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OKI

C7000 Series
Color LED Page Printer
MAINTENANCE MANUAL

ODA/OEL/INT

2002-08-09 Rev.8

PREFACE

This manual describes the procedures of the maintenance of the C7000 Series of printers.

The document is produced for maintenance personnel use. For details on the procedures for handling the C7000 Series of printers, see its user documentation.

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. However, errors may be crept into the document. Oki Data 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.
- 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 Oki Data.

CONTENTS

1. CONFIGURATIONS

1.1 System Configuration

Figure 1-1 shows the system configuration of the C7000 Series of printers.

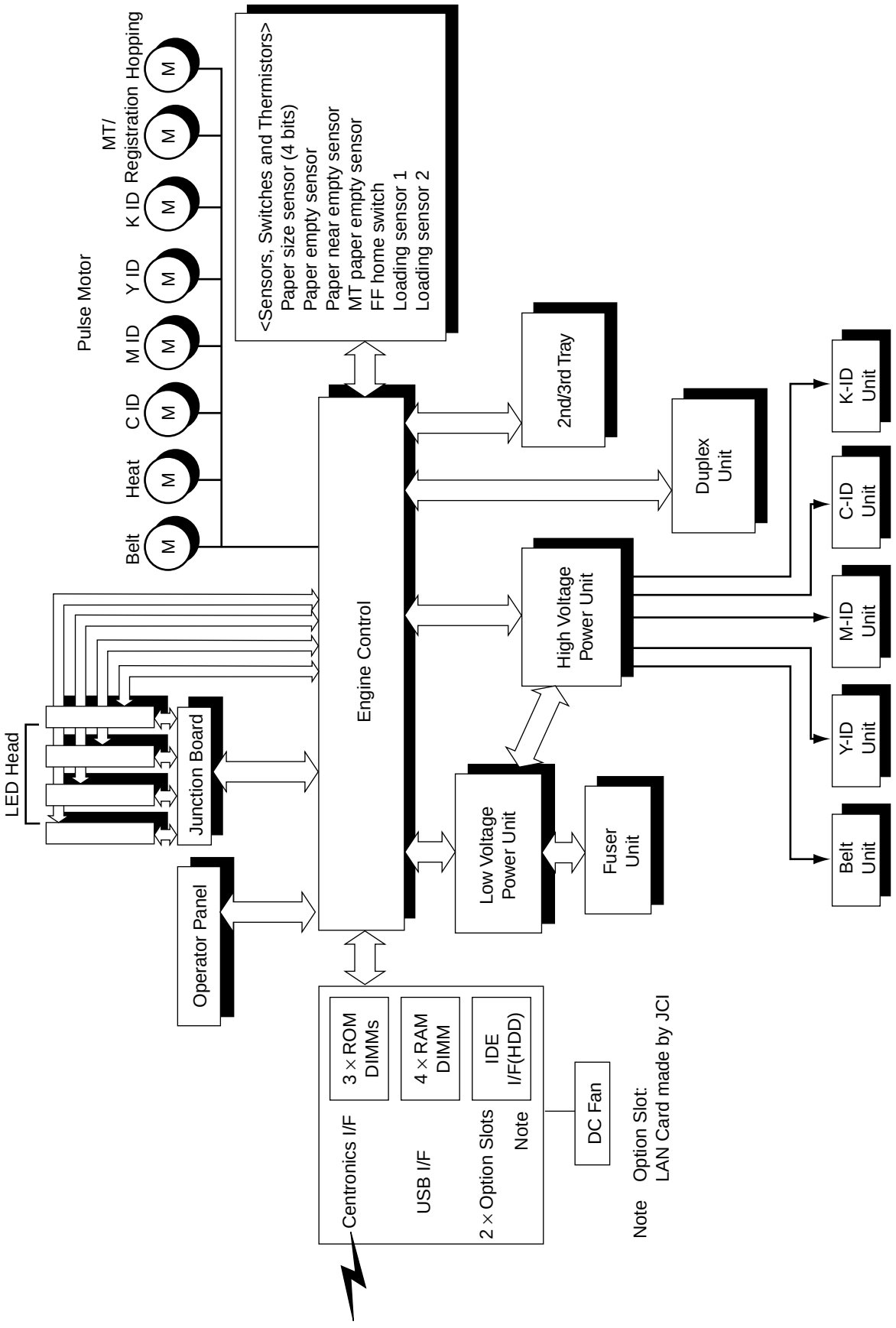


Figure 1-1

1.2 Printer Configuration

The inside of the printers is composed of the followings:

- Electrophotographic Processor
- Paper Paths
- Controller Block (CU and PU)
- Operator Panel
- Power Units (High Voltage Unit and Low Voltage Unit)

Figure 1-2 shows the printer configuration.

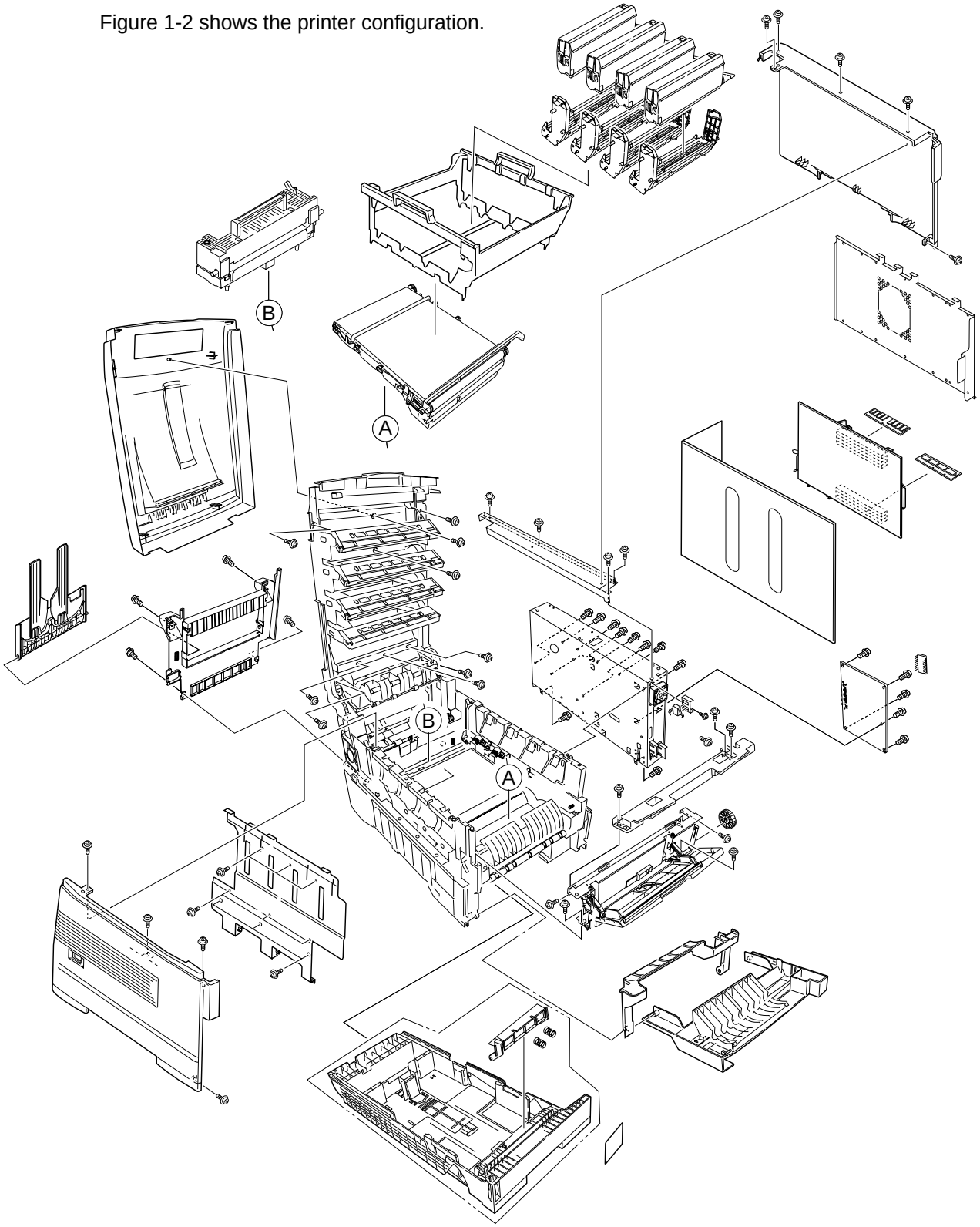
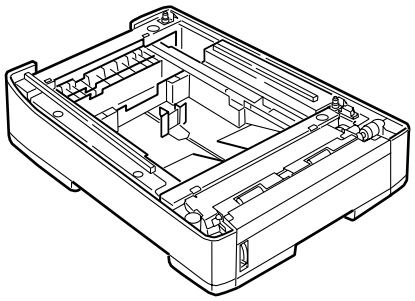


Figure 1-2

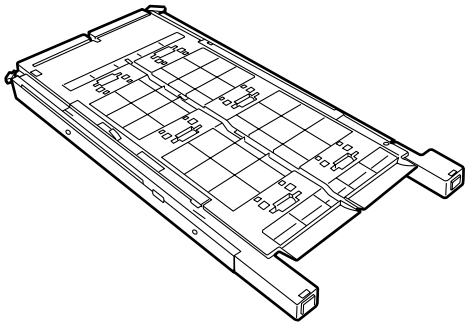
1.3 Option Configuration

The followings are available as options on the C7000 Series of printers.

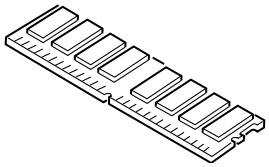
(1) 2nd Tray/ 3rd Tray



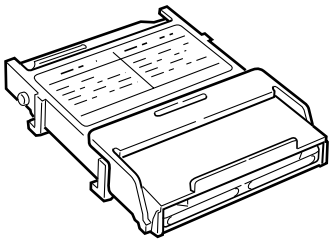
(2) Duplex Unit



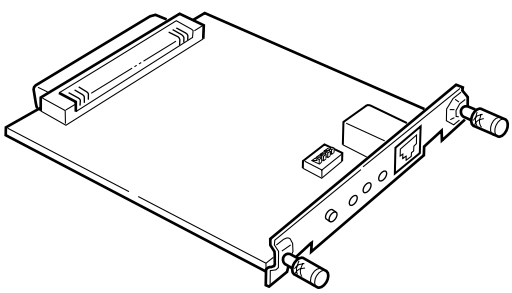
(3) Expansion Memory 64/128/256 MB



(4) Internal Hard Disk



(5) Ethernet Board



1.4 Specifications

(1) External Dimensions	Height: 430mm Width: 430mm Length: 620mm
(2) Weight	42 kg
(3) Papers	Type: Ordinary paper, Transparencies (Recommended: MLOHP01) Size: Postal card, Legal 13" or 14", Executive, A4, A5, B5, A6 (Only the 1st tray and the front feeder support A6 and postal-card sizes.) Weight: 1st tray 55 kg to 90 kg (64 to 105g/m^2) Front feeder 55 kg to 140 kg (64 to 163g/ m^2)
(4) Print Speed	Color: 12 pages per minute (Transparency: 5 pages per minute) Monochrome: 20 pages per minute (Transparency: 12 pages per minute) Postal Card, Label, Thick Paper: 8 pages per minute
(5) Resolution	600 × 600 dots per inch
(6) Power Input	100VAC ±10%
(7) Power Consumption	Peak: 1300W Normal Operation: 400W (5% duty) Idle: 110W Power Saving Mode: 45W or less
(8) Frequency	50Hz or 60Hz ±2%
(9) Noise	Operation: 54 dB (Without second tray) Standby: 45 dB Power Saving: 43 dB
(10) Consumable Life	Toner Cartridge: 5,000 pages (5% duty) (each of Y, M, C and K) Large-Capacity Toner Cartridge: 10,000 pages (5% duty) (each of Y, M, C and K) Image Drum: 30,000 pages (5% duty, Continuous printing) (each of Y, M, C and K)
(11) Parts Replaced Periodically	Fuser Unit Assy: Every 60,000 pages Belt Cassette Assy: Equivalent of 60,000 pages (3 pages/job)

(12) Temperatures and Relative Humidities

Temperature

Temperature Condition

	Temperature (˚F)	Temperature (˚C)	Remark
Operation	50 to 89.6	10 to 32	17 to 27˚C (Temperatures to assure full color print quality)
Non-Operation	32 to 109.4	0 to 43	Power-off
Storage (Max. One Year)	-14 to 109.4	-10 to 43	With drum and toner
Transport (Max. One Month)	-20 to 122	-29 to 50	With drum and without toner
Transport (Max. One Month)	-20 to 122	-29 to 50	With drum and toner

Humidity

Humidity Condition

	Relative Humidity (%)	Max. Wet-Bulb Temperature(˚C)	Remark
Operation	20 to 80	25	50 to 70% (Humidities to assure full color print quality)
Non-Operation	10 to 90	26.8	Power-off
Storage	10 to 90	35	
Transport	10 to 90	40	

(13) Printer Life 600,000 pages (on a A4-size basis) or five years

2. OPERATION DESCRIPTION

The C7000 Series of printers, tandem color electrophotographic page printers, adopt technologies such as an LED array, OPC, dry single-component non-magnetic developing, roller transfer and heat-compression fusing. A black-writing printing method by shedding light on print areas is used.

Figure 2-1 provides the block diagram of the printers.

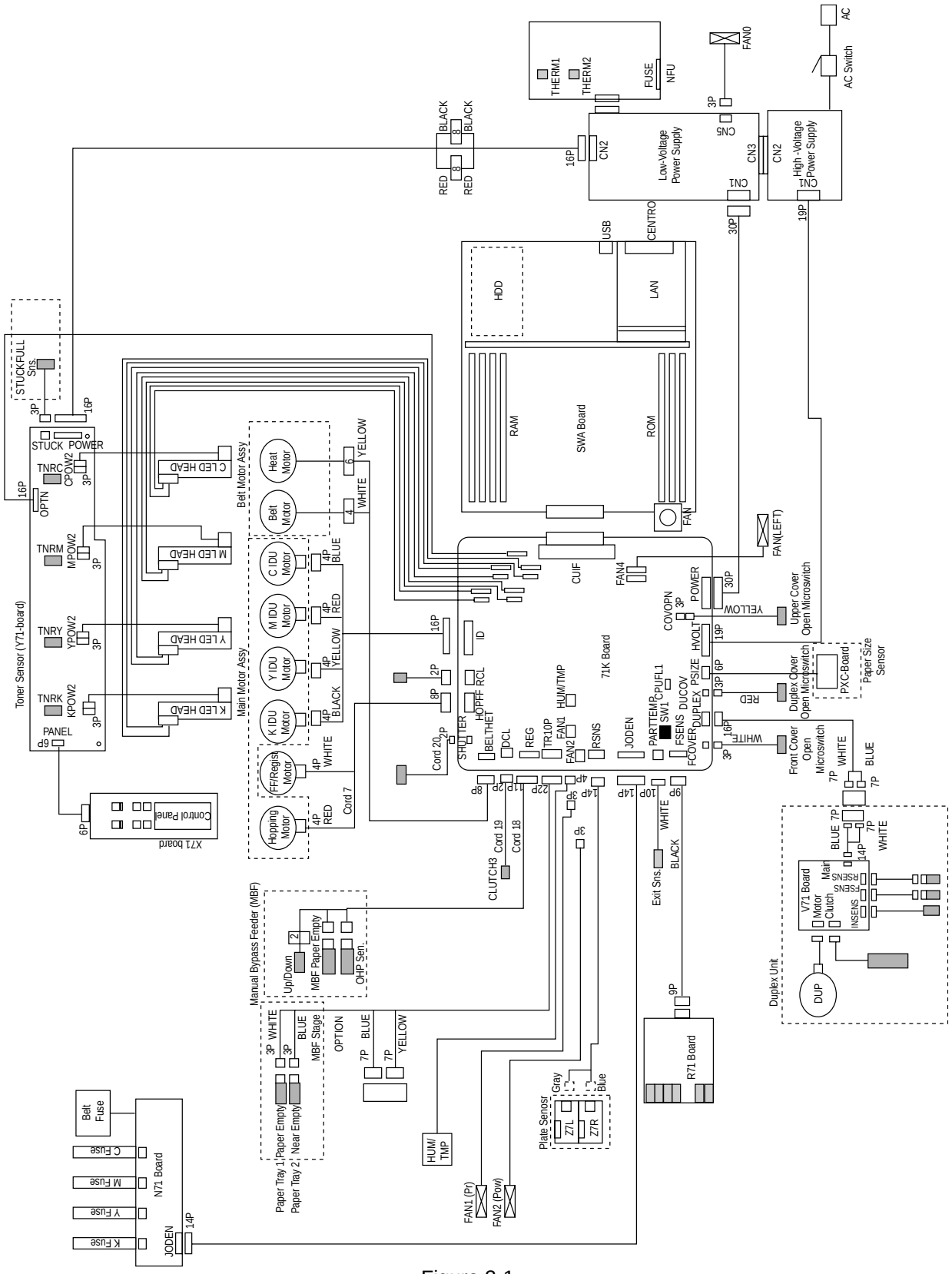


Figure 2-1

2.1 Main Board (SWA PWB)

Figure 2-2 provides the block diagram of the main control board (SWA PWB).

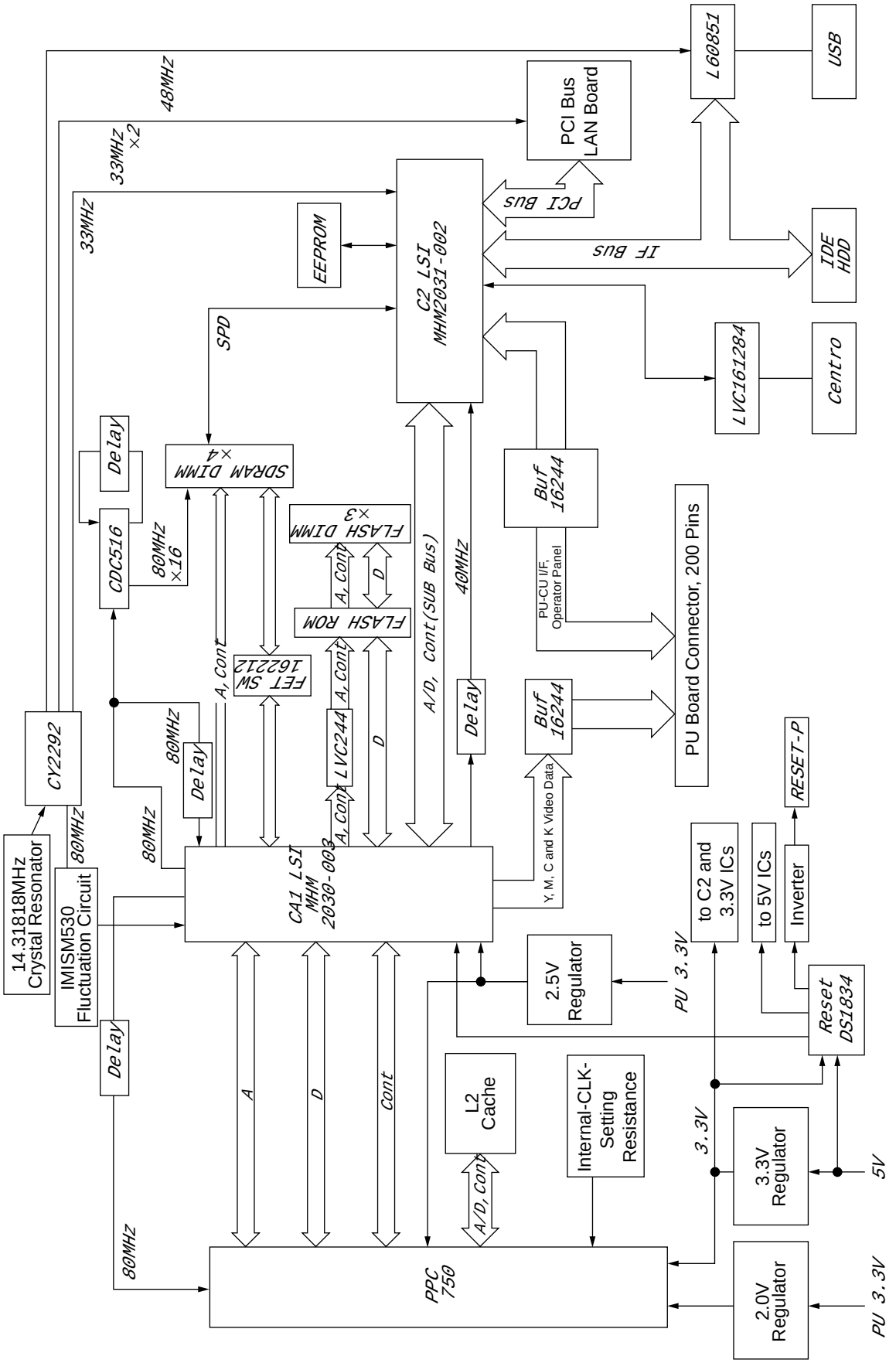


Figure 2-2

(1) CPU

The CPU is PowerPC750, a 64-bit bus RISC processor, which inputs an 80-MHz CLK (= BUS CLK), and operates at 400MHz that is five times the input.

(2) Secondary Cache SRAM

SRAM is included as secondary cache of the CPU on the board.

(3) ROM

ROM is to be inserted into the three 168 pin DIMM slots. The slot A is for program ROM and the slot B is for Japanese kanji fonts. The slot C is not assigned.

(4) RAM

RAM is to be inserted into the four 168 pin DIMM slots. The DIMMs must be fitted in descending labeled type No. order into the slots 1, 3, 2 and 4.

SDRAM DIMM Specifications:

Speed: PC100 or more

Capacity: 64/128/256 MB

Configuration: Without parity. Without ECC. SPD information is required. Number of chips contained = 8 or 16.

(5) EEPROM

EEPROM, an 8-pin DIP package, is to be inserted into the IC socket. The EEPROM is of 16 Kbits for 3.3V power supply, and settings for controlling the controller block are stored in it.

(6) Flash ROM

A 2-Mbyte flash ROM is surface-mounted on the SWA board. The flash ROM is composed of four 256-k-by-16bit chips, and fonts and macros can be stored in it.

(7) Memory Control LSI (CAI)

A 696-pin BGA package ASIC made by NEC. The chip mainly controls a CPU I/F, memory, video data compression and decompression, and a PU-video I/F.

(8) Interface Control LSI (C2)

A BGA package ASIC made by Toshiba, which controls a PU command I/F, operator panel I/F, IDE I/F, Centronics I/F, USB I/F, PCI I/F, EEPROM and a SPD (SDRAM DIMM) I/F.

(9) IDE HDD

An IDE connector is surface-mounted on the board to which an IDE HDD assembled using exclusive molds will be connected. The IDE HDD is used for storing font data, spooling edited video data and registering form data.

(10) PCI Bus Option

Two PCI I/F slots are provided for option board use. The bus, which uses an Oki Data original connector, can accept an Ethernet board.

(11) Host Interface

Standard:	Centronics two-way parallel I/F (IEEE-1284-compliant)
	USB (USB1.1-compliant)
Additional Board:	(connected to PCI BUS)
	Ethernet Board

2.2 Engine Controller Board (K71 PWB)

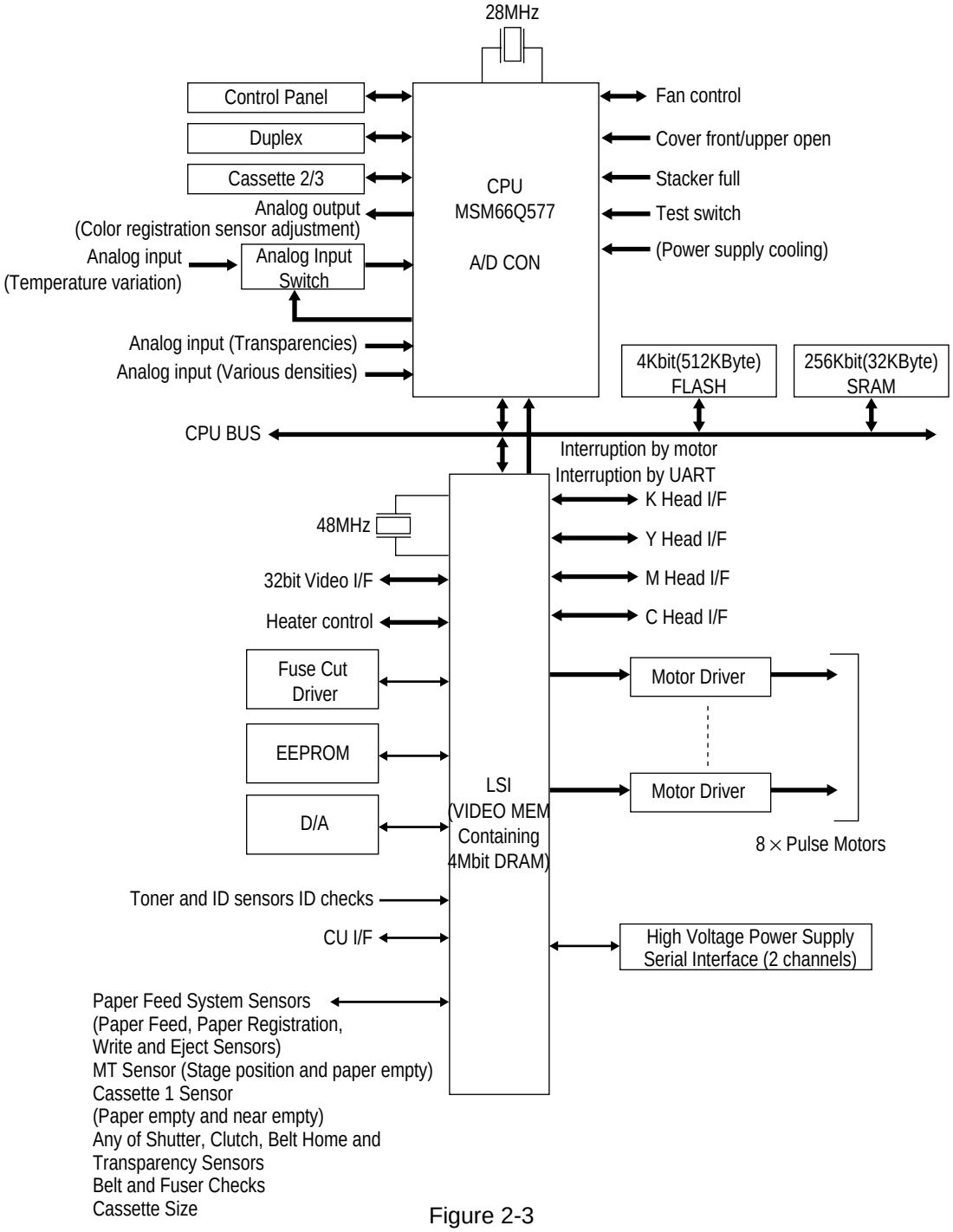


Figure 2-3

The engine control block (PU) is controlled by the engine controller board (K71 PWB) which consists of a CPU (MSM66Q577), general LSI chip, flash ROM, EEPROM, pulse motor drivers and a video memory (see Figure 2-4).

(1) CPU
This, a 16-bit CPU with an AD converter containing 126-Kbyte ROM (OKI MSM66Q577), controls the entire system.

(2) General LSI
This LSI (MG63P011-001LA), which is contained in the printer engine control block, has 4 Mbits of video memory, and functions such as controller-engine video interfacing, LED interfacing, motor control, sensor input, video memory control, main scan color misalignment correction, skew correction and high voltage power supply control.

(3) Flash ROM
The flash ROM (29F400-70) is of 4-Mbits, and PU programs are stored in it.

(4) EEPROM
The EEPROM (NM93C66N-NW) is of 4-Kbits, and mounted on the board with an IC socket. Correction values are stored in it.

(5) Pulse Motor Driver
The pulse motor driver (A2919SLBTR, A2918SWV) drives the eight pulse motors to revolve the EP and transport media.

(6) SRAM
This SRAM (62256LFP-7LL) is used as working memory of the CPU.

2.3 Power Units

There are a low voltage power unit consists of an AC filter circuit, low voltage power circuit and heater driver circuit, and a high voltage power unit organizes a high voltage power circuit.

(1) Low Voltage Power Unit

This circuit generates the following voltages:

Output Voltage	Use for
+3.8V	CU LSI
+3.8V	LED head
+5 V	Logic circuit power supply, PU CPU
+34 V	Motor, drive voltage and power supply voltage for high voltage power supply
+12 V	OP Amp, High voltage power supply

(2) High Voltage Power Unit

This circuit generates the following voltages of not less than +34V, which are required for electrophotographic process, according to control sequences from the controller board.

Output	Voltage	Use for	Remark
CH	-900V to 1.4KV	Voltage to charging roller	
DB	-100 to 400V/ +300V	Voltage to developing roller	
SB	Y, M, C and K: -100V to -700V	Voltage to toner supplying roller	
TR	0KV to 7KV	Voltage to transfer roller	Variable

2.4 Mechanical Processes

Figure 2-4 shows the mechanical processes of the C7000 Series of printers.

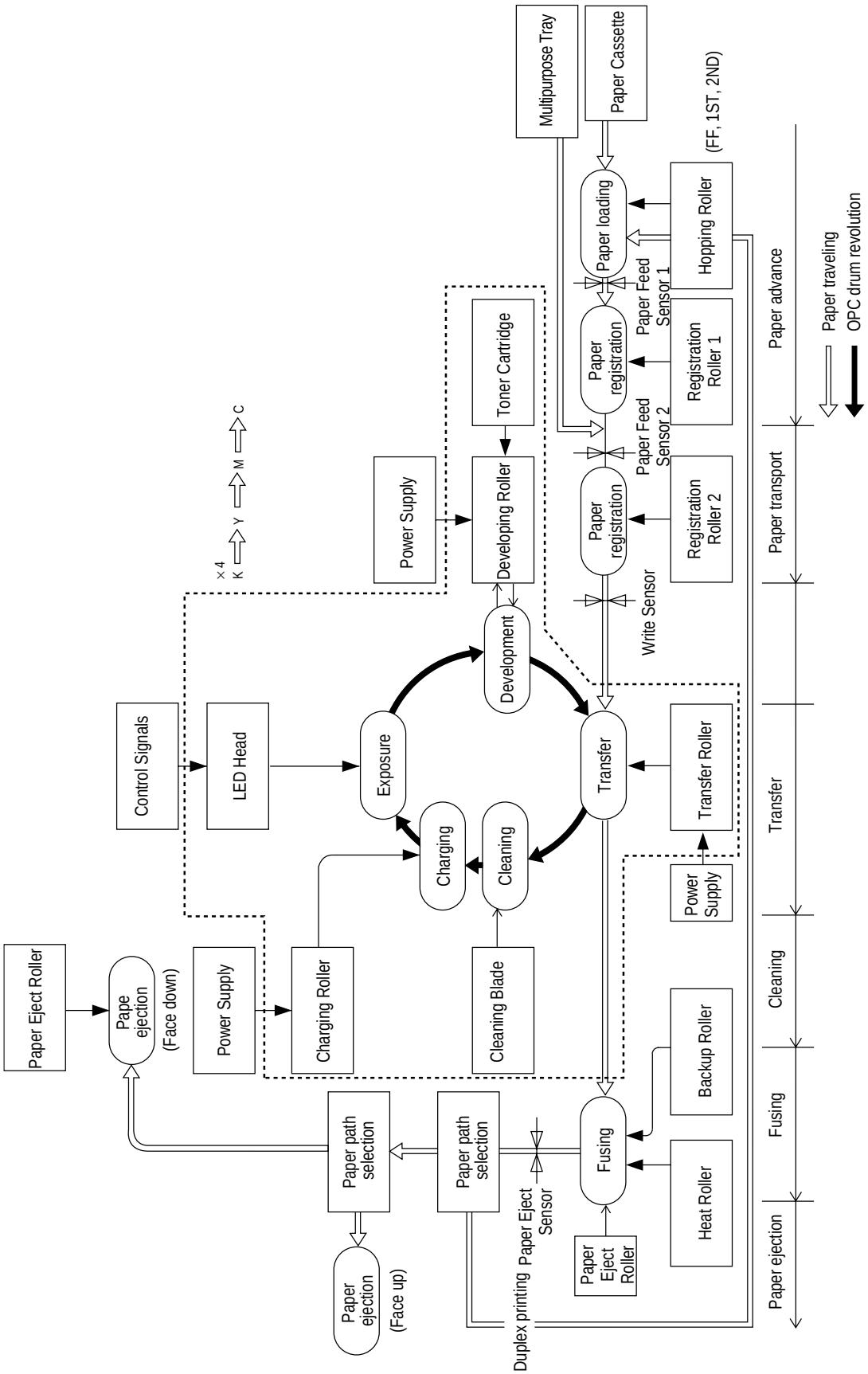


Figure 2-4

2.4.1 Electrophotographic process

(1) Electrophotographic process
The following is the outline of electrophotographic process:

① Charging
DC voltage is applied to the charging roller and the surface of the OPC drum is negatively and evenly charged.

② Exposure
The LED head, under image signals, emits light to the negatively charged surface of the OPC drum. The radiated portions of the drum surface attenuate in negative charge according to the intensity of the light and, based on the surface potentials, a latent electrostatic image is formed on the drum surface.

③ Development
Negatively charged toner contacts the OPC drum and by electrostatic force adheres to the latent electrostatic image to form a clear image on the drum surface.

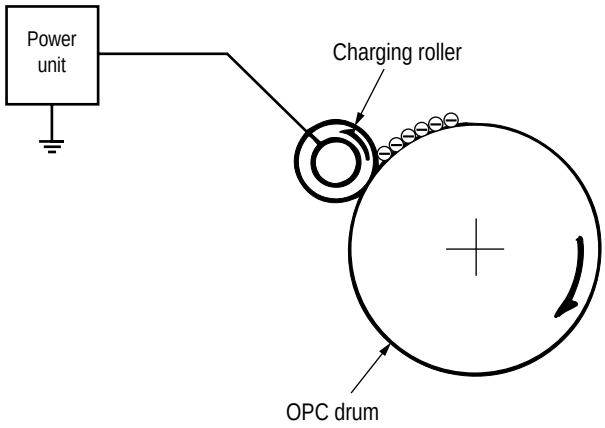
④ Transfer
Placed on the surface of the OPC drum, paper is positively, or opposite to the polarity of the toner, charged by the transfer roller on its back to transfer the toner image to the paper.

⑤ Cleaning
The cleaning blade removes residual toner from the OPC drum after the transfer.

⑥ Fusing
The toner image on the paper is fused into place through the application of heat and pressure to it.

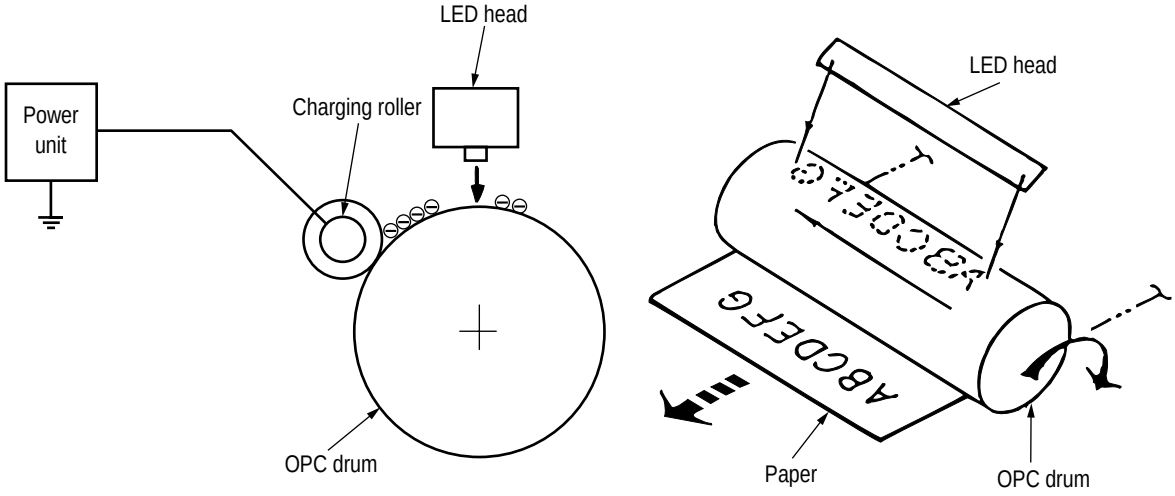
(2) Charging

Negative DC voltage is applied to the charging roller contacting the surface of the OPC drum.



(3) Exposure

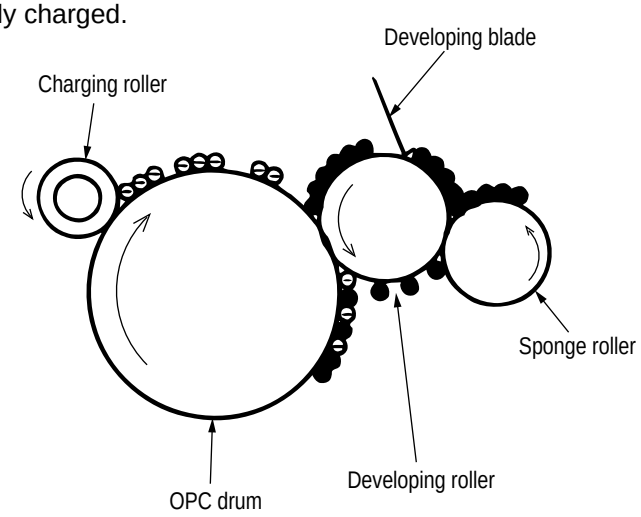
The negatively charged surface of the OPC drum is radiated with light from the LED head. The negative charge of the radiated portions of the drum surface attenuates in response to the intensity of the light and a latent electrostatic image responsive to the potentials of the surface is formed on the drum surface.



(4) Development

By the adhesion of toner to the latent electrostatic image on the drum surface, the image is changed to an image of its toner. The development is processed at the contact portion between the OPC drum and the developing roller.

① The sponge roller causes toner to adhere to the developing roller. The toner becomes negatively charged.

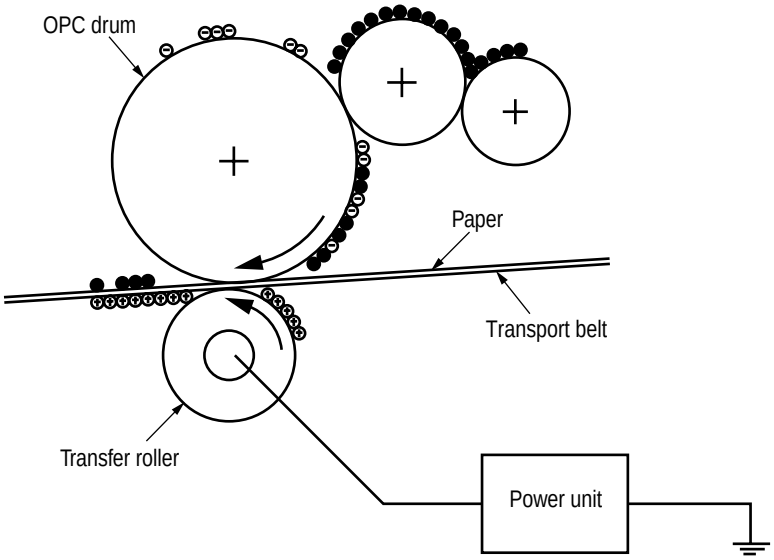


② The developing blade removes excess toner from the developing roller and a thin layer of toner remains and forms on the developing roller.

③ The toner is drawn by the latent electrostatic image at the contact portion between the OPC drum and the developing roller.
The latent electrostatic image on the drum surface is made visible with the toner.

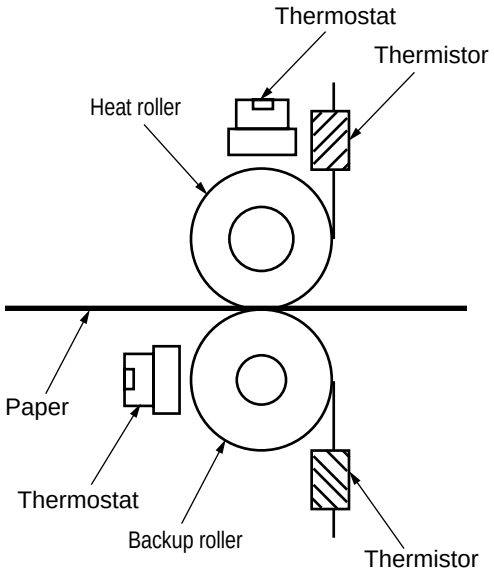
(5) Transfer

The transfer roller, which is made of conductive sponge, presses paper against the surface of the OPC drum and brings the paper into intimate contact with the drum surface.
The paper is placed on the drum surface, and positively (opposite to the charge of the toner) charged by the transfer roller on its back.
Applying positive high voltage from the power supply to the transfer roller moves the positive charge induced by the transfer roller to the paper surface at the contact portion between the transfer roller and the paper, the paper surface drawing the negatively charged toner from the drum surface.



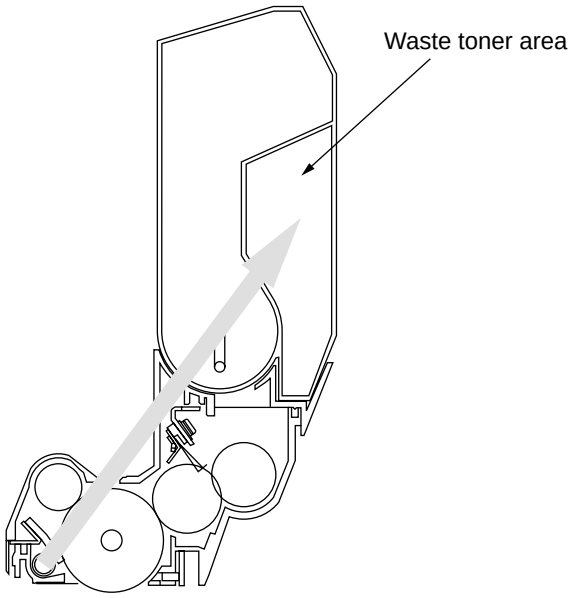
(6) Fusing

When passing through between the heat roller and the backup roller, the toner image transferred to the paper is fused into place by the application of heat and pressure to it.
The built-in upper and lower halogen lamps of 700 watts and 500 watts heat the Teflon coated heat roller. The fusing temperature is controlled by the sum of the temperature detected by the thermistor moving over the heat roller surface and the temperature detected by the thermistor moving over the backup roller surface. For safety, a thermostat is provided and, when the heat roller temperature rises by a fixed degree or more, becomes open to cut off voltage supply to the heater. The backup roller is being pressed against the heater by the pressure springs on both sides.



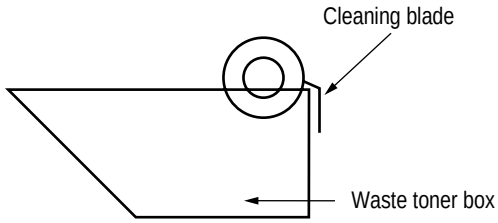
(7) Cleaning

Non-fused, residual toner on the OPC drum is scraped with the cleaning blade and collected in the waste toner area of the toner cartridge.



(8) Cleaning

Residual toner on the transfer belt is scraped with the cleaning blade and collected in the waste toner box of the transfer belt unit.



2.4.2 Paper running process

Figure 2-5 shows the traveling of paper in the C7000 Series of printers.

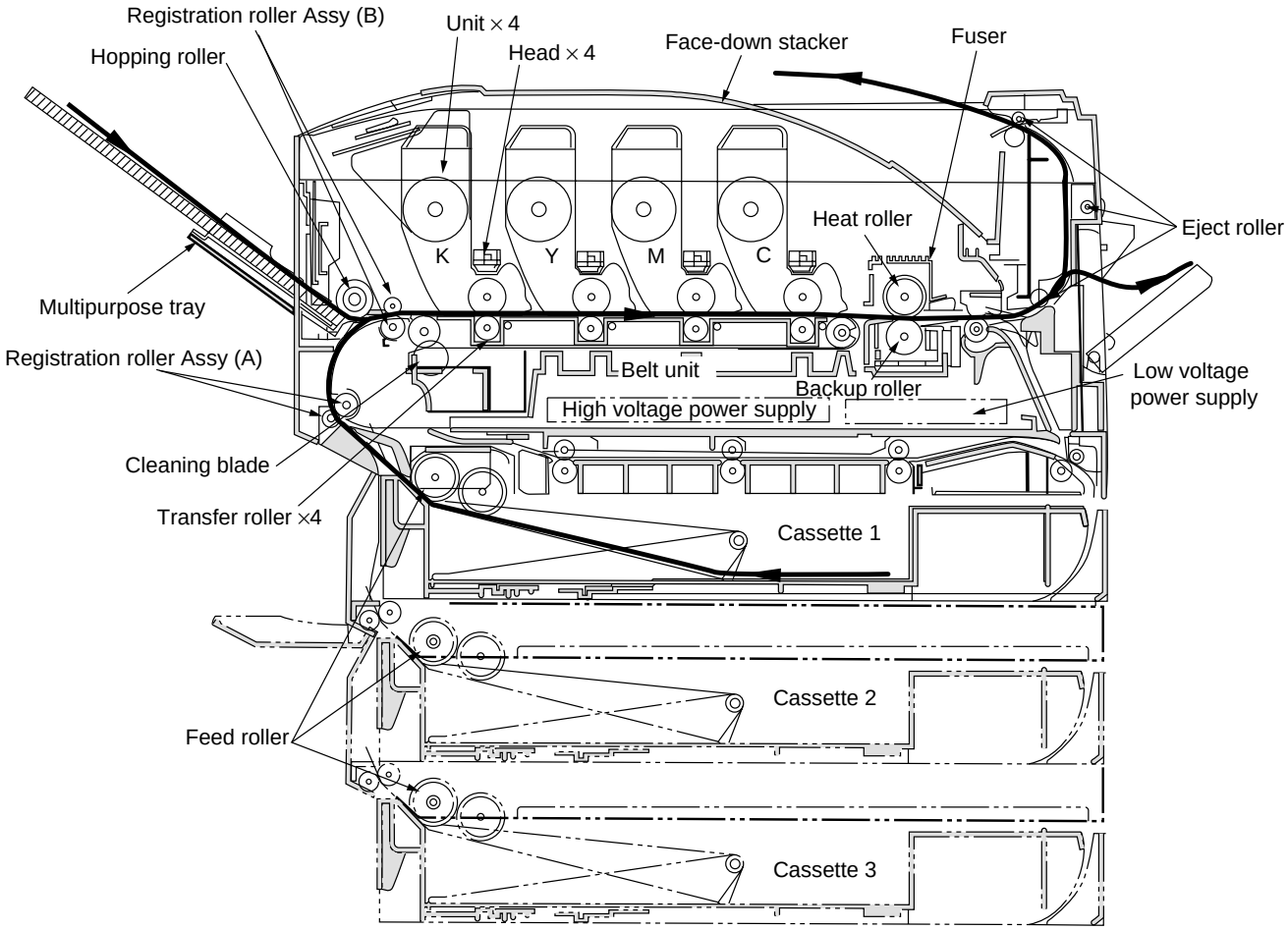


Figure 2-5 Paper Paths

(1) Paper Feed from Tray

1. The running of the feed motor in the arrow direction (a) drives the feed roller and the nudger roller. This operation feeds paper from the tray.

2. After the beginning of the paper turns the entrance cassette sensor on, the paper is advanced a fixed length. When the paper beginning reaches the registration roller Assy (A), the feed motor stops.

3. The running of the registration motor in the arrow direction (b), which synchronizes with the above paper advance operation, drives the registration roller Assy (B) and the electromagnetic clutch. The registration roller Assy (A) moves with the operation of the electromagnetic gear when the paper beginning touches the registration roller Assy (A), where the feed motor does not run. The feed roller idles via the built-in one-way clutch and the nudger roller idles because the planet gear is disengaged.

4. The registration motor transports the paper until the paper end passes through the entrance belt sensor.

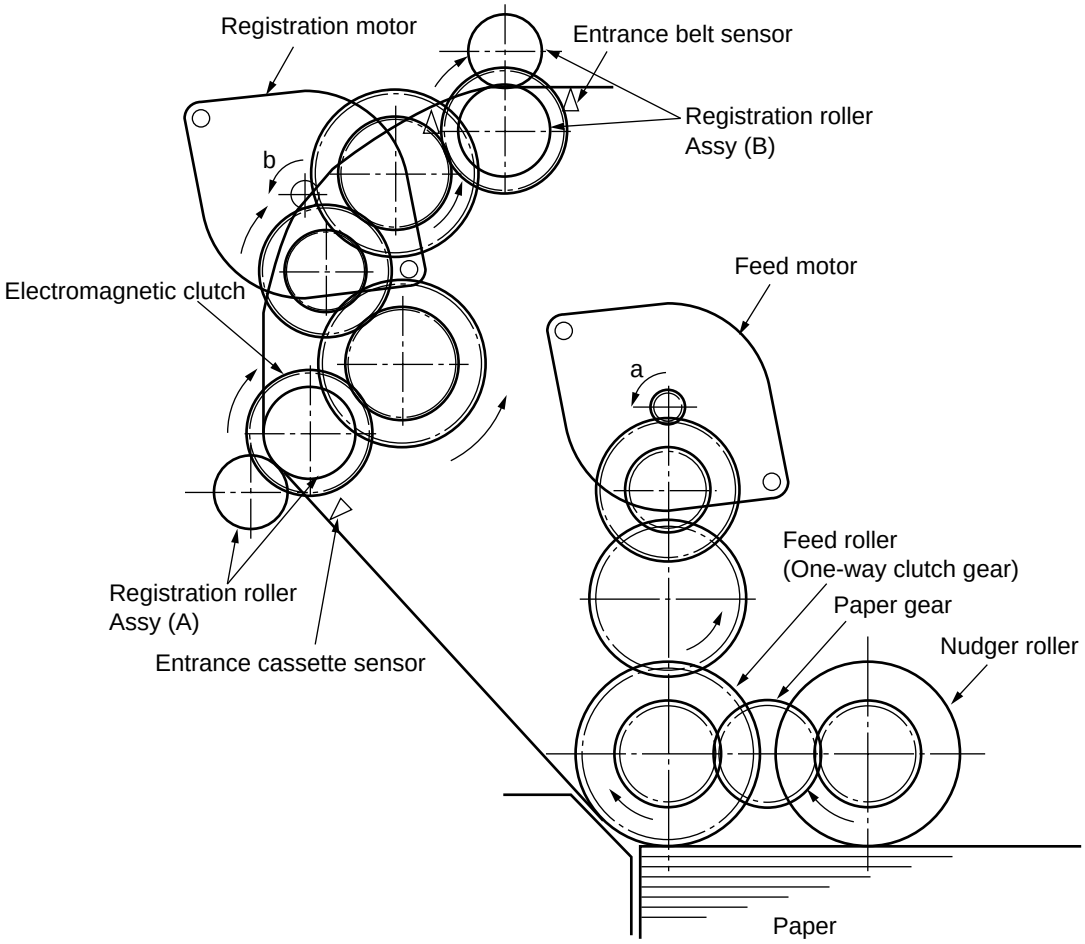


Figure 2-6

(2) Paper Feed from Multipurpose Tray (MT)

1. The release lever usually pushes down the hopping plate to a position that turns microswitch on (Figure 2-7-a).

2. The running of the motor in the (a) direction drives the MT feed roller and turns the cam. The cam pushes the release lever and the hopping plate picks up paper sent out by the MT feed roller (Figure 2-7-b), where the registration roller Assy (B) does not move because its one-way clutch gear (1) idles.

3. After the paper beginning turns the entrance sensor on, the paper is forwarded a fixed length. The paper stops when its beginning reaches the registration roller Assy (B).

4. At the same time, the cam pushes down the hopping plate. The release lever that has been placed in its original position by the spring locks the hopping plate (Figure 2-7-c).

5. After the completion of the paper feed operation, the registration motor runs in the arrow direction (b) to drive the registration roller Assy (B), where the one-way clutch gear (2) does not allow the MT feed roller to move.

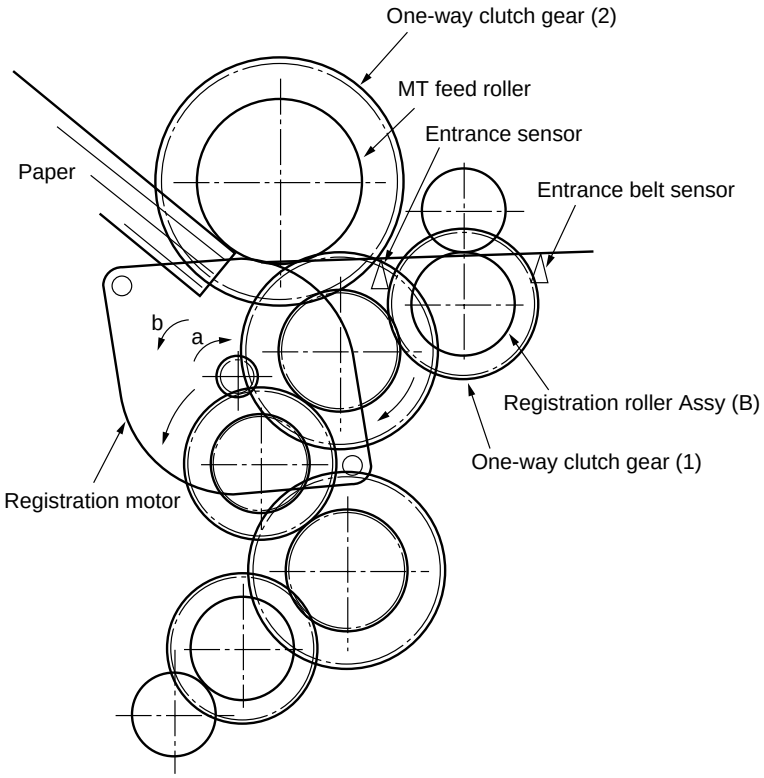


Figure 2-7

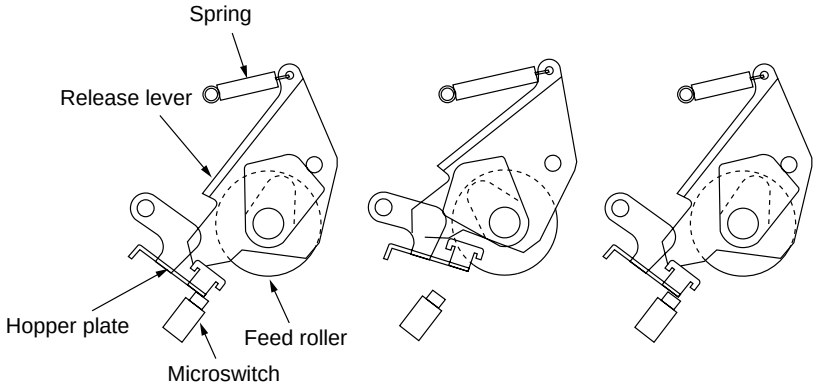


Figure 2-7-a Figure2-7-b Figure 2-7-c

(3) Transport Belt

1. The running of the transport belt motor in the arrow direction (a) drives the transport belt. The belt unit sits with one transport roller immediately below each color's drum, and the transport belt between them. By the application of a fixed voltage, the transport belt and the transport roller feed paper on the transport belt into the fuser unit, transferring a toner image on each color's drum.

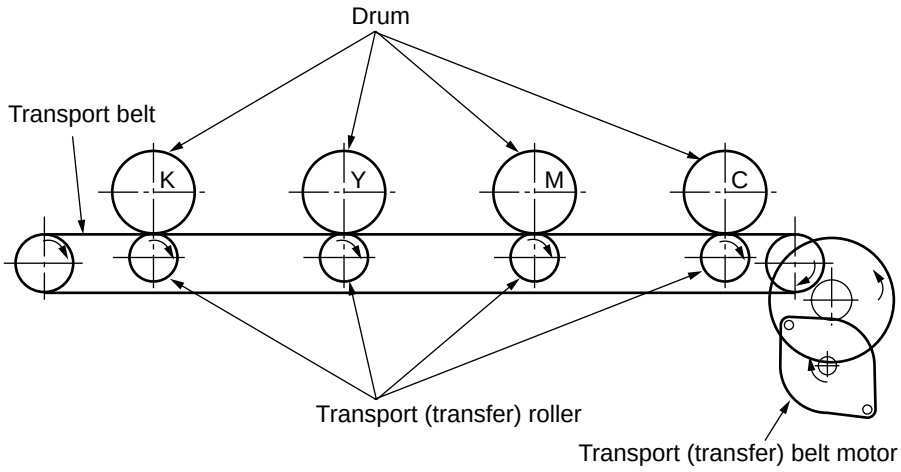


Figure 2-8

(4) Driving and Up-and-Down Movements of I/D Unit

1. The I/D unit driving and up-and-down movements are effected by a single-pulse motor. The running of the main motor in the arrow direction (a) turns the lever 1 to the left. Then, the lever 2 that was lifted by the lever 1 lowers to move down the I/D unit. After the up/down sensor is turned off (Figure 2-9-d), specified downward pulsing places the I/D unit in its lowest position, or equivalently, printing position (Figures 2-9-a and 2-9-c).
   The drum gear engages with the driving gear and starts revolving to transfer an image on the drum to running paper, where the one-way gear idles upon placement of the lever in its lowest position.

2. With the running of the main motor in the arrow direction (b), the lever 1 pushes up the I/D unit via the lever 2. After the up/down sensor is activated (Figure 2-9-d), the lever 1 lifts the I/D unit to a specified level and stops to keep space to an extent between the drum and the transport belt (Figures 2-9-c and 2-9-e).
   The drum gear is not engaged with the driving gear and does not revolve.

3. When the two pins of the up/down sensor are pushed up by the I/D unit, and touches and electrically connected to the plate above the pins, the sensor recognizes the on state. When the two pins are pushed down by the I/D unit, and separated and insulated from the plate, the sensor recognizes the off state.
   The installation of the I/D unit can also be verified by recognizing the off state of the up/down sensor.

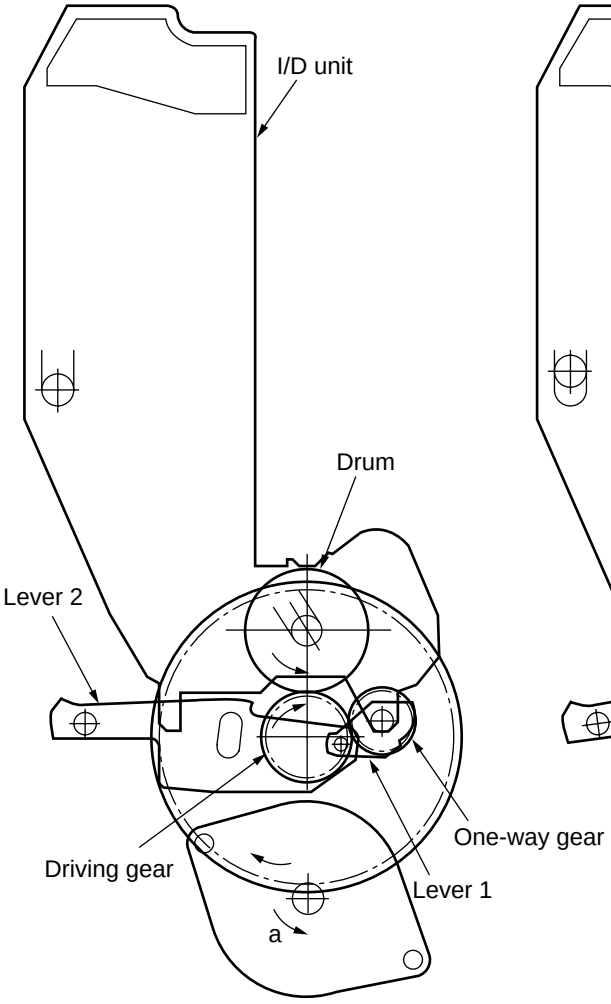


Figure 2-9-a

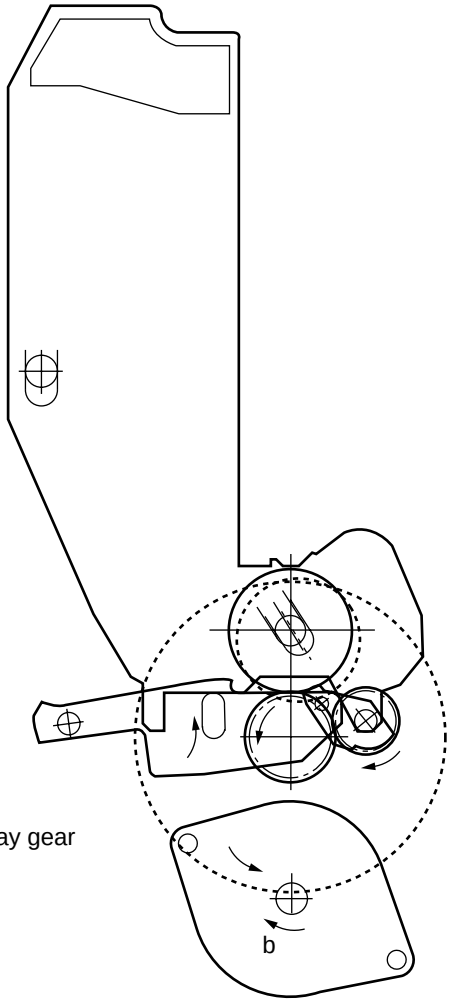


Figure 2-9-b

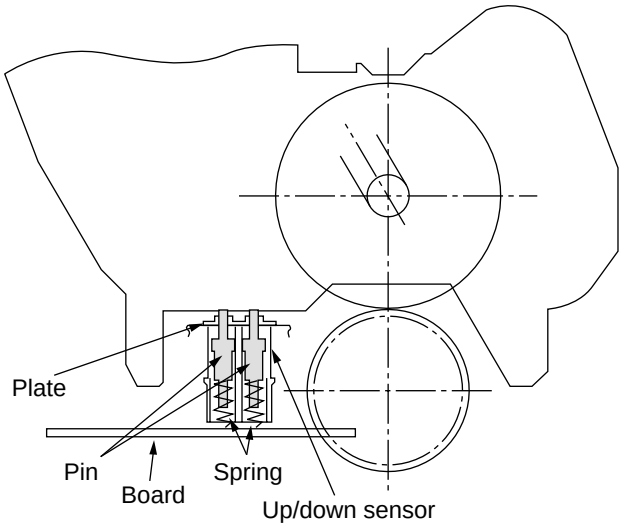


Figure 2-9-c

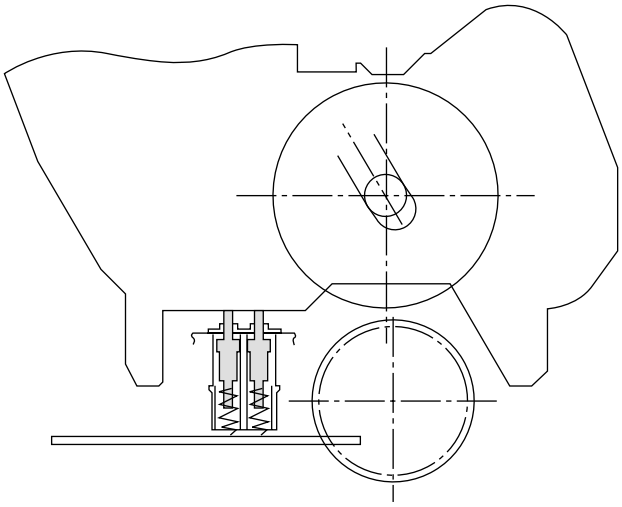


Figure 2-9-d

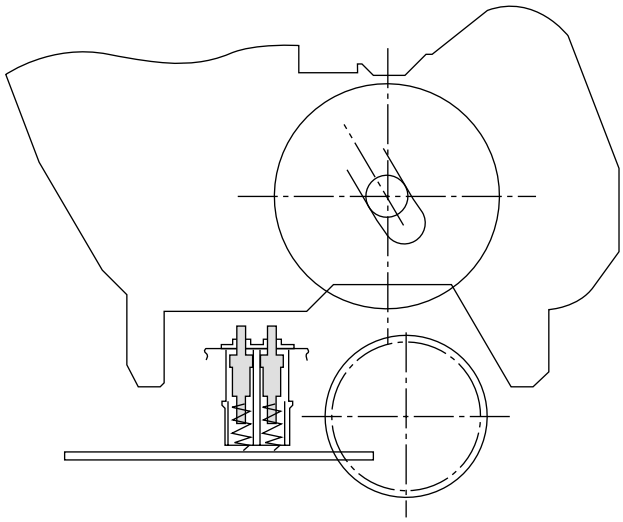


Figure 2-9-e

(5) Fuser Unit and Paper Ejection

1. A single-pulse motor drives the fuser unit and the eject rollers.
   In response to the running of the heat motor in the arrow direction (a), the heat roller turns. This roller fuses a toner image to paper by heat and pressure.

2. At the same time, the four eject rollers move to eject the paper.

3. The ejection path is switched back and forth between the route to the face-up stacker and the route to the face-down stacker as follows. When the face-up stacker opens, the paper separator inclines in the direction that guides the paper to the face-up stacker. When the face-up stacker closes, the paper separator inclines in the direction that sends the paper to the face-up stacker.

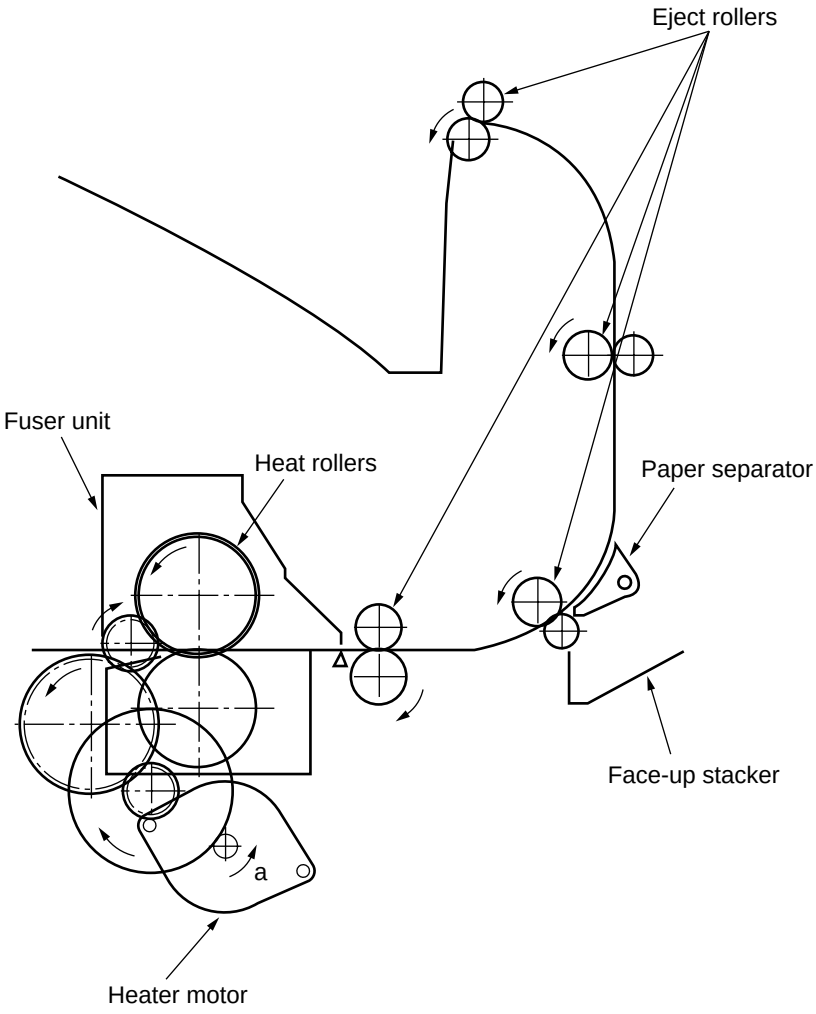


Figure 2-10

(6) Duplex Unit

1. When the duplex unit receives an instruction from the printer to print on both sides of a sheet of paper, the solenoid opens the separator after the completion of one side printing of a sheet of paper sent from the tray. The path is switched to that to the duplex unit. At this time, as the roller (1) turns in the direction of the arrow “a,” the paper is retracted on the rear of the cassette.

2. When fixed time has elapsed after the paper beginning passes through the duplex-in sensor, the rollers reverse and the roller (1) turns in the direction of the arrow “b” to feed the paper into the duplex unit. After that, the paper passes through the rollers (2), (3) and (4), and ejected with the other side printed, and fed again into the printer.

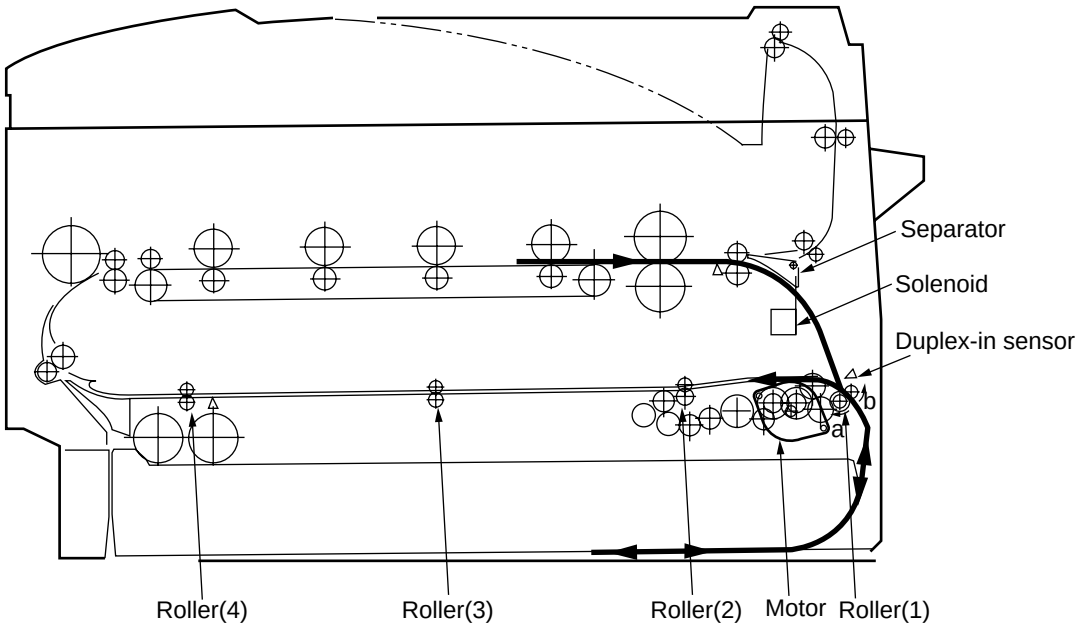
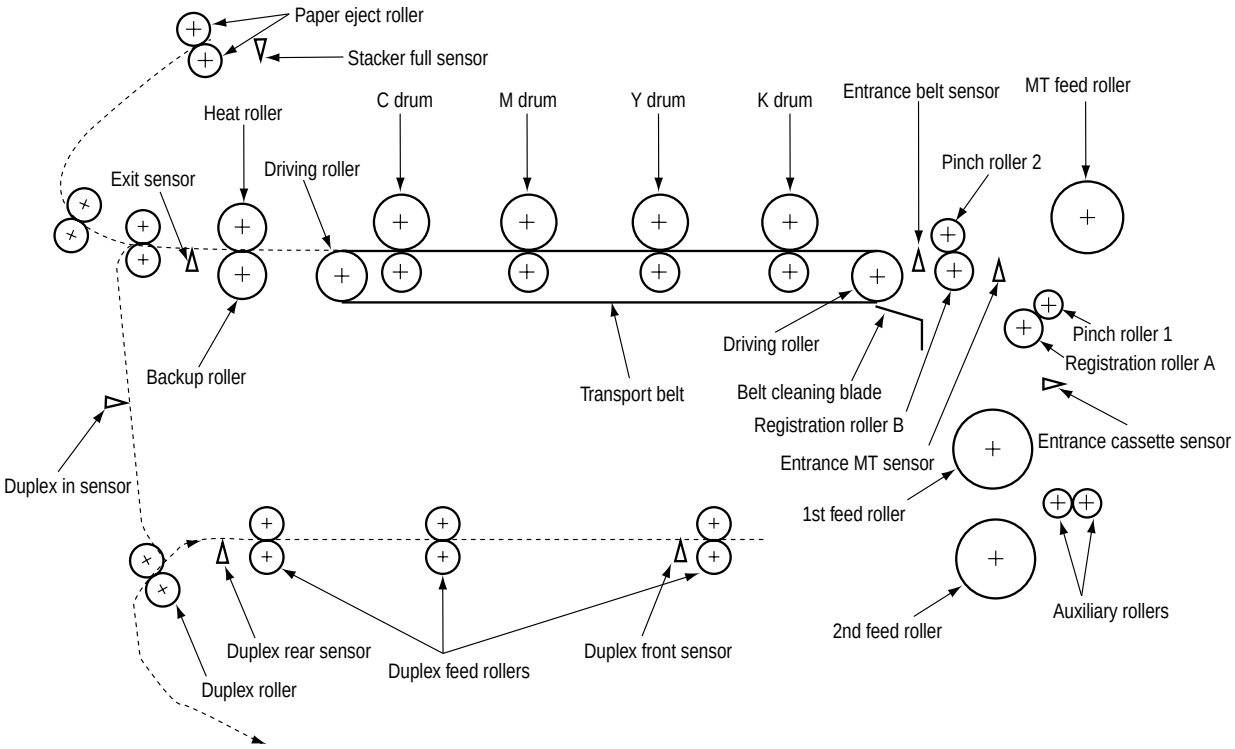


Figure 2-11

2.5 Sensor

2.5.1 Paper related sensors



Sensor	Function	Sensor status
Entrance MT sensor Entrance Cassette sensor	Detects the beginning of incoming paper to determine the timing for switching from hopping to transport.	ON : Paper is present. OFF : Paper is absent.
Entrance Belt sensor	Detects the beginning of transported paper and, based on the time taken until the paper beginning reaches the sensor, determines the paper length.	ON : Paper is present. OFF : Paper is absent.
Exit sensor	Detects the beginning and end of paper to determine the paper ejection timing.	ON : Paper is present. OFF : Paper is absent.
Duplex In sensor	Detects the beginning of paper that enters into the duplex unit, to determine the time taken until the reversed rollers turn in forward direction.	ON : Paper is present. OFF : Paper is absent.
Duplex Rear sensor	Detects the beginning of reversed paper in the duplex unit.	ON : Paper is present. OFF : Paper is absent.
Duplex Front sensor	Detects the end of reversed paper in the duplex unit to determine the paper ejection timing.	ON : Paper is present. OFF : Paper is absent.
Stacker Full sensor	Detects the face-down stacker full of paper.	ON : Stacker is full. OFF : Stacker is empty.

2.5.2 Other sensors

① Paper Empty sensor
This sensor checks whether the paper cassette is empty.

② Paper Near sensor
This sensor checks whether the paper cassette is near empty.

③ MT Paper Empty sensor
This sensor checks whether paper exists in the front feeder.

④ MT Hopping switch
This microswitch checks whether the front feeder table is in the up position or in the down position.

⑤ Paper Size switch
This sensor detects the size of paper in the paper cassette.

⑥ ID Up/Down sensor (one for each of colors, Y, M, C and K)
This sensor checks whether the ID unit is in the up position or in the down position.

⑦ Toner K, Y, M and C sensors
These sensors checks whether the waste toner cartridges are full by measuring the time interval between regular opening movements of toner sensors' respective levers.

⑧ Temperature sensor
See section 2.7 (Transfer Control Responds to Environmental Changes).

⑨ Humidity sensor
See section 2.7 (Transfer Control Responds to Environmental Changes).

⑩ OHP sensor
This sensor detects the presence or the absence of transparencies.

⑪ Alignment sensor
Upon correction of color misalignment, this sensor reads the alignment pattern printed at the right and left ends of the transfer belt (see section 2.13).

2.6 Color Misalignment Correction

Each of the C7000 Series of printers, which is equipped with plural ID units and LED heads, causes color misalignment. The mechanically occurred color misalignment is automatically corrected as follows:

(1) Color alignment to be corrected
- ① Color misalignment in X-axis direction (Positional error caused by LED head)
- ② Color misalignment in slanting direction (Positional error caused by LED head)
- ③ Color misalignment in Y-axis direction (Positional error caused by I/D unit and LED head)

(2) Correcting
A preset pattern to detect color misalignment is printed on the belt. The reflection sensor reads the printed pattern, each color's misalignment value is sensed and its correction value is determined. The correction value is used each color's (Cyan, Magenta and Yellow) writing timing in comparison with that of Black.

2.7 Transfer Control Responds to Environmental Changes (Room Temperatures and Relative Humidities)

The C7000 Series of printers measure the room temperature and the relative humidity using their room temperature sensors and humidity sensors. An optimum transfer voltage under each measurement environment is calculated to perform real-time control on printing with its optimum voltage.

Environment sensing table

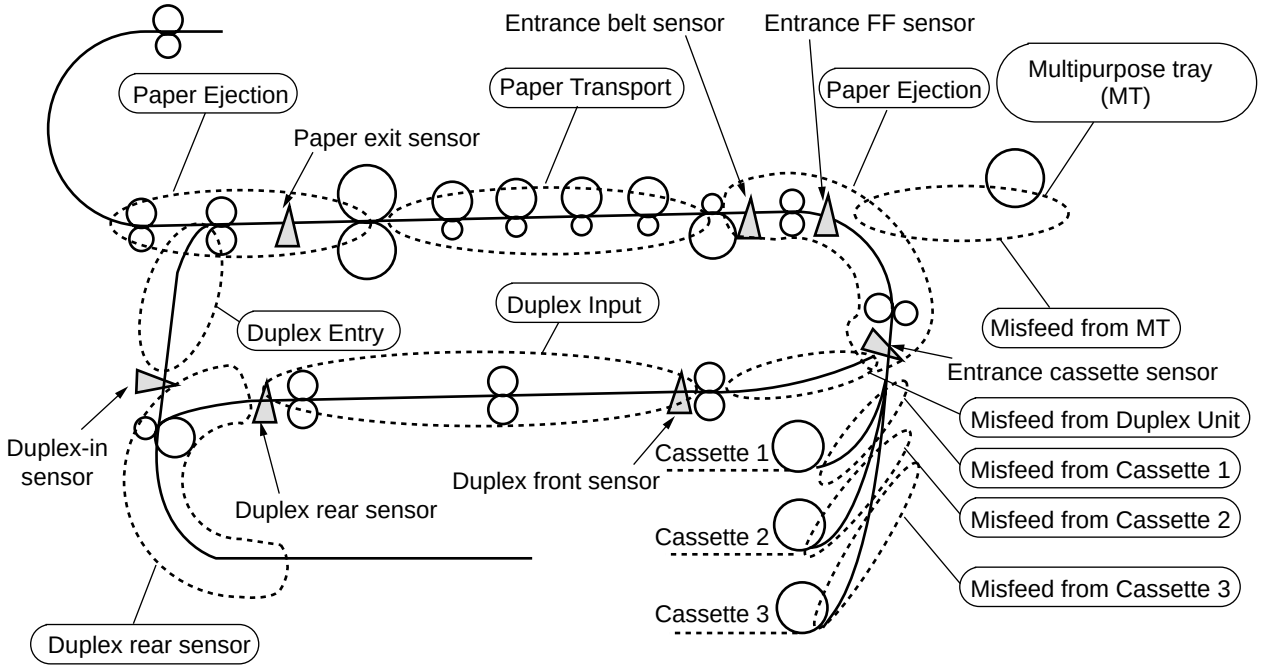
			Humidity (%)																	
		Value Read by Sensor	15		15	25	25	35	35	45	45	55	55	65	65	75	75	85	85	
	Value Read by Sensor	Value Read by Sensor Register Value	1E(H)		1E(H)	33(H)	33(H)	47(H)	47(H)	5C(H)	5C(H)	70(H)	70(H)	85(H)	85(H)	99(H)	99(H)	AE(H)	AE(H)	
Temperature (°C)	5	59(H)	8		8		8		7		7		7		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		1		1	
	30 35	265(H) 290(H)	7		6		5		4		2		1		1		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 (%)																	
		Value Read by Sensor	15		15	25	25	35	35	45	45	55	55	65	65	75	75	85	85	
	Value Read by Sensor	Value Read by Sensor 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 Detection

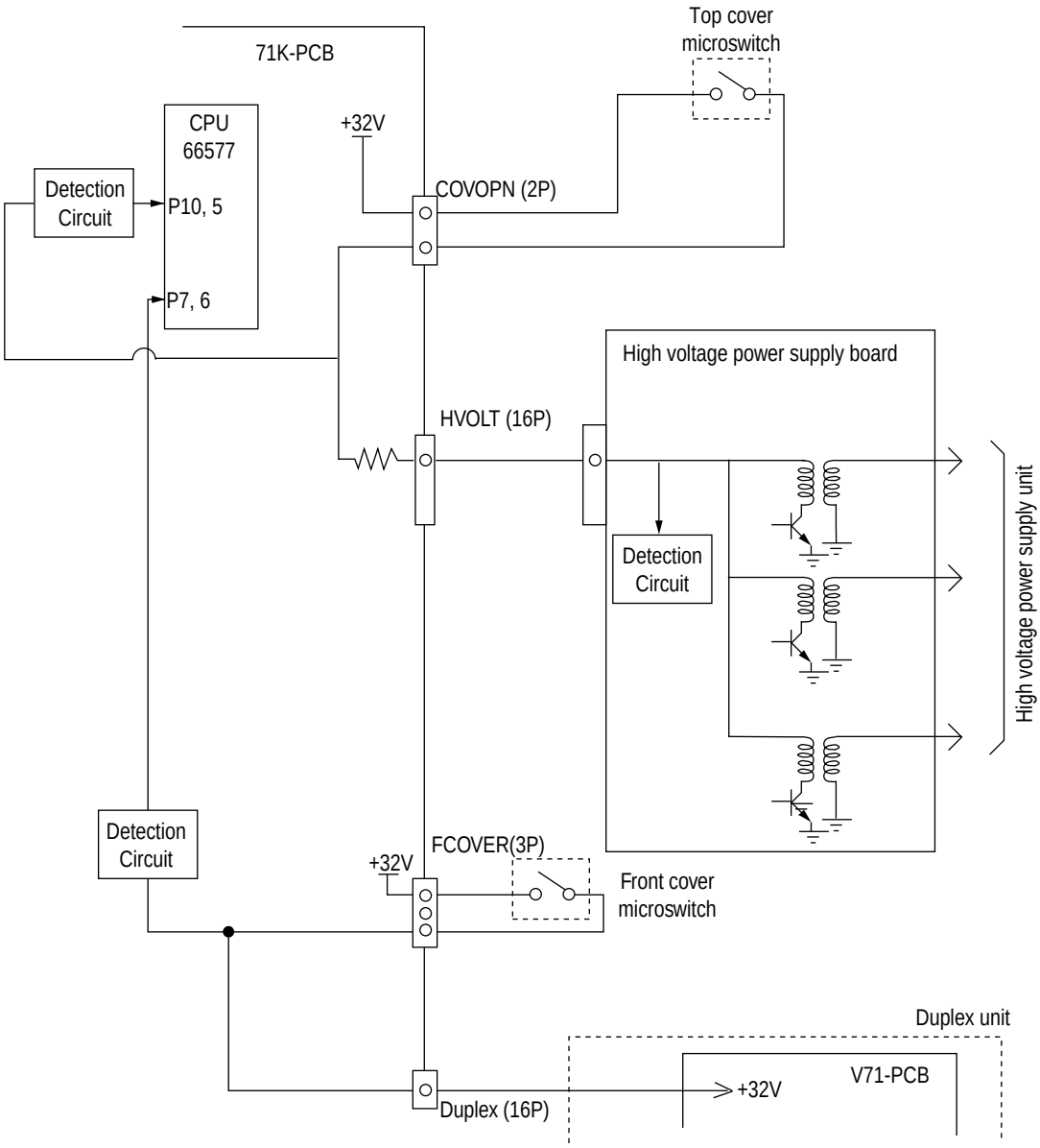
The C7000 Series of printers detect paper jams after power-on and during printing. When a paper jam occurs, the printing operation is immediately suspended. After the cover is opened and the jammed paper is removed, closing the cover resumes the printing.

Classification/Belt	ERROR	Error Condition
STSOP/ 7	Paper Size Error	The entrance cassette sensor has not turned off within fixed time after its turn-on. Loading of multiple sheets of paper has been detected.
SSTOP/ 5 OPJAM/ 6 OPFEED/ 4	Misfeed from Duplex Transport Assembly	Paper could not be loaded from the duplex transport assembly.
SSTOP/ 5 OPJAM/ 6 OPFEED/ 3	Misfeed from Multipurpose Tray (MT)	Paper could not be loaded from the MT.
SSTOP/ 5 OPJAM/ 6 OPFEED/ 2, 1, 0	Misfeed from Cassette 1, 2 or 3	Paper could not be loaded from the cassette 1, 2 or 3.
STSOP/ 5 OPJAM/ 5	Duplex Paper Reversing Jam	The duplex rear sensor has not turned on during the paper reversing operation of the duplex unit.
STSOP/ 5 OPJAM/ 4	Duplex Unit Entrance Paper Jam	The duplex-in sensor has not turned on during the paper loading in the duplex unit.
STSOP/ 5 OPJAM/ 3	Duplex Unit Paper Input Jam	The duplex front sensor has not turned on during the operation.
STSOP/ 5 OPJAM/ 2	Paper Ejection Jam	The paper exit sensor has not detected the end of paper within fixed time after the detection of the beginning of it. The paper exit sensor has not turned off since its turn-on.
STSOP/ 5 OPJAM/ 1	Paper Transport Jam	The paper exit sensor has not turned on while paper is running on the belt.
STSOP/ 5 OPJAM/ 0	Loading Jam	Paper has not reached the entrance belt sensor or the MT sensor after the completion of the hopping.
STSOP/ 4 OPAP/ 3	MT Paper Empty	There is no paper in the multipurpose tray.
STSOP/ 4 OPAP/ 2, 1, 0	Cassette 1, 2 or 3 Paper Empty	There is no paper in the cassette 1, 2, or 3.



2.9 Cover-Open

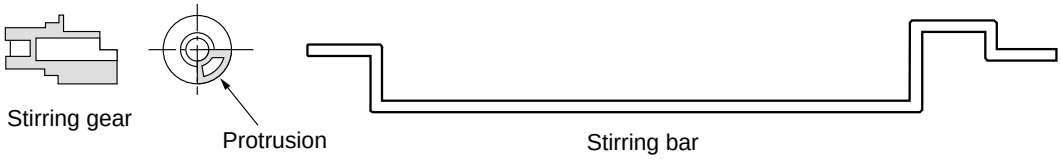
When the top cover of the printer is open, the cover-open microswitch turns off to cut the high voltage power and output of not less than 32V. At the same time, the CPU receives CVOPN signals for indicating the status of the microswitch to handle the cover-open.
When the front cover is open, the microswitch also turns off and the 32V power to the duplex unit is cut. The CPU receives FCOVER signals for indicating the status of the microswitch to handle cover-open.



2.10 Toner Low Detection

- Structure

The toner low detection device consists of the stirring gear that revolves at a constant speed, the stirring bar, and the magnet on the stirring bar. The stirring bar turns in synchronization with the protrusion of the stirring gear.

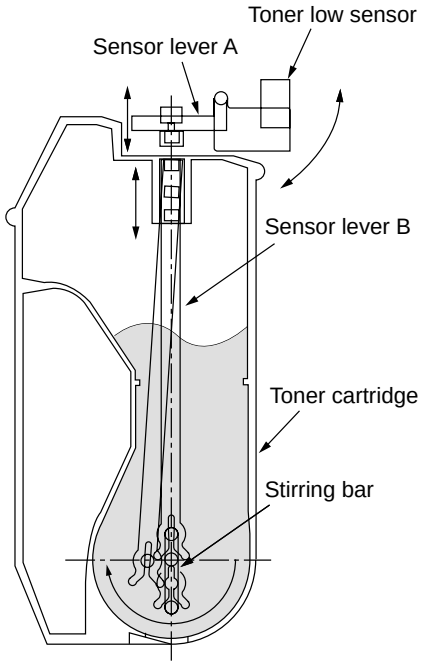


- Detection

A toner low condition is detected by measuring the contact time between the sensor lever magnet and the stirring bar.

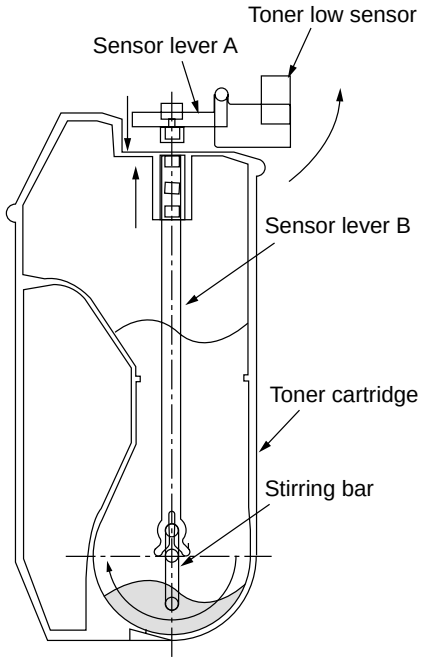
Toner Full Condition

- The stirring bar turns in synchronization with the stirring gear.
- Even when the stirring bar magnet is place in its highest position, the stirring bar turns by the force of the stirring gear because the opposite side of the bar is placed in toner.

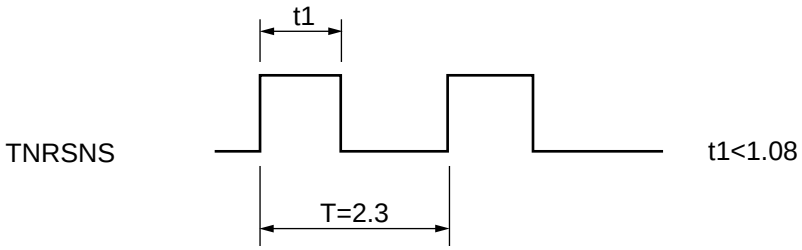


Toner Low Condition

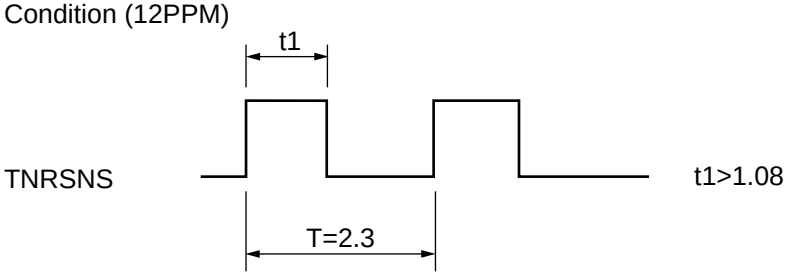
- The stirring bar reaches its highest position, then falls to its lowest position under its own weight because of the absence of toner resistance on the opposite side. In this situation, the bar-magnet contact time becomes long. By measuring the time, a toner low condition is detected.



Toner Full Condition (12PPM)



Toner Low Condition (12PPM)



- When the toner low condition is detected 20 consecutive times, toner low is determined. (The toner low message is displayed when about 500 A4 sheets at 5% density have been printed after toner low had been detected.)
- When the toner full condition is detected 10 consecutive times, toner low is removed.
- When the toner sensor remains unchanged for more than 15 cycles of 2.3 seconds, the toner sensor alarm is activated.
- The toner sensor does not perform the detection while the drum motor is not running.

2.11 Page Size Detection

Via the cam moves jointly with the paper guide of the paper cassette, the four tab pieces are driven according to the set position of the paper guide.

Upon installation of the paper cassette, the microswitch detects the condition of the tab pieces and the paper size is recognized.

State of Microswitch				Paper Size
SW1	SW2	SW3	SW4	
0	1	1	1	Letter
0	1	0	1	Executive
0	0	1	1	A4
1	1	1	0	Legal 14
1	0	1	1	Legal 13
1	1	0	1	B5
1	1	0	0	A5
1	0	0	1	A6

2.12 Operation at Power-on

2.12.1 Self-diagnostic test

(1) Initial test
The followings are automatically performed at power-on.
(a) ROM check
(b) RAM check
(c) EEPROM check
(d) Flash ROM check

(2) ROM check
ROM is checked by calculating a HASH value.

(3) RAM check
(a) RAMs are by type. Out-of-specification RAM is judged as an error.
(b) The order of mounted RAMs is checked. Out-of-standard order is judged as an error.
(c) Each slot's RAM is checked by read-after-write operation.

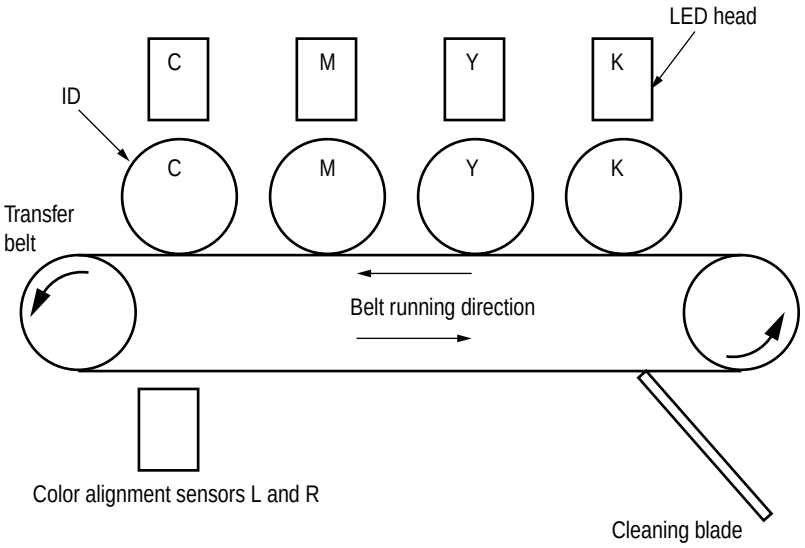
(4) EEPROM check
Specific data stored at a fixed address of EEPROM is checked..

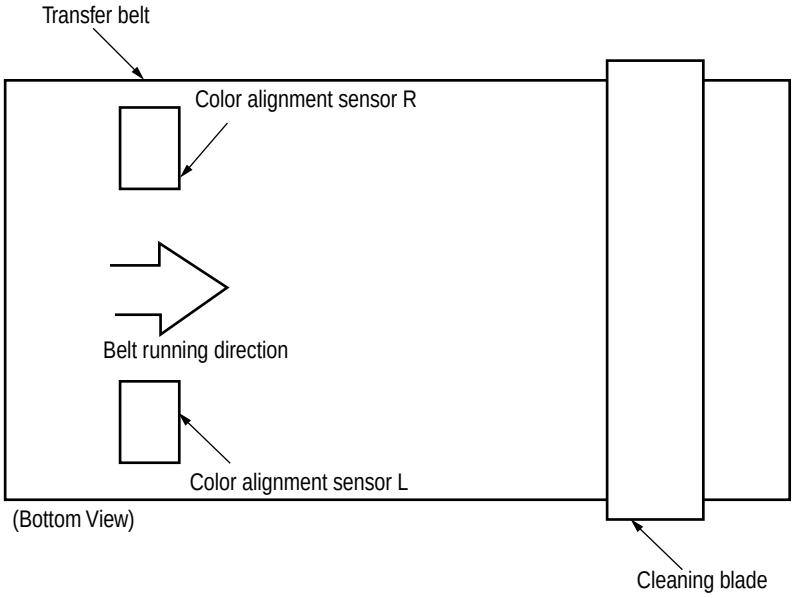
(5) Flash ROM check
The flash ROM format is checked. Unformatted ROM is formatted after read-after-write checking.

(6) Option unit check
Before the printer goes into the operation mode, the presence of the option units (e.g., the HDD, NIC, option trays and duplex unit) is checked.

2.13 Color Misalignment Detection

Reflection-type optical sensors for detecting color misalignment (Z71-PCB) are mounted on the belt at the right and left ends, respectively, in front of the toner scraping (cleaning) blade which is at the back of the belt unit. The color misalignment detection pattern is printed on the belt at each of the right and left ends and, by reading the patterns by the reflection-type optical sensors, the misalignment amounts are measured with respect to Black to determine correction values. Then, the misalignment in main-scanning, sub-scanning and slanting directions is corrected.
These operations are performed at power-on, at cover-close and every 200 pages.





2.14 Version Read of Units Replaced Periodically

The version of each of the I/D, fuser unit and belt unit which are replaced periodically is determined whether it is new or previous according to whether the fuse in it is conducting or out of conduction. When the fuse is conducting, the unit is decided that it is new. The “new” or “previous” judgment is performed at power-on and at cover-close. The life counter of every new unit is reset and the “new” or “previous” judging purpose fuse in the unit is cut.

2.15 Life Count for Units Replaced Periodically

The life of each of the I/D, fuse unit and belt unit which are replaced periodically is counted as shown in the following table:

Unit Name	Condition	Action
I/D (Image Drum Cartridge)	The number of drum revolutions is counted, on a letter paper length + continuous-printing paper interval basis. End of Life: Time when a distance equivalent to pages of 20K is printed (3P/J).	Warning (the unit can still be used).
Toner Cartridge	The number of dots printed is counted. The used amount is determined based on the counter value (See section 2.16). End of Life: Time when toner low occurs.	Do not use the unit anymore.
Belt Unit	The number of drum revolutions is counted, on a letter paper length + continuous-printing paper interval basis. The count of one is performed every time when one page is passed. End of Life: Time when the counter value reaches 60K.	Warning (the unit can still be used).
Fuser Unit	The count of one is performed every time when one page is passed. End of Life: Time when the counter value reaches 60K.	Warning (the unit can still be used).

2.16 Toner Consumption Detection

The used toner amount is detected by counting the number of dots printed.
The counting starts after toner low is removed. The sum of the counted values is stored in EEPROM. Upon detection of toner low, the amount used is forcedly set to 8%. After that, when the equivalent of pages of 1K on A4 and 5% duty is reached, toner-empty occurs and the printing stops.

3. PARTS REPLACEMENT

This section describes the procedure for replacing the parts, assemblies and units in the field. The replacing procedure is given for detachment. To attach, use the reverse procedure.

3.1 Precautions in Replacing Parts

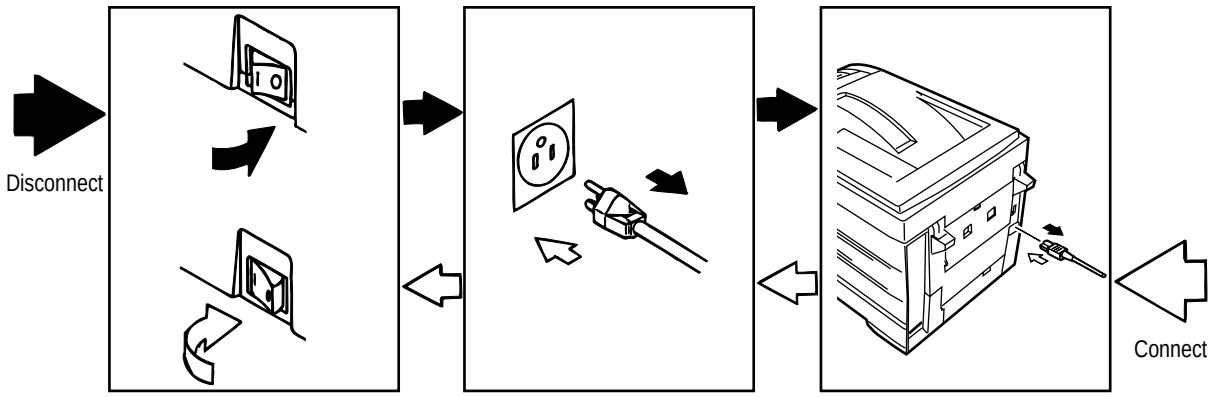
(1) Before replacing the parts, be sure to remove the AC cable and the interface cable.

(a) To remove the AC cable, always use the following procedure.

i) Flip the power switch of the printer off (to “O”).
ii) Pull the AC inlet plug of the AC cable out of the AC receptable.
iii) Remove the AC cable and the interface cable from the printer.

(b) To connect the printer again, always use the following procedure.

i) Connect the AC cable and the interface cable to the printer.
ii) Insert the AC inlet plug into the AC receptacle.
iii) Flip the power switch of the printer on (to “I”).



(2) Do not disassemble the printer so long as it operates properly.

(3) Minimize the disassembly. Do not detach parts other than those shown in the replacing procedure.

(4) For maintenance, use designated tools.

(5) Follow the order instructed to disassemble the printer. Incorrect order may damage the parts.

(6) Small parts such as screws and collars tend to get lost, so temporarily place and fix them in their original positions.

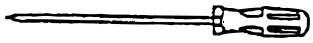
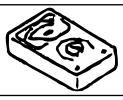
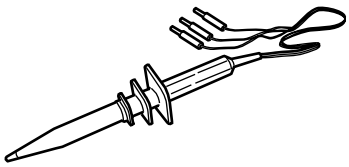
(7) When handling ICs and circuit boards such as microprocessors, ROMs and RAMs, do not use gloves that likely to have static.

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

[Maintenance Tools]

Table 3-1 lists tools necessary to replace the printed circuit boards and the units.

Table 3-1 Maintenance Tools

No.	Maintenance Tools		Q' ty	Use for	Remark
1		No. 1-100 Philips screwdriver	1	Screws of 2 to 2.5mm	
2		No. 2-200 Philips magnetic screwdriver	1	Screws of 3 to 5mm	
3		No. 3-100 screwdriver	1		
4		No. 5-200 screwdriver	1		
5		Digital multimeter	1		
6		Pliers	1		
7		Handy cleaner	1		
8		LED Head cleaner P/N 4PB4083-2248P001	1	LED head cleaning	
9		High-voltage probe	1		

3.2 Parts layout

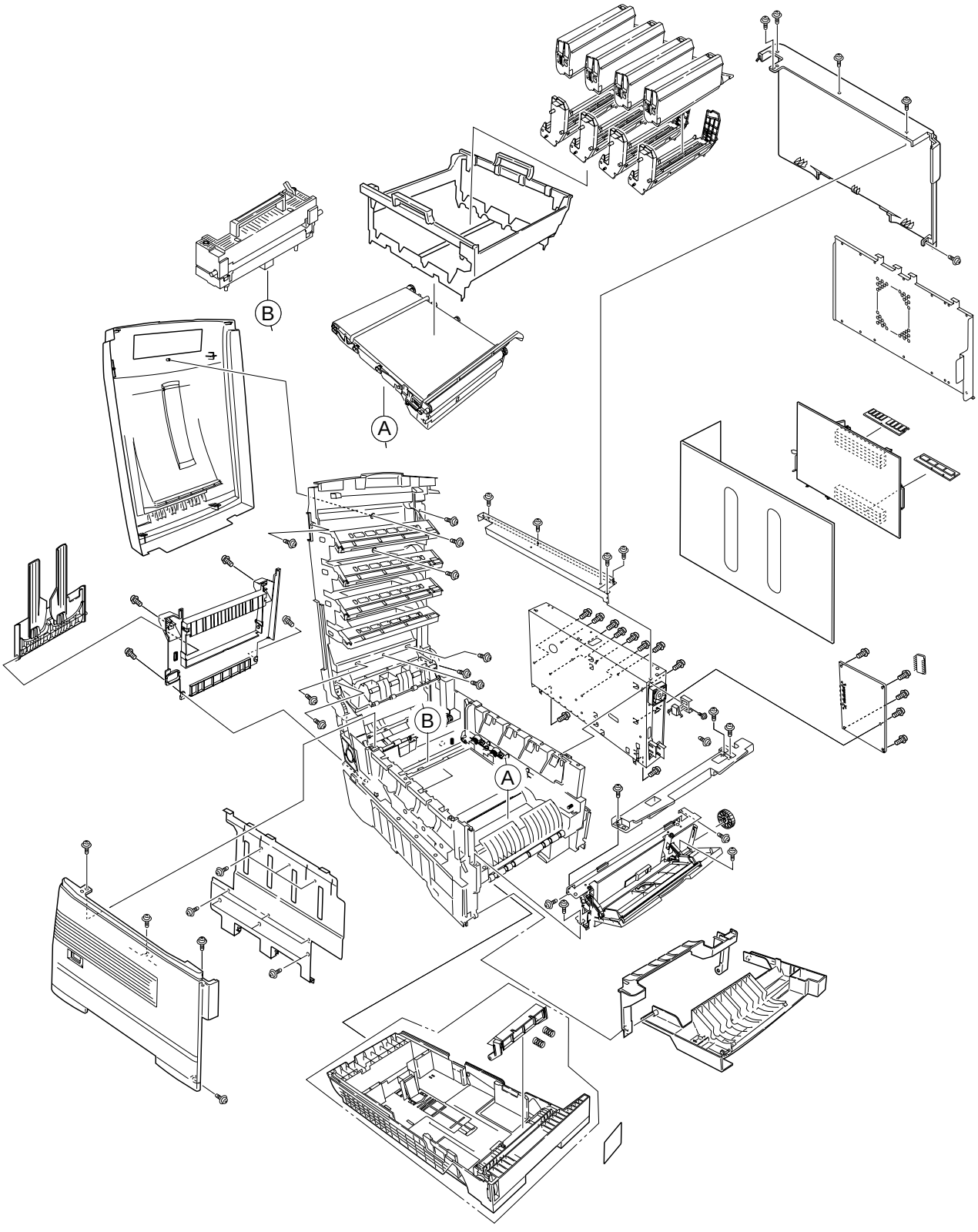


Figure 3-1

[Top Cover Assy]

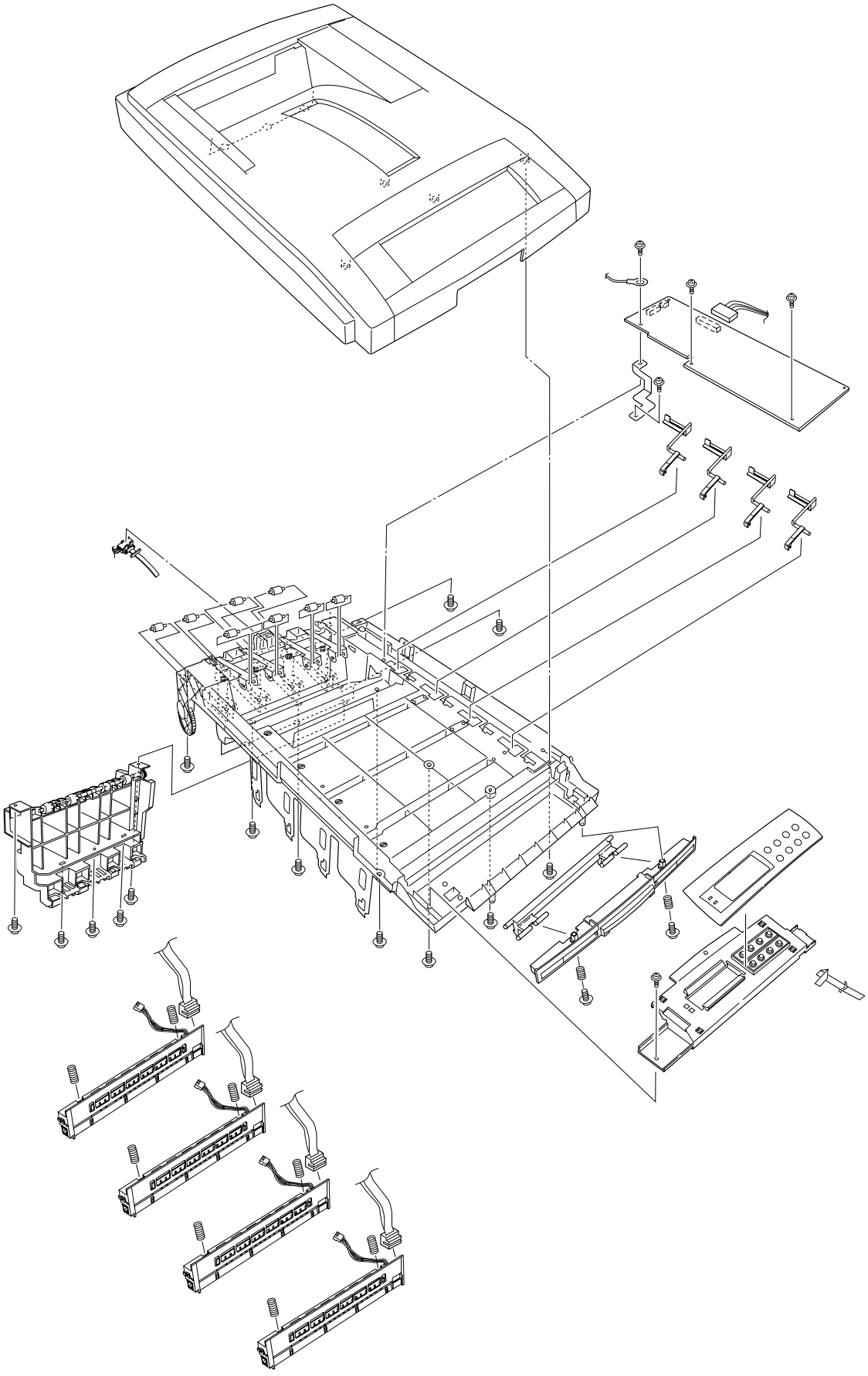


Figure 3-2

[Printer Unit-1/2]

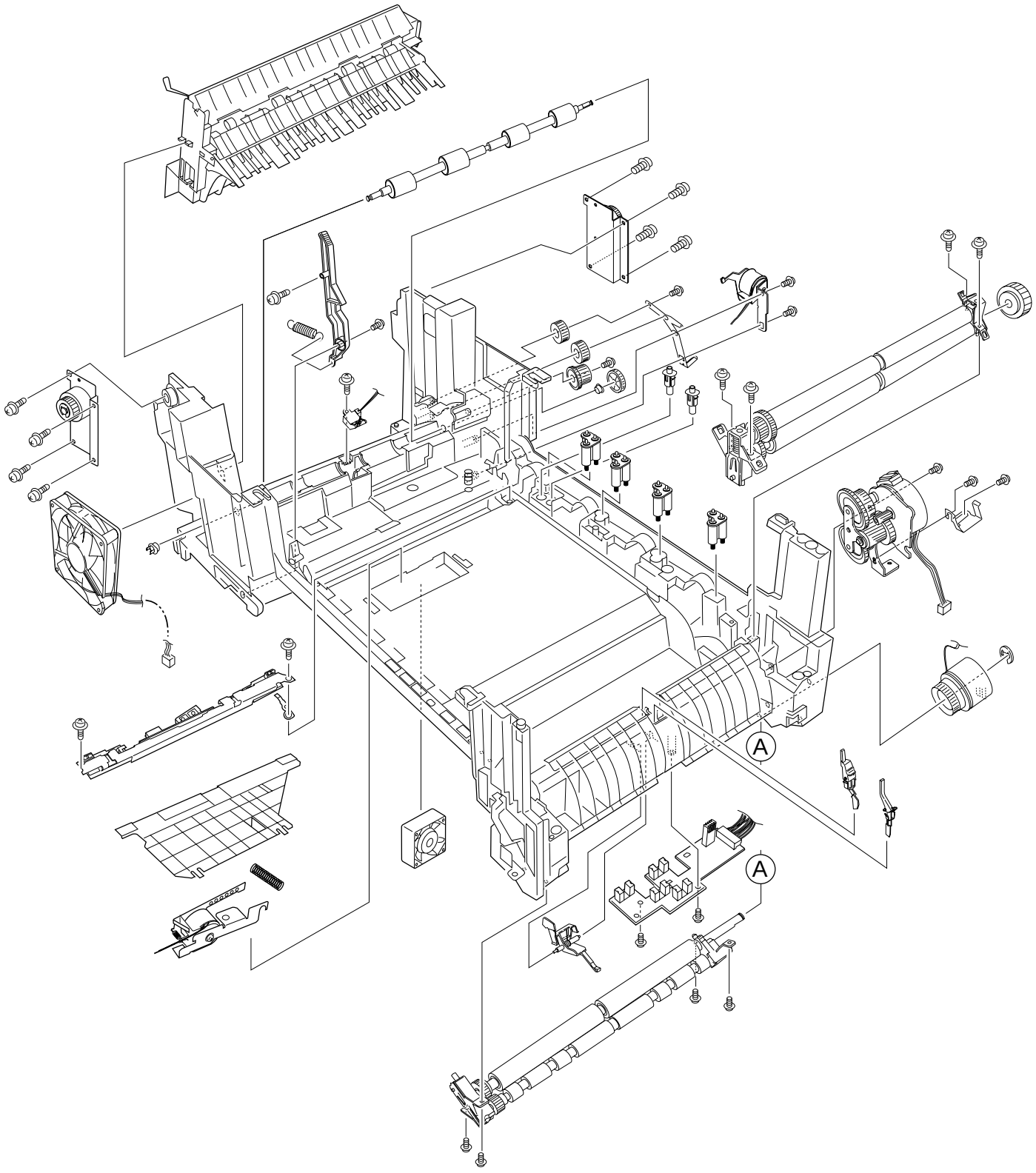


Figure 3-3

[Printer Unit-2/2]

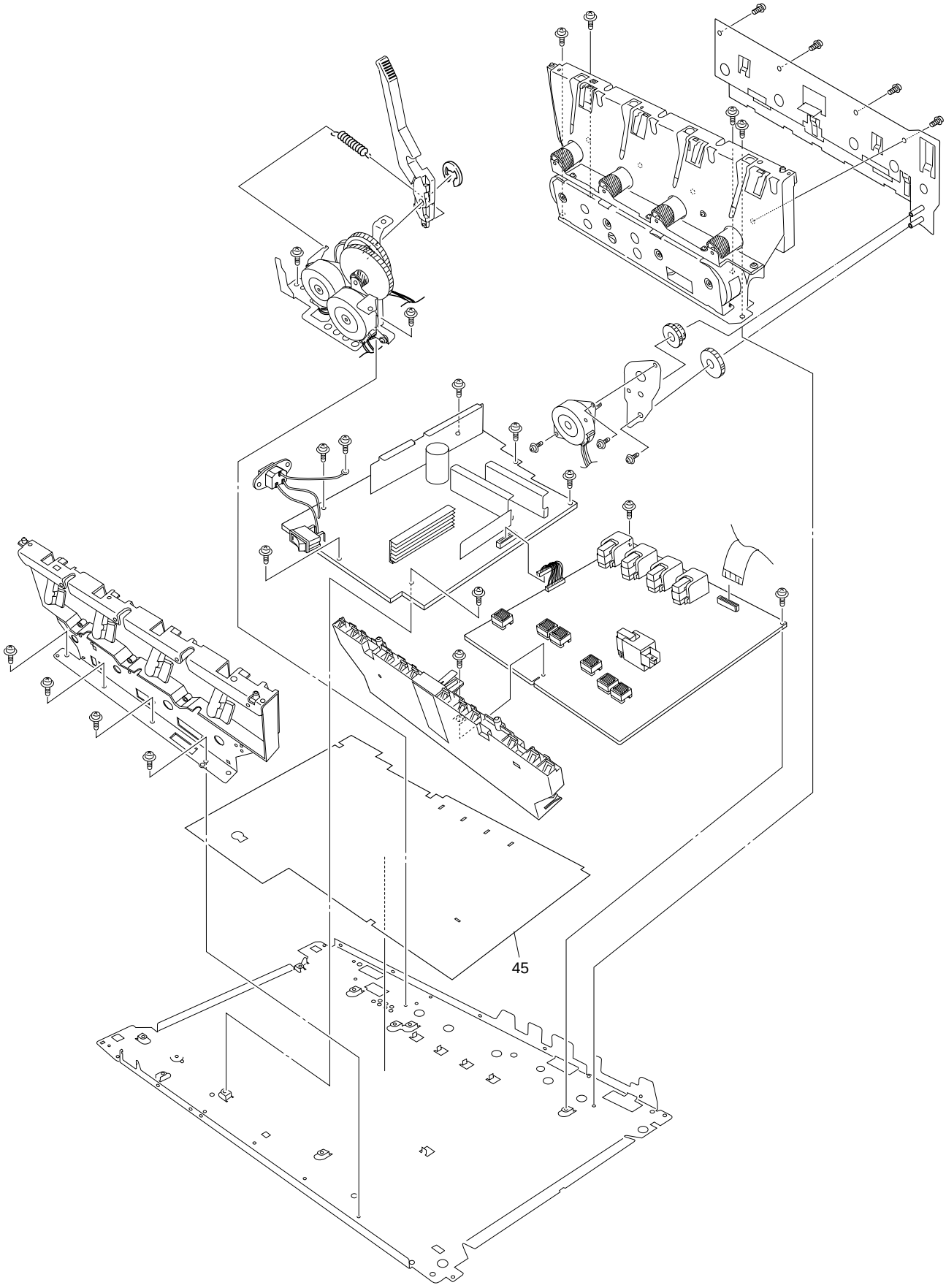


Figure 3-4

[Cassette Guide Assy (L),(R)]

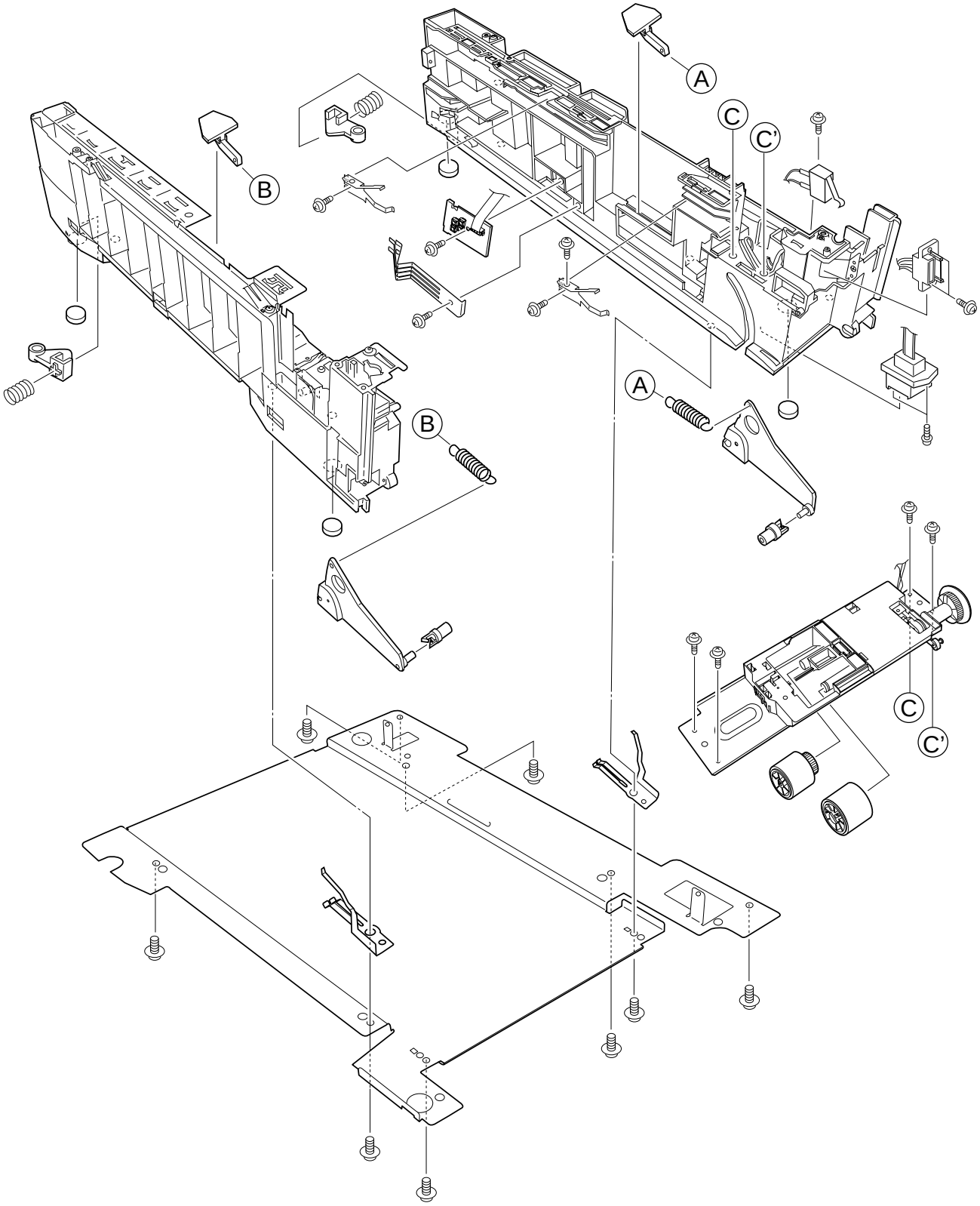


Figure 3-5

[Duplex Unit]

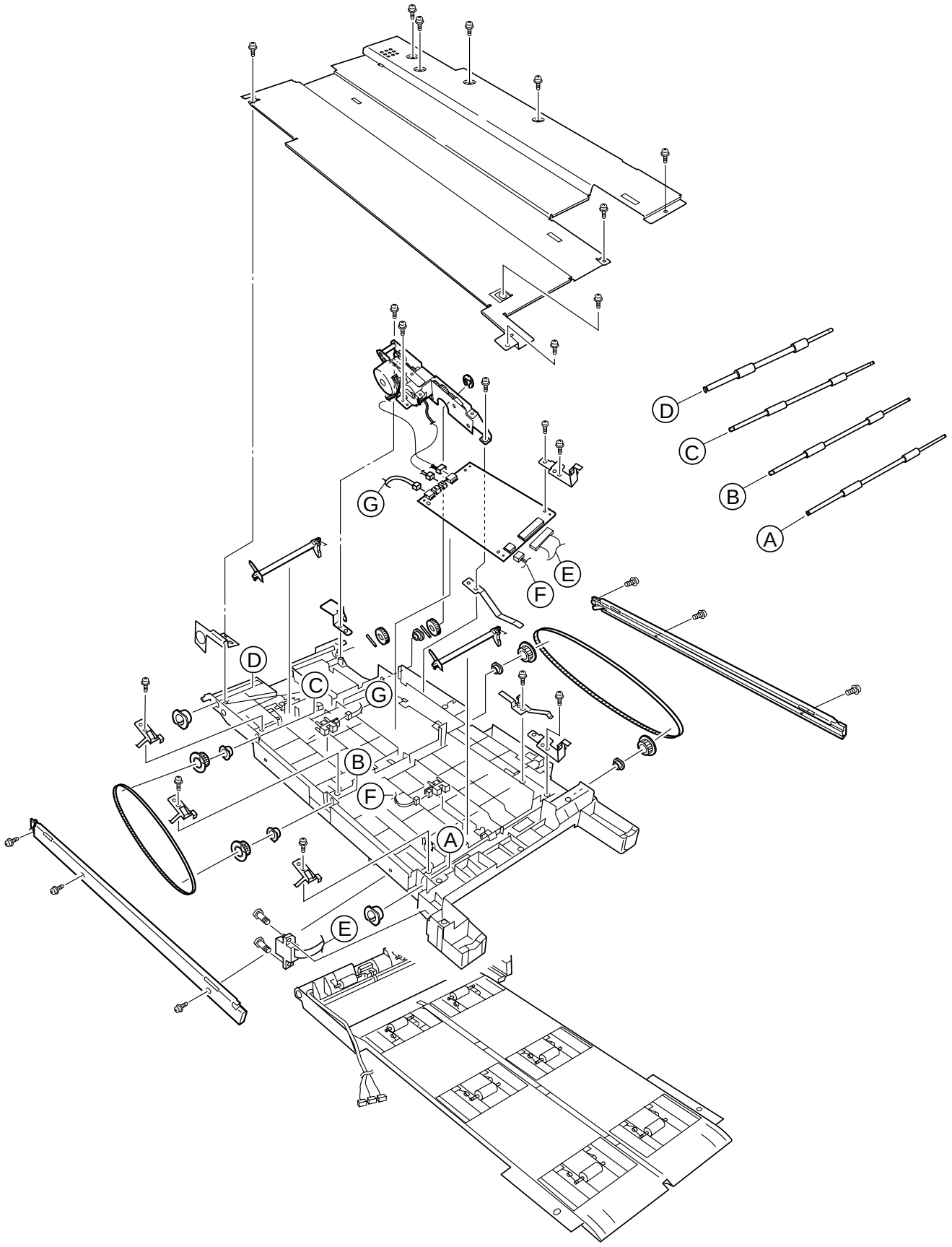
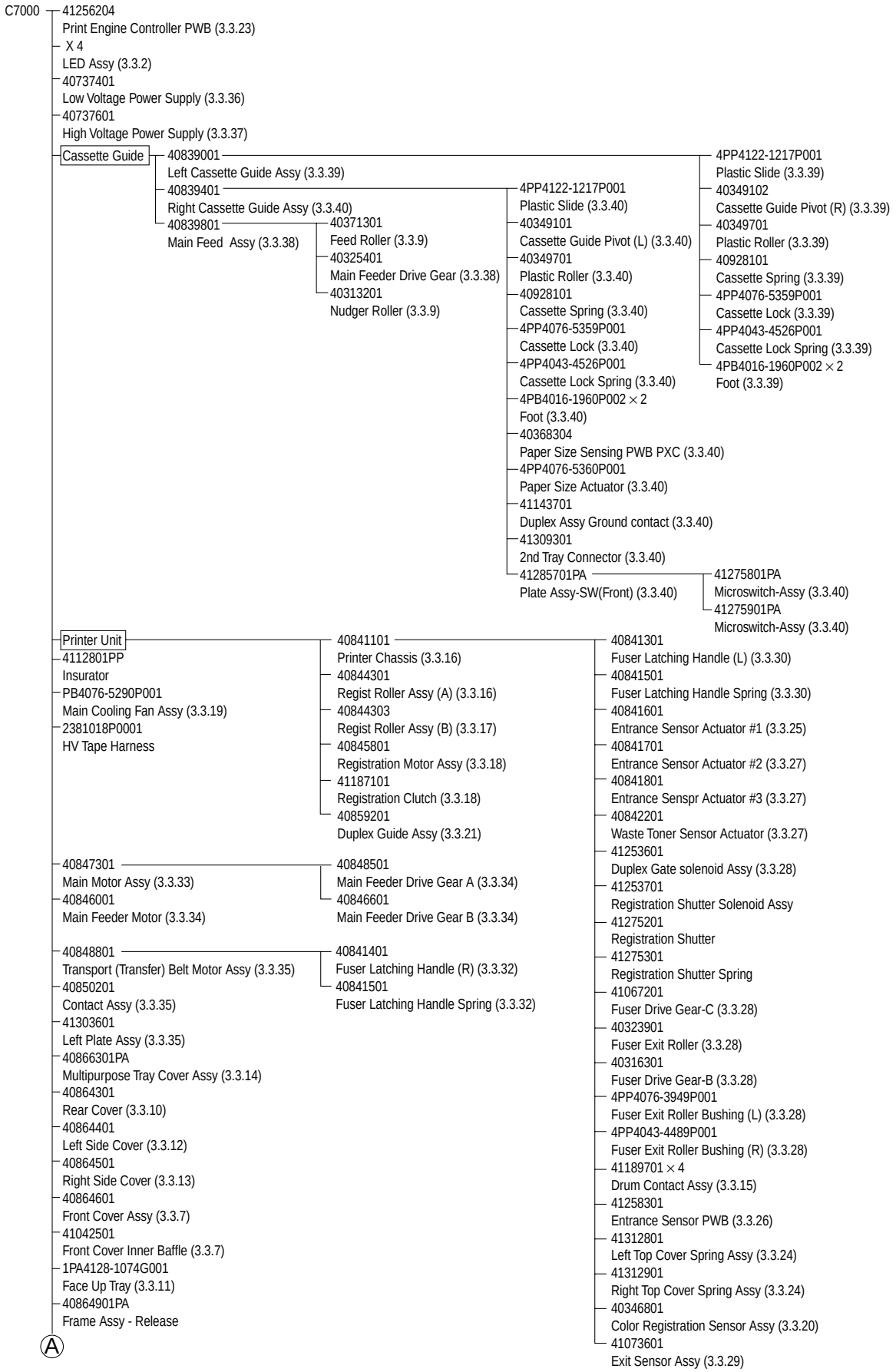
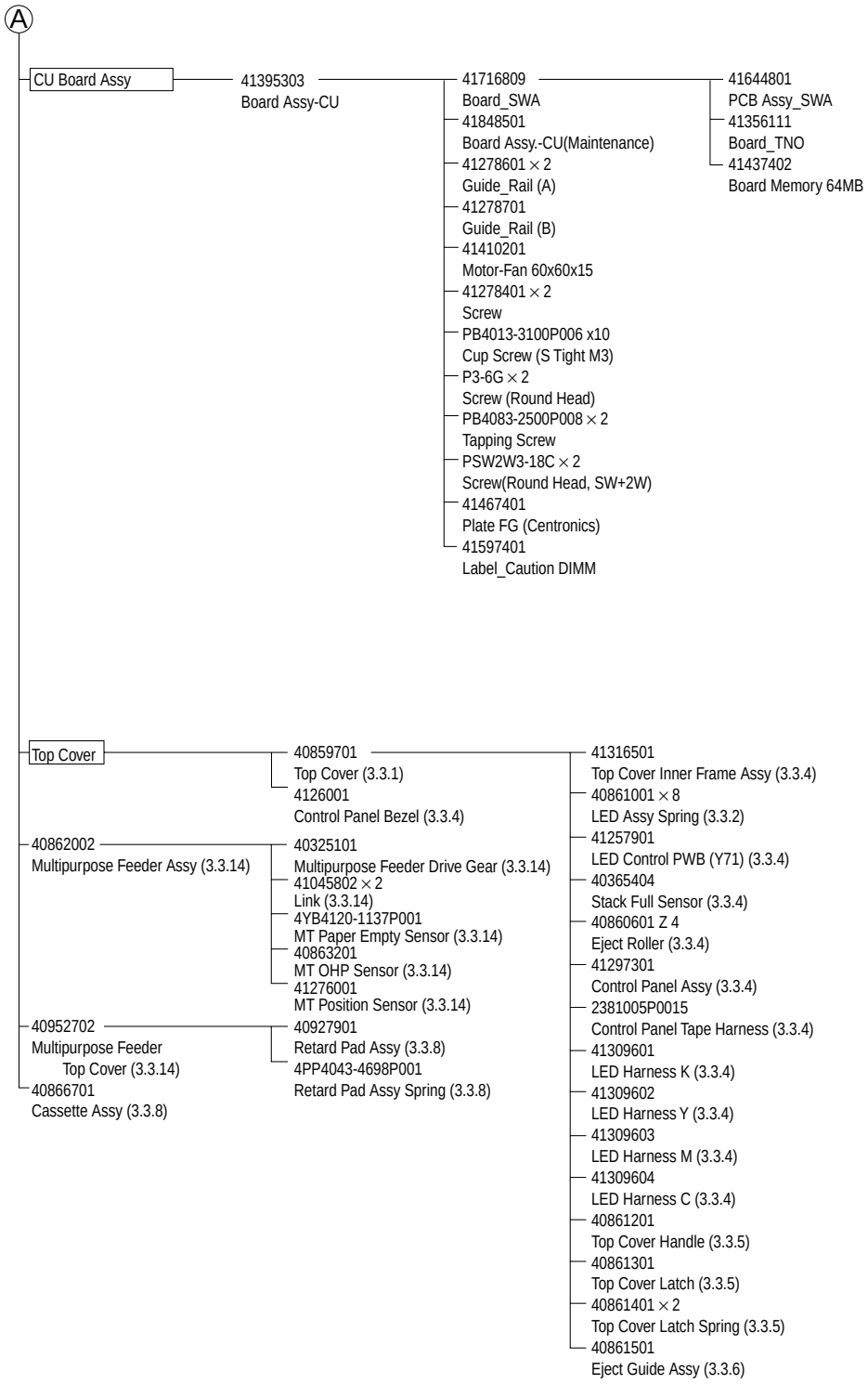


Figure 3-6

3.3 Replacing Parts

This section describes how to replace the parts and assemblies shown in the following disassembling system diagram.




A
CU Board Assy
41395303
Board Assy-CU
41716809
Board_SWA
41644801
PCB Assy_SWA
41356111
Board_TNO
41437402
Board Memory 64MB
41848501
Board Assy.-CU(Maintenance)
41278601 × 2
Guide_Rail (A)
41278701
Guide_Rail (B)
41410201
Motor-Fan 60x60x15
41278401 × 2
Screw
PB4013-3100P006 x10
Cup Screw (S Tight M3)
P3-6G × 2
Screw (Round Head)
PB4083-2500P008 × 2
Tapping Screw
PSW2W3-18C × 2
Screw(Round Head, SW+2W)
41467401
Plate FG (Centronics)
41597401
Label_Caution DIMM
Top Cover
40859701
Top Cover (3.3.1)
4126001
Control Panel Bezel (3.3.4)
41316501
Top Cover Inner Frame Assy (3.3.4)
40861001 × 8
LED Assy Spring (3.3.2)
41257901
LED Control PWB (Y71) (3.3.4)
40365404
Stack Full Sensor (3.3.4)
40860601 Z 4
Eject Roller (3.3.4)
41297301
Control Panel Assy (3.3.4)
2381005P0015
Control Panel Tape Harness (3.3.4)
41309601
LED Harness K (3.3.4)
41309602
LED Harness Y (3.3.4)
41309603
LED Harness M (3.3.4)
41309604
LED Harness C (3.3.4)
40861201
Top Cover Handle (3.3.5)
40861301
Top Cover Latch (3.3.5)
40861401 × 2
Top Cover Latch Spring (3.3.5)
40861501
Eject Guide Assy (3.3.6)
40862002
Multipurpose Feeder Assy (3.3.14)
40325101
Multipurpose Feeder Drive Gear (3.3.14)
41045802 × 2
Link (3.3.14)
4YB4120-1137P001
MT Paper Empty Sensor (3.3.14)
40863201
MT OHP Sensor (3.3.14)
41276001
MT Position Sensor (3.3.14)
40952702
Multipurpose Feeder
Top Cover (3.3.14)
40927901
Retard Pad Assy (3.3.8)
4PP4043-4698P001
Retard Pad Assy Spring (3.3.8)
40866701
Cassette Assy (3.3.8)

3.3.1 Top Cover

(1) Open the Top Cover assy.

(2) Remove the nine screws ① to detach the top cover ②.

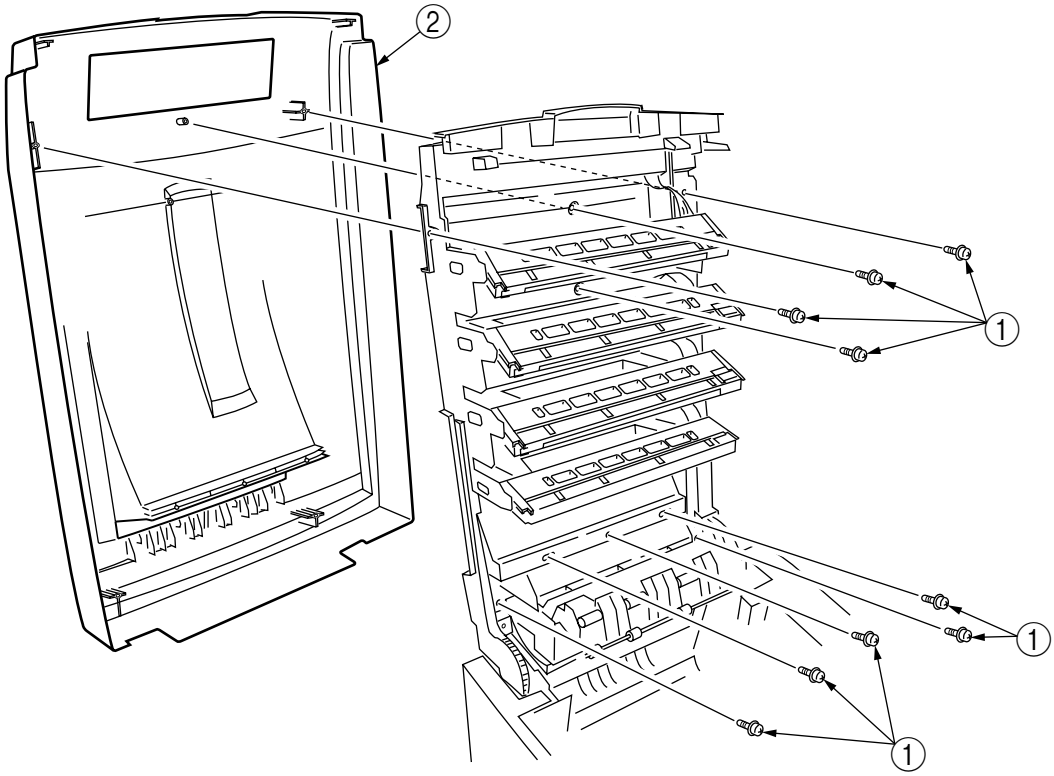


Figure 3-3-1 Top Cover

3.3.2 LED Assy/ LED Assy Spring

(1) Open the top cover ①.

(2) Remove the three cables, and unhook the LED Assy ② at two places to demount it (the two springs ③ become detached together with the LED Assy ②).

(3) Remove the LED connector ④.
When assembling, attach the LED connector ④ to the LED head and insert the flat cable into it.

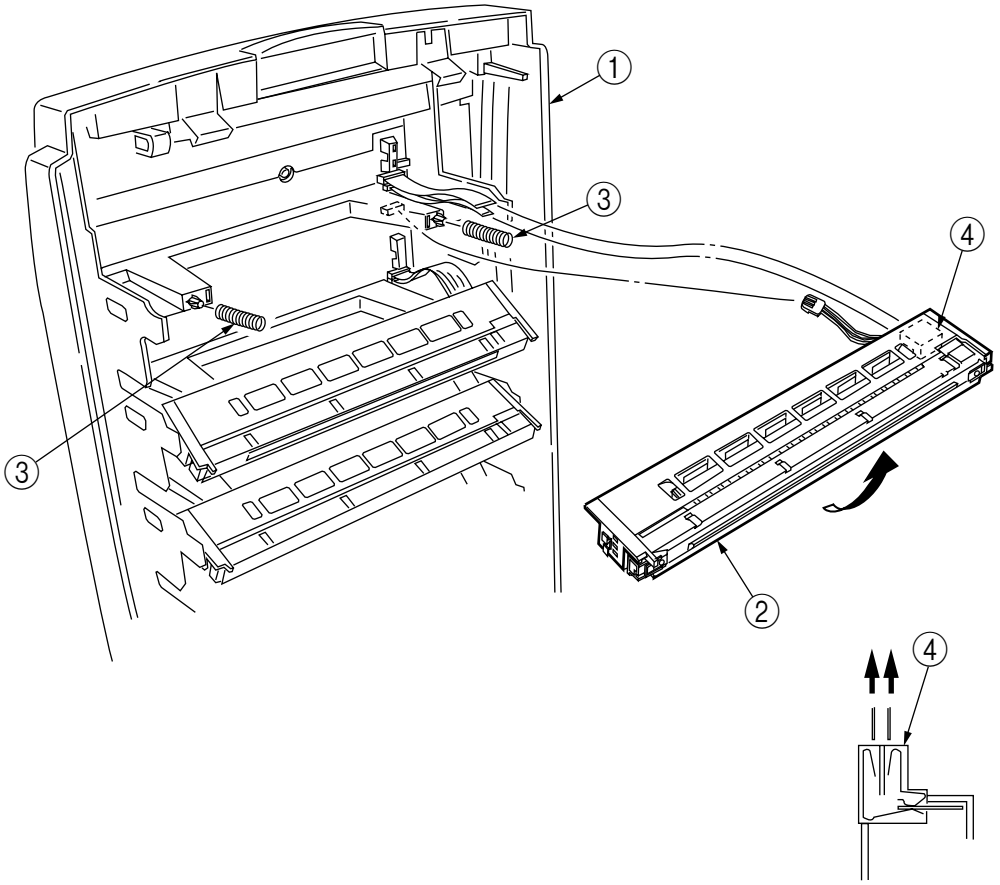


Figure 3-3-2 LED Assy/ LED Assy Spring

3.3.3 Top Cover Unit

(1) Remove the top cover (see section 3.3.1).
(2) Remove the rear cover (see section 3.3.10).
(3) Remove the left side cover (see section 3.3.12).
(4) Remove the right side cover (see section 3.3.13).
(5) Remove the shield plates A and B (see section 3.3.22), and unplug the connector to separate the top cover.
(6) Disengage the top cover unit ① at two places to detach it.

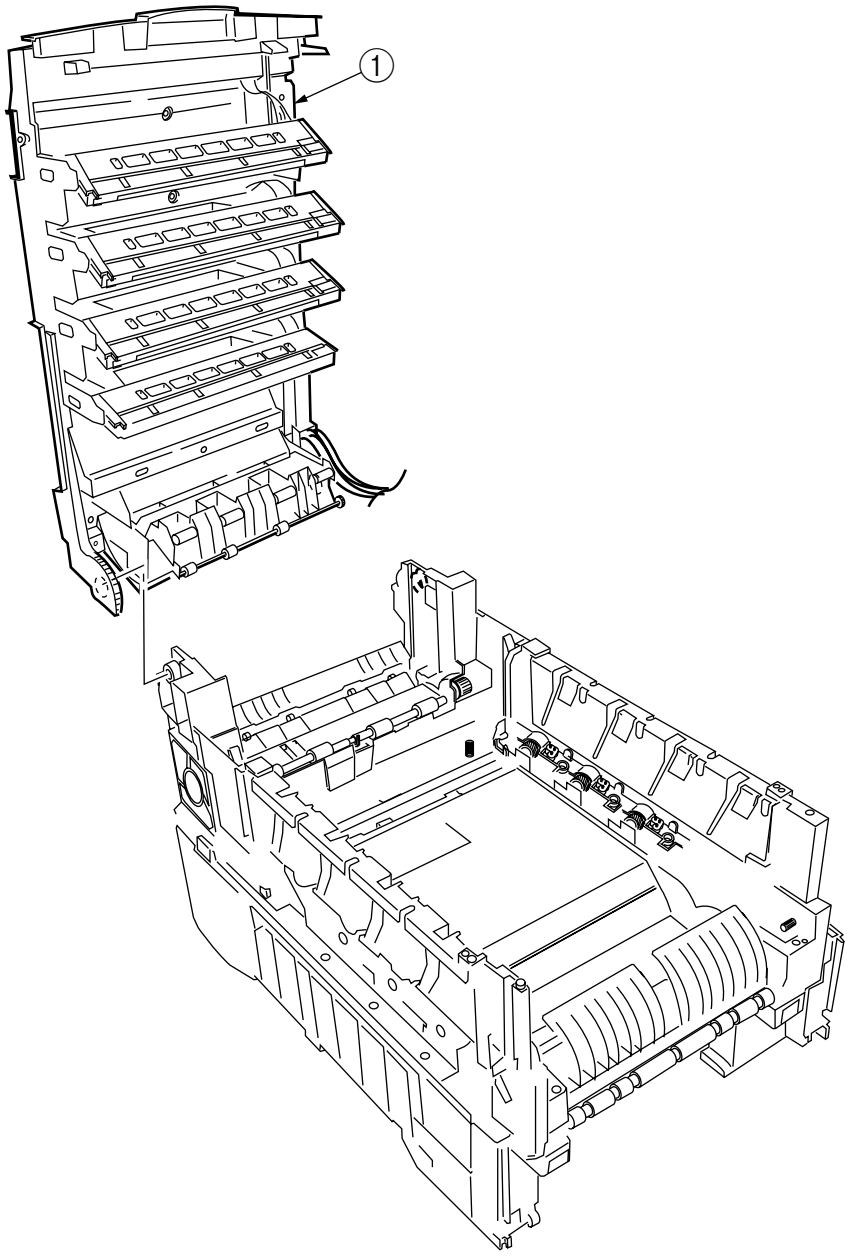


Figure 3-3-3 Top Cover Unit

3.3.4 Control Panel Assy/ Control Panel Bezel/ LED Control PWB/ Toner Sensors/ Stacker Full Sensor/ Control Panel/ Control Panel Tape Harness/ Eject Rollers

(1) Detach the control panel bezel placed in the control panel Assy ②.
(2) Remove the screw ① to demount the control panel Assy ②.
(3) Detach the control panel tape harness ⑭.
(4) Remove the top cover unit (see section 3.3.3).
(5) Unscrew the four screws ③ to remove the earth plate ④.
(6) Remove the two screws ⑤, unhook all the connectors ⑥ and demount the LED control PWB ⑦.
(7) Remove the screw ⑧.
(8) Disengage the four claws to demount the toner sensor ⑫.
(9) Demount the stacker full sensor ⑬.
(10) Demount the exit rollers ⑮.
(11) Detach the LED harnesses, K, Y, M and C ⑯.
(12) Detach the top cover inner frame Assy ⑰.

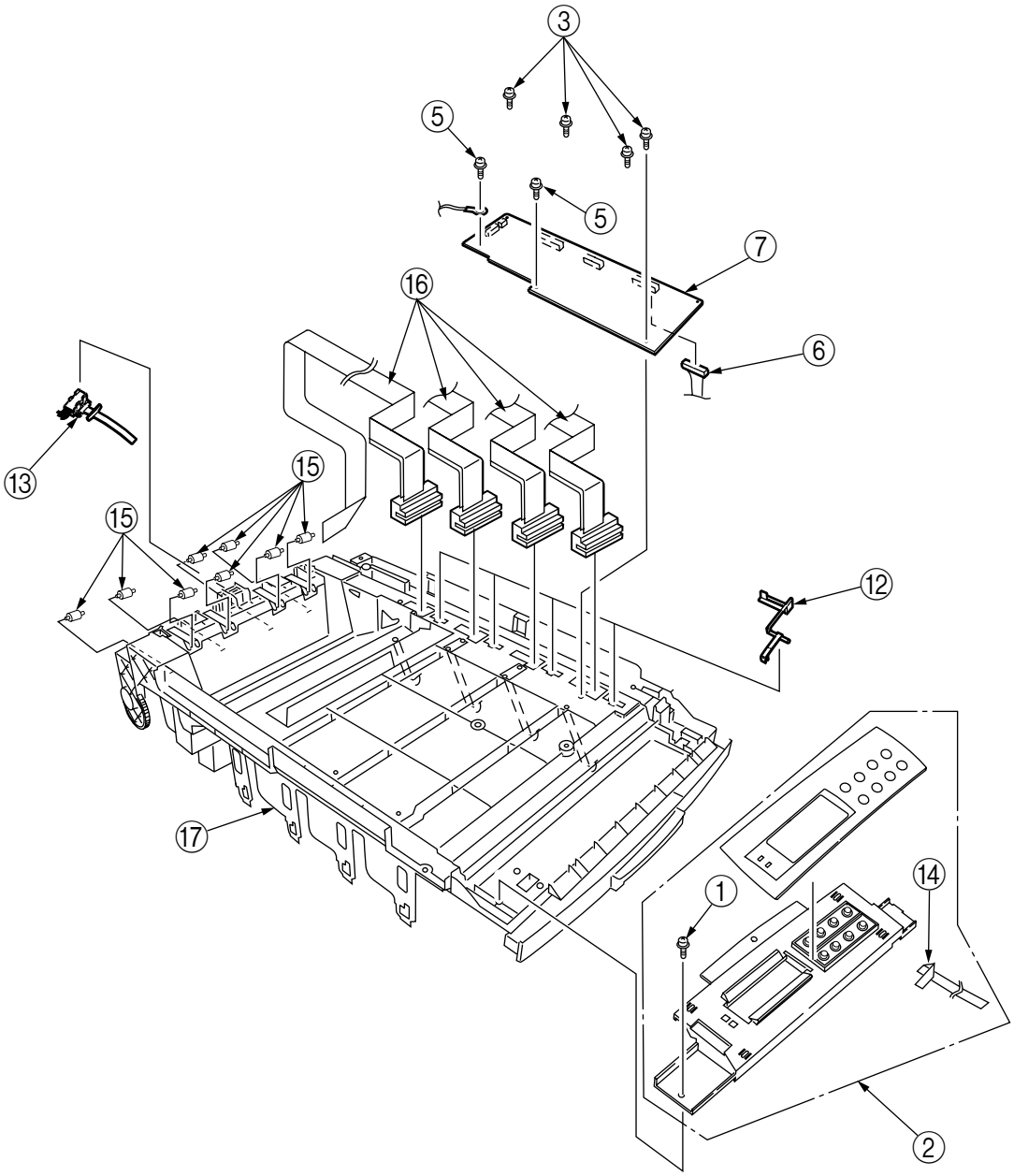


Figure 3-3-4 Control Panel Assy/ Control Panel Bezel/ LED Control PWB/ Toner Sensors/ Stacker Full Sensor/ Control Panel/ Control Panel Tape Harness/ Eject Rollers

3.3.5 Top Cover Handle/ Top Cover Latch/ Top Cover Latch Spring

(1) Remove the two screws ① to detach the top cover handle ② and disengage the top cover latch ③ (at the same time, the two top cover latch springs ④ become detached).

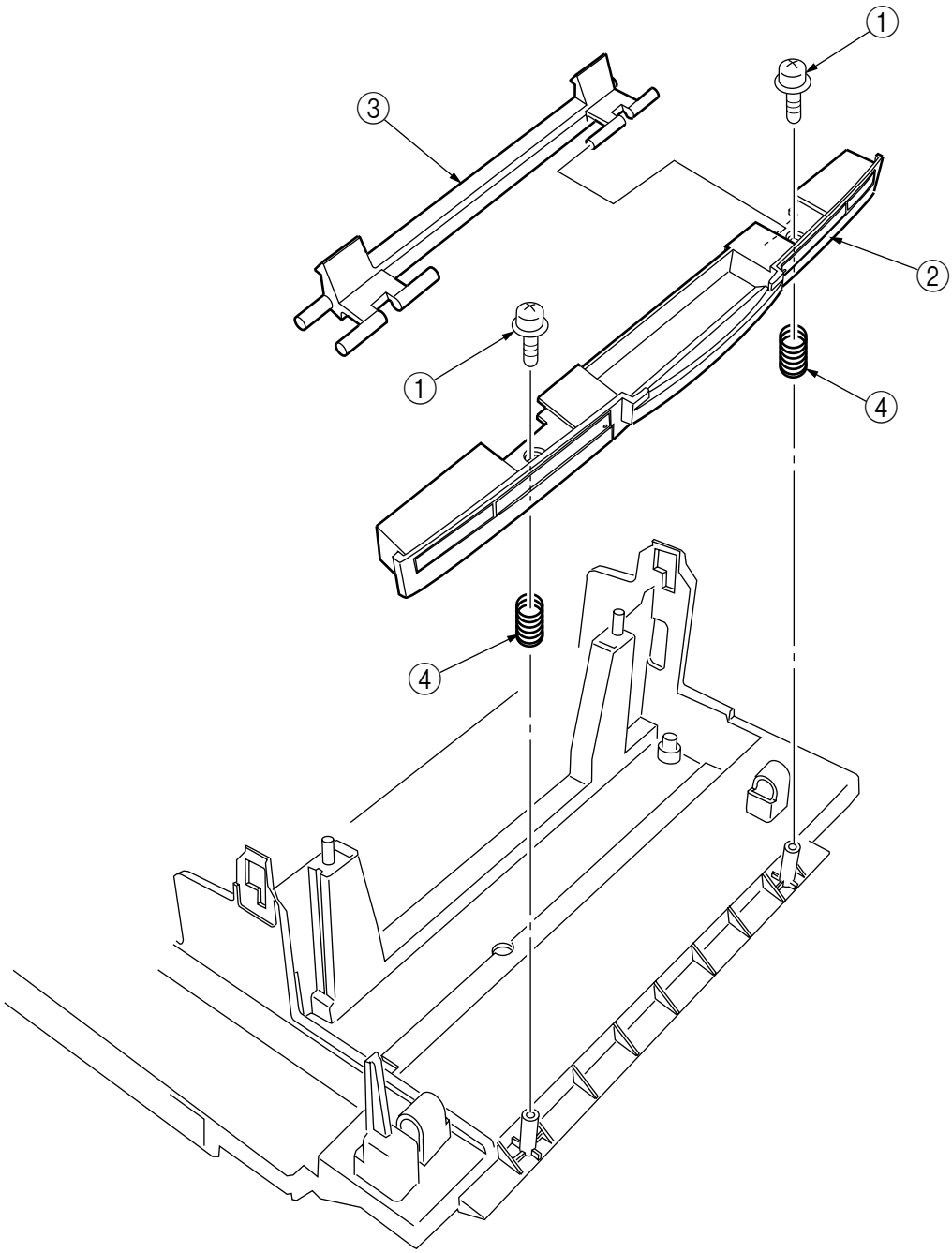


Figure 3-3-5 Top Cover Handle/ Tope Cover Latch/ Top Cover Latch Spring

3.3.6 Eject Guide Assy

(1) Remove the five screws ① to detach the eject guide Assy ②.

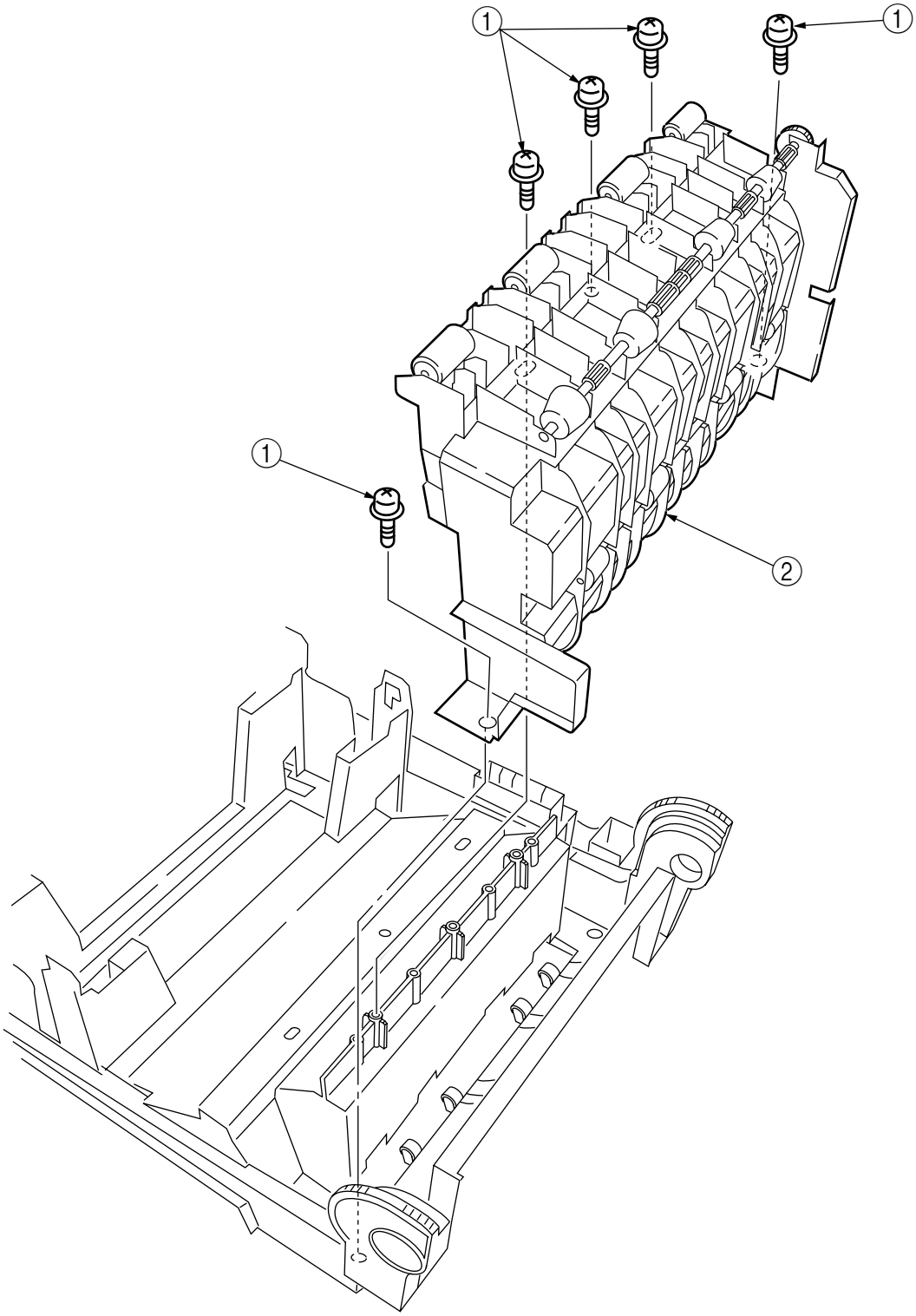


Figure 3-3-6 Eject Guide Assy

3.3.7 Cassette Assy/ Front Cover Assy/ Front Cover Inner Baffle

(1) Detach the cassette Assy ①.
(2) Open the front cover ②, and disengage it at two places to detach it.
(3) Detach the front cover inner baffle ③.

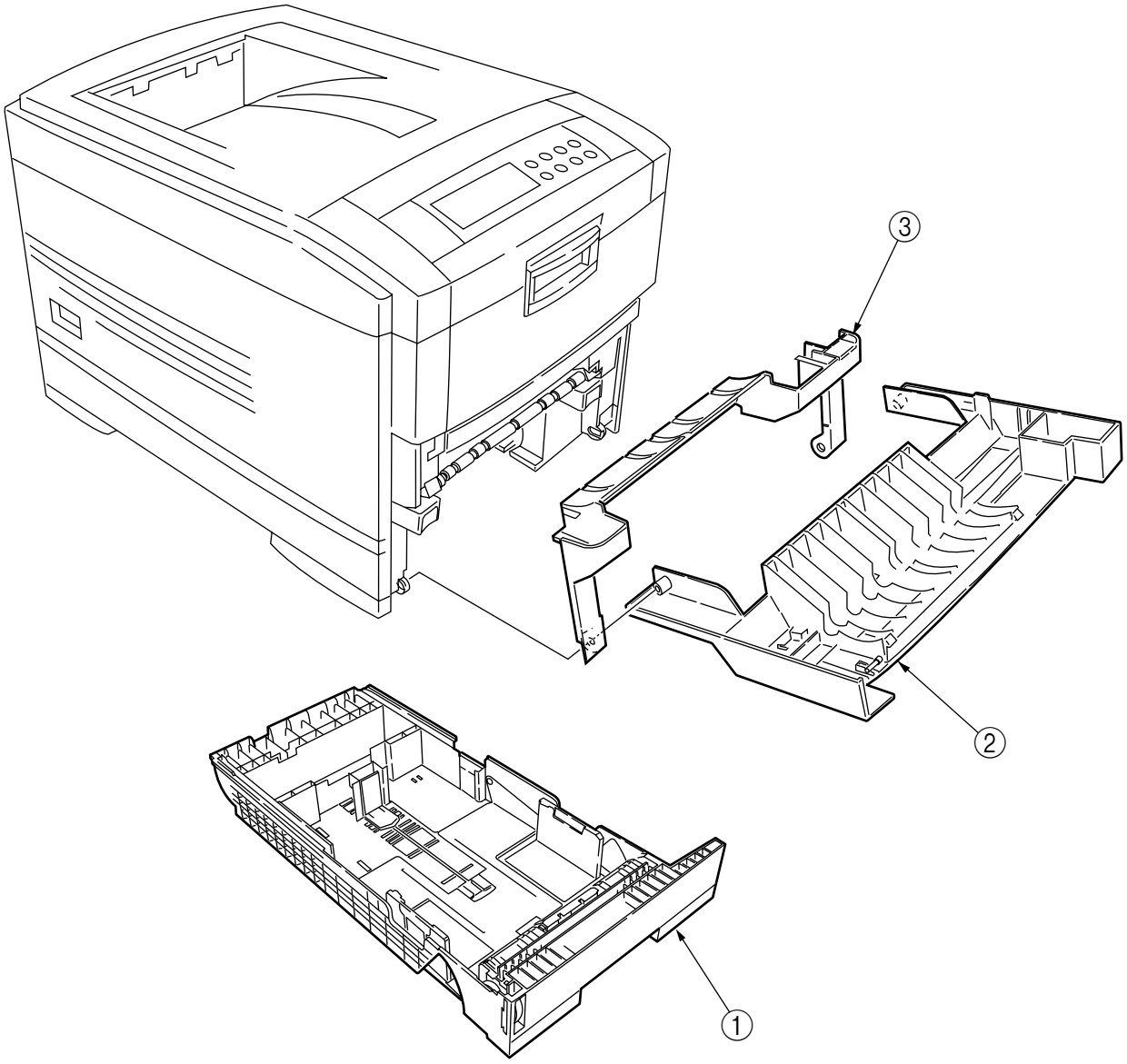


Figure 3-3-7 Cassette Assy/ Front Cover Assy/ Front Cover Inner Baffle

3.3.8 Retard Pad Assy/ Retard Pad Assy Spring

(1) Remove the cassette ①.

(2) Detach the retard pad Assy ② (at the same time, the spring ③ becomes detached).

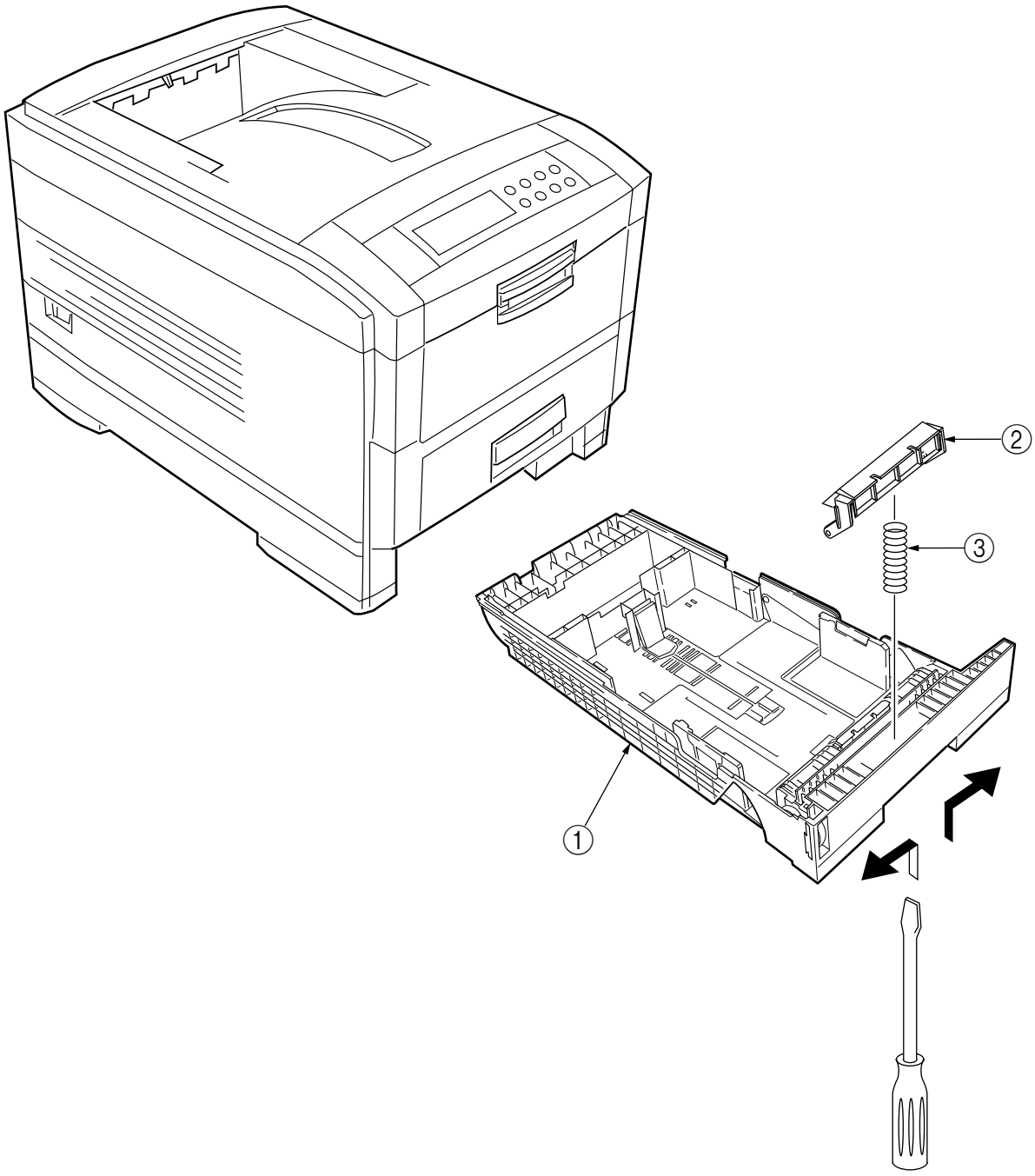


Figure 3-3-8 Retard Pad Assy/ Retard Pad Assy Spring

3.3.9 Feed Roller and Nudger Roller

(1) Remove the cassette.
(2) Unlatch and demount the feed roller ①.
(3) Unlatch and demount the nudger roller ②.

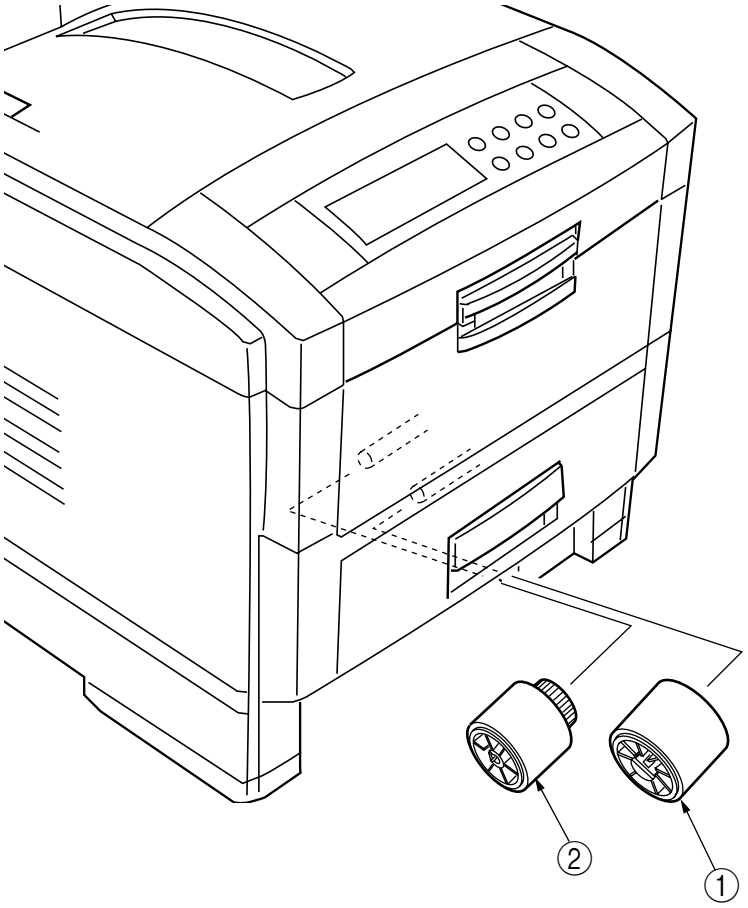


Figure 3-3-9 Feed Roller and Nudger Roller

3.3.10 Rear Cover

(1) Remove the left side cover (see section 3.3.12).
(2) Remove the four screws ② to detach the rear cover ①.

Note! When attaching the rear cover, take care not to allow the spring ③ to get caught in parts.

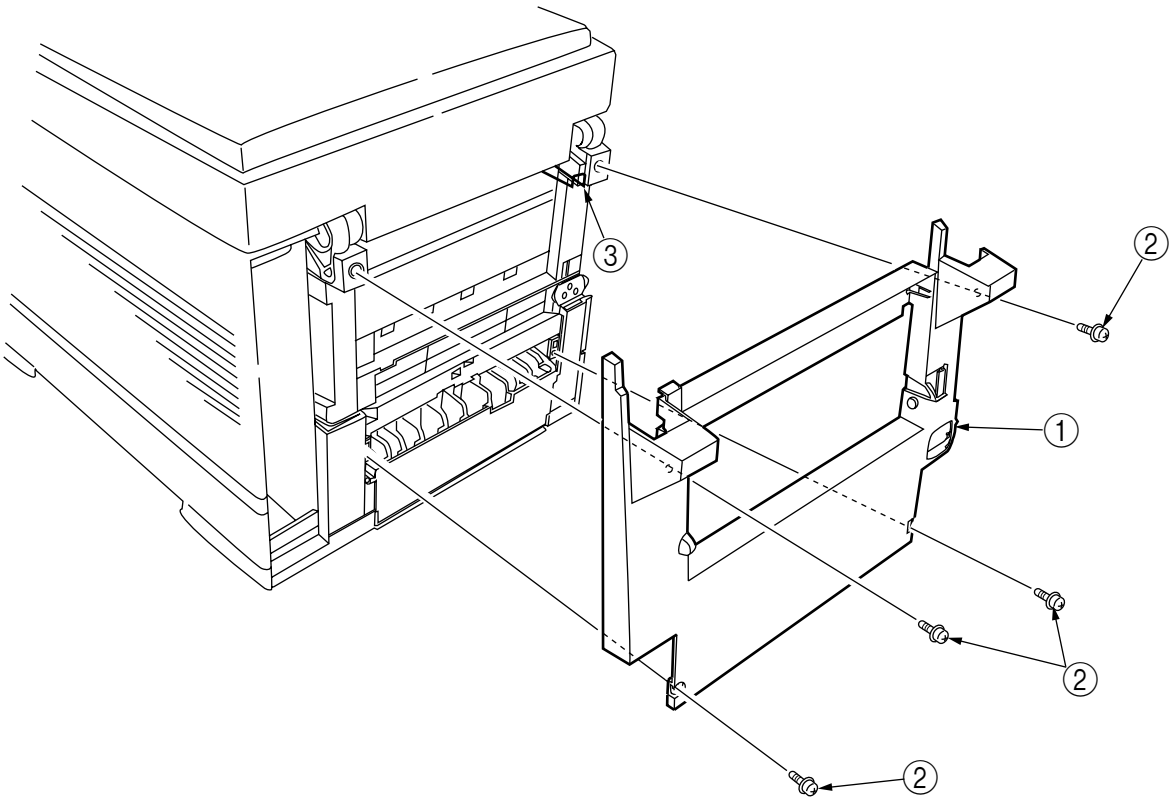


Figure 3-3-10 Rear Cover

3.3.11 Face-Up Tray

(1) Open the face-up tray ① in the arrow direction, and disengage it at two places to detach it.

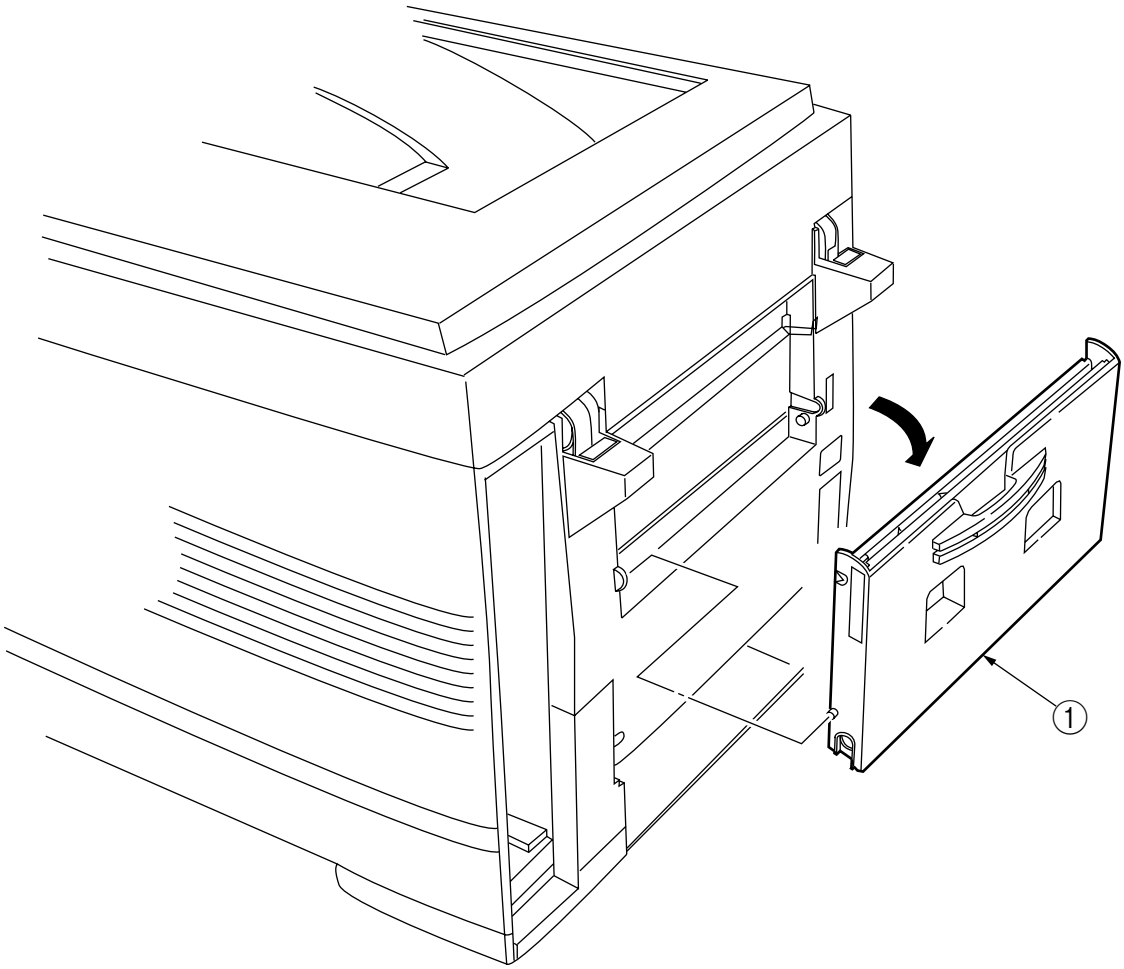


Figure 3-3-11 Face-Up Tray

3.3.12 Left Side Cover

(1) Open the top cover ①.
(2) Open the front cover ② and undo the screw ③.
(3) Remove the four screws ④ to detach the left side cover ⑤.

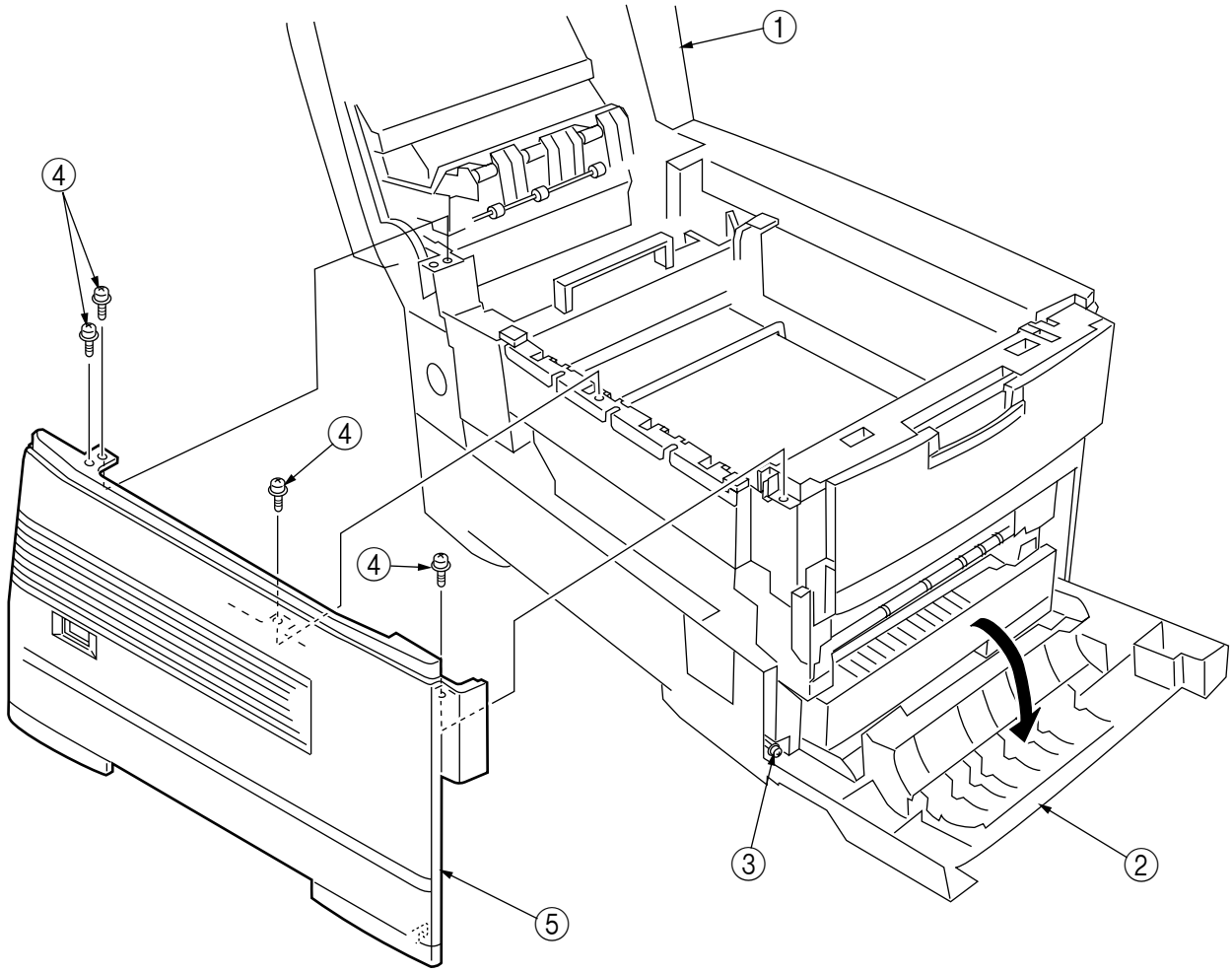


Figure 3-3-12 Left Side Cover

3.3.13 Right Side Cover

(1) Open the top cover ①.

(2) Open the front cover ② and undo the screw ③.

(2) Remove the four screws ④ to detach the right side cover ⑤.

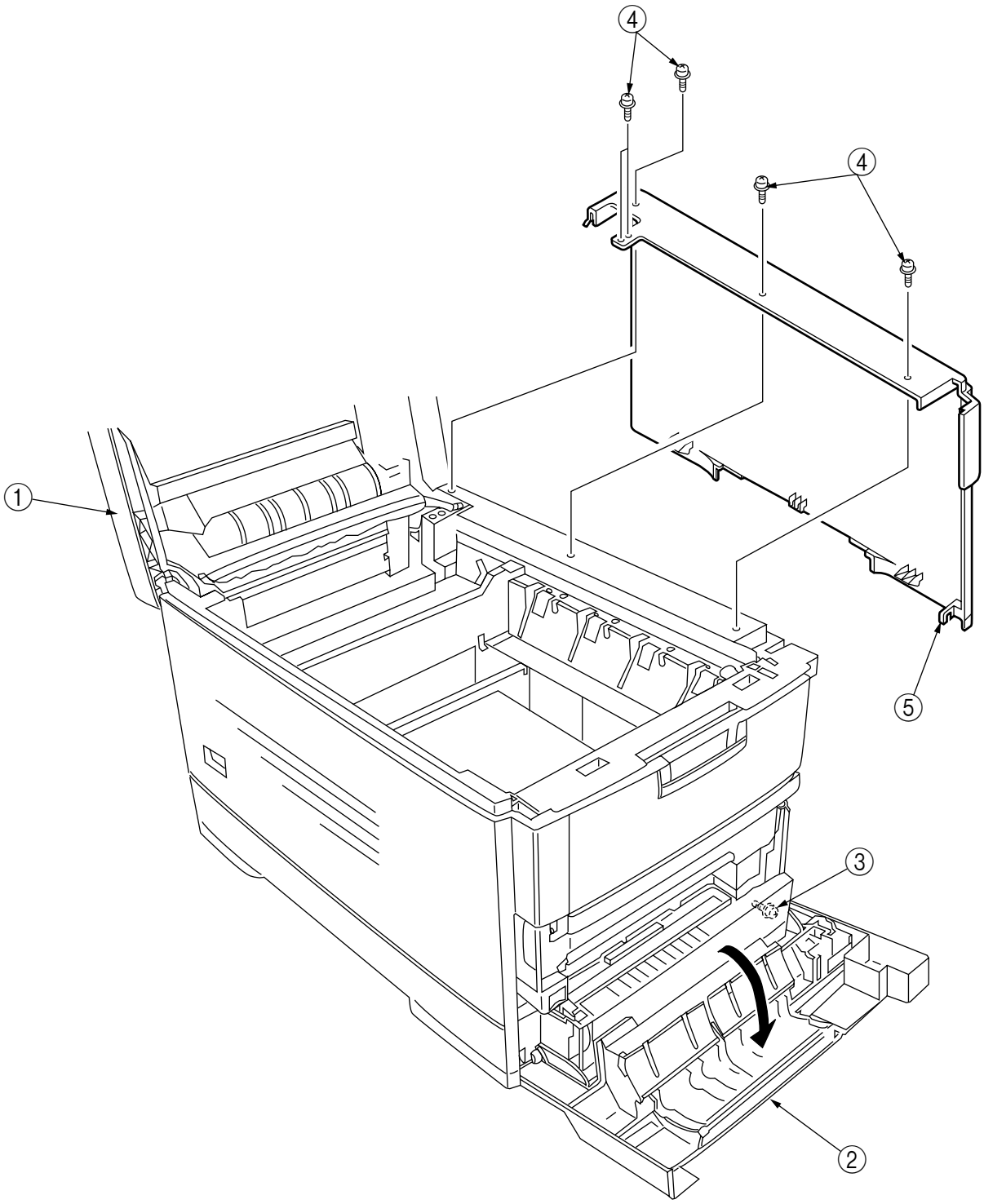


Figure 3-3-13 Right Side Cover

3.3.14 Multipurpose Tray Assy/ Multipurpose Tray Cover Assy/ Links/ Multipurpose Tray Top Cover/ Multipurpose Tray Drive Gear

(1) Remove the left side cover (see section 3.3.12).
(2) Remove the right side cover (see section 3.3.13).
(3) Remove the left plate Assy (see section 3.3.22).
(4) Remove the three screws ① to detach the multipurpose tray top cover ②.
(5) Remove the three screws ③ (two of them are black) and the connector to detach the multipurpose tray ④.
(6) Disengage Ⓐ and Ⓑ at both sides of the assembly to detach the multipurpose tray cover Assy ⑤ (at the same time, the links ⑦ become detached).
(7) Unhook and detach the multipurpose tray drive gear ⑧.

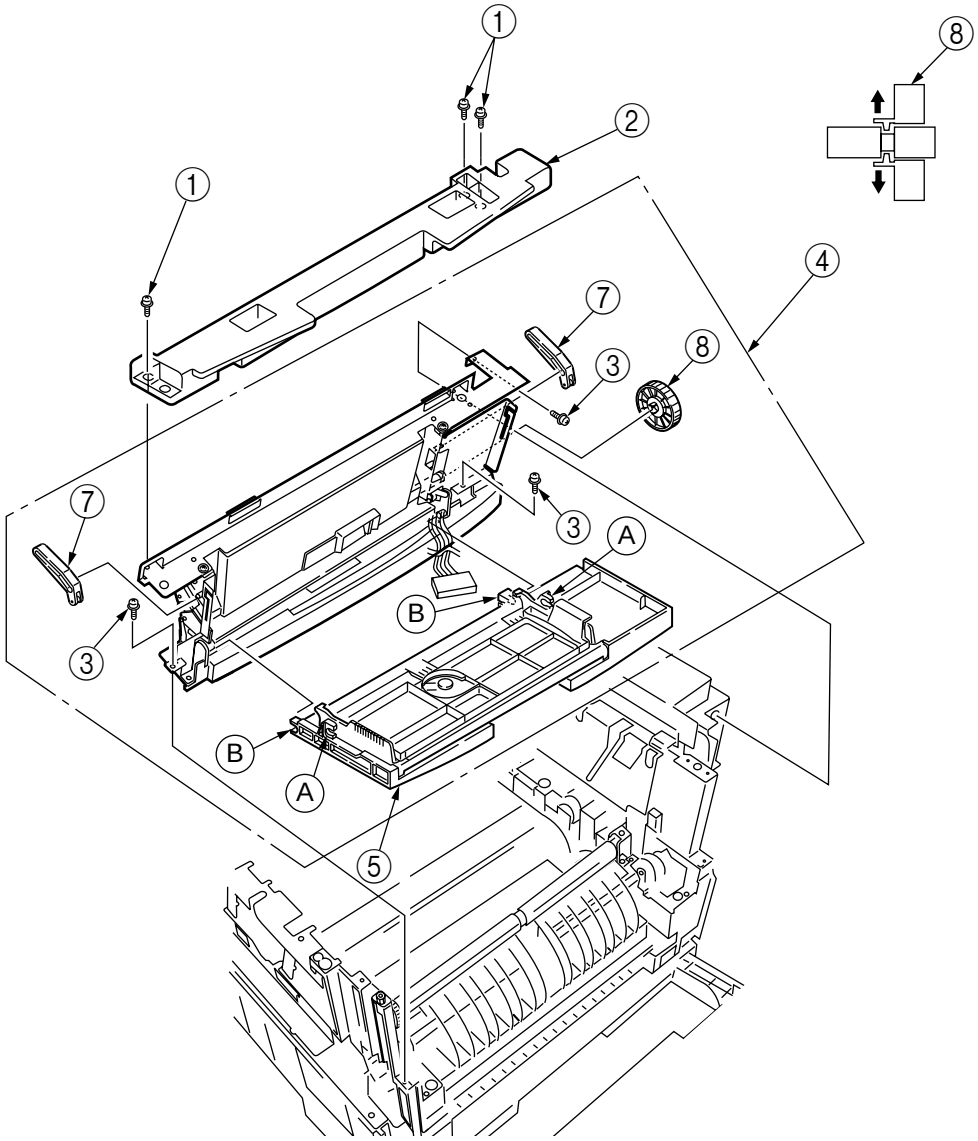


Figure 3-3-14 Multipurpose Tray Assy/ Multipurpose Tray Cover Assy/ Links/ Multipurpose Tray Top Cover/ Multipurpose Tray Drive Gear

3.3.15 Drum Contact Assys

(1) Insert a flatblade screwdriver between the printer case and the drum contact Assy ① to demount the drum contact Assy ①.

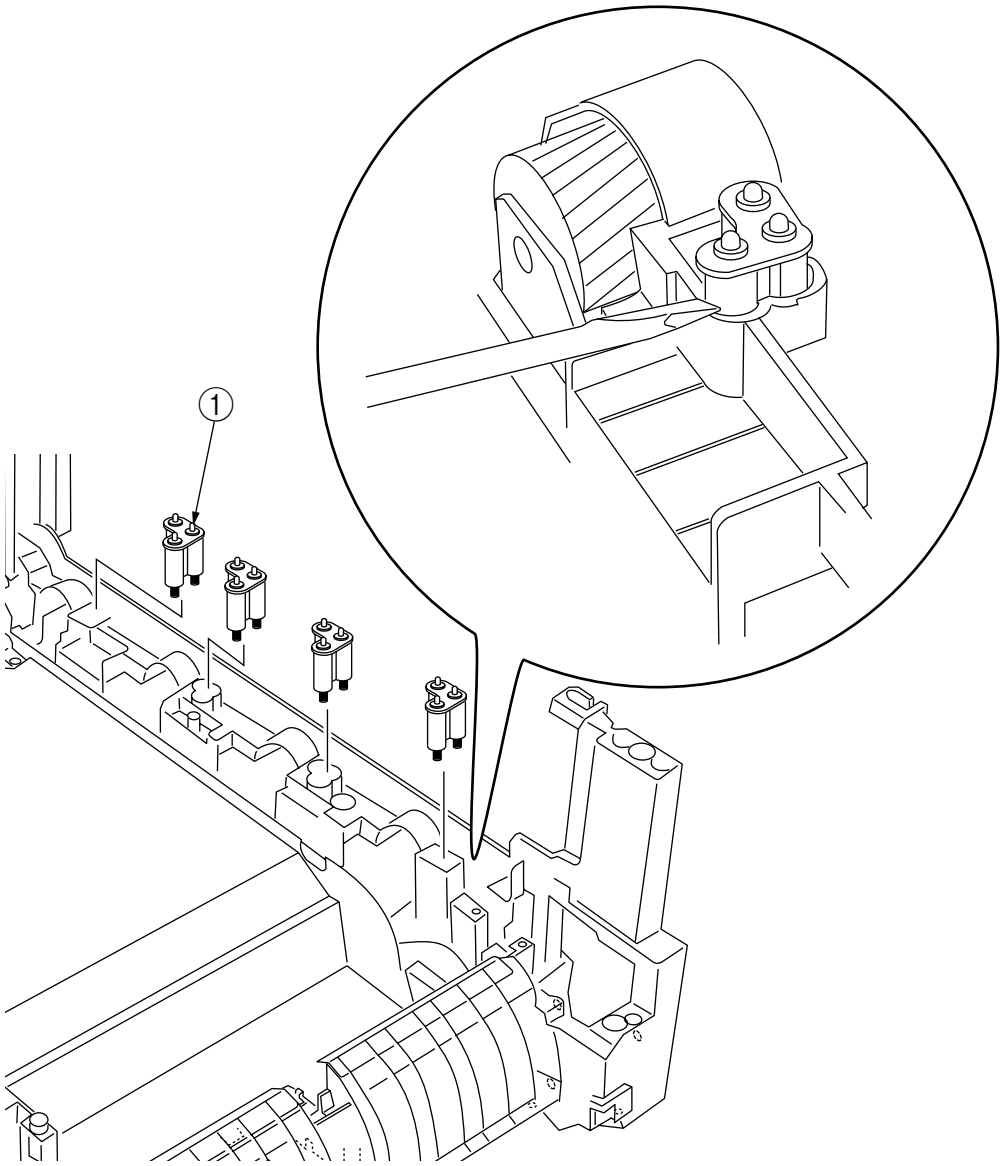


Figure 3-3-15 Drum Contact Assys

3.3.16 Registration Roller Assy (A)/ Registration Drive Gear (A)

(1) Remove the left side cover (see section 3.3.12).
(2) Remove the right side cover (see section 3.3.13).
(3) Remove the multipurpose tray (see section 3.3.14).
(4) Remove the four screws ① to demount the registration roller Assy (A) ②.
(5) Remove the E ring ③ to detach the registration gear (A) ④.

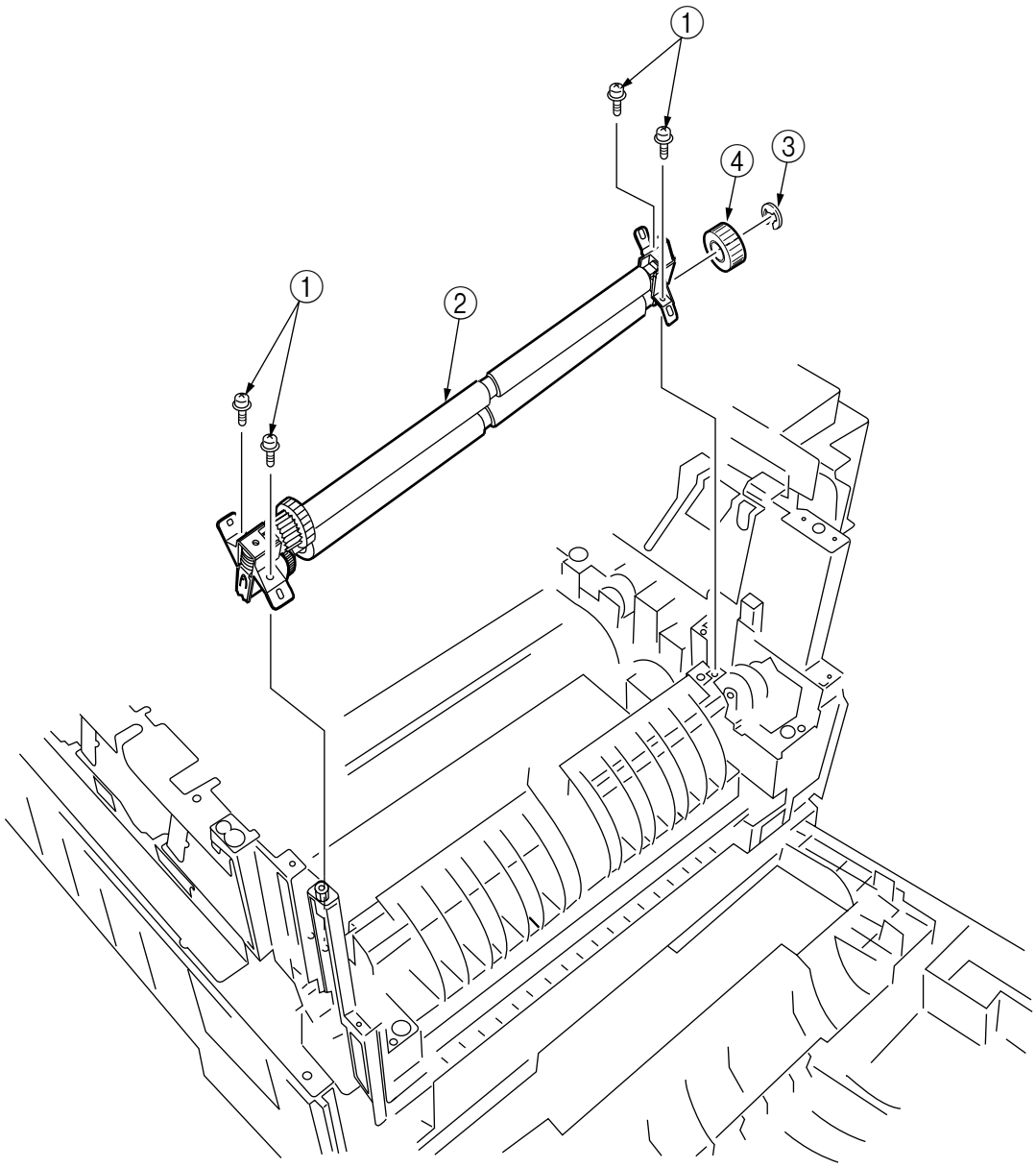


Figure 3-3-16 Registration Roller Assy (A)/ Registration Driver Gear (A)

3.3.17 Registration Roller Assy (B)

(1) Remove the cassette Assy.
(2) Open the front cover.
(3) Remove the right side cover (see section 3.3.13).
(4) Remove the left plate Assy (see section 3.3.22).
(5) Remove the registration clutch (see section 3.3.18).
(7) Unscrew the four screws ①, and pull out the registration Assy (B) ① in the arrow direction.

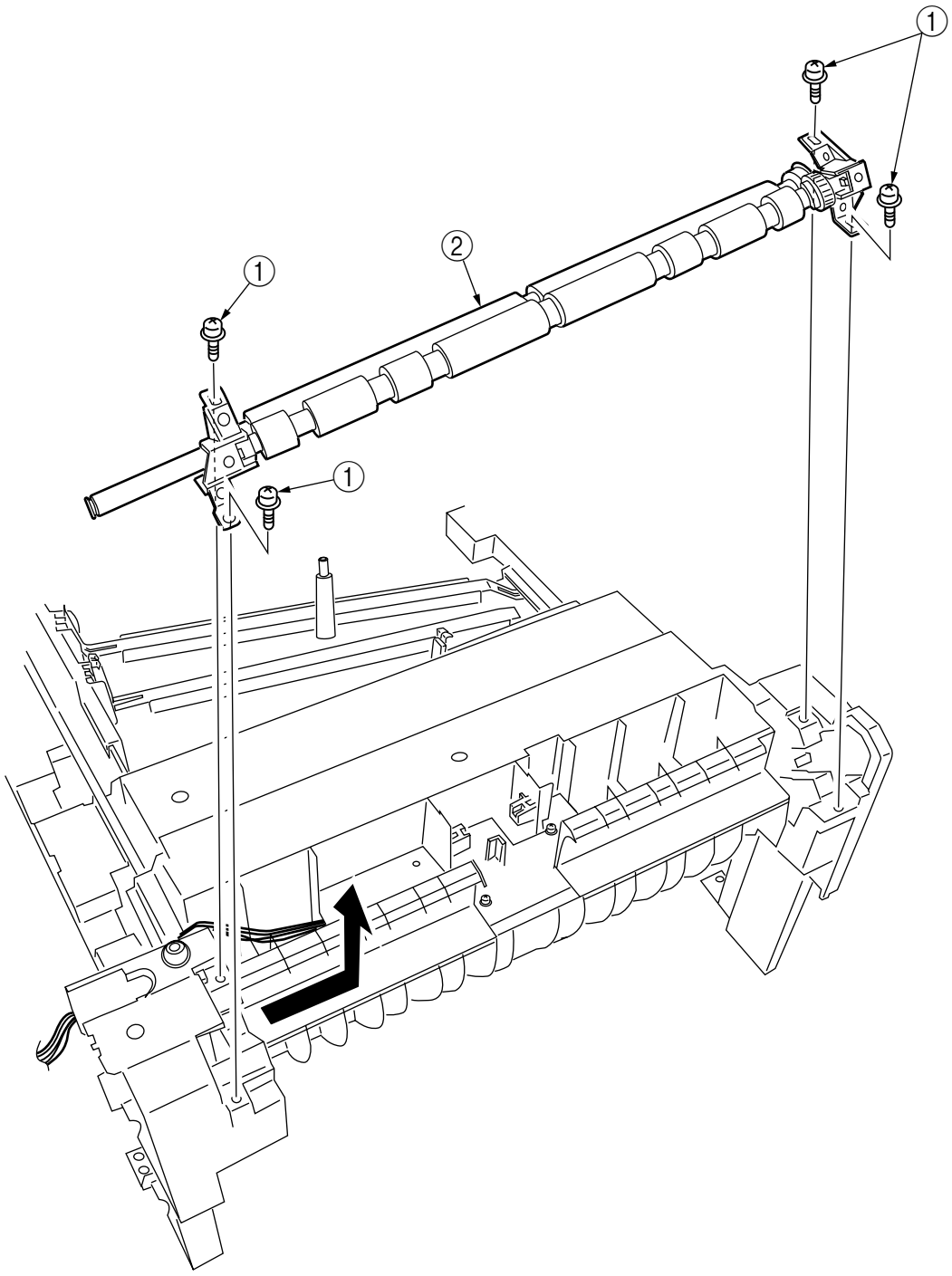


Figure 3-3-17 Registration Roller Assy (B)

3.3.18 Registration Clutch and Registration Motor Assy

(1) Remove the left side cover (see section 3.3.12).
(2) Remove the left plate Assy (see section 3.3.22).
(3) Remove the connector and the E ring ①, then remove the two screws ③, the earth ④ and the registration clutch ②.
(4) Remove the connector to remove the two screws ⑤ and the registration motor Assy ⑥.

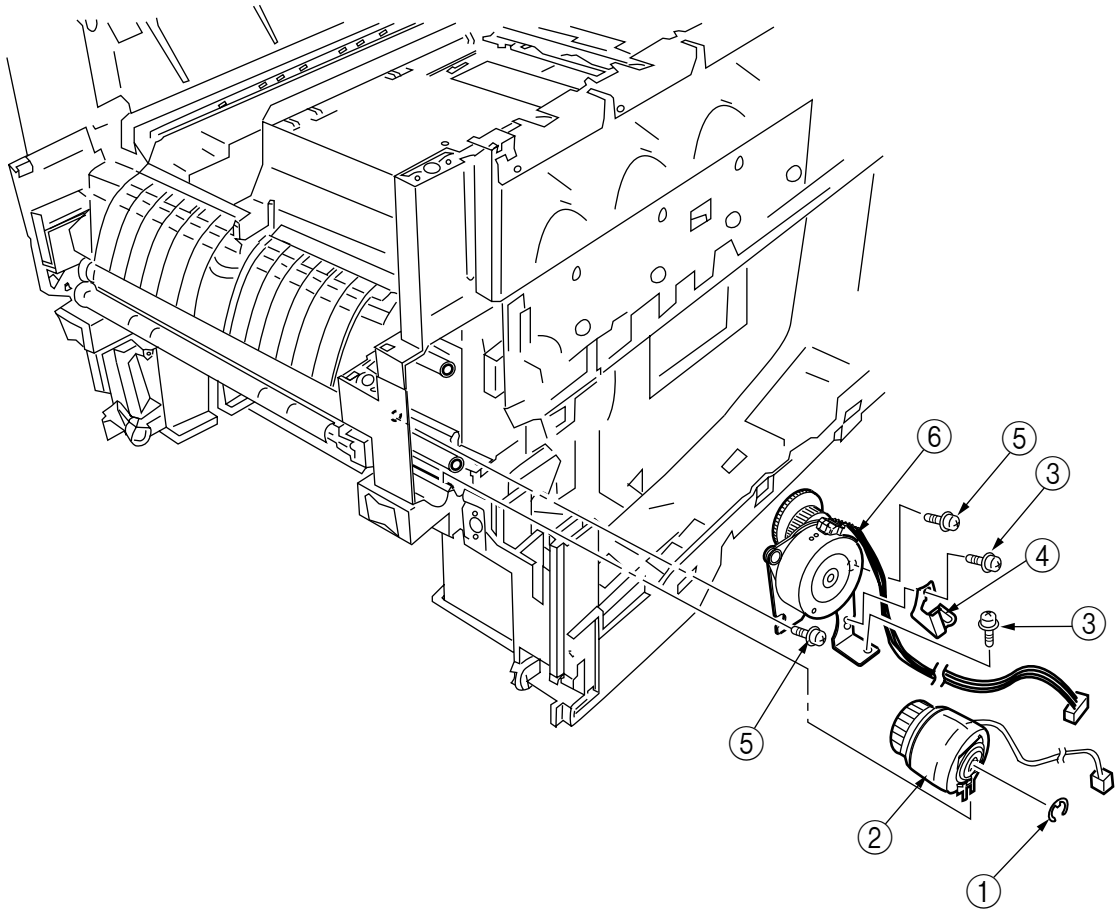


Figure 3-3-18 Registration Clutch and Registration Motor Assy

3.3.19 Main Cooling Fan

(1) Unhook the connector (1), and remove the screw (2) and the cooling fan (3).

Note! When attaching the cooling fan, observe its correct orientation.

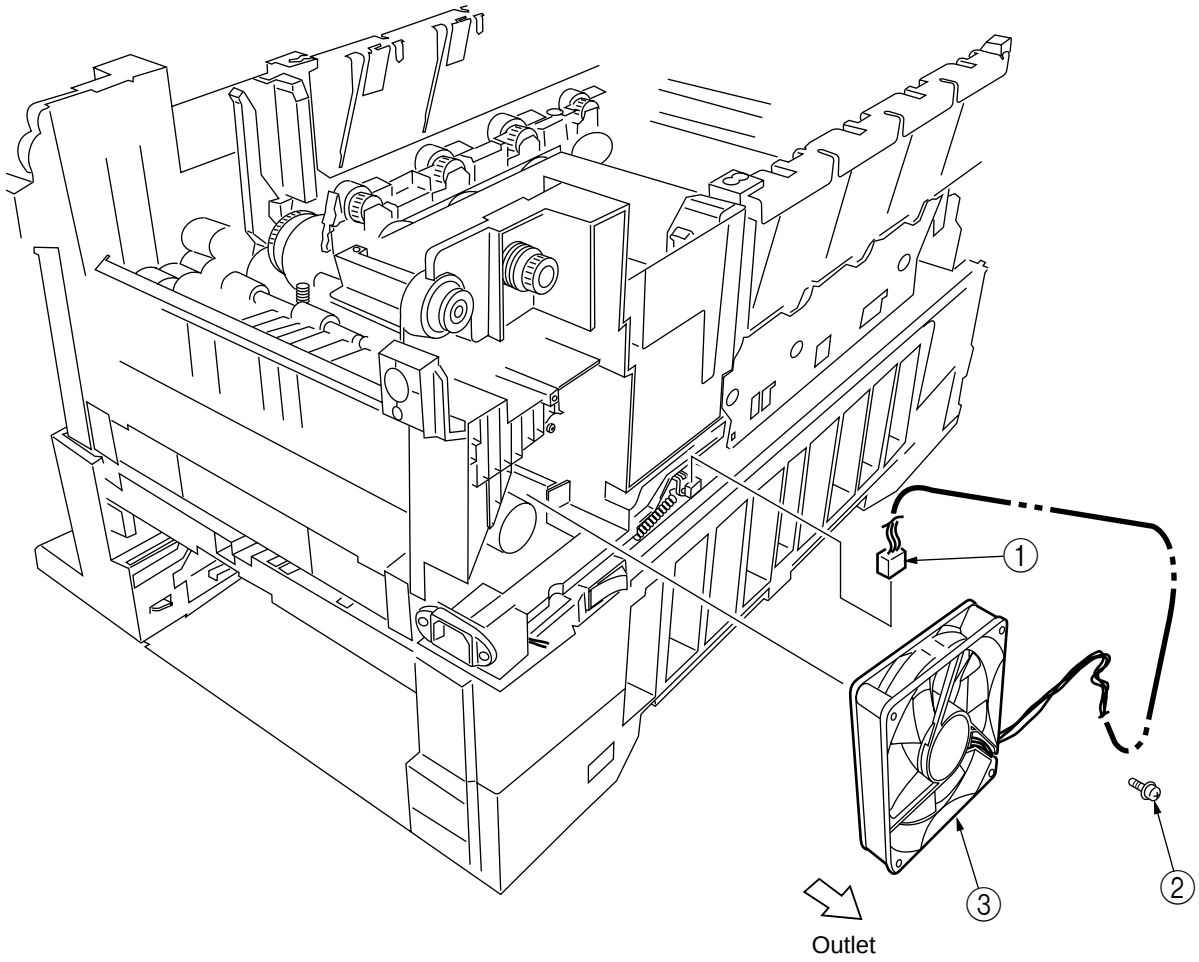


Figure 3-3-19 Main Cooling Fan

3.3.20 Color Registration Sensor Assy

(1) Remove the two screws ① and the two connectors to demount the color registration sensor Assy ②.

(2) Remove the earth plate B ③.

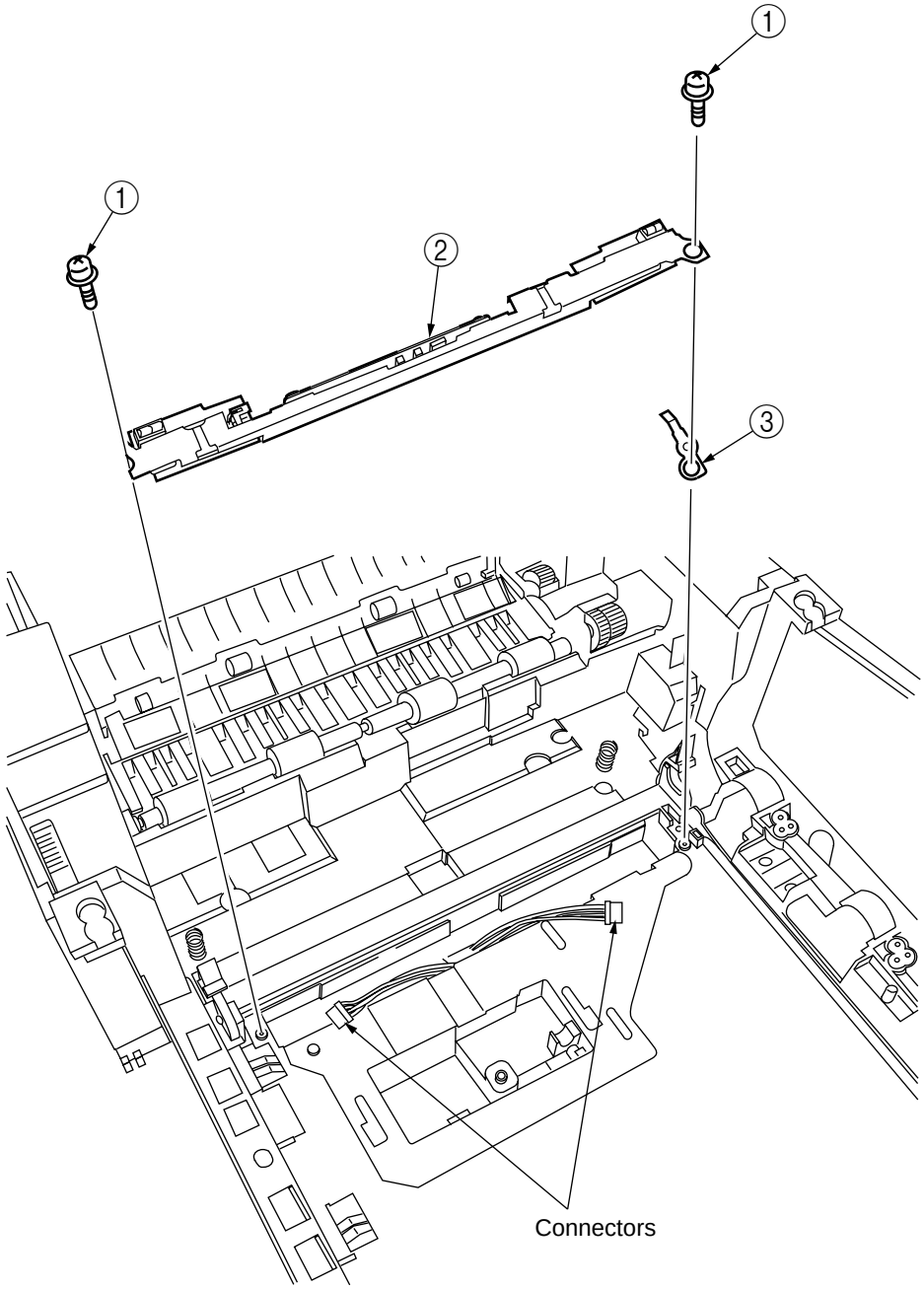


Figure 3-3-20 Color Registration Sensor Assy

3.3.21 Duplex Guide Assy

(1) Unlatch and demount the duplex guide ①.

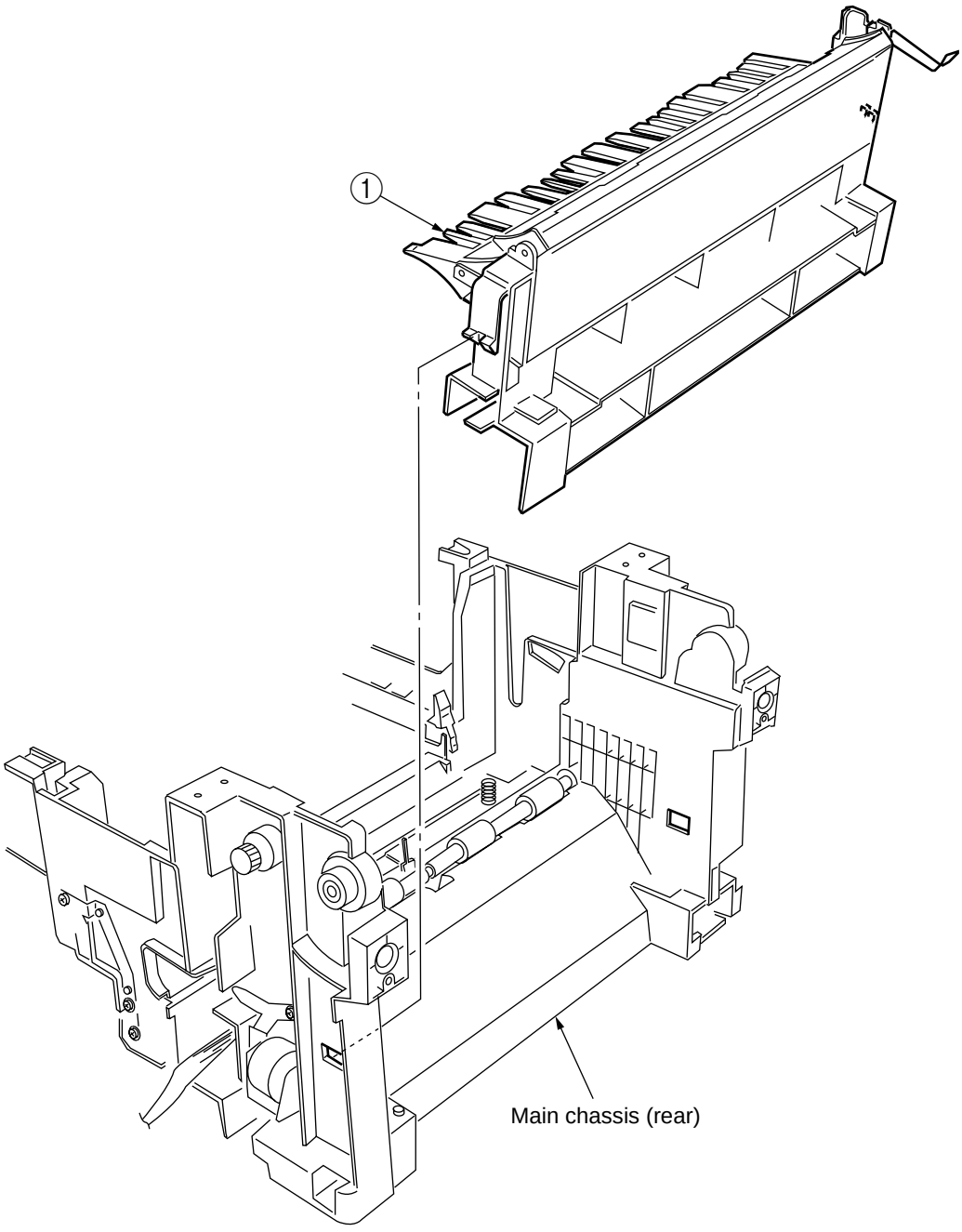


Figure 3-3-21 Duplex Guide Assy

3.3.22 Electrical Chassis Cooling Fan

(1) Unscrew the four screws ① to remove the plate A ②.
(2) Unscrew the four screws ③ to remove the shield plate B ④.
(3) Remove the printer engine controller PWB (see section 3.3.30).
(4) Unscrew the eleven screws ⑤ to remove the shield plate ⑥.
(5) Unscrew the two screws ⑦ to demount the electrical chassis cooling fan ⑧.

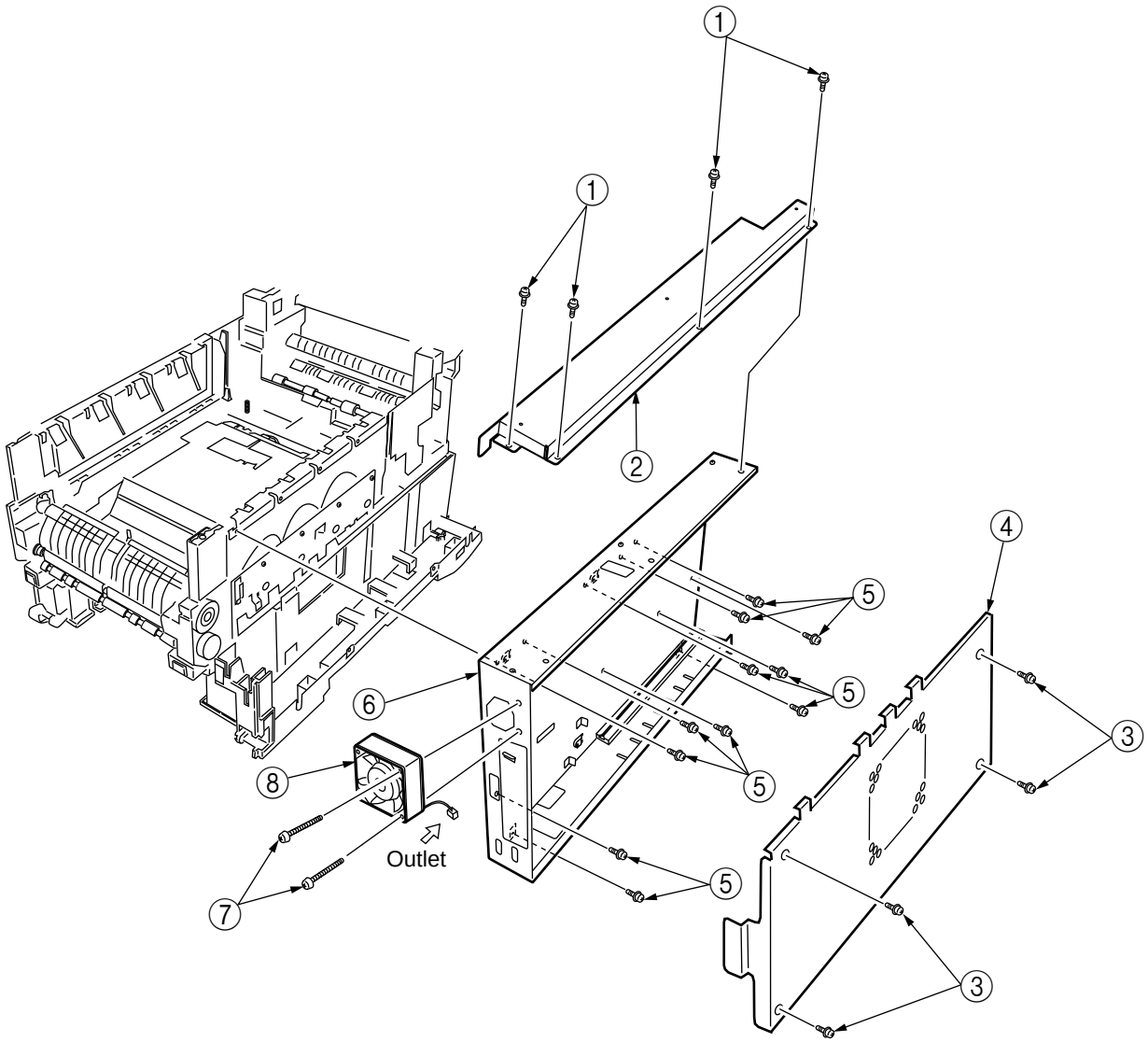


Figure 3-3-22 Electrical Chassis Cooling Fan

3.3.23 Printer Engine Controller PWB

(1) Remove the right side cover (see section 3.3.13).
(2) Remove the left plate Assy (see section 3.3.22).
(3) Remove the five screws ① and all the connectors to demount the printer engine controller PWB ②.

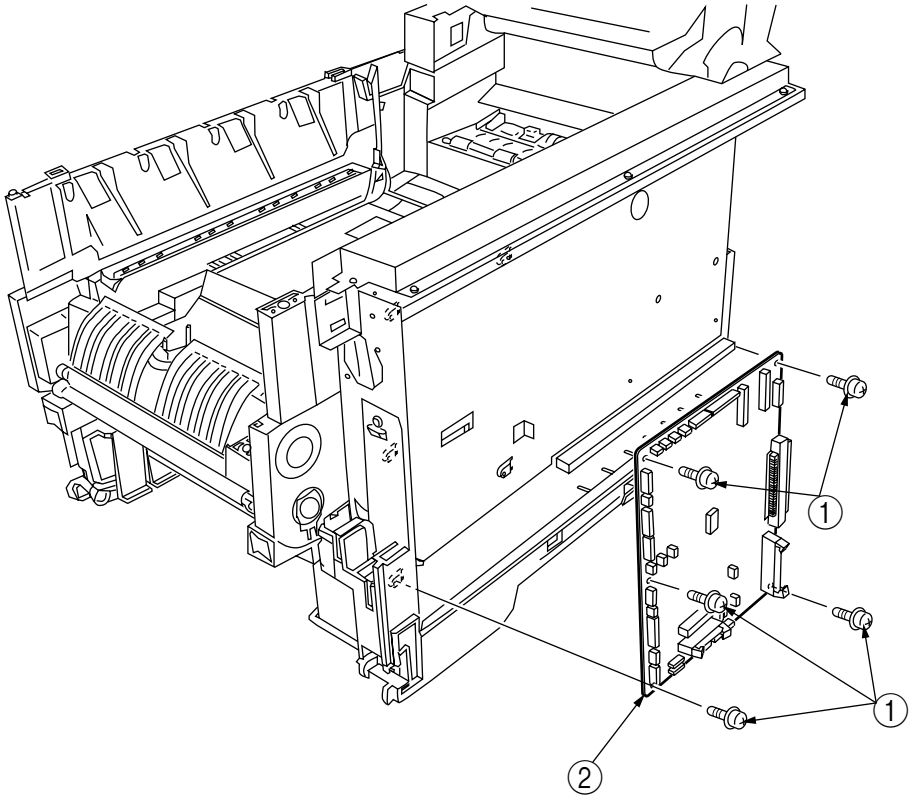


Figure 3-3-23 Printer Engine Controller PWB

3.3.24 Printer Unit Chassis

(1) Unscrew the two screws ① and remove the AC inlet ②.
(2) Unscrew the four black screws ③ and five screws ④ to detach the printer unit chassis ⑤.
(3) Unscrew the four black screws ⑥ and remove the left top cover spring Assy ⑦.
(4) Unscrew the four black screws ⑧ and remove the right top cover spring Assy ⑨.

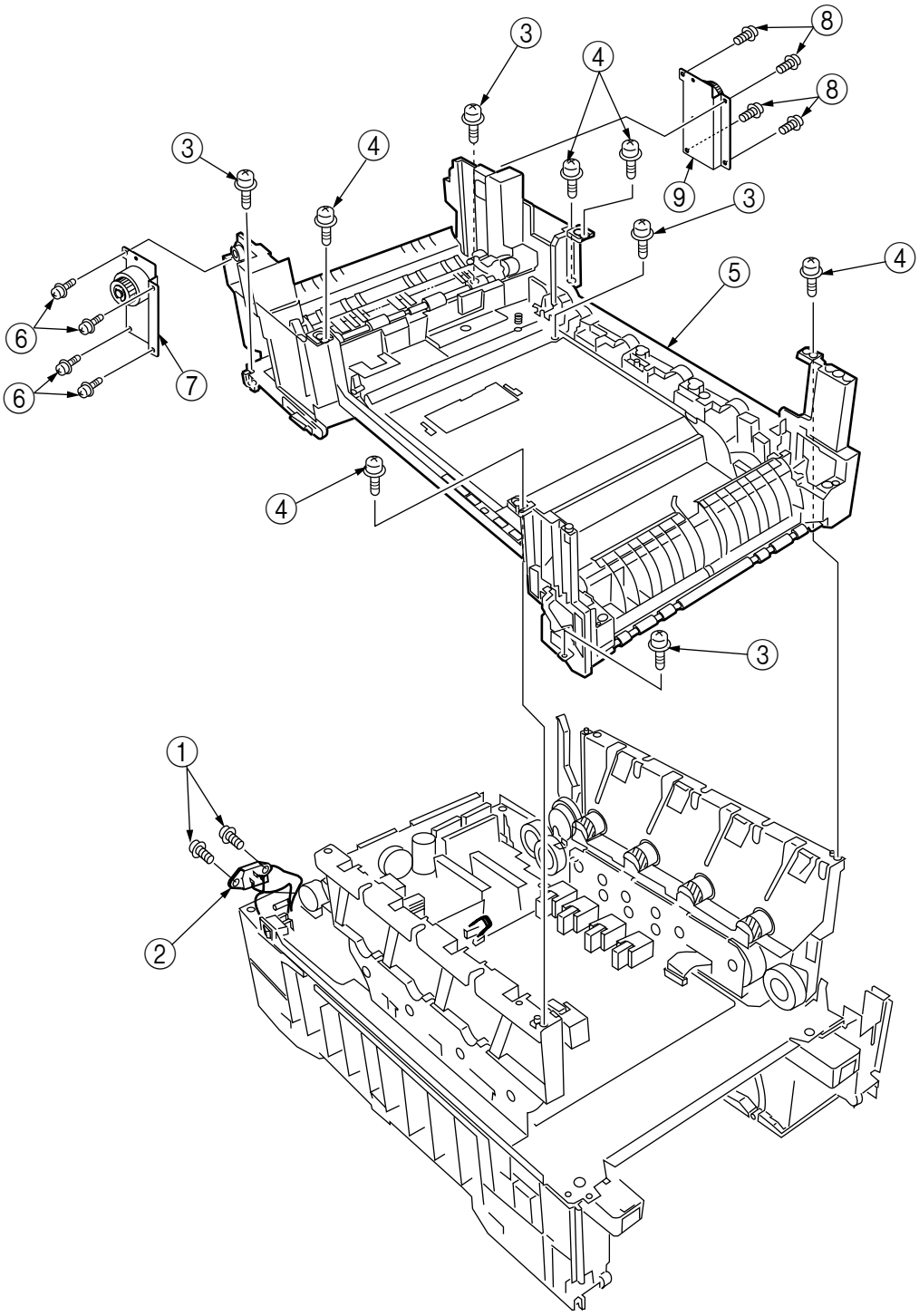


Figure 3-3-24 Pinter Unit Chassis

3.3.25 Entrance Cassette Sensor Actuator

(1) Remove the printer unit chassis (see section 3.3.24).
(2) Turn over the main chassis.
(3) Remove the two clamps with tweezers to demount the entrance cassette sensor actuator ①.

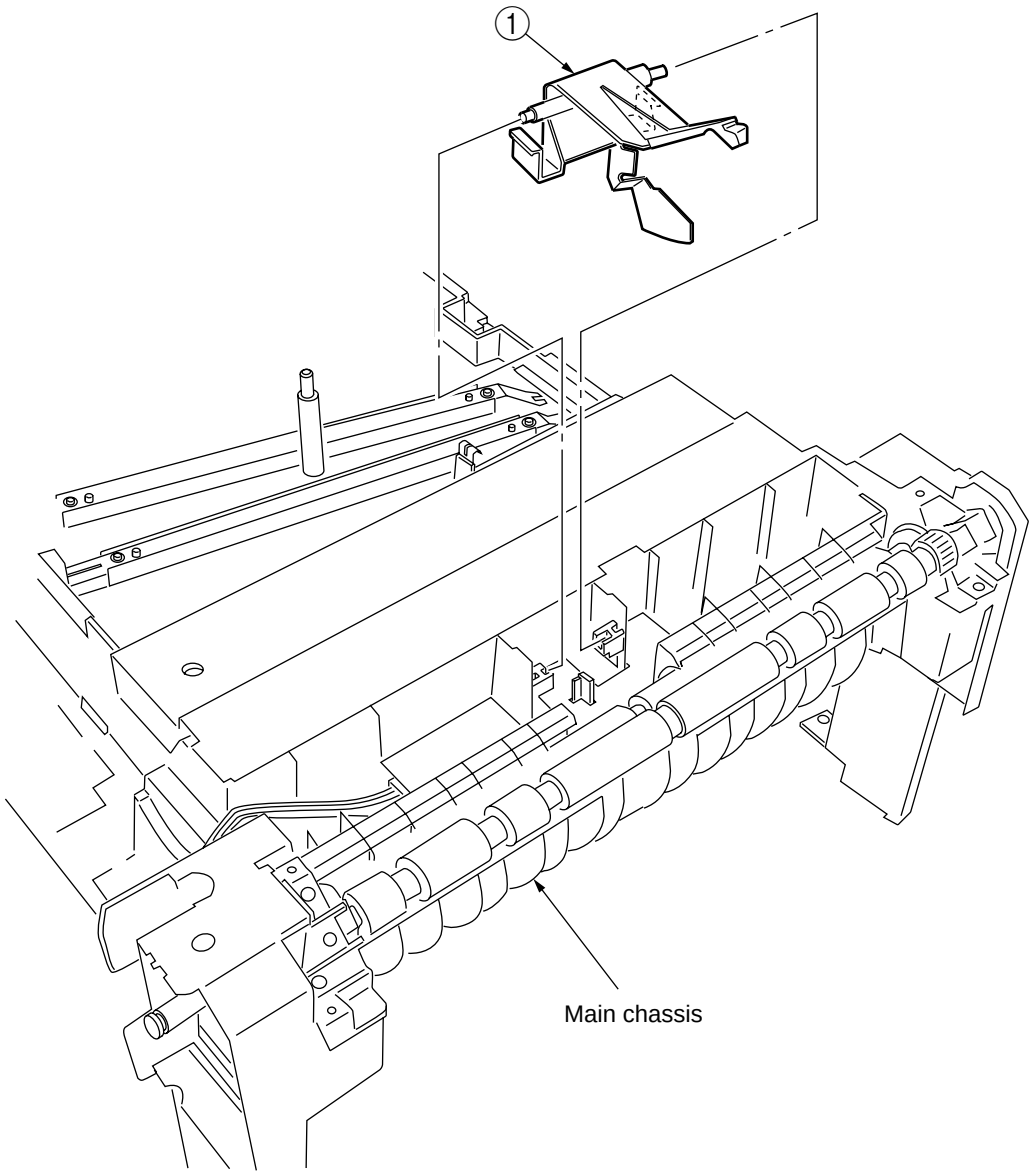


Figure 3-3-25 Entrance Cassette Sensor Actuator

3.3.26 Entrance Sensor PWB

(1) Remove the registration roller Assy (B) (see section 3.3.17).

(2) Remove the two screws ① to demount the entrance sensor PWB ②.

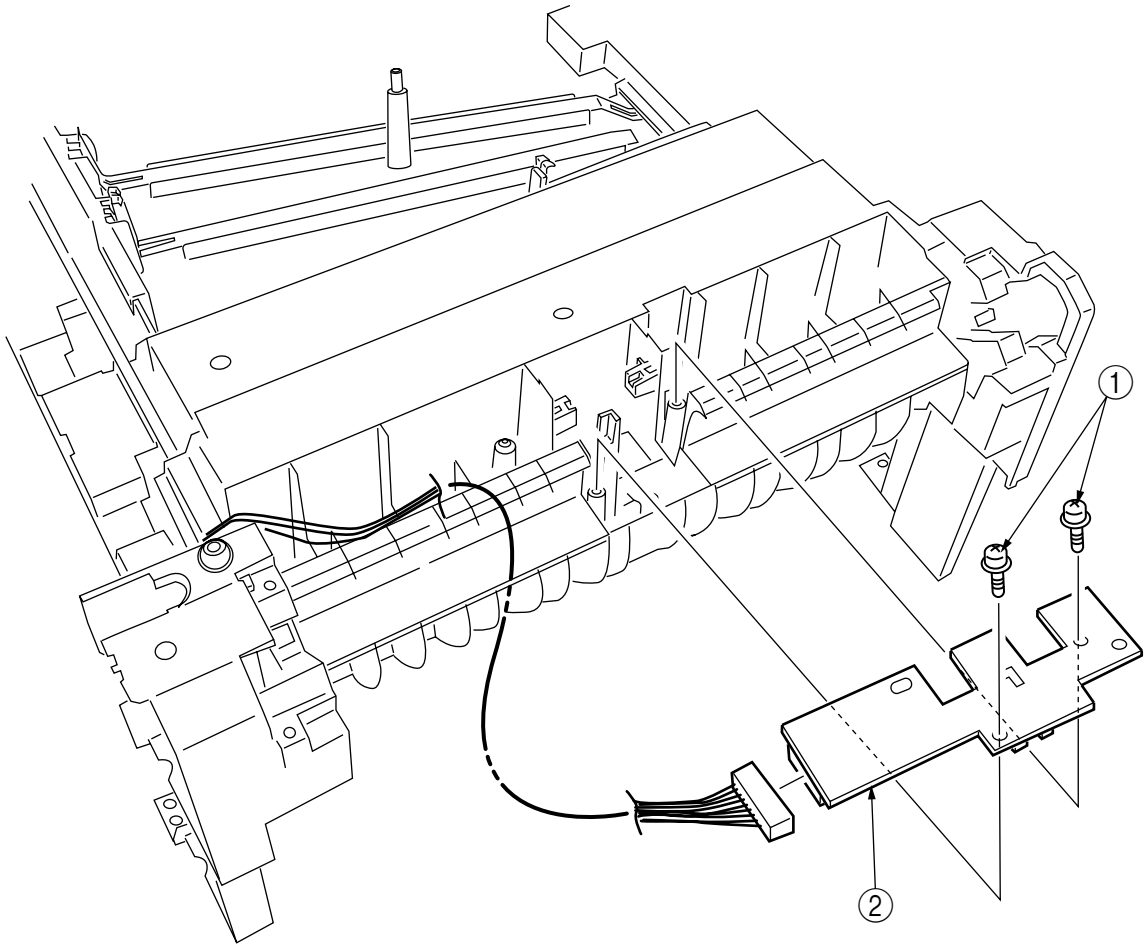


Figure 3-3-26 Entrance Sensor PWB

3.3.27 Entrance MT Sensor Actuator and Entrance Belt Sensor Actuator

(1) Remove the entrance sensor PWB (R71) (see section 3.3.26).
(2) Unlatch and detach the entrance MT sensor actuator ①.
(3) Unlatch and detach the entrance belt actuator ②.

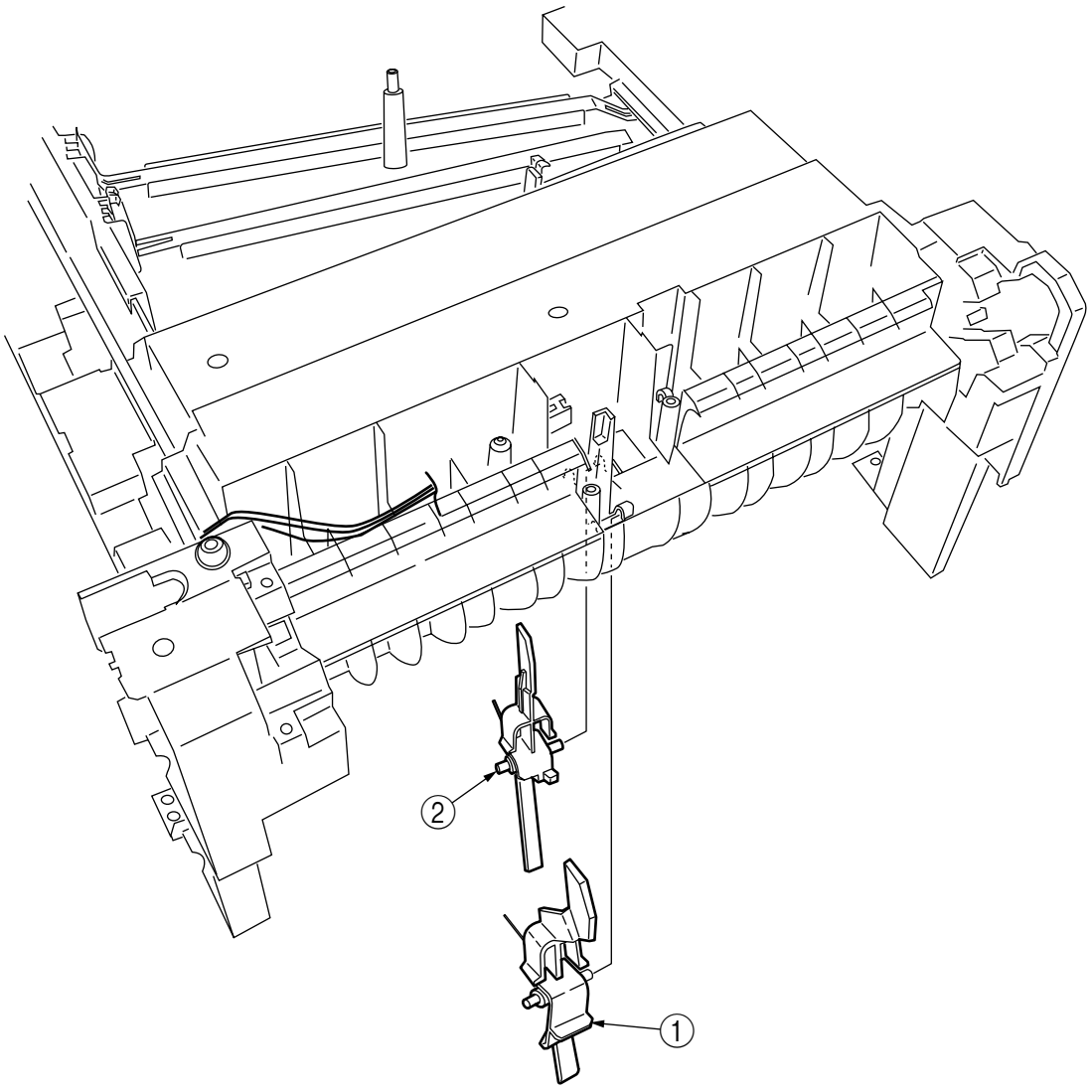


Figure 3-3-27 Entrance MT Sensor Actuator and Entrance Belt Sensor Actuator

3.3.28 Fuser Exit Roller

(1) Unscrew the two screws ① to remove the duplex gate solenoid Assy ②.
(2) Unscrew the screw ③ to remove the fuser exit roller contact ④.
(3) Remove the fuser drive gear -A ⑤ and fuser drive gear -A ⑥.
(4) Unscrew the screw ⑦ to remove the fuser drive gear -C ⑧.
(5) Unlatch and detach the fuser drive gear -B ⑨ and fuser exit roller bush (R) ⑩.
(6) Unlatch and detach the fuser exit roller bush (L) ⑪ and fuser exit roller ⑫.

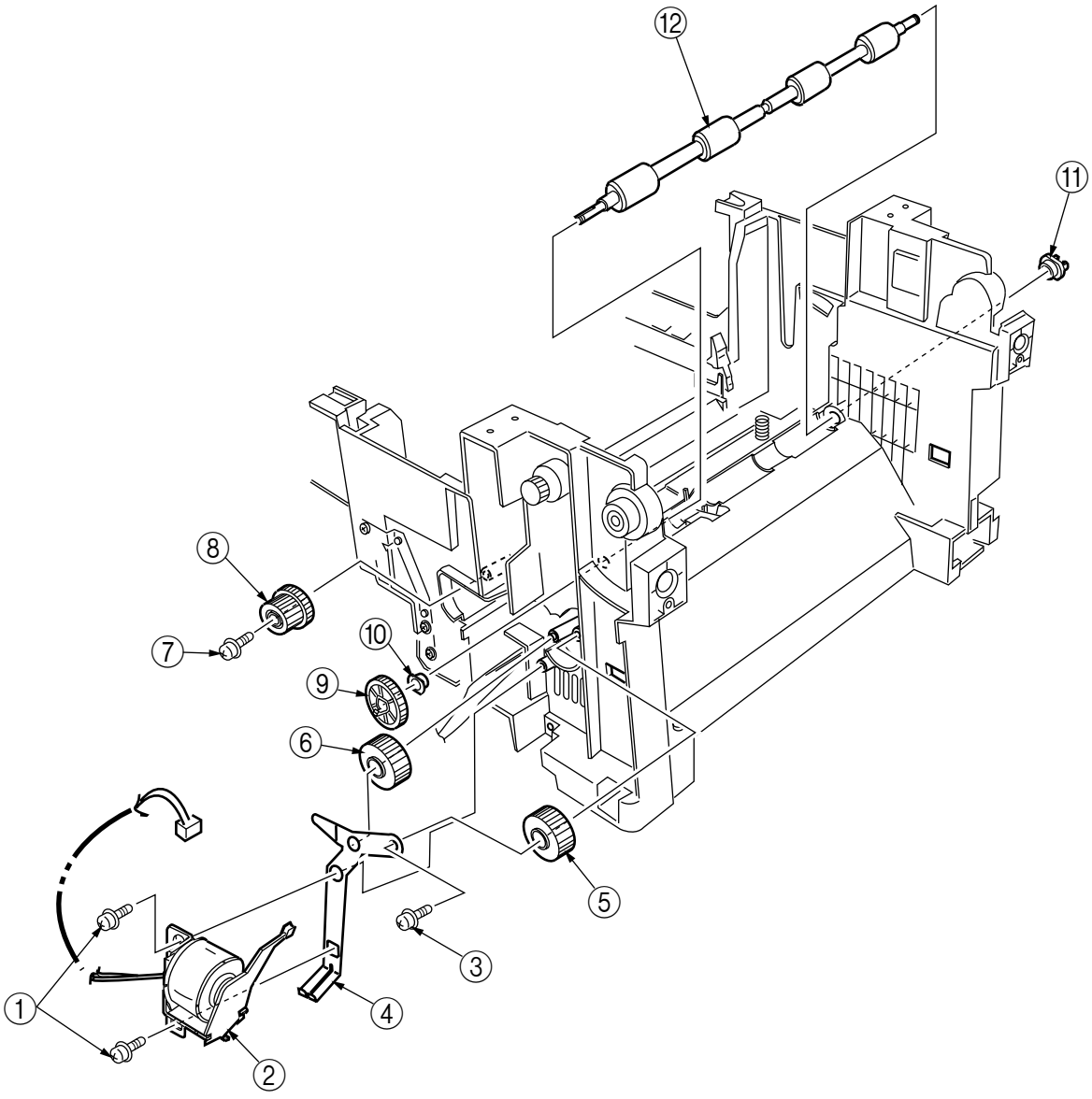


Figure 3-3-28 Fuser Exit Roller

3.3.29 Exit Sensor Assy

(1) Remove the fuser exit roller (see section 3.3.28).

(2) Remove the screw ① and connector to demount the (red and blue) exit sensor Assy ②.

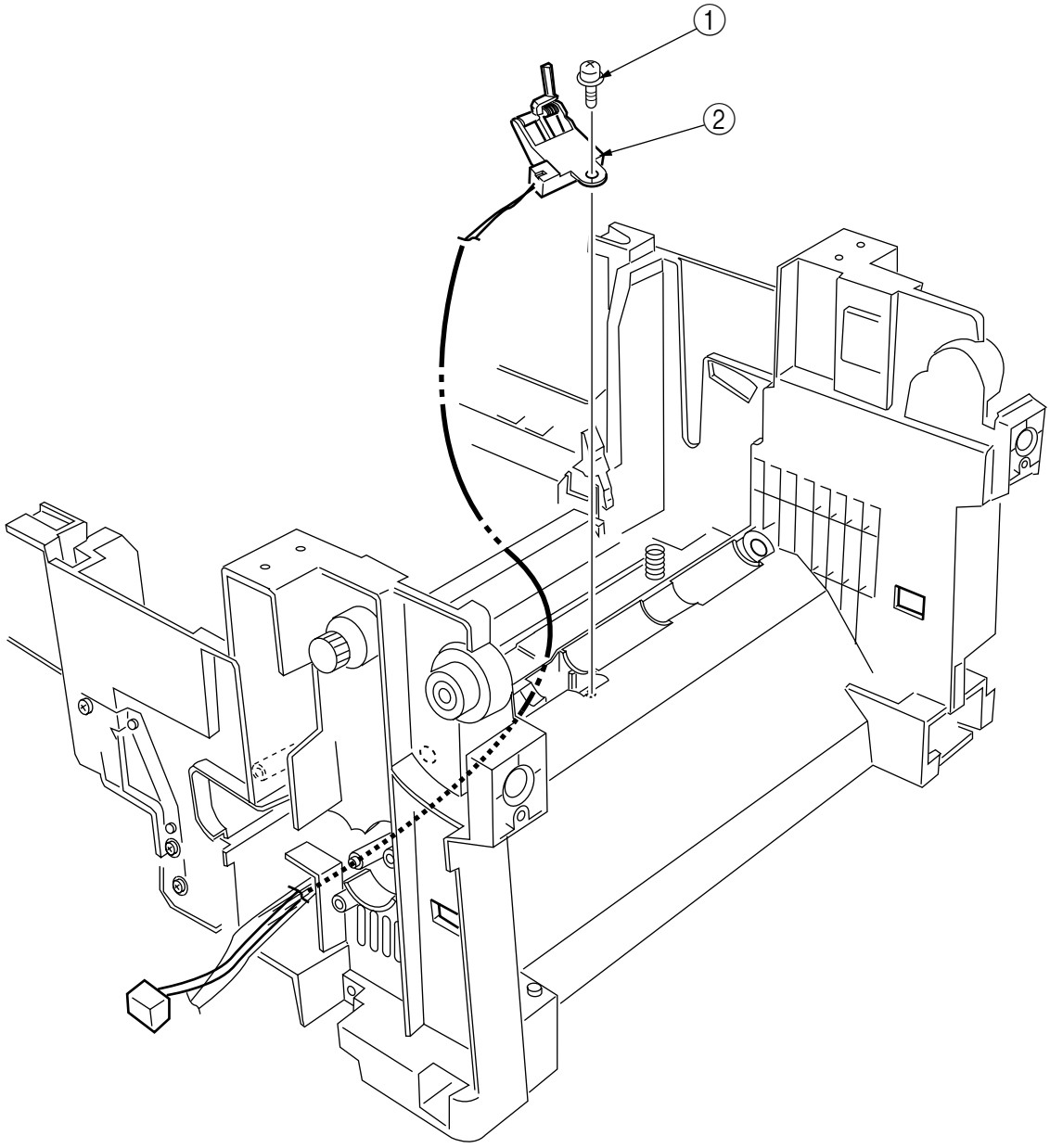


Figure 3-3-29 Exit Sensor Assy

3.3.30 Fuser Latching Handle (L)

(1) Remove the latching handle spring ①.

(2) Unscrew the screw ② to detach the fuser latching handle (L) ③.

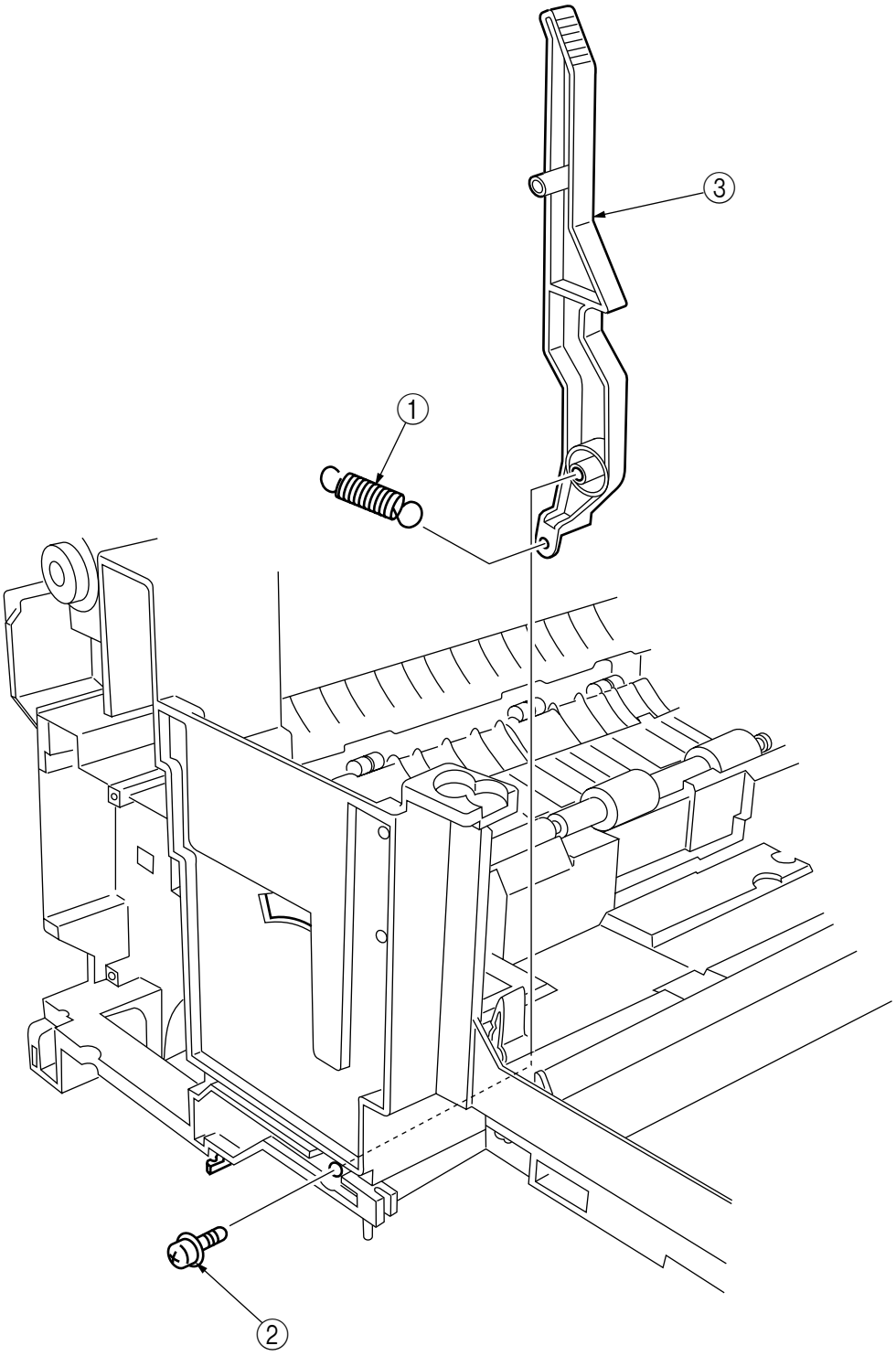


Figure 3-3-30 Fuser Latching Handle (L)

3.3.31 Belt Motor Assy

(1) Remove the fuser latching handle (R) (see section 3.3.32).
(2) Remove the two screws ① to detach the two connectors ②.
(3) Demount the belt motor Assy ③.

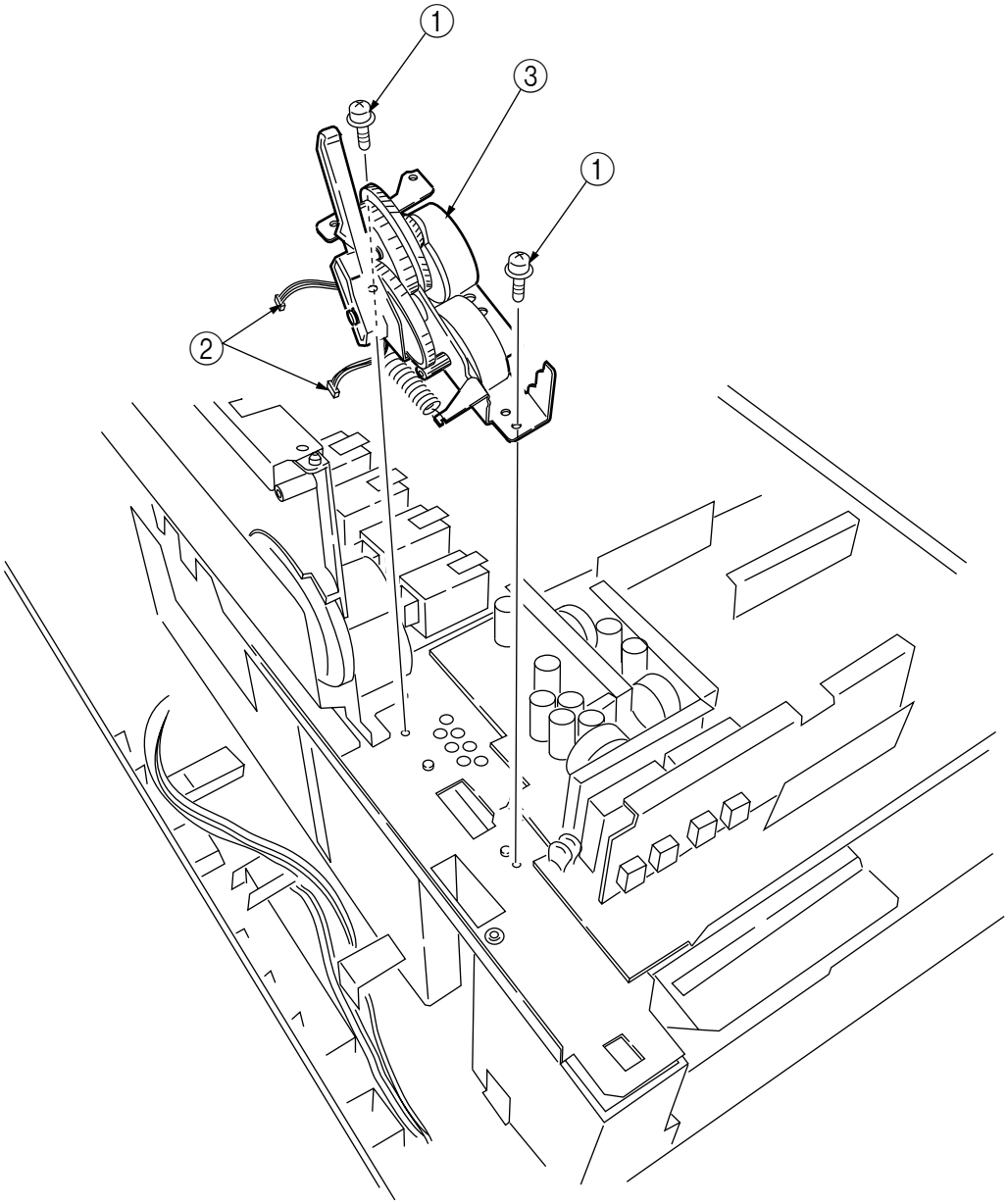


Figure 3-3-31 Belt Motor Assy

3.3.32 Fuser Latching Handle (R)

(1) Remove the printer unit chassis (see section 3.3.24).
(2) Remove the E ring ①.
(3) Remove the fuser latching handle spring ② to detach the fuser latching handle (R) ③.

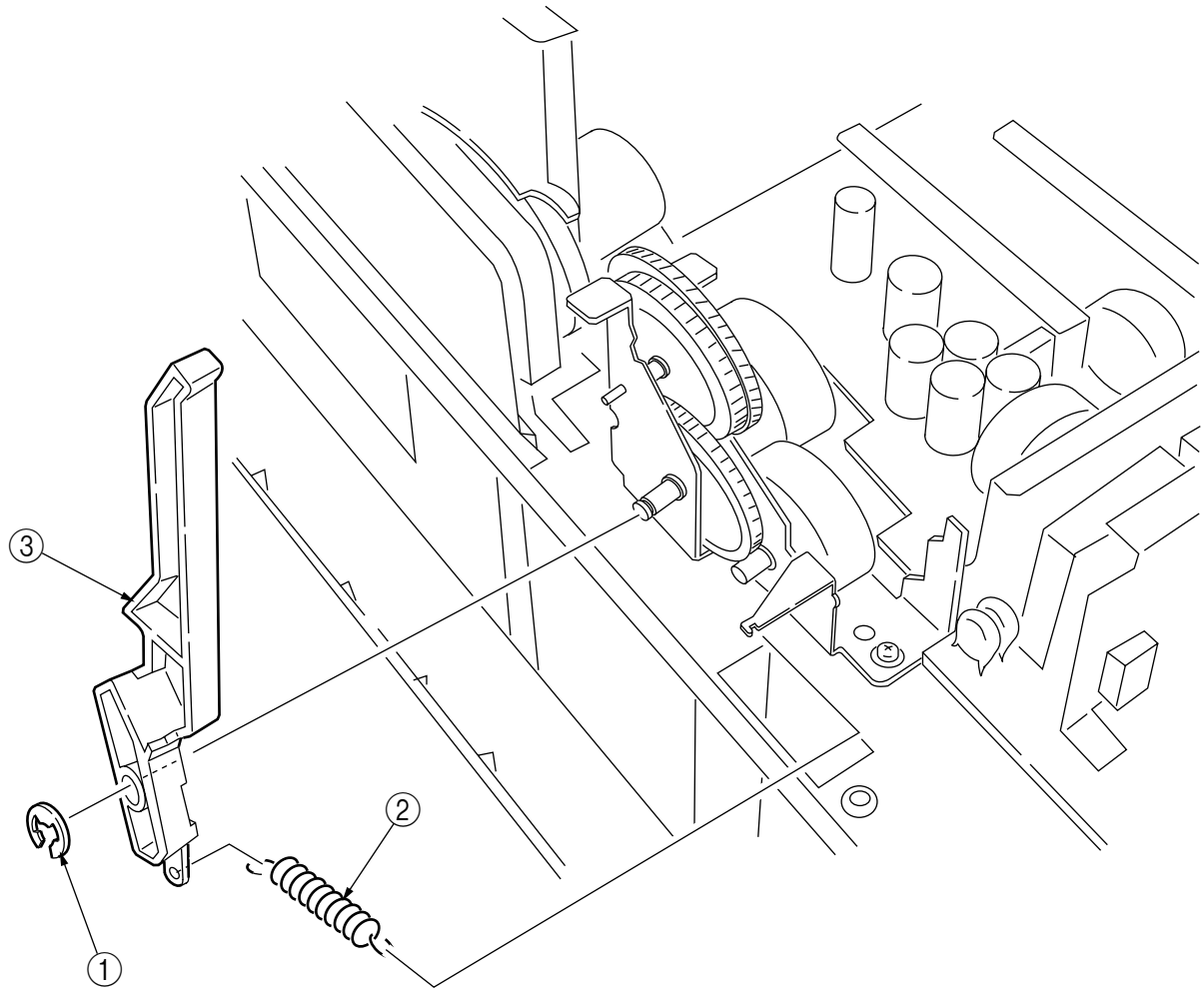


Figure 3-3-32 Fuser Latching Handle (R)

3.3.33 Main Motor Assy

(1) Remove the belt motor Assy (see section 3.3.31).
(2) Remove all the connectors.
(3) Remove the four screws ① to demount the main motor Assy ②.

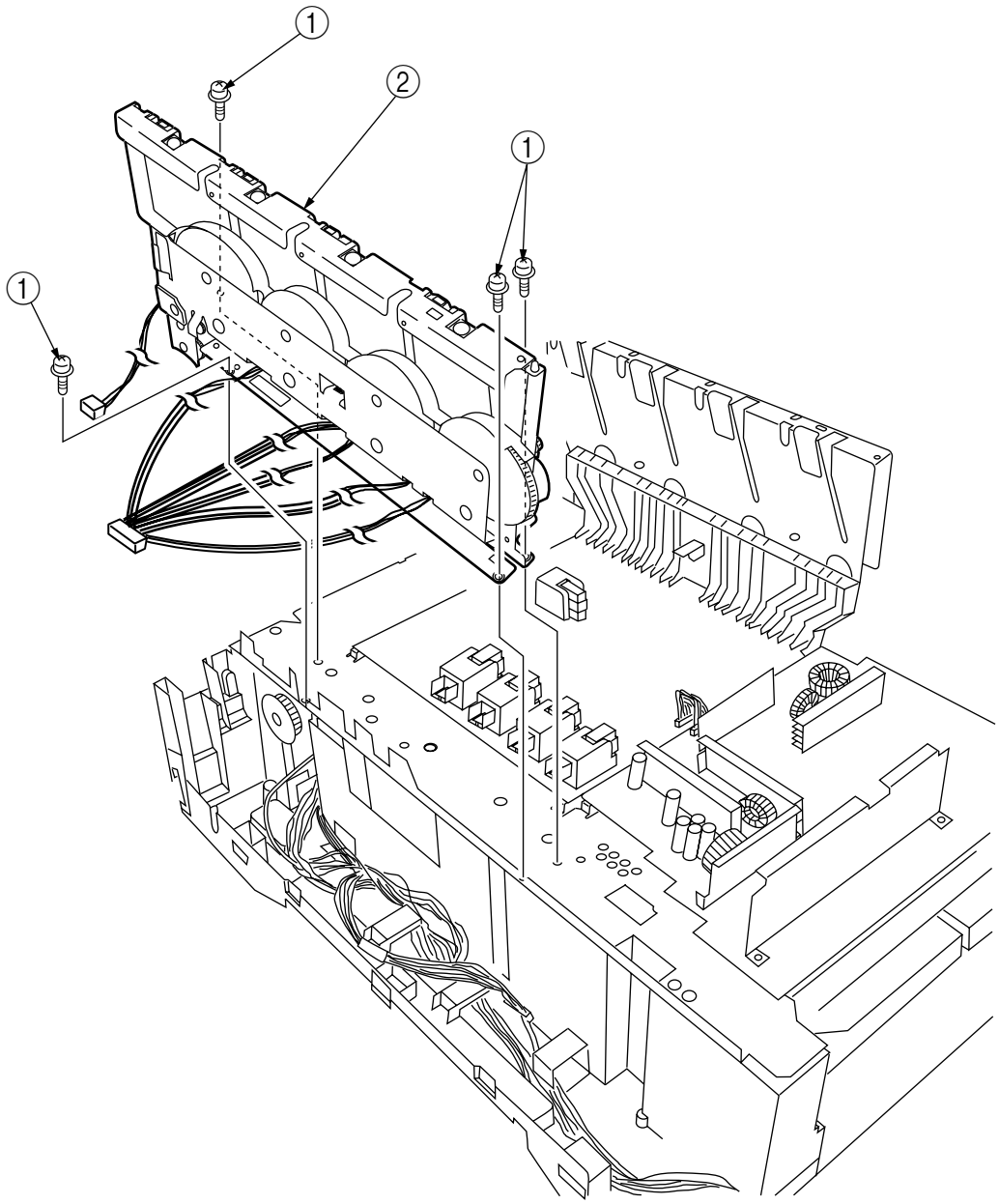


Figure 3-3-33 Main Motor Assy

3.3.34 Main Feeder Drive Motor

(1) Remove the two screws ① to detach the main feeder drive motor ②.
(2) Unscrew the screw ③ to remove the main feeder drive motor bracket ④.
(3) Remove the main feeder drive motor gears A ⑤ and B ⑥.

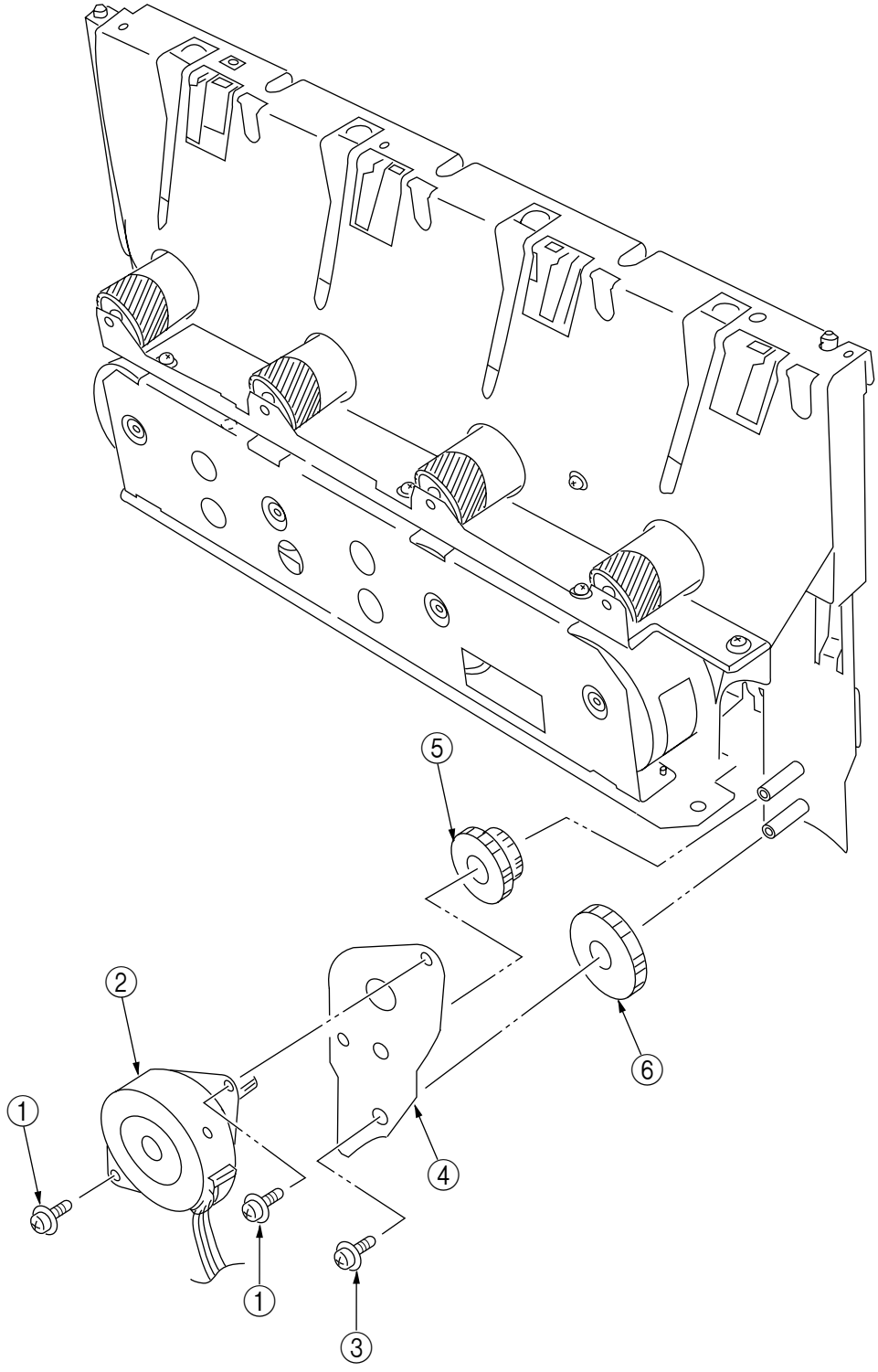


Figure 3-3-34 Main Feeder Drive Motor

3.3.35 Contact Assy/ Left Plate Assy

(1) Remove the printer unit chassis (see section 3.3.24).
(2) Remove the four screws ① to detach the left plate Assy ②.
(3) Remove the screw ③ to detach the contact Assy ④.

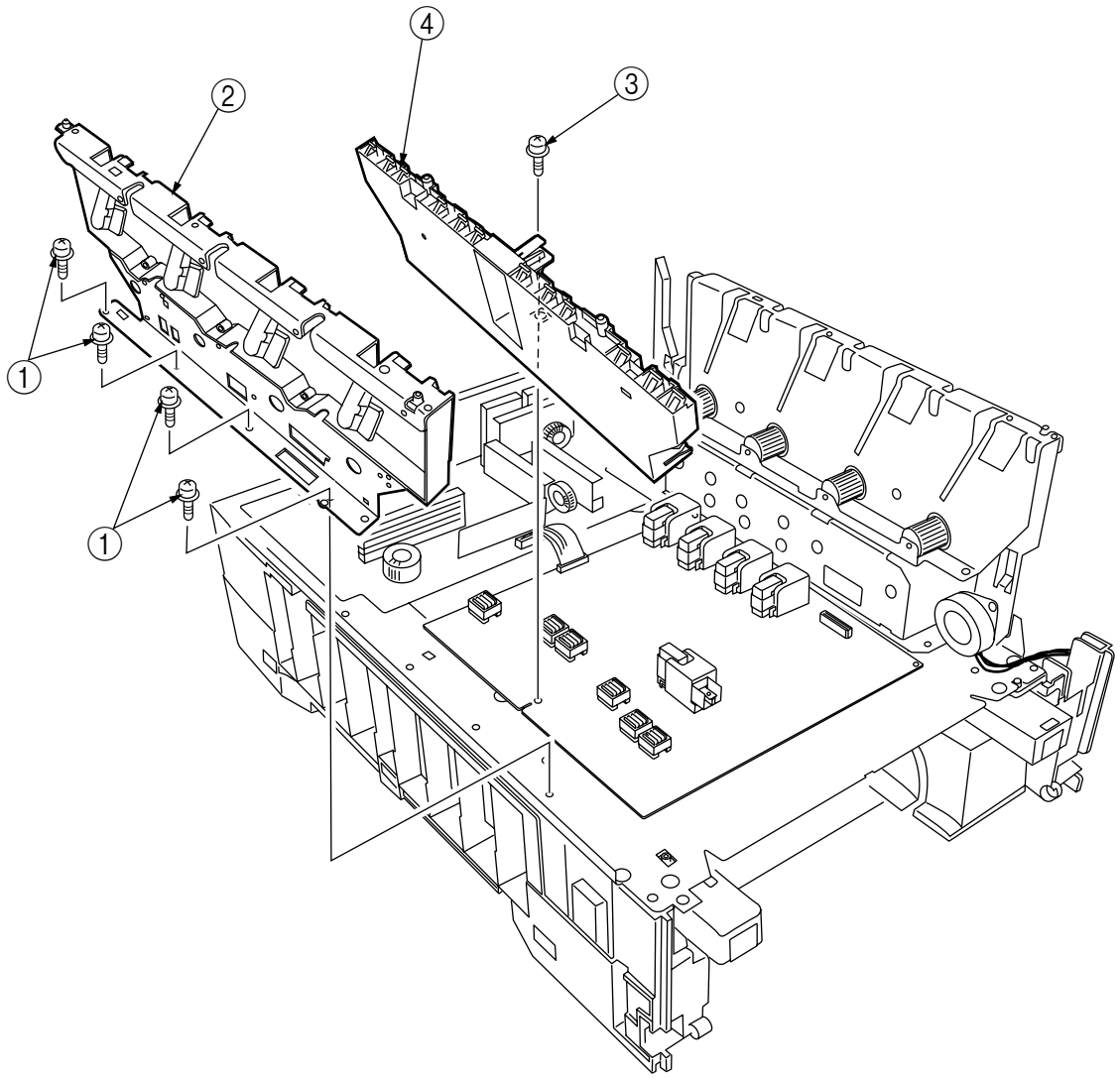


Figure 3-3-35 Contact Assy/ Left Plate Assy

3.3.36 Low Voltage Power Supply

(1) Remove the printer unit chassis (see section 3.3.24).
(2) Unhook the connector ①.
(3) Unscrew the screw ② to remove the earth cable ③.
(4) Unscrew the six screws ④ to demount the low voltage power supply ⑤.

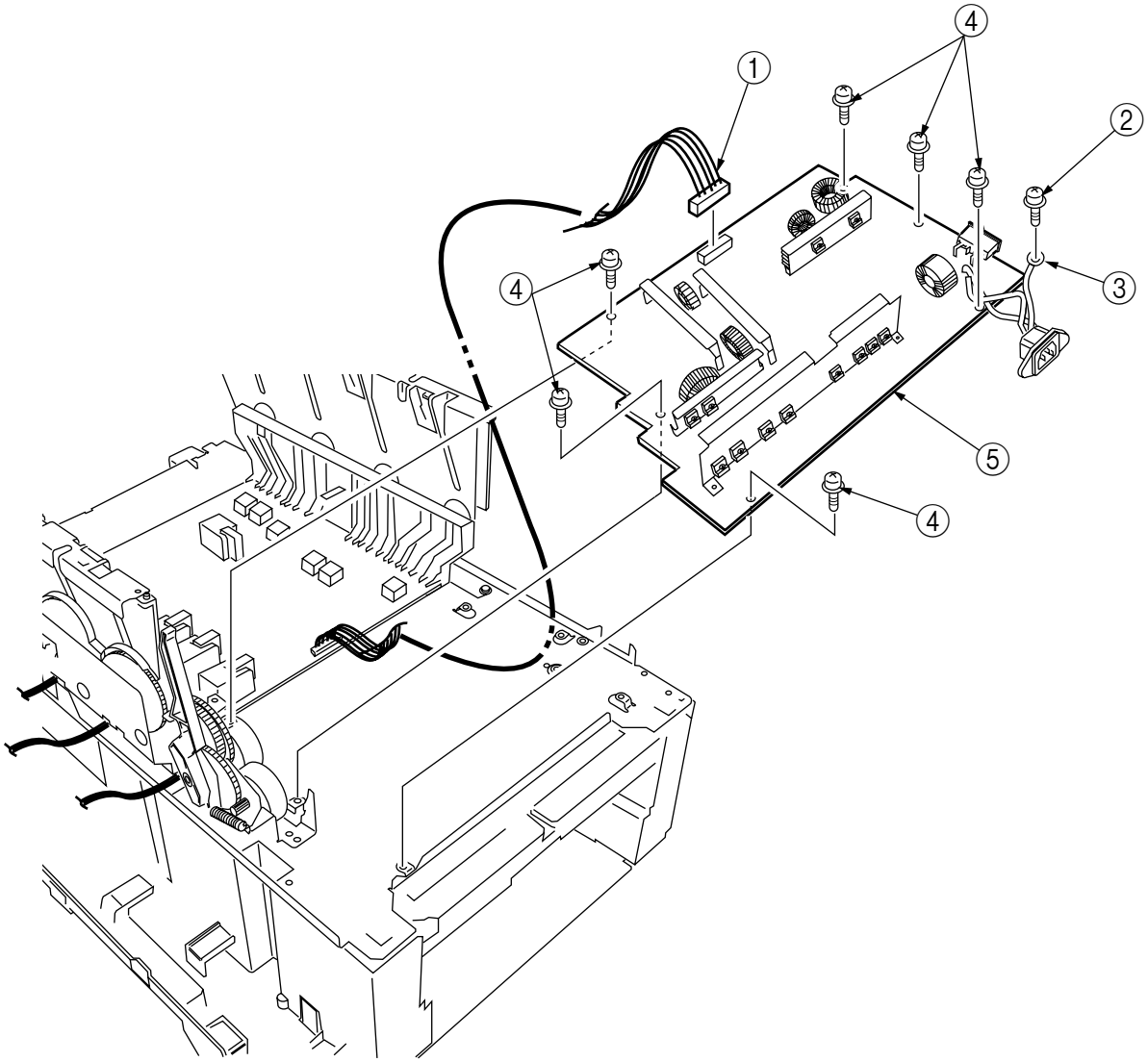


Figure 3-3-36 Low Voltage Power Supply

3.3.37 High voltage power supply

(1) Remove the contact Assy (see section 3.3.35).
(2) Unhook the connector of the high voltage power supply ②.
(3) Remove the two screws ① to detach the high voltage power supply (2) and the tape harness ③.

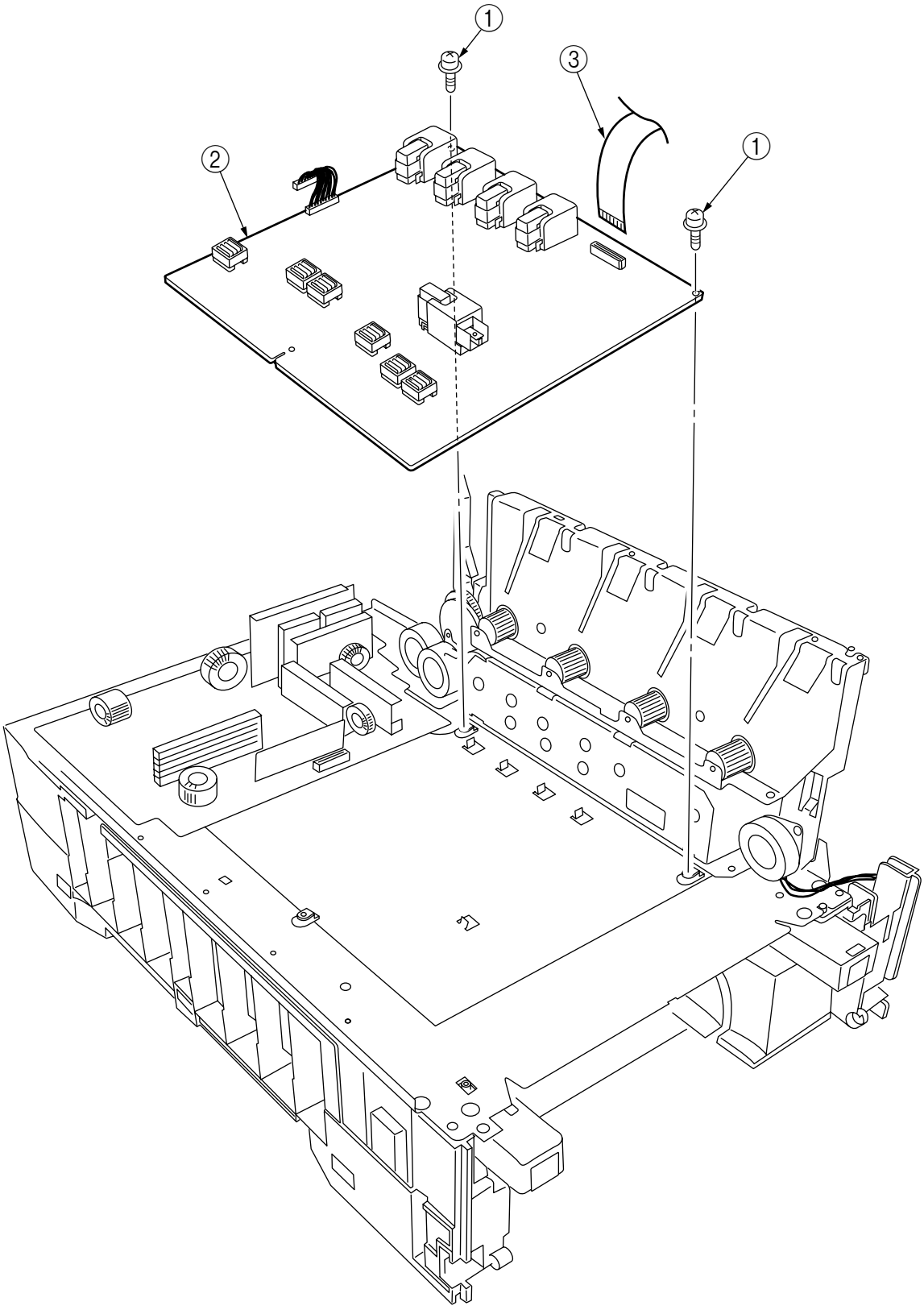


Figure 3-3-37 High Voltage Power Supply

3.3.38 Main Feed Assy

(1) Remove the printer unit chassis (see section 3.3.24).
(2) Remove the low voltage power supply and high voltage power supply (see sections 3.3.36 and 3.3.37).
(3) Unscrew the five screws ① to remove the lower plate ②.
(4) Unscrew the four screws ③ to demount the main feed Assy ④.
(5) Unhook and remove the main feed drive gear ⑤.

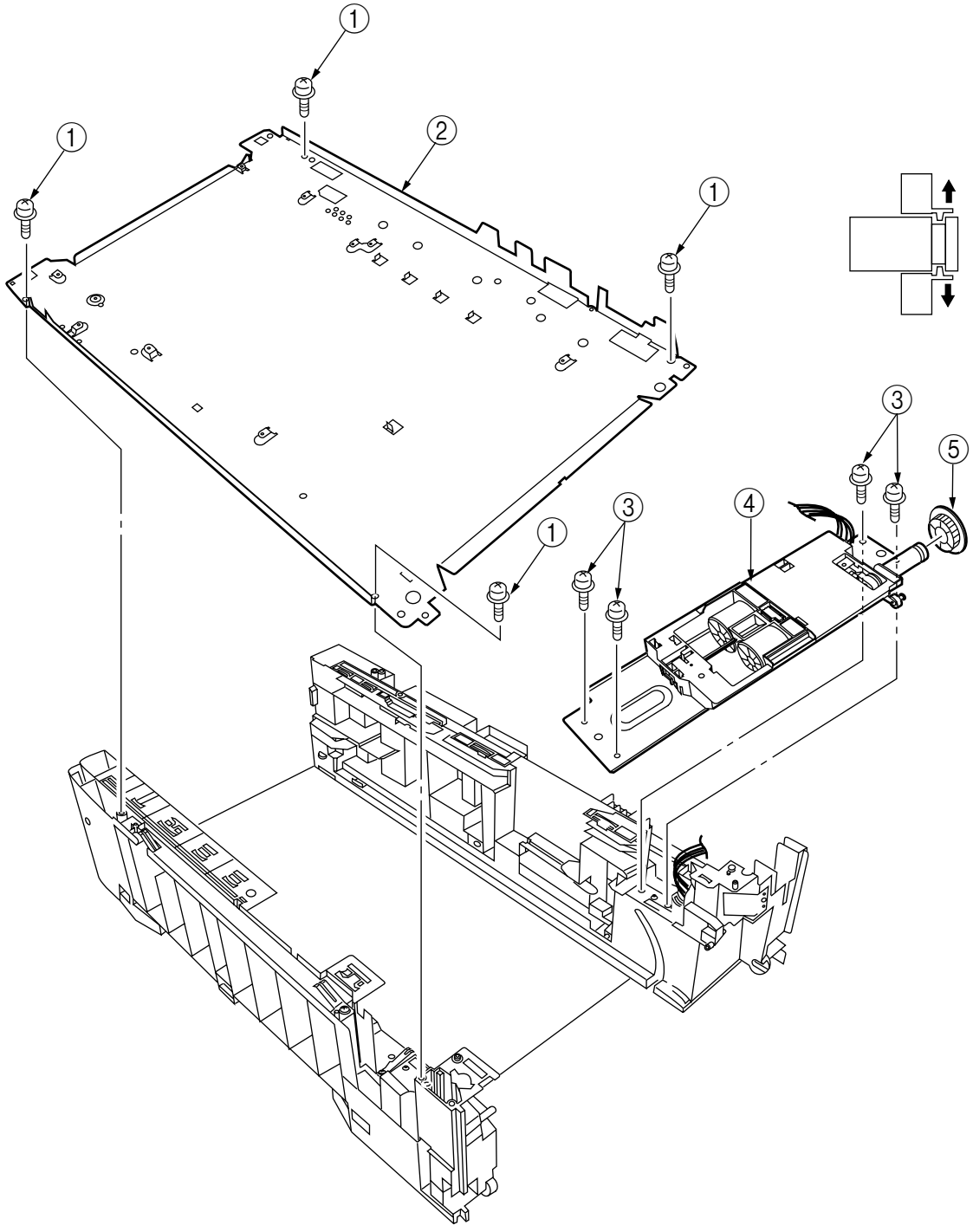


Figure 3-3-38 Main Feed Assy

3.3.39 Cassette/ Left Guide Assy

(1) Remove the printer unit chassis (see section 3.3.24).
(2) Remove the main feed Assy (see section 3.3.38).
(3) Remove the three screws ① to detach the left cassette guide Assy ②. At the same time, the earth plate ③ becomes detached.
(4) Remove the cassette lift spring ④, then remove the plastic slide ⑤, the cassette lift arm (L) ⑥ and the plastic roller ⑦.
(5) Remove the two feet ⑧.
(6) Remove the cassette lock spring ⑨, then remove the cassette lock ⑩.

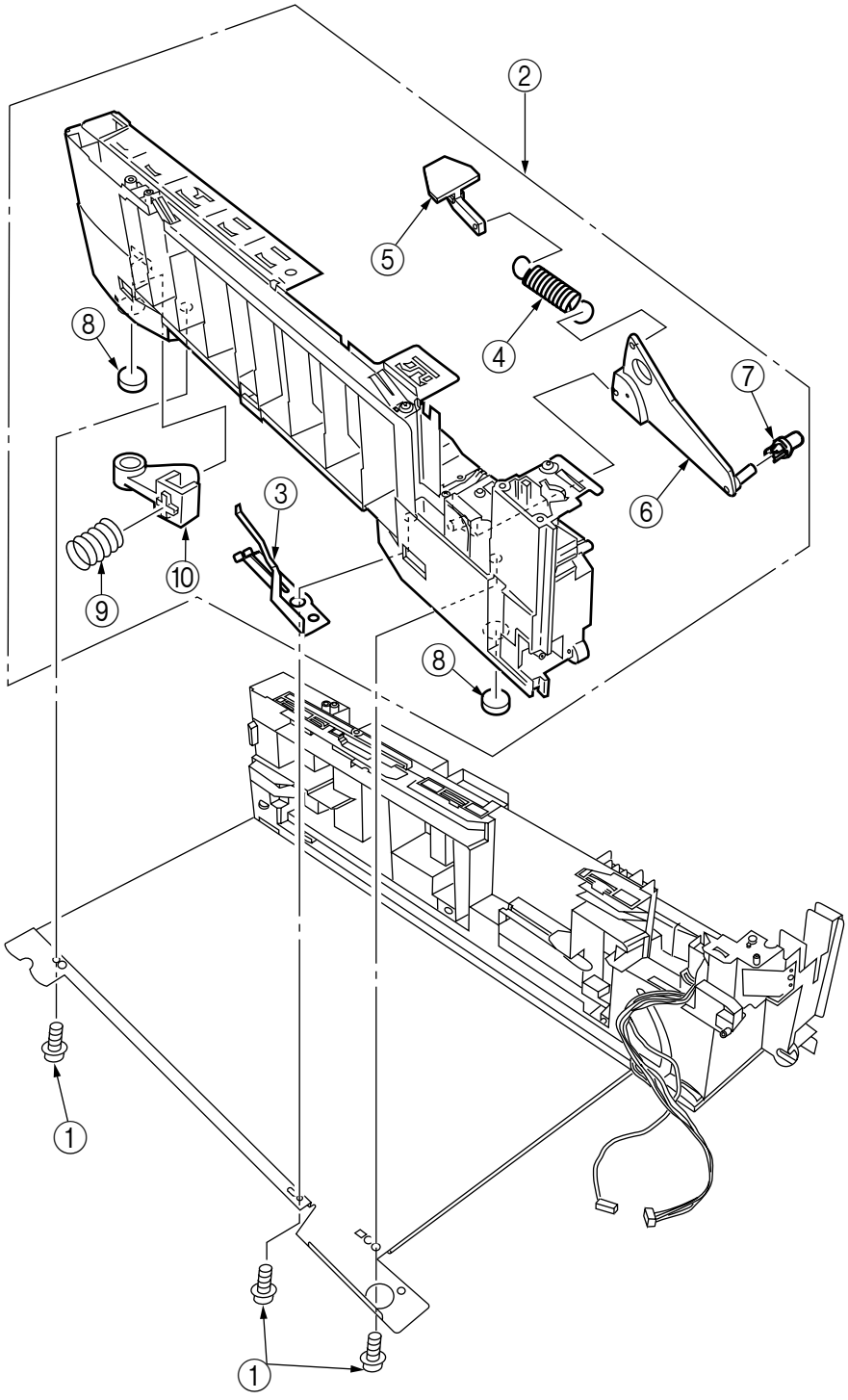


Figure 3-3-39 Cassette/ Left Guide Assy

3.3.40 Cassette/ Right Guide Assy

(1) Remove the printer unit chassis (see section 3.3.24).
(2) Remove the main feed Assy (see section 3.3.38).
(3) Remove the five screws ① to detach the right cassette guide Assy ②. At the same time, the earth plate ③ becomes detached.
(4) Remove the cassette lift spring ④, then detach the plastic slide ⑤, the cassette lift arm (L) ⑥ and the plastic roller ⑦.
(5) Unscrew the screw ⑧ to remove the paper size actuator ⑨.
(6) Unscrew the screw ⑩ to remove the paper size sensing PWB ⑪ in the downward direction.
(7) Remove the two feet ⑫.
(8) Remove the cassette lock spring ⑬, then remove the cassette lock ⑭.
(9) Unscrew the two screws ⑮ to remove the 2nd tray connector ⑯.
(10) Unscrew the screw ⑰, then remove the duplex Assy ground contact ⑱.

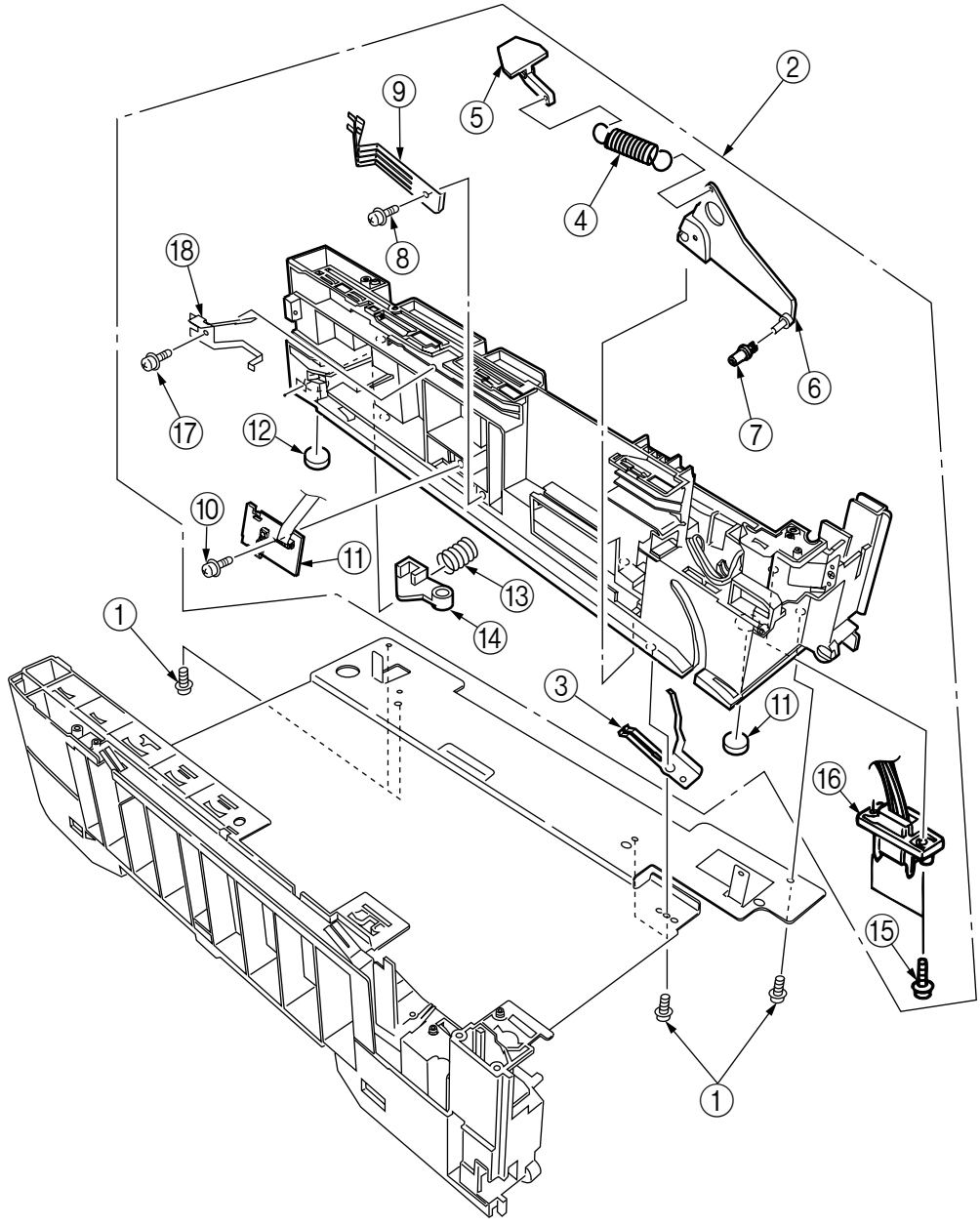


Figure 3-3-40 Printer Tray/ Right Guide Assy

3.3.41 Fuser Unit

(1) Open the top cover ①.

(2) Push the right and left fuser levers (blue) ② in the arrow direction to detach the fuser unit ③.

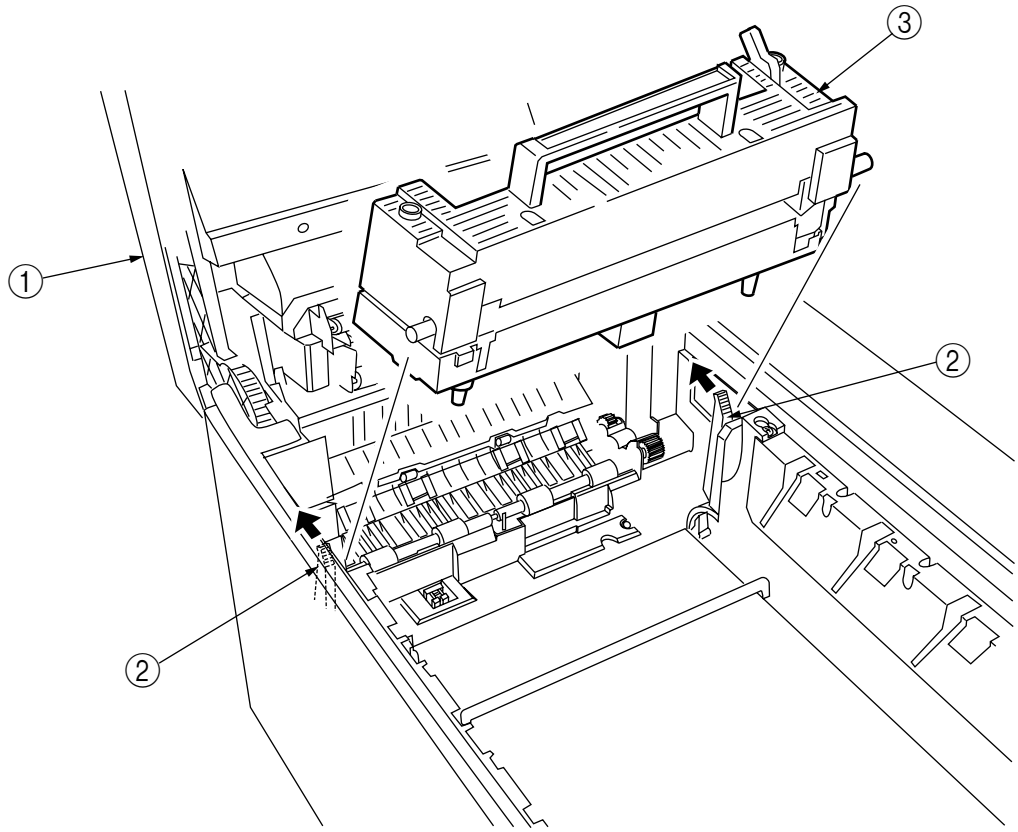


Figure 3-3-41 Fuser Unit

3.3.42 Belt Unit

(1) Open the top cover ①.
(2) Remove the I/D unit.
(3) Push the lever (blue) ② in the arrow direction, raise the handle (blue) and detach the belt unit ③.

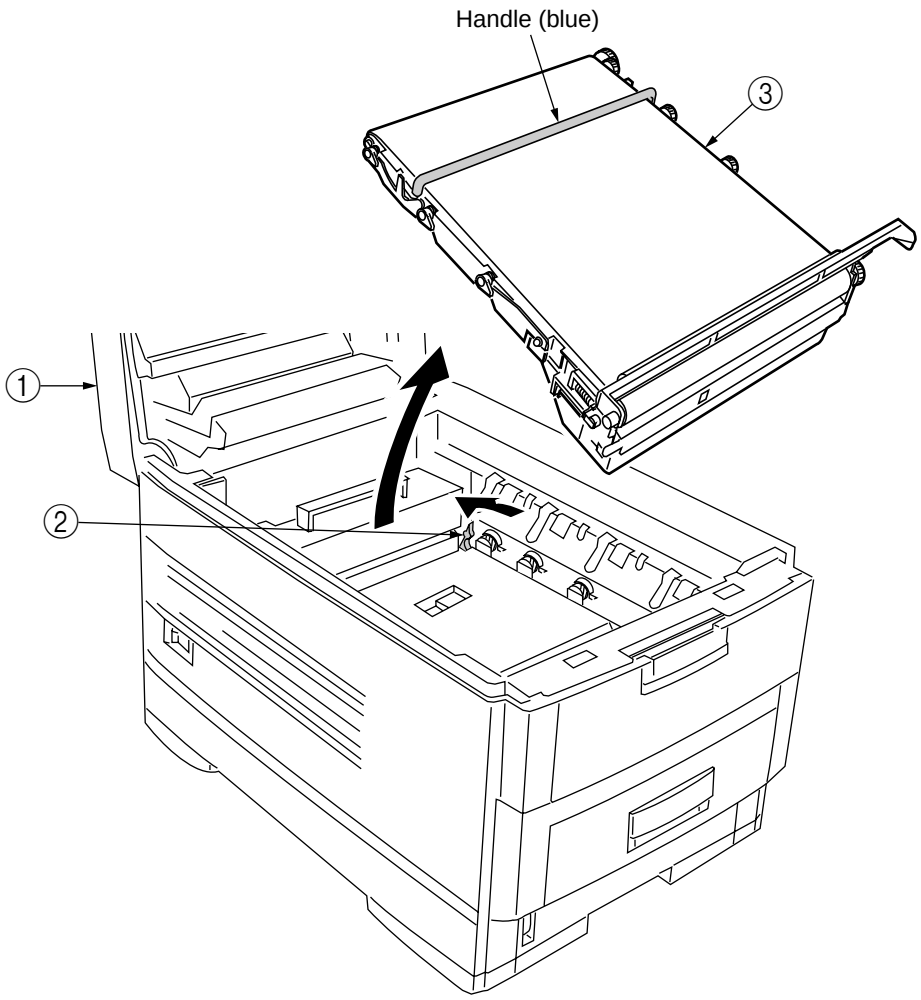


Figure 3-3-42 Belt Unit

3.3.43 Duplex Unit

(1) Remove the cassette Assy, the front cover Assy and the front cover inner baffle.

(2) Unlatch the rear at the right and left, and pull the duplex unit ① toward the front.

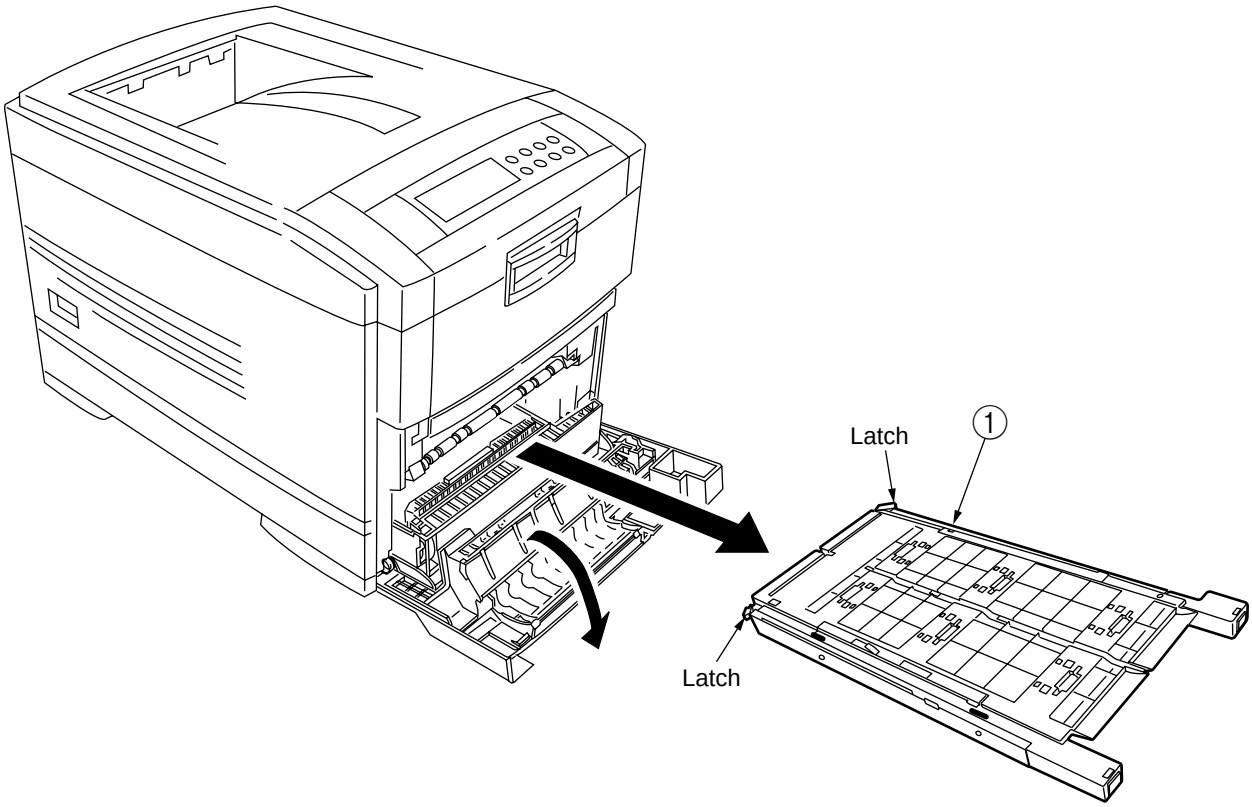


Figure 3-3-43 Duplex Unit

3.3.44 Guide Rails (L) and (R)

(1) Remove the duplex unit (see section 3.3.43).

(2) Remove the six screws ① to detach the guide rails (L) ② and (R) ③.

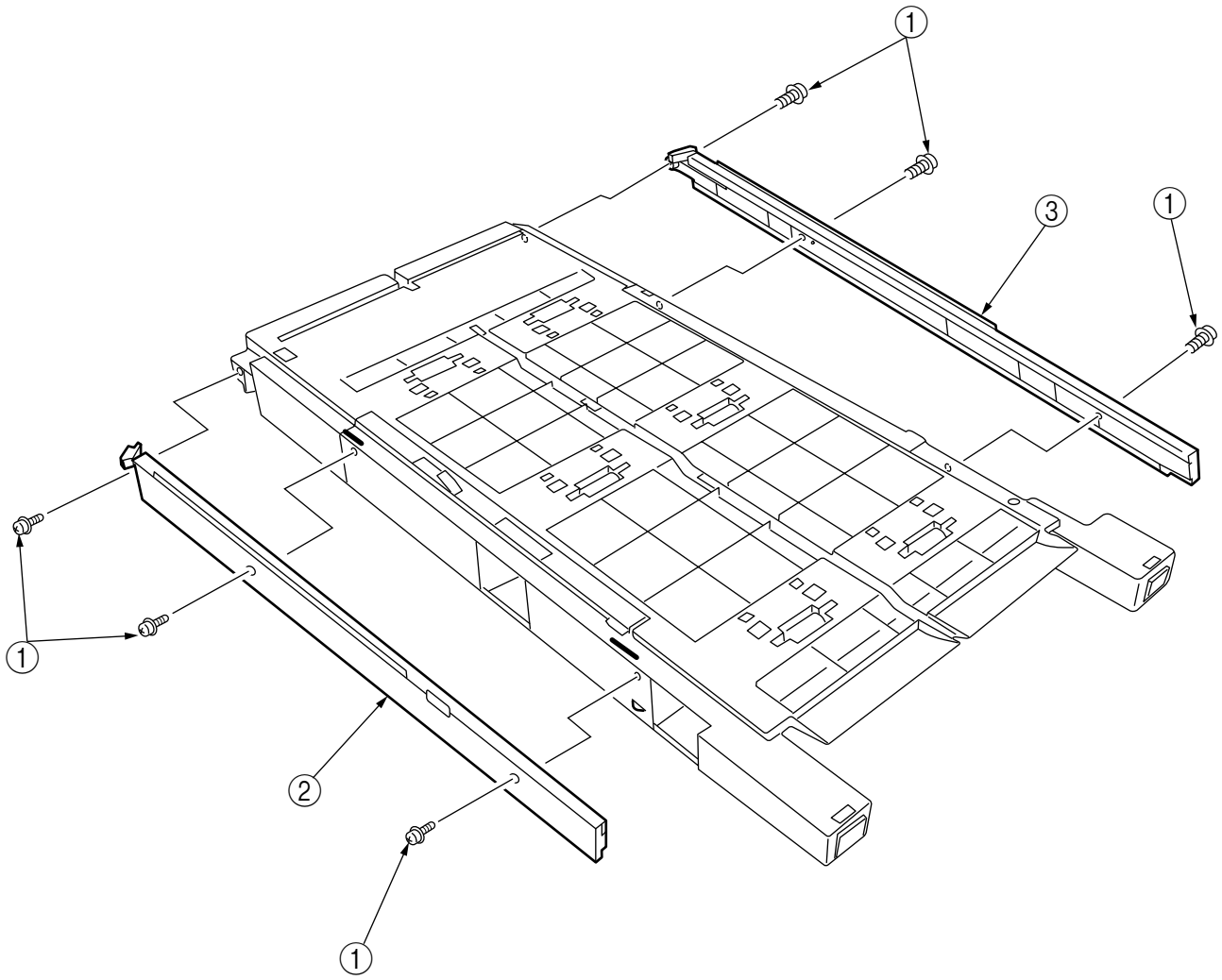


Figure 3-3-44 Guide Rail (L), (R)

3.3.45 Duplex Transport Assembly

(1) Turn over the duplex transport Assy.
(2) Unscrew the three screws ① and five screws ② to detach the plate ③.
(3) Unplug the connector and detach the mold Assy ④.
(4) Detach the two actuators ⑤.
(5) Unscrew the screws ⑥ and ⑦ to remove the earth ⑧.
(6) Unhook the connector and disengage the two claws to detach PCB-MOP ⑨.
(7) Unplug the cable and, warping the claw, detach the transport sensor.
(8) Unscrew the two screws to detach the cord duplex connector Assy.
(9) Unscrew the screw ⑩ to remove the earth ⑪.
(10) Unscrew the screw ⑫ to remove the earth ⑬.
(11) Unscrew the screw ⑭ to remove the earth ⑮.
(12) Detach the bush ⑯, gear ⑰ and bush ⑱, then detach the roller ⑲.
(13) Unscrew the screw ⑳ to remove the earth ㉑.
(14) Detach the gear ㉒ and bush ㉓. At the same time, the mini pitch belt ㉔ becomes detached.
(15) Detach the gear ㉕ and bush ㉖, then detach the roller ㉗. At the same time, the mini pitch belt ㉘ becomes detached.
(16) Unscrew the screw ㉙ to remove the earth ㉚.
(17) Remove the E ring ㉛ and three screws ㉜ to detach the motor Assy ㉝. At the same time, the earth ㉞ becomes detached.
(18) Detach the gear ㉟ and bush ㊱.
(19) Detach the gear ㊲, knock-pin ㊳ and bush ㊴, then detach the roller ㊵.
(20) Detach the bush ㊶, gear ㊷, knock-pin ㊸ and bush ㊹, then detach the roller ㊺. At the same time, the earths ㊻ and ㊼ become detached.
(21) Detach the idle roller shaft and the idle roller, then detach the idle roller springs (eight springs).
(22) Remove the cable of the duplex transport sensor Assy from the claw of the cover-upper. Disengage the claw, then detach the sensor.

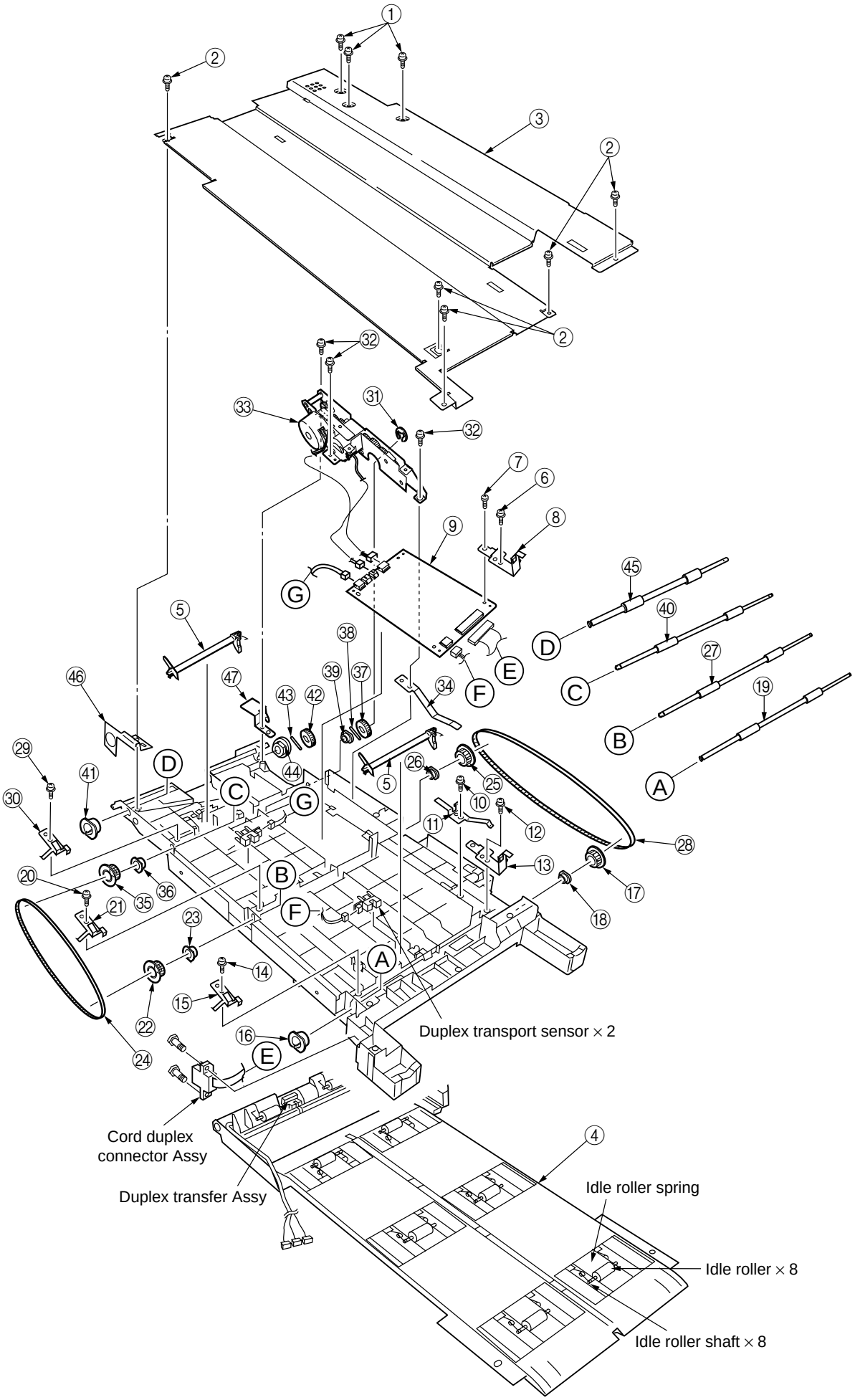


Figure 3-3-45 Duplex Transport Assembly

3.3.46 CU Assy

(1) Pulling out Controller Board

1. Undo the two screws ①.
2. Pull the controller board ② out.
3. Place the controller board ② on a flat table.

(2) Detaching Fan

1. Remove the connector ③.
2. Remove the two screws ④.
3. Detach the fan ⑤.

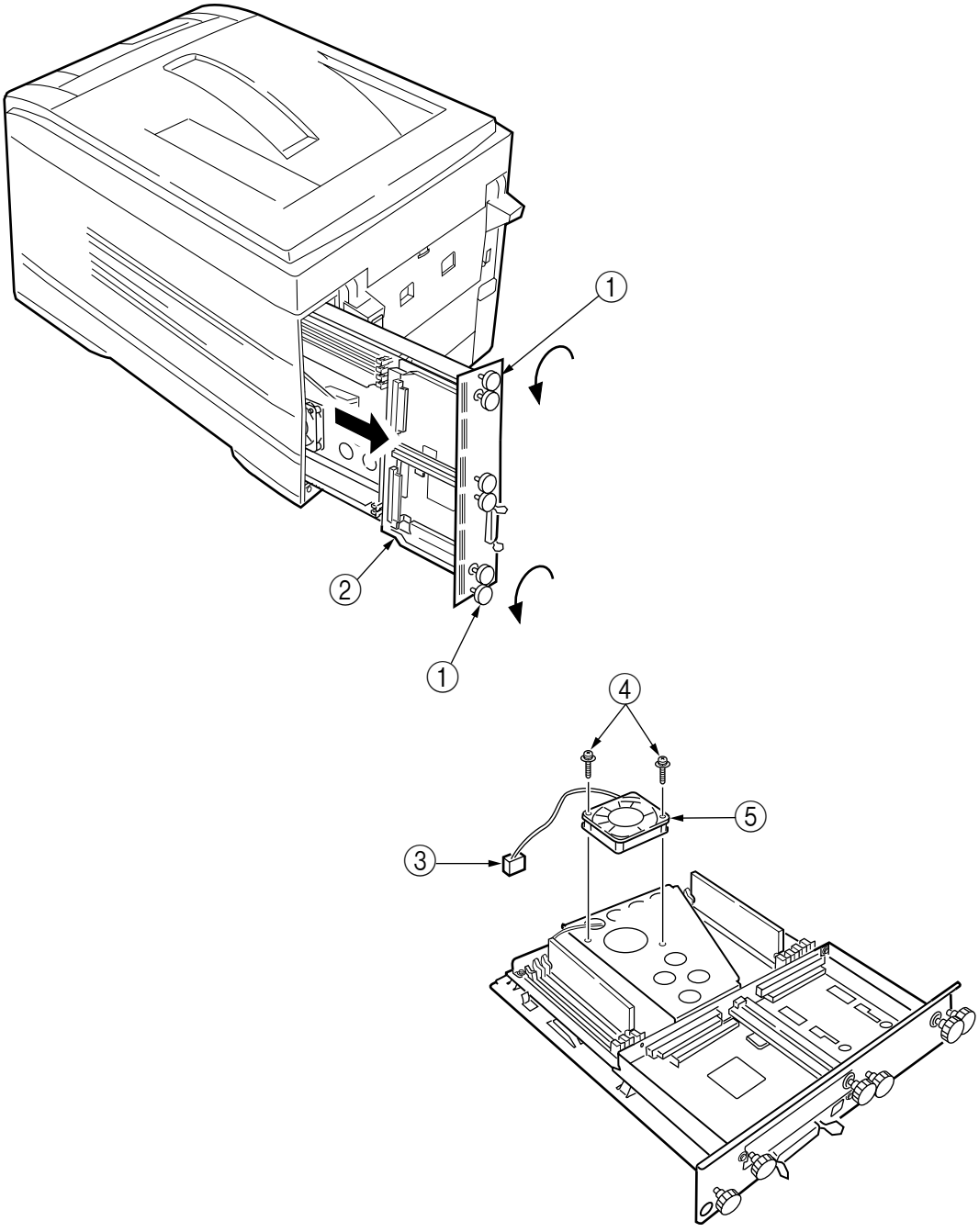


Figure 3-3-46 CU Assy (1/2)

(3) Demounting SWA Board

1. Remove the three screws ⑥ and screw ⑦ to detach the fan bracket ⑧.
2. Remove the screw ⑨ and four screws ⑩ to detach the plate support ⑪ and the guide rail A⑫.
3. Remove the two screws ⑬ to detach the guide rail B⑭.
4. Remove the two screws ⑮ and two screws ⑯ and the plate-FG(Centro)⑰, then demount the SWA board ⑱.

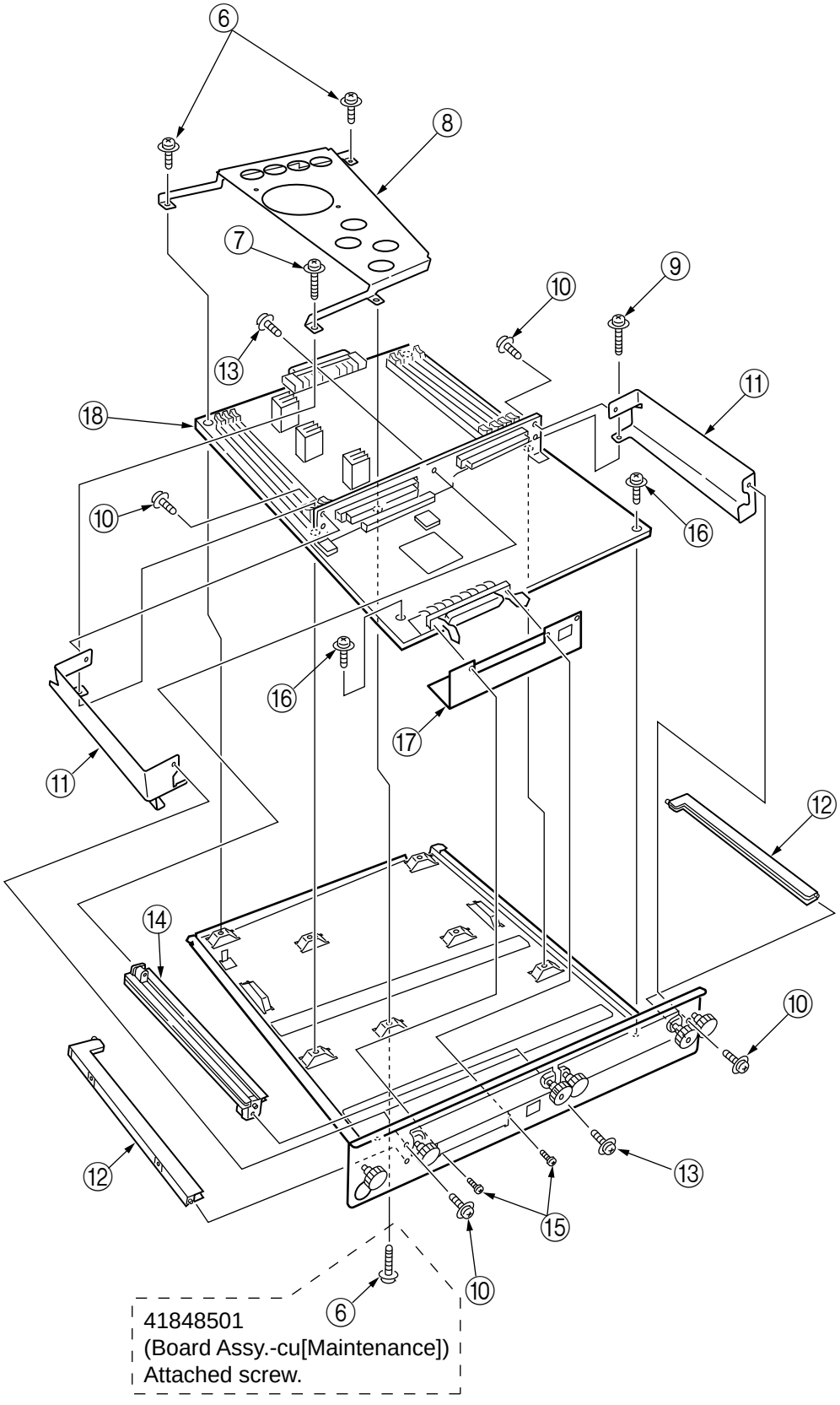


Figure 3-3-46 CU Assy (2/2)

4. ADJUSTMENTS

Adjustments on the C7000 Series of printers are made by key entry on the operator panel. In addition to a standard menu, there is a maintenance menu in each printer. Select the one that serves the purpose of intended adjustment.

4.1 Maintenance Modes and Their Functions

4.1.1 Maintenance menu

The standard menu category includes the maintenance menu category. The followings can be set from this menu.

Maintenance Menu

Category	Item(1st Line)	Value(2nd Line)	DF	Functions
MAINTENANCE MENU	Power Save Mode	Enabled Disabled	*	Sets the Power Save Mode enabled/disabled. The shift time to enable the Power Save mode can be changed according to the POWER SAVE SHIFT TIME item of SYSTEM CONFIG MENU.
	Normal Paper Black Setting	0 +1 +2 -2 -1	*	Implements fine adjustment of BLACK printing on normal paper when unclear characters or spots are often found on print results. With dispersed or snowed printing in the part at high-density, decrease the value. With unclear printing, increase the value.
	Normal Paper Color Setting	0 +1 +2 -2 -1	*	Implements fine adjustment of COLOR printing on normal paper when unclear characters or spots are often found on the print result. With dispersed or snowed printing in the part at high-density, decrease the value. With unclear printing, increase the value.
	Transparency Black Setting	0 +1 +2 -2 -1	*	Implements fine adjustment of BLACK printing on Transparency when unclear characters or spots are often found on the print result. With dispersed or snowed printing in the part at high-density, decrease the value. With unclear printing, increase the value.
	Transparency Color Setting	0 +1 +2 -2 -1	*	Implements fine adjustment of COLOR printing on Transparency when unclear characters or spots are often found on the print result. With dispersed or snowed printing in the part at high-density, decrease the value. With unclear printing, increase the value.

4.1.2 Engine maintenance mode

The engine maintenance mode includes three modes, levels 1 to 3. The level 1 aims to assist in checking the media transport systems and the basic operations of printing systems etc. The level 2, which sets the consumable counter and tests the color registration adjustment function, does not require relatively special knowledge. Working with the level 3, including process parameter setting, takes expertise and the level contains PU individual experimental elements. Basically do not use items other than those in the level 1.

4.1.2.1 Operator panel

Operational descriptions about the self-diagnosis are premised on the following operator panel layout.

4.1.2.2 General self-diagnosis mode (level 1)

Following is the menu of the general self-diagnosis mode.

- Switch Scan Test
- LED Head Test
- Motor and Clutch Tests
- Test Pattern Execution
- NVM Initialization
- Consumable Counter Display
- Consumable Counter Display - Continuous

4.1.2.2.1 Entering self-diagnosis mode (level 1)

1. Detach the main controller board.
2. While holding the ① and ④ keys down at the same time, turn the power on to enter this mode.

ENGINE DIAG MODE XX.XX

3. “ENGINE DIAG MODE XX.XX” appears in the upper display. XX.XX shows the version of ROM.
4. Go to each self-diagnosis step by using the ① and ⑤ keys (pressing ① and ⑤ keys rotates the menu items).

4.1.2.2.2 Exiting self-diagnosis mode

1. While “ENGINE DIAG MODE XX.XX” is displayed, press the (0) key, or turn the power off and, after ten seconds, on again.

4.1.2.3 Switch scan test

This self-diagnosis is used when the input sensor and the switch are checked.

1. Enter the general diagnosis mode, and press and hold the ① and ⑤ keys down until “SWITCH SCAN” appears on the upper display (the ① key increments a test item and the ⑤ key decrements a test item).

SWITCH SCAN

2. Table 4-1 lists SCAN numbers. Hold the ② and ⑥ keys down until the SCAN number for a unit to be tested shows up on the upper display (the ② key increments a test item and the ⑥ key decrements a test item).
3. In response to the press of the ③ key, the test starts, the SWITCH SCAN number begins blinking, then the corresponding unit number (any of 1 to 4) and the current status are displayed.

SWITCH SCAN 00
1=H 2=L 3=H 4=L

   Operate the units (Figure 4-1). Their respective liquid crystal displays are provided (Displays vary by sensor. See Table 4-1 for details).
4. When the ⑦ key is touched, the SWITCH SCAN number goes back to an indication view (stops blinking).
5. Repeat steps 2 through 4 as required.
6. To end the test, press the ④ key (the display is restored to the view of step 1).

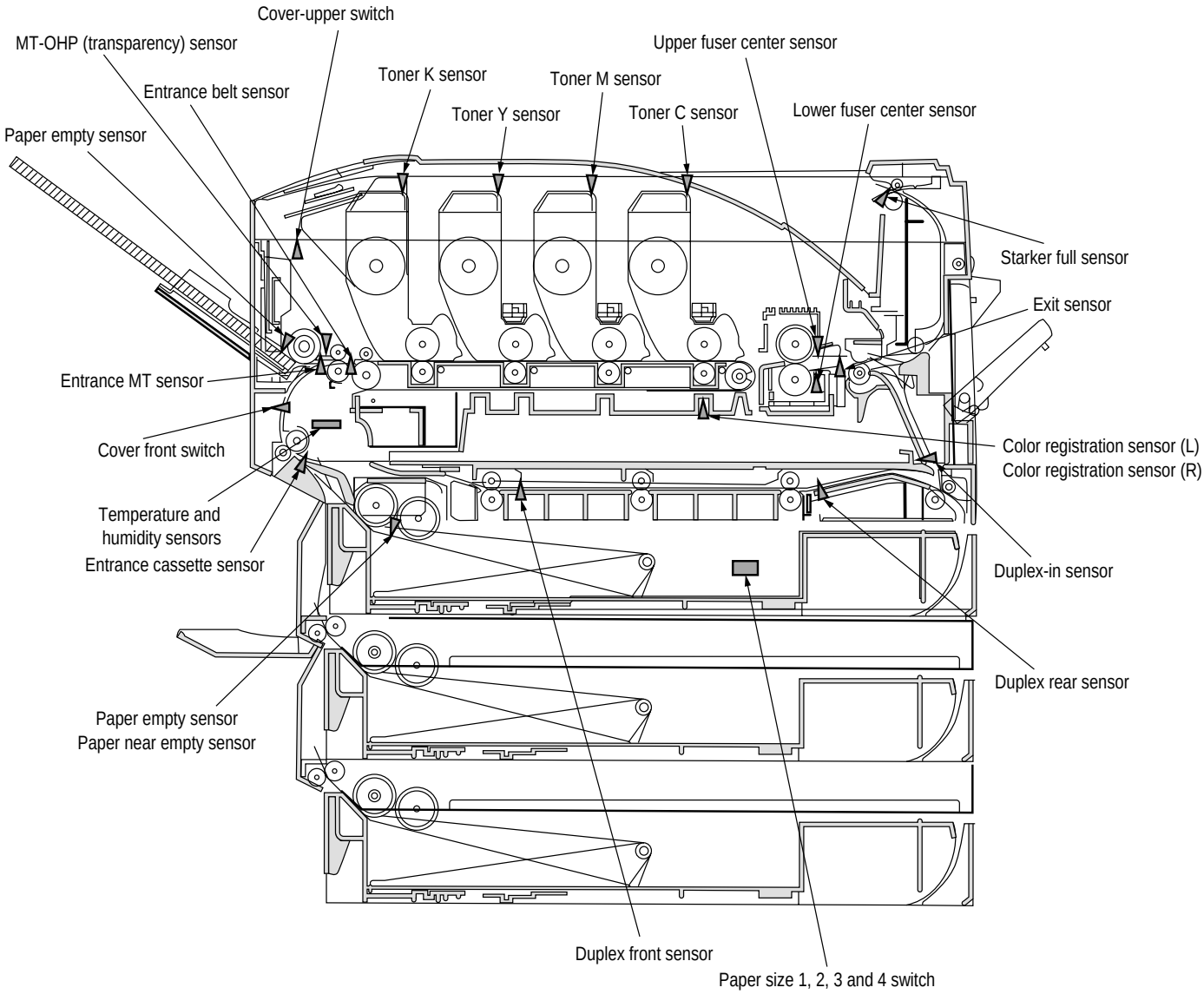


Figure 4-1 Switch Sensor Positions

Table 4-1 Detailed SWITCH SCAN

SCAN	No.							
ROW	1	Display	2	Display	3	Display	4	Display
SWITCH SCAN 00	Cassette 1 Paper Empty Sensor	Port level H, L	Cassette 1 Paper Near Empty Sensor	Port level H, L	Entrance Cassette Sensor	Port level H, L	Entrance MT Sensor	Port level H, L
SWITCH SCAN 01	Entrance Belt Sensor	Port level H, L	Exit Sensor	Port level H, L	Stacker Full Sensor	Port level H, L	-	–
SWITCH SCAN 02	Toner-K Sensor	Port level H, L	Toner-C Sensor	Port level H, L	Toner-M Sensor	Port level H, L	Toner-Y Sensor	Port level H, L
SWITCH SCAN 03	Front Cover Switch	Port level H, L	Upper Cover Switch	Port level H, L	-		-	–
SWITCH SCAN 04	-	–	-	–	-	–	-	–
SWITCH SCAN 05	-	–	-	–	-	–	-	–
SWITCH SCAN 06	MT Hopper Switch	Port level H, L	MT Paper Empty Switch	Port level H, L	-	–	MT Transparency Sensor	Port level H, L
SWITCH SCAN 07	Cassette 1 Paper Size Switch	Port level H, L	Cassette 1 Paper Size 2 Switch	Port level H, L	Cassette 1 Paper Size 3 Switch	Port level H, L	Cassette 1 Paper Size 4 Switch	Port level H, L
SWITCH SCAN 08	Color Registration Sensor	AD value ***H	Color Registration Sensor (R)	AD value ***H	-	–	-	–
SWITCH SCAN 09	Upper Fuser Center Sensor	AD value ***H	-	–	Lower Fuser Center Sensor	AD value ***H	-	–
SWITCH SCAN 10	Humidity Sensor	AD value ***H	Temperature Sensor	AD value ***H	-	–	-	–
SWITCH SCAN 11 (Option)	Duplex-In Sensor	Port level H, L	Duplex Rear Sensor	Port level H, L	-	–	Duplex Front Sensor	Port level H, L
SWITCH SCAN 12 (Option)	Cassette 2 Paper Size 1 Switch	Port level H, L	Cassette 2 Paper Size 2 Switch	Port level H, L	Cassette 2 Paper Size 3 Switch	Port level H, L	Cassette 2 Paper Size 4 Switch	Port level H, L
SWITCH SCAN 13 (Option)	Cassette 2 Paper Empty Sensor	Port level H, L	Second Paper Near Empty Sensor	Port level H, L	-	–	-	–
SWITCH SCAN 14 (Option)	-	–	-	–	Cassette 2 Hoping Sensor (Paper feed)	Port level H, L	-	–
SWITCH SCAN 15 (Option)	Cassette 3 Paper Size 1 Switch	Port level H, L	Cassette 3 Paper Size 2 Switch	Port level H, L	Cassette 3 Paper Size 3 Switch	Port level H, L	Cassette 3 Paper Size 4 Switch	Port level H, L
SWITCH SCAN 16 (Option)	Cassette 3 Paper Empty Sensor	Port level H, L	Cassette 3 Paper Near Empty Sensor	Port level H, L	-	–	-	–
SWITCH SCAN 17 (Option)	-	–	-	–	Cassette 3 Hopping Sensor (Paper feed)	Port level H, L	-	–
SWITCH SCAN 18 (Option)	-	–	-	–	-	–	-	–
SWITCH SCAN 19 (Option)	-	–	-	–	-	–	-	–
SWITCH SCAN 20 (Option)	-	–	-	–	-	–	-	–

4.1.2.4 Motor and clutch test

This self-check routine is used for testing the motor and clutch.

1. Go to the self-diagnosis (level 1) mode, and hold the ① and ⑤ keys down until the upper display of “MOTOR & CLUTCH TEST” is brought up (the ① key increments a test item and the ⑥ key decrements a test item).
2. Hold the ② and ⑥ keys down and wait for the display for a unit to be tested to appear on the lower line (the ② key increments a test item and the ⑥ key decrements a test item). Corresponding displays are listed in Table 4-2.

MOTOR & CLUTCH TEST
BLACK - ID MOTOR

3. Pressing the ③ key starts the test, the unit name blinks, then the corresponding unit is driven for 10 seconds (refer to Figure 4-3).

Note! The view of step 2 is restored after 10-second driving and, with the press of the corresponding switch again, the unit is driven again.

- Driving corresponding units subject to the constraints listed in Table 4-2. The driving and activating out of the constraints are disabled and the constraints appear on the lower display.
- The clutch solenoids must repeat on-off operations in normal printing driving (units that cannot be driven singly from a viewpoint of their mechanical structures must be driven in combination with the motor).

4. Use the ⑦ key to stop the drive of the unit (the corresponding unit display remains the same).
5. Repeat the cycle of steps 2 though 4 as the case may be.
6. Pressing the ④ key ends the tests (the display is restored to step 1).

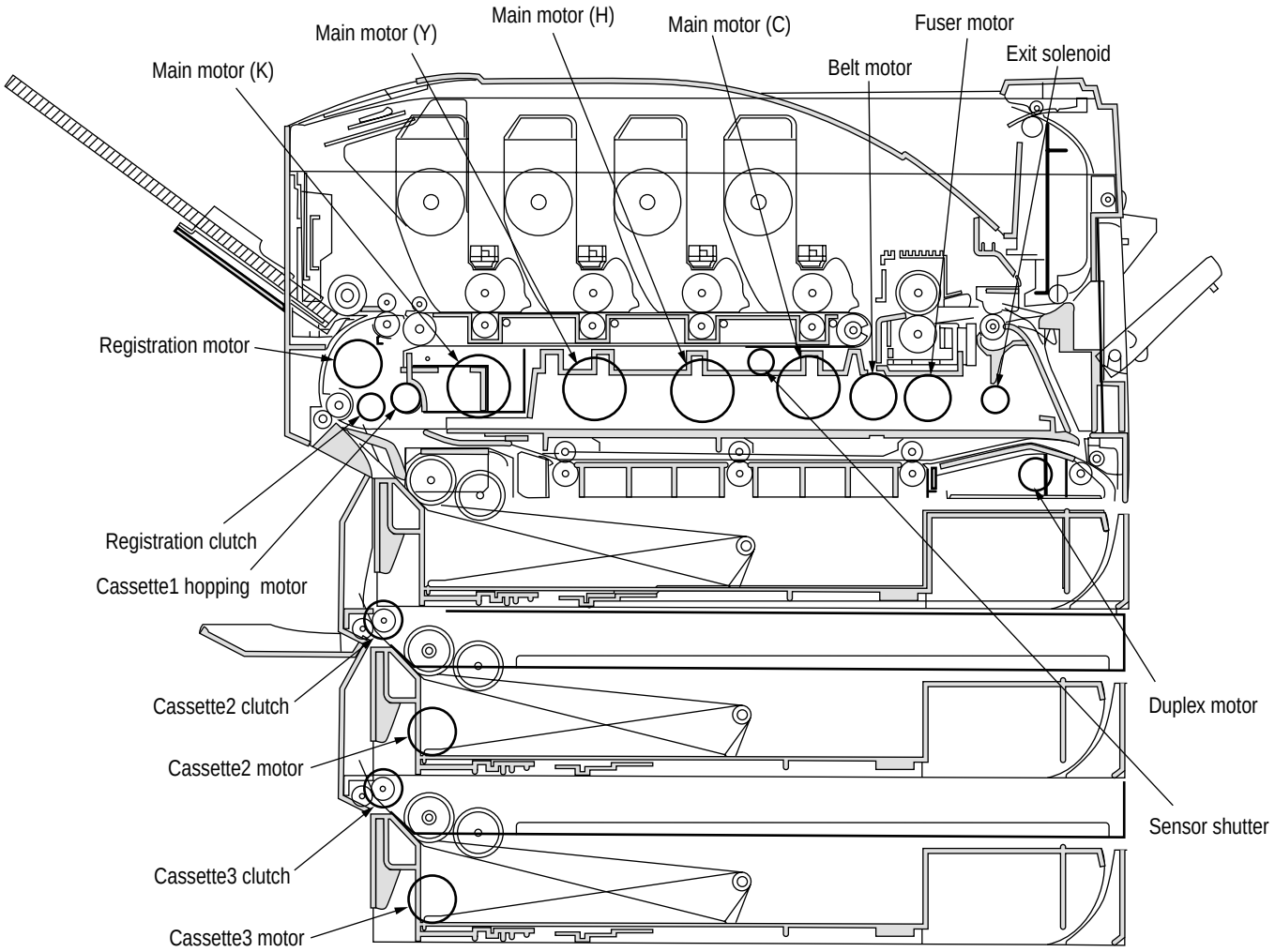


Figure 4-3

Table 4-2

Unit Name Display	Driving Constrains	Constraints Display
BLACK-ID MOTOR	Remove all the IDs (B, Y, M and C) to drive the unit.	REMOVE ID
YELLOW-ID MOTOR MAGENTA-ID	Remove all the IDs (B, Y, M and C) to drive the unit.	REMOVE ID
MOTOR	Remove all the IDs (B, Y, M and C) to drive the unit.	REMOVE ID
CYAN-ID MOTOR	Remove all the IDs (B, Y, M and C) to drive the unit.	REMOVE ID
BELT MOTOR	Remove all the IDs (B, Y, M and C) to drive the unit.	REMOVE ID
FUSER MOTOR	–	–
REGISTRATION MOTOR	–	–
MAIN FEEDER MOTOR	Remove the cassette 1 to drive the unit.	EXIT TRAY1 CASSETTE
REGISTRATION CLUTCH	–	–
SENSOR SHUTTER	–	–
EXIT SOLENOID	–	–
DUP MOTOR(OPTION)	–	–
DUP REAR CLUTCH(OPTION)	–	–
CASSETTE 2 MOTOR (OPTION)	Remove the cassette 2 to drive the unit.	EXIT TRAY2 CASSETTE
CASSETTE2 FEED ROLLER (OPTION)	–	–
CASSETTE3 FEEDER MOTOR (OPTION)	Remove the cassette 3 to drive the unit.	EXIT TRAY3 CASSETTE
CASSETTE3 ROLLER CLUTCH (OPTION)	–	–
ID UP/DOWN	–	–
FAN1 TEST(POWER UNIT FAN)	–	–
FAN2 TEST(CONTROL BLOCK FAN)	–	–

4.1.2.5 Test printing

This self-diagnostic routine is used when the internal test patterns of the PU are printed. Other test patterns are stored in the controller.

1. Go to the self-diagnosis (level 1) mode, and hold the ① and ⑤ keys down until "TEST PRINT" comes into view in the upper display (the ① key is for test item increment and the ⑤ key for test item decrement).
2. On the lower display, setting items applicable only to the test printing appear. Hold the ② and ⑥ keys down until a target item is displayed (the ② key is for item increment and the ⑥ key for item decrement). When the setting for the item is not required (left at its default), go to step 5.
3. With the press of the ③, ⑦, the setting item and its setting are displayed on the upper and lower parts, respectively.
   Pressing the ③ key increments a setting. Pressing the ⑦ key decrements a setting. (The last displayed setting is applied.) Repeat step 3 as necessary.

SWITCH SCAN 00
1=H 2=L 3=H 4=L

Display	Setting	Function
PRINT EXECUTE	–	Starts printing at the press of + key/ Ends printing at the press of - key.
TEST PATTERN (TBD)	1	Selects one of printing patterns: 1: LED Head Drive Pattern 2: Color Registration Adjust Pattern 3: Reserved
	2	
	3	
CASSET	TRAY1	Selects a paper-loading end. Note: When the loading end is set to NONE, only the heater and drivable motors operate without the IDs and belt being driven.
	TRAY2	
	TRAY3	
	FF	
	NONE	
COLOR	ON	Selects between color-monochrome printings.
	OFF	
FUSER	ON	Selects between heater-on and -off.
	OFF	
DUPLEX	ON	Selects between duplex-on and -off. Prints on both sides of one sheet of paper and then on the second sheet when ON is selected.
	OFF	

- A value in the shaded section is initial. The set values are applicable only to this test mode (No writing into EEPROM is performed.)
- When the ③ key is pressed, with "PRINT EXECUTE" on the lower display after step 2, the test printing is executed using the values designated in steps 2 and 3. Pressing the ⑦ key suspends the test printing.

- Following messages are showing at warm-up and during printing.

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

P: Number of Sheets Printed for Test (in prints)
U: Upper-Heater Temperature Measurement [Set Value] (in units of ˚C)
L: Lower-Heater Temperature Measurement [Set Value] (in units of ˚C)
T: Environmental Temperature Measurement (in units of ˚C)
H: Environmental Humidity Measurement (in units of %)

- The display is changed at the press of the ③ key.

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

YTR, MTR, CTR and KTR mean the transfer voltage settings for colors (in KV).

- The display is changed at the press of the ③ key.

KR=*.**KV YR=*.**KV
MR=*.**KV CR=*.**KV

YR, MR, CR and KR are the transfer voltage measurements for transfer roller colors (in KV).

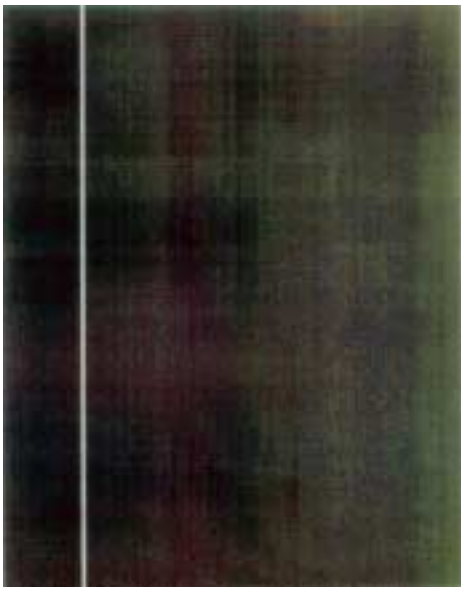
KR=*.**KV YR=*.**KV
MR=*.**KV CR=*.**KV

4. While "PRINT EXECUTE" is indicated in the lower display after the Item 2 procedure, press Key (3) to start test printing with the values set in Item 2 and 3 procedures.
   To suspend test printing, press Key ⑦.

   At the start of or during test printing, if any alarm listed under the Detail column in the table specified below is found, the corresponding alarm message appears on the operator panel and test printing is suspended. (For error details, see Sec. 4.1.2.9 Error Messages and their Details.)

   Print Patterns:
   Patterns 0, 8 ~15: Blank paper output

Pattern 1



Pattern 2

Pattern 3

Pattern 4

Pattern 5

Pattern 6

Pattern 7

5. Steps 2 through 4 to be repeated on an as needed basis.
6. Touch the (4) key to end the test (the display is restored to step 1).

4.1.2.6 NVM initialization

The self-diagnosis is used to initialize non-volatile memory.

1. Enter the self-diagnosis (Level 1) mode, and continue to press the ① and ⑤ keys until "NV-RAM INITIAL" appears on the upper display (the ① key is for test item increment and the ⑤ key for test item decrement).
2. The table No. to be initialized appears. There are two tables to be initialized.

   Hold the ② and ⑥ keys down until a target table No. shows up (the ② key is for table No. increment and the ⑥ key for table No. decrement).

NV-RAM INITIAL
TABLE 1

3. The upper "NV-RAM INITIAL" starts blinking upon pressing the ③ key, and all the items in Table 4-3 are initialized by holding the key down for 10 seconds.
4. Press the ④ key to end the test (the display of step 1 is restored).

Table 4-3 (1/2) Initialization Items in Table 1

Initialization Item		Detail	Initial Value	Unit
Drum Counter	Black Yellow Magenta Cyan	Initializes the internal counter after the replacement of each drum.	0	—
Belt Unit Counter		Initializes the internal counter after the replacement of the belt unit.	0	—
Fuser Unit Counter		Initializes the internal counter after the replacement of the fuser unit.	0	—
Toner Counter	Black Yellow Magenta Cyan	Initializes the internal counter after the recovery from each toner low error.	0	—

Table 4-3 (2/2) Initialization Items in Table 2

Initialization Item		Detail	Initial Value	Unit
Registration Set.Point x-axis	Yellow LED Magenta LED Cyan LED	Initializes the X-axis correction value for the LED head (Yellow/Magenta/Cyan).	0	1/1200 inch
Registration Set.Point y-axis(Left)	Yellow LED Magenta LED Cyan LED	Initializes the Y-axis left-correction value for the LED head (Yellow/Magenta/Cyan).	0	1/1200 inch
Registration Set.Point y-axis(Right)	Yellow LED Magenta LED Cyan LED	Initializes the Y-axis right-correction value for the LED head (Yellow/Magenta/Cyan).	0	1/1200 inch
Engine Parameter		Initializes all the items that have been set using levels 2 and 3.		

4.1.2.7 Consumable counter display

The self-diagnosis is used to indicate the consumable consumption status.

1. After entering the general self-diagnosis mode, hold the ① and ⑤ keys down until "CONSUMABLE STATUS" appears on the upper display (the ① key is for test item increment and the ⑤ key for test item decrement).
2. By pressing the ② and ⑥ keys, the consumption status of the consumables comes into view item by item (the press of the ③ and ⑦ keys is invalid).
3. Pressing the ④ key ends the test (the display of step 1 is restored).

Item	Upper Display	Lower Display	Format	Unit	Ditail
Fuser Unit	FUSER UNIT	******** IMAGES	DEC	Image	Shows the number of sheets fed after the installation of a new fuser unit to date.
Belt Unit	TR BELT UNIT	******** IMAGES	DEC	Image	Shows the number of sheets fed after the installation of a new belt unit to date.
Black ID Unit	BLACK ID UNIT	******** IMAGES	DEC	Image	Converts the number of revolutions of each color's ID unit after the installation of that unit to date into a count in letter- (A4-) size paper sheets and shows it.
Yellow ID Unit	YELLOW ID UNIT	******** IMAGES	DEC	Image	
Magenta ID Unit	MAGENTA ID UNIT	******** IMAGES	DEC	Image	
Cyan ID Unit	CYAN ID UNIT	******** IMAGES	DEC	Image	
Black Toner	BLACK TONER	***%	DEC	%	Shows the remaining amount of each color's toner.
Yellow Toner	YELLOW TONER	***%	DEC	%	
Magenta Toner	MAGENTA TONER	***%	DEC	%	
Cyan Toner	CYAN TONER	***%	DEC	%	

4.1.2.8 Consumable counter display - continuous

The self-diagnosis is used to indicate the consumable life-cycle consumption status.
The consumable life-cycle consumption status, a count not initialized even after the replacement of a consumable, is counted without break.

1. Enter the general self-diagnosis mode, and the ① and ⑤ keys down until the upper display "PRINTER STATUS" appears (the ① key is for item increment and the ⑤ key for item decrement).
2. When the ② and ⑥ keys are pressed, the life-cycle consumption status of the consumables shows up item by item (the press of the ③ and ⑦ keys is invalid).
3. Pressing the ④ key ends the test (flips back to the display of 1).

Item	Upper Display	Lower Display	Format	Unit	Ditail
Total Number of Sheets Fed	TOTAL SHEETS FED	******** PRINTS	DEC	Prints	Shows the total number of sheets fed, including blank paper.
Black Impressions	BLACK IMPRESSIONS	******** IMAGES	DEC	Image	Converts the total number of revolutions of each color's ID into a count in letter paper sheets to set it.
Yellow Impressions	YELLOW INPRESSIONS	******** IMAGES	DEC	Image	
Magenta Impressions	MAGENTA IMPRESSIONS	******** IMAGES	DEC	Image	
Cyan Impressions	CYAN IMPRESSIONS	******** IMAGES	DEC	Image	

4.1.2.9 Error Messages and their Details

Error Messages.

Error Message	*Details*
BLACK DRUM UP/DOWN ERROR	*Black ID up/down error*
BLACK DRUM UNIT FUSE CUT ERROR	*Black ID unit fuse cut error*
BLACK TONER SENSOR ERROR	*Black toner sensor error*
BLACK LED HEAD ERROR	*Black LED head error*
BLACK TONER LOW	*Black toner is low.*
BLACK TONER EMPTY	*Black toner is empty.*
BLACK DRUM LIFE OVER	*Black ID life is over.*
BLANCE ERROR	*Balance error*
BELT LIFE OVER	*Belt life is over.*
BELT UNIT FUSE CUT ERROR	*Belt unit fuse cut error*
BELT REFLECTION ERROR	*Belt reflection error*
BRK INST EXECUTE	*BRK instruction is executed.*
CYAN DRUM UP/DOWN ERROR	*Cyan ID up/down error*
CYAN DRUM UNIT FUSE CUT ERROR	*Cyan ID unit fuse cut error*
CYAN TONER SENSOR ERROR	*Cyan toner sensor error*
CYAN LED HEAD ERROR	*Cyan LED head error*
CYAN IRREGULAR ERROR	*Cyan detected value error*
CYAN REGISTRATION OUT RIGHT	*Cyan out-of-registration value error (Right)*
CYAN REGISTRATION OUT LEFT	*Cyan out-of-registration value error (Left)*
CYAN SENSOR ERROR RIGHT	*Cyan right sensor error*
CYAN SENSOR ERROR LEFT	*Cyan left sensor error*
CYAN TONER LOW	*Cyan toner is low.*
CYAN TONER EMPTY	*Cyan toner is empty.*
CYAN DRUM LIFE OVER	*Cyan ID life is over.*
CU FAN MOTOR ERROR	*CU fan motor error*
CALIBRATION ERROR	*Calibration error*
CUSTOM DIAGNOSTICS MODE	*Custom diagnostic mode*
DUPLEX I/F ERROR	*Duplex unit I/F error*
DISPOSAL TONER SENSOR ERROR	*DISPOSAL TONER sensor error*
DISPOSAL TONER NEARFULL	*Waste toner container is near full.*
DISPOSAL TONER FULL	*Waste toner container is full.*
DIAGNOSTICS MODE	*Engine diagnostic mode*
EEPROM SUM CHECK ERROR	*EEPROM sum check error*
EEPROM TIMEOUT	*EEPROM timeout error*
ENV TEMP SENSOR ERROR	*ENV TEMP sensor error*
ENGINE LIFE OVER	*Engine life error*
F/W LOST CONTROL	*F/W has lost its control.*
FRONT FEEDER STAGE POSITION	*Front feeder stage position error.*
FRONT COVER OPEN	*Front cover is open.*
FUSER LIFE OVER	*Fuser life is over.*
FUSER UNIT FUSE CUT ERROR	*Fuser unit fuse cut error*
FLASH SOFTWARE ERROR	*FLASH software error*
FLASH HARDWARE ERROR	*FLASH hardware error*
HUMIDITY SENSOR ERROR	*Humidity sensor error*
HOPPING ERROR TRAY1	*Tray1 hopping error*
HOPPING ERROR TRAY2	*Tray2 hopping error*
HOPPING ERROR TRAY3	*Tray3 hopping error*
HOPPING ERROR FRONT FEEDER	*Front feeder hopping error*

Error Message	Details
HOPPING ERROR DUPLEX	Duplex unit hopping error
HOPPING ERROR TRAY4(PX703)	Tray4 hopping error
HOPPING ERROR TRAY5(PX703)	Tray5 hopping error
INPATH:FEED	Feed jam
INPATH:TRANSPORT	Transport jam
INPATH:EXIT	Exit jam
INPATH:DUPLEX INPUT	Duplex unit input jam
INPATH:DUPLEX ENTRY	Duplex unit entry jam
INPATH:DUPLEX REVERSAL	Duplex unit reversal jam
INFEED:TRAY1	Tray1 hopping error
INFEED:TRAY2	Tray2 hopping error
INFEED:TRAY3	Tray3 hopping error
INFEED:FRONT FEEDER	Front feeder hopping error
INFEED:DUPLEX	Duplex unit hopping error
INFEED:TRAY4(PX703)	Tray4 hopping error
INFEED:TRAY5(PX703)	Tray5 hopping error
INITIALIZING	Initializing after turning on the printer
INITIALIZING	Initializing after a cover is opened/closed
INITIALIZING REGISTRATION ADJUST	Initializing after automatic color-registrat
JAM FEED	Feed jam
JAM TRANSPORT	Transport jam
JAM EXIT	Exit jam
JAM DUPLEX INPUT	Duplex unit input jam
JAM DUPLEX ENTRY	Duplex unit entry jam
JAM DUPLEX REVERSAL	Duplex unit reversal jam
LOWER HEATER LOW TEMPER	Lower heater low-temperature error
LOWER HEATER HIGH TEMPER	Lower heater high-temperature error
LOWER HEATER OPEN ERROR	Lower heater thermistor open-circuit error
LOWER HEATER SHORT ERROR	Lower heater thermistor short-circuit error
LED HEAD OVER HEAT	LED head overheat error
LEFT LOWER COVER OPEN	Left lower cover is open.
LEFT UPPER COVER OPEN	Left upper cover is open.
MISSING ERROR	Part missing error
FINISHER I/F ERROR	Finisher I/F error
MISSING BELT UNIT	Belt unit is not mounted.
MISSING FUSER UNIT	Fuser unit is not mounted.
MISSING BLACK DRUM	Black ID is not mounted.
MISSING CYAN DRUM	Cyan ID is not mounted.
MISSING MAGENTA DRUM	Magenta ID is not mounted.
MISSING YELLOW DRUM	Yellow ID is not mounted.
MAGENTA DRUM UP/DOWN ERROR	Magenta ID up/down error
MAGENTA DRUM UNIT FUSE CUT ERROR	Magenta ID unit fuse cut error
MAGENTA TONER SENSOR ERROR	Magenta toner sensor error
MAGENTA LED HEAD ERROR	Magenta LED head error
MAGENTA IRREGULAR ERROR	Magenta detected value error
MAGENTA REGISTRATION OUT LEFT	Magenta out-of-registration value error (Lef
MAGENTA REGISTRATION OUT RIGHT	Magenta out-of-registration value error (Rig
MAGENTA SENSOR ERROR LEFT	Magenta left sensor error
MAGENTA SENSOR ERROR RIGHT	Magenta right sensor error
MAGENTA TONER LOW	Magenta toner is low.
MAGENTA TONER EMPTY	Magenta toner is empty.
MAGENTA DRUM LIFE OVER	Magenta ID life is over.

Error Message	Details
OPECODE TRAP ERROR	Operation cord trap error
POWER LSI ERROR	Power unit LSI error
PANEL I/F ERROR	Opeator panel I/F error
PU FAN MOTOR ERROR	PU fan motor error
PAPER SIZE ERROR	Paper size error
PAPER END SELECTED TRAY	No paper is left in the selected tray.
PAPER END TRAY1	No paper is left in Tray1.
PAPER END TRAY2	No paper is left in Tray2.
PAPER END TRAY3	No paper is left in Tray3.
PAPER END FRONT FEEDER	No paper is left at Front Feeder.
PAPER END TRAY4(PX703)	No paper is left in Tray4.
PAPER END TRAY5(PX703)	No paper is left in Tray5.
PAPER NEAR END TRAY1	Paper is going out in Tray1.
PAPER NEAR END TRAY2	Paper is going out in Tray2.
PAPER NEAR END TRAY3	Paper is going out in Tray3.
PAPER NEAR END FRONT FEEDER	Paper is going out at Front Feeder.
PAPER NEAR END TRAY4(PX703)	Paper is going out in Tray4.
PAPER NEAR END TRAY5(PX703)	Paper is going out in Tray5.
RAM ERROR	RAM error
ROM SUM CHECK ERROR	ROM sum check error
SRAM ERROR	SRAM error
STACKER FULL	Stacker is full.
STACKER FULL FACE DOWN	Facedown stacker is full.
TRAY2 I/F ERROR	Tray2 I/F error
TRAY3 I/F ERROR	Tray3 I/F error
TRAY4 I/F ERROR(PX703)	Tray4 I/F error
TRAY5 I/F ERROR(PX703)	Tray5 I/F error
TOP COVER OPEN	Top cover is open.
UPPER HEATER LOW TEMPER	Upper heater low-temperature error
UPPER HEATER HIGH TEMPER	Upper heater high-temperature error
UPPER HEATER OPEN ERROR	Upper heater thermistor open-circuit error
UPPER HEATER SHORT ERROR	Upper heater thermistor short-circuit error
WARMING UP	Warming up
WDT ERROR	Watchdog timer timeout error
YELLOW DRUM UP/DOWN ERROR	Yellow ID up/down error
YELLOW DRUM UNIT FUSE CUT ERROR	Yellow ID unit fuse cut error
YELLOW TONER SENSOR ERROR	Yellow toner sensor error
YELLOW LED HEAD ERROR	Yellow LED head error
YELLOW IRREGULAR ERROR	Yellow detected value error
YELLOW REGISTRATION OUT LEFT	Yellow out-of-registration value error (Left)
YELLOW REGISTRATION OUT RIGHT	Yellow out-of-registration value error (Righ
YELLOW SENSOR ERROR LEFT	Yellow left sensor error
YELLOW SENSOR ERROR RIGHT	Yellow right sensor error
YELLOW TONER LOW	Yellow toner is low.
YELLOW TONER EMPTY	Yellow toner is empty.
YELLOW DRUM LIFE OVER	Yellow ID life is over.

Error Message	Details
INPATH:FEED	Feed jam
INPATH:TRANSPORT	Transport jam
INPATH:EXIT	Exit jam
INPATH:DUPLEX INPUT	Duplex unit input jam
INPATH:DUPLEX ENTRY	Duplex unit entry jam
INPATH:REVERSAL	Duplex unit reversal jam
INFEED:TRAY1	Tray1 hopping error
INFEED:TRAY2	Tray2 hopping error
INFEED:TRAY3	Tray3 hopping error
INFEED:FRONT FEEDER	Front feeder hopping error
INFEED:DUPLEX	Duplex unit hopping error
INFEED:TRAY4(PX703)	Tray4 hopping error
INFEED:TRAY5(PX703)	Tray5 hopping error

INPATH --- Information of paper that stays on the paper path
INFEED --- Information of paper that stays at the paper entrance

4.1.3 SWA board adjustments

Destination Setting:

The SWA board, a main board, is a common ROM among destinations. When using the board for maintenance, its destination must be set using the system maintenance mode.

Placing Printer in System Maintenance Mode: (Not on view of users)

1. While holding the ② and ⑥ keys down, turn the power on.
2. Continue to press the ③ and ⑦ keys to select a value to be set, and press SELECT to fix the value.

Set Values and Destinations

Set Value	ODA	OEL	APS	JP1	JPOEM	OEMA	OEML
Destination	ODA	OEL	APS	Japan	Japan OEM	OEM	OEM
Remark	LETTER inch	A4 millimeter	A4	A4 millimeter	A4 millimeter		

Model Name Setting:

The CU program automatically determines and switches between following printer specifications (LED head width, LED head resolution, presence or absence of Japanese fonts (Heisei fonts, Morisawa fonts)).

LED Head Width	Resolution	With Kanji fonts		Without Kanji fonts
		Two Heisei fonts	Five Morisawa fonts	ODA/OEL/ASP
A4	600dpi	ML3010c		OKI C7200
	1200dpi	/	/	OKI C7400
A3	600dpi	ML3020c	/	OKI C9200
	1200dpi	ML3050c	/	OKI C9400

EEPROM Initialization

To initialize the EEPROM, enter the maintenance mode and select the EEPROM RESET item after the general start-up.

4.1.3.1 Short plug settings

The SWA board has two short plugs that can be set as follows:

Short Plug (WE1)
Sets flash ROM DIMM to connect WE signals.
(1-2 Short: Disconnects WE signals; 2-3 Short: Connects WE signals.)
Factory 2-3 Short Setting: Re-programmable flash ROM DIMM.

Short Plug (WE2)
(Not use)

4.1.3.2 Printings singly using controller-equipped printer

Menu Map Printing
The program versions, the controller block configuration and other configurations and settings of the printer are printed.
Operation: (Press of Switches)
Without HDD: “0” → “3” → “3”
With HDD: “0” → “0” → “3” → “3”

File List Printing
A list of files stored on a HDD or in ROM is printed.
Operation: (Press of Switches)
Without HDD: “0” → “3” → “1” → “3”
With HDD: “0” → “0” → “3” → “1” → “3”

Font List Printing (PCL)
A list of PCL fonts is printed.
Operation: (Press of Switches)
Without HDD: “0” → “3” → “1” → “1” → “3”
With HDD: “0” → “0” → “3” → “1” → “1” → “3”

Font List Printing (PS)
A list of PS fonts is printed.
Operation: (Press of Switches)
Without HDD: “0” → “3” → “1” → “1” → “1” → “3”
With HDD: “0” → “0” → “3” → “1” → “1” → “1” → “3”

Demo Printing
The demo patterns for destinations stored in ROM are printed.
Operation: (Press of Switches)
Without HDD: “0” → “3” → “1” → “1” → “1” → “1” → “3”
With HDD: “0” → “0” → “3” → “1” → “1” → “1” → “1” → “3”

Ethernet Board Self-Diagnostic Printing
When the printer is equipped with an Ethernet board, holding down the SW on the Ethernet board for two seconds or more runs self-diagnostics and prints its result.

4.2 Adjustments after Parts Replacement

Adjustment to be implemented after each part replacement is described below.
Adjustment and correction of color registration are always required for each part replacement.

Replaced Part	*Adjustment*
LED Head	Color balance adjustment
Drum Cartridge (Y, M, C, K)	Not required.
Fuser Unit	Not required.
Belt Cassette Assy	Not required.
PU (K71 Board)	Re-mounting the EEPROM used prior to the replacement *Note
CU (SWA Board)	Re-mounting the EEPROM used prior to the replacement *Note

**Note:* When the EEPROM of the PU (K71 Board) is replaced to a new one, color balance must be adjusted.

4.2.1 Precautions in replacing engine controller board

When replacing the engine controller board (71K PWB), demount the EEPROM from the board and mount it on a new board (for errors other than those of engine EEPROM).
When the “SERVICE CALL XX” (an engine EEPROM error) message is displayed on the operator panel, the EEPROM must be replaced with new one. In this case, perform the operation described in Section 4.2.2.

4.2.2 Precautions in replacing EEPROM

When the EEPROM is not demounted from the board and not mounted on new one at the time of engine controller board (71K PWB) replacement, or when the EEPROM is replaced with new one, the version read (fuse cut) function shown in Section 2.14 is disabled. The printer must be switched from the factory mode to the shipping mode using the following setting procedure:

Changing the setting using operator panel

1. Remove the main controller board.
2. While holding the ① and ④ keys down, turn the power on to enter the engine maintenance mode (level 1).
3. With “ENGINE DIAG MODE XX.XX” on the display, press the ② and ④ keys to enter the engine maintenance mode (level 3).
4. Press the ① and ⑤ keys until “LOCAL PARAMETER SET” appears on the upper display.
5. Press the ② and ⑥ keys until “FACTORY WORKING MODE” appears.
6. While “FACTORY WORKING MODE” is being displayed, use the ③ and ⑦ keys to select a setting value.
7. Select “SHIPPING MODE” (fuse cut enabled), press the ③ and ⑦ keys in combination. Then, the mode name stops blinking and the set value is registered.

Note! The life information on the belt, toner, IDs etc. is cleared due to replacement of the EEPROM. Take note that an error occurs in the each unit's life count until the unit is replaced. Following is counts cleared after the replacement of the EEPROM.

Item	Count	Description of Count
Fuser	Fuser Life	A value in letter paper sheets converted from the number of sheets fed after the installation of a new fuser unit.
Transfer Belt	Transfer Belt Life	A value in letter paper sheets converted from the number of sheets fed after the installation of a new belt unit.
Black Imaging Drum Cyan Imaging Drum Magenta Imaging Drum Yellow Imaging Drum	Each Imaging Drum Life	A value in letter paper sheets converted from the installation of a new ID unit.
Black Toner Cyan Toner Magenta Toner Yellow Toner	Toner Consumption	The number of dots printed.
Total Sheets Feed	Printer Life	The total number of pages printed.
Black Impressions Cyan Impressions Magenta Impressions Yellow Impressions	Total Number of Pages Printed	The number of pages printed after the installation of a new ID unit.

Counts except the count Total Sheets Feed are cleared upon replacement of the units, respectively, where errors are corrected.

4.2.3 EEPROM replacement after SWA board replacement

To replace the SWA board, remove the EEPROM on the board and include the EEPROM on a newly installed board (to allow a new board to inherit user-defined settings and font installation information).
When the user's EEPROM is unusable due to its problem, use the new one on the new board, where the destination of the new board must be set. See Section 4.1.3 "SWA board adjustments" for the setting procedure.

4.3 Color Balance Adjustment

Color balance has been adjusted appropriately when a printer is shipped from the plant. However, it may be out of the appropriate balance during use. In such a case, color balance should be modified.

Note: Density of each color depends on each other. Therefore, adjustment must be repeated several times to reach the correct color balance.

(1) Set A4 papers in the tray specified on the operator panel.

(2) Press ⓪ several times to display [COLOR MENU].

(3) Press ① or ⑤ to display [COLOR BALANCE CORRECTION/PATTERN PRINT].

(4) Press ③ to start test printing.

(5) Press ① to display [COLOR BALANCE CORRECTION/RESET].

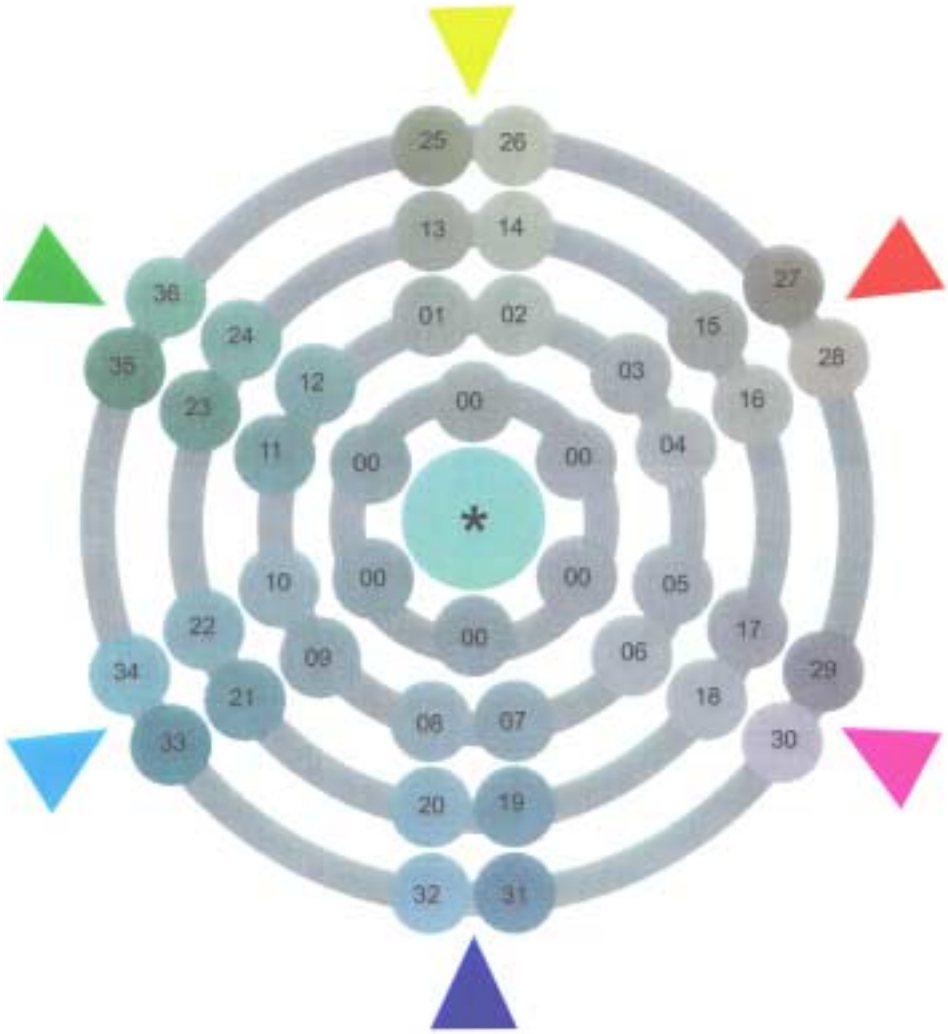
(6) Choose the number of the color closest to the [(] part on the test pattern.
If the selected color is [00], the color balance is correct and no adjustment is required.
If it is not [00], the color balance should be adjusted in the procedures below.

(7) Press ② or ⑥ several times to display the value selected in Step (6).

(8) Press ③ to start test printing.

(9) Repeat the steps (6)~(8) to approximate the color at the [(] part on the test pattern to [00] as much as possible.

(10) Press ④ to display [ON LINE].


25
26
13
14
27
36
01
02
15
24
28
35
12
03
23
00
16
11
00
00
04
*
10
00
00
05
22
00
17
09
06
34
29
21
18
08
07
33
30
20
19
32
31

5. PERIODIC MAINTENANCE

5.1 Parts Replaced Periodically

It is recommended that the following parts be periodically replaced, as specified, by users (when they are not replaced, the print quality is not assured and printer problems may result).

Parts Name	Time of Replacement	Condition for Replacement	Adjustment after Replacement
Large-Capacity Toner Cartridge	Time when " " is displayed.	10,000 pages are printed.	Replace the toner cartridge.
Toner Cartridge	Toner Cartridge Time when " " is displayed.	5,000 pages are printed.	Replace the toner cartridge.
I/D Unit	ID Time when " " is displayed.	20,000 pages are printed (3P/job).	Reset the drum counter after the replacement of the drum.
Fuser Unit	Fuser Unit Time when" " is displayed.	60,000 pages are printed.	Reset the fuser counter.
Transfer Belt Unit	Belt Unit Time when " " is displayed.	60,000 pages are printed.	Reset the belt counter.

Note: The The above periodic parts replacement is performed by users.

5.2 Cleaning

Clean the inside and outside of the printer with waste and a small vacuum cleaner (hand cleaner) as the case may be.

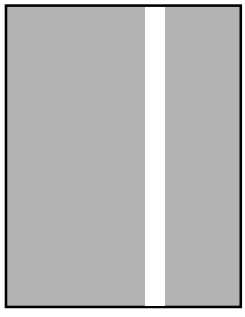
Caution! Do not touch the terminals of the image drums, the LED lens array and the LED head connector.

5.3 Cleaning LED Lens Array

When white belts or lines (void, light areas) run the length of a printed page, clean the LED lens array.

Caution! Be sure to use the LED head cleaner to clean the LED lens array (The LED head cleaner is packed together with the toner cartridge).

White belt, White line (Void, Light area)



5.4 Cleaning Pickup Roller

When lines run the length of a printed paper, clean the pick up roller.

Caution! Use a soft cloth so as not to damage the roller surface.

6. TROUBLESHOOTING PROCEDURES

6.1 Before Troubleshooting

(1) Check the basic check items covered in the user's manual.

(2) Obtain much information about problems from users whenever possible.

(3) Perform inspections in conditions close to those in which problems occurred.

6.2 Checking before Troubleshooting Image Problems

(1) Is the printer operating environment proper?

(2) Has the consumables (toner, drum cartridges) been replaced properly?

(3) Is the paper proper? Refer to the paper specification.

(4) Are the image drum cartridges placed properly?

6.3 Precautions in Troubleshooting Image Problems

(1) Do not touch the surface of the OPC drum with hands or allow foreign matter to contact it.

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

(3) Do not touch the fuser unit with hands as it is hot.

(4) Do not expose the image drums to light for five minutes or more at room temperature.

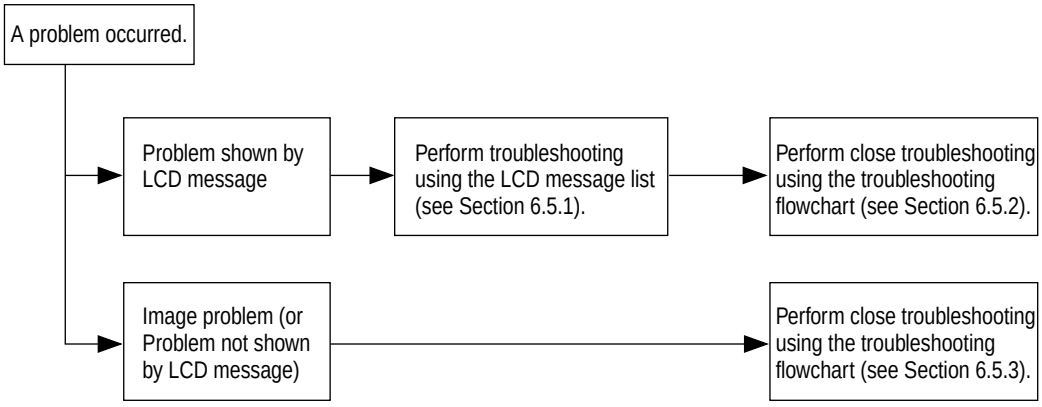
6.4 Preparation for Troubleshooting

(1) Control panel display

The failure status of the printer is provided on the LCD (liquid crystal display) of the operator panel.
Take appropriate corrective actions according to messages appeared on the LCD.

6.5 Troubleshooting

When problems occur in the printer, troubleshoot them using the following procedure:



6.5.1 LCD messages list

When detects unrecoverable errors, the printer provides the following service call error message:
Service Call
nnn : Error

Note! nnn is an error code.

While a service call appears, an error code accompanied by its error information is shown on the lower LCD. Error codes, their meanings and actions to be taken are listed in Table 6-1-1.

Table 6-1-1 Operator Alarms (1/5)

Message	Cause	Error Description		Solutions
Service Call 001: Error ~ 011: Error	CPU Exception	Is the error message displayed again? Is the error message displayed again?	Yes Yes	Turn the printer off/on. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 020: Error	CU ROM Hash Check Error 1	Is the program ROM DIMM installed properly? Can the printer recover from the error by replacing the program ROM DIMM?	No Yes No	Re-install the program ROM DIMM. Replace the program ROM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 030: Error	CU Slot1 DIMM RAM Check Error	Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No Yes No	Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 031: Error	CU Slot2 DIMM RAM Check Error	Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No Yes No	Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 032: Error	CU Slot3 DIMM RAM Check Error	Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No Yes No	Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 033: Error	CU Slot4 DIMM RAM Check Error	Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No Yes No	Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 034: Error	RAM Configuration Error. The CU RAM installation or derwas not followed.	Is the installation order followed? Can the printer recover from the error by replacing the RAM DIMMs?	No Yes No	Correct the installation order. Replace the RAM DIMMs. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 035: Error	Slot1 RAM Spec Error. The CU RAM Slot1 DIMM specification is not supported.	Is the RAM DIMM a genuine part? Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No No Yes No	Use a genuine RAM DIMM. Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 036: Error	Slot2 RAM Spec Error. The CU RAM Slot2 DIMM specification is not supported.	Is the RAM DIMM a genuine part? Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No No Yes No	Use a genuine RAM DIMM. Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 037: Error	Slot3 RAM Spec Error. The CU RAM Slot3 DIMM specification is notsupported.	Is the RAM DIMM a genuine part? Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No No Yes No	Use a genuine RAM DIMM. Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)
Service Call 038: Error	Slot4 RAM Spec Error. The CU RAM Slot4 DIMM specification is notsupported.	Is the RAM DIMM a genuine part? Is the concerned RAM DIMM installed properly? Can the printer recover from the error by replacing the RAM DIMM?	No No Yes No	Use a genuine RAM DIMM. Re-install the concerned RAM DIMM. Replace the RAM DIMM. Replace the SWA board. (The EEPROM needs replacement.)

Table 6-1-1 Operator Alarms (2/5)

Message	Cause	Error Description		Solutions
Service Call 040: Error	CU EEPROM Error	Can the printer recover from the error by replacing the EEPROM on the CU board?	Yes	Replace the EEPROM. (Settings of the user must be restored on the new.)
			No	Replace the SWA board. (The EEPROM needs replacement.)
Service Call 041: Error	U Flash Error. On-CU-board Flash ROM Error	Does the error message appear again?	Yes	Replace the SWA board. (The EEPROM needs replacement.)
Service Call 050: Error	Operator Panel Error	Does the error message appear again?	Yes	See the flowchart for the problems with no LCD message displayed.
Service Call 051: Error	CU Fan Error. On-CU-board CPU Cooling Fan Problem	Is the on-CU-board connector connected properly?	No	Connect the connector properly.
		Can the printer recover from the error by replacing the fan?	Yes	Replace the fan.
			No	Replace the SWA board. (The EEPROM needs replacement.)
Service Call 063: Error	Network Comm.Error. CU ~ NIC H/W I/F Problem	Is the network board installed properly?	No	Install the network board properly.
		Can the printer recover from the error by replacing the network board?	Yes	Replace the network board.
			No	Replace the SWA board. (The EEPROM needs replacement.)
Service Call 070: Error	CANT_HAPPEN. PS F/W Problem Detection	Is it recovered by turning the printer off/on.	No	Replace the SWA board. (The EEPROM needs replacement.)
Service Call 072: Error	Engine Communication Error PU ~ CU I/F Error	Is the CU Assy installed properly?	No	Install the CU Assy properly.
		Can the printer recover from the error by replacing the SWA board?	Yes	Replace the SWA board. (The EEPROM needs replacement.)
			No	Replace the PU board.
Service Call 073: Error ~ 075: Error	Video Overrun Detect	Is the CU Assy installed properly?	No	Install the CU Assy properly.
		Can the printer recover from the error by replacing the SWA board?	Yes	Replace the SWA board. (The EEPROM needs replacement.)
Service Call 100/101:Error	Error detected at Engine ROM Checksum when turned on.	Does the error repeat?	No	Replace the PU board.
			Yes	Replace the engine control board (71K).
Service Call 102: Error	Error detected at Engine RAM Read/Write when turned on.	Does the error repeat?	Yes	Replace the engine control board (71K).
Service Call 103: Error	Error detected at Engine SRAM Read/Write when turned on.	Does the error repeat?	Yes	Replace the engine control board (71K).
Service Call 104: Error	Error detected at Engine EEPROM Checksum when turned on.	Does the error repeat?	Yes	Replace the engine control board (71K).
Service Call 105: Error	EEPROM not detected when turned on.	No EEPROM?	Yes	Confirm the existence of EEPROM. Without it, mount an EEPROM.
		Does the error repeat?	Yes	Replace the engine control board (71K).
Service Call 106: Error	Error detected at Engine Control Logic.	Does the error repeat?	Yes	Replace the engine control board (71K).
Service Call 120: Error ~ 122: Error	Error detected at the Power unit cooling fan in the Controller cavity.	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the Fan motor.
Service Call 123: Error	Inappropriate ambient RH detected by a sensor.	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the RH sensor.
Service Call 124: Error	Inappropriate ambient temp. detected by a sensor.	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the temperature sensor.

Table 6-1-1 Operator Alarms (3/5)

Message	Cause	Error Description		Solutions
Service Call 125: Error	Error detected at the MT home position.	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the MT.
Service Call 130: Error	Temperature rise at the LED head detected.	1) Is the error message displayed?	Yes	Turn off the printer, leave it for 30 min and then turn it on again.
		2) Does the error repeat?	Yes	Replace the LED head unit.
Service Call 131: Error ~ 134: Error	No LED head unit detected when turning on the printer or closing the cover.	1) Is the error message displayed?	Yes	Verify the installation of the LED head.
		2) Is the LED head mounted properly?	Yes	Turn off/on the printer.
		3) Does the error repeat?	Yes	Replace the LED head Assy.
Service Call 140: Error ~ 142: Error	Error detected with the D located at appropriate position.	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the Drum Assy.
Service Call 150: Error ~ 153: Error	Fuse in the ID unit has not been blown.	Is the ID unit mounted properly?	Yes	Confirm the cable connection, or replace the Engine board.
Service Call 154: Error	Fuse in the Belt unit has not been blown.	Is the Belt unit mounted properly?	Yes	Confirm the cable connection, or replace the Engine board.
Service Call 155: Error	Fuse in the Fuser unit has not been blown.	Is the Fuser unit mounted properly?	Yes	Confirm the cable connection, or replace the Engine board.
Service Call 160: Error ~ 163: Error	Error detected by Toner sensor.	1) Is the error message displayed?	Yes	Replace Toner sensor or Assy (Y71-PWB).
		2) Does the error repeat?	Yes	Same as the above.
Service Call 170: Error 171: Error 174: Error 175: Error	Short or open circuit detected at the Fusert hermistor. (H or L temperature error)	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the Thermistor and turn off the printer. Leave it for 30 min.
Service Call 172: Error 176: Error	High temperature error detected at Thermistor.	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the Thermistor and turn off the printer. Leave it for 30 min.
Service Call 173: Error 177: Error	Low temperature error detected at Thermistor.	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the Thermistor or heater and turn off the printer.
Service Call 181: Error ~ 186: Error	Communication failure with an option unit detected by Engine	1) Is the error message displayed?	Yes	Turn off/on the printer.
		2) Does the error repeat?	Yes	Replace the option unit.
Close Cover 310: CCCC CoverOpen (* = A4, B4 etc.)	Printer engine cover is open.	1) Is the Top cover open?	Yes	Close the Top cover.
		2) Does the Cover switch operatenormally?	Yes	Close the Side cover.
			No	Replace the Cover switch.
Check Fuser 320: Fuser Error	No Fuser unit detected when turning on the printer or closing the cover.	1) Is the error message displayed?	Yes	Confirm the existence of the unit.
		2) Is the Fuser unit mounted properly?	No	Re-install the Fuser unit and turn off/on the printer.
		3) Does the error repeat?	Yes	Replace the Fuser unit Assy.
Check Belt 330: Belt Error	No Belt unit detected when turning on the printer or closing the cover.	1) Is the error message displayed?	Yes	Confirm the existence of the unit.
		2) Is the Belt unit mounted properly?	No	Re-install the Belt unit and turn off/on the printer.
		3) Does the error repeat?	Yes	Replace the Belt unit Assy.
Check Drum 340~343: Drum Error	No ID unit detected when turning on the printer or closing the cover.	1) Is the error message displayed?	Yes	Confirm the existence of the unit.
		2) Is the ID unit mounted properly?	No	Re-install the ID unit and turn off/on the printer.
		3) Does the error repeat?	Yes	Replace the ID unit Assy.

Table 6-1-1 Operator Alarms (4/5)

Message	Cause	Error Description		Solutions
Install New Drum 350: Y Drum Life 351: M Drum Life 352: C Drum Life 353: K Drum Life	End of the ID unit life. more copies printed.	Is it displayed soon after the ID unit replacement?	Yes No	Confirm the life of the ID unit. Replace the ID unit.
Install Duplex Unit 360: No Duplex unit	The Duplex unit is removed from the printer.	Recovered if the Duplex unit is inserted again?	Yes No	Normal Replace the Duplex unit or Engine board.
Check DUPLEX 370: Paper Jam	Paper jam detected after paper reverse in the Duplex unit.	1) Is a paper jammed in the Duplex unit?	Yes No	Remove the jammed paper. Check the Duplex unit, or replace it.
Check DUPLEX 371: Paper Jam	Paper jam detected at the Duplex unit	1) Is a paper jammed in the Duplex unit?	Yes No	Remove the jammed paper. Check the Duplex unit, or replace it.
Check DUPLEX 372: Paper Jam	Paper jam detectedd uring paper feed from the Duplex unit.	1) Does misfeed occur in the Duplex unit?	Yes No	Remove the misfed paper and close the cover. Check the Duplex unit, or replace it.
Open Side Cover 380: Paper Jam	Paper jam during paper feed from the Cassette 1, 2, 3, 4 or 5.	1) Does misfeed occur in the specified cassette?	Yes No	Remove the jammed paper and install the cassette. Check the Cassette 1, 2, 3, 4 or 5, or replace it.
Open Stacker Cover 381: Paper Jam	Paper jam detected btwn the B ID and Fuser.	1) Is a paper jammed between the Y ID and Fuser? 2) Is the load on the Fuser unit normal?	Yes No	Remove the jammed paper. Replace the Fuser unit.
Open Stacker Cover 382: Paper Jam	Paper jam detected in the Fuser unit or btwn the Fuser and paper ejection.	1) Is a paper jammed in the Fuser unit or between the Y ID and Fuser unit? 2) Is the Paper eject switch work normally?	Yes No	Remove the jammed paper. Replace the Fuser unit.
Open Stacker Cover 383: Paper Jam	Paper jam detected on paper entering the Duplex unit.	1) Is a paper jammed at the entrance of the Duplex unit or in the unit?	Yes No	Remove the jammed paper and close. Check the Duplex unit, or replace it.
Check MP Tray 390: Paper Jam	Paper jam during paper feed from the MP Tray.	1) Does misfeed occur around the MP Tray?	Yes No	Remove the misfed paper and close the cover. Check the MP Tray, or replace it.
Check Tray * 391~395: Paper Jam	Paper jam detected btwn a cassette and the B ID.	1) Is a paper jammed around the cassette or between the B ID and cassette. 2) Does the Paper entry switch operate normal?	Yes No	Remove the jammed paper. Replace the Paper entry switch.
Open Stacker Cover 400: Paper Size Error	Paper in a size different (45 mm or more) from the specification detected at the Printer engine.	1) Is the paper in a custom size? 2) Is the paper in the standard size?	Yes Yes No	No action required. Adjust the Paper size guide of the cassette. Replace the Paper size board (PXC PWB).
Toner Low 410: Yellow 411: Magenta 412: Cyan 413: Black	Toner in one of the four colors is running short.	1) Is the specified toner cartridge almost empty? 2) Does the Toner sensor of the specified cartridge operate normally?	Yes No	Replace it with a new toner kit. Replace the Toner sensor for the specified color.
Remove Printed Papers 480: Stacker Full	The stacker for ejected papers is full.	1) Is the stacker full? 2) Does the Stacker full sensor operate normally?	Yes No	Remove papers from the stacker. Replace the Stacker full sensor.

Table 6-1-1 Operator Alarms (5/5)

Message	Cause	Error Description		Solutions
Load *** Papers 490: No paper in the MP Tray (*** = A4, B5 etc.)	The specified cassette has no paper or is removed. Or, the cassette be ingused for printing has no more paper.	1) No paper in MT?	Yes	Load papers in MT.
		2) Does the Paper out sensor operate normally?	No	Replace the Paper out sensor.
Load *** Papers 491~495: No paper in the Tray * (*** = A4, B5 etc.)	No paper in the Cassette 1, 2, 3, 4 or 5 detected.	1) No paper in the specified cassette?	Yes	Load papers in the specified cassette.
		2) Does the Paper out sensor operate normally?	No	Replace the Paper out sensor of the specified cassette.
Replace Belt	The belt counter has reached the life value.	1) Is the error message displayed?	Yes	Check the belt life.
		2) Does the error occur soon after Belt unit replacement?	No	Replace the Belt unit immediately or at the next maintenance.
Replace Fuser	The fuser counter has reached the lifevalue	1) Is the error message displayed?	Yes	Check the fuser life.
		2) Does the error occur soon after Fuser unit replacement?	No	Replace the Fuser unit immediately or at the next maintenance.
Job Offset Home Error	The Job offset assy does not operate or cannot detect the home position.	Does the Job offset assy operate normally?	Yes	Replace the Job offset sensor.
			No	Replace the Job offset motor or Engine board.
Running Short of Paper in Tray *	Running short of paper detected	Does only small mount of papers (approx. 30 sheets or less) remain?	Yes	Load papers.
			No	Check the Paper near end sensor.
Disc Operation Error	HDD cannot be written.	Is the operating procedure correct?	No	Confirm the procedure in the manual.
			Yes	Replace the HDD as it is broken.

6.5.2 Preparation for troubleshooting

(1) Display on operation panel

The failure status of the printer is provided on the LCD (liquid crystal display) of the operator panel.
Perform appropriate troubleshooting according to messages on the LCD.

No.	Failure	Flowchart No.
1	Printer Malfunction after Turn-on	①
2	Jam Error Paper	
	Loading Jam (1st tray)	②-1
	Paper Loading Jam (Multipurpose tray)	②-2
	Paper Feed Jam	②-3
	Paper Exit Jam2-4	②-4
	DUPLEX Jam	②-5
3	Paper Size Error	③
4	I/D Up-and-Down Operation Error	④
5	Fuser Unit Error	⑤
6	Motor Fan Error	⑥

Note: When replacing the engine board (71K PWB), demount the EEPROM chip on the board and mount it on a new board.

(2) CU Assy troubleshooting

The CU Assy does not operate.

Is the error message displayed?

YES Follow the message procedure for handling the error.

NO Are the upper and lower lines of LCD on the operator panel black?

NO Check the power supply voltage. 3.3V, 5V
3.3V: Vacant ICOP 20pin
5V: Vacant PANEL 5pin

NO Replace the power supply voltage

YES Check the PU board and the operator panel board.

YES Is ROM DIMM A mounted properly?

NO Insert the program IDMM into the ROM DIMM A properly. When the printer is not recovered from the error, replace the CU board.

YES Replace the CU board. Demount the EEPROM from the board and mount it on a new board.

① The printer does not operate properly after power-on.

- Turn the printer off and on again.
- Is ■■■■■■■■■■■■ ■■■■■■■■■■■■ showing on the LCD (about for one second).?

  - No Is the AC cable connected properly?

    No Connect the AC cable correctly.

  - Yes Is +5V output to the panel connector (OPTN connector) on the engine board (71K PWB)?
    Pins 6, 7 and 14: +5V Pins 1, 3, 11 and 16: 0V

    Yes Is +5V output to the panel connector on the relay board (71 PWB)?
    Pin 5: +5V Pin 2: 0V

    No Replace the relay board.

    Yes Is the operator panel cable connected properly?

    No Connect the cable properly.

    Yes Replace the operator panel cable. Is the printer recovered from the error?

    No Replace the operator panel cover Assy.

    Yes End

  - No Is +5V output to the power connector of the engine board (71K PWB)?
    Pins 11, 12, 13 and 14: +5V Pins 3, 4, 5, 6, 25, 26, 27 and 28: 0V

    No Replace the low voltage power unit after checking the power connector for connection.

  - Yes Replace the engine board.

- Yes Are the following voltages output to the PU IF connector of the main board?
  Pins 137 to 147, 187 to 197: 5V Pins 125 to 136, 175 to 186: +3.3V
  Pins 148 and 198: +12V Pins 101 to 124, 149 to 174, 199 and 200: 0V

  Yes Replace the main board.

- No Are the following voltages output to the power connector of the engine board?
  Pins 11, 12, 13 and 14:5V Pins 15, 15, 17 and 18: +3.3V Pin 1: +12V
  Pins 7, 8, 9 and 10: +32V Pins 3, 4, 5,6, 25, 26, 27 and 28: 0V

  Yes Replace the engine board.

- No Replace the low voltage power supply.

②-1 Paper Loading Jam (1st Tray)

- Has the paper loading jam occurred immediately after power-on?
  - Yes Is the paper jammed at the entrance cassette sensor or the entrance MT sensor?
    - Yes Remove the jammed paper.

    Ⓐ
  - No Does the sensor lever (entrance cassette sensor, entrance MT sensor) move properly?
    - No Replace the defective sensor lever.
  - Yes Does the sensor (entrance cassette sensor, entrance MT sensor) operate properly? (Operate each sensor lever to check signals on the FSENS connector pin of the engine board (71K PWB).)
    Pin 4: Entrance cassette sensor, Pin 2: Entrance MT sensor
    - No Replace the sensor board (R71 PWB) after checking the signal cable connection.
  - Yes Check the signal cable connection or replace the engine board.
- No Has the paper loading jam occurred immediately after the paper drawing into the tray?
  - Yes Has the paper reached the entrance cassette sensor or the entrance MT sensor?
    - Yes Go to Ⓐ.
  - No Replace the feed roller or the paper separation frame Assy of the paper cassette.
- No Is the main feed motor running?
  - Yes Replace the feed roller or the paper separation frame Assy of the paper cassette.
- No Does the resistance of the main motor lie at the rated value (approx. 4Ω)?
  - No Replace the main feed motor.
- Yes Is 32V output to the fuses FU2 and FU3 of the engine board?
  - No Replace the low voltage power unit.
- Yes Replace the engine board after checking the gear engagement and cable connection.

②-2 Paper Loading Jam (Multipurpose Tray)

Has the paper loading jam occurred immediately after power-on?

- Yes — Is the paper jammed at the entrance cassette sensor or the entrance MT sensor?
  - Yes — Remove the jammed paper.
  - No Ⓐ — Does the entrance MT sensor lever move properly?
    - No — Replace the defective sensor lever.
    - Yes — Does the entrance MT sensor operate properly?
      (Operate each sensor lever to check that the sensor operates correctly on the switch scan test in the system maintenance mode or check the signals on the FSENS connector pin of the engine board (71K PWB).)
      Pin 2: Entrance MT sensor
      - No — Replace the sensor board (R71 PWB) after checking the signal cable connection.
      - Yes — Replace the engine board after checking the signal cable connection.
- No — Has the paper loading jam occurred immediately after the paper drawing into the tray?
  - Yes — Has the paper reached the entrance MT sensor?
    - Yes — Go to Ⓐ.
    - No — Replace the multipurpose tray Assy.
  - No — Is the registration motor running?
    - No — Is 32V output to the fuse FU3 of the engine board?
      - No — Replace the low voltage unit.
      - Yes — Replace the engine board after checking the cable connection.
    - Yes — Replace the engine board after checking the cable connection.

②-3 Paper feed jam

- Has the paper feed jam occurred immediately after power-on?
  - Yes Is the paper jammed at the entrance belt sensor?
    - Yes Remove the jammed paper.
    - Ⓐ
  - No Does the write sensor lever move properly?
    - No Replace the write sensor lever.
  - Yes Does the entrance belt sensor operate properly?
    (Operate the sensor lever to check the signals on the FSENS connector pin of the engine board (71K PWB).)
    Pin 6: Entrance belt sensor
    - No Replace the sensor board (R71 PWB) after checking the cable connection.
  - Yes Check the signal cable for connection. Is it connected properly?
    - No Connect the cable properly.
  - Yes Replace the engine board.
- No Has the paper feed jam occurred immediately after the paper drawing into the tray?
  - Yes Has the paper reached the write sensor?
    - Yes Go to Ⓐ.
  - No Is the registration motor running?
    - No Does the registration of the registration motor lie at the rated value (approx. 7.9Ω)?
      - No Replace the registration motor.
    - Yes Replace the engine board after checking the gear engagement.
  - Yes Replace the registration roller A or B.
- No Has the paper jam occurred during the paper loading?
  - Yes Is the belt motor running?
    - No Does the registration of the belt motor lie at the rated value (approx. 7.9Ω)?
      - No Replace the belt motor.
    - Yes Replace the engine board after checking the gear engagement.
  - Yes Replace the belt cassette Assy after checking the gear engagement.
- No End

②-4 Paper Exit Jam

- Has the paper exit jam occurred immediately after power-on?
  - Yes Is the paper jammed at the exit sensor?
    - Yes Remove the jammed paper.
    - No Does the sensor lever move properly?
      - No Replace the sensor lever.
      - Yes Does the exit sensor operate properly?
        (Operate the sensor lever to check the sensor for proper operation on the switch scan test in the system maintenance mode or check the signals on the connector PARTTEMP pin 8 of the engine board (71K PWB).
        - No Replace the exit sensor after checking the signal cable connection.
        - Yes Replace the engine board.
  - No Is the face-up stacker cover open or close completely?
    - No Open or close the stacker cover completely.
    - Yes Is the heat motor running?
      - No Does the resistance of the heat motor lie at the rated value (approx. 7.9Ω)?
        - No Replace the heat motor.
        - Yes Is 32V output to the POWER connector Pins 7~10 on the engine board?
          - No Replace the low voltage power unit.
          - Yes Replace the engine board after checking the cable connection.
      - Yes Does the exit guide Assy operate properly?
        - No Replace the exit guide Assy.
        - Yes Replace the engine board.

②-5 Duplex Jam

- Has the paper feed jam occurred immediately after power-on?
  - Yes: Does the paper exist in the duplex unit?
    - Yes: Remove the jammad paper.
    - Ⓐ
  - No: Do the levers of the duplex-in, rear and front sensors move properly?
    - No: Replace the defective sensor lever.
  - Yes: Do the duplex-in, rear and front sensors move properly?
    (Check that each sensor's level is at the one measured under the paperless condition through the switch scan test in the system maintenance mode).
    - No: Replace the defective sensor after checking the cable connection.
  - Yes: Check the signal cable connection. Is it connected properly?
    - No: Connect the cable properly.
  - Yes: Replace the duplex controller board (V71 PWB).
- No: Has the paper jam occurred immediately after the paper drawing into the unit?
  - Yes: Has the paper reached the duplex rear sensor?
    - Yes: Go to Ⓐ.
  - No: Is the duplex motor running?
    - No: Does the resistance of the heat motor lie at the rated value (approx. 6.7Ω)?
      - No: Replace the duplex motor.
      - Yes: Replace the duplex board (V71 PWB) after checking the gear engagement.
  - Yes: Replace the registration roller A or B.
- No: Replace the duplex unit.

③ Paper Size Error

Has the proper size paper used?

No Use the proper size paper.

Yes Has the jam occurred at the entrance FF sensor or the paper width sensor?

Yes Remove the jammed paper.

Yes Does the entrance FF sensor lever move properly?

No Replace the defective sensor lever.

Yes Does the entrance FF sensor operate properly?
(Move the sensor lever to check the signals on the FSENS connector pin of the engine board 71K PWB.)
Pin 4: Entrance FF sensor

No Replace the sensor board (R71 PWB) after checking the cable connection.

Yes Does the entrance belt sensor lever move properly?

No Replace the defective sensor lever.

Yes Does the entrance belt sensor operate properly?
(Move the sensor lever to check the sensor for proper operation through the switch scan test in the system maintenance mode. Also check the signals on the FSENS connector pin of the engine board 71K PWB.)
Pin 6: Entrance FF sensor

No Replace the sensor board (R71 PWB) after checking the cable connection.

Yes Do the paper size sensing switches on the paper size sensing board (PXC-PWB) all operate\ properly?
(Press the paper size sensing switches to check the signals on the PSIZE connector pin of the engine board.)
Pin 3: Paper size sensor 1
Pin 4: Paper size sensor 2
Pin 5: Paper size sensor 3
Pin 6: Paper size sensor 4

No Replace the paper size sensing board (PXC PWB) after checking the cable connection.

Yes Reeplace the engine board after checking the cable connection.

④ Image Drum Unit (ID) Up-and-Down Operation Error

- Turn the printer off and, after a few seconds, on again.

- Are all the ID drums revolving properly during printing?

  - No Does the resistance of the ID motor lie at the rated value (approx. 4.0Ω)?

    No Replace the defective IDU motor.

  - Yes Is 32V output to F3 and F5 of the engine board?

    No Replace the low voltage power unit.

  - Yes Replace the engine board after checking the cable connection.

- Yes Do the IDU sensor terminals operate properly?

  - No Replace the defective gear or sensor terminals after checking the gear engagement and the sensor terminal operation.

- Yes Does the ID sensor lever move properly?
  (Check the signals on the JODEN connector pin of the driver board (71K PWB).)
  Pin 12: IDU sensor Yellow
  Pin 2: IDU sensor Magenta
  Pin 4: IDU sensor Cyan
  Pin 14: IDU sensor Black
  Do all lie at 5V level or 0V level?

  No Replace the connection board (N71 PWB).

- Yes Replace the engine board after checking the cable connection between connection board (N71 PWB) and the engine board (71K PWB).

⑤ Fusing Unit Error

- Has the fuser error occurred immediately after power-on?

Ⓐ

- Yes Is the heat roller thermistor broken or short-circuited? (See Figure 6-1.)
  (approx. 190k to 980kΩ at room temperatures of 0 to 43˚C)
  - Yes Replace the fuser unit.
- No Is the backup roller thermistor broken or short-circuited? (See Figure 6-1.)
  (Approx. 190k to 980kΩ at room temperatures of 0 to 43˚C)
  - Yes Replace the fuser unit.
- No

No Has the fuser unit error occurred three minutes after power-on?

- No Go to Ⓐ.

Is the heater of the fuser unit on (Is it hot)?

- Yes Replace the engine board.
- No Replace the fuser unit.

No Is AC voltage output between the CN1 connector pin1 and pin3 of the low voltage power unit.

No Replace the low voltage power unit.

Yes Replace the fuser unit.

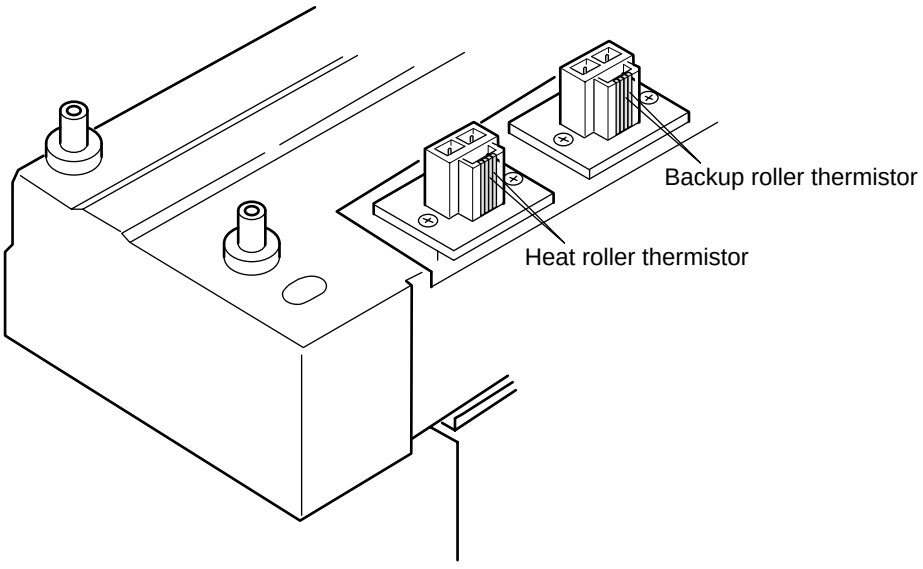


Figure 6-1

⑥ Motor Fan Error

Does the low voltage power supply fan run after power-on?

- No — Is 32V output to the fuse FU502 of the engine board (71K PWB)?
  - No — Is 32V output to the power connector of the engine board (71K PWB)?
    32V: Pins 7, 8, 9 and 10
    - No — Replace the low voltage power unit after checking the cable connection.
  - Yes — Replace the engine board.
- Yes — Has the low voltage power supply fan replaced?
  - Yes — End
- No — Replace the low voltage power supply fan.

Yes — Does the engine board fan rotate after power-on?

- No — Is 32V output to the fuse FU502 of the engine board (71K PWB)?
  - No — Is 32V output to the power connector of the engine board (71K PWB)?
    32V: Pins 7, 8, 9 and 10
    - No — Replace the low voltage power after checking the cable connection.
  - Yes — Replace the engine board.
- Yes — Replace the fan of the engine board.

Yes — End

6.5.3 Troubleshooting image problems

Following is the troubleshooting for image problems illustrated below:

Image problem	Flowchart No.
Light or faded image on whole page, or color misalignment on whole page (Figure 6-2 Ⓐ)	①
Dirty background (Figure 6-2 Ⓑ)	②
Blank page (Figure 6-2 Ⓒ)	③
Vertical belt or line (black or color belt, or black or color line) (Figure 6-2 Ⓓ)	④
Vertical white belt or line, or uneven-color belt or line (Figure 6-2 Ⓕ)	⑤
Poor fusing (ink spreads or peels when touched with fingers.)	⑥
Defective image of regular interval (Figure 6-2 Ⓔ)	⑦
Missing image	⑧
Color misalignment	⑨
Color different from original one	⑩

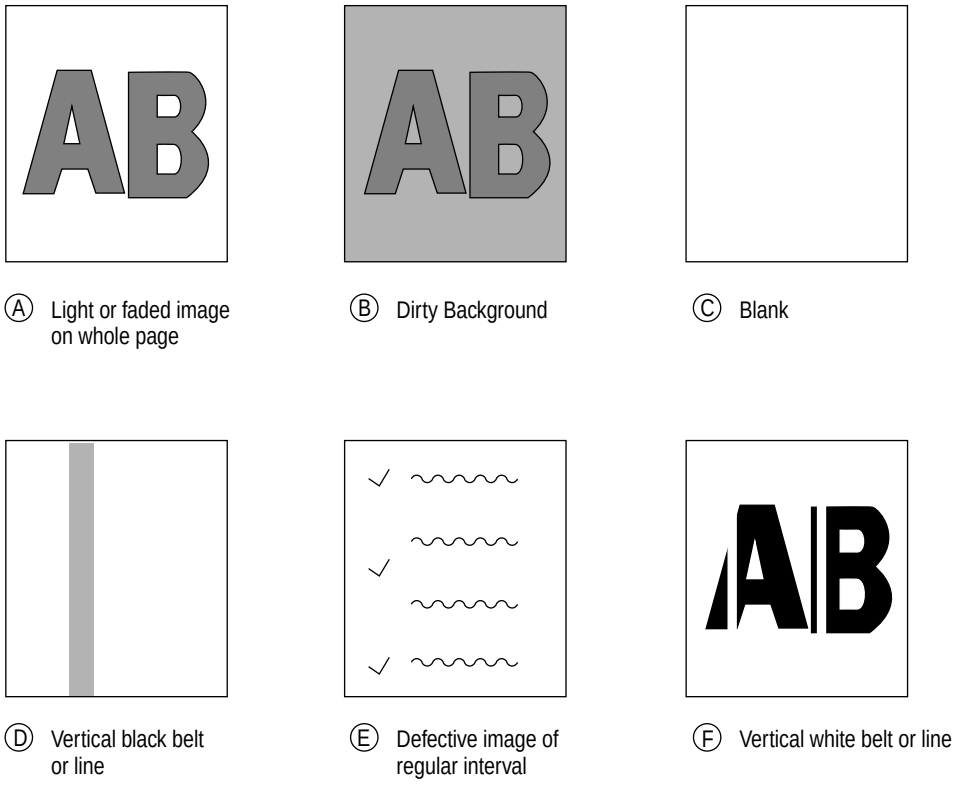


Figure 6-2

① Light or Faded Image on Whole Page, or Color Misalignment on Whole Page (Figure 6-2 Ⓐ)

Are toners running short (is toner low displayed)?

Yes Supply toner(s).

No Is proper paper used?

No Use proper paper.

Yes Are the LED head lenses dirty?

Yes Clean the dirty lens(es).

No Are all the LED head Assys connected to the junction board (Y71 PWB) and the engine board (71K PWB) properly?

No Connect the cable between the LED head(s) and the engine board properly, checking the cable connection.

Yes Is +3.8V output to the following power connector pins of the junction board (Y71 PWB)?
+3.8V: Pins 1 to 8

Yes Is +3.8V output to the LED head Assys from the junction board (Y71 PWB)?
YPOW connector pin 3: LED head Assy Yellow
MPOW connector pin 3: LED head Assy Magenta
CPOW connector pin 3: LED head Assy Cyan
KPOW connector pin 3: LED head Assy Black

No Replace the junction board (Y71 PWB).

Yes Replace the LED head Assy(s) after checking the cable connection.

No Replace the low voltage power unit after checking the cable connection.
Has the problem been corrected?

Yes End

No Is 32V output to the power connector of the engine board (71K PWB)?
+32V: Pins 7 to 10.

No Replace the low voltage power unit after checking the cable connection.

Yes Is 32V output to the HVOL T connector pin 5 of the engine board (71K PWB)?

No Replace the engine board.

Yes Replace the high voltage unit or the belt cassette Assy after checking the cable connection.
Has the problem been corrected?

Yes End

No Are the terminals of the ID units connected to the contact Assy properly? (See Figure 6-2.)

No Connect the ID unit terminal(s) to the contact Assy properly.

Yes Replace the image drum unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

② Dirty Background (Figure 6-2 Ⓑ)

Were the image drums exposed to external light for a long time?

Yes Replace the ID unit(s).

No Is the roller of the fuser unit dirty?

Yes Replace the fuser unit.

No Correct the PAPER TYPE setting.
Light: 60 g/m^2 Medium Light: 67.5 g/m^2 Medium: 75 g/m^2
Medium Heavy: 90g/m^2 Heavy: 105 g/m^2 Ultra Heavy: 120 g/m^2 Transparency

No Set the MEDIA TYPE correctly.

No Are the LED head Assys connected to the junction board (Y71 PWB) properly?

No Connect the LED head Assy(s) to the junction board (Y71 PWB) properly.

Yes Is +3.8V output to the following power connector pins of the junction board (Y71 PWB)?
+38V: Pins 1 to 8

Yes Is +3.8V output to the following cable connector pins between the junction board (Y71 PWB) and the LED head Assys?
YPOW connector pin 3: LED head Assy Yellow
MPOW connector pin 3: LED head Assy Magenta
CPOW connector pin 3: LED head Assy Cyan
KPOW connector pin 3: LED head Assy Black

No Replace the junction board (Y71 PWB).

Yes Replace the LED head Assy after checking the cable connection.

No Replace the low voltage power unit after checking the cable connection.
Has the problem been corrected?

Yes End

No Is 32V supplied to the power connector of the engine board (71K PWB)?
+32V: Pins 7 to 10

No Replace the low voltage power unit after checking the cable connection.

Yes Is 32V supplied to the power connector pin of the engine board (71K PWB)?

No Replace the engine board.

Yes Replace the high voltage power unit or the belt cassette Assy after checking the cable connection. Has the problem been corrected?

Yes End

No Are the terminals of the ID units connected to the contact Assy properly? (See Figure 6-2.)

No Connect the ID unit terminal(s) to the contact Assy properly.

Yes Replace the image drum unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

③ Blank Page (Figure 6-2 Ⓒ)

Are the LED head Assys connected to the junction board (Y71 PWB) and the engine board (71K PWB) properly?

No Connect the LED Assy(s) to the junction board (Y71 PWB) and the engine board (71K PWB) properly, checking the cable connection.

Yes Is +3.8V output to the following power connector pins of the junction board (Y71K PWB)?
+3.8V: Pins 1 to 8

Yes Is +3.8V output to the following cable connector pins between the junction board (Y71 PWB) and the LED heads?
YPOW connector pin 3: LED head Assy Yellow
MPOW connector pin 3: LED head Assy Magenta
CPOW connector pin 3: LED hdad Assy Cyan
KPOW connector pin 3: LED head Assy Black

No Replace the junction board (Y71 PWB).

Yes Replace the LED head Assy(s) after checking the cable connection.

No Is 32V output to the power connector of the engine board (71K PWB)? +3.8V: Pins 7 to 10

No Replace the low voltage power unit after checking the cable connection.

Yes Is 32V output to the HVOLT connector pin 5 of the engine board (71K PWB)?

No Replace the engine board.

Yes Replace the high voltage power unit or the belt cassette Assy after checking the cable connection. Has the problem been corrected?

Yes End

No Are the ID terminals connected to the contact Assy properly? (See Figure 6-2.)

No Connect the I/D terminal(s) to the contact Assy properly.

Yes Replace the I/D drum unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

④ Vertical Belt or Line (Black or Color Belt, or Black or Color Line) (Figure 6-2 Ⓓ)

Are the LED head Assys connected to the junction board (Y71 PWB) properly?

No — Connect the LED head Assy(s) to the junction board properly.

Yes — Replace the LED head Assy(s) after checking the cable connection.
Has the problem been corrected?

Yes — End

No — Replace the junction board (Y71 PWB) after checking the cable connection.
Has the problem been corrected?

Yes — End

No — Is the engine board (71K PWB) connected to the junction board (Y71 PWB) properly?

No — Connect the engine board to the junction board properly.

Yes — Replace the engine board (71K PWB) after checking the cable connection.
Has the problem been corrected?

Yes — End

No — Are the I/D terminals connected to the contact Assy properly? (See Figure 6-3.)

No — Connect the I/D terminal(s) to the contact Assy properly.

Yes — Replace the I/D unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

⑤ Vertical White Belt or Line, or Uneven-Color Belt or Line (Figure 6-2 Ⓕ)

Are the LED heads dirty?

Yes Clean the dirty LED head(s).

No Are the LED head Assys connected to the junction board (Y71 PWB) properly?

No Connect the LED head Assy(s) to the junction board (Y71 PWB) properly.

Yes Replace the LED head(s) after checking the cable connection.
Has the problem been corrected?

Yes End

No Replace the junction board (Y71 PWB) after checking the cable connection.
Has the problem been corrected?

Yes End

No Is the engine board (71K PWB) connected to the junction board properly?

No Connect the engine board to the junction board properly.

Yes Replace the engine board (71K PWB) after checking the cable connection.
Has the problem been corrected?

Yes End

No Are the I/D terminals connected to the contact Assy properly? (See Figure 6-3.)

No Connect the I/D terminal(s) to the contact Assy properly.

Yes Replace the I/D unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

⑥ Poor Fusing (Ink spreads or peels when touched with fingers.)

Is proper paper used?

No Use proper paper.

Yes Is the contact of the fuser unit connected properly?

No Connect the contact of the fuser unit properly.

Yes Is the roller of the fuser unit dirty?

Yes Replace the fuser unit Assy.

No Is the MEDIA TYPE (menu 1) selected correctly?
Light: 60 g/m^2 Medium Light: 67.5 g/m^2 Medium: 75 g/m^2
Medium Heavy: 90g/m^2 Heavy: 105 g/m^2 Ultra Heavy: 120 g/m^2 Transparency

No Select the MEDIA TYPE correctly.

Yes Is AC voltage output between the CN connector pin1 and pin 3 of the low voltage power unit?

No Replace the low voltage power unit.

Yes Does the resistance of the heat roller thermistor lie at the rated voltage? (See Figure 6-1.) (Approx. 190k to 980kΩ at room temperatures of 0 to 43˚C)

No Replace the fuser unit.

Yes Does the resistance of the backup roller thermistor lie at the rated voltage? (See Figure 6-1.) (Approx. 190k to 980kΩ at room temperatures of 0 to 43˚C)

No Replace the fuser unit.

Yes Does the fuser temperature agree with the designated one?
Check the fuser temperature on the LCD in the engine maintenance mode.
Heat Roller (Upper): 145 to 155˚C (5FH to 6BH)
Backup Roller (Lower): 125 to 135˚C (48H to 53H)

No Replace the fuser unit Assy.

Yes Replace the fuser unit Assy.

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

⑦ Defective Image of Regular Interval (See Figure 6-2 Ⓔ)

Interval	Problem	Troubleshooting
94.2 mm	Image Drum	Replace the image drum unit.
63.6 mm	Developing Roller	Replace the image drum unit.
57.8 mm	Toner Supply Roller	Replace the image drum unit.
44.0 mm	Charging Roller	Replace the image drum unit.
113.1 mm	Fuser Upper Roller	Replace the fuser unit.
	Fuser Lower Roller	Replace the fuser unit.
57.8 mm	Transfer Roller	Replace the bet cassette Assy.

Note! The life counters of the I/D units, fuser unit and belt cassette unit are automatically reset upon replacement of the units, respectively.

⑧ Missing Image

Are LED heads dirty?

Yes Clean the LED head(s).

No Are the LED head Assys connected to the junction board (Y71 PWB) properly?

No Connect the LED head Assy(s) to the board, checking the cable connection between the LED head(s) and the junction board.

Yes Is 3.8V output to the following HEADPOW connector pins of the junction board (Y71 PWB)?
+3.8V: Pins 1 to 8

Yes Is +3.3V output to the LED head Assys from the junction board (Y71 PWB)?
YPOW connector pin 3: LED head Assy Yellow
MPOW connector pin 3: LED head Assy Magenta
CPOW connector pin: LED head Assy Cyan
KPOW connector pin 3: LED head Assy Black

No Replace the junction board (Y71 PWB).

Yes Replace the LED head Assy(s) after checking the cable connection.

No Replace the low voltage power unit after checking the cable connection.
Has the problem been corrected?

Yes End

No Is 32V output to the power connector of the engine board (71K PWB)? +32V: Pins 7 to 10

No Replace the low voltage power unit after checking the cable connection.

Yes Is 32V output to the HVOLT connector pin 5 of the engine board (71K PWB)?

No Replace the engine board.

Yes Replace the high voltage power unit or the belt cassette Assy after checking the cable connection. Has the problem been corrected?

Yes End

No Are the I/D terminals connected to the contact Assy properly? (See Figure 6-3.)

No Connect the I/D terminal(s) to the contact Assy properly.

Yes Replace the I/D unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

⑨ Color Misalignment

Is the color menu of the user menu mode "Automatic Color-Registration Adjustment" OFF?

Yes Make it on. Recovered?

Yes End

No "TONER LOW" is displayed.

Yes Replenish toner. Recovered?

Yes End

No Execute the color registration test in the engine maintenance mode.
Procedures: Enter the self-diagnostic mode (Level 1) of the engine maintenance mode.

DIAGNOSTIC MODE
XX.XX.XX

Press Keys (0) and (4) to enter the self-diagnostic mode (Level 2).

ENGINE DIAG LEVEL2

Press Key (1) three times to display "REG ADJUST TEST".

REG ADJUST TEST

Press Key (2) once to display "REG ADJUST EXECUTE".

REG ADJUST EXECUTE

Press Key (3) to execute automatic color-registration adjustment.
(The motor starts rotating to adjust color-registration.)

Color registration was not adjusted (that is, the motor did not rotate) and "OK" was displayed immediately.

Yes Some error other than color misalignment has occurred. After recovering from the error, has the color registration become normal?

Yes End

No "NG CALIBRATION LEFT/RIGHT" is displayed.

Yes Is the color-registration sensor cover stained?

Yes The sensor cover surface is not cleaned appropriately by the cleaning blade on the back of the shutter. Replace the shutter and sensor cover to ensure suitable cleaning performance.

(A)

(A)

No Verify connection between the connector on Z71-PWB (color-registration sensor board) and RSNS/POWER connectors on 71K-PWB (engine board).

Yes End

No Replace Z71-PWB. Recovered?

Yes End

No Replace the engine board. Recovered?

Yes End

No Replace the cable connecting Z71-PWB and the engine board. Recovered?

Yes End

No "DYNAMICRANGE LEFT/RIGHT" is displayed.

Yes Is the color-registration sensor cover stained?

Yes The sensor cover surface is not cleaned appropriately by the cleaning blade on the back of the shutter. Replace the shutter and sensor cover to ensure suitable cleaning performance.

No Does the shutter open/close appropriately?

Yes Replace the shutter. Recovered?

Yes End

No Replace the shutter open/close solenoid. Recovered?

Yes End

No Replace the belt unit. Recovered?

Yes End

No Replace the ID unit. Recovered?

Yes End

No "Yellow/Magenta/Cyan Left/Right/Horizontal" is displayed.

Yes Replace the belt unit. Recovered?

Yes End

No Replace the ID unit. Recovered?

Yes End

(B)

(B)

Are there problems in the gears (the gear Assys of the I/Ds, multipurpose tray, belt unit or belt motor)?

Yes Replace the damaged gear Assy(s).

No Connect the LED head unit(s) to the junction board properly.

No Connect the boards correctly.

Yes Replace the LED head Assy(s) after checking the cable connection.
Has the problem been corrected?

Yes End

No Replace the junction board after checking the cable connection.
Has the problem been corrected?

Yes End

No Is the engine board (71K PWB) connected to the junction board (Y71 PWB) properly?

No Connect the engine board to the junction board properly.

Yes Replace the EEPROM on the engine board after checking the cable connection.
Has the problem been corrected?

Yes End

No Replace the engine board. Has the problem been corrected?

Yes End

No Are the I/D terminals connected to the contact Assy properly? (See Figure 6-3.)

No Connect the I/D terminal(s) to the contact Assy properly.

Yes Replace the I/D unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

⑩ Color Different from Original One

Are the LED head lenses dirty?

Yes Clean the LED head lens(es).

No Are the LED head Assys connected to the junction board (Y71 PWB) properly?

No Connect the LED head Assy(s) to the junction board, checking the cable connection between them.

Yes Is +3.8V output to the following HEADPOW connector pins of the junction board (Y71 PWB)?
+3.8V: Pins 1 to 8

Yes Is +3.8V output to the LED heads from the junction board (Y71 PWB)?
YPOW connector pin 3: LED head Assy Yellow
MPOW connector pin 3: LED head Assy Magenta
CPOW connector pin 3: LED head Assy Cyan
KPOW connector pin 3: LED head Assy Black

No Replace the junction board (Y71 PWB).

Yes Replace the LED head Assy(s) after checking the cable connection.

No Replace the low voltage power unit after checking the cable connection.
Has the problem been corrected?

Yes End

No Is 32V output to the power connector of the engine board (71K PWB)?
+32V: Pins 7, 8, 9 and 10

No Replace the low voltage power unit after checking the cable connection.

Yes Is 32V output to the HVOLT connector pin 5 of the engine board (71K PWB)?

No Replace the engine board.

Yes Replace the high voltage power unit or the belt cassette Assy after checking the cable connection? Has the problem been corrected?

Yes End

No Are I/D terminals connected to the contact Assy properly? (See Figure 6-3.)

No Connect the I/D terminal(s) to the contact Assy properly.

Yes Replace the I/D unit(s).

Notes: 1. When replacing the engine board (71K PWB), demount the EEPROM from the board and mount it on a new board.
2. When the EEPROM is not replaced, see Section 4.2.2.

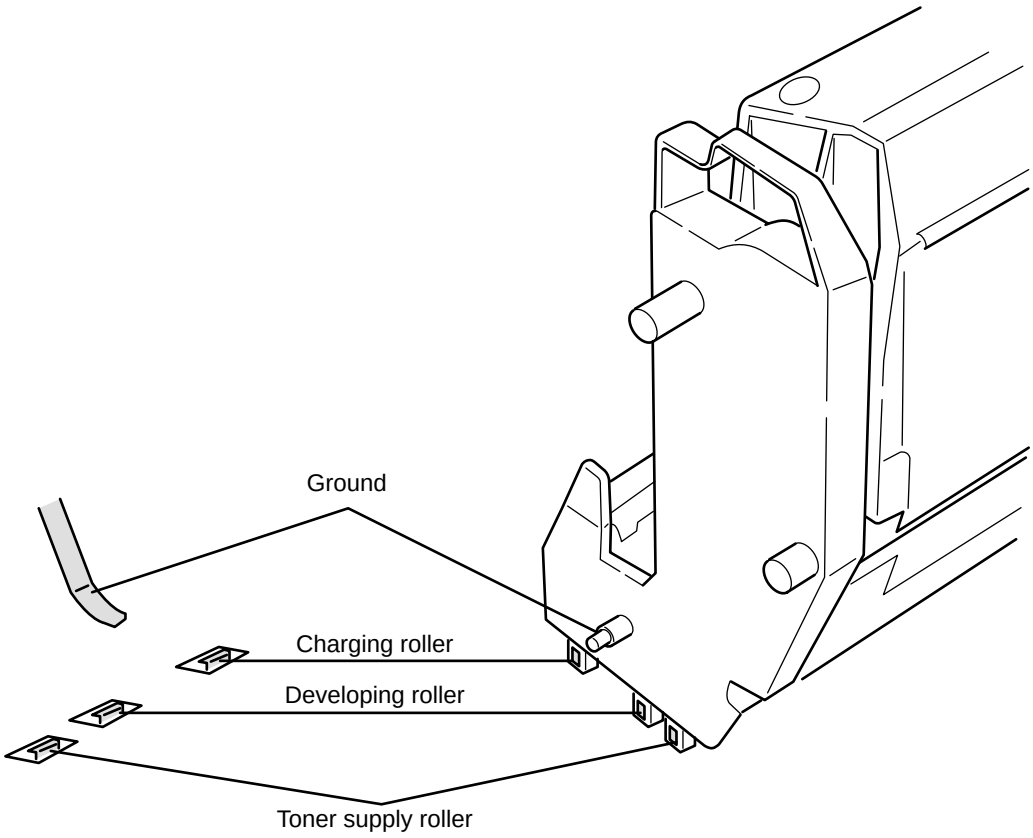
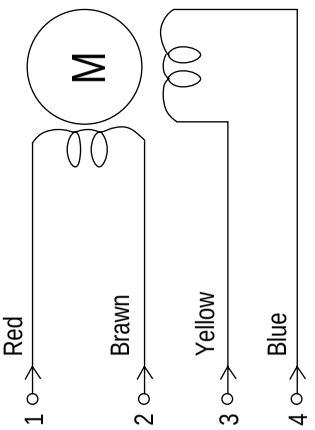
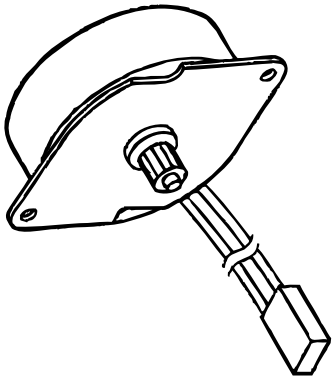
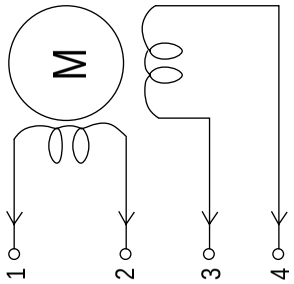
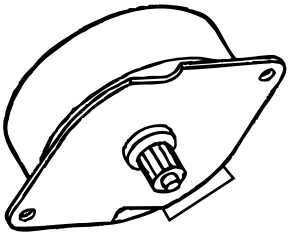
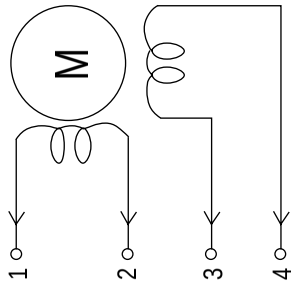
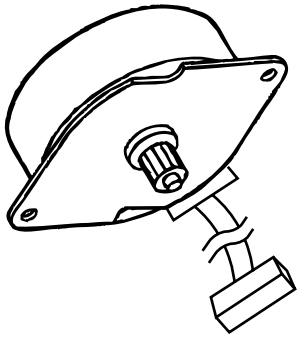
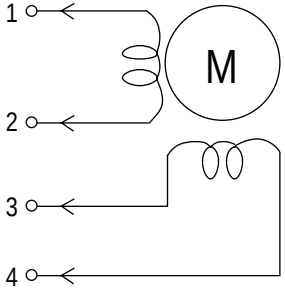
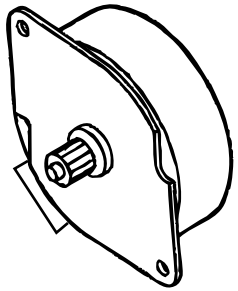
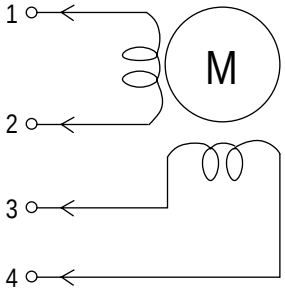
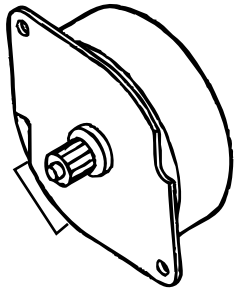
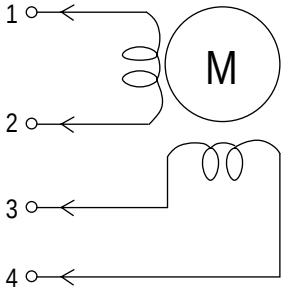
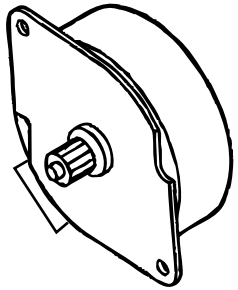

Ground
Charging roller
Developing roller
Toner supply roller

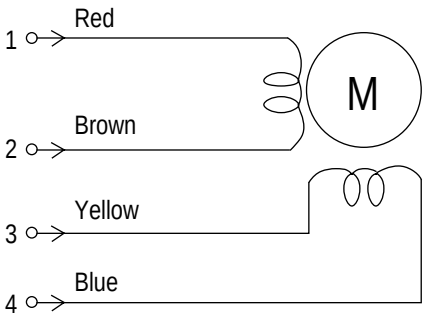
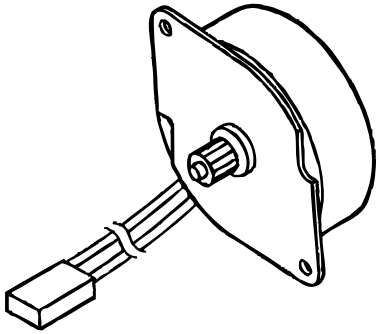
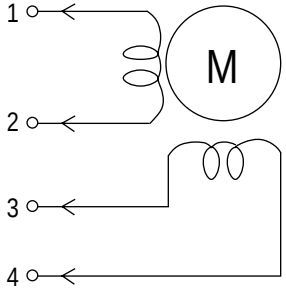
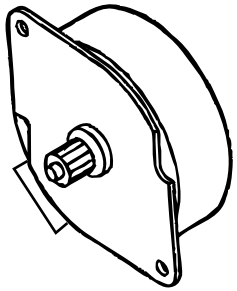
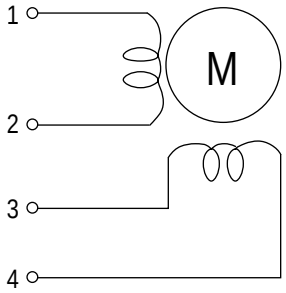
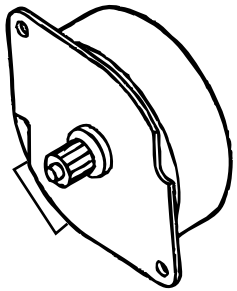
Figure 6-3

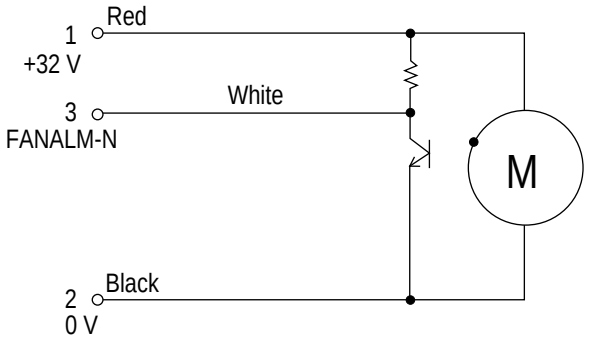
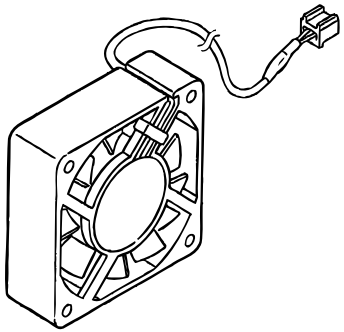
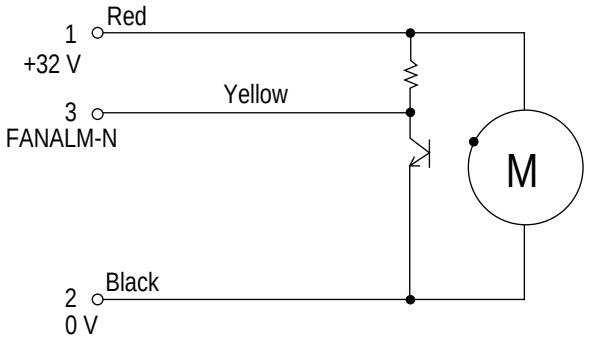
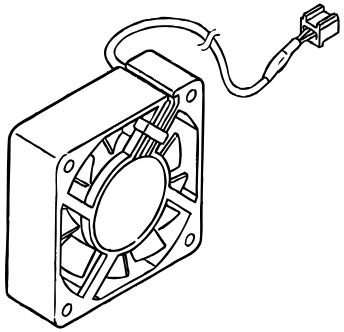
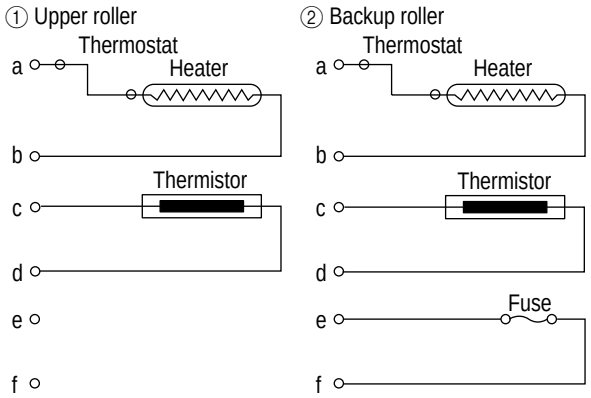
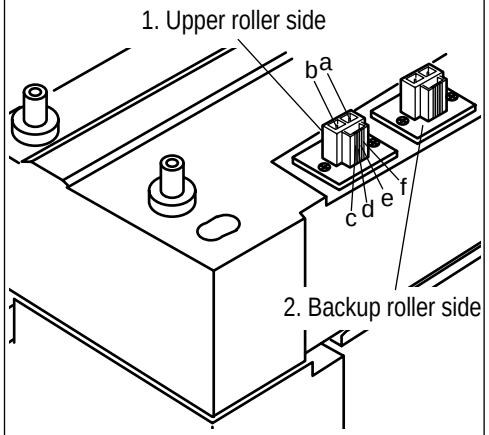
7. CONNECTION DIAGRAM

7.1 Resistance Checks

Unit	Circuit Diagram	Illustration	Resistance
Transport Belt Motor			Between pins 1 and 2: 7.9Ω Between pins 3 and 4: 7.9Ω
Main Motor (Y)			Between pins 1 and 2: 4Ω Between pins 3 and 4: 4Ω
Main Motor (M)			Between pins 1 and 2: 4Ω Between pins 3 and 4: 4Ω

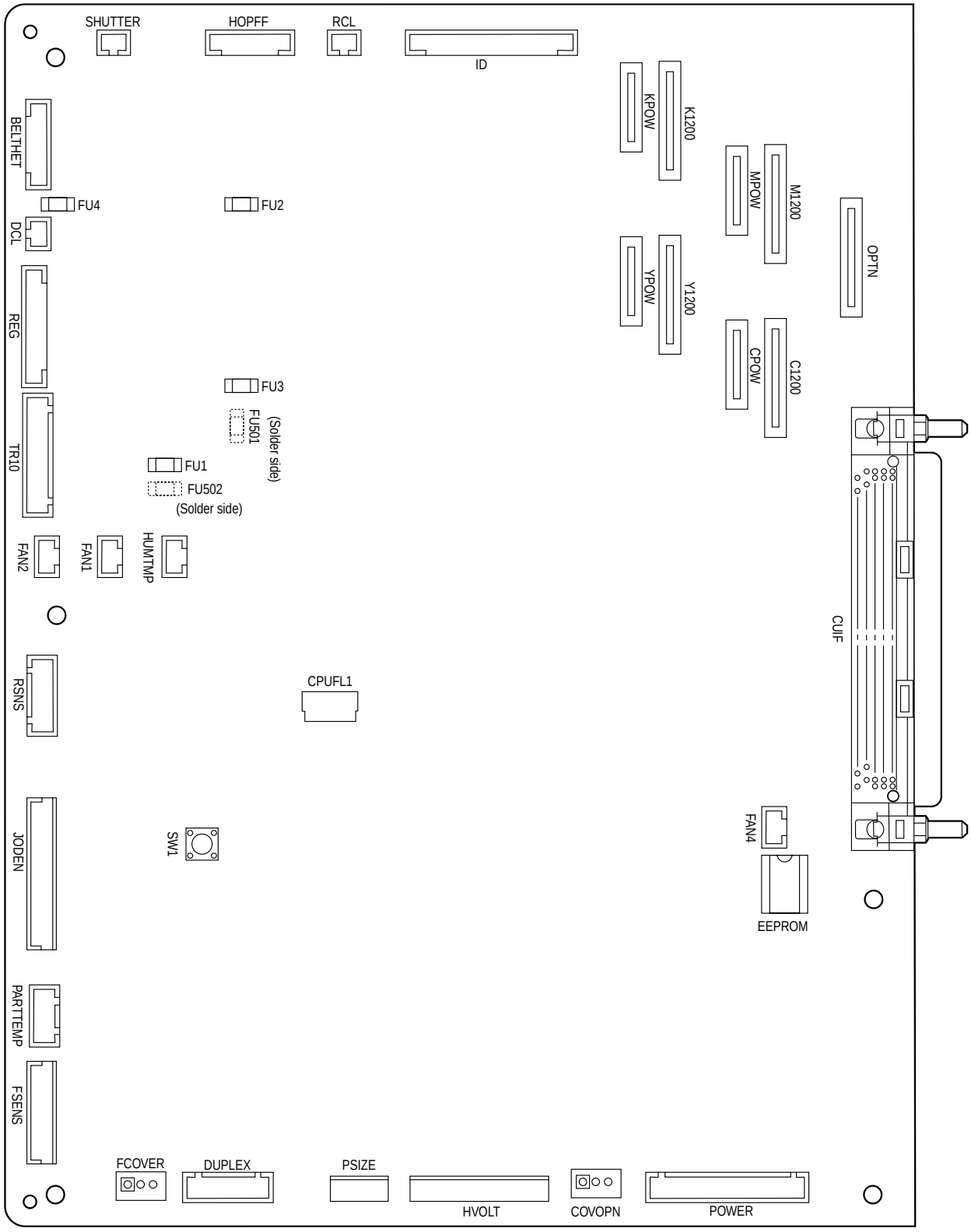
Unit	Circuit Diagram	Illustration	Resistance
Main Motor (C)			Between pins 1 and 2: 4Ω Between pins 3 and 4: 4Ω
Main Motor (K)			Between pins 1 and 2: 4Ω Between pins 3 and 4: 4Ω
Registration Motor			Between pins 1 and 2: 7.9Ω Between pins 3 and 4: 7.9Ω

Unit	Circuit Diagram	Illustration	Resistance
Fuser Motor			Between pins 1 and 2: 7.9Ω Between pins 3 and 4: 7.9Ω
Feeder Motor			Between pins 1 and 2: 7.9Ω Between pins 3 and 4: 7.9Ω
Duplex Motor			Between pins 1 and 2: 6.7Ω Between pins 3 and 4: 6.7Ω

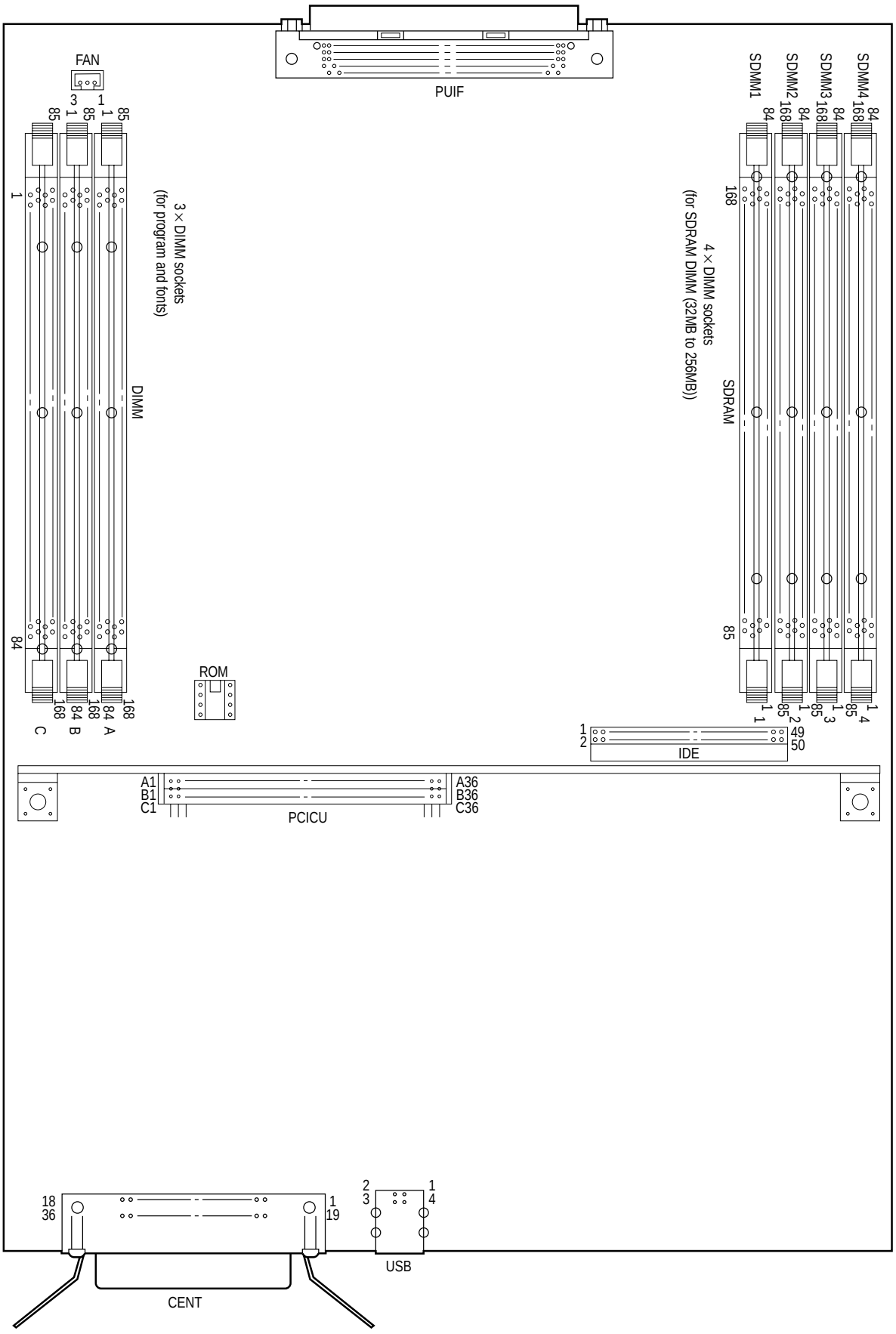
Unit	Circuit Diagram	Illustration	Resistance
Main Cooling Fan Low Voltage Power Unit			
Electrical Chassis Cooling Fan			
Fuser Unit			1. Upper Roller Side Between pins “a” and “b”: Between pins “c” and “d”: Open Between pins “e” and “f”: 363kΩ (at 25˚C) 2. Backup Roller Side Between pins “a” and “b”: Between pins “c” and “d”: 0Ω or open Between pins “e” and “f”: 363kΩ (at 25˚C)

7.2 Program/Font ROM Layouts

(1) Print Engine Controller PWB (71K-PWB)

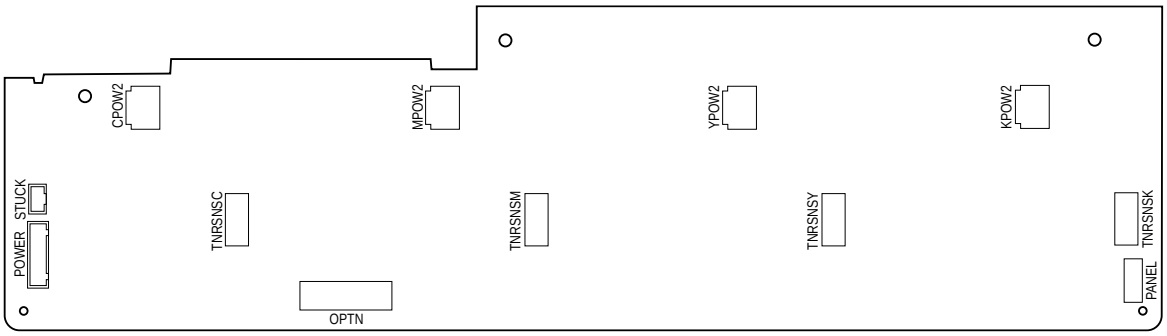


(2) Main Controller PWB

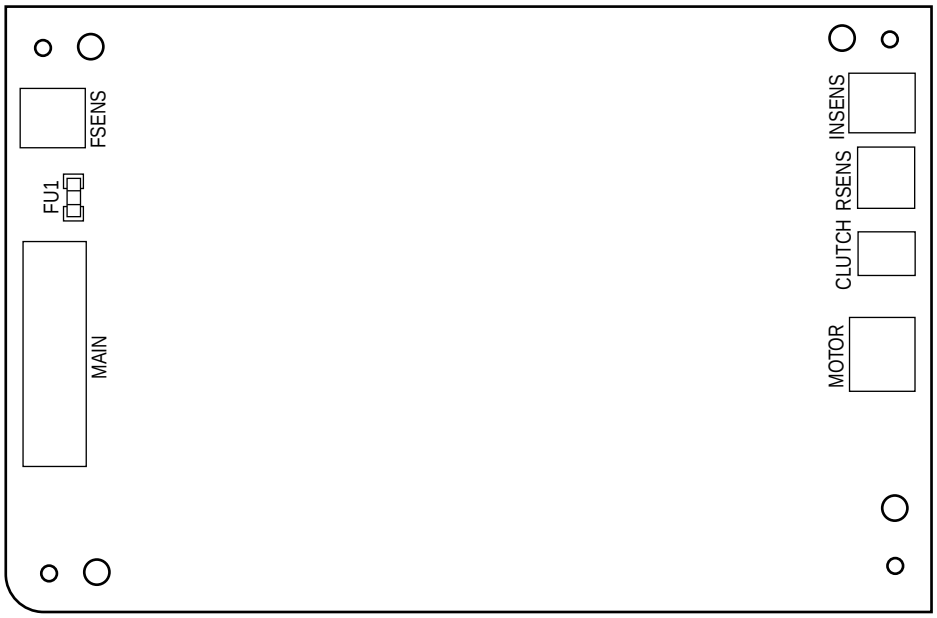


Note! The option SDRAM DIMMs must be inserted in descending order of the parenthesized type No. appeared on the label of each DIMM into the slots 1, 3, 2 and 4 (see the user documentation for details).

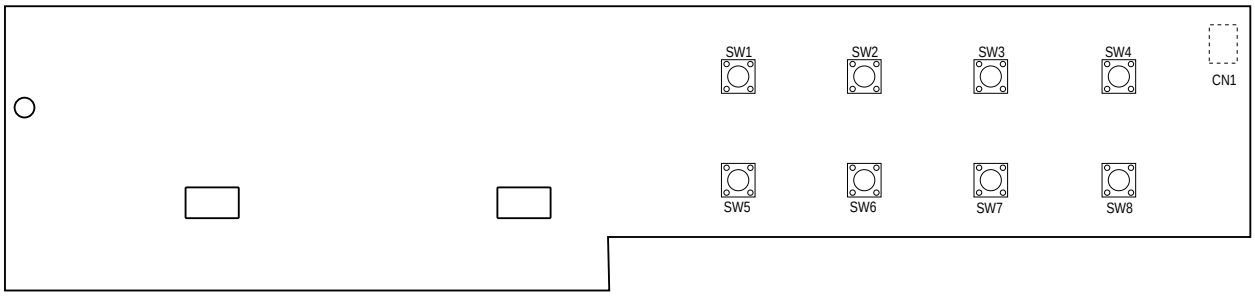
(3) LED Control PWB (Y71-PWB)



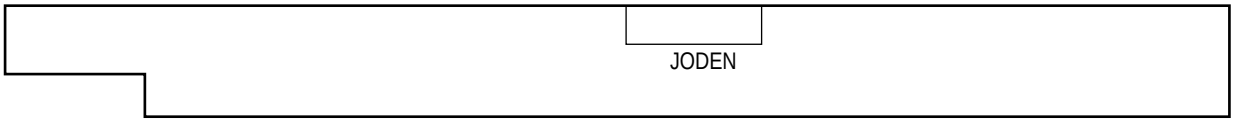
(4) Duplex Control PWB (V71-PWB)



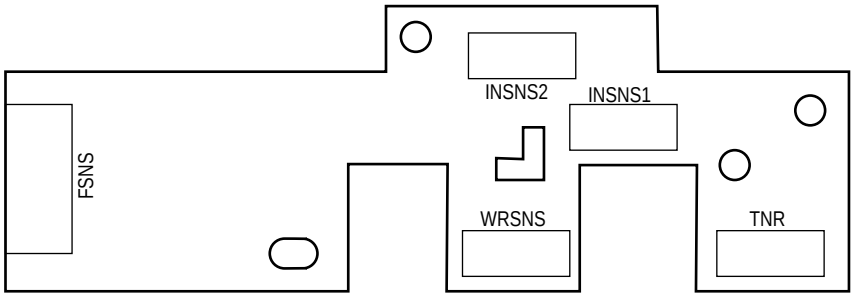
(5) Control Panel PWB (X71-PWB)



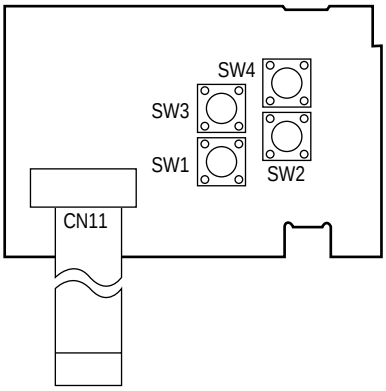
(6) N71-PWB



(7) Entrance Sensor PWB (R71-PWB)



(8) Paper Size Sensing PWB (PXC-PWB)



8. PARTS LIST

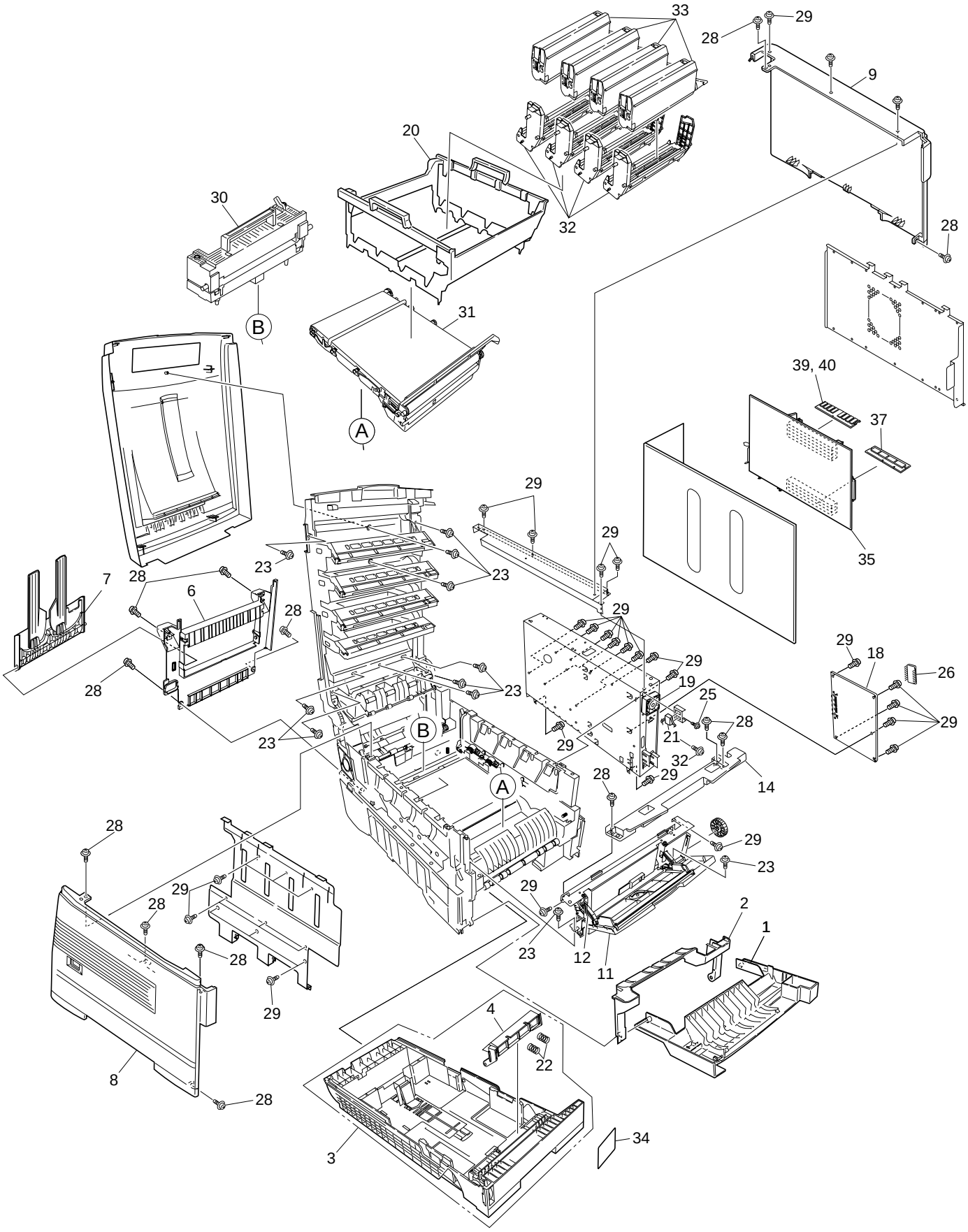


Figure 8-1-1/3

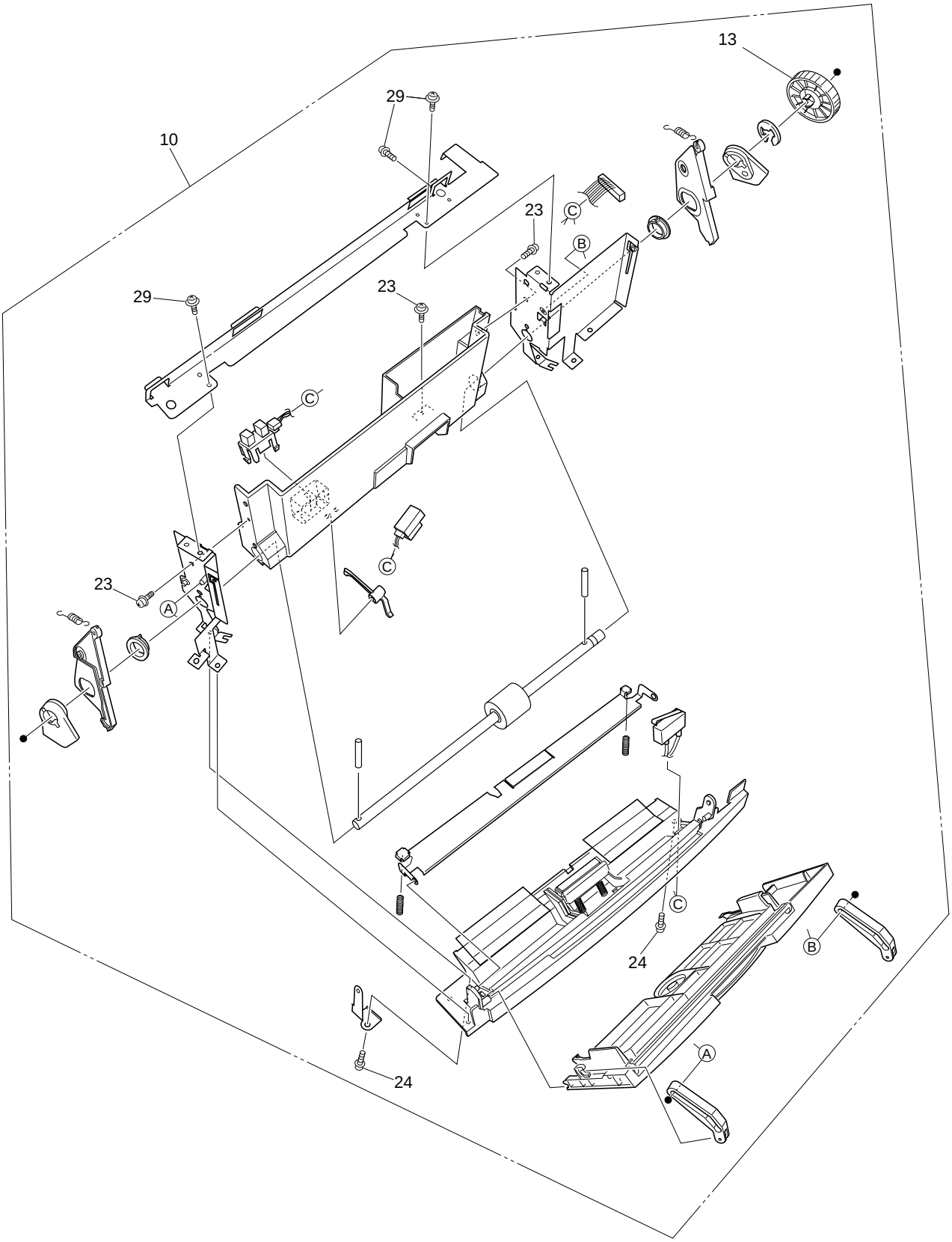
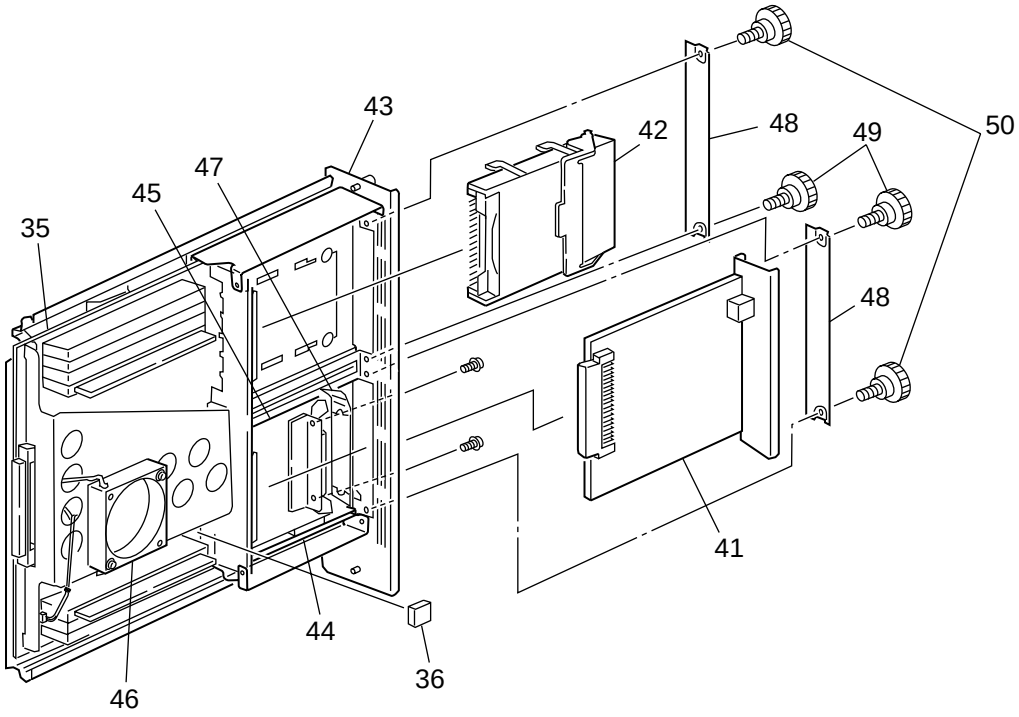


Figure 8-1-2/3



Board Assy.-cu 43 (Maintenance) [41848501] consists of a set of a bracket to support Motor Fan 46 (41410201), a sheet metal to secure PCB Assy-SWA 35 (41716809), a gasket bonded to that sheet metal, and screws (attached to the assembly).

The member 35 (PCB Assy-SWA [41716809]), which must be replaced together with the metal and its grouped parts in 43, is given a set of part Nos., i.e. the No. of the discrete PCB and the No. of the metal.

Figure 8-1-3/3

Table 8-1-1/3

Main Assembly

No.	Patrs No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
1	40864601	Front Cover Assy	1	3	6	12	
2	41042501	Front Cover Inner Baffle	1	3	6	12	
3	40866701	Cassette Assy	1	3	6	12	
4	41138401	Retard Pad Assy	1	3	6	12	
5							
6	40864301	Rear Cover	1	3	6	12	
7	41374902	Face Up Stacker Assy	1	3	6	12	
8	40864401	Left Side Cover	1	3	6	12	
9	40864501	Right Side Cover	1	3	6	12	
10	40862001	Multipurpose Tray Assy	1	3	6	12	
11	40866301	Multipurpose Tray Top Cover	1	3	6	12	
12	41045801	Link	2	6	12	24	
13	40325101	Multipurpose Tray Drive Gear	1	3	6	12	
14	40952701	Multipurpose Tray Top Cover	1	3	6	12	
15							
16							
17							
18	41256204	Print Engine Controller PWB (71K)	1	3	6	12	1200dpi
	41256206	Print Engine Controller PWB (71K)	1	3	6	12	600dpi
19	~~40197101~~	~~Electrical Chassis Cooling Fan~~	~~1~~	~~3~~	~~6~~	~~12~~	
	40197102	Electrical Chassis Cooling Fan	1	3	6	12	ECO-C7400-033
20	40864901	CRU Basket Assembly	1	3	6	12	
21	41275701	Upper Cover Open Switch	1	3	6	12	
22	41439401	Retard Pad Assy Springs	2	6	12	24	
23	4PB4083-2500P008	Screw (T3×3)	14	-	-	-	
24	4PB4013-3100P008	Screw (M3×8)	2	-	-	-	
25	PSW2-8C	Screw (M2×8)	1	-	-	-	
26	816A2323M0000	EEPROM	1	3	6	12	
27							
28	4PB4083-2500P010	Screw (T3×10)	13	-	-	-	
29	4PB4013-3100P006	Screw (M3×6)	42	-	-	-	
30	41304001	Fuser-Unit	1	-	-	-	ODA(120V)
	41304003	Fuser-Unit	1	-	-	-	OEL/APS
	41304007	Fuser-Unit	1	-	-	-	ODA(230V)

Table 8-1-2/3

No.	Patrs No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
31	41303901	Belt-Unit	1	-	-	-	ODA
	41303903	Belt-Unit	1	-	-	-	OEL/APS
32	41304105	ID-Y	1	-	-	-	ODA
	41304106	ID-M	1	-	-	-	ODA
	41304107	ID-C	1	-	-	-	ODA
	41304108	ID-K	1	-	-	-	ODA
	41304109	ID-Y	1	-	-	-	OEL/APS
	41304110	ID-M	1	-	-	-	OEL/APS
	41304111	ID-C	1	-	-	-	OEL/APS
	41304112	ID-K	1	-	-	-	OEL/APS
33	41304205	Toner-Cartridge_Type_C2_Y (10K)	1	-	-	-	ODA
	41304206	Toner-Cartridge_Type_C2_M (10K)	1	-	-	-	ODA
	41304207	Toner-Cartridge_Type_C2_C (10K)	1	-	-	-	ODA
	41304208	Toner-Cartridge_Type_C2_K (10K)	1	-	-	-	ODA
	41304209	Toner-Cartridge_Type_C2_Y (10K)	1	-	-	-	OEL
	41304210	Toner-Cartridge_Type_C2_M (10K)	1	-	-	-	OEL
	41304211	Toner-Cartridge_Type_C2_C (10K)	1	-	-	-	OEL
	41304212	Toner-Cartridge_Type_C2_K (10K)	1	-	-	-	OEL
	41304213	Toner-Cartridge_Type_C2_Y (10K)	1	-	-	-	APS
	41304214	Toner-Cartridge_Type_C2_M (10K)	1	-	-	-	APS
	41304215	Toner-Cartridge_Type_C2_C (10K)	1	-	-	-	APS
	41304216	Toner-Cartridge_Type_C2_K (10K)	1	-	-	-	APS
	41382805	Toner-Cartridge_Type_C2_Y (5K)	1	-	-	-	ODA
	41382806	Toner-Cartridge_Type_C2_M (5K)	1	-	-	-	ODA
	41382807	Toner-Cartridge_Type_C2_C (5K)	1	-	-	-	ODA
	41382808	Toner-Cartridge_Type_C2_K (5K)	1	-	-	-	ODA
	41382809	Toner-Cartridge_Type_C2_Y (5K)	1	-	-	-	OEL
	41382810	Toner-Cartridge_Type_C2_M (5K)	1	-	-	-	OEL
	41382811	Toner-Cartridge_Type_C2_C (5K)	1	-	-	-	OEL
	41382812	Toner-Cartridge_Type_C2_K (5K)	1	-	-	-	OEL
	41382813	Toner-Cartridge_Type_C2_Y (5K)	1	-	-	-	APS
	41382814	Toner-Cartridge_Type_C2_M (5K)	1	-	-	-	APS
	41382815	Toner-Cartridge_Type_C2_C (5K)	1	-	-	-	APS
	41382816	Toner-Cartridge_Type_C2_K (5K)	1	-	-	-	APS

Table 8-1-3/3

No.	Patrs No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
34	41377401	Plate-Indicator	1	3	6	12	
35	41716809	PCB Assy-SWA	1	3	6	12	
36	8164323M0000	EEPROM(CU)	1	3	6	12	
37	41356111	Board-TNO	1	3	6	12	
38							
39	41437418	Board-Memory 64MB	1	3	6	12	1200dpi-ODA
	41437414	Board-Memory 64MB	1	3	6	12	1200dpi-OEL
	41437410	Board-Memory 64MB	1	3	6	12	1200dpi-APS
40	41437419	Board-Memory 128MB	1	3	6	12	1200dpi Duplex-ODA
	41437415	Board-Memory 128MB	1	3	6	12	1200dpi Duplex-OEL
	41437411	Board-Memory 128MB	1	3	6	12	1200dpi Duplex-APS
41	41376902	Board-MLET B09	(1)	(3)	(6)	(12)	Option-OEL
	41437302	Board-MLET B09	(1)	(3)	(6)	(12)	Option-APS
42	41376005	HDD Assy	(1)	(3)	(6)	(12)	Option-ODA
	41376004	HDD Assy	(1)	(3)	(6)	(12)	Option-OEL
	41376002	HDD Assy	(1)	(3)	(6)	(12)	Option-APS
43	41848501	Board Assy.-CU(Maintenance)	1	3	6	12	
44	41278601	Guide-Rail(A)	2	6	12	28	
45	41278701	Guide-Rail(B)	1	3	6	12	
46	41410201	Motor-Fan	1	3	6	12	
47	41467401	Plate-FG(Centro)	1	3	6	12	
48	41254601	Plate-Blank	2	6	12	28	
49	41723901	Screw	2	-	-	-	
50	41723901	Screw	2	-	-	-	

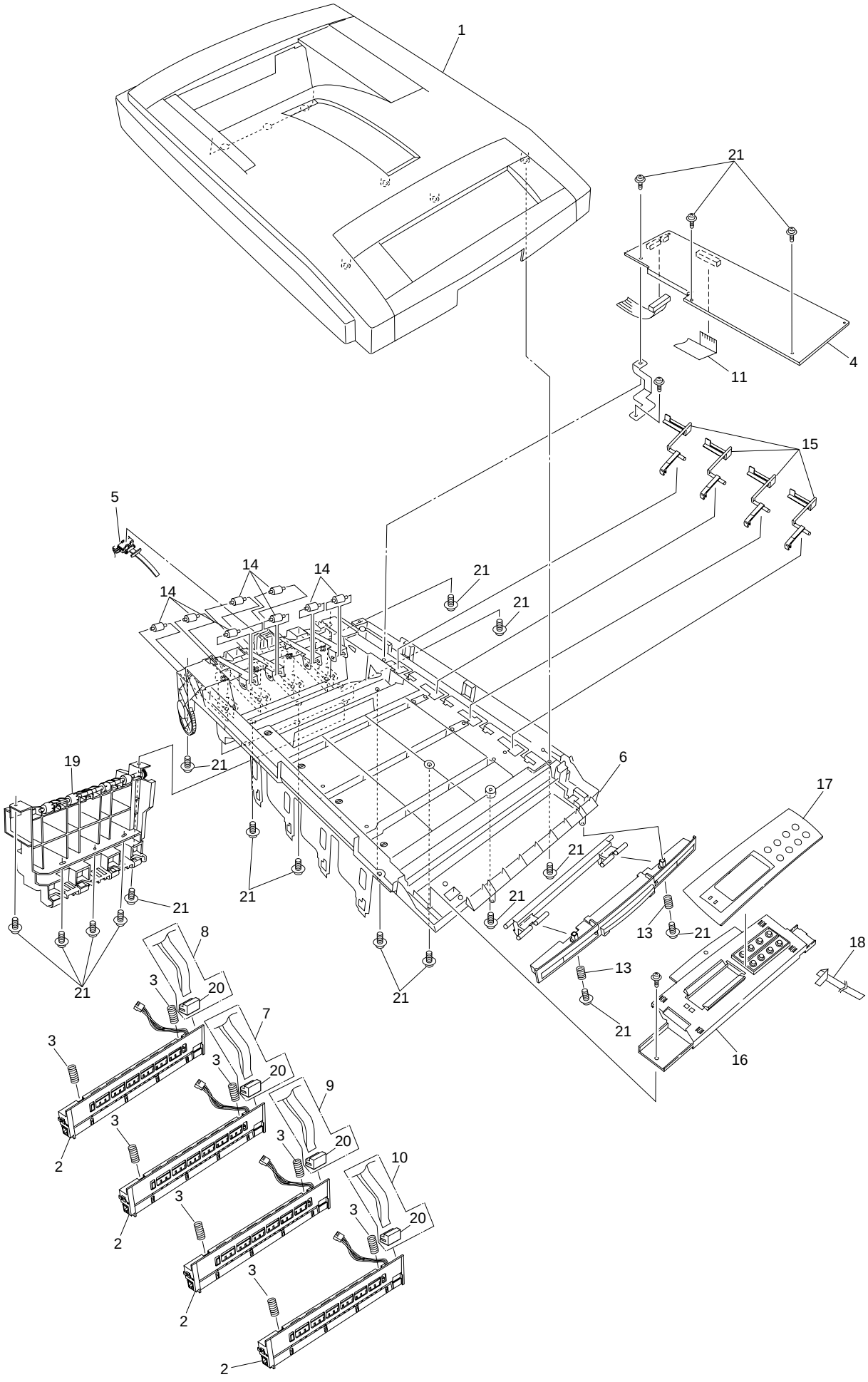

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Figure 8-2

Table 8-2

Top Cover Assembly

No.	Parts No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
1	40859701	Top Cover	1	3	6	12	
2	~~41071401~~	~~LED Assy (1200dpi)~~	~~4~~	~~12~~	~~24~~	~~48~~	~~~~
	41072401	LED Assy (1200dpi)	4	12	24	48	
	41072402	LED Assy (600dpi)	4	12	24	48	
3	40861001	LED Assy Spring	8	24	48	96	
4	41257901	LED Control PWB (Y71)	1	3	6	12	
5	40365404	Stacker Full Sensor	1	3	6	12	
6	41316501	Top Cover Inner Frame Kit	1	3	6	12	
7	41309603	LED Harness M	1	3	6	12	
8	41309604	LED Harness C	1	3	6	12	
9	41309602	LED Harness Y	1	3	6	12	
10	41309601	LED Harness K	1	3	6	12	
11	41593101	LED Control PWB Tape Harness	1	3	6	12	
12							
13							
14	~~40316701~~	~~Eject Roller~~	~~8~~	~~24~~	~~48~~	~~96~~	~~~~
	41765601	Eject Roller	8	24	48	96	ECO-C7400-033
15	40860601	Toner Sensor	4	12	24	48	
16	40866101	Control Panel Assy	1	3	6	12	
17	40866201	Control Panel Bezel	1	3	6	12	600dpi
	40866202	Control Panel Bezel	1	3	6	12	1200dpi
18	~~2381005P0015~~	~~Control Panel Tape Harness~~	~~1~~	~~3~~	~~6~~	~~12~~	~~~~
	2381003P0014	Control Panel Tape Harness	1	3	6	12	ECO-C7400-001
19	40861501	Eject Guide Assy	1	3	6	12	
20	2251001P0260	26pin LED Connector	4	12	24	48	
21	4PB4083-2500P008	Screw (T3×8)	19	-	-	-	
	41733701	Gear-Inner	2	6	12	24	ECO-C7400-005
	41778001	Gear-Inner	2	6	12	24	ECO-C7400-024

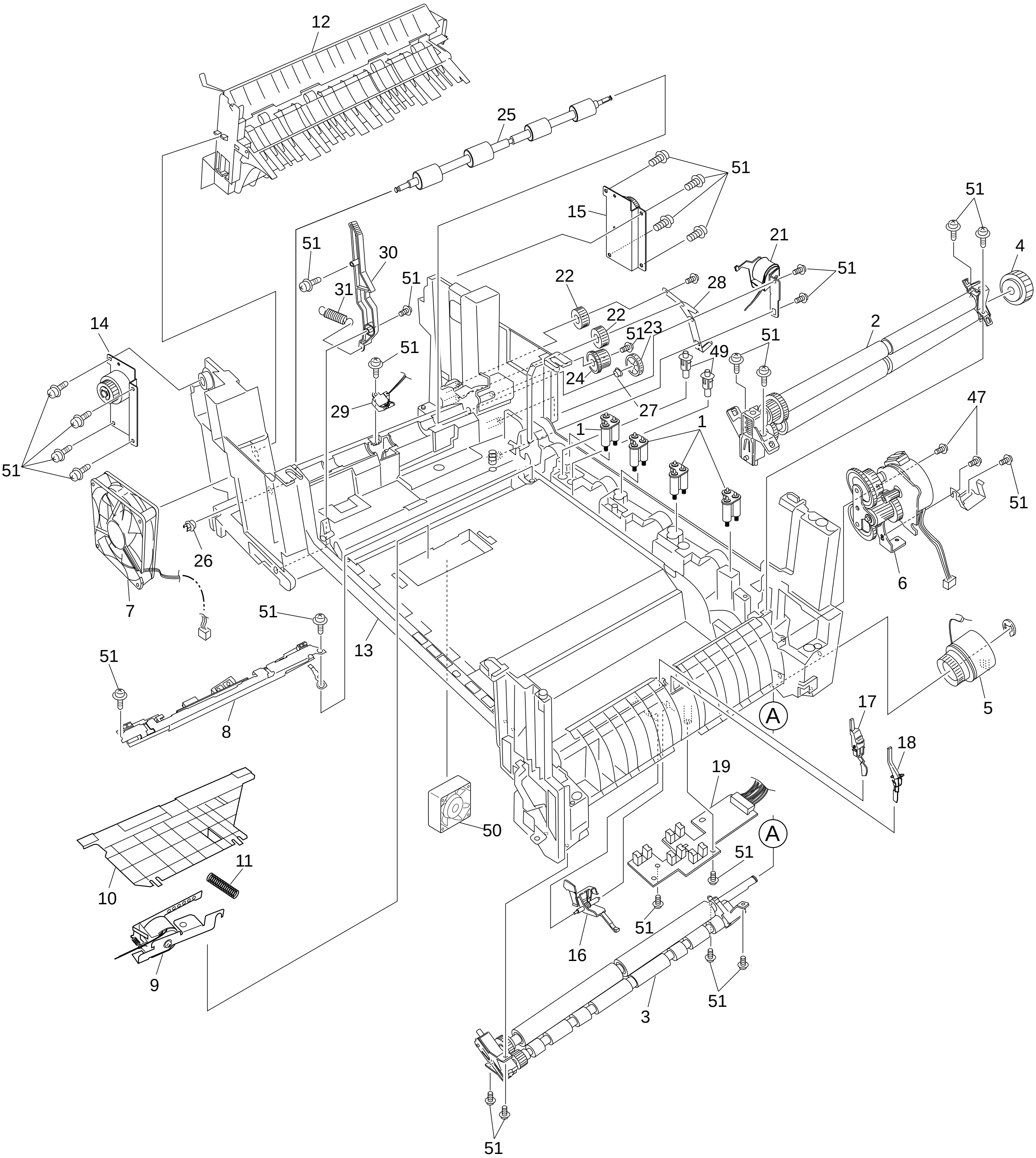
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Figure 8-3-1/2

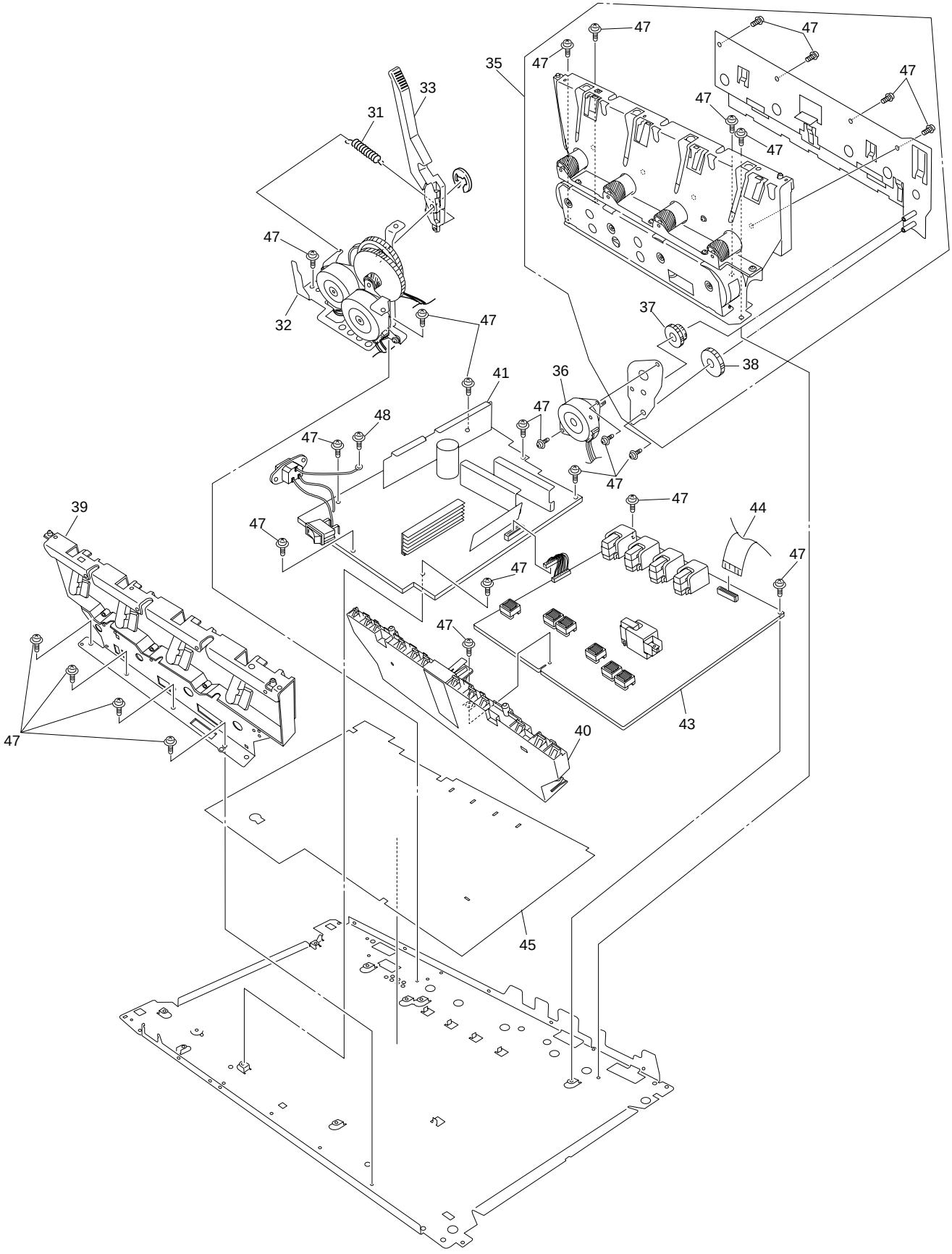
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Figure 8-3-2/2

Table 8-3-1/2

Printer Unit Chassis

No.	Parts No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
1	41189701	Drum contact Assy	4	12	24	48	
2	40844301	Registration Roller Assy (A)	1	3	6	12	
3	40844303	Registration Roller Assy (B)	1	3	6	12	
4	40845401	Registration Drive Gear	1	3	6	12	
5	41187101	Registration Clutch	1	3	6	12	
6	40845801	Registration Motor Assy	1	3	6	12	
7	3PB4076-5290P001	Main Cooling Fan	1	3	6	12	
8	41346801	Color Registration Sensor Assy	1	3	6	12	
9	41253701	Registration Shutter Solenoid	1	3	6	12	
10	41275201	Registration Shutter	1	3	6	12	
11	41275301	Registration Shutter Spring	1	3	6	12	
12	40859201	Duplex Guide Assy	1	3	6	12	
13	40841101	Printer Unit Chassis	1	3	6	12	
14	41312801	Left Top Cover Spring Assy	1	3	6	12	
15	41312901	Right Top Cover Spring Assy	1	3	6	12	
16	40841601	Entrance Sensor Actuator #1	1	3	6	12	
17	40841701	Entrance Sensor Actuator #2	1	3	6	12	
18	40841801	Entrance Sensor Actuator #3	1	3	6	12	
19	41258301	Entrance Sensor PWB (R71)	1	3	6	12	
20							
21	41253601	Duplex Gate Solenoid Assy	1	3	6	12	
22	40842401	Fuser Drive Gear -A	2	6	12	24	
23	40316301	Fuser Drive Gear -B	1	3	6	12	
24	41067201	Fuser Drive Gear -C	1	3	6	12	
25	40323901	Fuser Exit Roller	1	3	6	12	
26	4PP4076-3949P001	Fuser Exit Roller Bushing (L)	1	3	6	12	
27	4PP4043-4489P001	Fuser Exit Roller Bushing (R)	1	3	6	12	
28	40842501	Fuser Exit Roller Contact	1	3	6	12	
29	41073601	Exit Sensor Assy	1	3	6	12	
30	40841301	Fuser Latching Handle (L)	1	3	6	12	
31	40841501	Fuser Latching Handle Springs	2	6	12	24	
32	40848801	Belt Motor Assy	1	3	6	12	
33	40841401	Fuser Latching Handle (R)	1	3	6	12	
34							
35	40847301	Main Motor Assy	1	3	6	12	

Table 8-3-2/2

No.	Parts No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
36	40846001	Main Feeder Drive Motor	1	3	6	12	
37	40848501	Main Feeder Drive Gear A	1	3	6	12	
38	40848601	Main Feeder Drive Gear B	1	3	6	12	
39	41303601	Left Plate Assy	1	3	6	12	
40	40850201	Contact Assy	1	3	6	12	
41	40737401	Power-Unit AC-DC-switching(115V)	1	3	6	12	
	40737402	Power-Unit AC-DC-switching(115V)	1	3	6	12	ECO-C7400-064
	40737501	Power-Unit AC-DC-switching(230V)	1	3	6	12	
	40737502	Power-Unit AC-DC-switching(230V)	1	3	6	12	ECO-C7400-064
42							
43	40737601	Power-Unit (high-voltage)	1	3	6	12	
44	~~2381018P0001~~	~~HV Tape Harness~~	~~1~~	~~3~~	~~6~~	~~12~~	
	2381003P0016	HV Tape Harness	1	3	6	12	ECO-C7400-001
45	41128101	Power Supply Insulator	1	3	6	12	
46							
47	4PB4013-3100P006	Screw (M3×6)	26	-	-	-	
48	PSW4-8C	Screw (M4×8)	1	-	-	-	
49	41346301	Transfer Contact Assy	2	6	12	24	
50	41469001	Power Cooling Fan	1	3	6	12	
51	4PB4083-2500P008	Screw (T3×8)	29	-	-	-	

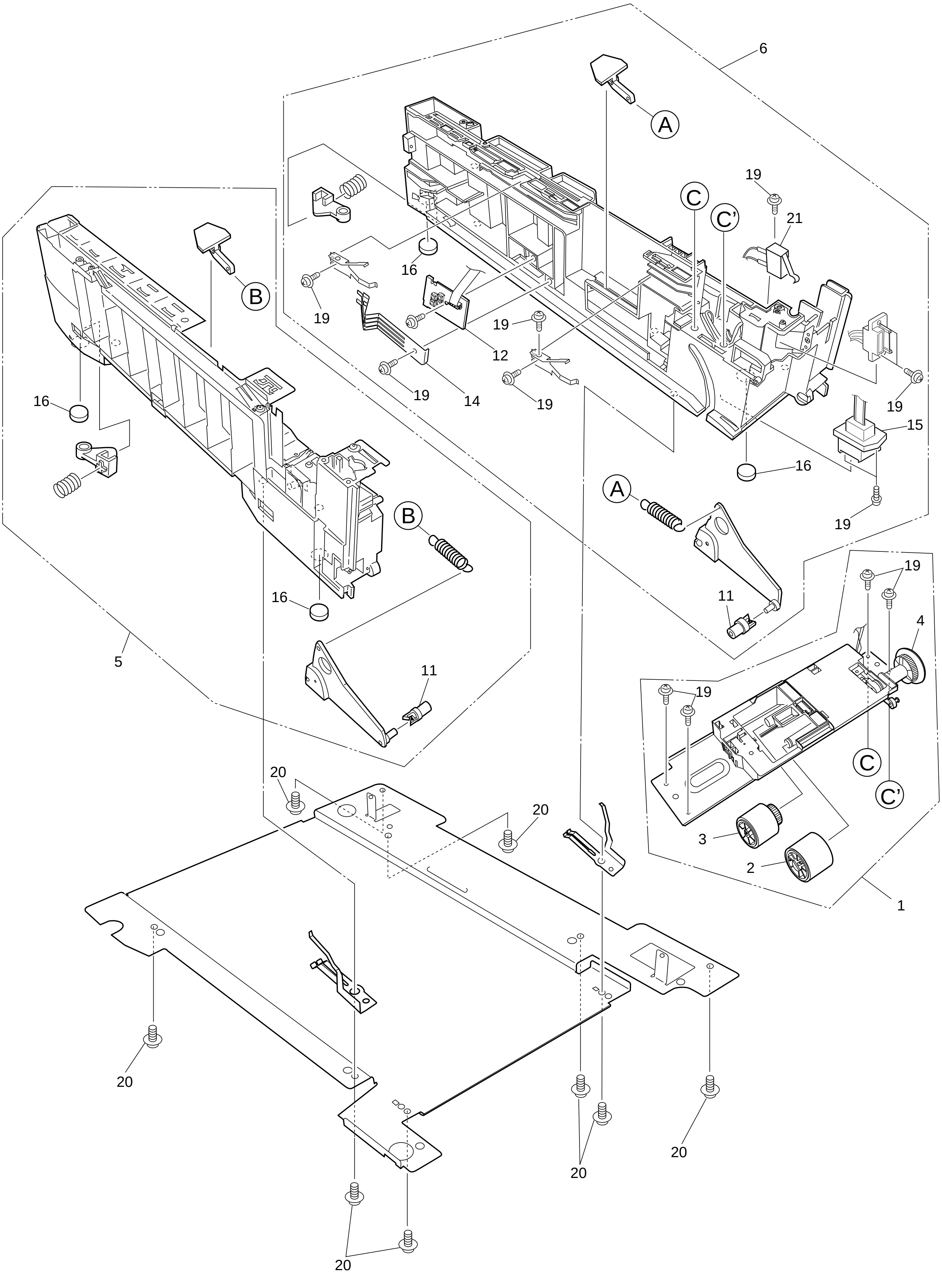
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Figure 8-4

Table 8-4

Paper Tray Guide

No.	Parts No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
1	40839801	Main Feed Assy	1	3	6	12	
2	40371301	Feed Roller	1	3	6	12	
3	40313201	Nudger Roller	1	3	6	12	
4	40325401	Main Feeder Drive Gear	1	3	6	12	
5	40839001	Left Cassette Guide Assy	1	3	6	12	
6	40839401	Right Cassette Guide Assy	1	3	6	12	
7							
8							
9							
10							
11	40349701	Plastic Roller	2	6	12	24	
12	40368304	Paper Size Sensing PWB PXC	1	3	6	12	
13							
14	4PP4076-5360P001	Paper Size Actuator	1	3	6	12	
15	~~41309301~~	~~2nd Tray Connector~~	~~1~~	~~3~~	~~6~~	~~12~~	
	41309101	2nd Tray Connector	1	3	6	12	
16	~~4PB4016-1960P002~~	~~Foot~~	~~4~~	~~12~~	~~24~~	~~48~~	
	4PB4016-1960P004	Foot	4	12	24	48	ECO-C7400-033
17							
18							
19	4PB4083-2500P008	Screw (T3×8)	13	-	-	-	
20	4PB4083-5670P002	Screw (T4×10)	8	-	-	-	
21	41275901	Front Cover Open Switch	1	3	6	12	

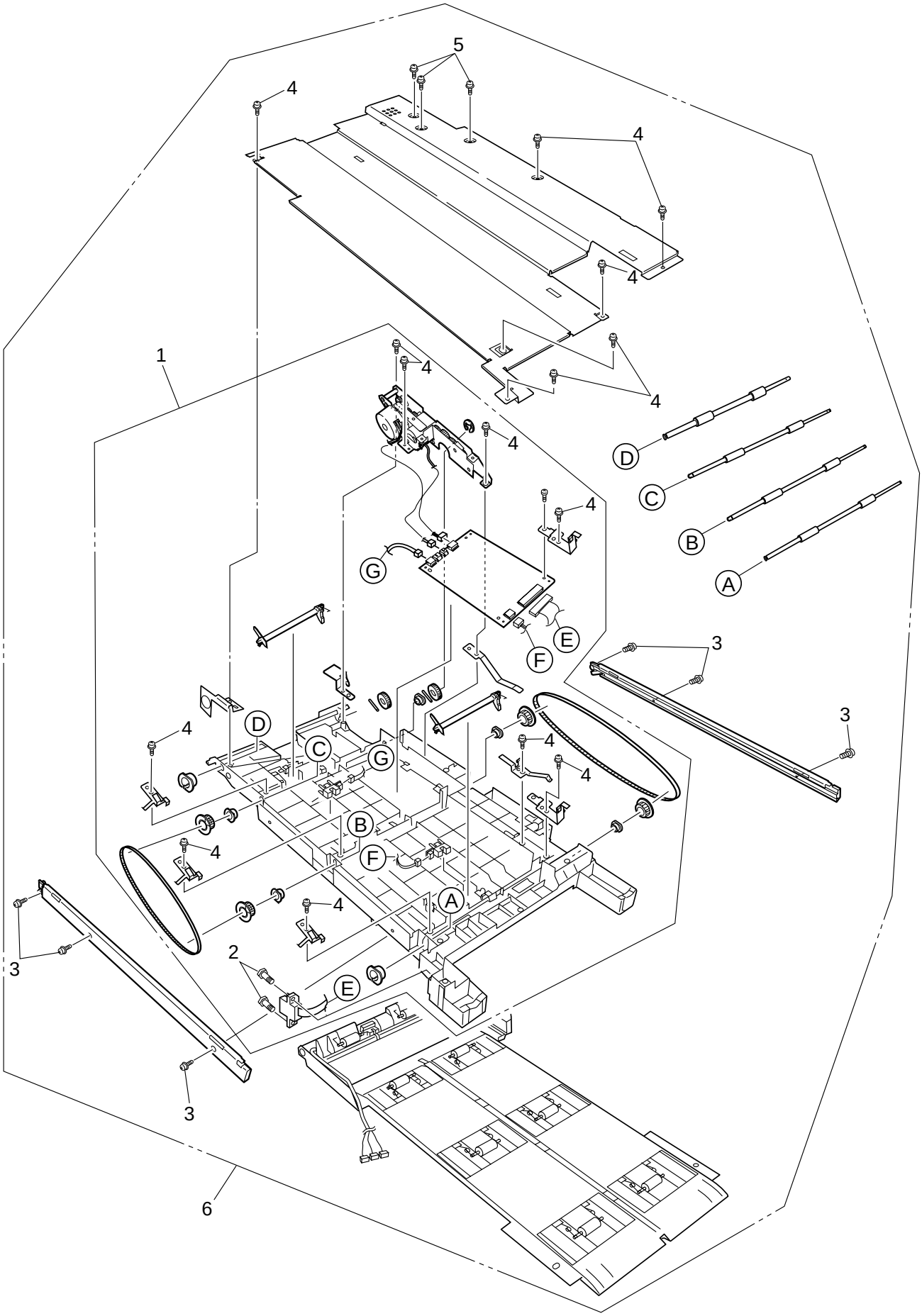


Figure 8-5

Table 8-5

Duplex Unit

No.	Parts No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
1	41305301	Duplex Transport Assy	1	3	6	12	
2	4PB4043-4718P001	Screw (SP3×10)	2	-	-	-	
3	4PB4083-2500P010	Screw (T3×10)	6	-	-	-	
4	4PB4083-2500P008	Screw (T3×8)	15	-	-	-	
5	4PB4013-3100P006	Screw (M3×6)	3	-	-	-	
6	41372901	Duplex Unit	1	-	-	-	ODA
	41372903	Duplex Unit	1	-	-	-	OEL
	41372907	Duplex Unit	1	-	-	-	APS

APPENDIX A CENTRONICS PARALLEL INTERFACE

1) Connector
   - Printer Side: 36-pin receptacle (female)
     Equivalent of type 57RE-40360-830B-D29 (made by Daiichi Denshi Kogyo)
   - Cable Side: 36-pin plug (male)
     Equivalent of type 57-30360 (made by Daiichi Denshi Kogyo)
     Equivalent of plug 552274-1 (AMP), 52073-1 (AMP)

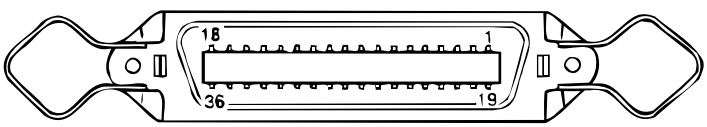
2) Cable
   - Use a cable of not more than 1.8m.
     (Use twisted and shielded pair wires for antinoise measures.)

Note! The cable is an extra-cost option

3) A list of Parallel I/F Signals

Pin No.	Signal Name	Signal Direction	Function
1	DATA STROBE	→PR	Parallel data sampling strobe
2	DATA BIT - 1		
3	DATA BIT - 2		
4	DATA BIT - 3		
5	DATA BIT - 4	→PR	Parallel input data
6	DATA BIT - 5		
7	DATA BIT - 6		
8	DATA BIT - 7		
9	DATA BIT - 8		
10	ACKNOWLEDGE	←PR	Completion of data input
11	BUSY	←PR	Printing operation, Alarming, Paper empty
12	PAPER END	←PR	Paper empty
13	SELECT	←PR	Select state (on-line)
14	Auto Feed	→PR	Mode switch request
15	-		(Unassigned)
16	0V		Signal earthing
17	CHASSIS GROUND		Frame earthing
18	+5V	←PR	Supply voltage (Max. 50mA) Min. 4.75V
19 ~ 30	0V Signal ground		Signal grounding
31	INPUT PRIME	→PR	Initialization
32	FAULT	←PR	Paper empty, Alarming
33	0V		Signal earthing
34	-		(Unassigned)
35	-		High level (3.3kÉ∂)
36	Select In	→PR	Mode switch reques

- Connector Pins Layout



4) Signal Levels
- Low Level: 0V to +0.8V
- High Level: +2.4V to +5.0v

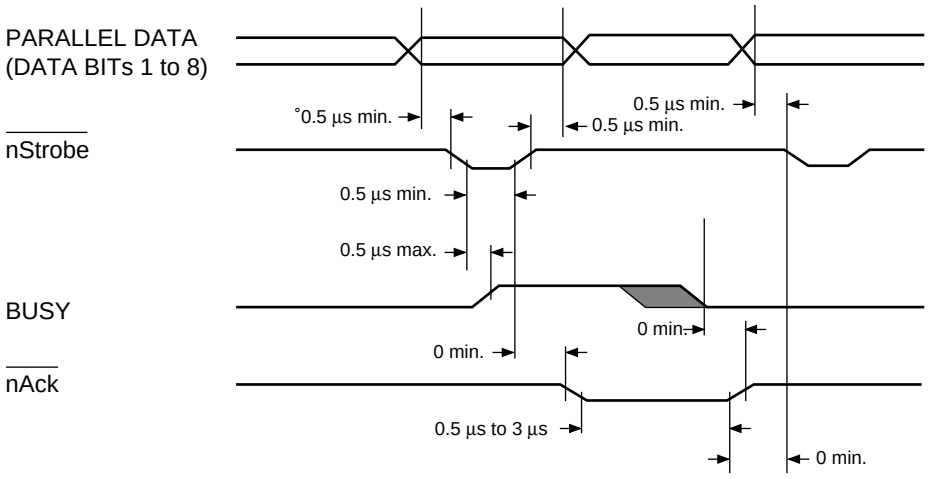
5) Specifications

Item	Description
Mode	Compatibility mode, Nibble mode, ECP mode
Data Bit Length	Compatibility: 8, Nibble: 4, ECP: 9 bits
Control	Initial connection control in each mode. Storing of data from host in receive buffer. Busy control. Signal Read control.

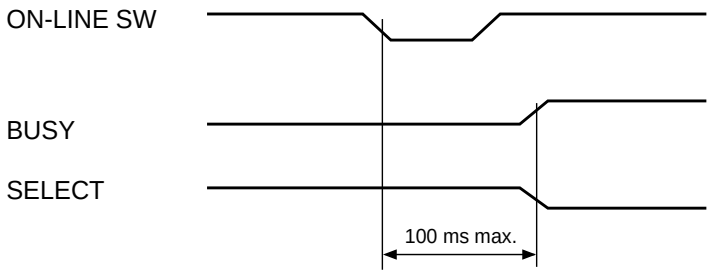
6) Timing Chart

Compatible Mode

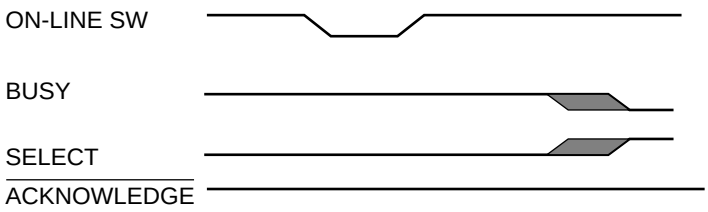
a) Timing for receiving data



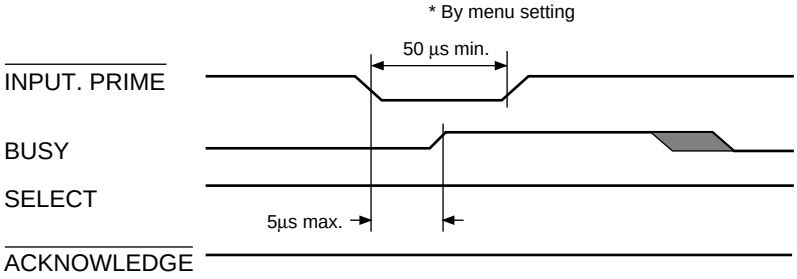
b) On-line Timing for switching to off-line by on-line SW



c) Off-line Timing for switching to on-line by on-line SW



d) nlnit timing (under enabling input prime signal)



Nibble Mode

IEEE-1284-specification compliant

ECP Mode

IEEE-1284-specification compliant

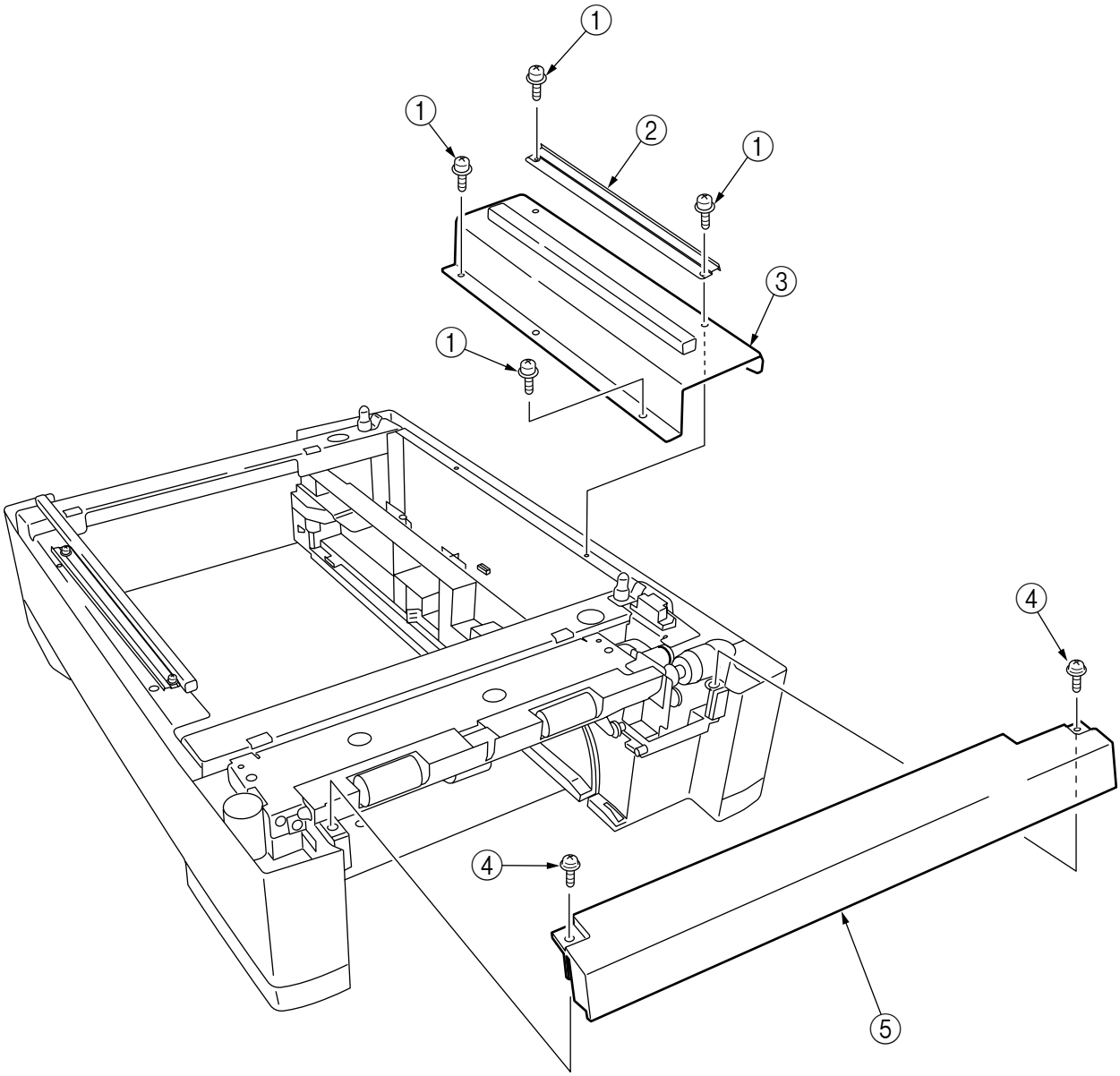
APPENDIX B 2ND/3RD TRAY MAINTENANCE

1. Parts Replacement

1.1 Cover Idle Roller Assy

(1) Unscrew the four screws ① to remove the cover side ② and the plate cover PCB ③.

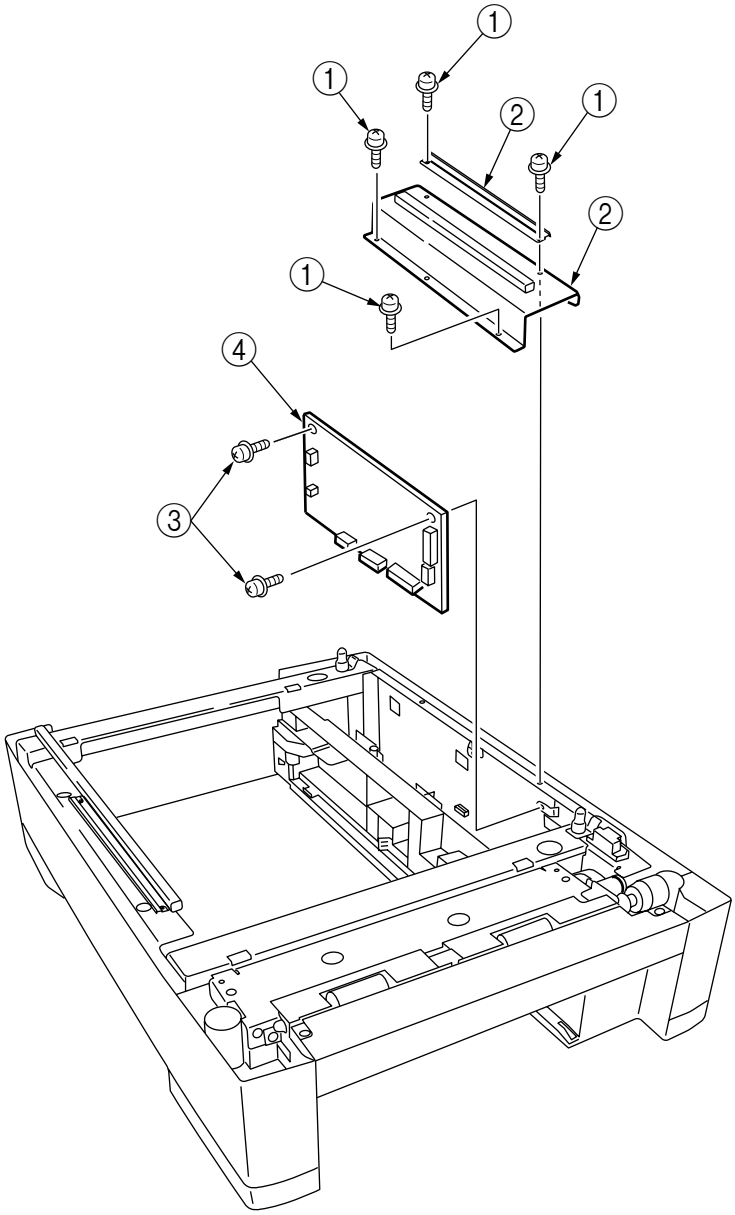
(2) Unscrew the two screws ④ to demount the cover idle roller Assy ⑤.



1.2 PCB

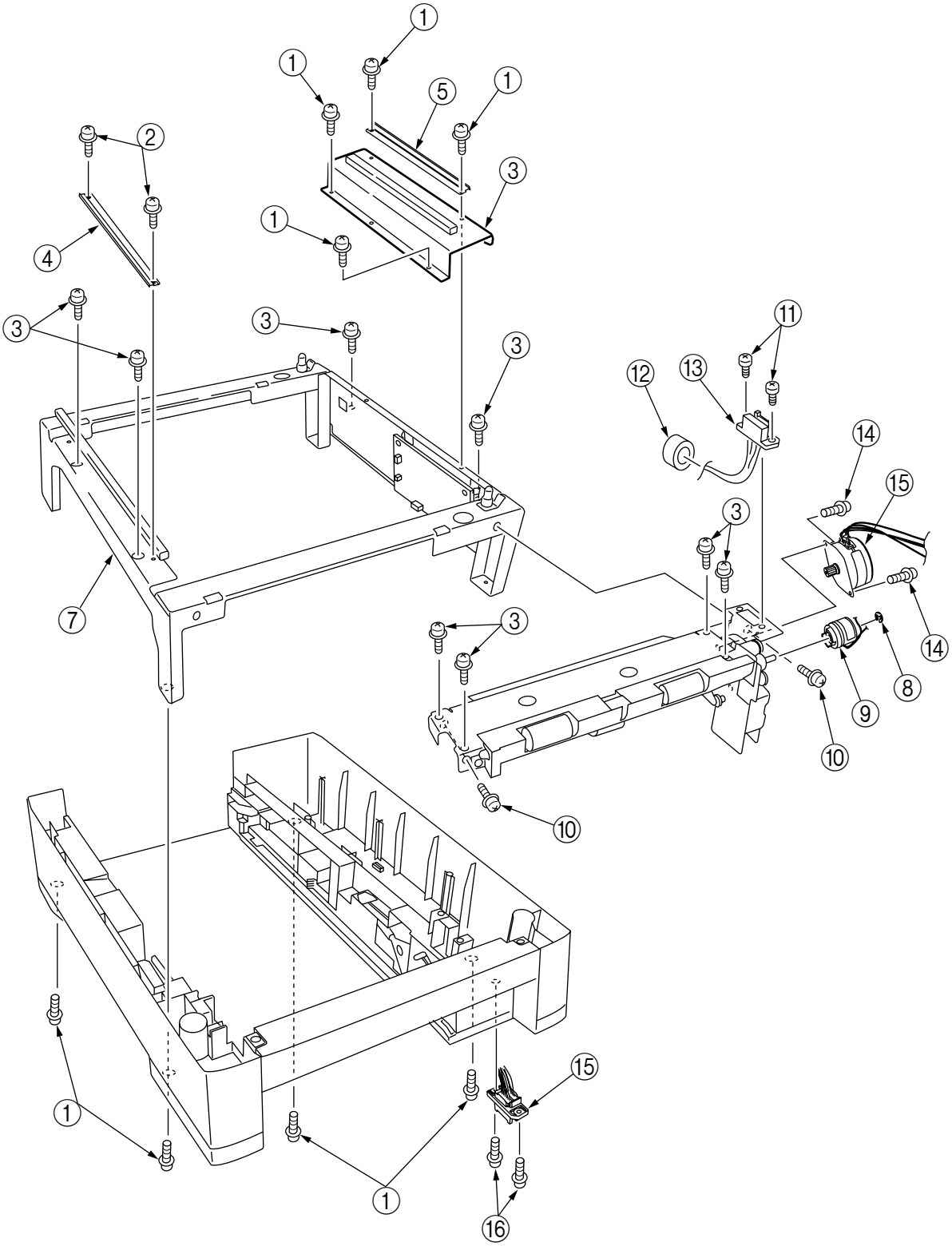
(1) Unscrew the four screws ① to remove the plate cover PCB ②.

(2) Remove the connectors (at seven places) and the two screws ③, then demount the board ④.



1.3 Feeder Drive Assy

(1) Remove the four screws ①, six screws ② and the eight screws ③.
(2) Remove the cover sides ④ and ⑤, the plate cover PCB ⑥ and the frame hopping Assy ⑦.
(3) Remove the E ring ⑧, the clutch ⑨ and the two screws ⑩.
(4) Unscrew the two screws ⑪ to remove the core ⑫ and the connector ⑬.
(5) Unscrew the two screws ⑭, then detach the motor ⑮.
(6) Unscrew the tow screws ⑯ to remove the connector ⑰.



2. C7000 2nd/3rd Tray PARTS LIST

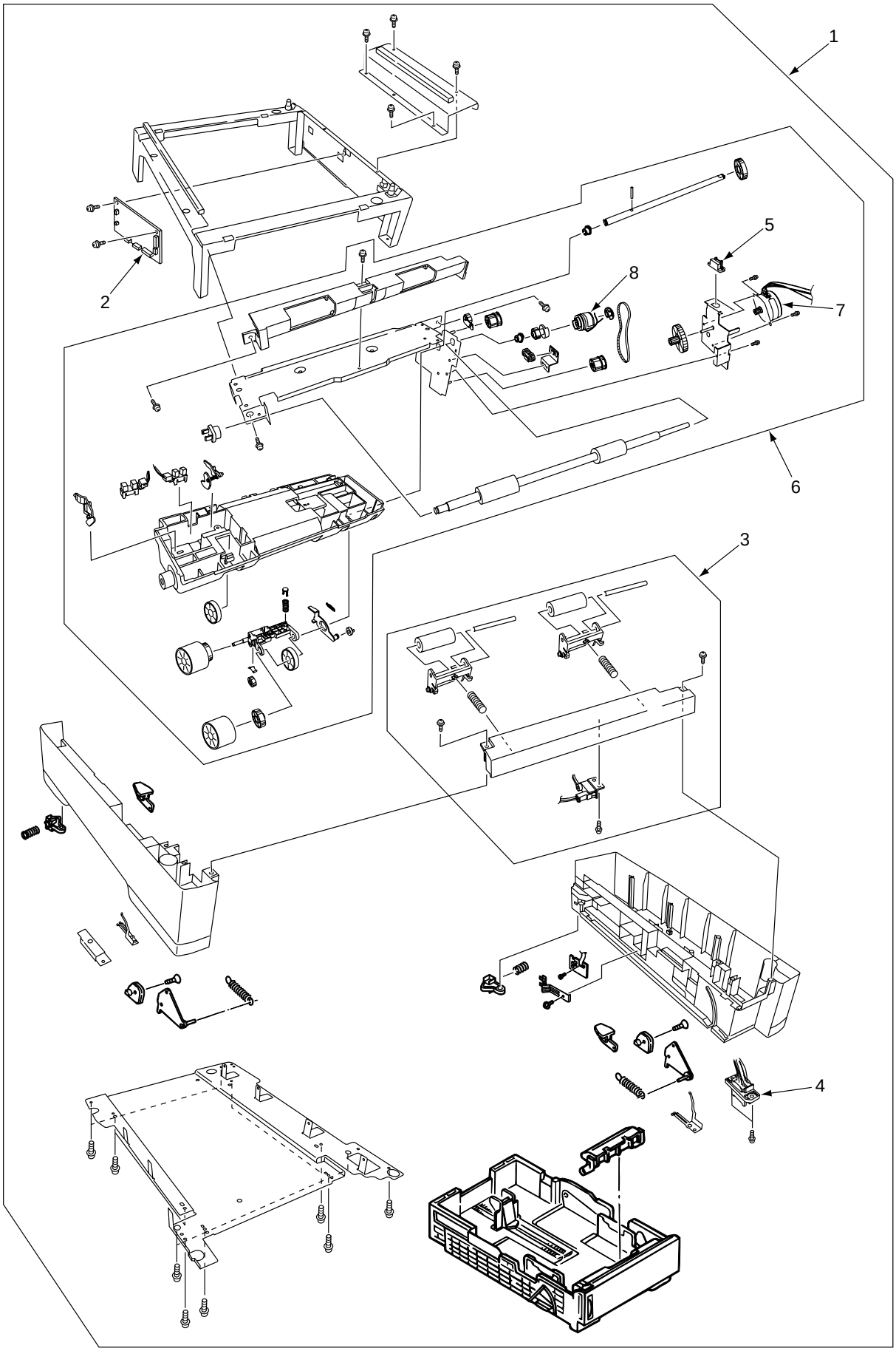


Table 2-1 C7000 2nd/3rd Tray

No.	Parts No.	Name	Q'ty /Unit	Recommended Q'ty/Year			Remarks
				per 500	per 1000	per 2000	
1	41304501	2nd/3rd Tray 500Sheet Feeder Assembly	1	—	—	—	ODA
	41304503	2nd/3rd Tray 500Sheet Feeder Assembly	1	—	—	—	OEL/APS
2	41780302	Board-V7X	1	3	6	12	ECO-C7400-023
3	~~41400502~~	~~Cover-Front OP Assy~~	~~1~~	~~3~~	~~6~~	~~12~~	
	41400501	Idler Roller Assembly	1	3	6	12	ECO-C7400-033
4	41462301	Lower Connector W/harness	1	3	6	12	
5	41462201	Upper Connector W/harness	1	3	6	12	
6	41581101	Feeder Drive Assembly	1	3	6	12	
7	40366501	Feeder Motor	1	3	6	12	
8	~~41401001~~	~~Feder Cluch~~	~~1~~	~~3~~	~~6~~	~~12~~	
	41859201	Feder Cluch	1	3	6	12	ECO-C7400-033