Chapter 1
%1. Configuration

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1. CONFIGURATION

1.1 System Configuration

OL1200 consists of control and engine blocks as the standard configuration (See Figure 1-1.) In addition, the following options are also available.

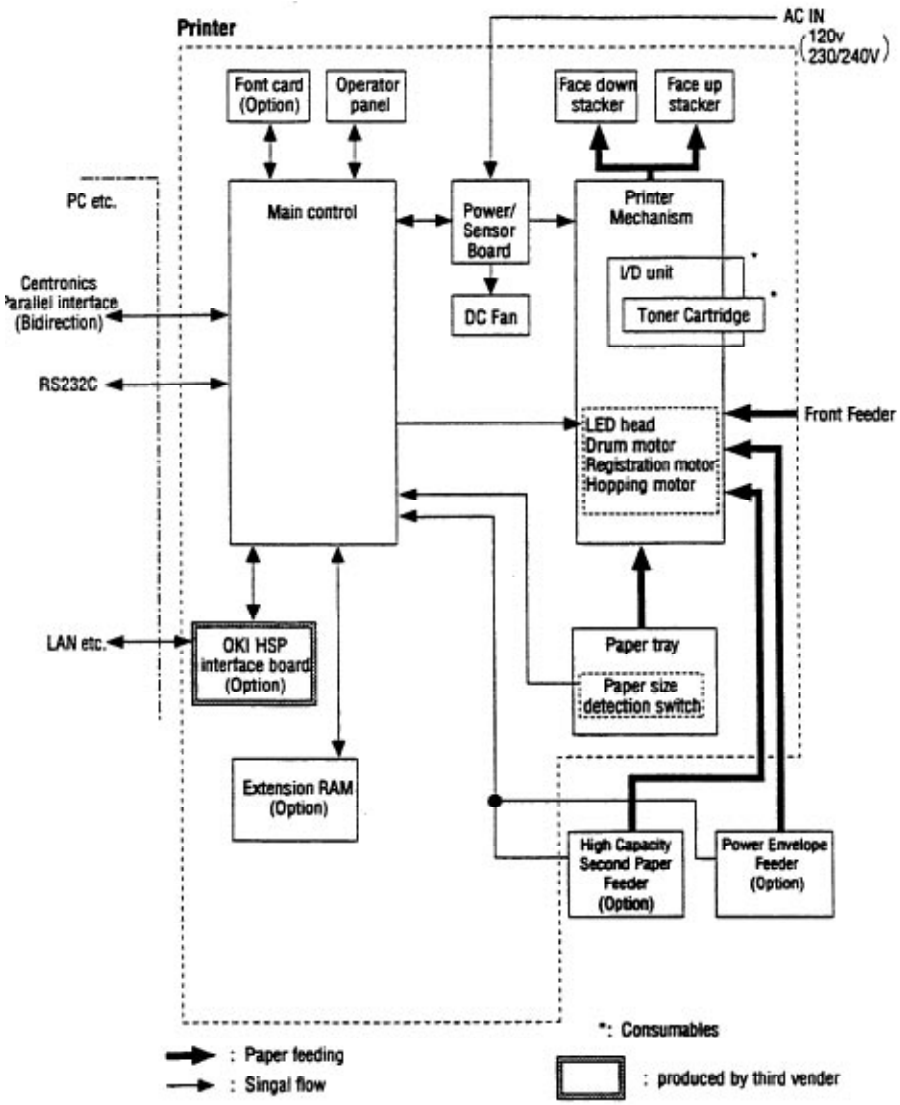


Figure 1-1

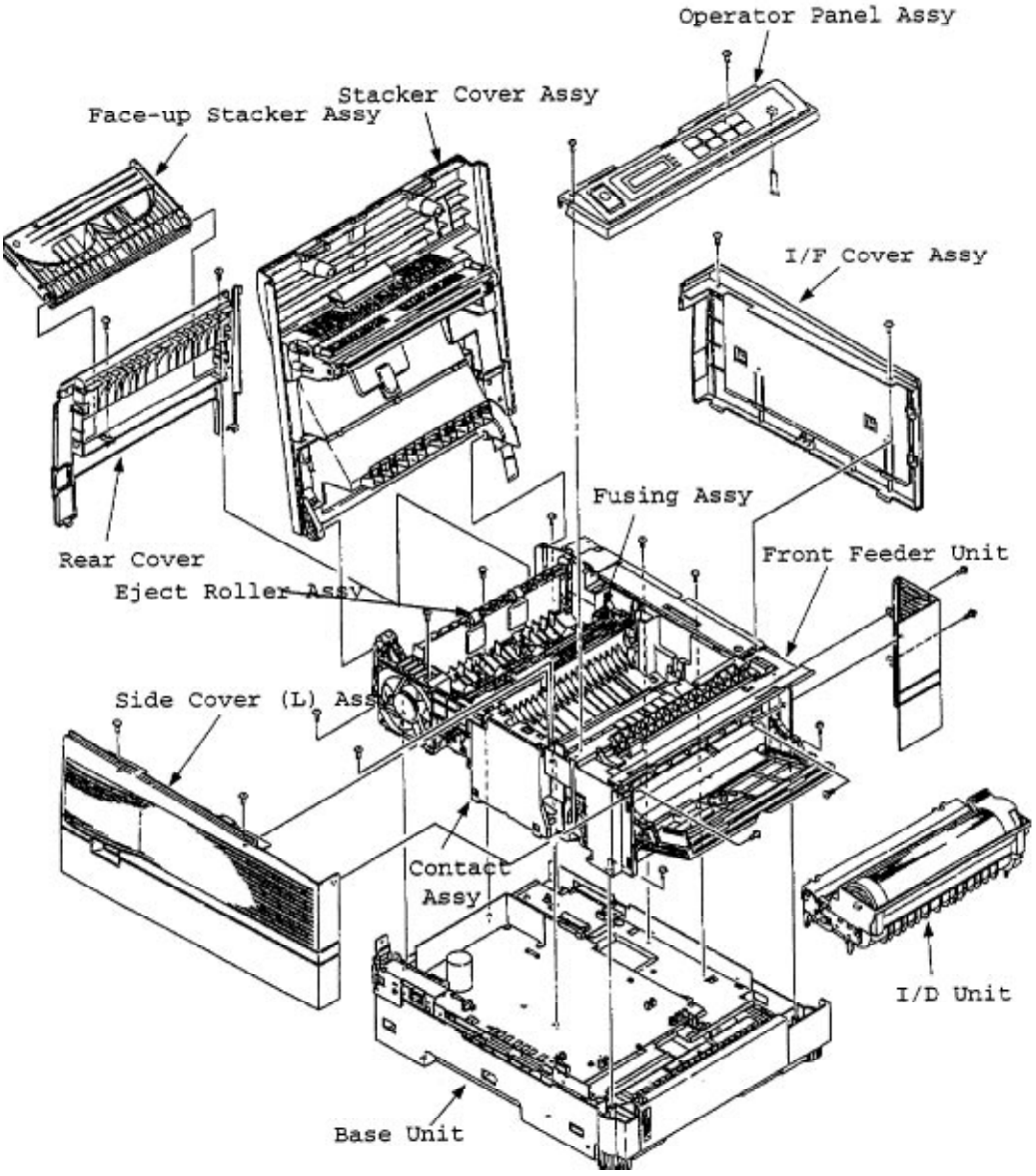
%1.2 Printer Configuration

1.2 Printer Configuration

The printer unit consists of the following hardware components:

- Electro-photographic processor
- Paper feeder
- Controller
- Operator panel
- Power/sensor board

Figure 1-2 shows the printer unit configuration.

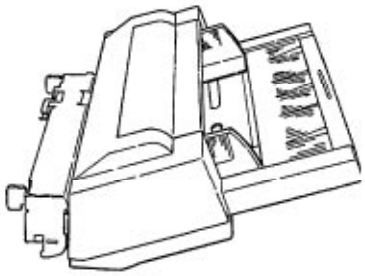


%1.3 Optional Configuration

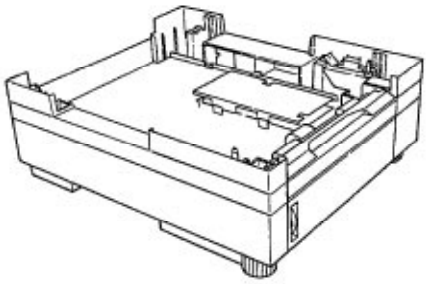
1.3 Optional Configuration

The options below are available for use with OL1200. They are sold separately from the printer unit.

(1) Power Envelope Feeder

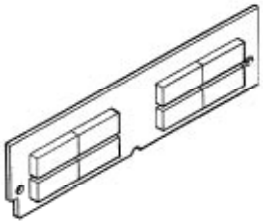


(2) High Capacity Second Paper Feeder

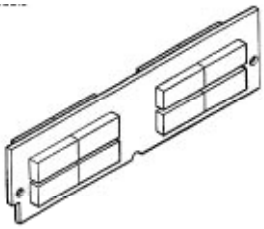


(3) Font Card

(4) RAM module



• 8MB RAM module



• 16MB RAM module

%1.4 Specification

1.4 Specification

(1) Type Desk top

(2) External dimensions Height 10.6 (270 mm) (excludes protruding Width 14.4 (366 mm) Portion) Depth 16.9 (430 mm)

(3) Weight 15.2 kg (33.5 lbs)

(4) Development method Dry electrophotography Exposure method 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 sizes Letter Legal Executive Envelope A4 A5 B5 A6
- Applicable sizes Width: 3.4 to 8.5 (86 to 228 mm) Length: 5.5 to 14 (140 to 355.6 mm) <Thickness> Automatic feed: 16 to 28 lbs (60 to 105 g/m 2) Manual feed: Label, OHP paper (transparency) Envelope

(6) Printing speed

First print: 12 sec.
Continuous print: 12 sheets/min.
Warm-up time: 90 sec. [at room temperature 77°F (25°C) and rated voltage (120 VAC)]

(7) Paper feed method Automatic feed or manual feed

(8) Paper delivery method Face down/face up

(9) Resolution 600 x 600 dots/inch

(10) Power input 120 VAC + 5.5%, 15% (ODA) 230/240 VAC + 10%, 14% (ODA/OEL)

(11) Power consumption

Peak: Approx. 600W
Typical Operation: Approx. 220W
Idle: Approx. 100W
Power save mode: Approx. 20W

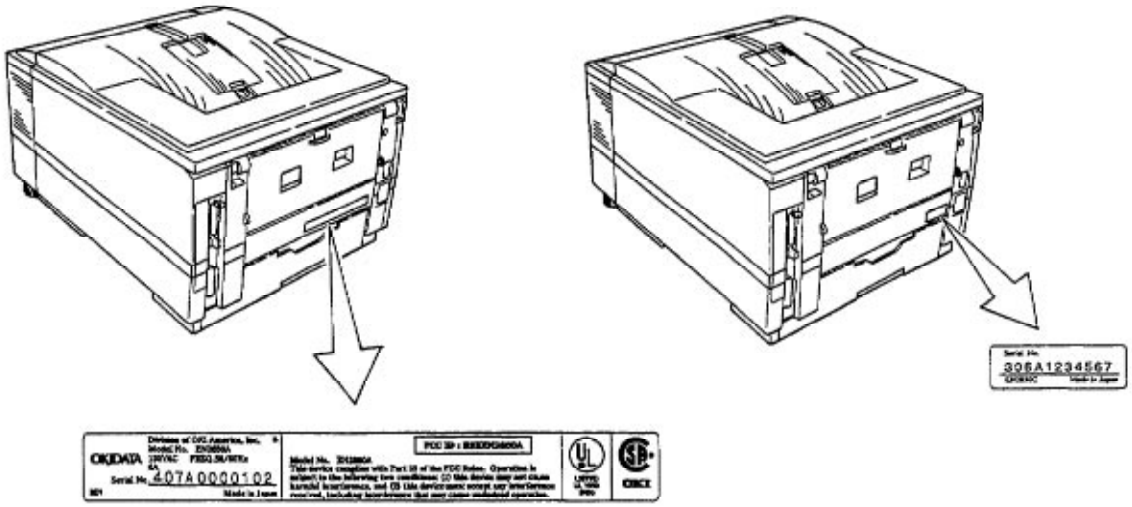
(12) Temperature and humidity During operation: 50 to 90°F (10 to 32°C) In storage: 14 to 110°F (10 to 43°C)

(13) Noise During operation: 50 dB (A) or less At standby: 45 dB (A) or less Power save mode: 43 dB (A) or less

(14) Consumables Toner cartridge kit 5,000 (5% duty) Image drum cartridge 30,000 (at continuous printing) 20,000 (3 page/job) 15,000 (1 page/job)

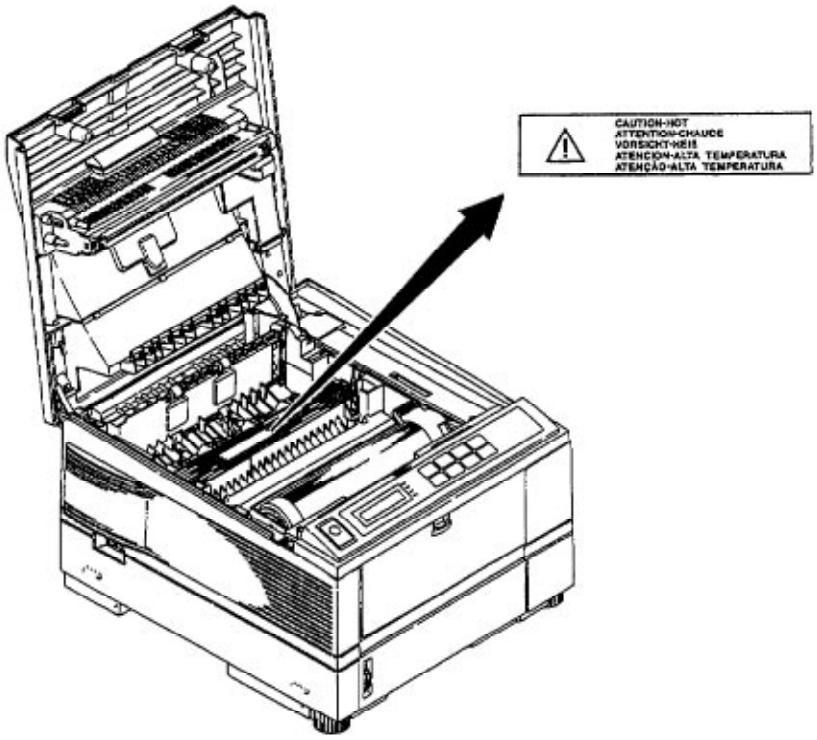
%1.5 Safety Standards

1.5 Safety Standards
1.5.1 Certification label
The safety certification label is affixed to the printer in the position below.



%1.5.2 Warning Label

1.5.2 Warning label
The warning label is affixed to the portion which may cause an injury to human body. Follow the instructions on warning labels during maintenance.



Chapter 2
%2. Operation Description

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2. OPERATION DESCRIPTION

OL1200 consists of a control board, a power supply/sensor board, a driver board, an operator panel and an electro-photographic process mechanism.
The control board receives data through a host I/F, decodes and edits the data, and stores the edited data in a memory. After completing edition of one page of data, it references the font memory and generates bit data on the same memory. At the same time, it transfers the bit image data to an LED head in units of one dot line.

The electro-photographic process mechanism prints data on paper.

The operator panel is used for operations and status display.

Fig. 2-1 shows an OL1200 block diagram.

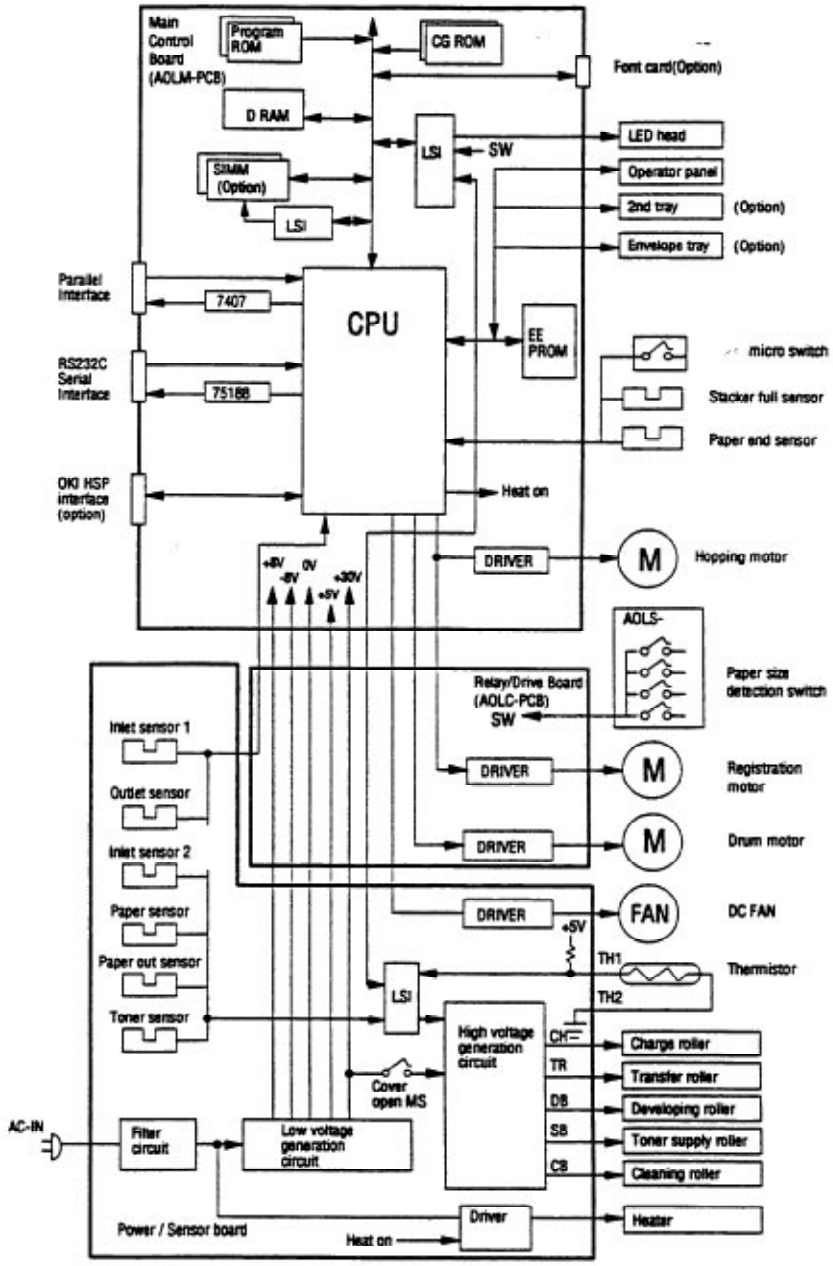


Figure 2-1 OL1200 block diagram

%2.1 Main Control Board (Aolm-Pcb)

2.1 Main Control Board (AOLM-PCB)
The control board consists of a one chip CPU, LSIs, a program/font ROM, a DRAM, an EEPROM, a host interface circuit, and a mechanism driving circuit.

(1) One-chip CPU

The one-chip CPU is a custom CPU (32-bit internal bus, 32-bit external bus, 33-MHz clock) that incorporates a 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 OST LSI
Parallel interface controller	Control of Centronics parallel interface
Serial interface controller	Control of RS-232C serial interface
Timer	Generation of various control timing Monitoring of paper running and paper size
Serial I/O port	Control of operator panel, EEPROM, and options
I/O port	Inputting/outputting of sensor, signal and motor signal
Option I/O interface	Control of OKI HSP interface

(2) Program/font ROM
The program/font ROM stores the equipment program and various types of fonts. EPROM/ OTP or masked ROM is used as an program/font ROM.

(3) Memory
2-Megabyte DRAM (512K x 4) is mounted as resident memory to be used for storing the program and providing various buffers. This DRAM is expandable up to 34 Mbytes by adding expansion memory (SIMMs). This DRAM provides the areas shown in the following table.

		Memory capacity setting	
Memory area	Use	MENU	Expansion RAM
System area	Working area used for the program	Fixed Working area used for the program	Fixed
Raster buffer	Stores converted bit image data	Enable	Expandable
Receive buffer	Stores temporarily the data received from the host interface	Enable	Expandable

Page buffer	Adds print information to the analyzed receive data and stores the resulted data.		Expandable
DLL/macro buffer	Stores soft fonts and macro data.		Expandable
Font cache buffer	Stores bit map fonts generated by the font rasterizer based on scalable font information	Enable	Expandable

(4) EEPROM
The EEPROM has a 4-kbit capacity and stores the following data.
- Menu data
- Various counter data (page counter, drum counter, fuser counter, etc.)
- Adjustment parameters (LED head drive time, print start position, etc.)

(5) LSI (MSM10S0050-015GS)
This LSI is connected to the CPU via the bus as a peripheral device of the CPU and controls the memory based on the RAS signal and address signal received from the CPU.

(6) LSI (MBCE31701-040FP-BND)
This LSI is used as a peripheral device of the CPU and performs smoothing compensation (OST) of print image data (300 dpi and 600 dpi). In addition, it transfers serially bit image data for each dot line to the LED head.

(7) Host interface
This printer has the following interfaces to the host.
- Centronics bidirectional parallel interface
- RS232C serial interface
- OKI HSP interface (Option)

The single effective interface or the automatic interface select mode can be selected using the menu. If the busy state of the printer continues for a long time period, the buffer near-full control releases the busy status at constant intervals even if the host side is busy so not to cause the interface time-out at the host side.

(a) Centronics bidirectional parallel interface
This is an interface conforming to IEEE-1284 and provides either unidirectional or bidirectional communications according to each of the following communication modes.

- Compatibility mode
  Unidirectional communications from the host to the printer.

- Nibble mode
  This mode transmits 4-bit wide data from the printer to the host. In this mode, each 1-byte data is transferred in the form of two nibbles using ERROR, BUSY, FAULT, and SELECT signal leads. This mode can provide the bidirectional operation in combination with the compatibility mode.

- ECP mode
  his mode provides the asynchronous bidirectional interface and transmits and receives 1-byte data using eight data signal leads under the semi-duplex control by the host.

When the power is turned on, the compatibility mode is automatically selected. The change to another mode from the compatibility mode is made through negotiation. (When the BI DIRECTION is set to ENABLE in the menu, this change can be performed.) (For the electrical/physical characteristics of this interface, see APPENDIX B)

(b) RS232C serial interface

The following protocol is supported for the serial interface conforming to EIA RS232C.

- READY/BUSY (DTR HI or DTR LO)
- X-ON/X-OFF
- RBST X-ON

(For the electrical/physical characteristics of the interface, see APPENDIX A)

(c) OKI HSP interface (Option)
This interface (slot) is an OKI unique universal interface that provides the platform to connect various boards (including those supplied by third venders) such as the LAN connection expansion board.

Any expansion boards compatible with this interface can be mounted on the Control board without modifying the program at the printer side. The conceptual diagram of the OKI HSP interface is shown in Fig. 2-2.

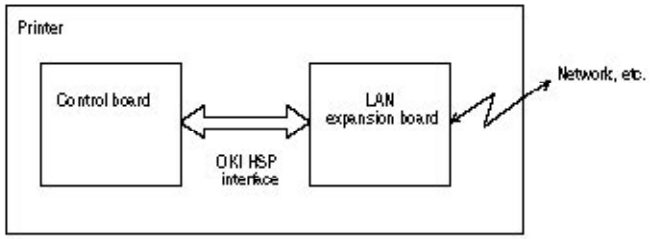
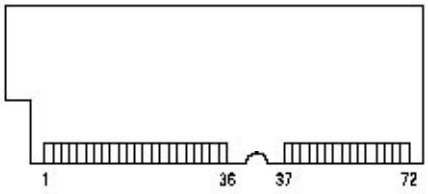


Fig. 2-2

(For the electrical/physical characteristics of the OKI HSP interface, see the OKI HSP interface technical manual. This manual will not be available to the general public.)
(8) RAM module

- Pin layout



- Basic specificaton
  - Type: 72 pins SIIM (32 bits buss width)
  - Access time: 60ns, 70ns, 80ns, 100ns
  - Capacity: 1, 2, 4, 8, or 16MB (16 MB RAM will not be sold by Okidata)
  - Parity: None

%2.2 Power/Sensor Board

2.2 Power/Sensor Board
The power/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	**Use**
+5 V Logic circuit supply voltage	+30 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 analog circuit supply voltage	

(2) High voltage power supply circuit
This circuit generates the following voltages necessary for electro-photographic processing from +30 V according to the control sequence from the control board. When cover open state is detected, +30 V supply is automatically interrupted to stop the supply of all the high-voltage outputs.

Output	Voltage	Use	Remarks
CH	-1.30 KV	Voltage applied to charging roller	
DB	-240 V/+300 V	Voltage applied to developing roller	
SB	-360 V/450 V	Voltage applied to toner supply roller	
TR	+4 KV/-1.3 kV	Voltage applied to transfer roller	Variable
CB	+400 V	Voltage applied to cleaning roller	

(3) Photosensor
The photosensor mounted on this power/sensor board supervises the paper running state during printing. Figure 2-3 shows the sensor layout diagram.

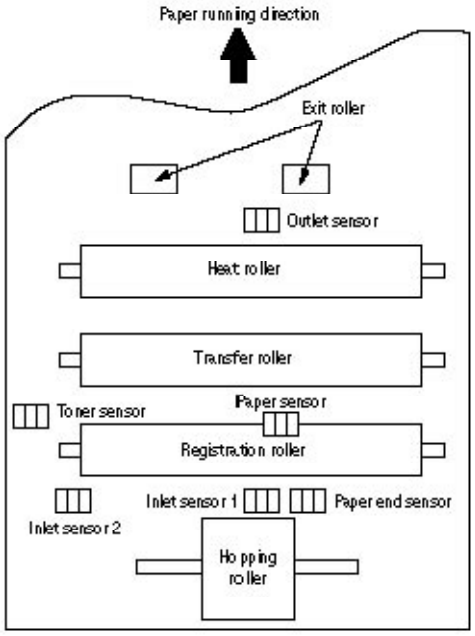


Figure 2-3

Sensor	Function	Sensing state
Inlet sensor 1	Detects the leading part of the paper and gives the supervision timing for switching from hopping operation to feeding opera-tion. Supervises the paper running state and the paper size accord-ing to the paper reach time and running time.	ON: Paper exists. OFF: No paper exists.
Inlet sensor 2	Detects the form width.	ON: A4 or larger OFF: Smaller than A4
Paper sensor	Detects the leading part of the paper. Supervises the paper running state.	ON: Paper exists. OFF: No paper exists.
Outlet sensor	Supervises the paper feed and size according to the time of arrival to the sensor and the time of passage of paper.	ON: Paper exists. OFF: No paper exists.
Paper end sensor	Detect the end of the paper.	ON: Paper exists. OFF: No paper exists.
Toner low sensor	Detects the lack of toner.	ON long: Toner low exists OFF short: No Toner low exists

%2.3 Relay/Driver Board (Aolc Board)

2.3 Relay/Driver Board (AOLC board)
This board relays signals between the Control board and the Power/Sensor board and includes the registration motor and drum motor driver IC.

%2.4 Electro-Photographic Process

2.4 Electro-photographic Process

2.4.1 Electro-photographic process mechanism
This mechanism prints image data from the control board on the paper by electro-photographic process.

The Figure 2-4 shows the layout of the electro-photographic process mechanism.

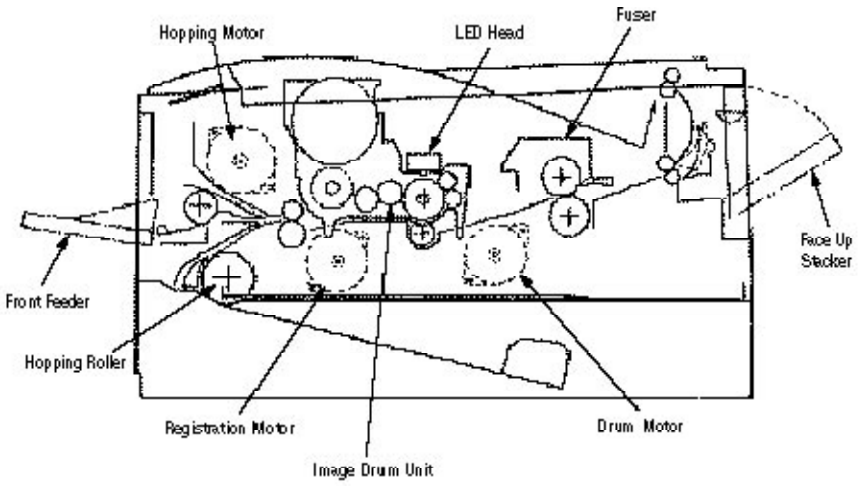


Figure 2-4

(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) Hopping motor
This motor is a pulse motor of 48 steps/rotation that is two-phase excited by the signal from the control board. It drives the hopping roller of the first tray and the front feed roller via two one-way clutches according to the direction of rotation.

(3) Registration motor
This motor is a pulse motor of 48 steps/rotation that is two-phase excited by the signal from the control board. It drives the registration roller.

(4) Drum motor
This drum motor is a pulse motor of 48 steps/rotation that is two-phase excited by the signal from the control board and is the main motor of this mechanism.

(5) LED head
Image data for each dot line from the control board is received by the shift register and latch register. The 5120 LEDs are driven to radiate the image data to the image drum.

(6) Fuser
The fuser consists of a heater, a heat roller, a thermistor and a thermostat. An AC voltage from the power supply board is applied to the heater under the control of the HEATON signal from the control board. This AC voltage heats the heater. The control board supervises the heat roller temperature via the thermistor, and regulates the heater roller at a predetermined temperature (185 ~ 188°C) by connecting or disconnecting the AC voltage supply to the heater. If the heater roller temperature rises abnormally, the thermostat of the heater voltage supply circuit is activated to cut the AC voltage supply forcibly.

%2.4.2 Electro-Photographic Process

2.4.2 Electro-photographic process

The electro-photographic processing is outlined below. Figure 2-5 shows the electro-photo-graphic printing process.

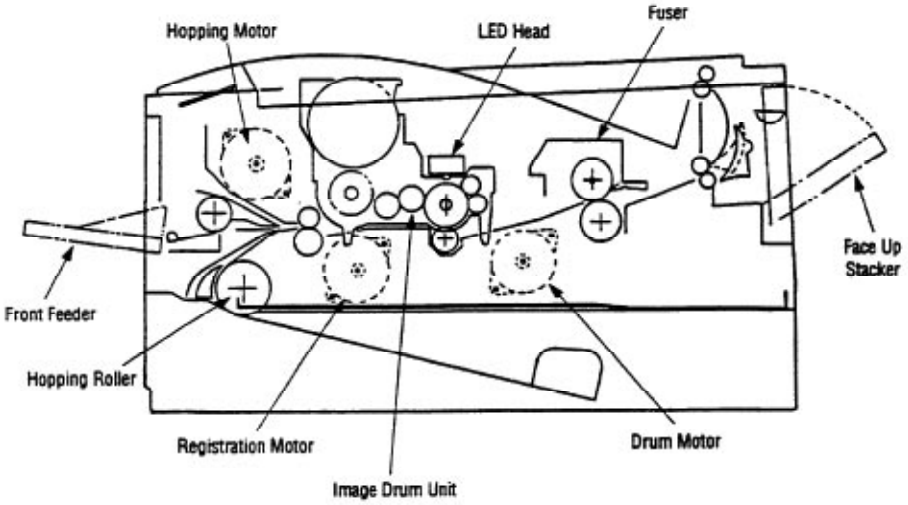


Figure 2-4

1 Charging

The surface of the image drum is uniformly charged with negative charges by applying a 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 part of the image drum surface is lowered, so that an electrostatic latent image associated with the print image is formed.

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

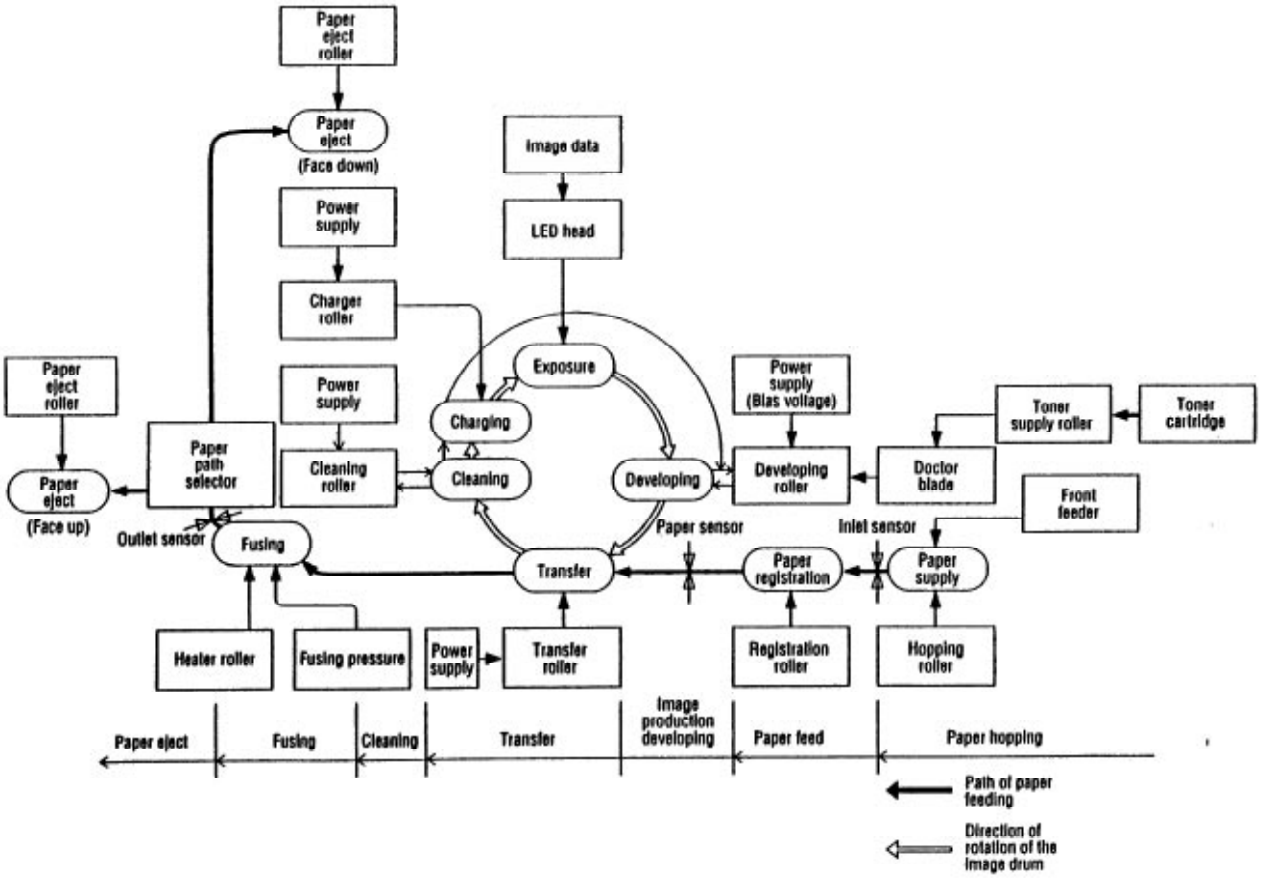
When paper is placed over the image drum surface and a positive charge, opposite in polarity to the toner, is applied to the reverse side of the paper from the transfer roller, the toner is attracted by the positive charge and is transferred to the paper. As a result, the toner image formed on the image drum is transferred to the paper.

5 Temporary cleaning

Residual toner that remains on the image drum without being transferred is made uniform by the cleaning roller and is temporarily attracted to the cleaning roller by static electricity.

6 Fusing

The toner image transferred to the paper is fused under heat and pressure. Figure 2-6 shows an electro-photographc process timing chart.


Paper eject roller
Paper eject
(Face down)
Image data
LED head
Power supply
Charger roller
Exposure
Power supply (Bias voltage)
Toner supply roller
Toner cartridge
Paper eject roller
Power supply
Charging
Developing roller
Doctor blade
Front feeder
Paper path selector
Cleaning roller
Cleaning
Developing
Paper eject
(Face up)
Outlet sensor
Fusing
Paper sensor
Inlet sensor
Transfer
Paper registration
Paper supply
Heater roller
Fusing pressure
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

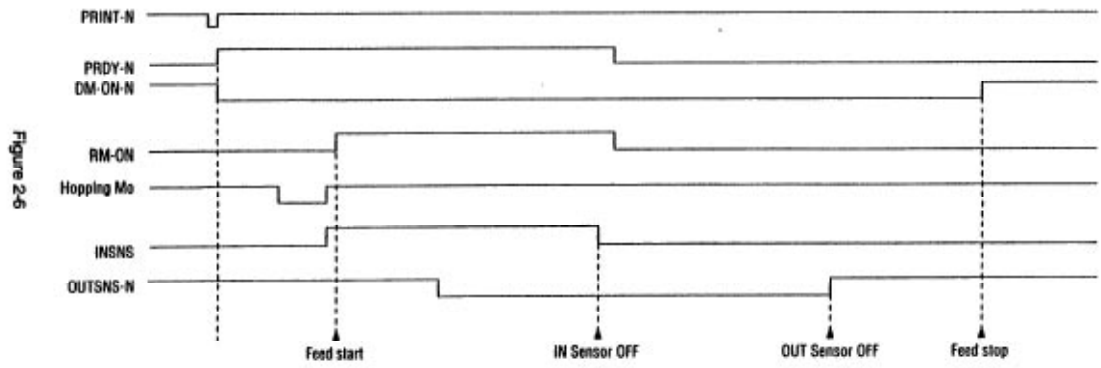

PRINT-N
PRDY-N
DM-ON-N
RM-ON
Hopping Mo
INSNS
OUTSNS-N
Feed start
IN Sensor OFF
OUT Sensor OFF
Feed stop

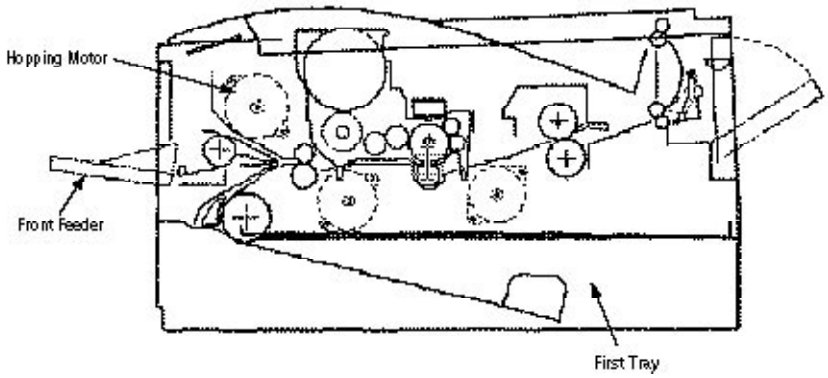
Figure 2-6

%2.4.3 Process Operation Descriptions

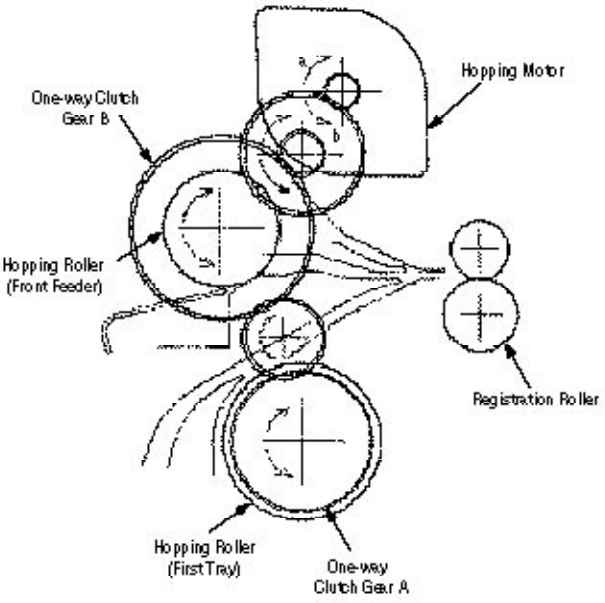
2.4.3 Process operation descriptions

(1) Hopping

Hopping from the first tray and the front feeder are effected by a single hopping motor in the mechanism shown below.



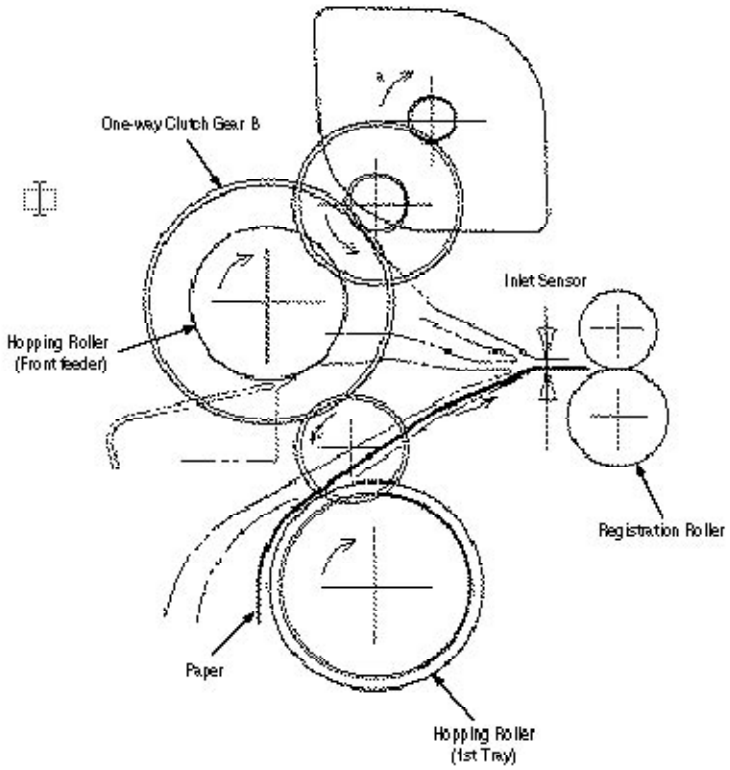
Turning the Hopping motor in the a direction drives the hopping roller of the first tray. Turning the Hopping motor in the b direction drives the Hopping roller of the front feeder. The both and hopping gears contain one-way bearing, so that turning each of these gears in reverse direction will not be transmitted to the corresponding roller.



(a) Hopping (1st tray)

1 Rotating the pulse motor in the direction a (Clock-wise direction) drives the hopping roller of the first tray to advance the paper until the inlet sensor turns on. At the same time, the one-way clutch gear B also rotates. However, the hopping roller of the front feeder will not rotate due to the one-way bearing.

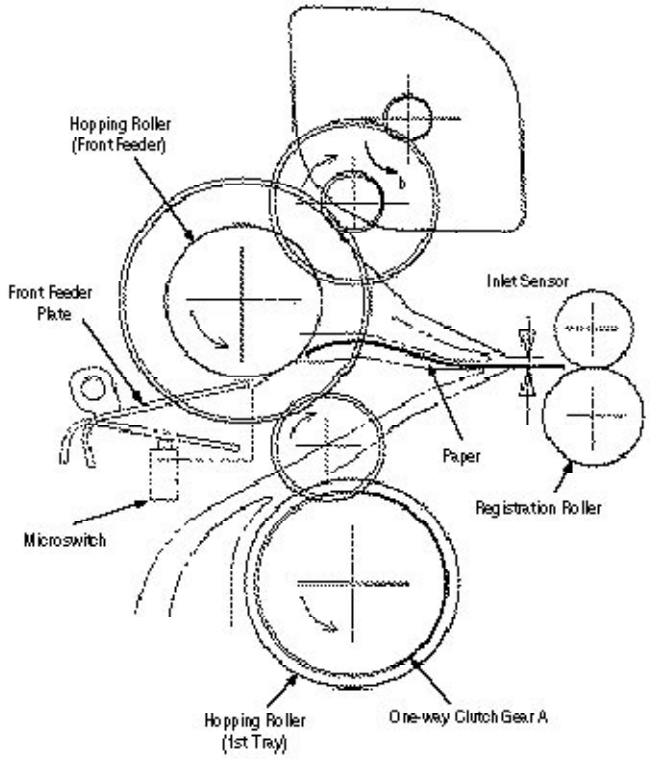
2 After turning on the inlet sensor, the paper advances further by a predetermined length until it hits the registration roller. (The skew of the paper can thus be corrected.)



(b) Hopping (front feeder)

1 Rotating the pulse motor in the direction b (Counter Clock-wise direction) drives the hopping roller of the front feeder to advance the paper until the inlet sensor turns on. At the same time, the one-way clutch gear A also rotates. However, the hopping roller of the 1st tray will not rotate due to the one-way bearing.

A cam to push down the front feeder plate is attached on each of the ends of the hopping roller shaft. These cams push down the front feeder plate when the hopping operation is not performed so as to facilitate the setting of paper into the tray. A microswitch is provided under the front feeder plate to detect that the front feeder plate is at the lower position. When the front feeder plate is at the lower position, this microswitch causes the motor to stop.



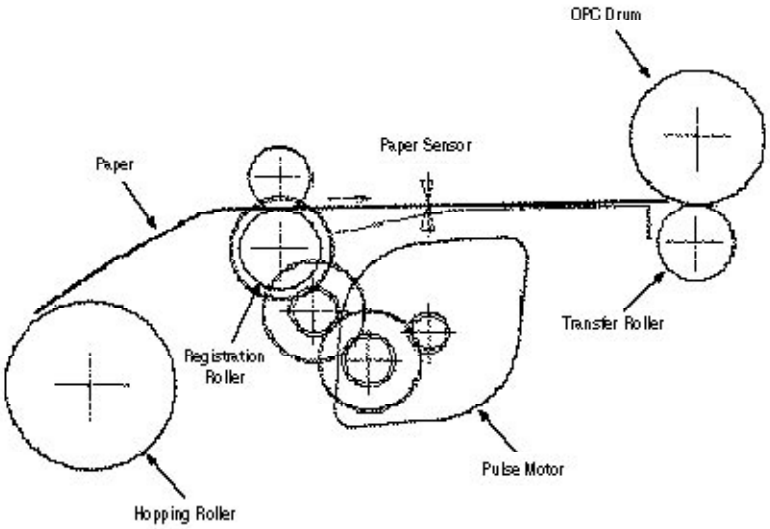
2 After turning on the inlet sensor, the paper advances further by a predetermined length until it hits the registration roller. (The skew of the paper can thus be corrected.)

%(2) Feeding

(2) Feeding

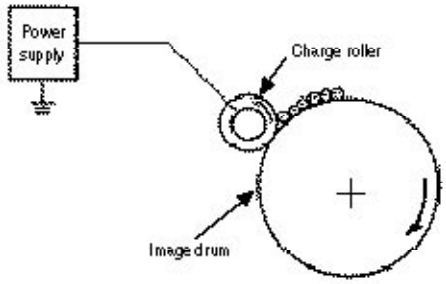
After the end of hopping, the pulse motor drives the registration roller. The registration roller advances the paper until it comes out of the registration roller.

When leading edge of the paper causes the paper sensor to turn on, the printing is started synchronously.



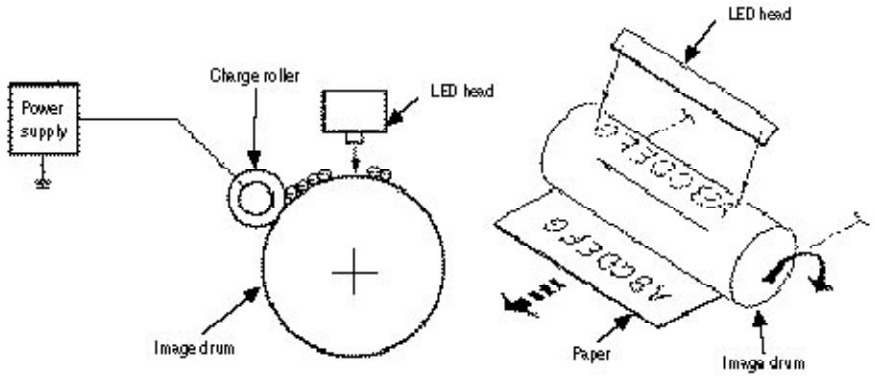
%(3) Charging

(3) Charging
Charging is effected by applying a DC minus voltage to the charge roller that is in contact with the image drum surface.



%(4) Exposure

(4) Exposure
Light emitted from the LED head irradiates the image drum surface with negative charges. The surface potential of the irradiated part of the image drum drops, thereby forming an electrostatic latent image associated with the image signal.

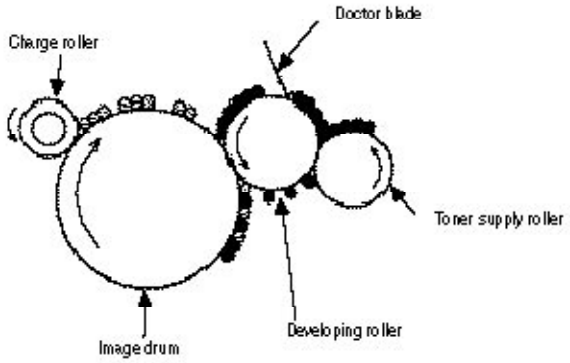


%(5) Developing

(5) Developing

Toner is attracted to the electrostatic latent image on the image drum surface to convert it into a visible toner image. Developing takes place at 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 part (low-potential part) of the image drum at the contact between the image drum and the developing roller, making the electrostatic latent image visible.

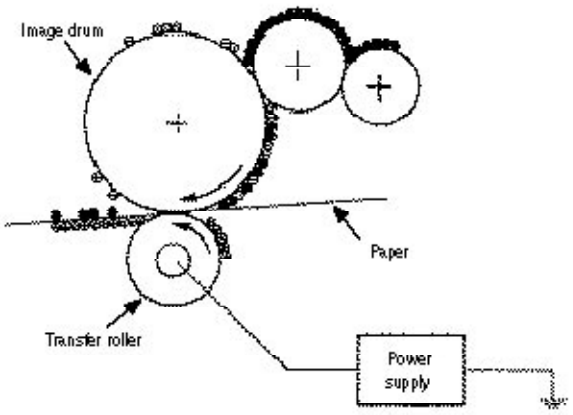
%(6) Transfer

(6) Transfer

The transfer roller is composed of conductive sponge material and is designed to make the image drum surface and the paper closely into contact.

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

The application of a high positive voltage from the power supply to the transfer roller causes the positive charge induced to the transfer roller surface to be transferred to the paper at the contact between the transfer roller and the paper. As a results, toner charged negative that is attracted to the image drum surface is transferred to the upper side of the paper by the positive charge on the lower side of the paper.



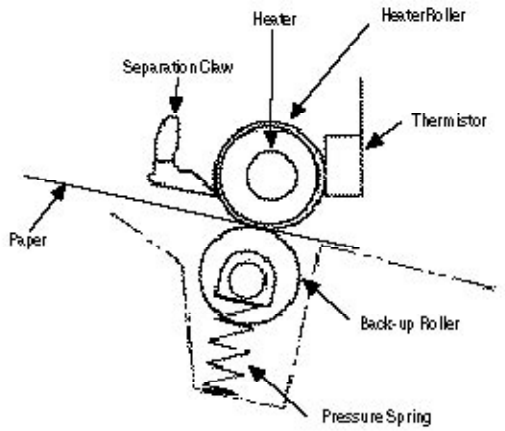
%(7) Fusing

(7) Fusing

After the end of the transfer, the unfused toner image is fused on the paper under heat and pressure as it passes between the heater roller and the back-up roller. The heater roller with a Teflon coating incorporates a 400W heater (Halogen lamp), which heats the heat roller.

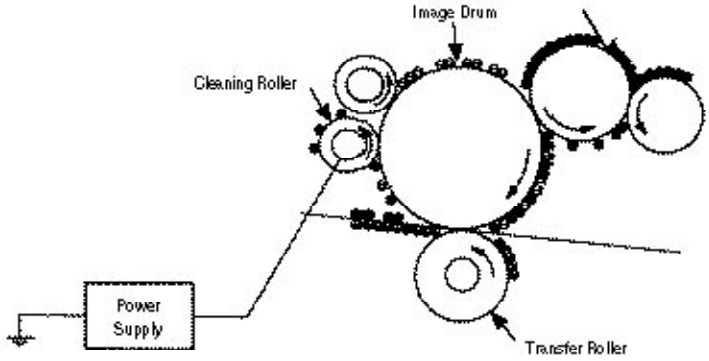
A thermistor which is in contact with the heater roller regulates the heater roller at a predetermined temperature (about 185 ~ 188°C). A safety thermostat cuts off voltage supply to the heater by opening the thermostat in the event of abnormal temperature rises.

The back-up roller is held under a pressure of 2.5 kg from the pressure spring at each side.



%(8) Cleaning

(8) Cleaning
After the end of the transfer, residual toner on the image drum is attracted to the cleaning roller temporarily by static electricity to clean the image drum surface.



%(9) Cleaning Of Rollers

(9) Cleaning of rollers

The charge roller, transfer roller and cleaning roller are cleaned in the following cases:

- In warming up at power-on time
- In warming up after the cover is opened and closed
- When the number of accumulated sheets is 10 or more and the printout operation ends

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

%2.5 Paper Jam Detection

2.5 Paper Jam Detection
The paper jam detection function supervises the paper state at power-on time and during printing. In the event that a jam occurs, this function interrupts the printing process. If any of the following errors is presented, recovery printing will be performed 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	• At power-on time, the paper is placed at the inlet sensor. • After hopping operation is attempted three times, the leading part of the paper does not reach the inlet sensor.
Paper feed jam	• At power-on time, the paper is placed at the paper sensor. • The leading part of the paper does not reach the paper sensor within a predetermined distance after the paper has reached the inlet sensor. • The trailing part of the paper does not pass over the paper sensor within a predetermined distance after the leading edge of the paper has passed over the paper sensor. • The leading part of paper does not reach the outlet sensor within a predetermined distance after the paper has reached the paper sensor.
Paper exit jam	• At power-on time, the paper is placed on the outlet sensor. • The paper does not pass over the outlet sensor within a predetermined time after the leading part of the paper has reached the outlet sensor. • The paper size check with the manual feed specified considers the reference size as free size.
Paper size error	Paper size error • The size of the paper is supervised by the inlet sensor 1. It is detected that the paper does not pass over the inlet sensor 1 within predetermined range of 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 with the manual feed specified considers the reference size as free size.

%2.6 Cover Open

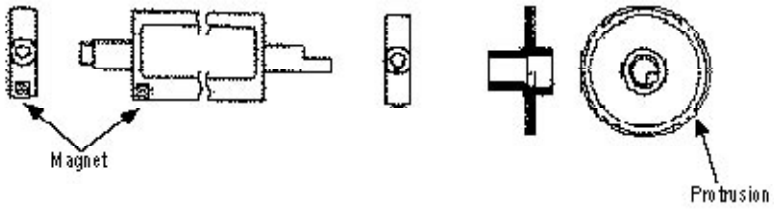
2.6 Cover Open
When the stacker cover is opened, the cover open microswitch on the power/sensor board is turned off to cut the supply of +30V to the high voltage power supply circuit. As a result, all high-voltage outputs are interrupted. At the same time, the CVOPN signal is sent to the control board to notify it of the off state of the microswitch, and the control board performs the cover open processing.

%2.7 Toner Low Detection

2.7 Toner Low Detection

- Composition

The device consists of the stirring gear which rotates at a constant rate, the stirring bar and the magnet on the stirring bar. The stirring bar rotates through the link on the protrusion in the stirring gear.

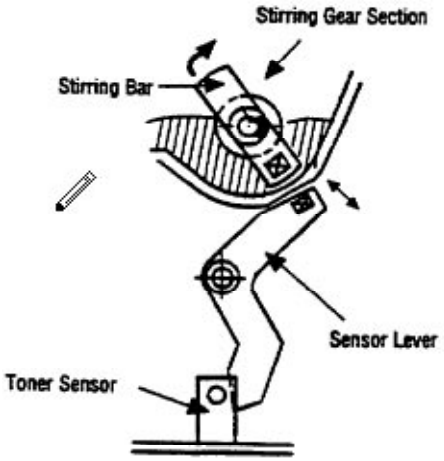


Stirring Bar Stirring Gear

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.

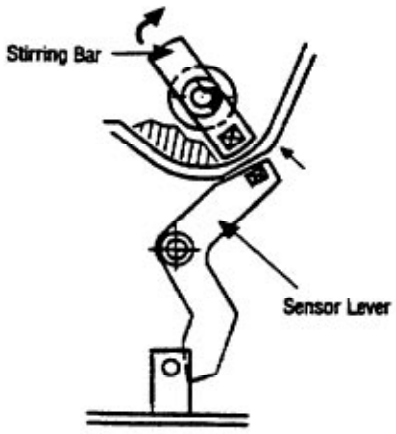
Operation during toner full state

- 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.
- Operation

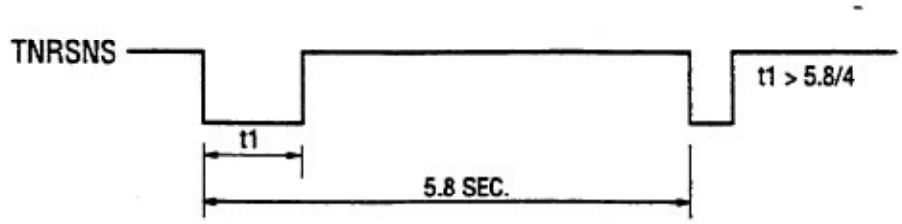


Operation during toner low state

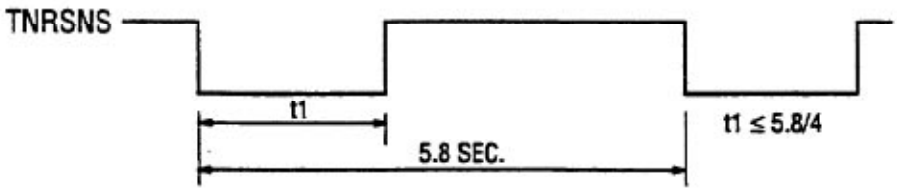
- When the stirring bar reaches the maximum height, since there is no resistance provided by the toner on the other side, it falls to the minimum height due to its own weight. Be-cause of this, the time interval during which it is in encounter with the magnet of the sensor lever becomes long. By monitoring 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 cancelled.
- When there is no change with the toner sensor for 2 cycles (5.8 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.

%2.8 Stacker-Full Detection

2.8 Stacker-full Detection
The sensor lever at the paper outlet to the stacker detects a stacker-full state (about 250 sheets) and stops printing of the ensuing pages.

%2.9 Page Size Detection

2.9 Page Size Detection
The four tab pieces are driven according to the setting position of the paper guide through the cam interlocked with the paper guide of the paper cassette.
When the paper cassette is inserted into the printer, the state of the tab pieces is detected by the microswitch to recognize the paper size.

State of Microswitches

SW1	SW2	SW3	SW4	Paper size
0	1	1	1	Letter
0	1	0	1	Executive
0	0	1	1	A4
1	1	1	0	Legal 14
1	0	1	1	Legal 13
1	1	0	1	B5
1	1	0	0	A5
1	0	0	1	A6

Chapter 3
3. Parts Replacement

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3. PARTS REPLACEMENT

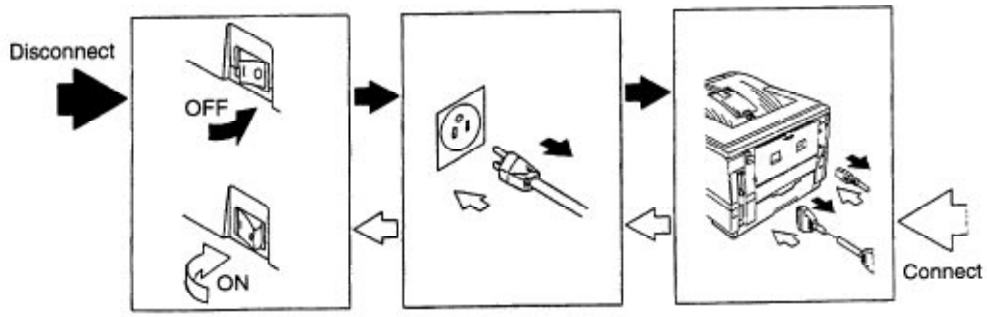
The section explains the procedures for replacement of parts, assemplies, and units in the field. Only the removal procedures are explained here. Reverse the procedure for the installation.

%3.1 Precautions For Parts Replacement

3.1 Precautions for Parts Replacement
Always practice good Anti-Static procedures when handling equipment. (1) Before starting parts replacement, remove the AC cable and interface cable.

(a) Remove the AC cable in the following procedure:
  i) Turn off ("o") the power switch of the printer
  ii) Disconnect the AC inlet plug of the AC cable from the AC receptacle.
  iii) Disconnect the AC cable and interface cable from the printer.

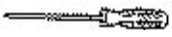
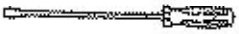
(b) Reconnect the printer in the following procedure.
  i) Connect the AC cable and interface cable to the printer.
  ii) Connect the AC inlet plug to the AC receptacle.
  iii) Turn on ("I") the power switch of the printer.



(2) Do not try disassembly as long as the printer is operating normally.
(3) Do not remove unnecessary parts: try to keep disassembly to a minimum.
(4) Use specified service tools.
(5) When disassembling, follow the determined sequence. Otherwise, parts may be damaged.
(6) Since screws, collars and other small parts are likely to be lost, they should temporarily be attached to the orginal positions.
(7) When handling ICs such as microprocessors, ROM and RAM, and circuit boards, always practice good anti-static procedures.
(8) Do not place printed circuit boards directly on the equipment or floor.

%[Service Tools]

[Service Tools]
Table 3-1 shows the tools required for field replacement of printed circuit boards and units.
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. 2-200 Philips screwdriver, Magnetized	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 P/N 4PB4083-2248P1	1	Cleans LED head	
9		Disconnector for Jack-in connector P/N 4PP4076-5395P1	1	Disconnect Jack-in connector	

3.2 Parts Layout 1- 4

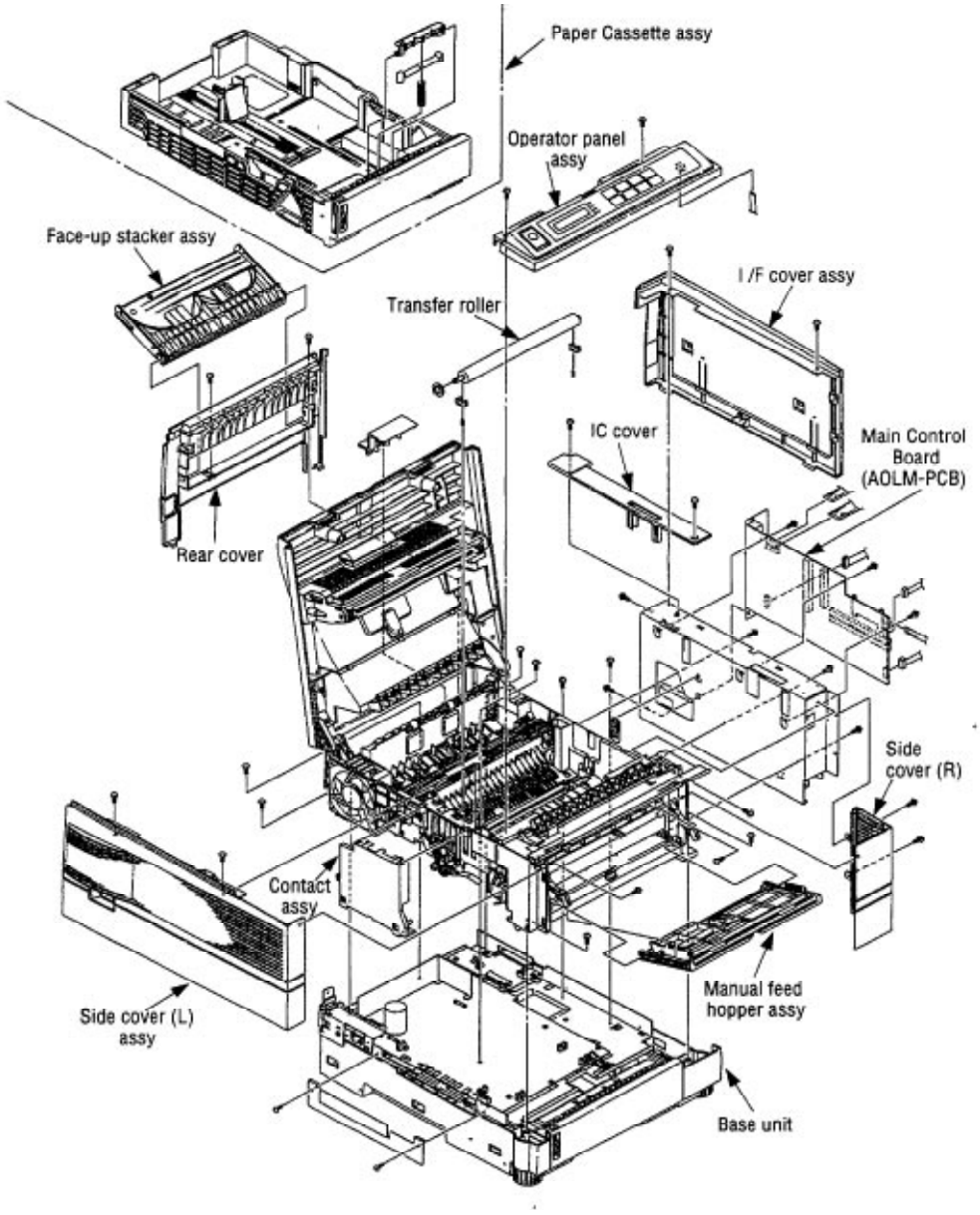
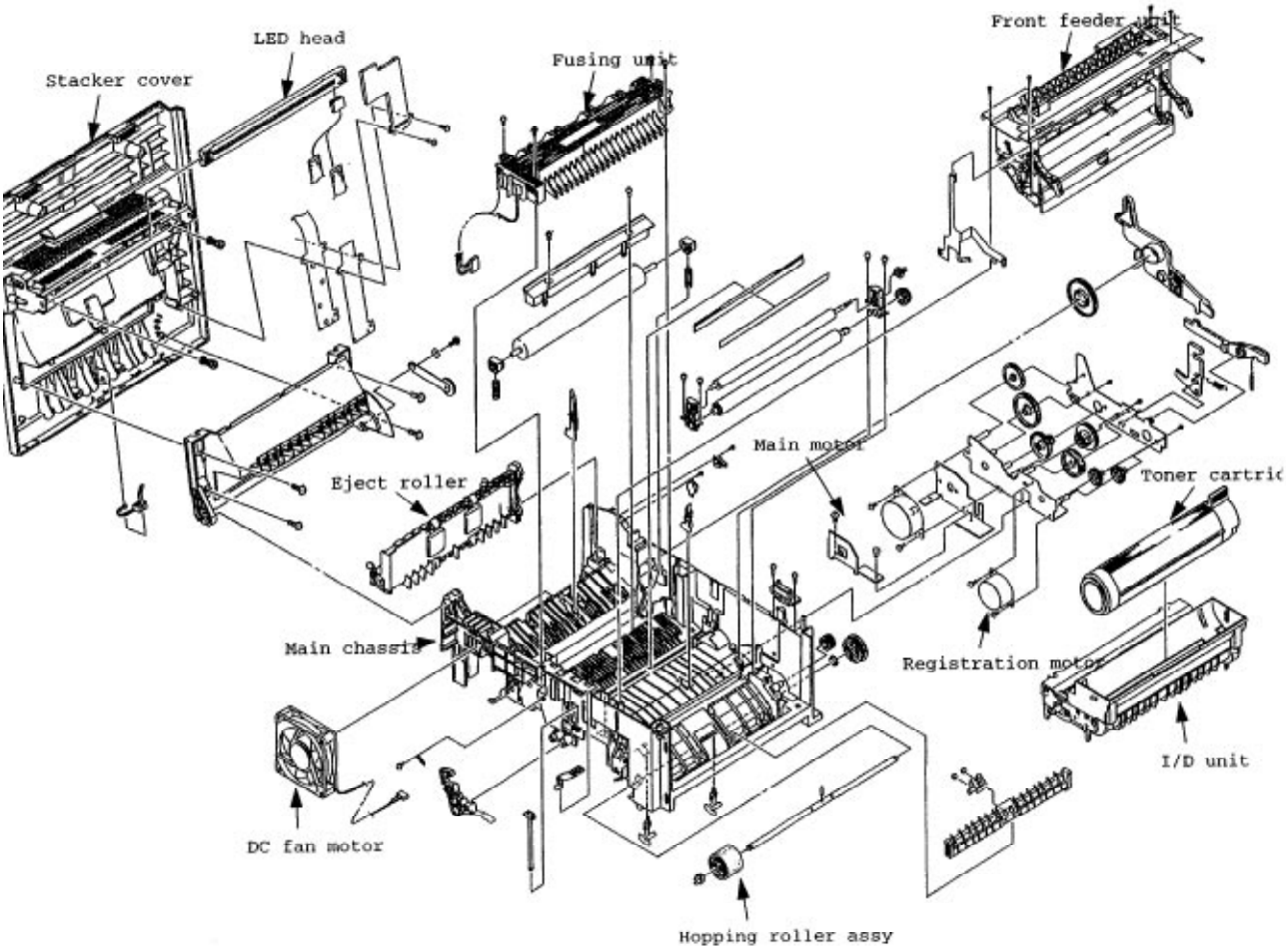


Figure 3-1

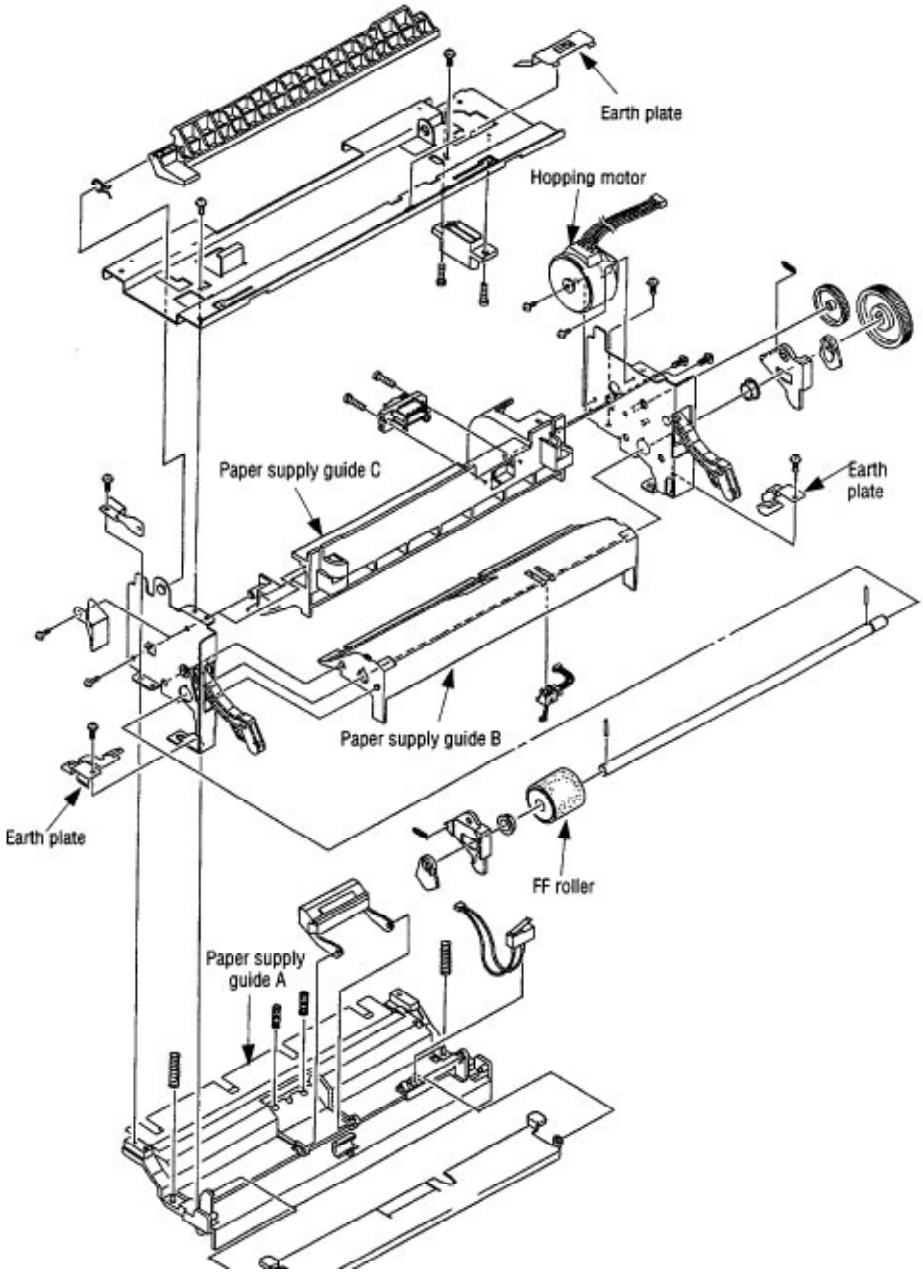
%Parts Layout 2 - 4

Parts Layout 2 - 4



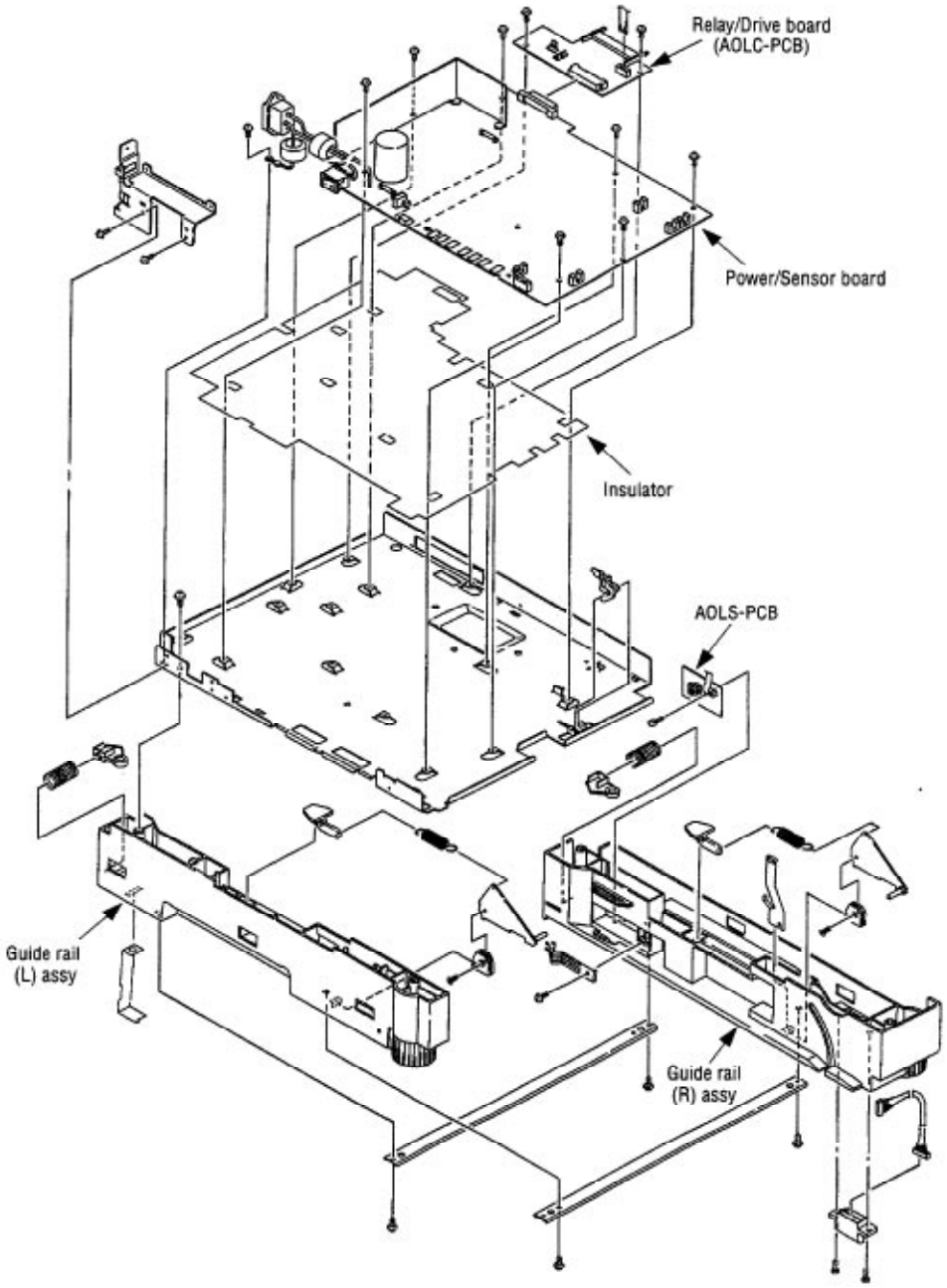
%Parts Layout 3 - 4

Parts Layout 3 - 4



%Parts Layout 4 - 4

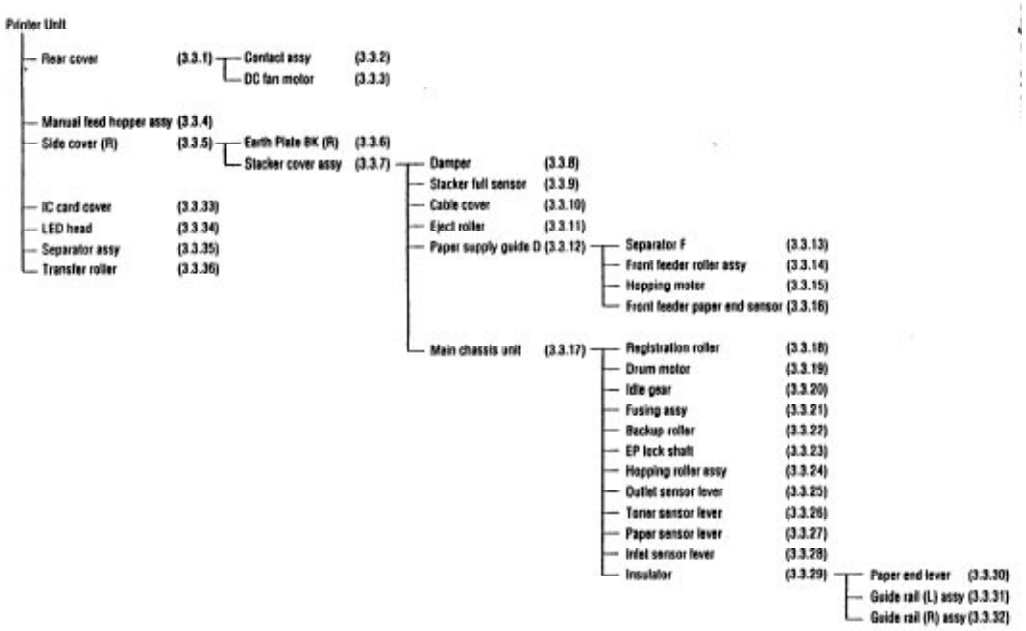
Parts Layout 4 - 4



%3.3 How To Change Parts

3.3 How to Change Parts

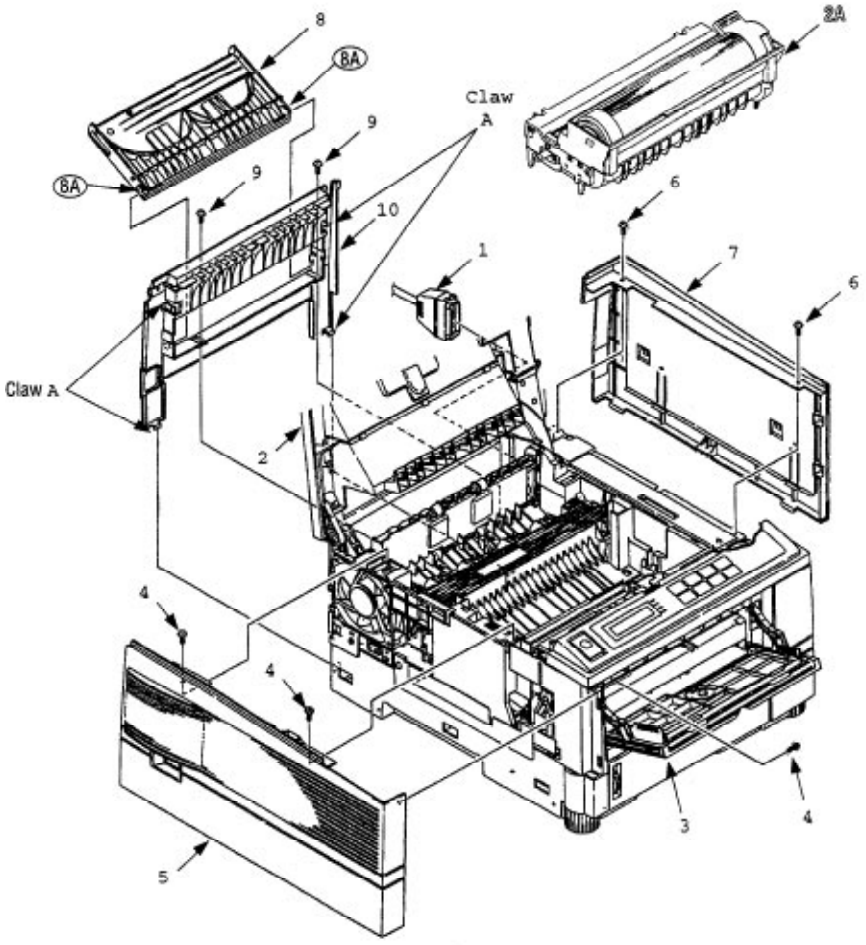
This section explains how to change parts and assemblies appearing in the disassembly diagram below.



%3.3.1 Rear Cover, Side Cover (L) Assy, Face-Up Stacker Assy, And I/F Cover Assy.

3.3.1 Rear cover, side cover (L) Assy, face-up stacker Assy, and I/F cover Assy.

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the interface cable 1. Remove drum/toner Assy 2A and store in black plastic bag shipped w/printer.
(3) Open the face-up stacker Assy 8. Disconnect the engagement at the left and right protrusions 8A . Remove the face-up stacker Assy 8. (Flex the Assy 8 in the middle to disengage 8A from the Rear cover 0.)
(4) Open the stacker cover 2 and the manual feed hopper Assy3. Remove three screws 4. Remove the side cover (L) Assy 5.
(5) Remove two screws 6. Remove the I/F cover Assy 7.
(6) Remove two screws 9 and four claws A. (Use a small flat blade screw driver to "pop" claws.) Remove the rear cover 10.

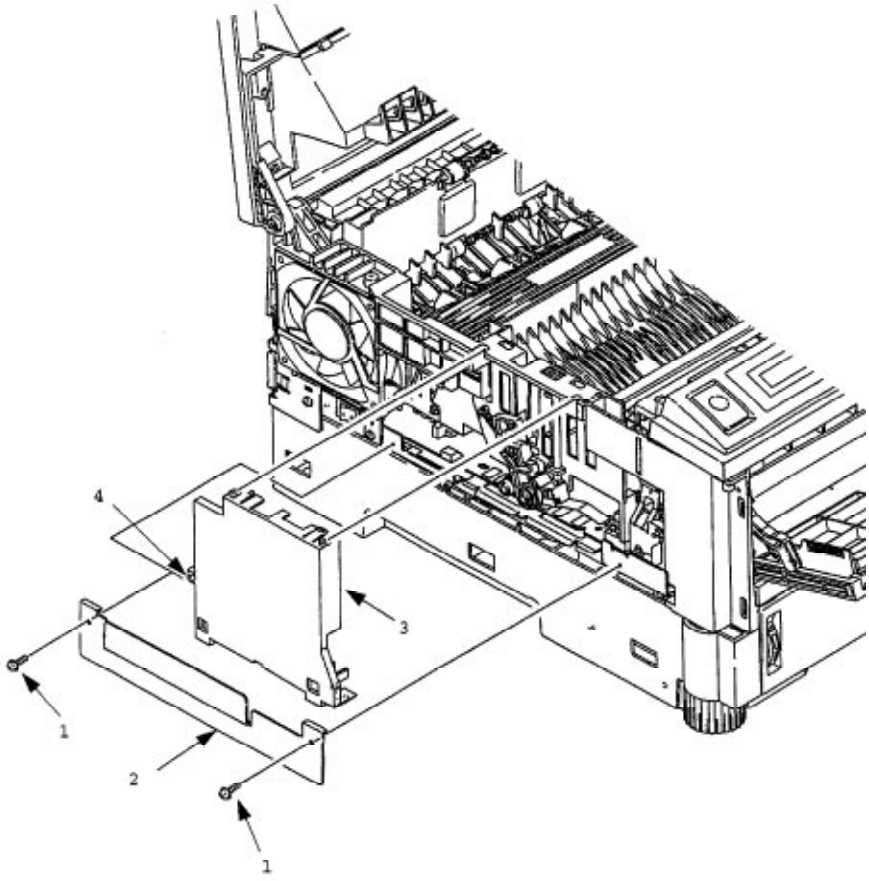


%3.3.2 Contact Assy

3.3.2 Contact Assy

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the side cover (L) Assy (see 3.3.1 (1) to (4)).
(3) Remove two screws 1. Remove the contact plate (cover) 2 and the contact Assy 3. Pull bottom of Assy 3 out first, then the top of Assy. Remove fan connector cables from location 4.

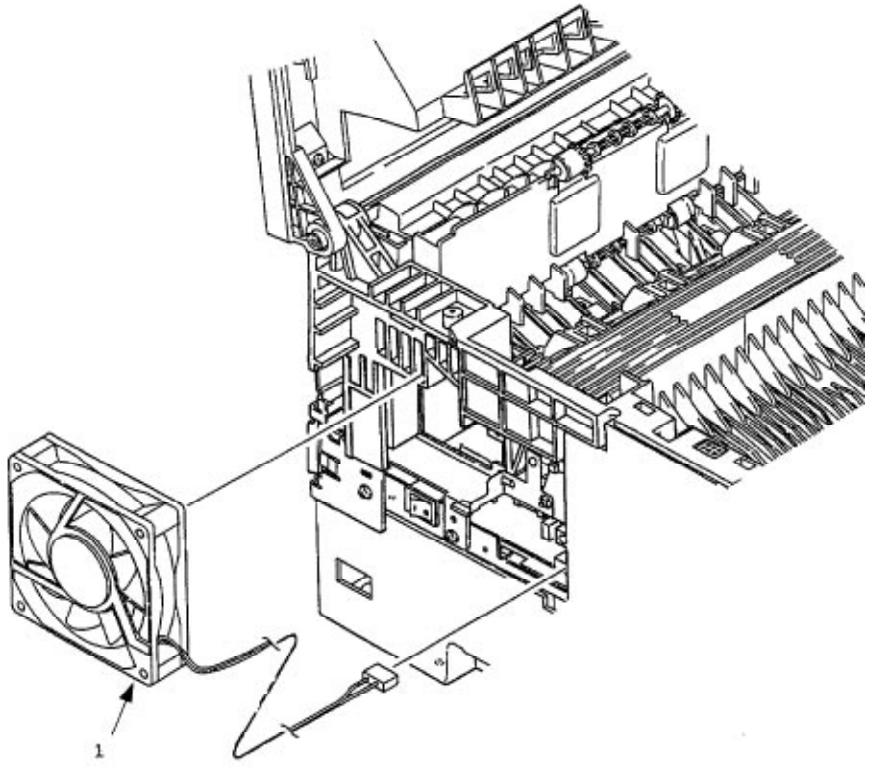
Caution: Be careful not to deform the electrodes of the contact Assy when removing the contact Assy.



%3.3.3 Dc Fan Motor

3.3.3 DC fan motor

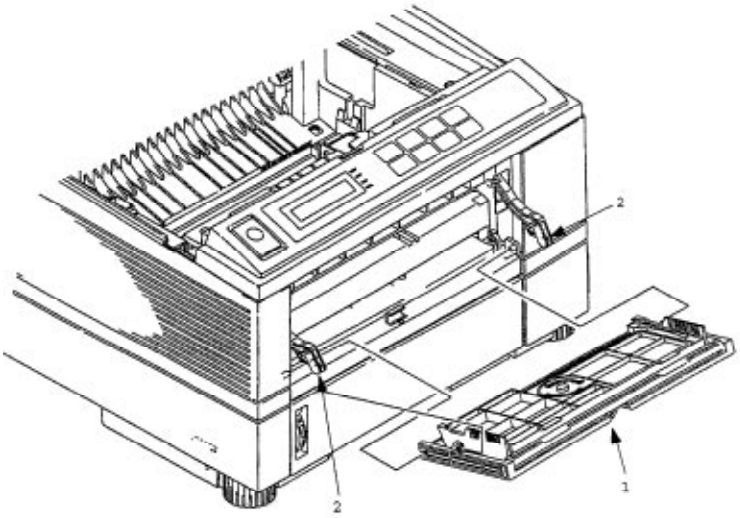
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the side cover (L) Assy (see 3.3.1 (1) to (4)).
(3) Unplug the connector of the DC fan motor 1 and remove the DC fan motor 1.



%3.3.4 Manual Feed Hopper Assy

3.3.4 Manual feed hopper Assy

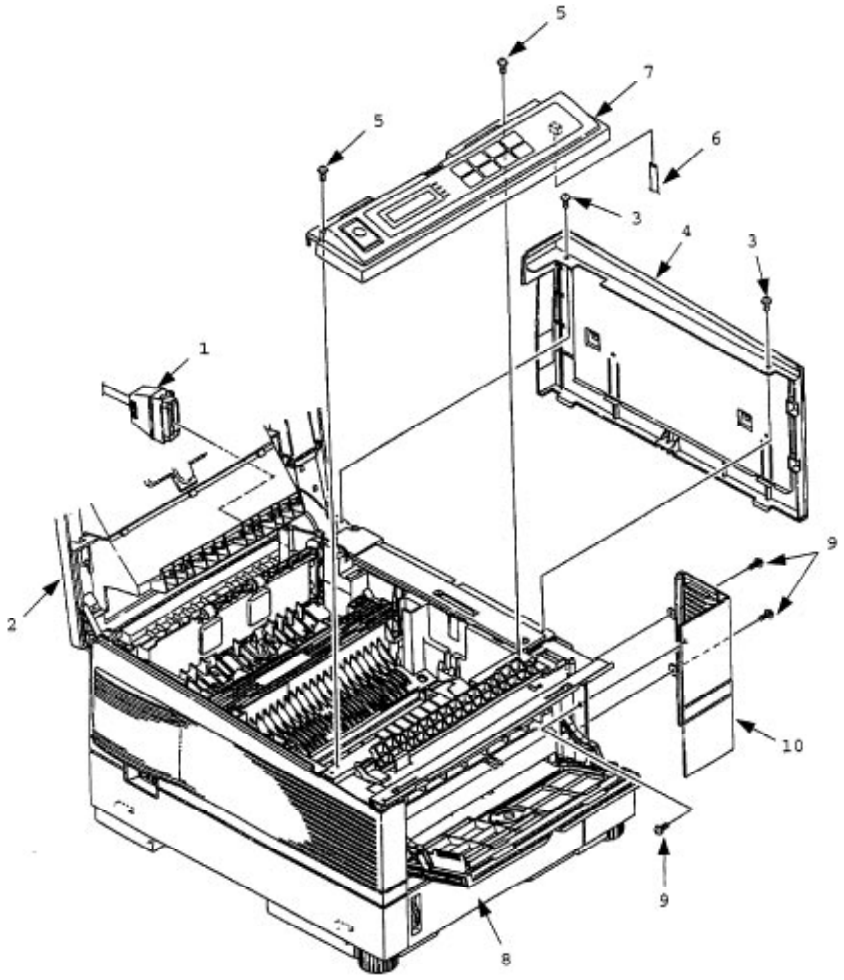
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Open manual feed hopper Assy 1. Disengage the lower portion of this Assy.
(3) Hold manual feed hopper Assy 1 vertically and remove the left and right levers 2 with a downward motion.



%3.3.5 Side Cover (R) (Operator Panel Assy)

3.3.5 Side cover (R) (operator panel Assy)

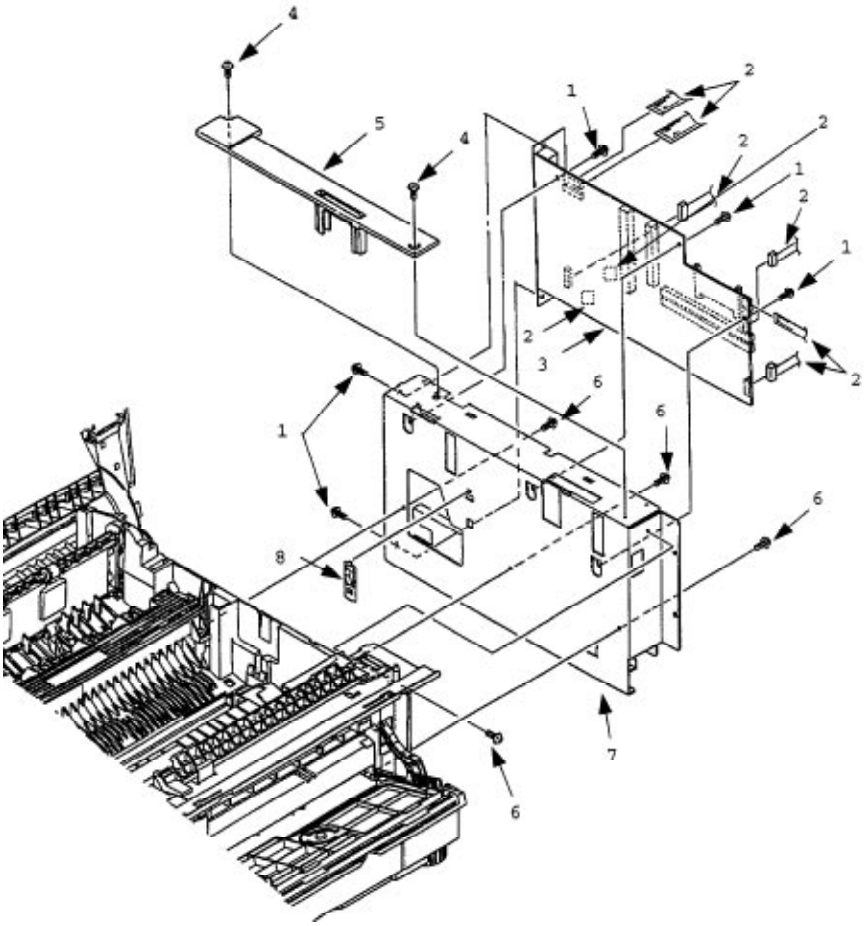
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove interface cable 1.
(3) Open stacker cover 2. Remove two screws 3. Remove I/F cover Assy 4.
(4) Remove two screws 5 and flexible cable 6 (use care to not damage flexible cable). Remove operator panel Assy 7.
(5) Open manual feed hopper Assy 8. Remove three screws 9 and then remove side cover (R) 10.



%3.3.6 Earth Plate Bk (R) (Aolm-Pcb, Ic Cover)

3.3.6 Earth plate BK (R) (AOLM-PCB, IC cover)

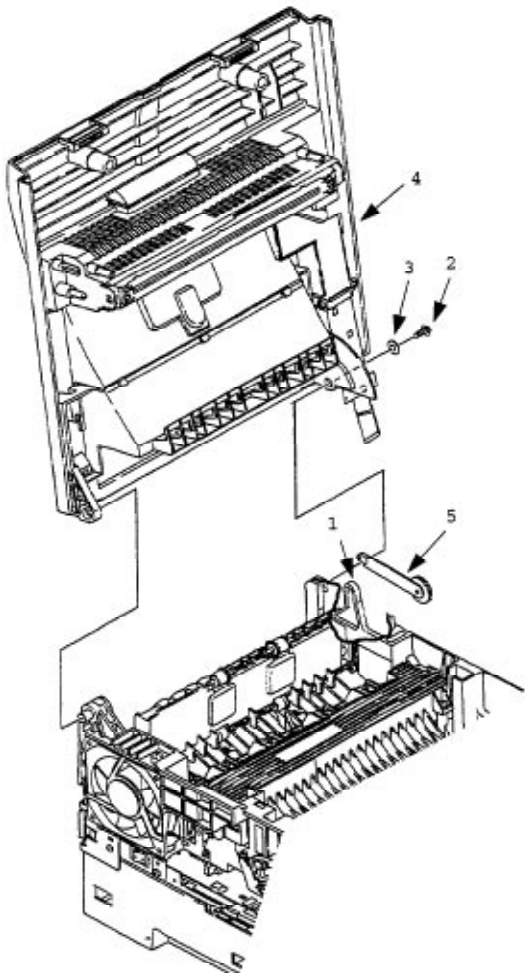
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove side cover (R) (see 3.3.5).
(3) Remove five screws 1 and eight connectors 2. Remove AOLM-PCB 3.
(4) Remove two screws 4 Remove IC card cover 5.
(5) Remove four screws 6. Remove side plate (R) 7, by pulling up and out on top part of plate.
(6) Remove the claws and then remove FG plate BK (R) 8.



%3.3.7 Stacker Cover Assy, Damper Arm, And Washer

3.3.7 Stacker cover Assy, damper arm, and washer

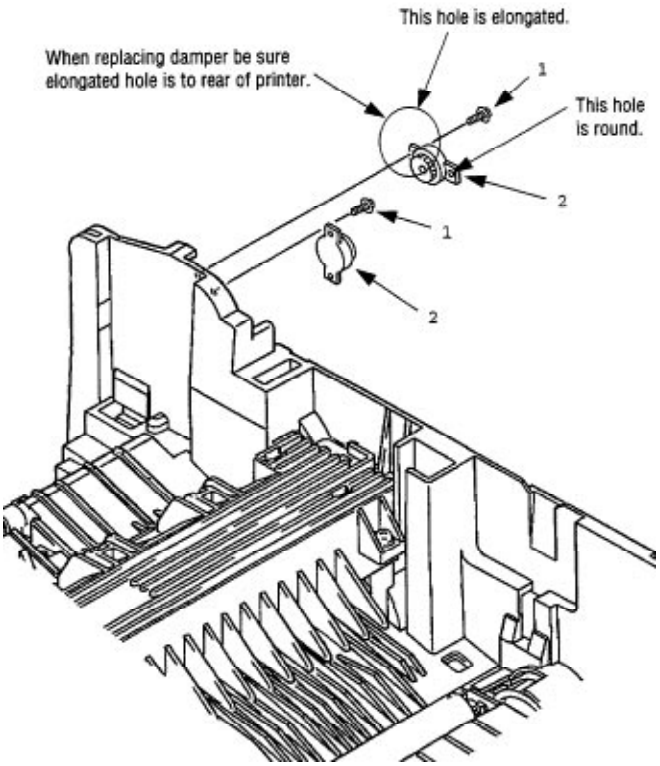
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the rear cover (see 3.3.1).
(3) Remove the side cover (R) (see 3.3.5).
(4) Remove the side plate (R) (see 3.3.6 (1) to (5)).
(5) Disconnect the backup roller release lever 1 with the protrusion on the out side surface of the right side of the stacker cover.
(6) Remove screw 2 and washer 3. Remove two claws. Remove stacker cover Assy 4 (at this time, the damper arm 5 is also removed).



%3.3.8 Damper

3.3.8 Damper

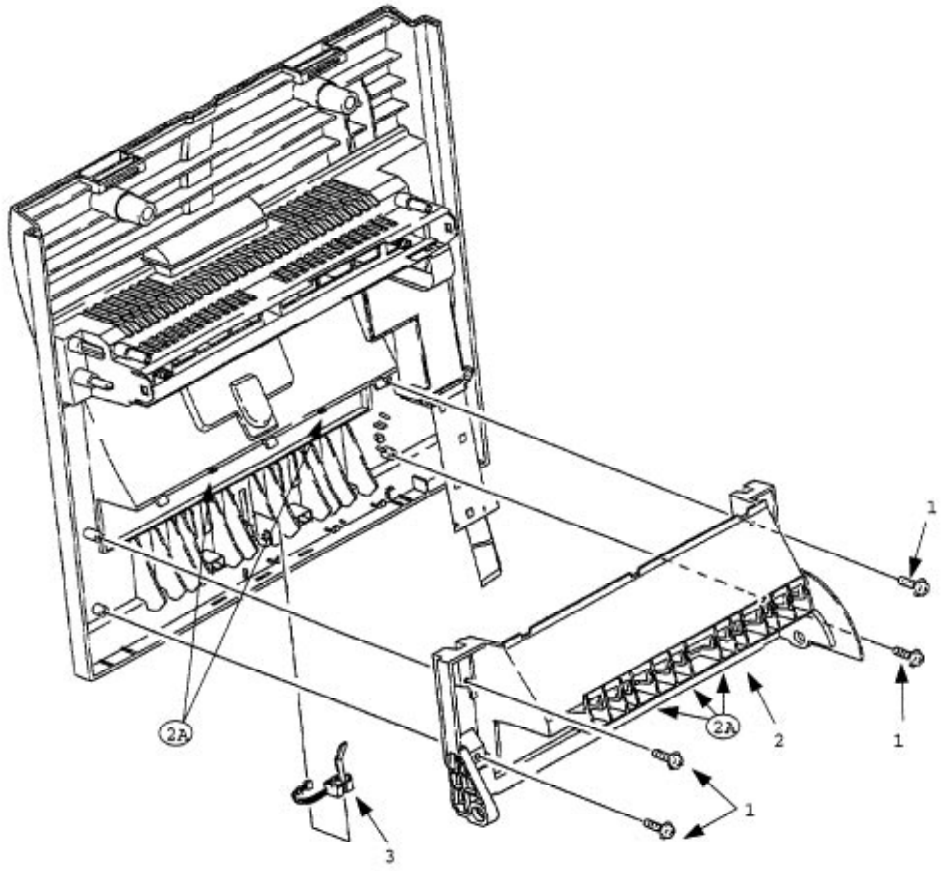
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the damper arm (see 3.3.7).
(3) Remove two screws 1 and then remove two dampers 2.



%3.3.9 Stacker Full Sensor Assy

3.3.9 Stacker full sensor Assy

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the stacker cover Assy (see 3.3.7).
(3) Remove four screws 1. Remove stacker mount 2 by releasing the tabs at position 2A
(4) Remove stacker full sensor Assy 3 by spreading the plastic tabs on each side of sensor Assy 3 and lifting switch from cover.



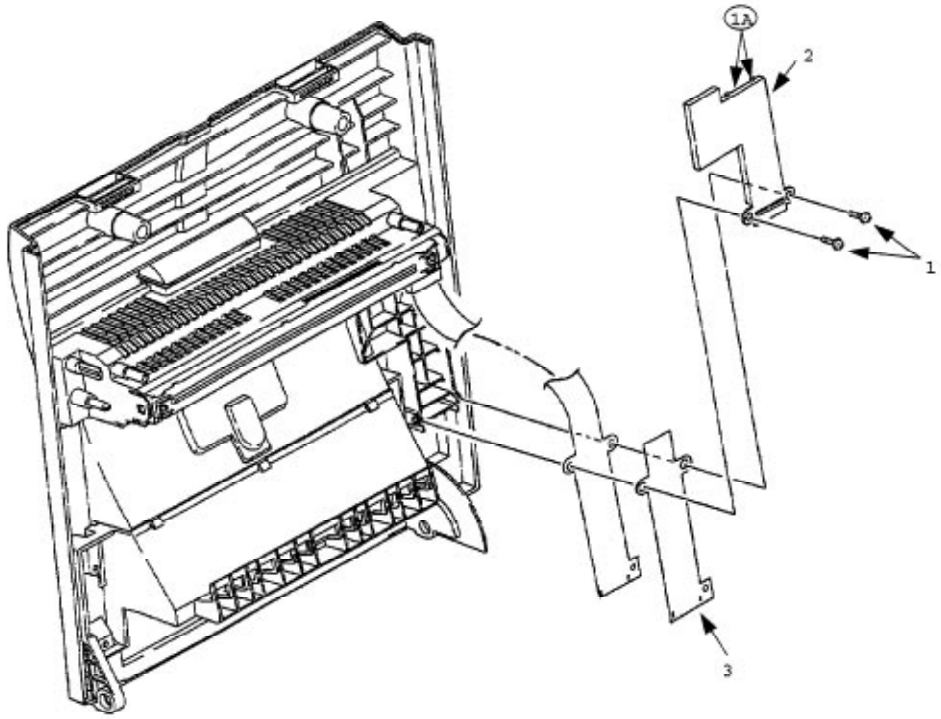
%3.3.10 Cable Cover (Cable Guides A And B)

3.3.10 Cable cover (cable guides A and B)

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.

(2) Remove the stacker cover Assy (see 3.3.7).

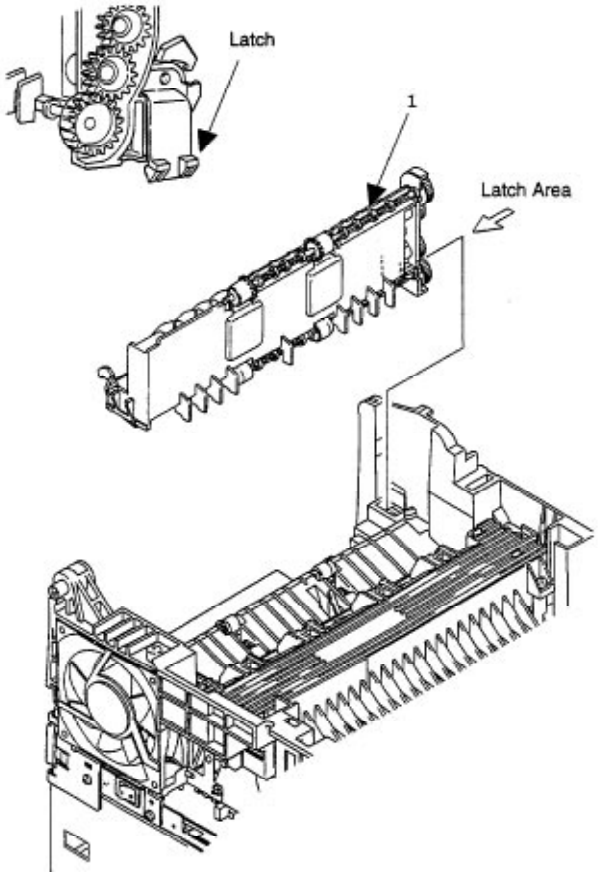
(3) Remove two screws 1 release tabs at position 1A . Remove cable cover 2, cable guide A 3.



%3.3.11 Eject Roller Assy

3.3.11 Eject roller Assy

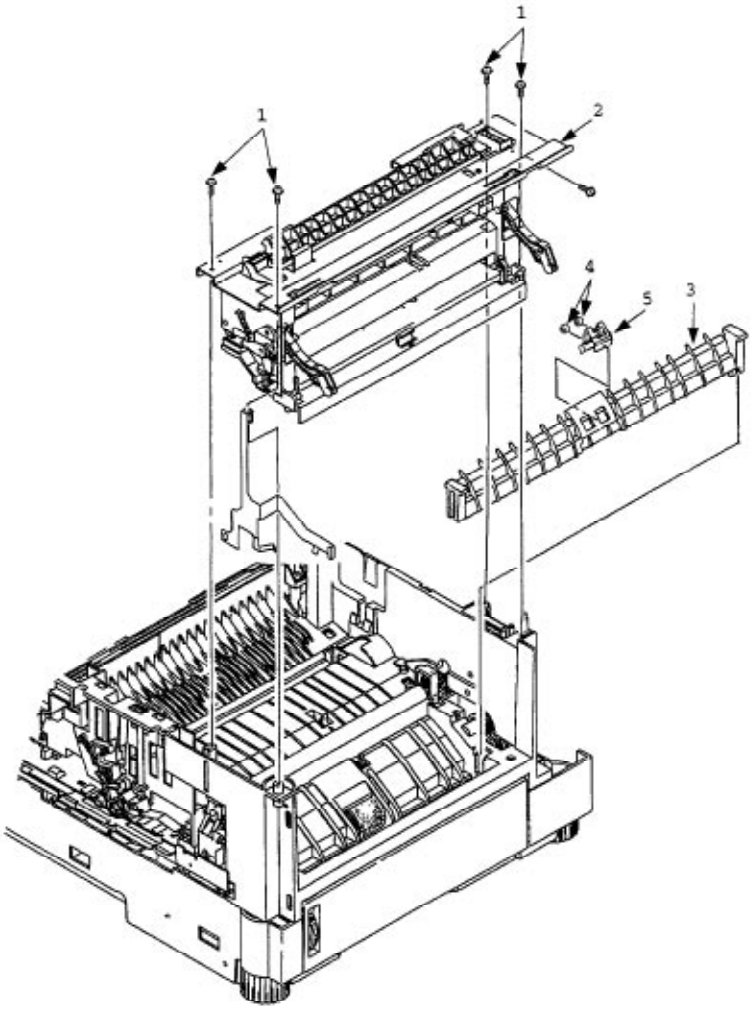
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the rear cover (se 3.3.1).
(3) Remove the side cover (R) (see 3.3.5).
(4) Remove the side plate (R) (see 3.3.6 (1) to (5)).
(5) Remove the stacker cover Assy (see 3.3.7).
(6) Release the latch on the right side of eject roller Assy 1. Lift up and remove the eject roller Assy.



%3.3.12 Paper Supply Guide D

3.3.12 Paper supply guide D

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the side cover (R) (see 3.3.5).
(3) Remove four screws 1. Lift up and remove front feeder roller Assy 2.
(4) Lift up and remove paper supply guide D 3. (At this time, two bias rollers 4 are also removed. Be careful not to lose them.)
(5) Remove bias spring 5 from the paper supply guide D 3.

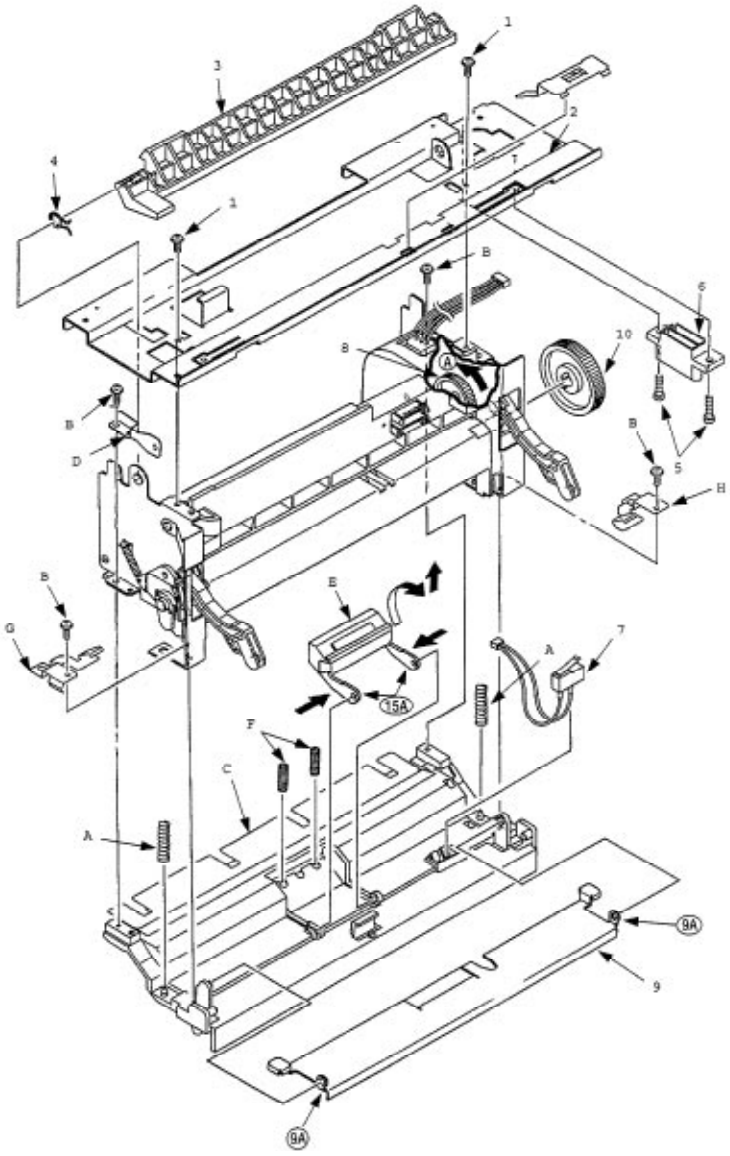


%3.3.13 Separator F

3.3.13 Separator F

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the manual feed hopper Assy (see 3.3.4).
(3) Remove the side cover (R) (see 3.3.5).
(4) Remove the front feeder Assy (see 3.3.12 steps (1) to (3)). Make a diagram of wire locations and routing.
(5) Remove two screws 1 and then remove the inner cover 2. At this time, the cover lock lever 3 and the torsion spring 4 are also removed. Note position of torsion spring.
(6) Remove two screws 5 and then remove square-shaped connector 6.
(7) Using great care, remove the connector of switch Assy 7 from square-shaped connector 6.
(8) Turn idle gear 8 in the direction of arrow A until front feeder plate 9 is elevated.
(9) Remove front feeder gear 10 and then remove two springs A. Be careful not to lose the springs.
(10) Remove four screws B and then remove paper supply guide C. (At this time, front feeder earth plates D, G, and H are also removed.)
(11) Remove front feeder plate 9 by releasing the engagement at two parts 9A . Switch Assy 7 may now be removed.
(12) Pull up separator E toward you and then release two mounting posts at 15A to remove the separator. (At this time, two springs F are also removed. Be careful not to lose the springs.)
(13) Release two mounts on paper supply guide C and pull out switch Assy 7 upward.

During Re-assembly use great care: do not pinch, crimp, or cut wires to switch Assy 7.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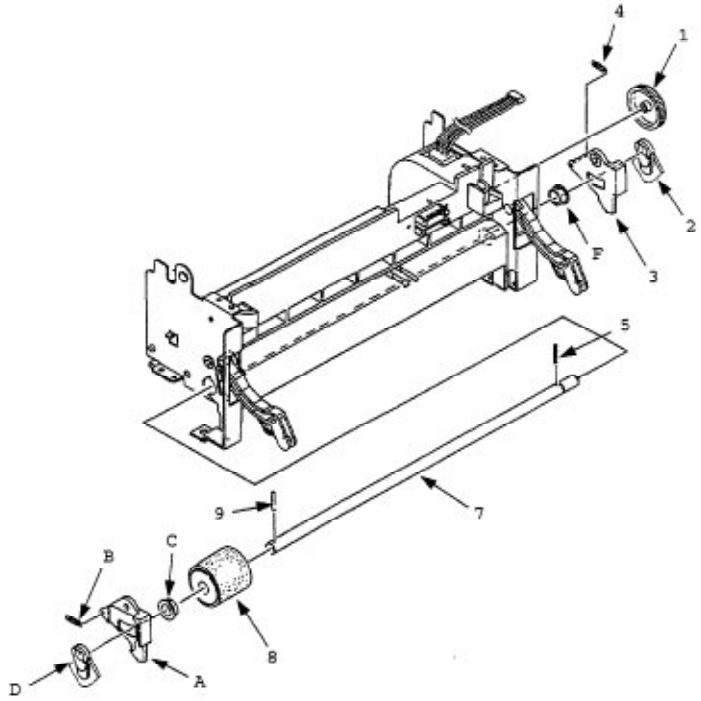
%3.3.14 Front Feeder Roller Assy

3.3.14 Front feeder roller Assy

(1) Turn the AC power supply switch off. Unplug the AC power cord from the outlet.
(2) Remove the manual feed hopper Assy (see 3.3.4).
(3) Remove the side cover (R) (see 3.3.5).
(4) Remove the front feeder roller Assy (see 3.3.12 (1) to (3).
(5) Remove the paper supply guide A (see 3.3.13 (1) to (10)).
(6) Remove idle gear 1 and then remove the right side front feeder cam 2, release lever (R) 3, and spring 4. (At this time, knock pin 5 and bearing F are also removed. Be careful not to lose them.) Do not mix these parts with those from the left side of Assy.
(7) Pull out the front feeder 7 shaft toward the left and then remove front feeder roller Assy 8.
(8) Remove knock pin 9 and then remove front feeder cam D on the left (L) side, release lever (L) A, and spring B. (At this time, the bearing C on the left (L) side is also removed.) Do not mix these parts with those from the right side of Assy.



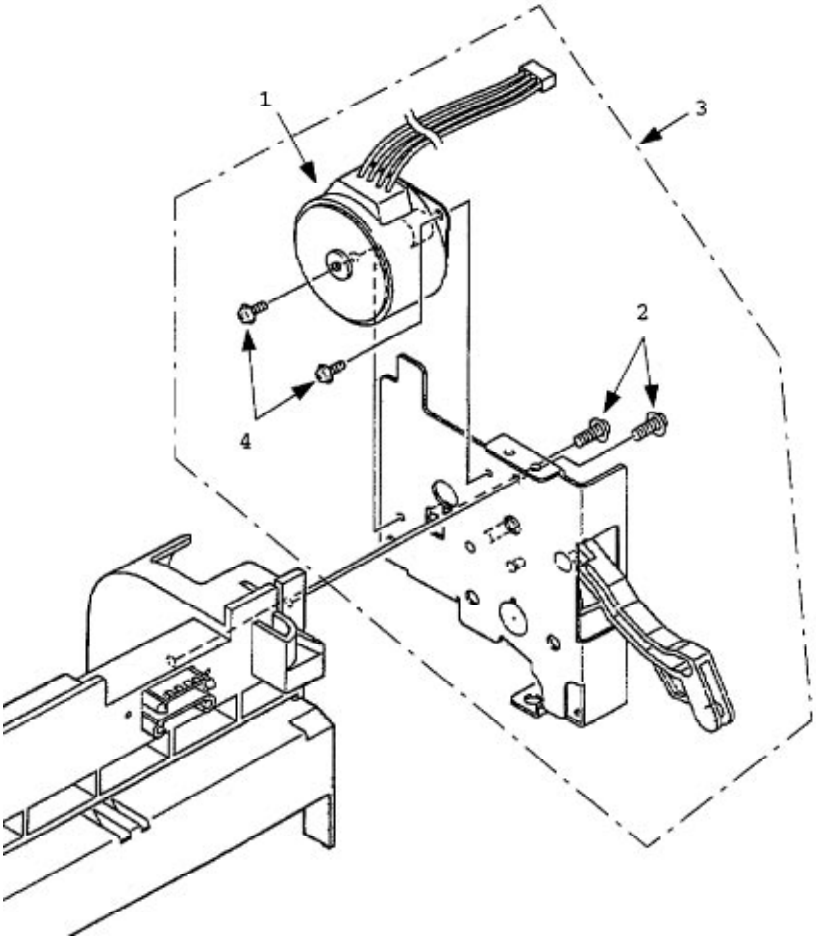
Note

1: Hopping roller orientation when removed from shaft.
2: Be sure sensor arm swings freely after re-assembly.
3: Be sure that during re-assembly both feeder cams (2 and D) are facing the same direction.

%3.3.15 Hopping Motor

3.3.15 Hopping motor

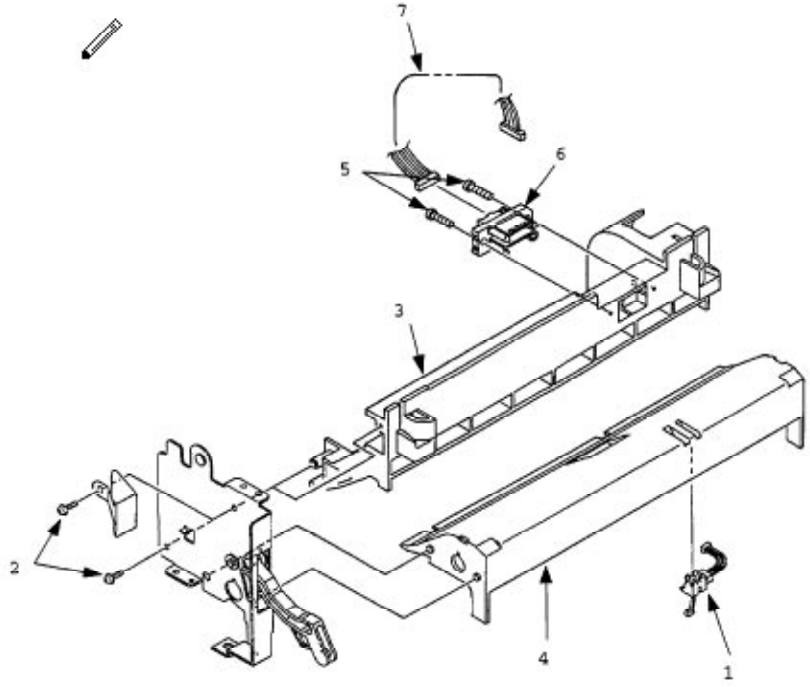
(1) Turn the AC power switch off. Unplug the AC power cable from the outlet.
(2) Remove the manual feed hopper Assy (see 3.3.4).
(3) Remove the side cover (R) (see 3.3.5).
(4) Remove the front feeder Assy (see 3.3.12.(1) to (3)).
(5) Remove the inner cover and square-shaped connector (see 3.3.13.(5) and (6)).
(6) Remove hopping motor 1 from the square-shaped connector.
(7) Remove the paper supply guide A (see 3.3.13. (7) to (10)).
(8) Remove the lever (R) (see 3.3.10. (6)).
(9) Remove two screws 2 and then remove side plate (R) Assy 3.
(10) Remove two screws 4 and then remove hopping motor 1.



%3.3.16 Front Feeder Paper End Sensor

3.3.16 Front feeder paper end sensor

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the manual feed hopper Assy (see 3.3.4).
(3) Remove the side cover (R) (see 3.3.5).
(4) Remove the front feeder roller Assy (see 3.3.12. (1) to (3)).
(5) Remove the side plate (R) Assy (see 3.3.15. (1) to (9)).
(6) Remove the connector of front feeder paper end sensor 1 from the square-shaped connector.
(7) Remove two screws 2 and then remove paper supply guide C (3).
(8) Remove paper supply guide B (4).
(9) Remove four claws and then remove front feeder paper end sensor 1.
(10) Remove two screws 5 and then remove square-shaped connector 6 from paper supply guide C (3).

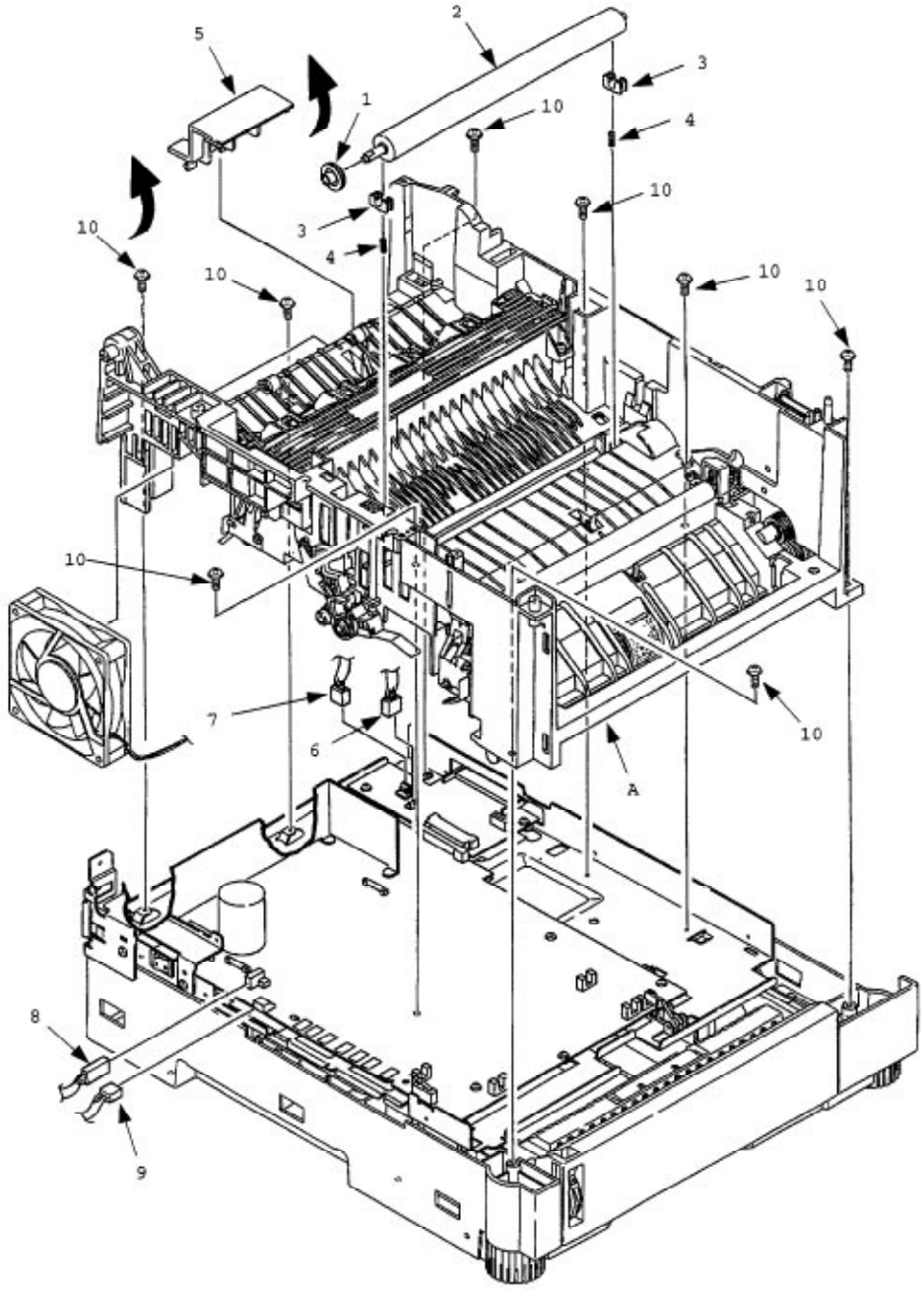


Note: Use great care when removing the sensor.

%3.3.17 Main Chassis Unit

3.3.17 Main chassis unit

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the rear cover (see 3.3.1).
(3) Remove the contact Assy (see 3.3.2).
(4) Remove the side cover (R) (see 3.3.5).
(5) Remove the side plate (R) (see 3.3.6 (1) to (5)).
(6) Remove the stacker cover Assy (see 3.3.7).
(7) Remove the front feeder roller Assy (see 3.3.12, (1) to (3)). At this time, it is not required to remove the manual feed hopper Assy.
(8) Remove the earth plate (HP).
(9) Lift gear (TR) 1 to unlock it. Remove gear (TR) 1 and transfer roller 2. (At this time, two bearings (TR) 3 and two transfer springs 4 are also removed.) NOTE: Do not lose bearings or springs.
(10) Remove connector cover 5 in direction of arrow and then remove two connectors 6 and 7.
(11) Remove the DC Fan motor.
(12) Remove eight screws10 and then remove main chassis unit A.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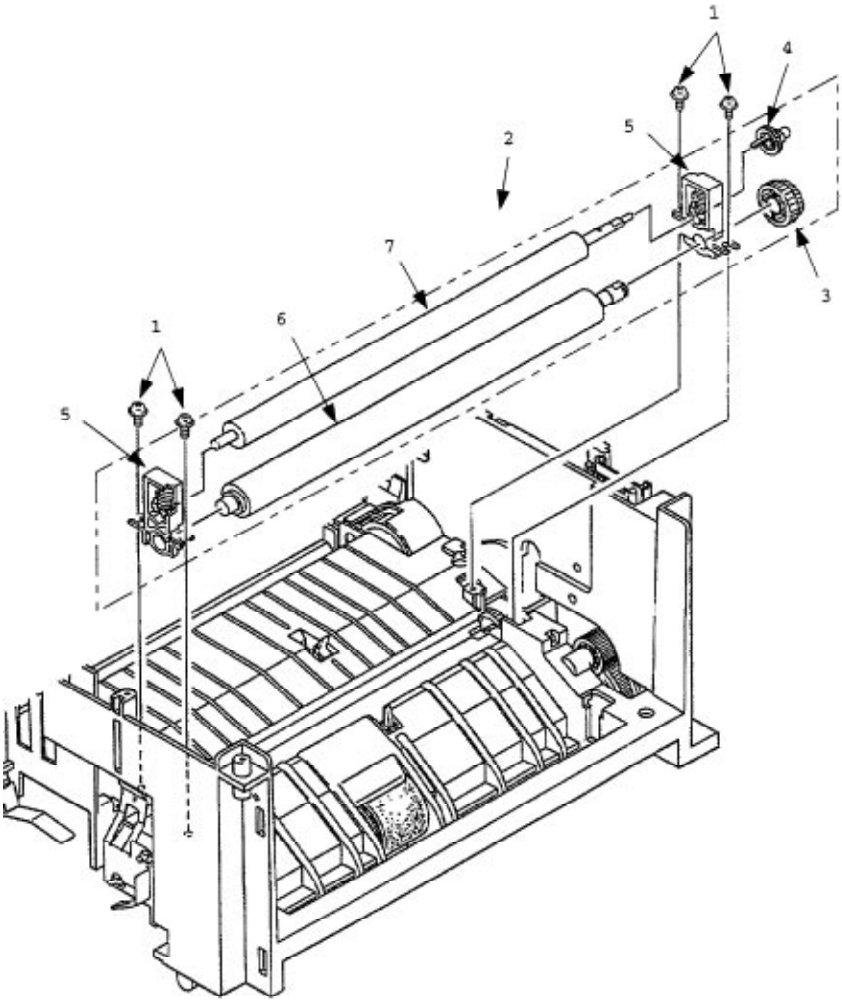
%3.3.18 Registration Roller

3.3.18 Registration roller

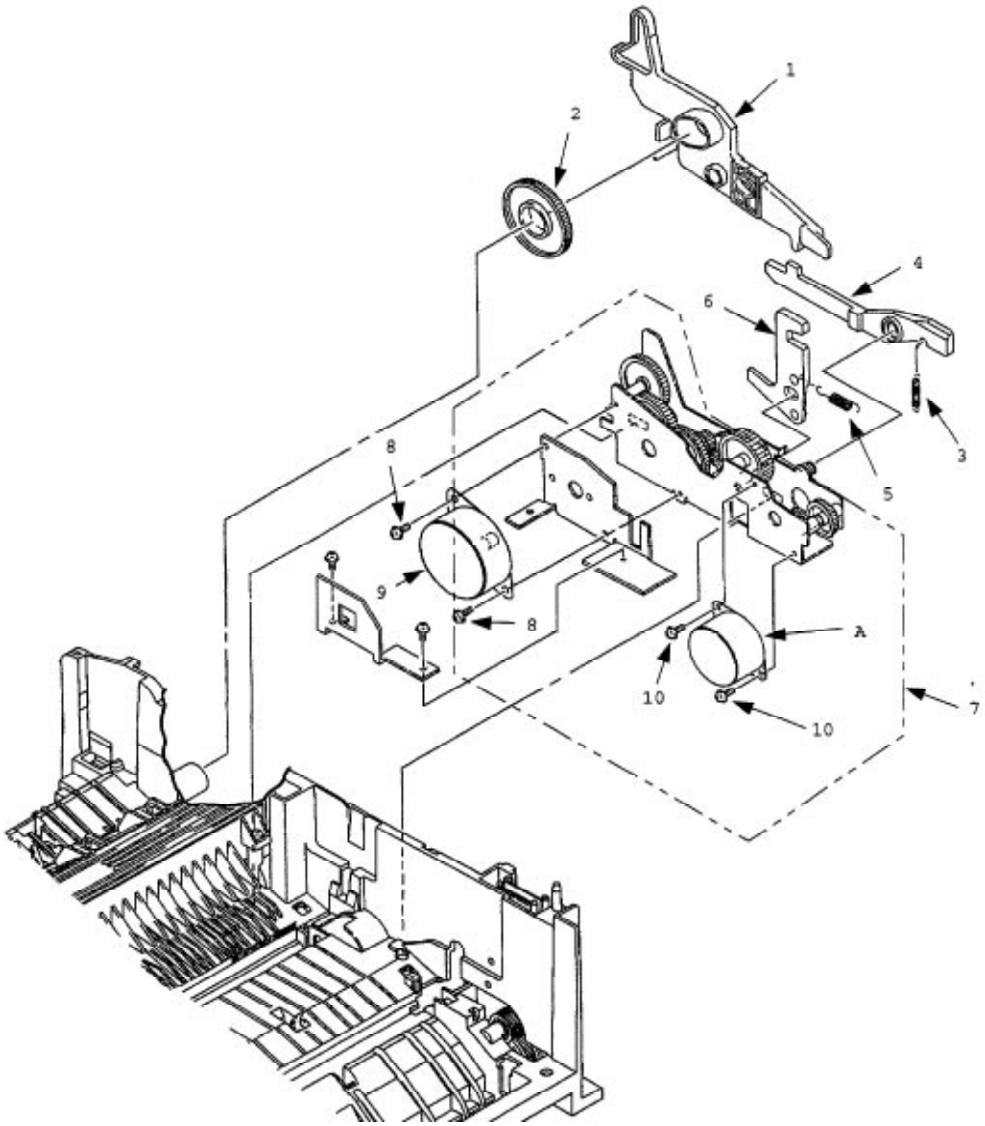
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the front feeder roller Assy (see 3.3.12. (1) to (3)).
(3) Remove four screws 1. Lift and remove the registration roller Assy 2, left side first then right side.
(4) Release the latch and remove registration roller gear 3 and pressure roller gear 4.
(5) Remove left and right side registration roller bearing Assys 5 and then remove resist roller 6 and pressure roller 7.



%3.3.19 Drum Motor

3.3.19 Drum motor

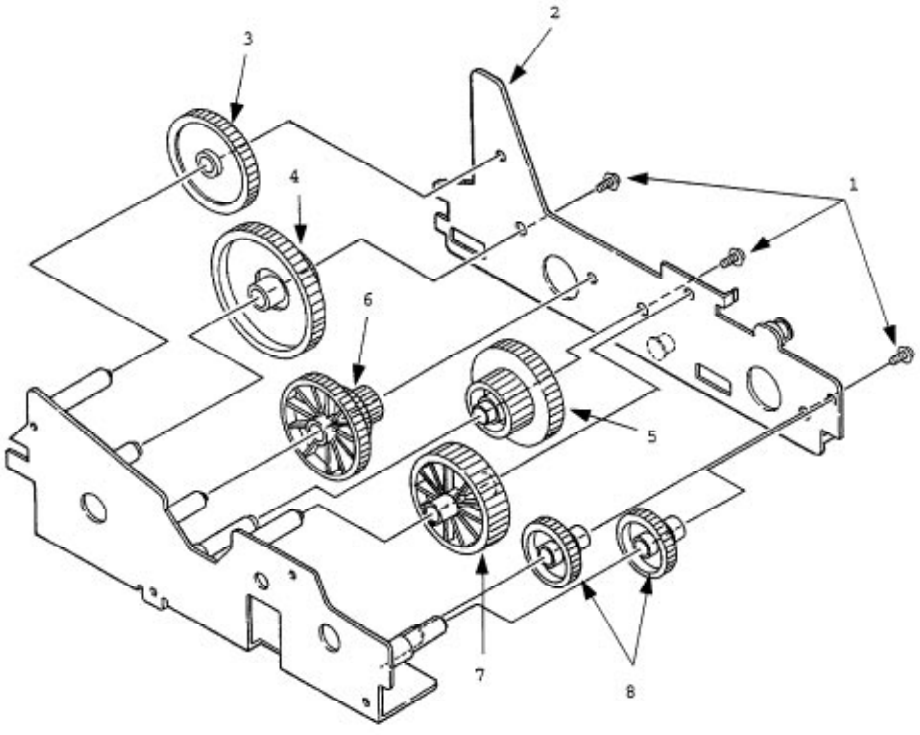
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Remove the registration roller Assy (see 3.3.18 (1) to (3)).
(4) Remove fuser Assy.
(5) Release the latch of fuser pressure roller release lever 1 and pull out it toward the right. (At this time, idle gear H (2) is also removed.)
(6) Remove spring 3 and then remove pressure release lever 4. Be careful, do not lose or damage spring.
(7) Remove EP lock spring 5 and then remove ED lock lever 6.
(8) Release two latches and remove motor Assy 7.
(9) Remove two screws 8 and then remove drum motor 9 and heat sink.
(10) Remove two screws 10 and then remove registration motor A.



%3.3.20 Idle Gear

3.3.20 Idle gear

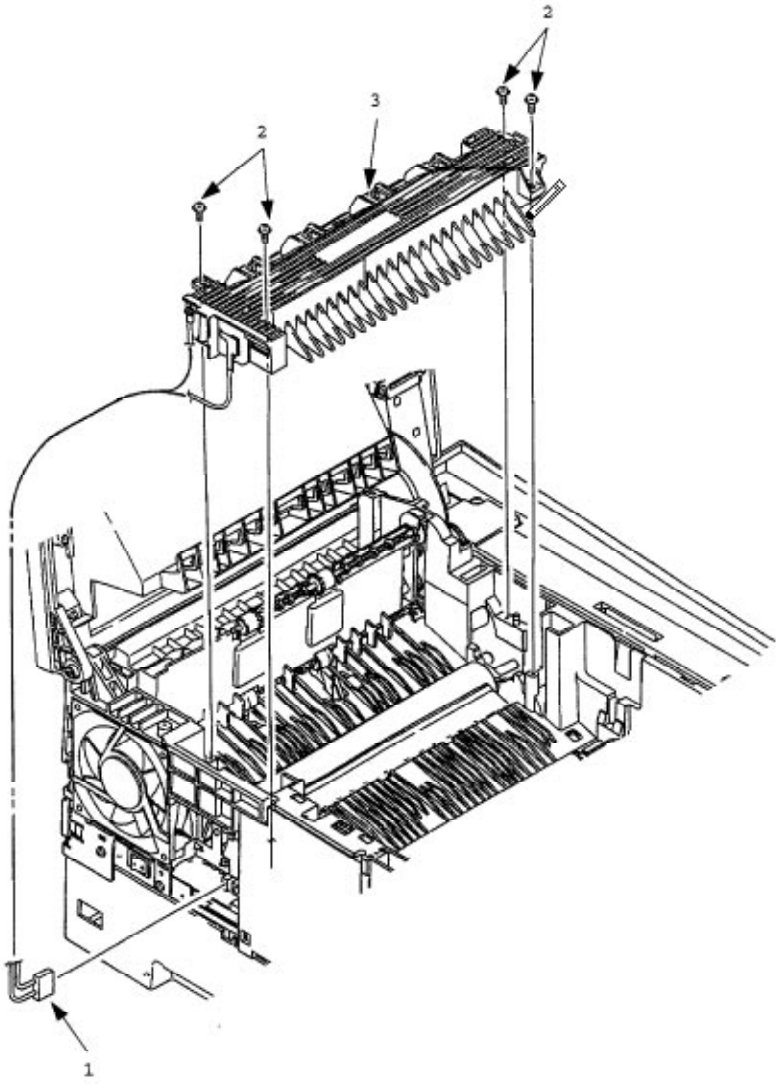
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Remove the motor Assy (see 3.3.19 (1) to (8)).
(4) Remove three screws 1 and then remove motor bracket B (2).
(5) Remove idler gear E (3), idle gear D (4), idle gear B (5), idle gear C (6), idle gear A (7), and two resist idle gears 8.



%3.3.21 Fusing Assy

3.3.21 Fusing Assy

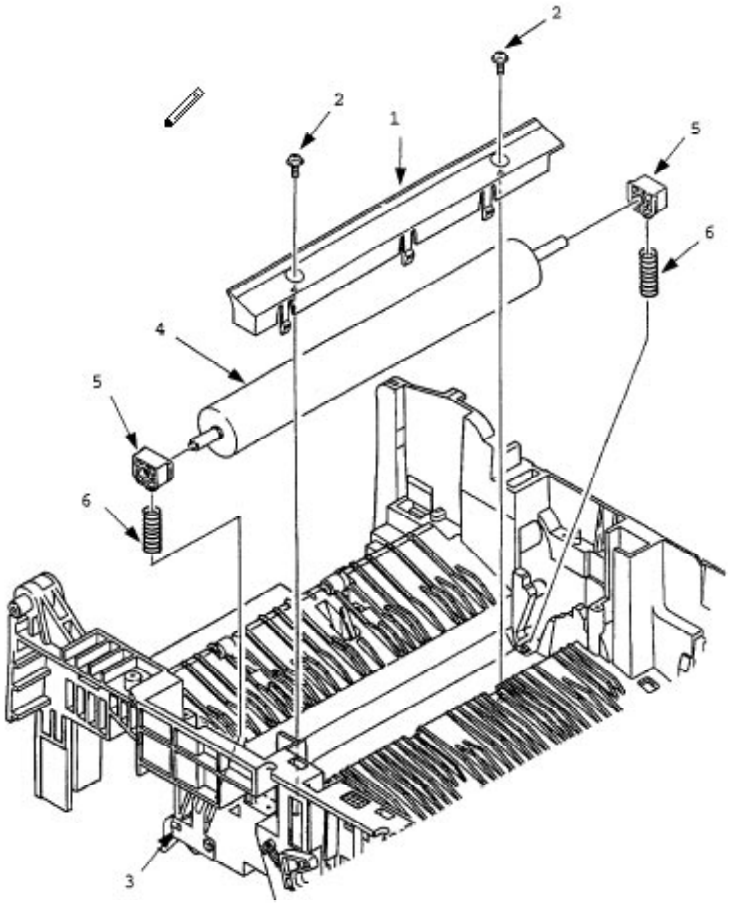
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the side cover (L) Assy (see 3.3.1 (1) to (3)).
(3) Unplug connector 1.
(4) Remove four screws 2 and then remove fusing Assy 3.



%3.3.22 Fuser Pressure Roller

3.3.22 Fuser pressure roller

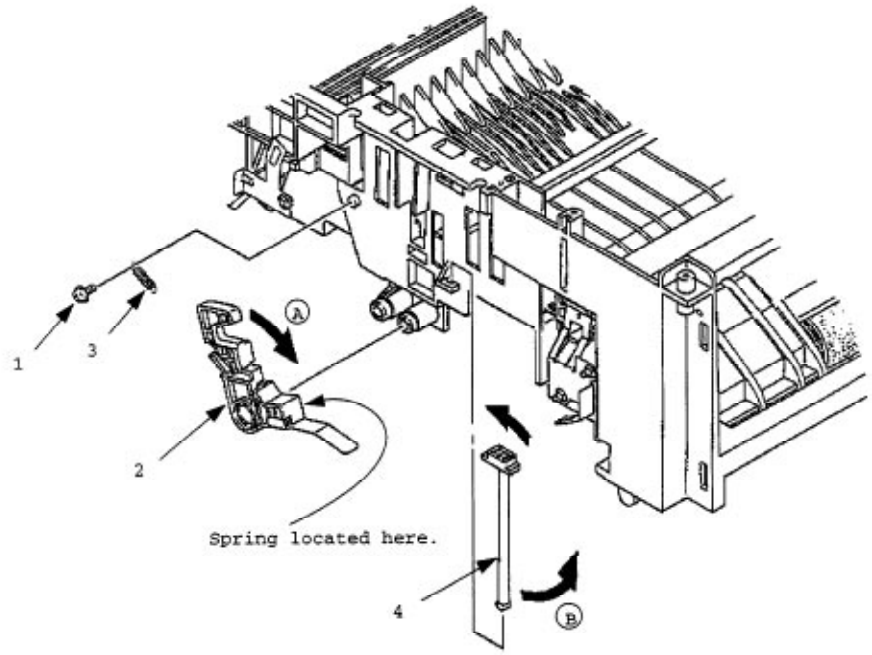
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Remove the fusing Assy (see 3.3.21).
(4) Remove the fuser pressure roller release lever (see 3.3.19 (5)).
(5) Remove two screws 2 and release three locks on the fusing guide. Remove the fusing guide 1 by pushing it upward from the lower side.
(6) Release the engagement with earth plate L (BK) 3. Lift and remove backup roller 4. (At this time, two backup roller bearings 5 and two bias springs 6 are also removed.)



%3.3.23 Ep Lock Shaft

3.3.23 EP lock shaft

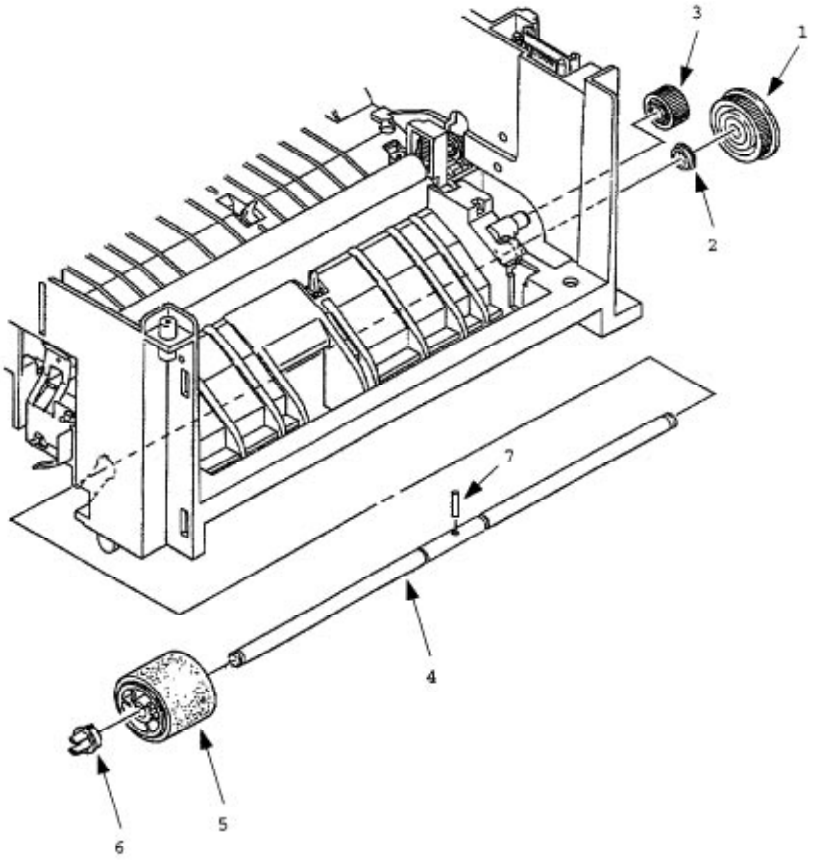
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Remove screw 1. Turn EP lock level (L) Assy 2 in the direction of arrow A .
(4) Remove spring 3.
(5) Drop EP lock shaft 4 down and turn in the direction of arrows B and remove it.



%3.3.24 Hopping roller Assy

3.3.24 Hopping roller Assy

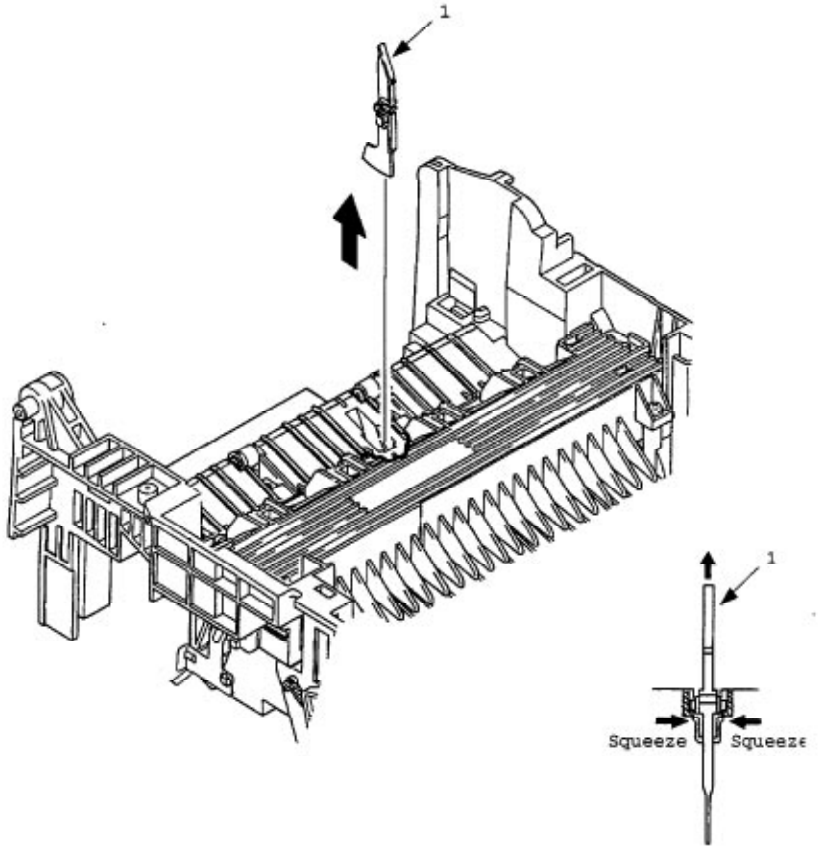
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Release the latch. Remove hopping roller gear 1 and bearing P 2. Then, remove idle gear HF 3.
(4) Remove the left side of hopping roller shaft 4 from the groove. Pull out hopping roller shaft 4 and hopping roller Assy 5 toward the left..
(5) Release the latch and remove bearing L 6.
(6) Release the latch and remove hopping roller Assy 5. (At this time, knock pin 7 is also removed. Be careful not to lose the knock pin.)



%3.3.25 Outlet sensor lever

3.3.25 Outlet sensor lever

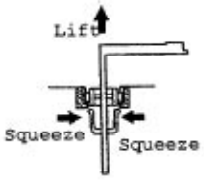
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Press the clamp part of outlet sensor lever 1. Remove the outlet sensor lever 1 by pushing it upward from the lower side.

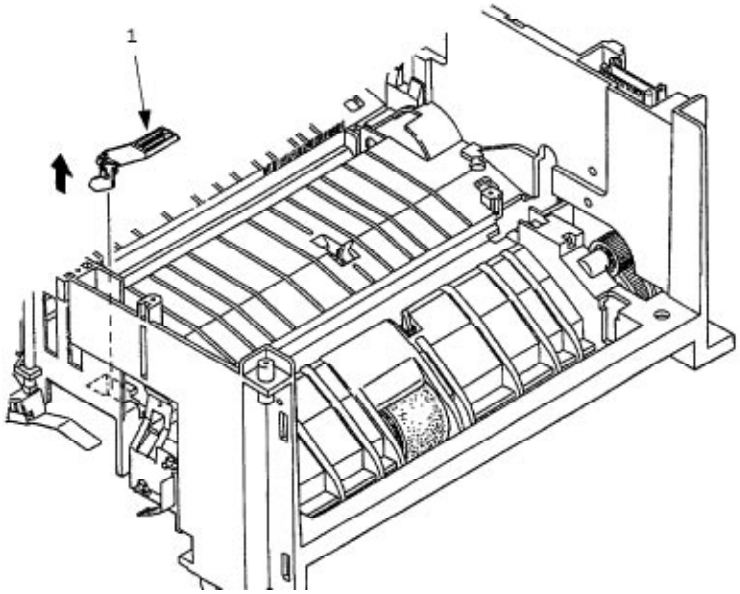


%3.3.26 Toner sensor lever

3.3.26 Toner sensor lever

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Squeeze the clamp part of toner sensor lever 1 and remove the toner sensor lever 1 by pushing it upward from the lower side.

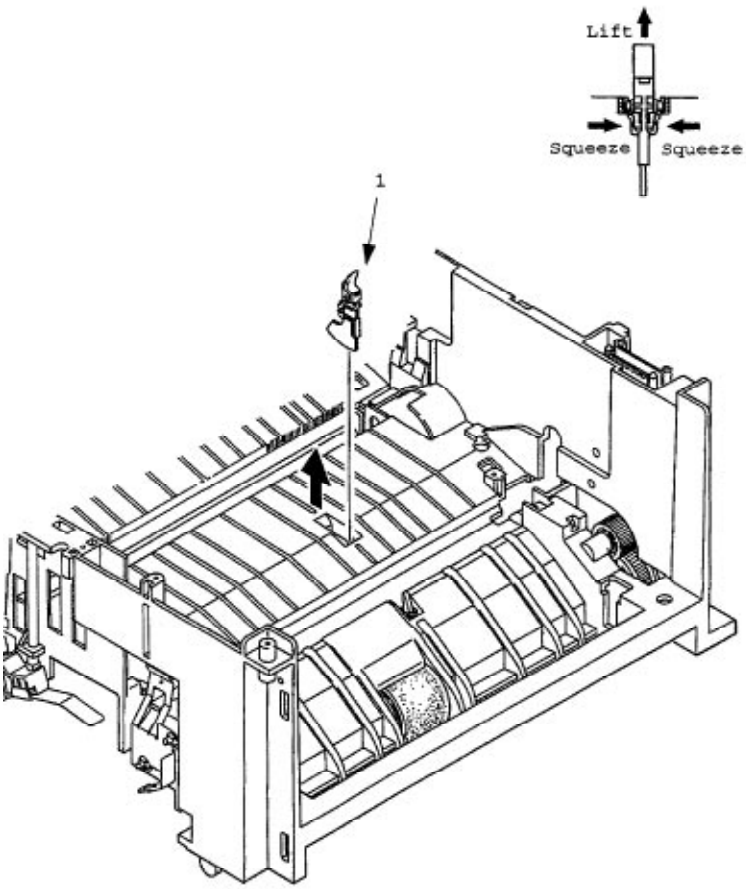




%3.2.27 Paper sensor lever

3.2.27 Paper sensor lever

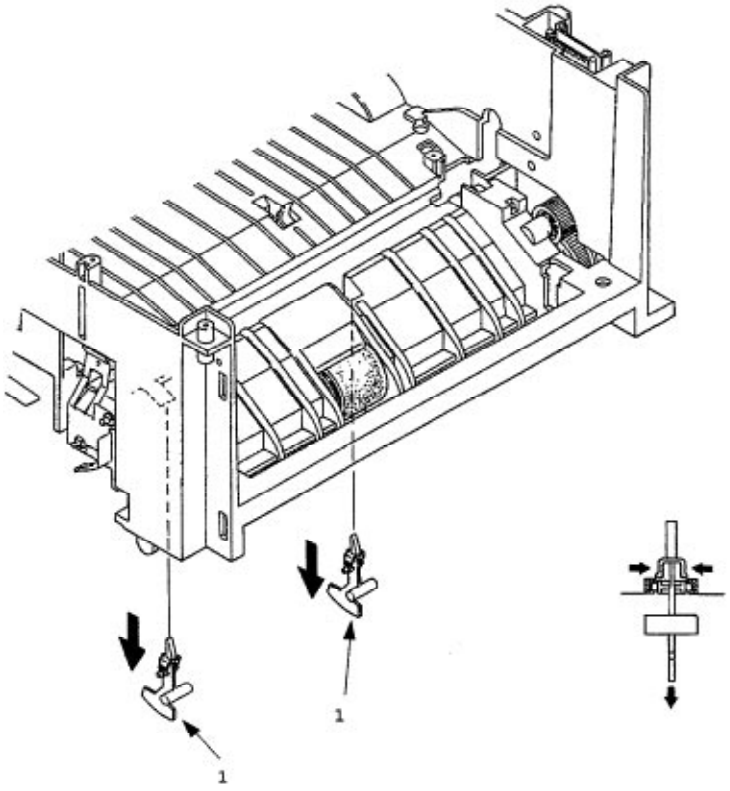
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Squeeze the clamp part of the paper sensor lever 1. Remove the paper sensor lever 1 by pushing it upward from the lower side.



%3.3.28 Inlet sensor lever

3.3.28 Inlet sensor lever

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Squeeze the clamp part of two inlet sensor levers 1. Remove the inlet sensor levers 1 by pushing them downward.

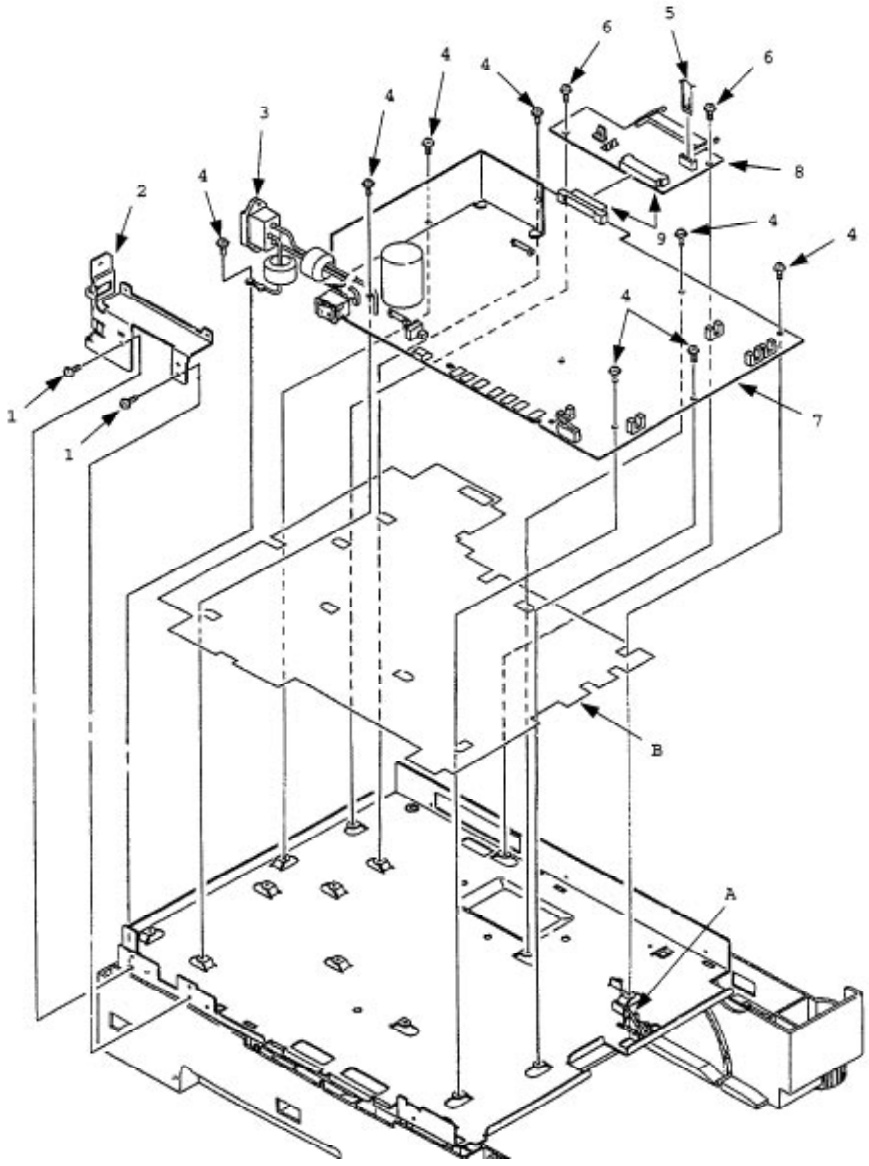


%3.3.29 Insulator

3.3.29 Insulator

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Remove two screws 1 and then remove inlet holder 2. At this time, remove inlet 3 from inlet holder 2.
(4) Remove eight screws 4, connector 5, and two screws 6. Remove Power/sensor PCB 7 together with AOLC-PCB 8.
(5) Unplug connector 9 and remove Power/sensor PCB 7.
(6) Remove insulator B .

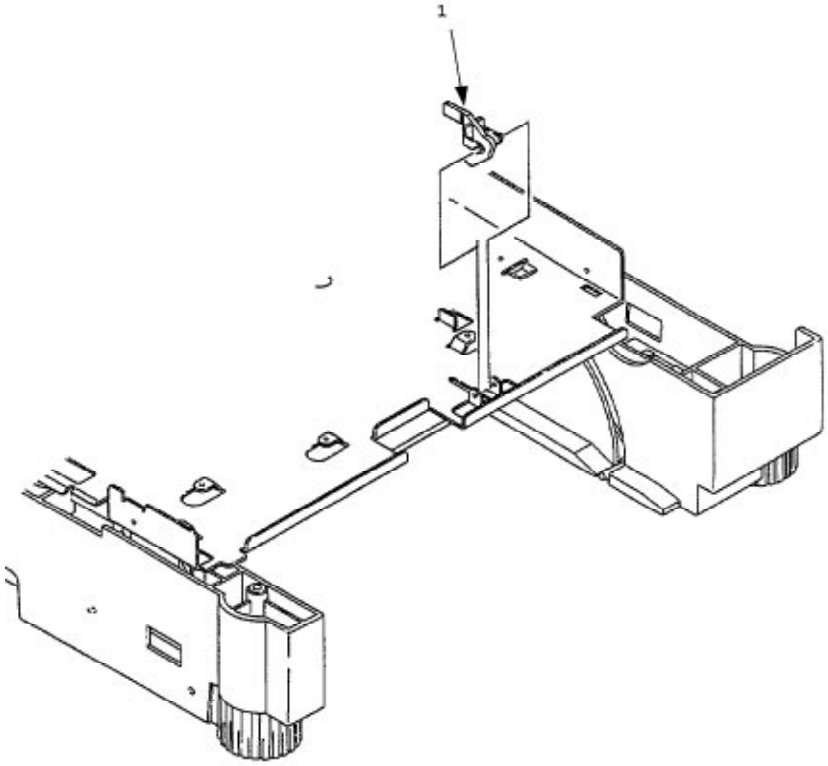
Caution: Be careful not to deform the paper end lever A.



%3.3.30 Paper end lever

3.3.30 Paper end lever

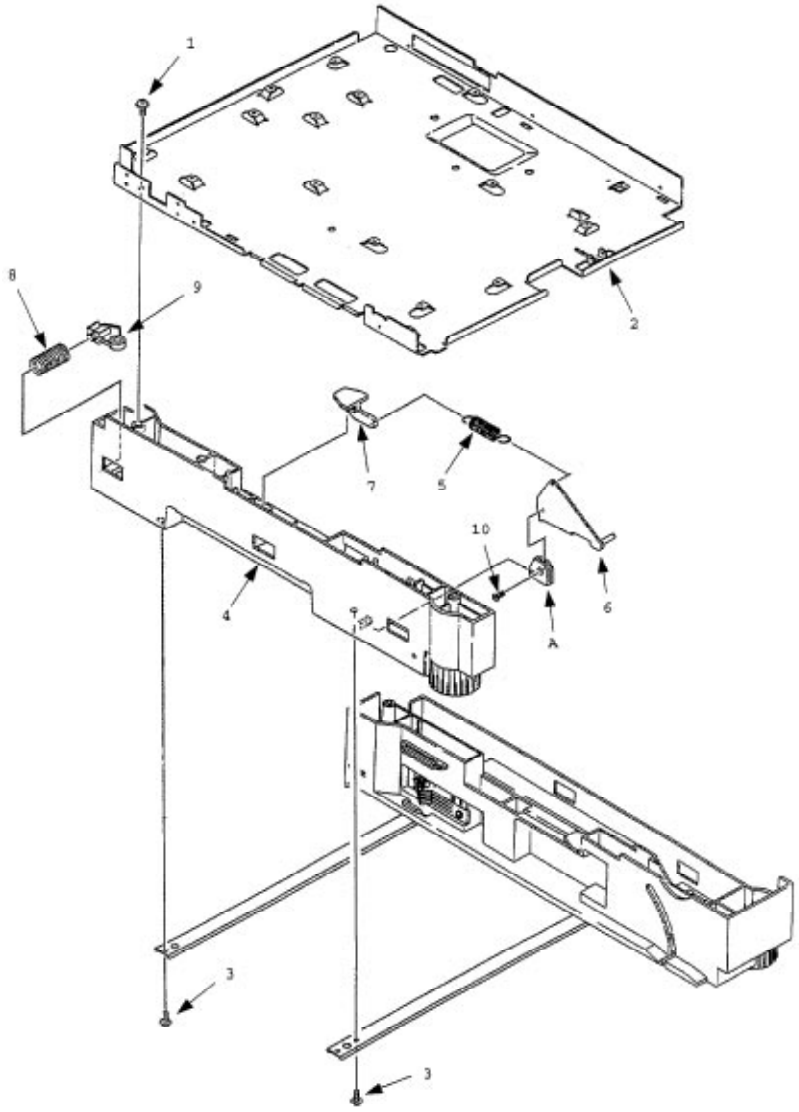
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Release the lock and remove paper end lever 1.

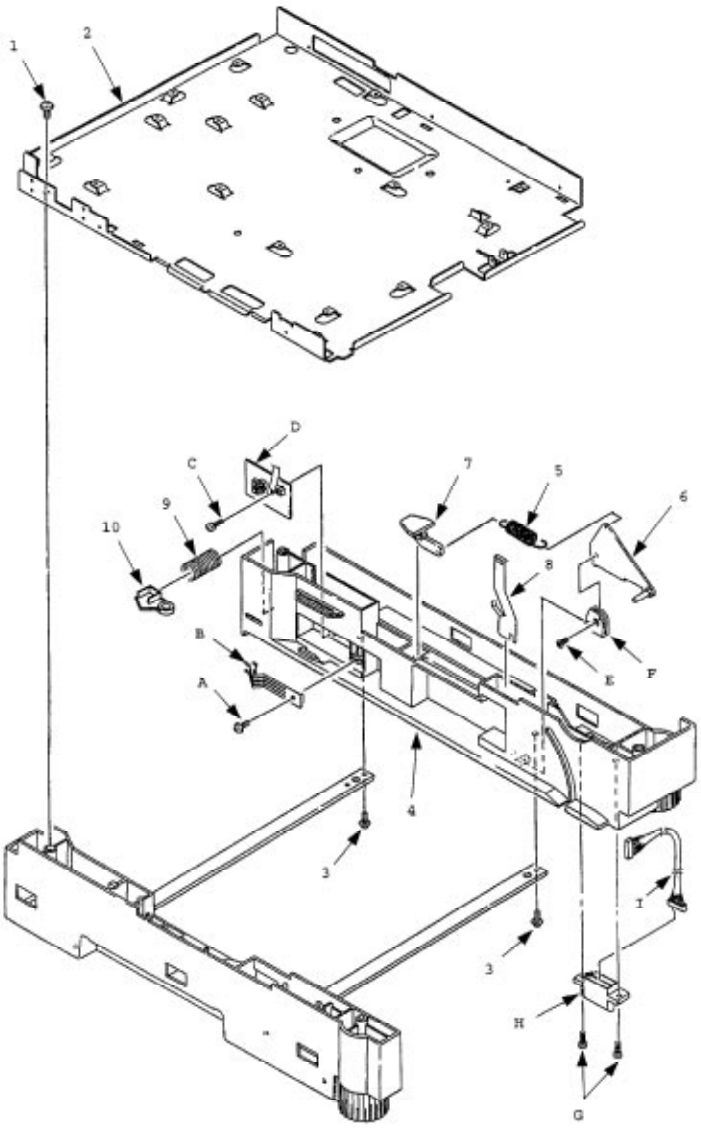


%3.3.31 Guide rail (L) Assy

3.3.31 Guide rail (L) Assy

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Remove the insulator (see 3.3.29).
(4) Remove screw 1 and then remove base plate 2.
(5) Remove two screws 3 and then remove guide rail (L) Assy 4.
(6) Remove cassette lock spring 5 and then remove bias link 6 and pull block 7. (Pay attention the direction of hook of cassette lock spring 5.)
(7) Remove spring 8 and then remove cassette stopper 9.
(8) Remove screw 10 from bias link 6 and then remove link support A.

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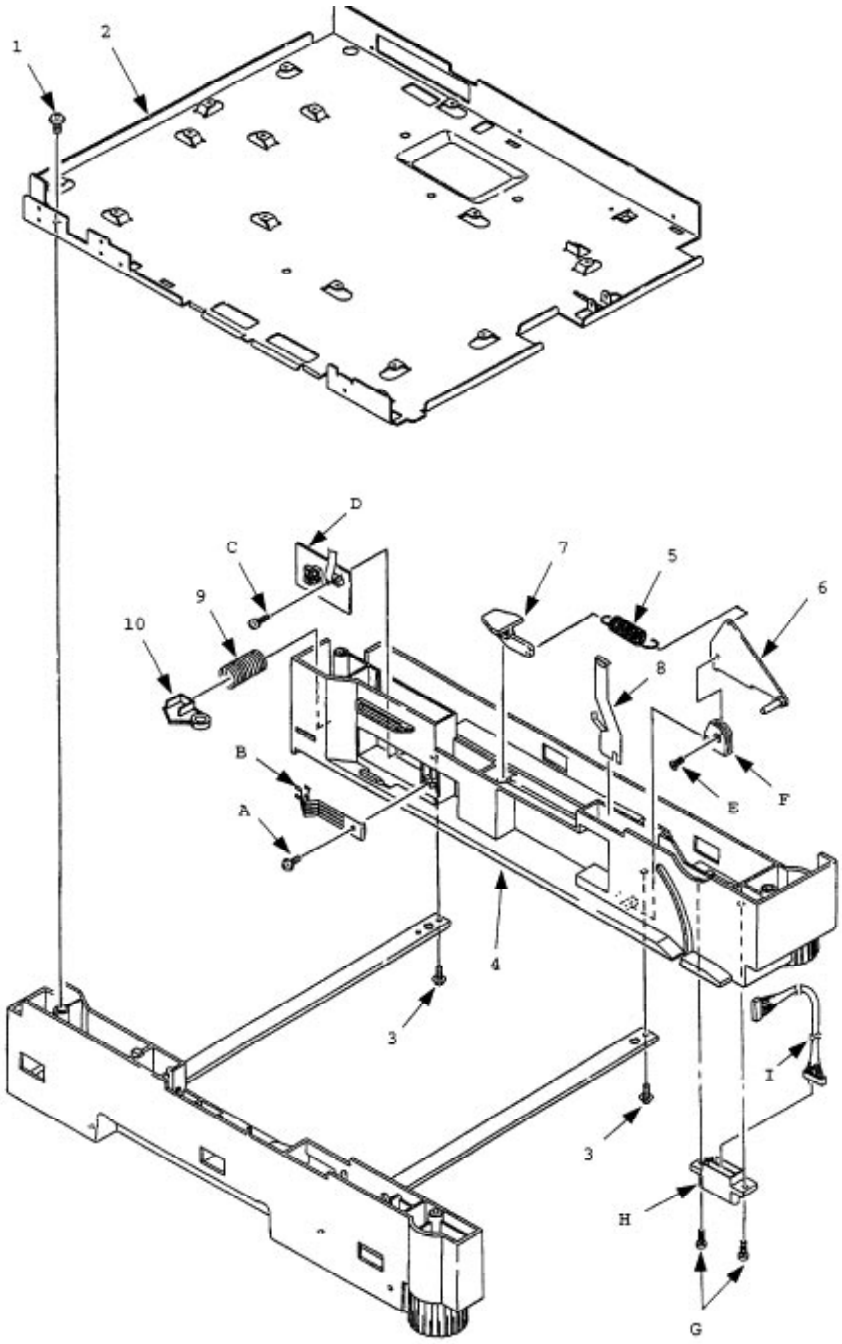
%3.3.32 Guide rail (R) Assy

3.3.32 Guide rail (R) Assy

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove the main chassis unit (see 3.3.17).
(3) Remove the insulator (see 3.3.29).
(4) Remove screw 1 and then remove base plate 2.
(5) Remove two screws 3 and then remove guide rail (R) Assy 4.
(6) Remove cassette lock spring 5 and then remove bias link 6 and pull block 7 (At this time, earth plate 8 is also removed.) (Pay attention the direction of hook of cassette lock spring 5.)
(7) Remove spring 9 and then remove cassette stopper 10.
(8) Remove screw A and then remove detector spring B.
(9) Remove screw C and then remove AOLS-PCB D.
(10) Remove screws E from bias link 6 and then remove link support F.
(11) Remove two screws G and then remove square cord from square-shaped connector H.
(12) Using great care, remove connector cord I from square-shaped connector H.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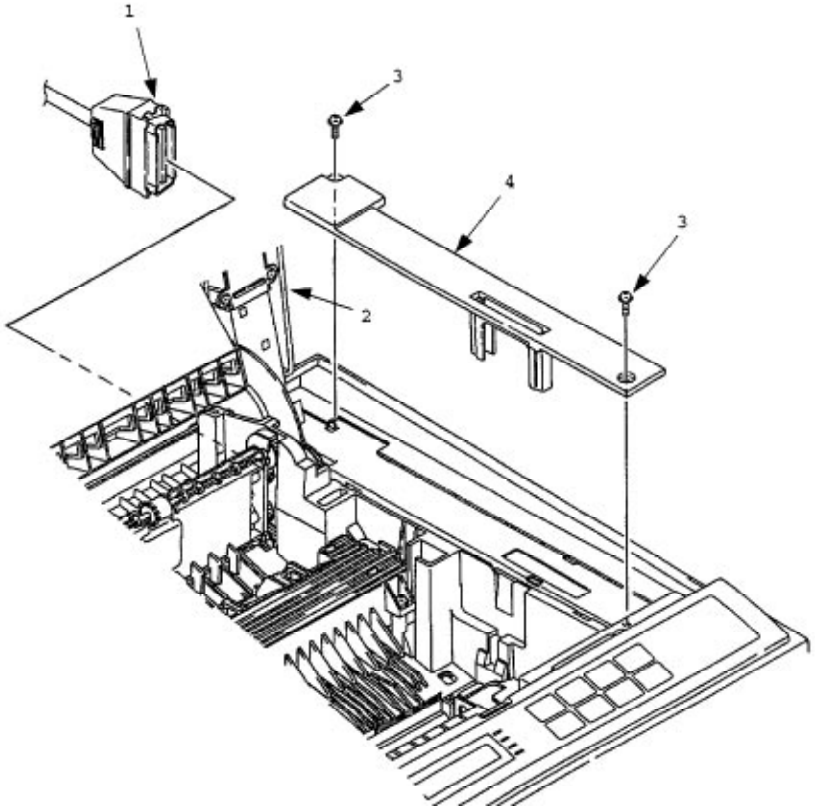
%3.3.33 IC card cover

3.3.33 IC card cover

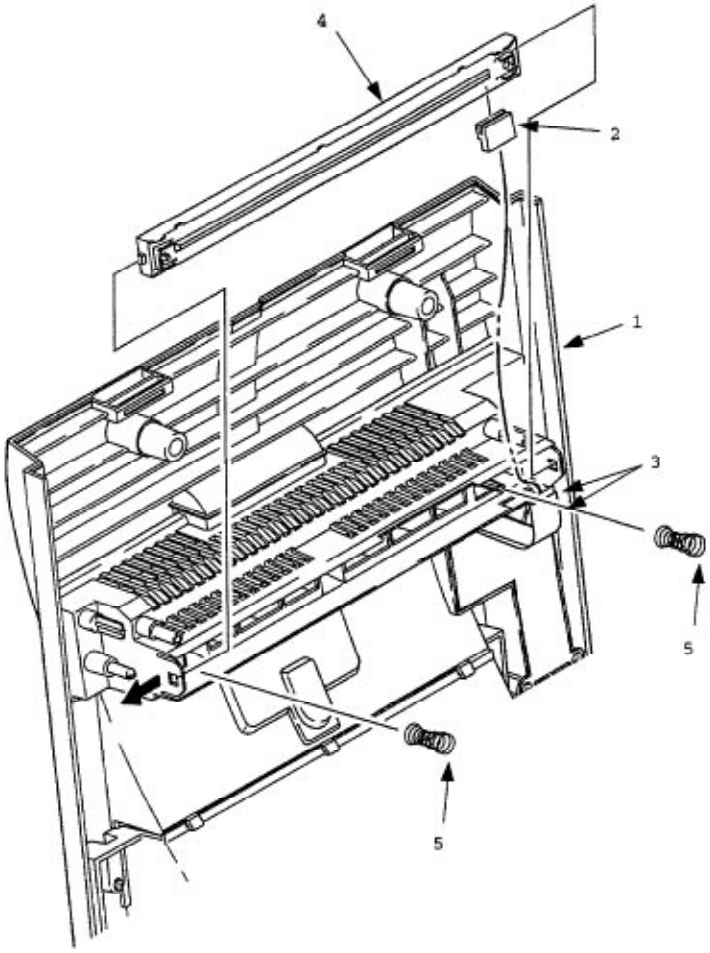
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Remove interface cable 1.
(3) Open stacker cover 2. Remove two screws 3 and then remove IC card cover 4.



%3.3.34 LED head

3.3.34 LED head

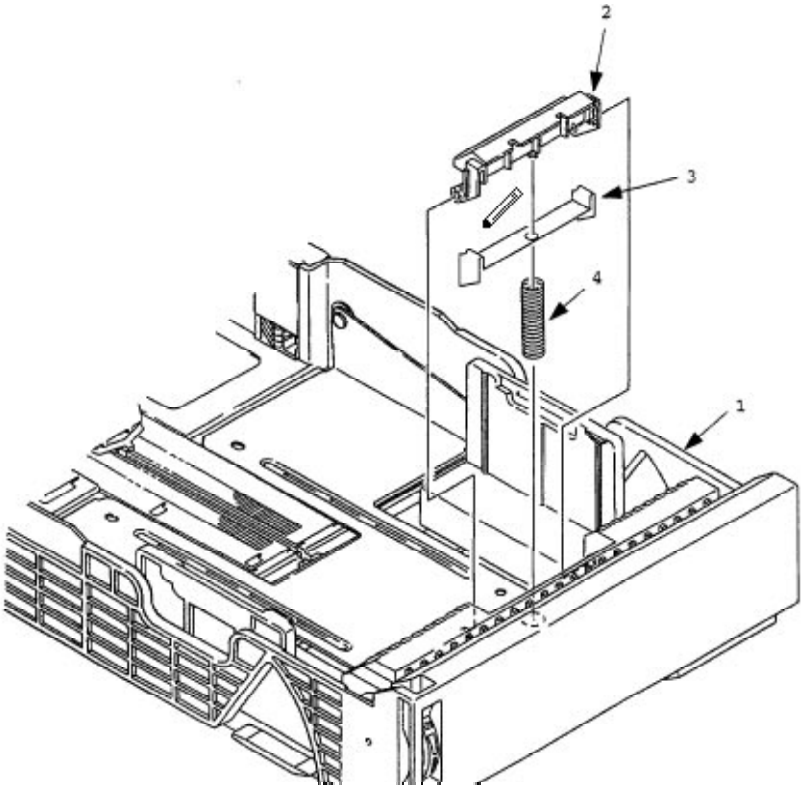
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Open stacker cover 1.
(3) Remove PC connectors 2 and two LED cables 3 from LED head 4.
(4) Push the hook on the left side of stacker cover 1 in the direction of arrow and remove LED head 4. (Take care not to lose head springs.)
(5) Pull out the head spring 5 from the post.



%3.3.35 Separator Assy

3.3.35 Separator Assy

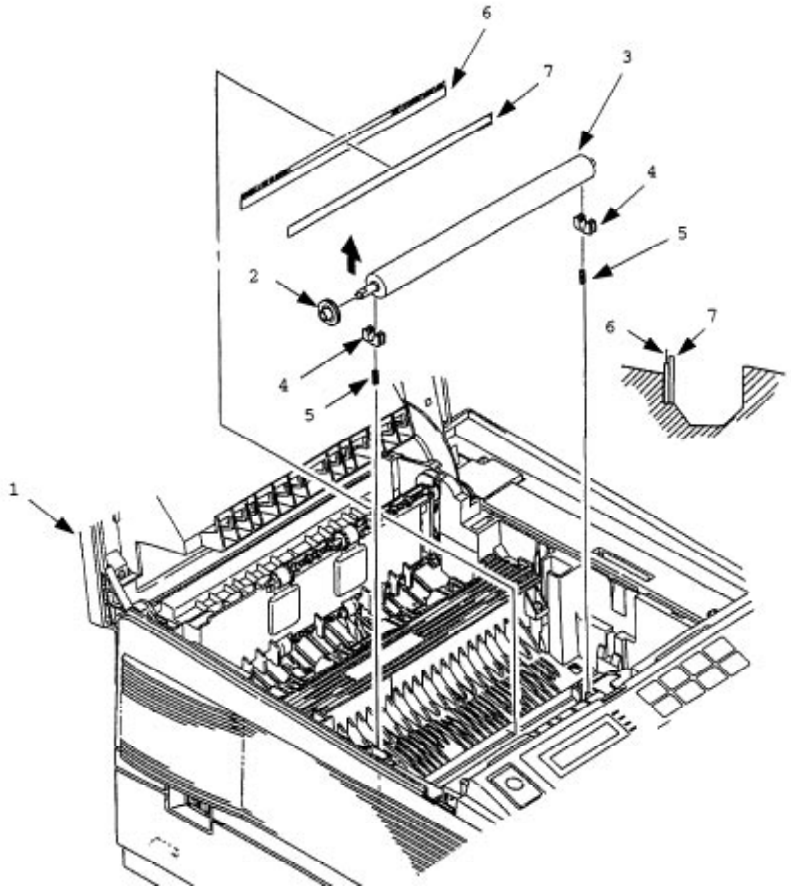
(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Pull out the paper cassette Assy 1 from the printer.
(3) Release two locks and remove separator Assy 2. (At this time, leaf spring 3 and coil spring 4 are also removed. Be careful not to lose these springs.)



%3.3.36 Transfer roller

3.3.36 Transfer roller

(1) Turn the AC power switch off. Unplug the AC power cord from the outlet.
(2) Open stacker cover 1.
(3) Lift the left side of the gear TR 2 and release the lock. Remove gear TR 2 and transfer roller 3.
(At this time, two bearings (TR) 4 and two transfer roller springs 5 are also removed.)
(4) Remove diselectrification bar 6 and diselectrification film 7 from the chassis unit.



Chapter 4
4. Adjustment

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4. ADJUSTMENT
This chapter explains the adjustment necessary when replacing a part. Adjustment is made by changing a parameter value set in EEPROM on the controller PCB. A parameter is set with the use of the keys on the operator panel. This printer has three kinds of maintenance mode. You will utilize one of the maintenance modes when replacing key parts.

%4.1 Maintenance Modes And Functions

4.1 Maintenance Modes And Functions

• User maintenance mode

To enter the user maintenance mode, turn on the POWER switch while pressing the MENU key.

Function

There are six functions as follows.

- Menu reset
- Hex dump
- Drum counter reset
- Operator panel menu disable
- X adjust
- Y adjust

• System maintenance mode

Note: This mode is used only by service persons and it should not be released to the end-users.

To enter the system maintenance mode, turn on the POWER switch while pressing the RECOVER key.

Function

There are five functions as follows.

- Page count display
- Loop test
- Page count printing enable/disable
- EEPROM reset
- Rolling ASCII continus prinitng

• Engine maintenance mode

Note: This mode is used only by service persons and it should not be released to the end-users.

To enter the engine maintenance mode, turn on the POWER switch while pressing the FORM FEED key and ENTER key.

Function

There are 13 functions as follows.

- Head drive time setting
- Printing start position setting
- Drum counter total display
- Drum count display
- Setting of standard paper feed length
- Setting of front feeder paper feed length
- Setting of second tray paper feed length
- Selection of second tray feeder download table
- Setting of envelope feeder paper feed length
- Selection of envelope feeder download table
- Fuser count indication
- Fuser count reset
- Engine reset

%4.1.1 User maintenance mode

4.1.1 User maintenance mode

- To enter the user maintenance mode, turn the power supply ON while pressing the Menu key.
- This mode uses the menu for function selection.
- The user maintenance mode provides the following functions:

(1) Menu reset

- All settings for Menu level-1 are reset to the factory default values. The menus for all executable emulations including options are reset to the factory default values.
- The operation mode starts automatically upon completion of resetting.

(2) Hex dump

- The data received from the host is dumped in hexadecimal notation to the printer.
- Printing is activated automatically when the received data exceeds one page. If the received data is less than one page, printing can be activated manually be pressing the Form Feed key after selecting the OFF LINE. (Automatic activation of printing even when the received data is less than one page by selecting the Auto Eject function on the menu.)
- To exit from this mode is turning the power OFF.

(3) Drum counter reset

- This function resets the drum life data when the user replaces the image drum unit.
- The operation mode starts automatically upon completion of resetting.

(4) Operator panel menu disable

- This function is for enabling and disabling the operator panel menu functions (Menu 1, Menu 2, Tray Select, Copies and Paper Size).

(5) X ADJUST

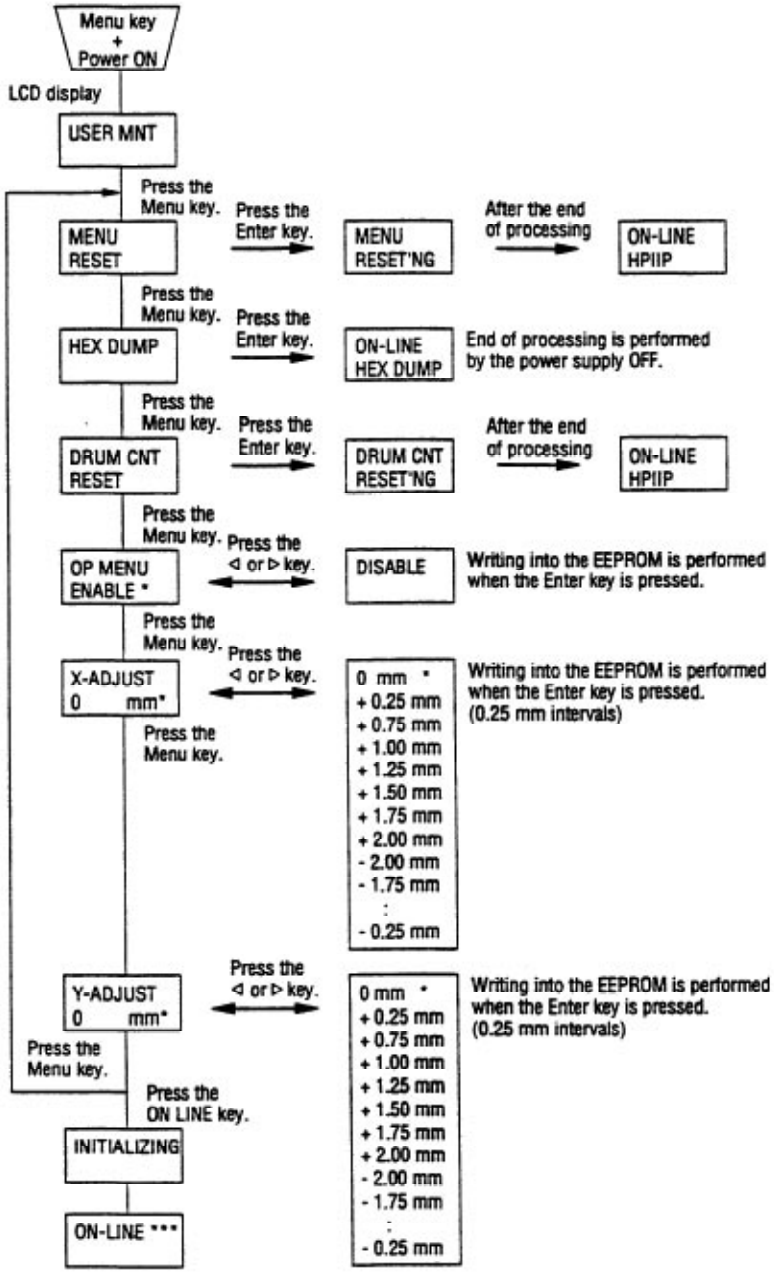
- This function is used to adjust the printing start position within the range of ±2 mm in 0.25 mm steps in the X direction.

(6) Y ADJUST

- This function is capable to adjust the printing start position within the range of ±2 mm in 0.25 mm steps in the Y direction.

%User maintenance mode menu system

User maintenance mode menu system



%4.1.2 System maintenance mode

4.1.2 System maintenance mode

- The system maintenance mode is set when the power is turned ON while pressing the Recover key.
- This mode adopts the menu for function selection.
- The system maintenance mode is provided with the following functions:

(1) Page count display

- The total number of pages counted at the engine is displayed on the LCD.

(2) Page count printing enable/disable

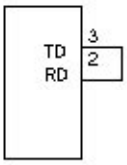
- This function selects whether to include (enable) or exclude (disable) the total number of printed pages counted at the engine at the time of menu printing.

(3) Rolling ASCII continuous printing

- The rolling ASCII pattern is printed continuously for various engine tests.
- Press the ON-LINE key to cancel this mode.

(4) Loop test

- The loop test is for testing the serial I/F functions without connecting the printer to a host.
- The data is sent and received by loop back in the loop test.
- The loop test is performed even when any other interface is selected in Menu level-2.
- Installation of the loop connector* is necessary for the loop test.
- The loop count is displayed in realtime on the LCD.
- When an error occurs in the course of the test, the corresponding error message is displayed.
- Press the ON-LINE key to cancel this mode.



* Loop connector

(5) EEPROM reset

- All EEPROM areas including Menu level-2 to the factory default values.
- The following items are excluded Head drive time setting

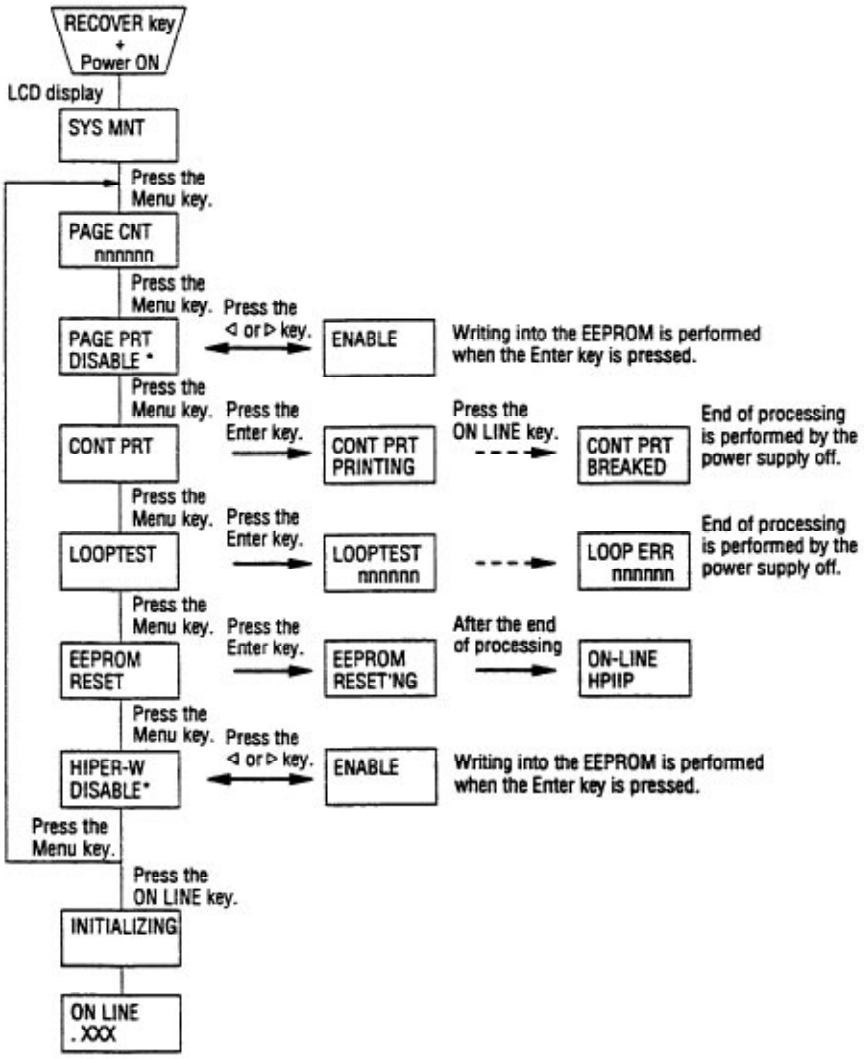
Fine adjustment of printing start position
Standard tray paper feed amount setting

- Transition to the operation mode occurs upon completion of resetting.
- Press the Menu key to update each category. The operation returns to the first category after updating the last category.

(6) Menu display of Hiper-Window

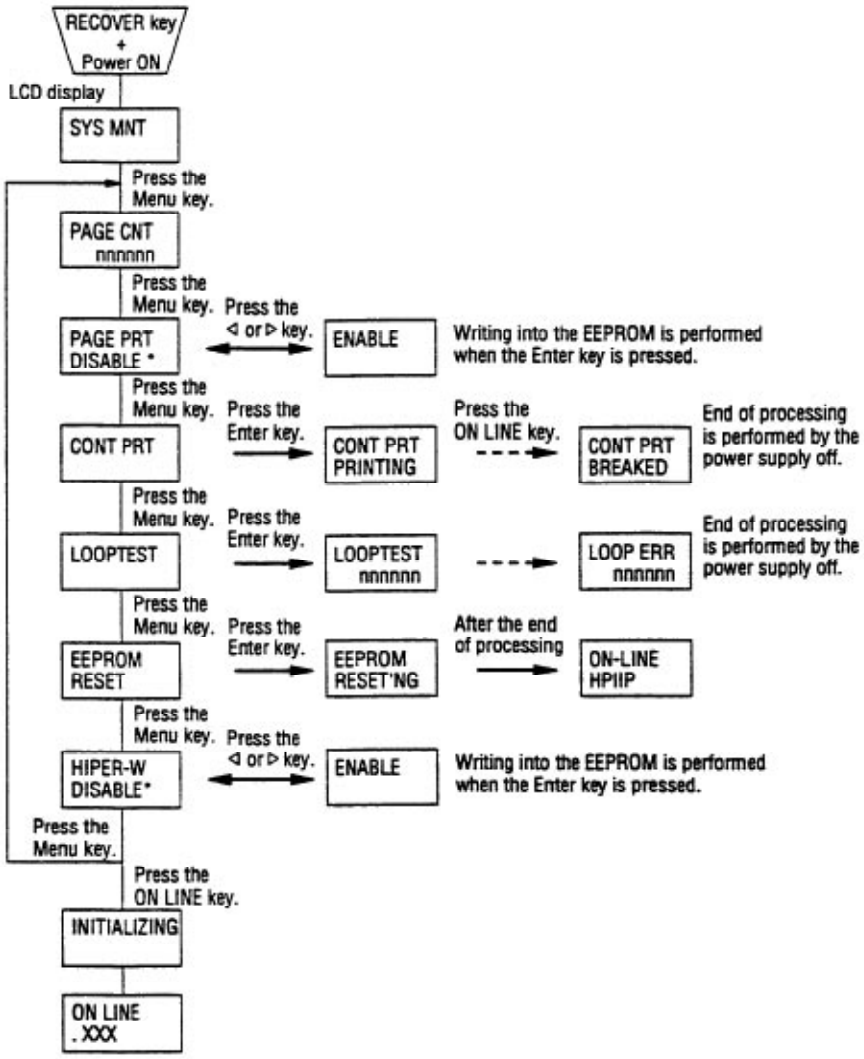
- Set the display of "HIPER WINDOWS" in the PRINTER LANGUAGE section of Menu.

System maintenance mode menu system



%System maintenance mode menu system

System maintenance mode menu system



%4.1.3 Engine maintenance mode

4.1.3 Engine maintenance mode

- The engine maintenance mode is activated when the power is turned ON while pressing to the Form Feed key and Enter key.
- This mode adopts the menu for function selection.
- The method for exit from this mode depends on the setting.
- The engine maintenance mode is provided with the following functions:

(1) Head drive time setting
- Sets the drive time of the LED head.

(2) Printing start position setting
- Sets the printing start position.

(3) Drum count total display
- Displays on the LCD the total number of drum revolutions in the unit counted at the engine.

(4) Drum count display
- Displays on the LCD the total number of EP drum revolutions counted at the engine.

(5) Setting of standard tray paper feed length
- This function sets the paper feed length of standard tray paper.

(6) Setting of front feeder paper feed length
- This function sets the paper feed length of the front feeder.

(7) Setting of High Capacity Second Paper Feeder paper feed length
- This function sets the paper feed length of the High Capacity Second Paper Feeder.

(8) Selection of High Capacity Second Paper Feeder download table
- This function selects the download table for the High Capacity Second Paper Feeder.

(9) Setting of Power envelope feeder paper feed length
- This function sets the paper feed length of the Power envelope feeder.

(10) Selection of Power envelope feeder download table
- This function selects the download table for the Power envelope feeder.

(11) Fuser count display
- Displays on the LCD the total number of printed pages counted at the engine.

(12) Fuser count reset
- When the fuser unit is replaced, the maintenance person uses this fuser count reset function to reset the fuser lifetime.
- After the fuser counter is reset, the engine enters into the operation mode automatically

(13) Engine reset
- All EEPROM areas used by the engine are reset to the factory default values.
- The following items are excluded:

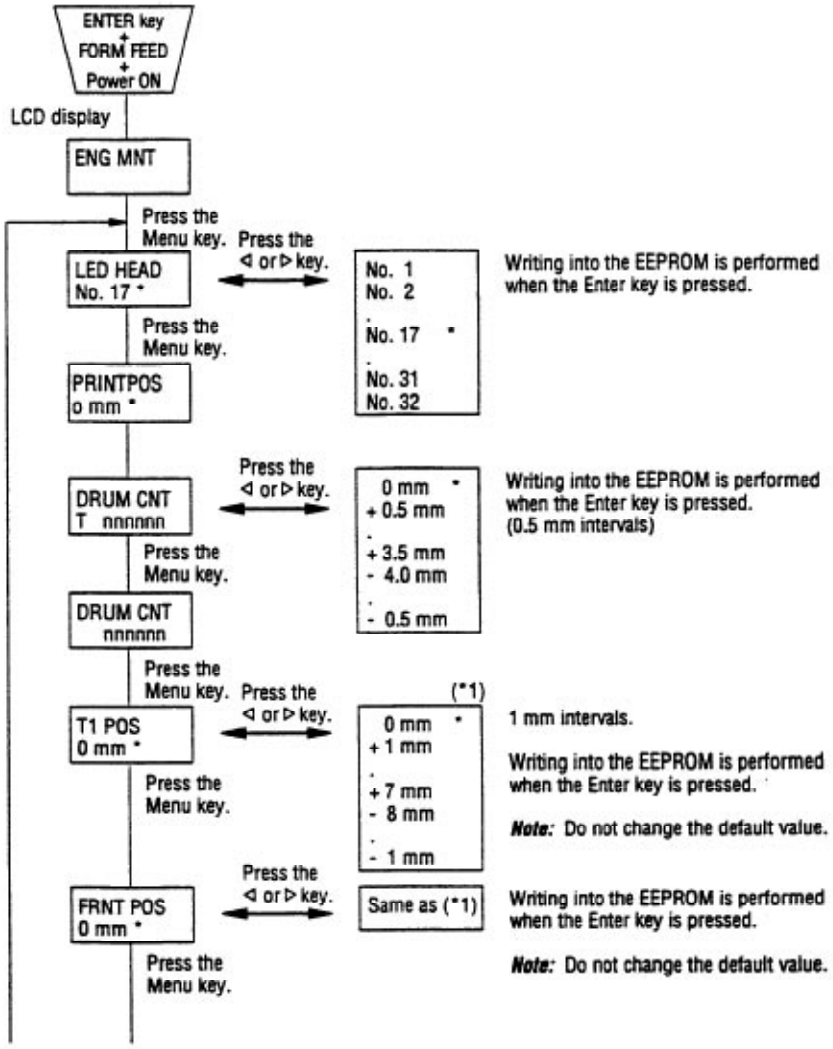
Menu level-1
Menu level-2
Operator panel menu disable/enable
Page print disable/enable

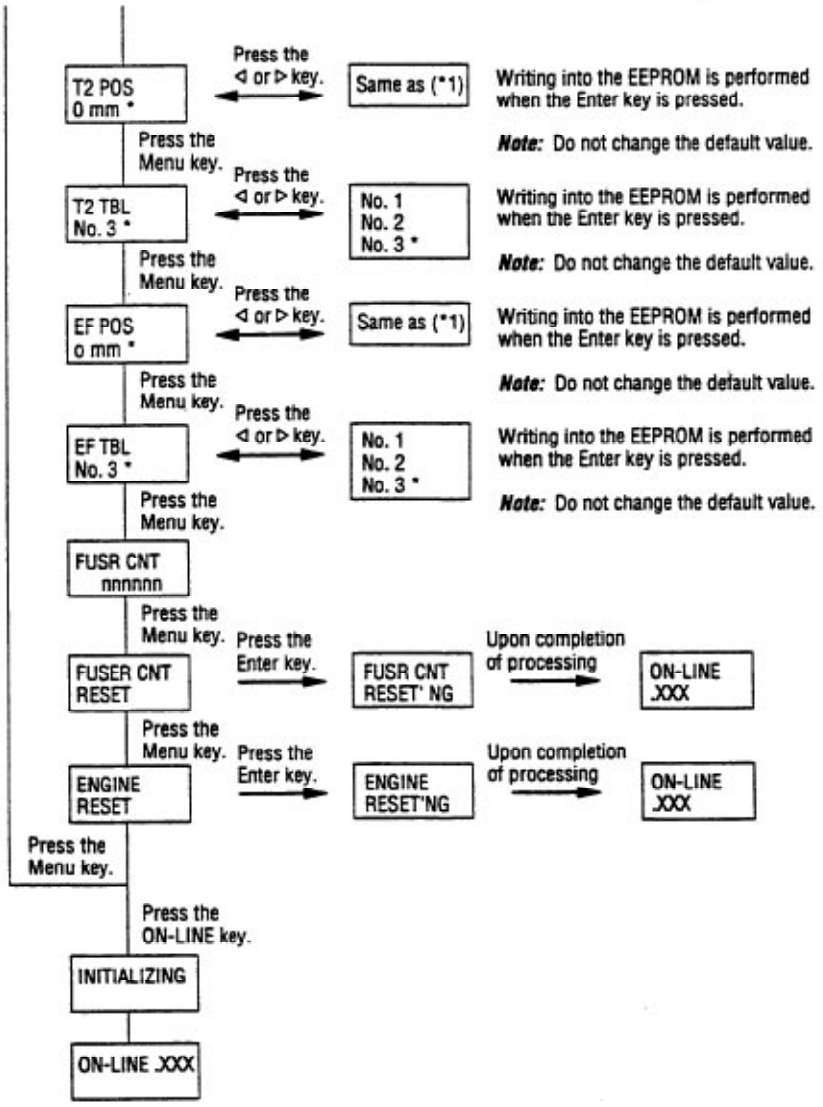
- Transition to the operation mode occurs upon completion of resetting.

Note: Do not change the default value of (2), (5) ~ (9) they are the parameters for adjusting in the factory.

%Engine maintenance mode menu system

Engine maintenance mode menu system




T2 POS
0 mm *
Press the ◁ or ▷ key.
Same as (*1)
Writing into the EEPROM is performed when the Enter key is pressed.
Note: Do not change the default value.
Press the Menu key.
T2 TBL
No. 3 *
Press the ◁ or ▷ key.
No. 1
No. 2
No. 3 *
Writing into the EEPROM is performed when the Enter key is pressed.
Note: Do not change the default value.
Press the Menu key.
EF POS
0 mm *
Press the ◁ or ▷ key.
Same as (*1)
Writing into the EEPROM is performed when the Enter key is pressed.
Note: Do not change the default value.
Press the Menu key.
EF TBL
No. 3 *
Press the ◁ or ▷ key.
No. 1
No. 2
No. 3 *
Writing into the EEPROM is performed when the Enter key is pressed.
Note: Do not change the default value.
Press the Menu key.
FUSR CNT
nnnnnn
Press the Menu key.
FUSER CNT
RESET
Press the Enter key.
FUSR CNT
RESET' NG
Upon completion of processing
ON-LINE
.XXX
Press the Menu key.
ENGINE
RESET
Press the Enter key.
ENGINE
RESET'NG
Upon completion of processing
ON-LINE
.XXX
Press the Menu key.
Press the ON-LINE key.
INITIALIZING
ON-LINE .XXX

%4.1.4 EEPROM initialization

4.1.4 EEPROM initialization

The corresponding area of the EEPROM is initialized for each event as shown Table 4-1.

Table 4-1

Event \ EEPROM area	Menu level 1	Menu level 2	F/W revision area	Information for destination	Engine area	Drum counter	Fuser counter	Page counter	XY adjust	LED head drive time	Remarks
Menu resetting for user maintenance	○										
EEPROM resetting for system maintenance	○	○							○		
Engine resetting for engine maintenance					○	○	○	○			
Firmware revision check error LCD display: EEPROM RESETTING	○	○	○						○		This intialization occurs when the existing ROM is replaced by a ROM whose revision No. is different from the existing ROM.
Engine revision error LCD display: ENGINE RESET					○	○	○	○		○	This intialization occurs when a new EEPROM is mounted.
Engine ID error LCD display: ENGINE RESET					○	○	○	○		○	
Setting of data for destination	○	○		○					○		
User information error LCD display: EEPROM RESETTING	○	○		○					○		This resetting occurs when an irregular user information is detected.

○ : shows initialization

%*4.2 Adjustment When Replacing A Part

4.2 Adjustment When Replacing A Part
Adjustment necessary when replacing one of the followimg parts.

Part Replaced	Adjustment
LED Head	Set the LED head drive time. (Refer to Chapter 4.2.1)
Image Drum Cartridge	Reset the image drum counter. (Refer to User's manual)
Fuser Unit	Reset the fuser counter. (Refer to Chapter 4.2.2)
EEPROM	Set the LED head drive time. (Refer to Chapter 4.2.1)

%4.2.1 Setting of LED head drive time

4.2.1 Setting of LED head drive time

Note: When the luminous intensity marking of the replaced LED head (new part) is same as that of the used LED head (old part), do not set the LED head drive time.

• Luminous intensity marking label

#####

• Setting of LED head drive time

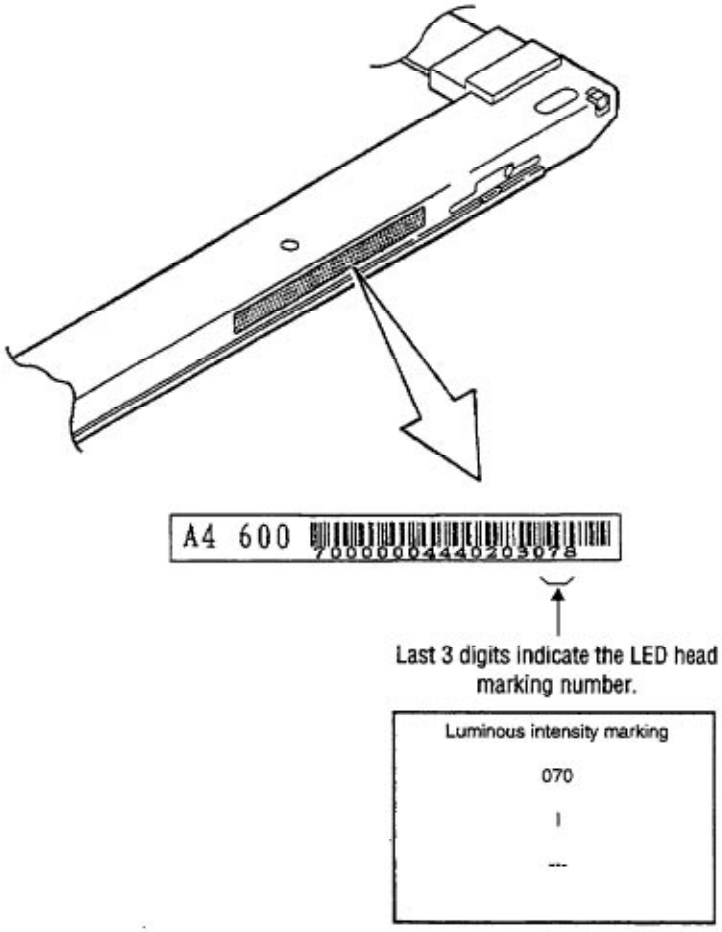
Drive time of the LED head is to set parameter of drive time setting values corresponding to the lumious intensity displays marked on the LED head to EEPROM.

a. Corresponding table of lumious energy display and drive time parameter

Luminous intensity display on LED head	**Drive time parameter**
0.27 ~ 0.28	25
0.29 ~ 0.30	24
0.31 ~ 0.32	23
0.33 ~ 0.35	22
0.36 ~ 0.37	21
0.38 ~ 0.40	20
0.41 ~ 0.43	19
0.44 ~ 0.46	18
0.47 ~ 0.49	17
0.50 ~ 0.52	16
0.53 ~ 0.57	15
0.58 ~ 0.60	14
0.61 ~ 0.64	13
0.65 ~ 0.69	12
0.70 ~ 0.73	11
0.74 ~ 0.79	10
0.80 ~ 0.84	9
0.85 ~ 0.90	8
0.91 ~ 0.96	7

0.97 ~ 1.03	6
1.04 ~ 1.10	5
1.11 ~ 1.18	4
1.19 ~ 1.26	3
1.27 ~ 1.35	2

b. Setting
Example: Setting method the parameter to 14 (in case of privous parameter is 17).

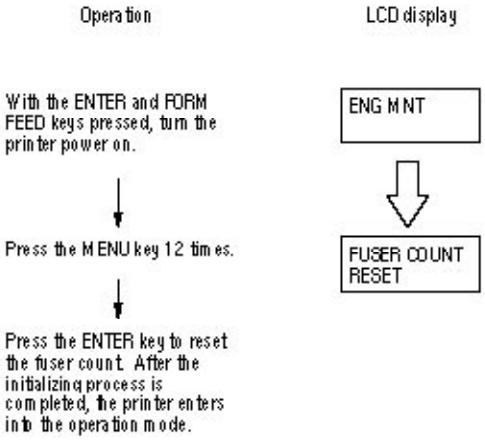


%4.2.2 Resetting the fuser counter

4.2.2 Resetting the fuser counter

(1) The fuser counter can be reset in the engine maintenance mode.

(2) Resetting method



%4.2.3 Destination setting

4.2.3 Destination setting

The desired destination can be set by turning the power on while depressing two keys corresponding to the destination according to the following table.

Destination	**Keys to be depressed**
ODA	MENU, >
OEL	MENU, <
Non-Europe 1 (Australia, etc.)	MENU, PAPER SIZE
Non-Europe 2 (Singapore, etc.)	MENU, TRAY TYPE

Chapter 5
%5.1 Periodic Parts Replacement

5.1 Periodic Parts Replacement
The parts are to be replaced periodically as specified below:

Part name	Condition for replacement	Cleaning	Remarks
• Toner cartridge	5,000	• LED head.	Consumables
• Image drum cartridge	30,000	• LED head.	Consumables

%5.2 Cleaning

5.2 Cleaning

Remove any toner and dust. Clean inside and around the printer with a piece of cloth when necessary. Use the handy cleaner (VACCUM) for cleaning the printers interior.

Note: Do not touch image drum, LED lens array, and LED head connector block. Do not use any solvents.

%5.2.1 Cleaning of LED Lens Array

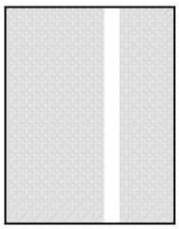
5.2.1 Cleaning of LED Lens Array

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. LED Lens cleaner pads are included with replacement toner cartridges.

White lines or stripes

(void, light printing)



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

5.2.2 Cleaning Page Function

There is a Charge Roller cleaning function within this printer, which can be executed by the user.

(1) While the printer is in off-line mode press both the left arrow and right arrow keys on the printer operator panel for at least 2 seconds. The printer enters the cleaning mode.

(2) The LCD displays "CLEANING" on the upper line, and on the lower line, "MANUAL LETTER REQUEST" is displayed. Characters will scroll one at a time from right to left. "LETTER" may be replaced by "A4" depending on the default paper type selected in the menu. While the lower line scrolls the message, the upper line will stay fixed.

When the above message appears on the LCD, the user can verify that the printer has entered the cleaning mode.

(3) Insert a sheet of paper into the manual feed slot or press the "FORM FEED" button on the printer.

(4) Toner attached to the image drum is transferred onto the inserted sheet, and the sheet is ejected with the toner residue printed. While this process is going on, the LCD displays "CLEANING PRINT" message.

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

%5.3 Lubrication - General Information

5.3 Lubrication
5.3.1 General Information

Lubrication should be performed once a year or as needed.

Use Lithium Grease.

When applying the grease, do not over-lubricate.

Do NOT allow lubrication to contact the surface of any rollers or paper guides.
Lubricate the items listed in the table below.

Item	Disassembly Procedure
Eject Roller Gears	3.3.11 Page 3-18
Idle Gear , Front Feeder	3.3.14 Page 3-22
Stacker Cover Damper Gear	3.3.8 Page 3-15
Transfer Roller Gear	3.3.17 Page 3-25
Gear on the shaft of the Registration Motor	3.3.18 Page 3-27
Idle Gears A, B, C, D (Motor Assy.)	3.3.20 Pages 3-29 and 3-30
Inside of the Fusing Pressure Roller Bearings and Shaft	3.3.22 Page 3-32
Hopping Roller Assy. (Bearings and Gear)	3.3.24 Page 3-34
Bearings and shaft of the Transfer Roller	3.3.36 Page 3-49

Chapter 6
%6.1 Troubleshooting Tips

6.1 Troubleshooting Tips
(1) Check the basic check points covered in the users manual.
(2) Gather as much information on the problem from the customer as possible.
(3) Perform inspections in conditions close to those in which the problem had occurred.

%6.2 Points to Check before Correcting Image Problems

6.2 Points to Check before Correcting Image Problems

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

(2) Have the supplies (toner) and the routine replacement part (image drum cartridge) been replaced properly?

(3) Is the paper normal? See paper specifications section.

(4) Has the image drum cartridge been loaded properly?

%6.3 Tips for Correcting Image Problems

6.3 Tips for Correcting Image Problems

(1) Do not touch, or bring foreign matter into contact with the surface of the image drum.
(2) Do not expose the image drum to direct sunlight.
(3) Keep hands off the fuser unit as it is heated during operation.
(4) Do not expose the image drum to light for longer than 5 minutes at room temperature.

%6.4 Preparation for Troubleshooting

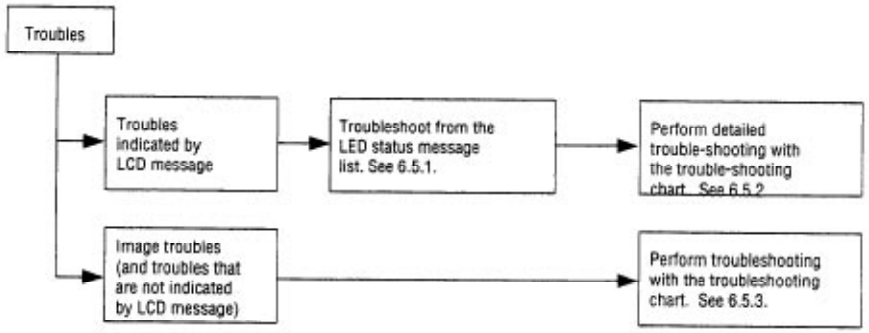
6.4 Preparation for Troubleshooting

(1) Operator panel display

The failure status of this printer is displayed on the liquid crystal display (LCD) in the operator panel. Take proper corrective action as directed by messages that are displayed on the LCD.

%6.5 Troubleshooting Flow

6.5 Troubleshooting Flow
If troubles should develop in this printer, troubleshoot in the following procedure flow:

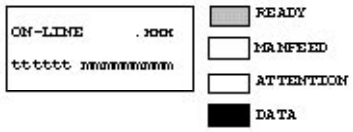
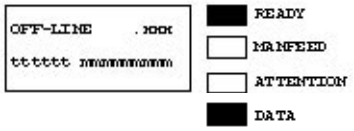
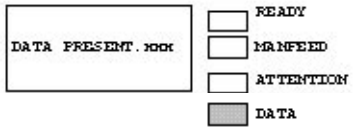
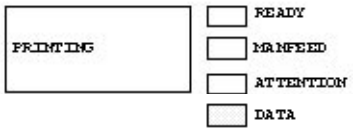
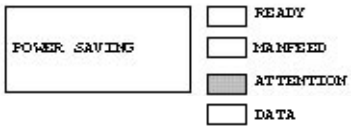
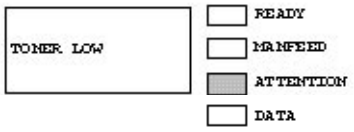


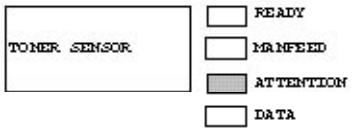
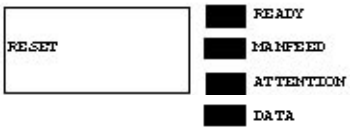
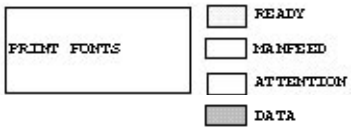
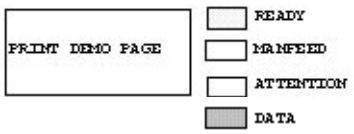
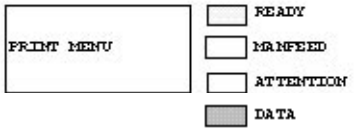
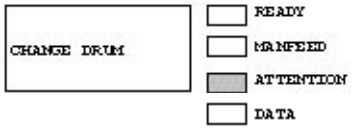
%6.5.1 LCD status message/trouble list

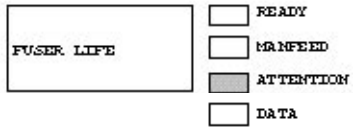
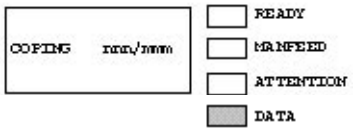
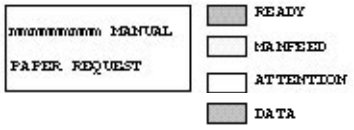
6.5.1 LCD status message/trouble list
Table 6-1 lists the status and troubles that may be indicated by messages on the LCD.

%LCD Status Messages: (1-4) General

LCD Status Messages: (1-4) General

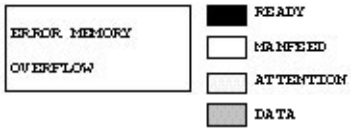
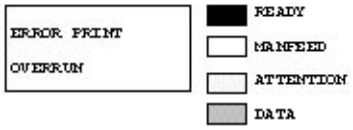
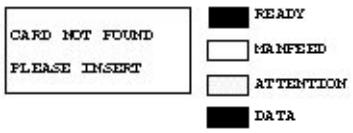
Category	LCD Status Message	Trouble or Status	Remedy
Daily status		The printer is in the on-line mode. xxx: Emulation in use (HP4, PS, HxD, AUT) ttttt: Tray being selected (TRAY 1, TRAY 2, FRONT, MANUAL, ENVLOP) mmmmmmmmm: Paper size in the tray being selected (LETTER, EXECUTIVE, LEGAL 14, LEGAL 13,A4 SIZE, A5 SIZE, A6 SIZE, B5 SIZE, COM-10,MONARCH, DL ENV, C5 ENV, C4 ENV)	Normal operation
Daily status		The printer is in the off-line mode.	Normal operation
Daily status		The data remains unprinted in the buffer. Data On: The printer is in the on-line mode. Data Flash: The printer is receiving the data or performing the output processing.	In the off-line mode, the data is printed by pressing the FORM FEED button.
Daily status		The printer is printing.	Normal operation
Daily status		The printer enters into this mode when the idle state continues for the period of time specified in the Power Save menu option.	Normal operation
Daily status		Toner is running out This message is displayed in combination with other message indicated in the first line. Normal operation such as stop/continuation of printing can be continued. If LOW TONER = OFF is selected in the menu, the LED ATTENTION flashes.	Replace the toner cartridge.

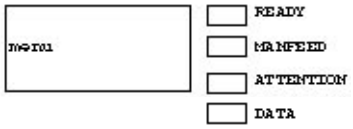
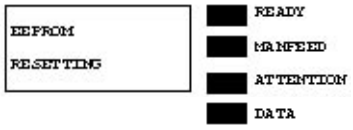
Daily status		A fault occurred in the toner sensor. Normal operation can be continued.	Check the operation of the toner sensor lever. Replace the Power-Sensor board (hereinafter simply called the Power board) Replace the Control board Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board.
Daily status		The data that remains unprinted in the buffer is deleted and the printer is initialized to the user default settings. The temporary DLL, Macro, and User pattern are deleted.	Normal operation
Daily status		All fonts of the printer are being printed. Ready ON: Executed by command entry. Ready flashing: Executed by key operation.	Normal operation
Daily status		The demo page is being printed. Ready ON: Executed by command entry. Ready flashing: Executed by key	Normal operation
Daily status		The current menu setting is being printed. Ready ON: Executed by command entry Ready flashing: Executed by key operation	Normal operation
Daily status		The drum is running down. This message is displayed in combination with other message indicated on the first line. Normal operation can be continued.	Replace the image drum cartridge. Note: After replacing the drum cartridge, reset the drum counter. (Refer to the Users Manual.)

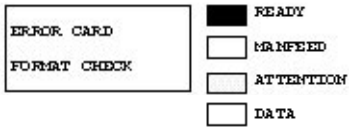
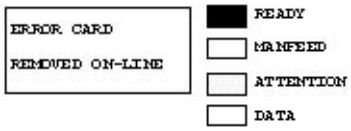
Daily status		The fuser is running down. Normal operation can be continued.	Replace the fuse unit. Note: After replacing the fuser unit reset the fuser counter. (Refer to chapter 4.2.2.)
Daily status		When the number of copies being printed is two or more, the number of copies being printed is displayed.	Normal operation
Daily status		The face-down stacker is full of paper.	• Remove paper from the stacker. • Repair the broker stacker sensor cable • Repeat the insertion and removal of the connector. • Clean or replace the stacker full sensor.
Daily status		Manual loading of paper indicated by the first line message is requested.	Load the requested paper in the feeder and press the Form Feed button.

%LCD Status Messages: (2-4) General

%LCD Status Messages: (2-4) General

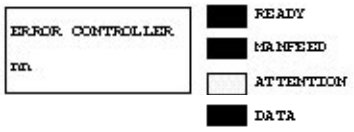
Category	LCD Status Message	Trouble of Status	Remedy
Paper request		Loading of paper indicated by the first line message is requested.	• Load the requested paper in the tray.
Tray paper out		The tray has run out of paper. ttttt: Tray being selected (TRAY1, TRAY2, FRONT, MANUAL, ENVLOP)	• Load a paper or a paper cassette to the tray.
Buffer overflow		The memory was overflowed due to the following causes. - Data to be printed in one page is too much. - Macro data is too much - DLL data is too much.	• Press the RECOVER key on the operator panel to release the error display. • Install an expansion optional RAM or reduce the amount of print data.
Buffer overflow		The receive buffer was overflowed	• Press the RECOVER key on the operator panel to release the error display. • Chang the setting of the host side so that the host can detect the busy state of the printer. Resend the data from the host side to the printer.
Buffer overflow		The printer overrun.	• Press the RECOVER key on the operator panel to release the error display. • Simplify page data fomatting.
Interface error		An error occurred in the serial I/F. This message is displayed when a parity error, a framing error or an overrun error is detected.	• Press the RECOVER key on the operator panel to release the error display. • Check the settings of RS232C I/F in the menu. • Replace the interface cable or Control board. Note: When replacing the Control board, install the EEPROM mounted in the replaced Control board.
Card removal error		The card containing print data was removed.	• Install the card again.

Paper size error		Paper of improper size was fed from the tray. tttttt: MANUAL, TRAY 1, TRAY 2 or ENVLOP	• Check the paper in the tray or check to see if more than one sheet of copy were fed simultaneously. • Open the cover, then close it to perform recovery printing and the error display is released. • If this error occurs frequently, see chapter 6.5.2.
Paper size error		A jam occurred during paper feeding from the tray. tttttt: MANUAL, TRAY 1, TRAY 2 or ENVLOP	• Check the paper in the cassette. Open the cover, then close it to perform recovery printg and the error display is released. • If this error occurs frequently, see chapter 6.5.2.
Jam errors		A jam occurred during paper feeding from the tray. tttttt: MANUAL, TRAY 1, TRAY 2 or ENVLOP	• Check the paper in the cassette. Open the cover, then close it to perform recovery printg and the error display is released. • If this error occurs frequently, see chapter 6.5.2.
Jam errors		A jam occurred during paper feeding after finishing paper hopping from the tray.	• Open the cover, remover the paper, then close the cover. When the cover is closed, recovery printing is performed and the error display is released. • If this error occurs frequently, see chapter 6.5.2.
Daily status		Menu operation	Normal operation in menu mode.
Daily status		The upper cover was opened.	• Close the cover to release the error display. • If the display does not change after the cover is closed, check for correct operation of cover open/switch and lever. • Replace the Power Supply board.
Controller error		An error was detected by EEPROM ID No. check.	• Press the RECOVER key on the operator panel to reset the EEPROM to the factory default state and to release the error display.

Optional card error		A checksum error occurred when a card was inserted. If a card other than the cards for OL series is inserted, no error is displayed to ignore the inserted card.	• Remove the card. • Replace the card.
Optional card error		A card was inserted or removed when the printer is in the on-line mode.	• Normal operation cannot be ensured. Turn the power off, then on to release the error display. • Replace the card.

%LCD Status Messages: (3-5) Error Controller nn

%LCD Status Messages:3-5



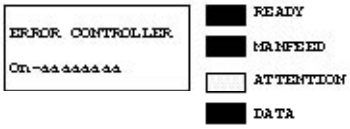
A fault occurred in the printer. Turn the power off, then on to release the error display. If the error display cannot be released by this procedure, call a service person.

Code(nn)	Error	Remedy
10	An error was detected by program ROM check.	• Replace the program ROM. (Location: 05D, 07C)* • Replace the Main board (AOLM-PCB). Note: When replacing the Main board, install the EEPROM mounted on the replaced Main board.
20	An error was detected by font ROM check.	• Replace the program ROM. (Location: 06D, 07D)* • Replace the Main board (AOLM-PCB). Note: When replacing the Main board, install the EEPROM mounted on the replaced Main board.
30	An error was detected by resident RAM check.	• Replace the Main board (AOLM-PCB). Note: When replacing the Main board, install the EEPROM mounted on the replaced Main board.
40	An error was detected by EEPROM check.	• Replace the EEPROM. (Location: 04G)* • Replace the Main board (AOLM-PCB).
50	An error was detected by optional software ROM.	Check the optical software ROM for proper connection. Replace the optional software ROM.
60	An error was detected by optional RAM check.	Check the optional RAM for proper connection. Replace the optional RAM.
70	A fault occurred in the fan motor.	Connect the fan motor cable properly. Replace the fan motor. Replace the Power Supply board.
71	A fault occurred in the fuser.	See chapter 6.5.2.
72	Thermistor open error	See chapter 6.5.2.
73	Thermistor short error	See chapter 6.5.2.
74	SSIO error	See chapter 6.5.2.

80 I/F timeout occurred between the printer main unit and the operator panel.	See chapter 6.5.2.
81 I/F timeout occurred between the printer main unit and the optional tray (2nd tray, envelope feeder, etc.)	See chapter 6.5.2.
90 A watchdog timer timeout occurred.	Turn the power off, then on. Replace the Control board. Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board
F0 Monitor error (double weight)	Turn the power off, then on. Replace the Control board. Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board
F1 Monitor error (argument error)	Turn the power off, then on. Replace the Control board. Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board
F2 Optional timeout error	Turn the power off, then on. Replace the Control board. Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board
F3 Optional status error	Turn the power off, then on. Replace the Control board. Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board
F4 BG program error	Turn the power off, then on. Replace the Control board. Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board
F5 System timer program error Defect in the cable for the front feeder paper sensor and the 2-pin connector of the Control board. Poor connection of connectors	Turn the power off, then on. Repair defective front feeder paper sensor cable and 2-pin connector on the Control board or remove/insert the connectors. Replace the Control board.
F6 IPT2 program error	Turn the power off, then on. Replace the Main board (AOLM-PCB).

%LCD Status Messages: (4-4) Error Controller On= xxxxx

%LCD Status Messages: (4-4) Proccesor errors



Exception Error code		Remedy
4	Address Error Exception (Lead instruction, instruction fetch)	See Below
5	Address Error Exception (Store instruction)	See Below
6	Bus Error Exception (Instruction Fetch)	See Below
7	Bus Error Exception (Load instruction, store instruction)	See Below
7	Bus Error Exception (Load instruction, store instruction)	See Below
8	System Call Exception	See Below
9	Breakpoint Exception	See Below
A	Reserved Instruction Exception	See Below
B	Coprocessor Unusable Exception	See Below
C	Arithmetic Overflow Exception	See Below

- **Turn the power off, then on.**
- **Replace the Control board.**

Note: When replacing the Control board, install the EEPROM mounted on the replaced Control board.

%6.5.2 LCD message troubleshooting

6.5.2 LCD message troubleshooting

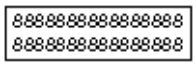
If problems are not correctable from the LCD message trouble list, follow the troubleshooting flowcharts given here to deal with them.

No.	Trouble	Flowchart number
1.	The printer does not work normally after being turned on.	1
2.	Jam alarm Paper input jam (1st Tray) Paper input jam (Front feeder) Paper feed jam Paper exit jam	 2-1 2-2 2-3 2-4
3.	Paper size error	3
4.	Fusing unit error	4
5.	SSIO (Synchronous Serial I/O) error (Error No. 7, excepting I/F time-out between the printer and an optional tray)	5
6.	I/F time-out between the printer and the operator panel	6
7.	I/F time-out (no response) between the printer and an optional tray (High Capacity Second Paper Feeder, Power envelope feeder, etc.)	5
8.	Messages cannot be received through the parallel interface.	7
9.	Messages cannot be received through the serial interface.	8
10.	Data cannot be received through the OKI HSP interface.	9

Note: When replacing the Control board, install the EEPROM from the old Control board, onto the new control board.

%1. The printer does not work normally after being turned on.

1 The printer does not work normally after being turned on.

Is  message shown in the LCD display (for less than 1 second)?

No Is the AC cable connected properly?

No Connect the cable properly.

t

No Is the message (16 columns ■ display only on the top row) shown in the LCD display?

Yes Replace the Control board.

t

Yes Are the following voltages applied to the corresponding pins of the POWER connector on the Control board? (For the measuring points, see Fig. 6-1.)

Pin 15: 8V, Pin 16: +8V, Pins 19, 20: +30V
Pins 21, 22, 26-29: 0V, Pins 23-25: +5V

No Remove the AC cable. Set the POW switch to the ON position. Measure the resistance between L and N pins of the AC inlet using a multimeter. Is there continuity between L and N pins (normal resistance: 554 ký)? (For measuring points, see Fig. 6-2.)

No Replace the fuse F1 or the Power/sensor board

t

Yes Are POWER connector and FRONT connector (white, 9-pin connector) for CN3 on the Power/sensor board, CN8 on the Driver board, and the Control board made properly.

No Connect the connectors properly.

t

Yes Are the following voltages applied to CN3 connector of the Power/sensor board? (For measuring points, see Fig. 6-3.)

Pins 16, 17: +30V, Pins 8-10, 14, 15: 0V
Pin 20: 8V, Pins 11-13: +5V, Pin 21V: +8V

No Replace the Power/sensor board.

t

Yes Replace the Driver board.

t

Is the printer recovered?

No Replace the Main board

t

YES END.

Is the operator panel connected to the Control board properly?

No Connect the operator panel properly.

t

Yes Is the connecting cord defective?

Yes Replace the connecting cord.

t

No Replace the operator panel assembly.

t

Is the printer recovered?

No Replace the Control board.

t

YES END.

t

Yes Is INITIALI-ZING message shown in the LCD display?

No Replace the Control board.

t

YES ONLINE .HP4
XXXX XXXX message shown in the LCD display?

No Take the proper action following the message shown in the LCD display.
(For details, see the chapter 6.5.1 LCD STATUS message/trouble list.)

t

YES END.

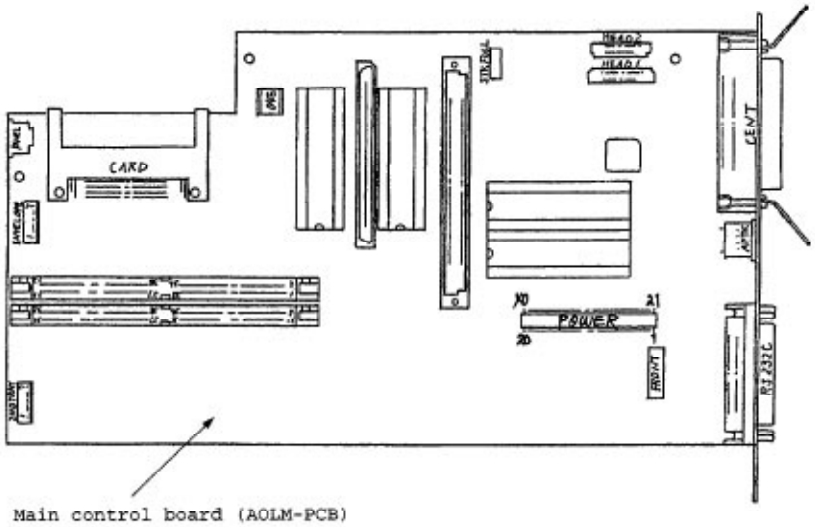


Fig. 6-1 Connector and Pin Location

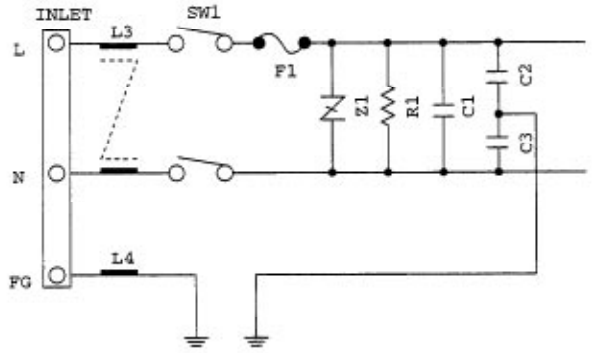


Fig. 6-2 Measurement by a Multimeter

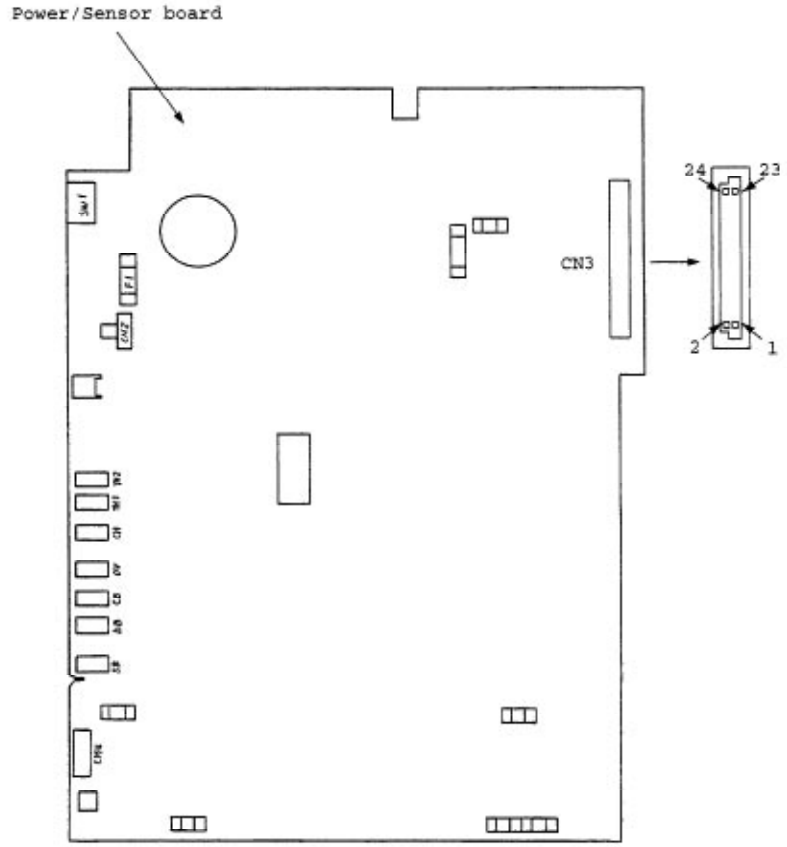


Fig. 6-3 Connector and Pin Location

%2-1 Paper input jam (1st tray)

[JAM error]

2-1 Paper input jam (1st tray)

Does a jam error occur when the power is turned on?

Yes Is the paper at the inlet sensor lever?

Yes Remove the paper.

No Does the inlet sensor lever operate smoothly?

No Replace the inlet sensor lever

Yes Clean the inlet sensor on the Power/sensor board or replace the Power/sensor board.

No Does jam error occur after paper feeding?

Yes Is the paper fed on the inlet sensor lever?

Yes Does the inlet sensor lever operate smoothly?

No Replace the inlet sensor lever.

Yes Clean the inlet sensor on the Power/sensor board or replace the Power/sensor board.
(See Fig. 2.3 Sensor Layout Diagram.)

No Replace the hopping roller assembly or paper cassette assembly.

No Is the hopping roller rotating?

Yes Set the paper cassette properly.

No Is the hopping motor rotating?

Yes Replace the hopping roller gear (one way) or idle gear (HF)

A No Are the cable and connector between the hopping motor and the Control board connected properly? (see chapter 7.1.)

No Connect each connector properly or replace the nylon connector cord (white: 9 pins).

Yes Is the coil resistance (normal resistance: about 6.7 W) of the hopping motor normal?

No Replace the hopping motor.

Yes Replace the Control board.

%2-2 Paper input jam (front feeder)

2-2 Paper input jam (front feeder)

Does jam error occur when the power is turned on?

Yes Is the paper at the inlet sensor lever?

Yes Remove the paper.

No Does the inlet sensor lever operate smoothly?

No Replace the inlet sensor lever.

Yes Clean the inlet sensor on the Power/sensor board or replace the Power/sensor board. (See Fig. 2-3 Sensor Layout Diagram.)

No Does a jam error occur after paper feeding?

Yes Is the paper fed on the inlet sensor lever?

Yes Go to .

No Go to .

No Does the front feeder paper sensor lever operate smoothly?

No Replace the lever of the front feeder paper sensor.

Yes Clean the front feeder paper sensor.

Is the printer recovered?

YES END.

No Replace the front feeder paper sensor assembly.

No Is the hopping roller rotating?

Yes Set the paper properly.

No Is the hopping motor rotating?

Yes Replace the front feeder gear or idle gear.

%2-3 Paper feed jam

2-3 Paper feed jam

Does a paper feed jam occur when the power is turned on?

Yes Is the paper on the paper sensor lever?

Yes Remove the paper.

No Does the paper sensor lever operate smoothly?

No Replace the paper sensor lever.

Yes Clean the paper sensor. (See Fig. 2-3 Sensor Layout Diagram.)

Is the printer recovered?

No Replace the Power/sensor board.

YES END.

No Has the paper reached the paper sensor lever?

No Is the registration motor rotating?

No Is there any defective gear in the motor bracket assembly.

Yes Replace the defective gear.

No Are the connections for CN3 connector on the Power/sensor board, between CN8 and CN7 connectors on the Control board and registration motor, and for POWER connector and FRONT connector (white 9-pin or 7-pin connector) made properly.

No Connect these connectors properly. If a defective cable is found, replace the defective cable.

Yes Is the coil resistance (normal resistance: 6.7 W) of the registration motor normal?

No Replace the registration motor

Yes Replace the Driver board.

Is the printer recovered?

No Replace the Control board.

YES END.

Go to on the next flow .

Go to on the next flow.

From on the preceding page .

From on the preceding page .

t

Yes Is the image drum set properly?

No Set the image drum properly.

t

Yes In case of paper feed from the front feeder, check the hopping roller of the front feeder assembly. In case of paper feed from the tray, check the hopping roller assembly and the tray.

t

Yes Has the paper reached the outlet sensor lever?

Yes Does the outlet sensor lever operate smoothly?

No Replace the outlet sensor lever.

t

Yes Clean the outlet sensor on the Power/sensor board. (See Fig. 2-3 Sensor Layout Diagram.)

t

Is the printer recovered?

No Replace the Power/sensor board.

t

YES END.

t

No Is the drum motor rotating?

No Is there any defective gear in the motor bracket assembly?

Yes Replace the defective gear.

t

No Are the connections for CN3 connector on the Power/sensor board between CN8 and CN6 connectors and drum motor, and for POWER connector and FRONT connector (white 9-pin or 7-pin connector) on the Control board made properly?

No Connect these connectors properly.

t

Yes Is the coil resistance (normal resistance between pins 1 and 2, between pins 3 and 4 : 4.3 W) of the drum motor normal?

No Replace the drum motor.

t

Yes Replace the driver board.

t

Is the printer recovered?

No Replace the Control board.

t

YES END.

t

Go to on the next flow.

From on the preceding flow .

t
Yes Is the transfer roller rotating smoothly?

No Is there any defective gear of the transfer roller?

Yes Replace the defective gear.

t
No Replace the transfer roller.

t
Yes Is the fuser unit installed properly?

No Install the fuser unit properly.

t
Yes Is the image drum cartridge set properly?

No Set the image drum cartridge properly.

t
Yes Does the paper sensor lever operate smoothly?

No Replace the paper sensor lever.

t
Yes Clean the paper sensor on the Power/sensor board.
(See Fig. 2-3 Sensor Layout Diagram.)

t
Is the printer recovered?

No Replace the Power/sensor board.

t
YES END.

%2-4 Paper exit jam

2-4 Paper exit jam

Does a paper exit jam error occur when the power is turned on?

YES Is the paper on the outlet sensor lever?

Yes Remove the paper

t

No Does the outlet sensor lever operate smoothly?

No Replace the outlet sensor lever.

t

Yes Clean the outlet sensor on the Power/sensor board.
(See Fig. 2-3 Sensor Layout Diagram.)

t

Is the printer recovered?

No Replace the Power/sensor board.

t

YES END.

t

No Is the face-up stacker drawn out or pushed into the printer completely?

No Draw the face-up stacker out the printer completely or push it into the printer completely.

t

Yes Is the eject roller assembly installed properly?

No Install the eject roller assembly properly.

t

Yes Replace the eject roller assembly.

%3 Paper size error

3 Paper size error

Is paper of the specified size used?

No Use paper of the specified size.

t

Yes Do the inlet sensor lever and paper width sensor lever operate smoothly?

No Replace the inlet sensor lever or paper width sensor lever.

t

Is the printer recovered?

No Clean the inlet sensor or paper width sensor on the Power/sensor board. (See Fig. 2-3 Sensor Layout Diagram.)

Is the printer recovered?

No Replace the Power/sensor board.

t

YES END.

t

YES END.

t

YES Does the outlet sensor lever operate smoothly.

No Replace the outlet sensor lever.

t

Is the printer recovered?

No Clean the outlet sensor on the Power/sensor board. (See Fig. 2-3 Sensor Layout Diagram.)

t

Is the printer recovered?

No Replace the Power/sensor board.

t

YES END.

t

YES END.

t

Yes Clean the inlet sensor, paper width sensor, and outlet sensor. (See Fig. 2-3 Sensor Layout Diagram.)

t

Is the printer recovered?.

No Replace the Power/sensor board.

t

YES END.

%4 Fuser unit error (ERROR 71), (ERROR 72), (ERROR 73)

4 Fuser unit error (ERROR 71), (ERROR 72), (ERROR 73)

Turn the power OFF/ON.

t

Does a fuser unit error occur immediately?

Yes Is the thermistor open or shorted?
Measure the resistance between thermistor contacts.
(About 220 kW at room temperature, 25°C)
(See chapter 7.3 for the measuring points.)

Yes Replace the fuser unit.

t

A No Does the thermistor contact touch the contact assembly properly when the fuser unit is mounted in the printer? (See Fig. 6-5.)

No Adjust the thermistor contact so as to touch the contact assembly properly.

t

Yes Does appear the heat-on signal at pin 31 (HEAT ON signal: 0 V in normal state) of the Control board?

No Replace the Control board.

t

Yes Replace the Power/sensor board.

t

No Does a fuser unit error occur after more than 90 seconds from the power-on?

No Go to

t

Yes Turn the power OFF/ON.

Is the heater of the fuser unit turned on? (When the heater is turned on, heat is radiated.)

B Yes Does the thermistor contact touch the contact assembly properly when the fuser unit is mounted in the printer? (See Fig. 6-5.)

No Adjust the thermistor contact so as to touch the contact assembly properly.

t

To on the next flow.

t

To on the next flow.

From on the preceding flow.

Yes Replace the fuser unit.

t

Is the printer recovered?

No Replace the Power/sensor board or Control board.

t

YES END.

t

No Is the heater or thermistor open?
Measure the resistance between the heater contacts (normal resistance: 220 kW (25°C) between pins 1 and 2, 2.3 W (120 V) and 8.5 W (240 V) between pins 3 and 4) (See chapter 7.3.)

Yes Replace the fuser unit.

t

No Is the AC voltage applied to the CN2 connector on the Power/sensor board? (See Fig. 4.)

Yes Is CN2 connector connected to the Power/sensor board?

No Connect the CN2 connector to the Power/sensor board properly.

t

Yes Is Pin 31 (HEAT ON signal) of the POWER connector of the Control board turned on? (In normal state, this pin is set to 0 V).

No Replace the Control board.

t

Yes Replace the Power/sensor board.

t

YES Go to **B**.

%5 Synchronous serial I/O error (ERROR 74) or I/F time-out between printer and optinal tray (ERROR 81)

---

5 Synchronous serial I/O error (ERROR 74) or I/F time-out between printer and optinal tray (ERROR 81)

Is an optional tray (2nd tray or envelope feeder) used?

Yes Is the connection between the Control board and the optional tray connected properly. (See chapter 7.1.)

No Connect the cable properly.

t

Yes Replace the Control board.

t

Is the printer recovered?

No Isolate the trouble by following the 2nd tray or envelope feeder maintenance manual. (See appendix C or D.)

t

YES END.

t

No Replace the Control board.

t

Is the printer recovered?

No Replace the Power/sensor board.

t

YES END.

%6. I/F time-out occurs between the printer and the operator panel (ERROR 80) .

---

6. I/F time-out occurs between the printer and the operator panel (ERROR 80) .

Is the connecting cord of the operator panel connected to the PANEL connector of the Control board properly? (See chapter 7.1.)

No Connect the connecting cord of the operating panel to the PANEL connector of the Control board properly.

t

Yes Is the connecting cord defective?

Yes Replace the connecting cord.

t

No Replace the operator panel assembly.

t

Is the printer recovered?

No Replace the Control board.

t

YES END.

%7. Communications with the host cannot be performed via the parallel

---

7**.** Communications with the host cannot be performed via the parallel interface.

Is the parallel interface or auto interface selected in menu level 1?

No Select the parallel interface or auto interface in menu level 1.

t

Yes Is the host set to the bidirectional communication?

Yes Set the parallel I/F to the bidirectional communication enable state (DISABLE Æ ENABLE) in menu level 2.

t

No Set the parallel I/F to the bidirectional communication disable state (ENABLE Æ DISABLE) in menu level 2.

t

Is the printer recovered?

Yes END

t

No Is the connector of the parallel interface cable connected to the printer properly?

No Connect the connector of the parallel interface cable to the printer properly.

t

Yes Is there any defect in the cable (broken or bent pin, broken wire)?

Yes Replace the parallel interface cable.

t

No Replace the Control board or ask the user to check the hardware and software at the host side.

%8. Data from the host not received via the serial interface.

8. Data from the host not received via the serial interface.

Is message ERROR HOST I/F displayed?

Yes Select the auto interface or RC232C for the host interface in menu level 1.

No Do the following items selected for RS232C SERIAL in menu level 2 coincide with those selected at the host side?

FLOW CONTROL	PARITY
BAUD RATE	MIN. BUSY
DATA BITS	

NO If the selection differs between the printer and the host, change the setting of the above items in menu level 2 so as to coincide with the setting at the host side.

Yes Is the connector of the serial interface cable connected to the printer properly?

No Connect the connector of the serial interface cable to the printer properly

Yes Is there any defect in the serial interface cable (broken or bent pin, broken wire)?

Yes Replace the serial interface cable.

No Perform the loop back test using the loop test function in the system maintenance mode. (To make this test, it is necessary to form the following loop back connector. Connect the loop back connector to port instead of connecting the host.)

Is LOOP TEST ERROR displayed?

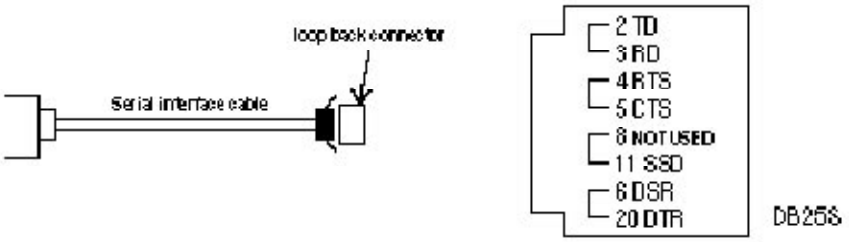
Yes Replace the serial interface cable.

Is the printer recovered?

YES END.

No Replace the Control board.

No Replace the Control board or ask the user to check the hardware and software at the host side.



Connection method

Test connector connecting drawing

%9. Data cannot be received through the OKI HSP interface

---

9. Data cannot be received through the OKI HSP interface

Is the interface board (option) connected to the OKI HSP interface connector on the Control board properly?

No Connect the interface board (option) to the OKI HSP interface connector properly.

t

Yes Is there any broken or bent pin in the interface board (option)?

Yes Ask the user to replace the interface board (option).

t

No Replace the Control board.

t

OK?

No A trouble may exist in the interface board (option), interface cable or host side. Ask the user to check these items.

%6.5.3 Image troubleshooting

6.5.3 Image troubleshooting

Procedures for troubleshooting if abnormal images have been printed out are explained below. Figure 6-3 below shows typical abnormal images.

Trouble	Flowchart number
Images are light or blurred as a whole (Figure 6-4,)	1
Dark background density (Figure 6-4,)	2
Blank paper is output (Figure 6-4,)	3
Black stripes in the vertical direction (Figure 6-4,)	4
Cyclical defect (Figure 6-4,)	5
Print voids	6
Poor fusing (images are blurred or peeled off when touched by hands)	7
White streaks in the vertical direction (Figure 6-4,)	8

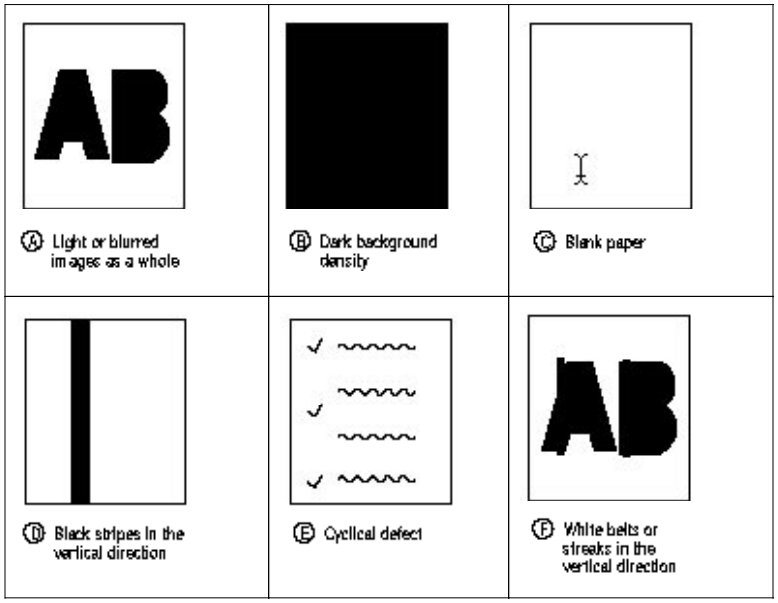


Fig. 6-4 Abnormal images

%1. Images are light or blurred a whole.

---

1. Image are light or blurred a whole.

Is toner low? (Is the TONER LOW message displayed?)

Yes Supply toner.

t

No Is paper of the specified grade 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 installed properly? (Check connector HEAD1 (14P), HEAD2 (12P) of the 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 contacted with the contact assembly of the power/sensor board properly? (See Figure 6-6.)

No Make the contact plate of the transfer roller contact with the power/sensor board and Shaft of the transfer roller properly.

Yes Are the contact of the developing roller and the contact of the toner supply roller of the image drum cartridge contacted with the contact assembly properly?
(See Figure 6-5 A and B.)

No Adjust the contacts of the developing and toner supply roller to contact the contact assembly properly.

Yes Replace the transfer roller. (See 3.3.36.)

Has the trouble been removed?

Yes End

t

No Replace the image drum cartridge.

Has the trouble been removed?

Yes End

Note: After replacing the image drum cartridge, set the printer in the user maintenance mode by turning the power on while pressing the MENU key and reset the drum counter. (Refer to User's Manual.)

t

No Replace the control board or Power/Sensor board.

%2. Dark background density

2 Dark background density

Has the image drum been exposed to external light?

Yes Mount the image drum in the printer and wait for about 30 minutes.

t

No Is the heat roller of the fusing unit dirty?

Yes Clean the heat roller.

t

No Is the contact of the cleaning roller of the image drum cartridge contacted with e contact assembly properly? (See Figure 6-5 C .)

No Adjust the contact of the cleaning roller to contact the contact assembly properly.

t

Yes Replace the image drum cartridge.

Has the trouble been removed?

Yes End

Note: After replacing the image drum cartridge, set the printer in the user maintenance mode by turning the power on while pressing the MENU key, and reset the drum counter. (Refer to User's Manual.)

t

No Replace the control board Power/Sensor board.

3 Black paper is output.

Is the LED head connected properly? (Check connector HEAD1 (14P), HEAD2 (12p) on the control board and PC connector on the LED head.)

No Connect the LED head properly or replace the head cable.

t

Yes Is the contact of the image drum cartridge contacted with the ground contact properly. (See Figure 6-5 D .)

No Check the ground contact of the image drum cartridge.

t

Yes Check the connectors HEAD1 (14P) and HEAD2 (12P)

No Replace the LED head.

Yes Replace the connector

Has the trouble been removed.

Yes End

Note: After replacing the LED head, set the printer in the engine maintenance mode by turning the power on while pressing the FORM FEED and ENTER keys. Set the LED head drive time. (Refer to Section 4.2.)

t

	No	Replace the control board or Power/Sensor board.

%4. Black belts or stripes in the vertical direction

4. Black belts or stripes in the vertical direction

Replace the image drum cartridge.

Has the trouble been removed?

Yes End

Note: After replacing the image drum cartridge, set the printer in the user maintenance mode by turning the power on while pressing the MENU key, and reset the drum counter, (Refer to User's Manual.)

t

No Replace the LED head.

Has the trouble been removed.

Yes End

Note: After replacing the LED head, set the printer in the engine maintenance mode by burning the power on while pressing the FORM FEED and ENTER keys. Set the LED head drive time.
(Refer to Section 4.2.)

t

No Replace the control board or power/sensor board.

%5. Cyclic error

5. Cyclic error

	Frequency	Remedy
Image drum	3.71 (94.2 mm)	Replace or clean the image drum cartridge.
Developing roller	2.50 (63.5 mm)	Replace the image drum cartridge.
Toner supply roller	2.13 (54.0 mm)	Replace the image drum cartridge.
Charging roller	1.73 (43.9 mm)	Replace the image drum cartridge.
Cleaning roller	1.48 (37.6 mm)	Replace the image drum cartridge.
Transfer roller	2.30 (58.4 mm)	Replace the transfer roller.
Heat roller	3.49 (88.5 mm)	Replace the fusing unit assy.
Back-up roller	3.52 (89.5 mm)	Replace the back-up roller.

Notes:

1. After replacing the image drum cartridge, set the printer in the user maintenance mode by turning the power on while pressing the MENU key, and reset the drum counter. (Refer to Users Manual.)

2 After replacing the fusing unit assy, set the printer in the engine maintenance mode by turning the power on while pressing the FORM FEED and ENTER keys, and reset the fuser counter. (Refer to See 4.1.)

%6. Print voids

6. Print voids

Is the contact plate of the transfer roller contacted with the power/sensor board properly? (See Figure 6-5.)

No Adjust the contact plate contact to contact the power/sensor board properly and the shaft of the transfer roller.

t

Yes Replace the transfer roller. (See 3.3.36.)

Has the trouble been removed.

Yes End

t

No Are the contacts of the toner supply roller, developing roller, image drum and charging roller contacted with the contact assy properly?
(See Figure 6-5 A, B, C, D, E.)

No Adjust the contacts to contact the contact assy properly.

t

Yes Replace the image drum cartridge.

Has the trouble been removed?

Yes End

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

t

No Is the LED head installed properly? (Check connector HEAD1(14p), HEAD2 (12p) on the control board and PC Connec- tor on the LED head.)

No Install the LED head properly.

t

Yes Replace the LED head or the head cable.

Has the trouble been removed?

Yes End

Note: After replacing the LED head, set the printer in the engine maintenance mode by turning the power on while pressing the FORM FEED and ENTER keys. Set the LED head drive time. (Refer to Section 4.2.)

t

No Replace the control board (OLCW-) or power/sensor board.

%7. Poor fusing

7. Poor fusing

Is paper of the specified grade used?

No Use paper of the specified grade.

t

Yes Is the spring of the back-up roller normal?

No Replace the spring.

t

Yes Is the contact of the fusing unit assy contacted with the contact assy properly? (See Figure 6-5 G.)

No Adjust the contact of the fusing unit assy to contact the contact assembly properly.

t

Yes Replace the fusing unit assy.

Has the trouble been removed?

Yes End

t

No Replace the control board or power/sensor board.

%8. White belts or streaks in the vertical direction

8 White belts or streaks in the vertical direction

Are the LED lens dirty?

Yes Clean the LED lens.

t

No Is the contact plate of the transfer roller contacted with the power/sensor board properly? (See Figure 6-6.)

No Make the contact plate contact with the power/sensor board properly.

t

Yes Replace the transfer roller. (See 3.3.36.)

Has the trouble been removed?

Yes End

t

No Is the LED head installed properly? (Cleck CN4 connector HEAD1 (14p), HEAD2 (12p) on the control board and PC connector on the LED head.)

No Install the LED head properly.

t

Yes Replace the LED head.

Has the trouble been removed?

Yes End

Note: After replacing the LED head, set the printer in the engine maintenance mode by turning the power on while pressing the FORM FEED and ENTER keys. Set the LED head drive time.
(Refer to Section 4.2.)

t

Yes Replace the image drum cartridge.

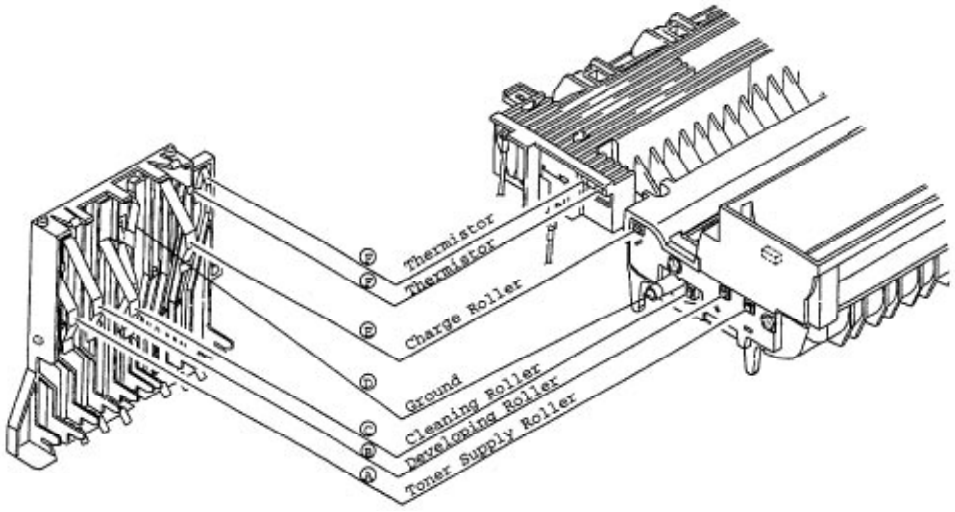
Has the trouble been removed?

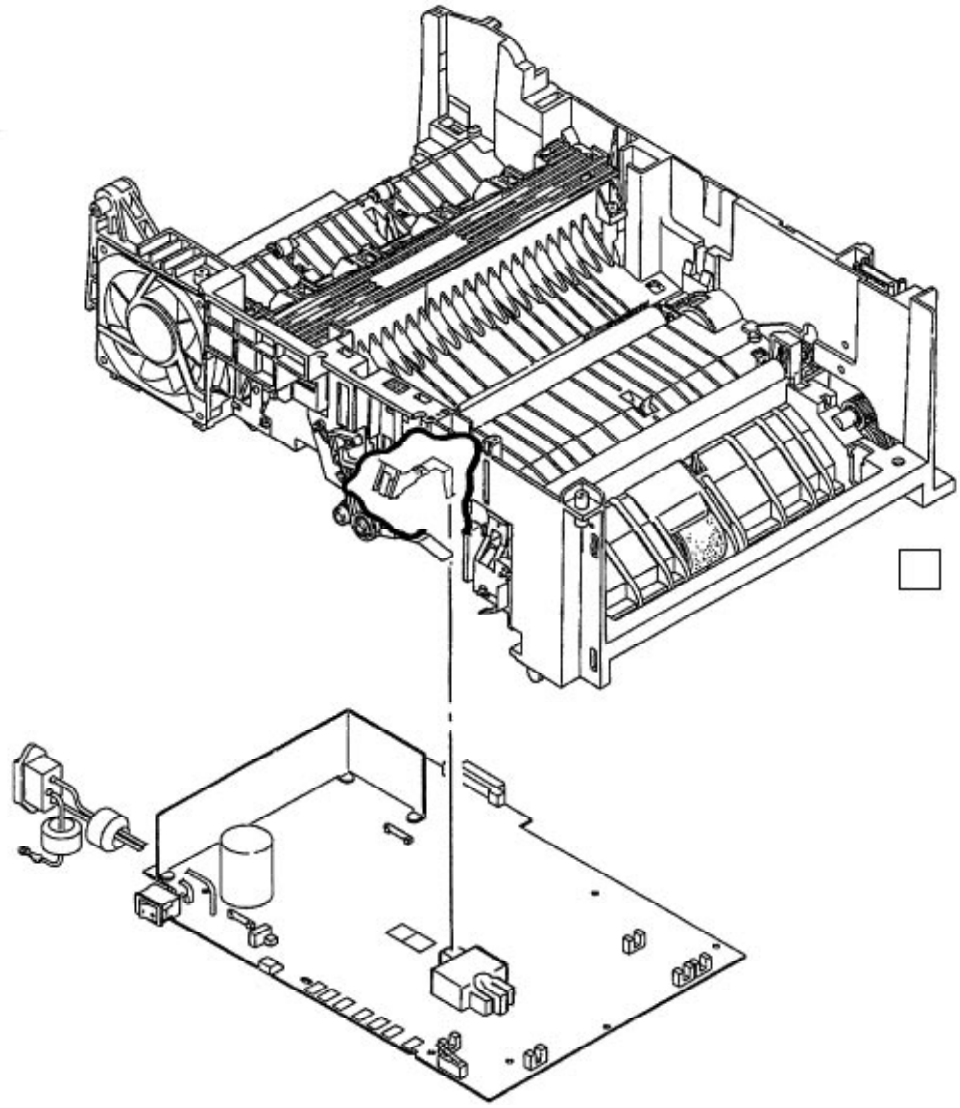
Yes End

Note: After replacing the image drum cartridge, set the printer in the user maintenance mode by turning the power on while pressing the MENU key. Reset the drum counter. (Refer to Users Manual.)

t

No Replace the control board or power/sensor board.

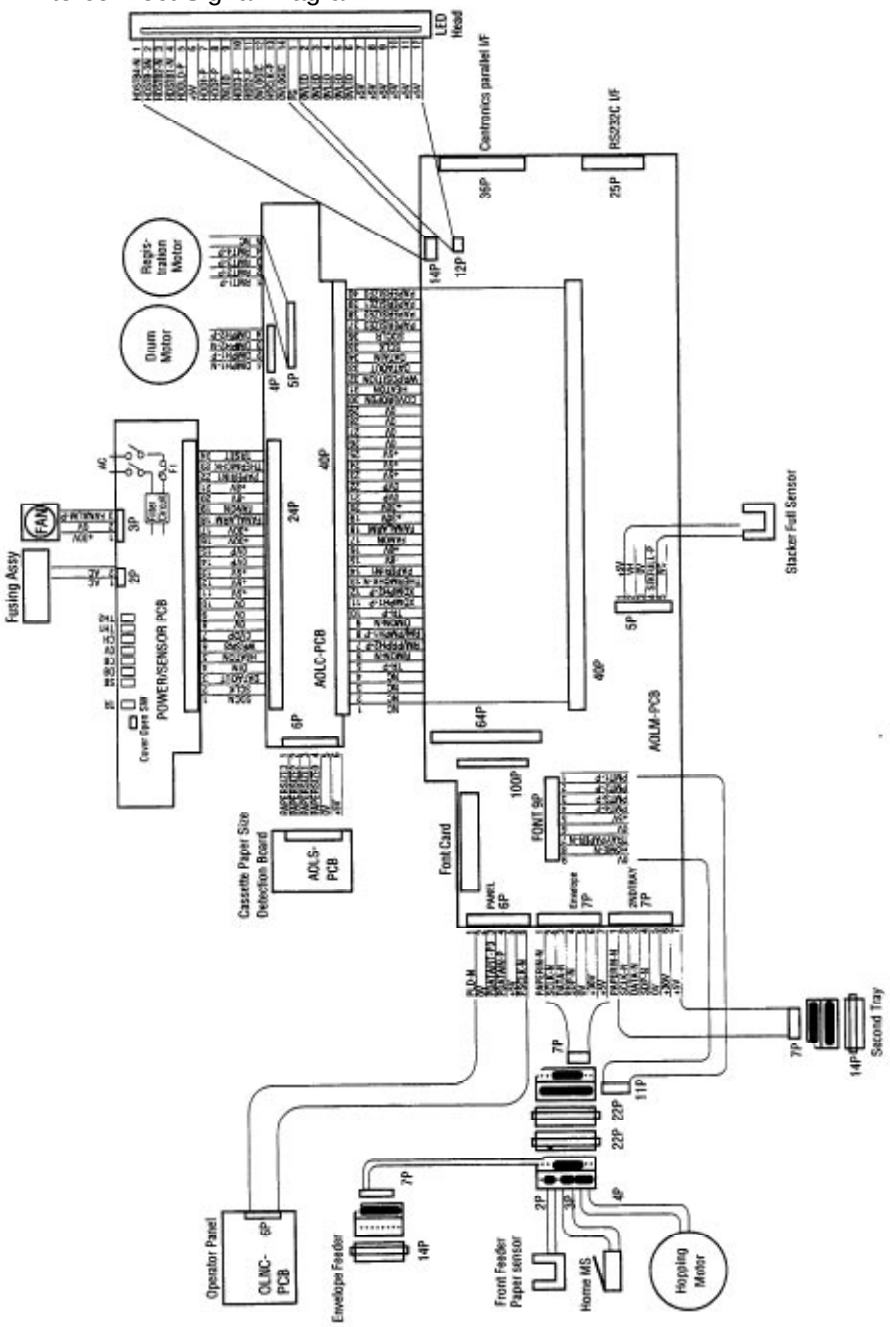

Thermistor
Thermistor
Charge Roller
Ground
Cleaning Roller
Developing Roller
Toner Supply Roller



Chapter 7
%7. Wiring Diagram

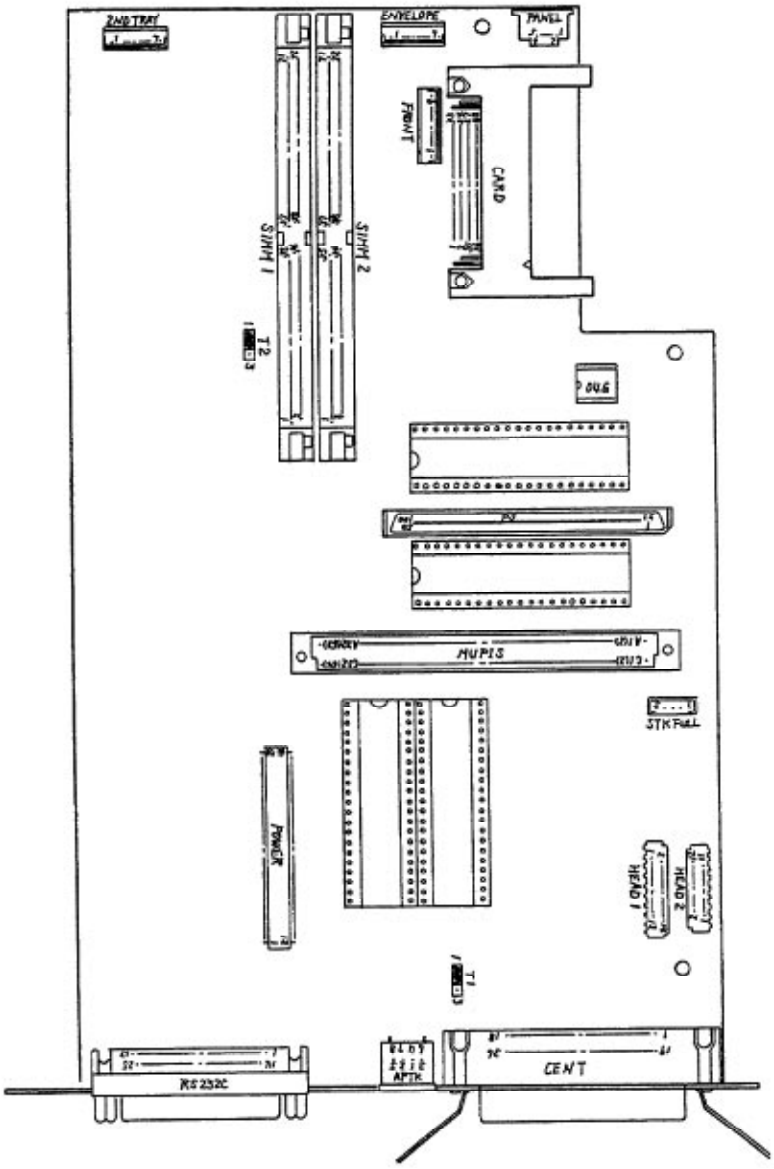
7. WIRING DIAGRAM

7.1 Interconnect Signal Diagram

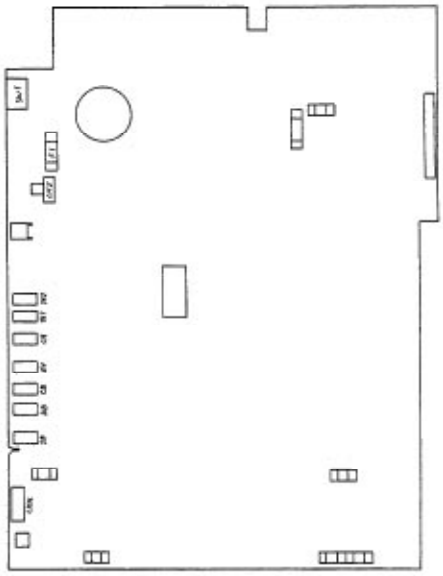


%7.2 PCB Layout

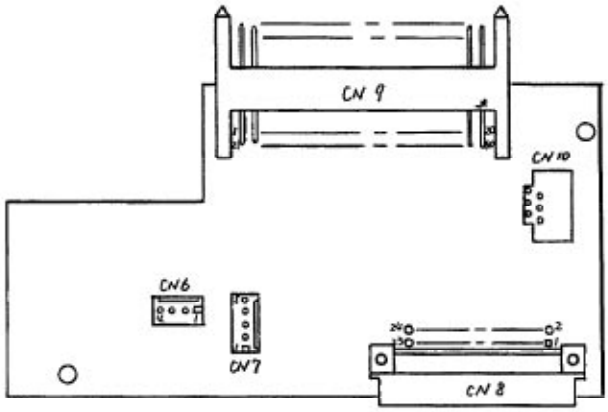
7.2 PCB Layout
(1) Control board (AOLM)



(2) Power/Sensor board

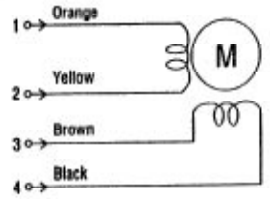
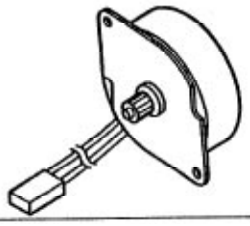
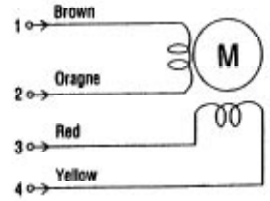
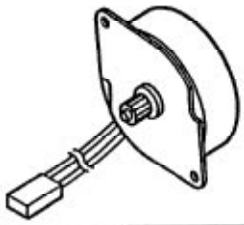
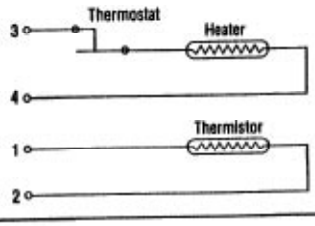


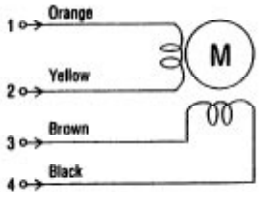
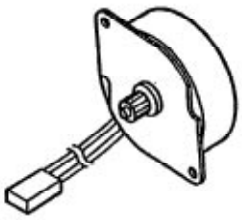
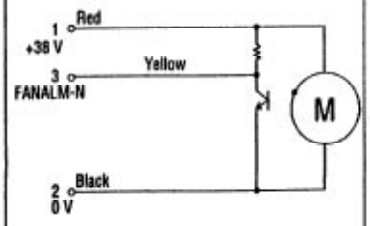
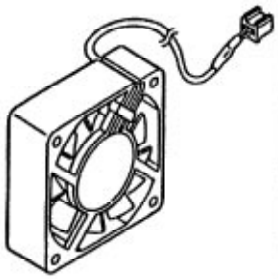
(3) AOLC-PCB



%7.3 Resistance Check

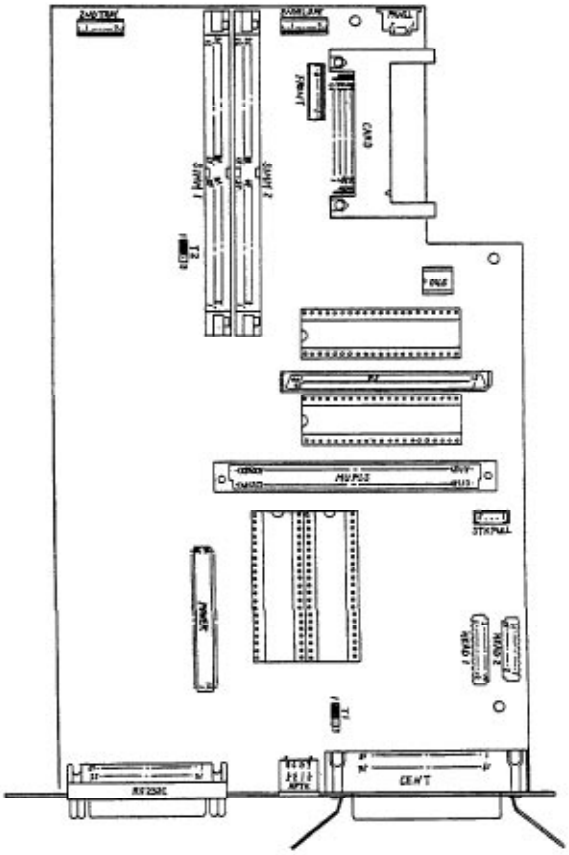
7.3 Resistance Check

Unit	Circuit Diagram	Illustration	Resistance
Registration motor			Between pins 1 and 2: 6.7Ω Between pins 3 and 4: 6.7Ω
Drum motor			Between pins 1 and 2: 4.3Ω Between pins 3 and 4: 4.3Ω
Fusing Unit			Between pins 1 and 2: 220kΩ (at 25°C) Between pins 3 and 4: 2.3Ω (120V) 8.5Ω (240V)

Unit	Circuit Diagram	Illustration	Resistance
Hopping motor			Between pins 1 and 2: 6.7Ω Between pins 3 and 4: 6.7Ω
Fan			Between pins 1 and 2: 4.9KΩ

%7.4 Short Plug Setting

7.4 Short Plug Setting
(1) Control board (AOLM)



Short plug	Plug setting	Description	Factory setting
T1	1-2	+5 V is supplied to pin 18 of Centronics parallel I/F connector.	1-2
T1	2-3	+5 V is not supplied to pin 18 of Centronics parallel I/F connector.	1-2
T2	1-2	CE signals of ROM 05D and 07C are effective.	1-2
T2	2-3	CE signals of ROM 05D and 07C are ineffective.	1-2

Chapter 8
8. Parts List

8. PARTS LIST

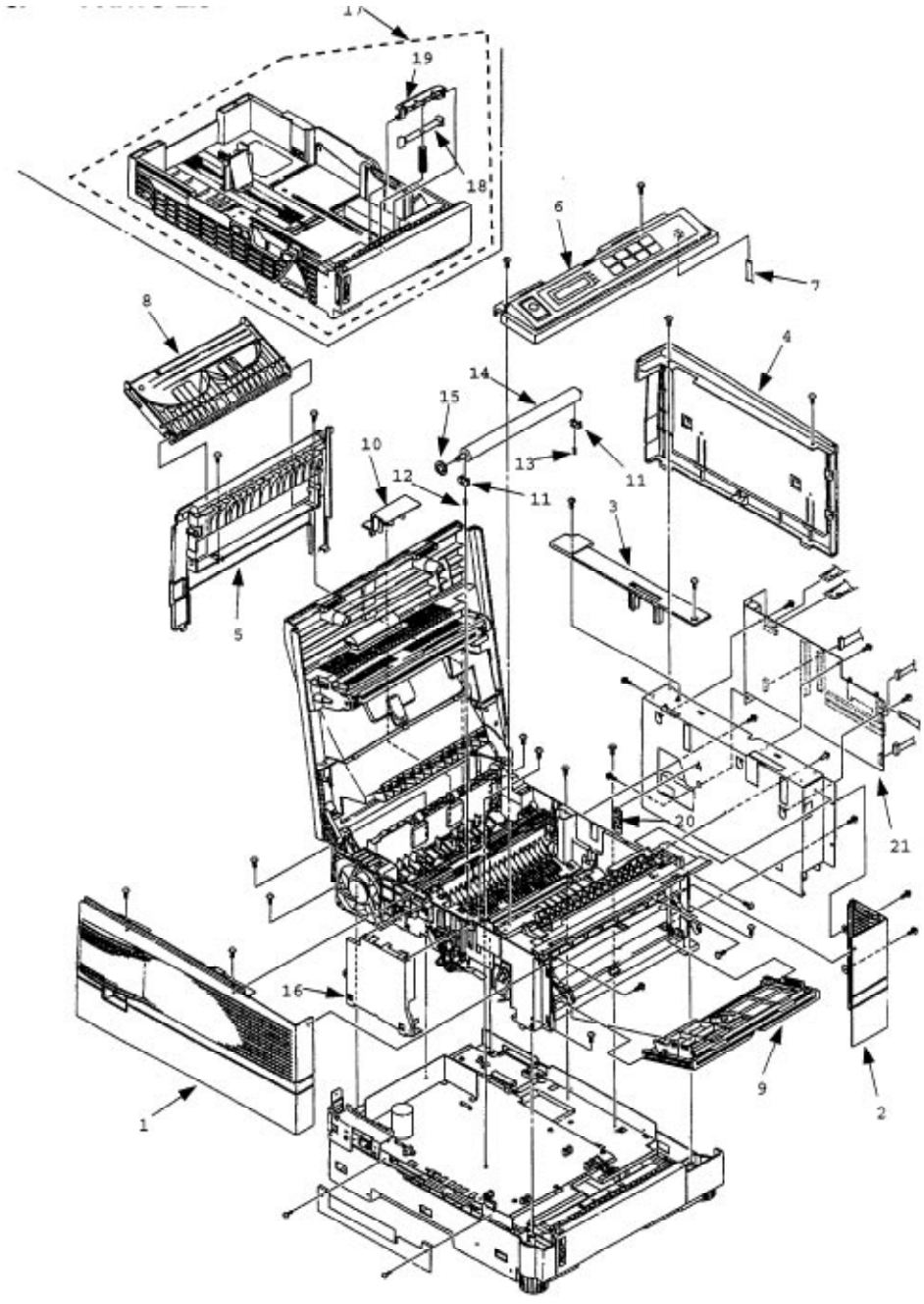


Figure 8-1 Printer Unit

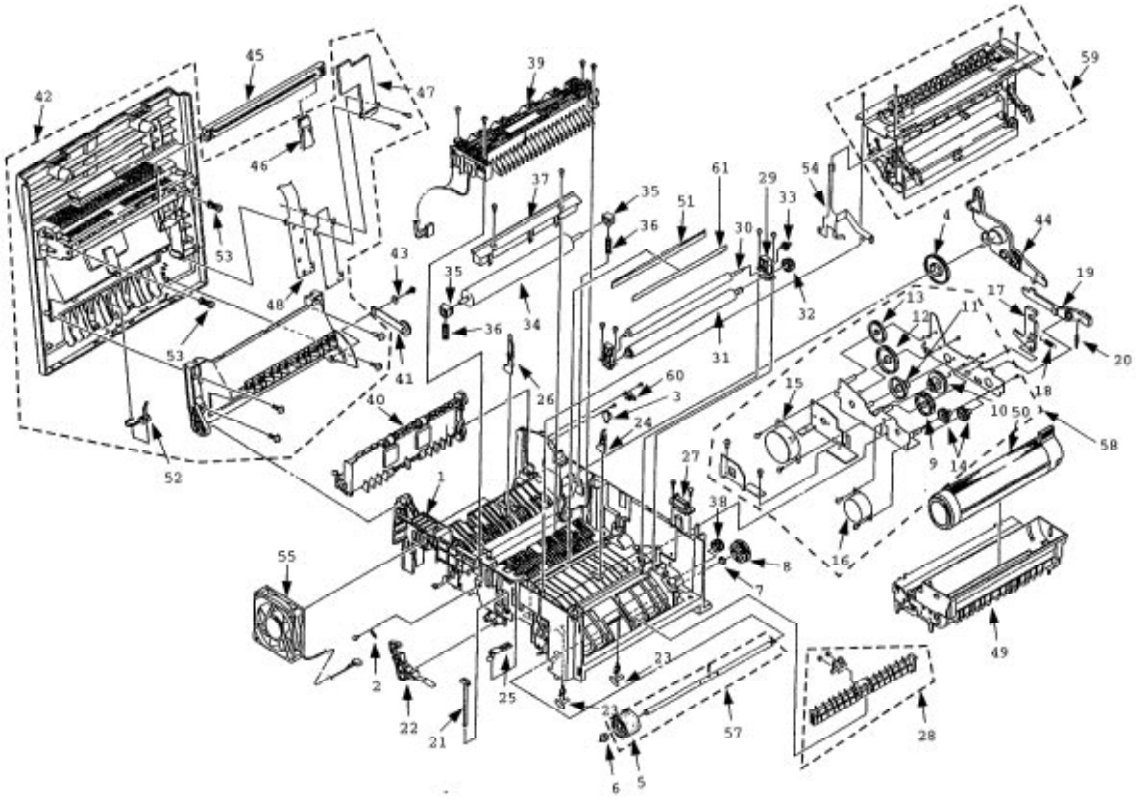
	Name/Rating	OKI-J Part No.	Qty	50	500	1000	Remarks

1	Side cover (L) Assy	3PP4128-1118G1	1	1	3	6	53073501
2	Side cover (R)	1PP4128-1065P1	1	1	3	6	53073601
3	IC cover	2PP4128-1114P1	1	1	3	6	53073701
4	I/F cover assy	2PA4128-1066G1	1	1	3	6	53073801
5	Rear cover	1PP4128-1069P1	1	1	3	6	53073901
6	Operator panel assy (ODA)	2YX4128-1070G1	1	1	3	6	50108101
7	Flexible cable (OP panel)	238A1071P0012	1	2	5	10	56627901
8	Face-up stacker assy	2PA4128-1074G1	1	1	3	6	50108201
9	Manual feed hopper assy	2PA4128-1076G1	1	1	3	6	55700401
10	Connector cover	3PP4076-5052P1	1	0	3	6	53073301
11	TR shaft bearing	4PP4076-5035P1	2	0	3	6	51608501
12	Transfer roller spring (L)	4PP4076-5036P1	1	0	3	6	50928601
13	Transfer roller spring (R) (with red mark)	4PP4076-5039P1	1	0	3	6	
14	Transfer roller	3YB4076-5040P1	1	1	3	6	50408601
15	TR gear	4PP4076-5042P1	1	0	3	6	51234901
16	Contact assy	3PA4076-5090G1	1	1	3	6	56731101
17	Paper cassette assy	1PA4076-5430G1	1	1	3	6	50108001
18	Damper spring assy	4PA4076-5758G1	1	0	3	6	
19	Separator frame assy	3PP4083-5663G1	1	1	3	6	53345601
20	FG plate BK (R)	4PP4076-5067P1	1	0	3	6	53346401

21	AOLM-PCB	4YA4046-1634G11	1	2	5	10	55077311

Main Chassis Unit

Main Chassis Unit



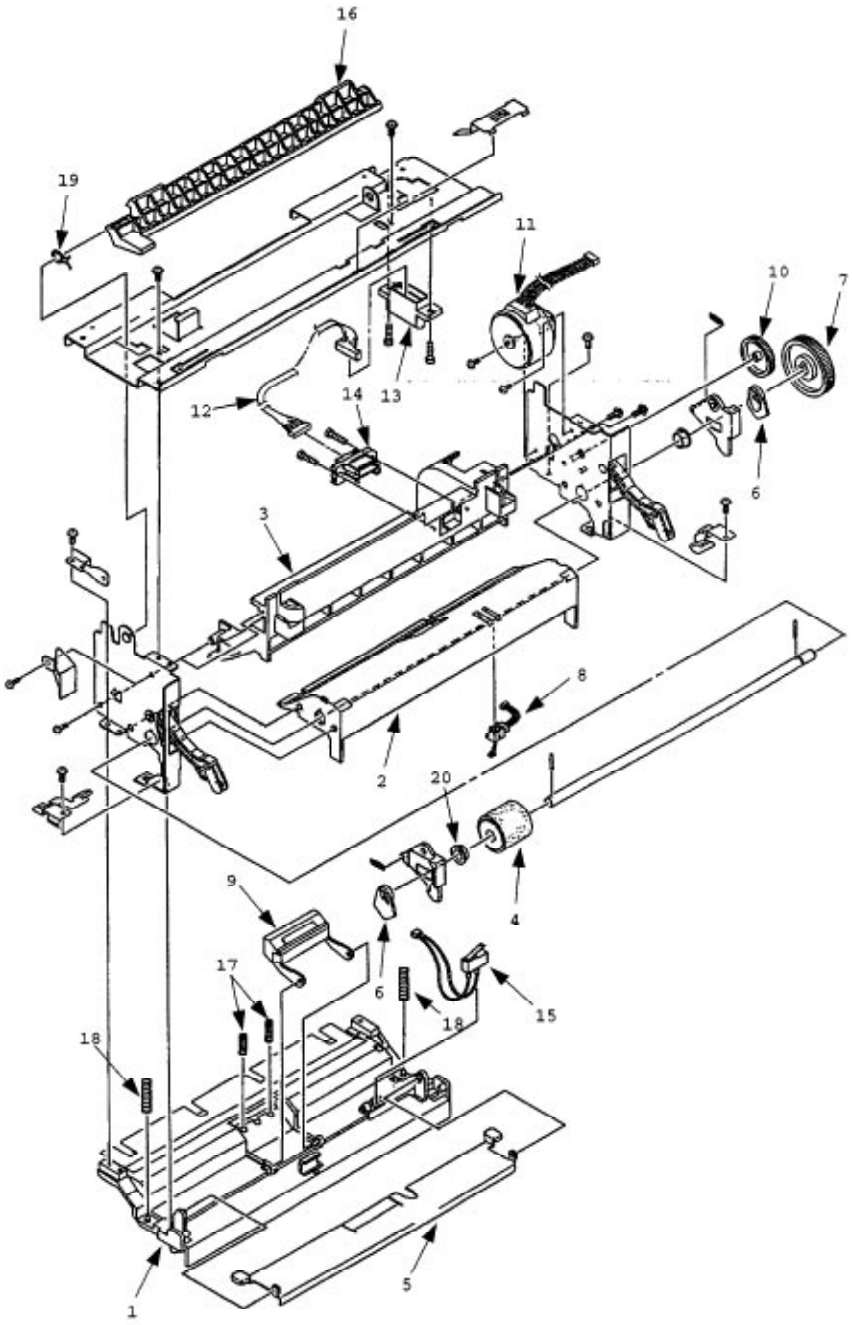
	Name / Rating	Parts No.	Q'ty	50	500	1000	Remarks
1	Main chassis assy	2PP4076-5751G1	1	1	3	6	50107901
2	Spring [EP lock lever (L) assy]	4LB-192600-6	1	0	3	6	50928306
3	Stacker cover damper	4PB4083-6197P1	1	1	3	6	51229401
4	Idle gear (exit)	4PP4043-4532P1	1	0	3	6	51234301
5	Hopping roller assy	4PA4076-5755G1	1	1	3	6	without shaft 50407901
6	Bearing L (Hopping roller assy)	4PP4076-5345P1	1	0	3	6	51608101
7	Bearing R (Hopping roller assy)	4PP4076-5308P1	1	0	3	6	51608201
8	Hopping roller gear (One way)	4PB4076-5327P1	1	0	3	6	51235501
9	Idle gear A	4PP4076-5061P1	1	0	3	6	51233701
10	Idle gear B	4PP4076-5062P1	1	0	3	6	51233801

11	Idle gear C	4PP4076-5063P1	1	0	3	6	51233901
12	Idle gear D	4PP4076-5064P1	1	0	3	6	51234001
13	Idle gear E	4PP4076-5065P1	1	0	3	6	51234101
14	Registration idle gear	4PP4076-5068P1	2	0	6	12	51234201
15	Main motor	4PB4076-5075P2	1	1	3	6	56511801
16	Registration motor	4PB4076-5076P1	1	1	3	6	50408001
17	EP lock lever	4PP4076-5044P1	1	0	3	6	50807301
18	EP lock spring	4PP4076-5045P1	1	0	3	6	50928401
19	Pressure release lever	3PP4076-5046P1	1	0	3	6	50807401
20	Spring (Pressure release lever)	4LB-192500-7	1	0	3	6	50922107
21	EP lock shaft	4PP4076-5047P1	1	0	3	6	51113301
22	EP lock lever (L) assy	4PA4076-5048G1	1	0	3	6	50807501
23	Inlet sensor lever	3PP4076-5083P1	2	0	6	12	50807601
24	Paper sensor lever	3PP4076-5082P1	1	0	3	6	
25	Toner sensor lever	4PP4076-5086G1	1	0	3	6	
26	Exit sensor lever	3PP4076-5085P1	1	0	3	6	50807701
27	Square-shaped connector	220A1866P0220	1	2	5	10	22P fixed side 56730620
28	Paper supply guide D (A4) assy	3PA4076-5759G1	1	0	3	6	51015901
29	Registration bearing assy	4PA4076-5756G1	2	2	6	12	51608501
30	Pressure roller	3PP4076-5032P1	1	1	3	6	50408101
31	Registration roller	3PB4076-5030P2	1	1	3	6	80408201
32	Registration gear	4PP4043-4529P1	1	1	3	6	51234401
33	Pressure roller gear	4PP4043-4530P1	1	1	3	6	51234501
34	Fuser pressure roller (A4)	2PB4076-5112P2	1	1	3	6	50408302
35	Fuser pressure roller bearing	4PP4076-5051P1	2	0	6	12	51608601
36	Bias spring	4PP4043-4388P1	2	0	6	12	50928501

37	Fusing guide	2PP4076-5021P1	1	1	3	6	51016001
38	Idle gear (HF)	4PP4043-4535P1	1	0	3	6	50234601
39	Fusing assy 120Volt	1YX4076-5100G1	1	2	10	20	50219901
	Fusing assy 230Volt	1YX4076-5100G2	1	2	10	20	50219902
40	Exit roller assy	Exit roller assy	1	1	3	6	50408401
41	41	4PP4076-5191G1	1	1	3	6	53073101
42	Stacker cover assy	2YX4128-1080G1	1	0	0	6	53073201
43	Washer	4PP4076-5009P1	1	0	3	6	50516701
44	Fuser pressure roller release lever	3PP4076-5347P1	1	0	3	6	50808101
45	LED head (600/A4/18mm)	4YA4116-1200G2	1	2	10	20	56111401
46	Head cable assy	3YX4076-5760G1	1	2	5	10	
47	Cable cover	2PP4128-1096P1	1	0	3	6	53073401
48	Cable guide (B)	3PB4128-1110P1	1	1	3	6	51016501
49	I/D unit (ODA)	4YA4076-5500G2	1				
50	Toner cartridge (ODA)	4YA4076-5600G2	1				
51	Anti-static strip	4PB4076-5014P3	1	1	3	6	
52	Stacker full sensor assy	4YB4128-1101P2	1	2	5	10	
53	Head spring	4PP4128-1164P1	2	0	6	12	
54	Earth plate	4PP4043-4688P1	1	0	3	6	
55	DC fan motor	3PB4076-5290P1	1	1	3	6	
56	FG film	3PB4128-1181P1	1	1	3	6	
57	Hopping roller assy	4PA4076-5333G3	1	2	5	10	
58	Motor assy	3YX4076-5070G1	1	0	3	6	
59	Front feeder unit	1YX4076-5300G1	1	0	3	6	
60	Stacker cover damper	4PB4076-5015P1	1	1	3	6	
61	Anti-static film	3PB4083-6089P4	1	1	3	6	

Front Feeder Unit

Front Feeder Unit

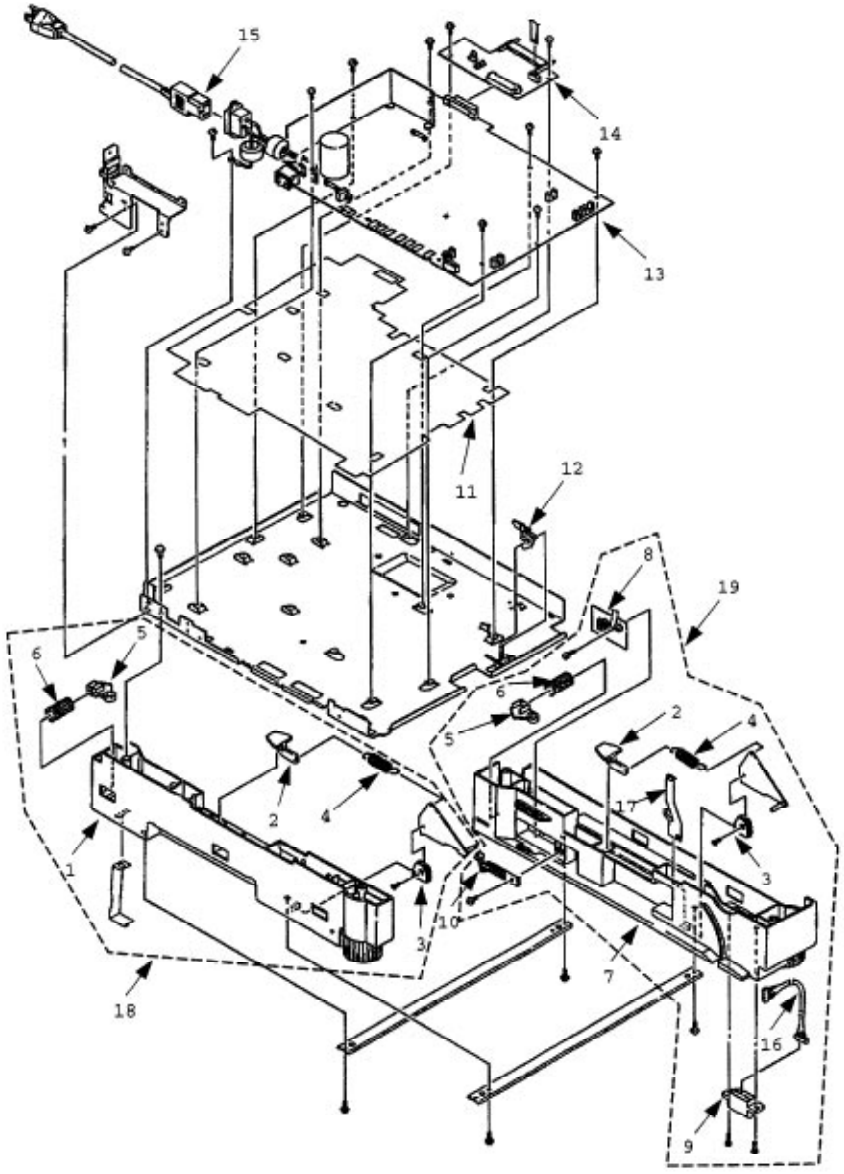


	Name / Rating	Parts No.	Q'ty	50	500	1000	Remarks
1	Paper supply guide A (Affix)	3PP4076-5348G1	1	0	3	6	51016101
2	Paper supply guide B	1PP4076-5303P1	1	0	3	6	51016201

3	Paper supply guide C	1PP4076-5304P1	1	0	3	6	51016301
4	FF roller assy	4PA4076-5757G1	1	1	3	6	50408501
5	FF plate (Affix)	4PP4076-5310G1	1	1	3	6	51016601
6	FF cam	4PP4076-5313P1	2	0	6	12	51235601
7	Front feeder gear	4PB4076-5314P1	1	0	3	6	51234701
8	8	4YB4076-5316P1	1	2	5	10	50408901
9	Separator assy	4PP4076-5317G1	1	1	3	6	53346301
10	Idle gear	Idle gear	1	0	3	6	51234801
11	Hopping motor	4PB4076-5330P1	1	1	3	6	56511701
12	Connector cord	4YS4011-4448P2	1	2	5	10	56730802
13	Square shaped connector (22P)	220A1866P0221	1	2	5	10	56730621
14	Square shaped connector (14P)	220A1866P0140	1	2	5	10	56730640
15	Switch assy	4PB4078-1412P1	1	2	5	10	56212901
16	Cover lock lever	3PP4076-5389P1	1	0	3	6	
17	Spring (Separator)	4LB-190500-5	2	1	3	6	
18	FF spring	4PP4043-4742P1	2	1	3	6	
19	Spring (Lock lever)	4PP4076-5391P1	1	0	3	6	
20	Bearing F	4PP4076-5308P1	2	1	3	6	51608201

Base Unit

Base Unit



	Name / Rating	Parts No.	Q'ty	50	500	1000	Remarks
1	Guide rail (L) Assy	2PP4076-5753G1	1	1	3	6	51016701
2	Pull block	4PP4122-1217P1	2	2	6	12	51500301
3	Link support	4PP4076-5358P1	2	2	6	12	50516801
4	Cassette lock spring	4PP4076-5417P1	2	0	6	12	50927302
5	Cassette stopper	4PP4076-5359P1	2	2	6	12	50607201

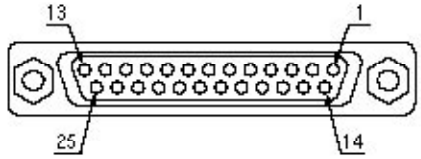
6	Pressure coil spring	4PP4043-4526P1	2	0	6	12	50928801
7	Guide rail (R) assy	2PP4076-5754G1	1	1	3	6	51016801
8	AOLS-PCB	4YA4046-1621G11	1	2	5	10	55077101
9	Square shaped connector (fixed side)	Square shaped connector (fixed side)	1	2	5	10	56730640
10	Detector spring	4PP4076-5360P1	1	1	3	6	50928901
11	Insulator	3PB4076-5144P1	1	1	3	6	51711001
12	Paper end lever	4PP4076-5154P1	1	1	3	6	50808201
13	Power/sensor-PCB (120V)	4YB4049-1764P2	1	2	5	10	56413702
	Power/sensor-PCB (230V)	4YB4049-1765P2	1	2	5	10	
14	AOLC-PCB	4YA4046-1620G11	1	2	5	10	55077211
15	AC cord (ODA 120V)	3YS4011-1315P1	1	1	3	6	56609701
	AC cord (ODA 220V)	3YS4011-1266P1	1	1	3	6	
16	Nylon connector cord	4YS4011-4448P3	1	2	5	10	56730803
17	Earth plate	4PP4076-5742P1		0	3	6	53346601
18	Guide rail assy (L)	1PA4076-5410G1	1	0	3	6	
19	Guide rail assy (R)	1PA4076-5420G1	1	0	3	6	

Appendix A
Rs-232 Serial Interface

Appendix A RS-232C SERIAL INTERFACE

1) Connector
- Printer side : 25-pin receptacle (Female) Type DB-25S or equivalent
- Cable side : 25-pin plug (Male) Type DB-25P or equivalent

Note: Plug shall be able to be fixed with a lock screw.



Pin assignment

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

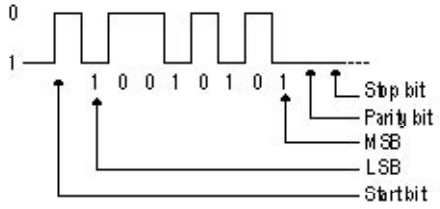
Note: Cable is not supplied.

3) Interface signal

Pin No.	Signal name	Symbol	Signal direction	Data terminal ready
1	Protective ground	PG	-	
-2	-2	TD	TO HOST	Transmitted data from this unit to host
3	3	RD	FROM HOST	Received data form host
4	Request To Send	RTS	TO HOST	Hi fixed
5	Not used	-	-	Not used
6	Data Set Ready	DSR	FROM HOST	Not used
7	Signal Ground	SG	-	Signal ground
8-10	Not used	-	-	Not used
11	11 Supervisory Send Data	SSD	TO HOST	Not used
12-17	Not used	-	-	Not used
18	+5V	-	TO HOST	Max. 50 mA
19	Not used	-	-	Not used
20	Data Terminal Ready	DTR	TO HOST	Ready/Busy signal
21-25	Not used	-	-	Not used

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

5) Specifications

Item	Description
Mode	Start-stop synchronous system
Line speed	300, 600,1200, 2400, 4800, 9600, 19200 (bps)
Data bit length	8 bits, 7 bits
Parity	Odd, even, none (space, mark, and ignore not selectable)
Stop bit length	1bit fixed
Protocol	DTR High, DTR LOw, XON/XOFF, Robust XON/XOFF
Serial data	Time ® Example: 8 bits, with parity 
Receive buffer	8K, 20K, 50K, 100K, 1M bytes
Busy line	DTR (pin 20) fixed, High Ready/Low Ready selectable
Minimum busy time	200 msec, 1 sec

Appendix B
%Centronics Parallel Interface

Appendix B CENTRONICS PARALLEL INTERFACE

1) Connector

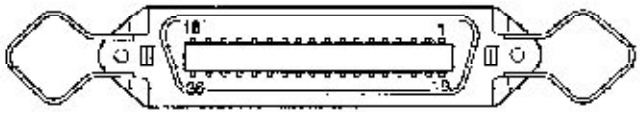
- Printer side : 36-pin receptacle (Female) Type 57-40360-12-D56 (made by Daiichi Denshi) or equivalent
- Cable side : 36-pin plug (Male) Type 57-30360 (made by Daiichi Denshi) or equivalent Plug-552274-1 (AMP), 552073-1 (AMP) or equivalent

2) Cable

- Cable length : 6 ft (1.8 m) max. (A Shielded cable composed of twisted pair wires is recommended for noise prevention.) The cable should be IEEE 1284 bi-directional compliant.

Note: Cable is not supplied.

Pin No.	Signal name	Signal direction	Functions
1	DATA STROBE	→ PR	Parallel data sampling strobe
2	DATA BIT - 1		
3	DATA BIT - 2		
4	DATA BIT - 3		
5	DATA BIT - 4	→ PR	Parallel input data
6	DATA BIT - 5		
7	DATA BIT - 6		
8	DATA BIT - 7		
9	DATA BIT - 8		
10	ACKNOWLEDGE	← PR	Completion of data input or end of functioning
11	BUSY	← PR	During print processing or during 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 ⋮ 30	0V Signal ground		Signal ground
31	INPUT PRIME	→ PR	Initializing signal
32	FAULT	← PR	End of paper or during alarm
33	0V		Signal ground
34	-		(Not used)
35	-		High level (3.3 kΩ)
36	Select In	→ PR	Request to change Mode

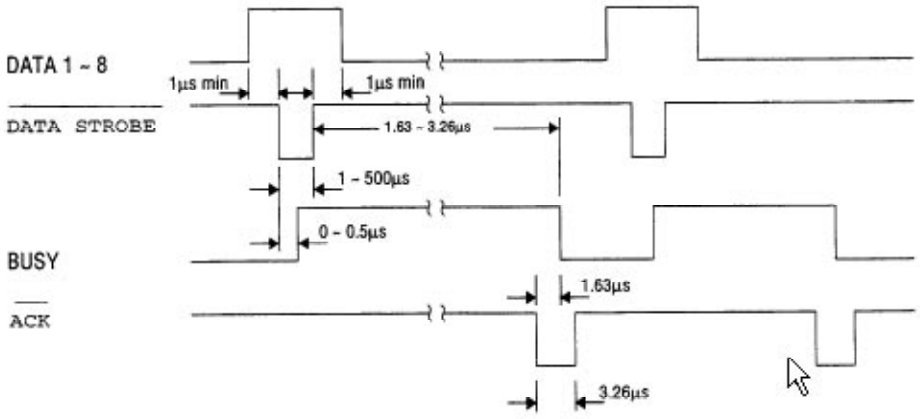


4) Signal level
• LOW : 0 V to +0.8 V
• HIGH : +2.4 V to +5.0 V

5) Specifications

Item	**Description**
Mode	Compatibility mode, Nibble mode, ECP mode
Data bit length	8 bits: Compatibility mode, 4 bits: Nibble mode, 9 bits: ECP 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.

6) Timing charts
Data receiving timing



Appendix A
2.1 General Mechanism

2.1 General Mechanism

The sheet (or envelope) at the very bottom of the stack is fed into the printer, one at a time, when the Power Envelope Feeder receives the signal from the printer.

(1) The hopping motor rotates in the direction of arrow D. The planet gear F moves in the direction of arrow G, and drives rollers A and B. Roller C is linked to pulley I which is on the same shaft as roller A, and it also turns at the same time as roller A. The paper is fed for a predesignated distance until the leading edge reaches roller C.

(2) Next, the hopping motor rotates in the direction of arrow E. The planet gear F moves to the direction of arrow H, and drives idle gear J. The rotation of idle gear J is transmitted to the gears linked to it, and drives pulley I on the same shaft as roller A, turning roller C to feed the paper into the printer, until it reaches the registration roller of the printer. During this process, a one-way bearing is engaged at pulley I so that the rotation of pulley I is not transmitted to roller A, preventing any feeding of papers by roller A.

Appendix C
%High Capacity Second Paper Feeder

1.1 Functions
The printer is mounted on top of this High Capacity Second Paper Feeder, and it supplies paper automatically through the operation of hopping motor, which is driven by signals sent from the printer. The main functions are the followings:

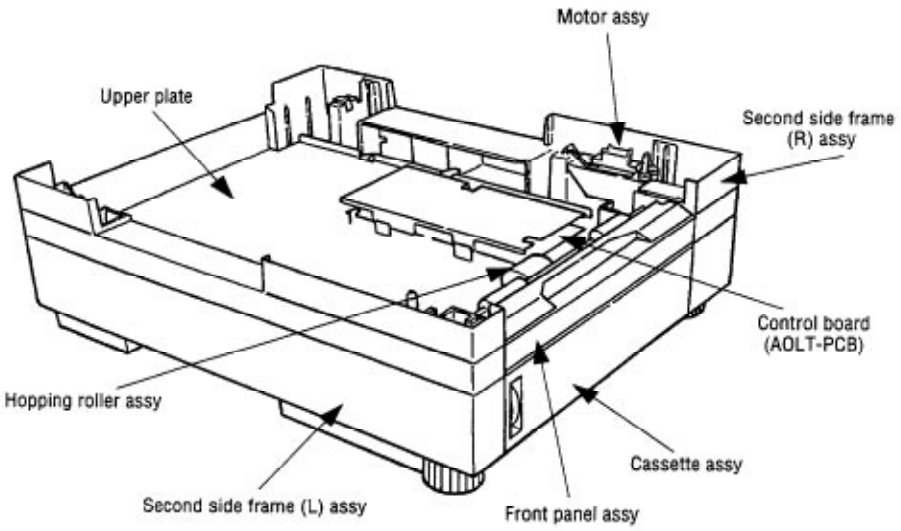
- Paper that can be used:

[Paper Type]
- Cut Sheet Size: A4, A5, B5, Letter, Executive, Legal13, Legal14
- Special Size: Paper Width: 148 to 216mm Paper length: 210 to 356mm

[Weight]
- 64 ~ 81 g/m 2

%1.2 External View and Component Names

1.2 External View and Component Names



%2. Mechanism Description

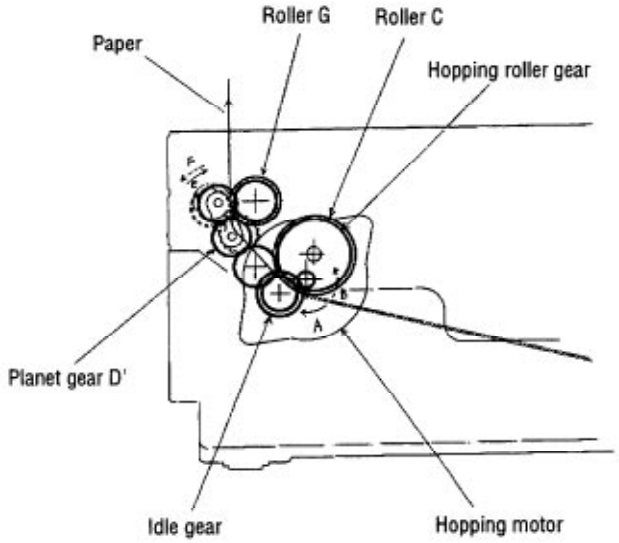
2. MECHANISM DESCRIPTION

2.1 General Mechanicsm

The sheet at the very top of the stack in the paper cassette is fed into the printer, one at a time, when the High Capacity Second Paper Feeder receives the signal from the printer.

(1) First, the hopping motor rotates in the direction of arrow A. The hopping gear is turned, by the idle gear, and roller C on the same shaft is turned. At the same time, planet gear D moves in the direction of the arrow E, and roller G turns; the paper is fed for a predesignated distance until its leading edge reaches roller G.

(2) Next, the hopping motor rotates in the direction of arrow B while the hopping gear also turns. Because of the one-way bearing being engaged at the hopping gear, roller C does not turn. The planet gear D moves in the direction of the arrow F, drives the Roller G and feeds the paper into the printer, until it reaches the registration roller of the printer.

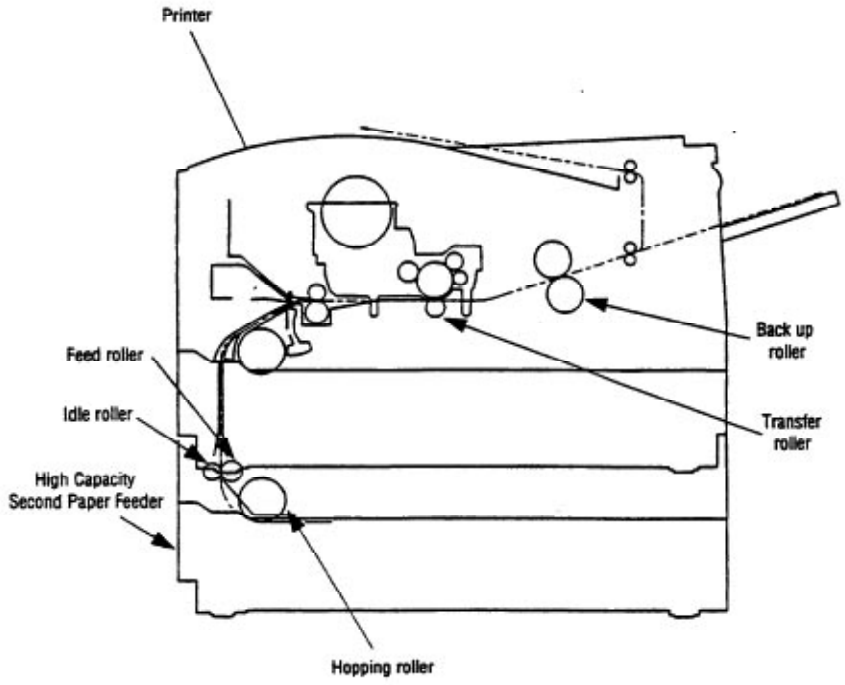


Once the delivered into the printer, the paper is then controlled and fed through by registration motor of the printer.

%2.2 Hopper Mechanism

2.2 Hopper Mechanism

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



%3. Parts Replacement

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3. PARTS REPLACEMENT

This section covers the procedures for the disassembly, reassembly and installations in the field. This section describes the disassembly procedures. For reassembly procedures, reverse the dis-assembly instructions.

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 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.

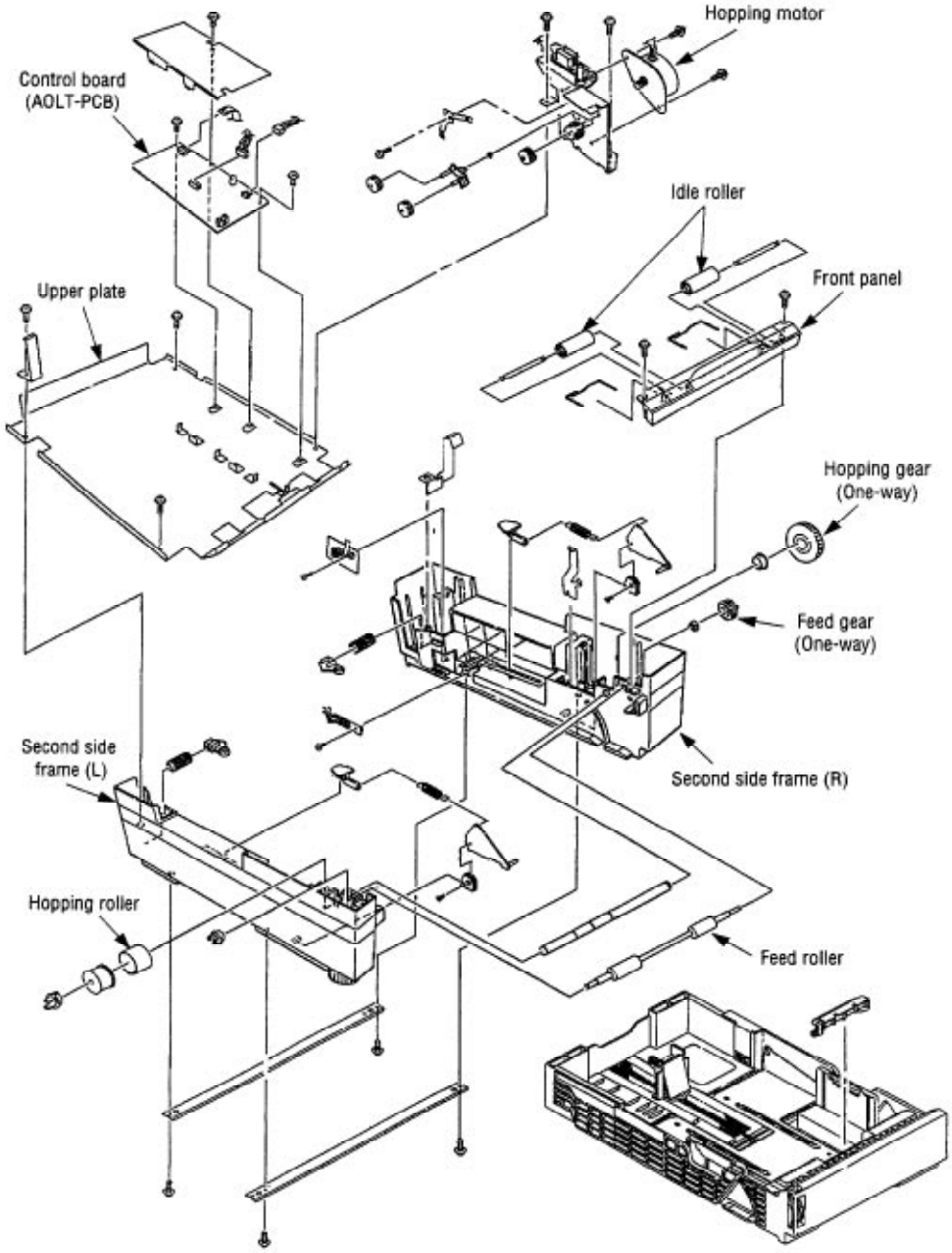
(8) Do not place the printed circuit boards directly on the equipment or floor.

NOTE: Always practice good anti-static precautions.

%3.2 Parts Layout

3.2 Parts Layout

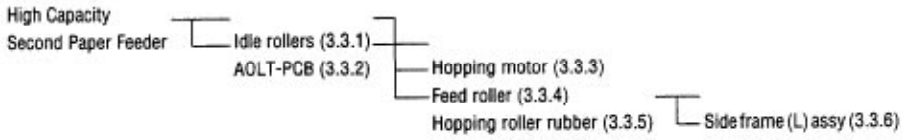
This section describes the layout of the main components.



%3.3 Parts Replacement Methods

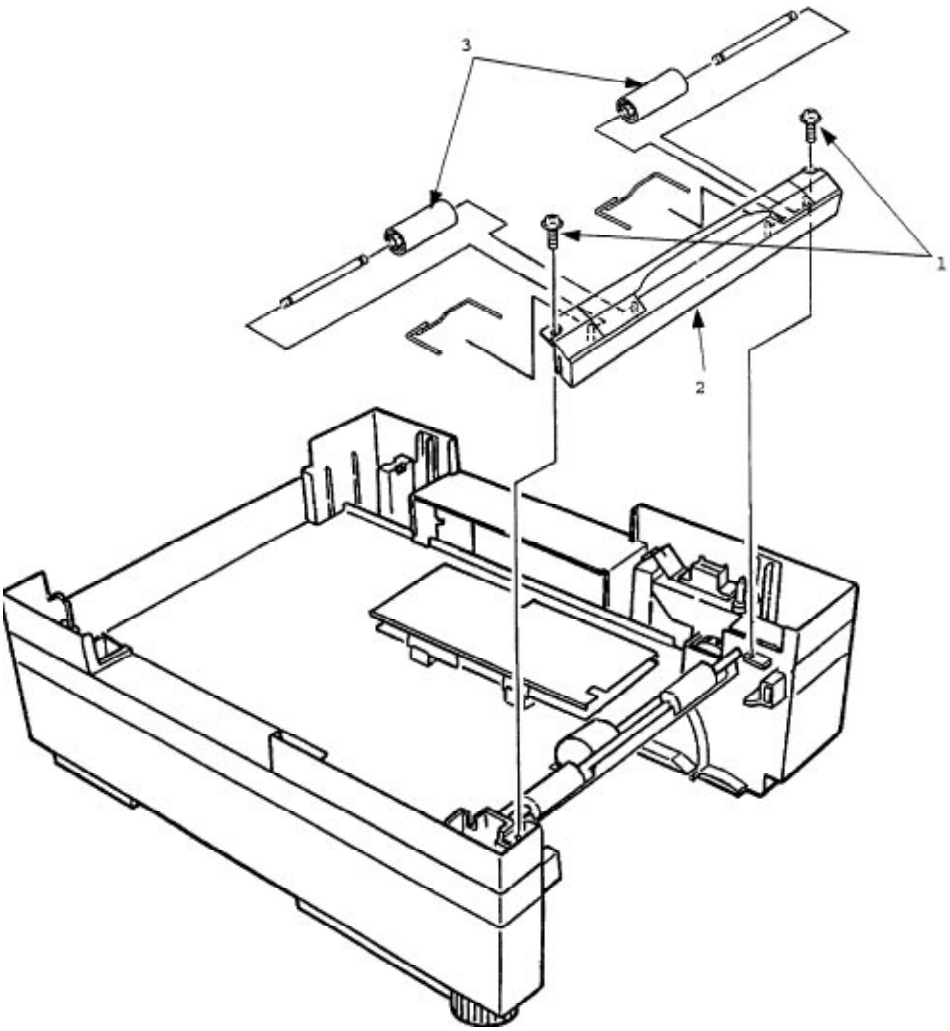
3.3 Parts Replacement Methods

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



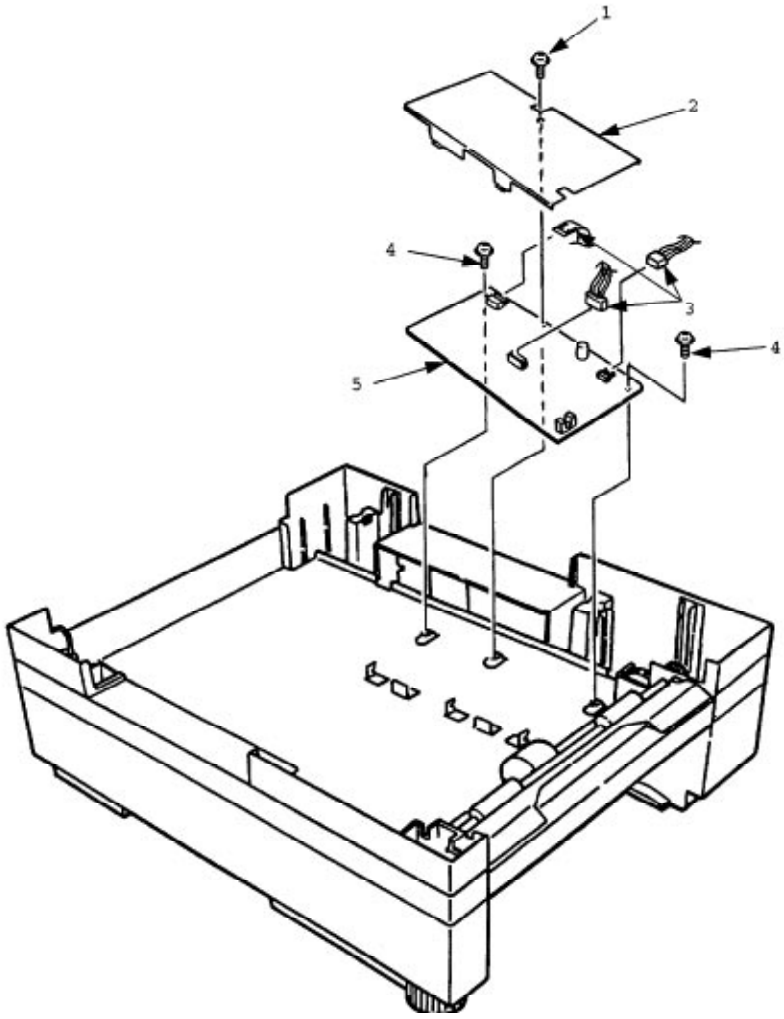
%3.3.1 Idle rollers

3.3.1 Idle rollers
(1) Remove two screws 1 and remove the front panel assy 2.
(2) Remove two idle rollers 3.



%3.3.2 AOLT-PCB

3.3.2 AOLT-PCB
(1) Remove the screw 1 and remove the PCB cover 2. (2) Remove three connectors 3 and two screws 4, then remove the AOLT-PCB 5.



%3.3.3 Hopping motor

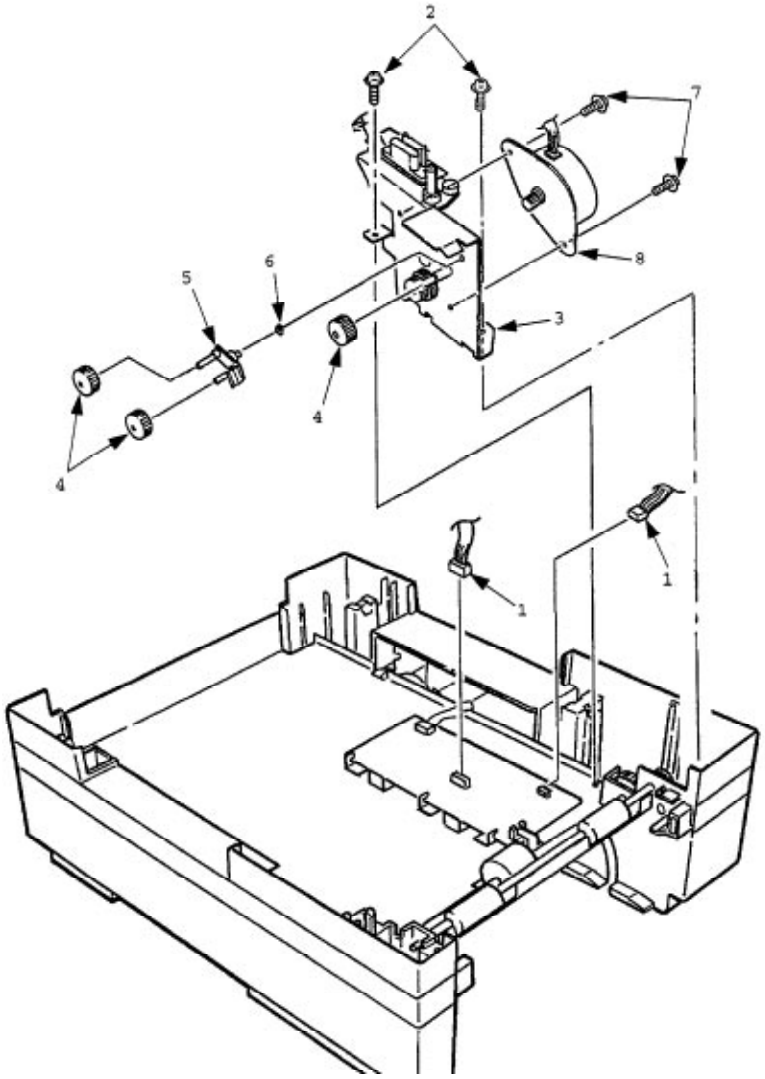
3.3.3 Hopping motor

(1) Remove the front panel assy (see 3.3.1 step1).

(2) Remove the PCB cover (see 3.2.2 step1).

(3) Remove two connectors 1 and two screws 2, then remove the hopping motor assy 3. The three gears 4, the connecting lever 5, as well as the wave washer 6 all come off at the same time, so be careful not to lose them.

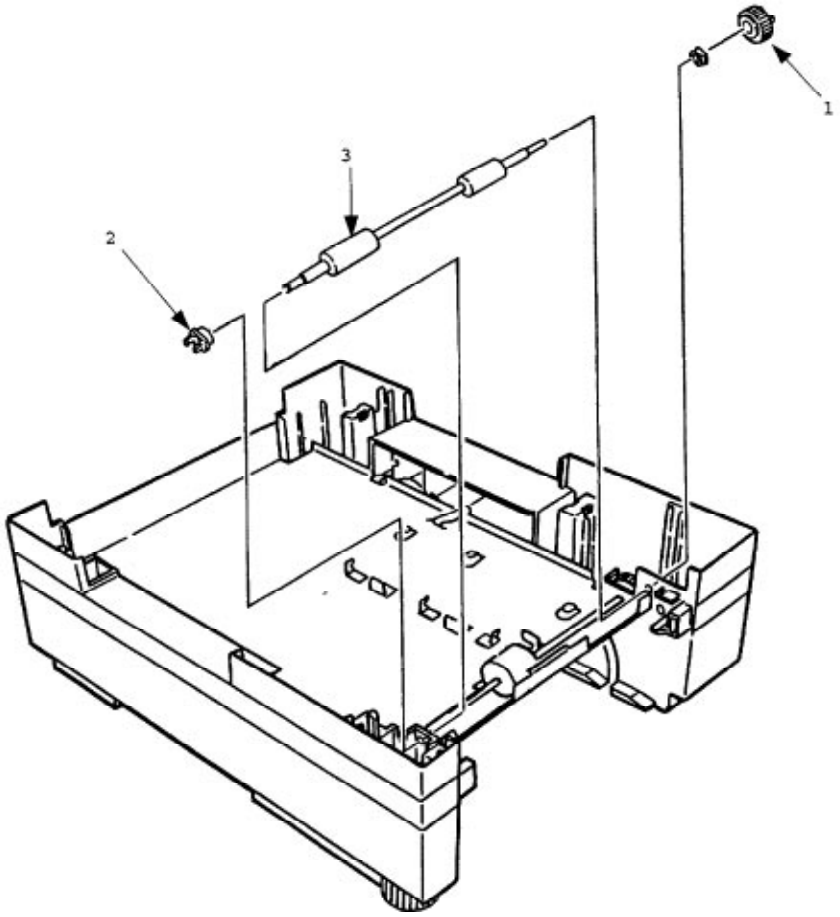
(4) Remove two screws 7 and remove the hopping motor 8.



%3.3.4 Feed roller

3.3.4 Feed roller

(1) Remove the front panel assy (see 3.3.1 step1).
(2) Remove the AOLT-PCB (see 3.3.2).
(3) Remove the hopping motor assy (see 3.3.3).
(4) Remove the latch on the feed roller gear 1 and remove the feed roller gear 1.
(5) Remove the latch on the feed roller bearing 2 and remove the feed roller bearing 2.
(6) Shift the feed roller 3 to the right side and lift it out, holding it on the left side.



%3.3.5 Hopping roller rubber

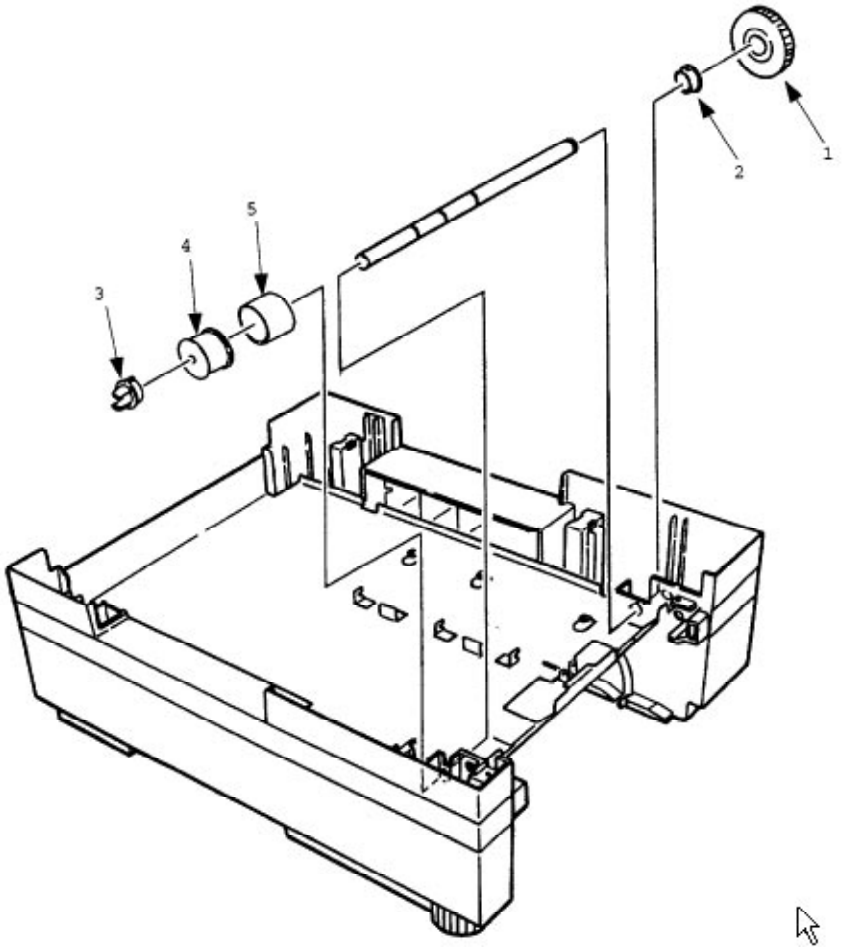
3.3.5 Hopping roller rubber

(1) Remove the feed roller (see 3.3.4).

(2) Remove the latch on the hopping roller gear 1 and remove the hopping roller gear 1. The bearing F 2 comes off at the same time, so be careful not to lose it.

(3) Remove the latch on bearing L 3 and remove the bearing L 3.

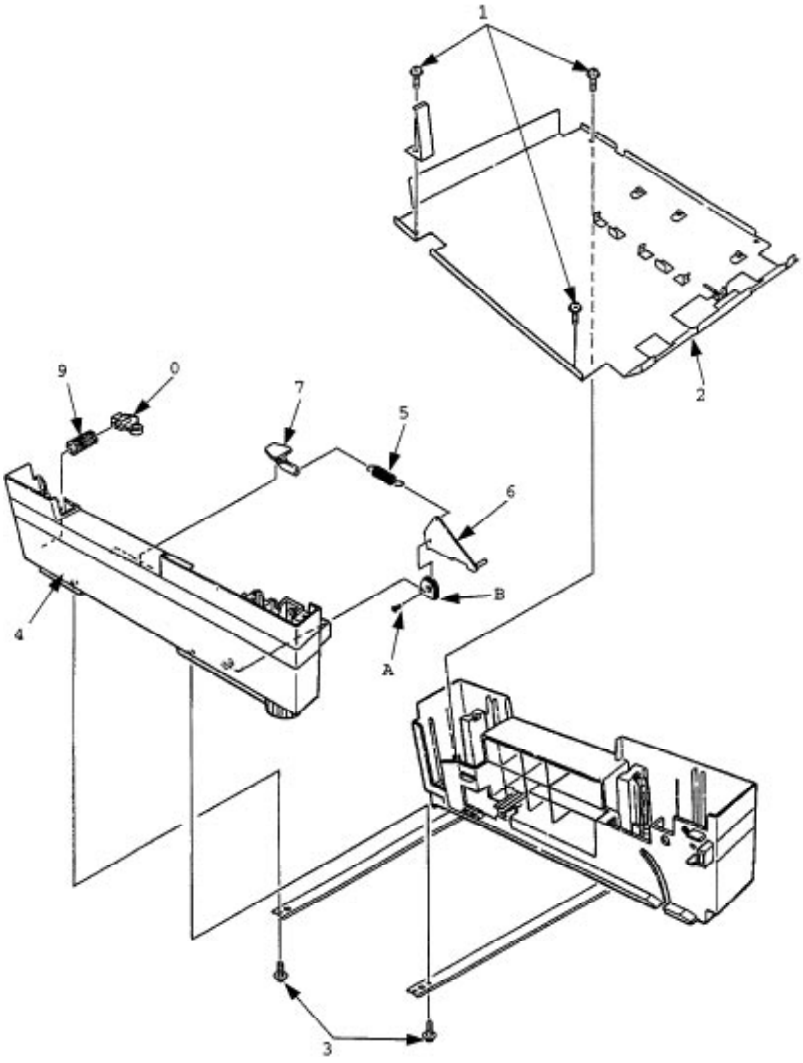
(4) Remove the hopping roller 4 and remove the hopping roller rubber 5 from it.



%3.3.6 Side frame (L) assy

3.3.6 Side frame (L) assy

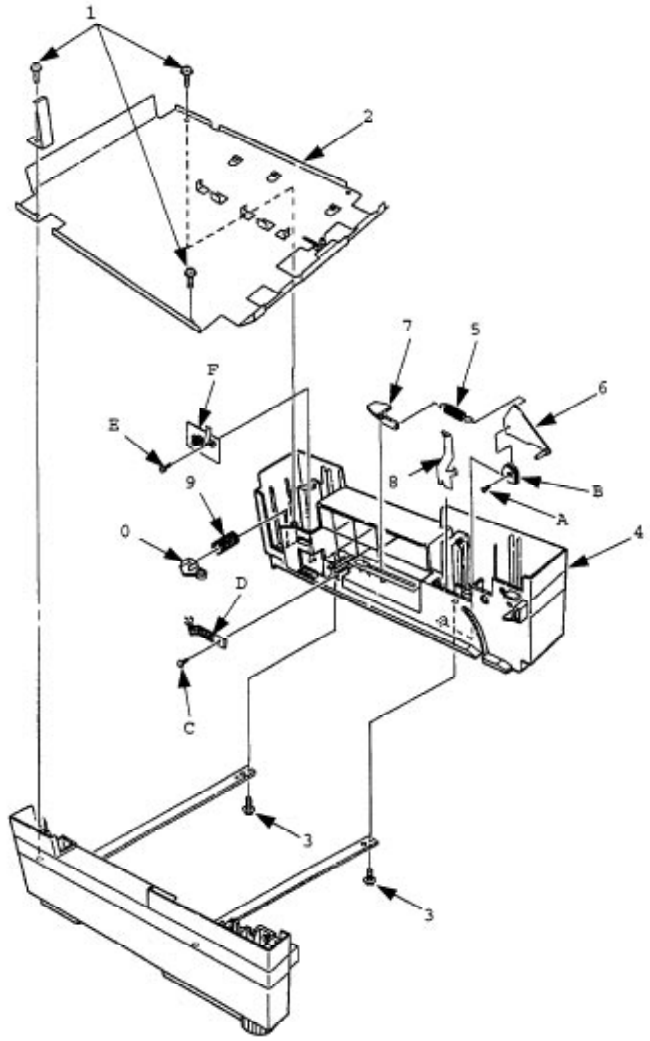
(1) Remove the hopping roller (see 3.3.5).
(2) Remove three screws 1 and remove the upper plate 2.
(3) Remove two screws 3 and remove the side frame (L) assy 4.
(4) Remove the cassette lock spring 5, link 6, pull block 7 (note the directions of the hooks of the cassette lock spring 5).
(5) Remove the spring 9 and cassette stopper 0.
(6) Remove the screw A and remove the link support B.



%3.3.7 Side frame (R) assy

3.3.7 Side frame (R) assy

(1) Remove the hopping roller (see 3.3.5).
(2) Remove three screws 1 and remove the upper plate 2.
(3) Remove two screws 3 and remove the side frame (R) assy 4.
(4) Remove the cassette lock spring 5, link 6, pull block 7 and earth plate 8 (note the directions of the hooks of the cassette lock spring 5).
(5) Remove the spring 9 and remove the cassette stopper 0.
(6) Remove the screw A and remove the link support B.
(7) Remove the screw C and remove the detector spring D.
(8) Remove the screw E and remove the AOLD-PCB F.



%4. Troubleshooting

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4. TROUBLESHOOTING

4.1 Precautions Prior to the Troubleshooting

(1) Use the basic trouble-shooting steps provided in the Operator Guide.
(2) Obtain detailed information concerning the problem from the user.
(3) Try to recreate the conditions similar to that in which the problem occurred.

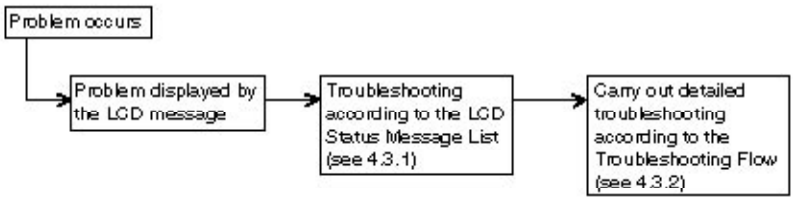
4.2 Preparations for the Troubleshooting

(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.

%4.3 Troubleshooting Method

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 is provided in Table 4-1.

Classification	LCD Status Message	Description	Recovery method
Jam error	PAPERINPUTJAM CHECKTRAY2	Notifies of occurrence of jam while the paper is being fed from the High Capacity Second Paper Feeder	Check the paper in the High Capacity Second Paper Feeder. Carry out the recovery printing by opening the cover, removing jammed paper and closing the cover, and then turning the error display off. When the problem occurs frequently, to through the Troubleshooting.
Paper size error	ERRORPAPERSIZE CHECKTRAY2	Notifies of incorrect size paper feeding from the 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 the cover, removing paper and closing the cover, and then turning the error display off.
Tray paper out	PAPEROUTTRAY2	Notifies of no paper or paper cassette state of the High Capacity Second Paper Feeder.	Load the paper or paper cassette in the High Capacity Second Paper Feeder.
Synchronous serial I/O error (SSIO Error)	ERRORCONTROLLER 74	Notifies of occurrence of interface error between the printer and the High Capacity Second Paper Feeder.	Verify connection of AOLT-PCB and square-shaped connector. Replace the square-shaped connector if necessary. Replace AOLT-PCB.
Interface Timeout	ERRORCONTROLLER 81	Notifies of occurrence of interface timeout between the printer and the High Capacity Second Paper Feeder.	Verify connection of AOLT-PCB and square-shaped connector. Replace the square-shaped connector if necessary. Replace AOLT-PCB.

%4.3.2 Troubleshooting Flow

4.3.2 Troubleshooting Flow

(JAM error)

Paper Input 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/sensor board or inlet sensor.

NO When the paper is fed in, does the paper input 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/sensor board or replace the power/sensor board or inlet sensor.

NO Replace the hopping roller shaft assy or paper cassette.

NO Is the hopping roller shaft rotating?

YES Set the paper properly.

NO Is the stepping motor turning?

YES Replace the one-way clutch gear on the hopping roller shaft assembly.

NO Is the connector cable being connected properly?

NO Connect the connector cable properly.

YES Check the coil resistance (approx. 4.3ý) of the stepping motor.
Is it normal?

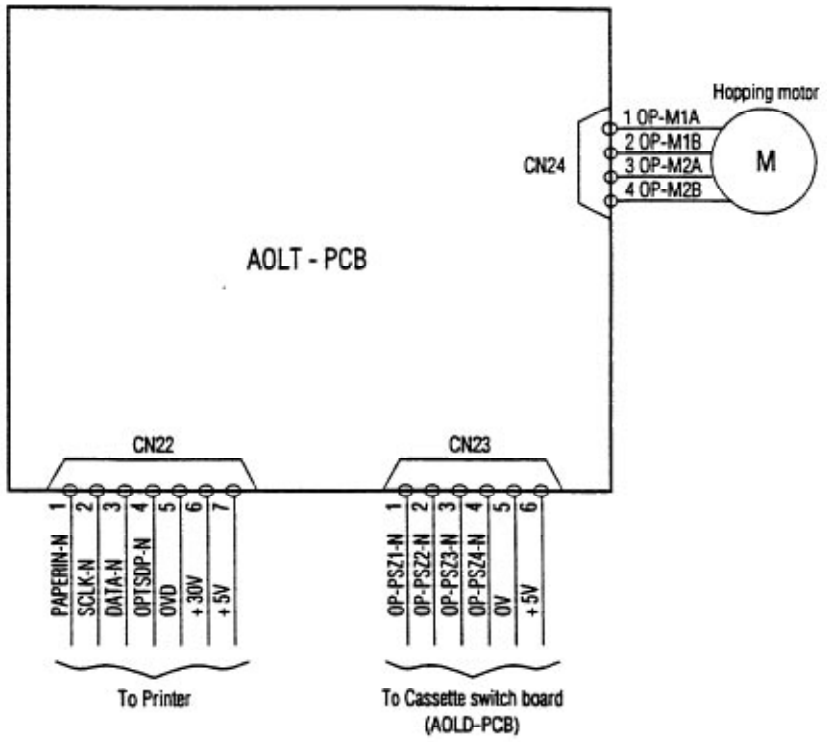
NO Replace the stepping motor.

YES Replace the AOLT-PCB.

%5. Connection Diagram

5. CONNECTION DIAGRAM

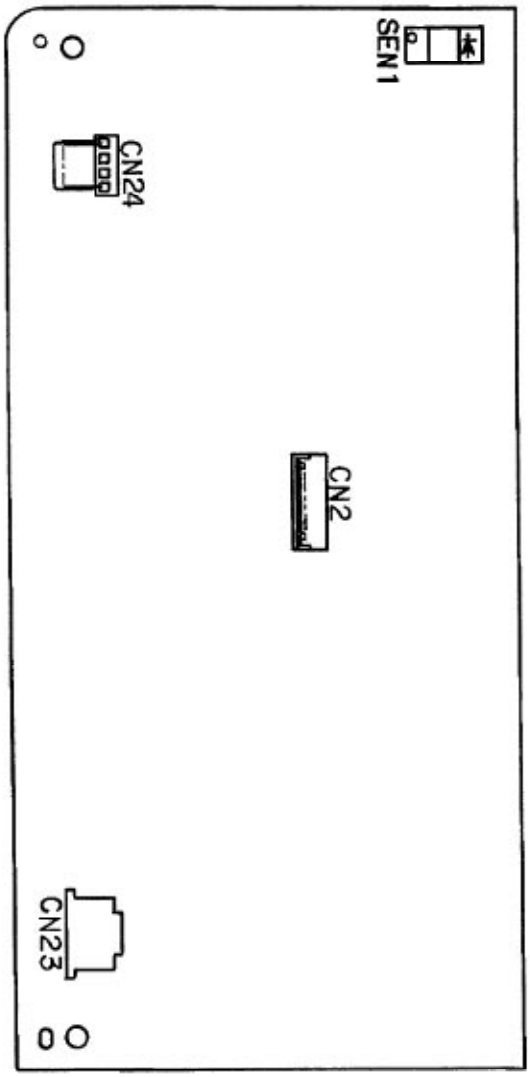
5.1 Interconnection Diagram



%5.2 PCB Layout

5.2 PCB Layout

AOLT-PCB



6. PARTS LIST

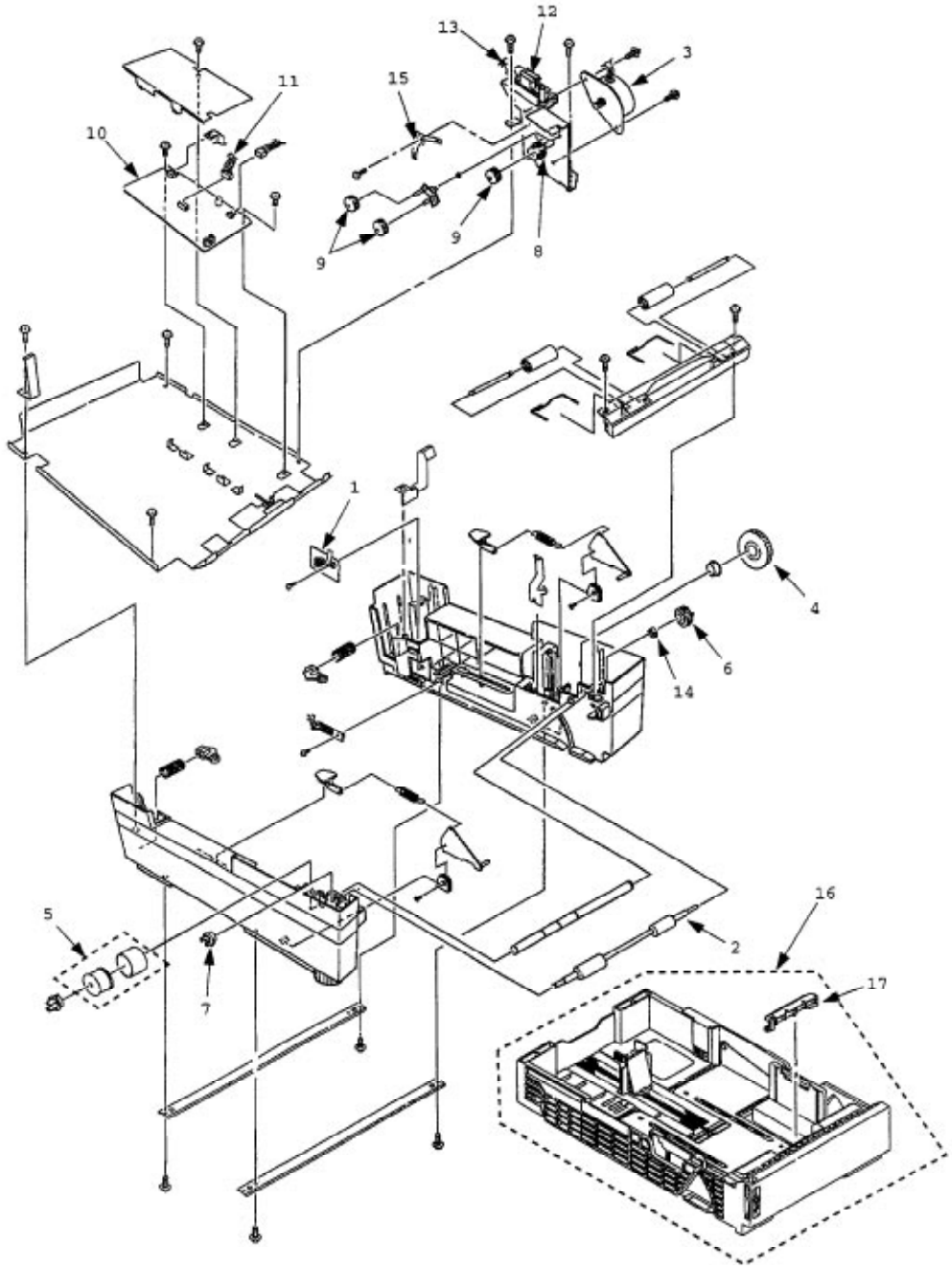


Table 6-1 High Capacity Second Paper Feeder

No.	Description	Part No.	Q•ty	Remarks
1	AOLD-PCB	4YA4046-1646G11	1	
2	Feed roller	3PB4076-5707P1	1	56408701
3	Hopping motor	4PB4076-5718P1	1	56511901
4	Hopping gear	4PB4043-4486P1	1	51235001
5	Hopping roller assy	4PA4076-5755G1	1	50407901
6	Feed roller gear	4PB4043-4488P1	1	
7	Feed roller bearing	4PP4043-4489P1	1	
8	Feed idle gear	4PP4076-5712P1	1	51235201
9	Planet gear	4PP4043-4491P1	3	51235301

10	AOLT-PCB	4YA4046-1645G11	1	55077511
11	Connector cord	4YS4011-4448P3	1	56730803
12	Square-shaped connector	220A1866P0141	1	56730641
13	Earth plate	4PP4076-5717P1	1	53346701
14	Bush	4PP4076-3949P1	1	51607301
15	Shaft earth plate	4PP4076-5719P1	1	53346801
16	Paper cassette assy	1PA4076-5430G1	1	50108001
17	Separator frame assy	3PP4083-5663G1	1	53345601

%1.1 Functions

1.1 Functions

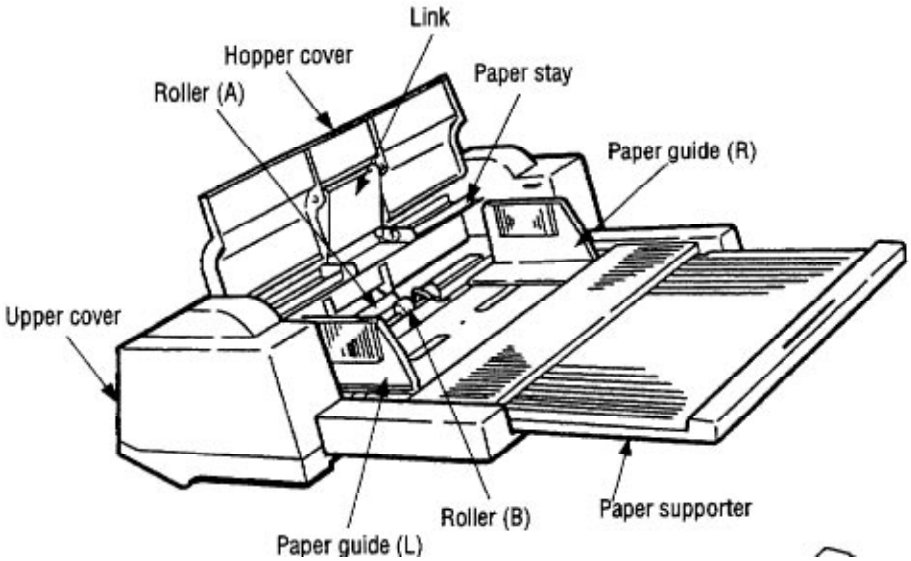
This Power Envelope Feeder is installed on the front section of the printer, and it supplies paper automatically through the operation of hopping motor, which is driven by signals sent from the printer.
The main functions are the followings:

Paper that can be used:

Paper type	Paper size	Quantity of paper
Plain paper	A6 (106 x 148 mm) ~ A4	64 ~ 90 g/m^2
Thick paper, OHP film		64 ~ 90 g/m^2
Postcard, label sheet	Postcard ~ A4-size equivalent	64 ~ 128 g/m^2
Envelope	C5, DL, COM-10, COM-9, Monarch	64 ~ 90 g/m^2

%1.2 External View and Component Names

1.2 External View and Component Names



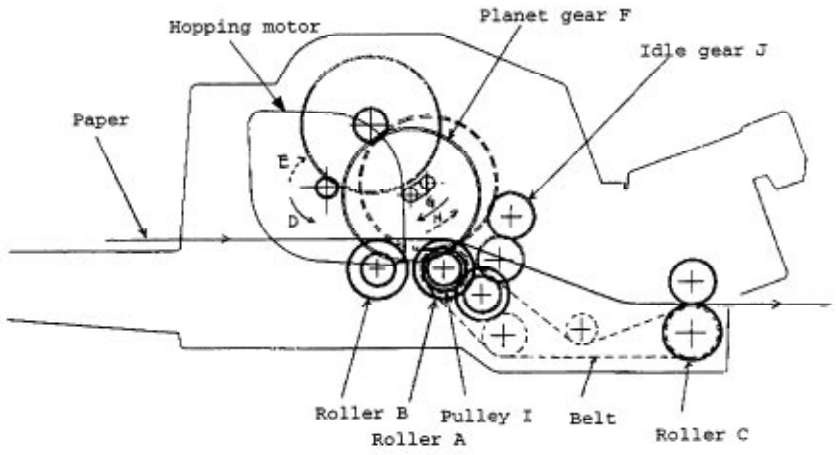
Appendix D
%2. General Mechanism

2.1 General Mechanism

The sheet (or envelope) at the very bottom of the stack is fed into the printer, one at a time, when the Power Envelope Feeder receives the signal from the printer.

(1) The hopping motor rotates in the direction of arrow D. The planet gear F moves in the direction of arrow G, and drives rollers A and B. Roller C is linked to pulley I which is on the same shaft as roller A, and it also turns at the same time as roller A. The paper is fed for a predesignated distance until the leading edge reaches roller C.

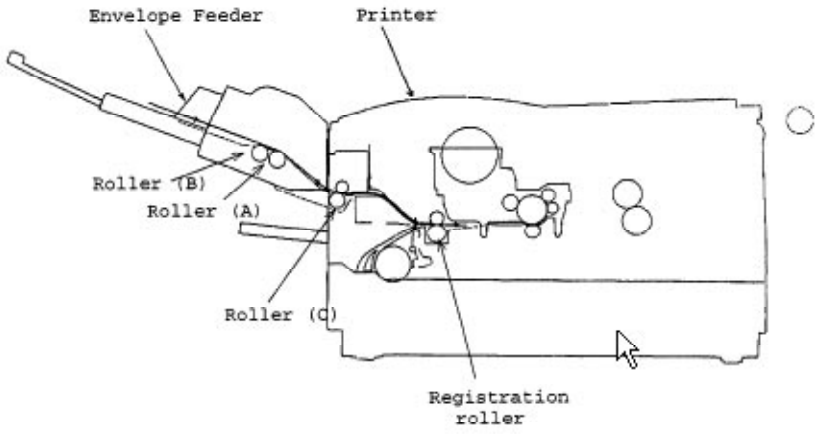
(2) Next, the hopping motor rotates in the direction of arrow E. The planet gear F moves to the direction of arrow H, and drives idle gear J. The rotation of idle gear J is transmitted to the gears linked to it, and drives pulley I on the same shaft as roller A, turning roller C to feed the paper into the printer, until it reaches the registration roller of the printer. During this process, a one-way bearing is engaged at pulley I so that the rotation of pulley I is not transmitted to roller A, preventing any feeding of papers by roller A.



%2.2 Hopper Mechanism

2.2 Hopper Mechanism

The hopper automatically feeds the printer with the paper being set, single sheet at a time.



%3. Parts Replacement

3. PARTS REPLACEMENT

This section covers the procedures for the disassembly, reassembly and installation in the field. This section describes the disassembly procedures. For reassembly procedures, reverse the disassembly steps.

3.1 Precautions Concerning Parts Replacement

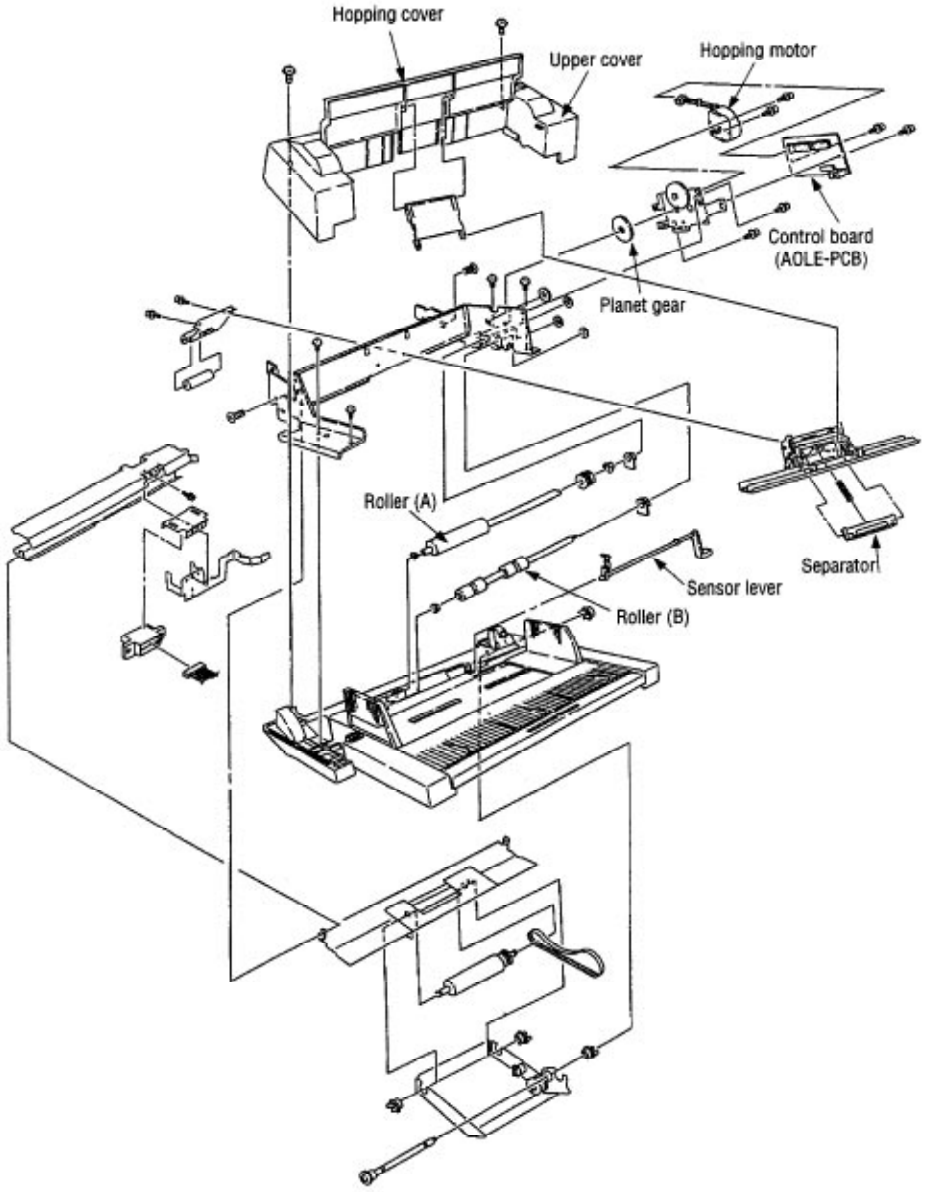
(1) Parts replacements must be carried out, by first turning the printer power switch off O and removing the Power Envelope Feeder from the printer.
(2) Do not disassemble the Power Envelope Feeder if it is operating normally.
(3) Establish the extent of disassembly suitable for the purpose of the procedure, 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.

NOTE: Always practice good antistatic procedures.

%3.2 Parts Layout

3.2 Parts Layout

This section describes the layout of the main components.



%3.3 Parts Replacement Methods

3.3 Parts Replacement Methods

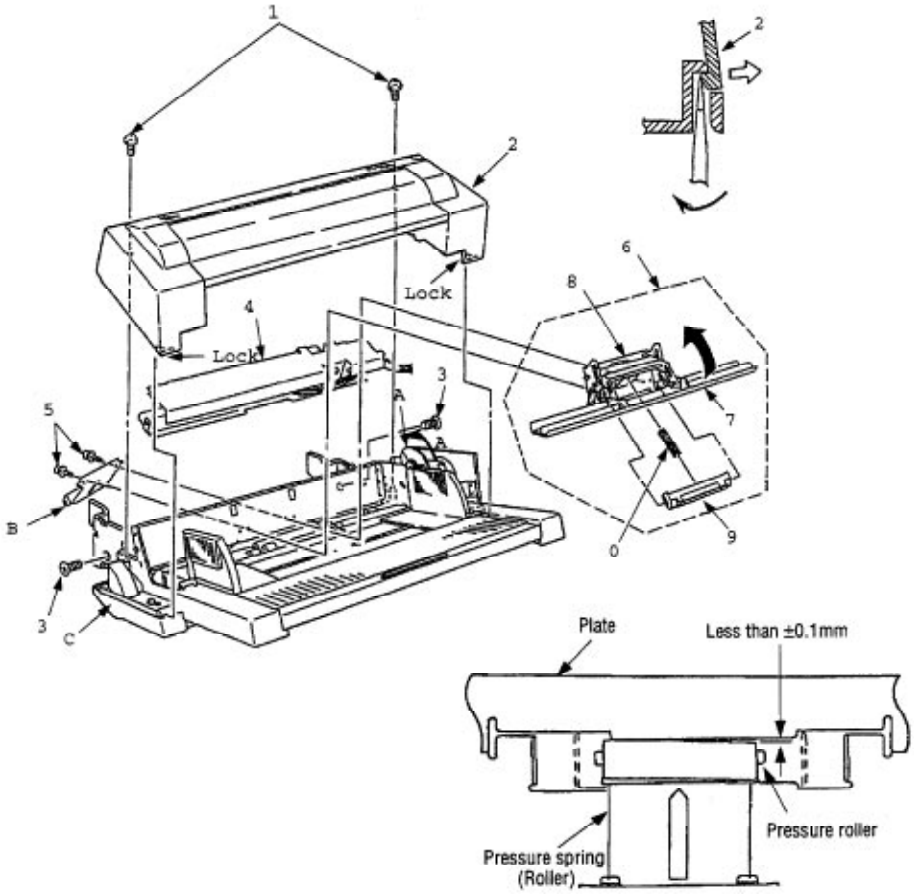
This section describes the parts replacement methods for the components listed in the disassembly order diagram below.

Power Envelope Feeder	Separator (3.3.1)
	AOLE-PCB (3.3.2)
	Square-shaped connector (3.3.3)
	Hopping motor (3.3.4)
	Planet gear (3.3.5)
	Roller B (3.3.6)
	Roller A (3.3.7)
	Mini pitch belt & Feed roller (3.3.8)

%3.3.1 Separator

3.3.1 Separator

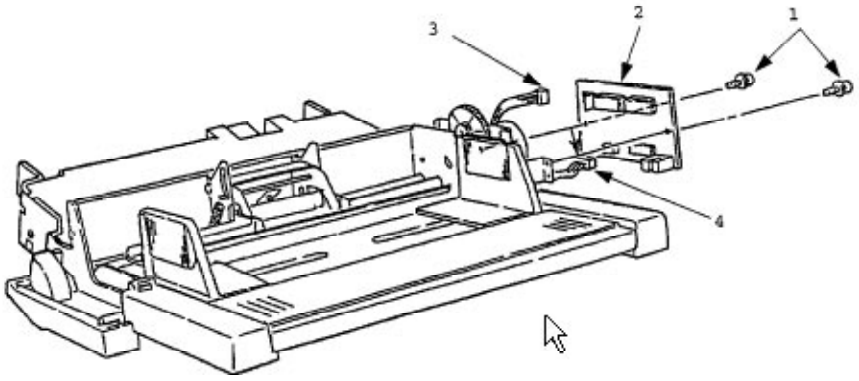
(1) Turn the printer power off and remove the Power Envelope Feeder.
(2) Disengage the link and hopper cover.
(3) Remove two screws 1, disengage two locks of the upper cover 2 using a flat-head screwdriver, and remove the upper cover 2.
(4) Remove two pan-head screws 3 and remove the cover frame 4.
(5) Disengage the plate and the frame. (Refer to 3.3.6.)
(6) Remove two screws 5 and remove the separator assy 6.
(7) Lift the paper stay 7 and disengage it from the separator bracket 8, then remove the separator 9. The spring 0 comes off at the same time, so be careful not to lose it.



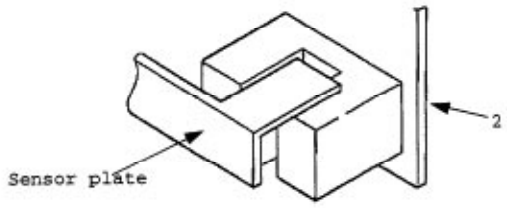
%3.3.2 AOLE-PCB

3.3.2 AOLE-PCB

(1) Remove the upper cover (see 3.1.1 (1) to (3)).
(2) Remove two screws 1 and remove the AOLE-PCB 2.
(3) Remove the connector 3.
(4) Remove the connector 4.



Caution: Be careful to set the sensor plate properly when pounting th AOLE-PCB

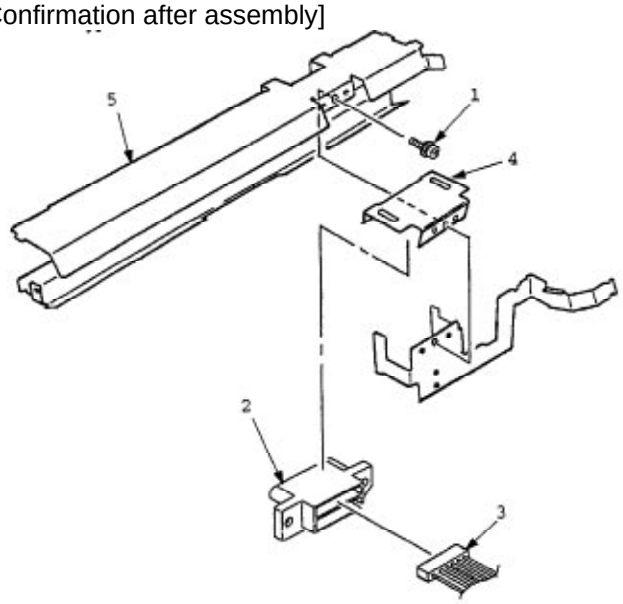


%3.3.3 Square-shaped connector

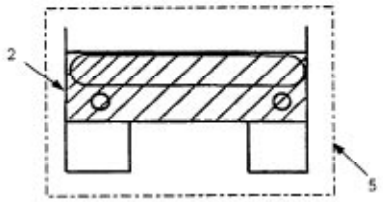
3.3.3 Square-shaped connector

(1) Remove the upper cover and remove the cover frame 5 (see 3.3.1 (1) to (4)).
(2) Remove the AOLE-PCB (see 3.3.2).
(3) Remove the screw 1 and remove the square-shaped connector 2.
(4) Remove the nylon cord 3 from the square-shaped connector 2.

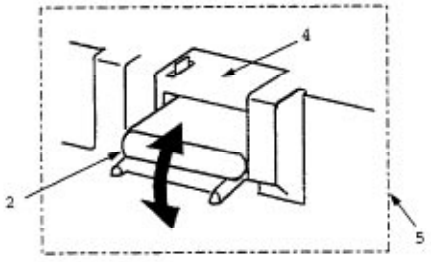
[Confirmation after assembly]



1. The square connector 2 should be horizontal to the cover frame 5.



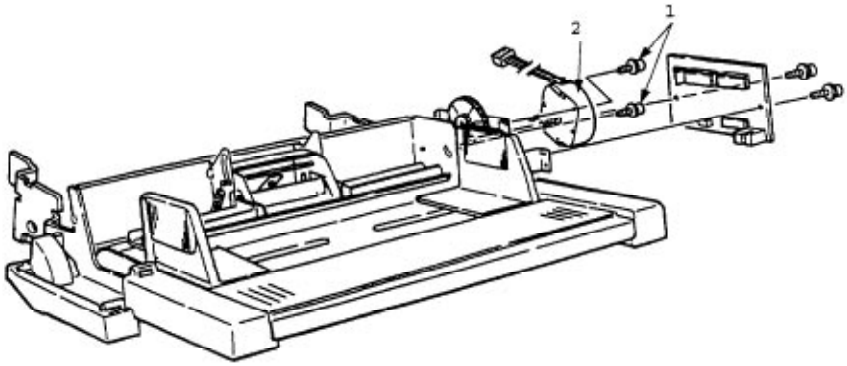
2. The square connector 2 should be hooked on the connector spring 4 and move smoothly.



%3.3.4 Hopping Motor

3.3.4 Hopping Motor

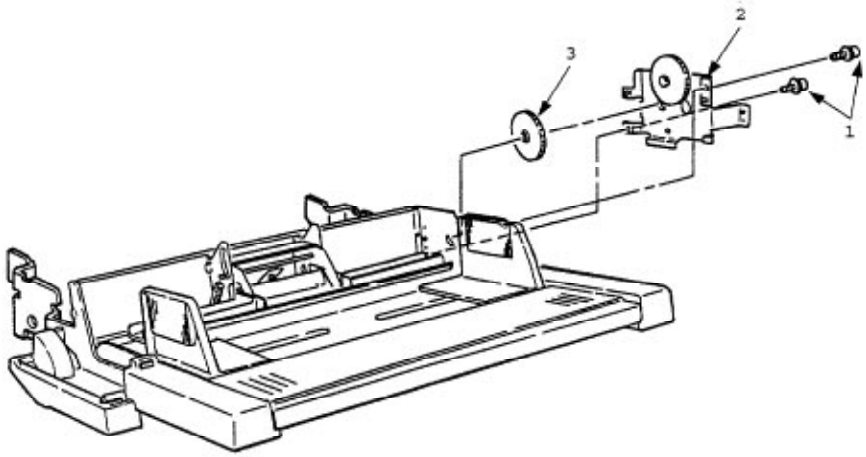
(1) Remove the upper cover (see 3.3.1 (1) to (3)).
(2) Remove the AOLE-PCB. (see 3.3.2)
(3) Remove two screws 1, then remove the hopping motor 2.



%3.3.5 Planet gear

3.3.5 Planet gear

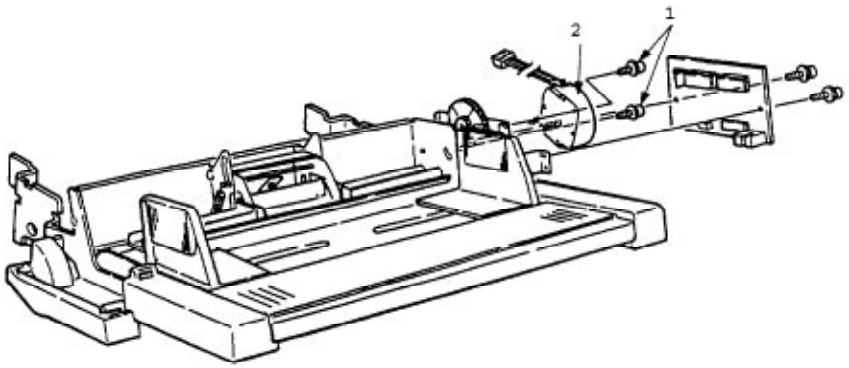
(1) Remove the upper cover (see 3.3.1 (1) to (3)).
(2) Remove the AOLE-PCB (see 3.3.2).
(3) Remove two screws 1, then remove the motor bracket assy 2 and the planet gear 3.



%3.3.6 Roller B

3.3.6 Roller B

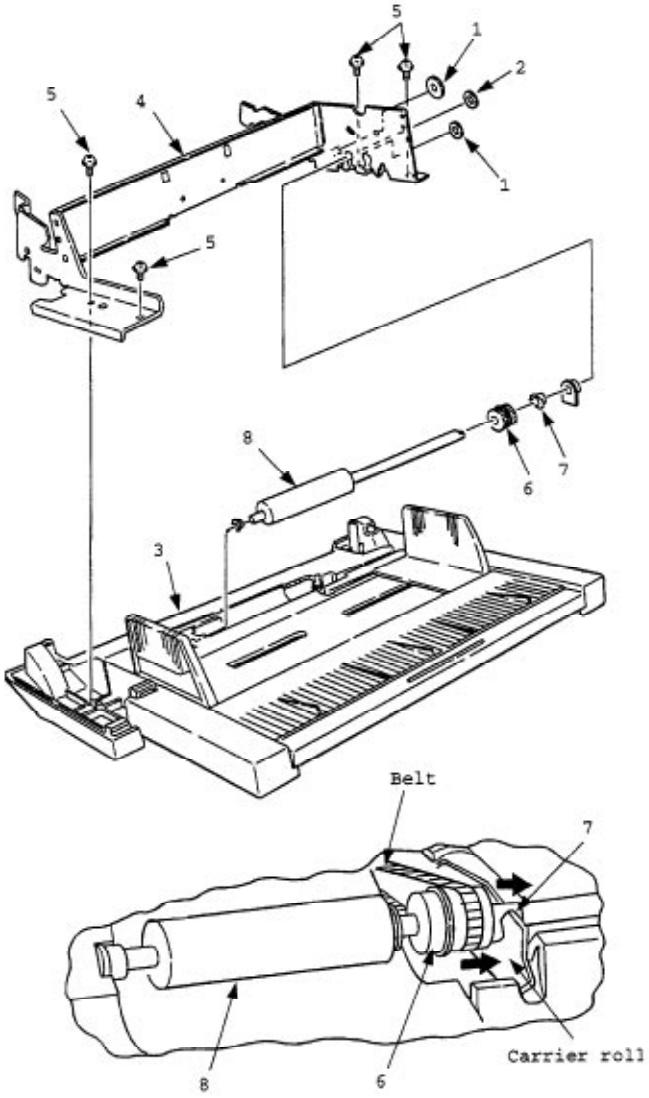
(1) Remove the upper cover (see 3.3.1 (1) to (3)).
(2) Disengage the plate and frame (on both sides).
(3) Remove the separator assy (see 3.3.1 (4) to (5)).
(4) Remove the AOLE-PCB (see 3.3.2).
(5) Remove the motor bracket assy (see 3.3.5).
(6) Remove the gear 1.
(7) Shift the roller B 2 to the right, lift it by holding on its left side, and pull it out to the left side. The bearing 3 also comes off at the same time, so be careful not to lose it. Pay special attention to make sure that you do not damage the sensor lever 4 while going through this procedure.



%3.3.7 Roller A

3.3.7 Roller A

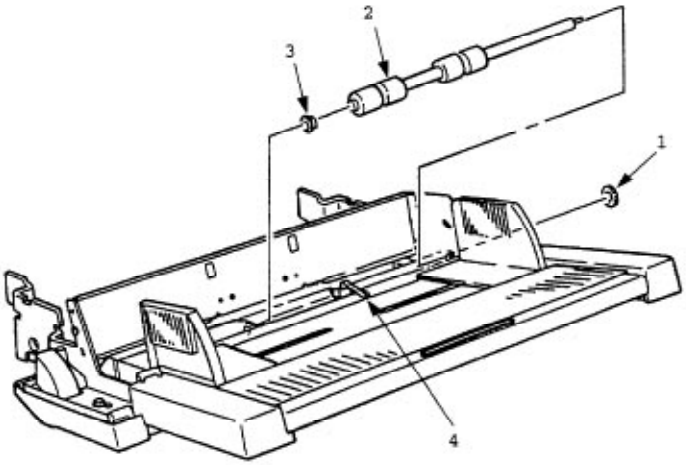
(1) Remove the motor bracket assy (see 3.3.5).
(2) Remove two gears 1 and then another gear 2.
(3) Disengage the plate 3 and the frame 4.
(4) Remove four screws 5 and remove the frame 4 (see 3.3.6).
(5) Move the belt to the right and remove it from the one-way pulley 6.
(6) Move the carrier roller assembly to the right, and remove it from the shaft 7.
(7) Move the roller A 8 to the right, lift its left side, and then pull it off to the left. (Be careful not to lose the shaft 7 being removed together.

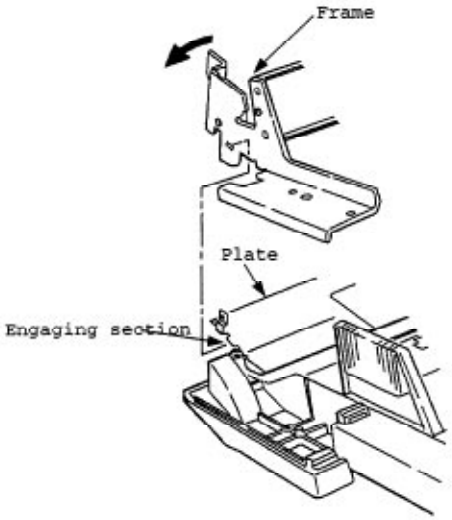


%3.3.8 Mini pitch belt & Feed roller

3.3.8 Mini pitch belt & Feed roller

(1) Remove the roller A (see 3.3.7).
(2) Remove the bearing 1 and remove the feed roller assy 2.
(3) Remove two bearings 3 and remove the plate 4.
(4) Remove the mini pitch belt 5 and the feed roller 6.





%4. Troubleshooting

4. TROUBLESHOOTING

4.1 Precautions Prior to the Troubleshooting

(1) Go through the basic checking items provided in the Operator Guide.
(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.

4.3 Troubleshooting Method

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

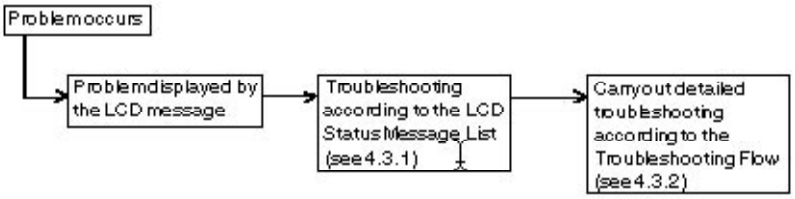
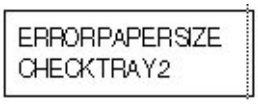
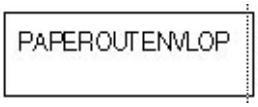


Table 4-1

Classification	LCD Status Message	Description	Recovery method
Jam error	PAPERINPUTJAM CHECKENVLOP	Notifies of occurrence of jam while the paper is being fed from the Power Envelope Feeder	• Check the paper in the Power Envelope Feeder. Carry out the recovery printing by opening the cover, removing jammed paper and closing the cover, and then turning the error display off. • When the problem occurs frequently, to through the Troubleshooting.

Paper size error		Notifies of incorrect size paper feeding from the Power Envelope Feeder.	Check the paper in the Power Envelope Feeder. Also check to see if there was a feeding of multiple sheets. Carry out the recovery printing by opening the cover, removing paper and closing the cover, and then turning the error display off.
Tray paper out		Notifies of no paper state of the Power Envelope Feeder.	Load the paper in the Power Envelope Feeder.
Synchronous serial I/O error		Notifies of occurrence of interface error between the printer and the Power Envelope Feeder.	Verify connection of AOLE-PCB and square-shaped connector. Replace the square-shoped connector if necessary. Replace AOLE-PCB.
Interface Timeout		Notifies of occurrence of interface timeout between the printer and the Power Envelope Feeder.	• Verify connection of AOLE-PCB and square-shaped connector. Replace the square-shaped connector if necessary. • Replace AOLE-PCB.

%4.3.2 Troubleshooting Flow

4.3.2 Troubleshooting Flow

(JAM error)

Paper Input 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.

t

NO Is the sensor plate (Inlet) operating normally?

NO Replace the sensor plate (Inlet).

t

YES Replace the power/sensor board or inlet sensor.

t

NO When the paper is fed in, does the paper input 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).

t

YES Clean the Inlet sensor on the power/sensor board or replace the power/sensor board or Inlet sensor.

t

NO Replace the feed roller, roller-A or roller-B.

t

NO Are the feed roller, roller-A and roller-B rotating?

YES Set the paper properly.

t

NO Is the belt torn?

YES Replace belt.

t

NO Is the pulse motor turning?

YES Replace planet gear.

t

NO Is the connector cable being connected properly?

NO Connect the connector cable properly.

t

YES Check the coil resistance (approx. 32ý) of the stepping motor.
Is it normal?

NO Replace the stepping motor.

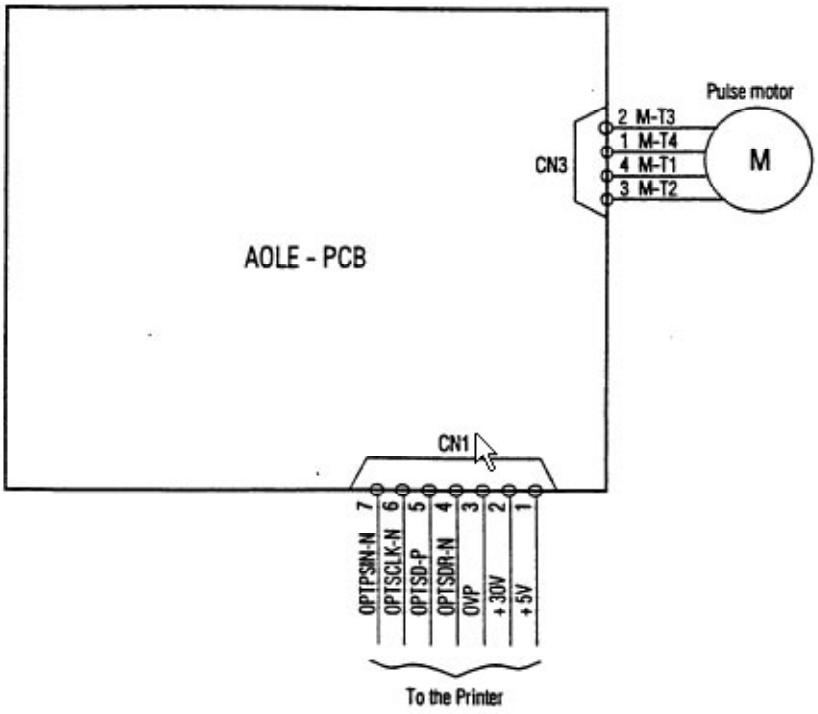
t

YES Replace the AOLE-PCB.

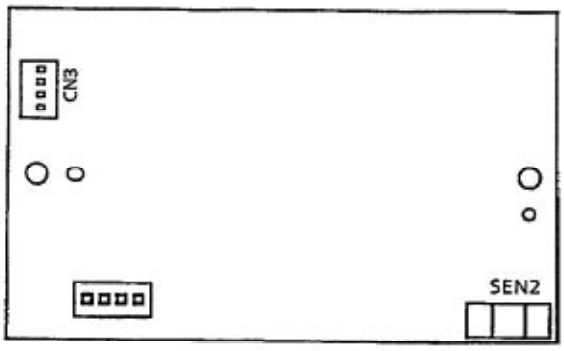
%5. Connection Diagram

5. CONNECTION DIAGRAM

5.1 Interconnection Diagram

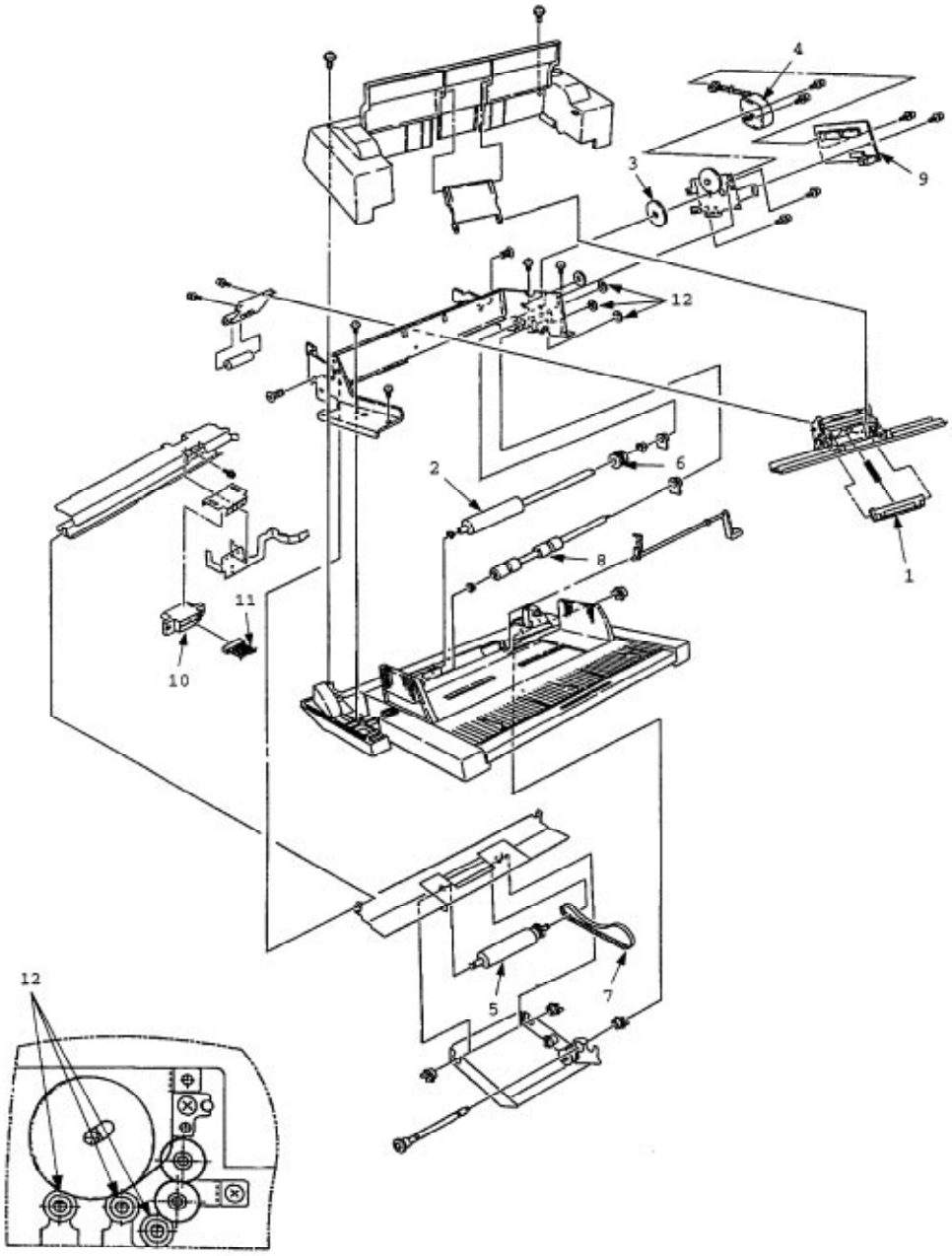


AOLE PCB



%5.2 PCB Layout

5.2 PCB Layout
AOLE-PCB



6. Parts List

6. PARTS LIST

####

Table 6-1 Power Envelope Feeder

No.	Description	Part No.	Qty	Remarks	1
Separator	4PP4083-5544G1	1	53344201	2	Roller-A
3PB4083-5514P1		1	53343801	3	Planet
gear	4PP4083-5520P1	1	51229601	4	Hopping
motor	4PB4083-6075P1	1	56510701	5	Roller-C
3PB4083-5524P1		1	53343901	6	One-way
pulley	4PB4043-4614P1	1	51235701	7	Mini
pitch belt	4LP-1313-338	1	51304901	8	Roller-B
4PB4043-4743P1		1		9	
AOLE-PCB	4YA4046-1647G11	1			
10	Square-shaped connector	220A1866P0141	1	56730641	
11	Nylon connector cord	4YS4011-4448P4	1		12
Stirrer roller gear		4PP4083-2394P1	3		