	
Warning Change drum, toner low, toner sensor (total page > 30 sheets)	Flash 1	OFF	Undefined	
Error (printing Error) Buffer Overflow, Print Overrun	Flash 2	OFF	OFF	Recovered by pressing and releasing a switch.
Error Paper out, Input Jam	Flash 2	OFF	OFF	Recovered by pressing and releasing a switch and the printing can be continued.
Error Paper Jam (Paper Size Check Error, Feed Jam, Exit Jam)	Flash 2	OFF	OFF	The printing can be continued by cover open/close.
Error Cover Open	Flash 2	OFF	OFF	
Program error (Watch dog Time Error, Controller Error)	Flash 2	Flash 2	Flash 2	Re-power on
Hardware error (fatal error) (ROM/RAM error, fuser error, thermister error and toner sensor error) (total page <30)	Flash 3	Flash 3	Flash 3	Service call even if the printer cannot recover from one of these errors.
During printer resetting.	OFF	OFF	Flash 2	
During initializing.	ON and then OFF	ON and then OFF	ON and then OFF	
During initializing EEPROM	Flash 2 until Ready	Flash 2 until Ready	Flash 2 until Ready	

Flash 1: Slow blinking
Flash 2: Blinking
Flash 3: Fast blinking

6.5 Troubleshooting Flow

If a trouble occurs in the printer, troubleshoot according to the following procedures:

6.5.1 Status Monitor Message List

6.5.2 Status Message Troubleshooting

6.5.1 LCD Status Monitor Message List

The status and problems which may be displayed by messages on the LCD are listed in Table 6-1.

Category	Status Message	Code	Display Content	Remedy
Normal status	Warming Up	10003	Warming-up status	Normal operation
	Online (Ready)	10001	Online (ready) status	Normal operation
	Power Save Mode	10094	Power save status	Normal operation
	Toner Low	10006	The toner amount of the toner cartridge is small	Normal operation
	Toner Sensor	10093	The I/D unit is not installed or the toner sensor is faulty.	Install the I/D Unit or replace the toner sensor.
	Change Drum	40093	Life of I/D drum	Change the I/D Unit and reset Drum counter see Section 4.1.1 (1).
	Manual Paper In		The paper is in the manual feed mode	Replace the I/D unit. (Note: be sure to reset the drum counter after replacing the I/D Unit).
	Printing in Progress	10098	Printing in Progress X=0, Non Warning X=1, Toner Low X=2,3 Change Drum	Normal operation
	Ejection in Progress	10099	Ejection in Progress X=0, Non Warning X=1, Toner Low X=2,3 Change Drum	Normal operation
	Manual Request Executive Letter Legal 14 Legal 13 A6 A5 A4 B5 Monarch COM-10 DL C5 COM-9		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.
Paper size error	Paper Size Error		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 was 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	40077	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	40078	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	40079	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.
	ID Not Installed	40019		Installed I/D Unit
Cover open	Cover Open	40021	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	30097	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 RAM or reduce the number of print data.
	Print Over Run	30017	A print over run 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		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 4.2.2.).
	Resident RAM Check Error		An error occurred during resident RAM check.	Replace the main control board. (When replacing the main control board, also adjust EEPROM data.) (See Section 4.2.2.).
Device configuration error	EEPROM Check Error		An error occurred during EEPROM check.	Replace the main control board. (When replacing the main control board, also adjust EEPROM data.)
	Option RAM Check Error		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	40084	A heater timeout error occurred.	See Section 6.5.2.4.
	Thermister Open Check Error		The thermister is open.	Replace the heater Assy.
	Thermister Short Check Error		A thermistor short occurred.	Replace the heater Assy.
	Watch Dog Timeout Error		A watchdog timeout occurred.	To release the error display, turn on the power supply again. Replace the main control board.
	Motor Timeout Error		A motor timeout occurred.	To release the error display, turn on the power supply again. Replace the main control board.

6.5.2 Status Message Troubleshooting

If the problems cannot be corrected by using the LCD status message/problem list, follow the troubleshooting flowcharts given here to deal with them.

No.	Trouble	Flowchart number
1.	The printer does not work normally after the power is turned on.	(1)
2.	Jam alarm ● Paper input jam ● Paper feed jam ● Paper exit jam	 (2) - 1 (2) - 2 (2) - 3
3.	Paper size error	(3)
4.	Fusing unit error	(4)
5.	SSIO (Synchronous Serial Input/Output) error I/F timeout (no response) between the printer and an optional tray (High Capacity Second Paper Feeder, Power Envelope Feeder).	(5)
6.	Fan error	(6)

(1) The printer does not work normally after the power is turned on.

• Turn the power off, then back on.

• Is the Power LED (⏻) lamp on?

• No Is the AC cord being connected properly?

• No Connect the AC cord properly.

Yes Is +5 V being applied between Pins 11 and 21 of POWER connector on the main control board?

Pin 21 : 0 V
Pin 11 : +5 V

Ⓐ

• No Is the connection between POWER connector on the main control board and connector CN3 on the power supply/sensor board being made properly?

No Correct the connection.

Yes Go to ①-1.

Yes Is +8 V being applied between Pins 23 and 24 (GND) of POWER connector?

Pin 23 : 0 V
Pin 24 : +8 V

• No Go to Ⓐ

Yes Is the flexible cable for the operator panel assy being connected to the PANEL connector on the control board and the connector CN1 on the OPP board properly?

• No Connect the flexible cable properly.

Yes Replace the operator panel assy or flexible cable.

Has the problem been solved?

• No Replace the main control board.

Yes End

Yes Is the Ready LED (◯) lamp on?

• No Replace the main control board.

Yes End

①-1

- Take the measurement of the following voltage readings at connector CN2 on the power supply/sensor board:

  Voltage between Pins 1 and 3: ... about 40 V AC
  Voltage between Pins 5 and 6: ... about 9.2 V AC
  Are the voltages within the normal range?

  - Yes Is fuse F3 on the power supply/sensor board blown?

    - No Replace the power supply/sensor board.

    Yes Replace fuse F3 (if it blows again, check the resistance of the registration and main/drum motors. If it is faulty, replace motors or replace the power supply/ sensor board or main control board).

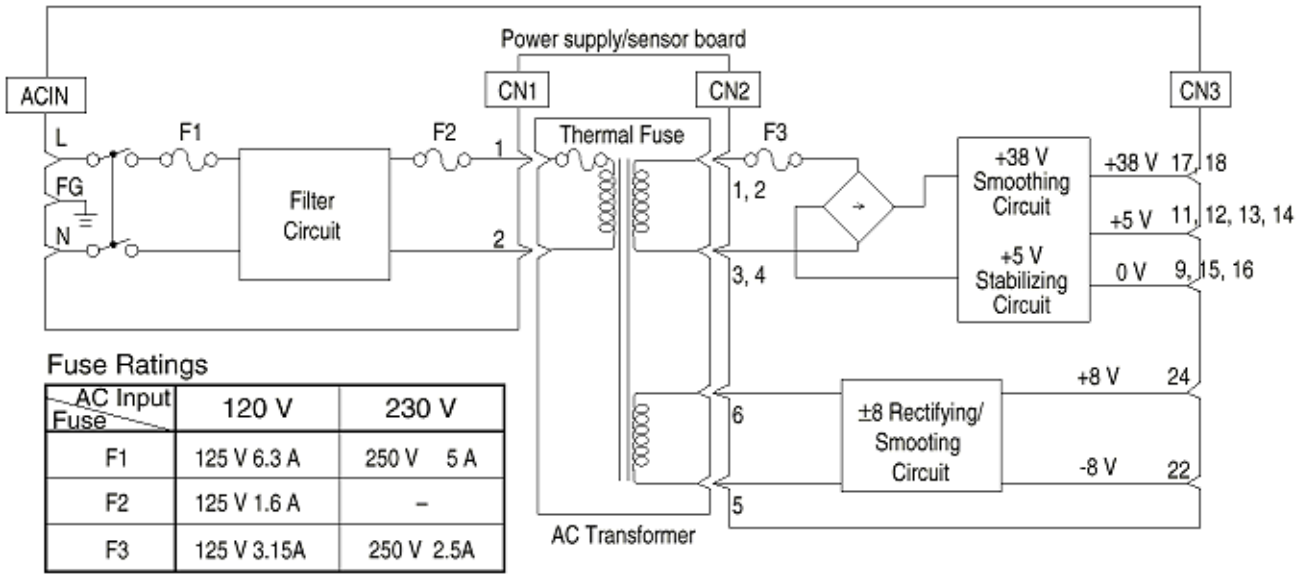
No Is the AC input voltage output between Pins 1 and 2 of connector CN1 on the power supply/sensor board normal?

- Yes Replace the AC transformer.

No Is fuse F1 or F2 on the power supply/sensor board blown?

- No Replace the power supply/sensor board.

Yes Replace blown fuse F1 or F2 (if is blows again, replace the power supply/sensor board).



Fuse Ratings

AC Input / Fuse	120 V	230 V
F1	125 V 6.3 A	250 V 5 A
F2	125 V 1.6 A	–
F3	125 V 3.15A	250 V 2.5A

Figure 6-1 Low-voltage Power Supply Block Diagram

(2) [JAM error]

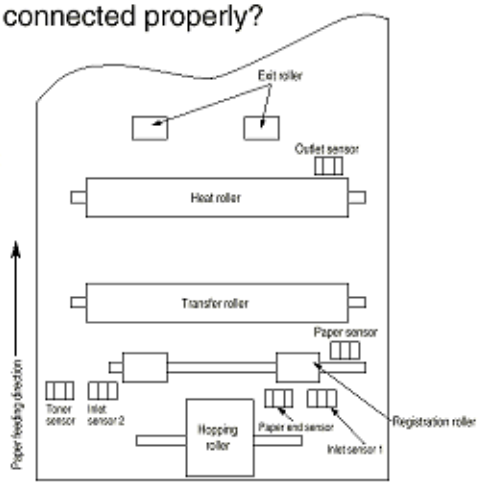
Paper input jam

Paper feed jam

Paper exit jam

2-1 Paper input jam

- Does the JAM error occur when the power is turned on?
  - Yes — Is the paper at the inlet sensor?
    - Yes — Remove the paper.
  - No — Is the operation of the inlet sensor plate normal (moves freely when it is touched)?
    - No — Replace the inlet sensor plate.
  - Yes — Clean the inlet sensor on the power supply/sensor board, or replace the power supply/sensor board.
- No — Does the JAM alarm occur after paper feeding?
  - Yes — Is the paper fed to the inlet sensor plate?
    - Yes — Is the operation of the input sensor plate normal (moves freely when it is touched)?
      - No — Replace the inlet sensor plate.
    - Yes — Clean the inlet sensor on the power supply/sensor board or replace the power supply/sensor board.
  - No — Replace the hopping roller rubber or paper cassette.
- No — Is the hopping roller rotating?
  - Yes — Set the paper tray properly.
- No — Is the registration motor rotating?
  - Yes — Replace the one-way clutch gear of the hopping roller assembly.
- No — Is RM connector on the main control board being connected properly?
  - No — Connect RM connector properly.
- Yes — Is the coil resistance (normal resistance: both between Pins 1 and 2, as well as Pins 3 and 4 are about 18.6 Ω) of the registration motor normal?
  - No — Replace the registration motor.
- Yes — Replace the main control board.



2-2 Paper feed jam

- Does the paper feed jam occur when the power is turned on?
  - Yes — Is the paper on the paper sensor plate?
    - • Yes — Remove the paper.
  - No — Is the operation of the paper sensor plate normal (moves freely when it is touched)?
    - • No — Replace the paper sensor plate.
  - Yes — Replace the power supply/sensor board.
- No — Has the paper reached the paper sensor plate?
  - No — Is the registration roller rotating?
    - • No — Replace the one-way clutch gear of the hopping roller assembly.
  - Yes — Is the image drum cartridge being set properly?
    - • No — Set the image drum cartridge properly.
  - Yes — Check the hopping roller assembly or tray.
- Yes — Has the paper reached the outlet sensor plate?
  - Yes — Is the operation of the outlet sensor plate normal (moves freely when it is touched)?
    - • No — Replace the outlet sensor plate.
  - Yes — Clean the outlet sensor on the power supply/sensor board or replace the power supply/sensor board.
- No — Is the main/drum motor rotating?
  - No — Is DM connector on the main control board being connected properly?
    - • No — Connect DM connector properly.
  - Yes — Is the coil resistance (normal resistance: both between Pins I and 2, as well as Pins 3 and 4 are about 2.9Ω) of the main/drum motor correct ?
    - • No — Replace the main/drum motor.
  - Yes — Replace the main control board.
- Yes — Is the transfer roller rotating?

②-2-a

②-2-a

- No — Check the gears (transfer roller gear, idle gear and reduction gear).

Yes — Is the fusing unit being installed properly?

- No — Install the fusing unit properly.

Yes — Is the image drum cartridge being set properly?

- No — Set the image drum cartridge properly.

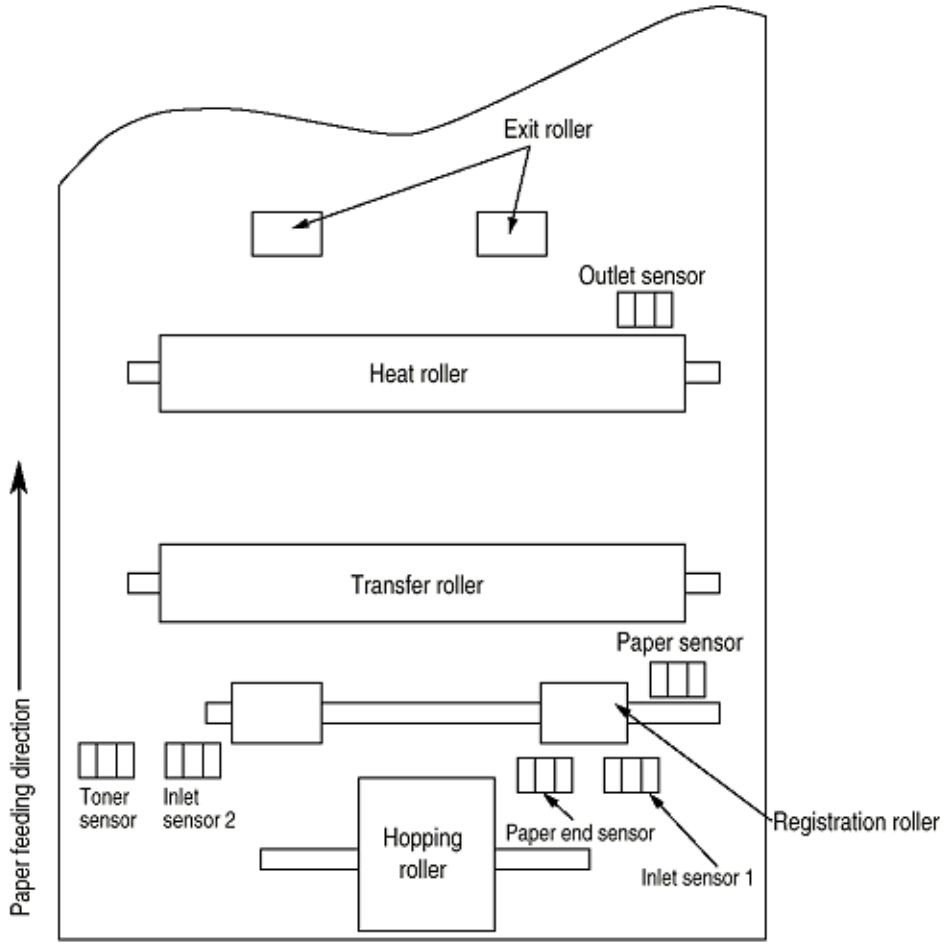
Yes — Clean the paper sensor on the power supply/sensor board or replace the power supply/sensor board.

3-3 Paper exit jam

- Does the paper exit jam error occur when the power is turned on?
  - Yes — Is the paper on the outlet sensor plate?
    - Yes — Remove the paper.
  - No — In the operation of the outlet sensor plate normal (moves freely when it is touched)?
    - No — Replace the outlet sensor plate.
  - Yes — Clean the outlet sensor on the power supply/sensor board or replace the power supply/sensor board.
- No — Is the face-up stacker pulled out completely from the printer or, pushed into the printer completely?
  - No — Pull the face-up stacker out of the printer completely or push it into the printer completely.
- Yes — Is the eject roller assembly being installed properly?
  - No — Install the eject roller assembly properly.
- Yes — Has the coil spring come off the eject roller assembly?
  - Yes — Install the coil spring to the eject roller assembly.
- No — Replace the eject roller assembly.

(3) Paper size error

- Is paper of the specified size being used?
  - No — Use paper of the specified size.
- Yes — Are inlet sensor plates 1 and 2 operating properly (moves freely when they are touched)?
  - No — Replace the inlet sensor plate or clean the inlet sensor on the power supply/ sensor board.
- Yes — Does the outlet sensor plate operate properly (moves freely when it is touched)?
  - No — Replace the outlet sensor plate or clean the outlet sensor on the power supply/ sensor board.
- Yes — Replace the power supply/sensor board.



(4) Fusing unit error

Status Message:

Thermister Open Error
Thermister Short Check Error
Fuser Error

- Turn the power off, then back on again.

Yes — Is the thermistor open or shorted? Measure the resistance between thermistor contacts (heater contacts 120V/3Ω or 240V/10Ω, and thermistor contacts 220KΩ at room temperature) (see Figure 6-2 or Section 7.3).

- Yes Replace the fusing unit.

No — Do the thermistor contacts touch the contact assembly properly when the fusing unit is mounted in the printer?

- No Adjust the contacts of the contact assembly.

Yes — Is the heater of the fusing unit turned on (when the heater is turned on, light is emitted)?

- Yes Check the thermistor contacts or replace the main control board or the fusing unit.

No — Is the AC voltage being supplied to the contacts for the heater of the contact assembly? (see Figure 6-2)

- No Replace the main control board or the power supply/sensor board.

Yes — Check the heat contacts of the fusing unit and the contact assembly for poor contact (see Figure 6-4 contact Ⓖ).

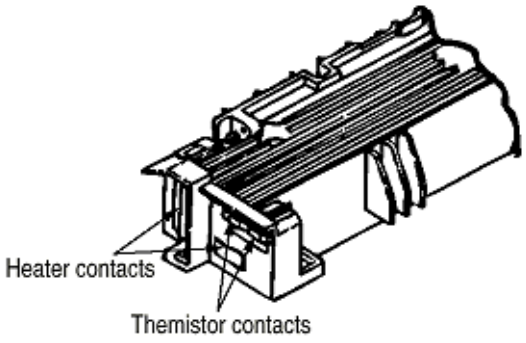
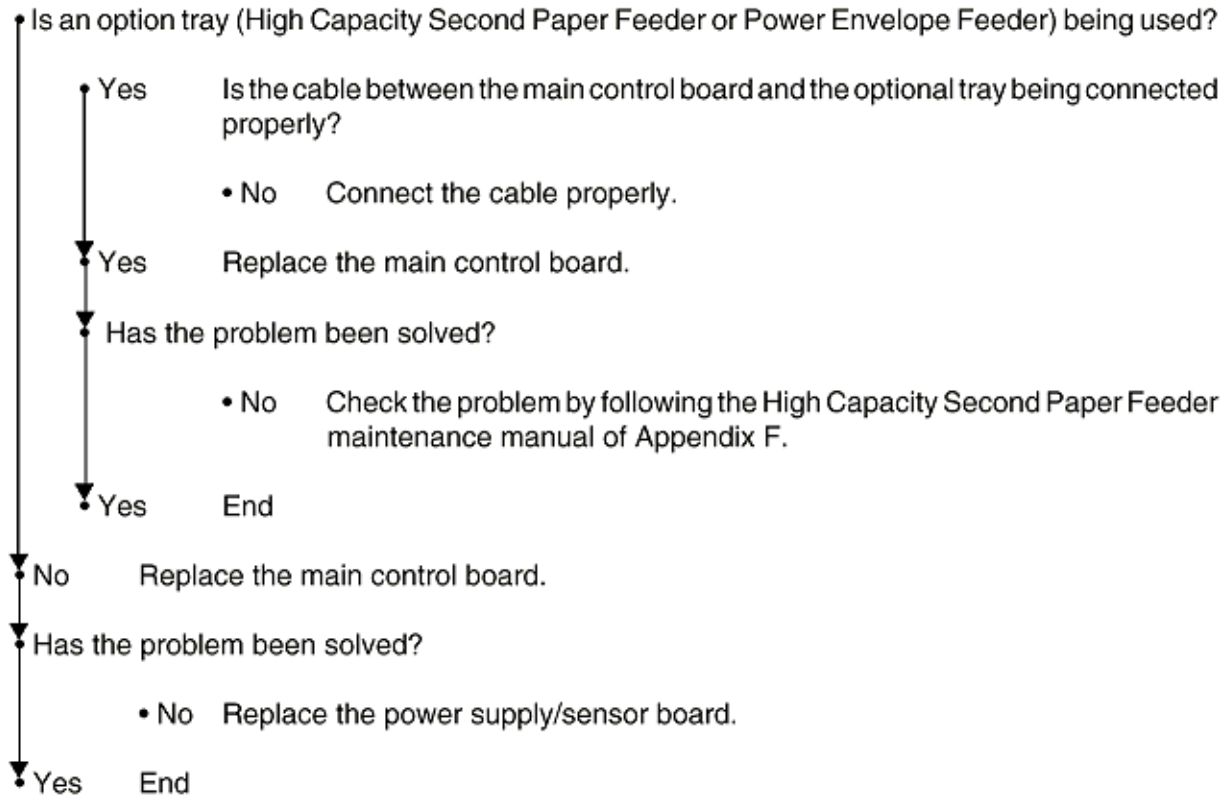


Figure 6-2

(5) SSIO error

Synchronous Serial I/O error (Status Message: SSIO Error) or I/F timeout between printer and optional tray (Status Message: Tray2 Timeout Error or Feeder Timeout Error)



(6) Fan error (ERROR 70)

- Is the fan rotating?
  - Yes — Replace the main control board.
- No — Is FAN connector on the main control board being connected properly?
  - No — Connect FAN connector properly.
- Yes — Replace the fan or main control board.

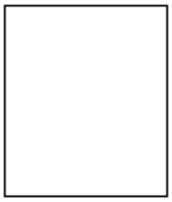
6.5.3 Image Troubleshooting

Procedures for troubleshooting for the cases of abnormal image printouts are explained below. Figure 6-3 below shows typical abnormal images.

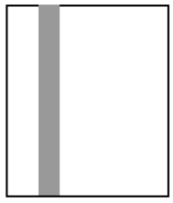
Problem	Flowchart number
Images are light or blurred entirely (Figure 6-3, A)	(1)
Dark background density (Figure 6-3, B)	(2)
Blank paper is output (Figure 6-3, C)	(3)
Black vertical block belt/black stripe (Figure 6-3, D)	(4)
Cyclical defect (Figure 6-3, E)	(5)
Print void	(6)
Poor fusing (images are blurred or peeled off when touched by hands)	(7)
Vertical white belt/white stripe (Figure 6-3, F)	(8)

A Light or blurred images entirely

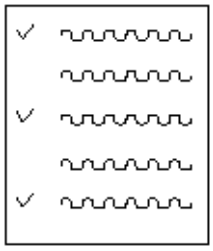
B Dark background density



C Blank paper



D Black vertical stripes



E Cyclical defect

F White vertical belts or streaks

Figure 6-3 Image Problems

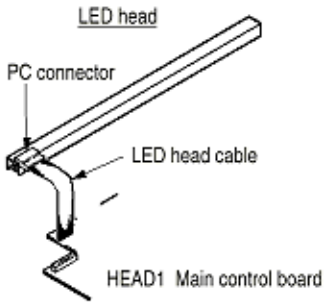
(1) Images are light or blurred entirely

- Is toner low (is the TONER LOW message displayed)?
  - Yes — Supply toner.

No — Is paper of the specified grade being used?
  - No — Use paper of the specified grade.

Yes — Is the lens surface of the LED head dirty?
  - Yes — Clean the lens.

No — Is the LED head being installed properly (check the HEAD1connector of the main control board and PC connector on the LED head for proper connection)?
  - No — Install the LED head properly.



Yes — Is the contact plate of the transfer roller in contact with the contact assembly of the power supply/ sensor board properly (see Figure 6-5)?
  - No — Adjust the contact plate of the transfer roller to make a proper contact with the power supply/sensor board and shaft of the transfer roller.

Yes — Are the contact of the developing roller and the contact of the toner supply roller of the image drum cartrige in contact with the contact assembly properly (see Figure 6-4 Ⓐ and Ⓑ)?
  - No — Adjust the contacts of the developing and toner supply roller to make a proper contact with the contact assembly.

Yes — Replace the transfer roller.

Has the problem been solved?
  - Yes — End

No — Replace the image drum cartridge.

Has the problem been solved?
  - Yes — End

Note: After replacing the image drum cartridge, reset the drum counter by clicking the "Reset" button in the Status Monitor. (See Printer Handbook).

No — Is the tension between the back-up roller (7.52kg) and the surface of back-up roller normal?
  - No — Replace the back-up roller or bias spring.

Yes — Replace the main control board or power supply/sensor board.

(BPX) for any updates to this material. (http://bpx.okidata.com)

(2) Dark background density

Has the image drum been exposed to external light?

- Yes — Install the image drum in the printer and wait about 30 minutes.

No — Perform the cleaning page function (see Section 5.2.2).

Has the problem been solved?

- Yes — End

No — Is the heat roller of the fusing unit dirty?

- Yes — Clean the heat roller.

No — Is the contact of the cleaning roller of the image drum cartridge in contact with the contact assembly properly (see Figure 6-4 ©)?

- No — Adjust the contact of the cleaning roller to make a proper contact with the contact assembly.

Yes — Replace the image drum cartridge.

Has the problem been solved?

- Yes — End

Note: After replacing the image drum cartridge, reset the drum counter by clicking the "Reset" button in the Status Monitor. (See Printer Handbook).

No — Replace the main control board or power supply/sensor board.

(3) Blank paper is output

- Is the LED head being connected properly (check the HEAD1 and HEAD2 connectors on the main control board and PC connector on the LED head)?
  - No — Connect the LED head properly or replace the head cable(s).

Yes — Is the contact of the image drum cartrige in proper contact with the ground contact properly (see Figure 6-4 ©)?

- No — Adjust the ground contact (Drum) of the contact assembly.

Yes — Replace the LED head.

Has the problem been solved?

- Yes — End

Note: After replacing the LED head, set the LED head drive time (See 4.2).

No — Replace the main control board or power supply/sensor board.

(4) Black vertical belts or stripes

- Perform the cleaning page function (see Section 5.2.2).

Has the problem been solved?

- Yes End.

No Replace the image drum cartridge.

Has the problem been solved?

- Yes End

Note: After replacing the image drum cartridge, reset the drum counter by clicking the "Reset" button in the Status Monitor. (See Printer Handbook).

Clean the LED lens array of the LED head.

Has the problem been solved?

- Yes End.

No Replace the LED head.

Has the problem been solved?

- Yes End

Note: After replacing the LED head, set the LED head drive time (See 4.2).

No Replace the main control board or power supply/sensor board.

(5) Cyclical defect

	Frequency	Remedy
Image Drum	3.71" (94.2mm)	Clean or replace the image drum unit.
Developing roller	1.86" (47.12mm)	Replace the image drum unit.
Toner supply roller	2.96" (75.27mm)	Replace the image drum unit.
Charging roller	1.21" (30.63mm)	Replace the image drum unit.
Cleaning roller	0.93" (23.56mm)	Replace the image drum unit.
Transfer roller	1.95" (49.6mm)	Replace the image drum unit.
Heat roller	2.44" (62.0mm)	Replace the heat roller.
Back-up roller	2.73" (69.4mm)	Replace back-up roller.

Note: After replacing the image drum cartridge, set the printer to the user maintenance mode by turning the power on while pressing the MENU key, and reset the drum counter (see Printer Handbook).

(6) Prints voids

- Is the contact plate of the transfer roller in proper contact with the power supply/sensor board (see Figure 6-5)?

  - No — Adjust the contact plate so that it touches the power supply/sensor board and the shaft of the transfer roller properly.

Yes — Replace the transfer roller.

Has the problem been solved?

  - Yes — End

No — Is the tension between the back-up roller (7.52kg) and the surface of back-up roller normal?

  - No — Replace the back-up roller or bias spring.

Yes — Are the contacts of the toner supply roller, developing roller, image drum and charging roller in proper contact with the contact assy (see Figure 6-4 Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ)?

  - No — Adjust the contacts so that they touch the contact assy properly.

Yes — Replace the image drum cartridge.

Has the problem been solved?

  - Yes — End

    Note: After replacing the image drum cartridge, reset the drum counter by clicking the "Reset" button in the Status Monitor. (See Printer Handbook).

No — Is the LED head being installed properly (check HEAD1 and HEAD 2 connectors on the main control board and PC Connector on the LED head)?

  - No — Install the LED head properly.

Yes — Replace the LED head or the head cable(s).

Has the problem been solved?

Yes — End

Note: After replacing the LED head, set the LED head drive time (See 4.2).

No — Replace the main control board or power supply/sensor board.

(7) Poor fusing

Poor fusing (images are blurred or peels off when the printed characters and images on the paper are touched by hand)

- Is paper of the specified grade being used?
  - • No — Use paper of the specified grade.
- Yes — Is the tension between the back-up roller (7.52kg) and the surface of back-up roller normal?
  - • No — Replace the back-up roller or bias spring.
- Yes — Is the contact of the fusing unit assy in proper contact with the contact assy (see Figure 6-4 Ⓖ)?
  - • No — Adjust the contact of the fusing unit assy to make a proper contact with the contact assembly.
- Yes — Replace the fusing unit assy.
- Has the problem been solved?
  - • Yes — End
- No — Replace the main control board or power supply/sensor board.

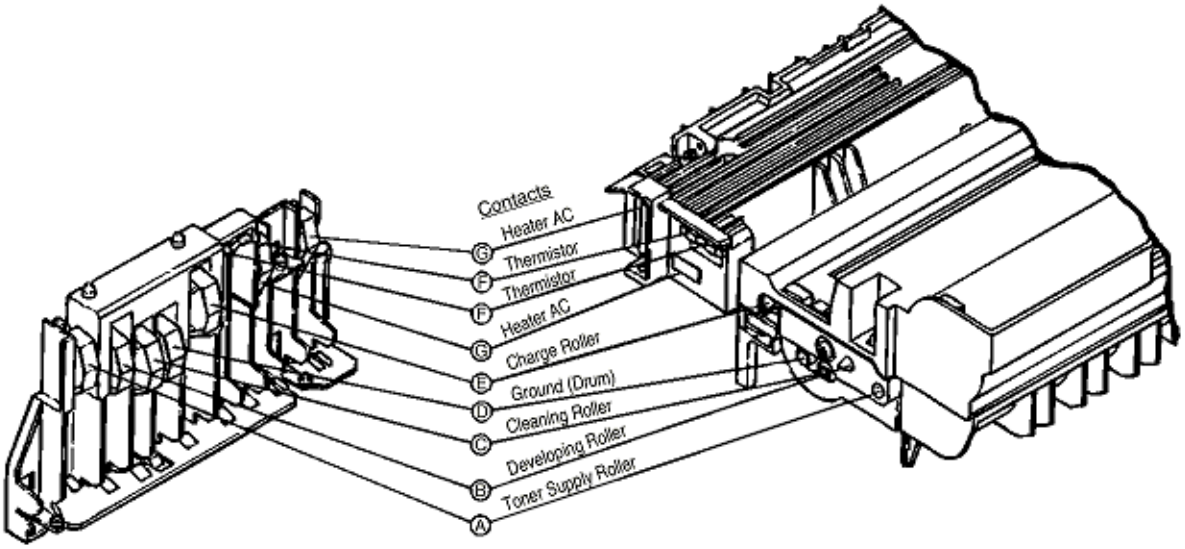
(8) Vertical belts or streaks

- Are the LED lens dirty?
  - Yes — Clean the LED lens.
- No — Is the contact plate of the transfer roller in proper contact with the power supply/sensor board (see Figure 6-5)?
  - No — Adjust the contact plate to make a proper contact with the power supply/sensor board.
- Yes — Replace the transfer roller.
- Has the problem been solved?
  - Yes — End
- No — Is the tension between the back-up roller (7.52kg) and the surface of back-up roller normal?
  - No — Replace the back-up roller or bias spring.
- Yes — Is the LED head being installed properly (check HEAD1 connector on the main control board and PC connector on the LED head)?
  - No — Install the LED head properly.
- Yes — Replace the LED head.
- Has the problem been solved?
  - Yes — End

    Note: After replacing the LED head, set the LED head drive time (See 4.2).
- Yes — Replace the image drum cartridge.
- Has the problem been solved?
  - Yes — End

    Note: After replacing the image drum cartridge, reset the drum counter by clicking the "Reset" button in the Status Monitor. (See Printer Handbook).
- No — Replace the main control board or power supply/sensor board.

Figure 6-4



< same diagram --- different view>

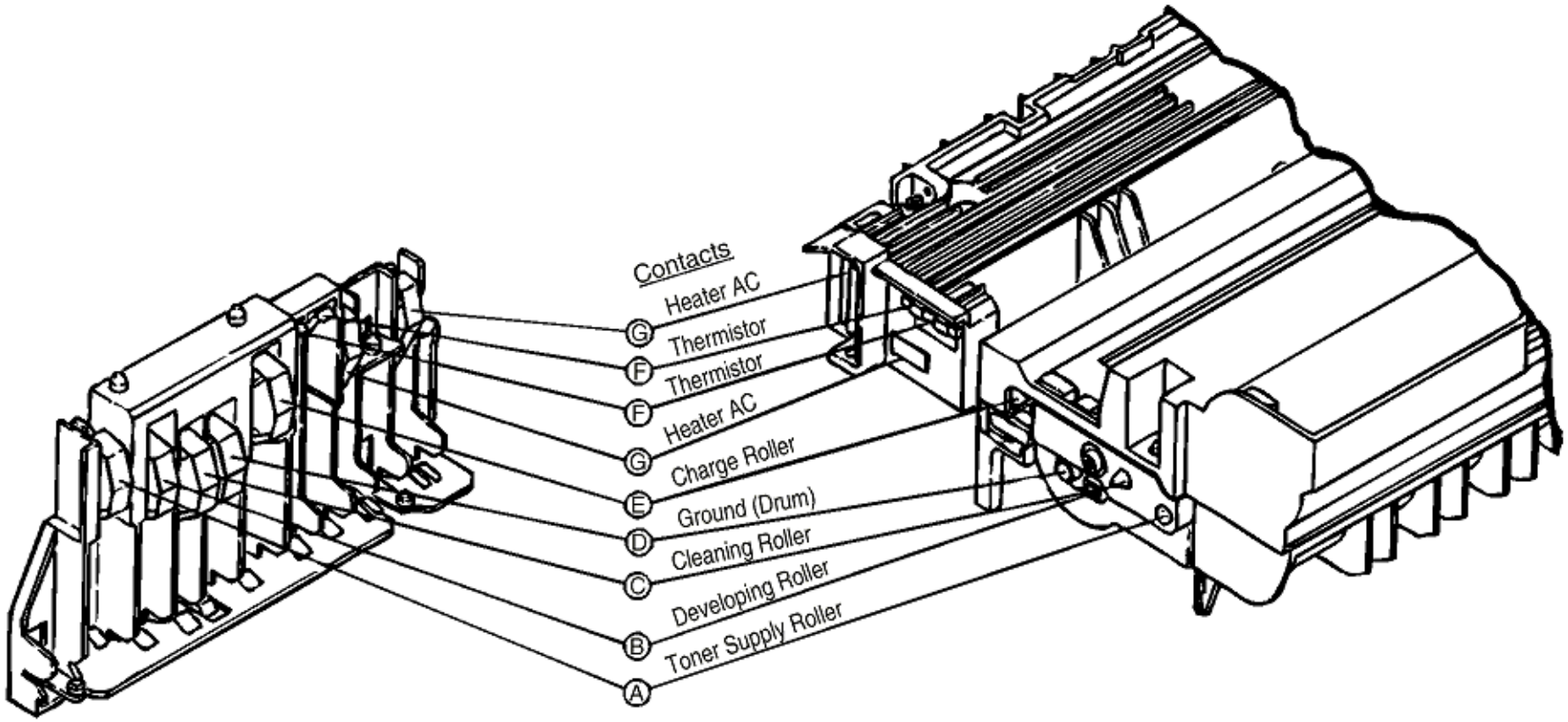
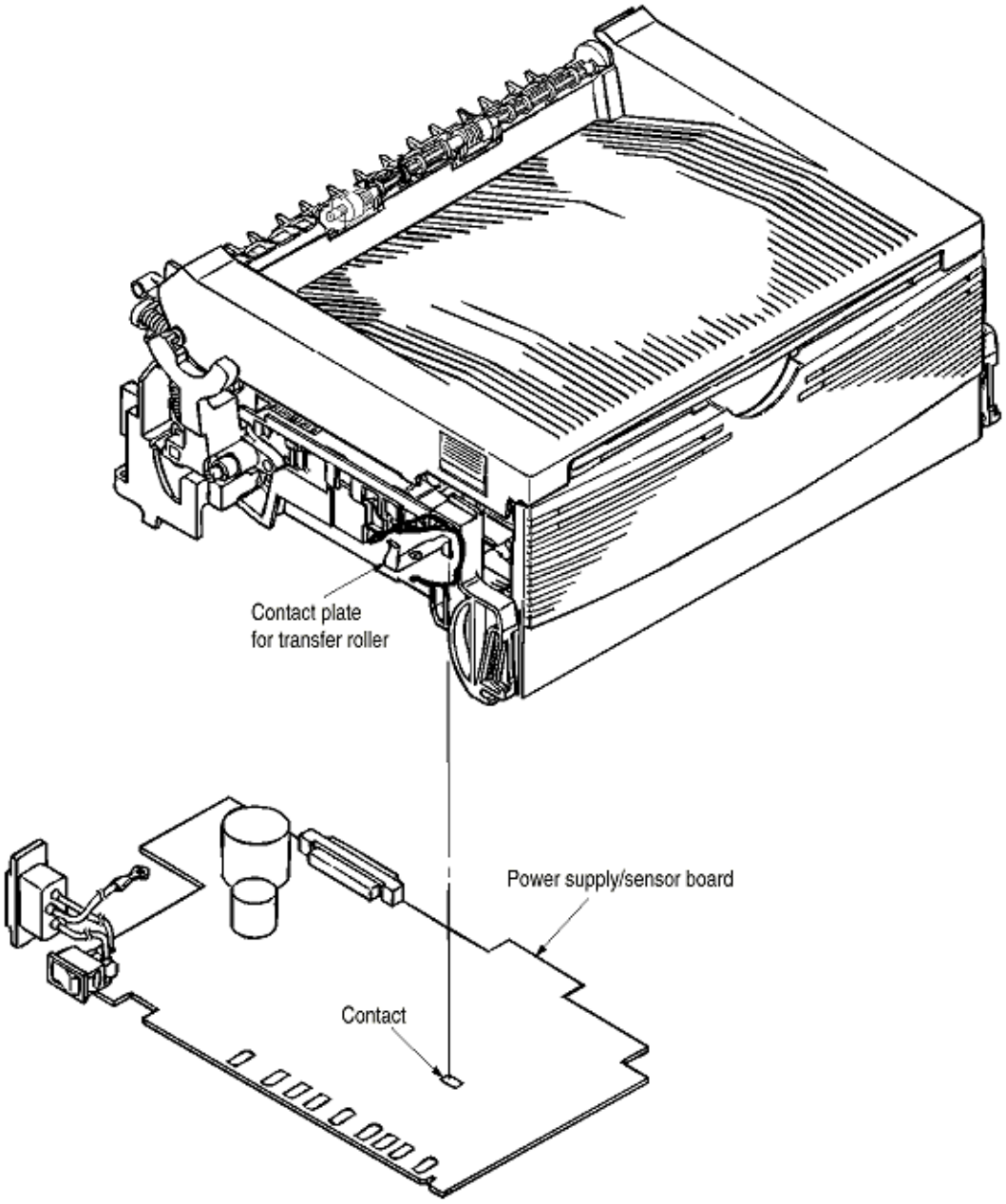
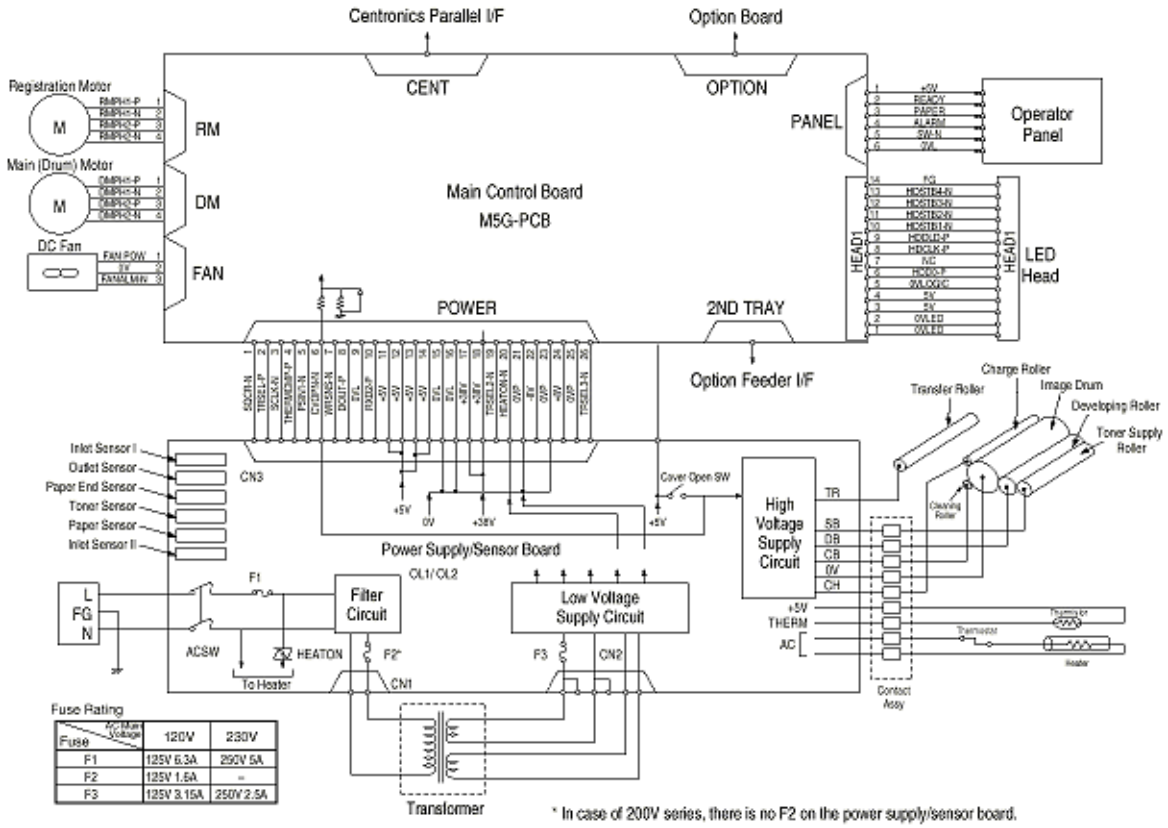

Contacts
G Heater AC
F Thermistor
F Thermistor
G Heater AC
E Charge Roller
D Ground (Drum)
C Cleaning Roller
B Developing Roller
A Toner Supply Roller

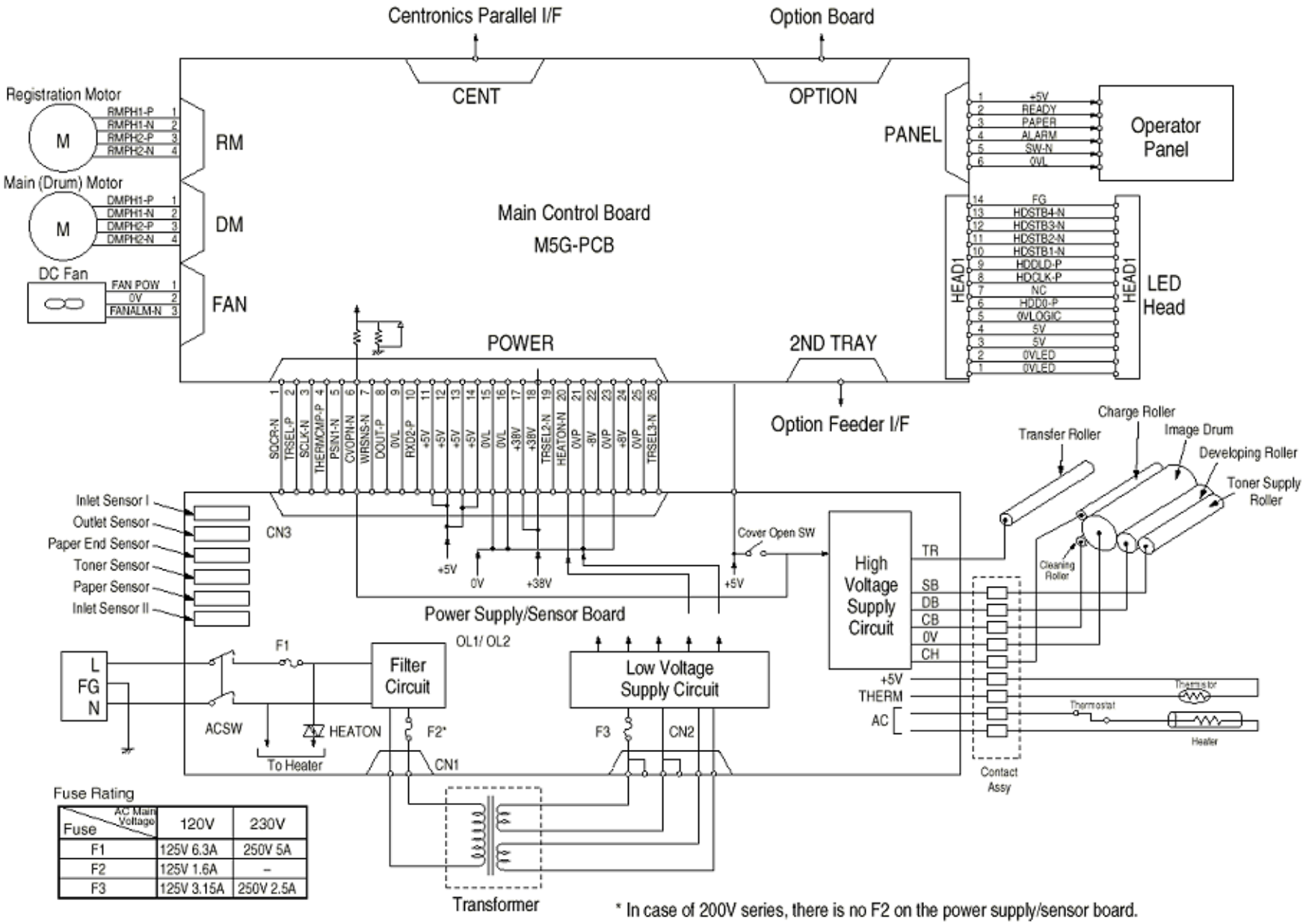
Figure 6-5



7.1 Interconnect Signal Diagram



< same diagram -- different view >



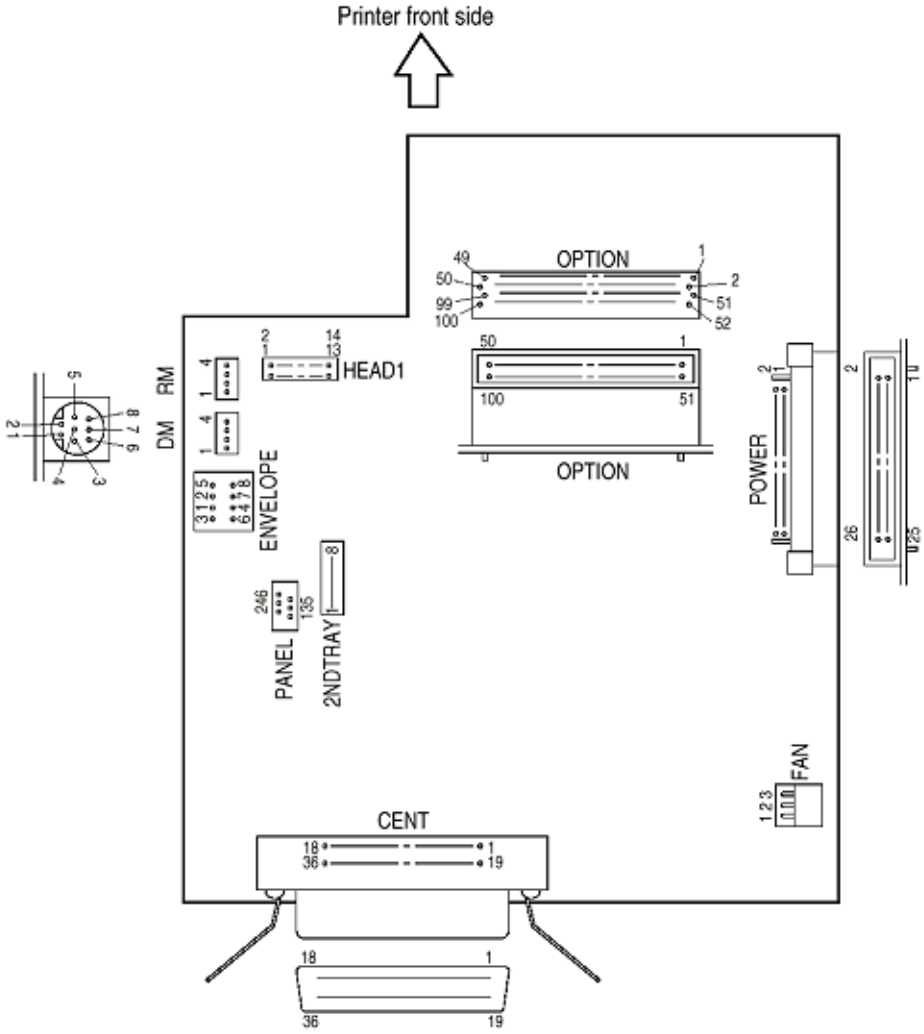
Fuse Rating

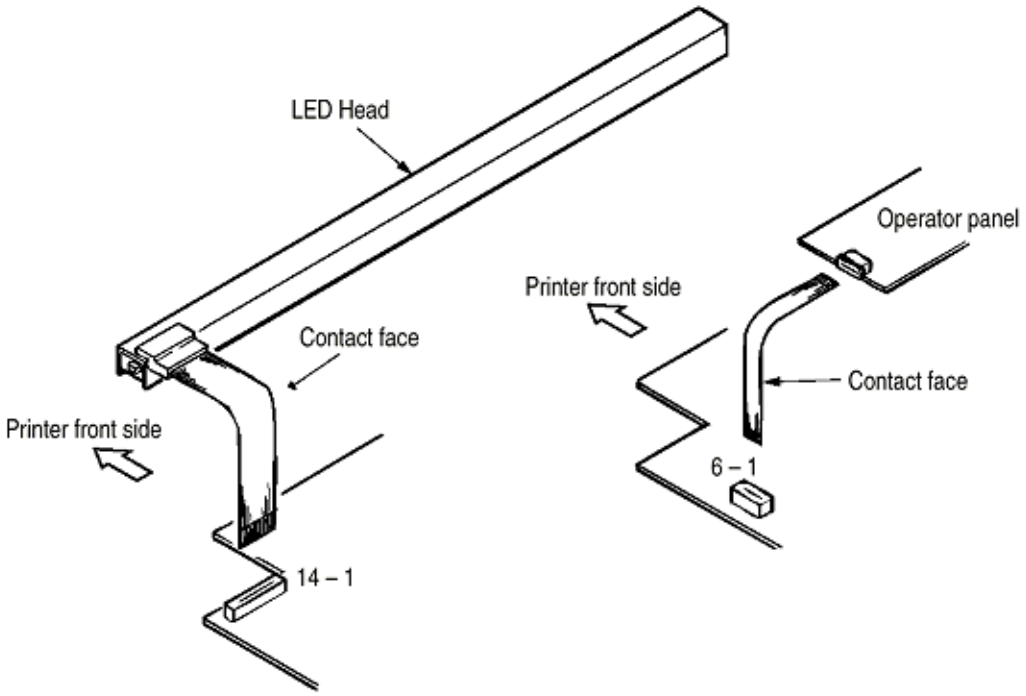
Fuse \ AC Main Voltage	120V	230V
F1	125V 6.3A	250V 5A
F2	125V 1.6A	–
F3	125V 3.15A	250V 2.5A

* In case of 200V series, there is no F2 on the power supply/sensor board.

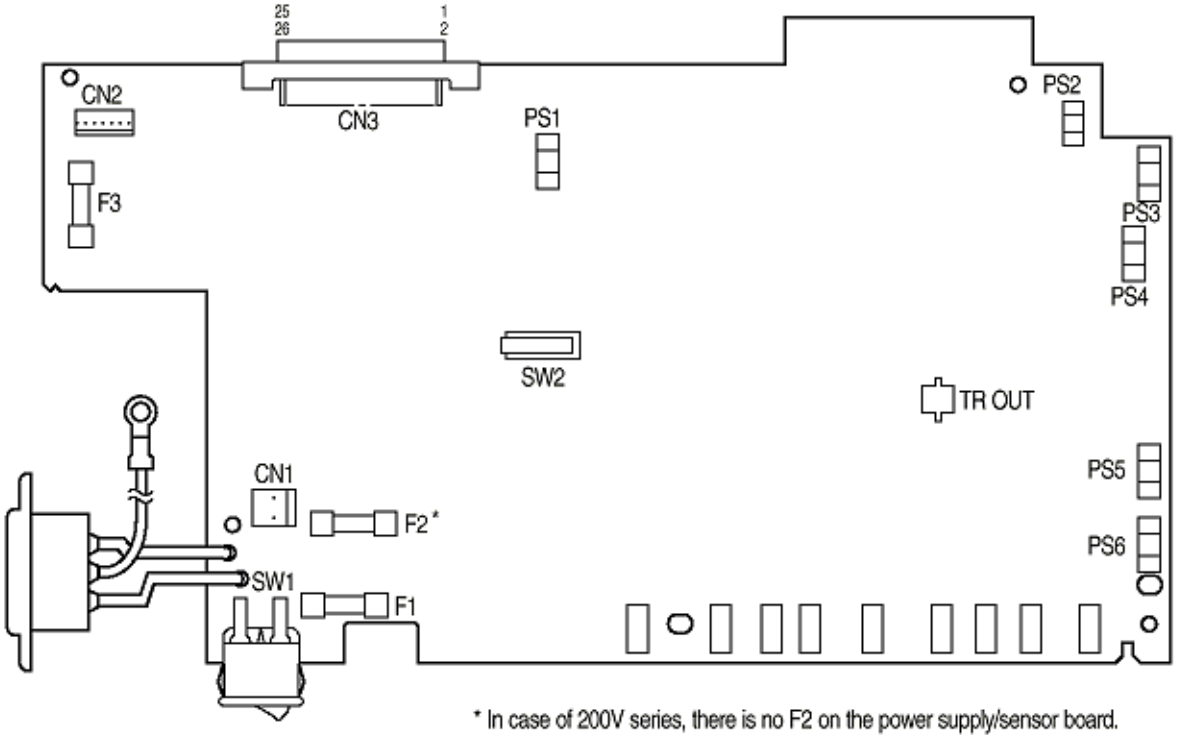
7.2 PCB Layout and Connector Signal List

(1) Main Control Board (M5G-PCB)





(2) Power Supply Board



FAN Connector Pin Assignment (To fan motor)

Opening	PIN NO.	I/O	Signal	Description
1	1	O	FANPOW	Power supply for fan driving
2	2	C	OV	Ground
3	3	I	FANALM-N	Fan alarm

DM Connector Pin Assignment (To main/drum motor)

Opening	PIN NO.	I/O	Signal	Description
1	1	O	DMPH1-N	Coil 1-N
2	2	O	DMPH1-P	Coil 1-P
3	3	O	DMPH2-N	Coil 2-N
4	4	O	DMPH2-P	Coil 2-P

Excitation sequence

		Step No.	Step No.	Step No.	Step No.
Pin No.	Line Color	1	2	3	4
2	Yellow	+	-	-	+
4	Black	+	+	-	-
1	Orange	-	+	+	-
3	Brown	-	-	+	+

Turning direction Clockwise when viewed from the output axis.

RM Connector Pin Assignment (To registration motor)

Opening	PIN NO.	I/O	Signal	Description
1	1	O	RMPH1-N	Coil 1-N
2	2	O	RMPH1-P	Coil 1-P
3	3	O	RMPH2-N	Coil 2-N
4	4	O	RMPH2-P	Coil 2-P

Excitation sequence

PIN NO.	Line Color	Step No.	Step No.	Step No.	Step No.
		1	2	3	4
2	Yellow	+	-	-	+
4	Black	+	+	-	-
1	Orange	-	+	+	-
3	Brown	-	-	+	+

Rotary direction - Clockwise viewed from the output axis.

Head1 Connector Pin Assignment (To LED Head)

PIN NO.	I/O	Signal	Description
1	C	0VLOGIC	Ground for logic
2	O	HDCLK-P	Clock
3	C	0VLOGIC	Ground for logic
4	O	HDD2-P	Data 4
5	O	HDD3-P	Data 3
6	C	0VLED	Ground for LED
7	O	HDD0-P	Data 0
8	O	HDD1-P	Data 1
9	O	+3.3V	+3.3V power supply for LED driving
10	O	HDDLD-P	Load
11	O	HDSTB1-N	Strobe 1
12	O	HDSTB2-N	Strobe 2
13	O	HDSTB3-N	Strobe 3
14	O	HDSTB4-N	Strobe 4

O: Out
C: Common

PANEL Connector Pin Assignment (To operator panel)

		PIN NO.	I/O	SIGNAL	DESCRIPTION
1		1	O	PLD-N	Load
	2	2	C	OV	Logic ground
3		3	O	PDATAOUT-P	Data output
	4	4	I	PDATAIN-P	Data input
5		5	C	5V	+5V power supply
	6	6	O	PSCLK-N	Clock

I: In
O: Out
C: Common

ENVELOPE Connector Pin Assignment (To option feeder I/F)

		PIN NO.	I/O	Signal	Description
5	8	1	O	PAPERIN-N	Paper sense 1
2	7	2	O	OPTSCLK-N	Clock
1	4	3	O	DATA-N	Data
3	6	4	I	PAPERIN-N	OPT send data ready
		5	C	OVP	Analog ground
		6	O	38V	+30V power supply
		7	C	0V	Logic ground
		8	O	5V	+5V power supply

I: In
O: Out
C: Common

2ND TRAY Connector Pin Assignment (To option tray I/F)

	PIN NO.	I/O	Signal	Description
1	1	O	PAPERIN-N	Paper sense 1
2	2	O	OPTSCLK-N	Clock
3	3	O	DATA-N	Data
4	4	I	PAPERIN-N	OPT send data ready
5	5	C	OVP	Analog ground
6	6	O	38V	+30V power supply
7	7	C	0V	Logic ground
8	8	O	5V	+5V power supply

POWER Connector Pin Assignment (To power supply/sensor board)

		Pin No.	Signal	I/O	Description	Pin No.	Signal	I/O*	Description
2	1	2	TRSEL1	O	TR control switch	1	SQCR-N	I	Sequence clear signal of serial I/F
4	3	4	THERM-CMP	I	Heater temperature	3	SCLK-N	I	Clock signal of serial I/F
6	5	6	CVOPN-N	I	Cover open (+35V)	5	PSIN1-N	I	Paper sense
8	7	8	DOUT-P	O	Serial data output	7	WRSNS	I	Reading of paper edge
10	9	10	RXD2-P	I	Serial data input	9	OVL	C	Ground for logic
12	11	12	+5V	I	Logic circuit supply voltage	11	+5V	I	Logic circuit supply voltage
14	13	14	+3.3V	I	LED head supply voltage	13	+3.3V	I	LED head supply voltage
16	15	16	OVL	C	Logic ground	15	OVL	C	Logic ground
18	17	18	+38V	I	Motor and fan drive voltage and source voltage for high voltage supply	17	+38V	I	Motor and fan drive voltage and source voltage for high voltage supply
20	19	20	HEATON-N	O	Heater on	19	TRSEL2	O	TR control switch
22	21	22	-8V	I	RS232C line voltage	21	OVP	C	Analog
24	23	24	+8V	I	RS232C line voltage	23	OVP	C	Analog

26	25	26	TRSEL3-N	O	TR control switch	25	OVP	C	Analog

O: Out
I: In
C: Common

CENT Connector Pin Assignment (To Centro parallel I/F)

		Pin No.	I/O*	Signal	Description	Pin No.	I/O	Signal	Description
1	19	1	I	Strobe	Strobe	19	C	SG	Ground
2	20	2	C	DATA1-P	Data bit 0	20	C	SG	Ground
3	21	3	C	DATA2-P	Data bit 1	21	C	SG	Ground
4	22	4	C	DATA3-P	Data bit 2	22	C	SG	Ground
5	23	5	C	DATA4-P	Data bit 3	23	C	SG	Ground
6	24	6	C	DATA5-P	Data bit 4	24	C	SG	Ground
7	25	7	C	DATA6-P	Data bit 5	25	C	SG	Ground
8	26	8	C	DATA7-P	Data bit 6	26	C	SG	Ground
9	27	9	C	DATA8-P	Data bit 7	27	C	SG	Ground
10	28	10	O	ACK-N	Acknowledge	28	C	SG	Ground
11	29	11	O	BUSY-P	Busy	29	C	SG	Ground
12	30	12	O	PE-P	paper end	30	C	SG	Ground
13	31	13	O	SEL-P	Select	31	I	IPRIME-N	Input prime
14	32	14	I	AUTOFEED-N	Auto feed	32	O	FAULT-N	Fault
15	33	15		NC	Not connected	33	C	SG	Ground
16	34	16	C	SG	Ground	34		NC	Not connected
17	35	17	C	FG		35	O	HILEVEL	Always kept high
18	36	18	O	P-LOGIC-H	+5V power supply	36	I	SELIN-N	Select in

O: Out
I: In
C: Common

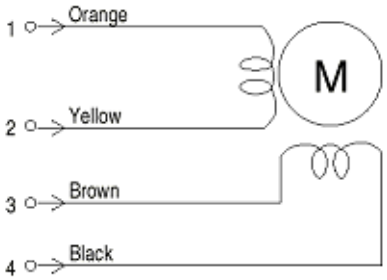
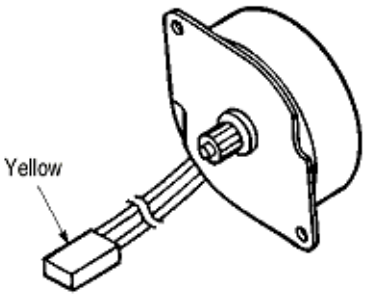
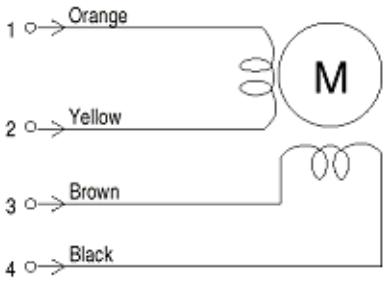
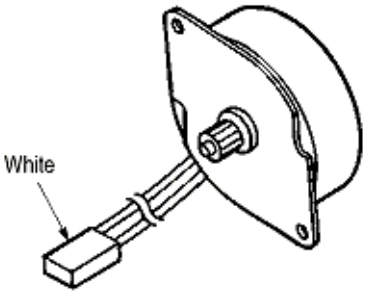
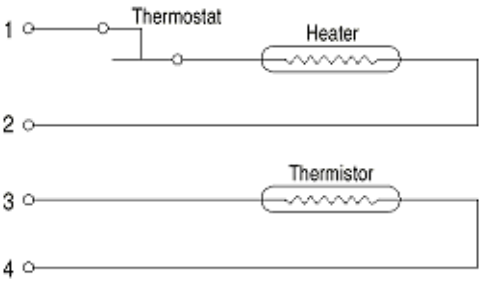
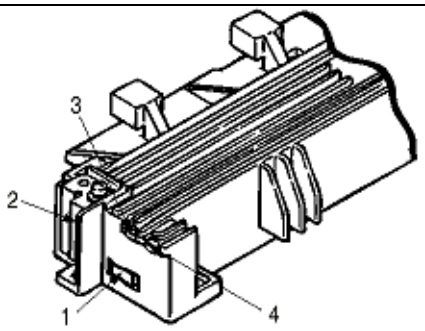
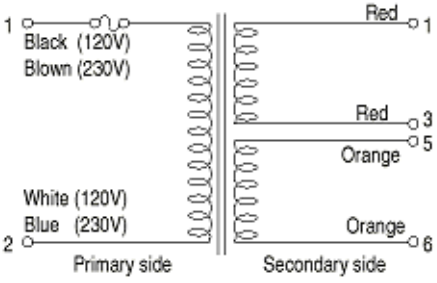
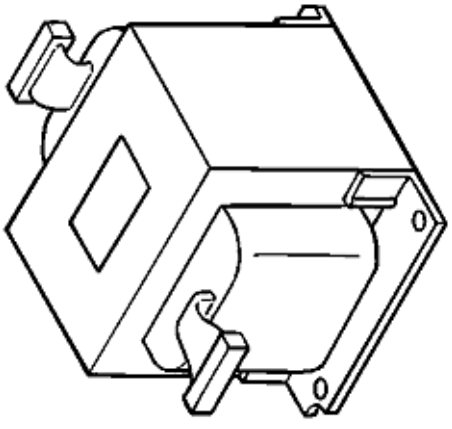
OPTION Connector Pin Assignment (To option RAM or RS232C board)

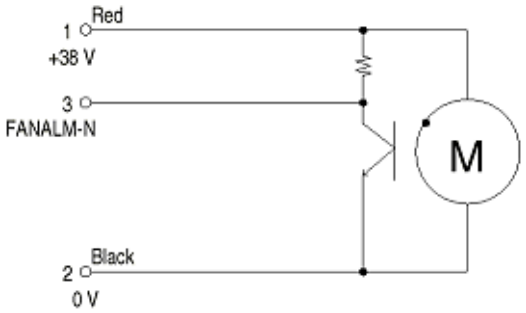
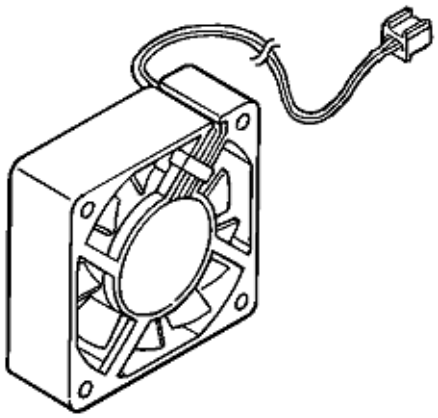
				Pin No.	I/O	Signal	Description	Pin No.	I/O	Signal	Description
01		51		01	O	A0	OR write enable	51	I/O	D16	Data bit 16
	02		52	02	C	0V	Logic ground	52	I/O	D10	Data bit 0
03		53		03	O	A1	Address bit 1	53	I/O	D17	Data bit 17
	04		54	04	O	A2	Address bit 2	54	I/O	D1	Data bit 1
05		55		05	O	RSDTR0-N	RS232C Data terminal ready	55	I/O	D18	Data bit 18
	06		56	06	O	A3	Address bit 3	56	I/O	D2	Data bit 2
07		57		07	O	A4	Address bit 4	57	I/O	D19	Data bit 19
	08		58	08	C	0V	Logic ground	58	I/O	D3	Data bit 3
09		59		09	O	A5	Address bit 5	59	I/O	D20	Data bit 20
	10		60	10	O	A6	Address bit 6	60	I/O	D4	Data bit 4
11		61		11	O	+5V	Logic power supply	61	I/O	D21	Data bit 21
	12		62	12	0	A7	Address bit 7	62	I/O	D5	Data bit 5
13		63		13	0	A8	Address bit 8	63	I/O	D22	Data bit 22
	14		64	14	C	0V	Address bit 9	64	I/O	D6	Data bit 6
15		65		15	O	A9	Address bit 10	65	I/O	D23	Data bit 23
	16		66	16	O	A10	Logic power supply	66	I/O	D7	Data bit 7
17		67		17	O	+5V	Address bit 11	67	I/O	D24	Data bit 24
	18		68	18	O	A11	Address bit 12	68	I/O	D8	Data bit 8
19		69		19	O	A12	Logic ground	69	I/O	D25	Data bit 25
	20		70	20	C	0V	Address bit 13	70	I/O	D9	Data bit 9
21		71		21	O	A13	Address bit 14	71	I/O	D26	Data bit 26
	22		72	22	O	A14	Logic power supply	72	I/O	D10	Data bit 10

23		73		23	O	+5V	Address bit 15	73	I/O	D27	Data bit 27
	24		74	24	O	A15	Address bit 16	74	I/O	D11	Data bit 11
25		75		25	O	A16	Logic ground	75	I/O	D28	Data bit 28
	26		76	26	C	0V	Address bit 17	76	I/O	D12	Data bit 12
27		77		27	O	A17	Address bit 18	77	I/O	D29	Data bit 29
	28		78	28	O	A18	Logic power supply	78	I/O	D13	Data bit 13
29		79		29	O	+5V	Address bit 19	79	I/O	D30	Data bit 30
	30		80	30	O	A19	Address bit 20	80	I/O	D14	Data bit 14
31		81		31	O	A20	Logic ground	81	I/O	D31	Data bit 31
	32		82	32	C	0V	Address bit 21	82	I/O	D15	Data bit 15
33		83		33	O	A21	Address bit 22	83	O	DRAS2-N	DRAM select 2
	34		84	34	O	A22	Address bit 23	84	O	DRAS3-N	DRAM select 3
35		85		35	O	A23	Logic ground	85	O	DRAS4-N	DRAM select 4
	36		86	36	O	0V	Logic ground	86	O	DRAS5-N	DRAM select 5
37		87		37	O	0V	Logic ground	87	O	DCAS3-N	DCAS3
	38		88	38	C	0V	RS232C request to send	88	O	DCAS2-N	DCAS2
39		89		39	O	RSRTS0-N	ROM/SRAM select 1	89	O	DCAS1-N	DCAS1
	40		90	40	O	CS1-N	ROM/SRAM select 2	90	O	DCAS0-N	DCAS0
41		91		41	O	CS2-N	ROM/SRAM select 3	91	O	RD-N	RD-N
	42		92	42	O	CS3-N	SCC send request	92	O	WR-N	WR-N
43		93		43	I	CSRREQ-P	Logic ground	93	I	INT1-N	Interrupt request 1
	44		94	44	C	0V	SCC receive request	94	I	INT2-N	Interrupt request 2
45		95		45	I	SCSREQ-P	I/O select 0	95	O	EEPRMCS1-P	EEPROM select
	46		96	46	O	IOS0-N	I/O select 1	96	O	EEPRMCLK-P	EEPROM clock
47		97		47	O	IOS1-N	RS232C send data	97	C	SSTXD-P	EEPROM data
	48		98	48	O	RSTXD0-N	RS232C line voltage	98	I	DRDY-N	Data read
49		99		49	O	-8V	RS232C receive data	99	C	+8V	RS232C line voltage
	50		100	50	I	RSRXD0-P		100	O	RESET-N	Reset signal

O: Out
I: In
C: Common

7.3 Resistance Check

Unit	Circuit Diagram	Illustration	Resistance
Registration Motor			Between Pins 1 and 2: 18.6 Ohm Between Pins 3 and 4: 18.6 Ohm
Main/drum motor			Between Pins 1 and 2: 2.9 Ohms Between Pins 3 and 4: 2.9 Ohms
Fusing unit			Between Pins 1 and 2: 120V 3 Ohms 240V 10 Ohms Between Pins 3 and 4: 220K Ohi (at room temperature)
Transformer			Primary side Between Pins 1 and 2: 8.4 Ohms (120V); 28.8 Oh (230V) Secondary side Between Pins 1 and 3: 1.2 Ohms Between Pins 5 and 6: 1.5 Ohms

Fan			

Lower Base Unit

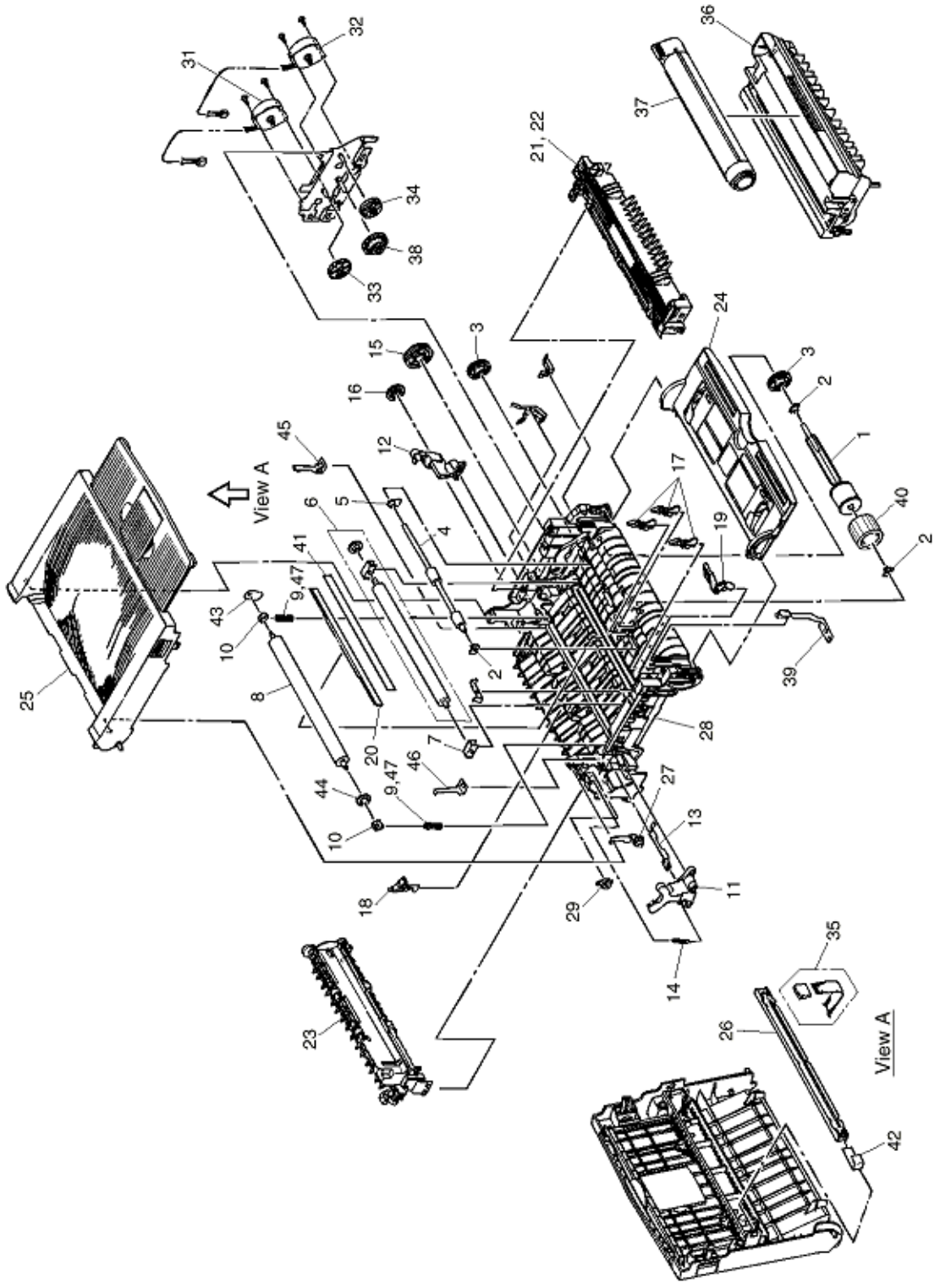


Figure 8-1 Lower Base Unit

No.	Name / Rating	Part No.	Use	Remarks	ODA Part No.
1	Hopping roller shaft	PCN676	1		50219601
2	Bearing	4PP4083-6022P002	4		51607402
3	Hopping roller one-way clutch gear	4PB4083-6024P01	2		51228901

4	Registration roller	3PB4083-6030P001	1		53342501
5	Bearing (registration)	4PP4083-6031P001	1		51607501
6	Roller-Transfer B Assy	40437801	1		40437801
7	Bearing TR	40438001	1		40438001
8	Back-up roller	3PB4083-6064P002	1		53343701
9	Bias spring	4PP4083-7620P001	2		50929301
10	Back-up roller bushing	4PP4083-6052P001	2		51607601
11	Reset lever L	3PP4083-6053P001	1		50805801
12	Reset lever R	3PP4083-6054P001	1		50805901
13	Cover open switch arm	3PP4083-6058P001	1		53068901
14	Stacker cover reset spring	4PP4083-6057P001	1		50924201
15	Fuser roller idle gear	4PP4083-6080P001	1		51229101
16	Eject roller idle gear	4PP4083-6081P001	1		51229201
17	Sensor plate (inlet)	4PP4083-6083P001	3		51010701
18	Eject sensor lever Assembly		1		40771401
19	Toner sensor	4PP4083-6086G001	1		50405501
20	Strip: Anti-Static	4PB4083-6979P001	1		51010903
21	Heat Assy - OP10e		1	120V	40470101
22	Heat Assy - OP10e		1	230V	40470102
23	Roller assy - eject		1		40772501
24	Manual feed guide assy	2PA4128-1149G001	1		51017201
25	Stacker-Assy		1		40103803
26	LED head unit - 512K		1		40521201
27	Stacker cover damper arm	4PP4083-6191G001	1		53069101
28	Frame-Base lower		1		40771301
29	Stacker cover damper	4PB4083-6197P001	1		51229401
30					
31	Motor-Pulse (main)		1		40229001
32	Motor-Pulse (regist)		1		40396201
33	Gear-Idle A (Z60/16)		1		40778101
34	Gear-Idle B (Z60/16)		1		40295101
35	Cord - LED Assembly	4YX4121-1025G002	1		56629001
35A	Connector: LED Cable				56730201
36	Image drum unit (Type 5)		1	ODA	40433305
37	Toner Cartridge (Type 5)		1	Consumable	52109001
38	Reduction Gear		1		
39	FG plate (O.P.)	4PP4083-7663P001	1		53347201
40	Hopping roller rubber	4PB4122-1280P001	1		51711401
41					
42	LED Contact	4PP4083-6173P001	1		51014601
43	Washer C	4PP4120-1210P001	1		50517201
44	Washer B	4PP4120-1209P001	1		50517001
45	Spacer-Bearing R		1		40392801
46	Spacer-Bearing L		1		40392901
47	Bias spring A	4PP4083-6065P001	2	Special parts for envelope*	50925301

* This part is countermeasure for envelope wrinkle and common part to bias spring A. Both side springs must be exchanged at the same time.

Upper Cover Unit

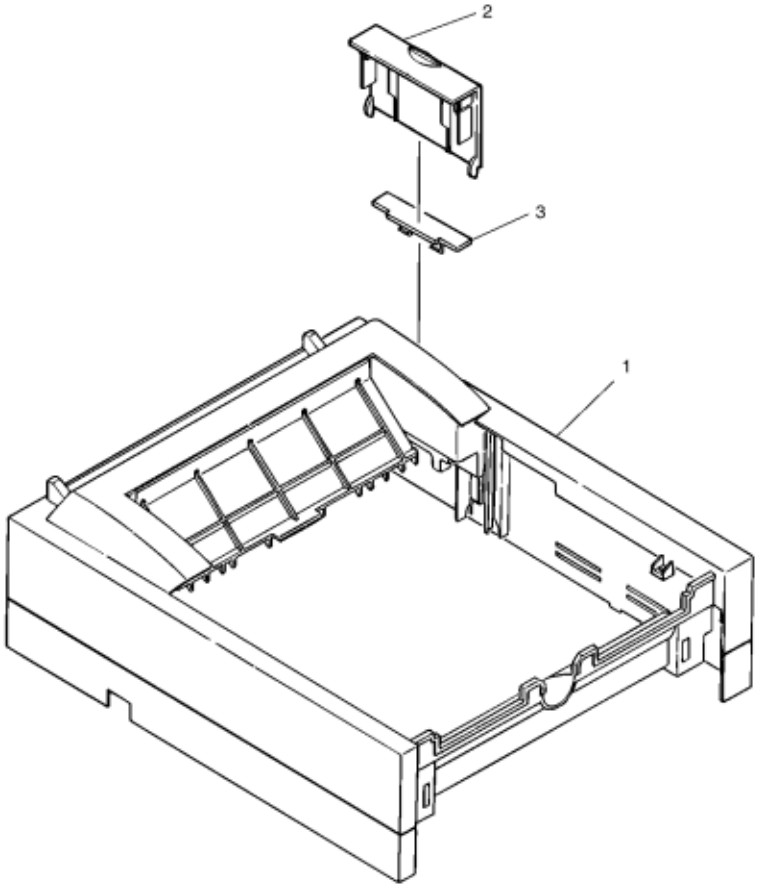


Figure 8-2 Upper cover unit

No.	Name/Rating	Part No.	Use	Remarks	ODA Part No.
1	Upper cover	1PP4128-1133P001	1		53074501
2	IC card cover	2PP4128-1155P001	1		53074401
3	Cover-Lid	40104801	1		40104801

Base Unit

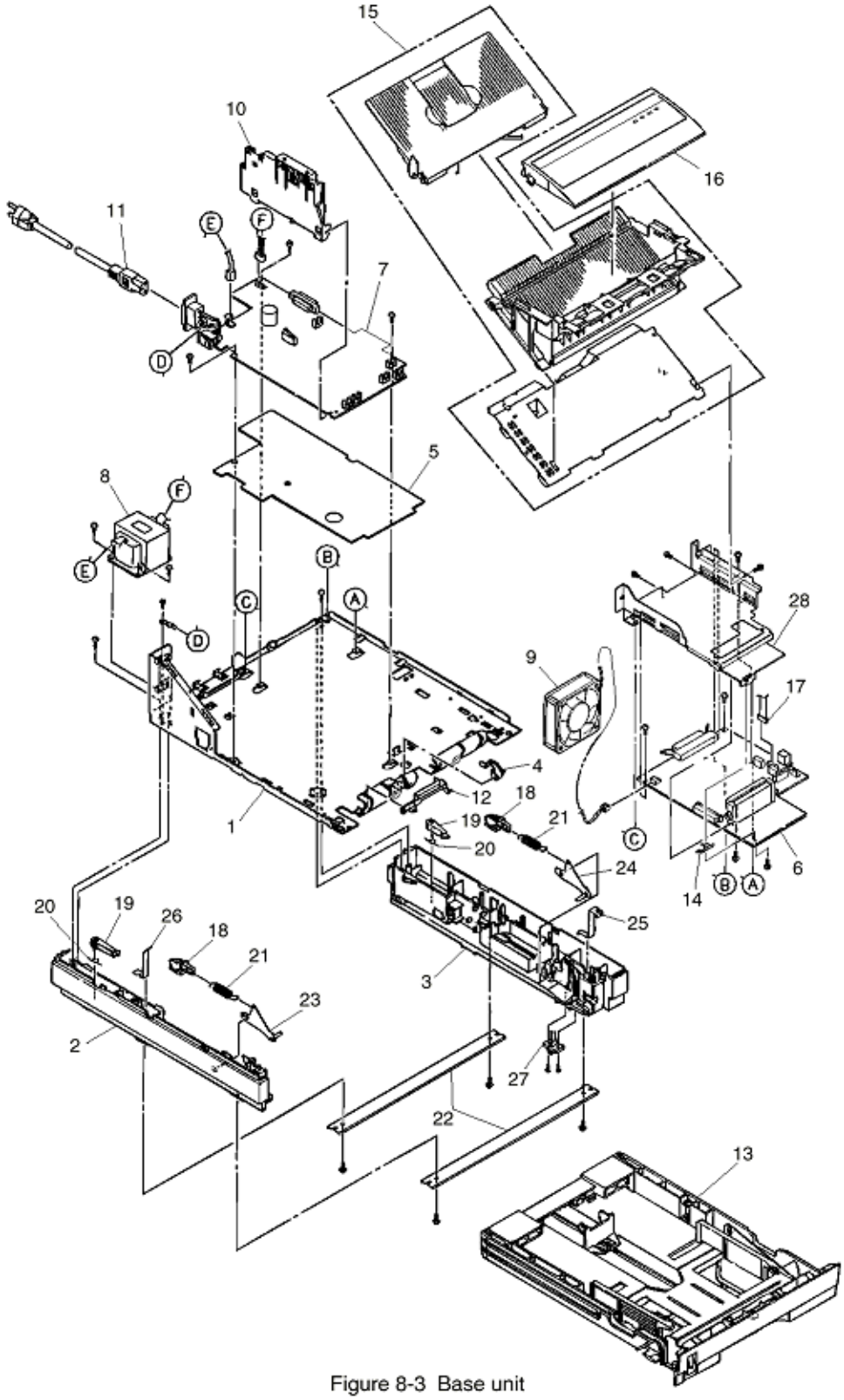


Figure 8-3 Base unit

No.	Name / Rating	Part No.	Use	Remarks	ODA Part No.
1	Plate Assy-Base	40919401	1	811AXXXXXXX-	40919401
2	Cassette guide (L) assy	3PP4083-7670G001	1		51017301
3	Cassette guide (R) assy	3PP4083-7671G001	1		51017401
4	Sensor plate (paper supply)	4PP4083-7667P001	1		51019701
5	Insulator	3PB4083-6144P001	1		51709401
6	Main control board (Board-M5G)		1		40938202
7	Power Supply Unit	40217703	1	120V	40217703
	Power Supply Unit	40217704	1	230V	40217704
8	PWR Transformer	40138801	1	120V	40138801
	PWR Transformer	40139001	1	230V	40139001
9	Fan motor	270A2167P0001	1		56512301
10	Contact assy	3PA4083-6090G001	1		56730001
11	AC cord	3YS4011-1315P001	1	120V	56631801
	AC cord	3YS4011-1266P001	1	220-240V	56631901
12	Cassette sensor plate	3PP4083-6154P001	1		51011501
13	Cassette Assy-Paper	40473001	1		40473001
14	Earth plate	4PP4083-6137P001	1		51011601
15	Face up stacker cover assy	2PA4128-1143G001	1		50110301
16	OP Panel Assy	40979701	1	ODA	40979701
17	SUMI card assy (op panel)	4YX4046-1656G001	1		40997101
18	Link pull block	4PP4122-1170P001	2		53345201
19	Cassette lock lever	3PP4083-7653P001	2		50808401
20	Cassette lock lever spring	4PP4083-7655P001	2		50929501
21	Sheet spring	4PP4083-7666P001	2		50929901
22	Beam	3PP4083-7660P001	1		51608801
23	Sheet Link L assy	4PP4083-7662P001	1		50808501
24	Sheet Link R assy	4Pp4083-7658G001	1		50808601
25	FG plate (2nd)	4Pp4083-7662P001	1		51023701
26	FG plate (bm)	4PP4083-7665P001	1		51023601
27	Connector cord	3YS4111-3527P001	1		56632801
28	Plate guide -PCB	40396101	1		40396101

Loop Test (RS-232C Interface)

1) Connect the test connector

- Printer side: 25-pin receptacle
  Type DB-25S (made by Canon) or equivalent
- Cable side: 25-pin plug
  Type DB-25S (made by Canon)
  Shell
  Type DB-C8-J10-F2-1 (made by Nihon Kouku Denshi) or equivalent

  Note: Plug shall be fixable with a lock screw.

2) Cable

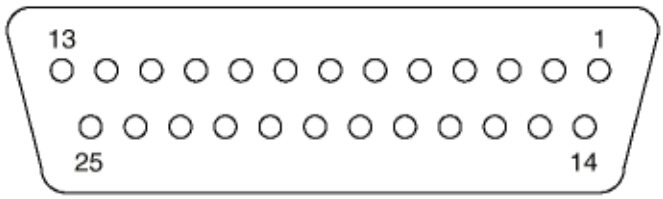
Cable length: 6 ft (1.8 m) max. (cable shall be shielded)

Note: Cable is not provided.

3) Interface signal

Pin No.	Signal Name	Signal Direction	Compatible	Nibble
1	Frame Ground	FG		Frame ground
2	Transmitted Data	TD	<-- PR	Transmitted data
3	Received Data	RD	--> PR	Received data
4	Request To Send	RTS	<-- PR	Stay space level
5	-			(Not connected)
6	-			(Not connected)
7	Signal Ground	SG		Signal ground
9~17	-			(Not connected)
18				(Not connected)
19	-			(Not connected)
20	Data Terminal Ready	DTR	<-- PR	Data terminal ready
21~25	-			(Not connected)

- Connector pin arrangement



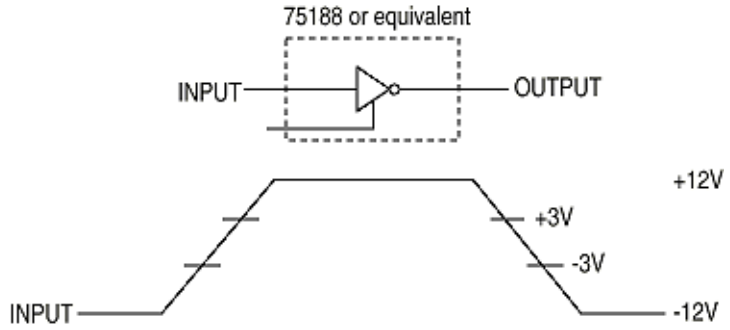
(View from the cable side)

(4) Signal level

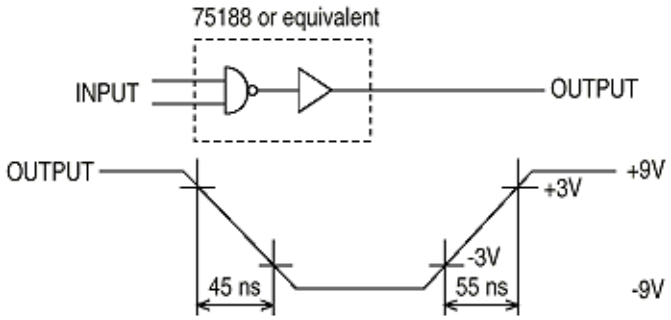
- MARK polarity: -3V to -15 V (LOGIC = 1)
- SPACE polarity: +3 V to +15 V (LOGIC =0)

(5) Interface Circuit

a) Receiving Circuit



b) Sending Circuit



Note: The above signal level is for the case where 3KOhms x 15pF is being connected to the terminal.

6) Receive Margin

37% min. at all reception rates.

7) Communication protocol

a) READY/BUSY protocol
b) X-ON/X-OFF protocol

(8) Interface Parameter Setting

When the option RS232C board is mounted, the following settings are possible by DOS soft operator panel. Refer to the DOS soft operator panel manual.

- Flow Control
- Baud Rate
- Bit length
- Parity

Centronics Parallel Interface

1) Connector

- Printer side : 36-pin receptacle - (single port) Type 57RE-40360-730B-D29A (made by Daiichi Denshi), CN-AX05841A36AT (made by Ougat) or equivalent
- Cable side : 36-pin plug - Type 57-30360 (made by Daiichi Denshi) or equivalent - Plug-552274-1 (AMP), 552073-1 (AMP) or equivalent

2) Cable

- Cable length : 6 ft (1.8 m) max.

(A Shielded cable composed of twisted pair wires is recommended for noise prevention.)

Note: Cable is not supplied with the printer, and is not available from Oki.

Pin No.	Signal Name	Signal direction	Functions
1	---------- DATA STROBE	--> PR	Parallel data sampling strobe
2	DATA BIT -1	--> PR	PR Parallel input and output data
3	DATA BIT -2	--> PR	PR Parallel input and output data
4	DATA BIT -3	--> PR	PR Parallel input and output data
5	DATA BIT -4	--> PR	PR Parallel input and output data
6	DATA BIT -5	--> PR	PR Parallel input and output data
7	DATA BIT -6	--> PR	PR Parallel input and output data
8	DATA BIT -7	--> PR	PR Parallel input and output data
9	DATA BIT -8	--> PR	PR Parallel input and output data
10	---------- ACKNOWLEDGE	<-- PR	Completion of data input or end of a function
11	BUSY	<-- PR	During print processing or alarm
12	PAPER END	<-- PR	End of paper
13	SELECT	<-- PR	Select state (ON-LINE)
14	---------- AUTO FEED	--> PR	Request to change mode
15	--		(Not used)
16	0V		Signal ground
17	CHASSIS GROUND		Chassis ground
18	+5V	<-- PR	50 mA max.
19 through 30	0V		Signal ground
31	---------- INPUT PRIME	--> PR	Initializing signal
32	---------- FAULT	<-- PR	End of paper or during alarm
33	-		Signal ground
34	-		(Not used)
35	-		High level (3.3 k Ohms)
36	---------- select in	--> PR	Request to change mode

- Connector pin arrangement

4) Signal Level

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

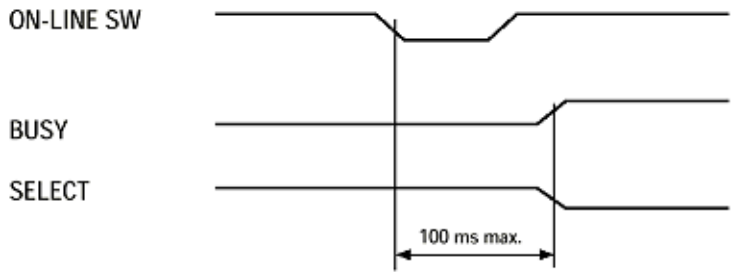
5) Specifications

6) Timing Charts

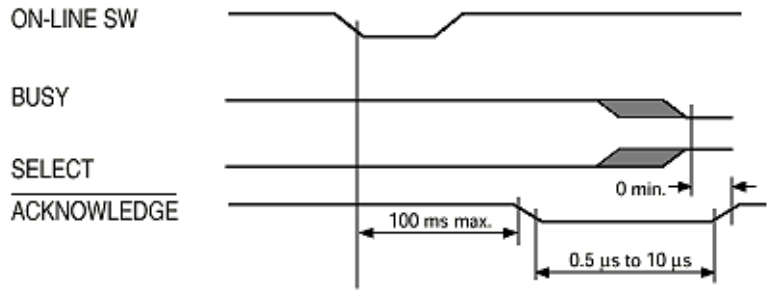
a) Data receiving timing

Item	Description
Mode	Compatibility mode, Nibble mode, ECP mode
Data bit length	8 bits (in the compatibility mode)
Input prime	Valid/Invalid
Receive buffer	8K, 20K, 50K, 100K, 1M Bytes
Control	Handshaking control is performed in each mode. Data received from the host is stored in the receive buffer. Busy control is performed. Signal lead control is performed.

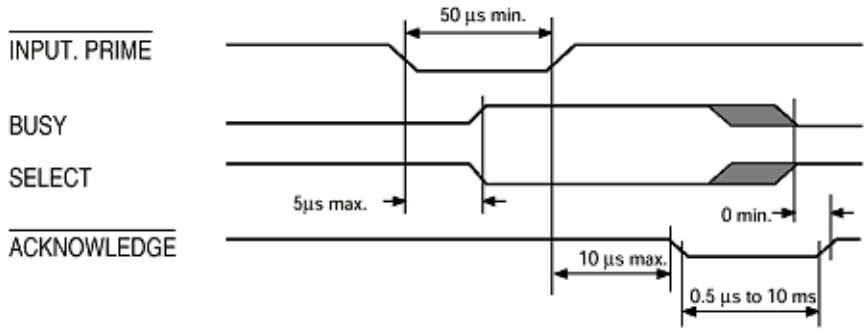
b) On-line --> off-line switching timing by ON-LINE SW



c) Off-line --> on-line switching timing by ON-LINE SW



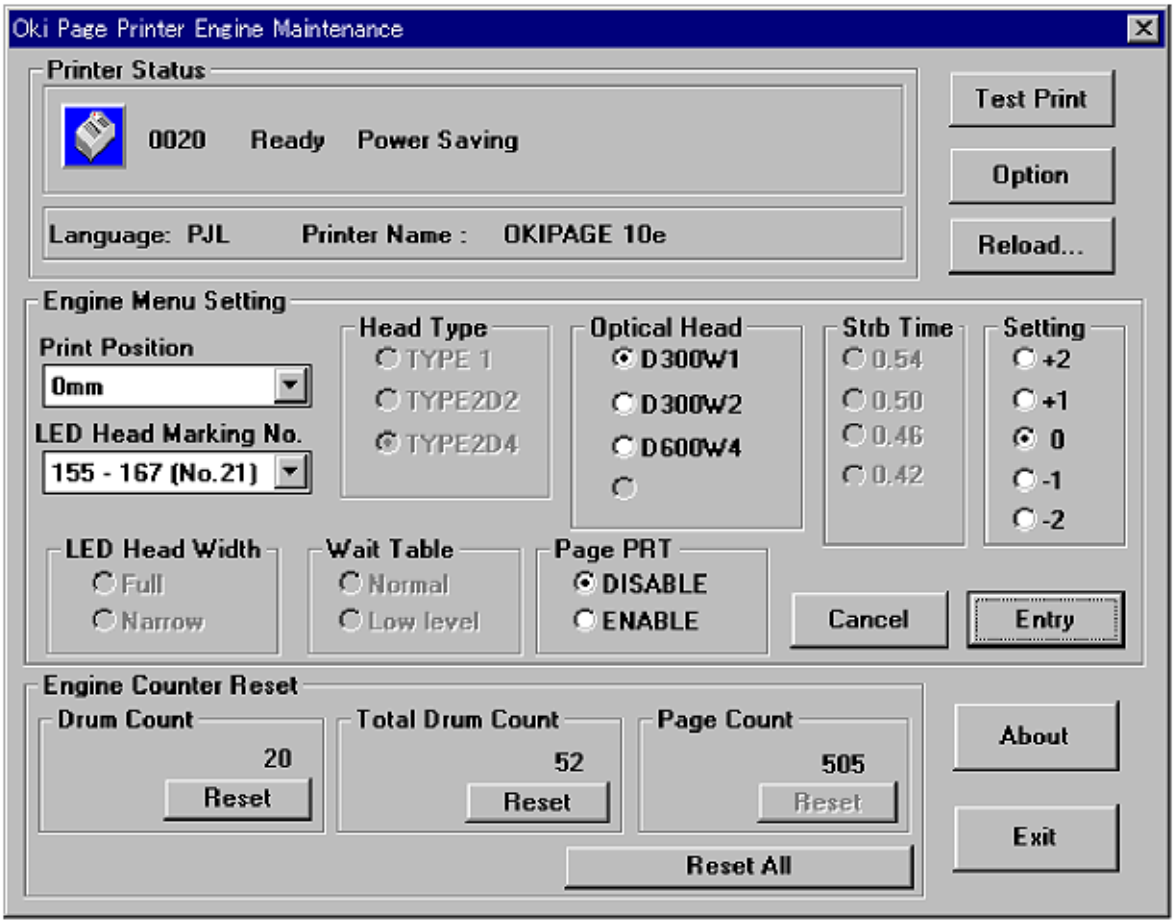
d) INPUT PRIME timing (when set to the effective INPUT PRIME signal)



Service Guide OKIPAGE 10e
Chapter C Maintenance Utility GUI Manual

1.0 Main Menu Dialog

The picture shown below will be displayed when the maintenance utility is started up. This window sets the engine menu, indicates and initializes the counter values, and displays the information of this printer version.



1.1 Printer Status Group

It monitors and displays in real time the status of printers. The figure at the top line indicates a status code sent from the printer side. The details of icons are shown below.

(Blue) indicates the normal state of the printer.

(Yellow) indicates an abnormal state of the printer (recoverable error).

(Red) indicates an abnormal state of the printer (unrecoverable error).

* ( ) indicates the color of icons.

1.2 Engine Menu Setting Group

This area shows the engine menu, the settings of which can be changed. The details of each item are as follows.

<Print Position>

Shown message	Print Position
Setting item	Corrects the start position of print.
Setting range	-4.00 mm~ +3.5mm
F/W default	0.00mm

<LED Head Drive Time>

Shown message	LED Head Marking No.
Setting item	Adjust the light exposing time of LED Head.
Setting range	600 DPI: 155-020 (No. 1~ No.32) 300 DPI: No. 1~No.32
F/W default	212-228 (300 dpi-No.17

<HEAD TYPE>

Shown message	Head Type
Setting item	Sets the correction method in correction head at 600 DPI.
Setting range	TYPE1/TYPE2D2/TYPE2D4
F/W default	TYPE2D4

<Optical Head>

Shown message	Optical Head
Setting item	Sets
Setting range	D300-1W/ D300-2W/ D600-4W
F/W default	D300-1W

<Page Count Print>

Shown message	Page PRT
Setting item	Selects enable/disable of Page Count print in menu printing.
Setting range	DISABLE/ ENABLE
F/W default	DISABLE

<Setting>

Shown message	Setting
Setting item	Adjusts the current transmission value.
Setting range	-2 / -1 / 0 / +1 / +2
F/W default	0

<Strb Time>

Shown message	Strb Time
Setting item	Sets the strobe time.
Setting range	0.54, 0.50, 0.56, 0.40
F/W default	0.50

* Setting of Strb Time is enabled only when the Optical Head is set at D600-4W.

1.3 Engine Counter Reset Group

It indicates values of the counters in this printer. It also initializes the counters. The details of each item are shown below.

<Drum Count>

Indicates the number of turns of the EP drum mounted in the printer.

<Total Drum Count>

Indicates the total number of turns of the EP drum from the time when shipped.

<Page Count> button

Indicates the total number of pages printed from the time when the printer is shipped.

<Reset> button

Clicking the button opens a message box, and after asking the user whether the resetting of the counter may be executed, to set an individual setting value (value of Drum, Total Drum or Page Count), inputted in the initialize file, to the printer.

[Notice] When the page count exceeds 500 sheets it disables the "Reset" button, so the counter cannot be reset.

<Reset All> button

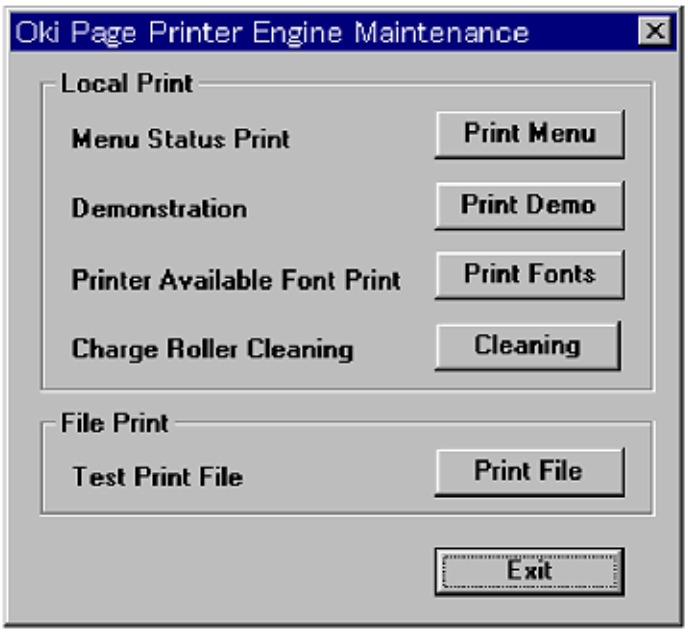
Clicking the button opens a message box, and after asking the user whether the resetting of the counter may be executed, to set all setting values (values of Drum, Total Drum and Page Count), inputted in the initialize file, to the printer.

2. Explanation of Buttons

2.1 Test Print Buttons

2.1 Test Print Buttons

They print the Menu page, Demo pages and Font pages, performs cleaning of rollers, and transmit a test print file. When the Test Print button is pressed, a dialog, the following picture will pop up. The details of the following picture are as follows.



<Print Menu> button

Performs a menu printing for this printer

<Print Demo> button

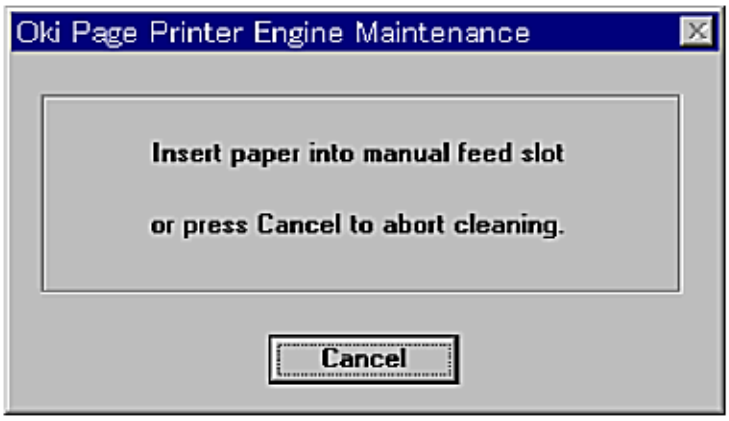
Allows this printer to execute a Demo printing.

<Print Fonts> button

Performs a Font printing for fonts available for this printer

<Cleaning> button

This is the button for cleaning the charge roller. It sends a header file and has the printer execute a cleaning print in manual feed mode. If the printer becomes other than manual feed mode, the following messages will appear.



RS-232C Serial Interface (Option)

1) Connect the test connector

- Printer side: 25-pin receptacle
  Type DB-25S (made by Canon) or equivalent
- Cable side: 25-pin plug
  Type DB-25S (made by Canon)
  Shell
  Type DB-C8-J10-F2-1 (made by Nihon Kouku Denshi) or equivalent

  Note: Plug shall be fixable with a lock screw.

2) Cable

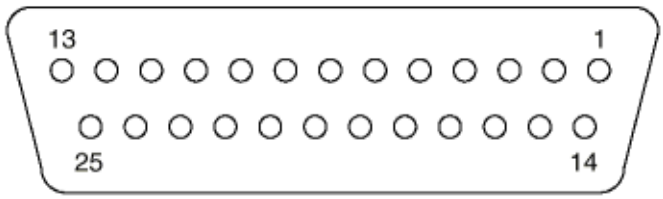
Cable length: 6 ft (1.8 m) max. (cable shall be shielded)

Note: Cable is not provided.

3) Interface signal

Pin No.	Signal Name	Signal Direction	Compatible	Nibble
1	Frame Ground	FG		Frame ground
2	Transmitted Data	TD	<-- PR	Transmitted data
3	Received Data	RD	--> PR	Received data
4	Request To Send	RTS	<-- PR	Stay space level
5	-			(Not connected)
6	-			(Not connected)
7	Signal Ground	SG		Signal ground
9~17	-			(Not connected)
18				(Not connected)
19	-			(Not connected)
20	Data Terminal Ready	DTR	<-- PR	Data terminal ready
21~25	-			(Not connected)

- Connector pin arrangement



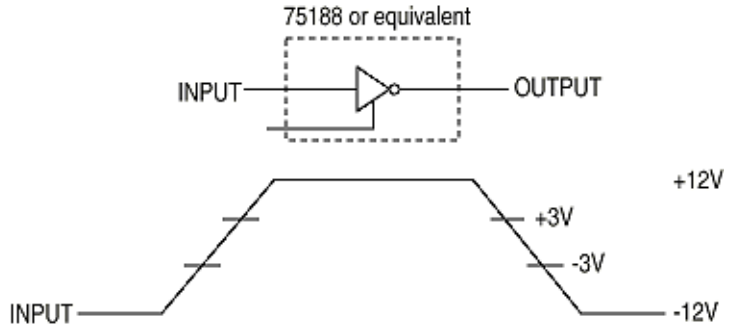
(View from the cable side)

(4) Signal level

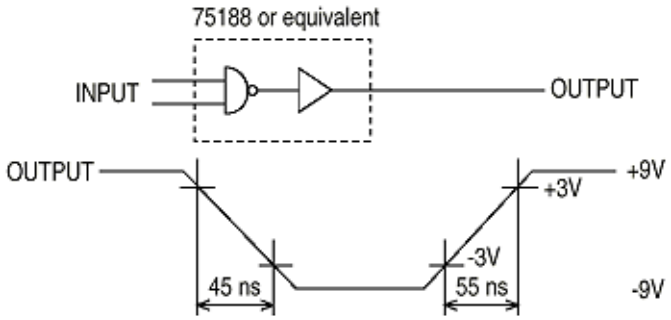
- MARK polarity: -3V to -15 V (LOGIC = 1)
- SPACE polarity: +3 V to +15 V (LOGIC =0)

(5) Interface Circuit

a) Receiving Circuit



b) Sending Circuit



Note: The above signal level is for the case where 3KOhms x 15pF is being connected to the terminal.

6) Receive Margin

37% min. at all reception rates.

7) Communication protocol

a) READY/BUSY protocol
b) X-ON/X-OFF protocol

(8) Interface Parameter Setting

When the option RS232C board is mounted, the following settings are possible by DOS soft operator panel. Refer to the DOS soft operator panel manual.

- Flow Control
- Baud Rate
- Bit length
- Parity

Service Guide OKIPAGE 10e

Chapter Product Accessory 2: Multi-Purpose Feeder Maintenance

1. PREFACE

This Maintenance Manual is intended for the service person and describes the field maintenance methods for Multi-Purpose Feeder option of OKIPAGE 10e Series LED Page Printer. Refer to the Printer Handbook for equipment handling and operation methods.

1.1 Functions

1.2 External View and Component Names

1.1 Functions

This optional Multi-Purpose Feeder is installed on the front section of the printer, and it supplies paper automatically through the operation of pulse motor, which is driven by signals sent from the printer.

The main functions are:

- Paper that can be used:

[Paper Types]

- Standard Paper: Xerox 4200 (20-lb)
- Special Paper: OHP sheets (for PPC), label sheets (PPC sheets)

* Not guaranteed for OHP sheets with attachments on the edge or reverse side.

- Cut Sheet Size: Letter, Executive, A4, A5, B5, A6

Special Size: Width 87 to 216mm

Length 148 to 297mm

[Weight and Thickness]

- 16-lb to 32-lb (60~128 g/m ^{2})
- For Label and OHP Sheets: Label sheets: 0.1 to 0.15mm

OHP sheets: 0.08 to 0.11mm

* When using sheets which exceed 24-lb, make sure that the paper exits through the face-up route.

1.2 External View and Component Names

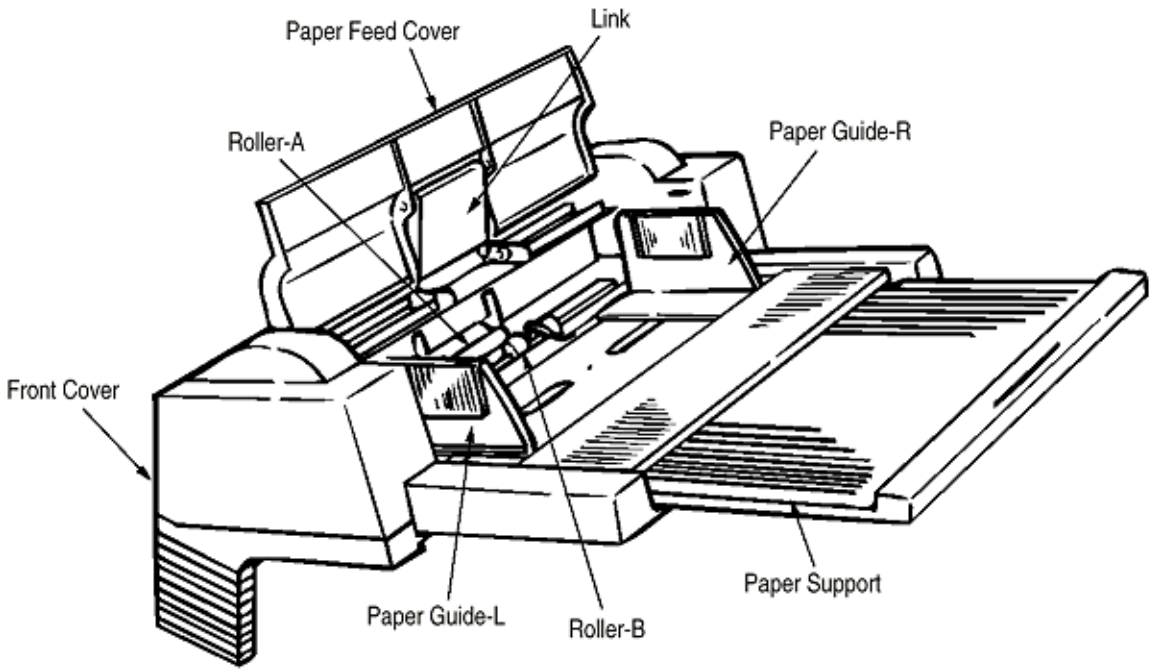


Figure 1-1

2. MECHANISM DESCRIPTION - General Mechanism

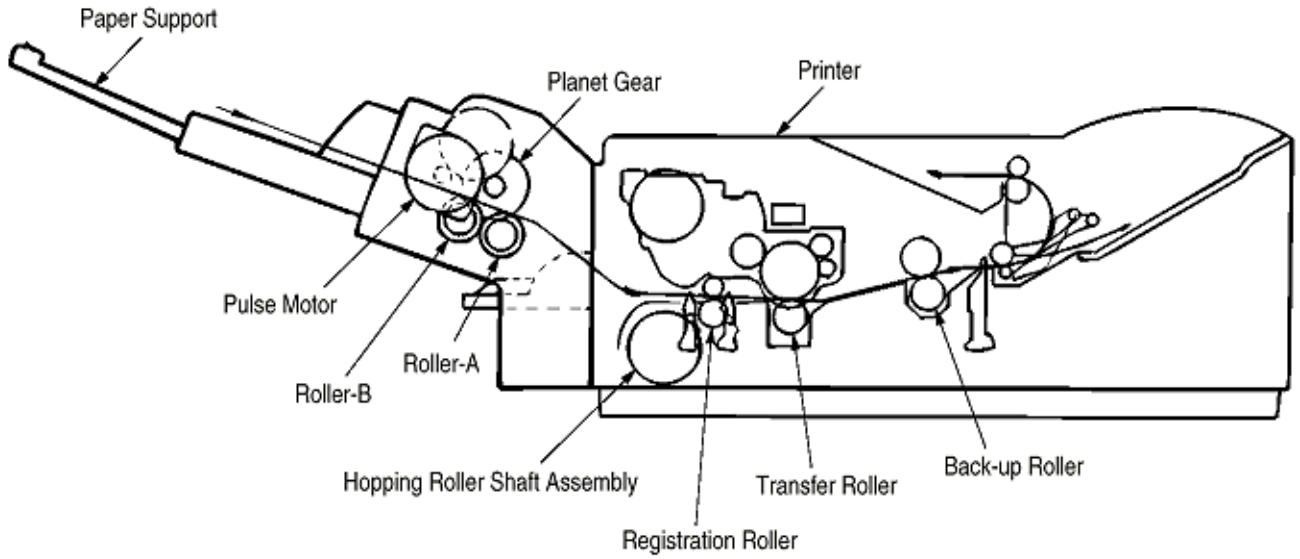
The Multi-Purpose Feeder feeds the envelopes and paper into the printer by receiving the signal from the printer, which drives the pulse motor inside the Multi-Purpose Feeder, and this motion is conveyed to rotate roller-A and B. The paper is delivered from the separator into the printer.

Once delivered into the printer, the paper is then controlled and fed through by pulse motor (Registration) of the printer.

2.2 Hopper Mechanism

2.2 Hopper Mechanism

The hopper automatically feeds the printer with the paper being set, single sheet at a time. After the paper is set in the Multi-Purpose Feeder, the pulse motor moves the paper and a single paper caught by the separator is fed into the printer.



3. PARTS REPLACEMENT

This section covers the procedures for the disassembly, reassembly and installations in the field. This section describes the disassembly procedures, and for reassembly procedures, basically proceed with the disassembly procedures in the reverse order.

3.1 Precautions Concerning Parts Replacement

3.2 Parts Layout

3.3 Parts Replacement Methods

3.1 Precautions Concerning Parts Replacement

(1) Parts replacements must be carried out, by first turning the printer power switch off "O" and removing the Multi-Purpose Feeder from the printer.

(2) Do not disassemble the Multi-Purpose Feeder if it is operating normally.

(3) Establish the extent of disassembly suitable for the purpose of the procedure, and do not disassemble any more than necessary.

(4) Only specified service tools may be used.

(5) Disassembly must be carried out according to the prescribed procedures. Parts may be damaged if such procedures are not followed.

(6) Small parts such as screws and collars can easily be lost, therefore these parts should be temporarily fixed in the original location.

(7) When handling printed circuit boards, do not use any glove which may generate static electricity.

(8) Do not place the printed circuit boards directly on the equipment or floor.

Service Tools

Table 3-1 shows the tools required for the replacement of printed circuit boards and units in the field.

Table 3-1 Service Tools

No.	Service Tools		Q'ty	Application	Remarks
1		No. 1-100 Philips screwdriver	1	2 ~ 2.5 mm screws	
2		No. 2-100 Philips screwdriver	1	3 ~ 5 mm screws	
3		No. 3-100 screwdriver	1		
4		No. 5-200 screwdriver	1		
5		Digital multimeter	1		
6		Pliers	1		
7		Handy cleaner	1		

3.2 Parts Layout

This section describes the layout of the main components.

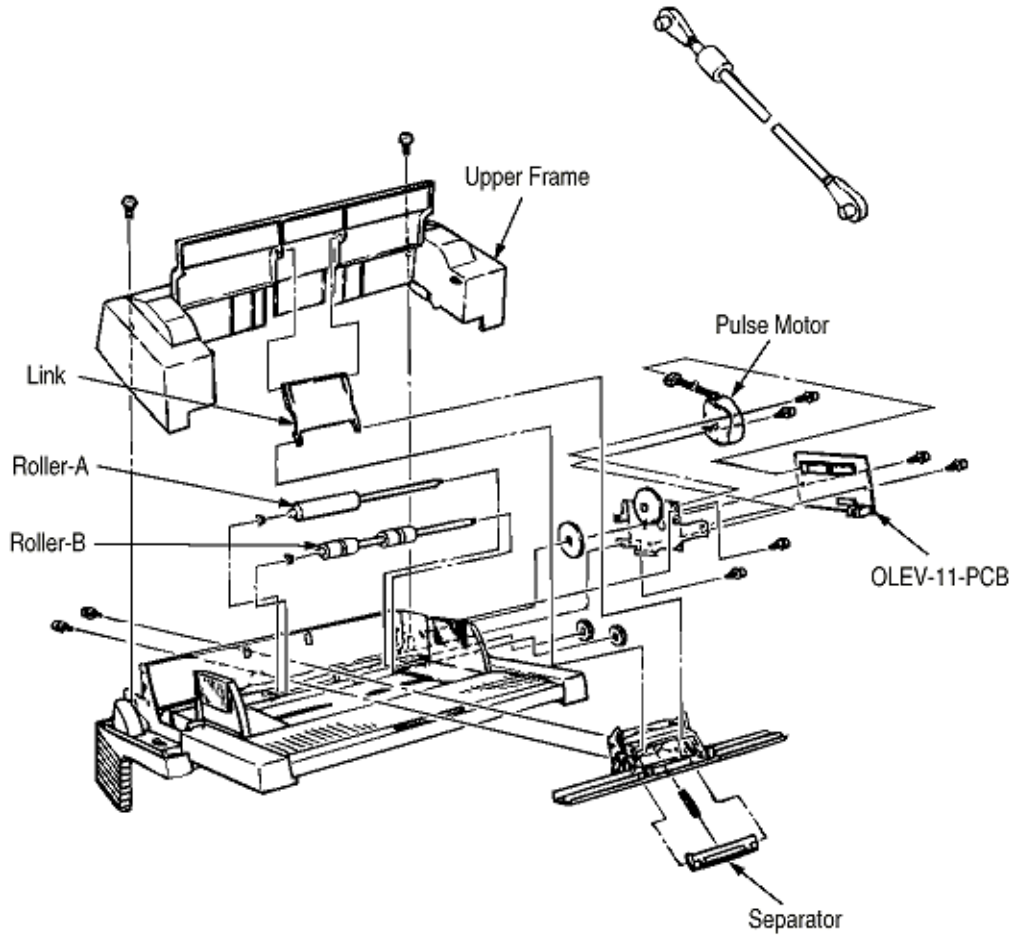


Figure 3-1

3.3 Parts Replacement Methods

This section describes the parts replacement methods for the components listed in the disassembly order diagram below.

Mutli-Purpose Feeder

Link - (see 3.3.1)

Separator - (see 3.3.2)

OLEV-11-PCB (see 3.3.3)

Pulse motor (see 3.3.4)

Planet gear (see 3.3.5)

Roller-A (see 3.3.6)

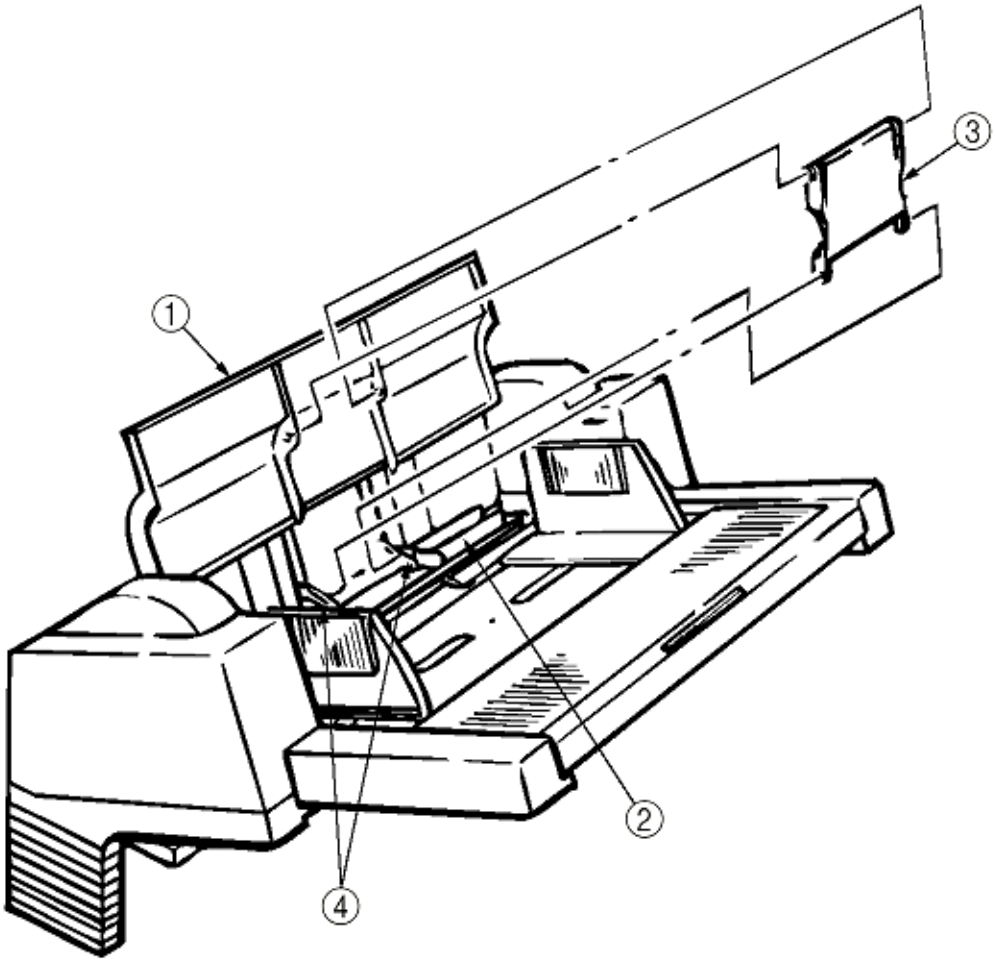
3.3.1 Link

(1) Open paper feed cover (1), and disengage the paper feed cover (1) and Link (3), while lifting the paper hold (2).

(2) Remove the paper hold (2) off the arm (4).

(3) Disengage the link (3) from the arm (4), and remove it.

*** Be careful not to deform the link and arm.**



3.3.2 Separator

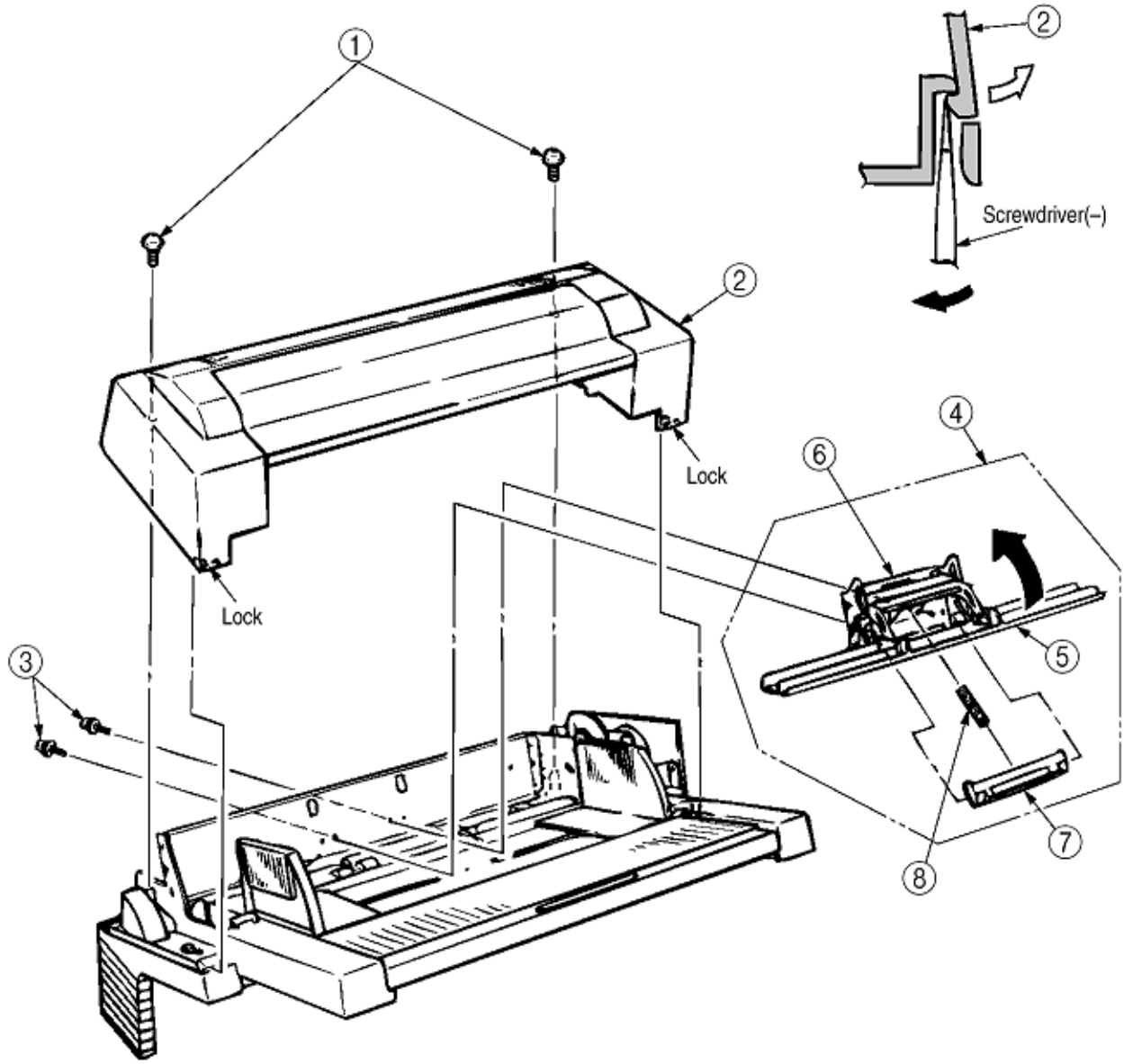
(1) Turn the power switch off "O" and remove the connector cord.

(2) Disengage the link and paper feeder cover (see 3.3.1).

(3) Remove the 2 screws (1), disengage the locks at 2 locations on the upper frame (2) with a screwdriver, and remove the upper frame (2).

(4) Remove the 2 screws (3), and take out the separator assembly (4).

(5) Disengage the separator (7) from the separator bracket (6) while lifting the paper hold (5), and take out the separator (be careful not to lose the spring (8) when you are doing this).



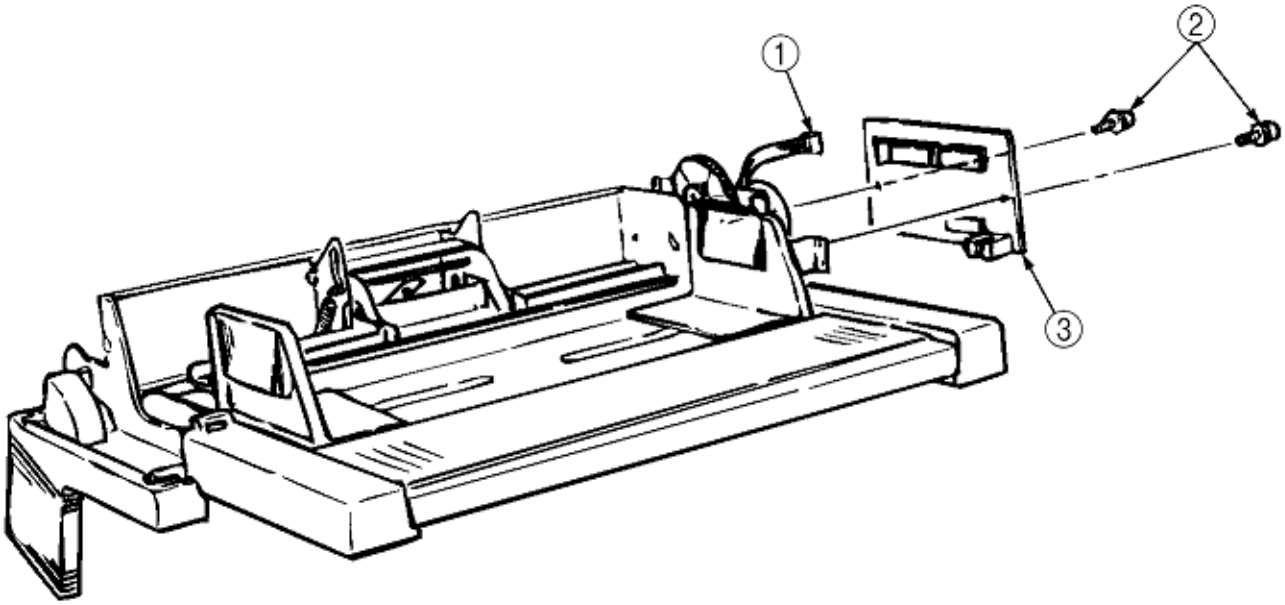
3.3.3 OLEV-11 PCB

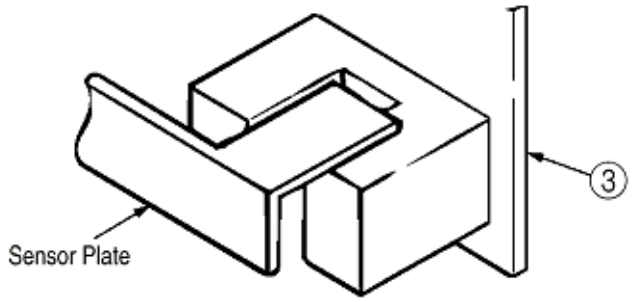
(1) Remove the upper frame (see 3.3.2 steps (1) through (3)).

(2) Remove the connector (1).

(3) Remove the 2 screws (2), and remove the OLEV-11 PCB (3).

When mounting the printed circuit board, be careful to make sure that the sensor plate is being set correctly.



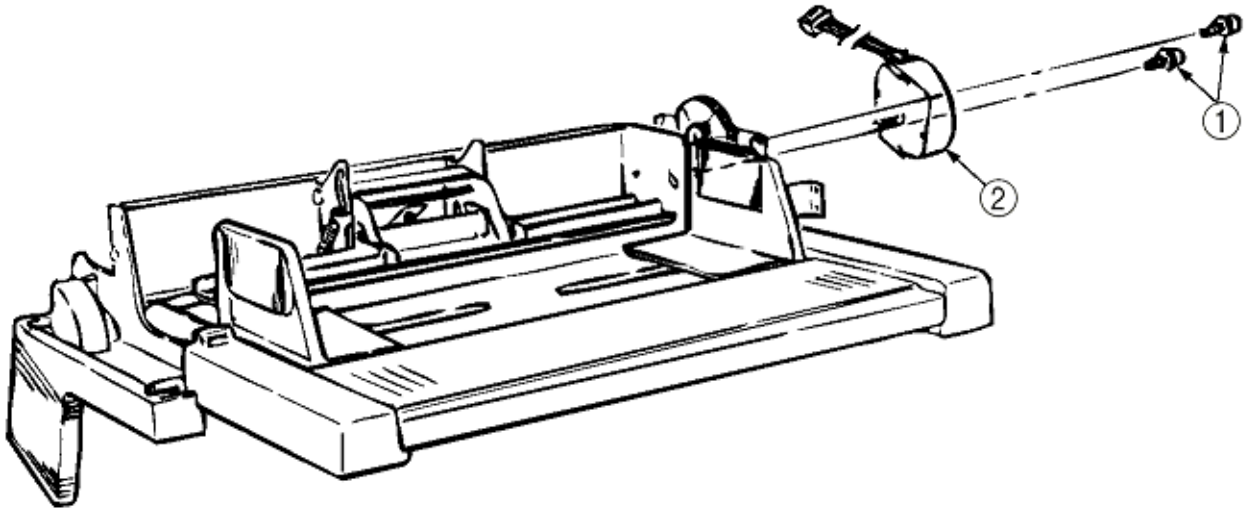


3.3.4 Pulse Motor

(1) Remove the upper frame (see 3.3.2 steps (1) through (3)).

(2) Remove the OLEV-11 PCB (see 3.3.3).

(3) Remove the 2 screws (1), and remove the stepping motor (2).

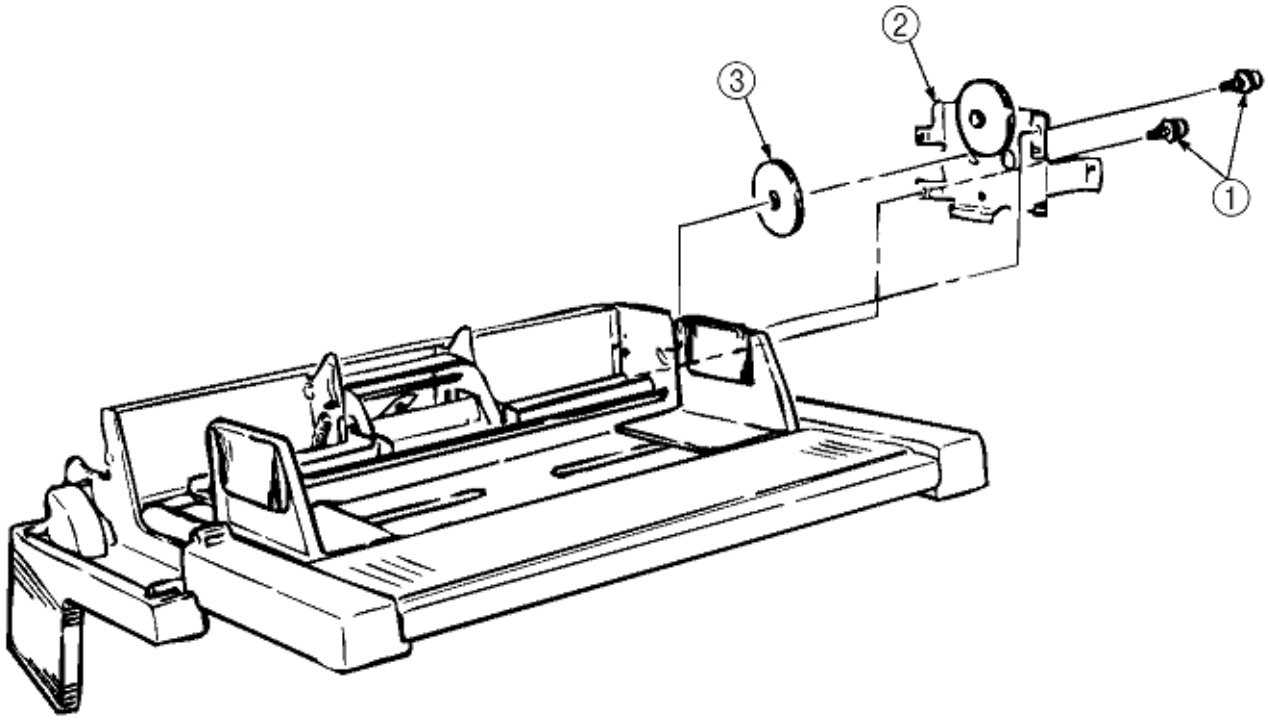


3.3.5 Planet Gear

(1) Remove the upper frame (see 3.3.2 steps (1) through (3)).

(2) Remove the OLEV-11 PCB (see 3.3.3).

(3) Remove the 2 screws (1), and remove the motor bracket assembly (2) and planet gear (3).



3.3.6 Roller-A and B

While only the removal procedure for roller-A is described here, the removal procedure for roller-B is basically same.

When removing roller-B, however, be careful not to deform the sensor lever.

(1) Remove the upper frame (see 3.3.2 steps (1) through (3)).

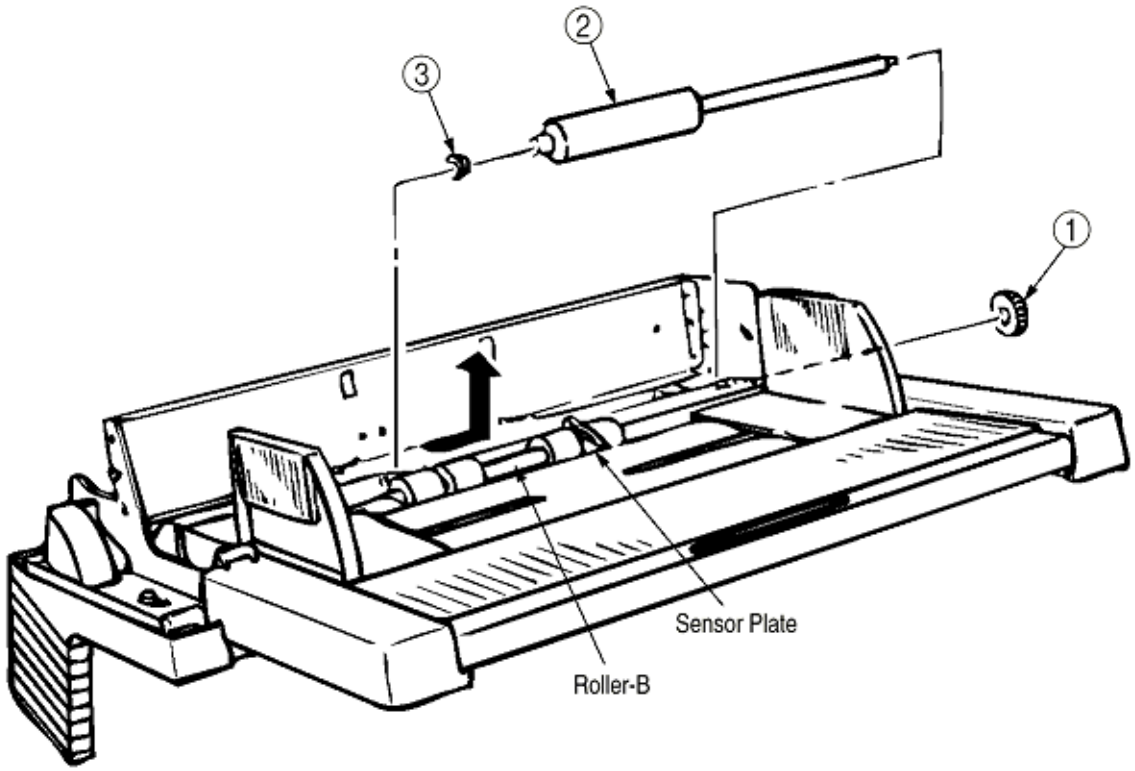
(2) Remove the separator assembly (see 3.3.2.

(3) Remove the OLEV-11 PCB (see 3.3.3).

(4) Remove the motor bracket (see 3.3.5).

(5) Remove the gear (1).

(6) Shift the roller-A (2) to the right, lift it on its left side and slide it out (the bearing 3 also comes off while you are doing this, so be careful not to lose it).



4. TROUBLESHOOTING - Precautions Prior to the Troubleshooting

(1) Go through the basic checking items provided in the Printer Handbook.

(2) Obtain detailed information concerning the problem from the user.

(3) Go through the checking in the conditions similar to that in which the problem occurred.

4.1 Precautions Prior to the Troubleshooting

4.2 Preparations for the Troubleshooting

4.3 Troubleshooting Method

4.1 TROUBLESHOOTING - Precautions Prior to the Troubleshooting

(1) Go through the basic checking items provided in the Printer Handbook.

(2) Obtain detailed information concerning the problem from the user.

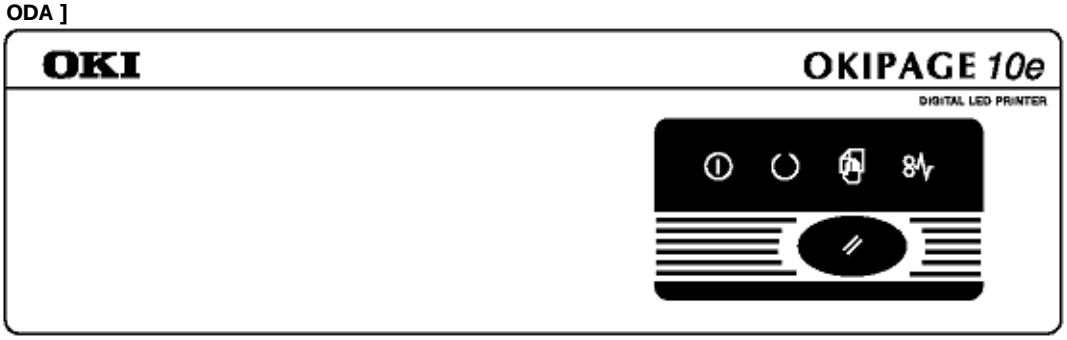
(3) Go through the checking in the conditions similar to that in which the problem occurred.

4.2 Preparations for the Troubleshooting

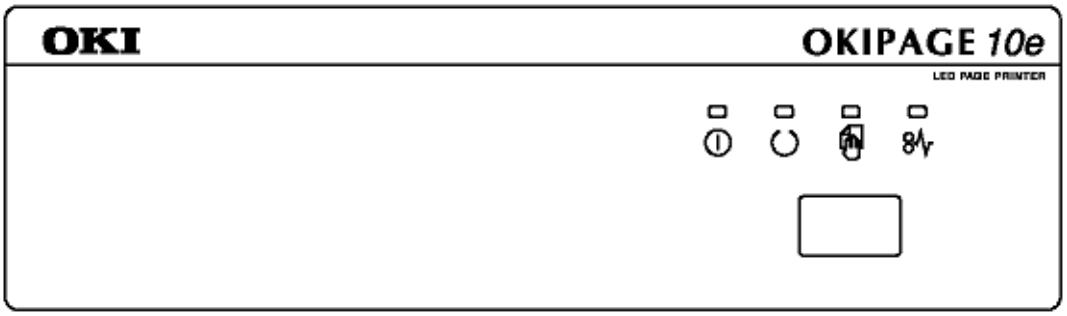
(1) Display on the operator panel

The status of the problem is displayed on the LCD (Liquid Crystal Display) on the operator panel. Go through the appropriate troubleshooting procedures according to the messages displayed on the LCD.

[ODA]



[OEL/INT]



Status message display

Ready LED display

: OFF : BLINKING

: ON : Undefined

Ready LED display

4.3 Troubleshooting Method

When a problem occurs, go through the troubleshooting according to the following procedure.

4.3.1 LCD Status Message List

4.3.1 LCD Status Message List

The listing of the statuses and problems displayed in the form of messages on the LCD or PC display is provided in Table 4-1.

Classification	LCD Status Message	Description	Recovery method
Jam error		Notifies of occurrence of jam while the paper is being fed from Multi-Purpose Feeder.	Check the paper in the Multi-Purpose Feeder. Carry out the recovery printing by opening and closing the cover, and turn the error display off. When the problem occurs frequently, go through the Troubleshooting.
Paper size error		Notifies of incorrect size paper feeding from Multi-Purpose Feeder.	Check the paper in the Multi-Purpose Feeder. Also check to see if there was a feeding of multiple sheets. Carry out the recovery printing by opening and closing the cover, and turn the error display off.
Tray paper out		Notifies of no paper state of the Multi-Purpose Feeder.	Load the paper in Multi-Purpose Feeder.

- **JAM Error**

Paper Inlet Jam

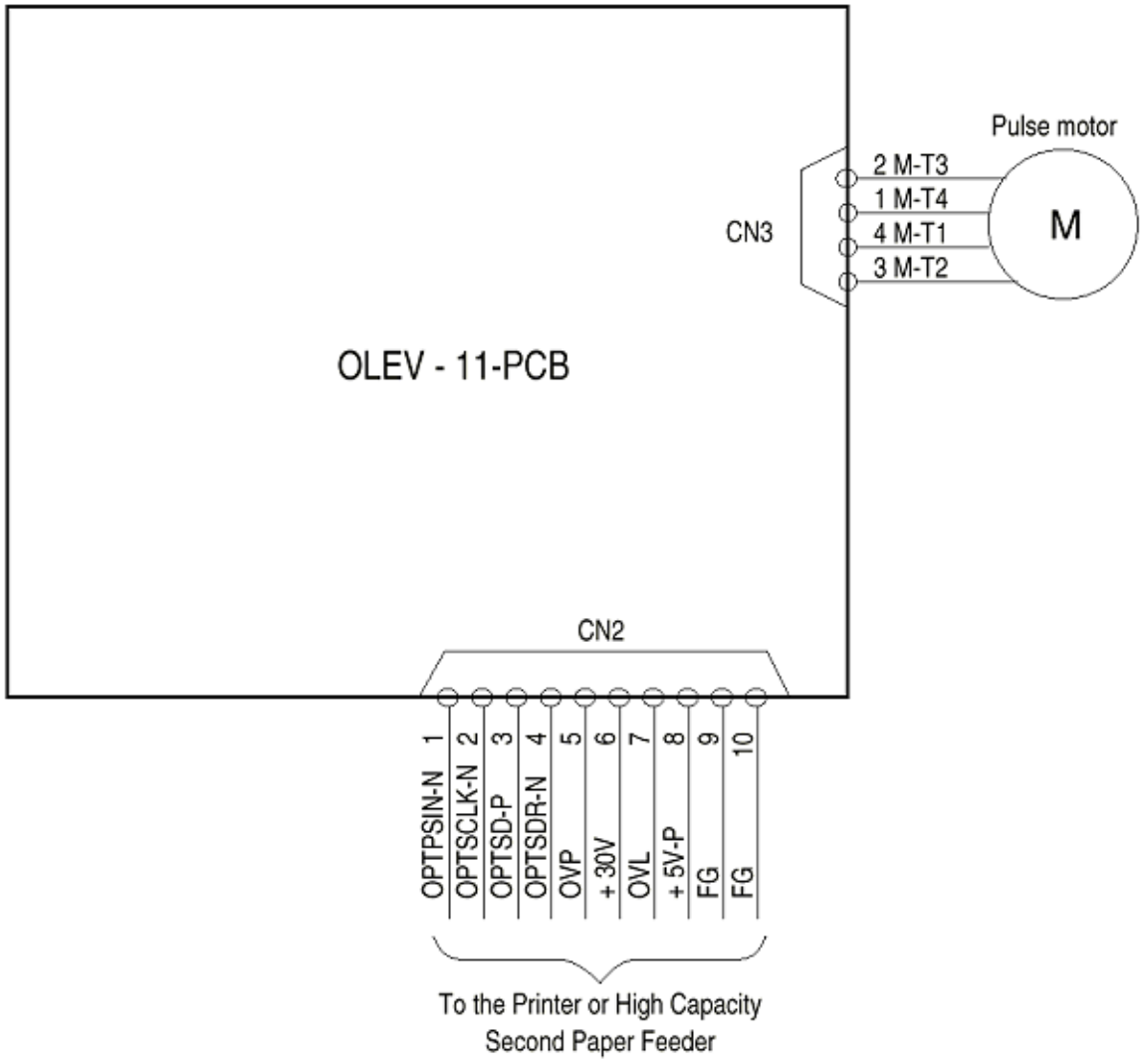
- Does paper jam at the inlet when the power is turned on?
  - YES — Is the paper located above the sensor plate (inlet)?
    - • YES — Remove the paper.
  - NO — Is the sensor plate (inlet) operating normally?
    - • NO — Replace the sensor plate (inlet).
  - YES — Replace the power supply/sensor board or inlet sensor.
- NO — When the paper is fed in, does the paper inlet jam occur?
  - YES — Is the paper being fed to above sensor plate (inlet)?
    - YES — Is the sensor plate (inlet) operating normally?
      - • NO — Replace the sensor plate (inlet).
    - YES — Clean the inlet sensor on the power supply/sensor board or replace the power supply/sensor board or inlet sensor.
  - NO — Replace the roller-A or roller-B.
- NO — Are the roller-A and roller-B rotating?
  - • YES — Set the paper properly.
- NO — Is the pulse motor turning?
  - • YES — Replace the planet gear.
- NO — Is the connector cable being connected properly?
  - • NO — Connect the connector cable properly.
- YES — Check the coil resistance (approx. 32Ω) of the pulse motor. Is it normal?
  - • NO — Replace the pulse motor.
- YES — Replace the OLEV-11-PCB.

5. CONNECTION DIAGRAM

5.1 Interconnection Diagram

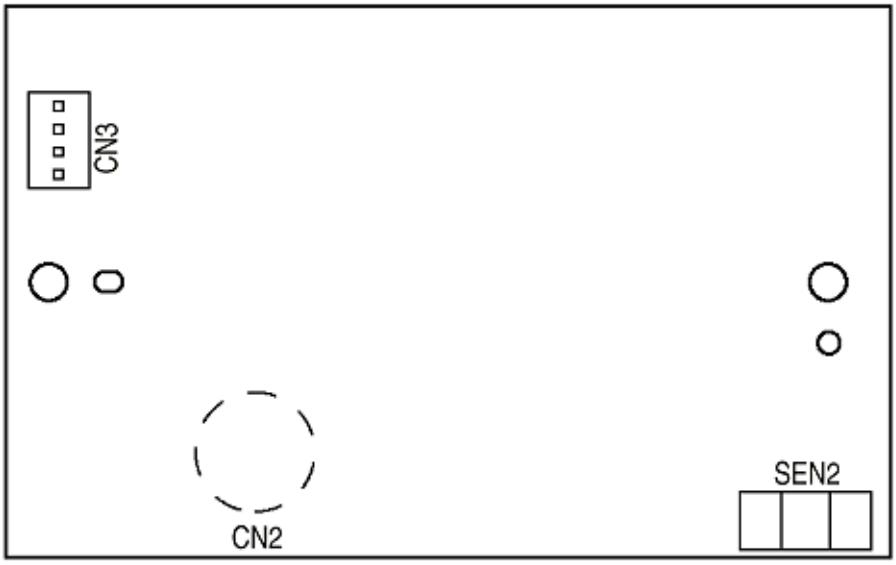
5.2 PCB Layout

5.1 Interconnection Diagram



5.2 PCB Layout

OLEV-11 PCB



6. PARTS LIST

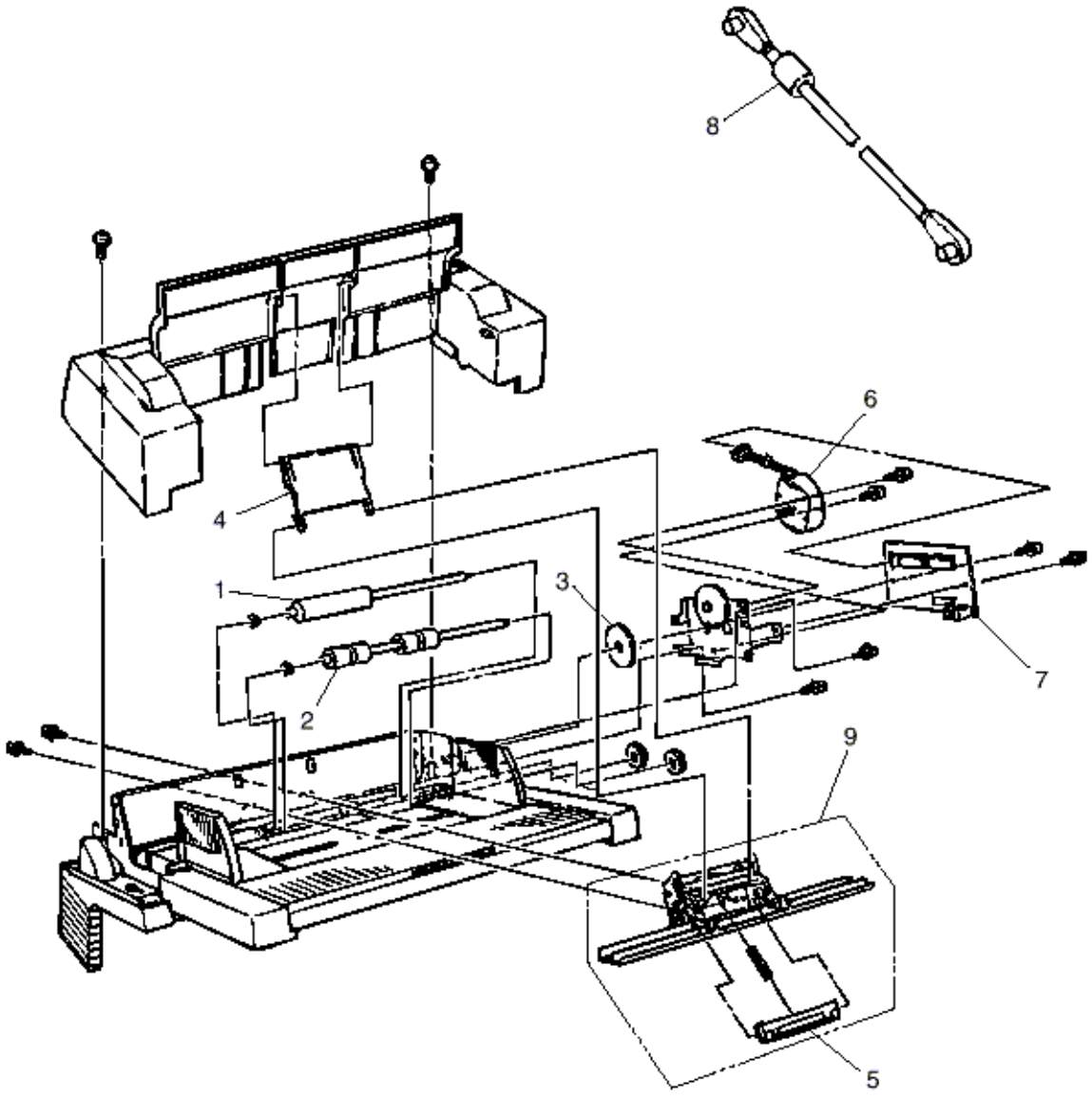


Figure 6-1 Multi-Purpose Feeder

Table 6-1 Multi-Purpose Feeder

No.	Description	Oki-J Part No.	ODA Part No.	Q'ty	Remark
1	Roller-A	3PB4083-5514P001	50409201	1	
2	Roller-B	3PB4083-5524P001	53343901	1	
3	Planet gear	4PP4083-5520P001	51229601	1	
4	Link	3PP4083-5540P001	53344101	1	
5	Separator	3PP4083-5544P001	53344201	1	
6	Pulse motor	4PB4083-6075P001	56510701	1	

7	OLEV-11-PCB	4YA4121-1014G011	55074811	1	
8	Connector cable	3YS4011-3141P003	56631203	1	For ODA
9	Separator assy	3PA4083-5549G001	53347101	1	

Service Guide OKIPAGE 10e

Chapter Product Accessory 3: High Capacity 2nd Paper Feeder

High Capacity Second Paper Feeder Maintenance

Service Guide OKIPAGE 10e

Chapter Product Accessory 3: High Capacity 2nd Paper Feeder

1. OUTLINE

1.1 Functions

The printer is mounted on top of this High Capacity Second Paper Feeder. The High Capacity Second Paper Feeder supplies paper automatically through the operation of pulse motor (hopping), which is driven by signals sent from the printer.

The main functions are:

- Paper that can be used:

[Paper Type]

- Standard Paper: Xerox 4200 (20-lb)
- Special Paper: OHP Sheets (for PPC), Labels sheets (PPC sheets); use of envelopes or thick paper is not possible.
- Cut sheet size: A4, A5, B5, Letter, Executive, Legal13, Legal14
- Special Size: Paper Width: 148 to 216mm; Paper Length: 210 to 355.6mm

[Weight]

- 16-lb to 24-lb (60 to 90 g/m^2)
- Paper setting quantity: 500 sheets of paper weighing 64 g/m^2

1.2 Ex

1.2 External View and Component Names

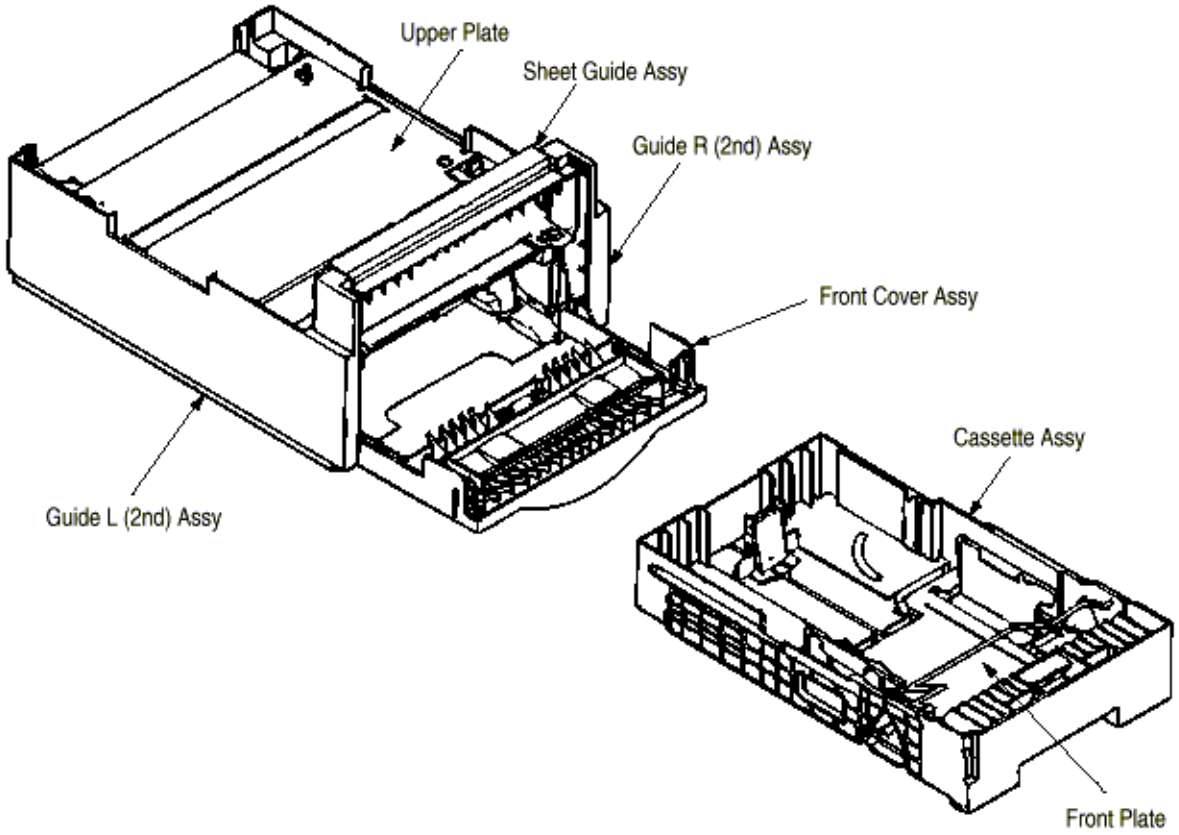


Figure 1-1 External View and Component Names

2. MECHANISM DESCRIPTION

2.1 General Mechanism

2.2 Hopper Mechanism

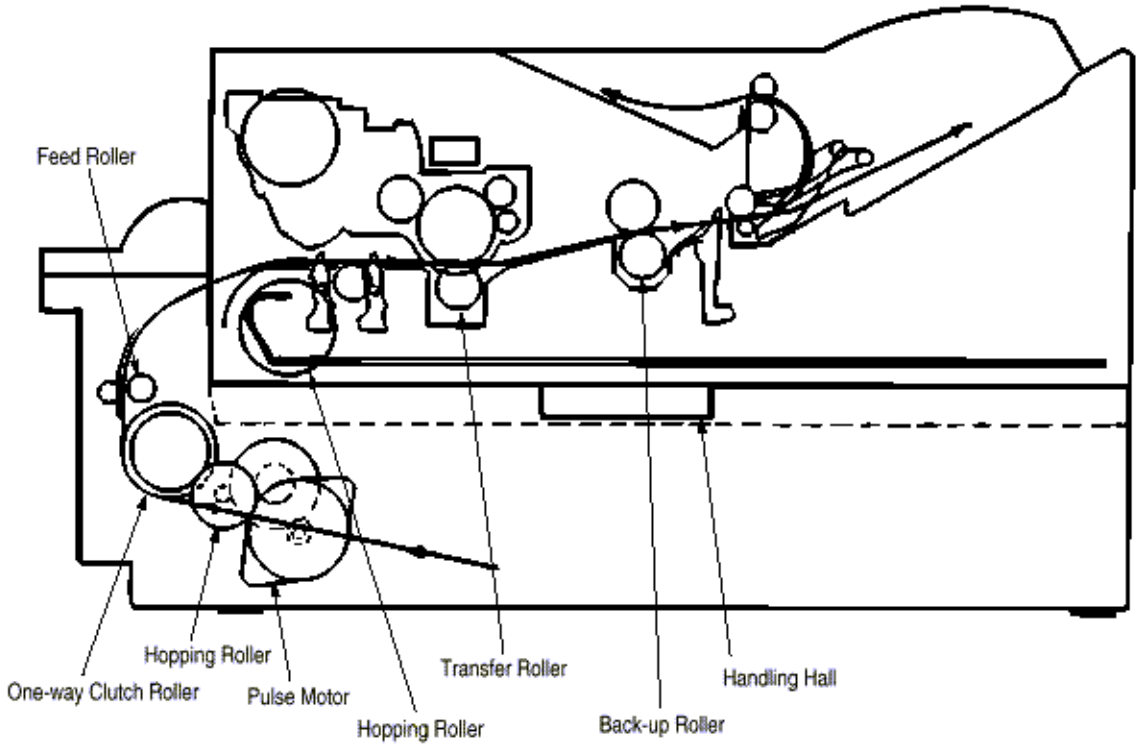
2.1 General Mechanism

The High Capacity Second Paper Feeder feeds the paper into the printer by receiving the signal from the printer, which drives the pulse motor inside the High Capacity Second Paper Feeder. This motion is conveyed to rotate the One-way clutch of the hopping shaft assembly. The paper is delivered from the hopper into the printer through the turning of the hopping shaft assembly.

Once delivered into the printer, the paper is then controlled and fed through by pulse motor (registration) of the printer.

2.2 Hopper Mechanism

The hopper automatically feeds the printer with the paper being set, single sheet at a time. When the paper is loaded in the paper cassette, it is then transported by the pulse motor, carrying forward only a single sheet caught by the brake shoe at a time.



3. PARTS REPLACEMENT

This section covers the procedures for the assembly, disassembly and installations in the field. This section describes the disassembly procedures, and for assembly procedures, basically proceed with the disassembly procedures in the reverse order.

3.1 Precautions for Concerning Parts Replacement

3.2 Parts Layout

3.3 Parts Replacement Methods

3.1 Precautions Concerning Parts Replacement

(1) Parts replacements must be carried out, by first turning the printer power switch off "O" and removing the High Capacity Second Paper Feeder from the printer.

(2) Do not disassemble the High Capacity Second Paper Feeder if it is operating normally.

(3) Establish the extent of disassembly suitable for the purpose of the procedure, and do not disassemble any more than necessary.

(4) Only specified service tools may be used.

(5) Disassembly must be carried out according to the prescribed procedures. Parts may be damaged if such procedures are not followed.

(6) Small parts such as screws and collars can easily be lost, therefore these parts should be temporarily fixed in the original location.

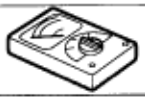
(7) When handling printed circuit boards, do not use any glove which may generate static electricity.

(8) Do not place the printed circuit boards directly on the equipment or floor.

[Service Tools]

Table 3-1 shows the tools required for the replacement of printed circuit boards and units in the field.

Table 3-1 Service Tools

No.	Service tools		Q'ty	Place of use	Remarks
1		No. 1-100 Philips screwdriver	1	2 ~ 2.5 mm screws	
2		No. 2-100 Philips screwdriver	1	3 ~ 5 mm screws	
3		N0. 3-100 screwdriver	1		
4		N0. 5-200 screwdriver	1		
5		Digital multimeter	1		
6		Pliers	1		
7		Handy cleaner	1		

3.2 Parts Layout

This section describes the layout of the main components.

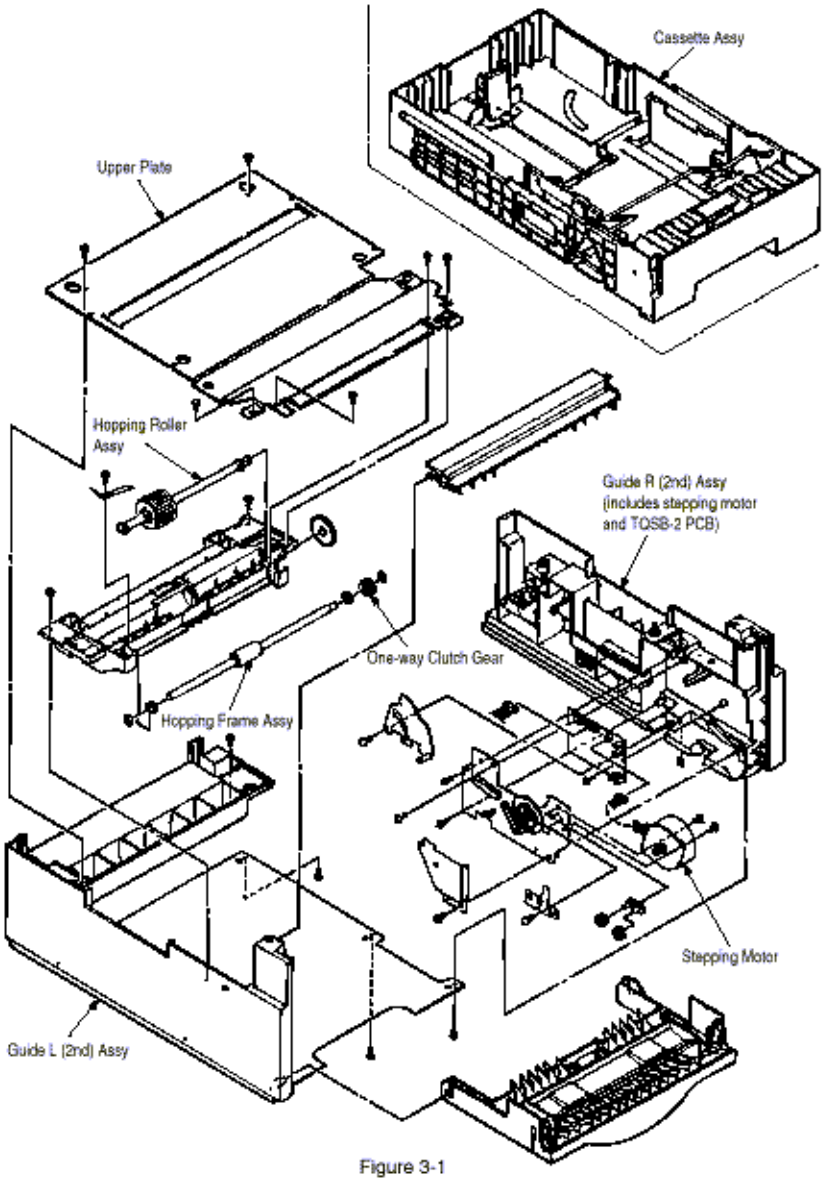


Figure 3-1

3.3 Parts Replacement Methods

This section describes the parts replacement methods for the components listed in the disassembly order diagram below.

3.3.1 Stepping Motor (Hopping)

3.3.2 TQSB-2 PCB

3.3.3 Hopping roller shaft assy and One-way clutch gear

3.3.1 Stepping Motor (Hopping)

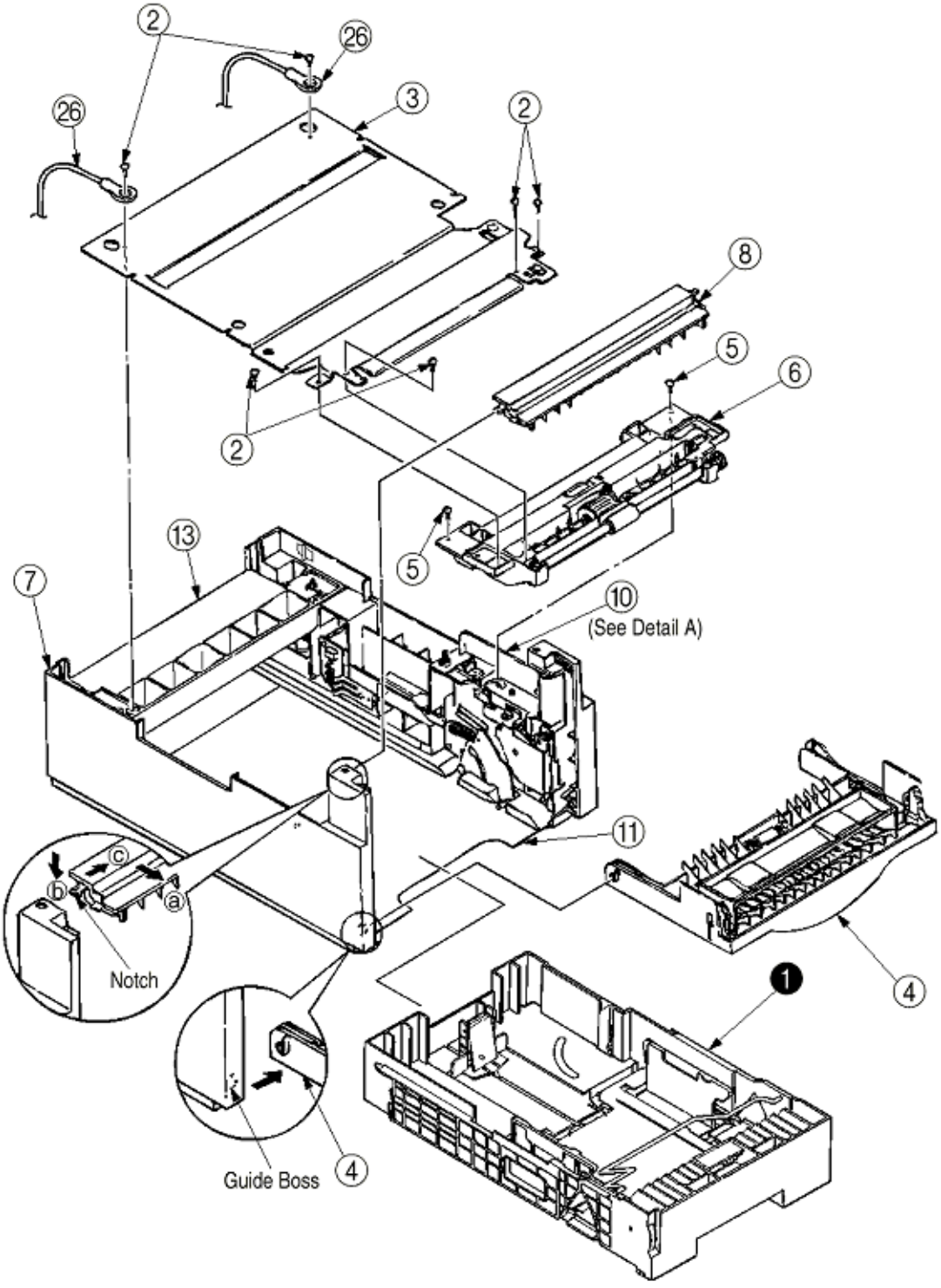
(1) Turn the printer power switch off, pull out the AC cord from the outlet. Remove the printer off High Capacity Second Paper Feeder.

(2) Take the paper cassette assy (1) out of High Capacity Second Paper Feeder.

(3) Remove six screws (2) and remove the upper plate (3). Remove two screws (5) and remove the hopping frame assy (6).

(4) Remove the front cover assy (4) off the guide boss on the guide L (2nd) assy (7) by bending the guide L (2nd) assy (7) in the direction of arrow shown in the magnified view below.

(5) Pull the sheet guide assy (8) in the direction of arrow a and also push in the direction of arrow (b) to unlock the notch, and bring the sheet guide assy (8) in the direction of arrow (c) to remove the sheet guide assy (8).



(6) Remove three screws (9) which are holding the guide R (2nd) assy (10) to the bottom plate (11). Remove the screw (12) which is keeping the rear cover (13) and guide R (2nd) assy (10). Remove the guide R (2nd) assy (10).

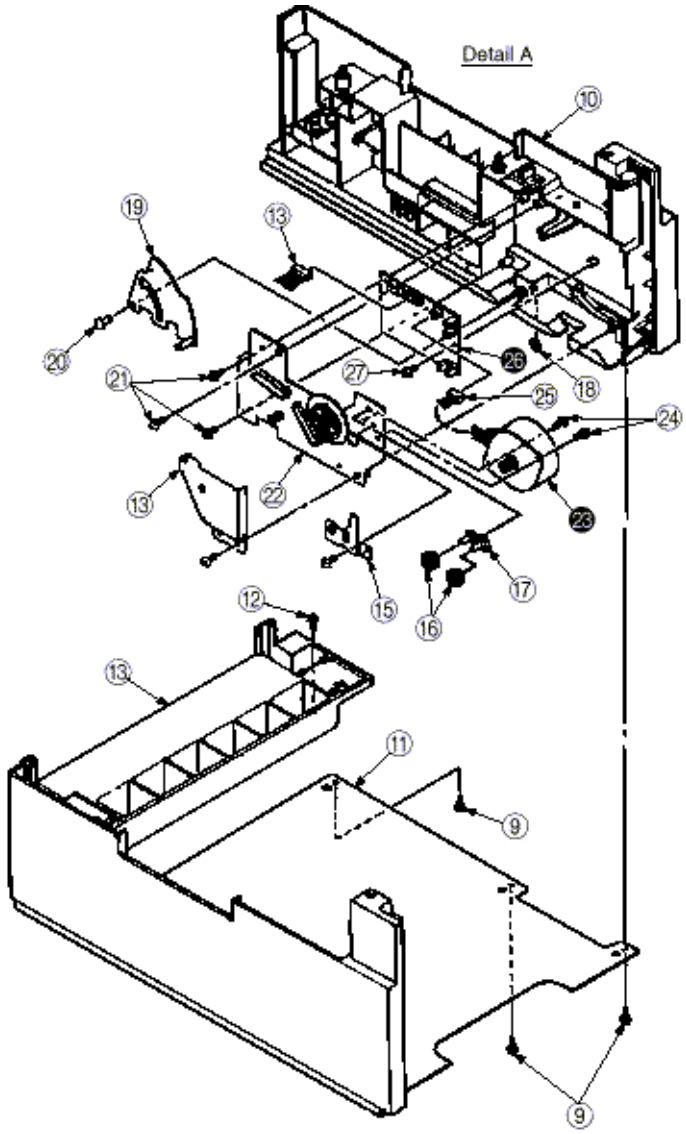
(7) Remove the protect (M) (14), guide bracket (15), planet gears (16) and planet gear bracket (17).

(8) Remove the E-ring (18) which is keeping the sheet link I on the guide R (2nd) assy (10), and pull out the hinge stand

(20).

(9) Remove three remaining screws (21) which are keeping the motor on the motor bracket (22), and remove the connector off the Stepping Motor (23).

(10) Remove two screws (24) on the Stepping Motor (23).



3.3.2 TQSB-2 PCB

(1) Remove the pulse motor (see 3.3.1).

(2) Remove the connector (25) from the TQSB-2 PCB (26).

(3) Remove the screw (27) and remove the TQSB-2 PCB (26).

Note : Refer to Detail A in the previous section (see 3.3.1).

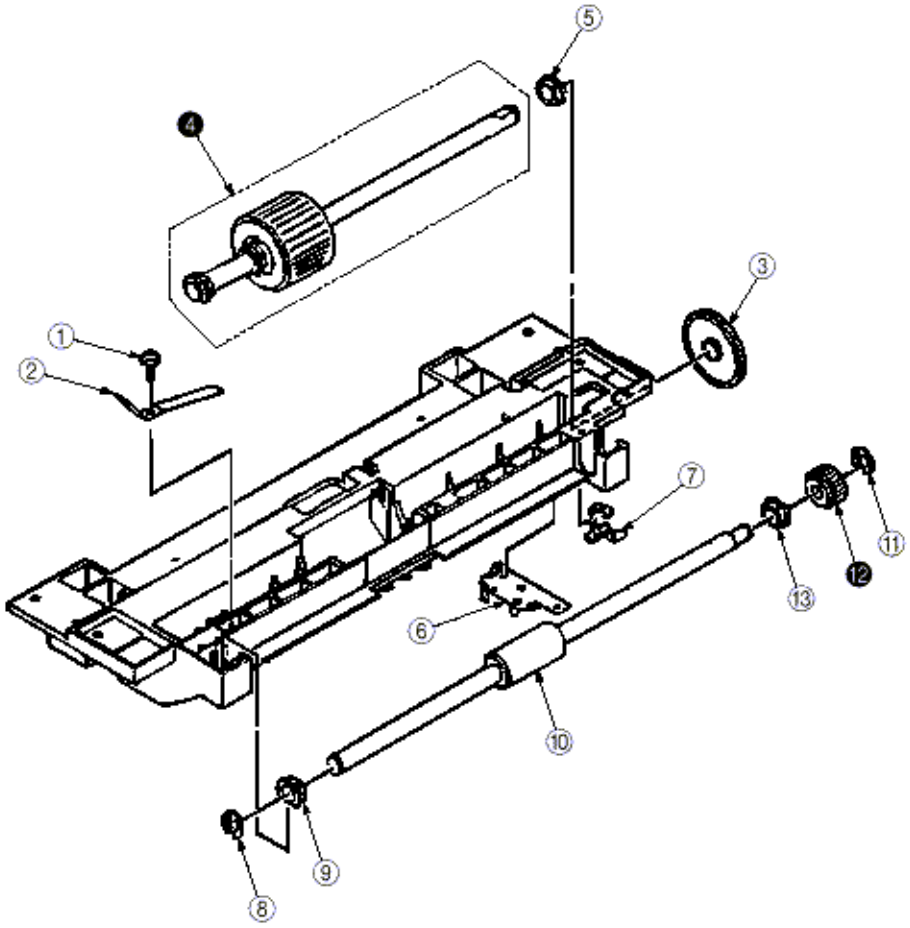
3.3.3 Hopping Roller Shaft Assembly and One-way Clutch Gear

(1) Follow up to step (3) of 3.3.1 and remove the hopping frame assy.

(2) Remove the screw (1) and remove the earth plate (2). Remove the sensor lever (7) and remove the ground plate (6). Remove the gear (3) and remove the metal bush (5) and hopping roller shaft assy (4).

(3) Remove the E-ring (11) and remove the one-way clutch gear (12) on the right side of the feed roller (10).

Note : The metal bush (13) also comes off. Be careful not to lose it.



4. TROUBLESHOOTING

4.1 Precautions Prior to Troubleshooting

4.2 Preparations for Troubleshooting

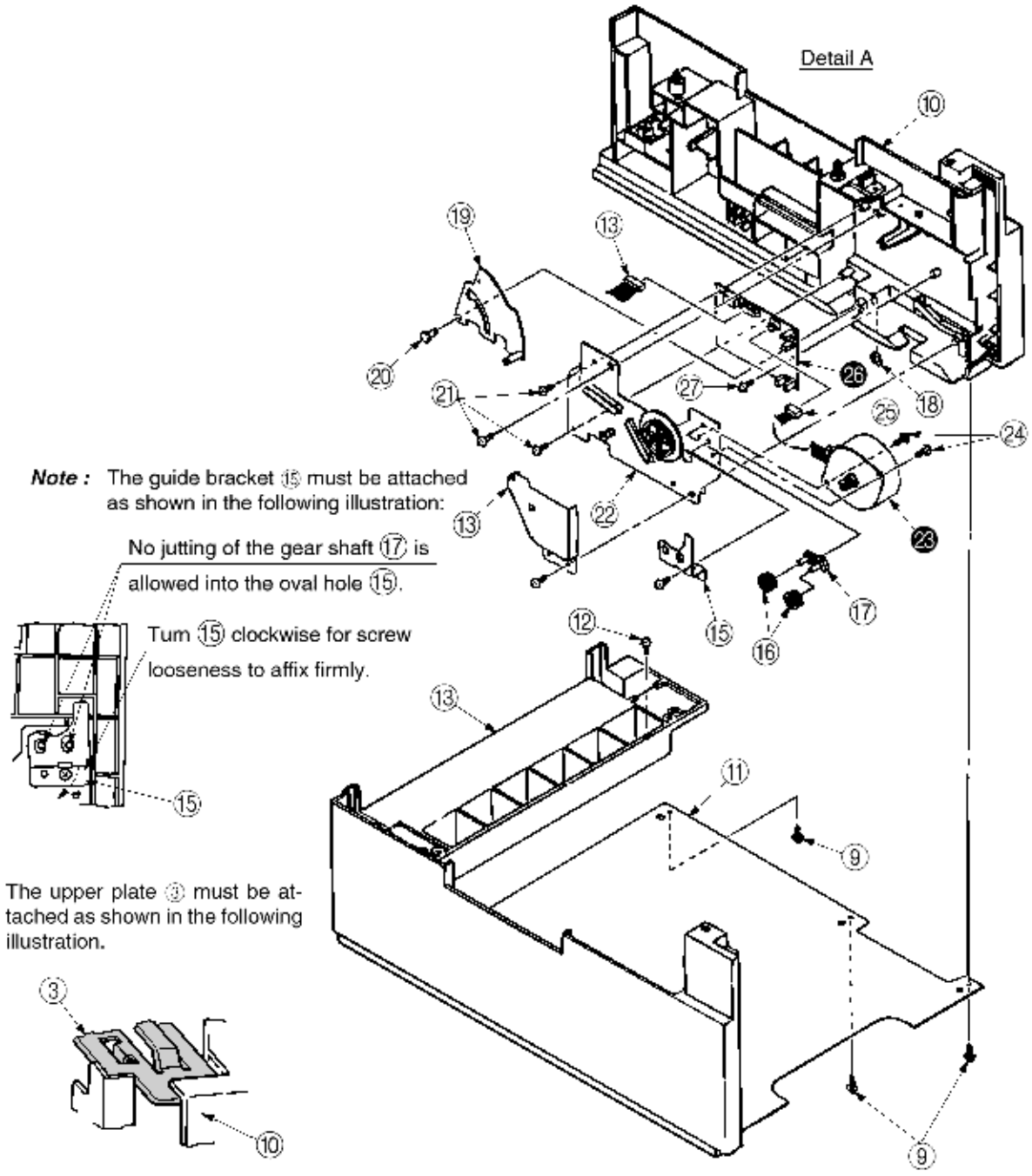
4.3 Troubleshooting Method

4.1 Precautions Prior to the Troubleshooting

(1) Go through the basic checking items provided in the Printer Handbook.

(2) Obtain detailed information concerning the problem from the user.

(3) Go through the checking in the conditions similar to that in which the problem occurred.

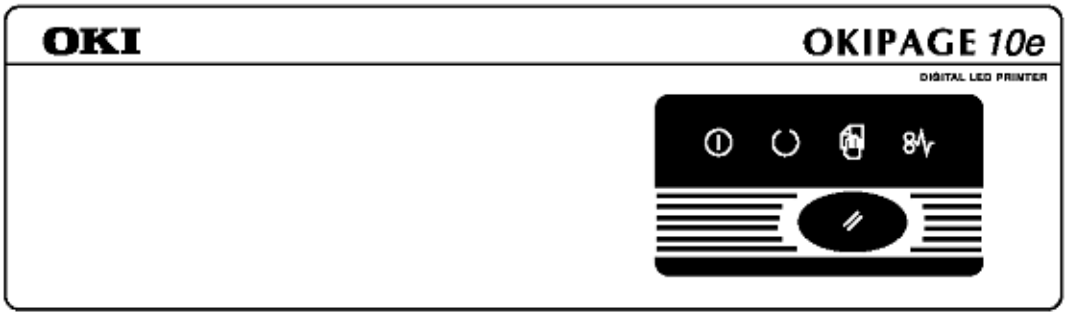


4.2 Preparations for the Troubleshooting

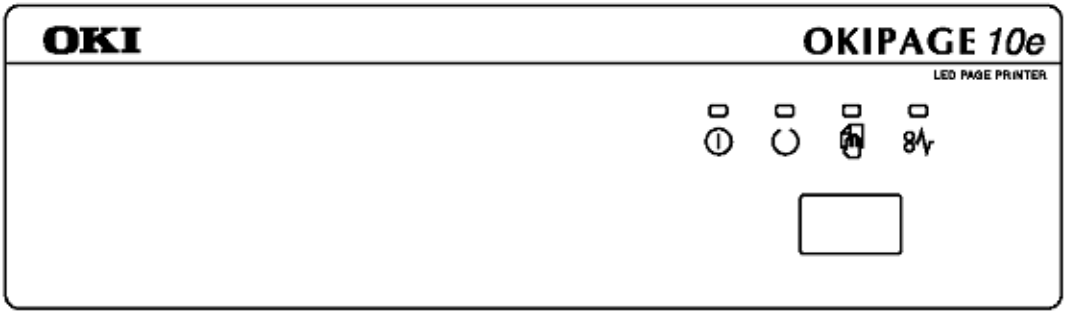
(1) Display on the Operator panel

The status of the problem is displayed on the LCD (Liquid Crystal Display) on the Operator panel. Go through the appropriate troubleshooting procedures according to the messages displayed on the LCD.

[ODA]



[OEL/INT]



Status message display

Ready LED display

: OFF : BLINKING

: ON : Undefined

4.3 Troubleshooting Method

When a problem occurs, go through the troubleshooting according to the following procedure.

4.3.1 LCD Status Message List

4.3.1 LCD Status Message List

The listing of the status's and problems displayed in the form of messages on the LCD or PC display is provided in Table 4-1.

Table 4-1

Classification	LCD Status Message	Description	Recovery method
Jam error (feeding)	Blinking OFF OFF	Notifies of occurrence of jam while the paper is being fed from High Capacity Second Paper Feeder.	Check the paper in the High Capacity Second Paper Feeder. Carry out the recovery printing by opening and closing the cover, and turn the error display off. When the problem occurs frequently, go through the Troubleshooting.
Jam error (ejection)	Blinking OFF OFF	Notifies of occurrence of jam while the paper is being ejected from the printer.	Check the paper in the printer. Carry out the recovery printing by opening and closing the cover, and turn the error display off.
Paper size error	Blinking OFF OFF	Notifies of incorrect size paper feeding from High Capacity Second Paper Feeder.	Check the paper in the High Capacity Second Paper Feeder. Also check to see if there was a feeding of multiple sheets. Carry out the recovery printing by opening and closing the cover, and turn the error display off.
Tray paper out	Blinking OFF OFF	Notifies of no paper state of the High Capacity Second Paper Feeder.	Load the paper in High Capacity Second Paper Feeder.
Paper size request	Blinking OFF OFF	Notifies of correct paper size for the High Capacity Second Paper Feeder.	Load the requested size paper in the High Capacity Second Paper Feeder.

(JAM error)

Paper Inlet Jam

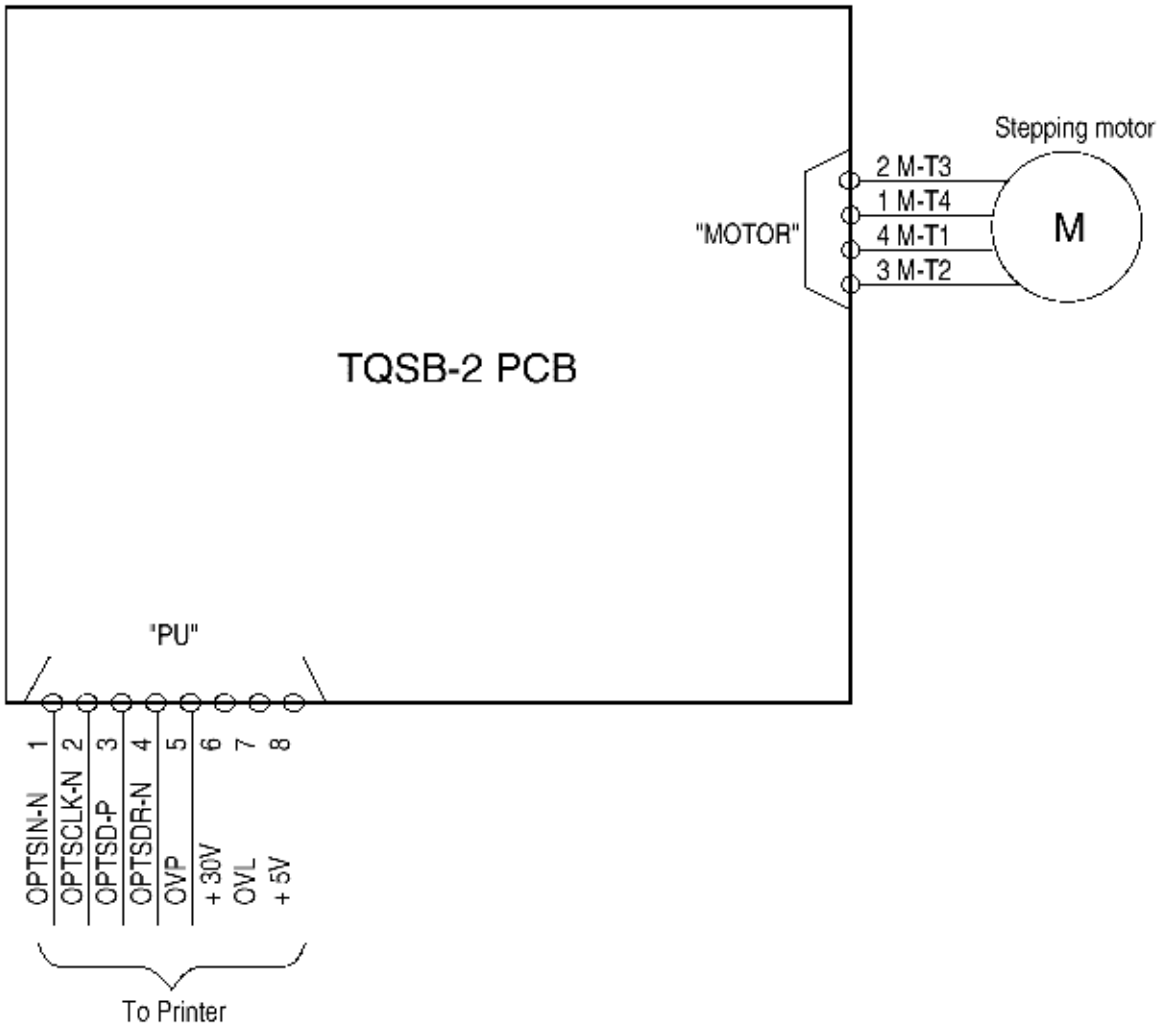
- Does paper jam at the inlet when the power is turned on?
  - • YES Is the paper located above the sensor plate (inlet)?
    - • YES Remove the paper.
  - NO Is the sensor plate (inlet) operating normally?
    - • NO Replace the sensor plate (inlet).
  - YES Replace the power supply/sensor board or inlet sensor.
- NO When the paper is fed in, does the paper inlet jam occur?
  - • YES Is the paper being fed to above sensor plate (inlet)?
    - • YES Is the sensor plate (inlet) operating normally?
      - • NO Replace the sensor plate. (inlet)
    - YES Clean the inlet sensor on the power supply/sensor board or replace the power supply/sensor board or inlet sensor.
  - NO Replace the hopping roller shaft assy or paper cassette.
- NO Are the hopping roller and feed roller rotating?
  - • YES Set the paper properly.
- NO Is the pulse motor turning?
  - • YES Replace the hopping roller shaft assy or one-way clutch gear on the feed roller assy.
- NO Is the connector being connected properly?
  - • NO Connect the connector properly.
- YES Check the coil resistance (approx. 4.3Ω) of the pulse motor. Is it normal?
  - • NO Replace the stepping motor.
- YES Replace the TQSB-2 PCB.

5. CONNECTION DIAGRAM

5.1 Interconnection Diagram

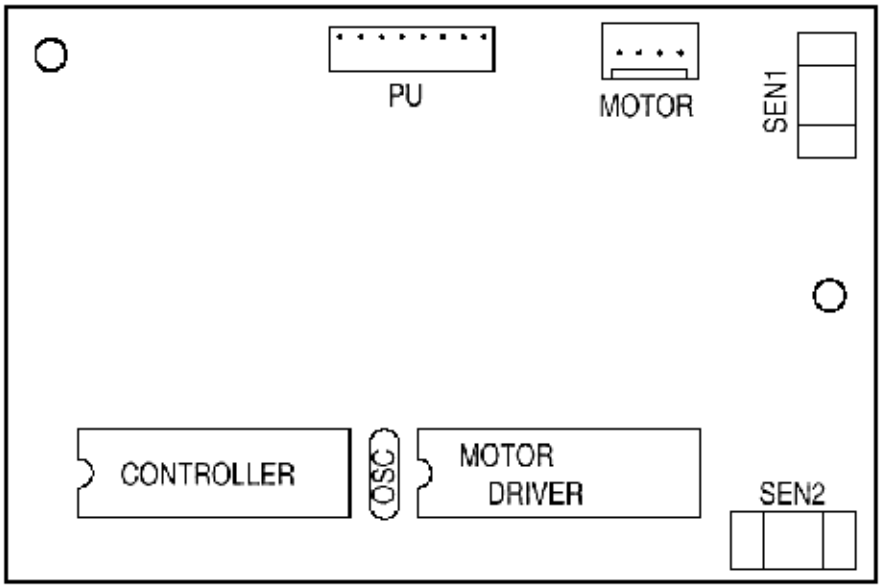
5.2 PCB Layout

5.1 Interconnection Diagram



5.2 PCB Layout

TQSB-2 PCB



6. PARTS LIST

6.1 High Capacity Second Paper Feeder

6.2 Second Tray Assembly

6.3 Cabinet and Cassette Assembly

6.4 Mechanical Assembly

6.5 Second Tray Parts List

6.1 High Capacity Second Paper Feeder

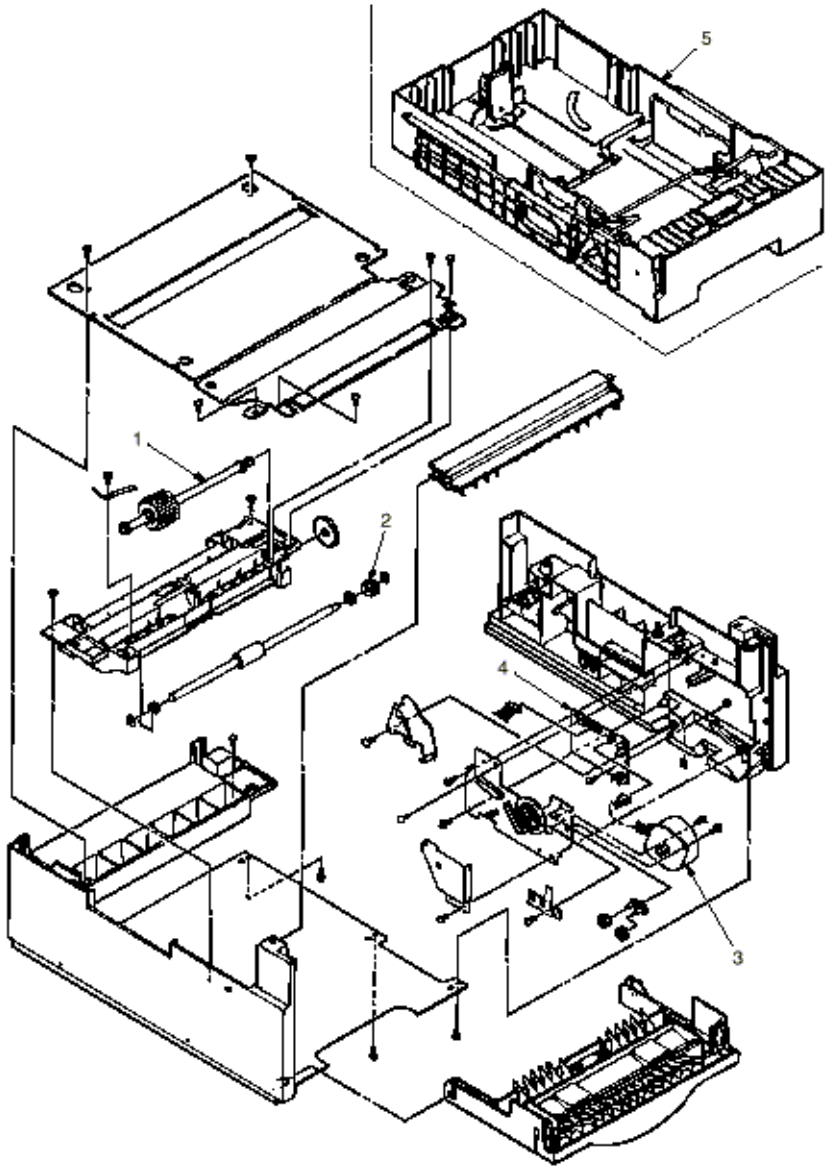
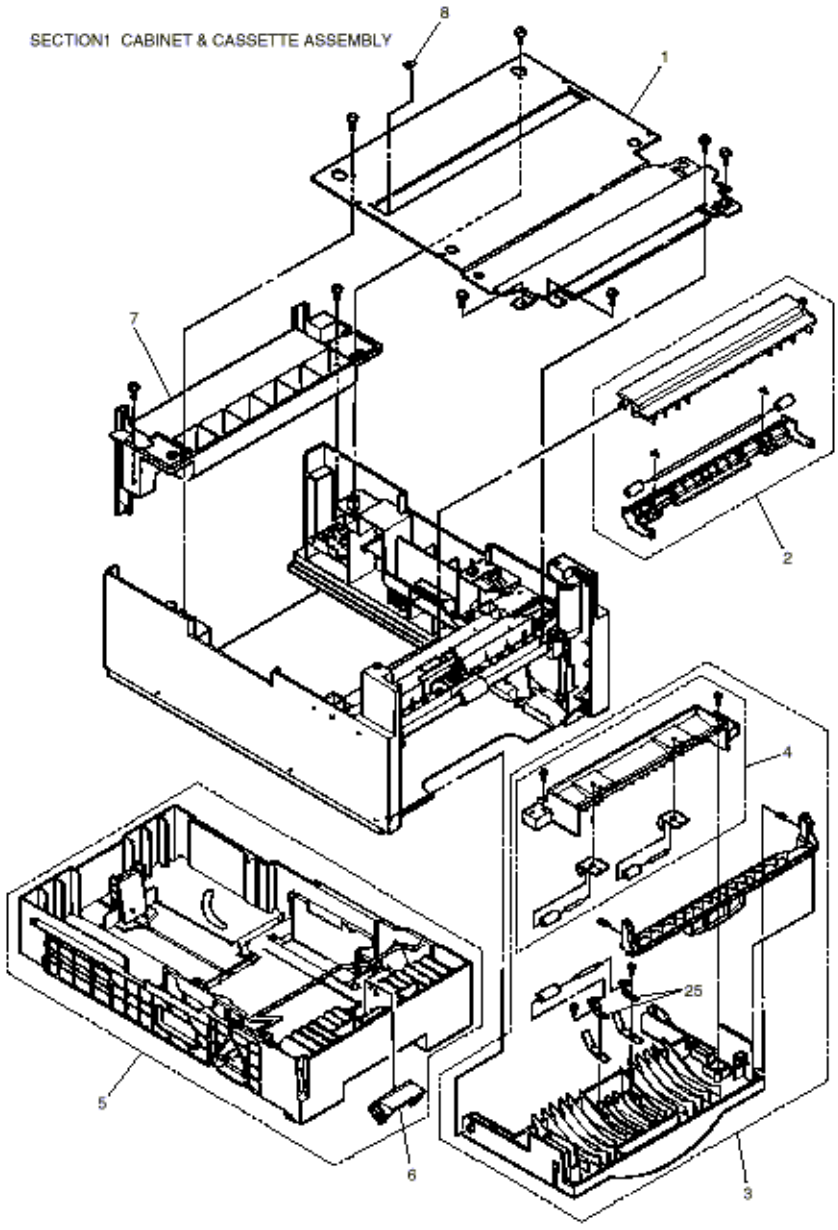


Figure 6-1 High Capacity Second Paper Feeder

Table 6-1 High Capacity Second Paper Feeder

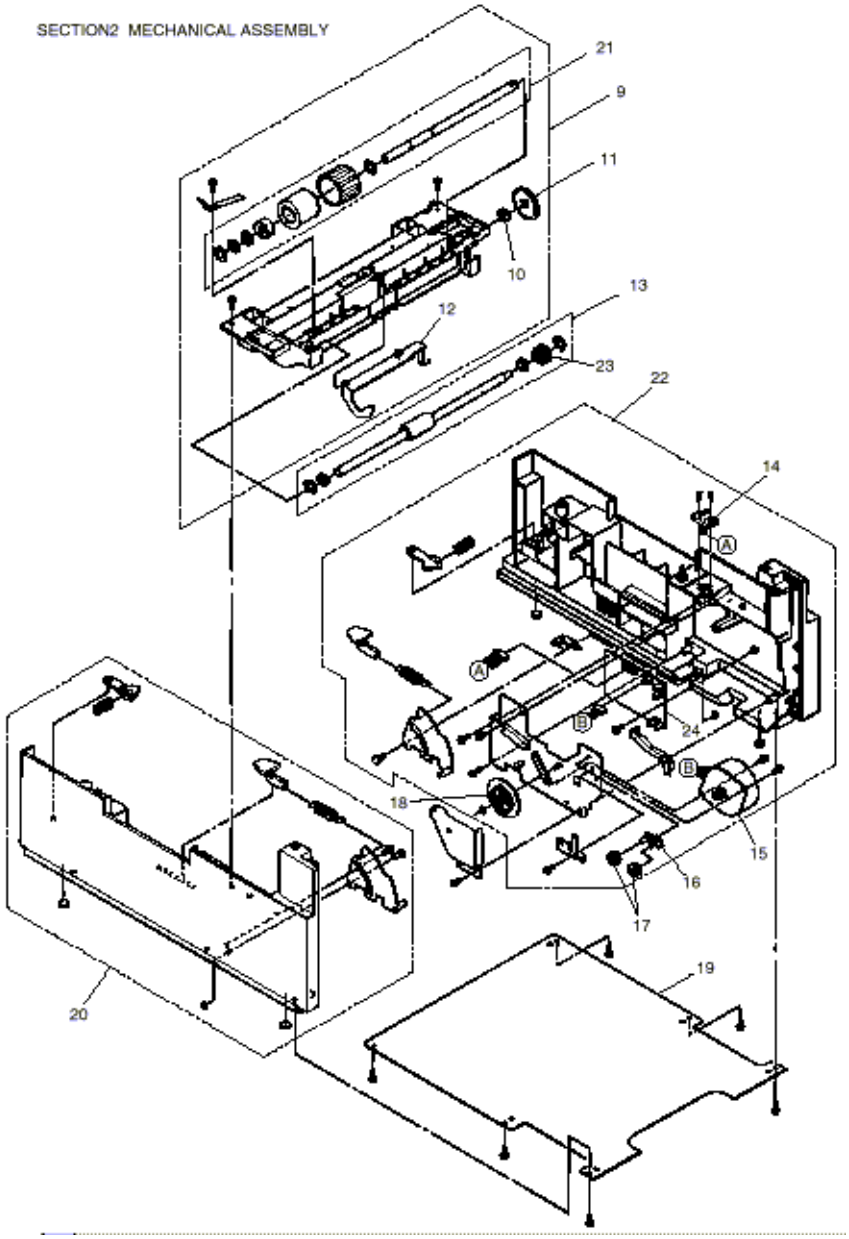
No.	Description	Oki-J Part No.	ODA Part No.	Q'ty	Remarks
1	Hopping roller shaft	3PA4122-1367G001	50409501	1	
2	One-way clutch gear	4PB4122-1382P001	51401101	1	
3	Pulse motor	3PB4122-1399P001	56512201	1	
4	TQSB-2 PCB	4YA4046-1651G002	55078102	1	
5	Cassette assy (2nd tray)	1PA4122-1362G004	50107304	1	

6.3 CABINET & CASSETTE ASSEMBLY



2nd Paper Tray Parts List

6.4 MECHANICAL ASSEMBLY



2nd Paper Tray Parts List

6.5 2nd Tray Parts List

Table 6-2

No.	Description	OKI-J Part #	OKIDATA Part #	Qty/U	500	100
1	Plate, upper	1PP4122-1401P001	51023301	1	3	5
2	Sheet guide assembly	3PA4122-1370G001	50222001	1	3	5
3	Front cover assembly	1PA4122-1369G001*	53075301	1	3	5
4	Inner guide assembly	3PA4122-1371G001	50221501	1	3	5
5	Cassette assembly (2nd tray)	1PA4122-1362G004	50107304	1	3	6
6	Separation frame assembly	4PP4120-1009G001	53345801	1	6	12
7	Cover, rear	1PA4122-1323P001	n/a	1	3	5
8	Stick finger	4PB4122-1441P001	51023401	1	3	5
9	Hopping frame assembly	1PA4122-1366G001	50222401	1	3	6
10	Bush, metal (ADF)	4PP3522-3568P001	51608901	1	3	5
11	Gear (z70)	4PP4122-1207P001	51239001	1	3	5
12	Lever, sensor (p)	3PP4122-1331P001	50411201	1	3	5
13	Feed roller assembly	3PA4122-1393G001	50222501	1	3	5
14	Cable & connector	3YS4111-3528P001	56633901	1	3	5
15	Stepping motor	3PB4122-1399P001	56512201	1	3	6
16	Bracket	4PP4122-1384G001	51712001	1	3	5
17	Gear (z24)	4PP4122-1383P001	51238901	2	3	5
18	Gear (z87/z60)	4PP4122-1226P001	51239101	1	3	5
19	Plate, bottom	2PP4122-1389P001	51023201	1	3	5
20	2nd cassette guide (L) assy	1PA4122-1365G001	50222301	1	3	6
21	Hopping roller assembly	3PA4122-1367G001	50409501	1	3	6
22	2nd cassette guide (R) assy	1YX4122-1364G002	50222201	1	3	6
23	One-way clutch gear	4PB4122-1382P001	51401101	1	6	12
24	TQSB-2 PCB	4YA4046-1651G002	55078102	1	3	6

* For the rev. no. of the Parts List for the Front cover assembly should be applied No. 5. The No. 5 includes a change from 0.2 to 0.3 for the plate thickness of the roller Holder (F). [F - 21, 25]. Roller Holder (F) Part No.: 4PP4122-1379P003.