SHARP® **SERVICE MANUAL**

COLOR LED PRINTER

MODEL AR-C360P

11.01.2005

SHARP CORPORATION

Document Revision History

Ver.	Date	Revision			In-Charge
		No.	Page	Changes	

Preface

This manual describes the procedures of the maintenance of the AR-C360P printer.

The document is produced for maintenance personnel use.

Note!
- The descriptions in this manual are subject to change without prior notice.
- In preparing the document, efforts have been made to ensure that the information in it is accurate.
- The parts used for the printers are sensitive and, if handled improperly, may be damaged. It is strongly recommended that the products are maintained by maintenance men registered with Sharp Electronics Corporation.
- Errors may be crept into the document. Sharp assumes no responsibility for any damage resulting from, or claimed to be the results of, those repairs, adjustments or modifications to the printers which are made by users using the manual.

In order to use the product with safety

In order to use the product with safety, make sure to read the user's manual (this manual) before using the product.

General Caution

⚠Warning	
	Do not touch the safety switch of the internal parts of the printer. Electric shock may occur due to the occurrence of high pressure. The rotation of the gear may also cause injury.
	Do not use an extremely flammable spray around the printer. Fire may occur because of parts with high temperature.
	Please let our staff in Customer Center know after unplugging mains connector when the cover gets extremely hot, is smoking, emits questionable odor, or is making strange noise. Fire may occur.
	Please let our staffs in Customer Center know after unplugging mains connector when liquid such as water goes into the printer. Fire may occur.
	Please take a foreign object away after unplugging when you drop foreign objects such as clips into the printer. That situation may case electric shock, fire, and/or injury.
	Do not conduct an operation or an analysis other than specified in user's manual. That situation may case electric shock, fire, and/or injury.
	Please let our staffs in Customer Center know after unplugging mains connector when the printer has fallen down or damaged. That situation may case electric shock, fire, and injury.
	Do not connect the power cord, the printer cable, or the ground wire other than instructed in user's manual. Fire can be induced if misused.
	Do not insert objects at the vent hole. Do not operate the printer with the rear cover opened. Electric shock, fire, and/or injuries may occur.
	Do not place a cup with liquid on the printer. Electric shock, fire, and/or injuries may occur.
	Risk of explosion if battery is replaced by an incorrect type. Battery of the printer need not to be replaced. Do not touch the battery. Replace the whole board to replace the CU main board. In the case of replacing batteries at board repairs, replace with the specified type ones. Installation of another type batteries may result in explosion. Caution for used batteries are as follows; do not recharge, force open, heat or dispose of in fire.
	When open the printer cover, do not touch the fuser unit. You may get burned.
	Do not throw toner cartridges, or image drum cartridges into fire. You may get burned by dust explosion.

⚠Caution

Do not go near an ejection area while the power is on and in printing. You may get injured.

Table of contents

1. CONFIGURATION

1.1 System Configuration

Figure 1-1 illustrates the System Configuration of this printer.

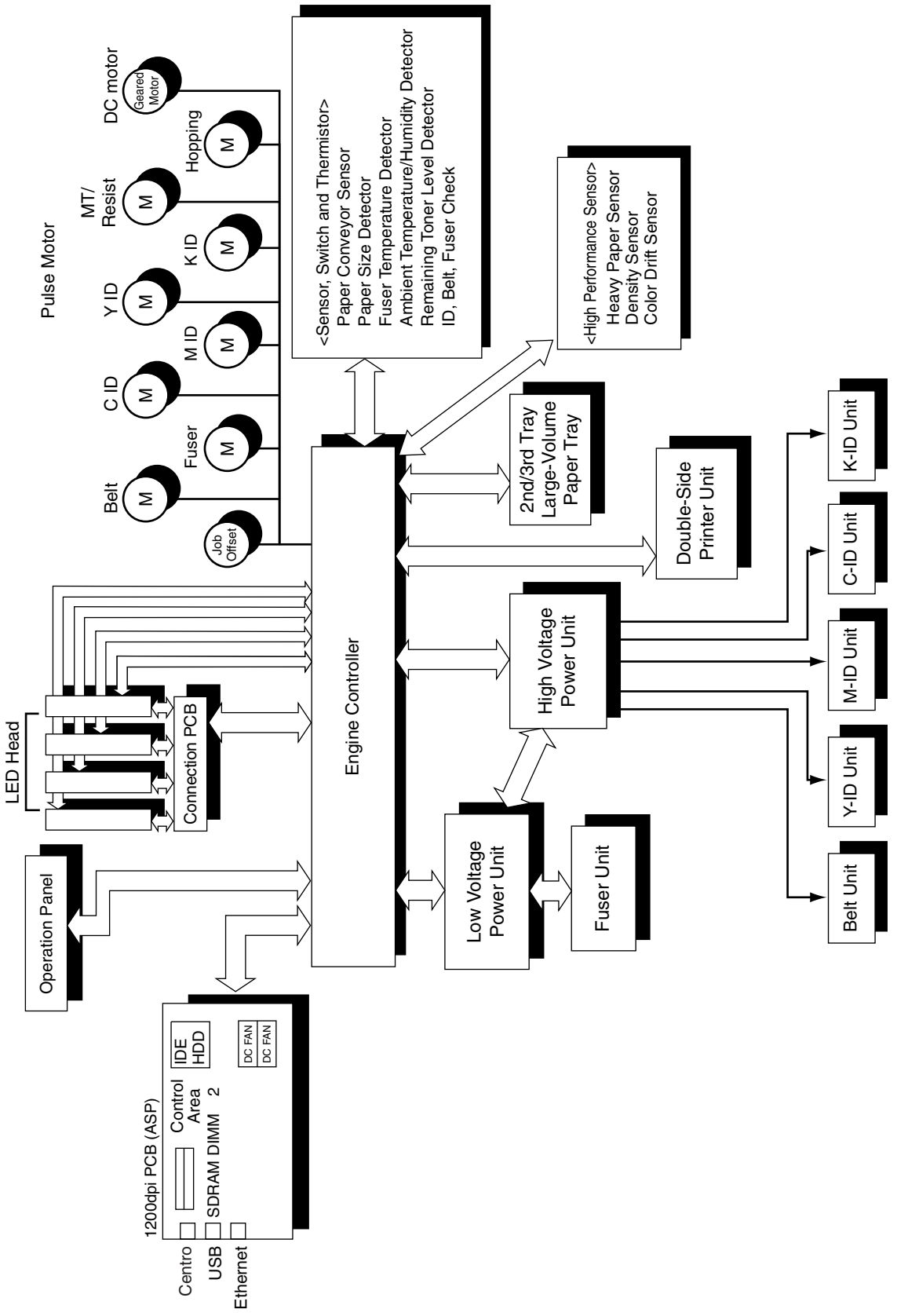


Figure 1-1

1.2 Printer Composition

The internal part of the printer consists of the following parts.

- Digital Photo Processor
- Paper Travel Path
- Control Unit (CU and PU)
- Operation Panel
- Power Source (High Voltage Area/Low Voltage Area)

Figure 1-2 illustrates the printer composition.

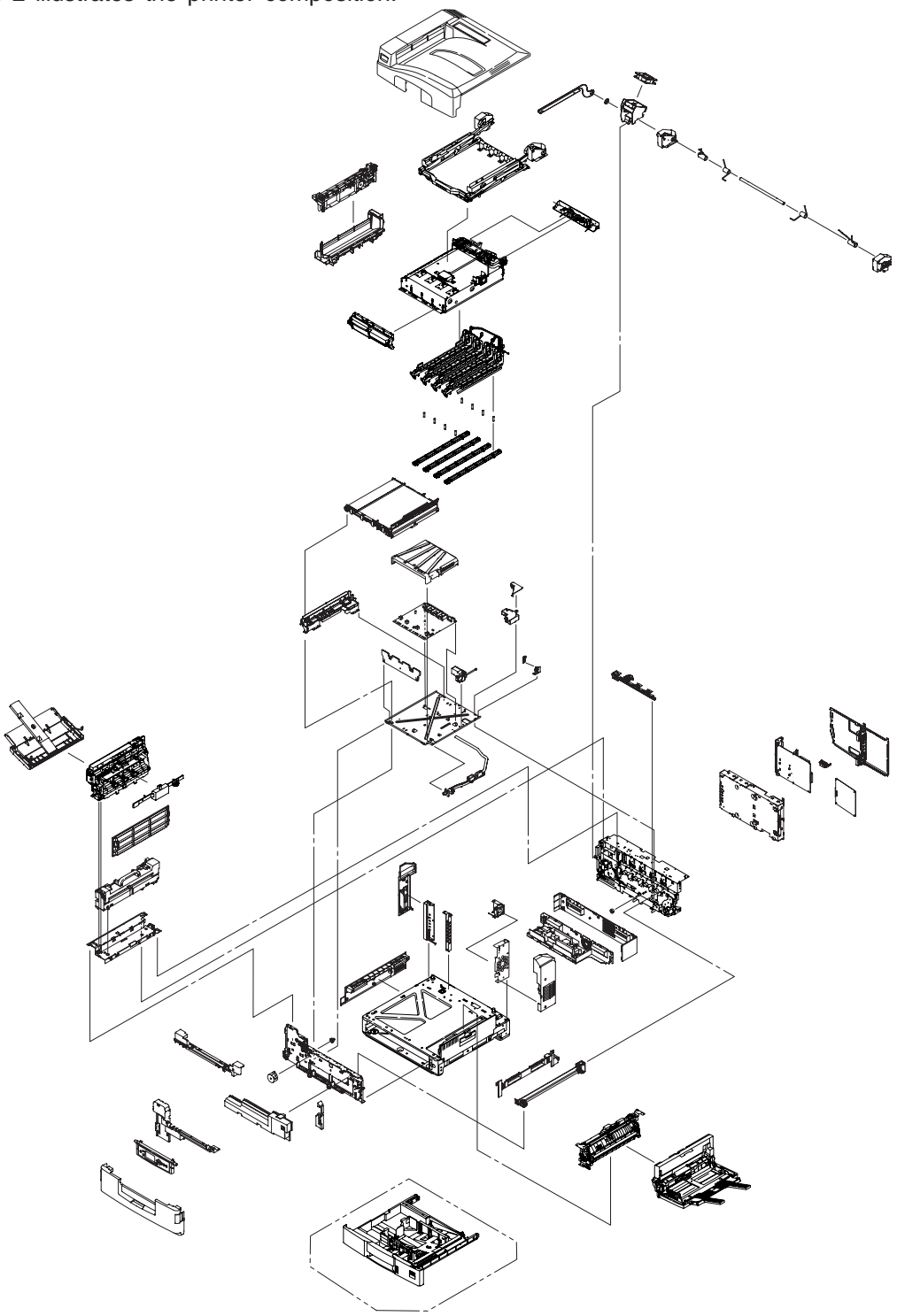
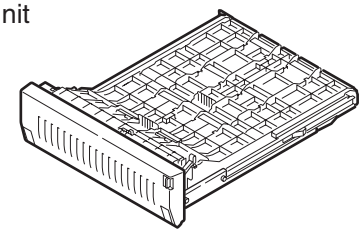


Figure 1-2

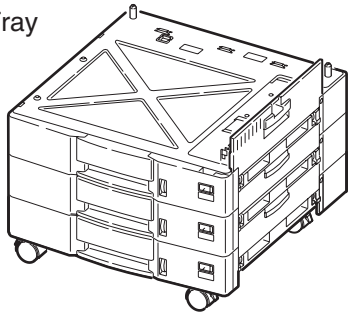
1.3 Composition

This printer comes standard with the following options.

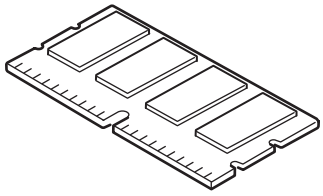
Double-Side Printer Unit



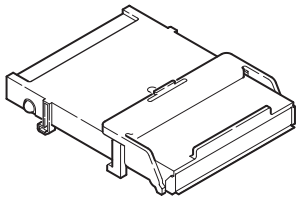
Large-Volume Paper Tray



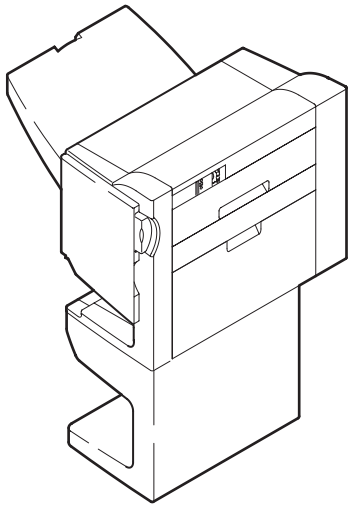
Additional Memory: 512MB



Internal Harddisk



Finisher Unit (AR-C36TF)



2/3 Hole Punch Unit (AR-C36HP)

(No Image)

1.4 Specifications

(1)	Dimensions (H × W × D):	462 mm × 640 mm × 615 mm	
(2)	Weight:	65 kg	
(3)	Paper		
	Paper Type:	Regular paper and transparency (Recommended: ML OHP01)	
	Paper Size:	Post Card, Legal 13"or 14", Executive, A4, A5, B5, A6, A3, A3 Nobi, B4 (However, A6 and Post Card:1stTray and Front Feeder only)	
	Continuous Paper Feed:	1st Tray	: 55 kg to 172 kg (64 to 203g/m^2)
		Front Feeder	: 55 kg to 172 kg (64 to 203g/m^2)
(4)	Print Speed		
	Color:	36 ppm (OHP: 10 ppm)	
	Monochrome:	40 ppm (OHP: 15 ppm)	
	Post Card, Label, Heavy Paper:	15 ppm	
(5)	Resolution:	1200 × 600/4bit gray scale	
(6)	Input Power:	100VAC ±10%	
(7)	Power Consumption	Peak	:1500W
		Normal	:750W average (Reference value)
		Idle	:200W (Reference value)
		Power Save Mode	:55W
(8)	Frequency:	50/60Hz ±2Hz	
(9)	Noise		
	During Operations:	55dB (when second tray is not attached)	
	Standby Time:	45 dB	
	Power Save:	43 dB	
(10)	Life of Consumables		
	Toner Cartridge:	7,500 pages (5% Duty)	
	Large-Volume Toner Cartridge:	15,000 pages (5% Duty) (Y, M, C, K each)	
	Imaging Drum:	42,000 page (5% Duty, Continuous Printing) or 30,00 pages (for 3P/J)	
(11)	Routine Replacement of Consumable Parts		
	Fuser Unit Assy:	100,000 pages	
	Transfer Belt:	100,000 pages	
	Waste Toner Box:	30,000 pages	

(12) Temperature and Relative Humidity

Temperature

Temperature Conditions

	Temperature (°F)	Temperature (°C)	Remarks
Operating	50 to 89.6	10 to 32	17 to 27 °C (Temperature guaranteeing full-color print quality)
Not Operating	32 to 109.4	0 to 43	Power OFF
Storage (1 Year Max)	-14 to 109.4	-10 to 43	Drum and Toner: Yes
Transport (1 month Max)	-20 to 122	-29 to 50	Drum: Yes/Toner: No
Transport (1 month Max)	-20 to 122	-29 to 50	Drum and Toner: Yes

Relative Humidity

Relative Humidity Conditions

	Relative Humidity (%)	Maximum Web Bulb Temperature (°C)	Remarks
Operating	20 to 80	25	50-70% (Temperature guaranteeing full-color print quality)
Not Operating	10 to 90	26.8	Power OFF
Storage	10 to 90	35	
Transport	10 to 90	40	

2.1 Main Control PCB

Main Control PCB (ASP-PWB) (1200dpi)

Figure 2-2-1 illustrates the block diagram of the Main Control PCB (ASP PWB).

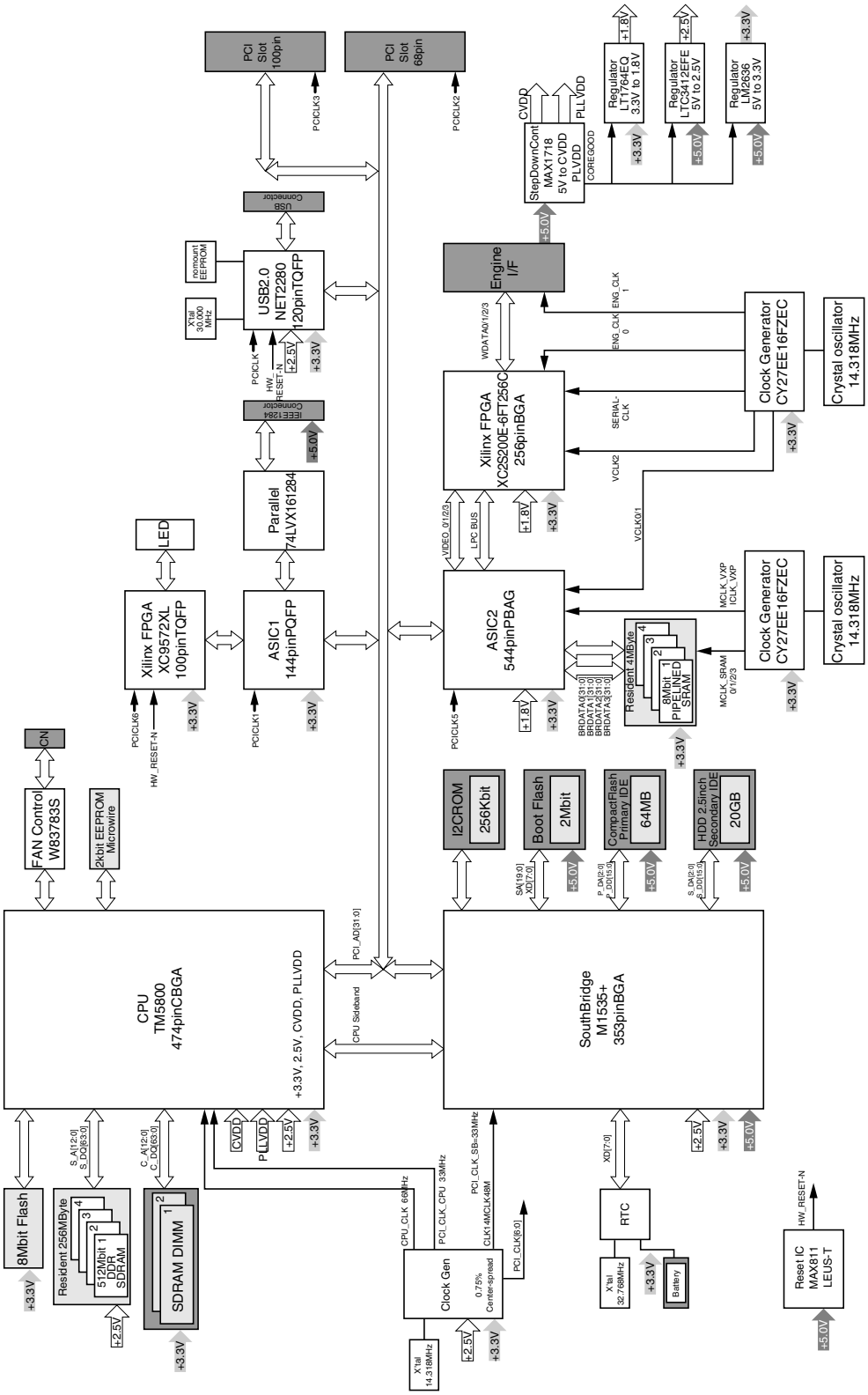


Figure 2-2-1

The Main Control PCB of the 1200dpi printer consists of a CPU, RAM, HDD, CompactFlash, SouthBridge LSI, EEPROM, KeyChip, PCI Bus Option and Advanced Interface.

(1) CPU

1GHz Transmeta TM5800 CPU.

(2) RAM

There are 3 types of RAMs. SDRAM DIMM is the only user option RAM. The DDR and video RAM configuration is fixed and cannot be modified. Only the total memory of the DDR and SDRAM DIMM is recognized as a usable RAM within the system configuration.

DDR : This is 256MB and 266MHz in speed, and directly soldered on the ASP PCB.

SDRAM DIMM : 128, 256, and 512MB; 133MHz speed, 144p DIMM mounted in DIMM slot.

Video RAM : RAM that is directly soldered on ASP PCB for the video LSI.

(3) HDD/CompactFlash

The 1200-dpi program is stored in a storage medium. Depending on the model, the system is equipped with HDD or CompactFlash. However, HDD may be added as an option to a model with CompactFlash. HDD is a mold assembly similar to the one for the 600-dpi system.

(4) SouthBridge LSI

This is a ALI-make BGA package LSI. It mainly controls the USB I/F, Centro I/F, image processing LSI, Ethernet board, and MFP extension board via the PCI bus.

(5) Image Processing LSI

This is an EFI-make BGA package LSI. It is mainly for image processing.

(6) EEPROM

This is a 3.3V/256kbit EEPROM with an 8-pin DIP package mounted on the IC socket. It stores various settings that the control unit manages.

(7) KeyChip

The KeyChip is an 8-pin DIP package mounted on the IC socket. It is purchased from EFI and stores EFI management information.

(8) PCI Bus

100-pin: An MFP extension board is available as optional equipment.

68-pin: A LAN card is provided as standard equipment.

(9) Advanced Interface

Standard : Centronic Parallel I/F (IEEE-1284)
USB (USB2.0) I/F
Ethernet Board

Additional PCB : MFP Extension Board (PCI BUS Connection)

2.2 Engine Control PCB (S2V PWB)

Figure 2-3 illustrates the block diagram of the Engine Control PCB (S2V PWB).

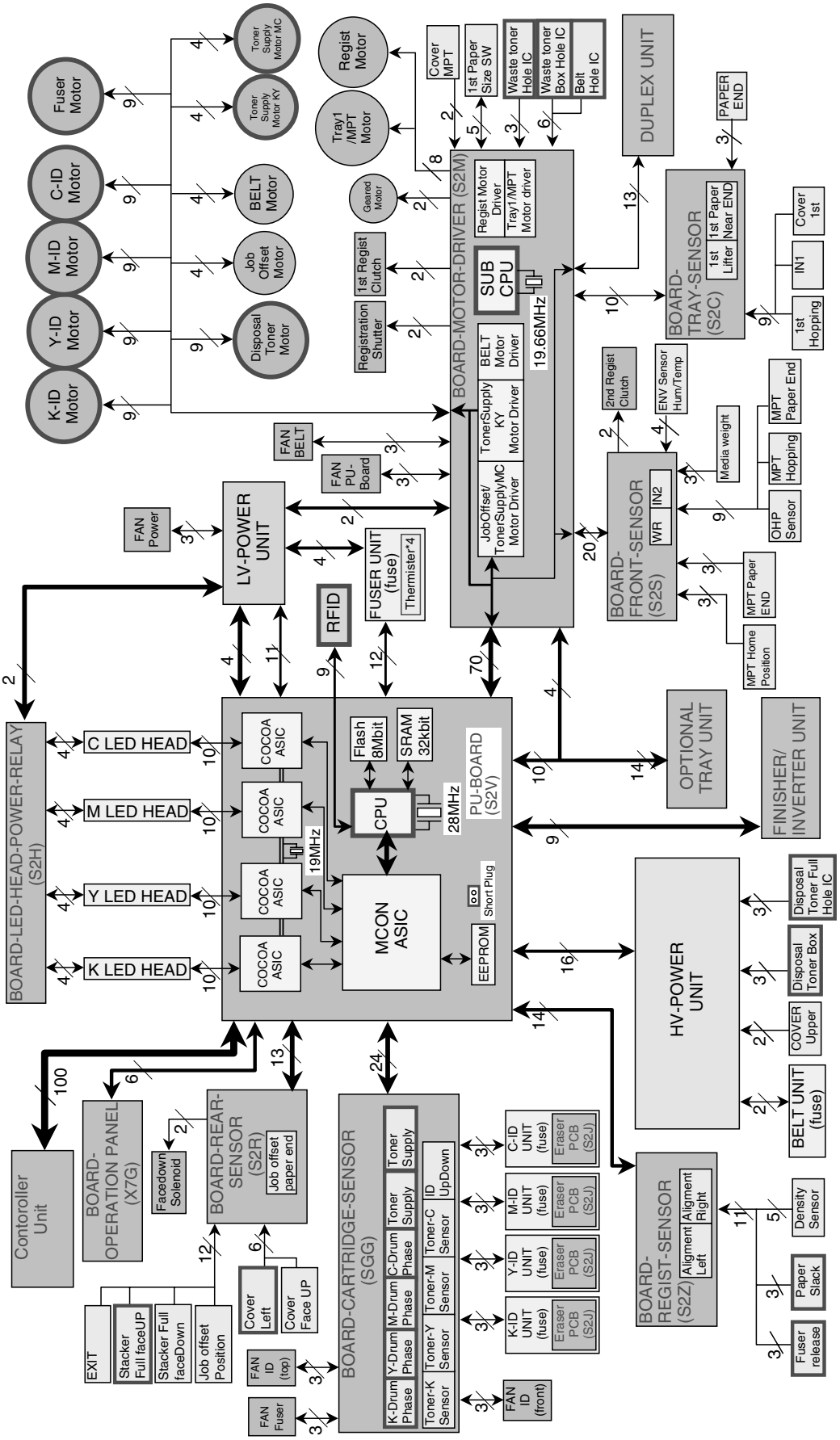


Figure 2-3

2.3 Power Unit

This is a high voltage power unit consisting of high voltage power source circuit and a low voltage power unit composed of a power unit consists of an AC filter circuit, low voltage power source circuit and heater drive circuit.

(1) Low Voltage Power Unit

This circuit generates the following voltage.

Output Voltage	Purpose
+5V (1)	PU, Logic Circuit Power Source
+5V (2)	LED Head
+5V (3)	CU
+24V	For Monitor Drive

(2) High Voltage Power Unit

This circuit generates the following voltage that is more powerful than +24V necessary for the electrophotographic process, according to the control sequence from the control PCB.

Output	Voltage	Purpose	Remarks
CH	-0.8 to -1.4kV	Power to Electrification Roller	
DB	-100 to -450V/250V	Power to Development Roller	
SB	-300 to -700V	Power to Toner Supply Roller	
BB	Drop from SB Output with Zener	Power to Development Blade	
TR	0 to 7kV	Power to Transfer Roller	

2.4 Mechanical process

Figure 2-4 illustrates the mechanical process of the AR-C360P.

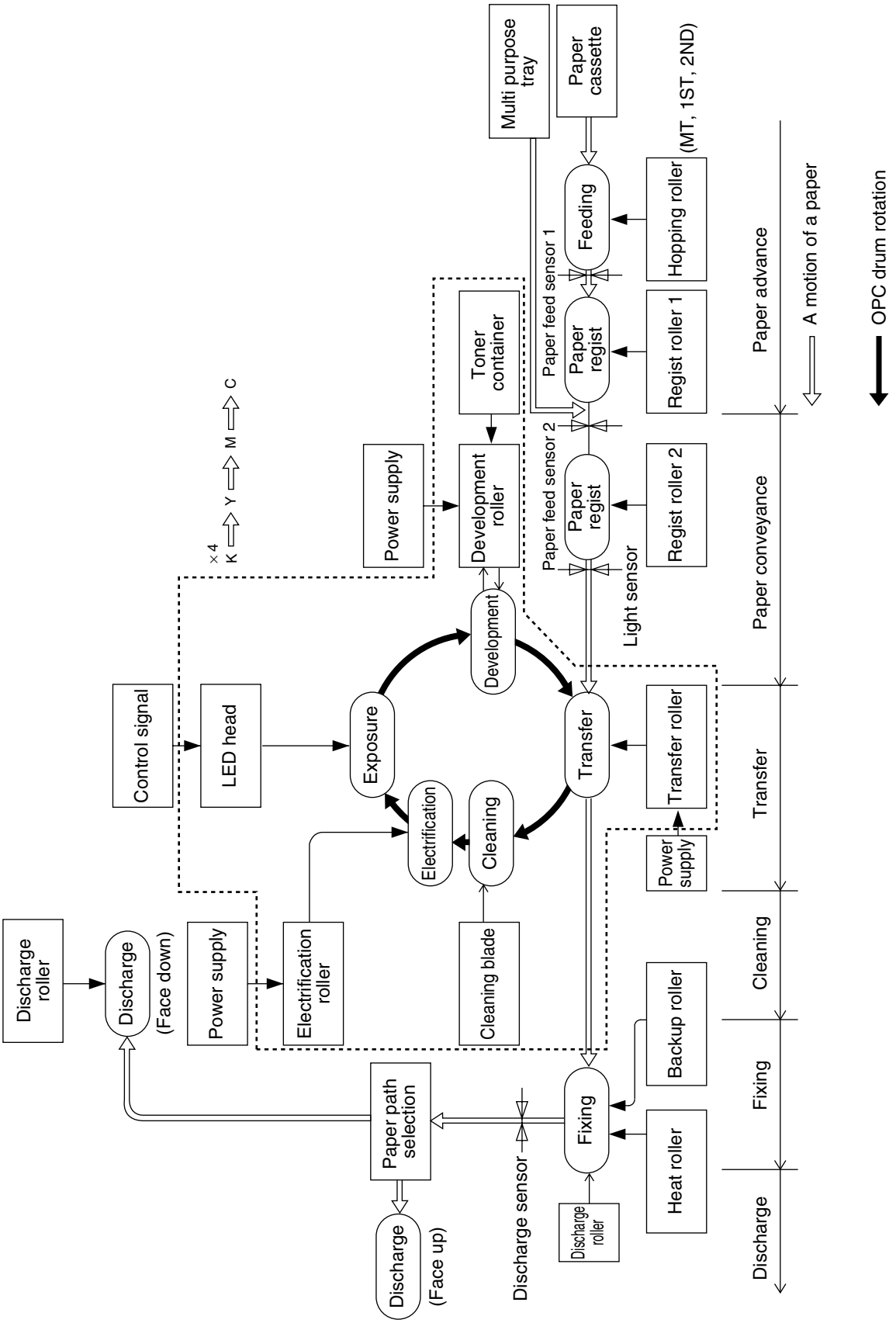


Figure 2-4

2.4.1 Electrophotographic Processing Mechanism

(1) Electrophotographic process

The overview of the electrophotographic process is described below.

① Electrification

DC power is applied to the CH roller to evenly negatively electrify the surface of the OPC drum.

② Exposure

The LED head irradiates light on the surface of the OPC drum that is charged with a negative electrical load. The negative electrical load attenuates according to the intensity of light, for the irradiation area of the OPC drum surface. Further, the electrostatic latent image is created on the OPC drum surface according to the electrical potential.

③ Development

The negatively charged toner comes in contact with the OPC drum to fuse the electrostatic latent image by electrostatic force, to create a significant image on the surface of the OPC drum.

④ Transfer

Paper is pressed against the surface of the OPC drum, then conveyed by the transfer roller from behind. The toner and positive electrical load of a reverse electrode is applied, then the toner image is transferred to the paper.

⑤ Cleaning

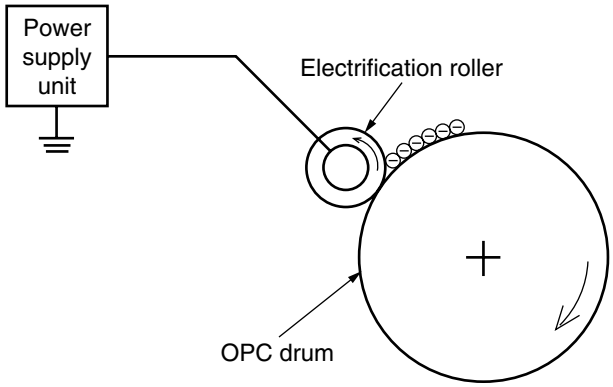
The cleaning blade removes residual toner on the OPC drum after the toner is transferred to the paper.

⑥ Fuser

Heat and pressure is applied to the toner image on the paper to fuse the image on the paper.

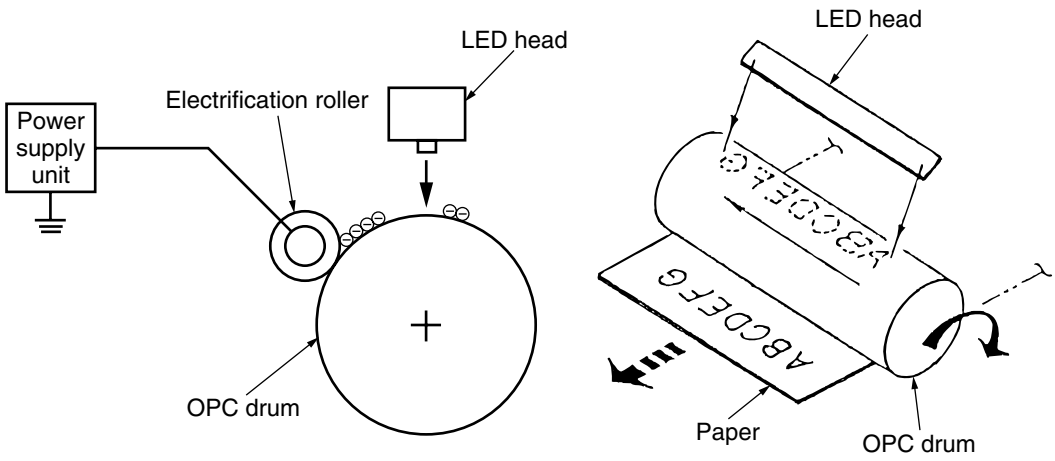
(2) Electrification

A negative DC power is applied to the electrification roller to evenly negatively electrify the surface of the OPC drum.



(3) Exposure

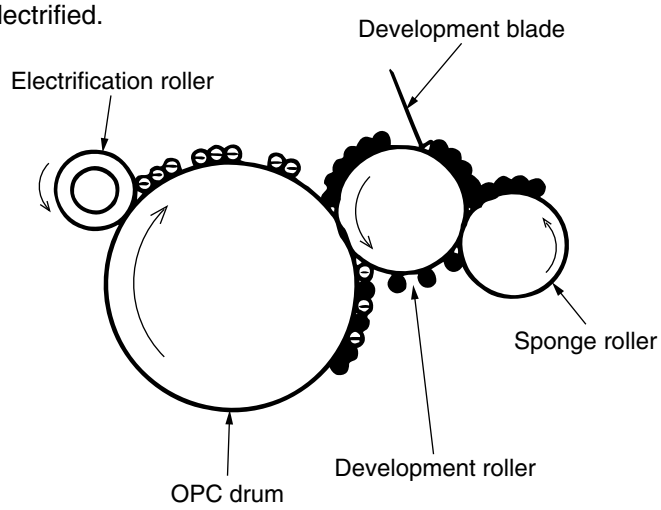
The LED head irradiates light on the surface of the OPC drum that is charged with a negative electrical load. The negative electrical load attenuates according to the intensity of light, for the irradiation area of the OPC drum surface. Further, the electrostatic latent image is created on the OPC drum surface according to the electrical potential.



(4) Development

The negatively charged toner comes in contact with the OPC drum to fuse the electrostatic latent image by electrostatic force, to create a significant image on the surface of the OPC drum.

① The sponge roller precipitates toner on the development roller. The toner is then negatively electrified.



② The development blade removes excess toner from the development roller, then a thin toner layer is created on the development roller.

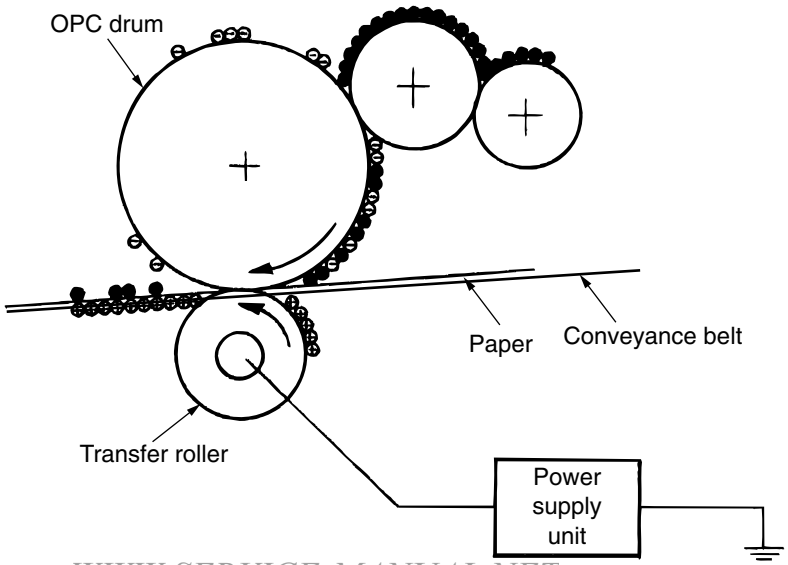
③ The toner is sucked into the electrostatic latent image where the OPC drum and development roller comes in contact.

(5) Transfer

The transfer roller is made of a conductive sponge. Paper is pressed against the OPC drum surface, then the paper and OPC drum surface is adhered.

Paper is pressed against the surface of the OPC drum, then conveyed by the transfer roller from behind. The toner and positive electrical load (that is reverse with the toner) is applied, then the toner image is transferred to the paper.

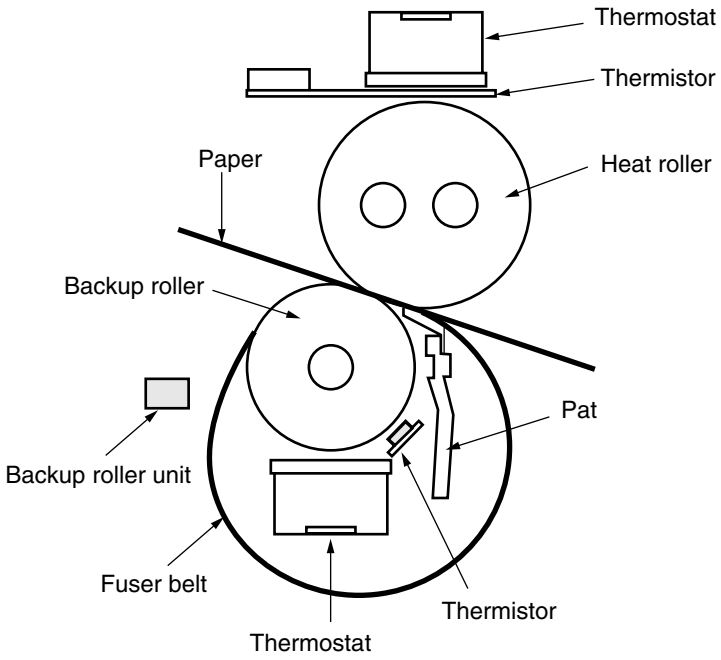
When the power source applies powerful positive power on the transfer roller, the positive electrical load induced by the transfer roller is transferred to the paper surface at the contact point between the transfer roller and paper. The negative electrical load toner is then sucked from the OPC drum surface on to the paper surface.



(6) Fuser

The toner image transferred on the paper is fused on the paper by heat and pressure when the paper passes through the heat roller and backup roller.

The Teflon coated heat roller is heated by a 800W or 350W internal halogen lamp, and backup roller is heated by a 50W internal halogen lamp. The fuser temperature is controlled according to the sum of the temperature that is not contacted with the thermistor ground against the heat roller surface and the temperature that is detected with the thermistor ground on the backup roller surface. There is also a thermostat for safety purposes. When the heat roller temperature rises above a certain temperature, the thermostat opens and shuts down the power supplied to the heater. The backup roller unit is pressed against the heater with a press spring on both sides.

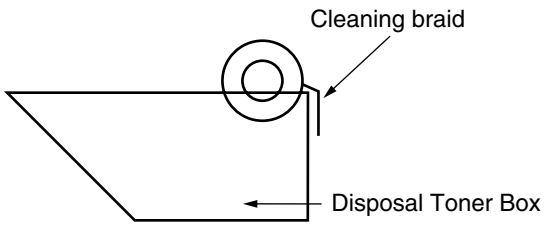


(7) Cleaning

The cleaning blade scrapes off residual toner on the OPC drum after the toner is transferred to the paper, then the disposal toner of the disposal toner box is collected at the rear.

(8) Cleaning

The cleaning blade scrapes off residual toner on the transfer belt then collects is in the disposal toner box of the transfer belt unit.



2.4.2 Paper Processing Mechanism

Figure 2-5 illustrates how the paper transfers through the AR-C360P.

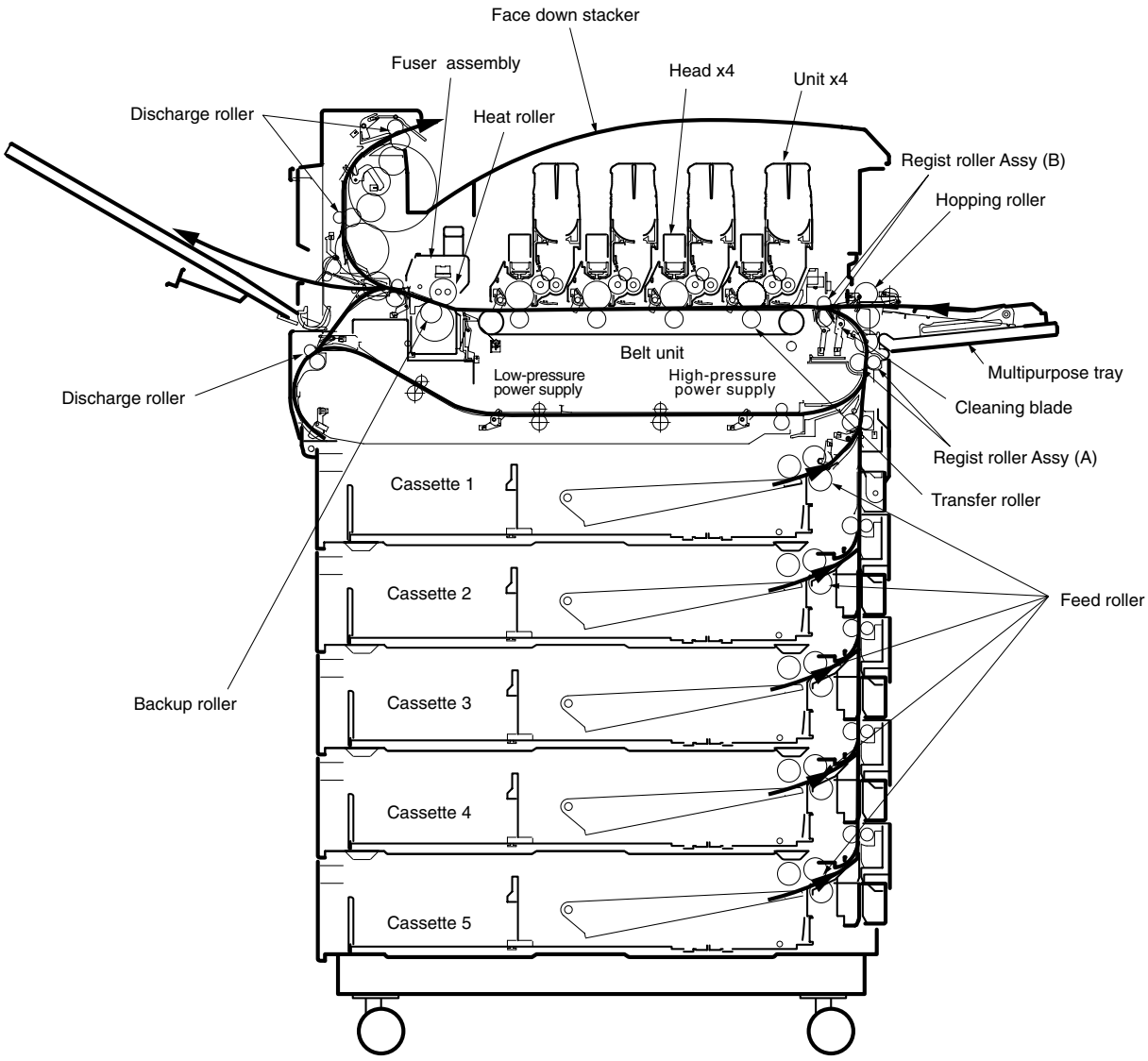


Figure 2-5 Paper Path

(1) Paper Supplied from the 1st Tray

1. Paper proceeds when the paper supply motor turns (CCW) and the paper supply clutch is connected, until the IN1 sensor turns ON.
2. When the IN1 sensor is turned ON, a certain volume of paper is further transported until it is against the 1st resist roller. (this corrects paper skew)
3. The paper is transported to the transport belt when the electromagnetic clutch which delivers power that the register strike motor is turning (CW) and the thrust reliance of a paper is completed to the 1st register strike roller is connected.

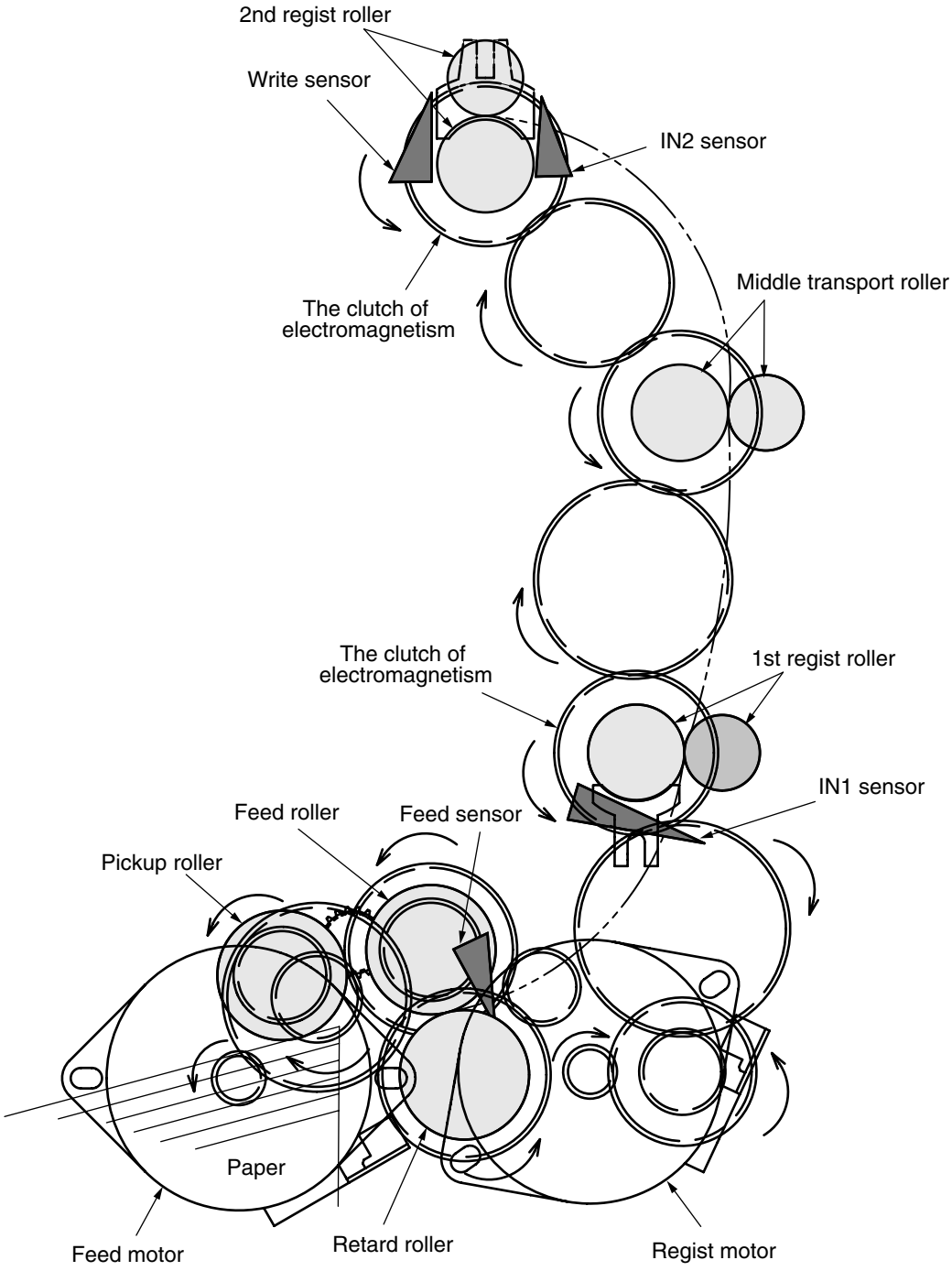


Figure 2-6

(2) Paper Supplied from the Option Tray

1. Paper proceeds when the paper supply motor turns (CCW) and the paper supply clutch is connected, until the IN sensor of the top tray to supply the paper, turns ON.
2. When the IN sensor is turned ON, a certain volume of paper is further transported against the regist roller. (this corrects paper skew)
3. The paper is conveyed to the AR-C360P when the electromagnetic clutch which delivers power that the register strike motor is turning (CW) and the thrust reliance of a paper is completed to the 1st register strike roller is connected.

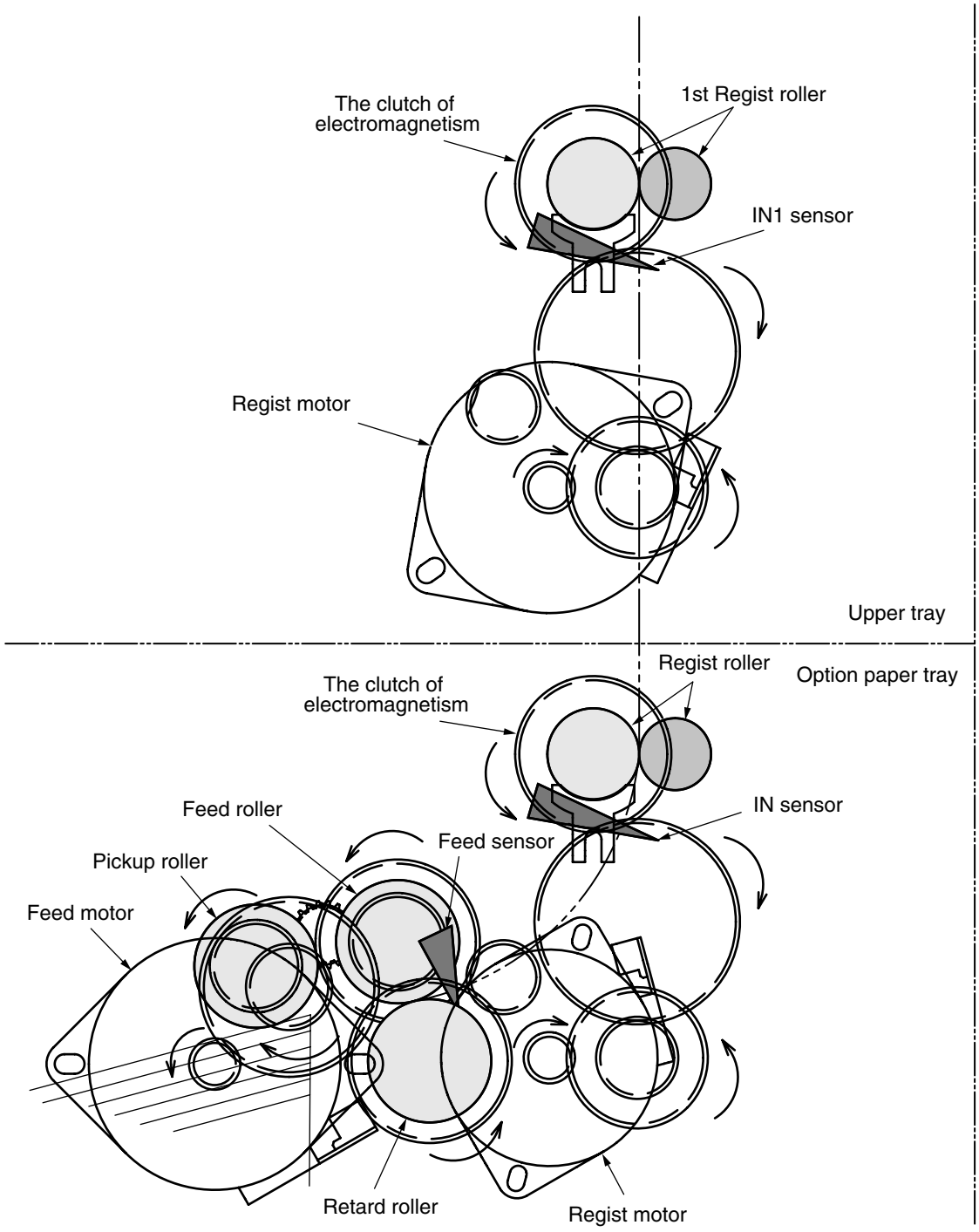


Figure 2-7

(3) Paper Supplied from MPT

1. In the usual case, sheet receiving is depressed by the arm for rise and fall at a home position.
2. When a regist motor rotates in the direction of (b), the arm for rise and fall drives and sheet receiving is rotated. The paper on sheet receiving goes up to the position where a lift rise sensor is turned on, and feeding is attained because the arm for rise and fall goes up.
3. The hopping motor is shared with the tray and MPT feeding uses the inversion of tray feeding.

   If a hopping motor reverse-rotates, a pickup roller and a feed roller will drive and a paper will be sent out.
4. After an entrance sensor (2) is turned on by the paper tip, a paper is sent by specification length. A paper will stop, if the tip reaches the 2nd register strike roller Assy.
5. A regist motor rotates in the direction of (a) simultaneously, and a paper is conveyed with the 2nd regist roller Assy. A hopping motor is rotated until a paper arrives at the position of the image drum cartridge (black).
6. A hopping motor is rebooted, in order to make paper feed to the following paper, when an after the end escapes from the hopping sensor.
7. When operation of 4 to 6 is repeated and a lift rise sensor turns off, a regist motor is rotated in the direction of (b), and the arm for rise and fall is driven, and it goes up until a lift rise sensor turns on the paper on sheet receipt.
8. After the completion of paper sending operation, when a lift rise sensor detects off, a regist motor is rotated in the direction of (b), and sheet receiving is returned to a home position by dropping the arm for rise and fall.

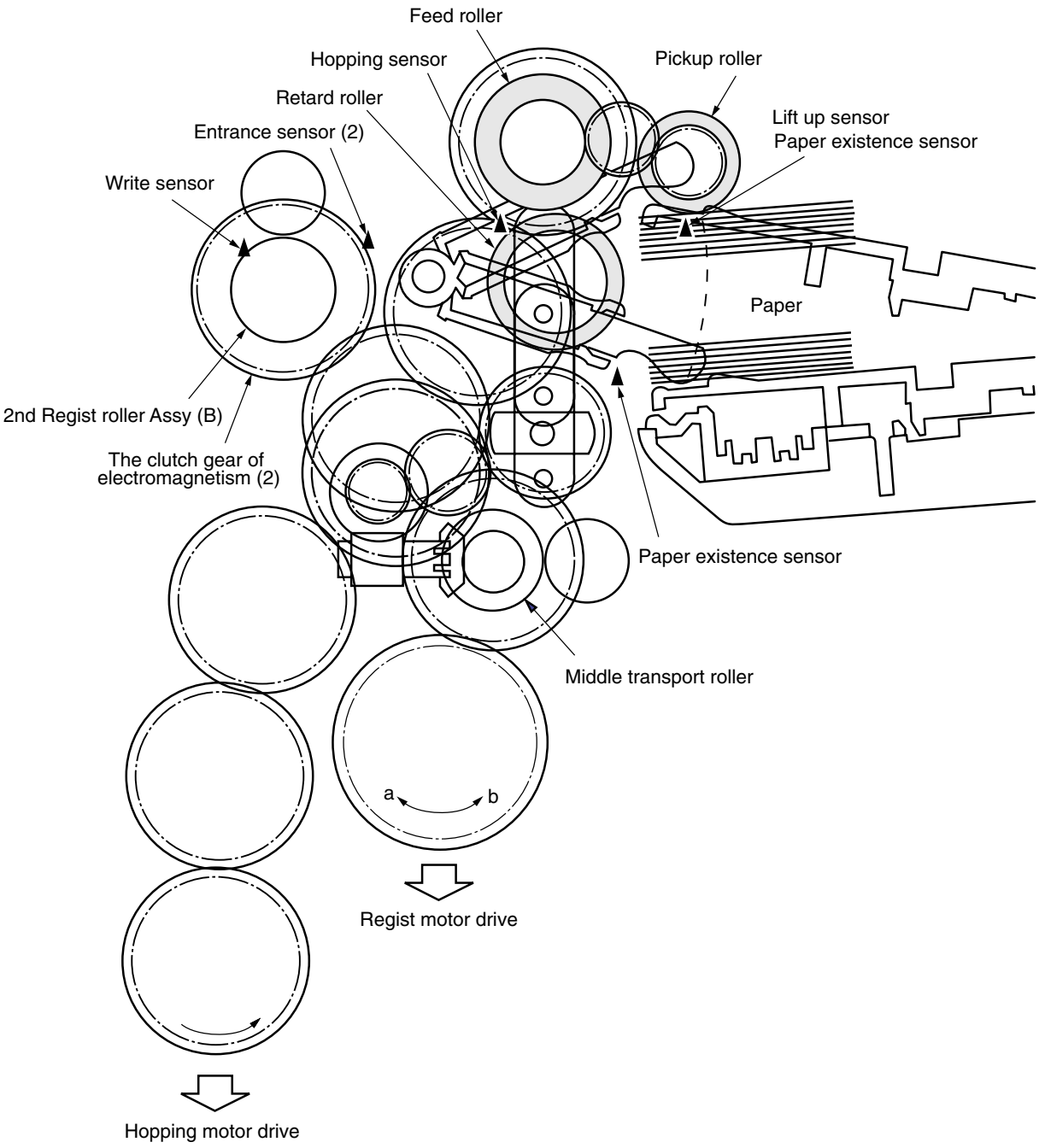


Figure 2-8

(4) Conveyor Belt

1. The conveyor belt motor drives the conveyor belt when turning in the direction of the arrow (a). The belt unit consists of one conveyor roller that is directly under the drum for each color, with the conveyor belt in between the drum.

   When a specified voltage is applied, the conveyor belt and conveyor roller transfers the toner image on the drum for each color, then feeds the paper on the conveyor belt to the fuser unit.

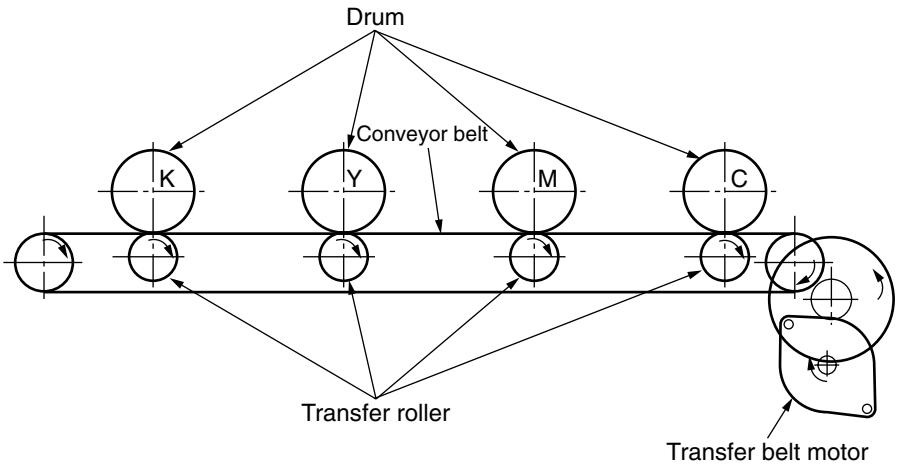


Figure 2-9

(5) ID Unit Up/Down Operations

1. The C-ID motor drives the ID unit up and down.
2. Figure 2-10-a indicates ID unit operations during color printing. When the C-ID motor rotates (CCW), the lift uplink slides to the left, and as indicated in Figure 2-10-a, each ID unit moves DOWN. The printer is now ready for color printing.
3. Figure 2-10-b indicates the ID unit operations during monochrome printing. When the C-ID motor rotates (CW), the lift uplink slides to the right, and as indicated in Figure 2-10-b, all units other than the K-ID moves UP. The printer is now ready for black-and-white printing.

ID Unit Operations During Color Printing

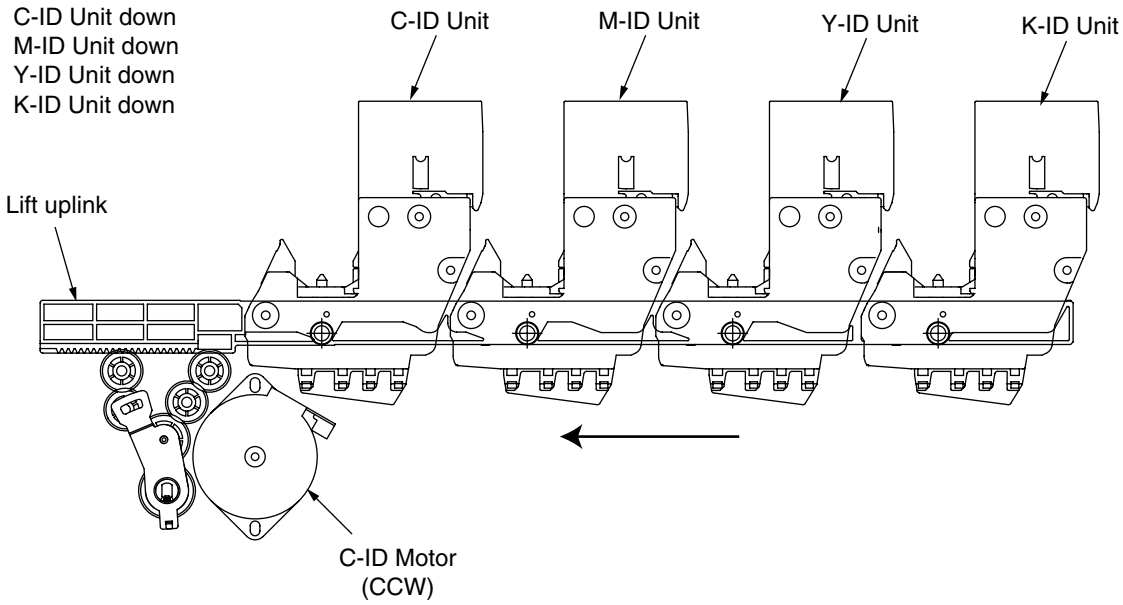


Figure 2-10-a

ID Unit Operations During Monochrome Printing

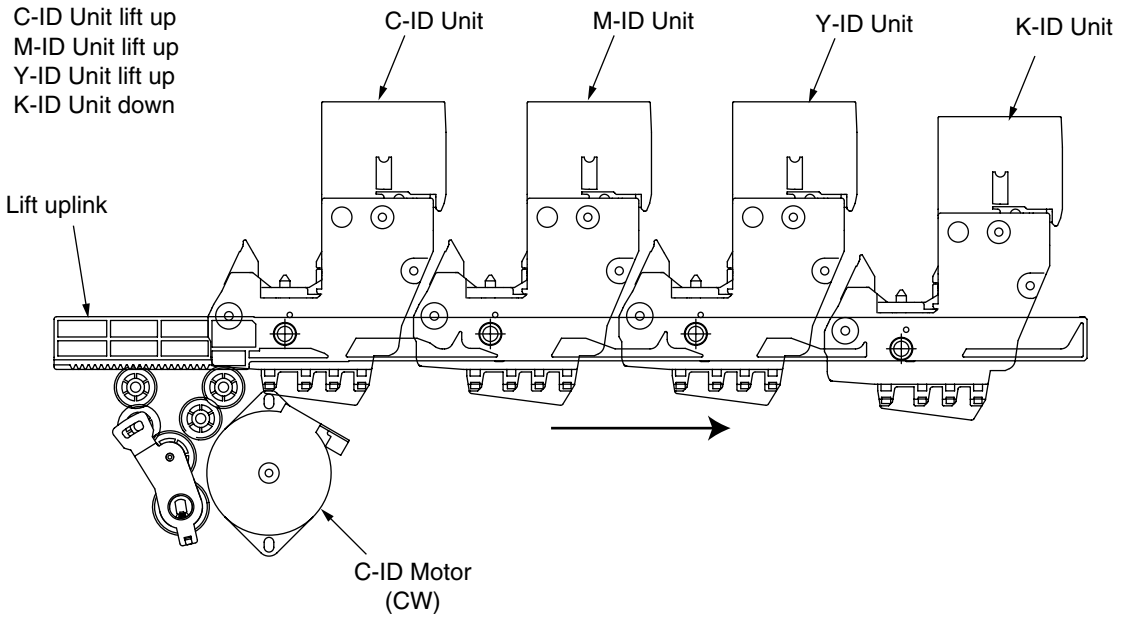


Figure 2-10-b

(6) Fuser Unit and Paper Output

1. The fuser unit and discharge roller is driven by a single DC motor. The heater roller turns when the fuser motor turns in the direction of the arrow (a). This roller fuses the toner image on the paper with heat and pressure.
2. At the same time, the four discharge rollers are activated to discharge paper.
3. The discharge path to the face-up or face-down stacker is automatically switched by the paper separator solenoid.

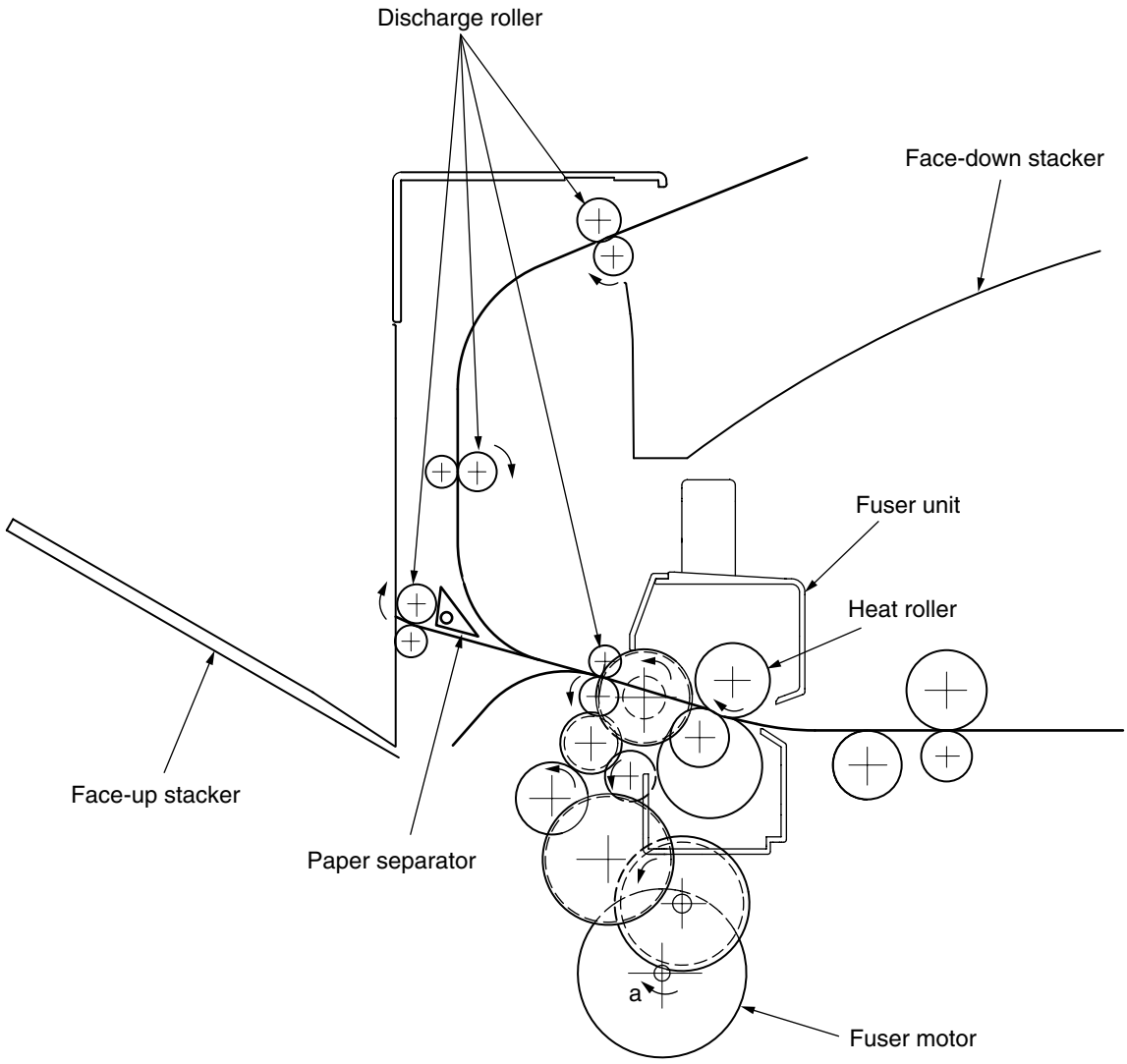


Figure 2-11

(7) Double-Side Printer Unit

1. When the double-side Printer Unit receives double-side print instructions, the separator is opened by the solenoid after one side of the paper fed from the tray is completely printed, then the path is switched to the double-side printer unit.

   At this time, roller (1) turns in the direction of arrow (a), therefore, the paper is retracted to the undersurface of a double-side printer unit.

2. Further, when the tip of the paper passes through the double-side printer entrance sensor after a certain period of time, the roller starts a reverse rotation. Roller (1) turns in the direction of arrow (b), then sends the paper inside the double-side printer unit. After that, it passes through roller (2), (3), (4) and (5), prints the other side of the paper, then discharges the paper, and re-feeds it back to the unit.

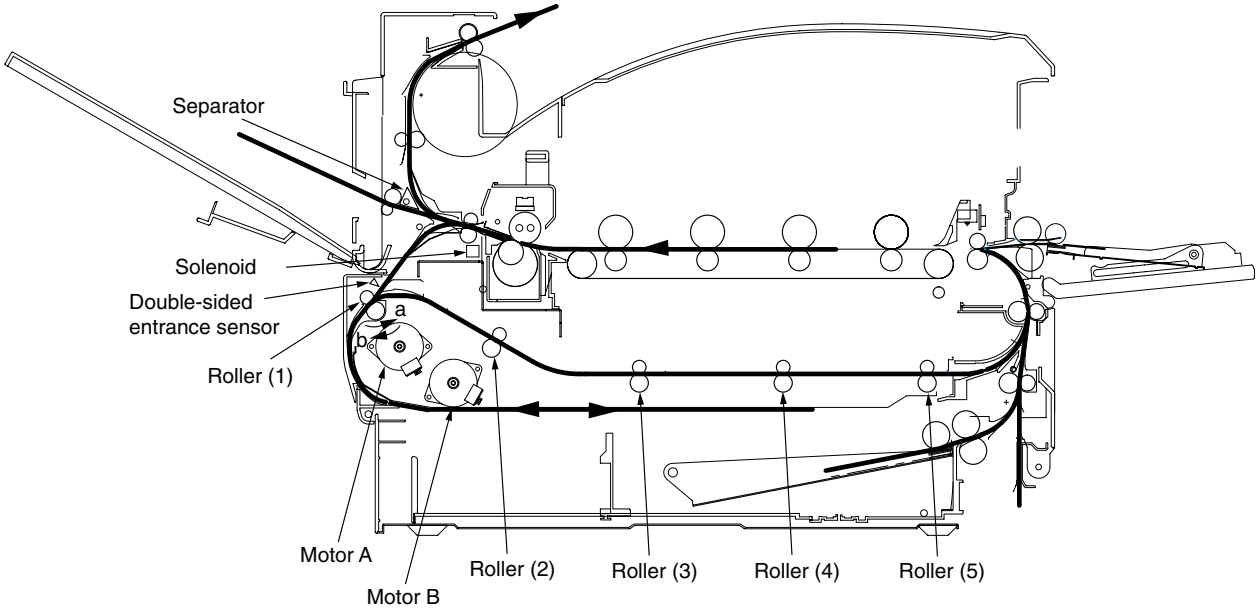
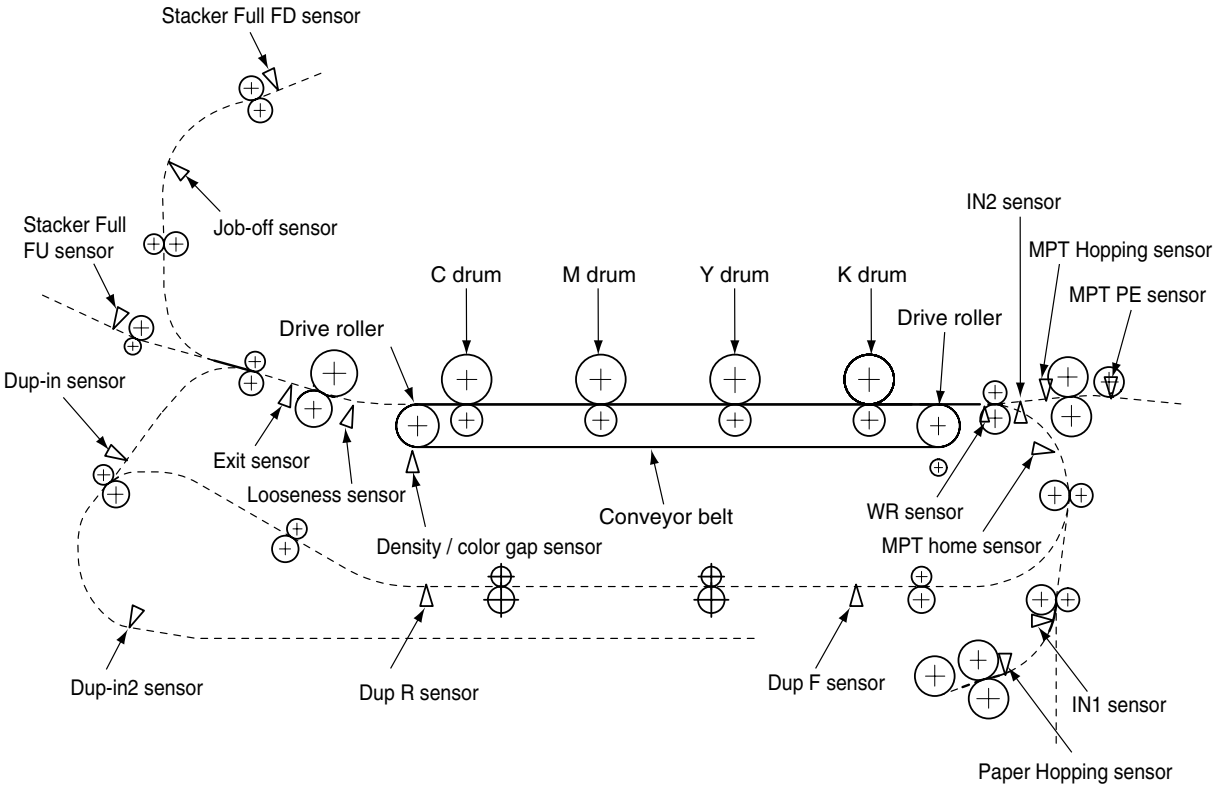


Figure 2-12

2.5 Sensor

2.5.1 Paper-Related Sensor



Sensor	Function	State of Sensor
Entrance MT Sensor Entrance Cassette Sensor	This detects the top of the paper entering and then determines the timing to switch from the hopping to the conveyor.	ON : Paper Available OFF : Paper Unavailable
Entrance Belt Sensor	This detects the tip of the paper transferred, then determines the length of the paper according to the time it takes the tips of the paper to reach the sensor.	ON : Paper Available OFF : Paper Unavailable
Paper Discharge Sensor	This detects the tip and end of the paper, then determines paper discharge.	ON : Paper Available OFF : Paper Unavailable
Double-Side Print Entrance Sensor	This determines the tip of the paper entering the double-side printer unit, then determines the times it takes for the inverse roller to inverse from CCW to CW.	ON : Paper Available OFF : Paper Unavailable
Double-Side Print Rear Sensor	This detects the tip of the paper after inversion by the double-side printer unit.	ON : Paper Available OFF : Paper Unavailable
Double-Side Print Front Sensor	After inversion by the double-side printer unit, the end and tip of the paper is detected and then paper discharge is determined.	ON : Paper Available OFF : Paper Unavailable
Stack Full Sensor	This detects paper-full in the face-down stacker.	ON : Stack Full OFF : Stack Empty
Face-Down Paper Discharge Sensor	This detects paper conveyance to the paper discharge roller, then determines the timing to offset job operations.	ON : Paper Available OFF : Paper Unavailable
Face-Down Route Sensor	When the paper jams, this detects the paper jam in the face-down conveyance rotor.	ON : Paper Available OFF : Paper Unavailable
Conveyance Sensor	This detects the paper conveyed from the option tray.	ON : Paper Available OFF : Paper Unavailable

2.5.2 Other Sensors

① Paper Empty Sensor

This sensor checks whether the paper cassette is empty or not.

② Paper Near-End Sensor

This sensor checks whether the paper cassette will be empty soon or not.

③ MBF Paper Empty Sensor

This sensor checks whether there is paper in the front feeder.

④ MBF Hopping Switch

This micro-switch checks whether the front feeder table is in the UP position or DOWN position.

⑤ Stack-Full Sensor

This sensor checks whether the stacker is full or not.

⑥ Paper Size Switch

This sensor detects the size of the paper in the paper cassette.

⑦ EP UP/DOWN Sensor (one sensor each for Y, M, C, K)

This sensor checks whether the I/D unit is in the UP position or DOWN position.

⑧ Toner K, Y, M and C Sensor

This sensor checks the toner residual quantity in an image drum, when a sensor lever measures a time interval to open periodically.

⑨ RFID Sensor

The radio communications of this sensor are carried out to IC tip built in the toner cartridge, and it checks the existence of a toner cartridge, and the toner residual quantity in a toner cartridge.

⑩ Thermal Sensor

Refer to 2.7 “Image Transfer Control Due to Environmental Change”.

⑪ Humidity Sensor

Refer to 2.7 “Image Transfer Control Due to Environmental Change”.

⑫ Transparency Sensor

This sensor detects whether there is a transparency or not.

⑬ Positioning Sensor

This sensor reads the printed position pattern on the left and right ends of the transfer belt when color drift is corrected. (Refer to Section 2.13)

⑭ Density Sensor

This sensor measures the pattern density to measure the density printed on the conveyor belt.

⑮ Media Thickness Sensor

This sensor detects the thickness of the media.

⑯ Disposal Toner Sensor

This sensor checks whether the disposal toner in the disposal toner box is full or not.

⑰ Looseness Sensor

This sensor detects looseness in paper transport and adjusts the speed.

2.6 Color Drift Correction

The AR-C360P comes with several ID units and LED heads, therefore, causes color drift. This mechanical color drift can automatically be corrected with the following procedures.

(1) Automatically Corrected Color Drift

① X Axis Color Drift (position off-alignment due to LED head)

② Skew Color Drift (position off-alignment due to LED head)

③ Y Axis Color Drift (I/D unit and position off-alignment due to LED head)

(2) Correction Method

The color drift detection pattern set is printed on the belt. This is then read by the reflection sensor to detect the color drift value of each color and therefore, determine the correction level. The modification takes place by comparing the each colors' (Cyan, Magenta and Yellow) write timing with black, according to the correction value.

2.7 Image Transfer Control According to Environmental Change (Room Temperature and Relative Humidity)

The AR-C360P measures the room temperature with the room temperature sensor and measures the relative humidity with the humidity sensor. It further computes the optimal transfer voltage under the environmental conditions (temperature and RH) measured. Then printing is controlled in real-time at this optimal voltage.

Environmental Detection Table

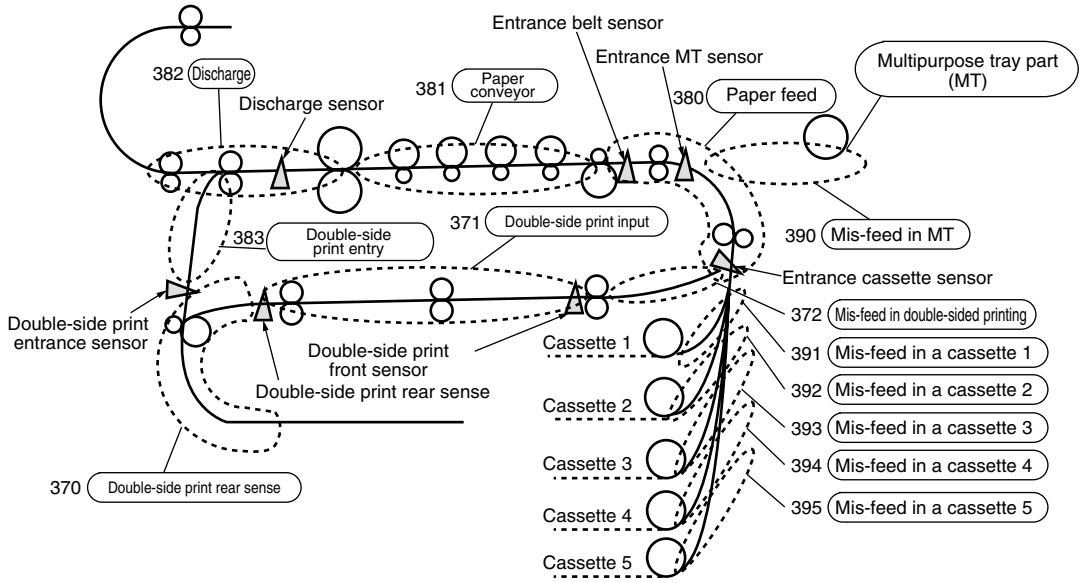
			Humidity (%)								
		Sensor reading value	<15	15† <25	25† <35	35† <45	45† <55	55† <65	65† <75	75† <85	85 †
	Sensor reading value	Register value	<1E(H)	1E(H)† <33(H)	33(H)† <47(H)	47(H)† <5C(H)	5C(H)† <70(H)	70(H)† <85(H)	85(H)† <99(H)	99(H)† <AE(H)	AE(H)†
Temperature (°C)	<5	<59(H)	8	8	8	7	7	7	7	6	6
	5† <10	16B(H)† <19E(H)	8	8	8	7	7	6	6	5	5
	10† <15	19E(H)† <1D1(H)	8	8	7	7	6	5	5	4	4
	15† <20	1D1(H)† <204(H)	8	7	7	6	5	4	4	3	3
	20† <25	204(H)† <236(H)	7	7	6	5	4	4	3	3	2
	25† <30	236(H)† <265(H)	7	6	6	4	4	3	!	!	1
	30† <35	265(H)† <290(H)	7	6	5	4	2	!	!	1	1
	35† <40	290(H)† <2B9(H)	6	6	4	2	1	1	1	1	1
	40†	2B9(H)†	6	5	4	2	1	1	1	1	1

			Humidity (%)								
		Sensor reading value	<15	15† <25	25† <35	35† <45	45† <55	55† <65	65† <75	75† <85	85 †
	Sensor reading value	Register value	<1E(H)	1E(H)† <33(H)	33(H)† <47(H)	47(H)† <5C(H)	5C(H)† <70(H)	70(H)† <85(H)	85(H)† <99(H)	99(H)† <AE(H)	AE(H)†
Temperature (°C)	<5	<59(H)									
	5† <10	16B(H)† <19E(H)									
	10† <15	19E(H)† <1D1(H)		L/L							
	15† <20	1D1(H)† <204(H)									
	20† <25	204(H)† <236(H)	N/L1	N/L1	N/L2		N/N				
	25† <30	236(H)† <265(H)	N/L1		N/L2	N/N			H/H	H/H	
	30† <35	265(H)† <290(H)		H/L				H/H	H/H		
	35† <40	290(H)† <2B9(H)	H/L				H/H				
	40†	2B9(H)†									

2.8 Paper Jam Detector

The AR-C360P detects paper jam during printing after turning on the power source. If there is any paper jam detected, the printing process is immediately canceled. In this case, open the cover, remove the paper that is jammed, and close the cover to resume printing.

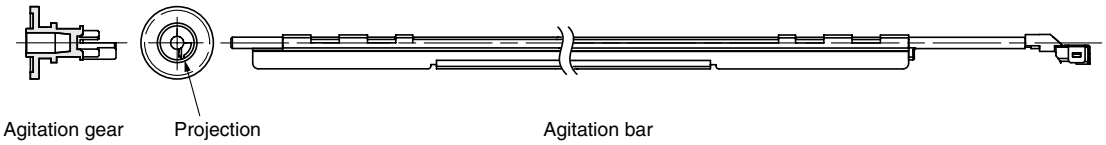
Error Code Displayed on LCD	Error	State
400,401	Paper Size Error	After the Entrance Cassette Sensor turns ON, it won t turn OFF for a certain period of time. It detects several different types of paper sizes.
372	Mis-feeding in Double-Side Print Conveyance Assy	Failure to feed paper from the Double-Side Print Conveyance Assy.
390	MT mis-feed.	Paper feed from the MT failed. (If, after Hopping, the Entrance MT Sensor does not turn ON within a certain period of time)
1-391 2-392 3-393 4-394 5-395	Cassette 1, 2, 3, 4 or 5 mid-feed.	Paper supply failed from Cassette 1, 2, 3, 4 and 5. (If, after Hopping, the Entrance Cassette Sensor does not turn ON within a certain period of time)
370	Paper jam when printing on the other side with Double-Side Print.	The double-side printer rear sensor does not turn ON when printing the other side with the double-side printer unit.
383	Paper jam at the entrance of the Double-Side Printer Unit.	The double-side printer IN sensor does not turn ON when supplying paper to the double-side printer unit.
371	Paper jam at the input of the Double-Side Printer Unit.	The double-side printer front sensor does not turn ON while the double-side printer unit is operating.
382	Paper discharge jam.	The paper discharge sensor senses the tip of the paper but does not sense the end of the paper after that within a certain period of time. The paper discharge sensor turns ON, but does not turn OFF after that.
381	Paper conveyance jam	The paper is conveyed on the belt, however, the paper discharge sensor does not turn ON.
380	Paper output jam.	After hopping is completed, the paper does not reach the entrance belt sensor or the MT sensor.
490	MT out of paper.	If printing is started when the MT is out of paper.
1-491 2-492 3-493 4-494 5-495	Cassette 1, 2, 3, 4 or 5 out of paper	Cassette 1, 2, 3, 4 or 5 out of paper



2.10 Toner Low Detection

- Structure

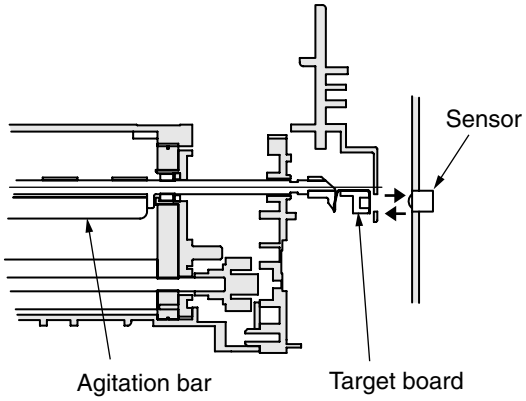
  This device consists of a constant speed rotating agitation gear and agitation bar.



- Detection

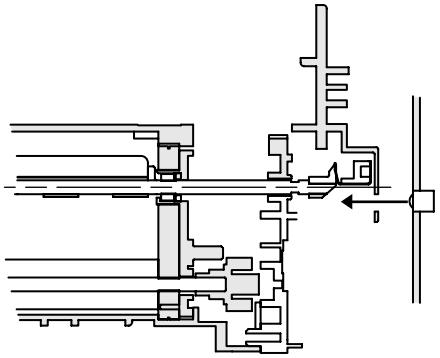
  The minimum height length of stay (OFF time) of a target board which attached the toner low level state in the end of a churning bar is measured and detected by the sensor.

OFF time (minimum height)



The light which emitted light by the sensor reflects with a target board, and received light by the sensor. Therefore, the minimum height length of stay is detectable.

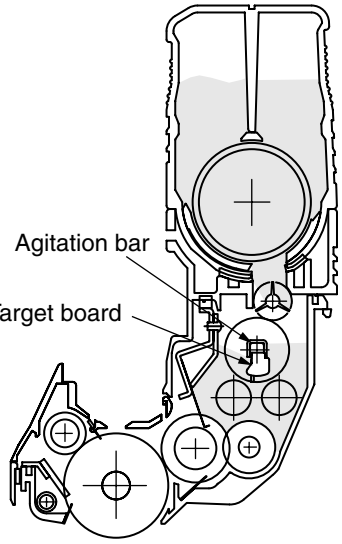
ON time (maximum height)



The light which emitted light by the sensor does not reflect with a target board, and does not received light by the sensor.

Toner High level State

- The agitation bar interlocks and turns with the agitation gear.
- Since there is a toner even if a agitation bar reaches the maximum height, the other side of the bar is still inside the toner. Therefore, the agitation bar turns by the force of the agitation gear.

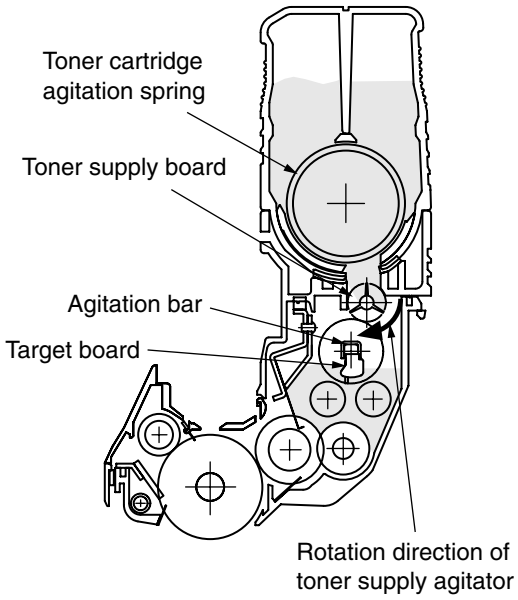


Toner Low Level State

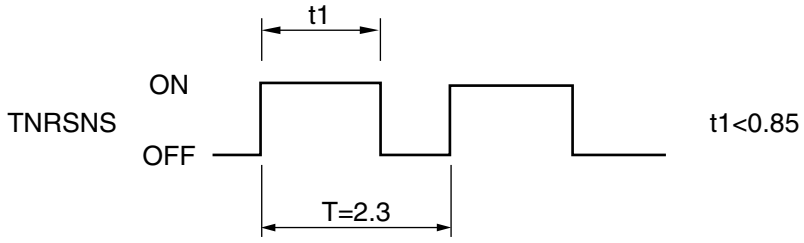
- When the agitation bar reaches the maximum height, the agitation bar falls in the minimum height by prudence since there is no resistance by the toner. At this time, the minimum height length of stay of a target board becomes long. This time is measured and a toner low level state is detected.

Toner Supply Operation

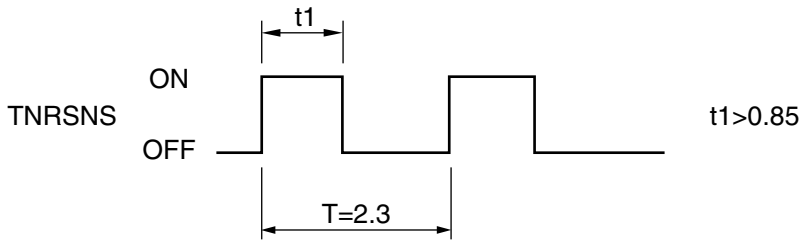
- When continuation 3 cycle detection of the toner low level state is carried out, a toner supply roller and a toner cartridge agitation spring will rotate, and the toner of a toner cartridge will be supplied to the inside of an image drum cartridge. Then, when one cycle of toner high level is detected, toner supply agitator and a toner cartridge agitation spring will stop, and toner supply will stop.



Toner High Level State (at 37ppm[*1])



Toner Low Level State (at 37ppm[*1])



- After a toner supply start, when a toner low sate is detected 20 consecutive times, it is recognized as the toner being low.

  (After recognizing toner low, then toner low is displayed after printing an equivalent of 5% of 200 A4 sheets.)

  The toner in a toner cartridge is lost.
- If a toner full state is detected 10 consecutive times, the toner low state is canceled.
- If the toner sensor does not change over 3 cycles (2.3 sec. X 3), then the toner sensor alarm is activated.
- The toner sensor does not detect anything when the drum motor is stopped.

[*1] A 37ppm printout is at the warming up stage. T and t1 fluctuates in proportion to the printing speed.

2.11 Paper Size Detection

A cam is interlocked with the paper guide of the paper cassette, then four tab-pieces via this cam drives the system according to the paper guide setting position.

When the paper cassette is attached to the printer, the micro-switch detects the state of the tab-piece and then recognizes the size of the paper.

	PSZSW1	PSZSW2	PSZSW3	PSZSW4
Cassette NONE	0	0	0	0
A3 Nobi	0	0	1	1
Tabloid	1	0	1	1
A3	1	0	0	1
B4	0	0	0	1
Legal 14"	0	1	0	1
Legal 13"	0	1	0	0
A4 Portrait	1	1	1	0
Letter Portrait	1	1	1	1
Executive	1	1	0	1
B5 Portrait	1	1	0	0
Letter Landscape	1	0	1	0
A4 Landscape	0	0	1	0
A5	0	1	1	0
B5 Landscape	1	0	0	0
A6	0	1	1	1

2.12 Power ON Process

2.12.1 Self-Diagnostic Test

(1) Initial Test

When the power is turned On, the following check automatically takes place.

(a) ROM Check
(b) RAM Check
(c) EEPROM Check
(d) Flash ROM Check
(e) Mechanical Check
(f) Option Unit Check

(2) ROM Check

The ROM is checked by calculating the HASH value.

(3) RAM Check

(a) The type of RAM is checked for its specifications. Any RAM that falls out of the specifications will result in an Error.

(b) The RAM in each slot is checked by read-after-write.

(4) EEPROM Check

The specific data stored in the fixed address of the EEPROM is checked.

(5) Flash ROM Check

The flash ROM format is checked. If it is unformatted, then read-after-write check takes place and the flash ROM is formatted.

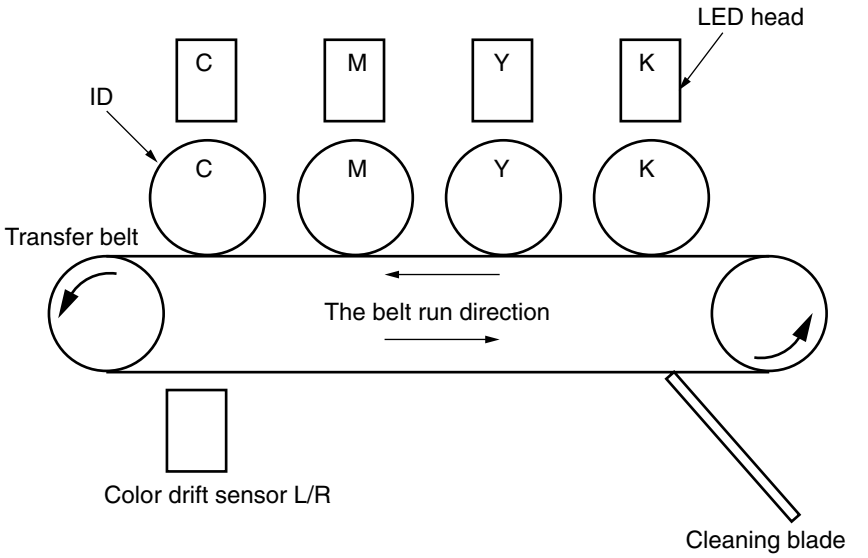
(6) Option Unit Check

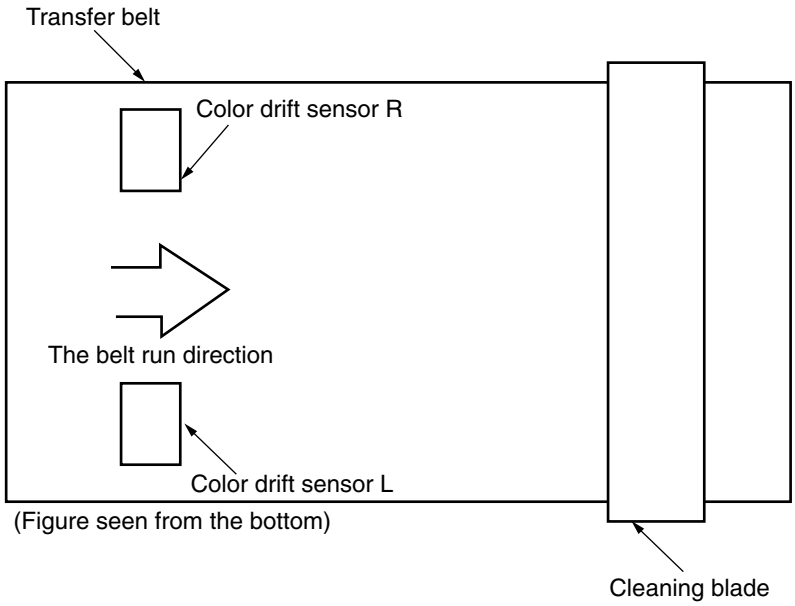
Before entering the run mode, the unit is checked for the presence of an optional units (HDD, NIC, Option Tray, Double-Side Printer Unit, Finisher, etc.).

2.13 Mis-Registration Detection

The Z71-PCB reflective optical sensor detects color drift. There is one each on the left and right side in front of the cleaning blade behind the belt unit. A color drift detection pattern is printed on both ends of the left and right side of the belt. Then the reflective optical sensor reads this detection pattern to measure the drift level based on black as a standard. The correction value is then determined based on this measurement. Then the main scanning, sub-scanning, and skewed color drift correction automatically takes place.

This detection takes place when the power is turned ON, cover is closed, the printer is left unused for 2 hours or longer, and every time after printing 400 sheets.





2.14 Reading Version of Routine Replacement Units

This determines whether the parts are new or old according to the I/D of the consumable parts that are routinely replaced, the fuser unit, and the state of the fuse in the belt unit (good/dead). If the fuse is in a conductive state, then it is considered a new unit. A NEW or OLD decision takes place when the power is turned ON and when the cover is closed. When the part is NEW, the life counter of the unit is reset, and the NEW/OLD decision-making fuse in each unit is cut.

2.15 Life Counter of Replaceable Units

The following Table lists the life counter of the I/D, fuser unit, and belt unit that are routinely replaced consumable parts.

Unit	State	Life processing
ID	Count the drum rotation in a unit of [Letter Paper Length + Paper Interval during continuous print]. Life: When printing a distance equivalent to 26K sheets (3P/J).	Stop Printing However, 500 sheets can be printed by opening and closing the cover.
Toner Cartridge	Count the number of print dots. Determine the usage level according to the counter value. (Refer to 2.16)	Stop Printing However, 20 sheets can be printed by re-turning the power back ON or opening/closing the cover.
Belt Unit	Convert the drum rotation into [Letter Paper Length + Distance Between Paper Upon Continuous Printing]. One sheet of paper passing through is counted as one on the counter. Life: (1)When the counter value reached 80K or, (2)When reaching a 2000 count after detecting a Belt	Stop Printing However, 20 sheets can be printed by re-turning the power back ON or opening/closing the cover.
Fuser Unit	Disposal Toner Near-Full state. One sheet of paper passing through is counted as one on the counter. Life: When counter value is 80K.	Alarm (This unit can still be used)

2.16 Toner Usage Level Detection

The toner usage level is detected by counting the number of dots printed. The counted number of dots is written in in IC tip in a toner cartridge.

Once toner low is detected, the toner shall be considered empty after dot counting 1,050 A4 sheets at 5%.

However, when the power is turned back ON, and the cover is opened and closed, the printer can still print 20 more sheets.

4. PARTS REPLACEMENT

This section describes the parts in the field, assembly and the procedures to replace the parts, assembly and unit. Note that only the disassembling procedures are described to replace parts. To assemble parts, just follow the steps in reverse order of disassembling.

4.1 Precautions When Replacing Parts

(1) ALWAYS unplugging the AC cable and interface cables before replacing parts.

(a) ALWAYS perform the following procedures when unplugging the AC cable.

① Turn OFF "O" the power of the printer.

② Unplug the AC inlet plug of the AC cable from the AC receptacle.

③ Unplug the AC cable and disconnect the interface cables from the printer.

(b) ALWAYS perform the following procedures to reconnect the printer.

① Connect the AC cable and interface cables to the printer.

② Connect the AC inlet plug into the AC receptacle.

④ Turn ON "I" the power of the printer.

(2) NEVER disassemble the printer when it is operating normally.

(3) When disassembling the Assy, disassemble only the minimum necessary. NEVER remove any parts other than those indicated in the Parts Replacement Procedures.

(4) Only use designated Maintenance Tools.

(5) Disassemble the parts according to the order instructed. Failure to do so may result in damaging the parts.

(6) Temporarily screw back on the screw, collar and other small parts on it's original location, to prevent losing these parts.

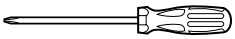
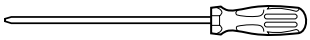
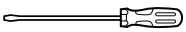
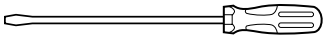
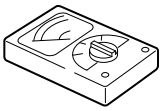
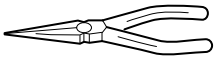
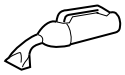
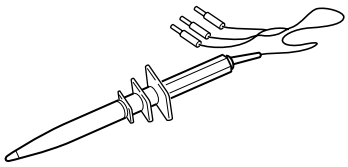
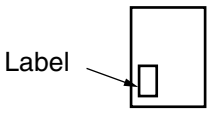
(7) NEVER wear gloves when handling the micro processor, ROM, RAM and other IC parts or the circuit PCB, since gloves may generate static electricity.

(8) NEVER place the printer PCB directly on the unit or floor.

[Maintenance Tools]

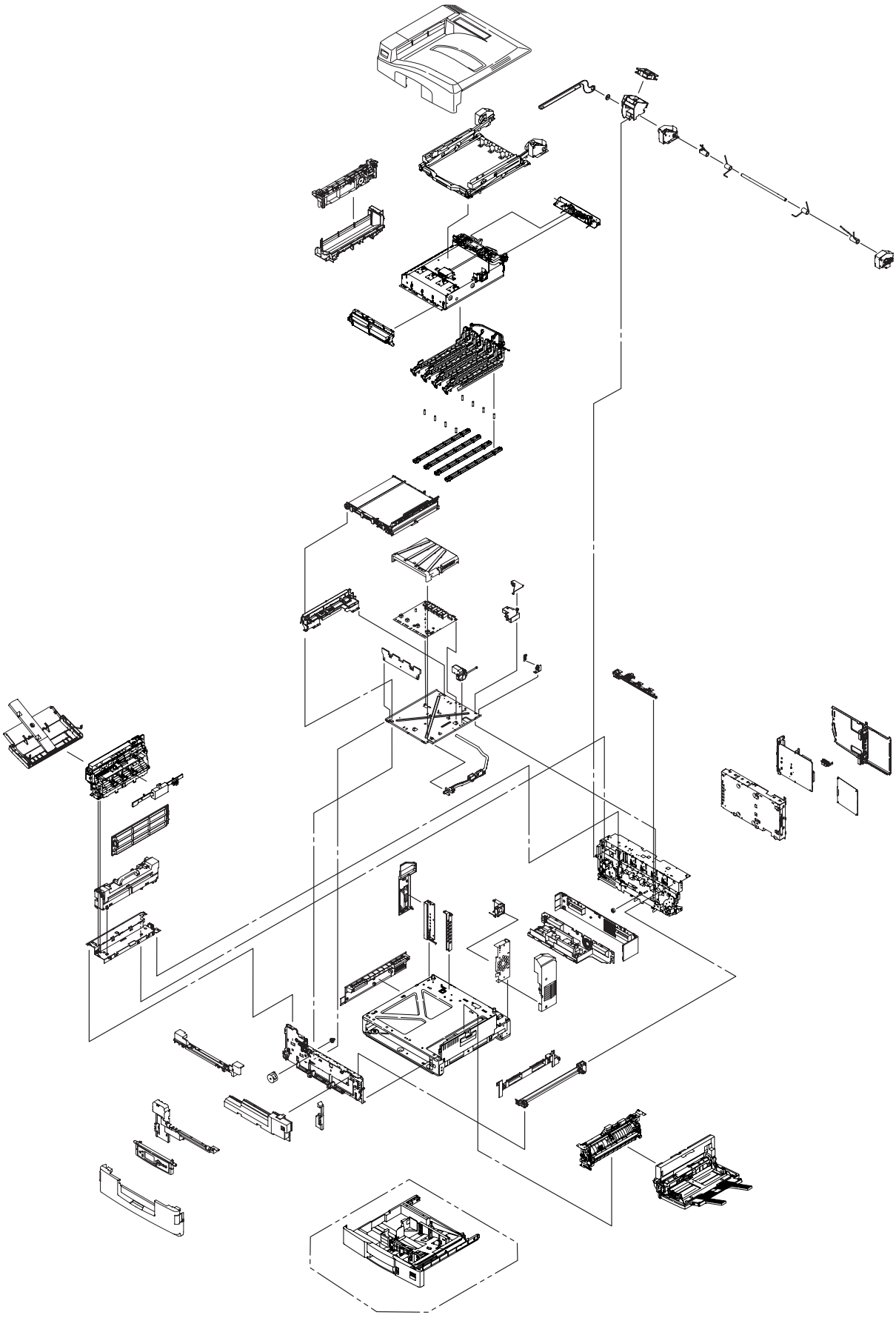
The tools necessary to replace the printed circuit board (PCB) and unit are indicated in Table 4-1.

Table 4-1 Maintenance Tools

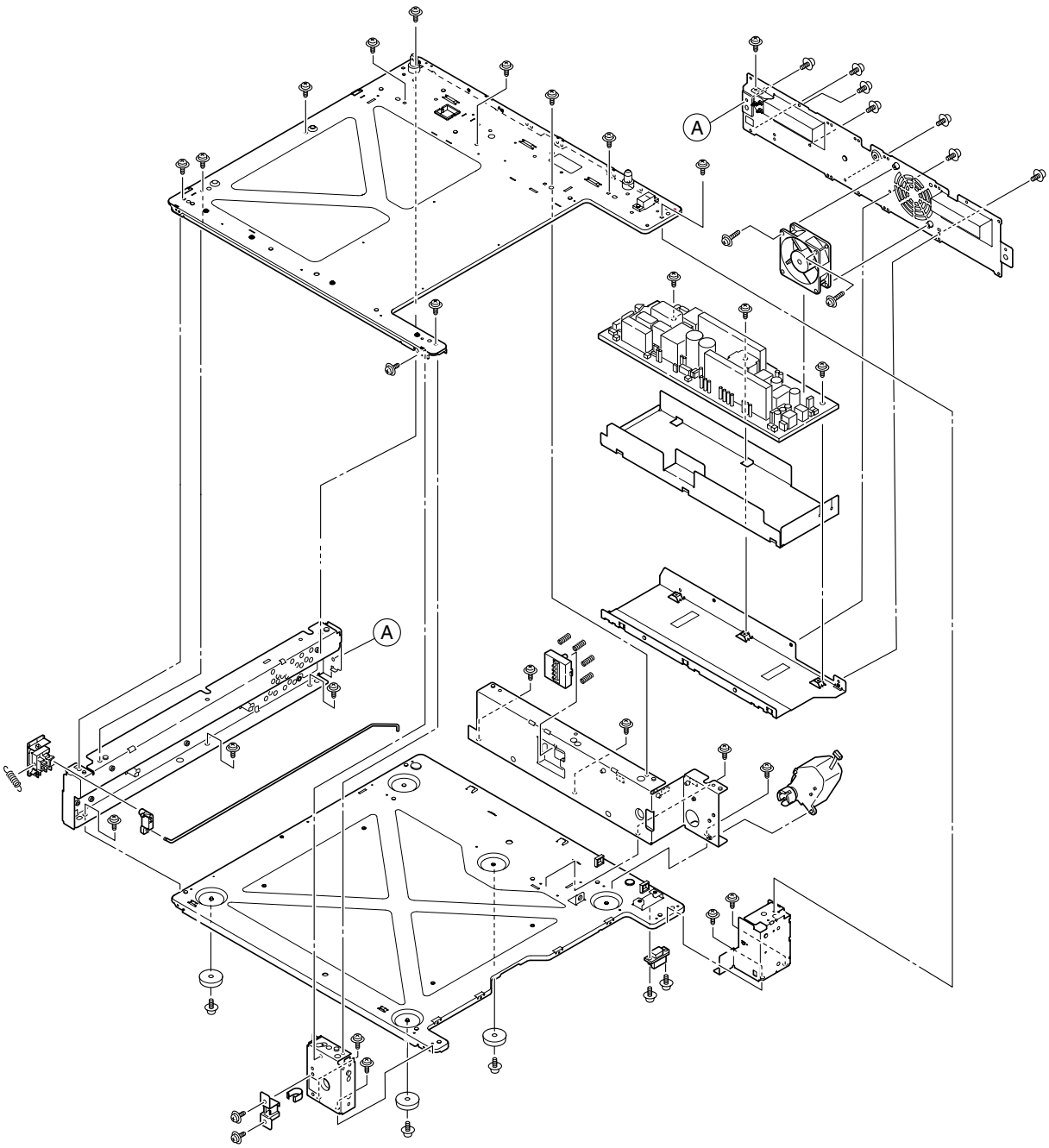
No.	Maintenance Tools		Quantity	Purpose	Remarks
1		No. 1-100 ⊕ Screw Driver	1	2-2.5 mm screw	
2		No. 2-200 ⊕ Magnetic Screw Driver	1	3-5 mm screw	
3		No. 3-100 Screw Driver	1		
4		No. 5-200 Screw Driver	1		
5		Digital Multimeter	1		
6		Pliers	1		
7		Portable Vacuum Cleaner	1		
8		LED Head Cleaner P/N 4PB4083-2248P001	1	LED Head Cleaner	
9		High Voltage Probe	1		
10		Cut-Sheet Film (Maintenance) 42404301	1	Paper Thickness Sensor for Adjustment Transparency Sheet	
11		⊖ Micro-Driver 2.0mm	1	Paper Thickness for Adjustment	

4.2 Parts Layout

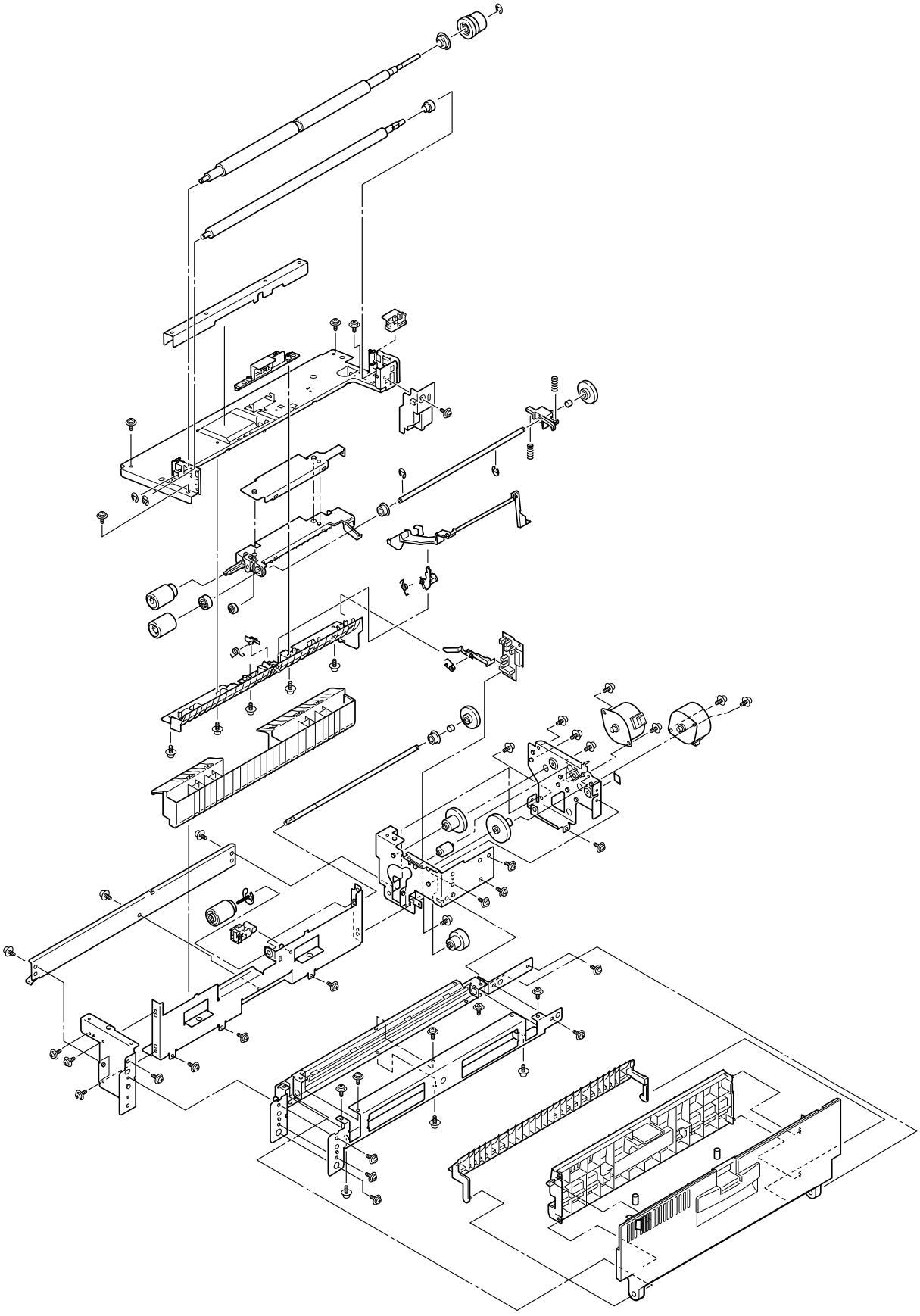
Printer Unit - (120V)



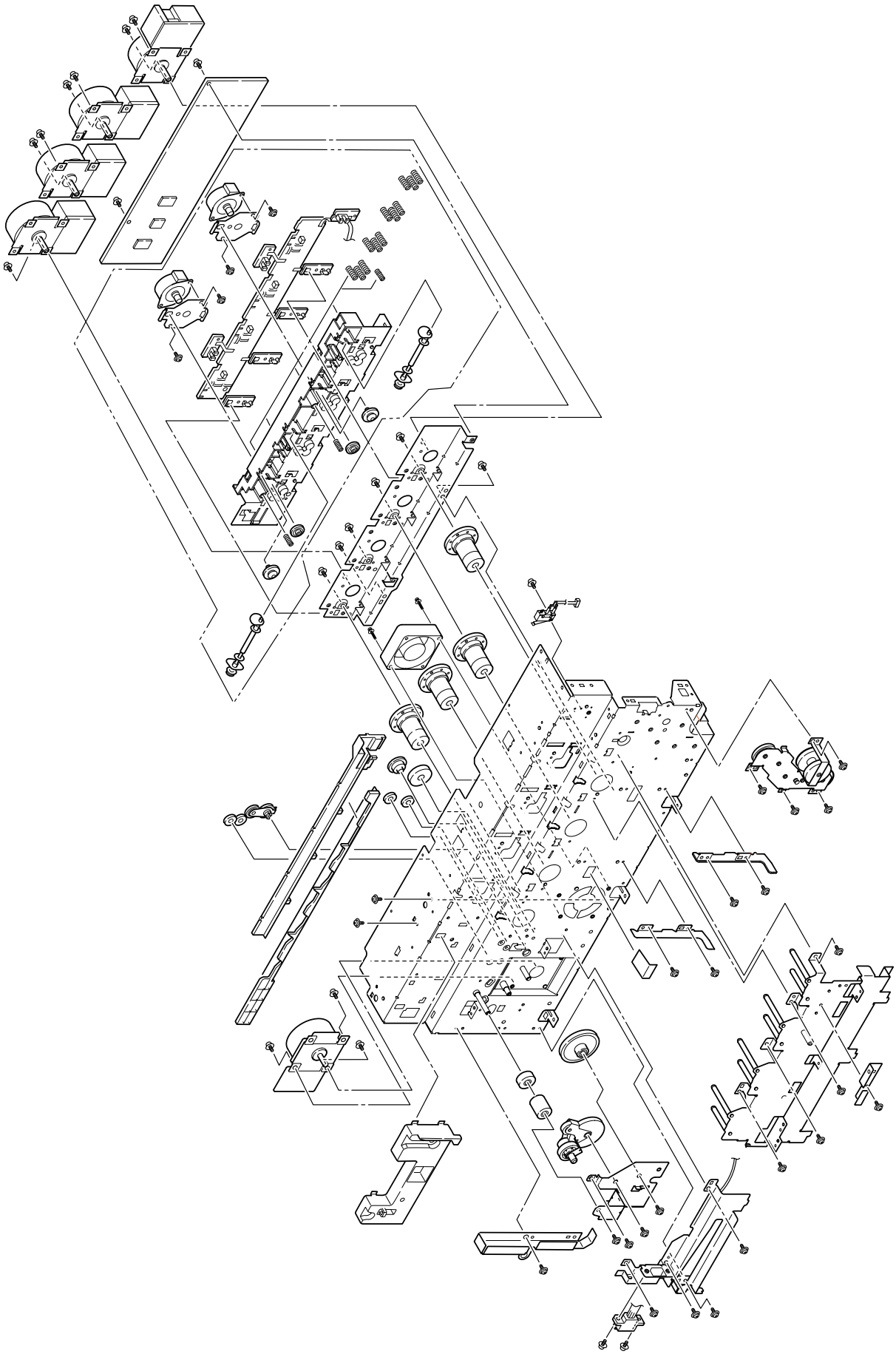
Base-Assy (1/2)



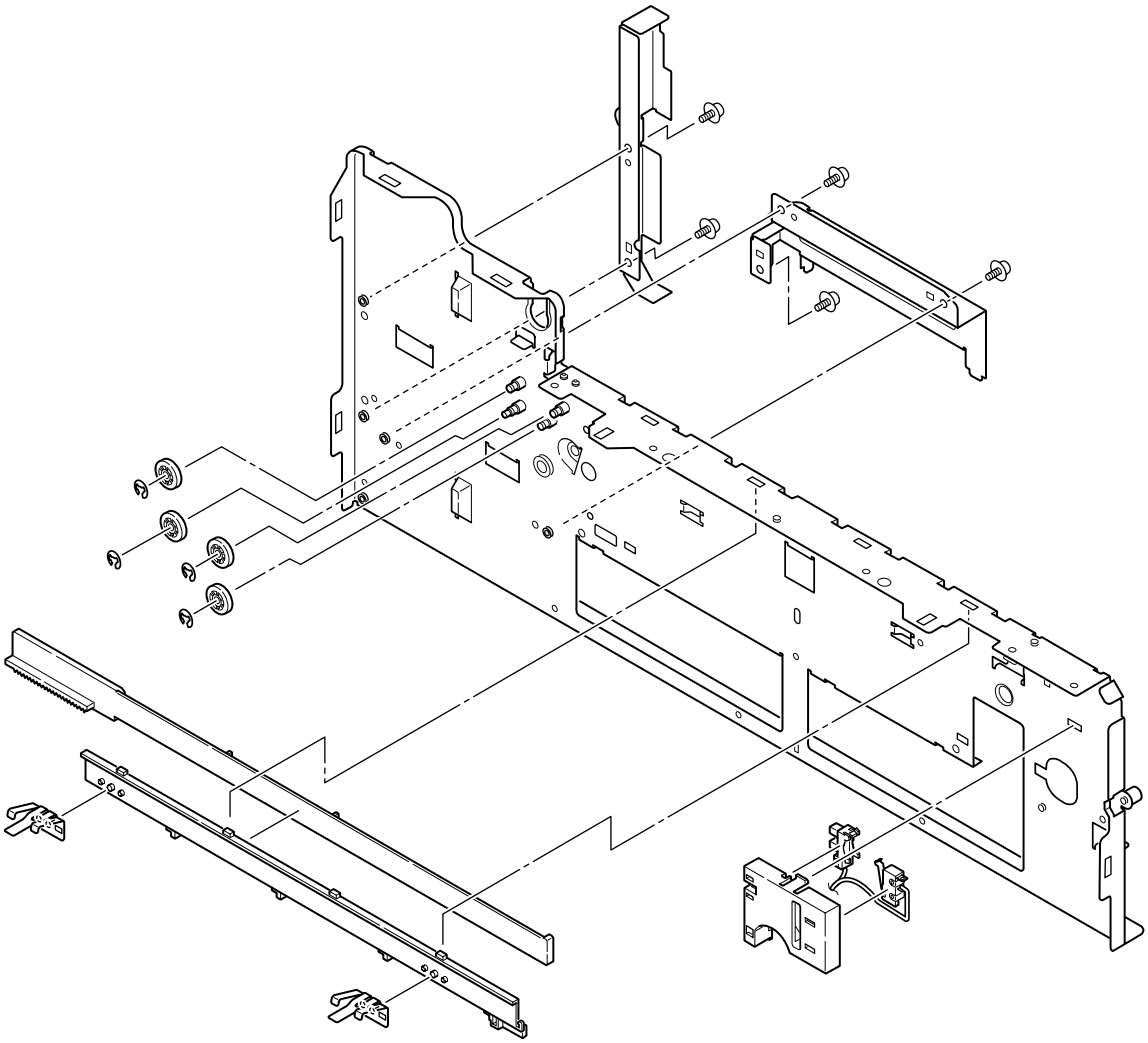
Base-Assy (2/2)



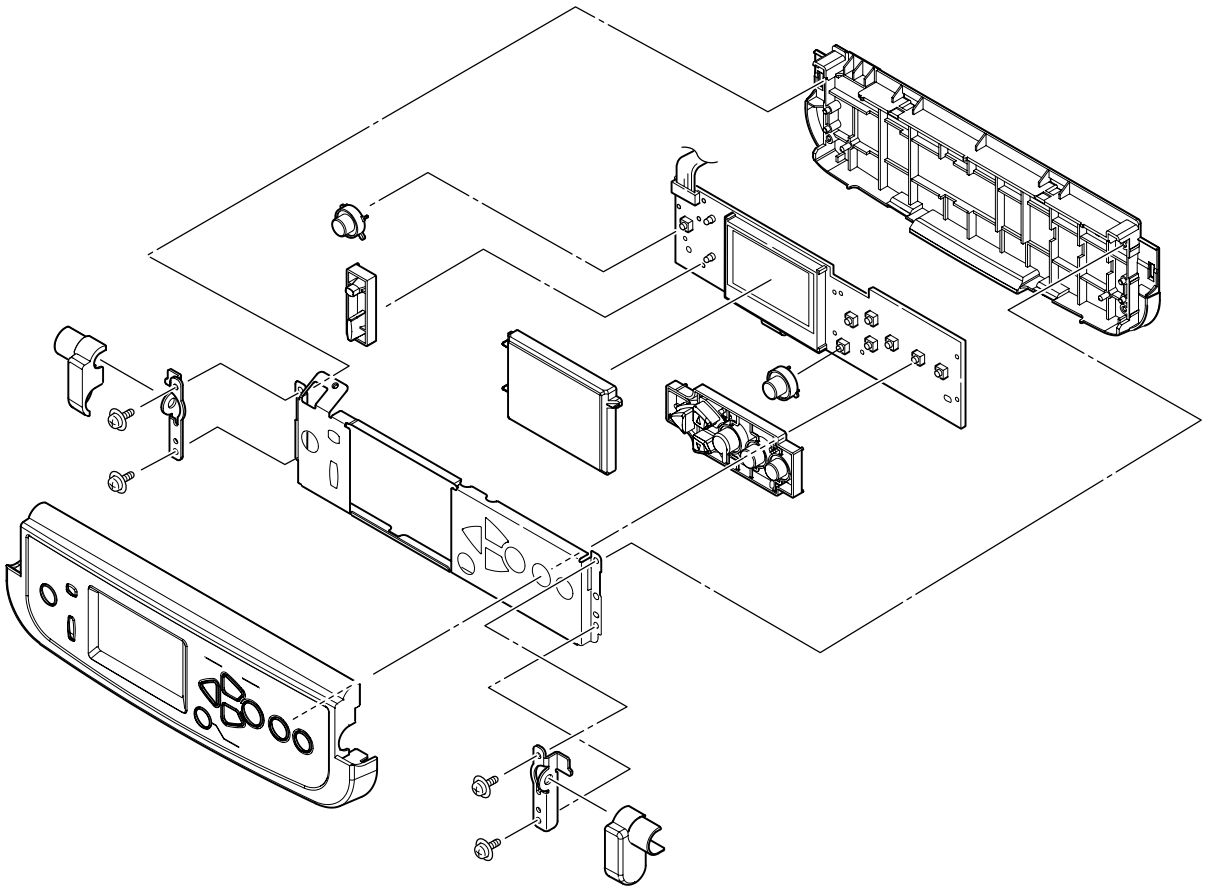
Side-R-Assy



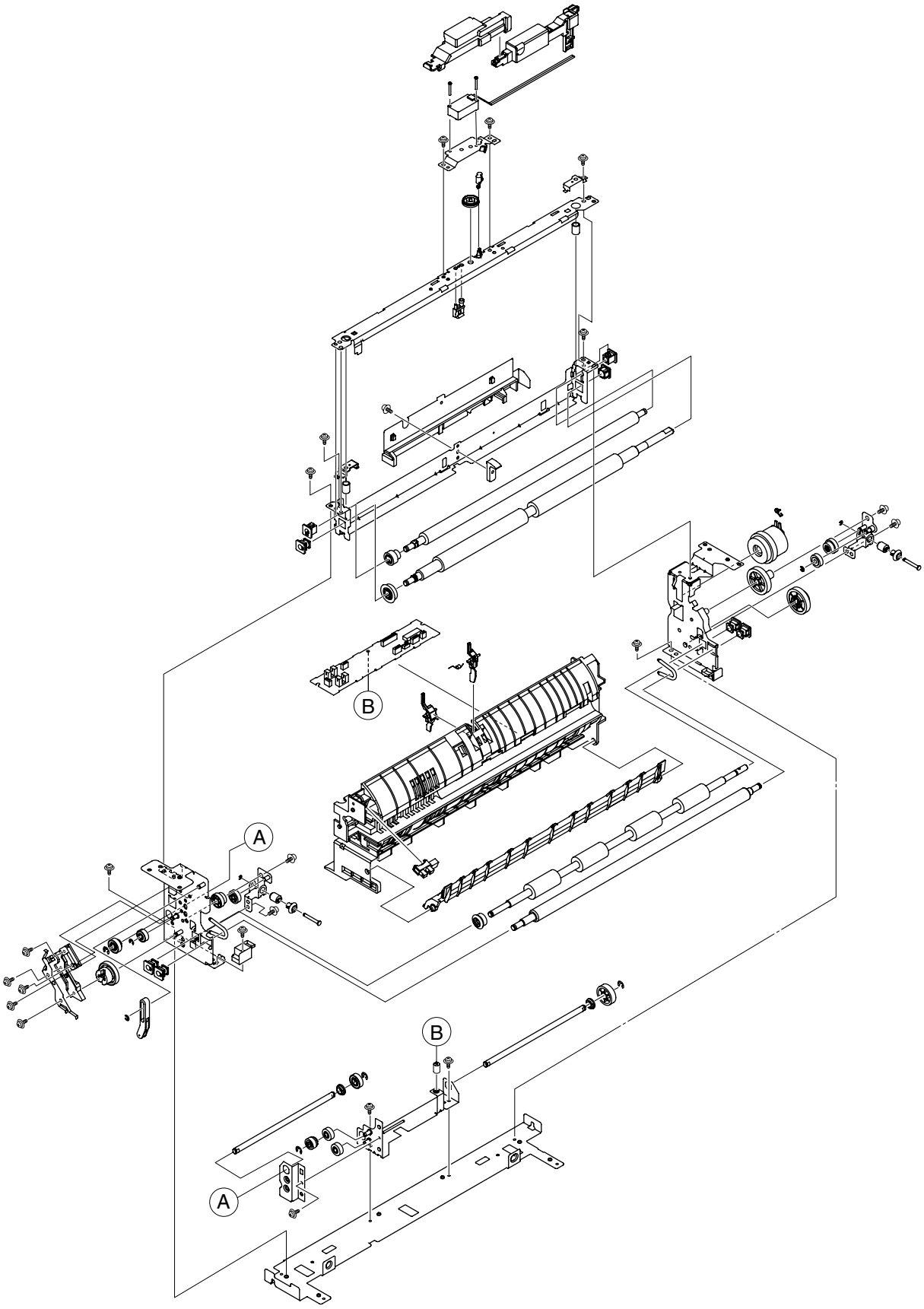
Side-F-Assy



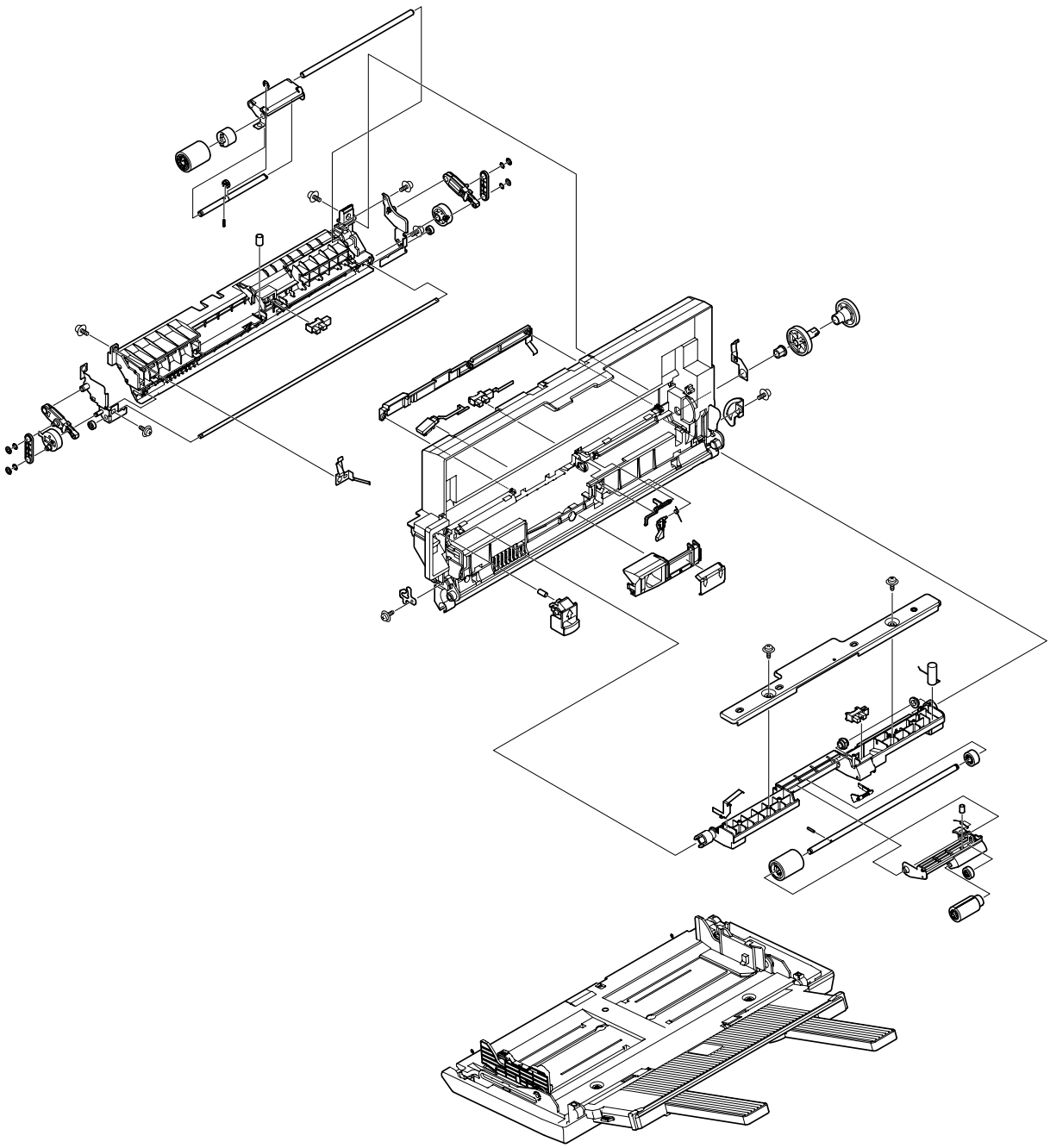
Cover Assy-OP Panel



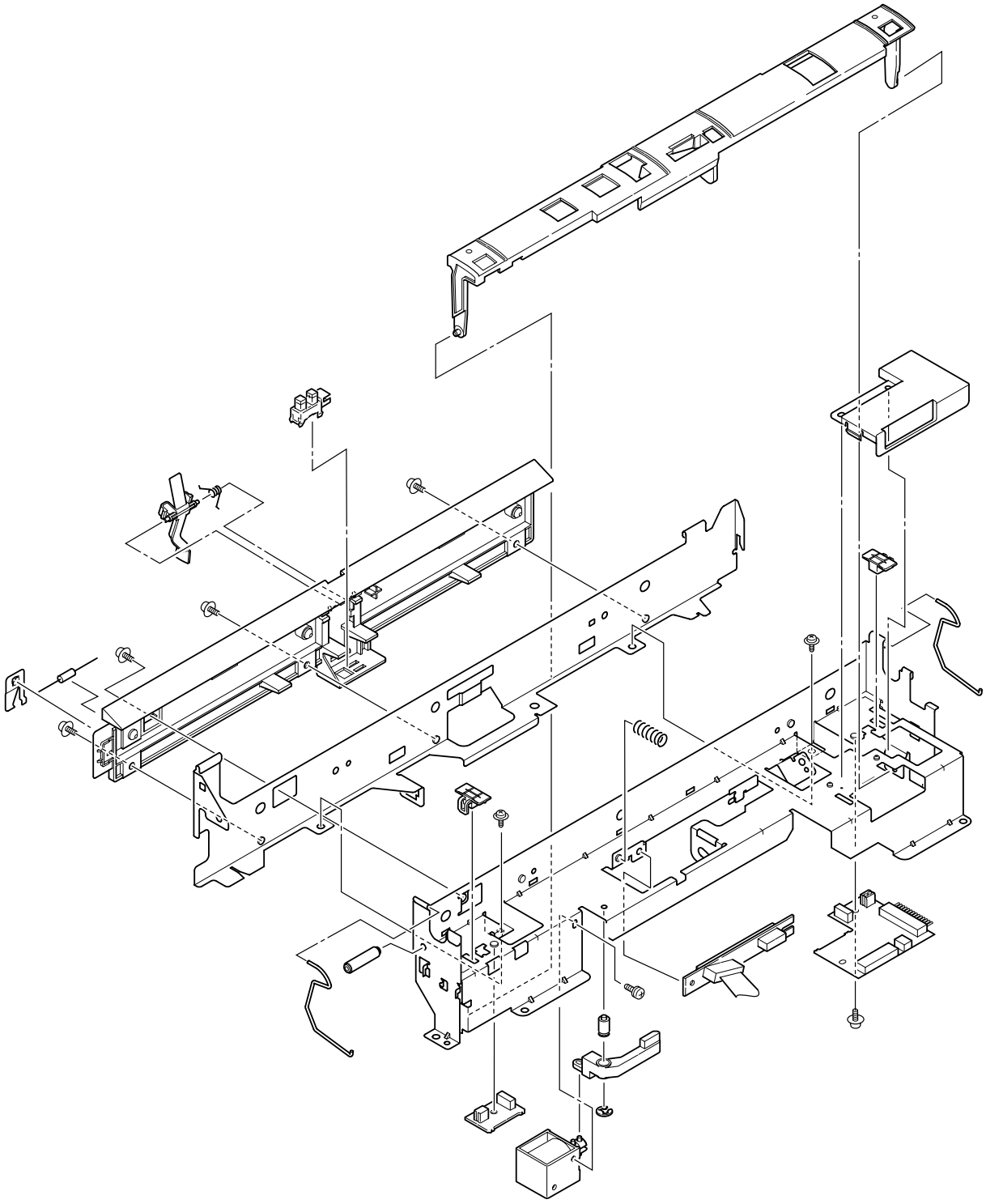
FDR Unit-Regist



FDR Unit-MPT



Sensor-Regist-Assy



Eject-Assy

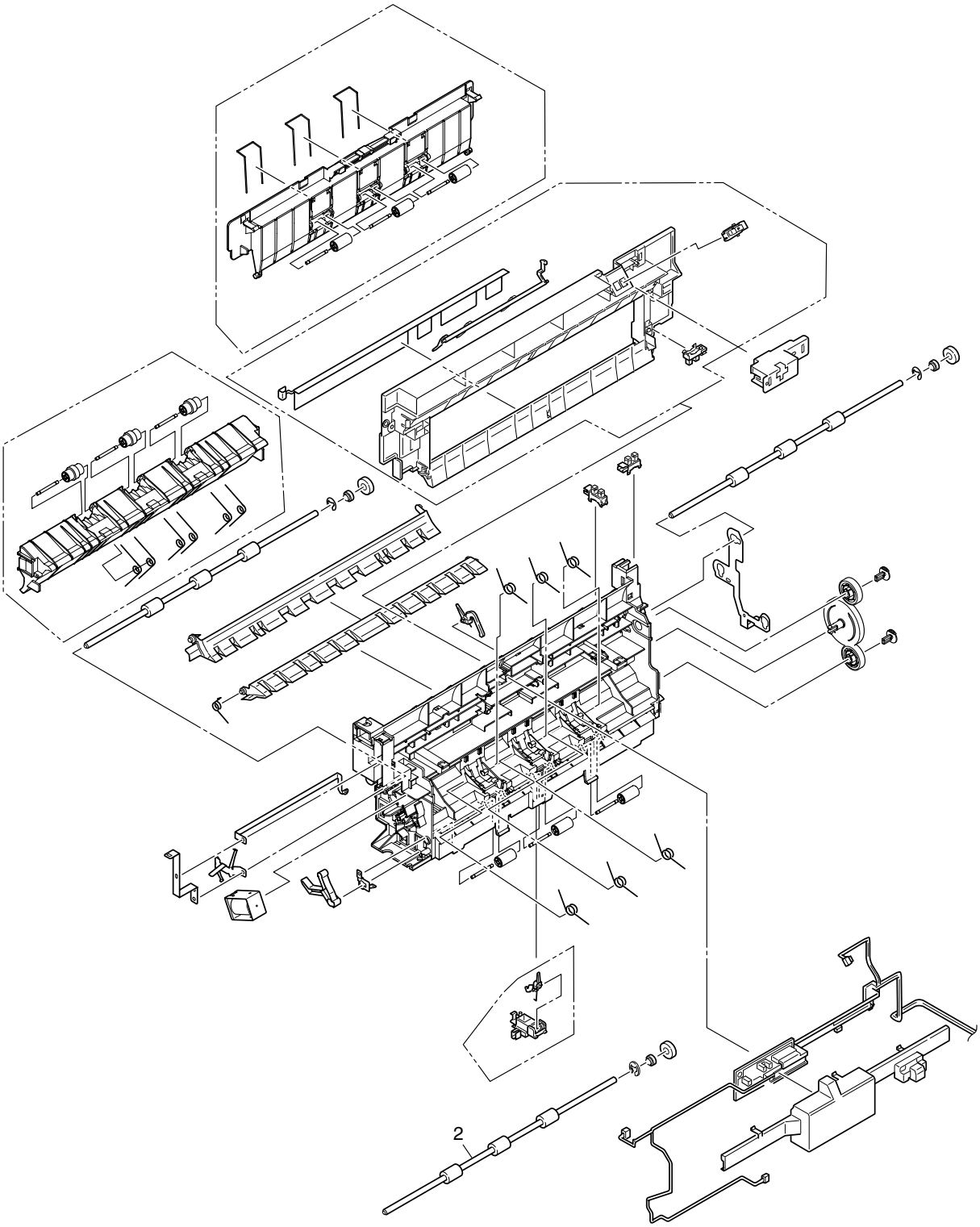
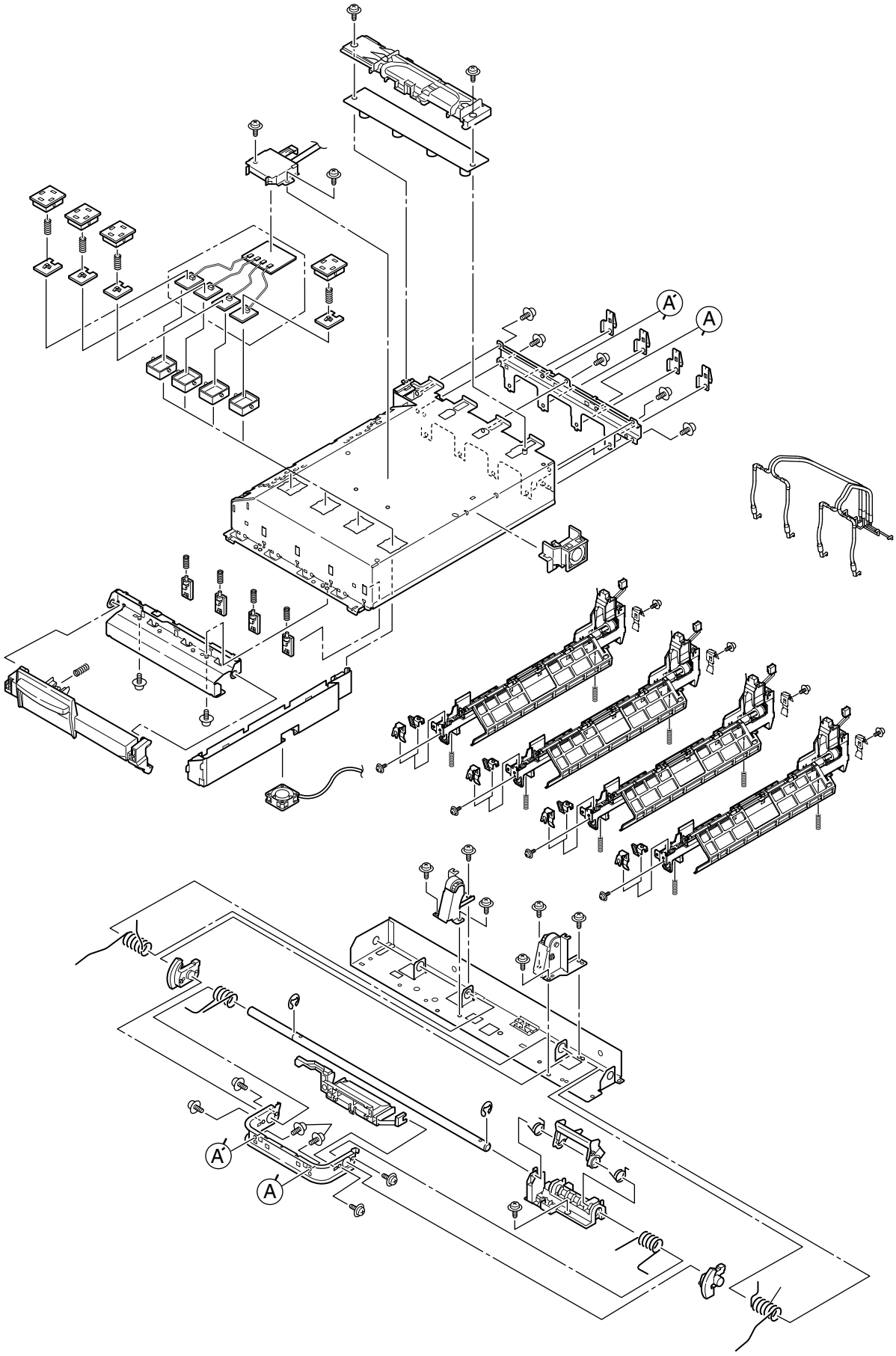
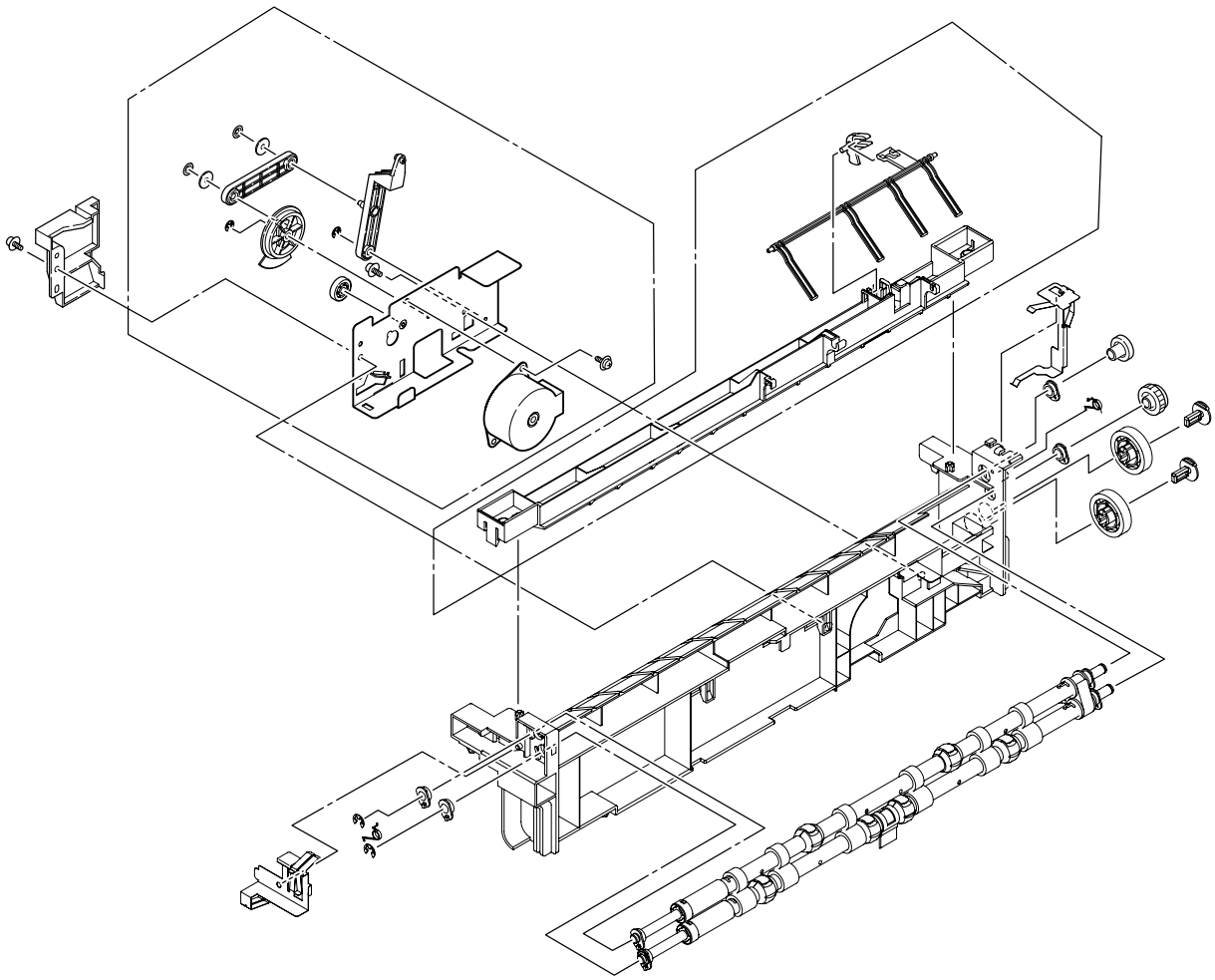


Plate-Top-Assy



Job-Offset-Assy



Basket-Assy

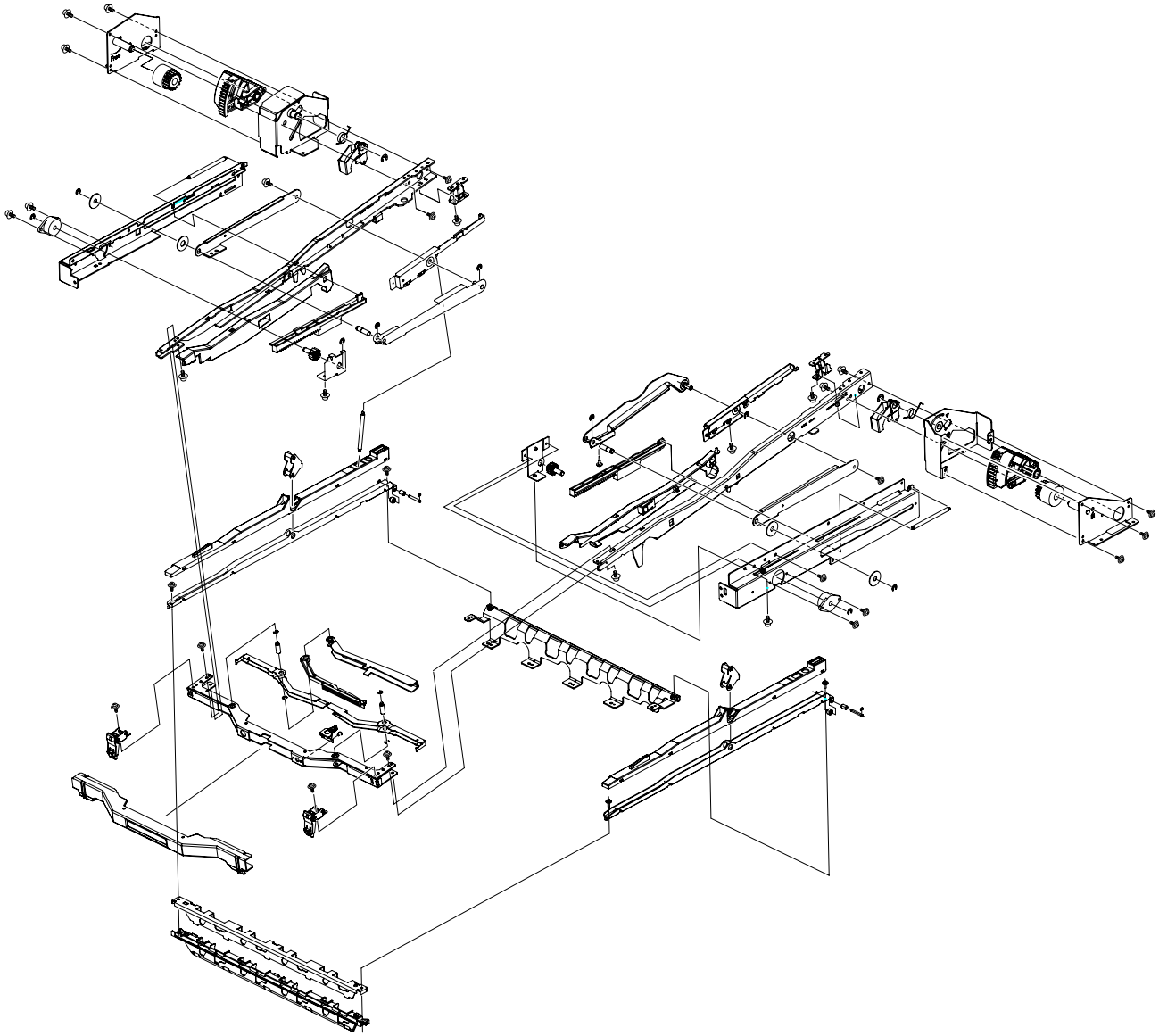
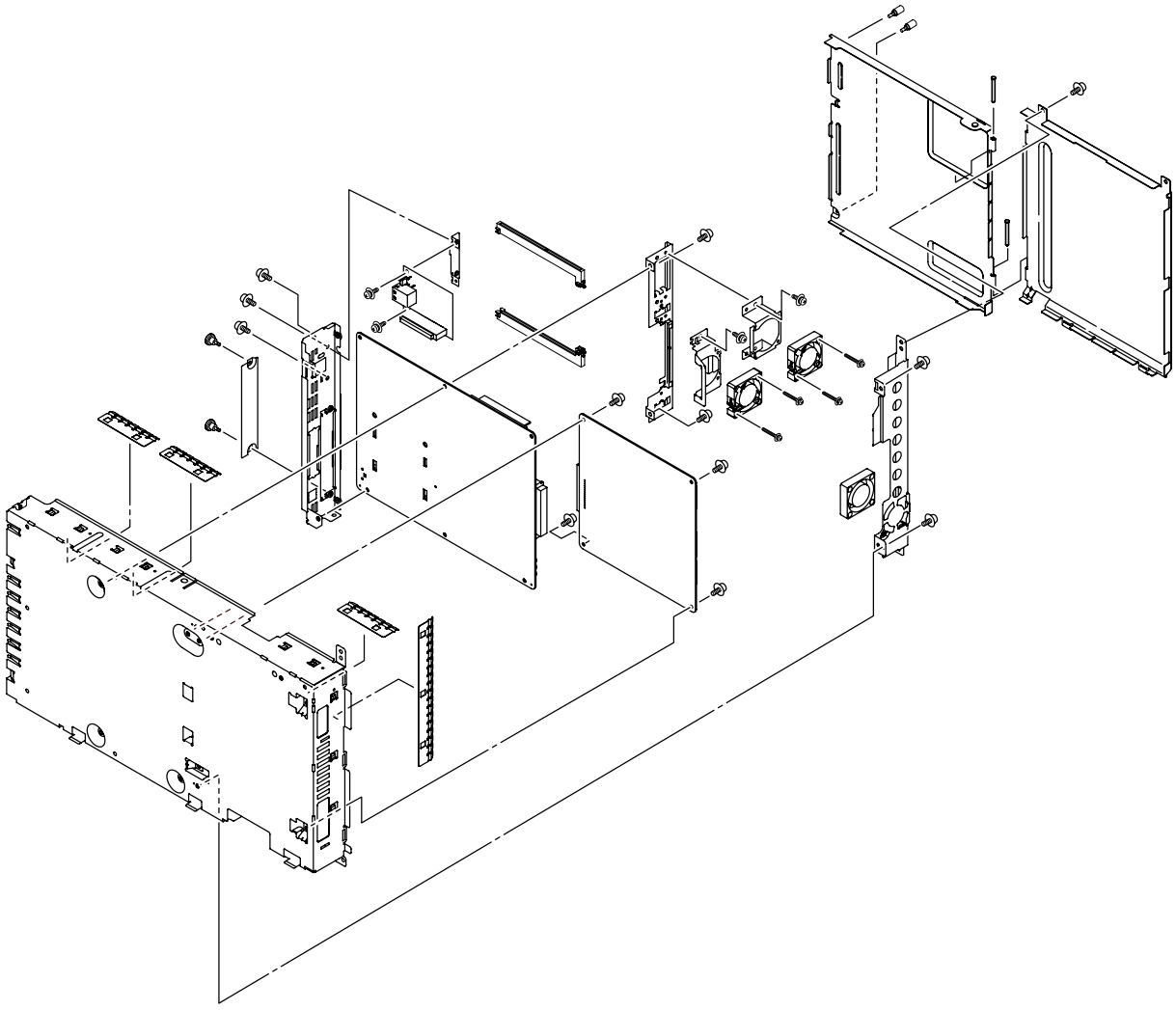
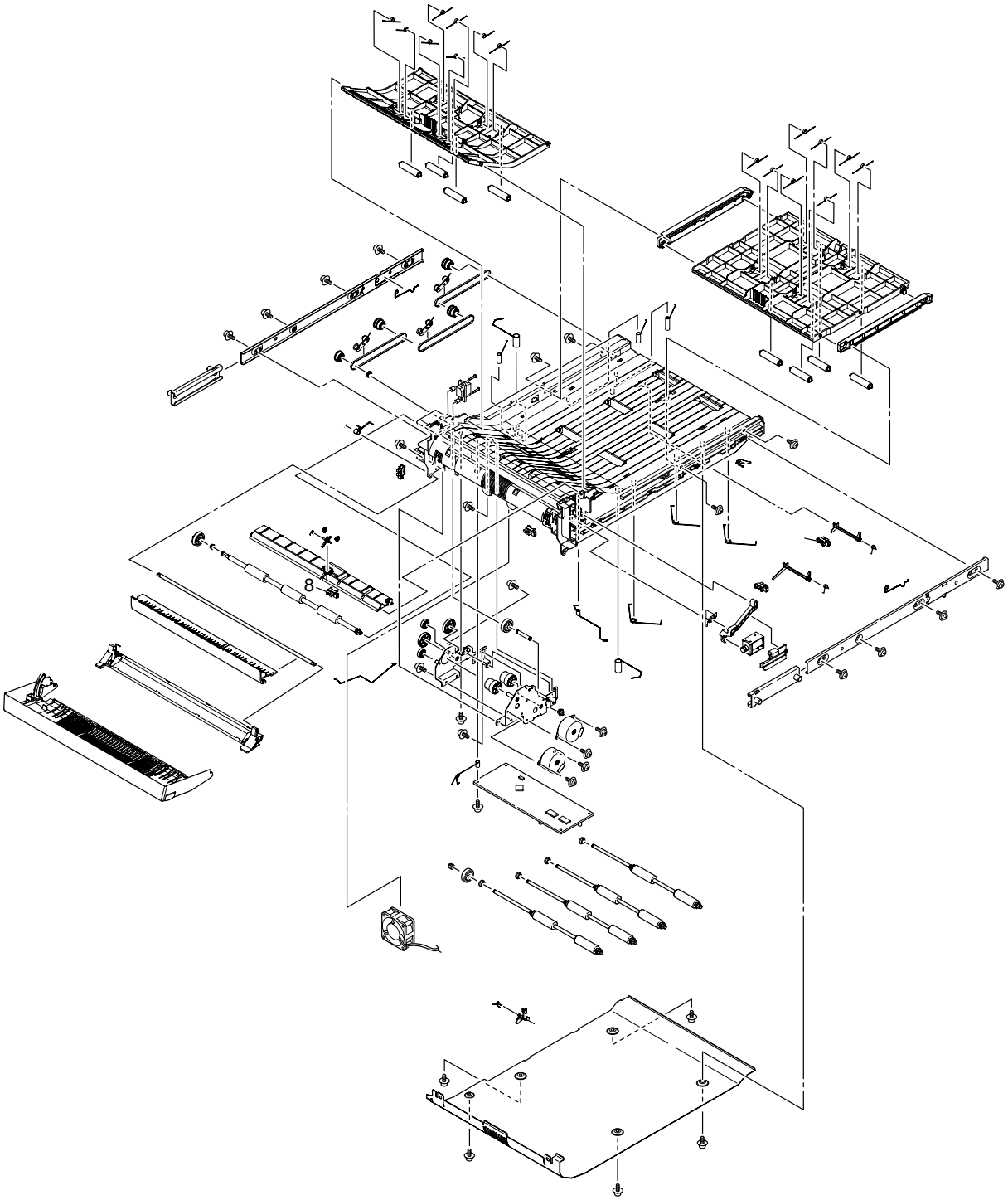


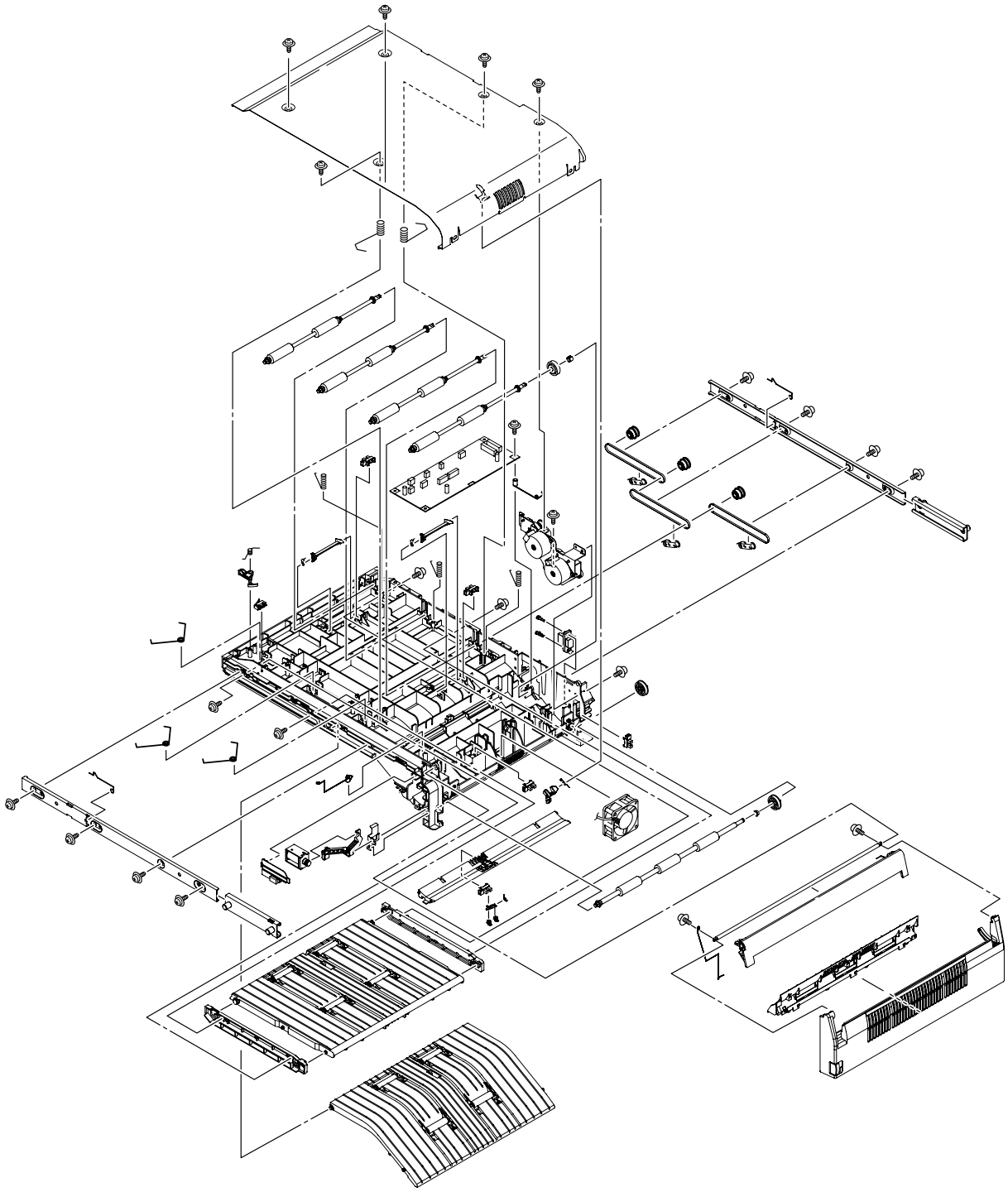
Plate-Shield-Box-Assy



Unit-Duplex (1/2)



Unit-Duplex (2/2)



4.3 Parts Replacement Method

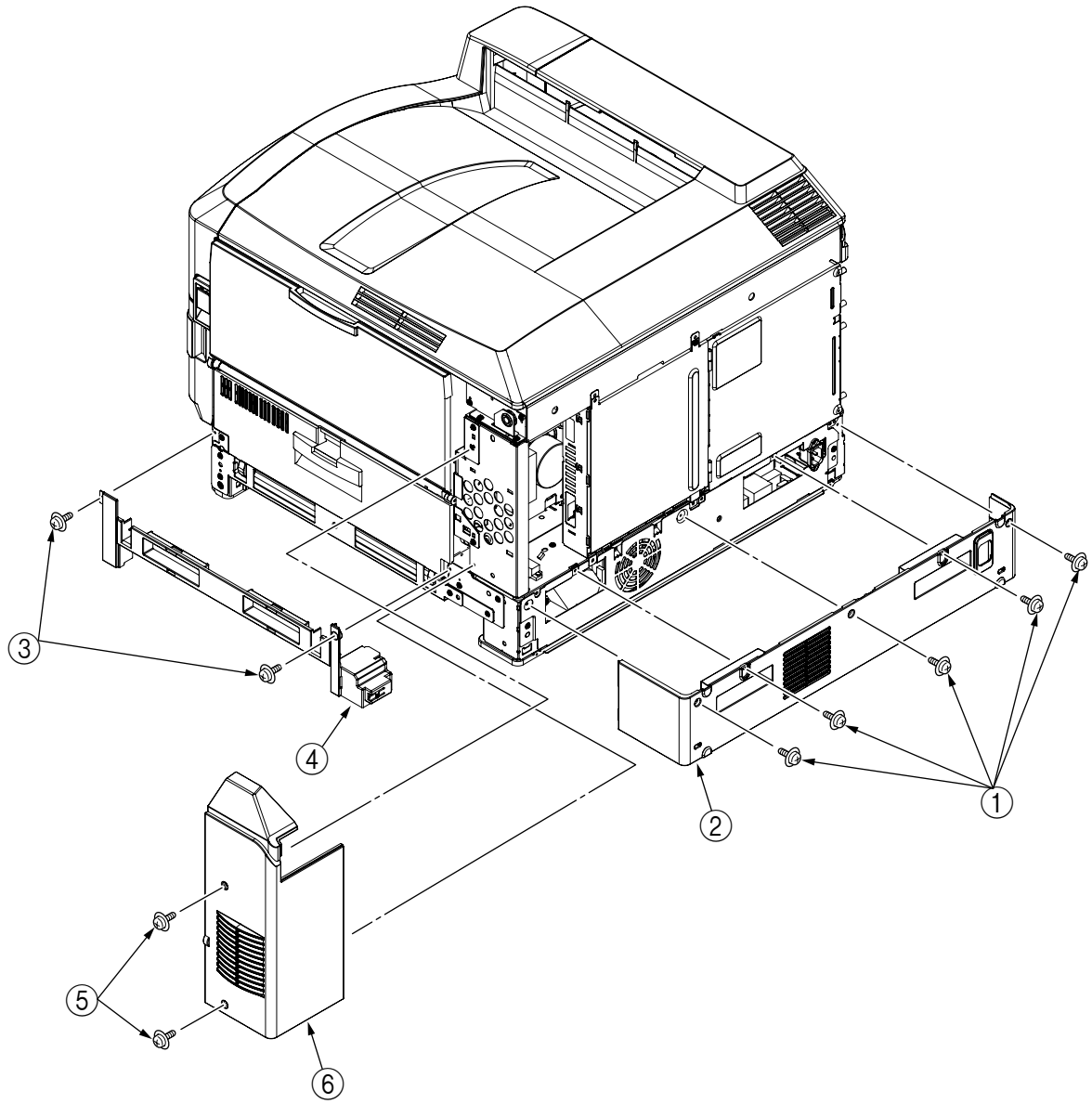
This section describes the procedures to replace the parts and assembly indicated in the disassembly diagram.

4.3.1 Cover-Rear, Cover-Side (R), and Cover-Side (R) Rear

(1) Unscrew the 5 screws ①, then remove Cover-Rear ②.

(2) Unscrew the 2 screws ③, then remove Cover-Side (R) ④ with it warped.

(3) Unscrew the screws ③, then remove Cover-Side (R) Rear ⑥.

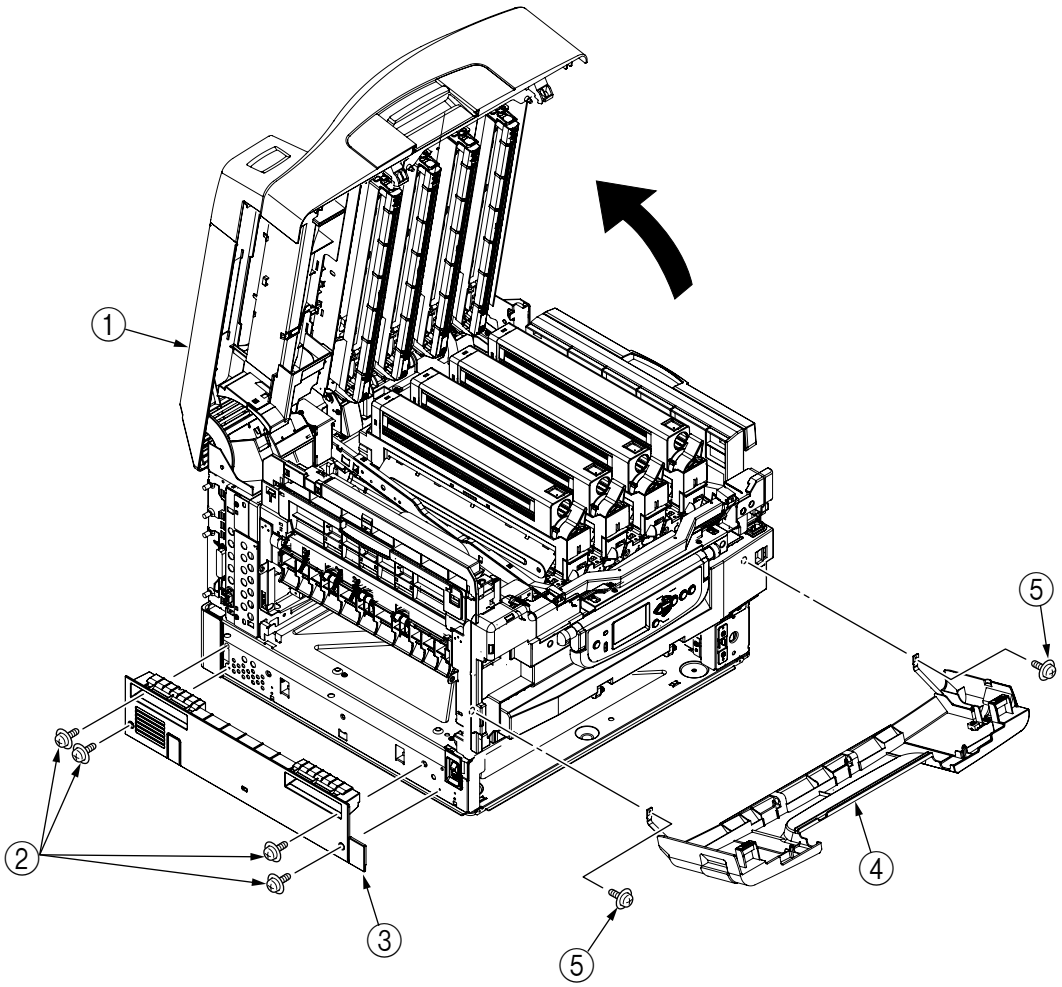


4.3.2 Cover-Side (L) and Cover Assy-Front

(1) Open Cover Assy-Top ①.

(2) Unscrew the 4 screws ②, then remove the Cover-Side (L) ③.

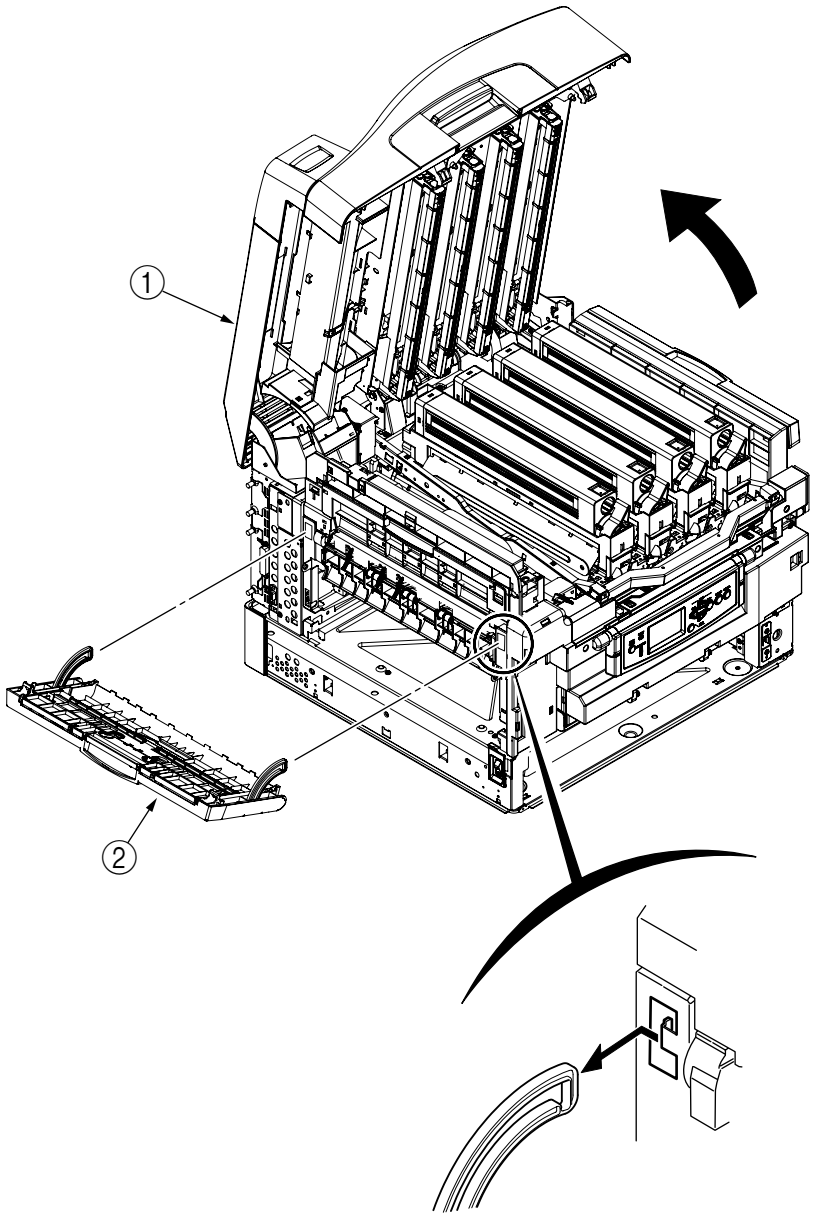
(3) Open the Cover Assy-Front ④ by 90°, unscrew the 2 screws ⑤, then slide the Assy to the side and remove.



4.3.3 Stacker Assy-FU

(1) Open Cover Assy-Top ①.

(2) Open Stacker Assy-FU ②, then remove the 2 stoppers ③. Push these to one side, remove the post, then remove the Stacker Assy-FU ②.



4.3.4 Cover Assy-OP Panel, Cover-Guard (R), Cover-Guard (Front) and Cover-Guard (L)

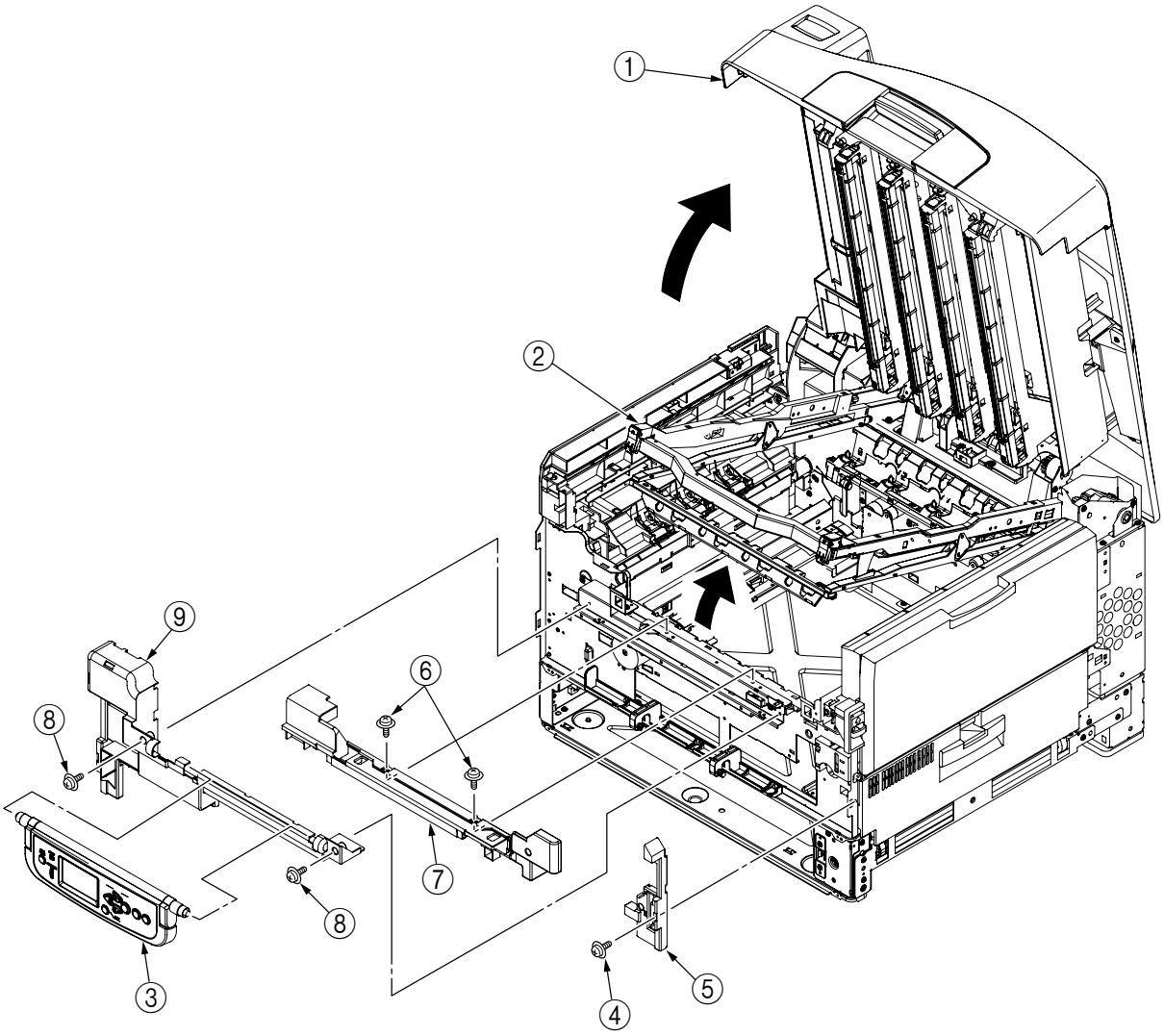
(1) Open Cover Assy-Top ①, then lift Basket-Assy ②.

(2) Remove Cover Assy-OP Panel ③ from its supporting point.

(3) Unscrew screw ④, remove the hinges, and then remove Cover-Guard (R) ⑤.

(4) Unscrew 2 screws ⑥, then remove Cover-Guard (Front) ⑦.

(5) Unscrew 2 screw ⑧, then remove the 2 hinges and remove the Cover-Guard (L) ⑨.



4.3.5 OP PCB

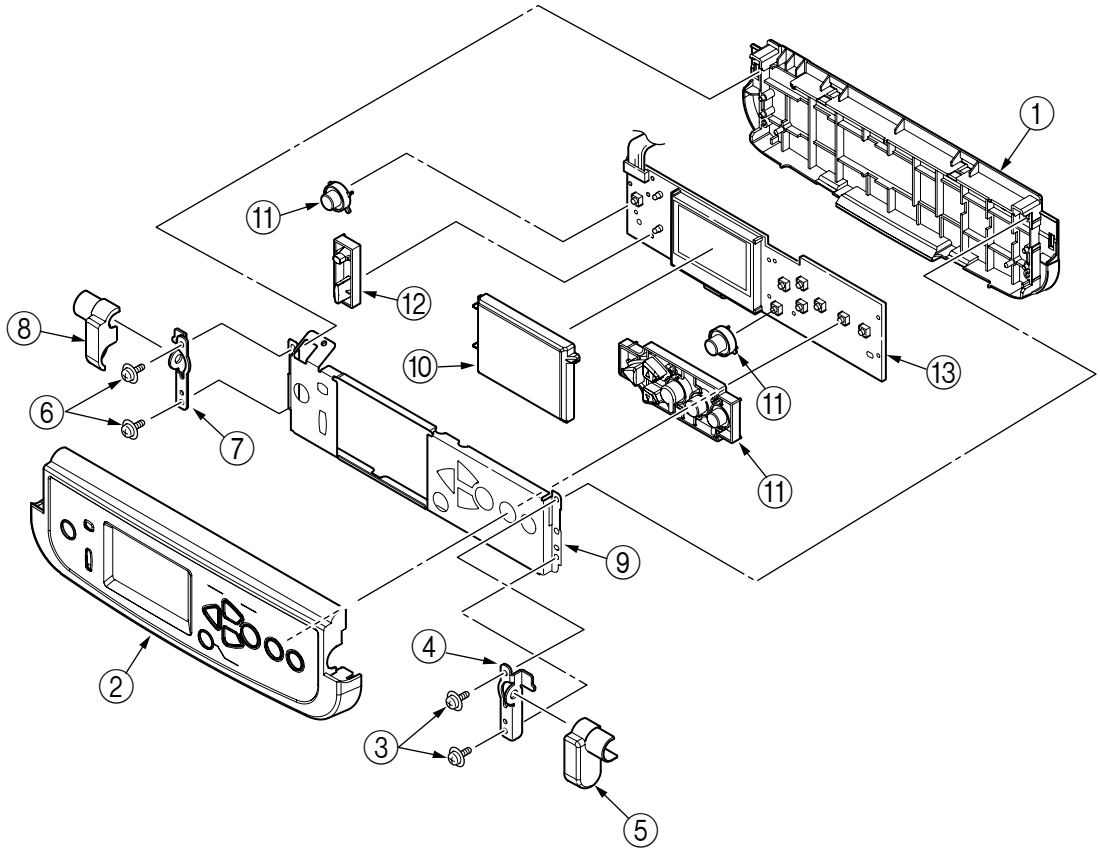
(1) Remove the Cover Assy-OP Panel. (Refer to Section 4.3.4)

(2) Remove Cover-OP Panel ② from Frame-OP-Panel ①.

(3) Unscrew the 2 screws ③, then remove hinge (R) ④ and Cover Hinge (R) ⑤.

(4) Unscrew 2 screws ⑥, then remove the Hinge (L)⑦, Cover-Hinge (L)⑧ and Plate-Shield (OP) ⑨.

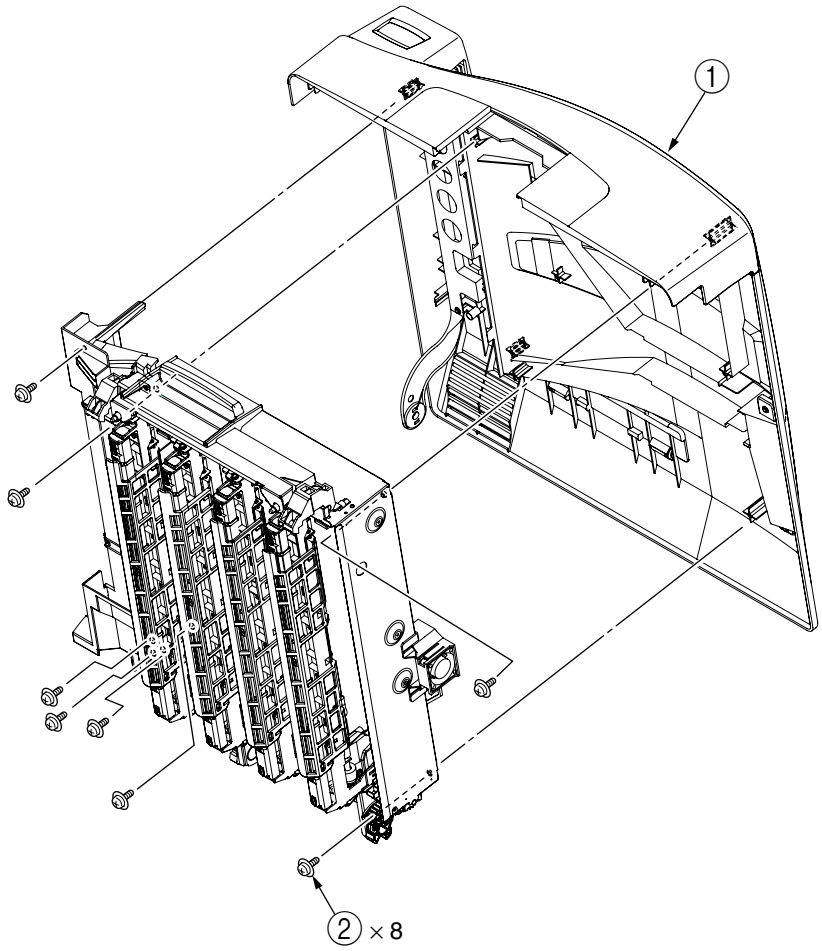
(5) Remove Cover-LCD ⑩, Button-key ⑪, and Lens-LED ⑫, then remove the OP PCB ⑬.



4.3.6 Cover Assy-Top

(1) Open Cover Assy-Top ①.

(2) Unscrew 8 screws ②, then remove the 3 hinges and the Cover Assy-Top ①.



4.3.7 FAN-PCB-Assy, CU-Board-Assy and S2V-PU-Board

(1) Open the Cover Assy-Top.

(2) Remove the covers concerned. (Refer to Section 4.3.2)

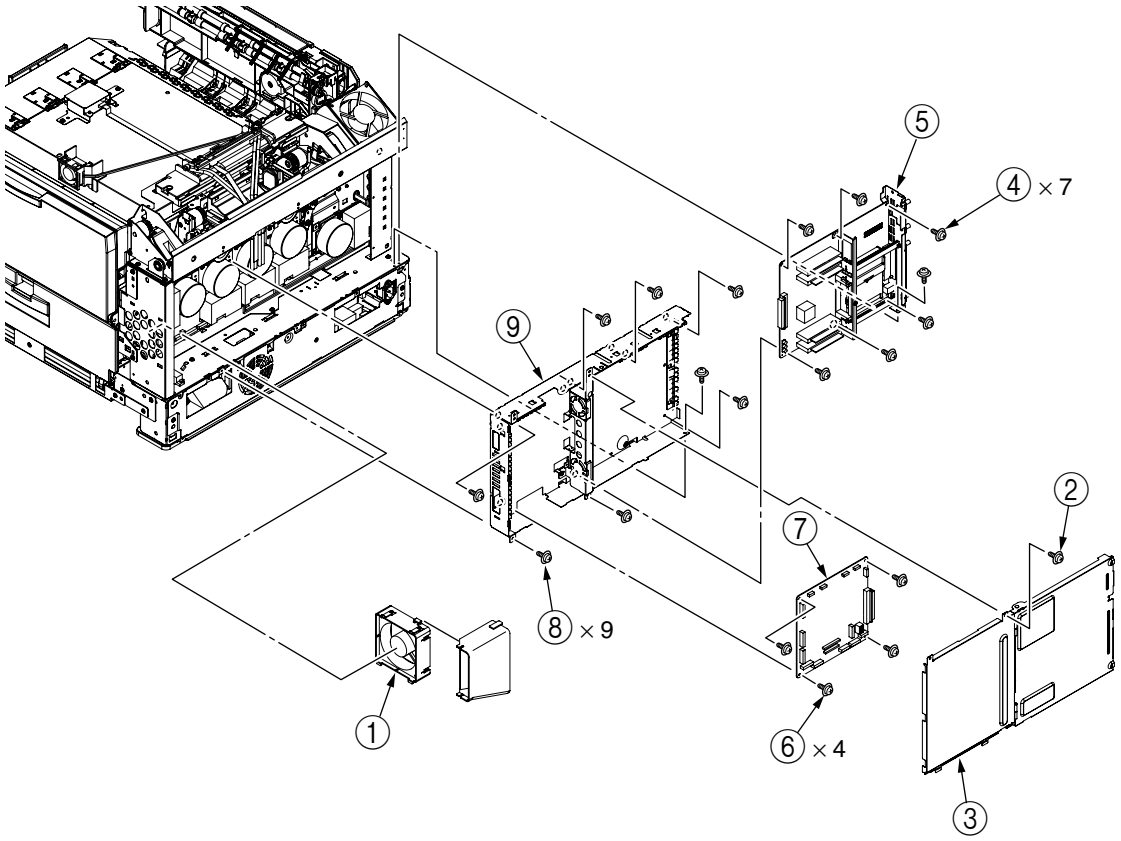
(3) Remove the connector, then Remove FAN-PCB-Assy ①.

(4) Unscrew the ② screws, remove the Plate-Shield-Assy ③, then remove the connector.

(5) Unscrew 7 screws ④, then remove CU-Board-Assy ⑤.

(6) Disconnect all 17 Connectors, then unscrew 4 screws ⑥, and remove S2V-PU-Board ⑦.

(7) Unscrew 9 screws ⑧, remove the Plate-Shield-Box-Assy ⑨, then remove all the connectors.



4.3.8 Job-Offset-Assy and Basket-Assy

(1) Open the Cover Assy-Top.

(2) Unscrew screw ①, remove Frame-Duct ②, then remove the connector (remove the connector through the shaft)

(3) Remove the 2 hinges, then remove the Job-Offset-Assy ③, and disconnect the connector.

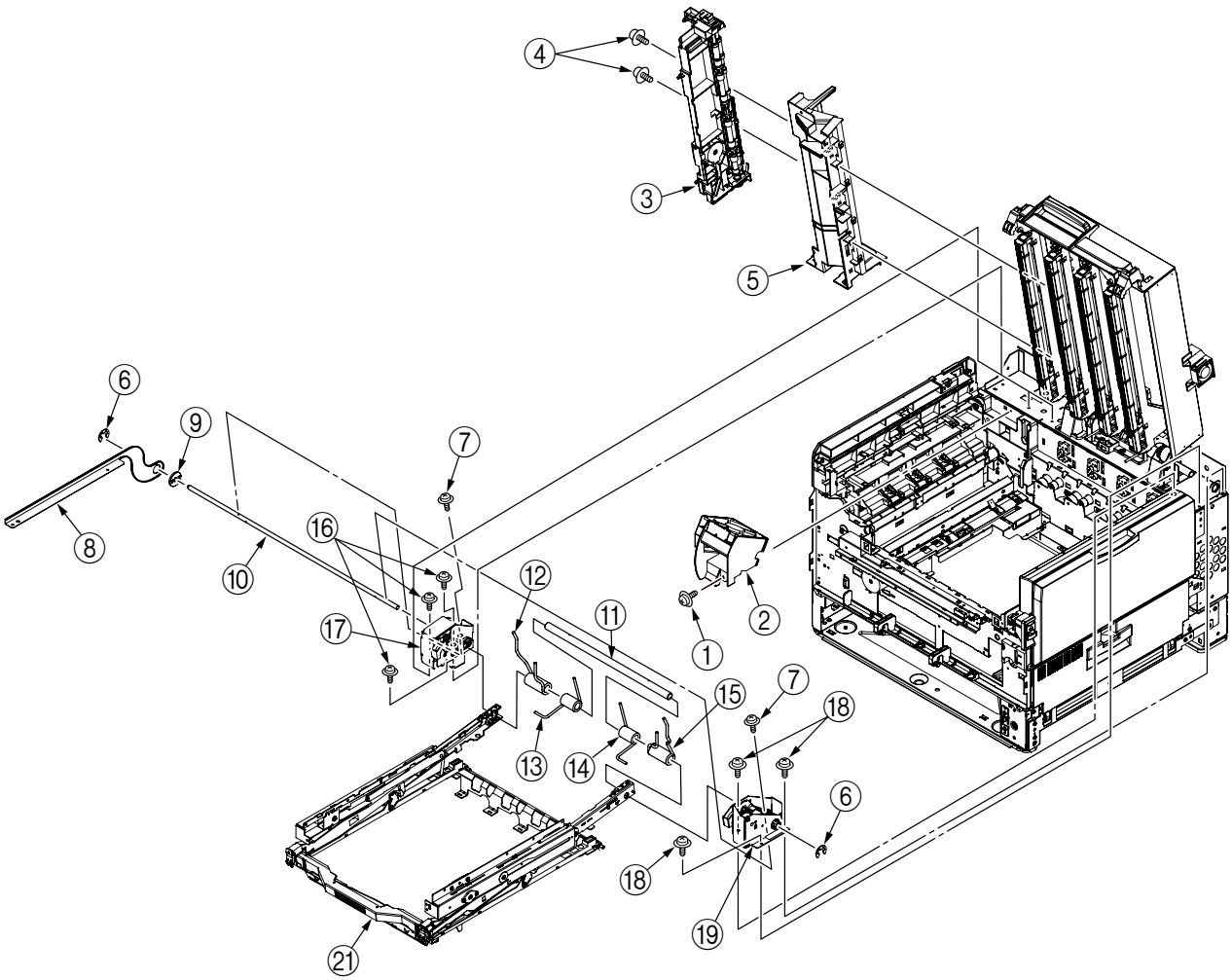
(4) Unscrew 2 screws ④, then remove the 2 hinges, and remove the Cover Assy-Top (Sub) ⑤.

(5) Remove the 3 E-rings ⑥, unscrew 2 screws ⑦, then remove the Plate-Support (Top) ⑧, Colla ⑨, Shaft-Top (A) ⑩, Shaft-Top (B) ⑪, Spring-Torsion-Top (L) ⑫, Spring-Torsion-Top (A) ⑬, Spring-Torsion-Top (R) ⑭ and Spring-Torsion-Top (R) ⑮.

(6) Unscrew 3 screws ⑯, then remove the Gear-Assy-L ⑰.

(7) Unscrew 3 screws ⑱, then remove Gear-Assy-R ⑲.

(8) Remove the high toner Assy tube ⑳, then remove Basket-Assy ㉑.



4.3.9 Plate Top Assy

(1) Remove Job-Offset-Assy 723/Basket-Assy. (Refer to Section 4.3.6)

(2) Lift back Plate-Top Assy ①, then unscrew 2 screws ②.

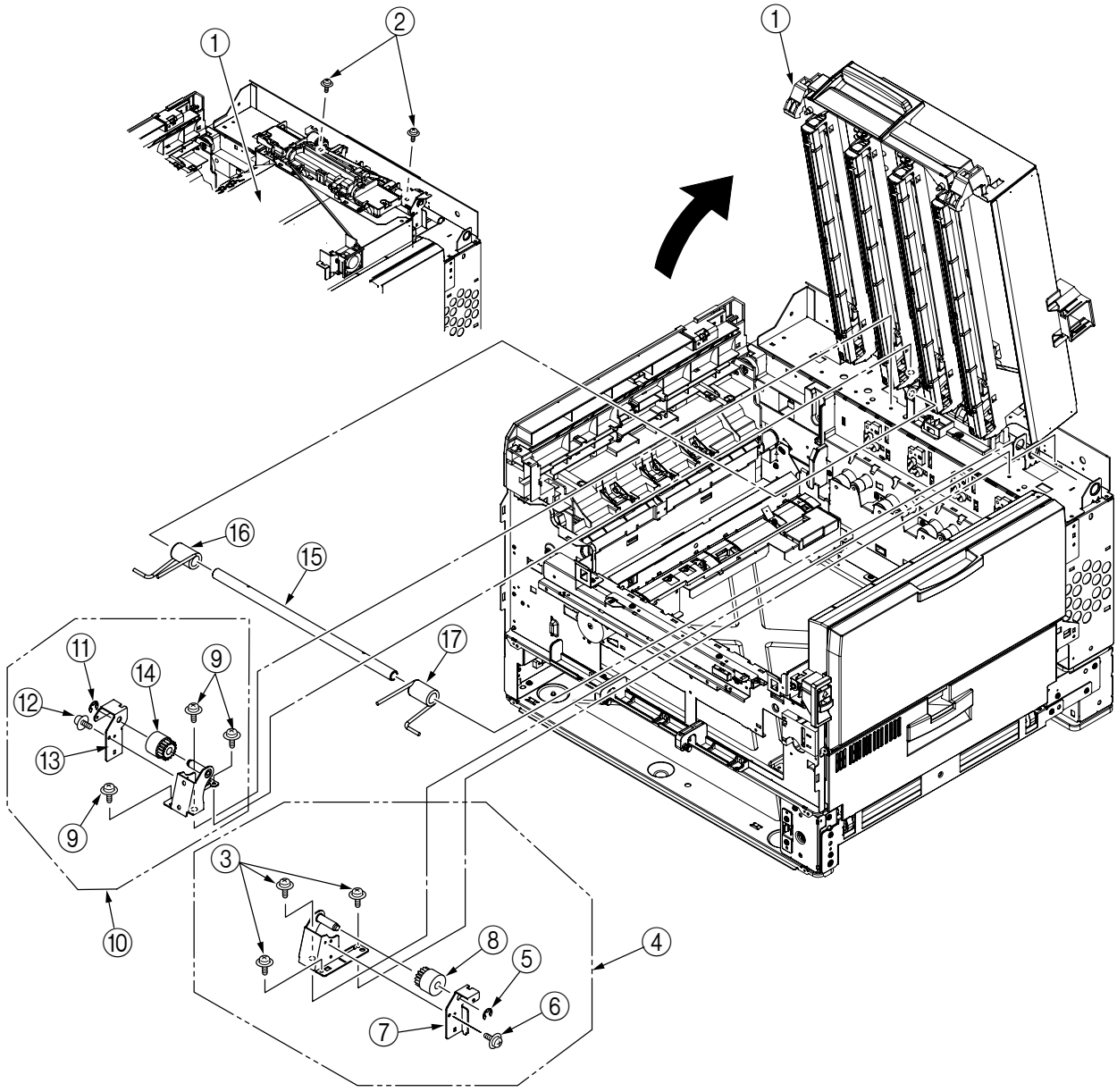
(3) Lift forward Plate-Top Assy ①, then unscrew 3 screws ③ and remove Plate-Dumper-Assy (R)④.

(4) Remove E-ring ⑤, and unscrew screw ⑥. then remove Plate-Dumper-TCR-SUB ⑦ and Dumper R ⑧.

(5) Unscrew 3 screws ⑨, then remove Plate-Dumper-Assy (L)⑩.

(6) Remove E-ring ⑪, and unscrew screw ⑫. Then remove Plate-Dumper-TCR-SUB ⑬ and Dumper L ⑭.

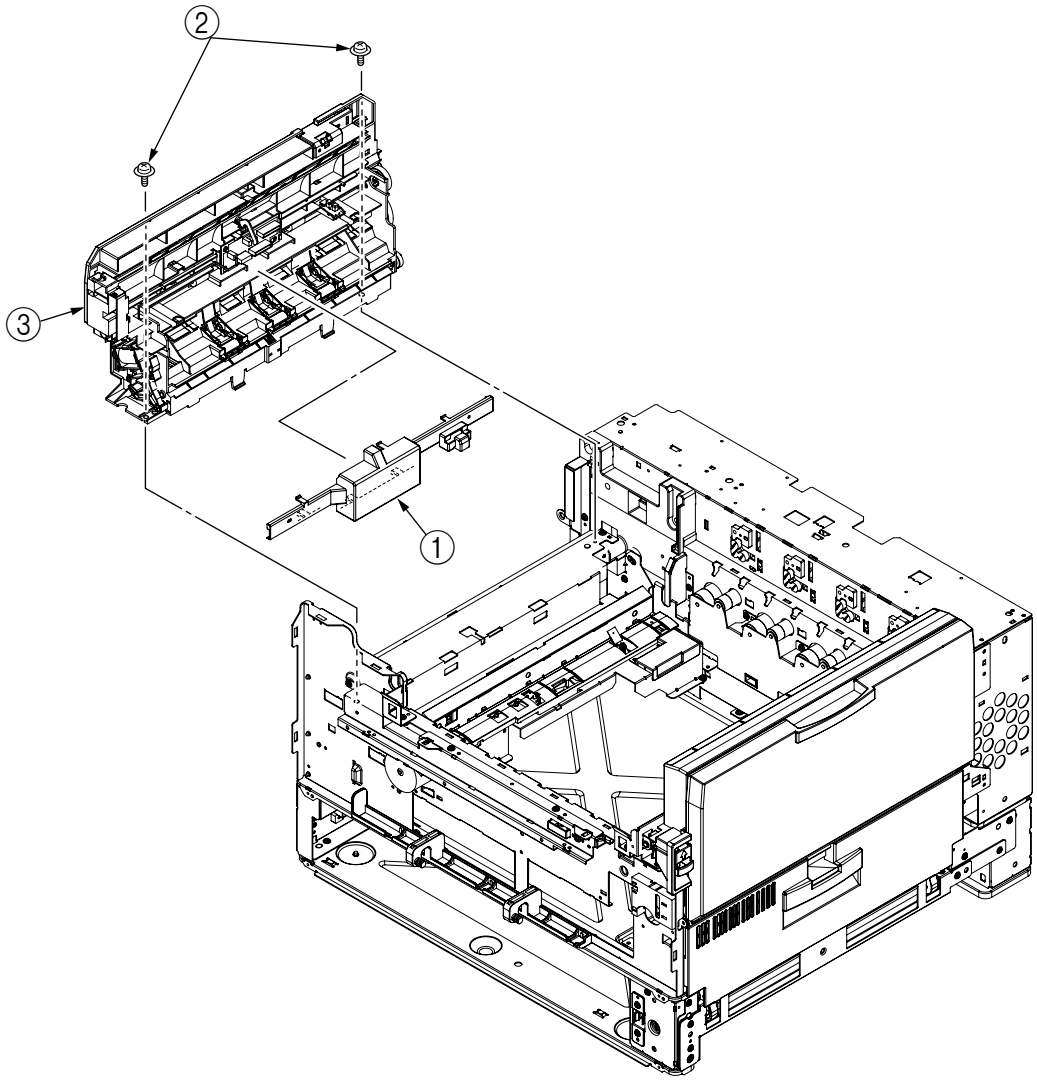
(7) Remove Shaft-Top ⑮, Spring-Torsion-BAS (L) ⑯, and Spring-Torsion-Top-R ⑰, then remove Plate-Top Assy ①.



4.3.10 Eject-Assy

(1) Remove the 7 hinges then remove Cover-Board ①.

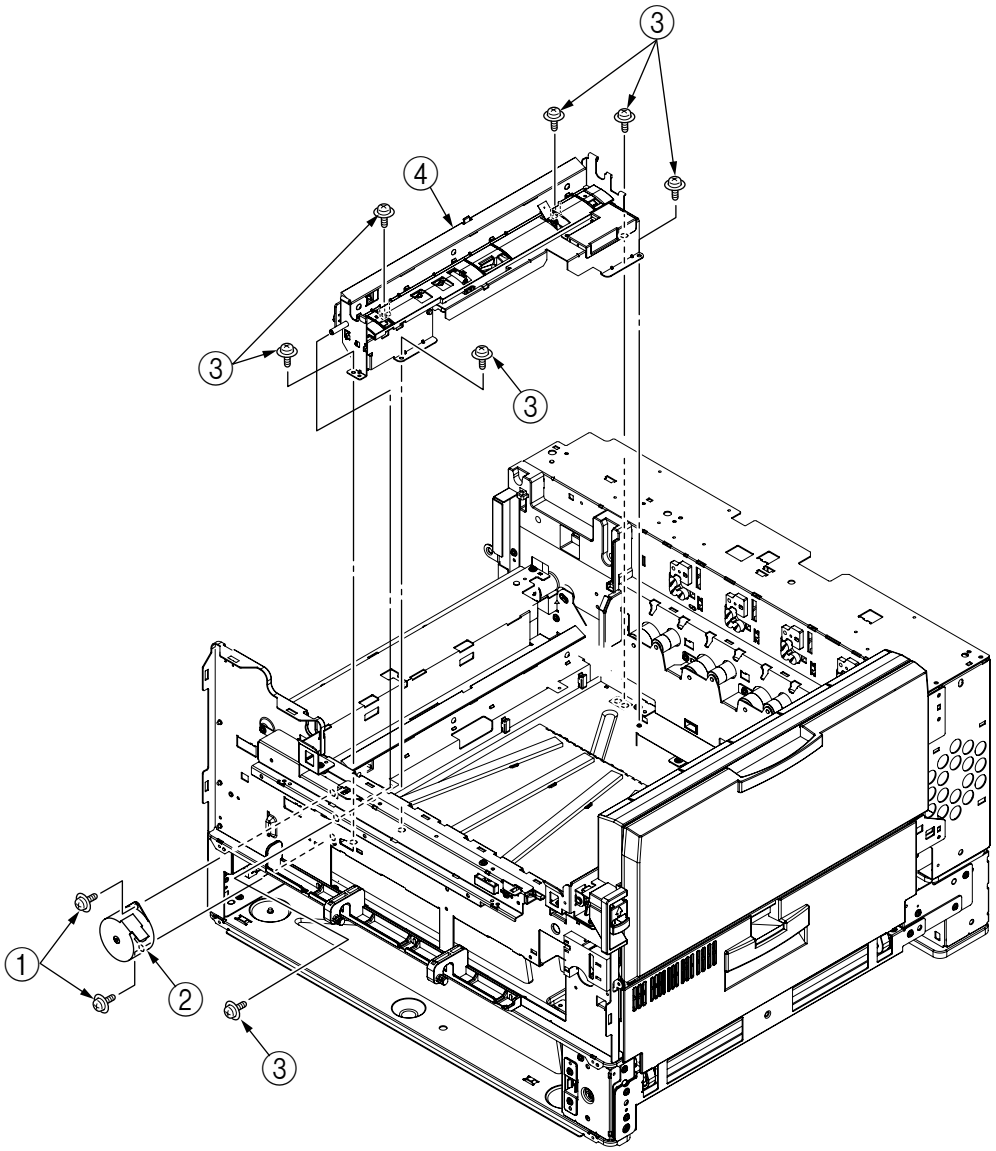
(2) Remove the 13 connectors, and unscrew the 2 screws ②. Then remove the 3 hinges and remove the Eject-Assy ③.



4.3.11 Motor-Pulse-Belt and Sensor-Resist-Assy

(1) Unscrew the 2 screws ①, then remove the 4-pin connector and remove the Motor-Pulse-Belt ②.

(2) Unscrew 7 screws ③, then remove the 4 connectors (2-pin, 14-pin, 3-pin, 5-pin), and remove the Sensor-Resist-Assy ④.

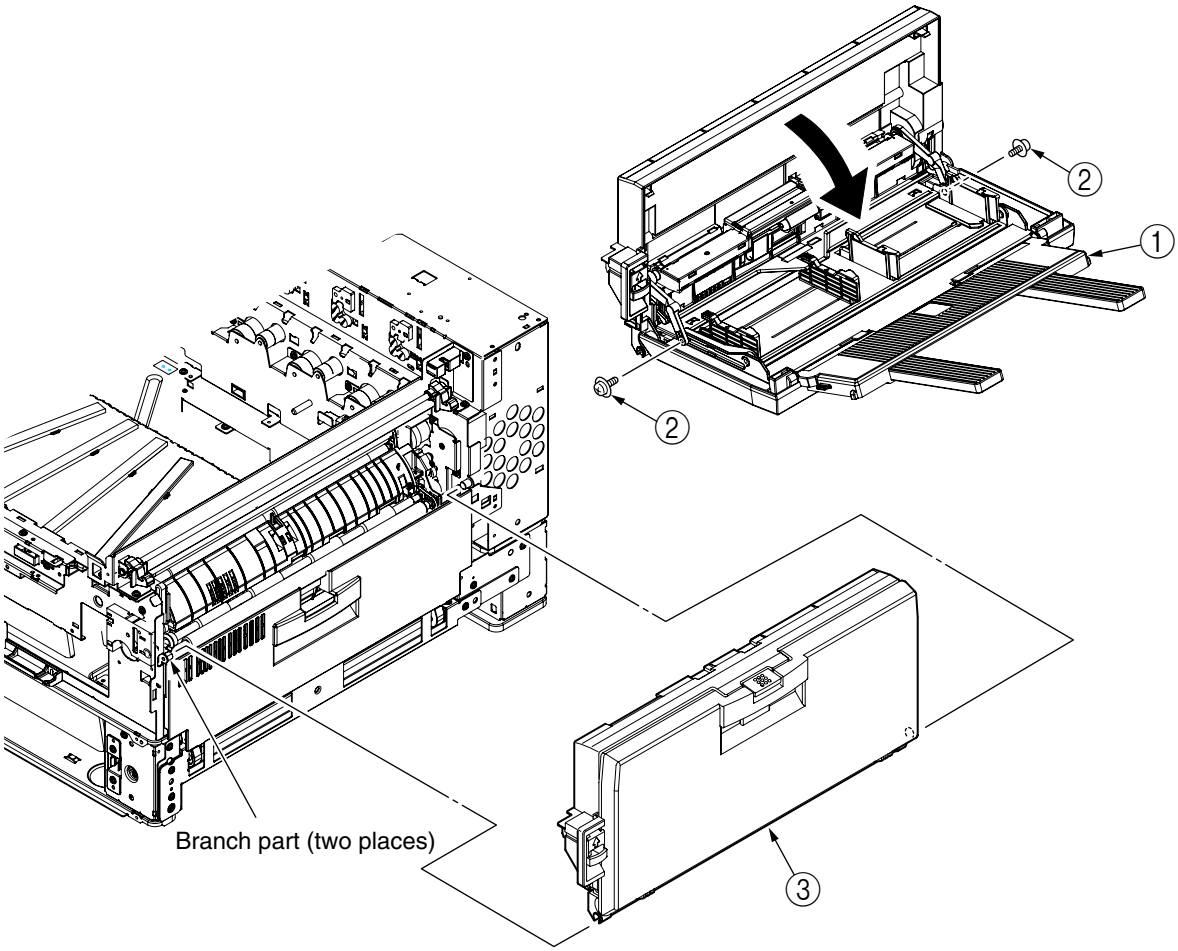


4.3.12 FDR Unit-MPT

(1) Open the Cover Assy-Top.

(2) Remove the stay on both side (Frontside Hook; Rear-side Screw) ④, and 2 connectors, then unscrew the 2 screws ②.

(3) Close the hopper Assy ①, remove the 2 supporting points, then remove the FDR Unit-MPT ③.

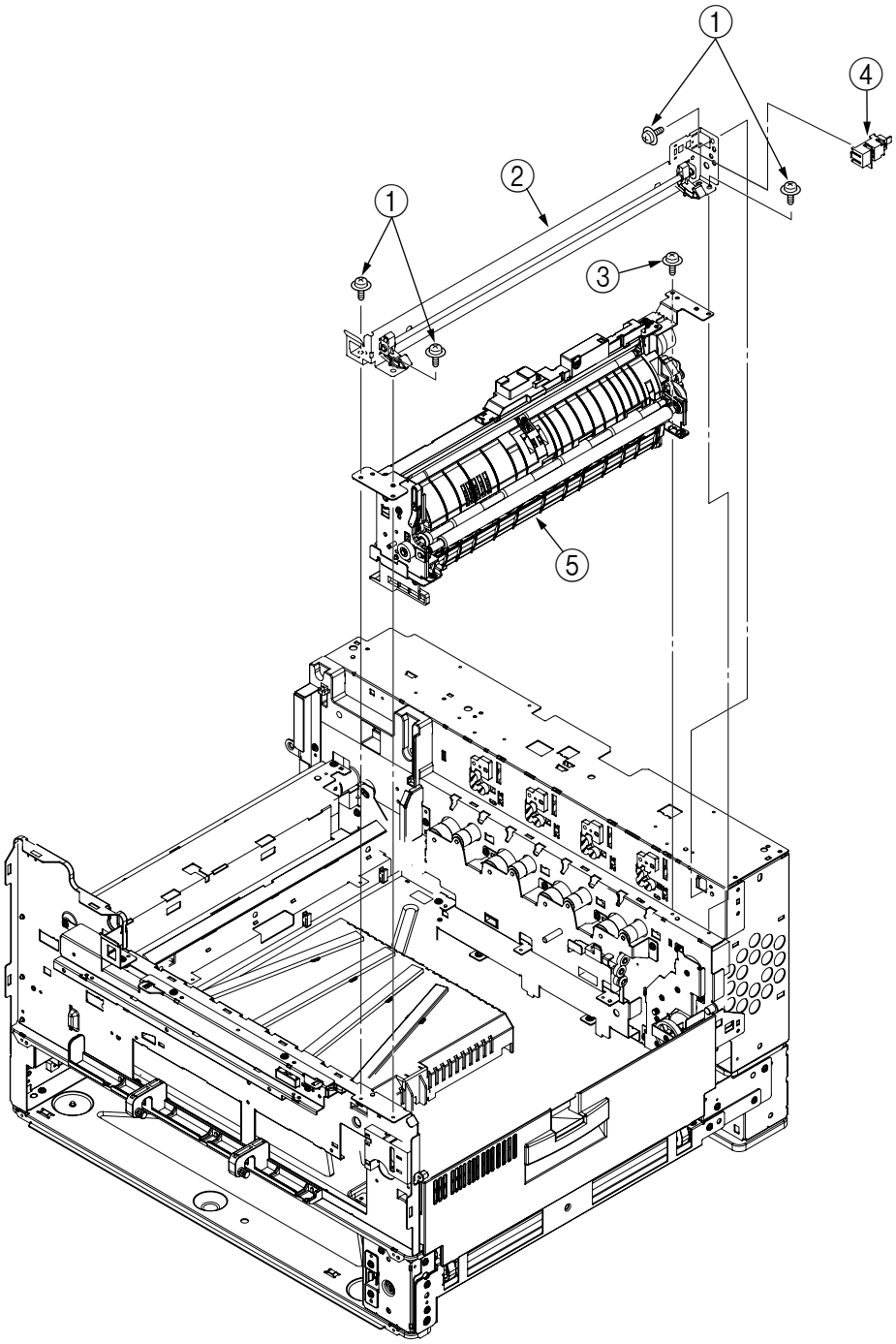


4.3.13 FDR Unit-Resist

(1) Remove the FDR Unit-MPT. (Refer to Section 4.3.12)

(2) Unscrew the 4 screws ① and disconnect connector ④, then remove Plate Assy-MPT Lock ②.

(3) Unscrew screw ③, then remove FDR Unit-Resist ⑤.



4.3.14 Duct Assy

(1) Remove the hinge, then remove Cover-Middle ①.

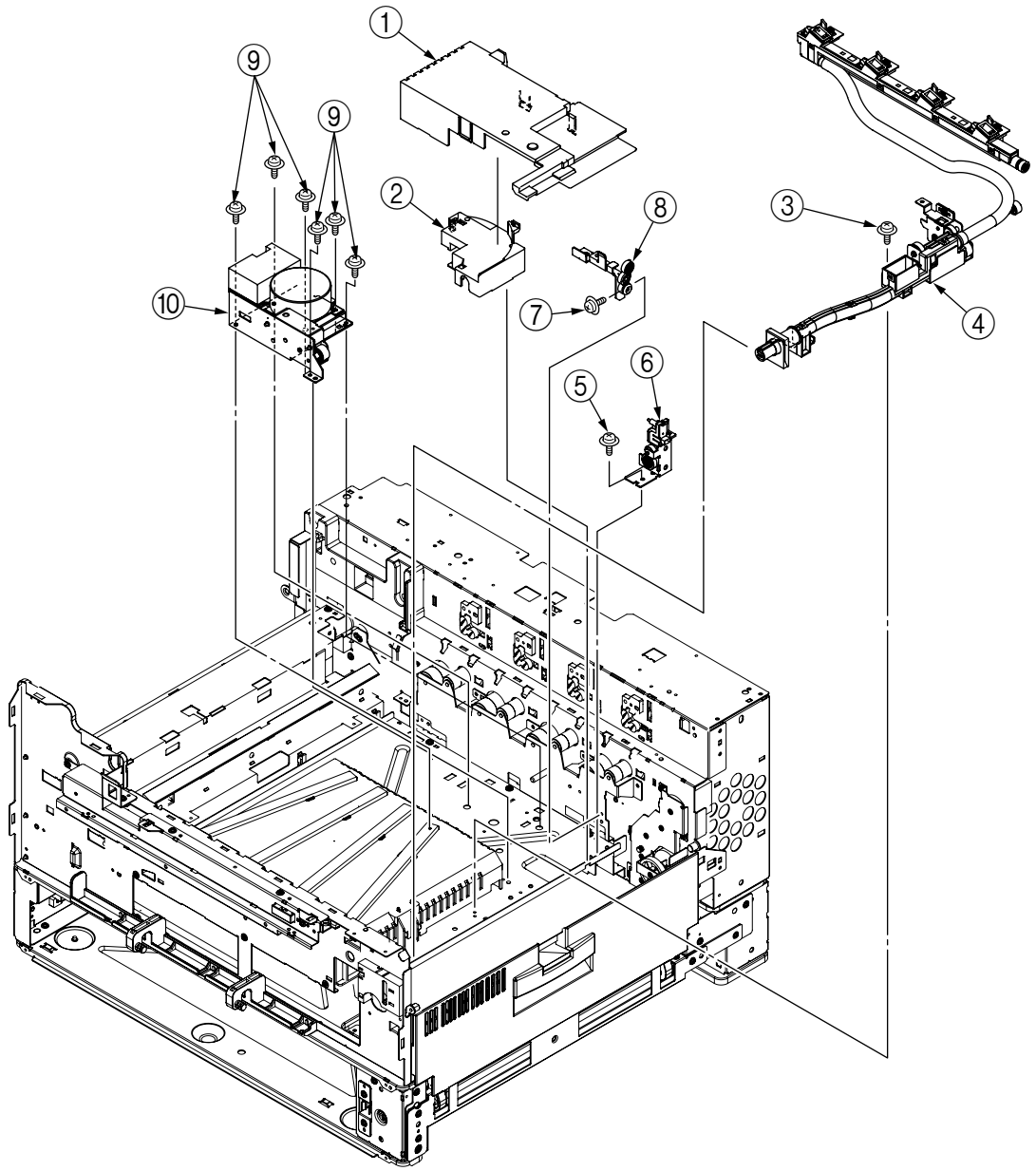
(2) Remove the hinge, then remove Guide Tube (L) ②.

(3) Unscrew 2 screws ③, then remove Duct-Assy-Toner ④.

(4) Unscrew screw ⑤, then remove Gear-Duct-B-Assy ⑥.

(5) Unscrew screw ⑦, then remove Gear-Duct-ID Assy ⑧.

(6) Unscrew 6 screws ⑨, then remove Duct-Drive-Assy ⑩.



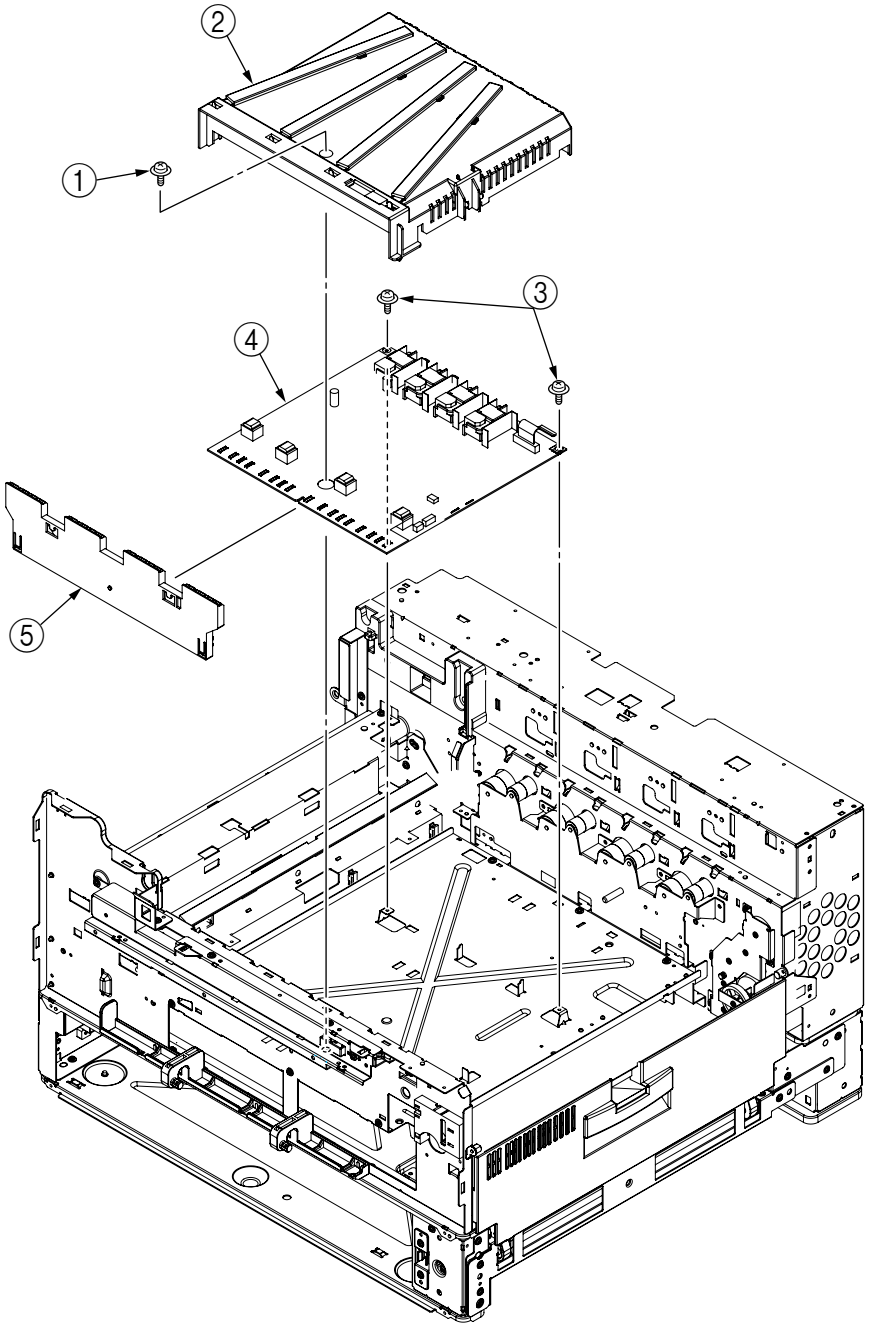
4.3.15 HV-Assy

(1) Open the Cover Assy-Top, then remove the Belt-Assy.

(2) Unscrew screw ①, then remove Cover-HV-Assy ②.

(3) Remove the 2 connectors and unscrew the 2 screws ③, then remove HV-Assy ④.

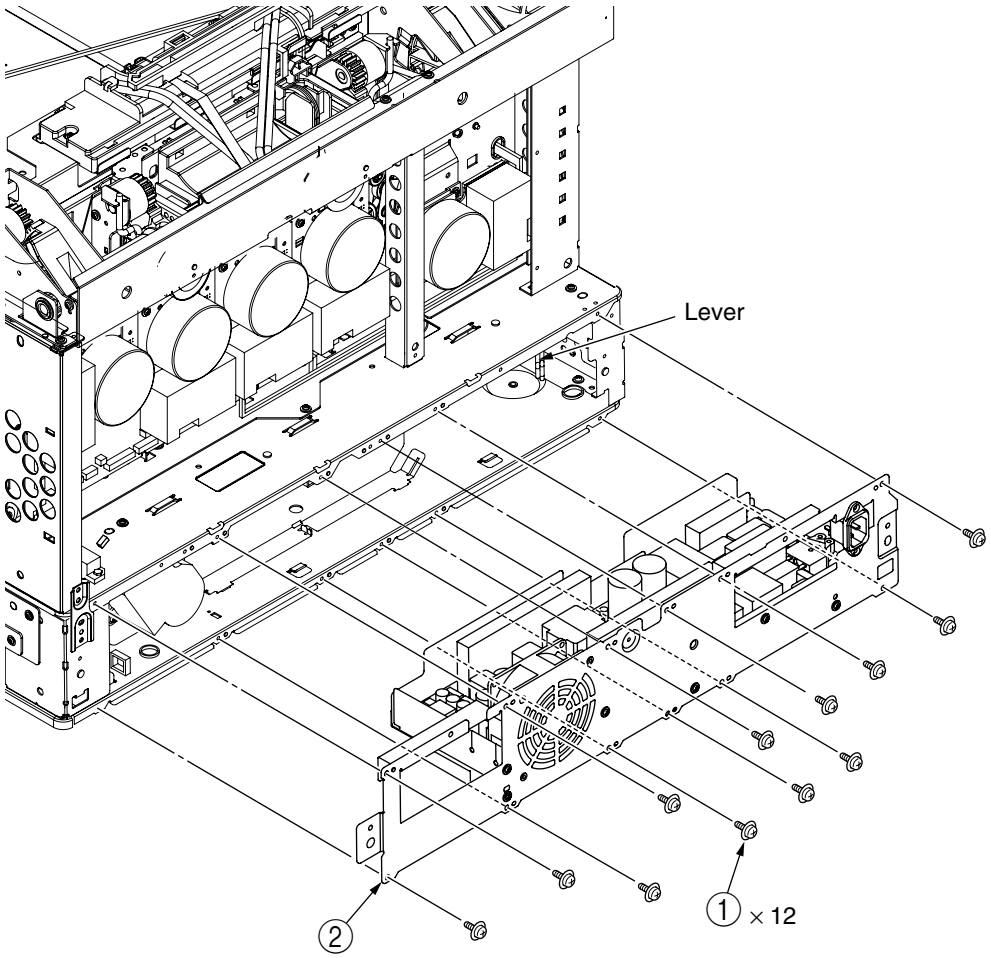
(4) Remove the 2 hinges, then remove Bracket-HV-Assy ⑤.



4.3.16 Power Unit

(1)

(2) Unscrew the 12 screws ①, disconnect all connectors, pull out the lever then remove the Power Unit ②.

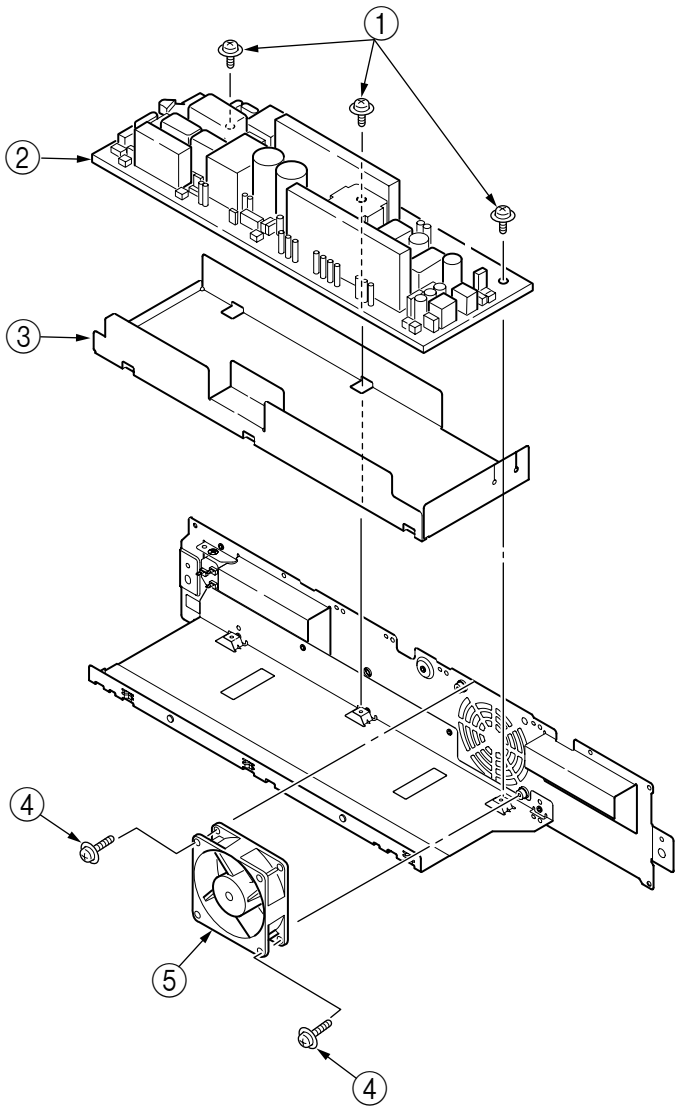


4.3.17 Low Voltage Power Source Assy and Motor-FAN

(1) Remove the Power Unit. (Refer to Section 4.3.16)

(2) Unscrew the 3 screws ①, then remove the low Voltage Power Source Assy ②, and Film-Insulation ③.

(3) Unscrew the 2 screws ④, then remove the connector and Motor-FAN ⑤.

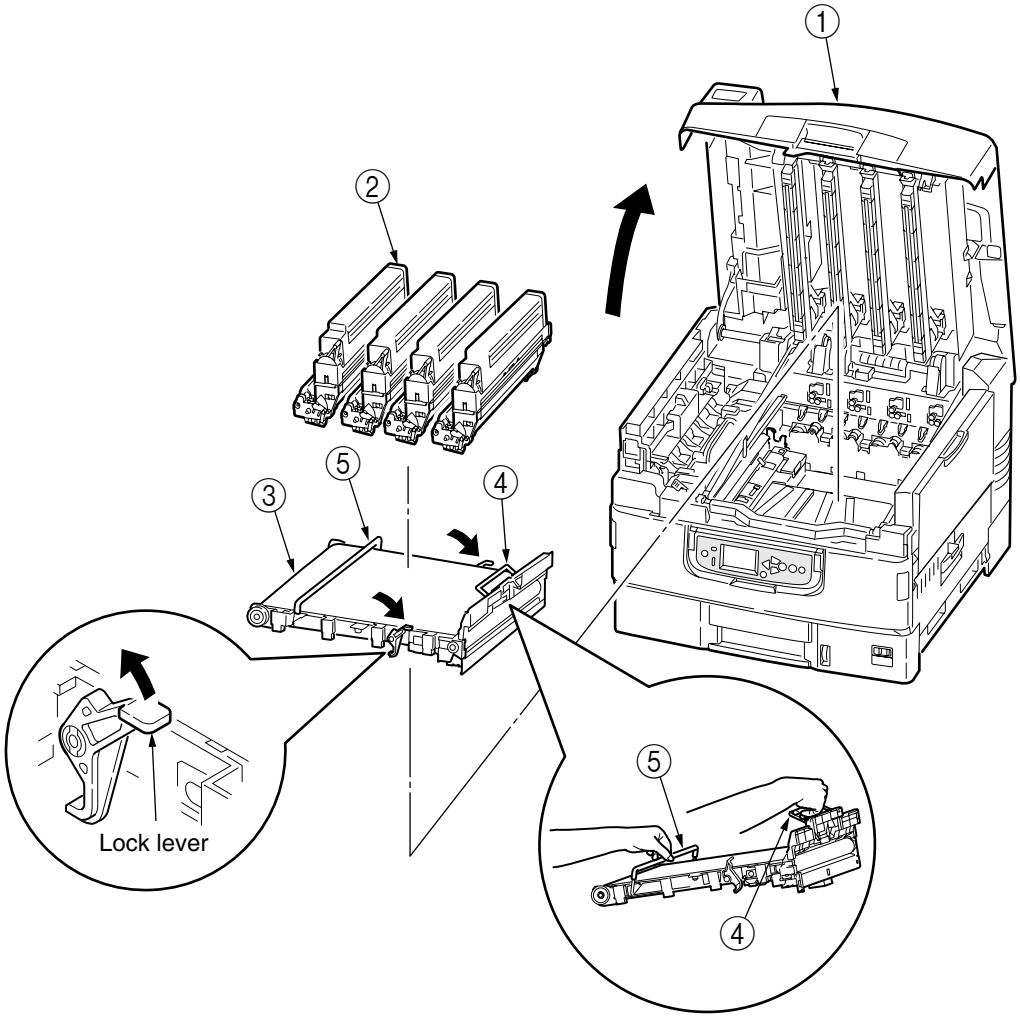


4.3.18 Belt-Assy

(1) Open the Cover Assy-Top ①.

(2) Remove ID Unit ②.

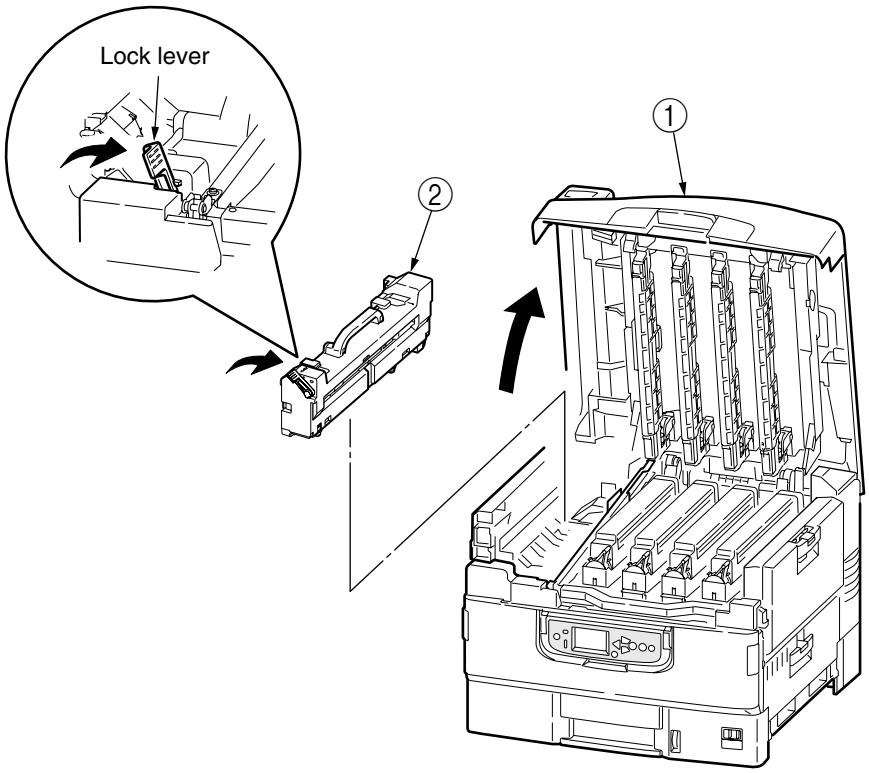
(3) Lift up the 2 lock levers toward the arrow, then remove the Belt-Assy ③.
Remove Belt-Assy ③ by lifting handle ④, then remove along with handle ⑤.



4.3.19 Fuser Unit-LBT

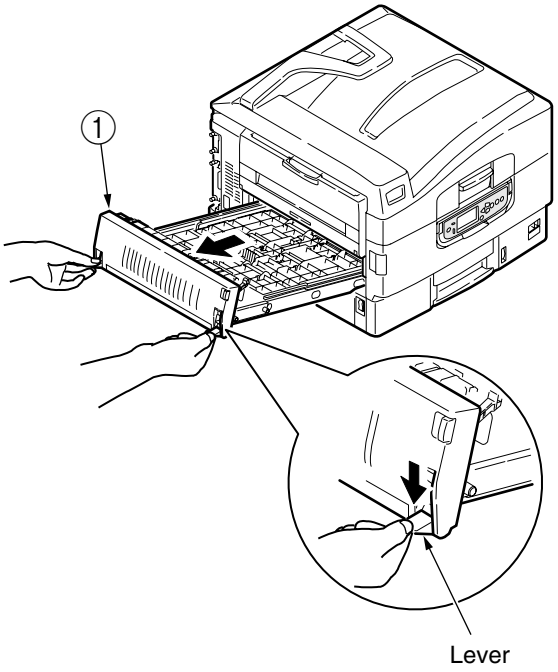
(1) Open Cover Assy-Top ①.

(2) Lift the lock lever toward the arrow, then remove the Fuser Unit-LBT ②.



4.3.20 Unit-Duplex

(1) Pull out Unit-Duplex ① while pressing the lever.

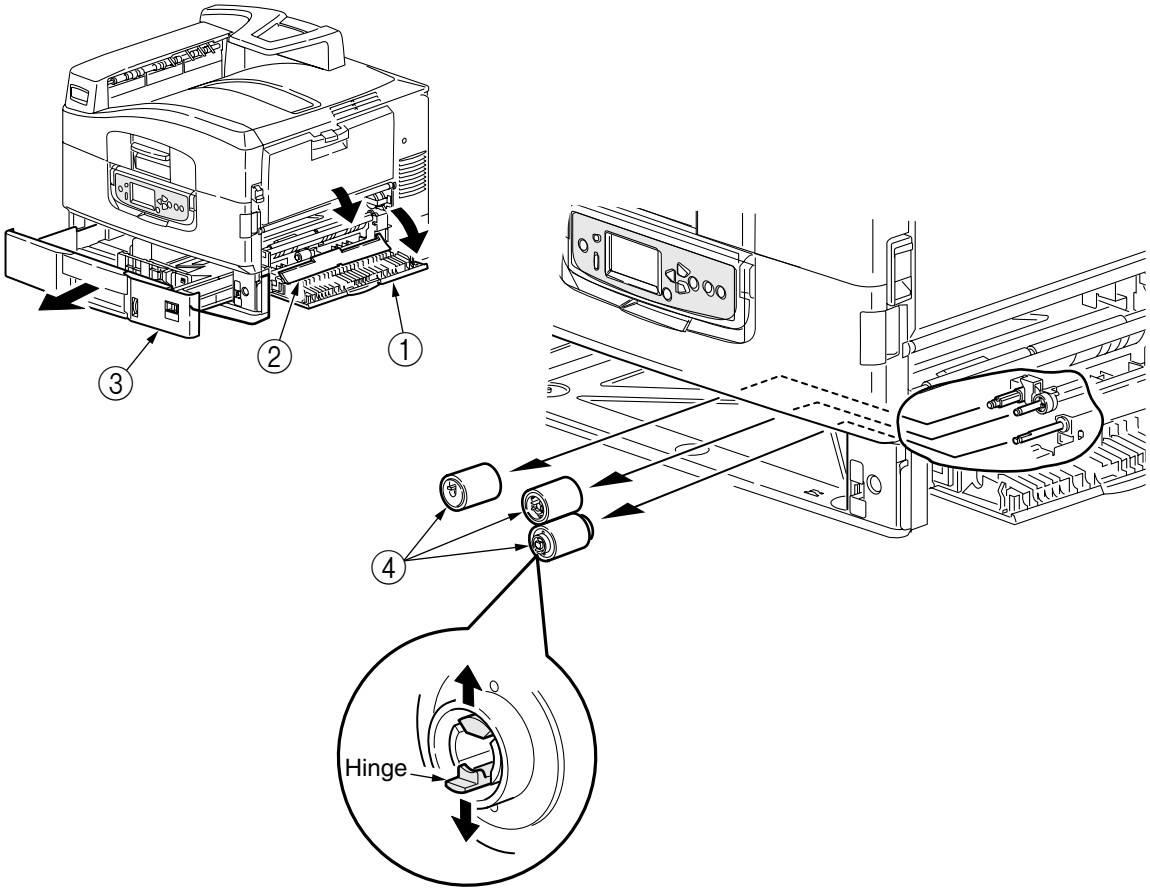


4.3.21 Paper Feed Roller

(1) Open the tray 1 side cover ① and the paper guide ②.

(2) Pull out Tray ③.

(3) Pull outward the hinges of the 3 paper feed rollers ④, and remove from the shaft.



5. ADJUSTMENT

Adjust the AR-C360P by key input from the operation panel.

The AR-C360P comes with a Maintenance Menu in the usual menu. Select the menu according to the items to adjust and the purpose of adjustment.

5.0 System Maintenance Menu

This menu is launched by turning on the power source while keeping the [Menu+]+[Menu-]+[Help] switches pressed.

The menu display is only available in English regardless of destination.

Note This menu can be modified according to the destination, etc. Therefore, it is not open (closed) to the end user.

Table 5-0. Maintenance Menu Display Table (1/2)

Category	Item	Value	DF	Old Menu	Function	Valid	Save
System Maintenance	USER	ODA OEL APS JP1 JPOEM1 OEMA OEMI	*	"SYSTEM MAINTENANCE MENU" - "OKIUSER" - "OKIUSER"	Set the destination. JPOEM1: Japan OEM OEMA: A4 Default Overseas OEM OEML: Letter Default Overseas OEM Automatically reboot after escaping from the menu. The default value for non-PS models is JP1.	RB	-
	Maintenance Menu	NEXT			This displays the menu to initialize the harddisk and Flash ROM.		
	Maintenance Print Menu	Enable Disable	*		This switches whether to Show/Hide the Print Information — ID Check Pattern and Engine Status of the Function Menu. If this item is disabled, the Print Information — ID Check Pattern and Engine Status of the Function Menu is never displayed. The printer is restarted after the settings are modified and escaping from the menu.	ET	-
	Print Page Count	Enable Disable	*	"SYSTEM MAINTENANCE MENU" - "PAGE CNT PRINT" - "PAGE CNT PRINT"	This sets whether to Show/Hide the display of the "Functions"-"Configuration" - "Print Page Count"-"Total Page".	ET	-
	Personality	NEXT			This displays the menu to edit the default PDL language supported according to destination.		
	Diagnostic Mode			"SYSTEM MAINTENANCE MENU"-"DIAGNOSTIC MODE XX.XX"	This goes to the engine s self-diagnosis mode.	ET	-

Table 5-0. Maintenance Menu Display Table (2/2)

Category	Item	Value	DF	Old Menu	Function	Valid	Save
Maintenance Menu	Format HDD	Execute	-	SYSTEM MAINENANCE MENU — MAINTENANCE MENU — HDD INITIALIZE	Initialize the HDD. When executed it will escape from the menu and start initializing the HDD. [Display Condition] ¥Mount HDD (Boot Menu - Storage Setup - Enable Initialization Enable, Boot Menu - Storage Setup - Enable HDD Yes)	ET	-
	Format Flash ROM	NEXT	-	SYSTEM MAINENANCE MENU - MAINTENANCE MENU — FLASH INITIALIZE	This displays the menu to initialize the Flash ROM.	RB	-
	Reset EEPROM	Execute	-	SYSTEM MAINENANCE MENU - MAINTENANCE MENU — MENU RESET	This resets the EEPROM details to the factory preset (factory default) value. It automatically reboots after the settings are made and applied. * Some special items are not initialized.	RB	-
	Reset Parameter	Execute	-		This resets the EEPROM details to the factory preset (factory default) value. At that time, the OEM related settings that are not initialized with Reset EEPROM will also be initialized. It automatically reboots after the settings are made and applied. * Some of the PU, network, etc. cannot be initialized.	RB	-
Personality	IBM PPR III XL	Enable Disable	*E *J	SYSTEM MAINENANCE MENU - PERONALITY — IBM PPR III XL	Changes the default PDL language supported according to the destination. The PDL language disabled from this menu will no longer be displayed on the Print Setup — Personality of the Function menu. When receiving print data in the disabled PDL language, display INVALID DATA and dispose the incoming data. (HP-GL/2 is currently under development and there are no plans scheduled for application for the product). PDF requires Adobe Postscript, therefore, it is not possible to turn PDF ON/OFF by itself (if Adobe Postscript is DISABLED, the PDF Function will also be DISABLED). It is not possible to DISABLE Adobe Postscript and PDF with PX711/713. (It shall be usually used in the ENABLE state. Though DISABLE is set the incoming data will still be processed. It has been incorporated for future extension purposes.)		-
	EPSON FX	Enable Disable	*E *J	SYSTEM MAINENANCE MENU - PERONSALITY — EPSON fx			
	HP-GL/2	Enable Disable	*JE	SYSTEM MAINENANCE MENU - PERSONALITY — hp-gl/2			
Format Flash ROM	Slot 0	Execute	-		Initialize the Flash ROM. Escape the menu to execute, then start formatting the Flash device mounted on the resident (onboard).	ET	-
	Slot 1	Execute	-		Initialize the Flash ROM. Escape the menu to execute, then start formatting the Flash device mounted on the wireless LAN (Optional).	ET	-

During the Engine Self-Diagnosis Mode, switch operations and the LCD display is instructed by the engine firmware, therefore, it will vary from the specifications of the controller firmware operations. Note that the Engine Self-Diagnosis Mode can also be executed in the state with the controller PCD removed.

For details, accordingly refer to the Engine Specifications Manual.

5.0.1 ID Check Pattern Print (“TEST PRINT MENU” Item)

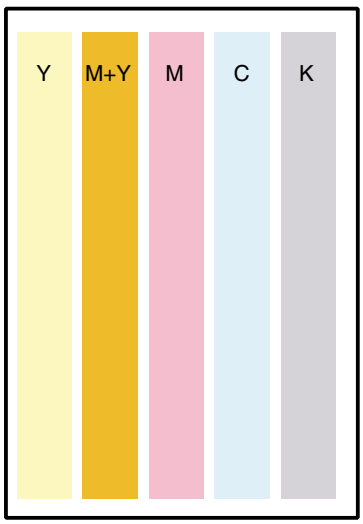
This pattern can be used to investigate the cause (plain identification of problem or check cycle of problem) resulting from the ID or LED head. CMYK are each composed of a 20% duty pattern. (printing 2 sheets)

Test Pattern Print Procedure : (Switch pressing order)

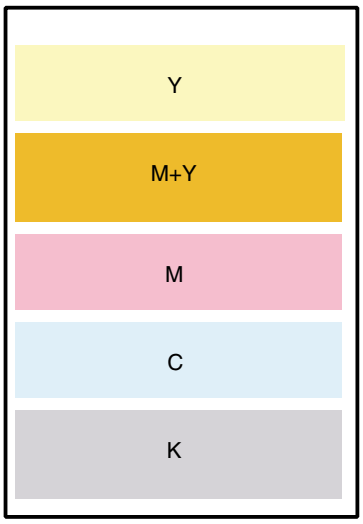
* HDD = NO : “0” → “0” → “3” → “3”
* HDD = YES : “0” → “0” → “0” → “3” → “3”
  - Vertical Black/White Lines (Vertical Black/White Lines)
  - Vertical Black/White Band (Vertical Black/White Band)
  - Horizontal Black/White Lines (Horitzontal Black/White Lines)
  - Horizontal Black/White Band (Horitzontal Black/White Band)

Print pattern (Print Pattern):

Page.1



Page.2



5.1 Maintenance Menu and Its Function

5.1.1 Maintenance Menu

There is a Maintenance Menu Category in a regular menu category.

The following items can be set from this menu.

Maintenance Menu

Category	Item (1st Line)	Value (2nd Line)	DF	Function
MAINTENANCE MENU	EEPROM Reset	EXECUTE	*	Reset the EEPROM of the CU.
	SAVE MENU Setting	EXECUTE	*	Save the current menu settings. An ARE YOU SURE? YES/NO selection message appears.
	RESTORE MENU	EXECUTE	*	Modify the setting to the menu setting saved. (Display only when there is a menu setting saved) Note Saved on the Flash (surface-mounted) of the CU. Saved on the HDD if there is a HDD.
	POWER SAVE	ENABLE DISABLE	*	This sets the ENABLE/DISABLE of the power save mode. When the power save mode is enabled, the time it takes to activate the power save mode can be modified by the Power Save Delay Time Item in the System Config Menu.
	Plain Paper Black Setting	0 +1 +2 -2 -1	*	Plain Paper/Black Print: This fine-tunes any uneven printing or dust in the printouts. Decrement this setting if there is any scattering in high density printing or if there is snow-like patterns in the printout. Increment this setting if the printout appears whiting out.
	Plain Paper Color Setting	0 +1 +2 -2 -1	*	Plain Paper/COLOR Print: This is used to fine-tune any uneven printing or dust in the printouts. Decrement this setting if there is any scattering in high density printing or if there is snow-like patterns in the printout. Increment this setting if the printout appears whiting out.
	Transparency Black Setting	0 +1 +2 -2 -1	*	Transparency/BLACK Print: This is used to fine-tune any uneven printing or dust in the printouts Decrement this setting if there is any scattering in high density printing or if there is snow-like patterns in the printout. Increment this setting if the printout appears whiting out.
	Transparency Color Setting	0 +1 +2 -2 -1	*	Transparency/COLOR Print: This is used to fine-tune any uneven printing or dust in the printouts Decrement this setting if there is any scattering in high density printing or if there is snow-like patterns in the printout. Increment this setting if the printout appears whiting out.

5.1.2 Engine Maintenance Mode

Engine maintenance mode is a media conveyor mode that assists confirmation of the basic operations of the check and print system.

5.1.2.1 Operation Panel

Instructions on self-diagnosis operations is based on the following Operation Panel layout, as a prerequisite.

5.1.2.2 Regular Self-Diagnosis Mode (Level 1)

The Regular Self-Diagnosis Mode menu is as follows.

- Switch Scan Test
- Motor and Clutch Test
- Execute Test Pattern
- Initialize NVM
- Consumable Counter Display
- Consumable Continual Counter Display

5.1.2.2.1 How to Enter Self-Diagnosis Mode (Level 1)

1. Press the [MENU+], [MENU-] and [HELP] keys at the same time when turning ON the power to go to the System Maintenance Mode.
2. Press the [MENU+] and [MENU-] key until the “DIAGNOSTIC MODE” is displayed.

DIAGNOSTIC MODE	
XX.XX.XX	S-MODE

3. “Diagnostic Mode XX.XX.XX” appears on the LCD panel. The XX.XX.XX stands for the version of the ROM. At the bottom right the setting of the “Factory Working Mode” is displayed. This is usually “S-MODE”.
4. Press the [MENU+] or [MENU-] key to go to each self-diagnostic step. (The menu item rotates by pressing the [MENU+] or [MENU-] keys)

5.1.2.2.2 Escape from Self-Diagnosis Mode

1. Turn OFF the power then turn it back ON after 10 seconds.

5.1.2.3 Switch Scan Test

This self-diagnosis is sued to check the input sensor and switch.

SWITCH SCAN

1. Keep the [MENU+] and [MENU-] keys pressed until [SWITCH SCAN] appears at the top of the display and operations goes into the regular diagnosis mode. (The [MENU+] key = Increment Test Item / the [MENU-] key = Decrement Test Item.)
2. The following message appears by pressing [ENTER]

SWITCH SCAN
PAPER ROUTE: PU

3. Keep the [MENU+] and [MENU-] keys pressed until the item that applies to the unit to test from Table 5-1-1 appears, at the top of the display.

   Press the [MENU+] and [MENU-] keys. The [MENU+] key = Increment Test Item / the [MENU-] key = Decrement Test Item.

PAPER ROUTE: PU
1=H 2=L 3=H 4=L

4. The test is started by pressing the [ENTER] key. The top of the display starts blinking and the applicable unit number (1-4) and the current state appears.

   Operate each unit (Figure 5-1). Display the operations on each respective applicable LCD area. (The display varies according to each sensor. For details refer to Table 5-1-1.)
5. Press the [CANCEL] or [BACK] key to return to state 2.
6. Accordingly repeat Steps 2 to 4.
7. To end the test press the [BACK] key. (Return to state 1)

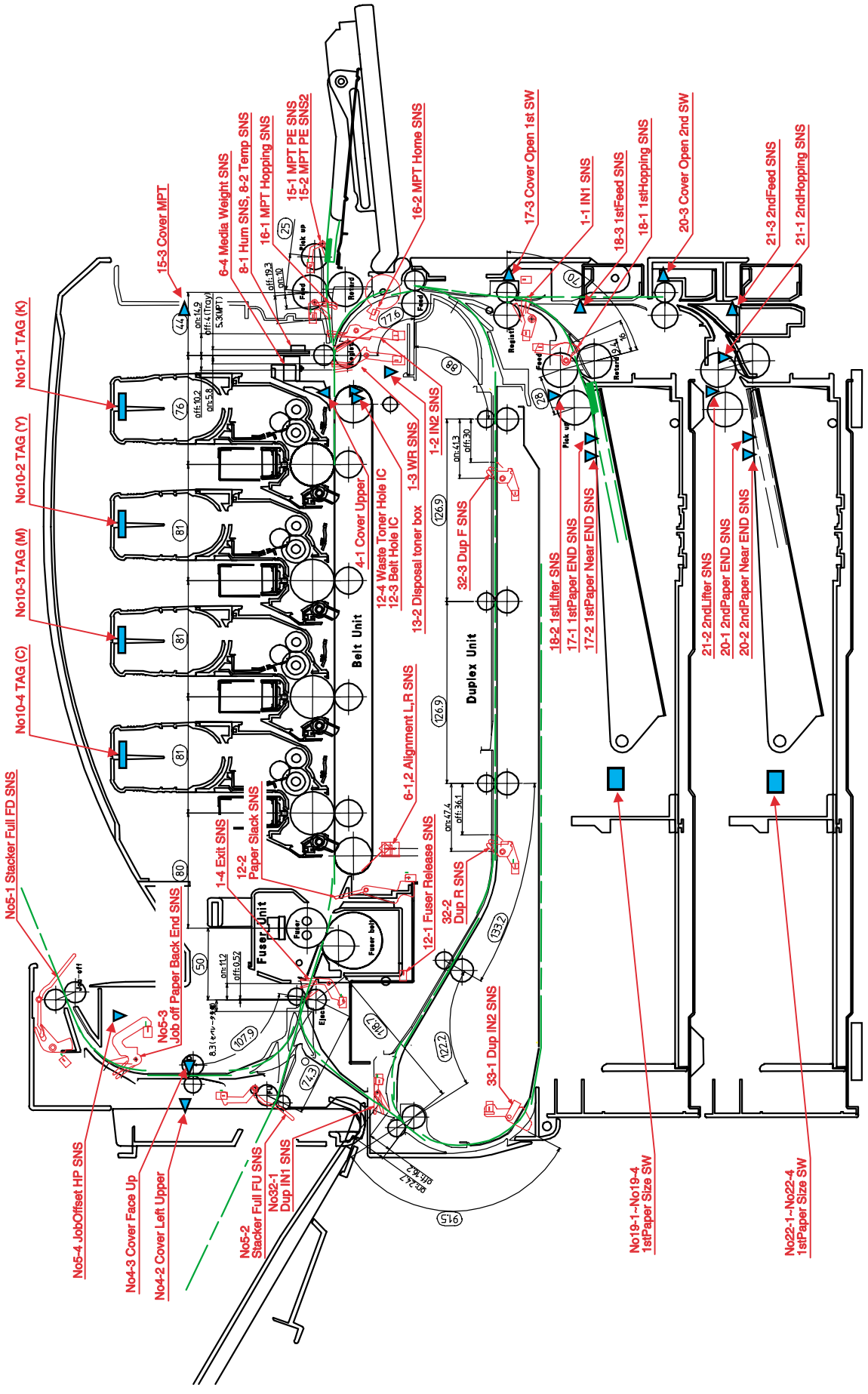


Figure 5-1 Location of Switching Sensor

Table 5-1-1 Switch Scan Details

No.	Top of the Display	1		2		3		4	
		Detail	Display	Detail	Display	Detail	Display	Detail	Display
1	PAPER ROUTE : PU	IN1 Sns	H:OFF L:ON	IN2 Sns	H:OFF L:ON	WR Sns	H:OFF L:ON	Exit Sns	H:OFF L:ON
2	PAPER ROUTE : SUB	IN1 Sns	H:OFF L:ON	IN2 Sns	H:OFF L:ON	WR Sns	H:OFF L:ON		
3	TONER SENS	Toner-K Sns	H:ON L:OFF	Toner-Y Sns	H:ON L:OFF	Toner-M Sns	H:ON L:OFF	Toner-C Sns	H:ON L:OFF
4	COVER UP_LU_FU	Cover-Upper	H:Open L:Close	Cover-Left Upper	H:Open L:Close	Cover-Face Up	H:Open L:Close		
5	STKF_FD_FU JOBOFFHOME	Stacker Full Sns (Face down)	H:Full L:Empty	Stacker Full Sns (Face up)	H:Full L:Empty	Job Offset Paper-End Sns	H:ON L:OFF	JobOffset Home Position Sns	H:ON L:OFF
6	REG L/R_ DENS_WEIGHT	Aligment-Left-Sns	AD Value: ***H	Aligment-Right-Sns	AD Value: ***H			Media Weigt-Sns	Frequency
7	HEATER THERMISTER	Upper-Center-Thermister	AD Value: ***H	Lower-Center-Thermister	AD Value: ***H	Upper-Side-Thermister	AD Value: ***H	Detect-ambient temperature-Thermister	AD Value: ***H
8	HUM_TEMP_OHP	Hum Sns	AD Value: ***H	Temperture-Sns	AD Value: ***H	OHP Sns	AD Value: ***H		
9	ID UP/DOWN							ID UpDown Sns	H:Up L:Down
10	RFID COLOR	TAG-K presence	UID:****H	TAG-Y presence	UID:****H	TAG-M presence	UID:****H	TAG-C presence	UID:****H
11	DRUM PHASE SNS KYMC	K-Drum Phase Sns	Port Level H, L	Y-Drum Phase Sns	Port Level H, L	M-Drum Phase Sns	Port Level H, L	C-Drum Phase Sns	Port Level H, L
12	F-RLS SLK BLT DT-DCT	Fuser Release Sns	H:ON L:OFF	Paper Slack Sns	H:ON L:OFF	Belt Hole IC	H:ON L:OFF	Waste Toner Hole IC	H:ON L:OFF
13	DISTNR FULL_BOX_BOXSP	Disposal toner full	H:ON L:OFF	Disposal toner box	H:Not installed L:Installed				
14	TNR SPLY SNS KY_MC	K-Toner Supply Sns	Port Level H, L	Y-Toner Supply Sns	Port Level H, L	M-Toner Supply Sns	Port Level H, L	C-Toner Supply Sns	Port Level H, L
15	MPT PE_ HOP_CVO_HOME	MPT-Paper-End Sns	Port Level H, L	MPT-Hopping Sns	H:ON L:OFF	Cover-MPT	H:Open L:Close	MPT Home Position Sns	H:Open L:Close
16	TRAY1 PE_ PNE_CVO	1st-Paper-End Sns	Port Level H, L	1st-Paper-Near-End Sns	Port Level H, L	Cover-1st	H:Open L:Close		
17	TRAY1 HOP_LIFT	1st-Hopping Sns	Port Level H, L	1st-Lifter Sns	Port Level H, L	1st-Feed Sns	Port Level H, L		
18	TRAY1 CASETTE SIZE	1st-Paper Size-1 Sw	Port Level H, L	1st-Paper Size-2 Sw	Port Level H, L	1st-Paper Size-3 Sw	Port Level H, L	1st-Paper Size-4 Sw	Port Level H, L
19	TRAY2 PE_PNE_CVO	2nd-Paper-End Sns	Port Level H, L	2nd-Paper-Near-End Sns	Port Level H, L	Cover-Open-2nd Sw	Port Level H, L		
20	TRAY2 HOP_LIFT_FEED	2nd-Hopping Sns	Port Level H, L	2nd-Lifter Sns	Port Level H, L	2nd-Feed Sns	Port Level H, L		
21	TRAY2 CASETTE SIZE	2nd-Paper Size-1 Sw	Port Level H, L	2nd-Paper Size-2 Sw	Port Level H, L	2nd-Paper Size-3 Sw	Port Level H, L	2nd-Paper Size-4 Sw	Port Level H, L
22	TRAY3 PE_PNE_CVO	3rd-Paper-End Sns	Port Level H, L	3rd-Paper-Near-End Sns	Port Level H, L	Cover-Open-3rd Sw	Port Level H, L		
23	TRAY3 HOP_LIFT_FEED	3rd-Hopping Sns	Port Level H, L	3rd-Lifter Sns	Port Level H, L	3rd-Feed Sns	Port Level H, L		
24	TRAY3 CASETTE SIZE	3rd-Paper Size-1 Sw	Port Level H, L	3rd-Paper Size-2 Sw	Port Level H, L	3rd-Paper Size-3 Sw	Port Level H, L	3rd-Paper Size-4 Sw	Port Level H, L
25	TRAY4 PE_PNE_CVO	4th-Paper-End Sns	Port Level H, L	4th-Paper-Near-End Sns	Port Level H, L	Cover-Open-4th Sw	Port Level H, L		
26	TRAY4 HOP_LIFT_FEED	4th-Hopping Sns	Port Level H, L	4th-Lifter Sns	Port Level H, L	4th-Feed Sns	Port Level H, L		
27	TRAY4 CASETTE SIZE	4th-Paper Size-1 Sw	Port Level H, L	4th-Paper Size-2 Sw	Port Level H, L	4th-Paper Size-3 Sw	Port Level H, L	4th-Paper Size-4 Sw	Port Level H, L
28	TRAY5 PE_PNE_CVO	5th-Paper-End Sns	Port Level H, L	5th-Paper-Near-End Sns	Port Level H, L	Cover-Open-5th Sw	Port Level H, L		
29	TRAY5 HOP_LIFT_FEED	5th-Hopping Sns	Port Level H, L	5th-Lifter Sns	Port Level H, L	5th-Feed Sns	Port Level H, L		
30	TRAY5 CASETTE SIZE	5th-Pape rSize-1 Sw	Port Level H, L	5th-Paper Size-2 Sw	Port Level H, L	5th-Paper Size-3 Sw	Port Level H, L	5th-Pape Size-4 Sw	Port Level H, L
31	DUP INS_ REAR_FRONT	Dup-In Sns	Port Level H, L	Dup-Rear Sns	Port Level H, L	Dup-Front Sns	Port Level H, L		

No.	Top of the Display	1		2		3		4	
		Detail	Display	Detail	Display	Detail	Display	Detail	Display
32	DUP STACK_COVER	Dup-Stack Sns	Port Level H, L	Dup-Cover Open Sns	Port Level H, L				
33	FIN S01_S02_ S03_S04	Uper Cover Sns [PI23]	H:OPEN L:CLOSE	Front door Sns [PI22]	H:OPEN L:CLOSE	Front door SW [MS2]	H:OPEN L:CLOSE	Joint SW [MS1]	H:OPEN L:CLOSE
34	FIN S05_S06_ S07_S08	Bookbinding position Sns[PI10]	H:Paper present L:Paper absent	Processing tray Sns [PI6]	H:Paper present L:Paper absent	Entrance Sns [PI1]	H:Paper present L:Paper absent	Punch timing Sns	H:Paper present L:Paper absent
35	FIN S09_S10_ S11_S12	Bookbinding tray paper Sns [PI13]	H:Paper present L:Paper absent	Bookbinding home position Sns [PI11]	H:Home position L:Except in the home position	Bookbinding roller home position Sns [PI12]	H:Home position L:Except in the home position	Front matching home position Sns [PI4]	H:Home position L:Except in the home position
36	FIN S13_S14_ S15_S16	Rear matching home position Sns [PI5]	H:Home position L:Except in the home position	Belt home position outlet Sns [PI7]	H:Home position L:Except in the home position	Feed roller home position Sns[PI3]	H:Home position L:Except in the home position	Paddle home position [PI2]	H:Home position L:Except in the home position
37	FIN S17_S18_ S19_S20	Staple / fold motor clock [PI14]	H/L:Clock	Self prime Sns [PI21]	H:Start staple detection L:Staple absent	Staple Sns [PI20]	H:Staple absent L:Staple present	Stapler safty SW [MS3]	H:Not to drive L:Drive
38	FIN S21_S22_ S23_S24	Staple home position Sns[PI19]	H:Home position L:Except in the home position	Stapler slide home position Sns [PI18]	H:Home position L:Except in the home position	Stapler connect signal	Hconnected Lunconnected	Stack tray lift motor clock[PI17]	H/L:Clock
39	FIN S25_S26_ S27_S28	Lower stack tray Sns [PI16]	H:Lower position L:Except in the lower position	Upper stack tray Sns [PI15]	H:Upper position L:Except in the upper position	Interlevel stack tray Sns [PI24]	H:Interlevel detection L:Interlevel undetection	Paper stack tray Sns [PI9]	H:Paper detect position L:Except in the paper detect position
40	FIN S29_S30_ S31_S32	Stack tray paper Sns [PI8]	H:Paper present L:Paper absent	Punch connect signal	Hconnected Lunconnected				
41	INV IN_OUT_ EXIT_COV	Entrance Sns [FP1]	H:ON L:OFF	Outlet Sns [FP2]	H:ON L:OFF	PU→Inverter Exit Sns Signal	H:ON L:OFF	Cover open SW [FMS1]	H:Open L:Close
42	INV REMAIN_ JOINT	Lower Sns[FP3]	H:ON L:OFF	Inverter connected Sns [FP4]	H:ON L:OFF	PU→Inverter CNT2 Signal	H:ON L:OFF		
43	HALL BELT_ DT-BOX_DCT	Belt Hole IC	H:ON L:OFF	Waste Toner Box Hole IC	H:ON L:OFF	Waste Toner Hole IC	H:ON L:OFF		

Table 5-1-2 Paper Size Detection, Various Paper Types and Bits

No.	Paper	1	2	3	4
0	No cassette	H	H	H	H
1	B5-L	L	H	H	H
2	Legal 13-S	H	L	H	H
3	B5-S	L	L	H	H
4	A4-L	H	H	L	H
5	Letter-L	L	H	L	H
6	A5-S	H	L	L	H
7	A4-S	L	L	L	H
8	B4-S	H	H	H	L
9	A3-S	L	H	H	L
A	Legal 14-S	H	L	H	L
B	Executive-S	L	L	H	L
C	A3nobi-S	H	H	L	L
D	Ledger-S	L	H	L	L
E	A6-S	H	L	L	L
F	Letter-S	L	L	L	L

5.1.2.4 Motor/Clutch Test

This self-diagnosis routine is used to test the motor and clutch.

1. Continue to press the [MENU+] and [MENU-] keys until “MOTOR & CLUTCH TEST” appears at the top of the display and the operation enters the self-diagnosis (Level 1) mode.

   The [MENU+] key = Increment Test Item / the [MENU-] key = Decrement Test Item.

2. The following message appears when the [ENTER] is pressed. The suitable location of the unit to be tested as shown in Table 5-2 will appear at the bottom of the display.

   Press the [MENU+] and [MENU-] keys.

   The [MENU+] key = Increment Test Item / the [MENU-] key = Decrement Test Item.

MOTOR & CLUTCH TEST
PK – ID MOTOR

3. Press the [ENTER] key to start the test. The name of the unit will start blinking. Then the applicable unit will drive for 10 seconds.

   Note After driving for 10 seconds, it will return to State 2. The drive will start again by re-pressing the applicable switch.

   - To drive the applicable unit, there is a need to clear the drive limitational conditions indicated in Table 5-2. Launching a state drive that doesn’t clear the limitation conditions is invalid. When this happens the clear information is displayed at the bottom of the display.
   - The clutch solenoid generally repeats ON/OFF with regular printer driver. (models that do not drive independently due to its mechanical structure will come be driven by a motor.)

4. Press the [CANCEL] key to stop the applicable unit drive. (maintain the display of the applicable unit, at this time)
5. Accordingly repeat Steps 2 to 4.
6. Press the [BACK] key to end the test. (Returns to state 1)

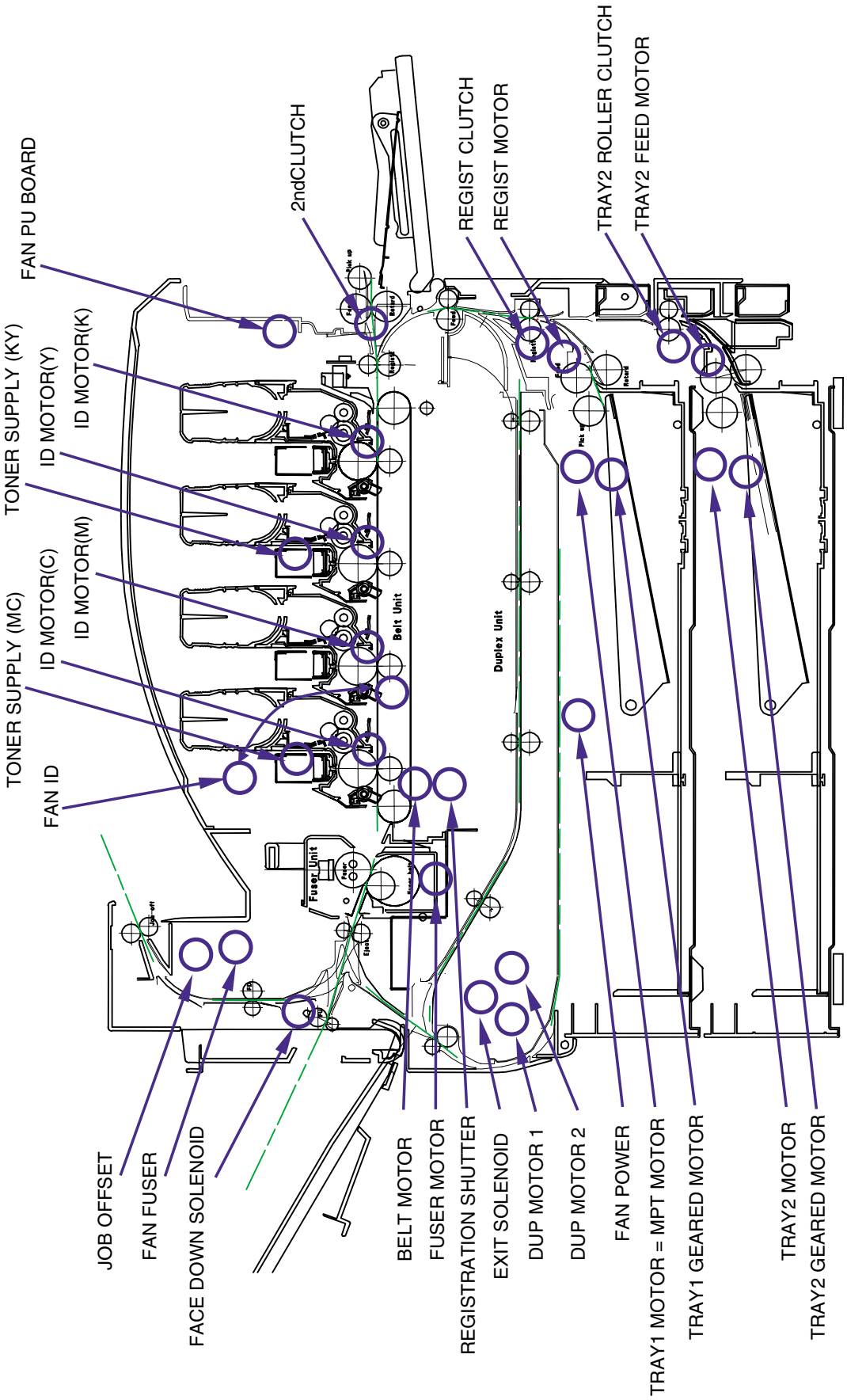


Figure 5-2 Location of Motor and Clutch

Table 5-2 Motor and Clutch Test

Unit Name Display	Drive Limitation	Error display	Remarks
K-ID MOTOR	-	-	-
Y-ID MOTOR	-	-	-
M-ID MOTOR	-	-	-
C-ID MOTOR	-	-	-
BELT MOTOR	-	-	-
FUSER MOTOR	-	-	-
FUSER RLS	-	-	-
REGIST MOTOR	-	-	-
REGIST CLUTCH	-	-	-
MPT MOTOR	-	-	-
MPT LIFT UP	-	-	-
EXIT SOLENOID	-	-	-
FACEDOWN SOLENOID	-	-	-
REGISTRATION SHUTTER	-	-	-
JOB OFFSET	-	-	-
TRAY1 MOTOR	-	-	-
TRAY2 MOTOR	TRAY 2 is installed.	-	OPTION
TRAY3 MOTOR	TRAY 3 is installed.	-	OPTION
TRAY4 MOTOR	TRAY 4 is installed.	-	OPTION
TRAY5 MOTOR	TRAY 5 is installed.	-	OPTION
TRAY2 FEED MOTOR	TRAY 2 is installed and the cassette is not installed.	-	OPTION
TRAY3 FEED MOTOR	TRAY 2 is installed and the cassette is not installed.	-	OPTION
TRAY4 FEED MOTOR	TRAY 2 is installed and the cassette is not installed.	-	OPTION
TRAY5 FEED MOTOR	TRAY 2 is installed and the cassette is not installed.	-	OPTION
TRAY2 ROLLER CLUTCH	TRAY 2 is installed.	-	OPTION
TRAY3 ROLLER CLUTCH	TRAY 3 is installed.	-	OPTION
TRAY4 ROLLER CLUTCH	TRAY 4 is installed.	-	OPTION
TRAY5 ROLLER CLUTCH	TRAY 5 is installed.	-	OPTION
TRAY1 GEARED MOTOR	-	-	-
TRAY2 GEARED MOTOR	TRAY 2 is installed.	-	OPTION
TRAY3 GEARED MOTOR	TRAY 3 is installed.	-	OPTION
TRAY4 GEARED MOTOR	TRAY 4 is installed.	-	OPTION
TRAY5 GEARED MOTOR	TRAY 5 is installed.	-	OPTION
DUP MOTOR	Duplex unit is installed.	-	OPTION
DUP FAN	Duplex unit is installed.	-	OPTION
FIN TRANSFER MOTOR	Finisher is installed.	-	OPTION
FIN SADDLE ROLLER	Finisher is installed.	-	OPTION
FIN BUNDLE MOTOR_FWD	Finisher is installed.	-	OPTION
FIN BUNDLE MOTOR_REW	Finisher is installed.	-	OPTION
FIN PADDLE	Finisher is installed.	-	OPTION
FIN BUNDLE ROLLER	Finisher is installed.	-	OPTION
FIN SLIDE MOTOR	Finisher is installed.	-	OPTION
FIN ORDER	Finisher is installed.	-	OPTION

Unit Name Display	Drive Limitation	Error display	Remarks
FIN SHIFT MOTOR	Finisher is installed.	-	OPTION
FIN STAPLE EXEC	Finisher is installed.	-	OPTION
FIN SADDLE EXEC	Finisher is installed.	-	OPTION
FIN SADDLE TRANSFER	Finisher is installed.	-	OPTION
FIN SADDLE CLUTCH	Finisher is installed.	-	OPTION
FIN PUNCH HOLE	Finisher is installed.	-	OPTION
FIN PUNCH REG	Finisher is installed.	-	OPTION
INV MOTOR A	Inverter is installed.	-	OPTION
INV MOTOR B	Inverter is installed.	-	OPTION
INV SEPARATER	Inverter is installed.	-	OPTION
INV PRESSURE SOLENOID	-	-	-
INV REGIST CLUTCH	-	-	-
FAN POWER	-	-	-
FAN PU-BOARD	-	-	-
FAN FUSER	-	-	-
FAN BELT	-	-	-
FAN ID	-	-	-
TONER SUPPLY K	-	-	-
TONER SUPPLY Y	-	-	-
TONER SUPPLY KY	-	-	-
TONER SUPPLY M	-	-	-
TONER SUPPLY C	-	-	-
TONER SUPPLY MC	-	-	-
DISPOSAL TONER TUBE	-	-	-
ID UP/DOWN	-	-	-

5.1.2.5 Test Print

This self-diagnostic routine is used to print the test pattern in the PU. Other test patterns are stored in the controller.

1. Continue to press the [MENU+] and [MENU-] keys until “TEST PRINT” appears at the top row of the display, and the system is in the self-diagnosis (Lever 1) mode. The [MENU+] key = Increment Test Item / the [MENU-] key = Decrement Test Item.
2. Press the [ENTER] key only for the setting item applied for test printing appears at the bottom of the display. Press the [MENU+] and [MENU-] keys until the applicable item appears. The [MENU+] key = Increment Item / the [MENU-] key = Decrement Item. (Go to Item 5 to [Default Setting] if setting of each item is unnecessary.)
3. Press the [ENTER] key for the setting item to appear on the top row of the display and the setting value to appear at the bottom row of the display. Press the [MENU+] key for the setting value to increment. Press the [MENU-] key for the setting value to decrement (the final display setting value is applied). Accordingly repeat item 3.

TEST PATTERN
1

The settings shaded in are default settings.

Display	Setting value	Function
PRINT EXECUTE		Press [Enter] to start printing or [CANCEL] to stop printing (each page).
TEST PATTERN	0	0: Blank page 1 to 7: See the “Test Print Pattern” table (pattern printing). 8 to 15: Blank page
CASSETTE	TRAY1	Choose a paper feeder.
	TRAY2	
	TRAY3	
	TRAY4	
	TRAY5	
	MPF	
PAGE	0	Set the number of test print pages. Press [ONLINE] to move the cursor to the digit to be edited. Press [MENU_] to increase the set value, and [MENU_] to decrease the set value.
COLOR	ON	Choose Color or Monochrome.
	OFF	
DUPLEX	3 PAGES STACK	Prints on both sides of a stack of 3 sheets.
	OFF	Turns off duplex printing.
	1 PAGES STACK	Prints on both sides of one sheet.
JOB OFFSET	OFF	Turns the job offset function on and off.
	ON	
FINISHER	OUTPUT BIN	Choose an output bin.
	PUNCH	Turns the punch mode on and off.
	OFFSET	Turns the offset mode on and off.
	STAPLE	Choose the staple location.
	STAPLE PAGE	Set the number of sheets to be stapled (0 to 50).
	INVERT	Turns the invert mode on and off.

*1 TRAY 2 to TRAY 5 and DUPLEX will be displayed only when their respective units are installed.
*2 If the finisher is not installed, “OUTPUT BIN” is displayed and only the output bin is selectable.
• Presets: FACE DOWN/FACE UP Default: FACE DOWN
* These settings are valid in the test mode only (they will not be written to the EEPROM).

Note * COLOR Setting

When COLOR is on, if [ONLINE] is pressed, the settings below will appear and the print color-setting mode will be entered.

COLOR			
Y:ON	M:ON	C:ON	K:ON

Press [ENTER] to move the cursor to the color to be turned on or off.

Press [MENU+] or [MENU-] to turn the setting of each color on or off, respectively[OK to add?].

Press [BACK] to exit the print color-setting mode.

* FINISHER Setting

(1) When “FINISHER” is shown at the bottom of the display panel, press [ENTER].

(2) Press [MENU+] or [MENU-] until the setting item to be edited appears.

(3) Press [ENTER]; the set value will appear at the bottom of the panel.
Press [MENU+] or [MENU-] until the desired value appears. ([MENU+] increases the value and [MENU-] decreases the value.)

(4) Press [BACK] to return to step (2) above. Press [BACK] again to return to step (1).

(5) Repeat steps (2) to (4) as necessary.

The settings shaded in are default settings.

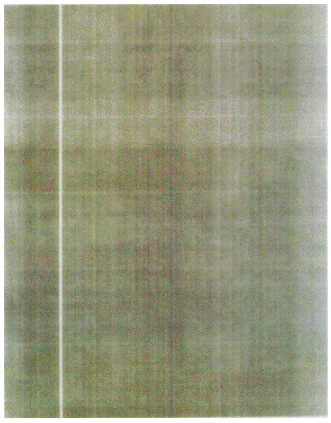
Display	Setting value	Function
OUTPUT BIN	FACE DOWN	Printer face down
	FINISHER UPPER BIN	Finisher upper bin
	FINISHER LOWER BIN	Finisher lower bin
PUNCH	OFF	Punch on/off
	ON	
OFFSET	OFF	Offset on/off
	ON	
STAPLE MODE	OFF	Staple mode off
	Rear	Rear corner
	Center	Center corner
	Front	Front corner
	Saddle	Saddle stitch
STAPLE NUMBER	0	Set the number of sheets to be stapled (0 to 50). * When the staple mode is on, "STAPLE NUMBER" is selectable between 2 and 50.
INVERT	OFF	Invert on/off
	ON	

4. Operations in section 2 will execute test printing at the set value that is set in Steps 2 to 3, by pressing the [ENTER] key when the state displays “PRINT EXECUTE” at the bottom row of the display.

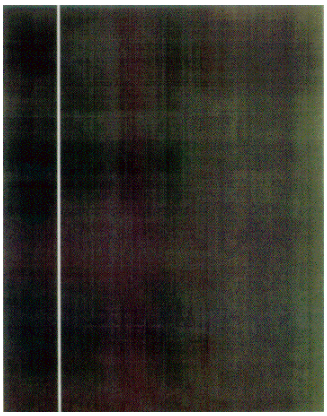
Press the [ENTER] key to stop test printing.

Print Test Pattern

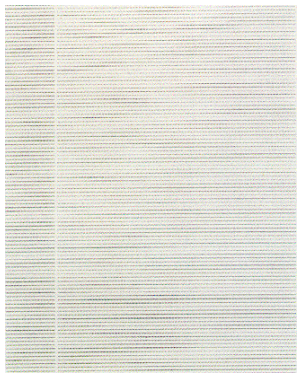
Pattern No.	Print pattern
0	None (blank page)
1	2 by 2
2	4 by 4
3	Horizontal line
4	Slanted line
5	Vertical line
6	Vertical band
7	Full



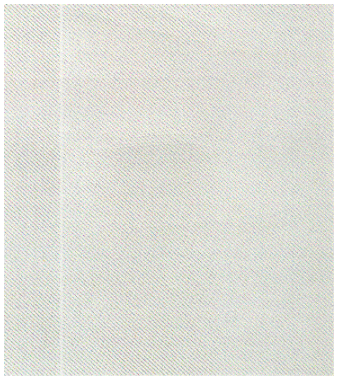
Pattern 1



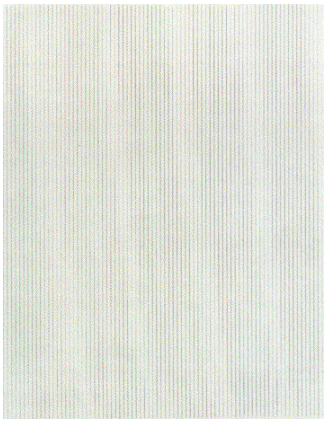
Pattern 2



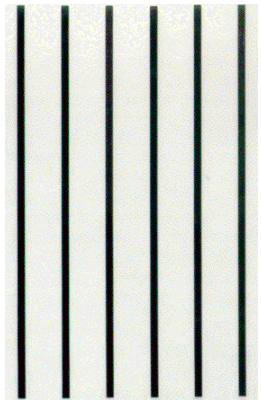
Pattern 3



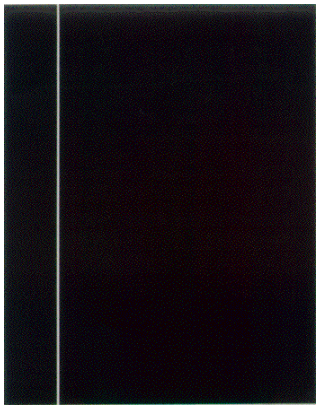
Pattern 4



Pattern 5



Pattern 6



Pattern 7

• The following message appears when printing.

P=*** T=*** U=*** [###]
H=***% L=***[###]

P: Test Print Sheets (Unit: number of sheets)

U: Upper-side Heater temperature Measurement Value[Setting] (Unit: °C)

L: Lower-Side Heater temperature Measurement Value[Setting] (Unit: °C)

T: Environmental Temperature Measurement Value (Unit: %)

H: Environmental Humidity Measurement Value (Unit: %)

• Press [MENU+] key to switch the display.

KTR=*.**KV YTR=*.**KV
MTR=*.**KV CTR=*.**KV

YTR, MTR, CTR and KTR are image transfer voltage settings of each color. (Unit: KV)

• Press [MENU+] key to switch the display.

KR=*.**uA YR=*.**uA
MR=*.**uA CR=*.**uA

YR, MR, CR, and KR represent the electric current (uA) of the transfer roller for each color, respectively.

• Press [MENU+] key to switch the display.

THICK= *** TEMP=***
REGIST=**** EXIT=****

THICK: Detected medium thickness (μm)

TEMP: Fusing temperature (˚C)

REGIST: Constant speed of resist motor (hexadecimal)

EXIT: Constant speed of fuser motor (hexadecimal)

5. Accordingly repeat Steps 2 to 4.
6. Press the [BACK] key to end the test. (Returns to state 1)

5.1.2.6 Initialize NVM

This self-diagnosis is used to initialize the nonvolatile memory.

1. Continue to press the [MENU+] and [MENU-] keys until “NV-RAM INITIAL” appears at the top row of the display, and the system is in the self-diagnosis (Level 1) mode. The [MENU+] key = Increment Test Item / the [MENU-] key = Decrement Test Item.
2. When the [ENTER] key is pressed, the Table No. to be initialized appears at the bottom row of the display. There are 3 tables initialized. Press the [MENU+] and [MENU-] keys until the applicable Table No. appears. The [MENU+] key = Increment Table No. / the [MENU-] key= Decrement Table No.

NV-RAM INITIAL
INITIAL 1

Note Do not use INITIAL 2.

3. When the [ENTER] key is pressed, the “NV-RAM INITIAL” display blinks at the top row of the display. Press it for 10 consecutive seconds to initialize all items indicated in Table 5-3.
4. Press the [BACK] key to end the test. (Returns to state 1)

Table 5-3 NV-RAM Initial

Item to Initialize	Unit	Initial Setting	Detail
K-DRUM UNIT	IMAGES	0	Total number of revolutions since the ID unit for each color has been installed.
Y-DRUM UNIT	IMAGES	0	
M-DRUM UNIT	IMAGES	0	
C-DRUM UNIT	IMAGES	0	
FUSER UNIT	PRINTS	0	Total number of revolutions since the fuser unit has been installed.
TR BELT UNIT	IMAGES	0	Total number of revolutions since the belt unit has been installed.
K-DISTNR	-	0	Quantity of each color of toner to be discarded
Y-DISTNR	-	0	
M-DISTNR	-	0	
C-DISTNR	-	0	
DISTNR CNT	-	0	Quantity of toner discarded in toner disposal
DISTNR BOX TNR CNT	-	0	Quantity of toner discarded in toner disposal or for correction (e.g., color cast, color misregistration, and density)

5.1.2.9 Panel Display Details

Panel Display

Panel Display	Details
BLANCE ERROR	Balance Error
BELT LIFE OVER	Belt Life Over
BELT REFLECTION ERROR	Belt Reflection Error
BELT UNIT FUSE CUT ERROR	Belt Unit Fuse Cut Error
BLACK DENSITY CALIB ERROR	BLACK Density Calibration Error
BLACK DENSITY SENSOR ERROR	BLACK Density Sensor Error
BLACK DRUM LIFE OVER	BLACK Drum Life
BLACK DRUM NEAR LIFE	BLACK Drum Near Life Warning
BLACK DRUM UNIT FUSE CUT ERROR	BLACK Drum Unit Fuse Cut Error
BLACK DRUM UP/DOWN ERROR	BLACK Drum UP/DOWN Error
BLACK IRREGULAR ERROR	BLACK Outside Detection Range Error
BLACK LED HEAD ERROR	BLACK LED Head Error
BLACK REGISTRATION ERROR(PX711)	BLACK Color Drift Error
BLACK REGISTRATION OUT HORIZONTAL	BLACK Detected of Irregular Color Drift Correction Value in the Main Scanning Correction
BLACK REGISTRATION OUT LEFT	BLACK Outside Range of Correction Error (LEFT)
BLACK REGISTRATION OUT RIGHT	BLACK Outside Range of Correction Error (RIGHT)
BLACK SENSOR ERROR LEFT	BLACK LEFT Sensor Error
BLACK SENSOR ERROR RIGHT	BLACK RIGHT Sensor Error
BLACK TONER EMPTY	BLACK Toner EMPTY
BLACK TONER LOW	BLACK Toner LOW
BLACK TONER SENSOR ERROR	BLACK Toner Sensor Error
BLACK ID DENSITY ERROR 1	BLACK Density Correction ID Error 1
BLACK ID DENSITY ERROR 2	BLACK Density Correction ID Error 2
CALIBRATION CHIP ERROR	Color Calibration Chip Correction Value Error
CALIBRATION ERROR	Calibration Error
COLOR DENSITY CALIB ERROR	Color Density Calibration Error
COLOR DENSITY SENSOR ERROR	Color Density Sensor Error
COOLING DOWN	Cooling Down
CUSTOM DIAGNOSTICS MODE	Custom Diagnostic Mode
CYAN DRUM LIFE OVER	CYAN Drum Life
CYAN DRUM NEAR LIFE	CYAN Drum Near Life Warning
CYAN DRUM UNIT FUSE CUT ERROR	CYAN Drum Unit Fuse Cut Error
CYAN DRUM UP/DOWN ERROR	CYAN Drum UP/DOWN Error
CYAN IRREGULAR ERROR	CYAN Detection Value Error
CYAN LED HEAD ERROR	CYAN LED Head Error
CYAN REGISTRATION ERROR	CYAN Color Drift Error
CYAN REGISTRATION OUT HORIZONTAL	CYAN Detected of Irregular Color Drift Correction Value in the Main Scanning Correction
CYAN REGISTRATION OUT LEFT	CYAN Outside Range of Correction Error (LEFT)
CYAN REGISTRATION OUT RIGHT	CYAN Outside Range of Correction Error (RIGHT)
CYAN SENSOR ERROR LEFT	CYAN LEFT Sensor Error
CYAN SENSOR ERROR RIGHT	CYAN RIGHT Sensor Error
CYAN TONER EMPTY	CYAN Toner EMPTY
CYAN TONER LOW	CYAN Toner LOW
CYAN TONER SENSOR ERROR	CYAN Toner Sensor Error
CYAN ID DENSITY ERROR 1	CYAN Density Correction ID Error 1
CYAN ID DENSITY ERROR 2	CYAN Density Correction ID Error 2
DIAGNOSTICS MODE	Engine Diagnostic Mode
DISPOSAL TONER FULL	Disposal Toner Full
DISPOSAL TONER NEAR FULL	Disposal Toner Near-Full

Panel Display	Details
DRIVE MOTOR OVER HEAT	DRIVE Motor Overheat Error
DUPLEX I/F ERROR	DUPLEX I/F Error
DUPLEX TYPE MISMATCH	DUPLEX Type Error
DUPLEX UNIT OPEN	DUPLEX Unit Open
ENGINE BOARD FAN MOTOR ERROR	PU PCB Fan Motor Error
ENGINE CONTROL ERROR	ENGINE Control Error
ENGINE EEPROM ERROR	EEPROM Error
ENGINE EEPROM MISSING	EEPROM Unmounted
ENGINE LIFE OVER	ENGINE Life Over
ENGINE RAM ERROR	RAM Error
ENGINE ROM ERROR	ROM Error
ENGINE SRAM ERROR	SRAM Error
ENV TEMP SENSOR ERROR	Environmental Temperature Sensor Error
FACE-UP STACKER OPEN	Face-Up Stacker Open
FLASH HARDWARE ERROR	FLASH Hardware Error
FLASH SOFTWARE ERROR	FLASH Software Error
FRONT COVER OPEN	Front Cover Open
FUSER LIFE OVER	FUSER Life Over
FUSER UNIT FAN MOTOR ERROR	FUSER Fan Motor Error
FUSER UNIT FUSE CUT ERROR	Fuser Unit Fuse Cut Error
FUSER UNIT NISMATCH	Fuser Unit Mismatch
HOPPING ERROR DUPLEX	DUPLEX Hoping Error
HOPPING ERROR MULTI PURPOSE FEEDER	MP-FEEDER Hoping Error
HOPPING ERROR TRAY1	TRAY1 Hoping Error
HOPPING ERROR TRAY2	TRAY2 Hoping Error
HOPPING ERROR TRAY3	TRAY3 Hoping Error
HOPPING ERROR TRAY4	TRAY4 Hoping Error
HOPPING ERROR TRAY5	TRAY5 Hoping Error
HUMIDITY SENSOR DEW ERROR	Temperature Sensor Dew Error
HUMIDITY SENSOR ERROR	Relative Humidity Sensor Error
INFEED:DUPLEX	DUPLEX Hoping Error
INFEED:MP-FEEDER	MP-FEEDER Hoping Error
INFEED:TRAY1	TRAY1 Hoping Error
INFEED:TRAY2	TRAY2 Hoping Error
INFEED:TRAY3	TRAY3 Hoping Error
INFEED:TRAY4	TRAY4 Hoping Error
INFEED:TRAY5	TRAY5 Hoping Error
INITIALIZING	Initializing When Turning Power ON
INITIALIZING	Initializing When OPEN/CLOSE Cover
INITIALIZING DENSITY ADJUST	Automatic Density Correction Being Controlled
INITIALIZING REGISTRATION ADJUST	Automatic Color Drift Correction Control
INPATH:DUPLEX ENTRY	DUPLEX Internal Area Jam
INPATH:DUPLEX INPUT	DUPLEX Input Area Jam
INPATH:DUPLEX REVERSAL	DUPLEX Reversal Area Jam
INPATH:EXIT	Discharge Jam
INPATH:FEED	Feed Jam
INPATH:TRANSPORT	Conveyance Jam
JAM DUPLEX ENTRY	DUPLEX Internal Area Jam
JAM DUPLEX INPUT	DUPLEX Input Area Jam
JAM DUPLEX REVERSAL	DUPLEX Reversal Area Jam
JAM EXIT	Discharge Jam
JAM FEED	Feed Jam

Panel Display	Details
JAM TRANSPORT	Conveyance Jam
JOB OFFSET HOME ERROR	Job Offset Home Error
LED HEAD OVER HEAT	LED head Overheat Error
LIFT ERROR TRAY1	TRAY1 Liftup Error
LIFT ERROR TRAY2	TRAY2 Liftup Error
LIFT ERROR TRAY3	TRAY3 Liftup Error
LIFT ERROR TRAY4	TRAY4 Liftup Error
LIFT ERROR TRAY5	TRAY5 Liftup Error
LIFT UP TRAY1	TRAY1 Lifting UP
LIFT UP TRAY2	TRAY2 Lifting UP
LIFT UP TRAY3	TRAY3 Lifting UP
LIFT UP TRAY4	TRAY4 Lifting UP
LIFT UP TRAY5	TRAY5 Lifting UP
LOWER HEATER HIGH TEMPER	LOWER Heater High Temperature (HOT) Error
LOWER HEATER LOW TEMPER	LOWER Heater Low Temperature (COLD) Error
LOWER HEATER OPEN ERROR	LOWER Heater Thermistor Open Error
LOWER HEATER SHORT ERROR	LOWER Heater Thermistor Short-Circuit Error
MAGENTA DRUM LIFE OVER	MAGENTA Drum Life
MAGENTA DRUM NEAR LIFE	MAGENTA Drum Near Life Warning
MAGENTA DRUM UNIT FUSE CUT ERROR	MAGENTA Drum Unit Fuse Cut Error
MAGENTA DRUM UP/DOWN ERROR	MAGENTA Drum UP/DOWN Error
MAGENTA IRREGULAR ERROR	MAGENTA Detection Value Error
MAGENTA LED HEAD ERROR	MAGENTA LED head Error
MAGENTA REGISTRATION ERROR	MAGENTA Color Drift Error
MAGENTA REGISTRATION OUT HORIZONTAL	MAGENTA Detected of Irregular Color Drift Correction Value in the Main Scanning Correction
MAGENTA REGISTRATION OUT LEFT	MAGENTA Outside Range of Correction Error (LEFT)
MAGENTA REGISTRATION OUT RIGHT	MAGENTA Outside Range of Correction Error (RIGHT)
MAGENTA SENSOR ERROR LEFT	MAGENTA LEFT Sensor Error
MAGENTA SENSOR ERROR RIGHT	MAGENTA RIGHT Sensor Error
MAGENTA TONER EMPTY	MAGENTA Toner EMPTY
MAGENTA TONER LOW	MAGENTA Toner LOW
MAGENTA TONER SENSOR ERROR	MAGENTA Toner Sensor Error
MAGENTA ID DENSITY ERROR 1	MAGENTA Density Correction ID Error 1
MAGENTA ID DENSITY ERROR 2	MAGENTA Density Correction ID Error 2
MAILBOX I/F ERROR	MAILBOX I/F Error
MISSING BELT UNIT	BELT Unit Unmounted
MISSING BLACK DRUM	BLACK Drum Unmounted
MISSING CYAN DRUM	CYAN Drum Unmounted
MISSING FUSER UNIT	FUSER Unit Unmounted
MISSING MAGENTA DRUM	MAGENTA Drum Unmounted
MISSING YELLOW DRUM	YELLOW Drum Unmounted
MULTI PURPOSE FEEDER STAGE POSITION	Multipurpose Stage Position Error
PAPER END MULTI PURPOSE FEEDER	MP-FEEDER Out-of-Paper
PAPER END TRAY1	TRAY1 Out-of-Paper
PAPER END TRAY2	TRAY2 Out-of-Paper
PAPER END TRAY3	TRAY3 Out-of-Paper
PAPER END TRAY4	TRAY4 Out-of-Paper
PAPER END TRAY5	TRAY5 Out-of-Paper
PAPER NEAR END MULTI PURPOSE FEEDER	MP-FEEDER Out-of-Paper Warning
PAPER NEAR END TRAY1	TRAY1 Out-of-Paper Warning
PAPER NEAR END TRAY2	TRAY2 Out-of-Paper Warning
PAPER NEAR END TRAY3	TRAY3 Out-of-Paper Warning

Panel Display	Details
PAPER NEAR END TRAY4	TRAY4 Out-of-Paper Warning
PAPER NEAR END TRAY5	TRAY5 Out-of-Paper Warning
PAPER PILE OUT OF TRAY	Paper Conveyance Error
PAPER SIZE ERROR	Paper Size Error
POWER SUPLLY FAN MOTOR ERROR	PU Fan Motor Error
POWER SUPLLY LSI ERROR	Power Supply LSI Error
PROCESS CONTROL OFF	Process Control OFF
PROCESS WAIT MODE	Color Drift Density Correction Taking Place (when launched from CU)
PUNCH BOX NOT EXISTING	Punch Dust Box Unmounted
PUNCH DUST OVERFLOW	Punch Dust Overflow
REGISTRATION SENSOR CALIBRATION ERROR	Color Drift Sensor Calibration Error
R-SIDE COVER OPEN	Right-Side Cover Open
SHUTTER ERROR1	Density Correction Shutter Error 1
SHUTTER ERROR2	Density Correction Shutter Error 2
STACKER FULL BOTTOM BIN	Bottom Bin Stacker Full
STACKER FULL FACE DOWN	Face-Down Stacker Full
STACKER FULL MAIL BOX1	MAIL BOX1 Stacker Full
STACKER FULL MAIL BOX2	MAIL BOX2 Stacker Full
STACKER FULL TOP BIN	Top Bin Stacker Full
THICKNESS ADJSTING	Detecting Media Thickness
THICKNESS NON-PAPER AD ERROR	AD Value Outside Standard Error (Media Safe)
THICKNESS PAPER THICKNESS ERROR	Media Thickness Outside Detection Range Error
THICKNESS SNS AD ERROR	Sensor Output Difference Outside Standard Range Error (Media Safe)
THICKNESS THICK_PAPER ERROR	Sensitivity Correction Error
TOP COVER OPEN	Top Cover Open
TRAY1 TYPE MISMATCH	TRAY1 Type Error
TRAY2 COVER OPEN	TRAY2 Cover Open
TRAY2 I/F ERROR	TRAY2 I/F Error
TRAY2 TYPE MISMATCH	TRAY2 Type Error
TRAY3 COVER OPEN	TRAY3 Cover Open
TRAY3 I/F ERROR	TRAY3 I/F Error
TRAY3 TYPE MISMATCH	TRAY3 Type Error
TRAY4 COVER OPEN	TRAY4 Cover Open
TRAY4 I/F ERROR	TRAY4 I/F Error
TRAY4 TYPE MISMATCH	TRAY4 Type Error
TRAY5 COVER OPEN	TRAY5 Cover Open
TRAY5 I/F ERROR	TRAY5 I/F Error
TRAY5 TYPE MISMATCH	TRAY5 Type Error
UPPER HEATER HIGH TEMPER	UPPER Heater High Temperature (HOT) Error
UPPER HEATER LOW TEMPER	UPPER Heater Low Temperature (COLD) Error
UPPER HEATER OPEN ERROR	UPPER Heater Thermistor Open Error
UPPER HEATER SHORT ERROR	UPPER Heater Thermistor Short-Circuit Error
WARMING UP	Warming Up
YELLOW DRUM LIFE OVER	YELLOW Drum Life
YELLOW DRUM NEAR LIFE	YELLOW Drum Near Life Warning
YELLOW DRUM UNIT FUSE CUT ERROR	YELLOW Drum Unit Fuse Cut Error
YELLOW DRUM UP/DOWN ERROR	YELLOW Drum UP/DOWN Error
YELLOW IRREGULAR ERROR	YELLOW Detection Value Error
YELLOW LED HEAD ERROR	YELLOW LED head Error
YELLOW REGISTRATION ERROR	YELLOW Color Drift Error
YELLOW REGISTRATION OUT HORIZONTAL	YELLOW Detected of Irregular Color Drift Correction Value in the Main Scanning Correction
YELLOW REGISTRATION OUT LEFT	YELLOW Outside Range of Correction Error (LEFT)

Panel Display	Details
YELLOW REGISTRATION OUT RIGHT	YELLOW Outside Range of Correction Error (RIGHT)
YELLOW SENSOR ERROR LEFT	YELLOW LEFT Sensor Error
YELLOW SENSOR ERROR RIGHT	YELLOW RIGHT Sensor Error
YELLOW TONER EMPTY	YELLOW Toner EMPTY
YELLOW TONER LOW	YELLOW Toner LOW
YELLOW TONER SENSOR ERROR	YELLOW Toner Sensor Error
YELLOW ID DENSITY ERROR 1	YELLOW Density Correction ID Error 1
YELLOW ID DENSITY ERROR 2	YELLOW Density Correction ID Error 2

Jam Error Display Details

Panel Display	Details
INFEED:TRAY1	TTRAY1 Hoping Error
INFEED:TRAY2	TRAY2 Hoping Error
INFEED:TRAY3	TRAY3 Hoping Error
INFEED:TRAY4	TRAY4 Hoping Error
INFEED:TRAY5	TRAY5 Hoping Error
INFEED:MP-FEEDER	MP-FEEDER Hoping Error
INFEED:DUPLEX	DUPLEX Hoping Error
INPATH:DUPLEX INPUT	DUPLEX Input Jam
INPATH:DUPLEX ENTRY	DUPLEX Internal Jam
INPATH:REVERSAL	DUPLEX Reversal Jam
INPATH:FEED	Feed Jam
INPATH:TRANSPORT	Conveyance Jam
INPATH:EXIT	Discharge Jam

INFEED .. Information on the paper remaining in the paper feed entry.

INPATH .. Information on the paper remaining in the travel path.

5.1.3 Various Printing Methods with a Stand-Alone Printer Coming with a Controller

Configuration Print

Print the Program Version, control unit composition, other printer compositions and settings.

Operations : Panel Switch press

1200 Model : Enter→▽ (Print Page Selection)→Enter→▽ (Configuration Selection)→Enter

File List Print

Print list of files stored on the HDD and Flash ROM.

Operations : Panel Switch press

1200 Model : No menu.

Font List Print (PS)

Print list of PS fonts.

Operations : Panel Switch press

1200 Model : Enter→▽ (Print Page Selection)→Enter→▽→▽→▽→▽ (PS Font Selection)→Enter

Font List Print (PCL)

Print list of PCL fonts.

Operations : Panel Switch press

1200 Model : Enter→▽ (Print Page Selection)→Enter→▽→▽→▽→▽→▽ (PCL Font Selection)→Enter

Demo Print

Print the demo pattern for each destination on the ROM and HDD.

Operations : Panel Switch press

1200 Model : Enter→▽ (Print Page Selection)→Enter→▽→▽→▽→▽→▽→▽ (Demo Page Selection)→Enter

Ethernet Board Self-Diagnosis

If an Ethernet board is mounted, then print the self-diagnostic results of the Ethernet board.

Operations : Press Panel Switch or Ethernet Board Switch (600 Model only)

1200 Model : None (Configuration Print)

5.2 Adjustment After Replacing Parts

The following describes the adjustments necessary when replacing parts.

Color drift adjustment and correction is constantly necessary.

Replacement Parts	Adjustment Details
LED head	Unnecessary
Drum Cartridge (Y, M, C, K)	Unnecessary
Fuser Unit	Unnecessary
Belt Cassette Assy	Unnecessary
PU (S2V PCB)	Assemble EEPROM used with the PCB before it was replaced. *Note 1
CU (1200dpi: ASP PCB)	Assemble EEPROM, HDD Keychip and LAN Card used with the PCB before it was replaced. *Note 2
MLETB13 (HMK PCB)	Initialize the network information according to details described in Section 5.2.6.
Paper Thickness Sensor Assy	Paper Thickness Detection Sensitivity Correction and Media Thickness Detection Value Test

*Note 1: When using a new EEPROM for the PU (K7N PCB), there is a need to adjust the color balance.

*Note 2: When replacing the CU board, HDD, or EEPROM of the 1200-dpi system, follow the instructions given in the annexed table.

5.2.1 Precautions when Replacing the Engine Control PCB

When replacing the Engine Control PCB (SV2 PWB) remove the EEPROM from the old PCB. Then mount it on the new PCB. (For Error other than Engine EEPROM Error)

If on the Operation Panel, a “SERVICE CALL XXX (Engine EEPROM Error)” is displayed, replace with new EEPROM. In this case execute the procedures described in Section 5.2.2.

5.2.2 Precautions Upon EEPROM Replacement

When replacing the Engine Control PCB (SV2 PWB), if the EEPROM was removed but not mounted on the new PCB, or if the EEPROM is replaced with a new EEPROM, then the Version Read Function (Fuse Cut) has become invalid. For this reason, there is a need to use the PJL command to switch the Factory Mode to the Shipping Mode to activate the new EEPROM.

[Details]

1. To set the Shipping Mode, send the applicable PJL File to the printer.
2. To apply the setting, restart the printer or send a reboot command (PJL File) to the printer.

[Procedure]

Execute the following procedures from the MS-DOS prompt.

1. Copy/b Pjl_ship.bin prn
2. Copy/b Pjl_reboot.bin prn

   or Turn OFF/ON power source.

[Necessary PjlFile]

1. Pjl_ship.bin
2. Pjl_reboot.bin

Note When replacing the EEPROM, the belt, toner, ID and other life information will be cleared. This will result in an error in life management until the next unit replacement time. Be careful of this difference. The count that is cleared with EEPROM replacement is as follows. Since everything other than “Total Sheets Feed” will be cleared when each unit is replaced with a new one, the error is resolved at this point.

Item	Details	Count Details
Fuser	Fuser Life Count	The number of printouts are converted into number of Letter Sheets, from when the new fuser unit is assembled.
Transfer Belt	Transfer Belt Life Count	The number of printouts are converted into number of Letter Sheets, from when the new fuser unit is assembled.
Black Imaging Drum Cyan Imaging Drum Magenta Imaging Drum Yellow Imaging Drum	Imaging Drum Life Count of Each Color	The number of turn around is converted into number of Letter Sheets, from when the new ID unit is assembled.
Total Sheets Feed	Unit Life Count	Total number of printouts
Black Impressions Cyan Impressions Magenta Impressions Yellow Impressions	Total Number of Printout Sheets	The number of printouts from when the new ID unit is assembled.

[How to Initialize the Network Information]

(1) Turn OFF the printer.

(2) If the network cable is connected to the printer, disconnect the cable from the printer-side.

(3) Press the black push switch ([Test] Button) on the NIC Card, and turn on the print. Continue to press the black push SW until the following message appears on the top row of the operation panel “One Moment” or the following message appears on the bottom row “Initializing network”.

There is no longer any need to press the black push SW once the above is displayed.

(4) Initialization is completed if “Ready to Print” appears on the operation panel.

Note For 1200dpi, NIC Card

[Procedure to Check that Network Information Has been Initialized]

(1) Printer the “Printer Information” and “Setting Details”.

(2) Check the following 2 points in the “Network” area of the first sheet of the results printed for the setting details.

Slot: 100/10 Base

MAC Address □□□□□□○○○○○○○○

Short Printer Nam△ ○○○○○○○

IF the ○number value is the same (3 bytes), the network information has been successfully initialized.

5.2.7 Replacement of the CU Board and Onboard Devices for the 1200-dpi System

5.2.8 Precautions When Replacing the KeyChip (1200dpi Model)

The EFI controller PCB of the 1200dpi model comes with an EEPROM called KeyChip, that is written with EFI's management information. Note that ASP PCB will not run unless KeyChip is mounted. If a KeyChip Error message indicated in the Error Table appears, replace the current KeyChip with a new KeyChip. Always return the KeyChip removed to Quality Assurance. The KeyChip incurs a royalty and is extremely expensive. Therefore, be especially careful in handling this part.

5.2.9 Precautions When Replacing the HDD (1200dpi Model)

If the HDD is replaced after troubleshooting or due to an Error message, after replacing the HDD always print the configuration to check the setting details. When the HDD is replaced, the following items are initialized. Therefore, reset these items.

Always return the HDD removed to the ODC Quality Assurance. The HDD Label incurs a royalty and is very expensive. Therefore, be especially careful in handling this part.

- Reset Network
- Reset Clock (For details refer to the Attachment)

5.2.10 How to Set Clock (1200dpi Model)

There is a need to reset the clock to the local time when replacing the PCB or HDD. There are future plans to provide a utility to read and set the time from the PC. (TBD)

5.3 Density Correction

When the printer is shipped, the Automatic Density Correction Mode is set to “Automatic”. If it is set to “Manual” there may be drifting during use. Set this if there is any problem with the density.

Note Set this when the printer is not running (Stop State). Do not set this while the printer is warming up.

(1) Press the [ENTER] key several times. The [Color menu] will appear.

(2) Press the [MENU+] or [MENU-] key to display the [Density Correction/Execute].

(3) Press the [ENTER] key.

Automatic Density Correction starts.

6. ROUTINE REPLACEMENT

6.1 Routine Replacement of Consumable Parts

We recommend that the user periodically replaces the following parts according to the guideline indicated. (Note that failure to replace these parts may result in malfunction and will not guaranty quality printout.)

Part	Replacement Period	Replacement Condition	Post-Replacement Adjustment
Heavy Duty Toner Cartridge	When the following display appears. "Insert toner."	When printing 15,000 sheets.	
Toner Cartridge		When printing 7,500 sheets.	
Image Drum Cartridge	When the following display appears. "Replace drum."	When printing 26,000 sheets. (3P/J)	
Fuser Unit	When the following display appears. "Replace fuser."	When printing 80,000 sheets.	
Belt Unit	When the following display appears. "Replace belt."	When printing 80,000 sheets. (3P/J)	
Paper Supply Roller	When mis-feed frequently occurs. (The number of sheets in the cassette must be appropriate)	When printing 120,000 sheets. (Guideline)	

The user shall be held responsible in periodically replacing these consumable parts.

6.2 Cleaning

Accordingly clean the inside and outside of the AR-C360P using a cloth and compact vacuum cleaner (hand-cleaner).

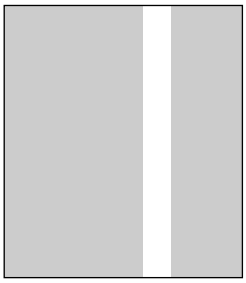
Note NEVER touch the imaging drum terminal, LED lens array or LED head connector.

6.3 LED Lens Array Cleaning

Clean the LED lens array if a white band, white stripe (white-out, light printing) occurs in the vertical direction of the printout.

Note ALWAYS use a LED head cleaner or soft tissue paper to clean the LED lens array. NEVER use methyl alcohol (isopropyl alcohol; rubbing alcohol), thinner or other solvents to clean the lens since this may damage the surface of the lens. (A LED head cleaner comes with the toner cartridge package)

White Band, White Stripe
(White-out, Light Printout)



6.4 Pickup Roller Cleaning

Clean the pickup roller if there is any problem with paper feeding.

Note Use a soft cloth, etc. with alcohol to clean the roller surface, with care not to scratch or damage the surface during the process.

7. MALFUNCTION REPAIR PROCEDURE

7.1 Precautions Before Repairs

(1) Check the basic inspection items indicated in the User's Manual.

(2) Learn from the customer the details on when malfunction occurs.

(3) Inspect the state that closely resembles the state of a malfunction.

7.2 Items to Check Before Remedying Abnormal Image

(1) Is the environmental conditions of this equipment appropriate?

(2) Have the consumable parts (toner, drum cartridge) been properly replaced?

(3) Is there anything wrong with the paper? Refer to the paper specification for more details on this.

(4) Is the drum cartridge properly set?

7.3 Precautions Before Remedying Abnormal Image

(1) Do not touch OPC drum surface with hand or foreign substance.

(2) Do not expose the OPC drum to direct sunlight.

(3) The fuser unit is hot. Therefore, do not touch with hands.

(4) Do not expose the image drum to more than 5 minutes of light. This includes room lighting, as well.

7.4 Troubleshooting Preparations

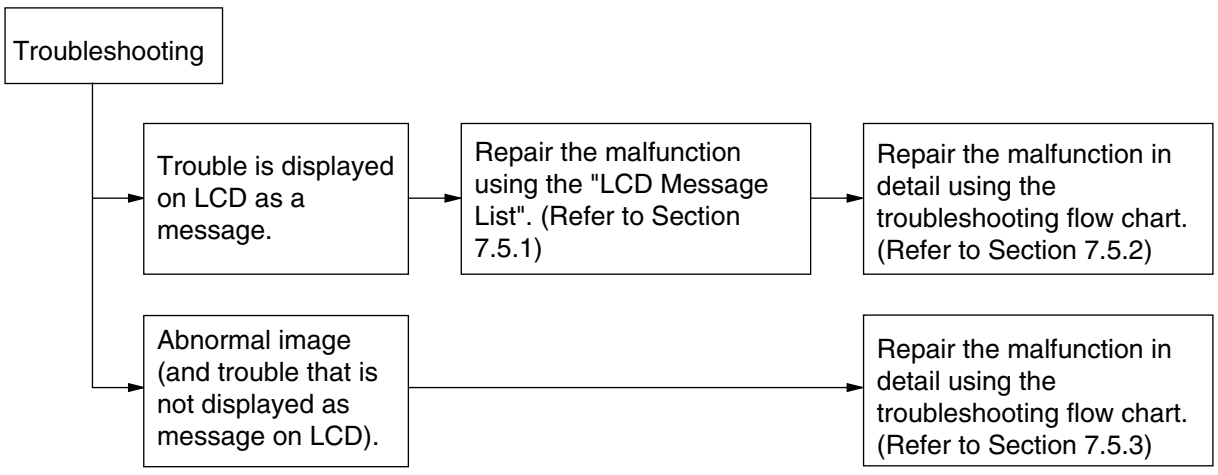
(1) Operation Panel Display

The troubleshooting state of this machine will be displayed on the LCD (Liquid Crystal Display) of the operator panel.

Take appropriate repair/maintenance measures according to the message displayed on the LCD.

7.5 Troubleshooting

When this printer troubleshoots, find the cause of trouble using the following procedure.



7.5.1 LCD Message List

When the printer detects errors that can be restored, it displays a service call error on the LCD, as shown below.

Service Call
nnn: Error

Note nnn is an Error code.

When a service call is displayed, the error code and accompanying error information is displayed on the bottom row of the LCD. The meaning of the error code and the overview of the remedies are indicated in Table 7-1-1.

Table 7-1-1 Operator Alarm (1/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Service Call 001: Error to 007: Error	CPU Exception	Is the error display reproducible? Is the error display reproducible?	Yes Yes	Power OFF/ON Replace CU PCB. (Must replace EEPROM)		-
Service Call 020: Error or 024: Error	CU ROM Hash Check Error 1	Is the Slot A ROM DIMM mounted properly? Is operations restored by replacing the Slot A ROM DIMM?	No Yes No	Remount Slot A ROM DIMM Replace Slot A ROM DIMM. Replace CU PCB. (Must replace EEPROM)		-
Service Call 025: Error	CU Font ROM Hash Error	Detected a Font ROM_DIMM hash check error. (Japan Model only)		Is the Slot B ROM DIMM1 mounted normally? Is the problem corrected by replacing the Slot B ROM DIMM1?		-
Service Call 030: Error	CU Resident RAM Check Error	Is the error display reproducible?	Yes	Replace CU PCB. (Must replace EEPROM)		-
Service Call 031: Error	CU Slot1 DIMM RAM Check Error	Is the applicable RAM DIMM mounted properly? Is operation restored by replacing the applicable RAM DIMM?	No Yes No	Re-mount applicable RAM DIMM. Replace RAM DIMM. Replace CU PCB. (Must replace EEPROM)		-
Service Call 032: Error	CU Slot2 DIMM RAM Check Error	Is the applicable RAM DIMM mounted properly? Is operation restored by replacing the applicable RAM DIMM?	No Yes No	Re-mount applicable RAM DIMM. Replace RAM DIMM. Replace CU PCB. (Must replace EEPROM)		-
Service Call 036: Error	Slot1 RAM Spec error Specification of DIMM in CU RAM slot is unsupported.	Is this a standard RAM DIMM? Is the applicable RAM DIMM difference mounted normal? Is operation restored by replacing the applicable RAM DIMM?	No No Yes No	Use a standard RAM DIMM. Re-mount applicable RAM DIMM. Replace RAM DIMM Replace CU PCB. (Must replace EEPROM)		-
Service Call 037: Error	Slot2 RAM Spec error Specification of DIMM in CU RAM slot2 is unsupported.	Is this a standard RAM DIMM? Is the applicable RAM DIMM difference mounted normal? Is operation restored by replacing the applicable RAM DIMM?	No No Yes No	Use a standard RAM DIMM. Re-mount applicable RAM DIMM. Replace RAM DIMM. Replace CU PCB. (Must replace EEPROM)		-
Service Call 040: Error	CU EEPROM ERROR	Is the problem corrected by replacing the CU PCB EEPROM?	Yes No	REPLACE EEPROM. (User must correct environmental conditions) Replace CU PCB. (Must replace EEPROM)		-
Service Call 041: Error	CU FLASH ERROR CU PCB flash ROM error	Is the error display reproducible?	Yes	Replace CU PCB. (Must replace EEPROM)		-

Table 7-1-1 Operator Alarm (2/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Service Call 042: Error to 045: Error	CU PCB flash ROM error Flash File System Error	Failed to access flash memory that is surface-mounted on CU PCB.		Replace CU PCB (Must replace EEPROM) *1		-
Service Call 048: Error	PS+PCL Model CU ROM is mounted on a Non-PS model unit.	Is a standard model program ROM mounted?	Yes No	Replace Program ROM DIMM. Replace with standard program ROM DIMM officially for the model.		-
Service Call 049: Error	CU Type Mismatch CU ROM model mismatches unit.	Is a standard model program ROM mounted?	Yes No	Replace Program ROM DIMM. Replace with standard program ROM DIMM officially for the model.		-
Service Call 050: Error	Operator Panel Error	Is the error display reproducible?	Yes	Refer to the flowchart on “Failure to appear on LCD”.		-
Service Call 051: Error	CU FAN ERROR CPU cooling fan of CU PCB is abnormal.	Is the connection of the CU PCB normal? Replace and restore fan?	No Yes No	Normally connect. Replace fan. Replace CU PCB. (Must replace EEPROM)		-
Service Call 052: Error	Image Processor Driver Error	Is the error display reproducible?		Power OFF/ON Replace CU PCB. (Replace EEPROM)		-
Service Call 060: Error	Parallel Interface Driver Error	Is the error display reproducible?		Power OFF/ON Replace CU PCB. (Replace EEPROM)		-
Service Call 062: Error	USB Drive Error	Is the error display reproducible? Is the Network PCB properly mounted?		Power OFF/ON Replace CU PCB. (Replace EEPROM)		-
Service Call 063: Error	Network comm. Error H/W I/F abnormality between CU-NIC.	Does replacement of the network PCB correct the problem?	No Yes No	Properly mount Replace Network Replace CU PCB. (Must replace EEPROM)		-
Service Call 070: Error	CANT_HAPPEN PS Firmware Abnormality Detection	Check if problem is corrected by turning OFF/ON Power/	No	Replace CU PCB. (Must replace EEPROM)		✓
Service Call 072: Error	Engine communication error I/F Error between PU-CU.	Is the CU Assy properly mounted? Does replacement of the CU PCB correct the problem?	No Yes No	Properly mount Replace CU PCB. (Must replace EEPROM) Replace PU PCB		✓
Service Call 073: Error to 075: Error	Video overrun detect	Is the CU Assy properly mounted? Does replacement of the CU PCB correct the problem?	No Yes	Properly mount Replace CU PCB. (Must replace EEPROM)		-
Service Call 081: Error	Parameter Match Check Error	Normal Read/Write not possible with EEPROM or Flash.		If the condition does not change replace CU PCB.		-
Service Call 096: Error	Finisher Unrestorable Error	Is the error display reproducible?		If turning OFF and ON the power again does not correct the problem, maintenance by a servicing personnel is necessary.		✓
Service Call 097 Error	Inverter power supply Error	Is the error display reproducible?		If turning OFF and ON the power again does not correct the problem, maintenance by a servicing personnel is necessary.		✓
Service Call 102: Error	After turning ON the power, Error is detected in engine RAM Read/Write.	Does the Error take place again?	Yes	Replace Engine Control PCB (S2V)		✓

Table 7-1-1 Operator Alarm (3/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Service Call 103: Error	When turning ON the power, detected Engine SRAM Read / Write Error.	Does the Error take place again?	Yes	Replace Engine Control PCB (S2V)		✓
Service Call 104: Error	When turning ON the power, detected error in engine EEPROM test total.	Does the Error take place again?	Yes	Replace engine control PCB (S2V).		✓
Service Call 105: Error	When turning ON the power, failed to detect the EEPROM (presence).	Is there an EEPROM? Does the Error take place again?	Yes Yes	Check to see if there is an EEPROM. If not, mount an EEPROM. Replace engine control PCB (S2V).		✓
Service Call 106: Error	Error detected in engine control logic.	Does the Error take place again?	Yes	Replace engine control PCB (S2V).		✓
Service Call 111: Error to 117: Error	An optional unit for another model was detected. 111: Duplex unit 112: 2nd Tray 113: 3rd Tray 114: 4th Tray 115: 5th Tray 116: Finisher 117: Inverter	Is the proper optional unit for that model mounted?	No No	Mount the proper optional unit. Check the connection. Then turn ON the power again. Replace the unit if operations is not restored.		✓
Service Call 121: Error	Low Voltage Power FAN Error	1) Is the PU PCB high voltage power cable properly connected? 2) Does the Error take place again?	No Yes Yes	Connect properly Check to see if there is any contact-defects in the high voltage system. Replace High Voltage Power Unit		✓
Service Call 123: Error	Sensor detects an inappropriate relative humidity for the operating environment.	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Replace the environmental sensor.		✓
Service Call 124: Error	Sensor detects an inappropriate room temperature for the operating environment.	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Replace the environmental sensor.		✓
Service Call 125: Error	Error detected in MT home position.	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Replace MT		✓
Turn OFF the power and wait for awhile. 126: Dew Error	Sensor Dew Error	Sensor Dew Error Detected		Wait a while then turn ON power again.		✓
Service Call 127: Error	Fuser Cooling FAN Error	1) Is the fuser cooling fan operating? 2) Cooling fan is replaced but Error occurs again.	No Yes Yes	Replace fuser cooling fan. Replace engine control PCB (S2V). Replace engine control PCB (S2V).		✓
Service Call 128: Error	Engine FAN Motor Error	Error was detected in each fan. 01: Fuser FAN Error 02: Power FAN Error 03: PU Motor FAN Error 04: Belt FAN Error 05: IDFAN Error 06: Top Cover FAN Error		Is the applicable location of the fan connection normal? If the condition does not change Replace fan.		✓

Table 7-1-1 Operator Alarm (4/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Service Call 131: Y Head 132: M Head 133: C Head 134: K Head	After turning ON the power or when cover is closed, the sensor detects that the unit is missing.	1) Is an Error message displayed? 2) Is the LED head properly mounted? 3) Does the Error take place again?	Yes No Yes	ICheck the OED head unit. Turn ON power again. Replace the LED head Assy.		✓
Service Call 142: C ID	Color ID up/ down error is detected.	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Confirm that the Y, M, and C ID units are in position, and reboot.		✓
Service Call 144: Y ID 145: M ID 146: C ID 147: K ID	This is indicated when the toner feed switch error or the toner lock-lever-open error occurs repeatedly when new toner is used.	1) Is the toner lock-lever-open error indicated? 2) Does the problem persist even if the ID units are replaced?	Yes Yes No	Confirm that the lever is in position. Replace the toner feed unit. Replace the ID units.		✓
Service Call 150: Y 151: M 152: C 153: K	When ID unit fuse cannot be cut.	Check if the ID Unit is normally mounted.	Yes	Check cable connection, then replace engine PCB.		✓
Service Call 154: Error	When belt unit fuse cannot be cut.	Is the belt unit mounted normally?	Yes	Check cable connection, then replace engine PCB.		✓
Service Call 155: Error	When fuser unit fuse cannot be cut.	Is the fuser unit mounted normally?	Yes	Check cable connection, then replace engine PCB.		✓
Service Call 160: Y Toner 161: M Toner 162: C Toner 163: K Toner	Toner sensor detected error.	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Replace toner sensor or Assy (SGG-PWB). Replace toner sensor or Assy (SGG-PWB).		✓
Service Call 167: Error	Thermistor Slope Error	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Leave in that state for 30 minutes then turn ON power again.		✓
Service Call 168: Error	Compensation Thermistor Error	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Leave in that state for 30 minutes then turn ON power again.		✓
Service Call 169: Error	Upper Side Thermistor Error	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Leave in that state for 30 minutes then turn ON power again.		✓
Service Call 170: Error 171: Error 174: Error 175: Error	Fuser Thermistor short-circuit or Open is detected (High Temperature (HOT) or Low Temperature (COLD))	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Leave in that state for 30 minutes then turn ON power again.		✓
Service Call 172: Error 176: Error	Thermistor indicates High Temperature (HOT) Error.	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Leave in that state for 30 minutes then turn ON power again.		✓

Table 7-1-1 Operator Alarm (5/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Service Call 173: Error 177: Error	Thermistor indicates Low Temperature (COLD) Error.	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Leave in that state for 30 minutes then turn ON power again.		✓
Service Call 179: Error	Wrong Fuser Standard	1) Is the model and power voltage of the fuser mounted proper? 2) Fuser is properly mounted, but Error results again.	No Yes Yes	Assemble the proper fuser. Check to see that the fuser is properly assemble. Replace fuser.		✓
Service Call 180: Error to 186: Error	The engine detects communication is not possible with the optional unit. 180: Envelope Feeder (Unused) 181: Duplex unit 182: Tray2 unit 183: Tray3 unit 184: Tray4 unit 185: Tray5 unit 186: Finisher unit	1) Is an Error message displayed? 2) Does the Error take place again?	Yes Yes	Turn ON power again. Replace optional unit.		✓
Service Call 187: Error	Communication with control panel failed.	Is the control panel and cable connected properly?	No Yes	Connect properly Replace the control panel and cable.		✓
Service Call 188: Error	Sub-CPU I/F Error	Sub-CPU Communication Error		Check the connection of the S2M board. Replace the S2M board.		✓
Service Call 189: Error	Inverter Unit I/F Error	1) Inverter communications error 2) Does the Error take place again?	Yes Yes	Check the connection of the I/F cable. Replace the V72-3 board.		✓
Service Call 190: Error	System Memory Overflow	System Memory Overflow		Power OFF/ON Replace CU PCB. (Replace EEPROM)		✓
Service Call 200: Error to 202: Error	PU Firm Download Error	Error occurred when downloading PU firmware.		After turning ON the power again, try downloading again. (This process isn't executed for regular operations, therefore, will not occur)		✓
POWER OFF/ON 209: DOWNLOAD ERROR	Custom Media Table Download Error	Failed to download custom media table.		After turning ON the power again, try downloading again. (This process isn't executed for regular operations, therefore, will not occur)		✓
Service Call 203: Error to 208: Error 210: Error to 214: Error 0×FOC: Error 0×FOD: Error 0×FFE: Error 0×FFF: Error	CU Program Dysfunction	Detected illegal process with CU program.	Yes	Write down the 24 digit number displayed on the LCD panel and report it. Turn OFF the power. Then check the insertion of the CU board. Now turn ON the power again.		-
Service Call 220: Error	Print Satistic mismatch	HDD was removed or replaced after print statistic is set to ON.		Get the original HDD back.		✓
Service Call 230: Error	RFID Reader not Installed	1) RFID read device error 2) Does the Error take place again?	Yes Yes	Check the connection of the RFID R/W board. Replace the RFID R/W board. Replace the S2V board.		✓

Table 7-1-1 Operator Alarm (6/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Service Call 231: Error	RFID Reader I/F Error	An interface error was detected with the RFID reader device. 01: communication error between the RFID reader and the engine PCB. 02: the transceiver circuit error of the RFID reader. 03: communication error between the RFID reader and the Tag chip. 04: the RFID Tag detection error (more than 4 chips).		01: Same action as for error 230 02: Replace the RFID R/W board. 03: Check the connection of the antenna cable. 04: Check to confirm that the number of RFID tags is correct.		✓
Service Call 240: Error to 245: Error 247: Error 248: Error	Engine Program Memory Error	240: Flash-memory hardware error 241: Duplex flash-memory error 242: Optional tray-2 flash-memory error 243: Optional tray-3 flash-memory error 244: Optional tray-4 flash-memory error 245: Optional tray-5 flash-memory error 247: Sub-CPU flash-memory error 248: Inverter flash-memory error		If the error still occurs after rebooting, replace the circuit board of the relevant unit.		✓
Close the Cover 310: Top Cover Open	The printer engine cover is open.	1) Check to see if the top cover is open. 2) Check to see if the cover switch is normal.	Yes No	Close top cover Replace the cover switch.		✓
Reset fuser 320: Fuser Error	After turning ON the power or when cover is closed, the sensor detects that the unit is missing.	1) Is an Error message displayed? 2) Is the fuser unit mounted properly? 3) Does the Error take place again?	Yes No Yes	Check how the fuser is mounted. Re-mount the fuser, then turn ON the power again. Replace the Fuser Unit Assy		✓
Turn OFF the power and wait for awhile. 321: MOTOR OVERHEAT	This indicates that the motor has overheated and that the printer is temporarily unusable.			Wait a while then turn ON power again.		✓
Open Cover 323: Paper Thickness Error	When media is missing, the sensor output value is outside the standard value. (Only for Factory Mode)	1) Has any abnormal substance get mixed in with the sensor? 2) Can the paper thickness detection be reset and restored by opening/closing the tray? 3) Is operation restored by turning OFF/ON the power?	Yes No	Remove obstruction/impurity. Normal		✓
Open Cover 324: Paper Thickness Error	Sensor Output Difference Value Outside Standard (Only for Factory Mode)	1) Has any abnormal substance get mixed in with the sensor? 2) Can the paper thickness detection be reset and restored by opening/closing the tray? 3) Is operation restored by turning OFF/ON the power?	Yes No	Remove obstruction/impurity. Normal		✓
Open Cover 325: Paper Thickness Error	Media Detection Value Outside Standard	1) Is there any abnormal media mixed in? 2) Has the media been fed as overlapped sheets?	Yes	Remove the abnormal media.		✓
Open Cover 326: Paper Thickness Error	U-Heavy Mode Media Detection Value Outside Standard	Is there any abnormal media mixed in?	Yes	Remove the abnormal media.		✓

Table 7-1-1 Operator Alarm (7/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Reset the belt 330: Belt Error	After turning ON the power or when cover is closed, the sensor detects that the unit is missing.	1) Is an Error message displayed? 2) Is the best unit properly mounted? 3) Does the Error take place again?	Yes No Yes	Check how the belt unit is mounted. Re0mount the belt unit, then turn ON the power again. Replace Belt Unit Assy		✓
Reset the drum 340 to 343: Drum Error	After turning ON the power or when cover is closed, the sensor detects that the unit is missing.	1) Is an Error message displayed? 2) Is the image drum properly mounted? 3) Does the Error take place again?	Yes No	Check how the ID is mounted. Turn ON power again. Replace ID Unit Assy		✓
Replace with a new drum 350: Yellow Drum Life Near-End 351: Magenta Drum Life Near-End 352: Cyan Drum Life Near-End 353: Black Drum Life Near-End	ID Unit Life	Is this immediately after replacing the ID unit?	Yes No	Check ID Unit Life Replace ID Unit		✓
Replace with a new fuser 354: Fuser Life Near-End	Fuser Life (This takes place when the fuser life is continu-ally OFF)	Is this immediately after replacing the fuser?	Yes No	Check Fuser Life Replace fuser.		✓
Replace with new belt 355: Belt Life Near-End	Notify Belt Life (Alarm) Print N-count worth by opening/closing cover.	Is this immediately after replacing the belt?	Yes No	Check Belt Life Replace belt.		✓
Replace with new belt 356: Belt Life Near-End	Notify the Disposal Toner Full Belt Life (Alarm). Print N-count worth by open-ing/closing cover. N=20	Is this immediately after replacing the belt?	Yes No	Check Belt Life Replace belt.		✓
Replace with new double-side printer unit 360: Double-side printer unit is open	If the Double-Side Printer Unit is disas-sembled from this machine.	Are operations restored by re-inserting the Double-Side Printer Unit?	Yes No	Normal Replace double-side printer unit or replace engine PCB.		✓
Check Duplex 370: Paper Jam	Paper jam detected in double-side printer unit when turning over paper.	Check paper jam in double-side printer.	Yes No	Remove the paper jam. Check/replace double-side printer unit.		✓
Check Duplex 371: Paper Jam	Paper jam detected in double-side printer unit.	Check paper jam in double-side printer.	Yes No	Remove the paper jam. Check/replace double-side printer unit.		✓
Check Duplex 372: Paper Jam	Paper jam in paper supply from the double-side printer unit.	Check misfeed in double-side printer unit.	Yes No	Remove the misfed paper, then close cover. Check/replace double-side printer unit.		✓

Table 7-1-1 Operator Alarm (8/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Open Front Cover 380: Paper Jam	Paper jam in paper supply from Cassette 1, 2, 3, 4 or 5.	Check misfeed in the specified cassette.	Yes No	Remove the misfed paper, insert the cassette. Check/replace Cassette 1, 2, 3, 4 or 5.		✓
Open Top Cover 381: Paper Jam	Paper jam detected between Black ID and fuser.	1) Check paper jam between Yellow ID and fuser. 2) Check the load on the fuser unit.	Yes No	Remove the paper jam. Replace fuser unit.		✓
Open Top Cover 382: Paper Jam	Paper jam detected in fuser or between fuser and paper output area.	1) Check for paper jam inside the fuser and between the Yellow ID and fuser. 2) Check if the paper output switch is normal.	Yes No	Remove the paper jam. Replace paper output switch.		✓
Open Top Cover 383: Paper Jam	Paper jam detected when paper started to enter double-side printer unit.	Check the entrance or inside the double-side printer for paper jam.	Yes No	Remove the paper jam. Check/replace double-side printer unit.		✓
Open Top Cover 389: Paper Jam	Some sort of jam occurred in paper feed route.	JAM CHECK	Yes	Remove the paper jam.		✓
Check MP Tray 390: Paper Jam	Paper jam occurred when supplying paper from MT	Check for misfeed around MT cassette.	Yes No	Remove the misfed paper, then close cover. Check/replace MT.		✓
Check Tray* 391 to 395: Paper Jam	Paper jam detected between cassette and black ID.	1) Check for paper jam around the cassette and between the Yellow ID. 2) Check to see if the paper entry switch is normal.	Yes No	Remove the paper jam. Replace the entry switch.		✓
Open Top Cover 400: Paper Size Error	Printer engine detects paper that is abnormal (45mm or more) according to setting.	1) Is the paper a custom size? 2) Is the paper a standard size?	Yes Yes No	Remedy Unnecessary Adjust the cassette paper size guide. Paper Size PCB Replace (PXC PWB).		✓
Put in Toner 410: Yellow 411: Magenta 412: Cyan 413: Black	One of the toners are almost empty.	1) The specified toner cartridge is almost empty. 2) Check to see if the specified toner sensor is normal.	Yes No	Replace with a new toner kit. Replace the specified toner sensor.		✓
Remove Paper 480: Stacker - Full	Paper Output Stacker is Full	1) Check if the stacker is full. 2) Check if the Stacker Full Sensor activator is normal.	Yes No	Remove paper from stacker. Replace the Stacker Full Sensor.		✓
Insert *** 490: MP Tray Out-of-Paper (* is A4, B4, etc.)	Specified Cassette is Out-Of-Paper or removed. Or the cassette used in the printing process is out-of-paper.	1) Check if MT is Out-Of-Paper. 2) Check and see if the out-of-paper sensor activator is normal.	Yes No	Put paper in MT. Replace Out-Of-Paper Sensor.		✓
Insert *** 491 to 495: Tray* Out-of-Paper (* is A4, B4, etc.)	Cassette 1, 2, 3, 4or 5 has been detected to be Out-Of-Paper	1) Check and see if the specified cassette is out-of-paper. 2) Check and see if the out-of-paper sensor activator is normal.	Yes No	Put paper in specified cassette. Replace the corresponding out-of-paper sensor.		✓
Replace Fuser	Fuser Counter Exceed Life	1) Is an Error message displayed? 2) Is this immediately after the fuser unit was replaced?	Yes No	Check the Fuser Unit Life Replace the fuser immediately or at the next maintenance.		✓

Table 7-1-1 Operator Alarm (9/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Tray*Paper Almost Finished	Paper Near-End Detection	Is the tray paper level low? (less than about 30 sheets)	Yes No	Refill with paper. Check Paper Near-End Sensor		✓
Disc Operation Error	Cannot write to HDD.	Is there any error in the operational procedures?	No Yes	Check the manual usage procedures. HDD malfunction. Replace HDD.		✓
Service Call 910: Error to 914: Error	GDDC Error	910: Tray1 GDDC Error 911: Tray2 GDDC Error 912: Tray3 GDDC Error 913: Tray4 GDDC Error 914: Tray3 GDDC Error		Check to confirm that the tray is mounted correctly. Replace the geared motor of the tray.		✓
Service Call 917	Belt Slit Sensor Error	The belt is not running properly. Does the error message still appear after rebooting?	 Yes	Check to confirm that the belt is mounted correctly. Replace the belt.		✓
Service Call 918	Duplex FAN0 Alarm Detection	Error of the fan in the duplex unit Does the error still occur after rebooting?	 Yes Yes	Check to confirm that the duplex unit is mounted correctly. Check the connection of the fan. Replace the fan.		✓
Service Call 919	Duplex 24V Abnormal Current Detection	24 V of power is not supplied to the duplex unit properly. Does the error still occur after rebooting?	 Yes Yes	Check to confirm that the duplex unit is mounted correctly. Check the connection of the fan. Replace the fan.		✓
Service Call 920	Yellow Image Drum Lock Error	The Y ID unit is not operating properly. Does the error message still appear after rebooting?	 Yes Yes	Check to confirm that the Y ID unit is in position. Replace the Y ID unit. Replace the Y ID motor.		✓
Service Call 921	Magenta Image Drum Lock Error	The M ID unit is not operating properly. Does the error message still appear after rebooting?	 Yes Yes	Check to confirm that the M ID unit is in position. Replace the M ID unit. Replace the M ID motor.		✓
Service Call 922	Cyan Image Drum Lock Error	The C ID unit is not operating properly. Does the error message still appear after rebooting?	 Yes Yes	Check to confirm that the C ID unit is in position. Replace the C ID unit. Replace the C ID motor.		✓
Service Call 923	Black Image Drum Lock Error	The K ID unit is not operating properly. Does the error message still appear after rebooting?	 Yes Yes	Check to confirm that the K ID unit is in position. Replace the K ID unit. Replace the K ID motor.		✓
Service Call 924	Tray2 24V Abnormal Voltage Detection	24 V of power is not supplied to tray 2 properly.		Check to confirm that tray 2 is mounted correctly.		✓
Service Call 925	Tray3 24V Abnormal Voltage Detection	24 V of power is not supplied to tray 3 properly.		Check to confirm that tray 3 is mounted correctly.		✓
Service Call 926	Tray4 24V Abnormal Voltage Detection	24 V power is not supplied to tray 4 properly.		Check to confirm that tray 4 is mounted correctly.		✓
Service Call 927	Tray5 24V Abnormal Voltage Detection	24 V of power is not supplied to tray 5 properly.		Check to confirm that tray 5 is mounted correctly.		✓
Service Call 928	Fuser Motor Lock Error	The fuser is not operating properly. Does the error still occur?	 Yes	Check to confirm that the fuser is in position. Replace the fuser. Yes Replace the fuser motor.		✓

Table 7-1-1 Operator Alarm (10/10)

Display	Cause	Error Description and Analysis	judgment	Remedy		1200
Service Call 929	Waste Toner Transfer Motor Lock Error	The waste toner transfer motor is not operating properly. Does the error still occur?	 Yes	Check to confirm that the waste toner transfer system is operating properly. Replace the waste toner motor.		✓
Service Call 930	Sub-CPU Clock Frequency Error	The Sub-CPU clock frequency is not correct. Does the error still occur?	 Yes	Check the connection of the S2M board. Replace the S2M board.		✓
Service Call 931	Duplex CPU Clock Frequency Error	The duplex CPU clock frequency is not correct. Does the error still occur?	 Yes	Check the connection of the V72-2 board. Replace the V72-2 board.		✓
Service Call 932	Inverter CPU Clock Frequency Error	The inverter CPU clock frequency is not correct. Does the error still occur?	 Yes	Check the connection of the V72-3 board. Replace the V72-3 board.		✓
Service Call 933	Trya2 CPU Clock Frequency Error	The tray-2 CPU clock frequency is not correct. Does the error still occur?	 Yes	Check the connection of the V72-1 board of tray 2. Replace the V72-1 board.		✓
Service Call 934	Trya3 CPU Clock Frequency Error	The tray-3 CPU clock frequency is not correct. Does the error still occur?	 Yes	Check the connection of the V72-1 board of tray 3. Replace the V72-1 board.		✓
Service Call 935	Trya4 CPU Clock Frequency Error	The tray-4 CPU clock frequency is not correct. Does the error still occur?	 Yes	Check the connection of the V72-1 board of tray 4. Replace the V72-1 board.		✓
Service Call 936	Trya5 CPU Clock Frequency Error	The tray-5 CPU clock frequency is not correct. Does the error still occur?	 Yes	Check the connection of the V72-1 board of tray 5. Replace the V72-1 board.		✓
Service Call 940	Waste Toner Transfer Error	The transfer mechanism of the toner duct for ID is not operating properly. Does the error still occur?	 Yes Yes Yes	Check to confirm that the basket assembly is in position (if it is engaged with the gear of the printer). Check to confirm that the holder magnet D contains a magnet, and check the magnetic polarity. Replace the HAL IC circuit board. Replace the duct assembly toner.		✓
Software not authorized 001	Keychip check failed	ASP PCB KeyChip unmounted or KeyChip Error is detected.		Power OFF/ON Replace KeyChip		✓
Software not authorized 002	Unauthorized hard disk copy	The ASP PCB HDD is not a standard (official) product.		Power OFF/ON Replace HDD		✓
Software not authorized 003	Unauthorized software configuration	The ASP PCB HDD program does not match the destination.		Power OFF/ON Replace HDD		✓
Software not authorized 004	EEPROM missing	The ASP PCB EEPROM unmounted or EEPROM Error is detected.		Power OFF/ON Replace EEPROM		✓

7.5.2 Preparing for Troubleshooting

(1) Operation Panel Display

The state of malfunction is displayed on the LCD (Liquid Crystal Display) of the operator panel of this machine.

Execute proper repairs according to the message indicated on the LCD.

Order	Malfunction Details	Flowchart No.
1	The machine does not operate properly after turning ON the power.	①
2	Jam Error Paper Supply Jam (1st Tray) Paper Supply Jam (Multipurpose Tray) Fee Jam Paper Output Jam Double-Side Print Jam	②-1 ②-2 ②-3 ②-4 ②-5
3	Paper Size Error	③
4	I/D UP/DOWN Error	④
5	Fuser Unit Error	⑤
6	Fan Motor Error	⑥

Note When replacing the engine PCB (S2V PWB), remove the EEPROM chip from the old PCB and then put the EEPROM that was removed on the new PCB replacement.

(2) CU Assy Troubleshooting (1200dpi Model)

a) Nothing is displayed on the LCD

- CU PCB Malfunction

  Has the power short-circuited on the CU PCB? (C450+: 5v, C50+: 3.3v) → If NO GOOD, check to see if the RAM DIMM is normally inserted.

- Others

  Power, Operation Panel, Fuse, etc.

b) "Communication Error" is displayed

- CU PCB Malfunction

  Does the LED lightup normally? (PWR_GOOD Green: Light ON, DIAG_LED3-0 Red: Light OFF, FPGA_LED Green: Light ON) → If NO GOOD, remove in the sequential order of BYN PCB (optional), HMK PCB, RAM_DIMM, and HDD. Does the Light On state vary?

  If the LED Light On state is Normal, replace the applicable part.

  If light ON is not normal, then replace PCB.

c) "Initializing" remains displayed.

- CU PCB Malfunction

  Does the LED lightup normally? (PWR_GOOD Green: Light ON, DIAG_LED3-0Red: Light OFF, FPGA_LED Green: Light ON) → If NO GOOD, remove in the sequential order of BYN PCB (optional), HMK PCB , RAM_DIMM, and HDD. Does the Light On state vary?

  If the LED Light On state is Normal, replace the applicable part.

  If light ON is not normal, then replace PCB.

d) Error Message Display

Following the processing procedures of the Error Message in the table attachment.

*1 ASP PCB for 1200dpi Analysis Reference

When “Communications Error” appears on the display panel, this message is displayed with the PU. This indicates a problem has occurred in the ASP board during its initialization. In such a case, open the sheet metal of the CU board and check the lit LED on the ASP board to locate the problem.

The LED mounted on the ASP PCB come in the following types. The description of the cases when they do not light up normally are described below.

PWR_GOOD (Green): This indicates the power status of the ASP PCB. It lights up when the various power output sources (CPU core voltage, 2.5V, 3.3V, 5V0 of the ASP PCB are normal. If it does not light up, disassemble the BYN PCB (optional), HMK PCB, RAM_DIMM and HDD. Check to see if it will lightup in this state.

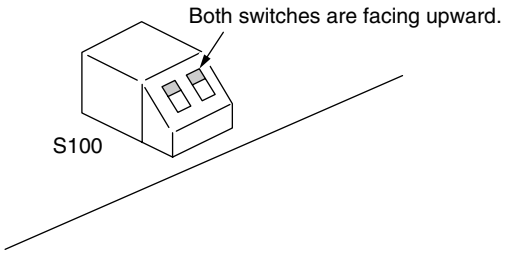
DIAG_LED[3: 0] (Red): This indicates the initialization processing state of the ASP PCB. It will all lightup immediately after the power is turned ON. It will all dim down when the initialization process is successfully completed. If all lights do not dim, then there is a CU PCB malfunction. If all lights do not dim, then disassemble the BYN PCB (optional), HMK PCB, RAM_DIMM and HDD. Check to see if it will lightup again in this state.

HDD_LED (Red): This lights up when accessing the HDD. If it does not start flashing even after the power is turned ON, replace the HDD and check to see if the problem is corrected. Check to see that the download switch is facing upward.

CF_LED (Red): This lights up when accessing the CompactFlash. The CompactFlash is used with only some domestic models. If it does not start flashing even after the power is turned ON, replace the CompactFlash and check to see if the problem is corrected. Check to see that the download switch is facing upward.

FPGA_LED (Green): This lights up when communication is enabled between the engine and panel interface. If it does not lightup, then disassemble the BYN PCB (optional), HMK PCB, RAM_DIMM and HDD. Check to see if it will lightup again in this state.

ASP PCB Download Switch Location



① Turn ON the power but the machine does not properly turn on..

• Turn OFF the power and re-turn it back ON.

• Does  appear? (approx. 1 second)

- NO Is the AC cable properly connected?
  - No Properly connect the AC cable.
- YES Is +5V output to the engine PCB (S2V PWB) panel connector (OPTN Connector)?
  Pin 10, 11, 18: +5V Pin 5, 7, 15, 20: 0V
  - YES Is +5V output to the relay PCB (S2H PWB) panel connector?
    Pin 5: +5V Pin 2: 0V
    - NO Replace the relay PCB.
  - YES Is the operator panel cable properly connected?
    - NO Properly connect cable.
  - YES Replace the operator panel cable. Has operation been restored?
    - NO Replace the operator panel cover Assy.
    - YES END
- NO Is +5V output to the engine PCB (S2V PWB) power connector?
  Pin 5, 6, 7, 8: +5V Pin 1, 2, 3, 4, 9, 10, 11: 0V
  - No Check connection of power connector, then replace the low voltage power unit.
- YES Replace the engine PCB.

YES Is the following voltage output to the Main PCB PU IF connector?
Pin 137-147,187-197: +5V Pin 125-136,175-186: +3.3V
Pin 148,198: +12V Pin 101-124,149-174,199,200: 0V

- YES Replace the main PCB.

NO Is the following voltage output to the Engine PCB POWER connector?
Pin 5, 6, 7, 8: +5V
Pin 15: +12V
Pin 12, 13, 14: +34V Pin 1, 2, 3, 4, 9, 10, 11: 0V

- YES Replace the engine PCB.

NO Replace the low voltage power unit.

②-1 Paper Supply Jam (1st Tray)

- Immediately after turning ON the power, does the paper jam occur?
  - YES — Is there a jam in the Entrance Cassette Sensor or Entrance MT Sensor?
    - YES — Remove the paper jam.
  - (A)
  - NO — Does the sensor lever Sensor (Entrance Cassette Sensor, Entrance MT Sensor) operate normally?
    - NO — Replace the defective sensor lever.
  - YES — Does the sensor (Entrance Cassette Sensor, Entrance MT Sensor) operate normally?
    (Operate each sensor lever, then check the signal of the engine PCB (S2V PWD) FSENS connector pin.)
    Pin 4: Entrance Cassette Sensor, Pin 2: Entrance MT Sensor
    - NO — Check the signal cable connection, then replace the Sensor PCB (R71 PWB).
  - YES — Check the signal cable connection, then replace the engine PCB.
- NO — Immediately after intaking the paper, does a paper jam occur?
  - YES — Did the paper reach the Entrance Cassette Sensor or Entrance MT Sensor?
    - Yes — Go to (A).
  - NO — Replace the paper separation frame Assy of the Feed Roller or Paper Cassette.
- NO — Is the Main Feed Motor operating?
  - YES — Replace the paper separation frame Assy of the Feed Roller or Paper Cassette.
- NO — Is the main feed motor resistance the rated value of approx. 4É∂?
  - NO — Replace the Main Feed Motor.
- YES — Is 34V output to the engine PCB fuses F2 and F4?
  - NO — Replace the low voltage power unit.
- YES — Check the gear fit and cable connection, then replace the engine PCB.

②-2 Paper Supply Jam (Multipurpose Tray)

- Immediately after turning ON the power, does the paper jam occur?
  - YES Is there a jam in the Entrance Cassette Sensor or Entrance MT Sensor?
    - YES Remove the paper jam.
  - (A)
  - NO Does the Sensor Lever (Entrance MT Sensor) operator normally?
    - NO Replace the defective sensor lever.
  - YES Does the Sensor (Entrance MT Sensor) operate normally?
    (Operate each sensor lever/ Check to see that the Sensor operates normally with the switch scan test in the Maintenance Mode. Also check the FSENS connection pin signal of the Engine PCB (S2V PWB)).
    Pin 2: Entrance MT Sensor
    - NO Check the signal cable connection, then replace the Sensor PCB (R71 PWB).
  - YES Check the signal cable connection, then replace the engine PCB.
- NO Immediately after intaking the paper, does a paper jam occur?
  - YES Did the paper reach the entrance MT sensor?
    - YES Go to (A).
  - NO Replace the multipurpose tray Assy.
- NO Is the resist motor operating?
  - NO Is 34V output to the F4 engine PCB fuse?
    - NO Replace the low voltage power unit.
  - YES Check the cable connection, then replace the engine PCB.
- YES Check the cable connection, then replace the engine PCB.

②-3 Paper feed Jam

- Immediately after turning ON the power, does a paper feed jam occur?
  - YES Is there a jam at the Entrance Belt Sensor?
    - YES Remove the paper jam.
  - (A)
  - NO Does the Write Sensor Lever operate normally?
    - NO Replace the Write Sensor Lever.
  - YES Does the Entrance Belt Sensor operate normally?
    (Activate the sensor lever, then check the FSENS connector pin signal of the engine PCB (S2V PWB).)
    Pin 6: Entrance Belt Sensor
    - NO Check cable connection, then replace Sensor PCB (R71 PWB).
  - YES Check to see that the signal cable is connected.
    Is it connected properly?
    - NO Properly connect cable.
  - YES Replace the engine PCB.
- NO Immediately after intaking the paper, does a paper feed jam occur?
  - YES Did the paper reach the write sensor?
    - YES Go to (A).
  - NO Is the resist motor operating?
    - NO Is the resist motor resistance the rated value at approx. 7.9Ω?
      - NO Replace the resist motor.
    - YES Check the gear bite, then replace the engine PCB.
  - YES Replace resist roller A or B.
- NO Does a paper feed jam occur when loading the paper?
  - YES Is the Belt Motor operating?
    - NO Is the Belt Motor resistance the rated value of approx. 7.9Ω?
      - NO Replace the Belt Motor.
    - YES Check the gear bite, then replace the engine PCB.
  - YES Check the gear bite, then replace the Belt Cassette Assy.
- NO END

②-4 Paper Output Jam

- Immediately after turning ON the power, does a paper output jam occur?
  - YES — Is there a jam with the paper output sensor?
    - YES — Remov-e the paper jam.
  - NO — Does the paper output sensor lever operate normally?
    - NO — Replace the paper output sensor lever.
  - YES — Does the paper output sensor operate normally? (Activate the sensor lever. Then check to see that the sensor operates normally with the switch scan test in the Maintenance Mode. Or check Engine PCB (S2V PWB) connector PART TEMP Pin 8.)
    - NO — Check signal cable connection, then replace the paper output sensor.
  - YES — Replace the engine PCB.
- NO — Is the Face-Up Stacker cover fully open? Or is it completely closed?
  - NO — Fully open or close the stacker cover.
- YES — Is the heat motor operating?
  - NO — Heat Motor resistance the rated value of approx. 7.9Ω?
    - NO — Replace the heat motor.
  - YES — Is 34V output to the Engine PCB power connector 12 to 14 Pin?
    - NO — Replace the low voltage power unit.
  - YES — Check the cable connection, then replace the engine PCB.
- YES — Does the paper output guide Assy operate normally?
  - NO — Replace the paper output guide Assy.
- YES — Replace the engine PCB.

②-5 Double-Side Print Jam

- Immediately after turning ON the power, does a paper feed jam occur?
  - YES — Is there paper in the Double-Side Printer Unit?
    - YES — Remove the paper jam.
  - (A)
  - NO — Does the Sensor Lever of the Double-Side Printer Entrance Sensor, Rear Sensor, and Front Sensor operate normally?
    - NO — Replace the defective sensor lever.
  - YES — Does the Double-Side Printer Entrance Sensor, Rear Sensor, and Front Sensor operate normally?
    (Check that each sensor level indicates out-of-paper, with the system Maintenance Mode switch scan test.)
    - NO — Check cable connection, and replace the defective sensor.
  - YES — Check to see that the signal cable is connected.
    Is it connected properly?
    - NO — Properly connect cable.
  - YES — Replace Double-Side Printer Control PCB (V73 PWB).
- NO — Immediately after intaking the paper, does a paper feed jam occur?
  - YES — Did the paper reach the rear sensor of the double-side printer?
    - YES — Go to (A).
  - NO — Double-Side Print Motor operating?
    - NO — Is the double-side printer motor resistance a rated value of approx. 6.7Ω?
      - NO — Replace the double-side printer motor.
    - YES — Check the gear bite, then replace the Double-Side Printer PCB (V73 PWB).
  - YES — Replace resist roller A or B.
- NO — Replace double-side printer unit.

③ Paper Size Error

- Is standard size paper used?

  NO Use standard size paper.

- YES Is there a jam at the Entrance FF Sensor or Paper Width Sensor?

  YES Remove the paper jam.

- NO Does Entrance FF Sensor Lever operate normally?

  NO Replace the defective sensor lever.

- YES Does the Entrance FF Sensor operate normally? (Activate the sensor lever, then check the signal of the Engine PCB (S2V PWB) FSENS connector Pin.)
  Pin 4: Entrance FF Sensor

  NO Check cable connection, then replace Sensor PCB (R71 PWB).

- YES Does the Entrance Belt Sensor Lever operate normally?

  NO Replace the defective sensor lever.

- YES Does the Entrance Belt Sensor operate normally? (Activate the sensor lever, then check to see that the sensor operates normally throughout the switch scan test in the System Maintenance Mode. Also check the signal of the Engine PCB (S2V PWB) FSENS connector Pin.)
  Pin 6: Entrance Belt Sensor

  NO Check cable connection, then replace Sensor PCB (R71 PWB).

- YES Do all Size Detection PCB (PXC-PWB) Paper Size Detection Switches operate normally?
  (Press the Paper Size Detection Switch, then check the signal of the Engine PCB PSIZE connector Pin)
  Pin 3: Paper Size Detector 1
  Pin 4: Paper Size Detector 2
  Pin 5: Paper Size Detector 3
  Pin 6: Paper Size Detector 4

  NO Check the cable connection, then replace the paper size detector PCB (PXC-PWB).

- YES Check the cable connection, then replace the engine PCB.

④ Image Drum Unit (ID) UP/DOWN Movement Error

- Turn OFF the power of this machine, then turn it back ON after several seconds.
- Do all ID drums operate normally during printing?
  - NO — Is the ID Motor resistance the rated value of approx. 2.4Ω?
    - NO — Replace the IDU motor with a defect.
  - YES — Is 34V output to F3 and F5 of the engine PCB?
    - NO — Replace the low voltage power unit.
  - YES — Check the cable connection, then replace the engine PCB.
- YES — Does the IDU Sensor terminal operate normally?
  - NO — Check the gear fitting (bite) and sensor terminal operations, then replace the gear or sensor terminal.
- YES — Does the ID Sensor operate normally?
  (Check the signal of the Driver PCB (S2V PWB) JODEN connector Pin)
  Pin 12: IDU Sensor Yellow
  Pin 2: IDU Sensor Magenta
  Pin 4: IDU Sensor Cyan
  Pin 14: IDU Sensor Black
  Are all a 5V level or 0V level?
  - NO — Replace the Relay PCB (S2H PWB).
- YES — Check the cable connection between the Relay PCB (S2H PWB) and Engine PCB (S2V PWB), then replace the engine PCB.

⑤ Fuser Unit Error

• Immediately after turning ON the power, does a fuser error occur?

(A)

• YES Is the Heat Roller Thermistor wire disconnected or short-circuited? (Refer to Figure 7-1)
(approx.190k to 980kΩ at room temperature between 0 to 43ºC)

• YES Replace the fuser unit.

NO Is the Backup Roller Thermistor wire disconnected or short-circuited? (Refer to Figure 7-1)
(approx.190k to 980kΩ at room temperature between 0 to 43ºC)

• YES Replace the fuser unit.

NO

NO After turning ON the power, wait 3 minutes. Does a fuser unit Error occur?

• NO Go to (A).

Is the fuser unit heater ON? (Is it HOT?)

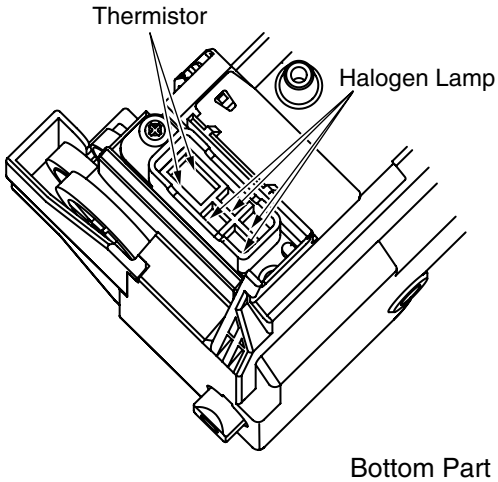
• YES Replace the engine control PCB.

NO Replace the fuser unit.

NO Is there an AC voltage output between Pin 1 and Pin 3 of the CN1 connector of the Low Voltage Power Unit?

• NO Replace the low voltage power unit.

YES Replace the fuser unit.



Bottom Part of Fuser Unit

Figure 7-1

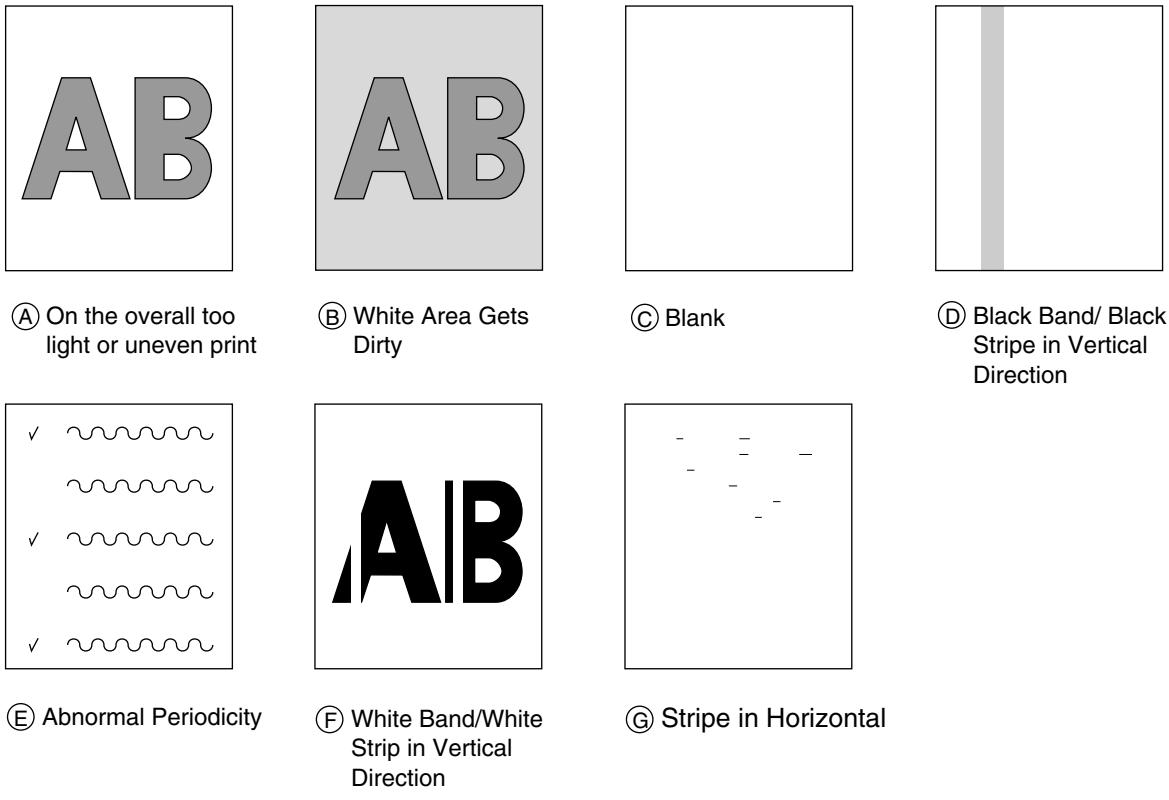
⑥ Motor Fan Error

- After turning ON the power, does the low voltage power fan operate?
  - NO Is 34V output to Fuse F7 of the Engine PCB (S2V PWB)?
    - NO Is 34V output to the Engine PCB (S2V PWB) POWER connector? 34V: Pin 12, 13, 14
      - NO Check cable connection, then replace the low voltage power unit.
      - YES Replace the engine PCB.
    - YES Has the low voltage power fan been replaced?
      - YES END
    - NO Replace the low voltage power fan.
  - YES After turning ON the power again, does the engine PCB fan operate?
    - NO Is 34V output to the F7 fuse of the Engine PCB (S2V PWB)?
      - NO Is 34V output to the Engine PCB (S2V PWB) POWER connector? 34V: Pin 12, 13, 14
        - NO Check cable connection, then replace the low voltage power unit.
        - YES Replace the engine PCB.
      - YES Replace the engine PCB fan.
  - YES END

7.5.3 Troubleshooting With Abnormal Image

Troubleshooting with printout results that are irregular as shown in the diagrams below, are indicated.

Abnormal Image	Flow Chart No
The overall image is too light or uneven, or the color tone is off centered, on the overall, while printing the image. (Figure 7-2 Ⓐ)	①
The white area gets dirty. (Figure 7-2 Ⓑ)	②
Blank sheet is output. (Figure 7-2 Ⓒ)	③
A band or stripe print appears in the vertical direction of the printout. (Black Band, Color Band, Black Stripe, Color Stripe). (Figure 7-2 Ⓓ)	④
A white band, white stripe, uneven color band or uneven color stripe occurs in the vertical direction.(Figure 7-2 Ⓕ)	⑤
Defective Fusion (the image smears or peels off when touched).	⑥
Periodicity Abnormality (Figure 7-2 Ⓔ)	⑦
Printout Falloff	⑧
Color Offset	⑨
Printout Color Difference	⑩
Stripe in Horizontal Print Direction (Figure 7-2 Ⓖ)	⑪



Ⓐ On the overall too light or uneven print

Ⓑ White Area Gets Dirty

Ⓒ Blank

Ⓓ Black Band/ Black Stripe in Vertical Direction

Ⓔ Abnormal Periodicity

Ⓕ White Band/White Strip in Vertical Direction

Ⓖ Stripe in Horizontal

Figure 7-2

④ The screen in light on the overall. Or there is overall color drift in the printed image. (Figure 7-2 Ⓐ)

- Is there enough toner? (Is [Toner Short] displayed?)
  - YES Replenish toner.
- NO Is standard paper used?
  - NO Use standard paper.
- YES Is the LED head lens dirty?
  - YES Clean the LED head lens.
- NO Is the entire LED head Assy properly connected to the relay PCB (S2H PWB) and Engine PCB (S2V PWB)?
  - NO Check the cable connect (between each LED head and engine PCB), then properly connect the cable between the LED head and engine PCB.
- YES Is the LED head pressing spring properly set?
  - NO Properly set the pressing spring.
- YES Are the protrusions on both sides of the LED head properly in contact with each FG plate spring?
  - NO Correct the bend in the FG plate spring.
- YES Replace the LED head.
  Has the problem been corrected?
  - YES END
- NO Replace the engine PCB (S2V PWB).
  Has the problem been corrected?
  - YES END
- NO Replace the head shield cable.
  Has the problem been corrected?
  - YES END
- NO Check the cable connection, then replace the low voltage power unit.
  Has the problem been corrected?
  - YES END
- NO Is +24V output to the HVOLT connector pin 16 of the engine PCB (S2V PWB)?
  - NO Replace the engine PCB.
- YES Check the cable connection, then replace the high voltage power unit or belt cassette Assy.
  Has operation been restored?
  - YES END
- NO Is the I/D unit terminal properly connected to the contact Assy? (Refer to Figure 7-3)
  - NO Properly connect the I/D unit terminal to the contact Assy.
- YES Replace Image Drum Unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

② The white area gets dirty. (Figure 7-2 Ⓑ)

- Has the image drum been exposed to external light for a long time?

  YES Replace I/D Unit.

- NO Is the fuser unit roller dirty?

  YES Replace the fuser unit.

- NO Correct the [Paper Thickness] setting.
  Light: 64 g/m^2 Regular: 64 to 74 g/m^2 Slightly Heavy: 75 to 90 g/m^2
  Heavy: 91 to 104 g/m^2 Medium Heavy: 105 to 120 g/m^2
  Super Heavy: 121 to 203 g/m^2 OHP

  NO Properly set the [Paper Thickness].

- YES Replace the LED head.
  Has the problem been corrected?

  YES END

- NO Replace the engine PCB (S2V PWB).
  Has the problem been corrected?

  YES END

- NO Replace the head shield cable.
  Has the problem been corrected?

  YES END

- NO Check the cable connection, then replace the low voltage power unit.
  Has the problem been corrected?

  YES END

- NO Is +24V output to the HVOLT connector pin 16 of the engine PCB (S2V PWB)?

  NO Replace the engine PCB.

- YES Check the cable connection, then replace the high voltage power unit or belt unit.
  Has operation been restored?

  YES END

- NO Is the I/D unit terminal properly connected to the contact Assy?
  (Refer to Figure 7-3)

  NO Properly connect the I/D unit terminal to the contact Assy.

- YES Replace Image Drum Unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

③ Blank Sheet (Figure 7-2 Ⓒ)

- Are all LED head Assy parts properly connected to the relay PCB (S2H PWB) and engine PCB (S2V PWB)?

  NO Check the cable connection of the LED head and cable connection between between the relay PCB and engine PCB, then properly connect the cable between the LED head and engine PCB.

- YES Is the LED head pressing spring properly set?

  NO Properly set the pressing spring.

- YES Are the protrusions on both sides of the LED head properly in contact with each FG plate spring?

  NO Correct the bend in the FG plate spring.

- YES Replace the LED head.
  Has the problem been corrected?

  YES END

- NO Replace the engine PCB (S2V PWB).
  Has the problem been corrected?

  YES END

- NO Replace the head shield cable.
  Has the problem been corrected?

  YES END

- NO Check the cable connection, then replace the low voltage power unit.
  Has the problem been corrected?

  YES END

- NO Is +24V output to the HVOLT connector Pin 16 of the Engine PCB (S2V PWB)?

  NO Replace the engine PCB.

- YES Check the cable connection, then replace the high voltage power unit or belt unit.
  Has operation been restored?

  YES END

- NO Is the I/D unit terminal properly connected to the contact Assy?
  (Refer to Figure 7-3)

  NO Properly connect the I/D unit terminal to the contact Assy.

- YES Replace Image Drum Unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

④ Band or stripe appears in vertical direction of the printed area. (Black Band, Color Band, Black Stripe, Color Stripe) (Figure 7-2 Ⓓ)

- Are all LED head Assy parts properly connected to the relay PCB (S2H PWB) and engine PCB (S2V PWB)?

  NO Check the cable connection of the LED and the cable connection between the relay PCB and engine PCB, then properly connect the cable between the LED head and engine PCB.

- YES Replace the LED head.
  Has the problem been corrected?

  YES END

- NO Replace the head shield cable.
  Has the problem been corrected?

  YES END

- NO Check the cable connection. Then replace the engine PCB (S2V PWB).
  Has the problem been corrected?

  YES END

- NO Check the cable connection, then replace the , Engine PCB (S2V PWB).
  Has operation been restored?

  YES END.

- NO Is the I/D unit terminal properly connected to the contact Assy?
  (Refer to Figure 7-3)

  NO Properly connect the I/D unit terminal to the contact Assy.

- YES Replace Image Drum Unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

⑤ White Band, White Stripe, Uneven Color Band, Uneven Color Stripe Occurring in Vertical Direction (Figure 7-2 Ⓕ)

- Is the LED head lens dirty?
  - YES — Clean the LED head lens.
- NO — Are all LED head Assy parts properly connected to the relay PCB (S2H PWB) and engine PCB (S2V PWB)?
  - NO — Check the cable connection of the LED and the cable connection between the relay PCB and engine PCB, then properly connect the cable between the LED head and engine PCB.
- YES — Replace the LED head. Has the problem been corrected?
  - YES — END
- NO — Replace the head shield cable. Has the problem been corrected?
  - YES — END
- NO — Check the cable connection, then replace the engine PCB (S2V PWB). Has the problem been corrected?
  - YES — END
- YES — Check the cable connection, then replace the Engine PCB (S2V PWB). Has operation been restored?
  - YES — END.
- NO — Is the I/D unit terminal properly connected to the contact Assy? (Refer to Figure 7-3)
  - NO — Properly connect the ID unit terminal to the contact Assy.
- YES — Replace Image Drum Unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

⑥ Poor Fusion (lightly touching the toner causes the toner to wipe off or fall off)

- Is standard paper used?

  NO Use standard paper.

- YES Fuser Unit contact properly connected?

  NO Properly connect the fuser unit contact.

- YES Is the fuser unit roller dirty?

  YES Replace the fuser unit.

- NO Is the [Paper Thickness] (Menu 1) properly set?
  Light: 64g/m^2 Regular: 64 to 74 g/m^2 Slightly Heavy: 75 to 90 g/m^2
  Heavy: 91 to 104 g/m^2 Medium Heavy: 105 to 127 g/m^2
  Super Heavy 1: 128 to 187 g/m^2 Super Heavy 2: 188 to 216 g/m^2
  Super Heavy 3: 127 g/m^2 more over

  NO Properly set the [Paper Thickness].

- YES Is there an AC voltage output between CN connector Pin 1 and 3 of the low voltage power unit?

  NO Replace the low voltage power unit.

- YES Heat Roller Thermistor resistance the rated value? (Refer to Figure 7-1)
  (approx. 50MΩ to 590kΩ, at room temperature between 0 to 43ºC)

  NO Replace the fuser unit.

- YES Is the Backup Roller Thermistor resistance the rated value? (Refer to Figure 7-1)
  (approx. 190kΩ to 980kΩ, at room temperature between 0 to 43ºC)

  NO Replace the fuser unit.

- YES Does the fuser temperature match the set temperature?
  Check the fuser temperature on the LCD of the engine Maintenance Mode display.

  NO Replace the fuser unit.

- YES Replace the fuser unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

⑦ Periodicity Abnormal (Refer to Figure 7-2 Ⓔ)

Periodicity	Malfunction Details	Restoration Method
94.2 mm	Image Drum	Replace the image drum cartridge.
63.6 mm	Development Roller	Replace the image drum cartridge.
57.8 mm	Toner Supply Roller	Replace the image drum cartridge.
44.0 mm	Electrification Roller	Replace the image drum cartridge.
113.1 mm	Fuser Roller	Replace the fuser unit.
57.8 mm	Image Transfer Rolle	Replace the belt unit.

Note After replacing the Image Drum Cartridge, Fuser Unit or Belt Unit, reset the counter from the User Maintenance Mode.

⑧ Printing Thinned Out

- Is the LED head lens dirty?
  - YES Clean the LED head lens.
- NO Are all LED head Assy parts properly connected to the relay PCB (S2H PWB) and engine PCB (S2V PWB)?
  - NO Check the cable connection of the LED and the cable connection between the relay PCB and engine PCB, then properly connect the cable between the LED head and engine PCB.
- YES Is the LED head pressing spring properly set?
  - NO Properly set the pressing spring.
- YES Are the protrusions on both sides of the LED head properly in contact with each FG plate spring?
  - NO Correct the bend in the FG plate spring.
- YES Replace the LED head.
  Has the problem been corrected?
  - YES END
- NO Replace the head shield cable.
  Has the problem been corrected?
  - YES END
- NO Check the cable connection, then replace the engine PCB (S2V PWB).
  Has the problem been corrected?
  - YES END
- NO Check the cable connection. Then replace the low voltage power unit.
  Has the problem been corrected?
  - YES END
- YES Is +24V output to the HVOLT connector Pin 16 of the Engine PCB (S2V PWB)?
  - NO Replace the engine PCB.
- YES Check the cable connection, then replace the high voltage power unit or belt unit.
  Has operation been restored?
  - YES END
- NO Is the I/D unit terminal properly connected to the contact Assy? (Refer to Figure 7-3)
  - NO Properly connect the I/D unit terminal to the contact Assy.
- YES Replace Image Drum Unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

⑨ Color Drift

• "Toner Low" is displayed.

YES Replenish toner. Has operation been restored?

YES END

NO Conduct a color drift test in the engine Maintenance Mode.
Method: Enter the Engine Maintenance Mode, and self-diagnostic mode (Level 1).

DIAGNOSTIC MODE
XX.XX.XX

Press [MENU+] key 4 times to display the [REG ADJUST TEST].

REG ADJUST TEST

Press [ENTER] key once to display the [REG ADJUST EXECUTE].

REG ADJUST EXECUTE

Press [ENTER] key to execute automatic correction of color drift (motor starts operating, and color drift correction is executed).

Color drive correction operation does not take effect (motor does not operation), and immediately displays "OK".

YES Error other than color drift occurred. Correct error. Has color drift been corrected and restored for proper color?

YES END

(A)

(A)

- NO [NG CALIBRATION LEFT/RIGHT] display
  - YES Is the color drift sensor cover dirty?
    - YES Cleaning defect of the surface of the sensor cover by the cleaning blade on the rear of the shutter. Replace the shutter and sensor cover then restore the cleaning performance.
  - NO Check the Z71 PCB (Color Drift Sensor PCB) connector, KYN PCB (engine PCB) RSNS, and power connector connection. Has operation been restored after checking connection?
    - YES END
  - NO Replace the Z71 PCB. Has operation been restored?
    - YES END
  - NO Replace the engine PCB. Has operation been restored?
    - YES END
  - NO Replace the Z71 PCB, and Engine PCB connection cable. Has operation been restored?
    - YES END
- NO [DYNAMICRANGE LEFT/RIGHT] display
  - YES Is the color drift sensor cover dirty?
    - YES Cleaning defect of the surface of the sensor cover by the cleaning blade on the rear of the shutter. Replace the shutter and sensor cover then restore the cleaning performance.
  - NO Is the shutter open/close operation abnormal?
    - YES Replace the shutter. Has operation been restored?
      - YES END
    - NO Replace the shutter open/close solenoid. Has operation been restored?
      - YES END
  - NO Replace the belt unit. Has operation been restored?
    - YES END
  - NO Replace the ID unit. Has operation been restored?
    - YES END

(B)

(B)

- [Yellow, Magenta, Cyan Left/Right/Horizontal] display

  - YES Replace the belt unit. Has operation been restored?

    YES END

  - NO Replace the ID unit. Has operation been restored?

    YES END

  - NO Is the gear abnormal? (I/D, Multipurpose Tray, Belt Unit, Belt Motor, etc. gear Assy)

    YES Replace the damaged gear Assy.

  - NO LED head Unit PCB (S2H PWB) connection properly connected?

    NO LED head Unit PCB connection Connect properly.

  - YES Check the cable connection, then replace the LED head Assy. Has operation been restored?

    YES END

  - NO Check the cable connection, Replace the PCB (S2H PWB) connection. Has operation been restored?

    YES END

  - NO Is the Engine PCB (S2V PWB) properly connected to the PCB (S2H PWB)?

    NO Properly connect the engine PCB to the PCB connection.

  - NO Replace the engine PCB. Has operation been restored?

    YES END

  - NO Is the I/D unit terminal properly connected to the contact Assy? (Refer to Figure 7-3)

    NO Properly connect the I/D unit terminal to the contact Assy.

  - YES Replace Image Drum Unit.

Note

1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

⑩ Color Drift from Document

- Is the LED head lens dirty?
  - YES: Clean the LED head lens.
- NO: Is the LED head Assy properly connected to the PCB (S2H PWB) connection?
  - NO: Check the cable connection between the LED Assy and PCB connection, then connect properly.
- YES: Is +5V output to the following HEADPOW connector pin of the PCB (S2H PWB) connection?
  +5V: Pin 1, 2, 3, 4, 5, 6
  - YES: Is +5V output from the PCB (S2H PWB) connection to the LED head?
    YPOW Connector 3 Pin: LED head Assy Yellow
    MPOW Connector 3 Pin: LED head Assy Magenta
    CPOW Connector 3 Pin: LED head Assy Cyan
    KPOW Connector 3 Pin: LED head Assy Black
    - NO: Replace the PCB (S2H PWB) connection.
  - YES: Check the cable connection, then replace the LED head Assy.
- NO: Check the cable connection, then replace the low voltage power unit. Has operation been restored?
  - YES: END.
- NO: Is 24V output to the power connector of the Engine PCB (S2V PWB)?
  24V: Pin 12, 13, 14
  - NO: Check the cable connection, then replace the low voltage power unit.
- YES: Is 24V output to the HVOLT connector Pin 2 of the Engine PCB (S2V PWB)?
  - NO: Replace the engine PCB.
- YES: Check the cable connection, then replace the high voltage power unit or belt unit. Has operation been restored?
  - YES: END.
- NO: Is the I/D unit terminal properly connected to the contact Assy? (Refer to Figure 7-3)
  - NO: Properly connect the I/D unit terminal to the contact Assy.
- YES: Replace Image Drum Unit.

Note
1. When replacing the Engine PCB (S2V PWB), remove the EEPROM from the old PCB, then mount that EEPROM on the new PCB.
2. If the EEPROM is not going to be replaced, refer to Section 5.2.2.

⑪ Stripe in Horizontal Print Direction (Figure 7-2 Ⓖ)

- Are all LED head Assy parts properly connected to the relay PCB (S2H PWB) and engine PCB (S2V PWB)?

  NO Check the cable connection of the LED and the cable connection between the relay PCB and engine PCB, then properly connect the cable between the LED head and engine PCB.

- YES Is the LED head pressing spring properly set?

  NO Properly set the pressing spring.

- YES Are the protrusions on both sides of the LED head properly in contact with each FG plate spring?

  NO Correct the bend in the FG plate spring.

- YES Replace the LED head.
  Has the problem been corrected?

  YES END

- NO Replace the head shield cable.
  Has the problem been corrected?

  YES END

- NO Check the cable connection, then replace the engine PCB (S2V PWB).
  Has the problem been corrected?

  YES END

- YES Remount or replace the belt unit.
  Has the problem been corrected?

  YES END

- NO Is the I/D unit terminal properly connected to the contact Assy? (See Figure 7-3)

  NO Properly connect the I/D unit terminal to the contact Assy.

- YES Replace the image drum unit.
  Has the problem been corrected?

  YES END

- NO Return to factory (investigate source of noise in the machine).

⑫ Paper Thickness Error (Err Code 323, 324)

- Is the sensor connector disconnected?
  - NO Connect the connector.
- YES Is any sensor cable wire disconnected?
  - NO Replace the cable.
- YES Is +5V output to the PU PCB REG 13 pin?
  - NO Replace PU PCB.
- YES Is the GND connected to the 15-pin Reg. of the PU PCB?
  - NO Replace PU PCB.
- YES Is a 5ms ON 10% duty pulse signal output to the 16 pin PU PCB REG? (When Belt Motor is Stopped)
  (Cannot be used in field since it is used for synchronization.)
  - NO Replace PU PCB.
- YES Turn the power back ON, and detect the media thickness. Has the Error disappeared?
  - NO Replace sensor.
- YES END

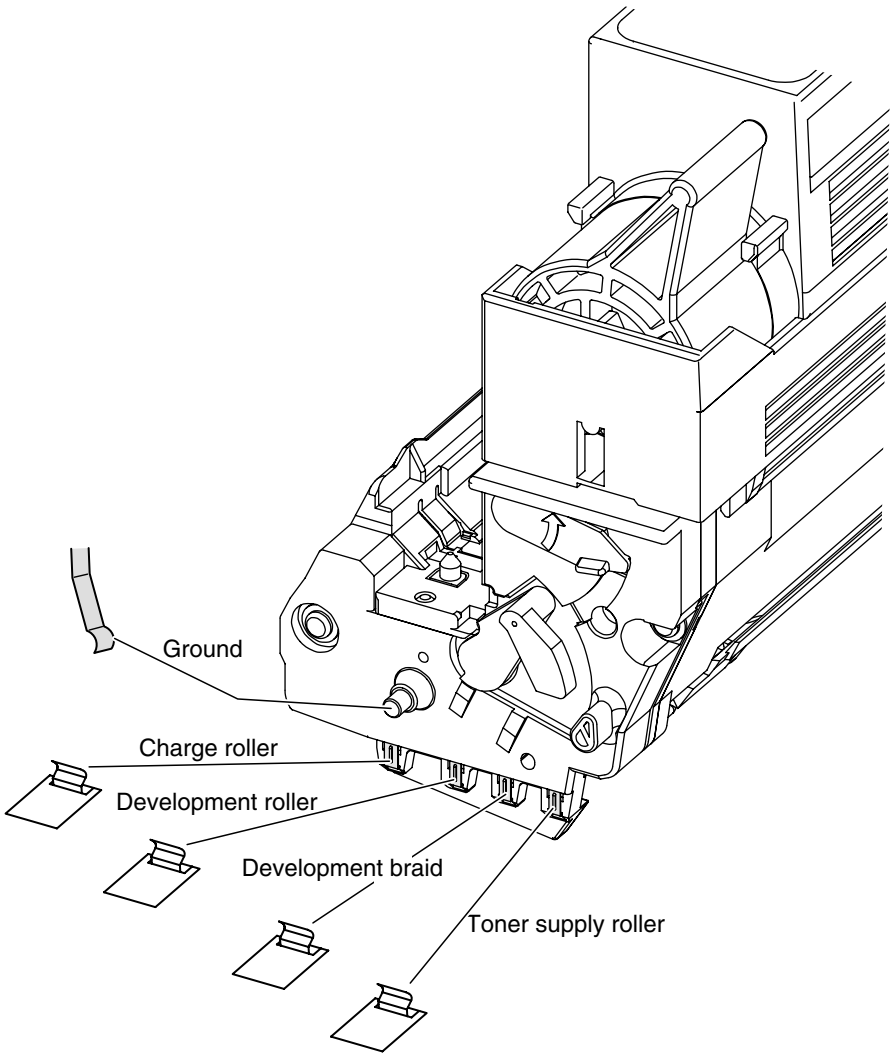


Figure 7-3

7.6 Check Fuse

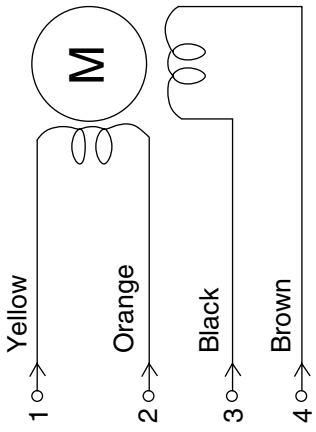
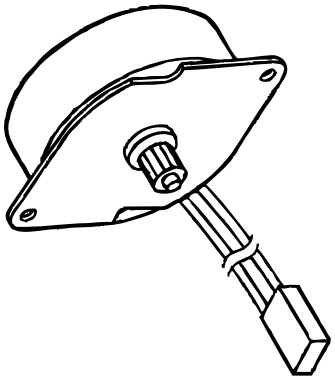
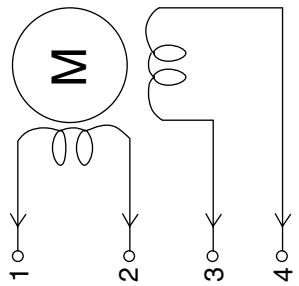
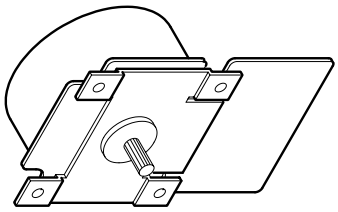
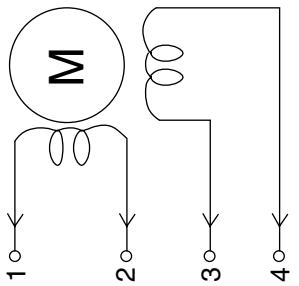
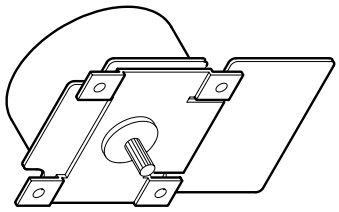
If the following error occurs, check the applicable fuse of the engine control PCB (S2V PWB). (See Table 7-2)

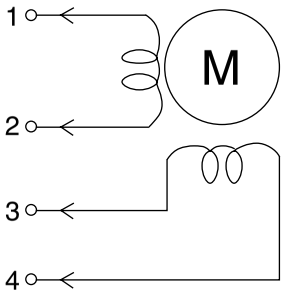
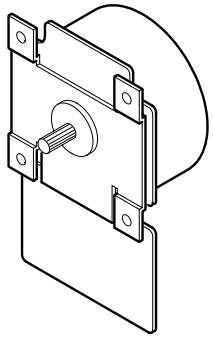
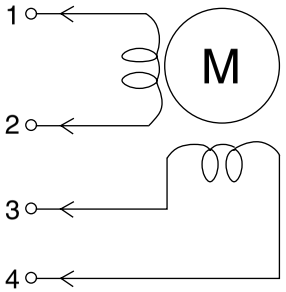
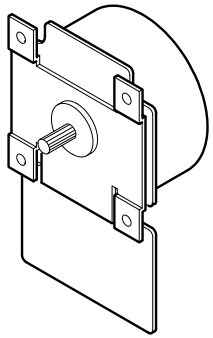
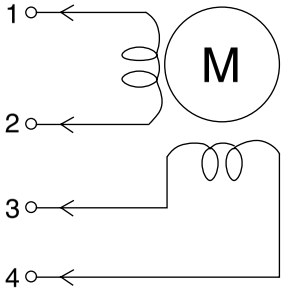
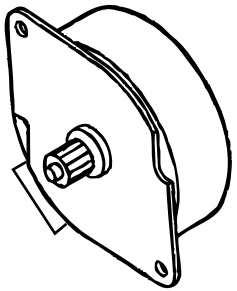
Table 7-2 Fuse Error

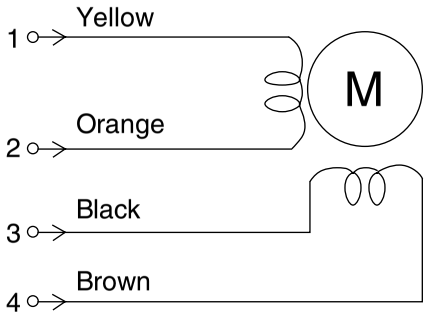
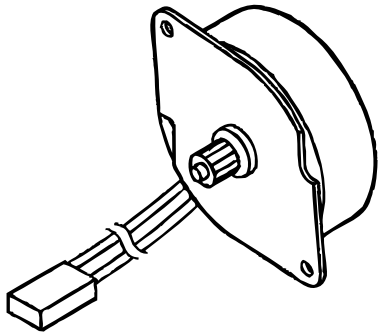
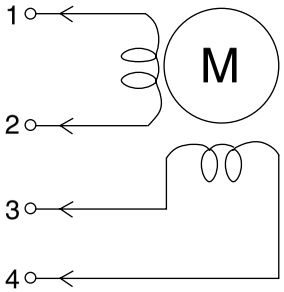
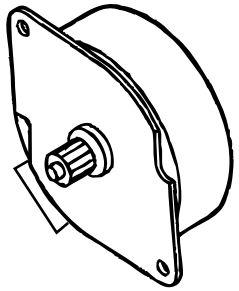
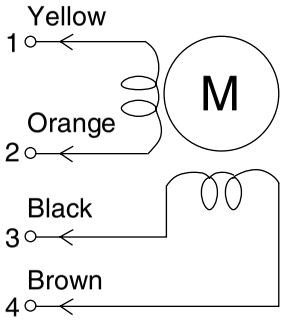
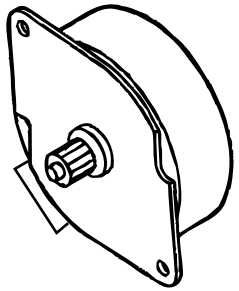
Fuse Name	Error Description	Insert Point
F1	2nd or 3rd or 4th or 5th Try Hopping Error	Option TRY 34V
F2	MID UP/DOWN Error	MID, Hopping Motor Driver
F3	Fuse Cut Error	YID, Fuser Motor Driver, JODEN-Board
F4	Jam	KID, Registration Motor Driver
F5	CID UP/DOWN Error	CID, Belt Motor Driver
F6	POWER OFF	5V Sensor
F7	PU FAN Error/FAN Clutch	Job OFF Motor Driver
F8	Cover Open	Cover Open Switch
F9	Lift Error (TRY 1)	Geared Motor Driver

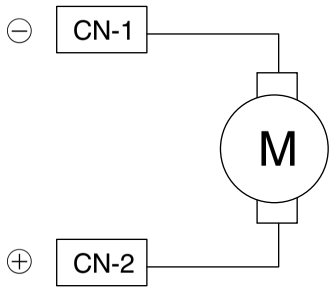
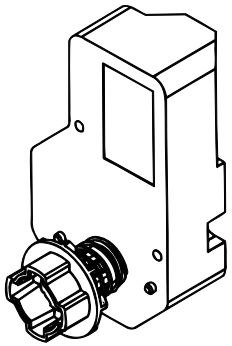
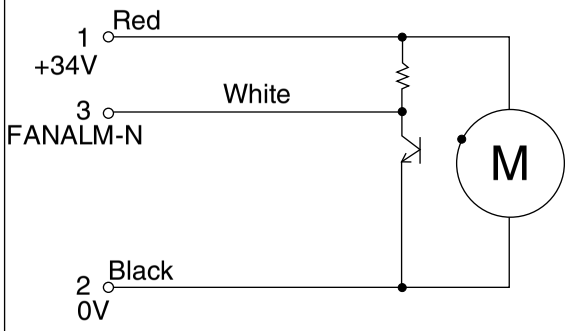
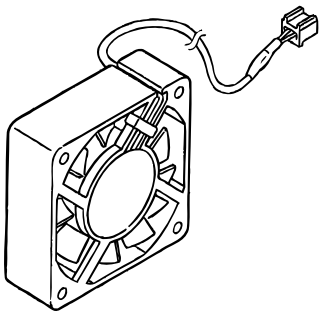
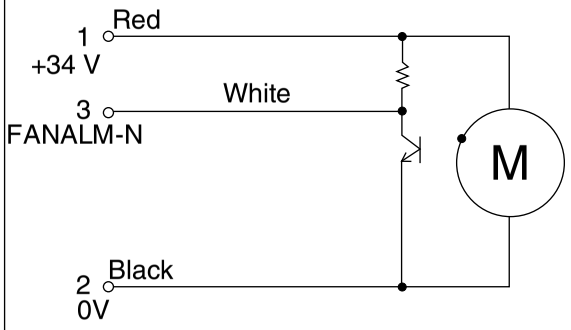
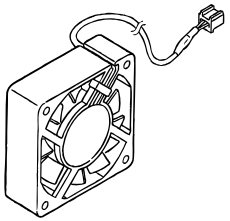
8. CONNECTION DIAGRAM

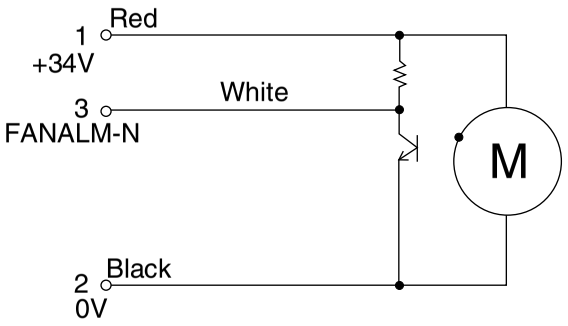
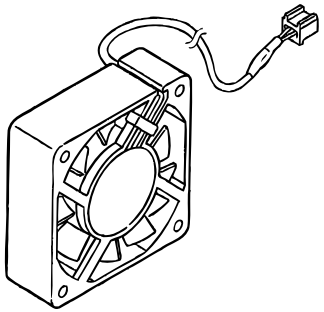
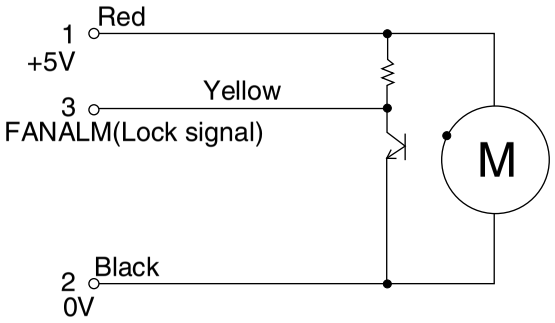
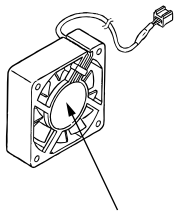
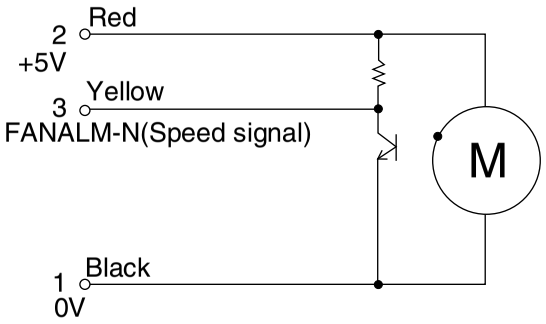
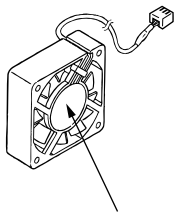
8.1 Check Resistance Value

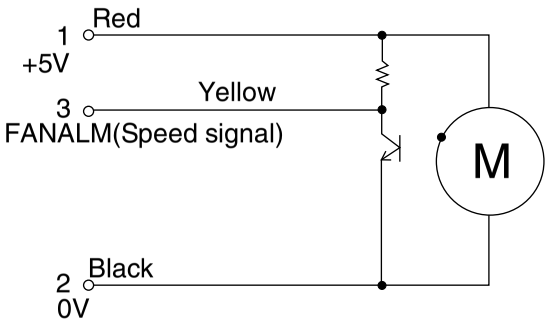
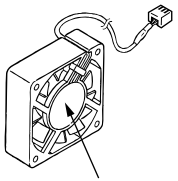
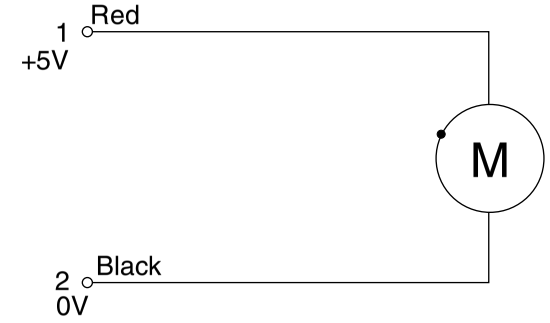
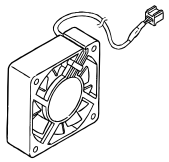
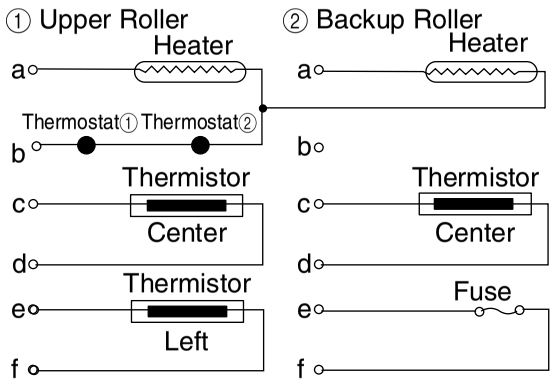
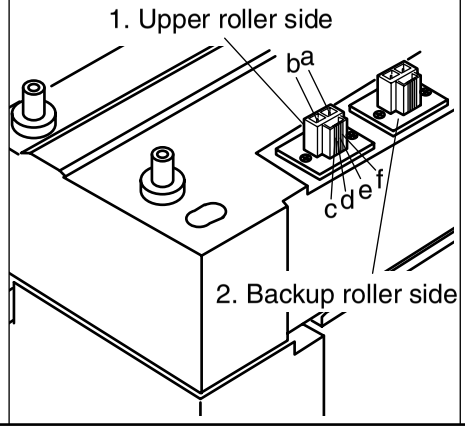
Unit	Circuit Diagram	Parts Diagram	Resistance Value
Conveyance Belt Motor			Between Pin 1 and Pin 2: 7.9Ω Between Pin 1 and Pin 4: 7.9Ω Between Pin 3 and Pin 4: 7.9Ω
Main Motor (Y)			Between Pin 1 and Pin 2: 2.4Ω Between Pin 1 and Pin 3: 2.4Ω Between Pin 3 and Pin 4: 2.4Ω
Main Motor (M)			Between Pin 1 and Pin 2: 2.4Ω Between Pin 1 and Pin 3: 2.4Ω Between Pin 3 and Pin 4: 2.4Ω

Unit	Circuit Diagram	Parts Diagram	Resistance Value
Main Motor (C)			Between Pin 1 and Pin 2: 2.4Ω Between Pin 3 and Pin 4: 2.4Ω
Main Motor (K)			Between Pin 1 and Pin 2: 2.4Ω Between Pin 3 and Pin 4: 2.4Ω
MT Resist Motor			Between Pin 1 and Pin 2: 7.9Ω Between Pin 3 and Pin 4: 7.9Ω

Unit	Circuit diagram	Parts Diagram	Resistance Value
Fuser Motor			Between Pin 1 and Pin 2: 7.9Ω Between Pin 3 and Pin 4: 7.9Ω
Paper Supply Motor			Between Pin 1 and Pin 2: 7.9Ω or 8.4Ω Between Pin 3 and Pin 4: 7.9Ω or 8.4Ω
Offset Motor			Between Pin 1 and Pin 2: 23Ω Between Pin 3 and Pin 4: 23Ω

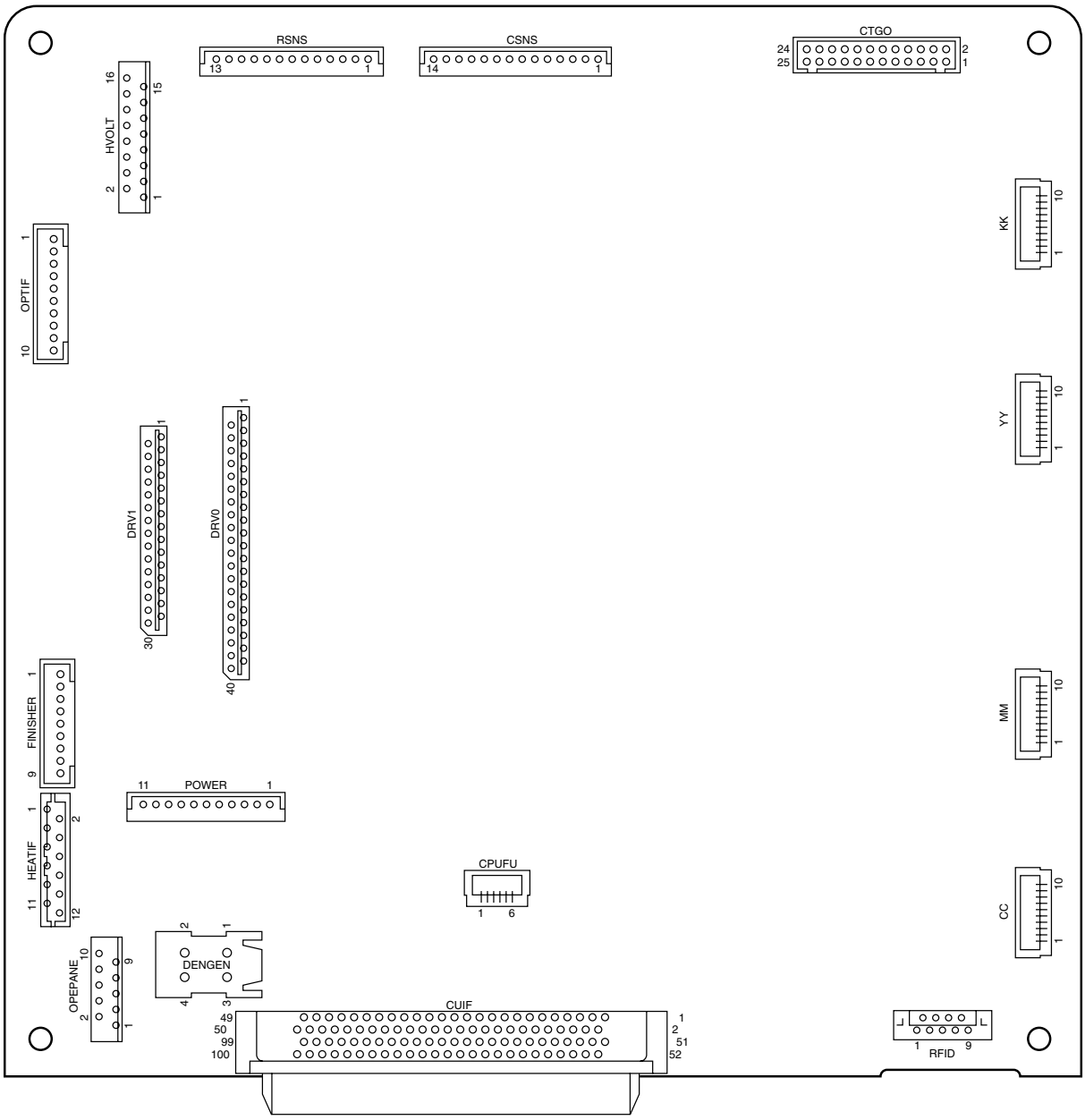
Unit	Circuit Diagram	Parts Diagram	Resistance Value
Geared Motor			
Main Cooling Fan (PULL) and Cooling Fan for Controller			
Main Cooling Fan (PUSH) and Cooling Fan for Controller			

Unit	Circuit Diagram	Parts Diagram	Resistance Value
Fuser Exhaust Fan			
CU PCB Fan 1 (600)			
CU PCB Fan 2 (1200)			

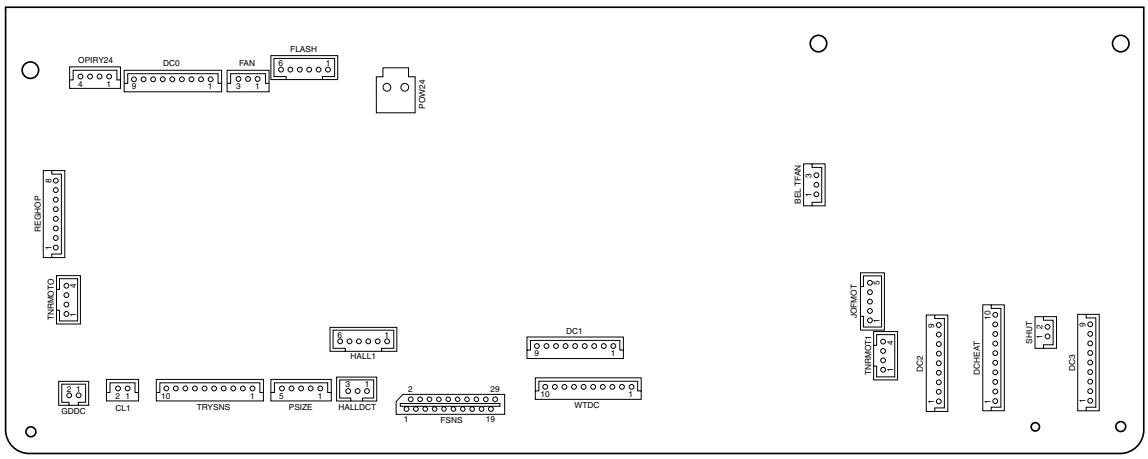
Unit	Circuit Diagram	Parts Diagram	Resistance Value
CU PCB Fan 3 (1200)		 White label	
ID Cooling Fan			
Fuser Unit			1 Between Pin a and Pin b: Between Pin c and Pin d: 231.4kΩ (at 25 °C) Between Pin e and Pin f: 231.4kΩ (at 25 °C) 2 Between Pin a and Pin b: Between Pin c and Pin d: 231.4kΩ (at 25 °C) Between Pin e and Pin f: 0 or open

8.2 Diagram of Part Layout of Various PCB

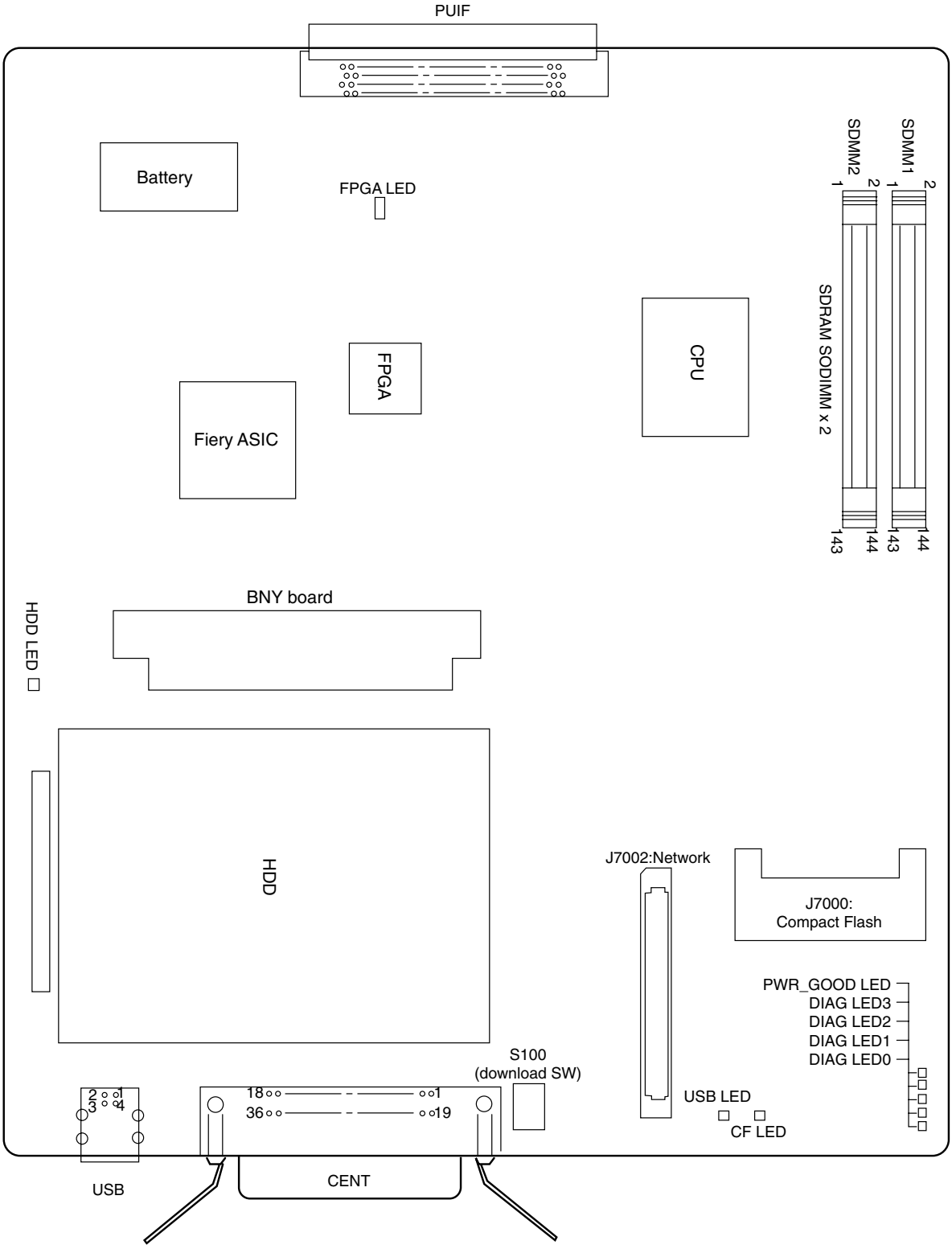
(1)-1 Engine Control PWB (S2V-4 PWB: 1200dpi)



(2) Motor Driver PWB (S2M PWB)

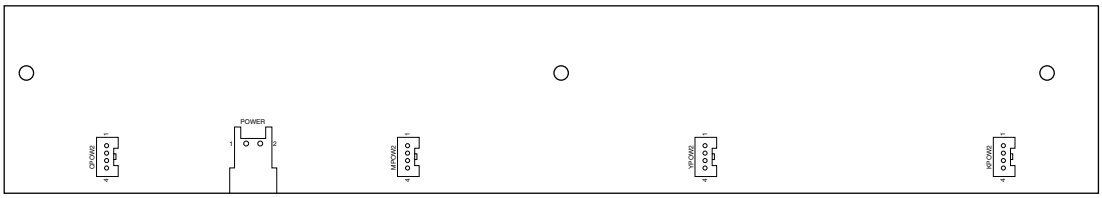


(3)-1 Main Controller PWB : ASP

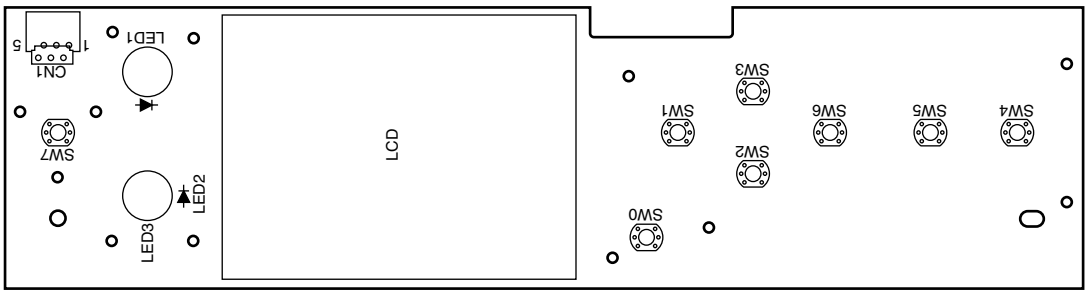


(4) LED Control PWB

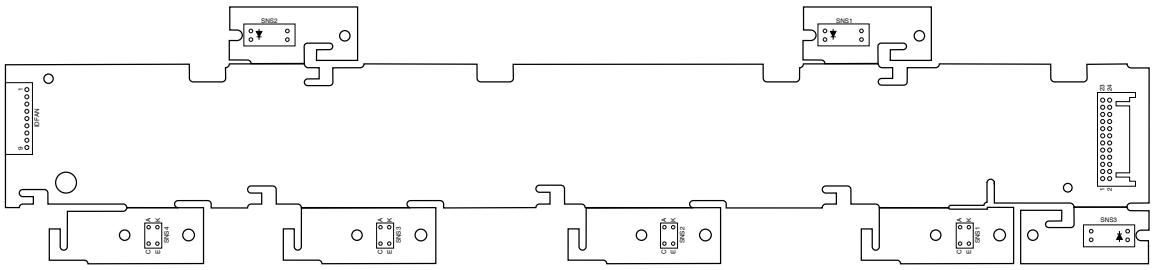
a) (S2H PWB)



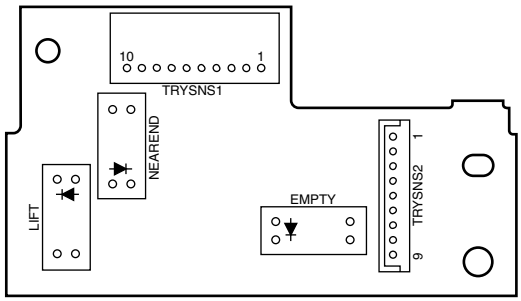
(5) Control Panel PWB (X7G- PWB)



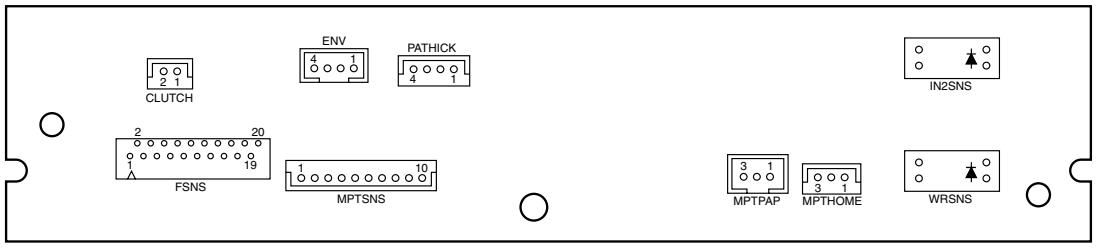
(6) ID System Sensor PWB(SGG-PWB)



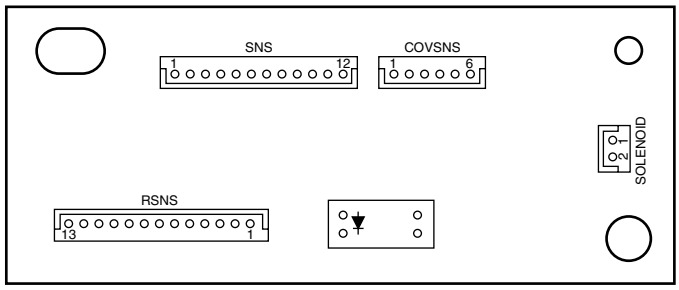
(7) Entrance Sensor PWB (S2C-PWB)



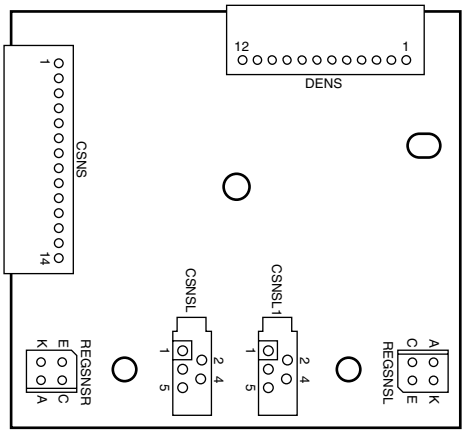
(8) Paper Size Detection PWB (S2S- PWB)



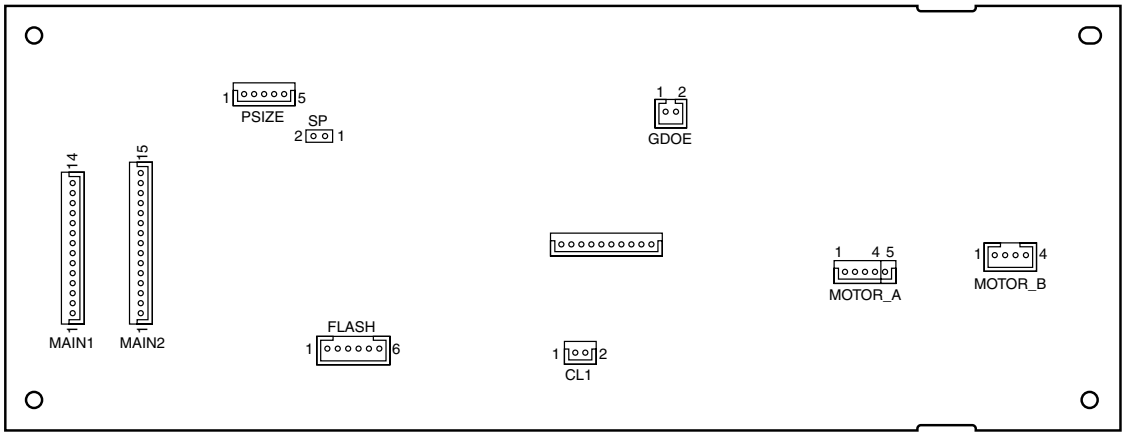
(9) Rear Sensor PWB (S2R- PWB)



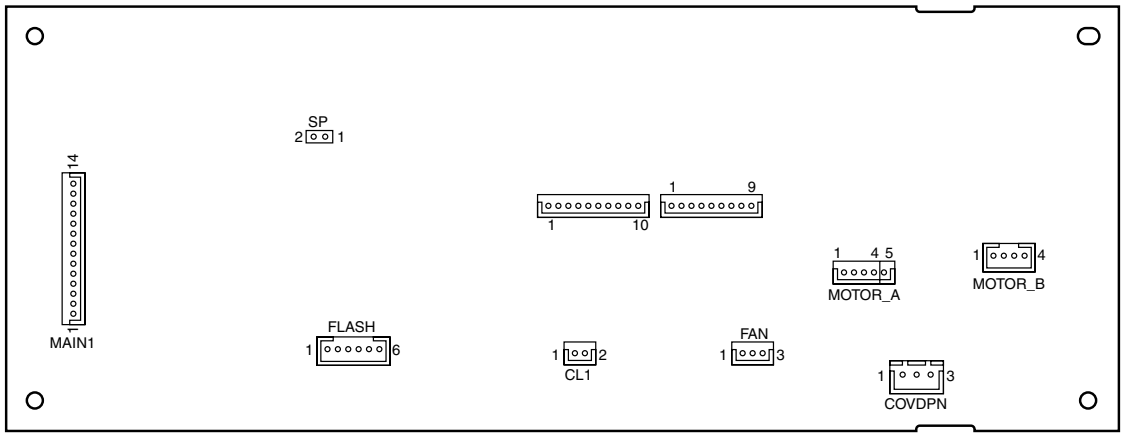
(10) Color Drift Sensor PWB (S2Z- PWB)



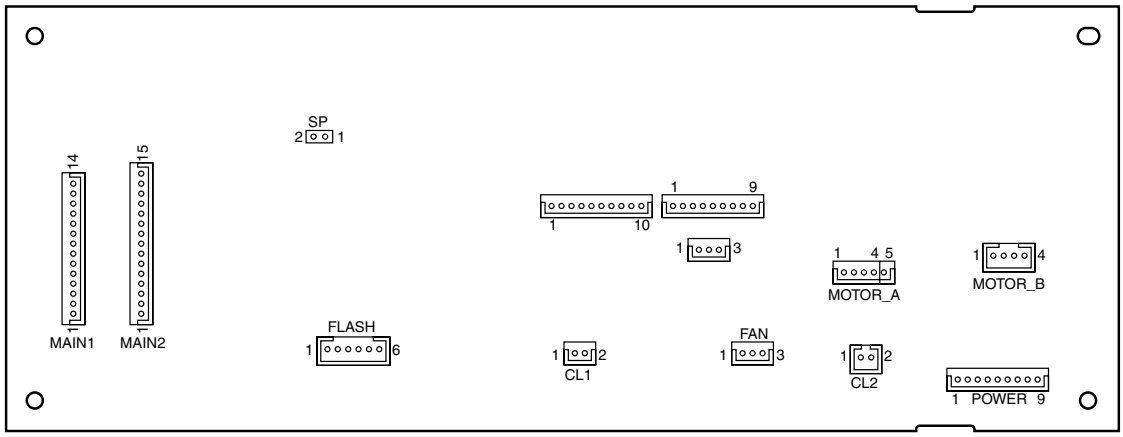
(11) Tray Control PWB (V72-1- PWB)



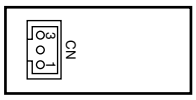
(12) Duplex Control PWB (V72-2- PWB)



(13) Inverter PWB (V72-3- PWB)



(14) Disposal Toner, Gear, Belt Rotation, Disposal Toner Sensor PWB (HAL-PWB)



9. INTERFACE SPECIFICATIONS

9.1 Parallel Interface Specifications

9.1.1 Parallel Interface Overview

Item	Details
Corresponding mode	Comatible mode, nibble mode, ECP mode
Data bit length	Compatible: 8, Nibble: 4, ECP: 9 bit

9.1.2 Parallel Interface Connector and Cable

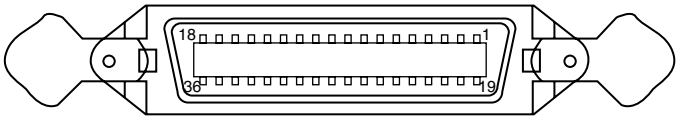
(1) Connector

Printer: 36pConnector (Female)

57LE-40360-12 (D56) (DDK Ltd.) equivalent product

Cable: 36pConnector (Male)

57FE-30360-20N (D8) (DDK Ltd.) equivalent product



Pin arrangement from interface cable side

(2)Cable

Use a cable shorter than 1.8m.

(Use a cable with a shielded twisted-pair wire for to prevent noise interference.)

9.1.3 Parallel Interface Level

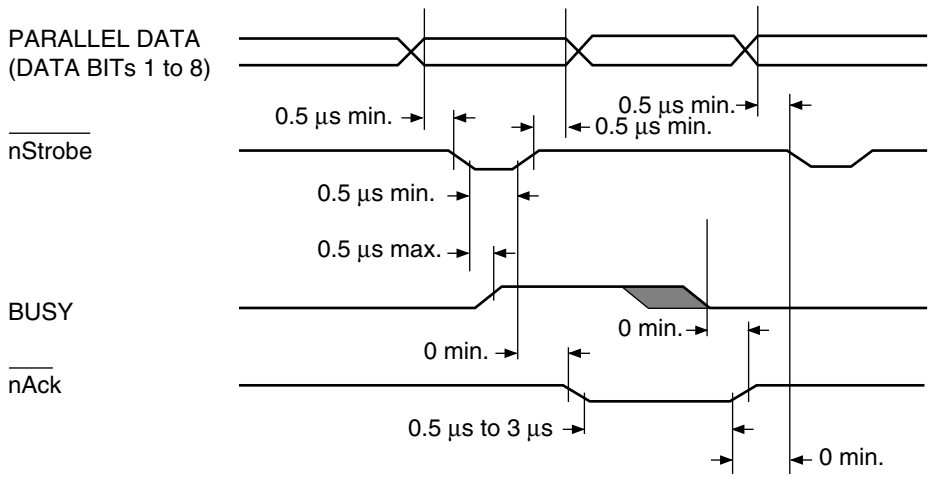
Low Level: 0.0V to +0.8V

High Level: +2.4V to +5.0V

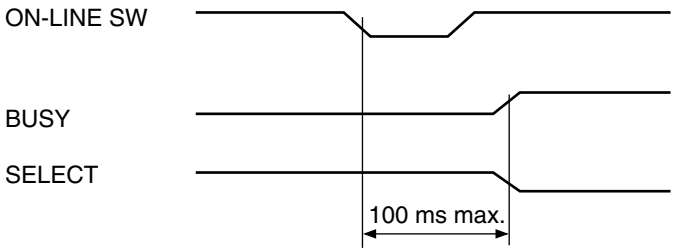
9.1.4 Timing Chart

■ Compatible Mode

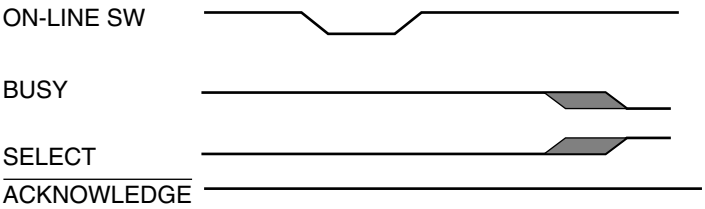
a) Data Reception Timing



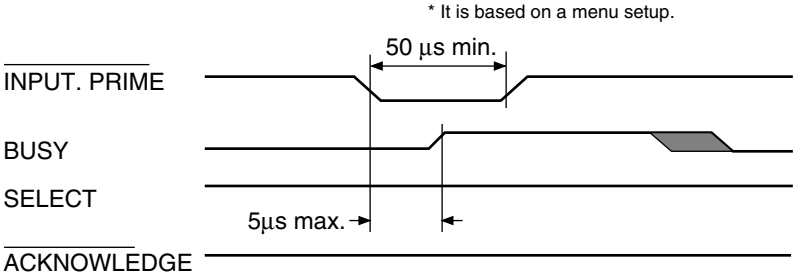
b) Online/Online SW for Offline Switching Timing



c) Offline/Online SW for Online Switching Timing



d) nInit Timing (Default Invalid)



9.1.5 Parallel Interface Signal

The name of the interface signal and pin number is indicated in Table 9-1.

Table 9-1. Signals

Pin No.	Signal Name	Direction	Function
1	nStrobe (HostClk)	TO PRINTER	Pulse to read data. Data is read with the latter wire.
2	DATA 1	TO PRINTER	8bit parallel data. High Level: "1" Low Level: "0"
3	DATA 2		
4	DATA 3		
5	DATA 4		
6	DATA 5		
7	DATA 6		
8	DATA 7		
9	DATA 8		
10	nAck (PtrClk)	FROM PRINTER	Signal indicating completion of incoming data.
11	Busy (PtrBusy)	FROM PRINTER	Indicates whether the printer state can accept data or not. Data cannot be accepted during High Level.
12	PError (AckDataReq)	FROM PRINTER	Paper error takes place during High Level.
13	Select (Xflag)	FROM PRINTER	Always High Level when the parallel interface is active.
14	nAutoFd (HostBusy)	TO PRINTER	Used for two-way communications.
15	Unused	—	Unconnected
16	GND	—	Ground for signal.
17	FG	—	Ground for chassis.
18	+5V	FROM PRINTER	Provides +5V. Cannot supply power to an external device.
19 to 30	GND	—	Ground for signal.
31	nInit (nInit)	TO PRINTER	Printer is initialized during Low Level.
32	nFault (nDataAvail)	FROM PRINTER	When printer is alarming the printer goes to Low Level state.
33	GND	—	The ground for signals
34	Unused	—	Un-connecting.
35	HILEVEL	FROM PRINTER	3.3kW inside printer is pulled up by +5V.
36	nSelectIn (IEEE1284 active)	TO PRINTER	Used for two-way communications. Always in Low Level in the compatible mode.

Note Nibble mode signal names are indicated in the ( ).

Only indicates the Compatible Mode functions.

This printer supports the IEEE 1284-1994 Nibble Mode standardized by the Institute of Electric and Electronic Engineers (IEEE). Note that use of PCs and cables that do not comply with this standard may result in unforeseeable operations.

9.2 USB Interface Specifications

9.2.1 USB Interface Overview

(1) Basic Specifications

USB 2.0 Compliant

(2) Transfer Mode

Full Speed (max. 12Mbps+0.25%)

High Speed (max. 480Mbps+0.05%)

(3) Power Control

Self-Power Device

9.2.2 USB Interface Connector and Cable

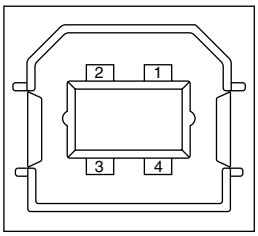
(1) Connector

Printer-Side B Receptacle (Female)

UP Stream Port

UBB-4R-D14T-1 (JST Mfg. Co., Ltd.) equivalent product

Connector Pin Layout



Cable: B Plug (Male)

(2) Cable

Cable Length: <2m USB 2.0 cable recommended.

(Use a cable with shielded wire)

9.2.3 USB Interface Signal

	R1	Function	
1	Vbus	Power Source (+5V)	(Red)
2	D-	Data Transfer	(White)
3	D+	Data Transfer	(Green)
4	GND	Signal GND	(Black)
Shell	Shield		

10. ERROR MESSAGE LIST

Details undecided.

SHARP

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