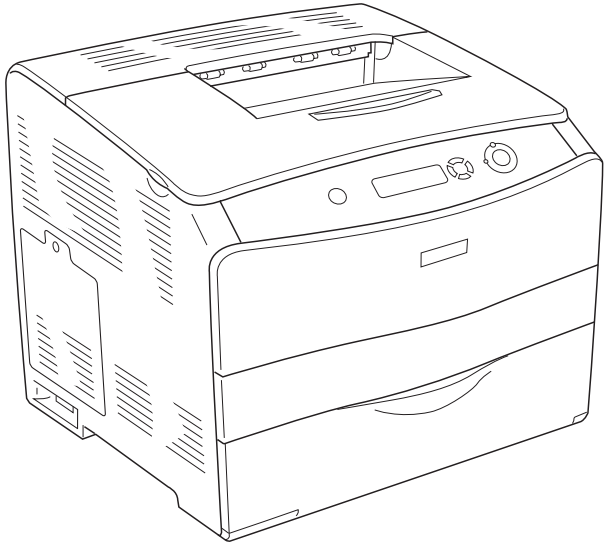
SERVICE MANUAL



A4 Full Color Laser Printer

EPSON AcuLaser C1100

EPSON

SEPG04002

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PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1)Personal injury and 2) damage to equipment.

DANGER Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

WARNING Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.

5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NON-APPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of the printer. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

Manual Configuration

This manual consists of six chapters and Appendix.

CHAPTER 1.PRODUCT DESCRIPTIONS
Provides a general overview and specifications of the product.

CHAPTER 2.OPERATING PRINCIPLES
Describes the theory of electrical and mechanical operations of the product.

CHAPTER 3.TROUBLESHOOTING
Describes the step-by-step procedures for the troubleshooting.

CHAPTER 4.DISASSEMBLY / ASSEMBLY
Describes the step-by-step procedures for disassembling and assembling the product.

CHAPTER 5.ADJUSTMENT
Provides Epson-approved methods for adjustment.

CHAPTER 6.MAINTENANCE
Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

APPENDIX Provides the following additional information for reference:

- Connector pin assignments
- Electric circuit boards components layout
- Electrical circuit boards schematics
- Exploded diagram & Parts List

Symbols Used in this Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be aware of all symbols when they are used, and always read NOTE, CAUTION, or WARNING messages.

Indicates an operating or maintenance procedure, practice or condition that is necessary to keep the product's quality.

Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.

May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.

Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.

Abbreviations

The following is a representative example of abbreviations (both original and common ones) used in this manual.

ADC..... Automatic Density Control
AG .....Analog Ground
APS..... Auto Paper Select
ARC..... Auto Registration Control
ASSY. .....Assembly
ATS..... Auto Tray Switching
B .....Black
BCR..... Bias Charge Roll
Bk .....Black
BLK.....Black
BLU..... Blue
BRN.....Brown
BTR ..... Bias Transfer Roll (Transfer Unit)
C .....Cyan
CLN.....Cleaner
CRU.....Customer Replaceable Unit
CRUM .....CRU Monitor
CTRG .....Cartridge
DET ..... Detoner Roll
DEVE. ..... Developer
DIAG. .....Diagnostic
DISP ..... Dispense
dpi..... dots per inch
DTS. .....Detack Saw
DUP..... Duplex
ESB.....Electro Static Brush
ESS ..... Electric Subsystem
F..... Front
FEED,FDR ..... Feeder
FIP .....Fault Isolation Procedure
GND .....Ground
GRN..... Green
HT. .....Harf Tone
HUM. .....Humidity
HVPS. .....High Voltage Power Supply
ICDC . .....Image Count Dispense Control
ID. .....Image Density (or Identification)
IBT .....Intermediate Belt Transfer (Intermediate Transfer Unit)
INTL,INLK .....Interlock
IOT ..... Image Output Terminal
K. .....Black
L .....Left
L/H .....Left Hand
LD..... Laser diode
LDD.....Lightly Doped Drain
LED .....Light-emitting diode
LEF.....Long Edge Feed
LH. .....Left Hand
LV..... Low Voltage
LVPS .....Low Voltage Power Supply
M ..... Magenta
MAG. .....Mag. Roll
MCU.....Machine Control Unit
MOB..... Marks On Belt
MOT..... Motor
MSI..... Multi Sheet Inserter
N/P..... No Paper
NVM.....Non Volatile Memory
OEM ..Original Equipment Manufacturing
OHP..... Overhead Project (In this manual, OHP means a transparent sheet.)
OP..... Operation
OPC ..... Organic Photo Conductor
ORN .....ORANGE
PC.....Personal Computer
PCDC .....Pixel Count Dispense Control
PH ..... Paper Handling
PHD..... Printer Head
PNK..... Pink
POP ..... Paper On Photoreceptor
PPM..... Prints Per Minute
PR,P/R..... Process
PV .....Print Volume
PWB(A) ..... Printed Wiring Boad (Assembly)
R.....Right
R. .....Rear
R/H. .....Right Hand
REF .....Refresher
REGI. .....Registration
RH .....Right Hand
ROS..... Raster Output Scanner
ROT.....Rotary
RTC.....Rubber Tube Charger
RTN.....Return
SEF.....Short Edge Feed
SG .....Signal Ground
SMH..... Special Material Handler
SNR.....Sensor
SOL. ..... Solenoid
SOS .....Start Of Scan
STM ..... Single Tray Module
SW..... Switch
TEMP. .....Temperature
TM..... Tray Module
TNER,TNR .....Toner
TP.....Thermopile
TR ..... Transfer
VIO .....Violet
WHT .....White
XERO .....Xerographic
Y .....Yellow
YEL. .....Yellow

Safety Information

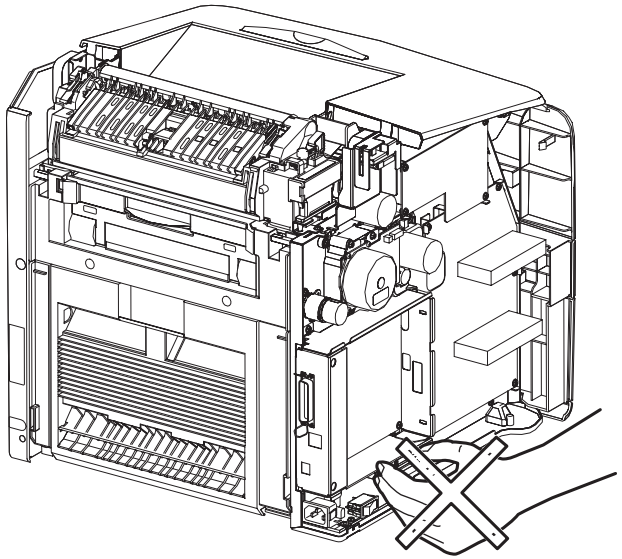
To prevent accidents during a maintenance procedure, strictly observe the Warnings and Cautions and never depart from the instructions given in this document.
Do not do anything that is dangerous even if not specifically described in this manual.
In addition to the descriptions below and those given in this manual, there are many situations and circumstances that could result in serious bodily injury.
Always pay enough attention to secure safety when working with the printer.

Power Supply

Before starting any service procedure, turn the printer off power and unplug the power cord from the wall outlet. When the power supply cable must be connected, be aware of the potential for electrical shock and do all tasks by following the procedures in this manual.

WARNING

Do not touch any live part unless instructed to do so. The power supply switch/inlet part (MAIN POWER SWITCH & INLET) is live even when the power switch has been turned off.



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Mechanical Components

When servicing any driving assembly (e.g., gears), first turn the power off and unplug the power cord. Then manually rotate the assembly.

WARNING

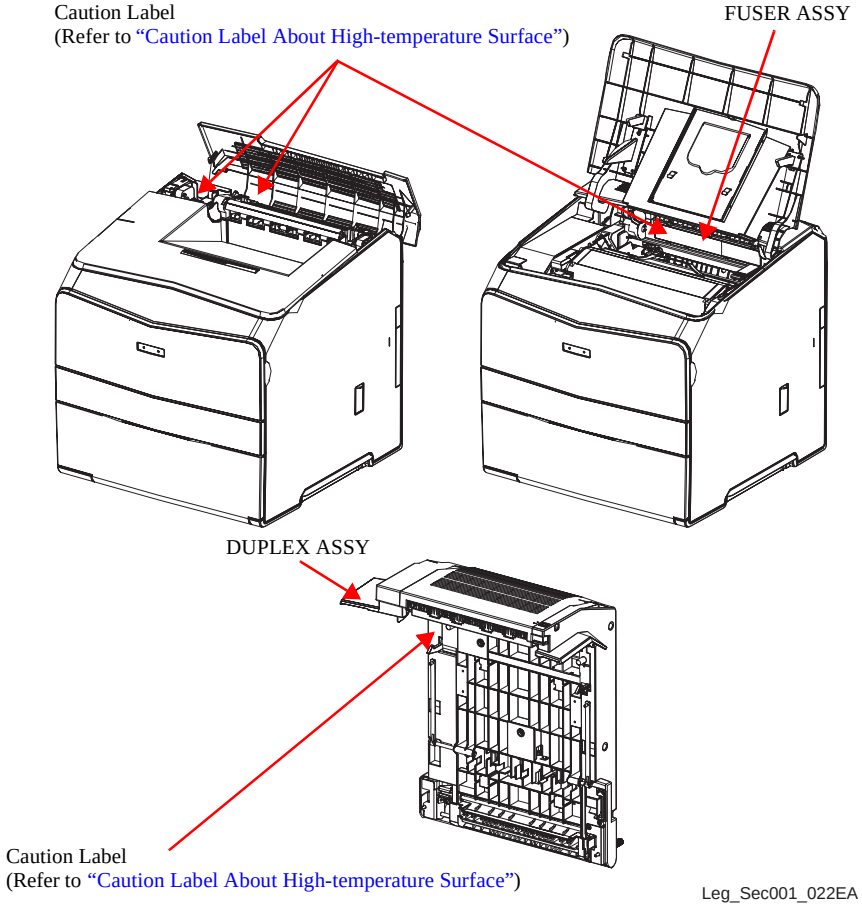
Do not touch the driving part (e.g., gears) while the assembly (printer) is operating.

High Temperature Assembly

When working with hot parts (FUSER etc.) make sure to turn the power off, unplug the power cable, and leave the printer until it cools down sufficiently to work with to prevent burn injury.

WARNING

As the inside of the printer is high-temperature state immediately after the operation, leave it more than 30 minutes before working.



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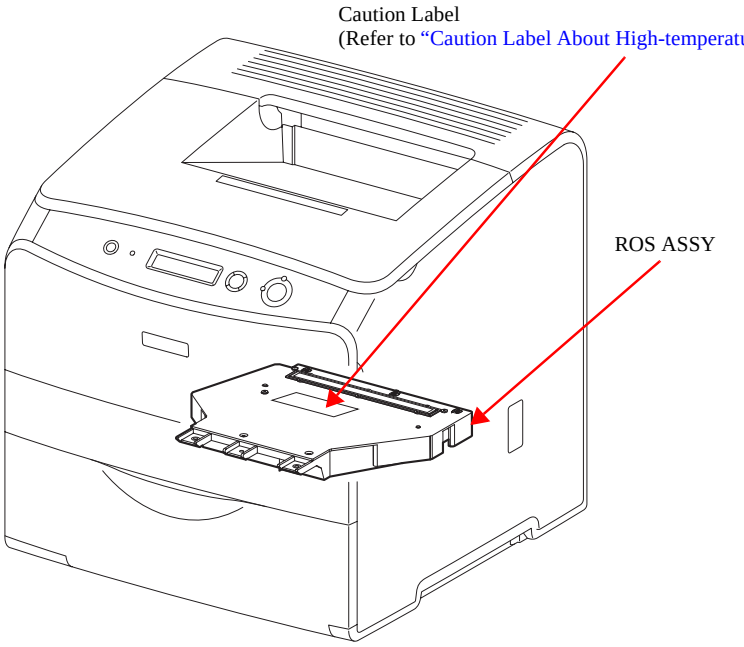
Laser Beam

WARNING

- **Letting a laser beam get into your eye directly could result in loss of vision.**
- **Never open the Cover where the Warning Label About Laser Beam is affixed.**
- **Before disassembling or assembling, be sure to turn the power off.**
- **If you need to work on the printer with power applied, strictly follow the instructions in this manual.**
- **Understand hazardous nature of the laser beam, use extreme caution to avoid injury of yourself and anyone around you.**

CHECK POINT

- **The laser beam has a narrower frequency band and more coherent phases than any other light (sunlight, electric light). The beam has excellent monochromaticity and convergence, thus it reaches long distances. Because of these characteristics, the laser beam converges into one point, causing high density and high temperature. And that is why a laser beam is harmful to the human body.**
- **The laser beam in this printer is invisible.**



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Warning/Caution Labels

Warning labels and caution labels are attached on the corresponding locations on or in the printer.

CHECK POINT

In maintenance work, check that the labels are free from peeling and soiling.

☐ Caution Label About High-temperature Surface

The labels are attached on the Fuser assy and the perimeter alerting the user to avoid burn injury.
(Refer to "High Temperature Assembly")

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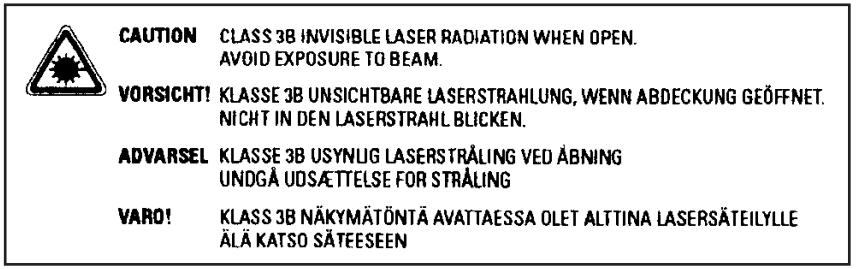
☐ Warning label for Laser Beam

The label is attached on the top of the laser beam emitting unit (ROS ASSY) to alert the service personnel the danger of laser beam.



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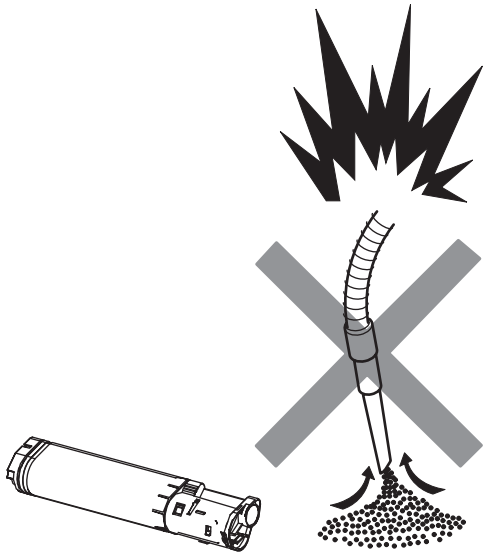
Cautions relating to Toner cleaning

- ☐ To prevent ignition, explosion, burn, injury, etc., do not use a general vacuum cleaner for cleaning dropped toner. (To do so may cause the toner to catch fire by sparks in the vacuum cleaner.)

WARNING

Do not pick up dropped toner with a general vacuum cleaner. To do so may cause ignition.



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Cautions relating to Storage of Paper

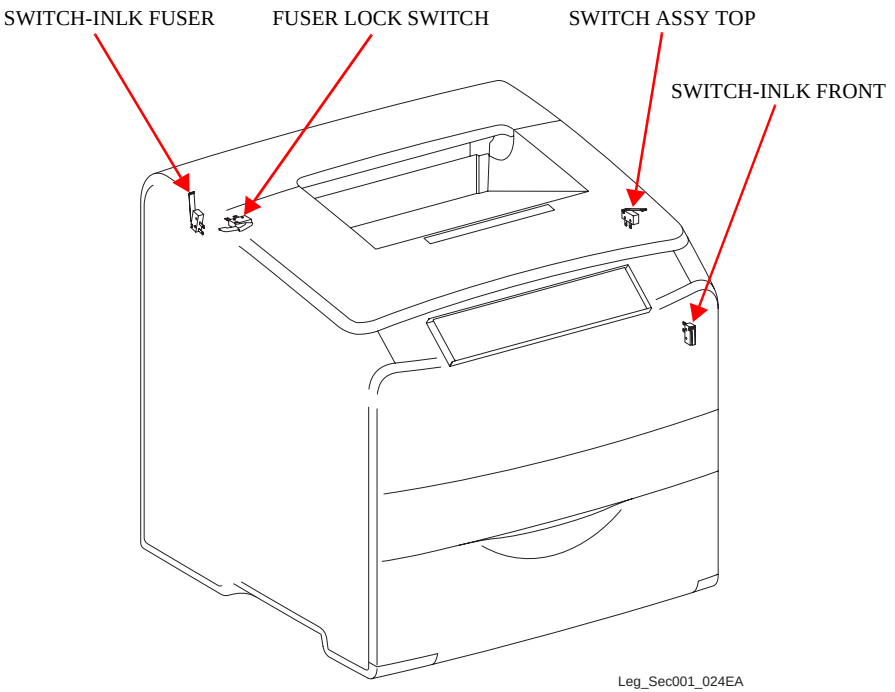
To achieve the appropriate printing results, unused paper that is stored outside of the unit should be sealed up by packing material or put into a plastic bag to prevent it from becoming moist.

Safety Devices

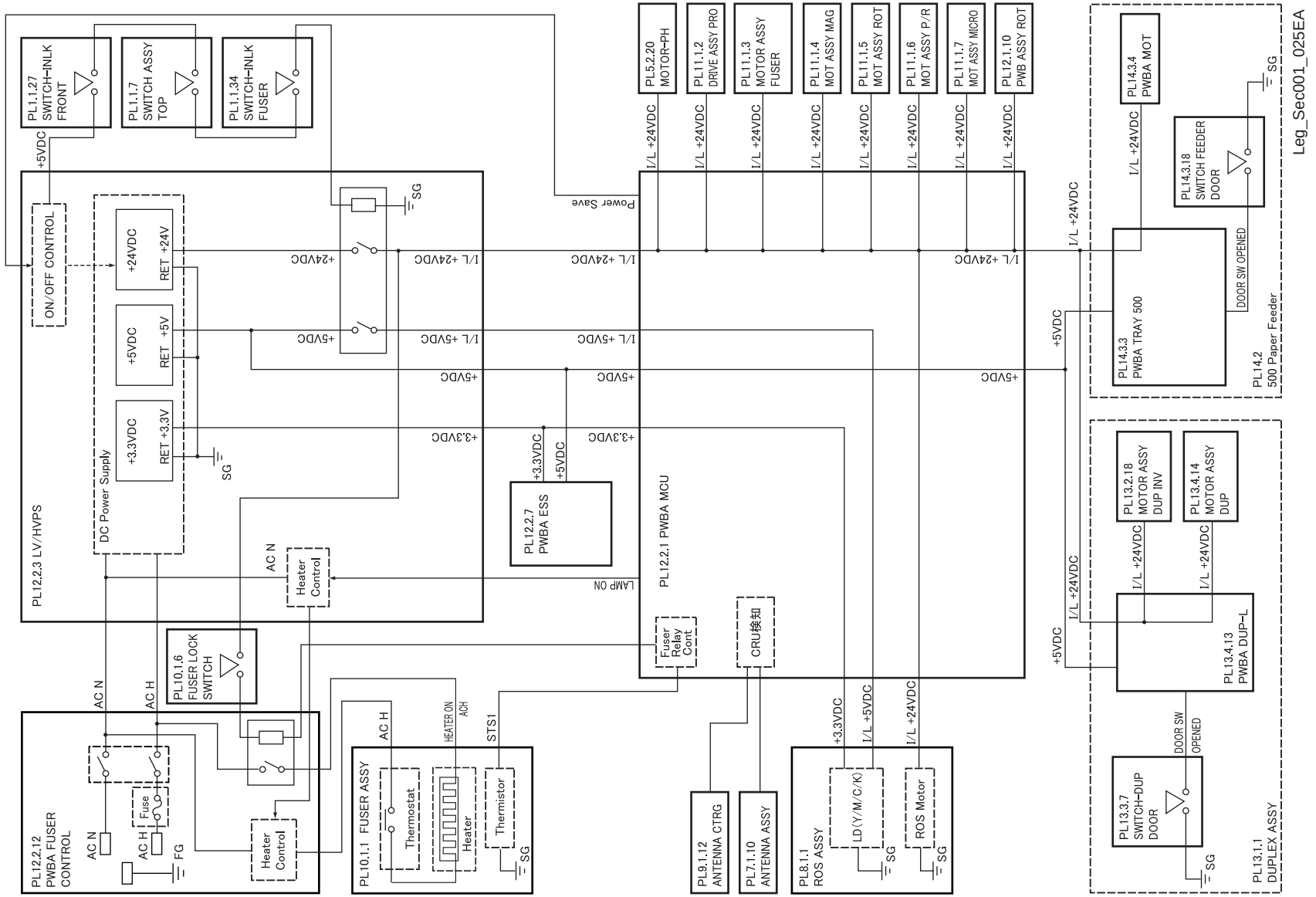
Use extra care when checking or servicing the safety devices (e.g., interlock switches, fuses, thermostat). The printer's cover, control panel and any other parts which are directly related to the user's safety should also be observed carefully.

As the major safety devices, the printer is equipped with the following four interlock switches:

- ☐ SWITCH ASSY TOP
- ☐ SWITCH-INLK FRONT
- ☐ SWITCH-INLK FUSER
  When any one of the above interlock switches turns off, +24VDC supply to the motors and solenoid is cut off. The SWITCH ASSY TOP turns off when the COVER ASSY TOP is opened. The SWITCH-INLK FRONT does when the COVER FRONT ASSY U is opened, and the SWITCH-INLK FUSER does when the COVER FUSER is opened.
- ☐ FUSER LOCK SWITCH
  The FUSER LOCK SWITCH turns off when the latch lever of the FUSER ASSY is released, then AC power supply to the Heater of the FUSER ASSY is cut off.



Schematic Diagram of Safety System



Revision Status

Revision	Date of Issue	Description
A	28 September, 2004	First release
B	13 JULY, 2005	<Modification> Chapter 1: • Table 1-2 Color mode (Unit: seconds or less) (p.23) / Modification • Supported paper size, type and orientation (p.25) / Modification • NOISE (p.29) / Modification • Calibrating Printer (p.57) / Modification • Figure 1-15 Status Sheet (Simplified version) (p.68) / Modification • Print volume (pages/month) (p.33) / Modification • 1.9.2 Conditions for Storage and Transport (p.39) / Modification • 1.13 Life details (p.45) / Modification • Setup Menu (p.50) / Modification • Support Menu is deleted. Chapter 2: • Table 2-1 Sensors (p.115) / Modification Chapter 4: • 4.3.7 HOLDER ASSY RETARD MSI (p.313) / New information is added. • 4.4.4 FRAME ASSY-PH (p.327) / New information is added.

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CHAPTER

1

PRODUCT DESCRIPTION

1.1 Overview

This printer is a conventional 4-cycle color page printer that takes advantage of laser and electrophotographic technologies.

1.1.1 Engine features

- New compact and light engine, which enables 600 dpi
  445 (W) x 445 (D) x 439 (H) mm, 25 kg
- Print speed (when printing A4)
  Simplex printing: 5.0ppm (color) / 25.0 ppm (monochrome)
  Duplex printing: 5.0 ppm (color) / 17.5 ppm (monochrome)
- Supports automatic duplex printing (option)
- Paper supply
  Standard: MP Tray (Up to 180 sheets of 80g/m^2 paper)
  Option: Paper cassette unit (Up to 680 sheets of 80g/m^2 paper)
- Paper eject capacity is 250 sheets, face-down only.
- 5 types of consumables; 4 Toner Cartridges for each of CMYK and Photoconductor Unit. A CSIC chip is on each of them.
  The Photoconductor Unit incorporates a transfer belt and waste toner box

1.1.2 Controller features

- Host-based controller
  - CPU : VR4305 (66.7 MHz)
  - RAM: 32 MB as standard, can be expanded up to 256 MB
- Operation panel with LCD
- Three Built- in interfaces
  - Parallel interface (IEEE 1284 compliant, Supports ECP)
  - USB interface (Rev. 2.0 HS, Supports bi-directional (D4))
  - Network interface
    (standard or option)

1.1.3 Software features

- ESC/PageS03
- With the Flying-Start Printing System, color printing speed has improved.
- Supports Network interface board without replacing program DIMM in the main unit.

1.2 Basic Specifications

1.2.1 Process Specifications & System

- ☐ Printing method : Semiconductor laser beam scanning and dry electrophotographic process with two ingredients
- ☐ Light source : Semiconductor laser
- ☐ Photoconductor : Organic photoconductor
- ☐ Charging : Roller charging system
- ☐ Development : Two ingredients
  No contact developing system
- ☐ Toner : Made up of two nonmagnetic ingredients
- ☐ Primary transfer : Intermediate transfer belt method
- ☐ Fixing : Heat roller and fuser belt system

1.2.2 Printer Basic Specifications

RESOLUTION

600 dpi

WARMING UP TIME

- ■ 37 seconds or less: From turning the power on to ready-to-print status.
  (at 22°C, 55% RH, rated voltage, 32MB memory)
- ■ 30 seconds or less: From standby mode to ready-to-print status
  (at 22°C, 55% RH, rated voltage, 32MB memory)

PRINT MODE

- ☐ Color mode : Use four toners (CNYK) to print in full color
- ☐ Monochrome mode : Use only black toner (K) and the highest print speed is available.

PRINTING SPEED MODE

- ☐ Color mode (F/C)
  - ■ Standard mode : Feed (print) papers at the maximum speed of the color mode.
  - ■ Low speed mode 1 : Feed paper at low speed to maintain fixation when printing on thick paper over 28 lb (105g/m^2) (including envelopes/labels).
  - ■ Low speed mode 2 : Feed paper at low speed to maintain fixation when printing on transparencies.
- ☐ Monochrome mode (B/W)
  - ■ Standard mode : Feed paper (print) at the maximum speed of the printer.
  - ■ Low speed mode : Feed paper at low speed to maintain fixation when printing on thick paper over 43 lb (163 g/m^2) (including transparencies/envelopes).

PRINTING MODE BY PAPER TYPE

Table 1-1. Printing mode by paper type

Paper type		Printing speed mode	
		F/C	B/W
Plain paper	64 to 80g/m^2 (RX-80/4024)	Standard	Standard
Plain paper (Back)	For reverse side of paper when feeding manually to print on both sides.	Standard	Standard
Semi-thick paper	81 to 105g/m^2 (EPSON High quality Plain paper)	Standard	Standard
Semi-thick paper (Back)	For reverse side of paper when feeding manually to print on both sides.	Standard	Standard
Thick paper	106 to 163g/m^2	Low speed mode 1	Standard
Thick paper (Back)	For reverse side of paper when feeding manually to print on both sides.	Low speed mode 1	Standard
Extra thick paper	164 to 210g/m^2	Low speed mode 1	Low speed mode
Extra thick paper (Back)	For reverse side of paper when feeding manually to print on both sides.	Low speed mode 1	Low speed mode
Transparencies	Transparencies (Color, Monochrome)	Low speed mode 2	Low speed mode
Labels	Labels	Low speed mode 1	Standard
Envelopes	Envelopes for each country (75 to 105g/m^2)	Low speed mode 1	Low speed mode
Coated paper	105 to 210g/m^2	Low speed mode 1	Low speed mode
Coated paper (Back)	For reverse side of paper when feeding manually to print on both sides.	Low speed mode 1	Low speed mode

FIRST PRINT TIME

The time from receiving the Start command to when trailing edge of the paper leaves the paper eject roller. Note that the time given in the tables below does not apply when the printer is in the conditions described in "1.11 Engine Restrictions" *(p42)*.

Table 1-2. Color mode (Unit: seconds or less)

Paper size	Simplex printing					Duplex printing
	Standard	Low speed 1			Low speed 2	Standard
		Thick paper / Extra Thk	Label / Coated paper	Envelope / Postcard		
A4	17	27	24	27	28	29
LTR	17	27	24	27	28	29

Table 1-3. Monochrome mode (Unit: seconds or less)

Paper size	Simplex printing		Duplex printing
	Standard	Low speed	Standard
A4	9	17	17
LTR	9	17	17

CONTINUOUS PRINTING SPEED

Note that the time given in the tables below does not apply when the printer is in the conditions described in "1.11 Engine Restrictions" *(p42)*.

☐ Monochrome mode*1

Table 1-4. List of continuous printing speed (Unit: ppm)

Paper size	Simplex printing		Duplex printing
	Standard	Low speed	Standard
A4, A5, B5, LT, GLT, EXE, HLT	25.0	4.0	17.5
Envelope	---	4.0	---
User defined paper size (Length) 297.00mm or less	25.0	4.0	---

Note *1: For details on the paper orientation, see " Supported paper size, type and orientation" *(p25)*

☐ Color mode*1

Table 1-5. List of continuous printing speed (Unit: ppm)

Paper size	Simplex printing			Duplex printing
	Standard	Low speed 1	Low speed 2	Standard
A4, A5, B5, LT, GLT, EXE, HLT	5.0	2.3	1.9	5.0
Envelope	---	2.3	---	---
User defined paper size (Length) 297.00mm or less	5.0	2.3	1.9	---

Note *1: For details on the paper orientation, see " Supported paper size, type and orientation" *(p25)*.

PAPER FEED REFERENCE

Reference position to feed paper (in any size) is always center of the feeders.

PAPER FEED

Table 1-6. Paper feed

Feeder		Capacity (sheets, or height of piled sheets)	Paper type/Paper size	Available paper basis weight
Standard	MP tray	180 sheets	Standard paper: EPSON COLOR LASER paper	82 g/m^2
		180 sheets	RX-80 4024(20lb)	80 g/m^2 75 g/m^2
		20 mm	Plain paper/recycled paper: A4, A5, B5, LT, GLT, HLT Executive	64 to 80 g/m^2
		75 sheets	Transparencies: A4, Letter	---
		75 sheets	Labels: A4, Letter	---
		20 mm	Semi Thick paper	81 to 105 g/m^2
		20 mm	Coated paper	105 to 210 g/m^2
		20 mm	Thick paper: A4, A5, B5, LT, GLT, HLT, Executive	106 to 163 g/m^2 164 to 210 g/m^2
		20 sheets	Envelopes C5, C6, Com-#10, DL, Monarch, ISO-B5	75 to 105 g/m^2
		20 mm	User defined size: Width : 90 to 216 mm Length : 139.7 to 297 mm	64 to 210 g/m^2
Option	500-sheet cassette (C1)	500 sheets	A4, Letter	64 to 105 g/m^2
	Duplex unit	---	A4, LTR, B5, Executive	64 to 105 g/m^2

Note *1: Refer to "1.3 Paper Specifications" *(p30)*.

*2: Environmental condition for the capacity: 22 ºC/55% RH.

COMBINATION WITH OPTIONAL CASSETTE

By attaching the optional 500-sheet cassette, the paper supply capacity can be increased as follows.

Table 1-7. Combination with optional cassette

Combination			Total Capacity
Standard	MP tray	180 sheets	680 sheets
Option	500-sheet cassette	500 sheets	

Note : Standard paper: with EPSON high quality plain paper (82 g/m^2)

SUPPORTED PAPER SIZE, TYPE AND ORIENTATION

Table 1-8. List of supported paper size, type and orientation

Paper			Paper size Dimensions in mm (inches)		MP tray	500-sheet cassette	Paper orientation	Duplex printing
			Vertical (length)	Horizontal (width)				
Standard	A4		297.00	210.00	○	○	SEF	●
	A5		148.00	210.00	○	---	SEF	---
	B5		257.00	182.00	○	---	SEF	●
	LETTER		279.40 (11.00")	215.90 (8.50")	○	○	SEF	●
	HALF LETTER		215.90 (8.50")	139.70 (5.50")	○*1	---	SEF	---
	GLT		266.70 (10.50")	203.20 (8.00")	○*1	---	SEF	---
	EXECUTIVE		266.70 (10.50")	184.15 (7.25")	○	---	SEF	●
	User defined paper size		139.70 to 297.00	90.00 to 216.00	○	---	Discretionary	---
Special paper	Transparency		A4 : 297.00	A4 : 210.00	○	---	SEF	---
			LT : 279.40	LT : 215.90	○	---	SEF	---
	Labels		A4 : 297.00	A4 : 210.00	○	---	SEF	---
			LT : 279.40	LT : 215.90	○	---	SEF	---
	Envelopes*2	MONARCH*3	98.43 (3 7/8)	190.5 (7 1/2)	○	---	SEF	---
		Com-#10	241.30 (9 1/2)	104.78 (4 1/8)	○	---	SEF	---
		DL	110.00	220.00	○	---	SEF	---
		C5	229.00	162.00	○	---	SEF	---
		C6	114.00	162.00	○	---	SEF	---
		ISO-B5	250.00	176.00	○	---	SEF	---

Note *1 : Paper supported only by controller firmware (handled as user defined size by the video I/F)

*2 : For the orientation of envelopes, refer to "Envelope orientation" (p.26).

*3 : Be sure to set it with its flap opening, but if the flap width is 110mm or less, the envelope cannot be fed.

○ : Feeding is possible by specifying the size with the operation panel as the printer has no auto-detection function.

● : Duplex printing is available.

--- : Not available

SEF (Short Edge Feed) : Set paper to be loaded from its short side.

LEF (Long Edge Feed) : Set paper to be loaded from its long side.

☐ Envelope orientation

Paper feed direction				
Envelope type	Com-10	DL / C6[*1]	MONARCH[*2]	C5 / ISO-B5

NOTE 1: Set envelopes with its print surface facing up

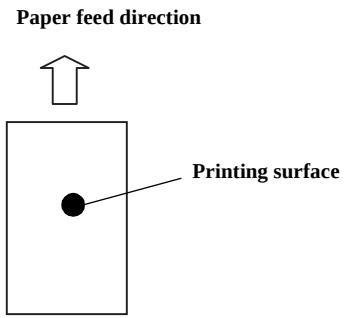
2: Image quality and feed is not guaranteed when printing on the back side (flap side) of envelopes.

Note *1: Envelopes with adhesive or tape are not available.

*2: Be sure to set it with its flap opening, but the flap width is 110mm or less, the enbelope cannot be fed.

☐ The printing surface set direction

■ Set paper with printing surface facing up
(Both MP tray and 500-sheet cassette)



PAPER EJECT CAPACITY

250 sheets, Face down only

NOTE: *Conditions of the capacity: 22 ºC/55% RH, standard paper (simplex/duplex printing).*
The print ratio is 5% for both B/W and color printing (With color printing, 5% for each color)

DIMENSIONS AND WEIGHT

☐ Dimensions and weight of each unit

Table 1-9. Dimensions and weight

	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
Main unit	445	445	439	25
500-sheet cassette unit	440	446	130	8
Duplex unit	435	210	470	4

NOTE 1: Manufacturing tolerance is ± 5 mm in dimensions and ± 0.5 kg in weight.

2: Consumables are not included in the main unit weight (including controller).

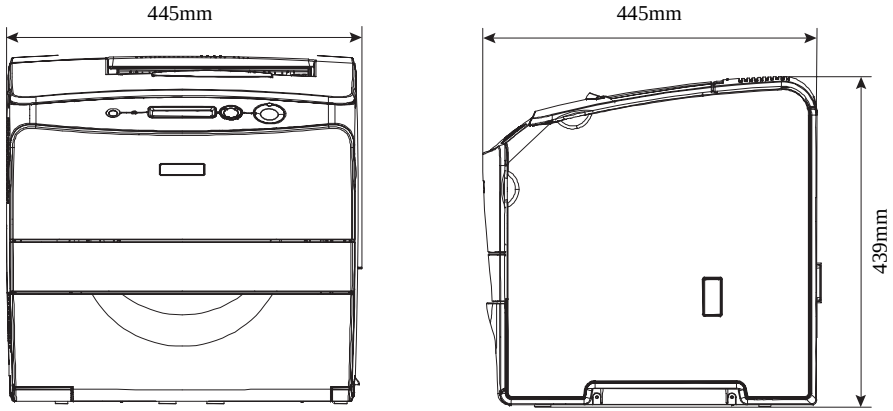


Figure 1-1. Dimensions (Main Unit)

☐ Dimensions and weight with options installed

Table 1-10. Dimensions and weights with options installed

	Width (mm)	Depth (mm)	Height (mm)	Weight (k)
Main unit + 500-sheet cassette unit	445	460	570	33
Main unit + Duplex unit	445	510	473	29
Main unit + 500-sheet cassette unit + Duplex unit	445	510	604	37

NOTE 1: Manufacturing tolerance is ± 5 mm in dimensions and ± 0.5 kg in weight.

2: Consumables are not included in the main unit weight (including controller).

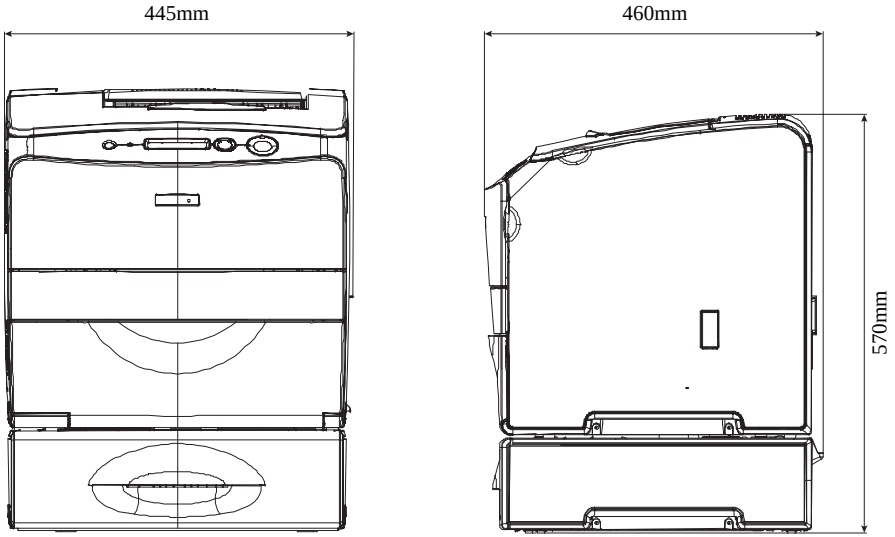


Figure 1-2. Dimensions (Including Options) - 1

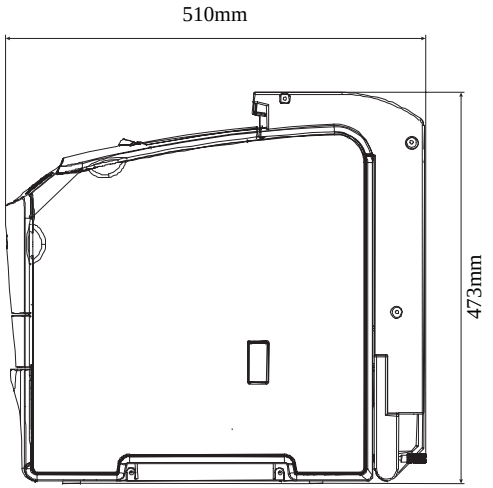


Figure 1-3. Dimensions (Including Options) - 2

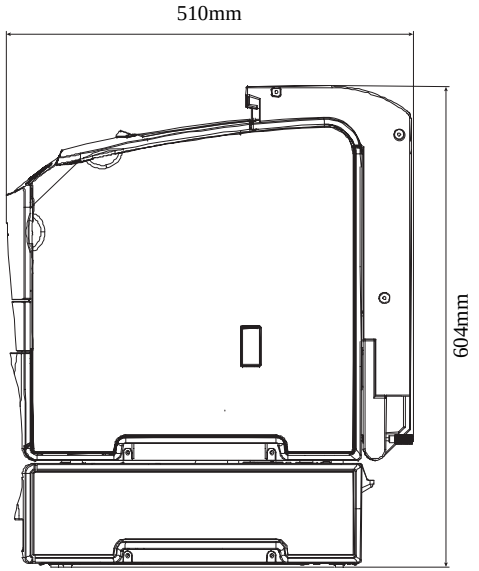


Figure 1-4. Dimensions (Including Options) - 3

CONSUMABLES AND PERIODIC REPLACEMENT UNIT

Table 1-11. List of Consumables and periodic replacement unit

Classification	Replacement unit
Consumables	Toner Cartridge (Black, Cyan, Yellow, Magenta)
	Photoconductor Unit (with waste toner box and transfer belt)
Periodic replacement units	FUSER ASSY
	HOUSING ASSY-DEVE (Deverloper)
	2ND BTR ASSY

NOTE: *For detailed specifications, refer to "1.9 Consumables/Periodic replacement unit" (p38).*

POWER SUPPLY

- ☐ Power supply operating voltage/frequency
  - ■ AC 120 V ± 10% 50 Hz /60 Hz ± 3 Hz
  - ■ AC 220 V/240 V ± 10% 50 Hz /60 Hz ± 3 Hz
- ☐ Power supply for the controller
  - ■ DC 5.0 V± 5%, 1A or less
  - ■ DC 3.3 V± 5%, 3 A or less

POWER CONSUMPTION

The maximum rated current and power consumption are measured with all engine options and controller options installed.

Table 1-12. List of power consumption

			110 V	220 V
Maximum rated current			7.0A	4.0A
Power consumption	Maximum		693W	782W
	Continuous printing average	Color	177W	176W
		Monochrome	263W	257W
	Average during standby with the heater on		63W	61W
	Average in low power mode with the heater off		14W	16W
	Power supply off		0W	0W

CONSUMPTION CURRENT

- ☐ 500-sheet cassette (option)
  - ■ 5 V/ 0.1A or less
  - ■ 24 V/ 0.5A or less
- ☐ Duplex (option)
  - ■ 5 V/ 0.1A or less
  - ■ 24 V/ 0.3A or less

NOISE

- Sound pressure

Table 1-13. Sound pressure

	Printing mode	Standby mode	Sleep mode
Main unit	53dB	Background noise	Background noise

NOTE 1: The method of measuring and calculation conforms to ISO-7779.

2: Values mentioned above are actual measurement value.

- Sound power

Table 1-14. Sound power

	Printing mode	Standby mode	Sleep mode
Main unit	6.4B	Background noise	Background noise

NOTE 1: The method of measuring and calculation conforms to ISO-7779.

2: Values mentioned above are actual measurement value.

EXHAUST GAS

- Ozone density : 0.02 mg/m^3 or less (the measuring method conforms to BAM)
- Styrene density : 0.02 mg/m^3 or less
- Dust density : 0.075mg/m^3 or less (the measuring method conforms to BAM)
- TVOC : 0.2 mg/m^3 or less

1.3 Paper Specifications

1.3.1 Paper Type

- ☐ Standard paper
  - ■ Monochrome: RX-80 paper (monochrome), 4024 paper (20 lb)
  - ■ Color: EPSON Color Laser Paper
- ☐ Plain paper
  - ■ 64 g/m^2 to 105 g/m^2 (Commonly used copy paper, recycled paper, high quality plain paper)
  - ■ Recommended recycled paper: Steinbeis Recycling Copy classic
- ☐ Special Media
  - ■ EPSON transparency sheets (A4)
  - ■ Labels
  - ■ Thick paper (106 g/m^2 to 210 g/m^2)
  - ■ Envelope
  - ■ EPSON COATED PAPER

CHECK POINT

- ■ **lb : Ream weight = Total weigh of 500 sheets of 17" x 22" sized paper**
- ■ **g/m^2 : 1g/m^2 = 0.2659763lb**
- ■ **Before purchasing a large amount of paper, test the paper if it can be printed normally.**

1.3.2 Paper that may cause printing defects, paper jams or printer malfunction

- ☐ Transfer paper (carbon paper, non-carbon paper), thermal paper, impact paper, acid paper
- ☐ Paper that is too thin or too thick
- ☐ Paper that is wet or damp
- ☐ Paper with special coatings or color printer paper with processed surfaces
- ☐ Glossy (too slick) paper, or paper with too rough surface
- ☐ Paper that the roughness is significantly different by side
- ☐ Paper with punch holes or perforations
- ☐ Creased, curled or torn paper
- ☐ Irregularly shaped paper or paper with non-perpendicular corners
- ☐ Labels that peel off easily
- ☐ Paper with glue, staples or paper clips attached to it
- ☐ Special paper for ink jet applications (super-fine, glossy, glossy film, etc.)
- ☐ Paper previously used in a thermal or ink jet printer
- ☐ Transparencies for other color laser printers or color photocopiers
- ☐ Paper that has been already printed by other color/monochrome laser printers or photocopiers
- ☐ Sheets of paper stuck together
- ☐ Postcards for ink jet printers, unofficial postcards, and adhesive postcards
- ☐ Iron print coated paper (for both ink jet and laser printers)
- ☐ Paper that is deteriorated or discolored, due to temperatures lower than 180 ºC.
- ☐ When postcards with illustrations are used, the paper feed roller may be soiled with paper dust, and these postcards may not be fed properly. In this case, cleaning is required in accordance with **" MAINTENANCE" *(p.491)***

1.3.3 Available Paper by Feeder

Table 1-15. Types of Paper Feed

Feeder		Standard paper	Plain paper	Special paper				
				Trans-parency	Labels	Thick paper	Enve-lopes	Coated paper
Standard	MP tray	○	◆	◆	◆	◆	◆	◆
Option	Duplex unit	○	◆	X	X	X	X	X
Option	500-sheet cassette unit	○	◆	X	X	X	X	X

Note :

○ : Paper feed and image quality is guaranteed.

◆ : Paper feed and printing is possible. However, this is limited to types of paper for general applications. Image quality is not guaranteed.

X : Feed is not possible.

1.3.4 Printing Area

MAXIMUM PRINTABLE AREA

☐ Width: 216.00 mm x Length: 297.00 mm

NOTE: *Continuous printing beyond the guaranteed printing area (border 4mm) causes soiling inside the mechanism.*

GUARANTEED PRINTING AREA

The guaranteed printing area is shown below. The minimum left, right, top and bottom margins are 4 mm for any type of paper.

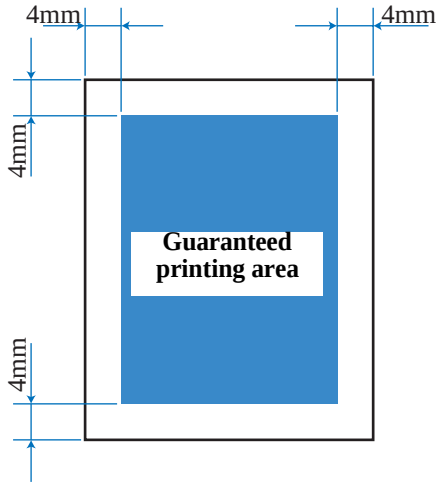


Figure 1-5. Guaranteed printing area

1.4 Reliability and Serviceability

1.4.1 Reliability

MECHANICAL LIFETIME

- ☐ Main unit:
  - ■ Color:Monochrome = 2:1 : 200, 000 pages or 5 years, whichever comes first.
  - ■ Color only : 150, 000 pages or 5 years, whichever comes first.
  - ■ Monochrome only : 200, 000 pages or 5 years, whichever comes first.
- ☐ 500-sheet cassette : 200, 000 pages or 5 years, whichever comes first.
- ☐ Duplex unit : 200, 000 pages or 5 years, whichever comes first.

MPBF

- ☐ Main unit: 50, 000 pages

NOTE: *MIBF: 150, 000 images*
Number of images : 4 colors (Y, M, C, K) in color mode for 1 page, so 4 images/page.
Calculated as Color : Monochrome = 2 : 1.
Monochrome : (50, 000 × 1/3) = 16, 700 pages
Color : (50, 000 × 2/3 × 4 colors) = 133, 200 pages
MIBF : 16,700 + 133,200 = 149,900 images (approx. 150,000 images)

PAPER FEED RELIABILITY

Table 1-16. Paper feed reliability

Reliability issue		Standard paper		Plain paper		Special paper	
		MP tray	500-sheet cassette	MP tray	500-sheet cassette	MP tray	500-sheet cassette
Jam rate	Simplex	1/3, 000	1/5, 000	1/2, 000	1/3, 000	1/100	---
	Duplex	1/1, 800	1/3, 000	1/2, 000	1/1, 800	---	---
Multiple-sheet feed rate		1/1, 500	1/2, 500	1/1, 000	1/1, 500	1/50	---

NOTE 1: Environmental conditions: Normal operating environment

2: Paper size: Regular size

3: Humidity: Newly unpackaged paper

4: Paper type: The 500-sheet cassette does not use special paper

5: Multiple-sheet feed rate: Conditions when adding new paper onto remaining paper in the tray or cassette are not considered.

PRINTING START POSITION ACCURACY

Table 1-17. Printing start position accuracy

	Simplex printing	Duplex printing
Main scanning direction Reference point (c)	±2.0mm	±2.0mm
Sub-scanning direction Reference point (a)	±2.5mm	±2.5mm

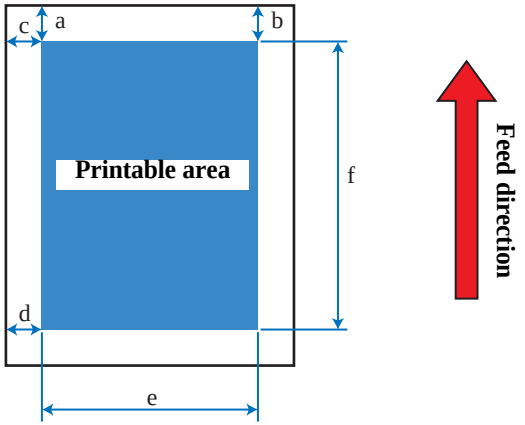


Figure 1-6. Printing start position accuracy

SKEW

Table 1-18. Skew

A4	Simplex printing	Duplex printing
Main scanning direction (| a-b |)	1.1mm	1.1mm
Sub-scanning direction (| c-d |)	1.0mm	1.0mm

Table 1-19. Length standard of measurement

		A4
Simplex printing Duplex printing	Main scanning direction (e)	179.8 mm
	Sub-scanning direction (f)	139.9 mm

HEIGHT OF CURL OF OUTPUT PAPER

Table 1-20. Height of curl of output paper

Paper type	Curl height
Standard paper, Plain paper	15 mm or less
Other special papers	No regulation

NOTE 1: The same for simplex and duplex printing

1.4.2 Durability

PRINT VOLUME (PAGES/MONTH)

- ☐ Average : 3, 000 pages/month
- ☐ Maximum : 30, 000 pages/month

1.4.3 Serviceability

MEAN TIME TO REPAIR

- ☐ MTTR : Within 30 minutes (average).
  (The MTTR value indicated above represents the time for service personnel to locate and correct the malfunction only, and the time for examining malfunction is not included.)

1.5 Service Conditions

1.5.1 Ambient Temperature and Humidity

Table 1-21.

	Temperature (°C)	Humidity (%RH)	Other
Operating	5 to 32	15 to 85	No condensation
Non-operating	-20 to 40	5 to 85	

1.5.2 Air Pressure (Altitude)

65 to 101kPa (0 to 3, 100m or less)

1.5.3 Levelness

Difference between front and back: 5mm or less (at 445mm)
Difference between left and right: 10mm or less (at 445mm)

1.5.4 Illumination

3, 000 lx or less (do not expose to direct sunlight)

1.5.5 Space Requirements

In order to ensure that the printer operates properly, provide at least as much space as shown in the diagram below.

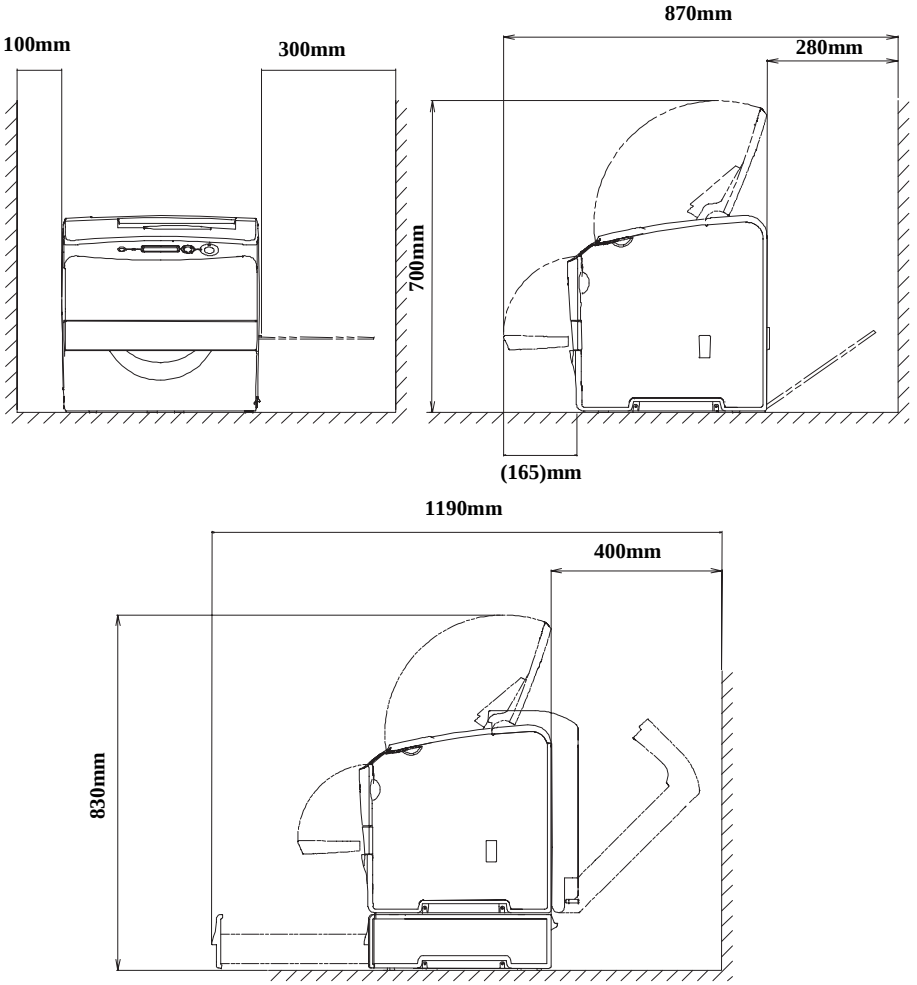


Figure 1-7. Space Requirements

1.6 Conditions for Storage and Transport

1.6.1 Ambient Temperature and Humidity

Table 1-22.

Condition	Temperature (°C)		Humidity*1 (%RH)		Guarantee period
Normal conditions	0 to 35		15 to 80		12 months after manufacture
Harsh conditions	High	35 to 40	High	80 to 95	Max. 48 hours
	Low	-20 to 0	Low	5 to 15	

Note *1: Non-condensing

1.6.2 Storage Altitude

0 to 3, 100 m or less
For air transport, 0 to 15, 000 m. However, this assumes that the cargo compartment is maintained at 70.9275 kPa or higher.

1.6.3 Dropping

There should be no damage on 1 corner, 3 edges, and 6 sides of the packages under the conditions below.

Table 1-23.

		Drop
Standard	Main unit	610mm
Option	500-sheet cassette unit	760mm
	Duplex unit	910mm

1.6.4 Vibration

There should be no damage under the following conditions

- ☐ Frequency : 5 to 55 Hz
- ☐ Acceleration : 1.5 G
  However, between 5 to 10 Hz, constant 7.5 mm double amplitude is assumed.
- ☐ Frequency sweep : Logarithmic sweep 10 minutes for one-way
- ☐ Direction of application : X, Y, Z directions
- ☐ Number of cycles : 3 cycles for each of XYZ directions (each 1 hour)

1.7 Electrical Characteristics

NOTE: *The following sections do not include any optional units.*

1.7.1 Electrical Fast Transient /Bursts (AC Line Noise)

Ensure the following conditions using evaluation methods compliant with IEC61000-4-4.

- ☐ 1 kV : No errors excluding insignificant dot errors
- ☐ 2 kV : No damage to parts

1.7.2 Instantaneous Outages

No effect on printing quality.

- ☐ DIP : 1 cycle 100% (at -10% of rated current)

1.7.3 Resistance to Static Electricity

Ensure the following conditions using evaluation methods compliant with IEC61000-4-2 CISPR 24.

- ☐ Contact electric discharge 5 kV
  : No error on any device after applying
- ☐ Aerial electric discharge 10 kV
  : No error on any device after applying

1.7.4 Inrush Current

- ☐ 1/2 cycle
  100 A or less (0-peak) : Including heater inrush
  (Conditions: Above 23 ºC with cold start)

1.7.5 Insulation Resistance

- ☐ 10 MΩ or more

1.7.6 Withstand Voltage

There should be no break down during application of the voltages shown below. Leak current should be 20mA or less when applying the voltage for one minute.

Table 1-24. Withstand Voltage

	Between inlet and non-charged metal parts	Between primary and secondary power transformers.
120V	AC 1000 V	AC 1500 V
200V series	AC 2000V	AC 3000V

1.7.7 Leak Current

- ☐ 120 V : 3.5mA or less
- ☐ 220 V series : 3.5mA or less

1.8 Compatible Specification

1.8.1 Safety Standard

Table 1-25. Safety Standards

Model Type	Applicable Standards
120 V	UL60950 3rd Edition CSA C22.2 No.60950-00
230 V	Compliant with IEC60950 3rd

1.8.2 Safety Standard (Laser Transmission)

Table 1-26. Safety Standards (Laser Transmission)

Model Type	Applicable Standards
120V	FDA21CFR Chapter 1, Subchapter J, Section 1010, 1040
200 V series	IEC60825 Class 1 Laser Product CE Directive Nordic Agency Approvals

NOTE: *<Reference> Laser specifications*
Wavelength (shortest to longest) : 770 to 790nm
Maximum average radiant power : 5mW

1.8.3 EMI Standards

Table 1-27. EMI Standards

Model Type	Applicable Standards
120 V	FCC Part 15 Subpart B, Class B (ANSI C63.4/11.4D)
230 V	EN55022 (CIRSPR Publication22), Class B EN61000-3-2 (Harmonics) Class A EN61000-3-3 (Flicker)

1.8.4 Power Supply Harmonics

JBMIA harmonics control guidelines

1.8.5 Power Consumption

Conforms to International Energy Star Program standards

1.8.6 Miscellaneous

- ☐ Toner : Have no affect on the human body (conforms to OSHA, TSCA, EINECS)
- ☐ OPC : Have no affect on the human body (conforms to OSHA)
- ☐ Ozone generation : Conforms to UL478 5th edition
- ☐ Materials : Does not contain any materials prohibited in each country, nor harmful substances above the permitted values

1.9 Consumables/Periodic replacement unit

CAUTION

The print page-based service life values of the Consumables and Periodical Replacement Parts are guidelines. The number of printable pages changes depending on how they are printed. The number of printable pages decreases depending on the intermittent printing (where a few pages, one to several pages, are printed each time), paper size, paper orientation, thick paper printing, printed document, frequent power-on/off, etc. Hence, the number of printable pages of the consumables and periodical replacement parts may become less than a half depending on the operating conditions and environment of the user.

1.9.1 Specifications

Table 1-28. Consumables/Periodic replacement unit

Name	Configuration	Lifetime (pages)	External dimensions (mm)	Weight (kg)
Toner Cartridge (C, M, Y, K)	Toner hopper	1, 500*1	52.7 (W) 285.6 (D) 58.4 (H)	0.2
		4, 000*1		0.27
Photoconductor Unit	Transfer belt Photoconductor Waste toner box	14, 000*2 Monochrome: 42,000 Color: 10,500	310 (W) 280 (D) 110 (H)	2.8
FUSSER ASSY	Heat roller	100, 000	330 (W) 110 (D) 105 (H)	1.3
HOUSING ASSY-DEVE	Development roller	K:100,000*3 Y/M/C:66,700*3	315 (W) 75 (D) 85 (H)	0.7
2ND BTR ASSY	Transfer roller	100, 000	315 (W) 35 (D) 15 (H)	0.2

Note *1: Approximate number of printed pages using A4 continuous printing at 5% image occupation rate.
The cartridge lifetime varies according to the paper size and type of printing (toner save mode etc.)

*2: Monochrome : Color = 1:2, Print ratio is 5% (A4)
The lifetime depends on printing method and the frequency of switching the power.

*3: Monochrome : Color = 1:2

1.9.2 Conditions for Storage and Transport

☐ Temperature and humidity conditions

Condition	Temperature (°C)		Humidity*1 (%RH)		Guarantee period
Normal conditions	0 to 35		15 to 80		24 months (unopened)
Harsh conditions	High	35 to 40	High	80 to 95	Max. of 1 month
	Low	-20 to 0	Low	5 to 15	

Note *1: Non-condensing

Note : Storage time after opening is 12 months in the normal operating environment.

☐ Storage altitude
65 to 101 kPa (0 to 3, 100 m)
For air transport, 0 to 15, 000 m. However, this assumes that the cargo compartment is maintained at 70.9275 kPa or higher.

☐ Package dropping
There should be no damage on 1 corner, 3 edges, and 6 sides of the packages under the conditions below.

Table 1-29. Package dropping

Package name	Drop
Toner Cartridge (1, 500 / 4, 000)	910 mm
Photoconductor Unit	910 mm
FUSSER ASSY	910 mm
HOUSING ASSY-DEVE	910 mm
2ND BTR ASSY	910 mm

1.10 External Appearance and Unit Names

1.10.1 Unit names

Table 1-30. List of unit names

No.	Name	No.	Name	No.	Name	No.	Name
1	Cover B	8	MP tray	15	Cleaner cover	23	Cover DM (Duplex unit)
2	Control Panel	9	Toner Cartridge	16	Parallel interface connector	24	The screws for a duplex unit (2 place)
3	Lever for opening-and-closing shutter	10	Photoconductor Unit	17	GND screw	25	Cover H (500 sheet unit)
4	Cover A	11	Release lever for the photoconductor Unit	18	Network interface connector	26	Release lever for the duplex unit
5	MP tray cover	12	Cover C	19	USB interface connector	27	500-Sheet Cassette
6	Option cover	13	Cover E	20	AC Inlet		
7	Power switch	14	Cover F	22	Cover connector (The connector for duplex unit)		

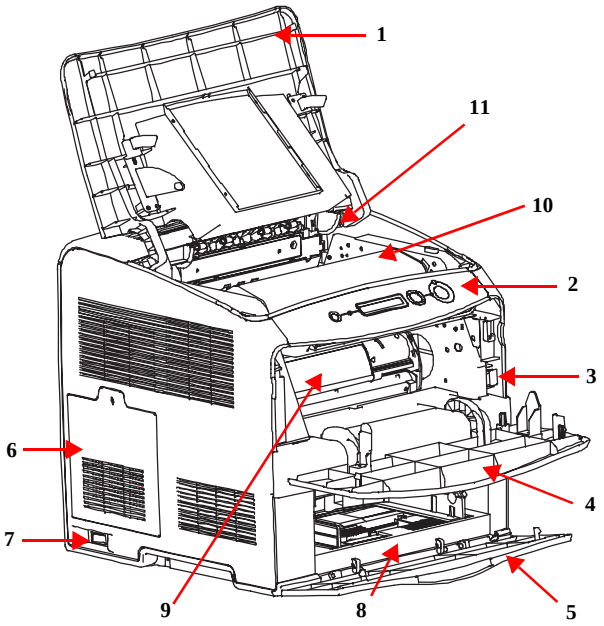


Figure 1-8. Unit name_1

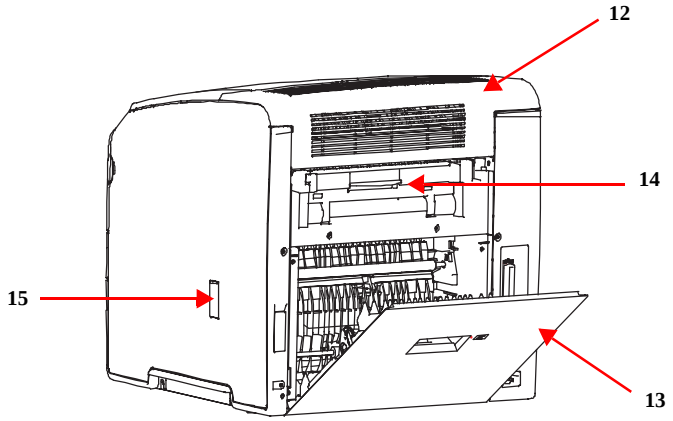


Figure 1-9. Unit name_2

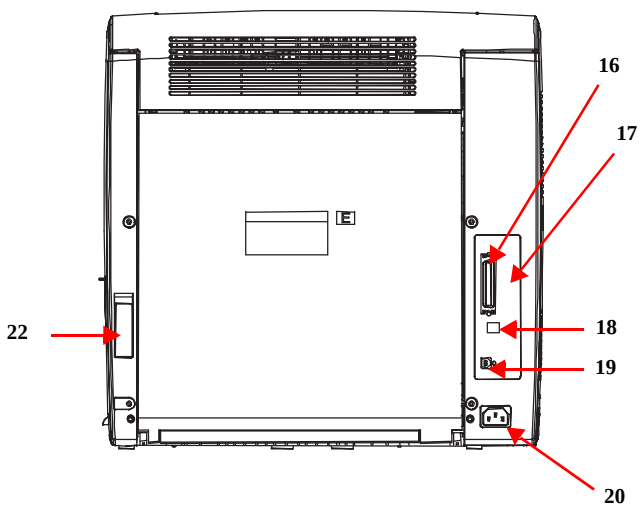


Figure 1-10. Unit name_3

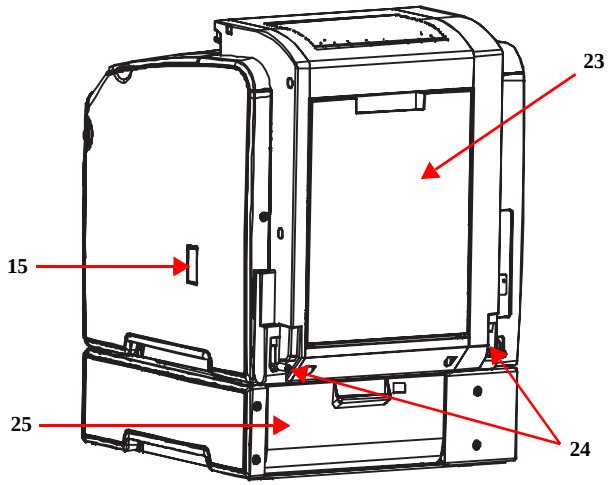


Figure 1-12. Unit name_5

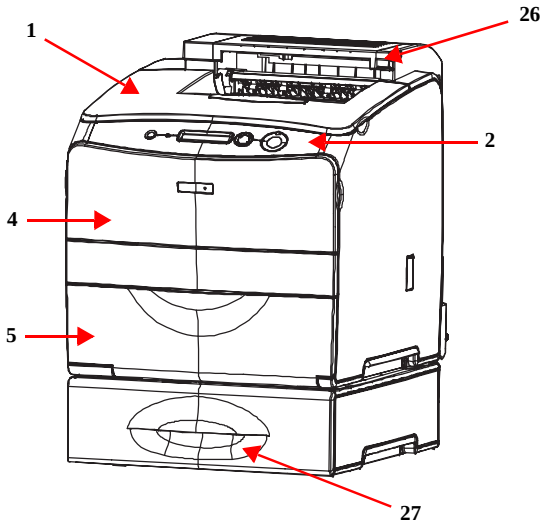


Figure 1-11. Unit name_4

1.11 Engine Restrictions

FACTORS LIMITING PRINTING SPEED

☐ Image quality adjustment

Table 1-31. Iamge quality adjustment

		Purpose	Condition and control	Time required (sec.)
1	During Printing	To keep the image density at target level.	1. When printing more than 51 copies (pages) continuously[*1]: Every time the printer makes 50 copies (pages), it stops the job temporarily to perform the ADC[*2] control. 2. If the printer detect a near-end of Toner Cartridge, it changes the timing of the ADC control to every 25 copies (pages).	45
2	Admix[*5] (Toner Cartridge -> Developer)	• To prevent making a density difference between input data and output image. • To prevent toner from being stirred unequally. • To supply toner when printing an image with high print ratio.	When the printer comes into the following conditions, it stops the job temporarily at the timing given for each condition to perform the ADC control. 1. A/C[*3] = 100% : Every 4 copies (pages) 2. Average of 65%<_A/C < 100% : Every 5 to 20 copies (pages) 3. Average of A/C < 65% : Every 21 or more copies (pages)	15/Color
3	Collection (Developer -> Toner Cartridge (collection space))	To prevent excessive amount of toner in the black developer when printing in black and white continuously.	After printing in black and white continuously, the printer rotates the rotary if it detects that the toner dispense time during the job is equivalent to 30 pages.	12[*4]

Note *1: Condition to print 50 copies (pages) continuously: l
The average of the print ratio should be 60% or less for each color.

*2: ADC = Automatic Density Control:
A control to ensure stable print density

*3: A/C = Area coverage :
Print ratio of each color

*4: 3 seconds × 4 colors

*5: The printer sometimes perform the ADC control more than once.
In such case, the time required will be "Time for once times Number of executions".

☐ Cooling down
This is performed to prevent the edges of the heat roll from rising in temperature when small-sized paper is used. If the temperature difference between the edges and the center of the heat roll reach a certain level, the printer stops the current job to perform the cooling down operation.

- Av. : 60sec /Max. app.110sec

FACTORS LIMITING PRINTING START

Table 1-32. Factors limiting printing start

		Purpose	Condition and control	Time required (sec)
1	Cycle Down	To keep the image density at target level.	When the number of printed copies (pages) becomes 20 (by both continuous or intermittent printing) after performing the ADC, the printer performs another ADC when the current job is finished.	45
2	Cycle Up	To correct the toner density	1. The printer performs the ADC if the SENSOR HUM & TEMP detects that the temperature and humidity in the printer are following conditions at power-on or when returning from the low-power mode. ■ 20°C/85% to 32°C/42% or more 2. The SENSOR HUM & TEMP detects the temperature and humidity in the printer at power-on. The detected condition is compared to the condition detected at the previous power-off, and if the difference is as shown below, the printer performs the ADC. ■ Temperature : 4 degrees, Humidity : 10%RH	45*1
3	Photoconductor Unit	Parameter control according to the piece-to-piece variations of Photoconductor.	The printer performs the ADC when replacing the Photoconductor unit with a new one or used one.	74*2
4	New Toner Cartridge	Filling toner -> Recovering from an Empty error	The printer performs the ADC when replacing the Toner Cartridge with a new one. (Not performed when replacing with a used one.)	20 to 85 sec/color
5	Prevention of color toner concentration	To prevent the color toner from concentrating to the left side in the developer, which may cause partly (right side on the paper) missed printouts, after printing in black and white continuously. (By the rotary rotation for the black and white printing continuously, color toner, which is not currently used, is moved along the spiral of the Auger (The Auger of the developer for colors do not rotate during black and white printing). With the color toner concentrated to the left side, color printing may result in missing the right side image.)	1. When the printer have finished five B/W print jobs in a row, it rotates the Augers of the three developers (C, M and Y) switching the rotary position to let the color toner in the developers spread evenly. 2. When the printer is turned on for the first time after purchase, it does the same operation as described above so that the toner spread evenly in the developers.	15 sec/color

Note *1: When the operation performed during the warm-up, the warm-up time becomes 74 seconds.

*2: The warm-up time is included.
(After the cover is opened and closed, the normal warm-up operation is executed.)

TONER DUTY LIMITING VALUE

240% (to prevent FUSER ASSY from twisting paper jam)

NOTE: *If it exceeds 240%, the engine (Mechanical Controller) forces a hard stop.*

1.12 Notes When Replacing Consumables and Installing Optional Products

1.12.1 Consumables

- ☐ Toner Cartridge
  The power supply of the main unit should be on.
  If the main unit is turned off, the cartridge that needs to be replaced does not move to the cartridge replacement position.
- ☐ Photoconductor Unit
  This unit can be replaced regardless of whether or not the main unit is turned on.

1.12.2 Optional Products

- ☐ 500-Sheet Cassette
  Turn off the main unit before installing.
  If the main unit is on when the cassette is installed, it is not detected.
- ☐ Duplex Unit
  - ■ Turn off the main unit before installing.
    If the main unit is on when the unit is installed, it is not detected.
  - ■ Remove the following cover before installing. (keep the removed cover)
    - Cover C
    - Cover E
    - Connector cover
- ☐ Adding Controller Option Parts
  Turn off the main unit before installing. The part will be damaged if the power is on.

1.13 Life details

☐ Monochrome mode

Table 1-33. Monochrome mode

Unit	Catalog specification value	Area Coverage	Printing speed mode	LIFE (unit: pages)		
				Continuous printing	4p/J	1p/J
Photoconductor Unit*1	Monochrome Continuation 42,000page 14,000page 2p/J B:C=1:2	5%	Standard	42,000	39,400	20,900
			Low speed	12,500	11,500	9,200
		10%	Standard	42,000	38,500	20,500
			Low speed	12,500	11,500	9,200
		20%	Standard	31,000	31,000	20,000
			Low speed	12,400	11,500	9,100
Toner Cartridge	4,000	5%	---	4,000	4,000	4,000
	1,500	5%	---	1,500	1,500	1,500
FUSER ASSY*2	100,000	---	Standard	100,000	100,000 (TBD)	(TBD)
HOUSING ASSY-DEVE K	100,000	---	---	100,000	100,000	100,000
2ND BTR ASSY	100,000	---	---	100,000	100,000	100,000

Note : B:Monochrome C:Color

Note *1: 1. The life of a Photoconductor Unit may not reach the above numerical value according to an operating condition.
It becomes a life end by full of the waste toner. (Because waste toner box is included in a unit.)
The following are main factors to decrease the life.
- When area coverage exceeds about 10%
- When the power has been switched frequently
- Printing on special paper (Thick paper, Envelope, Transparencies)

2. The calculation for the life of Photoconductor is based on the following conditions.
- Power-source ON/OFF is not considered.
- Calibration: 1 time /20pages
- Jam recovery operation at the time of Jam is included.

*2: The life may become below half if the user print on envelopes or thick paper frequently.
(Excessive pressure is applied to a heat roll and wrinkles papers on the roll.)

☐ Color mode

Table 1-34. Color mode

Unit	Catalog specification value	Area Coverage	Printing speed mode	LIFE (unit: pages)		
				Continuous printing	4p/J	1p/J
Photoconductor Unit*1	Color Continuation 10,500page 14,000page 2p/J B:C=1:2	5%	Standard	10,500	10,500	10,500
			Low speed	7,900	7,500	6,400
		10%	Standard	10,500	10,500	10,300
			Low speed	7,800	7,400	6,300
		20%	Standard	5,300	5,300	5,300
			Low speed	5,300	5,300	5,300
Toner Cartridge	4,000	5%	---	4,000	4,000	4,000
	1,500	5%	---	1,500	1,500	1,500
FUSER ASSY*2	100,000	---	Standard	100,000	100,000 (TBD)	(TBD)
HOUSING ASSY-DEVE Y/M/C	100,000	---	---	66,700	66,700	66,700
2ND BTR ASSY	100,000	---	---	100,000	100,000	100,000

Note : B:Monochrome C:Color

Note *1: 1. The life of a Photo Conductor unit may not reach the above numerical value according to an operating condition.
It becomes a life end by full of the waste toner. (Because waste toner box is included in a unit.)
The following are main factors to decrease the life.
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- Calibration: 1 time /20pages
- Jam recovery operation at the time of Jam is included.

*2: The life may become below half if the user print on envelopes or thick paper frequently.
(Excessive pressure is applied to a heat roll and wrinkles papers on the roll.)

1.14 Controller Specifications

1.14.1 Controller Basic Specifications

- CPU : VR4305 (66.7 MHz)
- Enhanced technology : CPGI, CRIT, RITech (the ASIC uses HTC)
- RAM : SDRAM
  - Standard : 32 MB (mounted on the code ROM DIMM side)
  - Expansion : 16 MB, 32 MB, 64 MB, 128 MB, 256 MB (90pin DIMM)
    1 slot, maximum 256 MB

CAUTION

Even if 256 MB memory is installed, available size is not become 288 MB because of restriction of ASIC.

- Program ROM : 4 MB Flash (DIMM)
- Panel : LCD 20 digits, 1 line; 3 LEDs; 6 switches
- Interface
  - Standard
    - Parallel : 1 ch (IEEE1284 compliant bi-directional B-type connector, Compatibility, Nibble, ECP)
    - USB : 1 ch (Rev.2.0 HS) (D4 Level 3 supported)
    - Network interface board : 1 slot

CHECK POINT

There are 2 models, either Network interface board is installed or not installed.
However, attaching the board to the "not installed model" is possible.

- Printer mode
  - Standard : ESC/PageS Printing System (ESC/PageS03)
  - Other : EJL mode
    RCC mode
    DCC mode
    EpsonNet Config (Web)
  - Auxiliary software : Status sheet
    Maintenance mode (engine status sheet)
    Update function for mechanical controller firmware (EFU)
- Installation method : Fixed to the main body

1.14.2 Controller Configuration

The printer can be set with the following configurations according to destination.

Table 1-35. Pattern jumper (INPT0)

R190		
Open	1	Default for tray paper size: A4
Short	0	Default for tray paper size: LT

1.14.3 External Interface Specifications

The printer provides the following host interfaces.

- ☐ Parallel (IEEE1284 compliant) interface: Standard
- ☐ USB (Rev.2.0 HS) interface : Standard
- ☐ Network interface : Standard or Option

The locations of the respective interfaces are shown below.

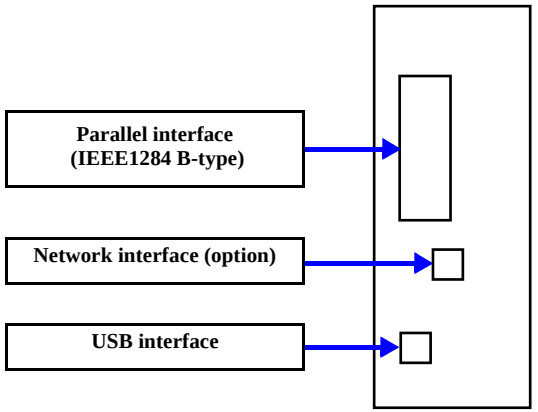


Figure 1-13. Location of external interfaces

PARALLEL INTERFACE SPECIFICATIONS

The Device ID for this printer is as shown below.

MFG EPSON;
CMD : EJL, ESCPAGES-03;
MDL : AL-C1100;
CLS : PRINTER;
DES : EPSON AL-C1100;

USB INTERFACE SPECIFICATIONS

Universal Serial Bus Specification Rev.2.0 HS is supported.

USB model specific number: 31

When the printer is connected to the PC by the USB port, the interface does not support D4. The D4 protocol become valid only when the EPSON external LAN option is connected. The device ID CMD differs from the parallel interface, with D4L3 added.

CMD: EJL, ESCPAGES-03; D4L3;

NETWORK INTERFACE SPECIFICATIONS

- ☐ Printing protocol
  - ■ TCP/IP
    LPR, FTP, IPP, PORT2501, PORT9100
  - ■ Microsoft Network
    SMB
  - ■ AppleTalk
- ☐ Management protocol
  - ■ TCP/IP
    SNMP, ENPC, HTTP, TELNET, DHCP, BOOTP, PING, DDNS, mDNS*1, SNTP
  - ■ Microsoft Network
    Auto-IP, SSDP
  - ■ MS Network (NetBEUI)
    SNMP, ENPC
  - ■ AppleTalk
    SNMP, ENPC

Note *1: mDNS is used with Rendezvous

- ☐ Entity Type
  EPSONPAGES3

1.15 Control Panel

1.15.1 External Appearance and Names

Table 1-36. Indicators

Indicators	Function
LCD	1 line x 20 characters (5 x 7 dot matrix)
Ready LED	On : Printer is ready to print. Off : Printer is not ready to print.
Data LED	On : Printer contains data that has not been processed yet. Off : Printer has finished processing all print data. Flashing : Printer is currently processing data.
Error LED	Flashing 1: An error has occurred which permits continuing to print by pressing the Start/Stop button. On : An error has occurred which requires the user to remove the cause of the error. Flashing 2: An error has occurred which requires the user to clear the error and press the Start/Stop button.

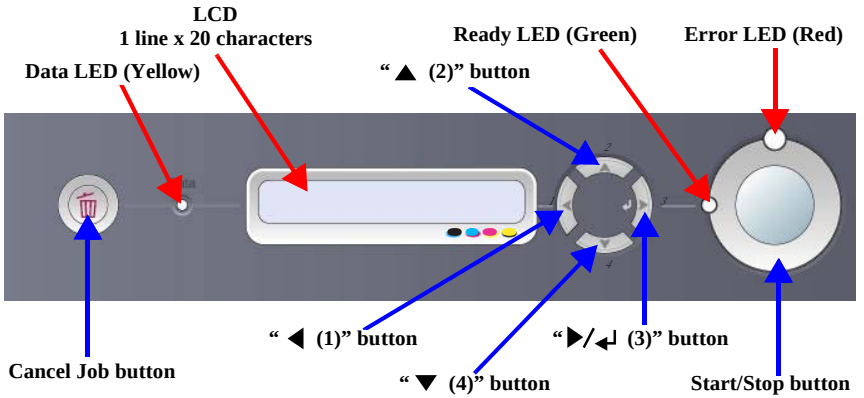


Figure 1-14. External View of Control Panel

Table 1-37. Summary of Button Functions

Button Name	When Ready to Print	When Not Ready to Print	Error Has Occurred	In Panel Setting Mode
Start /Stop	Into pause (not ready to print) status	1. Pressing normally: Into On Line (ready to print) status 2. Pressing for 2 seconds or longer: Ejects paper forcibly	1. Recoverable error: Clears error 2. Non-recoverable error: Displays "Unable Clear Error"	Returns to normal mode (the same state as before entering panel setting mode)
Cancel Job	1. Pressing normally: Deletes printing data 2. Pressing for 2 seconds or longer: Deletes all printing data	1. Pressing normally: Deletes printing data 2. Pressing for 2 seconds or longer: Deletes all printing data	1. Pressing normally: Deletes printing data 2. Pressing for 2 seconds or longer: Deletes all printing data	Invalid
▶/↵ (3)	Enters the printer information menu in the panel setting mode	Enters the printer information menu in the panel setting mode	Invalid	1. When panel setting mode menu is displayed: Displays setting item 2. When setting item for non-execution is displayed: Displays setting value 3. When setting item for execution is displayed: Executes printing or processing 4. When setting value is displayed: Registers the setting value
◀ (1)	Enters the printer information menu in the panel setting mode	Enters the printer information menu in the panel setting mode	Invalid	1. When panel setting mode menu is displayed: Returns to normal mode 2. When setting item or setting value is displayed: Displays the previous higher rank in hierarchy
▲ (2)	Enters the printer information menu in the panel setting mode	Enters the printer information menu in the panel setting mode	Invalid	1. When panel setting mode menu is displayed: Displays the previous panel setting mode menu 2. When setting item is displayed: Displays previous setting item 3. When setting value is displayed: Displays previous setting value
▼ (4)	Enters the printer information menu in the panel setting mode	Enters the printer information menu in the panel setting mode	Invalid	1. When panel setting mode menu is displayed: Displays the next panel setting mode menu 2. When setting item is displayed: Displays next setting item 3. When setting value is displayed: Displays next setting value

1.15.2 Panel Settings List

The printer settings are listed below.

Underlined value in the Setting value column are factory default settings.

Information Menu

Setting	Setting values	Status sheet
Status Sheet	---	---
Network Status Sheet*1	---	---
USB Extl/FstatusSht*2	---	---
C Toner*3	E□□□□□□F to E******F	○
M Toner*3	E□□□□□□F to E******F	○
Y Toner*3	E□□□□□□F to E******F	○
K Toner*3	E□□□□□□F to E******F	○
Photocondctr*3	E□□□□□□F to E******F	○
Total Pages*3	0 to 99999999	○
Color Pages*3	0 to 99999999	○
B/W Pages*3	0 to 99999999	○

Note *1: Only displayed when the network interface board is installed, and "Network Menu" - "Network I/F=On".

*2: Only displayed when a D4-compliant USB external device is connected, and "USB Menu" - "USB I/F=On".

*3: This item is for display only and cannot be modified.

Status Menu

This menu is displayed only when a warning occurs.

Tray Menu

Setting	Setting values	Status sheet
MP Tray Size*1	**A4**, A5, B5, **LT**, HLT, GLT, EXE, MON, C10, DL, C5, C6, IB5	○
LC Size*2*3	**A4**, LT,	○
MP Type*2*3	**Plain**, SemiThk, Letterhead, Recycled, Color, Trnsprncy, Labels	○
LC Type*2	**Plain**, SemiThk, Letterhead, Recycled, Color	○

Note *1: The default value depends on the controller configuration settings. (For details, refer to "Controller Configuration" *(p.46)*.)

*2: Selectable when the lower feed unit is installed.

*3: Always A4 by default, irrespective of the controller configuration.

Printing Menu

Setting	Setting values	Status sheet
Page Size*1*2*3	**A4**, A5, B5, **LT**, HLT, GLT, EXE, MON, C10, DL, C5, C6, IB5	---
Orientation*1	**Port**, Land	---
Resolution*1	300, **600**	---
RITech*1	**On**, Off	---
Toner Save*1	**On**, Off	---
Page Scale	**Off**, 80%	---
Image Correct*1	**1**, 2	---
Top Offset*1	-30.0 to **0.0** to 30.0mm	---
LeftOffset*1	-30.0 to **0.0** to 30.0mm	---
T Offset B*1	-30.0 to **0.0** to 30.0mm	---
L Offset B*1	-30.0 to **0.0** to 30.0mm	---

Note *1: This item exists as the parameter, but not displayed on the panel.

*2: Paper size specified by ESCPAGE-S03 command is not differ among the each destination, both size are available.

*3: The default value depends on the controller configuration settings.

Setup Menu

Setting	Setting values	Status sheet
Lang Lang Sprache LINGUA LENG SPRAK Sprog Taal KIELI Ling.	**English** Francais Deutsch ITALIANO ESPANOL SVENSKA Dansk Nederl. SUOMI Portugues	○
TimeToSleep (not indicated)	1 to 1440	○
Time Out*1	0, 5 to **60** to 600	---
Paper Source*1	**Auto**, MP Tray, LC1	---
MP mode	**Normal**, Last	○
Manual Feed*1*2	**Off**, 1st Page, EachPage	---
Copies*1	**1** - 999	---
Quantity*1	**1** - 999	---
Duplex*1	On, **Off**	---
Binding*1	**Long Edge**, Short Edge	---
Paper Type*1	**Normal**, SemiThk, Thick, ExtraThk, Trnsprnc, Coated	---
Page Side*1	**Front**, Back	---
Skip Blank Page*1	**On**, Off	---
Auto Eject Page*1	**On**, Off	---
Size Ignore	On, **Off**	○
Auto Cont	On, **Off**	○
Page Protec*1	On, **Off**	---
LCD Contrast	0 to **7** to 15 (step 1)	○
Panel Lock*1*2	On, **Off**	---

Note *1: This item exists as the parameter, but not displayed on the panel.

*2: Able to set with EJL, MIB

Reset Menu

Setting	Setting values
Clear Warning	---
Clear All Warnings	---
Reset	---
Reset All	---
SelecType Init	---
Change Toner C	---
Change Toner M	---
Change Toner Y	---
Change Toner K	---
Reset Fuser Counter	---

PARALLEL MENU

Setting	Value	Status sheet
Parallel I/F*1	**On**, Off	○
Speed*2	**Fast**, Normal	---
Bi-D*1	Nibble, **ECP**	○
Buffer Size*2	**Normal**, Maximum, Minimum	---

Note *1: After this item is changed, the setting value takes effect after a warm boot or after the power is turned on again.
While it is reflected in the Status Sheet and EJL read-back, the actual change takes effect after a warm boot or after the power is turned on again.

*2: This item exists as the parameter, but not displayed on the panel.

USB Menu

Setting	Value	Status sheet
USB I/F*1	**On**, Off	○
USB SPEED*1	**HS**, FS	○
USB ExtI/Fconfg*2	**No**, Yes	---
Get IPAddress*3	Panel, Auto, PING	---
IP*3*4*5	0.0.0.0 to 255.255.255.255	---
SM*3	0.0.0.0 to 255.255.255.255	---
GW*3	0.0.0.0 to 255.255.255.255	---
NetWare*3	On, Off	---
AppleTalk*3	On, Off	---
MS Network*3	On, Off	---
Rendezvous*3	On, Off	---
USB Ext I/F Init*3	---	---
Buffer Size*6	**Normal**, Maximum, Minimum	---

Note *1: After this item is changed, the setting value takes effect after a warm boot or after the power is turned on again.
While it is reflected in the Status Sheet and EJL read-back, the actual change takes effect after a warm boot or after the power is turned on again.

*2: Displayed only when the D4 support USB external device is connected. Changed to "USB Config=No" automatically when the panel setting mode is finished.

*3: Displayed only when the D4 support USB external device is connected, and "USB external device=Yes".
Content of the setting depends on the USB external device settings.

*4: The actual valid value is displayed (but cannot be changed) when "Get IPAddress = Auto".

*5: When "Panel" or "PING" is changed to "Auto" in the IP adress setting, the printer stores the previous setting value, which had been set in the "Panel" or "PING". The stored value will be displayed when returning to "Panel" or "PING".
The printer displays "192.168.192.168" if the settings are not made from the panel.

*6: This item exists as the parameter, but not displayed on the panel.

Network Menu

Setting	Value	Status sheet
Network I/F*1	**On**, Off	○
Network Config*2	**No**, Yes	---
Get IPAddress*3*4*7	Panel, **Auto**, PING	○
IP*3*5	0.0.0.0 to **192.168.192.168** to 255.255.255.255	○
SM*3	0.0.0.0 to **255.255.255.0** to 255.255.255.255	○
GW*3	0.0.0.0 to 255.255.255.255	○
AppleTalk*3	**On**, Off	○
MS Network*3	**On**, Off	○
Rendezvous*3*4	**On**, Off	○
Link Speed*3	**Auto**, 100 Full, 100 Half, 10 Full, 10 Half	○
Buffer Size*6	**Normal**, Maximum, Minimum	---

Note *1: Displayed when a network interface board is installed.
After this item is changed, the setting value takes effect after a warm boot or after the power is turned on again.
While it is reflected in the Status Sheet and EJL read-back, the actual change takes effect after a warm boot or after the power is turned on again.

*2: Displayed only when a network interface board is installed. Changed to "Network Config=No" automatically when the panel setting mode is finished.

*3: Displayed only when a network interface board is installed, and "Network Config=Yes".

*4: The default value depends on the controller configuration settings.

*5: The actual valid value is displayed (but cannot be changed) when "Get IPAddress = Auto".

*6: This item exists as the parameter, but not displayed on the panel.

*7: When "Panel" or "PING" is changed to "Auto" in the IP adress setting, the printer stores the previous setting value, which had been set in the "Panel" or "PING". The stored value will be displayed when returning to "Panel" or "PING".
The printer displays "192.168.192.168" if the settings are not made from the panel.

PRINTER ADJUST MENU

Setting	Value
Normal*1	0 ~ **5** ~ 15
SemiThk*1	0 ~ **5** ~ 15
Thick*1	0 ~ **5** ~ 15
ExtraThk*1	0 ~ **5** ~ 15
Card*1	0 ~ **5** ~ 15
Envelope*1	0 ~ **5** ~ 15
Feed Offset*2	-3.5 to **0.0** to 3.5 mm
Scan Offset*2	-3.5 to **0.0** to 3.5 mm
Feed Offset2*2	-3.5 to **0.0** to 3.5 mm
Scan Offset2*2	-3.5 to **0.0** to 3.5 mm
Calibration*3	

Note *1: Displayed only when the Support Mode has been selected by a special operation when the power is turned on.
After changing the settings in the Printer Adjust Menu and pressing the Enter button, the printer reboots.

*2: Displayed only when the Support Mode has been selected by a special operation when the power is turned on.
After changing the settings in the Printer Adjust Menu and returning to the menu, the printer reboots.

*3: After finished calibrating, the printer directly goes back to the normal operating mode.

CHECK POINT

- **Secondary transfer voltage adjust value, from plain paper to envelop, becomes same value between front side and reverse side.**
- **When printing both sides, offset value for reverse side is displayed regardless of Duplex unit is installed or not.**

Maintenance Menu

CAUTION

Before using this function, refer to the instructions given in "1.15.3 Explanation of Menu and Settings" *(p.54)*.

Setting	Value
Engine Status Sheet*1*2	---
Print Log Report*1*2	---
Reset 2ndBTRCounter*1*3	---
Reset C DvlpCounter*1*3	---
Reset M DvlpCounter*1*3	---
Reset Y DvlpCounter*1*3	---
Reset K DvlpCounter*1*3	---
Reset Fuser Counter*1*3	---
Clear Error Log*1	---
MCU DATA BackUp*1*2	---
MCU DATA Restore*1*3	---

Note *1: Displayed only when the Maintenance Mode has been selected by a special operation when the power is turned on.

*2: Pressing the Enter button leaves the panel settings.

*3: Pressing the Enter button reboots.

USER SETTING ITEMS OTHER THAN IN THE SETTING MENU

The following is a list of user settings not included in the Setup menu.
Initialization by the Initialization menu of the Panel does not clear these items.

Item	Setting value	Default	Setting Method
PrinterName	32-byte character string	AL-C1100	EJL, PrinterName command
MFG in the Device ID	32-byte character string	(Undefined)	EJL
MDL in the Device ID	32-byte character string	(Undefined)	EJL
DES in the Device ID	32-byte character string	(Undefined)	EJL
CID in the Device ID	32-byte character string	(Undefined)	EJL

1.15.3 Explanation of Menu and Settings

The following are items specific to this printer.

Reset menu

- ☐ Change Toner C/Change Toner M/Change Toner Y/Change Toner K
  Used when replacing a Toner Cartridge before toner end occurs.
  When executed, “Please Wait” is displayed, and when the specified toner reaches the replacement position, “Replace Toner x” is displayed and the printer stands by. If the cartridge is not actually replaced, the operation finishes when cover A is closed.
- ☐ Reset Fuser Counter
  Reset the counter of the fuser assy consumption and count up the exchange counter.
  When resetting the counter, the number of printed pages for the Fuser Assy is stored on the EEPROM. The stored value will be printed on the Engine Status Sheet as the number of previous replacement.
  This is same for the Reset Fuser Counter of maintenance menu.

Printer Adjust Menu

- ☐ Calibration
  Execute the process control. Since the process control is a cycle down process control, it is conducted when printing is finished.

Maintenance Menu

- ☐ MCU DATA BackUp*1
  Backup the data of the engine. "MCU Data BackUp" is displayed until back up processing ends.
- ☐ MCU DATA Restore*1
  Restore the data of the engine to the mechanical controller. "MCU DATA Restore" is displayed until restore processing ends.

***NOTE** ***1:** Execution of the mechanical controller backup/restore is not possible in the following states:*
- *During a power save*
- *During warming-up*
- *During printing*
- *During printer adjustments*

The power must not be turned OFF during the backup process until the engine has stopped.

- ☐ Print Log Report
  Prints a log of printing status.
- ☐ Reset 2ndBTRCounter
  Reset the counter of the 2nd BTR assy consumption and count up the exchange counter. After executing the counter reset, open and close the A cover. Do not turn the printer off until the engine stops completely.
- ☐ Reset C/M/Y/K DvlpCounter
  Reset the counter of the developer unit (HOUSING ASSY-DEVE) consumption and count up the exchange counter. After executing the counter reset, open and close the A cover. Do not turn the printer off until the engine stops completely.

1.15.4 Special Operations

LIST OF OPERATING FUNCTIONS

The following is a list of the special operating functions supported by this printer. Do not make these functions (except Support mode and panel setting value initialization) available to users.

Table 1-38. List of Operating Functions

Function	Operating procedure
Support Mode	Turn on the power while pressing the Down button.
Initialization of EEPROM	Turn on the power while pressing Start/Stop + Cancel Job + Back. (Also performs RAM Check of all sectors)
Initialization of panel settings	Turn on the power while pressing the Cancel Job button.
Program ROM update	Turn on the power while pressing Start/Stop + Cancel Job + Down.
Maintenance mode	Turn on the power while pressing Back + Up + Down + Enter.
Engine program update	Turn on the power while pressing Start/Stop + Cancel Job + Up + Down.
RAM check of all sectors	Turn on the power while pressing Start/Stop + Back + Up + Enter.
CPU reset when a Service Call occurs	Press Cancel Job + Back + Up + Down + Enter when a service call error occurs.
Display detailed information when a Service Call occurs	Press Cancel Job + Back + Enter when a service call error occurs.

SPECIAL FUNCTIONS

The following are items specific to this printer.

- EEPROM initialization
  Since the used amounts of each toner, the Photoconductor Unit, and HOUSING ASSY-DEVE (developer) are recorded by the engine, they are not cleared by initializing EEPROM.
- Maintenance Mode
  After the printer enters the Maintenance mode, engine process control (Calibrating Printer) is performed after printing since the process control is a cycle process control.

1.16 Printer Status

1.16.1 List of Printer Messages

The following is a list of messages displayed by the printer.

Table 1-39. List of Printer Messages

Display	Sort	Error LED status	Status code
(Displays when turn on the power)	Status	---	---
Service Req Cffff	Service call error	Flashing (All LEDs flash simultaneously)	6000
Service Req Eggg	Service call error	Flashing (All LEDs flash simultaneously)	6001~6999
Optional RAM Error	Error	---	---
ROM CHECK	Status	---	---
RAM CHECK	Status	---	---
Self Test	Status	---	---
Reset All	Status	---	1004
Reset	Status	---	1004
Cancel All Print Job*[2]	Status	---	1003
Cancel Print Job*[2]	Status	---	1003
Unable Clear Error	Status	---	---
Check Transparency	Error	On	4021
Jam W W W W W*[1]	Error	On	4234*[4]
Irregular Density	Error	On	4031
Remove Photocondctr	Error	On	4257
Install uuuu TnrCart	Error	On	4235*[5]
Wrong Toner uuuu	Error	On	4237*[5]
NonGenuineToner uuuu	Error	Flashing 2	4241 to 4255
TonerCart Error uuuu	Error	On	4238*[5]
Install Photocondctr	Error	On	4235*[5]

Table 1-39. List of Printer Messages

Display	Sort	Error LED status	Status code
Wrong Photocondctr	Error	On	4237*[5]
Photocondctr Trouble	Error	On	4238*[5]
Replace Toner uuuu	Error	On	4236*[5]
Replace Photocondctr	Error	Flashing 2	4236*[5]
Replace Photocondctr	Error	On	4236*[5]
w w w w Open	Error	On	4239*[5]
Please Wait	Status	---	1019
Manual Duplex	Error	Flashing 2	1020
Manual Feed ssss	Error	Flashing 2	1013
Can't Print Duplex	Error	Flashing 1	3005
Paper Out tttt sssss	Error	On	4010
Paper Set tttt sssss	Error	Flashing 1	3003
Print Overrun	Error	Flashing 1	3000
Mem Overflow	Error	Flashing 1	3001
Duplex Mem Overflow	Error	Flashing 1	3004
Invalid Data	Error	Flashing 1	3007
Invalid N/W Module	Error	On	4240
Write Error ROM P	Error	On	4006
Reset to Save	(Status)	---	---
Writing ROM P	Status	---	1005
Menus Locked	Warning	---	---
(Selectype mode)	---	---	1001
Can't Print	Warning	---	2072
Check Paper Size	Warning	---	2004
Image Optimum	Warning	---	2002
Check Paper Type	Warning	---	2008
Color Unmatched	Warning	---	2567
Form Feed	Status	---	1008
(printing)	Status		1009

Table 1-39. List of Printer Messages

Display	Sort	Error LED status	Status code
(Job processing)	Status		1002
(communication to non active I/F port)	Status		1012
(test printing)	---	---	1010
Warming Up	Status	---	1006
Calibrating Printer	Status	---	1014
Offline*8	Status	---	1001
Cancel Print Job*3	Status	---	1003
uuuu Toner Low	Warning	---	2571*6
Worn Photoconductor	Warning	---	2571*6
Worn Fuser	Warning	---	2571*6
Worn uuuu Dev Unit	Warning	---	2571*6
NonGenuine Toner	Warning	---	2571*6
Sleep*8	Status	---	1007
Ready*8	Status	---	1000

Note *1: W W W W W=C, D, E, F, G, DM, MP, LC

*2: Cancel Print Job and Cancel All Print Job using the operation panel.

*3: Cancel Print Job using the host.

*4: For detailed information on responding to composite errors, refer to the print status area.

*5: For detailed information on responding to composite errors, refer to the print status area.

*6: For detailed information on responding to consumable warning status, refer to the relevant area.

*7: w w w w=A, B, C, D, DM, E, F, G

*8: Toner remaining is added.
Displays the remaining toner, right aligned, in the order of K, C, M, Y in seven increments.

1.16.2 Status Messages and Troubleshooting

The following are items specific to this printer.

Please Wait

☐ Explanation
When replace toner is specified from the panel operation or with a command, this message is displayed while the cartridge moves to the replacement position. Once it moves to the required position, the message changes to “Replace Toner X”.

Calibrating Printer

☐ Explanation
Indicates that printer (engine) is in the following conditions:

- The process control is in execution.
- Engine is writing the data to the CRUM.

With this printer, this is performed automatically at the following timing.

- When has printed 50 copies (pages) continuously (By stopping the print job temporarily)
- When has printed 20 copies (pages) intermittently (After finished a current print job)
- When has printed text or images with high print ratio
- When has printed in black and white continuously
- When detected that the Fuser Assy is cold at power-on
- When Toner Cartridge is replaced after the printer detects the “toner end” status.
- When Photoconductor Unit is replaced with a new one

1.16.3 Error Messages and Troubleshooting

The following are items specific to this printer.

Check Transparency

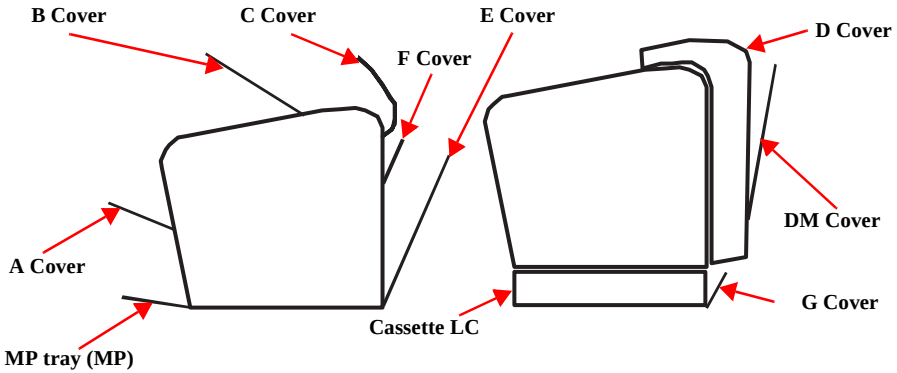
☐ Explanation
A paper jam has occurred because media other than transparencies was fed when transparency is specified, or transparency was fed when other than that is specified.

☐ Remedy
Remove the media from the MP Tray or LC cassette. Open and close cover E. Load the correct media to start printing again from where the jam occurred.

Jam W W W W W (W W W W W=C, D, E, F, G, DM, MP, LC)

☐ Explanation
A paper jam has occurred.

☐ Remedy
Remove the jammed paper and when the cover is closed, printing resumes from the jammed page.



NOTE: *Covers A and B cannot be used for resolving jams (A, B are for replacing consumables)*

Irregular Density

☐ Explanation
This error occurs when the image density of all 4 colors at the top of page exceeding the upper limit (240%). At this time, engine stops, and picked up paper is remained in the printer.

☐ Remedy

- Turn off the printer and remove the paper remained in the printer.
- Reduce the image density of all 4 colors from the application software.

NOTE: *It is occurred when total (C, M, Y, K) print data density is higher than 240%.*

Install uuuu TnrCart

☐ Explanation
One or more Toner Cartridges are not installed.
Note that this message represents both one cartridge and several cartridges.

☐ Remedy
Open Cover A and install the Toner Cartridge in the replacement position.
The printer recovers from the error when the cover is closed.
When several cartridges are not installed next cartridges is set to replacement position after cover A is closed.

NOTE: *When there are more than one uninstalled cartridges, the message for the next one is displayed when it is set at the replacement position after closing the cover A.*
(The user opens the cover again by seeing the message.)

Wrong Toner uuuu

☐ Explanation
A non-EPSON specification Toner Cartridge is installed.

☐ Remedy
Open Cover A, install the right Toner Cartridge.

NonGenuineToner uuuu

- Explanation
  A non-genuine Toner Cartridge is installed.
- Remedy
  - Open cover A, install the right Toner Cartridge.
    The printer recovers from the error when the cover is closed.
  - Press the Start/Stop button.
    The message will change to "Non Genuine Toner" and enables the user to print.

TonerCart Error uuuu

- Explanation
  The Toner Cartridge CSIC cannot be read/written correctly.
- Remedy
  Open cover A, reinstall the Toner Cartridge, or replace it with a correct Toner Cartridge.
  The printer recovers from the error when the cover is closed.

Replace Toner uuuu

- Explanation
  The Toner Cartridge comes to the end of its life.
- Remedy
  Open cover A and install the Toner Cartridge in the replacement position.
  The printer recovers from the error when the cover is closed.
  When several cartridges come to the end, next cartridge is set to replacement position after cover A is closed.

NOTE: *When several cartridges come to the end all at once, the order of the replacement is K, Y, M, C. When finished to replace the first one and close the cover A, "Install uuuu TnrCart" is displayed after next cartridge is set at the replacement position.*
(The user opens the cover again by seeing the message.)

w w w w Open (w w w w=A, B, C, D, DM, E, F, G)

- Explanation
  The indicated cover is open.
- Remedy
  The printer recovers from the error by closing the cover.

NOTE: *When multiple covers are open, they are displayed as much as possible in the following order.*
A, B, C, D, DM, G

Manual Duplex

- Explanation
  Printing is stopped, because the print of one side is finished in manual duplex printing.
  When manual duplex printing is specified, the errors below are not occurred.
  - Paper Set
  - Check Paper Size
- Remedy
  - Set the one-side printed sheet into MP tray and press the Start/Stop button to print on the other side.
  - Cancel the job if there is no need to print on the other side.

NOTE: *With manual duplex printing, back pages (even-numbered pages) are printed first in descending order and piled up face down.*
To print the front pages (odd numbered pages), put the face-down piled-up sheets directly into the MP tray as the front pages are printed in ascending order.
Second pass of Manual Duplex is engine setting for reverse side.
This setting should be conducted before display of Manual Duplex.

Manual Feed ssss

- Explanation
  Manual feed mode is specified for the current print job.
  During printing in the manual feed mode, the paper ran out.
- Remedy
  - Press the Start/Stop button. Printing starts feeding paper from the higher priority feeder.
  - Cancel the job if there is no need to continue.

Can't Print Duplex

- Explanation
  The print job is not available for duplex printing.
  With this printer, duplex printing is possible when the following conditions are all met.
  - Page Size is any of A4, B5, LGL, LT, EXE
  - Paper type is plain paper, semi-thick paper, coated paper
- Remedy
  - Press the Start/Stop button, the error is released, and simplex printing starts.
  - When “Auto Continue=On”, simplex printing starts after a certain interval.
  - Cancel the job if there is no need to continue.

Print Overrun

- Explanation
  While printing with a flying start, the data does not arrive in time.
- Remedy
  - Press the Start/Stop button, the error is canceled, and the page is reprinted without flying start.
  - When “Auto Continue=On”, the page is reprinted without flying-start after a certain interval.
  - Cancel the job if there is no need to continue.

NOTE: *If this error occurs frequently, set flying-start setting to Off on the printer driver. (Avoid Page Error = On)*
When “Mem Overflow” error occurs after recovering from the error, the printer skips the error page and prints the next page.
In case of a receive time out (after recovering from the error), the printer ejects a blank paper without indicating an error or warning.

Invalid Data

- Explanation
  A spool file in the driver is deleted while the printing is in progress. And then the driver starts to process another job.
  This error also occurs when the printer receives an abnormal data due to a communication error.
  When this error occurs, the job data which caused the error has been deleted.
  There is a possibility that the next job data is recognized as a part of the previous job data where the error occurs. In such case, first page is deleted.
- Remedy
  - Press the Start/Stop button, the error is released.
  - When “Auto Continue=On”, the error is released after a certain interval.
  - Cancel the job if there is no need to continue.

Invalid N/W Module

☐ Explanation
The network program does not exist, or a network program that is not for this printer is written.
The interfaces maintain the status before the error.

Replace Photocondctr

☐ Explanation
Photoconductor Unit has reached the end of its service life

☐ Remedy
Same message is displayed, but error LED flash 2 different ways either on or flashes.

1. When error LED is on
   - Replace the Photoconductor Unit with a new one. The printer recovers from the error when the cover B is closed.
2. When error LED flashes
   - Replace the Photoconductor Unit with a new one. The printer recovers from the error when the cover B is closed.
   - Although the printer recovers from the error by pressing the Start/Stop button, the print quality is not guaranteed from then.

NOTE: *Error removing spec is as below.*

- *When Start/Stop button is pressed, the message changes to "Worn Photoconductor". Printing is possible until the error LED is on indicating "Replace Photocondctr".*
- *However, the printer repeatedly indicates the "Replace Photocondctr" with the LED flashing every time it receives a print job after the power back on, cancelling a job, or resetting.*
- *After the "Replace Photocondctr" with the LED flashing, the remaining amount of toner is indicated as 0%.*

Remove Photocondctr

☐ Explanation
This occurs when Photoconductor Unit is installed before all the Toner Cartridges are installed when setting up the printer.
This error is provided to make sure that the covers (packing materials) of HOUSING ASSY-DEVEs are removed. If the photoconductor is installed and the HOUSING ASSY-DEVEs rotate with the covers attached, both of them could result in malfunction. Since the Toner Cartridges cannot be installed unless the covers removed, the printer indicates the error when the Photoconductor is installed before attaching the four Toner Cartridges.

☐ Remedy
Open the cover B, take out the Photoconductor Unit, and close the cover B.

1.16.4 Warning Messages and Troubleshooting

The following are items specific to this printer.

Worn Fuser

- Explanation
  The FUSER ASSY comes to near end of its life.
  The print quality is not guaranteed from now on.
- Remedy
  1. Turn off the power and replace the fuser unit with a new one.
  2. Turn the printer on in maintenance menu (or reset menu), and clear the lifetime counter of the FUSER ASSY.

NOTE: *Although continuing to use the FUSER ASSY is possible for a while, it is recommended to replace the assy with a new one when this warning is indicated. After the warning jamming at the assy may occur frequently because the roller does not rotate smoothly due to wear of its bearings.*

NonGenuine Toner

- Explanation
  A non-genuine toner cartridge is installed.
- Remedy
  The warning message is released by one of the following methods.
  - Replacing with genuine toner cartridge.
  - Executing Clear All Warnings*.
  - Executing Reset in the Reset menu*.

Note *: Even if the warning is once cleared by the above operation, the same warning will be displayed agein as long as the same toner cartridge remains unchanged in the printer.

Worn uuuu Dev Unit

- Explanation
  The HOUSING ASSY-DEVE of each color (C, M, Y, K) reaches the almost end of its life (the rest of the life is about 1000 pages) It is still able to use, however, it is recommended to replace it with a new one.

Worn Photoconductor

- Explanation
  The Photoconductor Unit reaches the almost end of its life (about 95% used). It is calculated by engine. After recovering from the error, “Replace Photocondctr” error (LED flashes) will be displayed.

1.16.5 Service Call Error Messages

This section shows the service call error message of this printer. (For details, refer to Chapter3 “TROUBLESHOOTING”.)

ENGINE-RELATED SERVICE CALL ERRORS

Table 1-40. List of Service Call Errors (Engine Related)

Error code	Explanation
E 510	ROS Motor Failure
E 511	TR0 Failure
E 513	NVRAM Error
E 514	PAGE Timeout
E 516	Communication Error Duplex
E 517	Communication Error Feeder
E 520	BTR 2 Advance Error
E 521	BTR 2 Error
E 523	PCDC Error
E 524	Low Density
E 525	High Density
E 526	ADC Contamination
E 527	Deve Home Position Sensor Error
E 530	Humidity Sensor Error
E 533	Temp Sensor Error
E 537	Fuser Fail
E 542	IBT CLN Fail
E 546	Duplex Motor Failure
E 547	Deed Motor Failure
E 998	Engine Communication Error

CONTROLLER-RELATED SERVICE CALL ERRORS

Table 1-41. List of Service Call Errors (Controller Related)

Internal error code	Explanation
0017	CPU error (undefined interruption)
0081	CPU error (TLB modification exception)
0082	CPU error (TLB miss exception [Load/Fetch])
0083	CPU error (TLB miss exception [Store])
0084	CPU error (address error exception [Load/Fetch])
0085	CPU error (address error exception [Store])
0086	CPU error (bus error exception [Fetch])
0087	CPU error (bus error exception [Load/Store])
0088	CPU error (SYSCALL exception)
0089	CPU error (Break exception)
0090	CPU error (reserving command exception)
0091	CPU error (unused coprocessor exception)
0092	CPU error (FPU exception)
0093	CPU error (TLB exception)
0094	CPU error (XTLB exception)
0095	CPU error (cache exception)
0096	CPU error (Trap exception)
0097	CPU error (FPU exception)
0098	CPU error (watch exception)
0128 ~ 0254	CPU error (undefined trap)
0255	CPU error (NMI exception)
0256	CPU error (divide by 0)
0257	CPU error (arithmetic overflow)
0258	CPU error (break occurrence)
0800	IPL error (controller defect)
0998	Engine communication error (only at power-on)
0999	Engine flash ROM has no program data
1002	Standard RAM error (standard size is undefined, etc.)
1010	Verification error
1020	RAM error (slot 0)

Table 1-41. List of Service Call Errors (Controller Related)

Internal error code	Explanation
1021	RAM error (slot 1)
1120	ROM checksum error (bit 0 to 7) (program)
1121	ROM checksum error (bit 8 to 15) (program)
1122	ROM checksum error (bit 16 to 23) (program)
1123	ROM checksum error (bit 24 to 31) (program)
1200	EEPROM writing error
1210	EEPROM writing times limit
1400	Engine initialization error
1500	CCNV hardware error
1550	Initialization hardware error for SRAM for compression
1600	Video series hardware error (including PWM IC calibration error)
1610	Video series hardware error (VCNV error)
1800	Illegal SPD
1999	Other hardware errors
2000	Software error

1.17 Expanding the RAM

When the memory is insufficient, the printer displays the following error messages.

- Mem Overflow
- Duplex Mem Overflow
- Image Optimum

The following methods can be used to clear the errors.
To ensure a stable operation, add more memory.

- Set the resolution to 300 dpi.
- In color printing, change the compression format to lossy compression.
- Set unused interfaces to “Not Use”.

1.18 Handling Precautions

1.18.1 Precautions When Turning Off the Power

This printer includes internal, nonvolatile memory (EEPROM), which stores setting values important to operate the printer normally. If the power is cut off during writing to the nonvolatile memory, the panel settings return to its default, or a Service Call error may occur when turning the power back on, or executing Reset All because the values in the memory are not reliable any more due to the interruption.
The printer is executing the writing when it is in the following conditions, so never turn the power off at those timings.

- From the time the power is turned on until the Ready LED lights up steadily
- When the Ready LED is flashing
- When the printer is printing (while the paper feed motor is operating)
- When the Data LED is on or flashing

1.18.2 Precautions for High Temperature Parts

Since the fuser unit inside the printer becomes very hot, be sure not to touch it when opening the cover to remove jammed paper or for any other purposes.

1.19 Status Sheet

There are two kinds of status sheet, the Status Sheet (Simplified version) and the Status Sheet.

- ☐ Status Sheet (Simplified version):
  This can be printed using the printer operation panel. And also a Status Sheet on which has no setting information printed by the printer driver is called “Simplified version”. The characters are printed in accordance with the display language setting in black and white only.
- ☐ Status Sheet (Full version):
  Printing this sheet is executed from the printer driver and the printer setting information can be acquired.

Status Sheet is shown in Figure 1-15 *(p.68)* and Figure 1-16 *(p.69)*.

INFORMATION AT THE BOTTOM

1. Firmware version in DDYM format beginning with IA
2. Code ROM device type.
   - ■ * : Flash
   - ■ space : Mask
3. 4-digit CMTD (Color Matching Table Data) version beginning with A
4. Version of mechanical controller of the engine indicated by 10 figures beginning with “MC”
5. Space
6. USB ID (31PXXXXXXXXXXXXXX)
7. Latest connection status of the USB communication mode
   - ■ H : HS
   - ■ F : FS
   - ■ space : No USB connection
8. USB communication mode
   - ■ D : D4 compliant device connected
   - ■ space : non D4 compliant device
9. Space (Type-B level)
10. IEEE1284 negotiation result
    - ■ e : ECP
    - ■ n : Nibble
    - ■ space : Compatibility
11. Number of occurrences of jams indicated by JC and 6 figures
12. Number of replacements of Toner Cartridge indicated by IC and 12 figures, and number of recoveries from errors (Toner Cartridge) indicated by 12 figures.
    Maximum number of times: 255
    There is a space between the number of replacements and the number of error recoveries.
    Both numbers are indicated in order of C, M, Y, K with 3 figures for each.

INFORMATION ON OPTIONS INSTALLED

1. RAM DIMM : Total amount of memory including the standard RAM is indicated as “Installed Memory”.
2. Network interface board : Network menu and its setting items are indicated. “Network” is added to the “Installed Interface”.

NOTE: *LAN HW Address, LAN HW Revision, LAN FW Revision are added to Hardware Configuration*
LAN HW Address is the MAC address
LAN HW Revision is always 0
The LAN FW Revision is network software version.

3. Optional paper cassette unit

Status Sheet (Simple version)	Status sheet (Full version)
LC is added to the “Input Unit” under the “Hardware Configuration”.	LC is added to the “Input Tray” under the “Hardware Configuration”.

4. Duplex unit

Status Sheet (Simple version)	Status sheet (Full version)
Duplex is added to the “Input Unit” under the “Hardware Configuration”.	Duplex is added to the “Input Tray” under the “Hardware Configuration”.

HARDWARE ENVIRONMENT EXCEPT FOR OPTION

1. Serial No. : Serial number of the unit
2. Firmware Revision : 211XX is indicated.

CONSUMABLE INFORMATION AND PART NUMBER

Name	Part Numbers
Toner Cartridge (Cyan)	S050193/S050189
Toner Cartridge (Magenta)	S050192/S050188
Toner Cartridge (Yellow)	S050191/S050187
Toner Cartridge (Black)	-/S050190
Photoconductor Unit	S051104

NOTE: *The first one is the part number of 1.5K, and the latter one is that of 4K.*

```
*** EPSON AL-C1100 Status Sheet ***

Information                                                  Part Numbers
   Toner Cartridge Cyan                E******F              0193/0189
   Toner Cartridge Magenta             E******F              0192/0188
   Toner Cartridge Yellow              E******F              0191/0187
   Toner Cartridge Black               E******F              0190
   Photoconductor Unit                 E      F Needed Soon  1104
   Total Pages                         19
   Color Pages                         17
   B/W Pages                           2
Tray Menu
   MP Tray Size                        A4
   MP Type                             Plain
Setup Menu
   Lang                                English
   MP Mode                             Normal
   Size Ignore                         Off
   Auto Cont                           Off
   LCD Contrast                        7
Parallel Menu
   Parallel I/F                        On
   Bi-D                                ECP
USB Menu
   USB I/F                             On
   USB Speed                           HS

Hardware Configuration
   Serial No.                          **********
   Installed Memory                    32MB
   Firmware Revision                   21110
   Installed Interface                 Parallel,USB
   Input Unit                          MP Tray

The installed cartridges differ from the genuine EPSON cartridges for this
printer.
Printouts and remaining toner readings may be different from those obtained using
genuine EPSON cartridges.


IA0647*AV1B1MC0000007001 ******************    JC000002IC000000000000 001001001001

SEIKO EPSON CORPORATION
```

Figure 1-15. Status Sheet (Simplified version)

Figure 1-16. Status Sheet (Full version)

1.20 Engine Status Sheet

CAUTION

Do not disclose this information to the user.

It can be output from the Maintenance Menu. For details, refer to Chapter6 “MAINTENANCE” for the Engine Status Sheet.

1.21 Recommended Operating Environment (Host PC)

- Minimum requirements for Windows
  - OS : Windows® 95/98/Me/2000/XP, Windows NT® 4.0
  - CPU : Pentium® II 233 MHz or more (450 MHz or more recommended)
  - RAM : 64 MB or more (128 MB or more recommended)
  - HDD : 500 MB or more space

* It is recommended to use the computer with higher than the hardware requirements of the OS.

- Minimum requirements for Macintosh
  - OS : Mac OS 9x/Mac OSX 10.2 or higher
  - CPU : Power PC G3 233MHz (G4 500MHz or higher recommended)
  - RAM : 64 MB or more (128 MB or more recommended)
  - HDD : 100 MB or more space (200 MB or more recommended)

* It is recommended to use the computer with higher than the hardware requirements of the OS.

- The printer cannot be used under MS-DOS.

1.22 Paper Handling Algorithm

The relationship between paper type, type and size is shown below

Table 1-42. Engine control, CM

Page Size	PaperType	EJL PAPER FACE	Paper Source	Paper type (set by driver)	MP or LC1 Type*3	Engine Control (Video Media Type)	CM
Postcard*1	—	FRONT	—	—	—	PostCard (0E)	Plain Paper
		BACK	—	—	—	PostCard Dup (1E)	Plain Paper
W Postcard Q Postcard	—	FRONT	—	—	—	Covers 2 (0A)	Plain Paper
		BACK	—	—	—	Covers 2 Dup (1A)	Plain Paper
Envelope*1	—	—	—	—	—	Envelope (0F)	Plain Paper
Others	Normal	FRONT	Auto	Set by driver	Plain Letterhead Recycled Color	Plain Paper 2 (09)	*Refer to P73, "CM 1"*
					SemiThk	High Q Paper (08)	*Refer to P73, "CM 1"*
					Trnsprnc	Transparency (02)	*Refer to P73, "CM 1"*
					Labels	Label Stock 2 (05)	*Refer to P73, "CM 1"*
				Not set by driver	—	Plain Paper 2 (09)	*Refer to P73, "CM 2"*
			others	—	—	Plain Paper 2	*Refer to P73, "CM 2"*
		BACK	Auto	Set by driver	Plain Letterhead Recycled Color	Plain Paper 2 Dup (19)	*Refer to P73, "CM 1"*
					SemiThk	High Q Paper Dup (18)	*Refer to P73, "CM 1"*
					Trnsprnc	Transparency (02)	*Refer to P73, "CM 1"*
					Labels	Label Stock 2 (05)	*Refer to P73, "CM 1"*
				Not set by driver	—	Plain Paper 2 (09)	*Refer to P73, "CM 2"*
			others	—	—	Plain Paper 2 (09)	*Refer to P73, "CM 2"*
	SemiThk	FRONT	—	—	—	High Q Paper (08)	Plain Paper
		BACK	—	—	—	High Q Paper Dup (18)	Plain Paper
	Thick	FRONT	—	—	—	Covers 1 (04)	Plain Paper
		BACK	—	—	—	Covers 1 Dup (14)	Plain Paper
	ExtraThk	FRONT	—	—	—	Covers 2 (0A)	Plain Paper
		BACK	—	—	—	Covers 2 Dup (1A)	Plain Paper
	Trnsprnc	—	—	—	—	Transparency (02)	OHP
	Coated	FRONT	—	—	—	Post Card	Plain Paper
		BACK	—	—	—	Post Card Back	Plain Paper

Note *1: MON, C10, DL, C5, C6, IB5

Table 1-43. CM 1

CM Media Type	MP or LC1-3 Type*1	CM
Off	Plain, SemiThk, Letterhead, Recycled Color, Labels	Standard paper
	Trnsprnc	OHP
Option 1	—	Option 1
Option 2	—	Option 2

Note *1: Paper Type in Selectype for each paper feeder

Table 1-44. CM 2

CM Media Type	CM
Off	Standard paper
Option 1	Option 1
Option 2	Option 2

PAPER SOURCE

Table 1-45. Paper Source

Page Size	Paper Type	Paper Feeder
Post card Envelope User defined	—	MP Tray
—	Thick ExtraThk Trnsprnc	MP Tray

Note : For paper size other than the above, the paper feeder is determined according to the prescribed algorithm based on the Paper Source, paper type set by the printer driver, and MP or LC Type.

DUPLEX

Table 1-46. Duplex

Page Size	Paper Type	Auto duplex
A4, B5, LT, EXE	Normal SemiThk	Effective

Note : Duplex printing is not possible with paper other than the above.

CHAPTER

2

OPERATING PRINCIPLES

2.1 Print Process

2.1.1 Print Process Overview

This printer is a “full color laser printer” that uses the principle of electrophotographic recording. The printer contains a drum that forms toner images by four colors of toner “Yellow, Magenta, Cyan and Black (simply called YMCK from here on).” The toner image of each color is formed on the drum, and the toner images formed on the drum is transferred to the Belt (secondary transfer roller). Full color printing is performed by overlaying each of the colors on the belt.

The major steps of the print process are described below.

(1) Charging : The drum surface is charged.
(2) Exposure : Image areas are exposed on the drum by a laser beam.
(3) Developing : Image areas on the drum are developed with toner.
(4) Primary transfer : The toner image on the drum is transferred to the Belt.
(5) Cleaning : The drum is cleaned.
(6) Repeat : In the full color mode, steps (1) to (5) are repeated for each toner.
(7) Secondary transfer : The toner image on the Belt is transferred to the paper.
(8) Discharging : The electrical charge of the paper is removed.
(9) Cleaning : The Belt is cleaned.
(10) Fusing : Toner on the paper is fixed with heat and pressure.

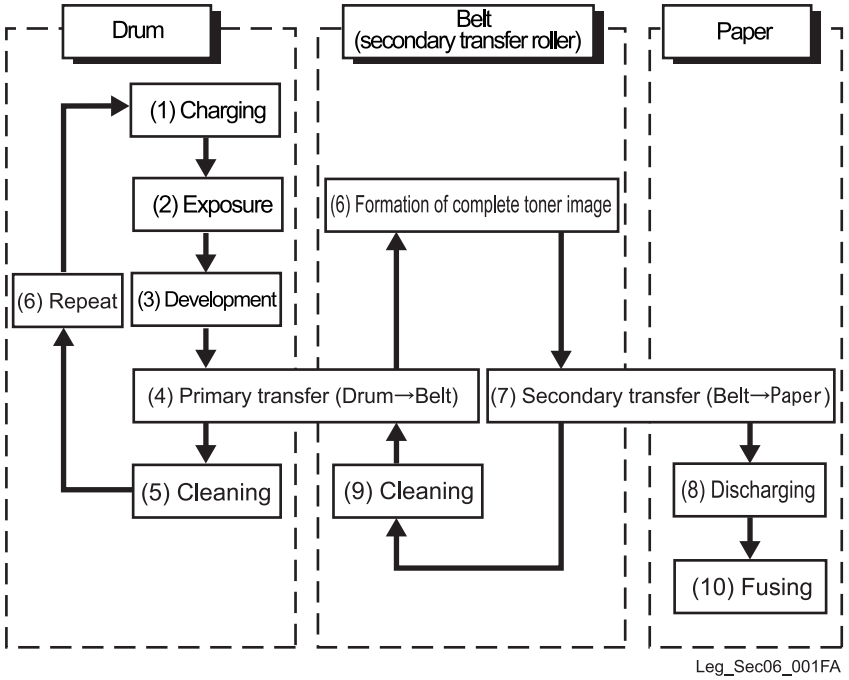


Figure 2-1. Print Process Overview

2.1.2 Print Process Diagram

The diagram below illustrates the entire print process.

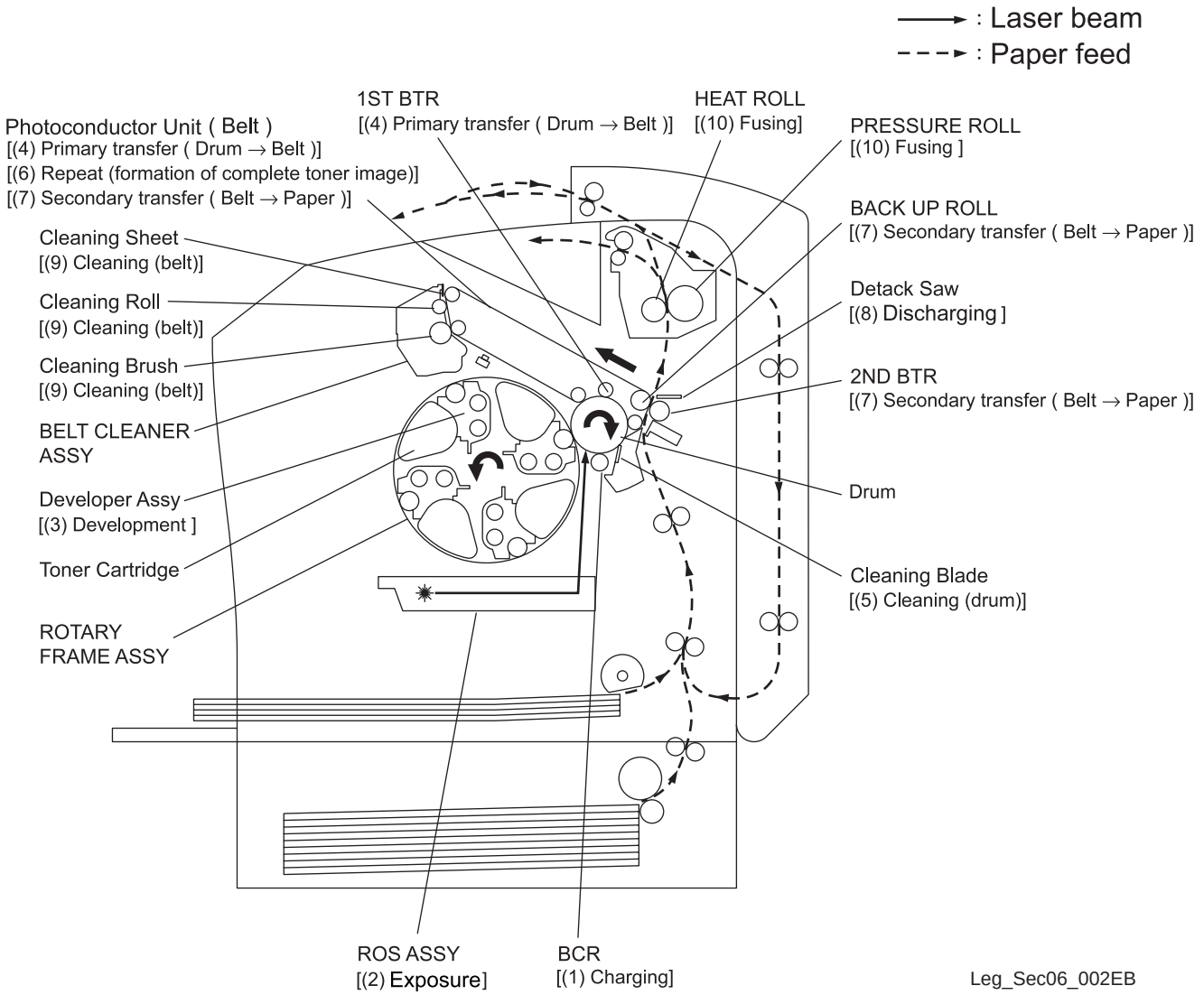


Figure 2-2. Total Print Process Schematic Diagram

2.1.3 Technical Explanation of Print Process

2.1.3.1 Charging

At the “Charging” process, BCR (Bias Charge Roll) applies a uniform negative potential to the drum which rotates at a fixed speed.

- BCR keeps contact with the drum and moves together with it.
  BCR is a conductive roller, that is negatively charged by HVPS, applies a negative charge to the drum.
  The drum surface is uniformly charged to a negative potential with DC bias voltage.
- The drum is made of conductive material (aluminum cylinder) coated with a photosensitive material which becomes insulating material in darkness and becomes conductive when it is subjected to light.

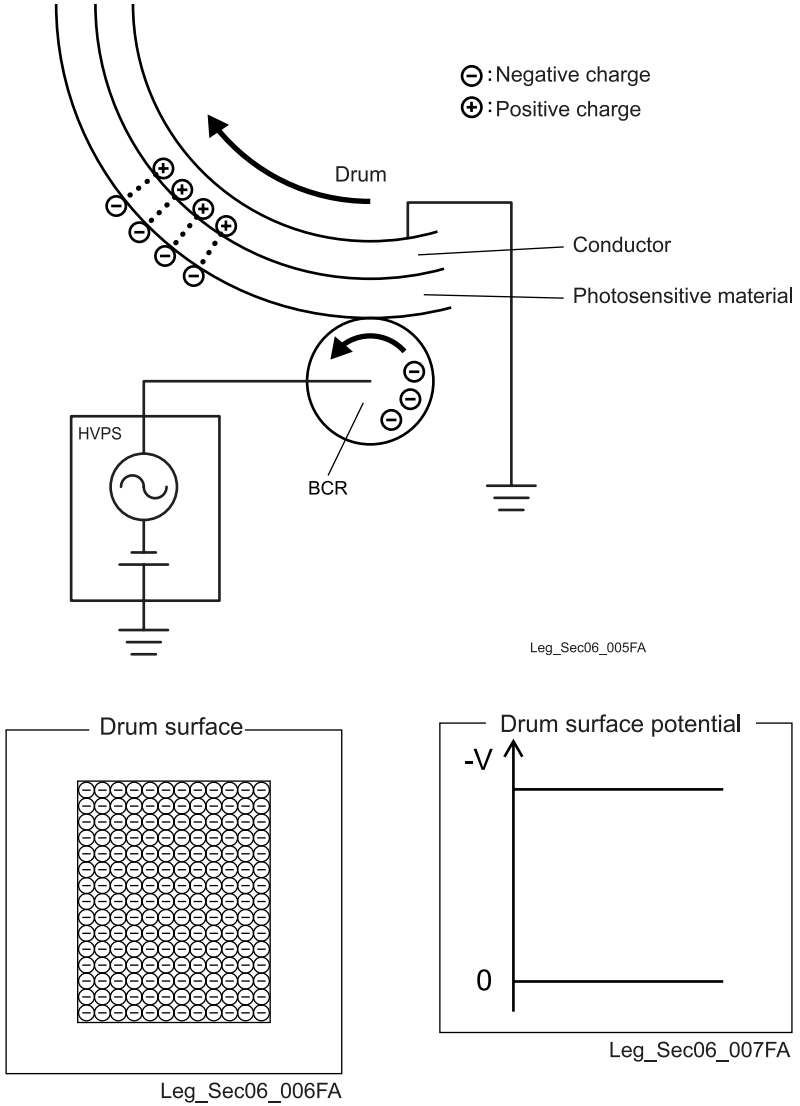


Figure 2-3. Charging Process

2.1.3.2 Exposure

At the “Exposure” process, a laser beam is applied to the negatively charged surface of the drum to form an invisible electrostatic latent image onto the drum.

- The laser beam is emitted from a laser diode in the ROS ASSY, and directed by the polygon mirror, fixed mirror and lens of the Scanner Assy in the ROS ASSY. A single laser beam is output from the laser diode.
- The laser beam is irradiated according to the print data (image data) from the printer controller. The laser beam is output only when a pixel data (minute dot composing the print data) exists. (On parts to be developed by toner, the laser diode turns ON, and on parts not to be developed, the laser diode turns OFF.) The drum surface irradiated by the laser beam becomes a conductor, the negative charge on the drum flows to the positive side, and the potential on the surface of the drum is reduced in the result. The section of the drum surface where the potential has reduced becomes the electrostatic latent image.

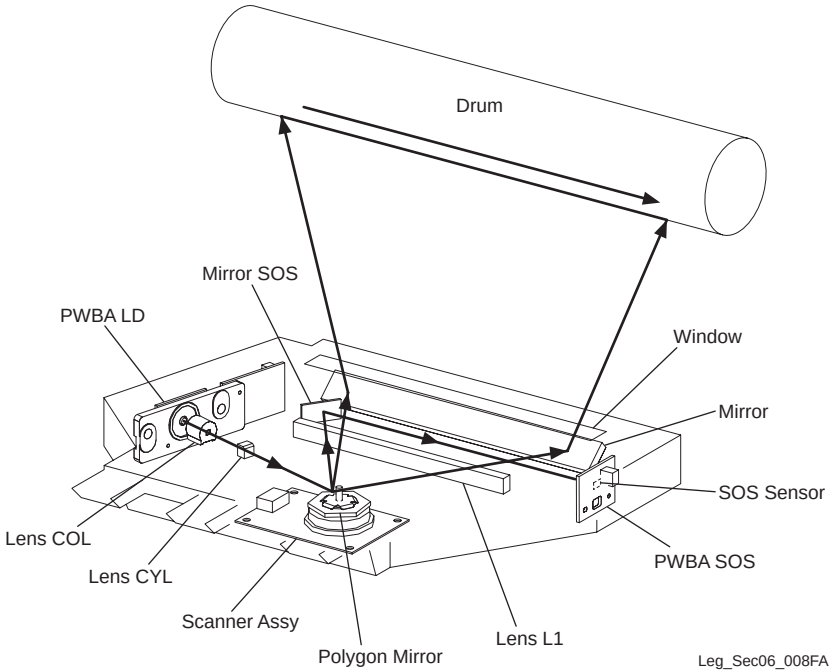


Figure 2-4. Path followed by the Laser Beam

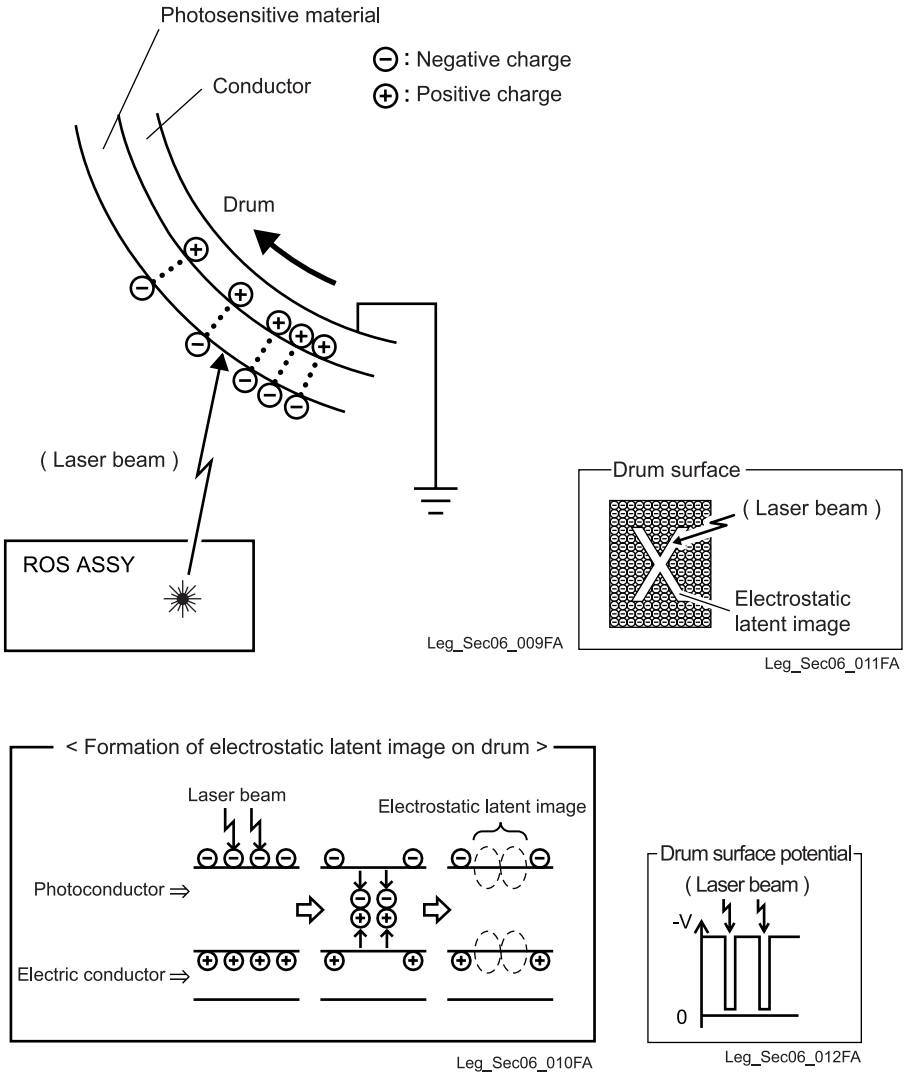
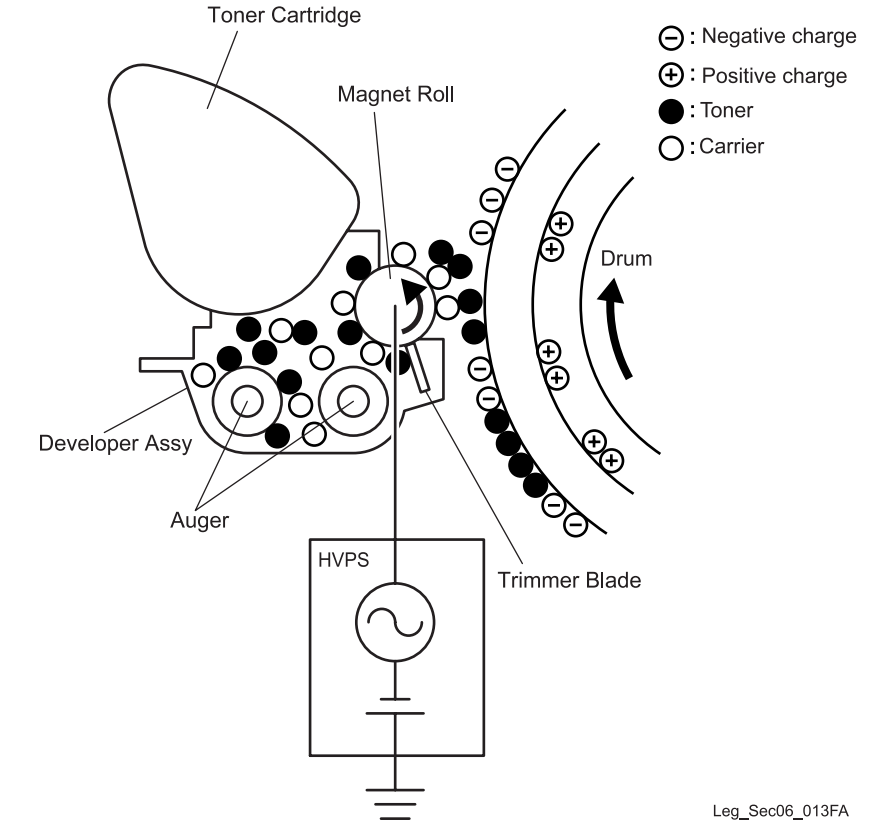


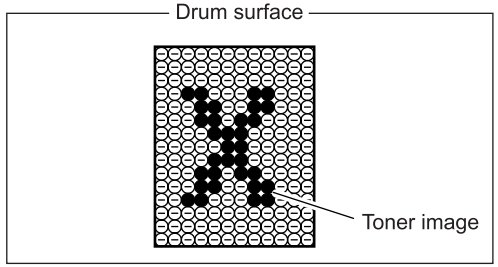
Figure 2-5. Exposure Process

2.1.3.3 Developing

At the “Developing” process, toner is electrically applied to the invisible electrostatic latent image on the drum, to form a visivle image on it.

- This printer uses two developing systems: a “rotary developing system” that successively rotates four Developer Assys, and a “trickle developing system” that uses developers composed of two components, a carrier and toner.
  Developer in the Developer Assy is stirred by a spiral-shaped stirrer called “Auger”, and is supplied to the Magnet Roll located near the drum surface. The developer is charged by the friction of stirring (toner: negative charge, carrier: positive charge), and the charges are electrically attracted each other.
  As the carrier is a magnetic body, it is attracted to the magnetized Magnet Roll, and a uniform layer of carrier is formed on the Magnet Roll by passing through a Trimmer Blade.
  A minus voltage is applied to the Magnet Roll together with AC voltage from the HVPS.
  As the electrostatic latent image on the drum that is formed by exposure is charged positively compared to the other sections on the drum, the toner charged negatively on the Magnet Roll is attracted only to the image sections on the drum.





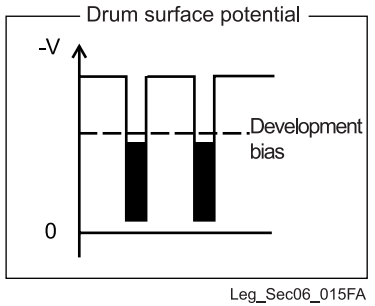


Figure 2-6. Development Process (1)

- Toner in the Developer Assy is consumed as the number of prints increases. To maintain the appropriate development density, the equivalent amount of consumed toner must be replenished to the Developer Assy from the Toner Cartridge. This replenishment is called “toner dispense.”
  Two types of control (“PCDC” and “ADC”) are used in combination for toner dispense.
- To obtain a full color image by the four toner colors, a toner image for each of the Y, M, C and K colors must be formed on the drum.
  On this printer, four Developer Assys are located at 90 degree intervals on the circumference of the Rotary Frame Assy, and by rotating the Rotary Frame Assy, the Developer Assy of each color is made to face the drum on which the toner image of each color is formed. This is called the “rotary developing system”.

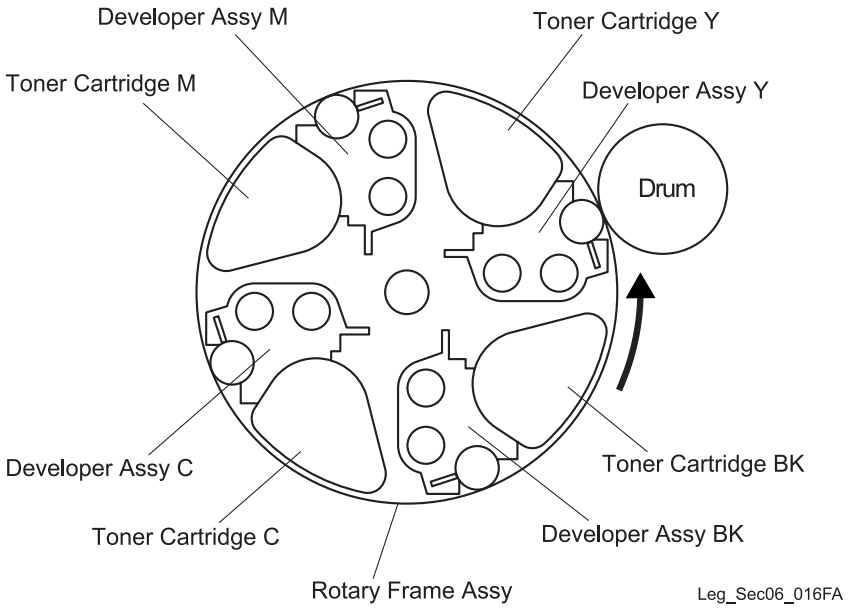


Figure 2-7. Development Process (2)

- The charging characteristics of the carrier is depleted due to dirt caused by the toner or due to scratches caused by stirring.
  To maintain charging characteristics, a minute amount of carrier is mixed into the toner in the Toner Cartridge. While toner and carrier are supplied during toner dispense, depleted carrier in the Developer Assy is collected in a separate chamber in the Toner Cartridge. This is called the “trickle developing system”. Trickle developing is performed using the rotation of the Rotary Frame Assy during rotary developing.
- The following shows the mechanism of trickle developing.
  (1) A pipe is inserted into the carrier in the Developer Assy.
  (2) A minute amount of carrier is put into the pipe.
  (3) The carrier is skimmed and move farther into the pipe.
  (4) The carrier is collected to inside the Toner Cartridge.

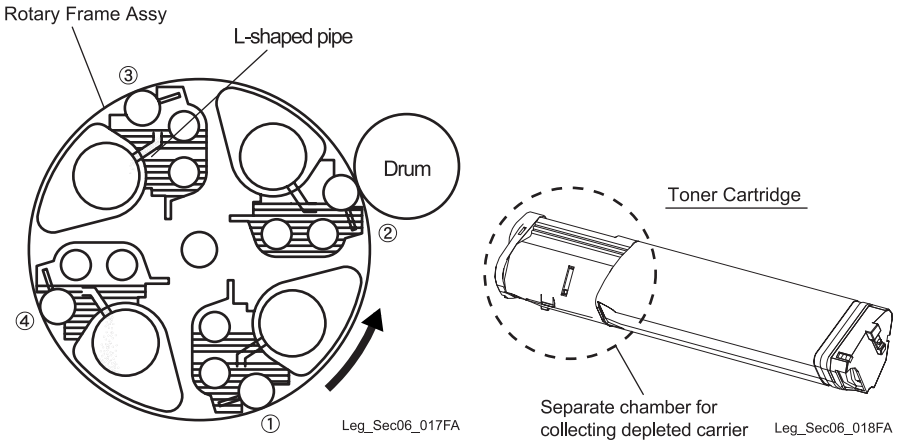


Figure 2-8. Development Process (3)

2.1.3.4 Primary transfer (Drum→Belt)

At the “Primary transfer” process, the toner image formed on the drum surface is transferred to the Belt surface in Photoconductor Unit by 1st BTR (First Bias Transfer Roll).

- The 1st BTR is a conductive roller, and is positively charged by the HVPS. The 1st BTR contacts the back side of the Belt and charge the back side to positive.
  The negatively charged toner image on the drum surface is attracted to the positive charge on the back side of the Belt, and is transferred to the Belt from the drum.

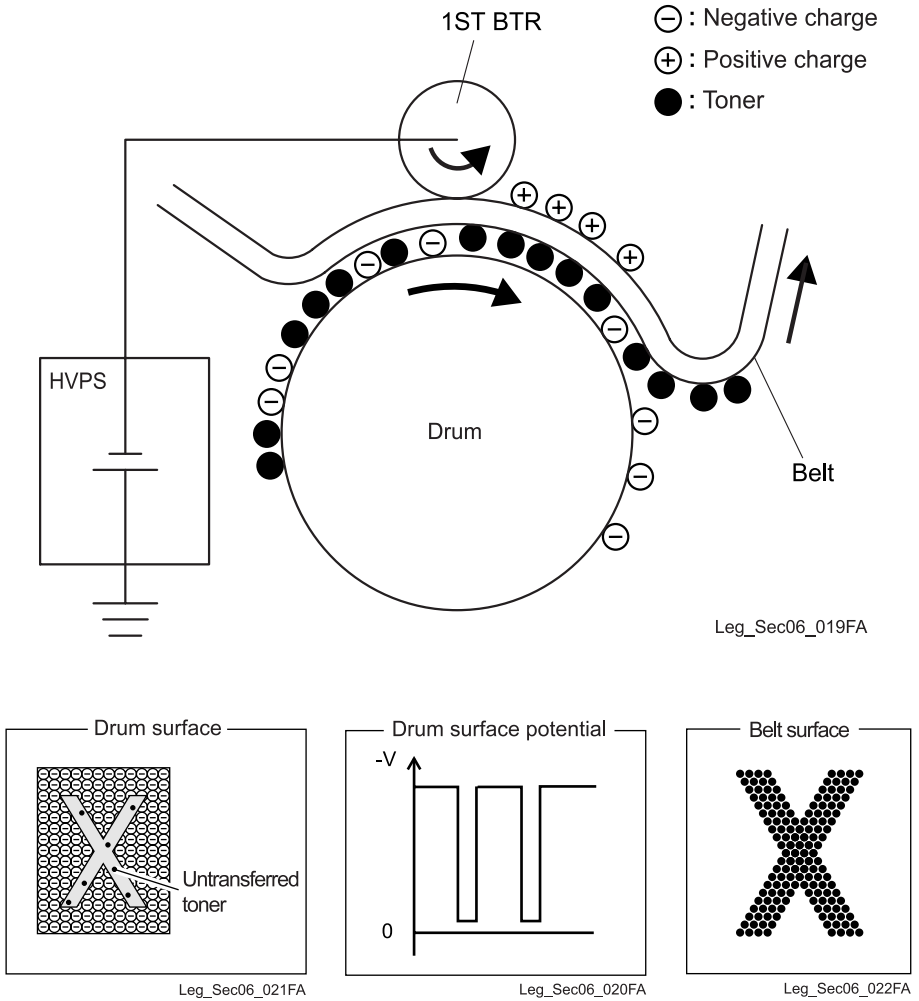


Figure 2-9. Primary transfer (Drum→Belt)

2.1.3.5 Cleaning (drum)

At the “Cleaning (drum)” process, residual toner is removed from the drum surface.

- ☐ Cleaning the drum
  Toner that was not transferred to the Belt at the “Primary transfer” process remains on the drum surface. Since the remaining toner hinder subsequent processes, it is scraped off by a Cleaning Blade that contacts with the drum, and is collected in the Waste Toner Box.

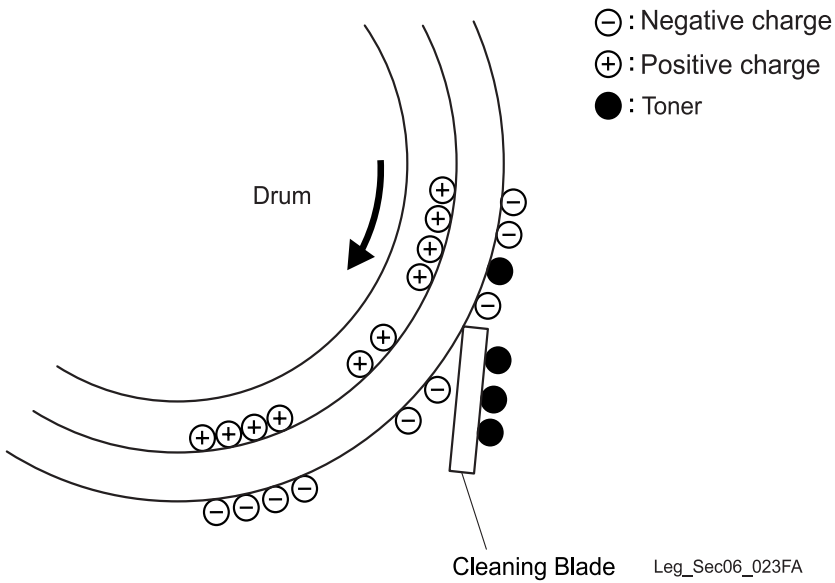


Figure 2-10. Cleaning (drum)

2.1.3.6 Repeat (formation of complete toner image)

At the “Repeat (formation of complete toner image)” process, the toner images of each color formed on the drum surface are successively transferred to the Belt to form a complete toner image composed of the four colors on the Belt surface.

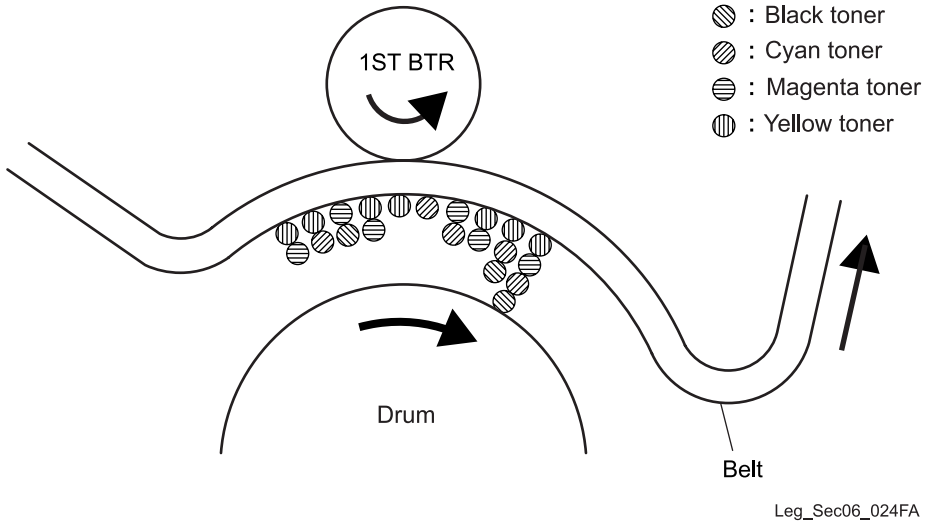


Figure 2-11. Repeat (1)

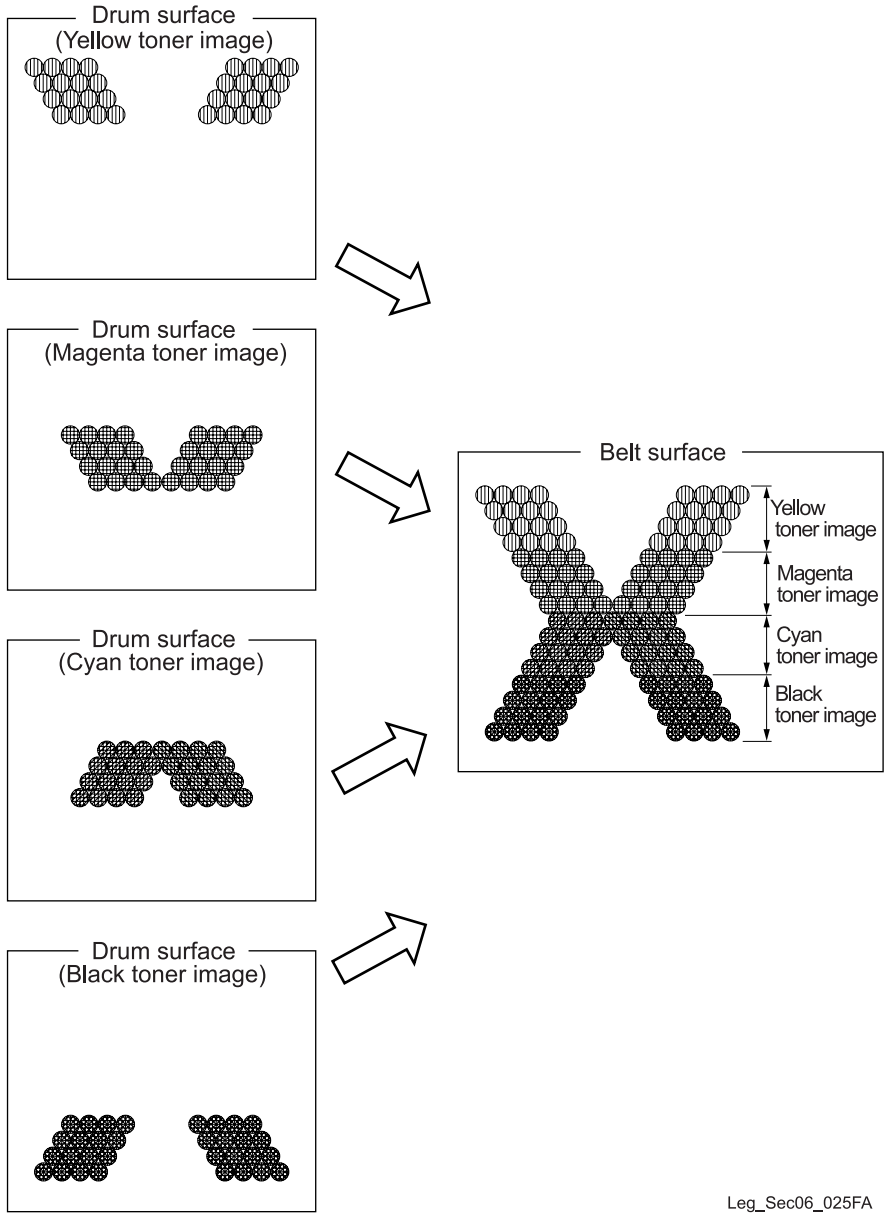


Figure 2-12. Repeat (2)

2.1.3.7 Secondary transfer (Belt→Paper)

At the “Secondary transfer” process, the complete toner image formed on the Belt surface is transferred to paper by the 2nd BTR (Second Bias Transfer Roll).

- The 2nd BTR comes in contact with the Belt only when transferring the image to paper to prevent the toner image formed on the Belt surface from being destroyed. Normally, the 2nd BTR is located at its home position where is detected by the 2nd BTR Retract Sensor. And the 2nd BTR Retract Motor moves the 2nd BTR to contact with the paper.
- The 2nd BTR is a conductive roller. It contacts with the back side of the paper (the opposite side of the side to be printed), and charged positively by the HVPS.
  The Back Up Roll, located on the opposite side of the Belt from the 2nd BTR, is a conductive roller and earthed to the Frame ground.
  By positively charging the back side of the paper by the 2nd BTR, the negatively charged toner image on the Belt is attracted to the paper and the image appears on the paper.

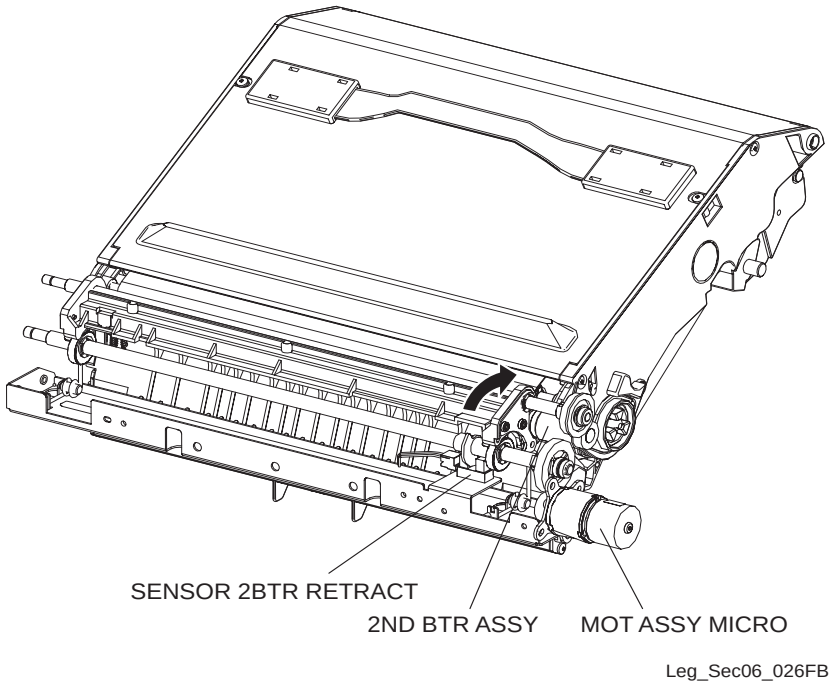
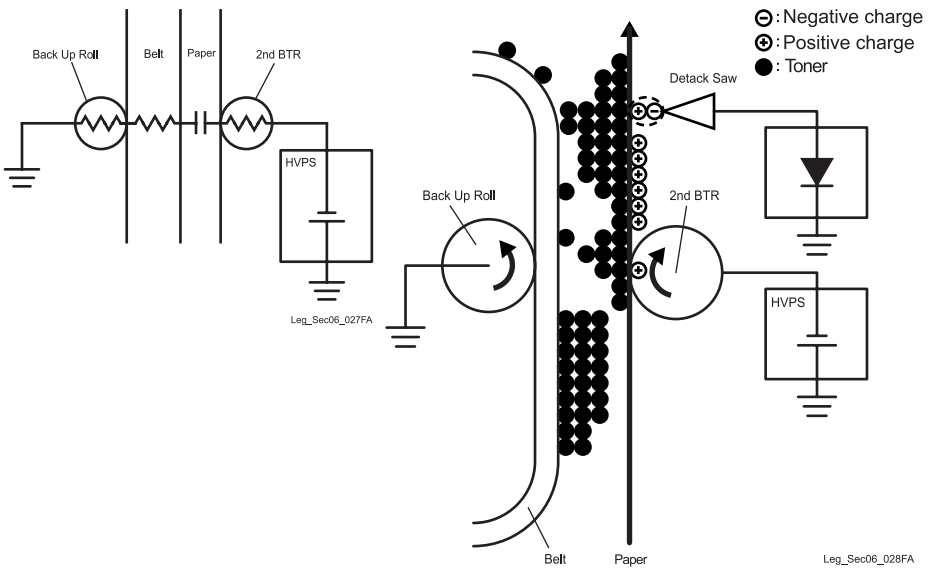


Figure 2-13. Secondary transfer (Belt→Paper) (1)



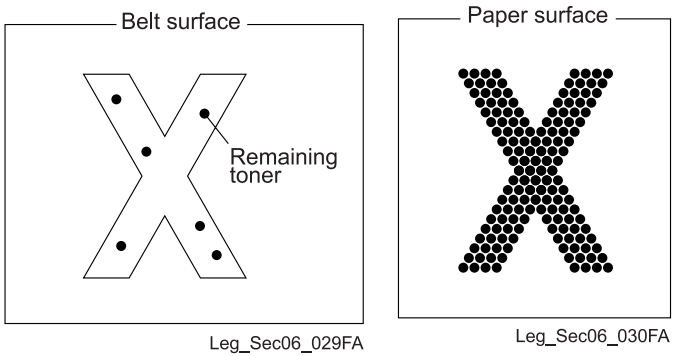


Figure 2-14. Secondary transfer (Belt→Paper) (2)

2.1.3.8 Discharging

At the “Discharging” process, the charge on the paper is neutralized/removed by the Detack Saw.

- The Detack Saw contacts the back side of the paper. The charge created at the “Secondary transfer” process is neutralized/removed to prevent the toner from splattering around the metal parts.

2.1.3.9 Cleaning

At the “Cleaning (belt)” process, the toner remaining on the Belt surface is removed after the toner image is transferred to the paper.

- The Belt Cleaner contacts the Belt only when cleaning the Belt to prevent the toner image formed on the Belt surface from being destroyed. The IBT Retract Motor moves the Belt Cleaner to contact the Belt.
- Toner remaining on the Belt surface is absorbed by the Cleaning Roll. Then, the toner is absorbed by the brush and collected in the Waste Toner Box.

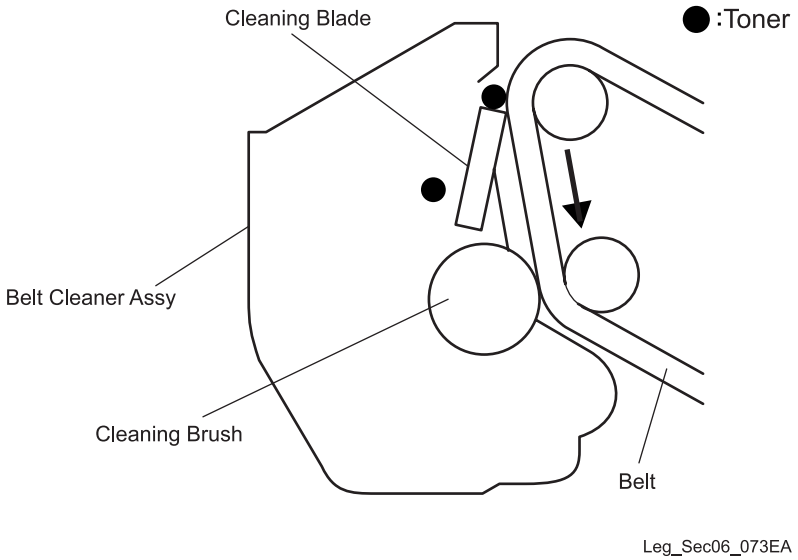


Figure 2-15. Cleaning

2.1.3.10 Fusing

At the “Fusing” process, toner is fixed on paper with heat and pressure.

- Fuser Assy does not have a pressure roll, but has a Fuser Belt instead.
  By MOT ASSY FSR drive, Heat Roll rotates and Fuser Belt is driven by the friction. The inner structure of the Fuser Belt is, as shown in the figure below, designed to generate a pressure on the Belt and the Heat Roll (Nip Part) to contact them firmly each other.
- The toner melts by the Heat Roll heated by the Heater Lamp in the Fuser Assy, and then the toner is fixed on the paper by the pressure of the Fuser Belt.

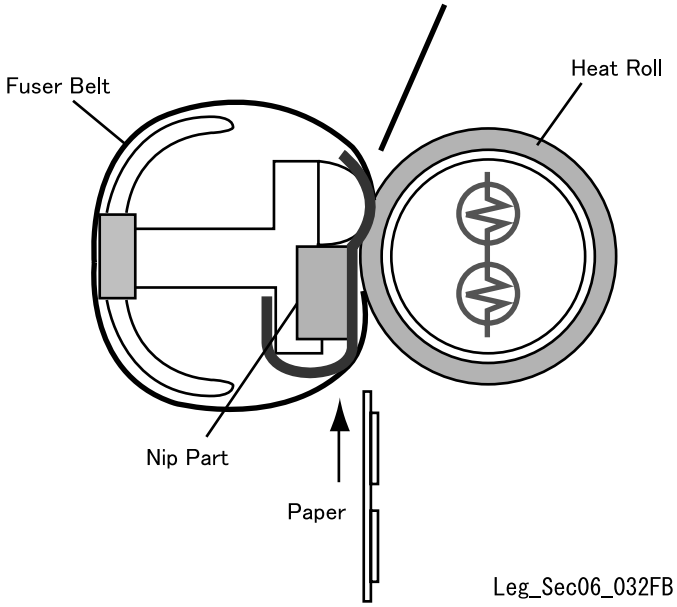


Figure 2-16. Fusing

2.2 Flow of Print Data

2.2.1 Data Flow

Print data (electric signals) from the Printer Controller follows the flow shown below to become a print image.

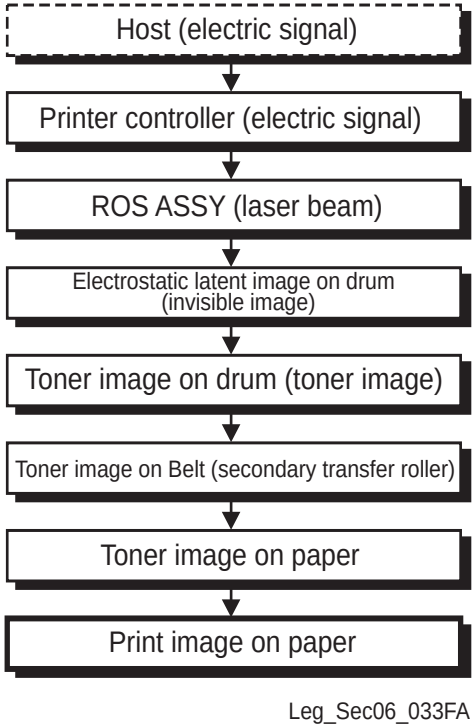


Figure 2-17. Overview of Producing Print Image

<Reference> Formation of 2-D print image:

One line of the dot image is formed by turning the laser beam from the laser diode ON and OFF in accordance with the electric signals (VIDEO signal: expresses the image data by voltage levels) from the printer controller.

A single-color image (2-D dot image) is completed by performing the above operation repeatedly over the entire surface of the image. To obtain a full color image, formation of 2-D dot images is performed for each of the four colors.

Resolution is determined as follows:

- Main direction : dots/inch
- Sub direction : Lines/inch

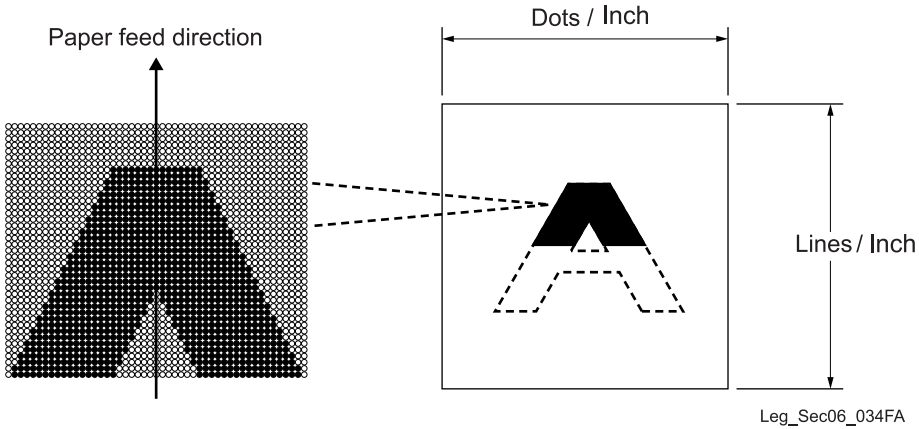


Figure 2-18. Formation of 2-D Print Image

2.3 Drive Transmission Path

2.3.1 DRIVE ASSY FEED

Rotation of DRIVE ASSY FEED is transmitted as follows:

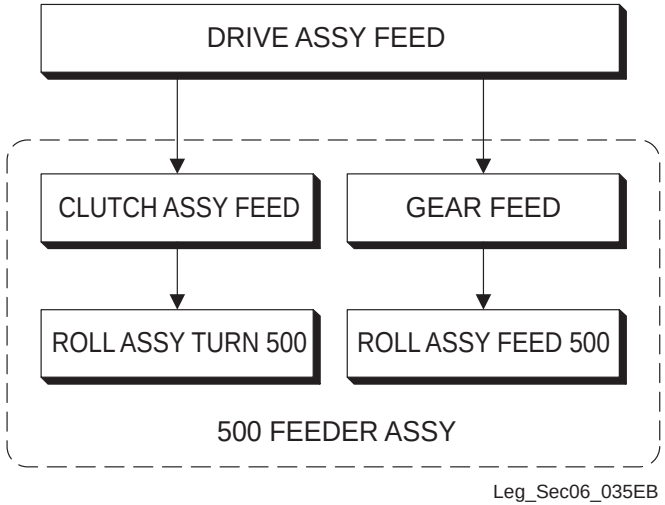


Figure 2-19. Drive Transmission Flow

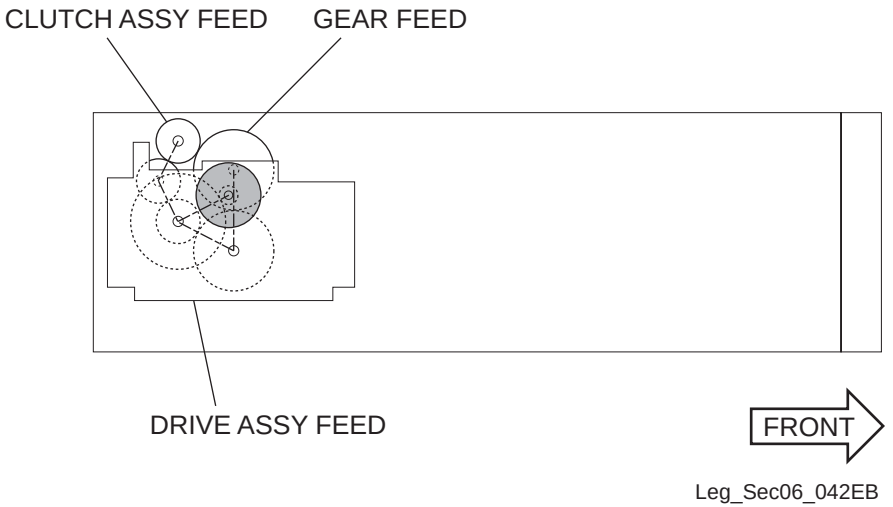


Figure 2-20. Diagram of Drive Transmission Path

2.3.2 MOTOR ASSY P/R, DRIVE ASSY PRO

Rotation of MOTOR ASSY P/R and DRIVE ASSY PRO is transmitted as follows:

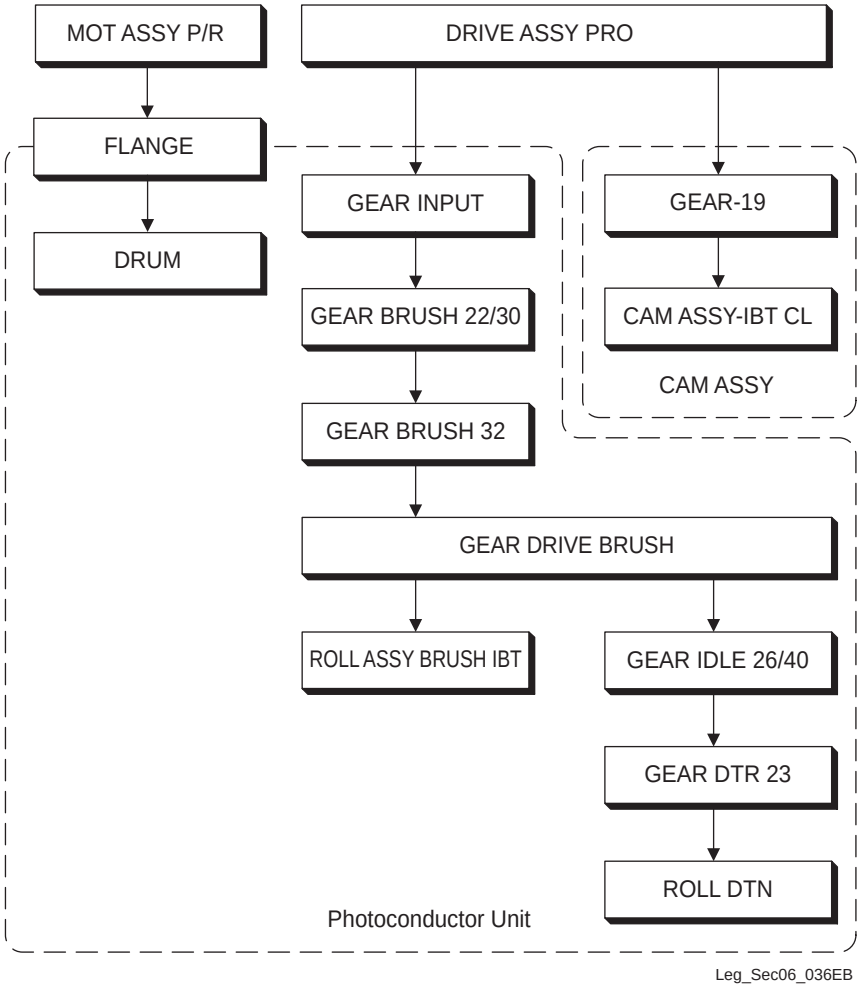


Figure 2-21. Drive Transmission Flow

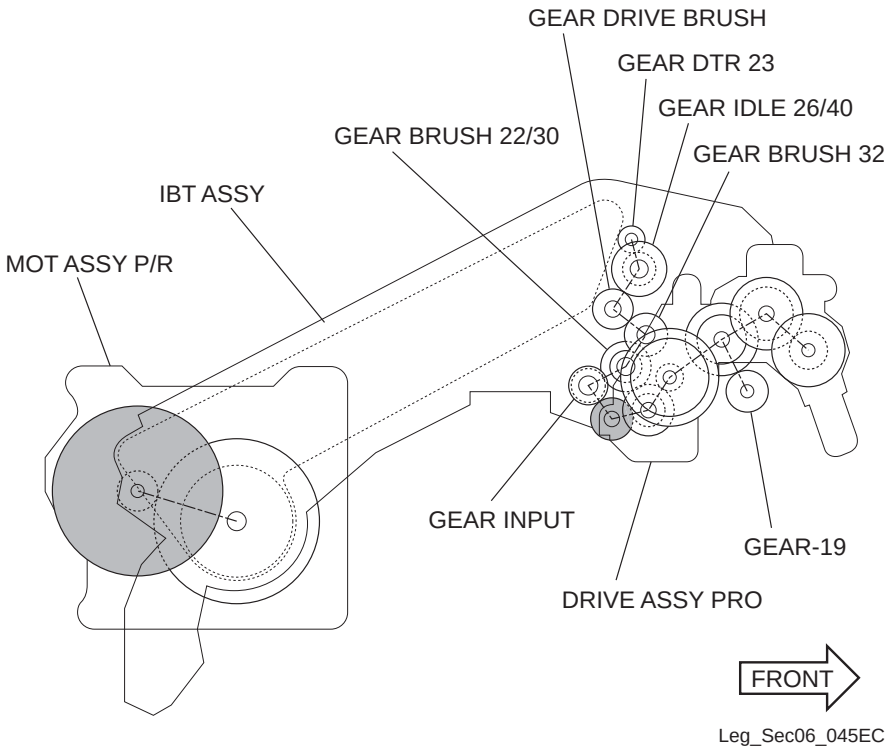


Figure 2-22. Diagram of Drive Transmission Path

2.3.3 MOTOR ASSY MAG, MOTOR ASSY ROT

Rotation of MOTOR ASSY MAG and MOTOR ASSY ROT is transmitted as follows:

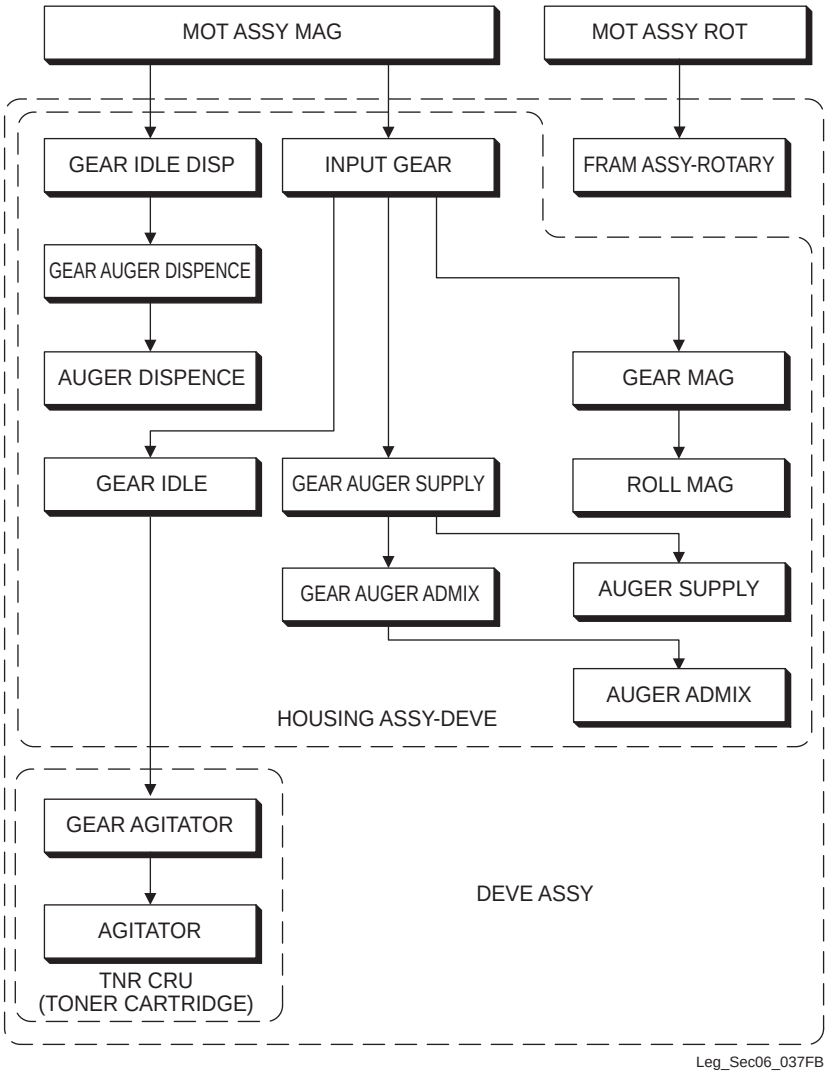


Figure 2-23. Drive Transmission Flow

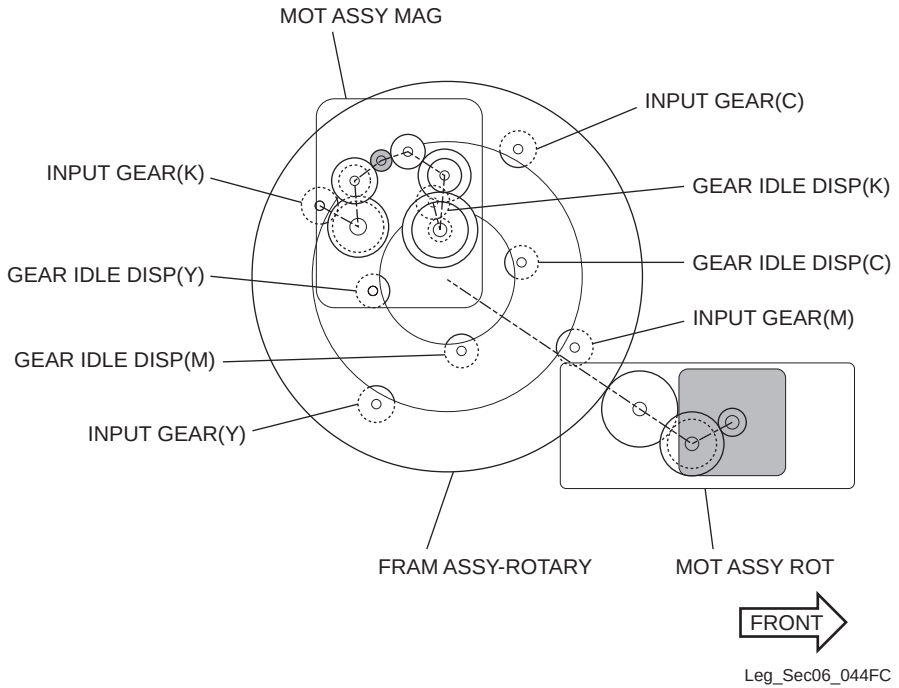


Figure 2-24. Diagram of Drive Transmission Path

2.3.4 MOTOR ASSY DUP

Rotation of MOTOR ASSY DUP is transmitted as follows:

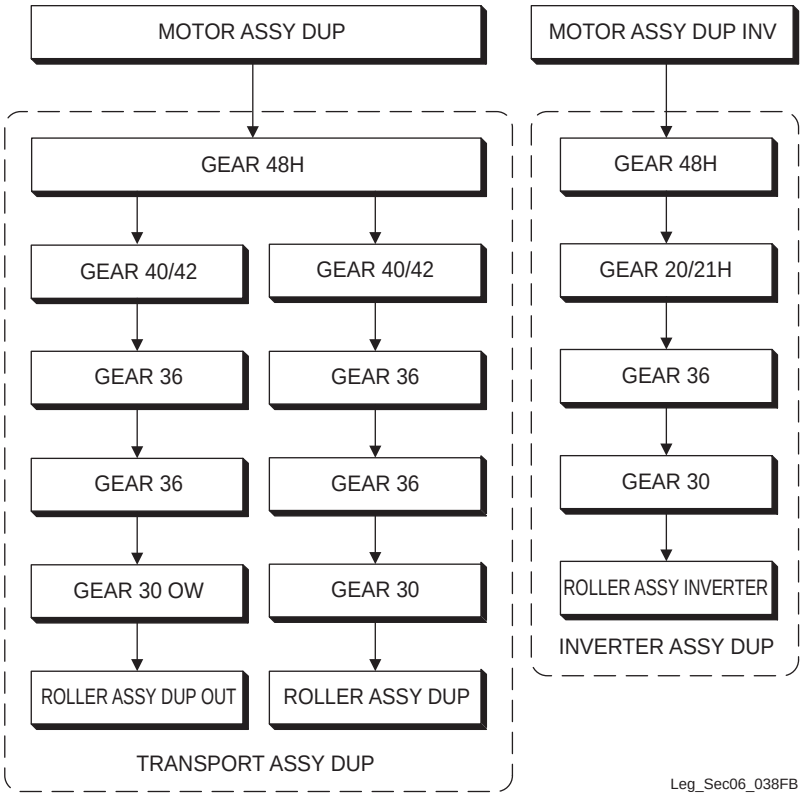


Figure 2-25. Drive Transmission Flow

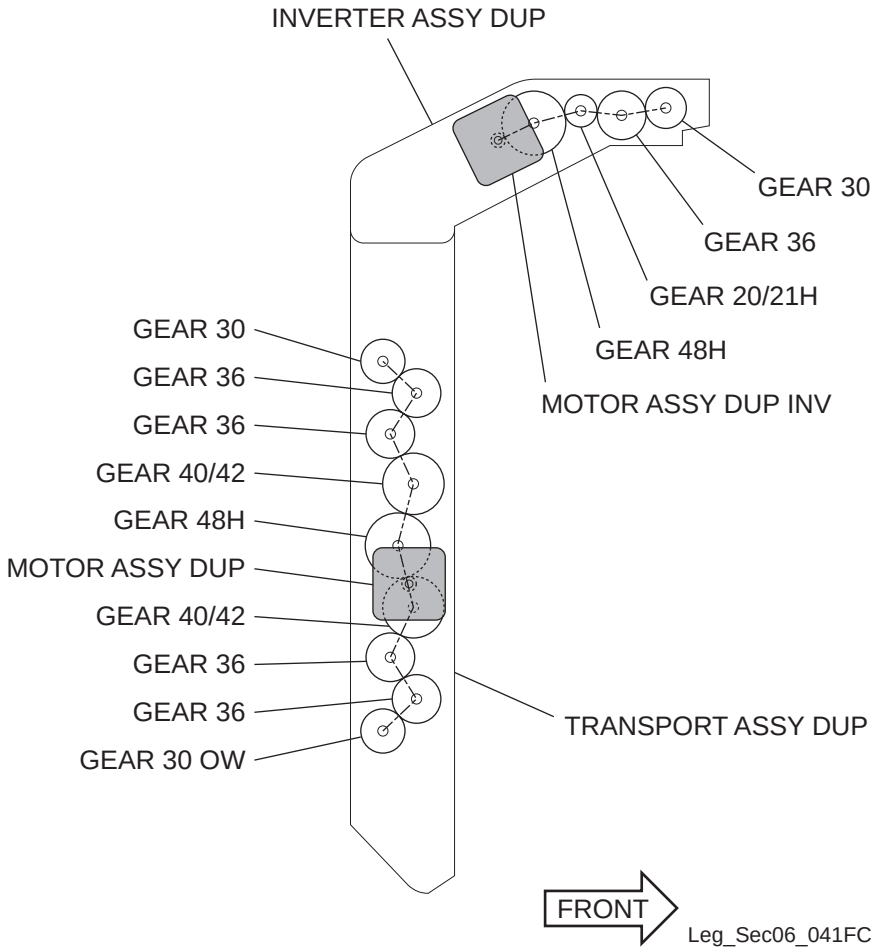


Figure 2-26. Diagram of Drive Transmission Path

2.3.5 MOTOR ASSY FSR

Rotation of MOTOR ASSY FSR is transmitted as follows:

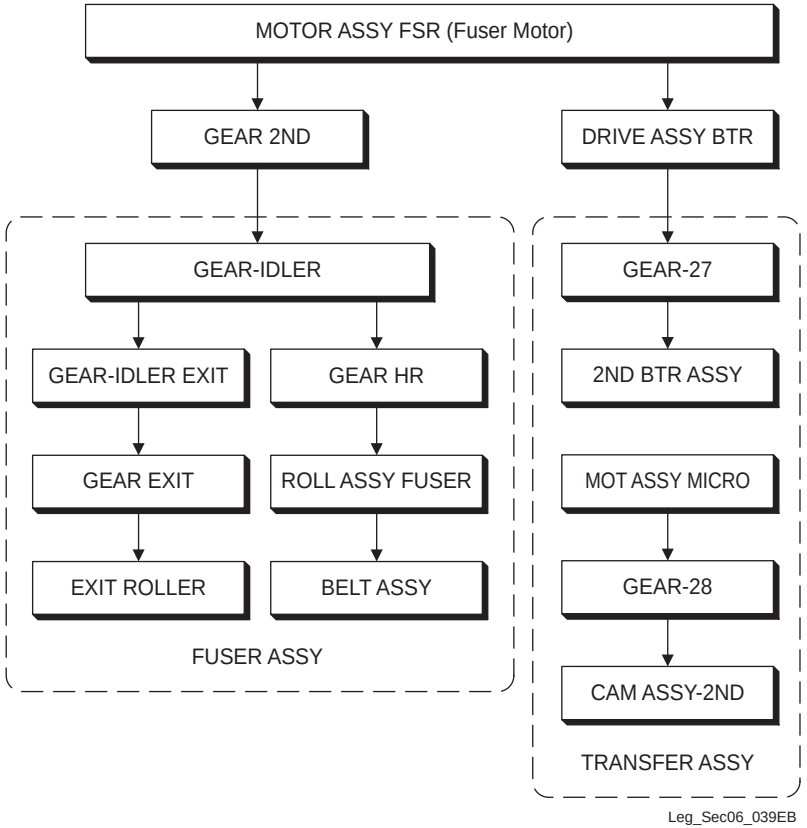


Figure 2-27. Drive Transmission Flow

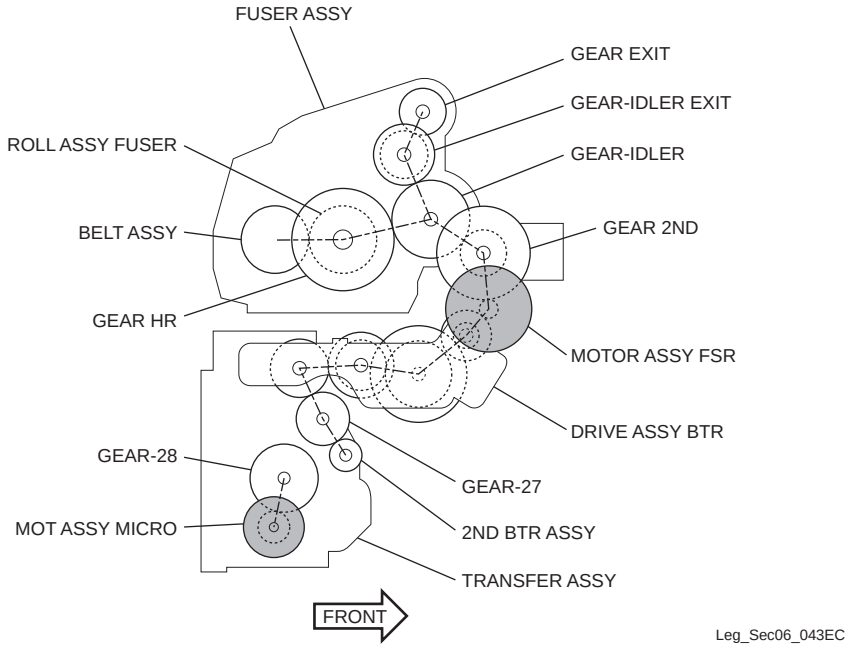


Figure 2-28. Diagram of Drive Transmission Path

2.3.6 MOTOR-PH

Rotation of MOTOR-PH is transmitted as follows:

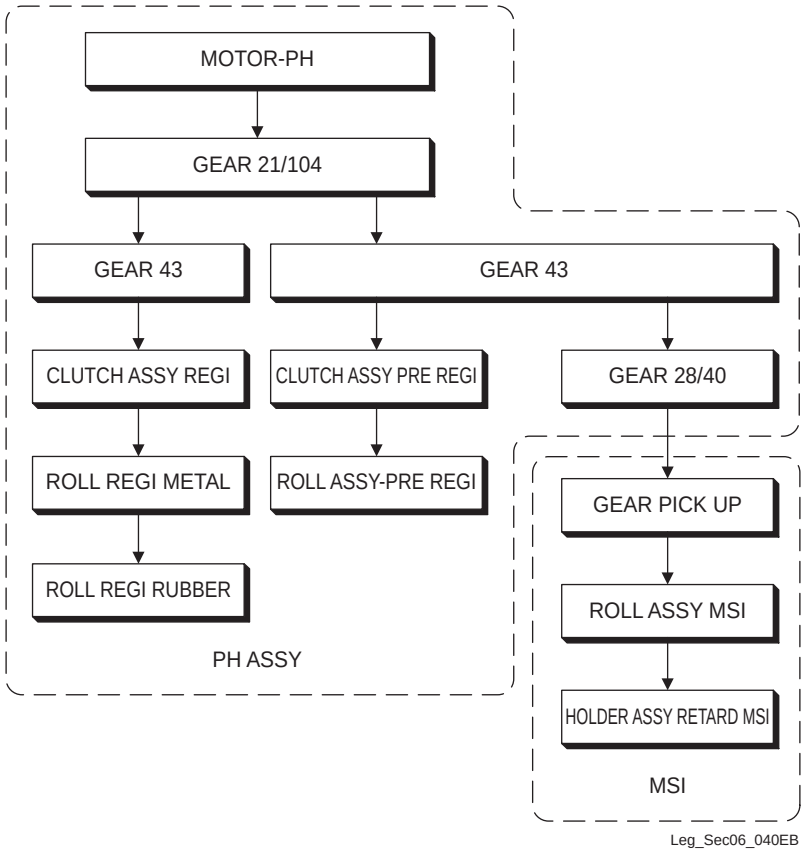


Figure 2-29. Drive Transmission Flow

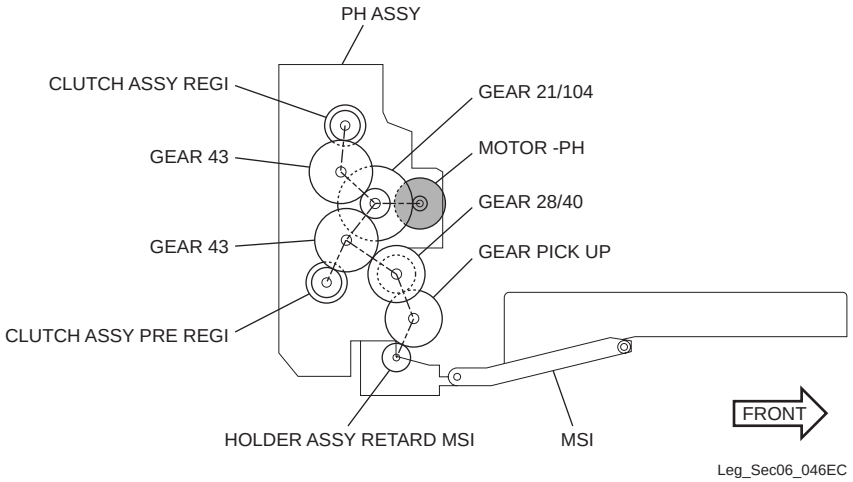


Figure 2-30. Diagram of Drive Transmission Path

2.4 Paper Feed

This section explains and illustrates the main functional components that make up the paper feed section. The components are divided into four blocks as follows based on the basic configuration.

- ☐ MSI (Multi Sheet Inserter)
- ☐ Registration & FUSER
- ☐ 500 Paper Feeder
- ☐ Duplex (Option)

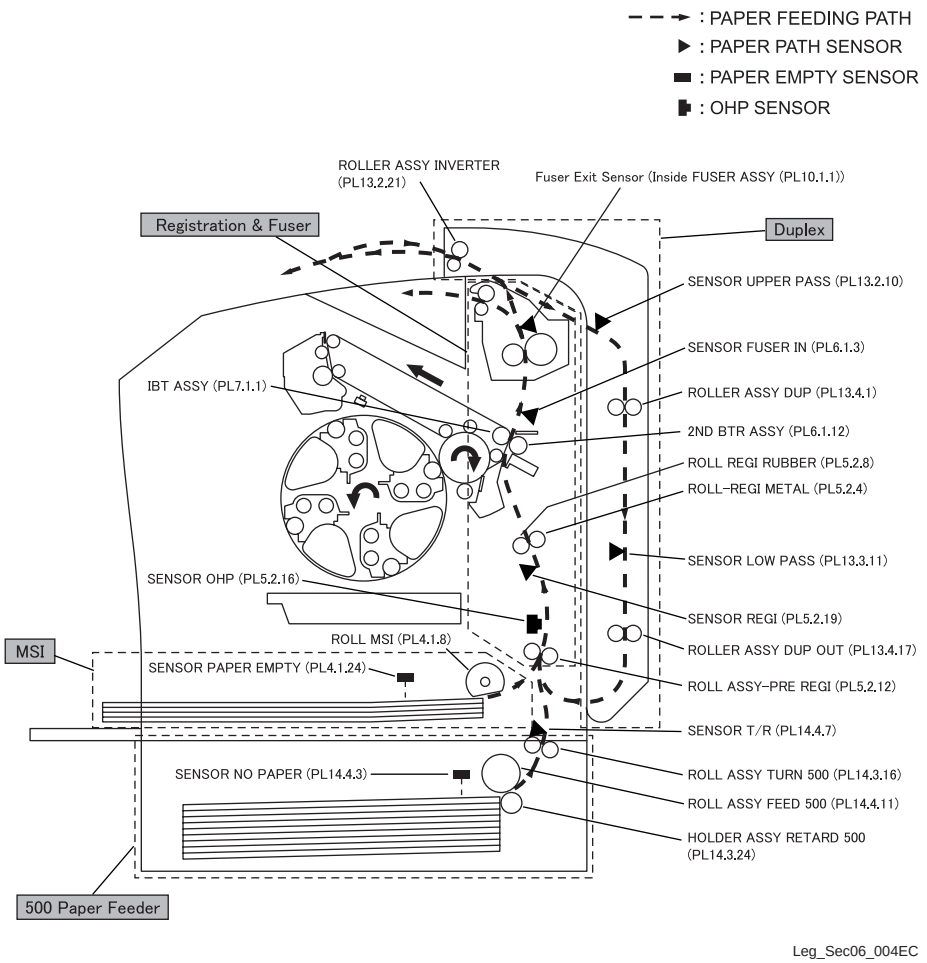


Figure 2-31. Paper Feed Path Layout

2.4.1 MSI (Multi Sheet Inserter)

MAIN FUNCTIONS

- GUIDE SIDE L/GUIDE ASSY SIDE R
  GUIDE SIDE L and GUIDE ASSY SIDE R move crossways of the paper feed direction, and true up the left and right edges of sheets of paper.
- SOLENOID PICK UP
  The SOLENOID PICK UP controls rotation of GEAR PICK UP. When the Solenoid is excited, GEAR PICK UP is unlocked, and ROLL MSI rotates by drive of the MOTOR-PH.
- PLATE BOTTOM ASSY MSI
  PLATE BOTTOM ASSY MSI is normally pressed down by the Cam attached to the shaft. During paper feed, the shaft rotates, releasing the clamping action of the cam, and the paper is pressed against the ROLL MSI by spring pressure.
- ROLL MSI
  Paper that is pressed down by the PLATE BOTTOM ASSY MSI is fed by the frictional force of the ROLL MSI.
- SENSOR PAPER EMPTY
  The SENSOR PAPER EMPTY detects the presence of paper. When the printer runs out paper, the actuator of the sensor comes down by its own weight and shields the sensor, and the no paper state is detected. (No paper state : Shielding the sensor)

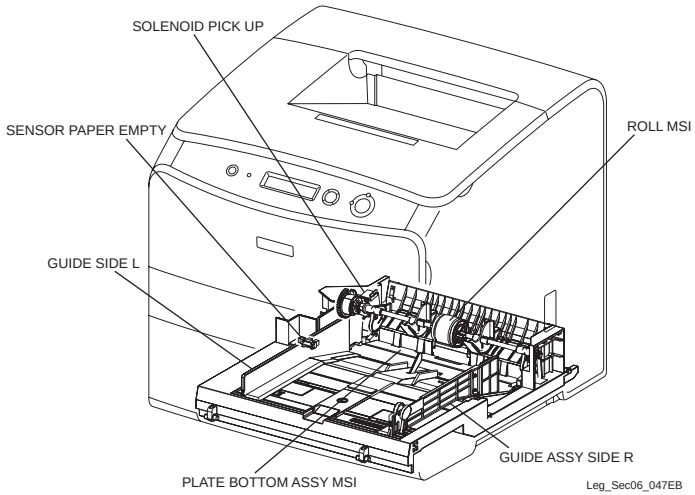


Figure 2-32. Main Components of MSI (1)

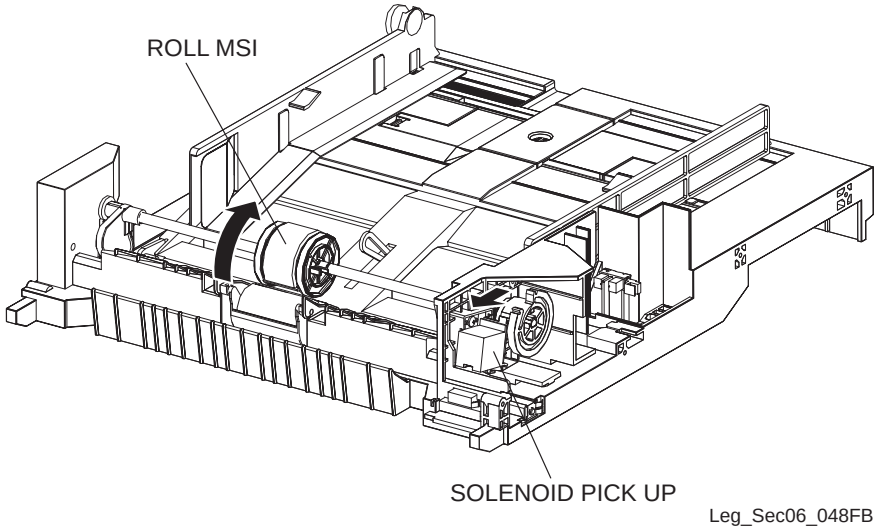


Figure 2-33. Main Components of MSI (2)

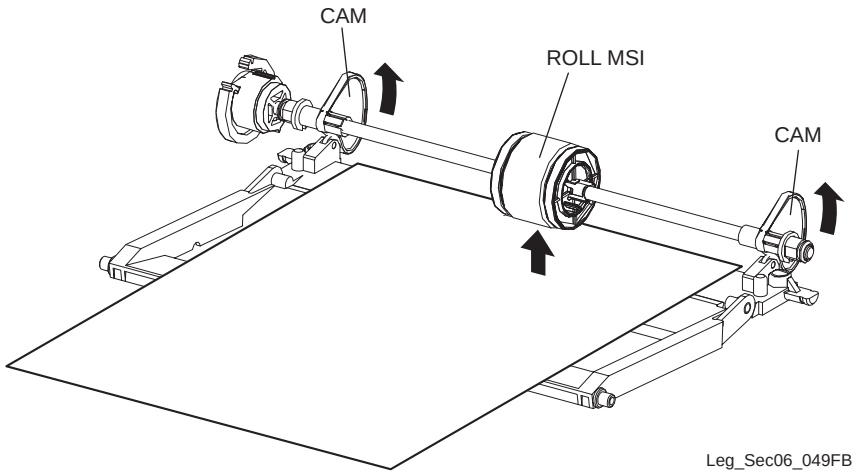


Figure 2-34. Operation of PLATE BOTTOM ASSY MSI

2.4.2 Registration & FUSER

MAIN FUNCTIONS

- CLUTCH ASSY PRE REGI
  The drive from the MOTOR-PH is transmitted to the ROLL ASSY-PRE REGI, and paper is fed to the registration section.
- SENSOR OHP
  This reflective sensor detects whether the print media is plain paper or transparencies. If the light emitted from the light emitter of the sensor is reflected by the media, the sensor judges that the media is plain paper.
- SENSOR REGI
  This sensor detects that the leading edge of the paper has reached the Regi Assy. (No paper state: Light enters the sensor)
- CLUTCH ASSY REGI
  The drive from the MOTOR-PH is transmitted to the ROLL-REGI METAL, and paper is fed to the transfer section.
- MOTOR-PH
  This DC motor drives the MSI and the Rolls in the registration section.
- SENSOR FUSER IN
  This reflective sensor detects that paper has come to just before the fusing section.
- FUSER ASSY
  This fixes the completed toner image that was transferred by the 2nd BTR on the paper, and feeds the paper before and after fixing.
- Fuser Exit Sensor (Inside the FUSER ASSY)
  This sensor detects that paper has been ejected from the Fuser.
  (No paper state : Shielding the sensor)

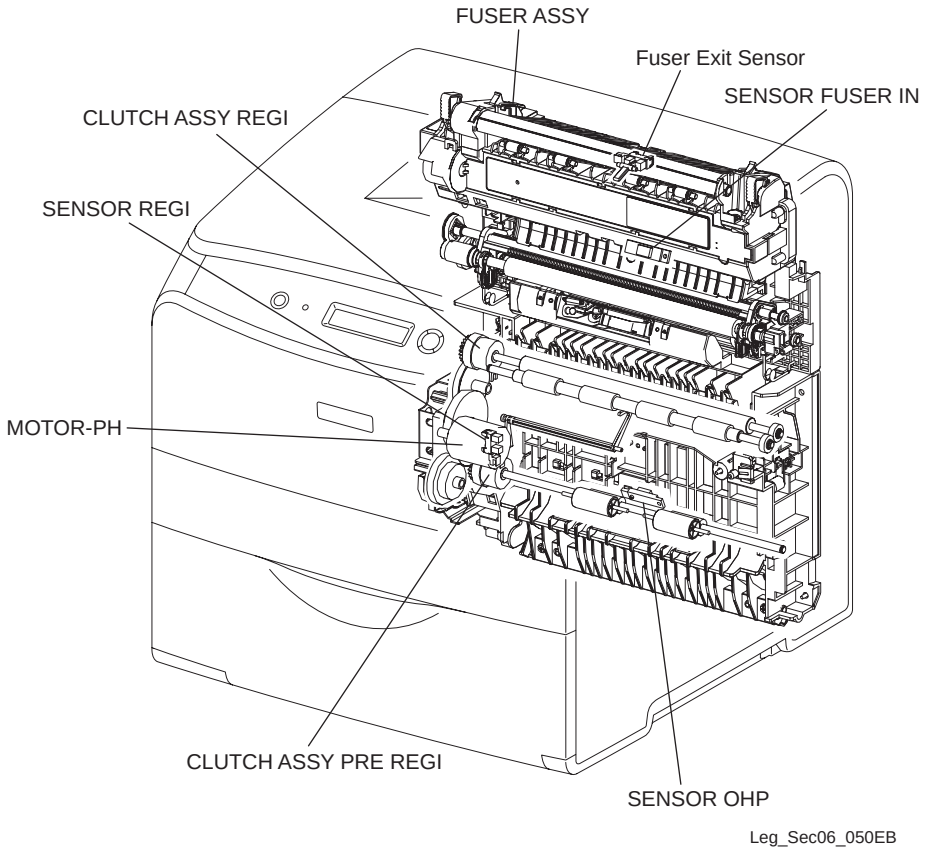


Figure 2-35. Main Components of Registration & FUSER

2.4.2.1 Adjusting the leading edge of the paper

If paper is fed up to the toner transfer section from the tray or cassette without adjusting the alignment of the paper, the image sometimes cannot be transferred at the correct position. In the registration section, the leading edge of the paper is aligned to the correct position by the “Roll Loop” system.
The paper, which has passed through the ROLL ASSY-PRE REGI, is pressed against the stopped ROLL-REGI METAL by the “Roll Loop” system to make the paper curved. When the ROLL-REGI METAL is rotated with the paper curved, the paper can be fed from the ROLL-REGI METAL without displacement.

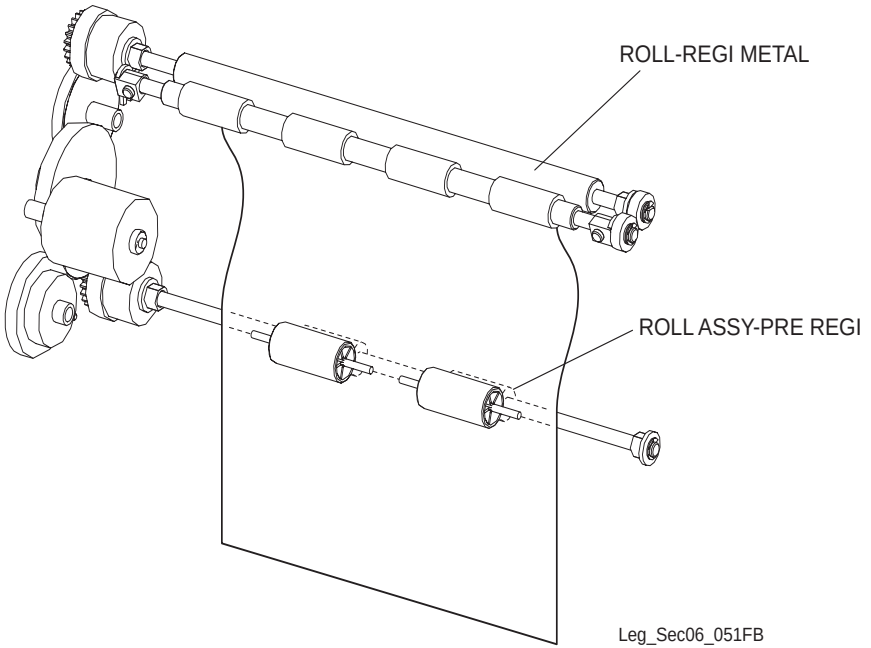


Figure 2-36. Adjusting the leading edge of the paper

2.4.3 500 Paper Feeder

MAIN FUNCTIONS

- CONNECTOR (HARNESS-ASSY FEED1)
  This is used for performing communications with the main unit and supplying power to the Paper Feeder.
- PWBA TRAY 500
  Controls Motors and Sensors in the 500 Paper Feeder.
- 500 PAPER CASSETTE ASSY
  The Paper Cassette Tray can load 500 sheets of paper.
- GUIDE PAPER L ASSY 500 / GUIDE PAPER R ASSY 500
  GUIDE PAPER L ASSY 500 and GUIDE PAPER R ASSY 500 move crossways of the paper feed direction, and true up the left and right edges of sheets of paper.
- GUIDE END ASSY
  The GUIDE END ASSY moves parallel to the paper feed direction, and true up the top and bottom edges of sheets.
- PLATE ASSY BOTTOM 500
  The PLATE ASSY BOTTOM 500 locks on the bottom side when the 500 PAPER CASETTE ASSY is drawn out of the Paper Feeder. When the 500 PAPER CASETTE ASSY is inserted into the Paper Feeder, the PLATE ASSY BOTTOM is unlocked, and paper is pressed against the ROLL ASSY FEED 500 by the force of the spring.
- MOTOR ASSY FEEDER
  The MOTOR ASSY FEEDER drives the ROLL ASSY FEED 500 and ROLL ASSY TURN 500.
- ROLL ASSY TURN 500
  Feeds the paper fed by the ROLL ASSY FEED 500 to the registration section.
- SENSOR T/R
  This sensor detects that paper is fed from the 500 PAPER CASSETTE ASSY. (No paper state : Shielding the sensor)
- SENSOR NO PAPER
  The SENSOR NO PAPER detects the presence of paper. When the printer runs out paper, the actuator of the sensor comes down by its own weight to shield the sensor, and the no paper state is detected. (No paper state : Shielding the sensor)
- SWITCH FEEDER DOOR
  SWITCH FEEDER DOOR detects whether the Tray door is opened or closed.

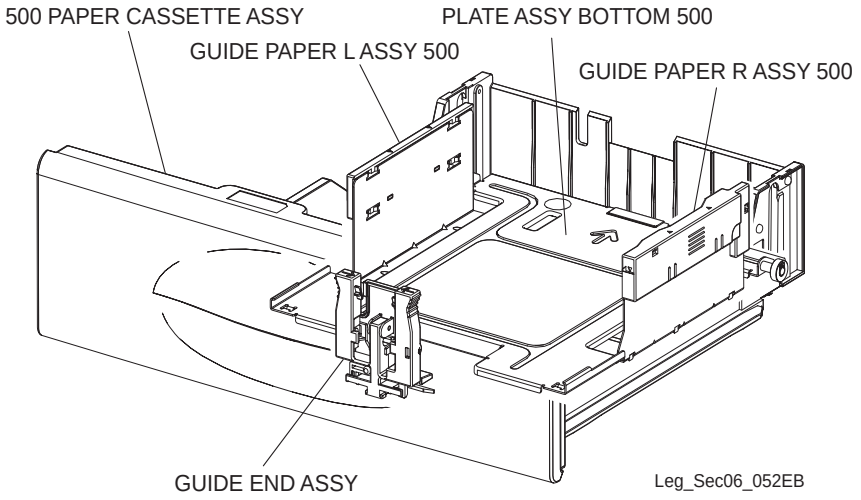


Figure 2-37. Main Components of 500 Paper Feeder (1)

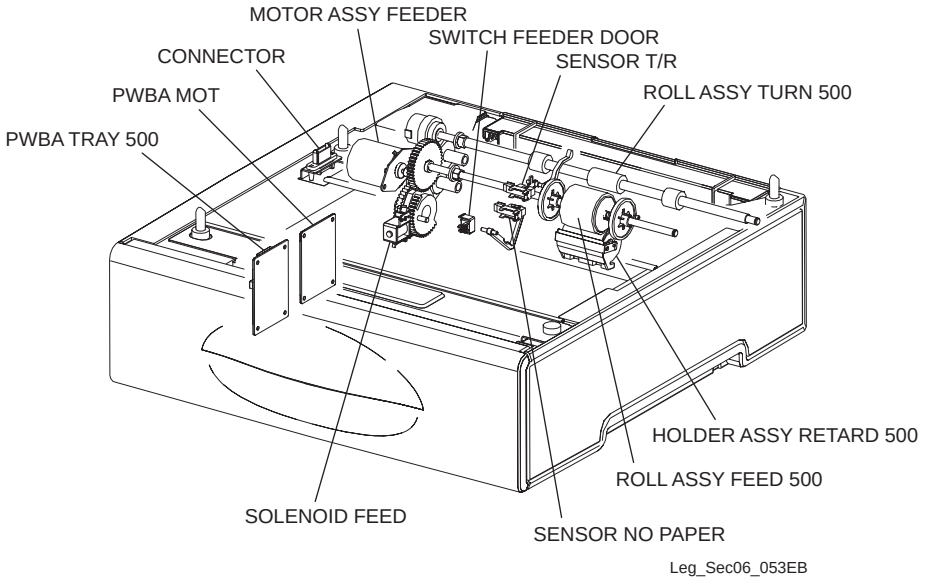


Figure 2-38. Main Components of 500 Paper Feeder (2)

- SOLENOID FEED
  The SOLENOID FEED controls rotation of the Feed Gear. When the SOLENOID FEED turns ON, the Feed Gear is unlocked and Feed Roll rotates. The SOLENOID FEED is repeatedly turned ON/OFF each time a sheet is fed to control the feeding timing.
- ROLL ASSY FEED 500
  Paper that is pressed down by the PLATE ASSY BOTTOM 500 is fed by the frictional force of ROLL ASSY FEED 500. When the 500 PAPER CASETTE ASSY is drawn out, the nip with the HOLDER ASSY RETARD 500 is released.
- LOCK MC TO FDR
  Turn the levers on the left and right to firmly lock the 500 Paper Feeder to the main unit.

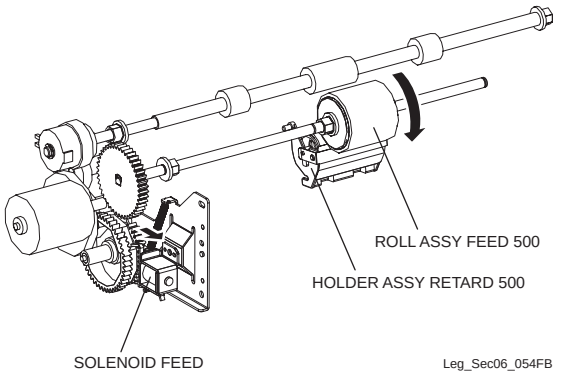


Figure 2-39. Operation of SOLENOID FEED

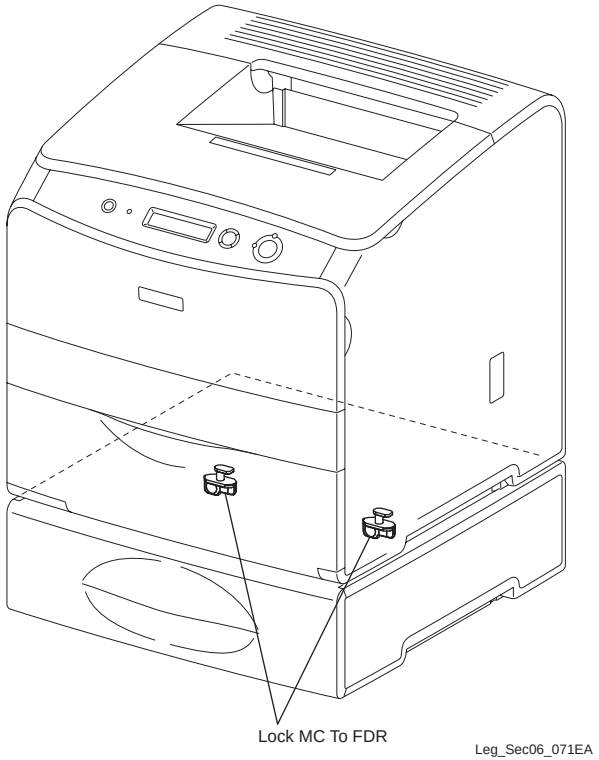


Figure 2-40. LOCK MC TO FDR

2.4.4 Duplex

MAIN FUNCTIONS

- SWITCH-DUP DOOR
  The SWITCH-DUP DOOR detects whether the Duplex door is opened or closed.
- SOLENOID ASSY DUP
  The SELENOID ASSY DUP switches the gate inside the Fuser. When the SELENOID ASSY DUP turns ON, the actuator pushes the gate up, and the paper is fed to the Invert section.
- MOTOR ASSY DUP INV
  The MOTOR ASSY DUP INV drives the ROLLER ASSY INVERTER, and feeds paper to the Transport section. When the paper ejected from the Fuser comes to the catch tray side, the Motor starts to rotate in reverse, and the paper is fed to the Transport section.
- SENSOR UPPER PASS
  The SENSOR UPPER PASS detects that paper has been fed to the reversing section of the Duplex. (No paper state : Shielding the sensor)
- MOTOR ASSY DUP
  MOTOR ASSY DUP drives ROLLER ASSY DUP and ROLLER ASSY DUP OUT to feed paper inside the Transport section.
- SENSOR LOW PASS
  The SENSOR LOW PASS detects that paper has been fed inside the Transport section. (No paper state : Shielding the sensor)
- PWBA DUP-L
  The PWBA DUP-L controls the motors and sensors inside the duplex unit.

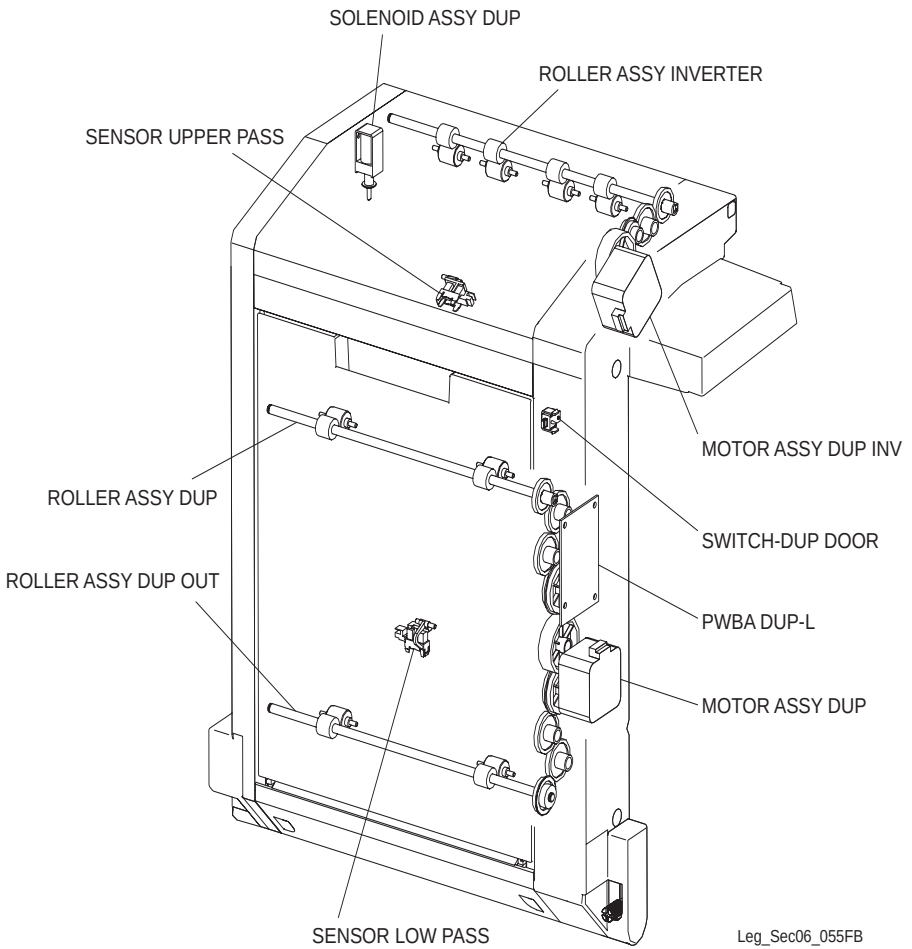


Figure 2-41. Main Functional Components of Duplex

2.5 Xerographic

This section explains and illustrates the main functional components that consist of the Xerographic.

- The Xerographic is divided into the following four blocks based on the basic configuration.
  - ROS ASSY
  - Photoconductor Unit
  - Development
  - 2nd BTR & FUSER

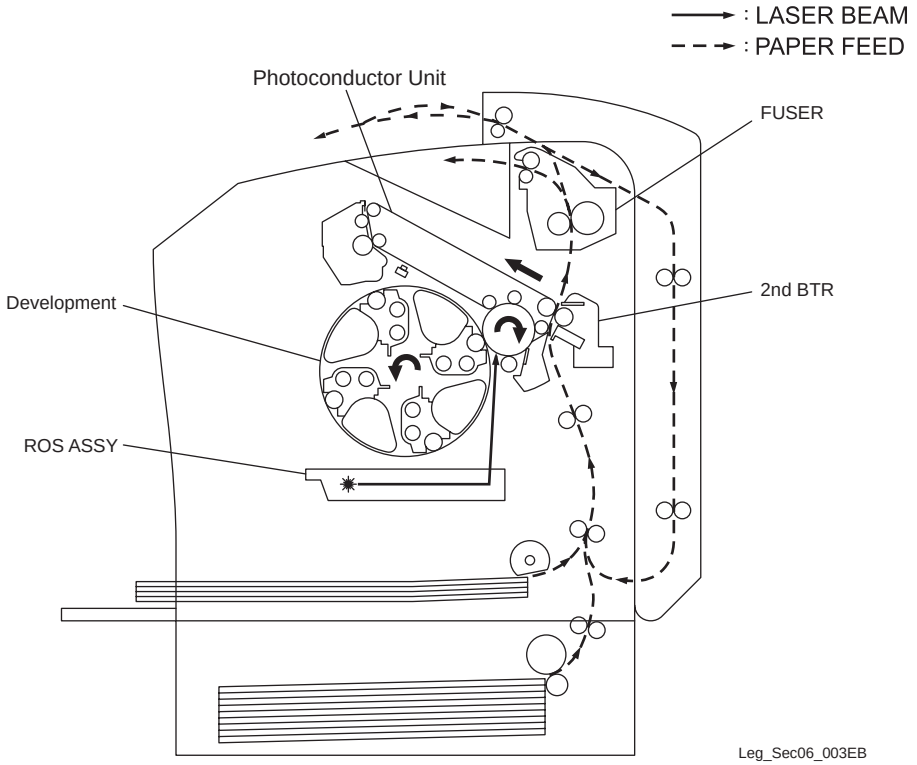


Figure 2-42. Xerographic Structure

2.5.1 ROS

MAIN FUNCTIONS

- ROS ASSY
  - ROS ASSY (Raster Output Scanner Assembly) is the exposure unit that outputs the laser beam to make the electrostatic latent image on the drum surface. (From here on, ROS ASSY is simply called “ROS.”)
    ROS consists of the components shown in Figure 2-43.
  - The PWBA LD (Laser Diode) converts the image data (electric signal), to laser light ON/OFF signals.
    PWBA LD constantly monitors the laser light intensity so that laser intensity stabilizes to the appropriate level when making the electrostatic latent image. This is called " APC (Automatic Power Control".
  - The Scanner Assy consists of a Scanner Motor that operates at a fixed speed and a polygon mirror attached to the Motor’s rotary shaft.
    The laser beam emitted from the PWDA LD is irradiated on the polygon mirror.
    The polygon mirror has six reflecting mirror surfaces, and the angle of the reflected laser beam changes by rotation of the Scanner Motor. This lets the laser beam scan across on the Drum from side to side. The laser beam makes a single line on the Drum with one reflective mirror.
  - The laser beam reflected by the polygon mirror passes through the lens, mirror and window to reach the drum surface. The lens functions to compensate for aberration, the mirror to ensure an optical path, and the window to prevent the entry of foreign bodies into ROS.
  - The timing to start writing image data must synchronize exactly with the beginning of laser scanning in order to properly form an electrostatic latent image on the drum surface. When the SOS sensor on the PWBA SOS (Start Of Scan) receives the laser beam, it converts the laser into an electric signal (SOS signal) for detecting the initial position (start of scan reference point) for scanning the various lines.

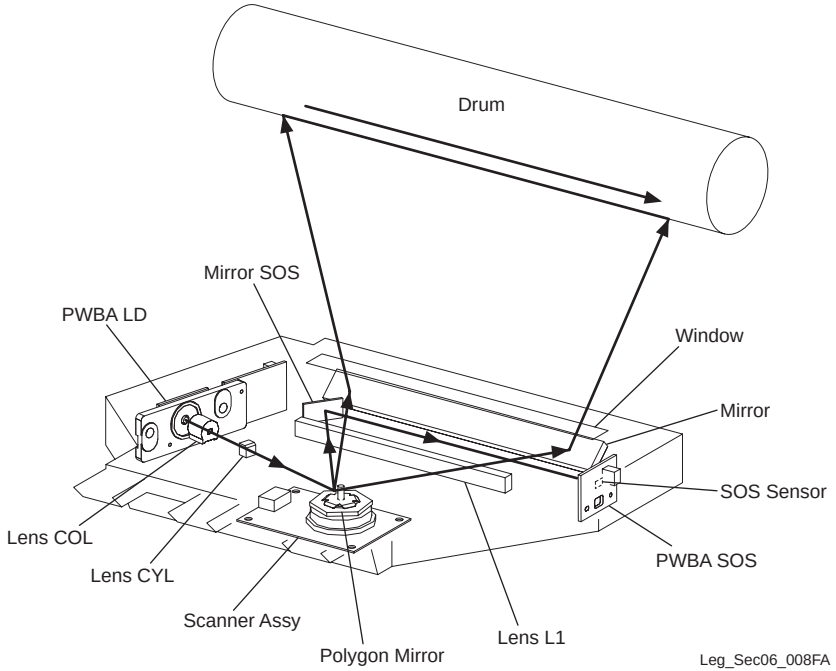


Figure 2-43. Main Functional Components of ROS

2.5.2 Photoconductor Unit

MAIN FUNCTIONS

Photoconductor Unit consists of the Belt, Belt Cleaner, Drum, Drum Cleaner, 1st BTR, and Waste Toner Boxes for each cleaner. And ANTENNA ASSY, SENSOR TR-0, SENSOR ASSY ADC, SENSOR IBT RETRACT, SENSOR HUM & TEMP, MOT ASSY P/R, IBT Brush Motor, and IBT Cleaner Retract Motor are installed inside the printer for control of Photoconductor Unit operation.

- Photoconductor Unit
  - The toner images of each color developed on the drum surface are transferred to the IBT Belt one color at a time from 1st BTR, and the full color toner image is formed by overlaying the four colors. The full color toner image is transferred to paper by positively charging the paper with the 2nd BTR.
  - Toner remaining on the Belt surface is collected in the Waste Toner Box by the Cleaning Blade and brush in the Belt Cleaner.
  - The Drum is made of conductive material (aluminum cylinder) coated with a photosensitive material which becomes insulating material in darkness and becomes conductive when it is subjected to light. The Drum Cleaner consists of a Cleaning Blade and Waste Toner Box, and scrapes off toner remaining on the drum surface by the Cleaning Blade that contacts with the drum.The Waste Toner Box contains an actuator for SENSOR TNER FULL. This actuator operates as the amount of collected waste toner increases to block light entering the sensor to detect a full toner state.
  - The 1st BTR is a conductive roller, and is charged positively by the HVPS. The 1st BTR contacts the back side of the belt to positively charge it.
  - Specific data relating to Photoconductor Unit is stored in CRUM XERO.
- IBT Brush Motor (DRIVE ASSY PRO)
  IBT Brush Motor drives the brush in the Belt Cleaner.
- IBT Cleaner Retract Motor (DRIVE ASSY PRO)
  The IBT Cleaner Retract Motor drives the cam to make the Belt Cleaner to contact with the IBT Belt.
- SENSOR IBT RETRACT
  The SENSOR IBT RETRACT detects the position of the cam for retracting the Belt Cleaner.
- MOT ASSY P/R
  MOT ASSY P/R drives the Drum. The Motor is connected to the Drum via a coupling.
- SENSOR TR-0
  Sensor TR-0 detects the position of the Belt by reading the silver sticker on the Belt surface outside the toner image formation area.
- SENSOR ASSY ADC
  SENSOR ASSY ADC reads the toner patch densities on the Belt immediately before secondary transfer, and converts the read densities to voltage values. These voltage value are used for controlling toner density.
- SENSOR HUM & TEMP
  SENSOR HUM & TEMP detects the temperature and humidity inside the printer, and converts these to voltage values. These voltage value are used for controlling toner density.

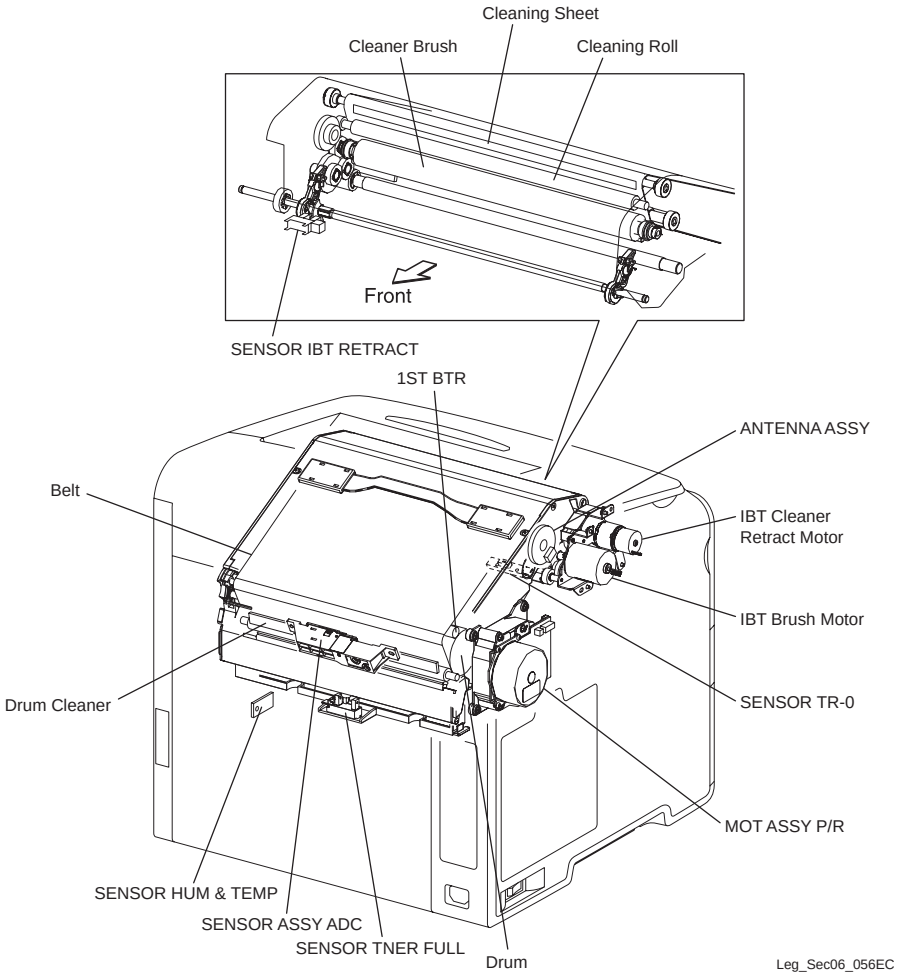


Figure 2-44. Main Functional Components of Photoconductor Unit

- SENSOR TNER FULL

  SENSOR TNER FULL detects the full state of the Waste Toner Box. Toner remaining on the drum is scraped off by the Cleaning Blade, and collected in the Waste Toner Box. The Waste Toner Box is provided with an actuator for blocking light entering the sensing element on the SENSOR TNER FULL. The actuator is supported by a spring, and is designed to gradually fall by the weight of the toner. When the actuator falls and blocks the SENSOR TNER FULL, the printer detects that the Waste Toner Box is full.

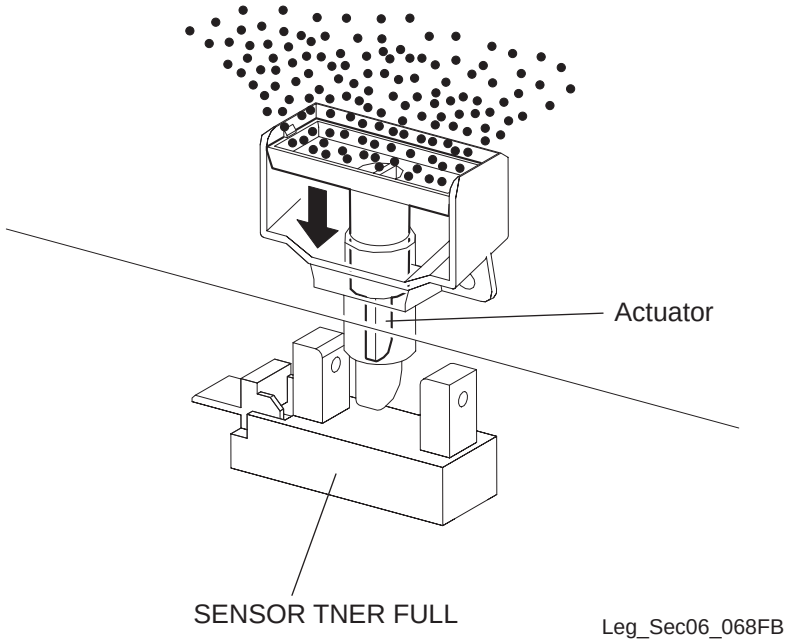


Figure 2-45. SENSOR TONER FULL Mechanism

2.5.3 Development

MAIN FUNCTIONS

The Rotary Developer consists of four (four colors) Toner Cartridges, ANTENNA CTRG, HOUSING ASSY-DEVE, and FRAME ASSY ROTARY. And Dispense Clutch, MOT ASSY MAG, MOT ASSY ROT, and SENSOR ROTARY HOME POSI are installed inside the printer for control of Rotary Developer operation.

- Toner Cartridge
  - Toner Cartridge supplies toner and carrier. And it has a separate chamber for collecting depleted carrier. This is called “Trickle Developing System”.
  - Specific data relating to the Toner Cartridge is stored on the ANTENNA CTRG. Writing of data to the ANTENNA CTRG is performed by wireless communications.
- HOUSING ASSY-DEVE
  The HOUSING ASSY-DEVE is provided for each of the Y, M, C and K colors. Each HOUSING ASSY-DEVE consists of a special Auger for stirring and supplying Toner, a Magnet Roll for attracting magnetic carrier, forming the development layer and supplying toner to the drum, and a Trimmer Blade for making a uniform development layer on the Magnet Roll.
  The Frame Assy-Rotary has holes for inserting the bosses of the HOUSING ASSY-DEVE. To prevent inserting another color's by mistake, the location of the holes are different from each other.

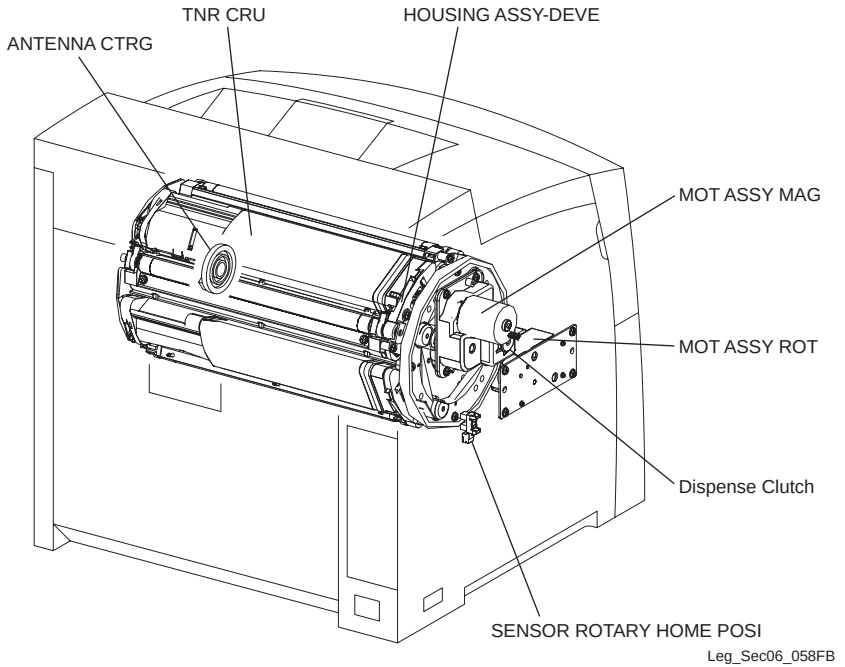


Figure 2-46. Main Components of Development

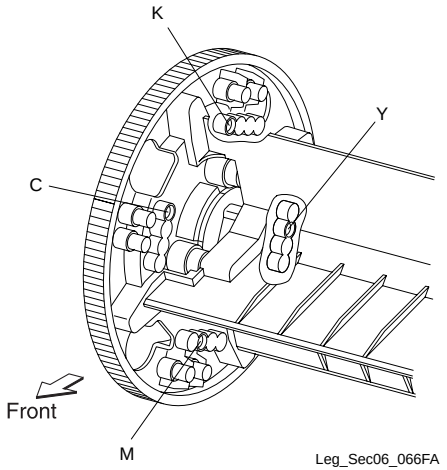


Figure 2-47. Structure of HOUSING ASSY-DEVE to prevent wrong insertion

- Dispense Clutch (Inside the MOT ASSY MAG)
  The Dispense Clutch is provided to transmit the drive of MOT ASSY MAG to rotate the Augers for supplying toner.
- MOT ASSY MAG
  The MOT ASSY MAG rotates the Magnet Roll in the HOUSING ASSY-DEVE.
- MOT ASSY ROT
  The MOT ASSY ROT rotates the FRAME ASSY ROTARY that holds the HOUSING ASSY-DEVE.
- SENSOR ROTARY HOME POSI
  The SENSOR ROTARY HOME POSI detects the position of the Rotary Developer to keep the Developer in the right position. The home position is about 10 degrees CW from the transfer position of the black toner Developer.
- LATCH ROTARY
  LATCH ROTARY is interlocked with movement of the Front Cover. When the Front Cover is closed, LATCH ROTARY is pressed by the protrusion on the Front Cover to lock the Rotary Developer. When the Front Cover is opened, LATCH ROTARY returns to the release position to unlock the Rotary Developer.

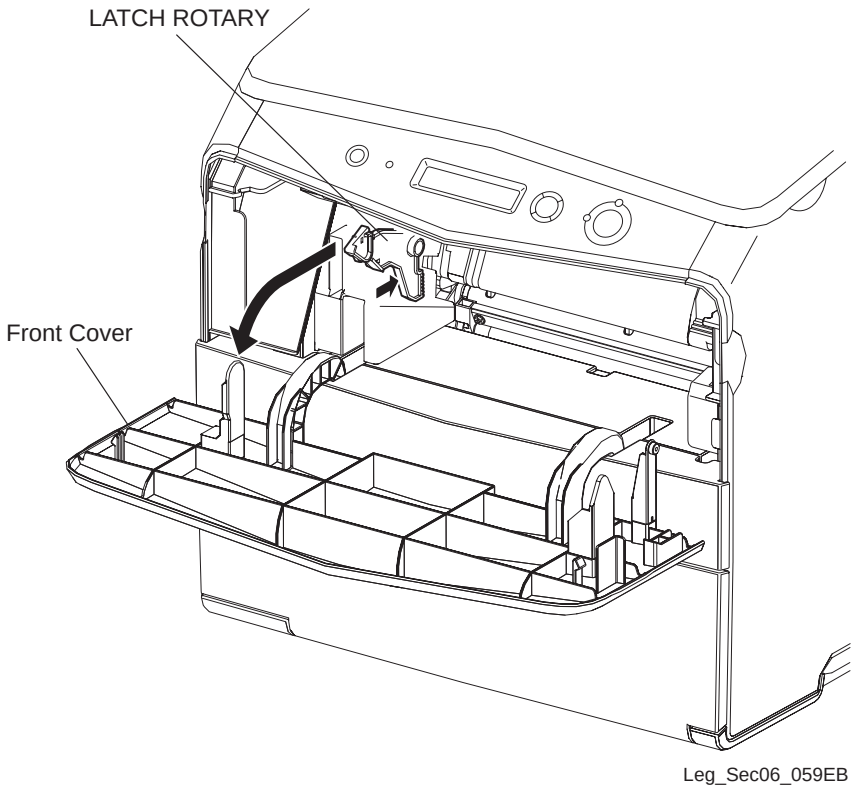


Figure 2-48. LATCH ROTARY

2.5.4 Second BTR & FUSER

MAIN FUNCTIONS

- 2ND BTR ASSY
  The Second BTR (2ND BTR ASSY) is a conductive roll. It contacts the back of paper (back of the side to be printed on) and a voltage is applied from the HVPS.
- MOT ASSY MICRO
  MOT ASSY MICRO makes the BTR contact the paper during 2nd transfer process, and releases BTR from the paper after the 2nd transfer. When the Motor starts to operate, the shaft rotates to rotate the cam attached to the shaft. The lever attached with the BTR is pressed by the eccentric cam, and the BTR contacts the paper to transfer the toner image to the paper. After completion of the transfer, the lever returns to its original position by spring force when the Motor starts to operate again. This causes the BTR to return to the non-contact position.
- SENSOR 2BTR RETRACT
  The position of BTR is detected by the SENSOR 2BTR RETRACT. The shaft with the cam for contacting/releasing BTR is provided with a Sensor actuator. The non-contact state of BTR is detected by the actuator shielding the Sensor, and the contact state of the BTR is detected when the Sensor is subjected to light.
- FUSER ASSY
  The FUSER ASSY fixes the completed toner image transferred on the paper by heat and pressure. It also functions to feed paper before and after fixing, and feed paper to the eject tray or Duplex by switching the gate inside the Fuser.
  The Fuser consists of the following parts:
  - Heat Roll
  - Belt
  - Heater Lamp
  - Exit Roll
  - Thermostat
  - Temp. Sensor
  - Exit Sensor

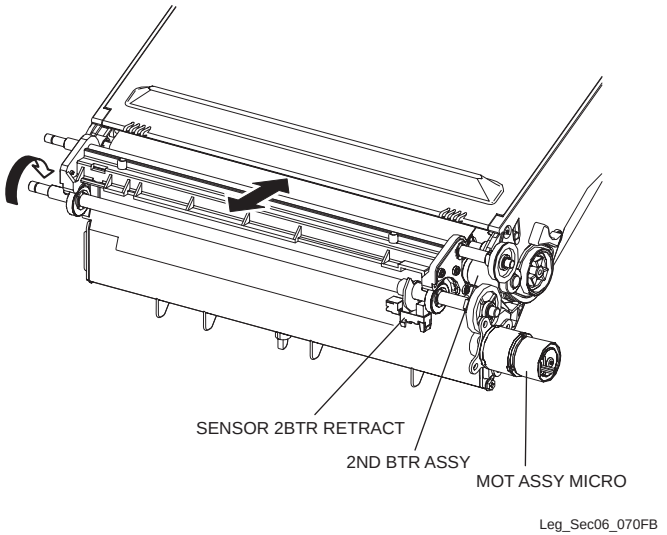


Figure 2-49. Retracting operation of Second BTR

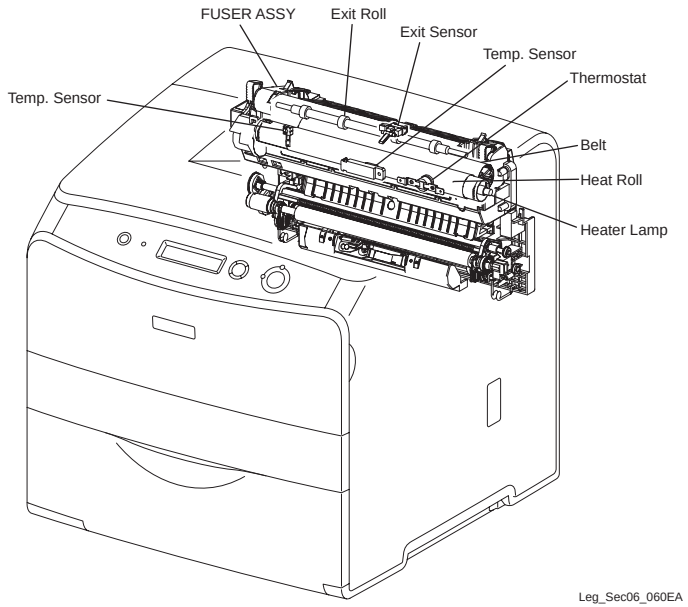


Figure 2-50. Main Components of FUSER

2.6 Electrical

This section explains and illustrates the main functional components making up the Electrical system.

MAIN FUNCTIONS

- PWBA MCU
  PWBA MCU performs communication with the printer controller, and controls the parts to perform printing operations.
- LV/HVPS
  LV/HVPS supplies +24 VDC, + 5VDC and +3.3 VDC to each of the parts from the AC power supply, and supplies high voltage to the parts for transferring and discharging.
- PWBA HVPS
  PWBA HVPS supplies high voltage to IBT Cleaner, 2nd BTR, and Cleaning Sheet.
- PWBA FUSER CONT
  PWBA FUSER CONT performs ON/OFF control of Fuser Lamp, and turns the AC power to be supplied to the printer ON/OFF by the switch located on PWBA.
- PWB ASSY ROT
  PWB ASSY ROT creates the pulse for the motors according to input signal from the PWBA MCU and supplies the pulse signal to the motors.

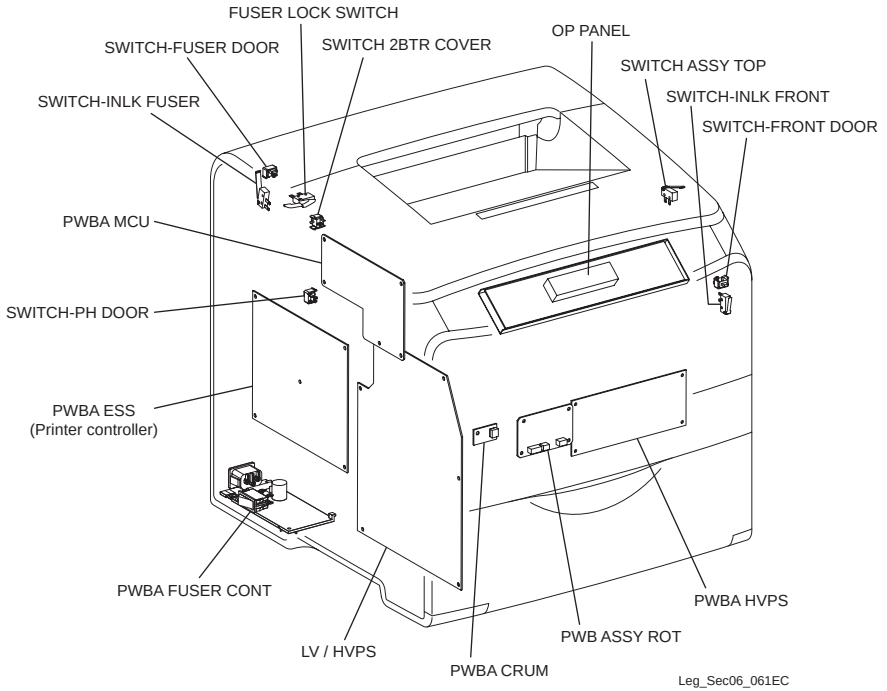


Figure 2-51. Main Functional Components of Electrical

- PWBA ESS (Printer controller)
  PWBA ESS converts the print data is input via the network, USB, parallel ports, or other interfaces, and performs communications with the computer. The memory can be expanded up to 256 MB with an additional memory (option).
- OP PANEL
  OP PANEL displays the printer status on the LCD or by LEDs. Printer operations are performed by the buttons on OP PANEL.
- SWITCH-FUSER DOOR
  SWITCH-FUSER DOOR detects whether the COVER FUSER is opened or closed.
- SWITCH-PH DOOR
  SWITCH-PH DOOR detects whether the CHUTE ASSY REAR is opened or closed.
- PWBA CRUM
  This non-volatile memory saves printer information. (Non-Volatile Memory)
- SWITCH 2BTR COVER
  SWITCH 2BTR COVER detects whether the COVER-PR 2ND is opened or closed.
- SWITCH ASSY TOP
  SWITCH ASSY TOP is a switch to cut the +24VDC power supply for driving motors and other parts when the COVER TOP is opened. Detection of opening/ closing is performed by detecting a change in voltage caused +24 VDC being conversed to +3.3 VDD by the +24 VDC dividing circuit in MCU.
- SWITCH-INLK FUSER
  SWITCH-INLK FUSER is a switch to cut the +24VDC power supply for driving motors and other parts when the COVER FUSER is opened.
- SWITCH-INLK FRONT
  SWITCH-INLK FRONT is a switch to cut the +24VDC power supply for driving motors and other parts when the COVER FRONT ASSY U is opened.
- SWITCH-FRONT DOOR
  SWITCH-FRONT DOOR detects whether the COVER FRONT ASSY is opened or closed.
- FUSER LOCK SWITCH
  This printer is equipped with a FUSER LOCK SWITCH for detecting the mounting state of the FUSER ASSY. When the FUSER ASSY is not locked or not adequately locked by the latch lever, the FUSER LOCK SWITCH cuts the coil power supply for the Fuser Lamp power supply relay inside PWBA FUSER CONT. This causes the printer a service call error “E537 FUSER ASSY error” to prevent the printer from operating.

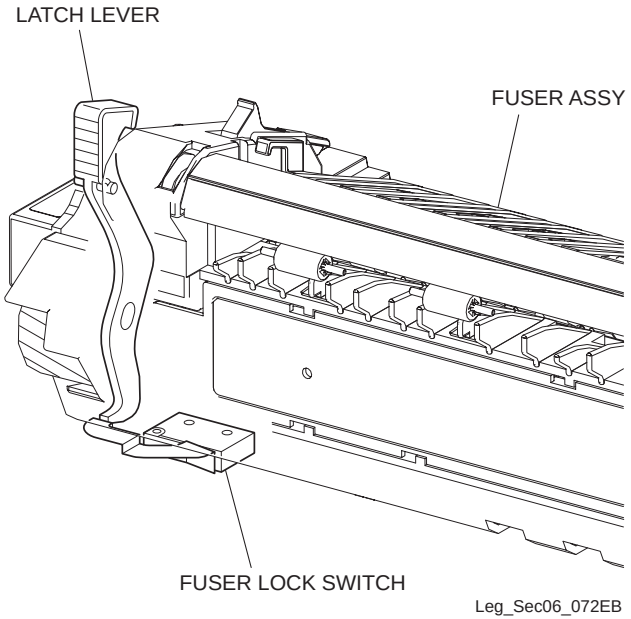


Figure 2-52. FUSER LOCK SWITCH

2.7 Operating Modes

The printer has the following six operating modes:

- ☐ WARM UP mode : The printer is warming up (until the printer is ready for printing).
- ☐ READY mode : The printer has finished the warm-up and is ready for printing.
- ☐ PRINTING mode : The printer is currently printing.
- ☐ LIGHT SLEEP mode : The FUSER is turned OFF to save power.
- ☐ DEEP SLEEP mode : In addition to the Fuser, +24VDC is also turned OFF to save more power.
- ☐ ERROR mode : The printer has detected an error.
  The following are not defined as the ERROR mode.
  - •No paper (when the printer detects there is no paper in the tray or cassette)
  - • No paper tray (when the printer detects there is no paper cassette)
  - • Warnings relating to service life of consumables

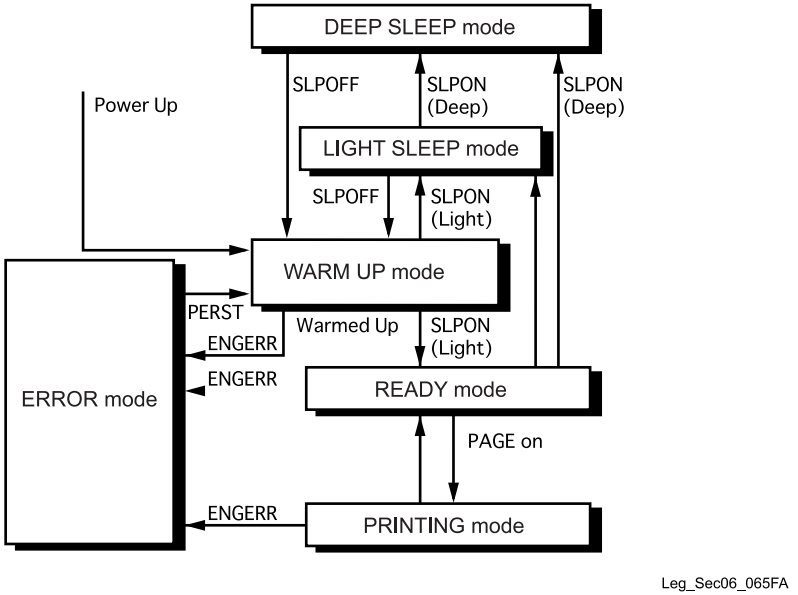


Figure 2-53. Operating Modes Overview

2.8 Control

2.8.1 Paper size control

As this printer does not have switches, etc. for detecting paper size, only the paper length is detected by SENSOR REGI during paper feed. When the paper size does not match the print data, an error is sent to the controller.

2.8.2 Control of laser radiation

The PWBA LD (Laser Diode) converts the image data (electric signal), to laser light ON/OFF signals.

2.8.3 Process control

To ensure a stable image quality, parameters relating to image generation need to be corrected on a timely basis. Control of the entire print process including the correction of parameters is called “process control.”

- TC (Toner Content) control
  Toner patches for TC control are created on the Belt surface to measure the density by the SENSOR ASSY ADC. According to the measured result, the amount of toner supply, the amount of laser radiation, and the applied high voltage are controlled. The execution sequence of the TC control is given on the next page.

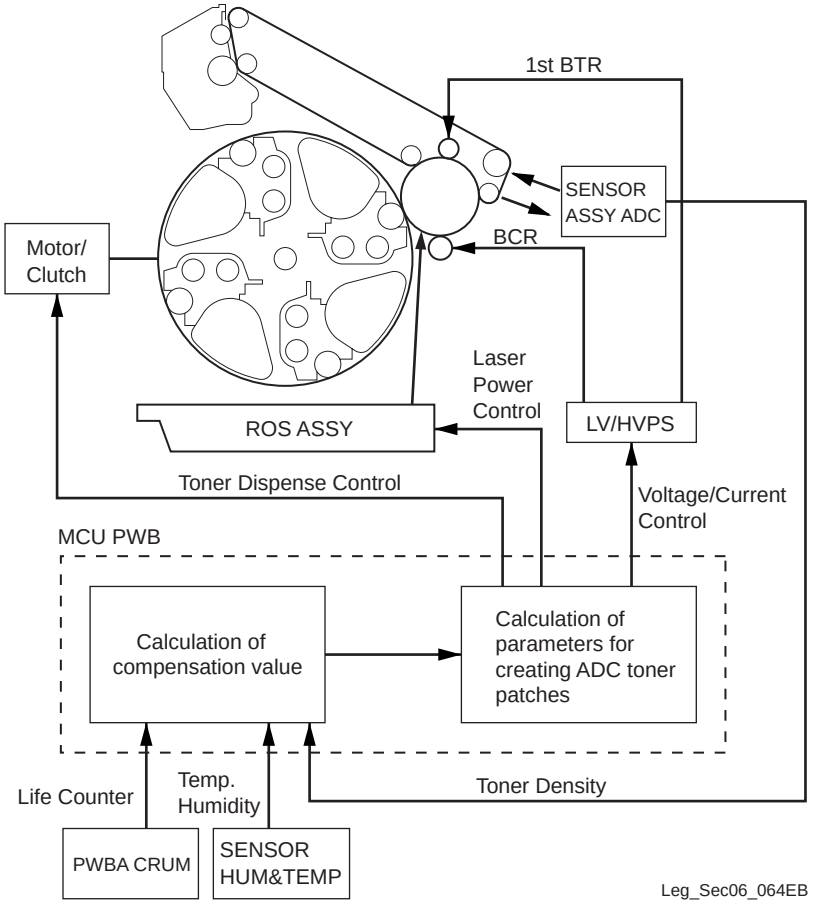


Figure 2-54. Process control Mechanism

Execution Sequence of TC control

1. Adjustment of SENSOR ASSY ADC

The SENSOR ASSY ADC has two LEDs, one for black and the other for color. To read each color's patch density, the light emitted from the LED for black is reflected directly to the Common light receiving element, and the light emitted from the other LED for color does diffuse reflection and also received by the element. The SENSOR ASSY ADC has a built-in solenoid which drives the shutter of the detection window and the part for switching the optical path to the reference plate.

2. Adjustment according to surrounding environment and deterioration of parts

Printed image quality is adversely affected by temperature and humidity that change daily, and deterioration of the IBT Belt, drum and other parts. For this reason, parameters are corrected by capturing temperature/humidity data from SENSOR HUM & TEMP and printer usage data from CRUM.

3. Creation of toner patches

The output value of HVPS, laser light intensity value, and toner supply amount are determined from the parameters calculated from various information sources, and four toner patches, one for each color, are created on the Belt surface.

4. Reading the toner patches

SENSOR ASSY ADC reads the density of the toner patches created on the Belt surface, and compares the read values with ideal values. When there is a difference between the read values and the ideal values, the parameters are recalculated and toner patches are created again.When the printer judges that the toner patches density is extremely low or high, it performs the following controls.

- Admix control
  When the patch density that is read by SENSOR ASSY ADC is extremely low, the toner will be supplied into the Developer. This is called “Admix control”.
- Sweep control
  When the patch density that is read by SENSOR ASSY ADC is extremely high, toner is transferred to the drum, and is scraped off in the Drum Cleaner to forcibly discharge toner in the Developer. This is called “Sweep control”.

5. Adjustment during a print job

Toner in the HOUSING ASSY-DEVE is consumed as print jobs are processed. To obtain consistent image quality during printing, toner must be supplied to the HOUSING ASSY-DEVE. The following control is performed to supply appropriate amount of toner.

- PCDC (Pixel Count Dispense Control)
  The amount of toner that will be consumed is predicted from the count value of the image data, that is input from the controller, to control the toner supply amount to the Developer. The supply amount is controlled according to the Toner Dispense time.

6. Adjustment after end of printing

- When a total of 20 or more sheets have been printed, the image quality adjustments in 1) to 4) are repeated after completion of printing.

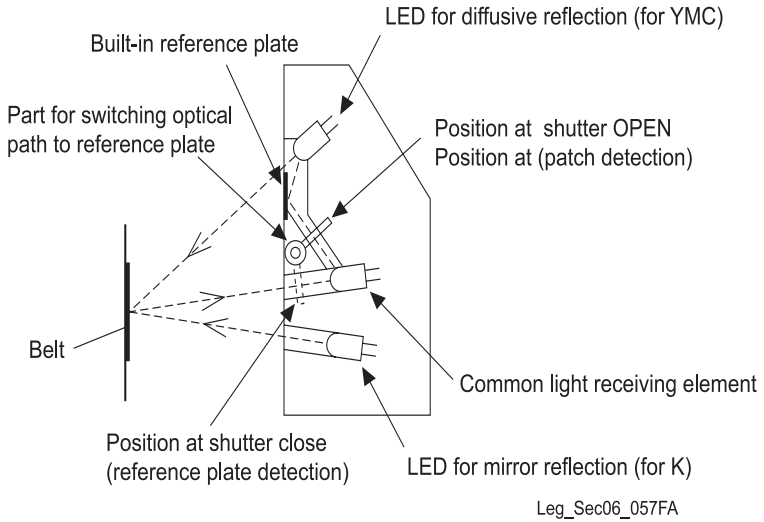


Figure 2-55. Sensor ADC Mechanism

☐ Control of Toner Cartridge

1. Detection of Empty status

The judgement of the Empty status of Toner Cartridges is made based on toner patch density values (read by ADC sensor). When toner patch density is extremely low, the printer executes forced supply of toner (Admix operation), and it judges that the cartridge is empty if the density of toner patches created after the forced supply is still low.

2. Reset of the Empty status

The printer judges that the empty Toner Cartridge is replaced with a new one when the power is turned off and back on, and the cover is opened and then closed during the Empty status. Then the printer executes forced supply of toner from the newly attached cartridge.

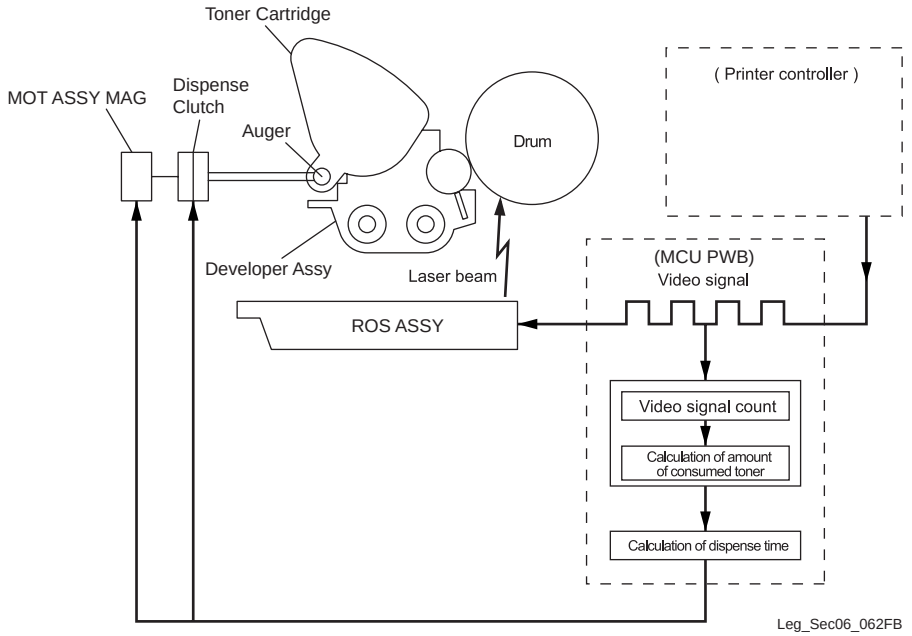


Figure 2-56. PCDC Mechanism

2.8.4 Belt position control

In full color printing, positioning control of the images on the Belt is necessary so that the 4-color toners can be transferred to the same position to enable correct overlay of the 4-color toners. SENSOR TR-0 is an optical reflective sensor, and reacts to the silver sticker attached on the Belt for position detection. The output level of the Sensor changes at the position of the silver sticker for each one revolution of the Belt. This change is used to control the position of the Belt.

2.8.5 Adjustment of the FUSER fixing temperature

The temperature of the surface of the Heat Roll is controlled so that the toner images formed on the paper surface can be appropriately fixed to the paper. The surface temperature of the Heat Roll is detected by a non-contact type Temp Sensor. By turning the Fuser Lamp ON or OFF, it can be adjusted to right temperature.

2.8.6 FUSER safety circuit

FUSER ASSY contains a contact type Temp. Sensor for detection of high temperatures in addition to the non-contact type Temp. Sensor for temperature control. This Temp. Sensor is located on the surface of the Heat Roll (the location where paper does not contact). When the surface of the Heat Roll reaches an abnormally high temperature, the Heater Relay in the Fuser Cont is turned OFF, and power supply to Lamp is cut.

2.8.7 Detection of service life of consumables and periodical replacement parts

- Detection of service life of consumables
  - Toner cartridge
    The operating time of the Dispense Clutch, that is operated to supply toner from the Toner cartridge, is counted, and the printer detects near-end status of cartridges when the counted time reaches a certain level. The printer judges the end status of cartridges when the toner patch density that is read by the SENSOR ASSY ADC does not reach the target density during execution of process control.
  - Photoconductor Unit
    The service life of the Photoconductor Unit is detected by followings whichever comes first.
    - Number of Drum rotations
    - Full status of the Waste Toner Box
      The judgement of near-end status of the Waste Toner Box is made when the pixel counter reaches the specified value or when the Full Toner Sensor detects that the Waste Toner Box is full. Then, the Full status is judged by the specified amount of pixels counted by the pixel counter after the near-end status.
- Detection of service life of periodical replacement parts
  - HOUSING ASSY-DEVE (Developer Assy)
    The printer causes Warning indication when the rest of MOT ASSY MAG's life becomes less than 1,000 copies in terms of printed sheets of paper.
  - 2ND BTR ASSY
    The printer has not a special life counter for 2ND BTR ASSY. The cumulative number of printed copies printed on the engine status sheet can be the reference to decide whether the 2ND BTR ASSY reaches the end of its life.
  - FUSER ASSY
    The printer causes Warning (near-end) indication when the rest of FUSER ASSY's life becomes less than 1,000 copies (the preset life is 100,000 copies) in terms of printed sheets of paper.

2.9 Flying-start printing

This printer improves performance when printing full-color images by performing flying-start printing.

☐ Sequence

1) The printer starts printing as soon as it finishes to receive Yellow data of one page.
2) While the Yellow image is being developed and transferred to the IBT Belt, the next data, Magenta, is received.
3) While the Magenta image is being developed and transferred to the IBT Belt, the next data, Cyan, is received.
4) While the Cyan image is being developed and transferred to the IBT Belt, the next data, Black, is received.
5) When the Black image has been developed and transferred to the IBT Belt, formation of the full color toner image is completed.

2.10 Detection Mechanisms

The following shows a list of detection functions.

Table 2-1. Sensors

Unit	Detection Item	Availability	Detection Method	Remarks
MP tray	Paper presence detection	Available	Actuator + Photo-interruptive sensor	
	Paper size detection	Not available	---	Enter the paper size from control panel or printer driver
	Remaining paper detection	Not available	---	
500-sheet cassette (C1)	Mounting detection at power ON	Not available	Electrical continuity	Not detected unless the main power is turned off and back on.
	Unit detection	Available	Electrical continuity	
	Cassette presence detection	Available	Also functions as paper presence.	Cassette presence and paper presence are judged by the same sensor.
	Paper presence detection	Available	Actuator + Photo-interruptive sensor	
	Remaining paper detection	Not available	---	
	Paper size detection	Not available	---	Enter the paper size from control panel or printer driver
Duplex Unit	Mounting detection at power ON	Not available	Electrical continuity	Not detected unless the main power is turned off and back on.
	Unit detection	Available	Electrical continuity	
Paper ejection from printer	Full detection	Not available	---	
Other	OHP sensor	Available	Reflective photosensor	
	Temperature detection (reference)	Available	Environment sensor	
	Humidity detection (reference)	Available	Environment sensor	
	Density detection (reference)	Available	Reflective density sensor	

Table 2-1. Sensors

Unit		Detection Item	Availability	Detection Method	Remarks
Toner Cartridge		New part detection	Available	CRUM	
		Presence Detection	Available	CRUM	
		Color detection	Available	CRUM	Cannot be incorrectly installed as the location of the holes are different for each color.
		Remaining amount detection	Available	Software counter	
		Near-end detection	Available	Software counter	
		End detection	Available	Software counter	
Photoconductor Unit (transfer belt/ with Waste Toner Box)		New part detection	Available	CRUM	
		Unit detection	Available	CRUM	
		Home position detection		Optical type (reflective) sensor	
	Life detection	Waste toner detection	Available	Photo-interruptive sensor	
		Near-end detection	Available	Software counter + Detecting waste toner	
		End detection	Available	Software counter	
FUSER ASSY		New part detection	Not available	---	Reset from the Control Panel.
		Unit detection	Available	Electrical continuity	
	Life detection	Near-end detection	Available	Software counter	
		End detection	Available	Software counter	
HOUSING ASSY DEVE		New part detection	Not available	---	Reset from the Control Panel.
		Unit detection	Not available	---	When not installed, “Install xxxx TnrCart” is displayed on the panel.
		Color detection	Available	Recognized by rib	Cannot be incorrectly installed as the location of the holes are different for each color.
	Life detection	Near-end detection	Available	Software counter	
		End detection	Available	Software counter	
2ND BTR ASSY		New part detection	Not available	---	
		Unit detection	Not available	---	
	Life detection	Near-end detection	Not available	Software counter	Not displayed on the panel as it is supposed to be replaced at the same time as the Fuser Assy.
		End detection	Available	Software counter	

2.11 Principle of Electric Circuit Operation

2.11.1 Main Features

- Host-based controller using ESC/Page-S Printing System as its print language
- Engine specifications: A4, Color 5 ppm/Black-and-white 25 ppm, 600 dpi, Duplex printing is available with the option
- NEC VR4305 CPU is employed
- HTC is employed as ASIC with memory, I/O, and an image processor
- Equipped with 32MB RAM, and can be expanded up to 256MB with optional RAM
- Parallel (Compatibility/Nibble/ECP) and USB2.0 HS mounted as standard interfaces
- This printer is available with or without Network I/F (100BaseTX/10BaseT) as standard.
- Color image processing functions (CPGI, CRIT) mounted
- Contorl Panel with LCD
- Bus frequency 66.7 MHz

2.11.2 Outline Specifications

The following shows the outline specifications of the controller.

Table 2-2. List of Controller Outline Specifications

Item		Description
Controller specifications		Host-based controller
Engine specifications	Type	A4 4 cycles
	Printing speed	5/25 ppm (Color/Monochrome)
CPU	Specifications	VR4305
ASIC	Memory+I / O	HTC
	External devices	PCC (LCD, PicCnt, Network I/F Board, USB compatible)
Clock	CPU bus	66.7 MHz
	Memory bus	66.7 MHz
	PCC operation	66.7 MHz (CPUCLK division)
	Clock wiring	ASIC distribution
	Video frequency	27.779 MHz
	USB oscillator	12 MHz
	UART	27.779 MHz (=video frequency)
SSCG	Spread	Down spread
	Device	CY25814SZCT
Reset		3.3V (M51957BFP-C61J)
EEPROM	Capacity	128 Kbit
	Device	M95128-WMN6T (SPI)
ROM/RAM	RAM capacity	32MB SDRAM (128Mbit*2)
	ROM capacity	2MB FLASH
	Mounting type	ROM / RAM DIMM
	OP slot	90 pin RAM_DIMM 1 slot
	Max. RAM capacity	256 MB
Host I/F	Parallel	Available
	USB	USB2.0 HS (external S1R72013)
	Network	Cobalt
Engine I / F		UART

Table 2-2. List of Controller Outline Specifications

Item		Description
Panel	Specifications	408 panel(with LCD)
Pixel count	Specifications	PCC+2 external devices
	Specified devices	UPD617G2-E1-A SN74AHC2G240HDCT3
PWM	Accuracy	6 bit/dot
	Device	Internal HTC
Plotting method		CPGI
Debug environment		Connector for serial communication is on the Controller

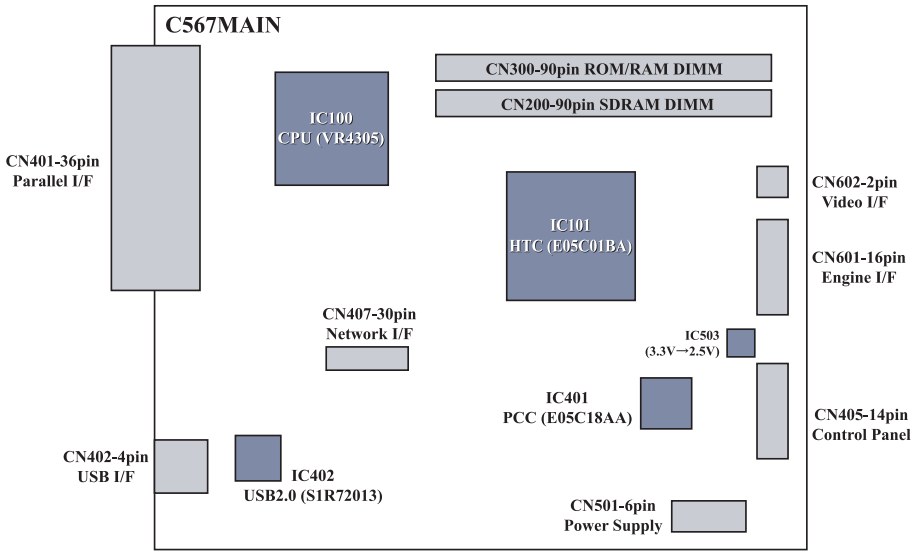


Figure 2-57. C567MAIN Circuit Block Diagram

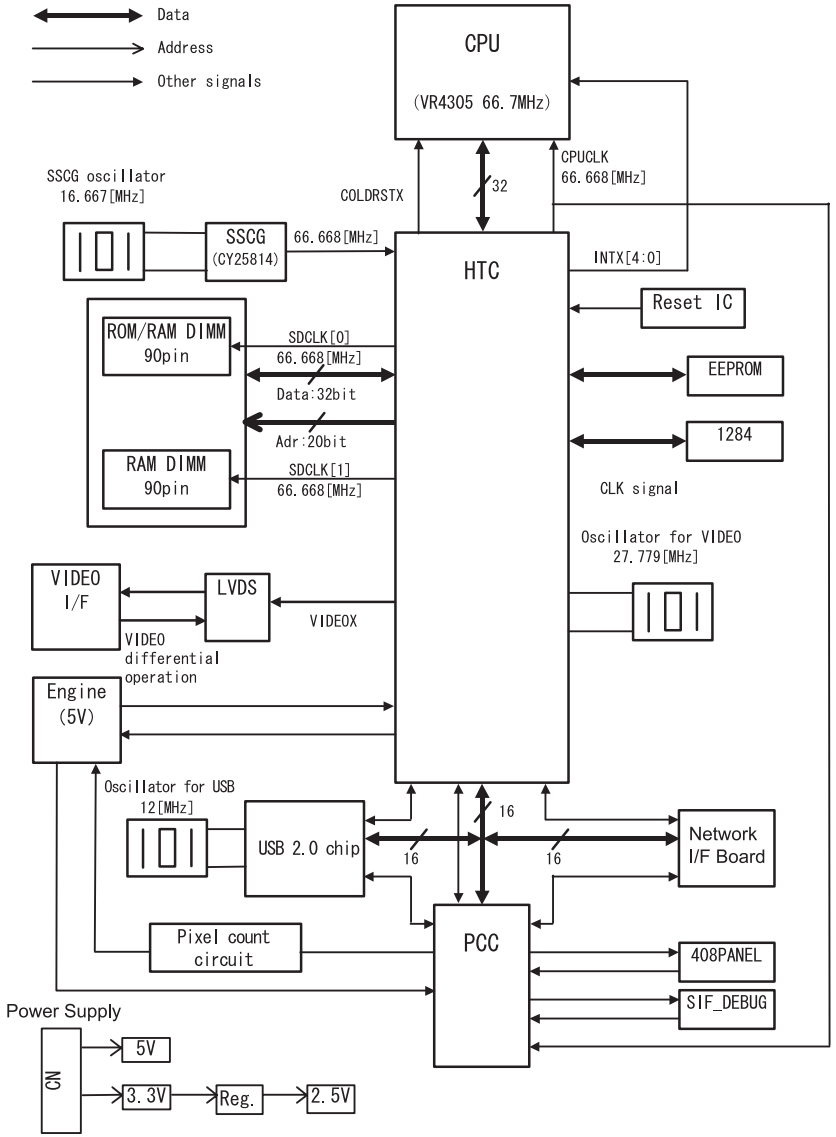


Figure 2-58. Circuitry Block Diagram

CHAPTER

3

TROUBLESHOOTING

3.1 Procedure for troubleshooting

For efficient troubleshooting, verify the condition of the trouble carefully, and use FIP (Fault Isolation Procedures) and wiring connection diagrams, and operating principles.

3.1.1 Procedure for troubleshooting

Perform troubleshooting work according to the following flowchart.

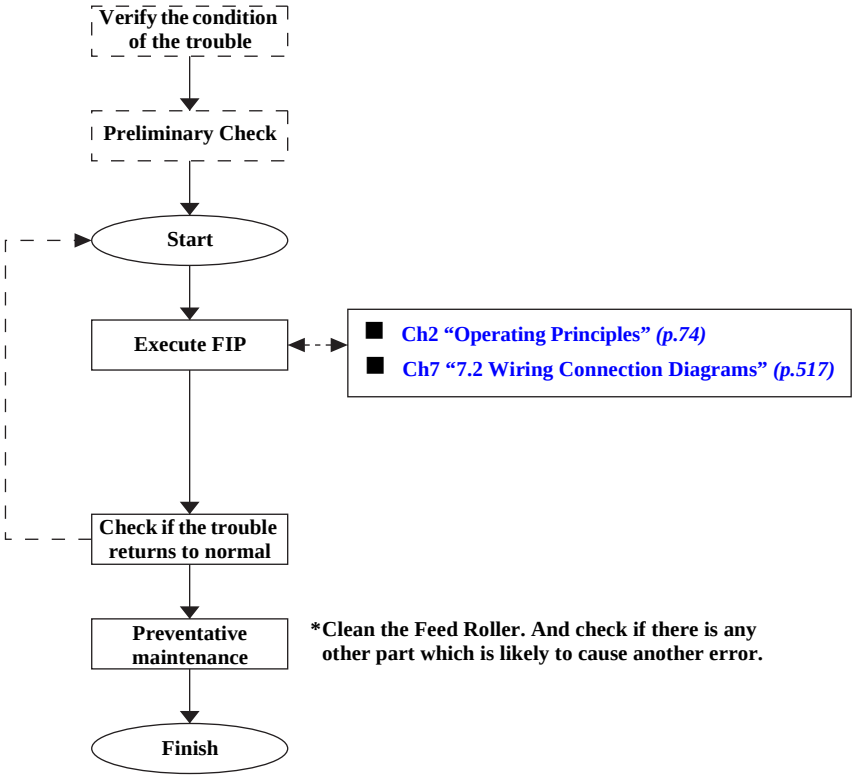


Figure 3-1. Procedure for troubleshooting

3.1.2 Checking Installation Status

Before starting troubleshooting, make sure that the following conditions are all met.

1. The power supply voltage must be within the specification limits. (Measure the voltage at the wall socket.)
2. The POWER CORD must be free from damage, short circuit or brokenage, or miswiring in the POWER CORD.
3. The printer must be grounded properly.
4. The printer should not be located in a place where it can be exposed to too high or low temperature, too high or low humidity, or abrupt temperature change.
5. The printer should not be located near waterworks, near humidifiers, near heaters or near flames, in a dusty atmosphere, or in a place where the printer can be exposed to air blasts from an air conditioner.
6. The printer should not be located in a place where volatile or inflammable gases are produced.
7. The printer should not be located in a place where it can be exposed to direct sunlight.
8. The printer must be located in a well-ventilated place.
9. The printer must be placed on a solid, stable and flat surface.
10. The paper used must conform to the specifications. (Standard paper is recommended.)
11. There should be no errors in handling of the printer.
12. The Regular Replacement Parts must have been replaced every time their respective specified number of sheets has been printed.

3.1.3 Precautions in Performing Troubleshooting Work

1. Be sure to unplug the POWER CORD before starting troubleshooting work except when turning power ON is needed.

WARNING

Never touch any live parts unnecessarily when the power is on. The power switch/inlet part of the LVPS is alive even when the power switch is turned OFF. Take care not to touch any live parts.

2. If you perform work with the power turned ON, covers removed, and the interlock and safety switches turned ON, be sure to disconnect the ROS ASSY connector (P/J601), except when its connection is required.

WARNING

If you perform work with the power turned ON, covers removed, and the interlock and safety switches turned ON, there is a danger of the laser beam being emitted from ROS ASSY. Be sure to disconnect the ROS ASSY connector (P/J601), except when its connection is required.

3. If you perform work with the power turned ON, covers removed, and the interlock and safety switches turned ON, be careful of a high voltage from HVPS.

WARNING

If you perform work with the power turned ON, covers removed, and the interlock and safety switches turned ON, never touch HVPS and any other high voltage output part as a high voltage may be output from HVPS.

4. When touching any hot surfaces, take care not to burn yourself.
5. Wear a wrist strap to discharge static electricity from your body.
6. When replacing the PWBA MCU in accordance with the FIP, be sure to perform “MCU DATA Backup”and “MCU DATA Restore” operations to maintain the set of information specific to the subject engine.

CAUTION

Refer to “4.11.5 PWBA MCU” *(p.404)* for all the details about the PWBA MCU replacement.

3.1.4 Notes on Using FIP

1. The troubleshooting method described here assumes that there is no malfunction in the printer controller (PWBA ESS). If you cannot fix a problem even by following the troubleshooting procedure, replace the printer controller with a normal one and then follow the same procedure. If you cannot recover the printer from the trouble even with the printer controller replaced, replace the "Possible parts that caused the error" shown in FIP and related parts with new ones in order one by one, and repeat operation checks.
2. Some normal parts such as MCU, LV/HVPS, FUSER ASSY, 2ND BTR ASSY may be required as FIP troubleshooting tools to identify the cause of the trouble. So, you need to have those spares in advance.
3. Be sure to unplug the POWER CORD before starting troubleshooting work except when turning power ON is needed. Never touch any live parts unnecessarily with the power cord connected.
4. Conventions used to represent connectors are as follows:
   "P/J12" = The connector (P/J12) in a connected state.
   "P12" = The plug side in connector (P/J12) disconnected state. (except when the jack is directly mounted on the board)
   "J12" = The jack side in connector (P/J12) disconnected state. (except when the jack is directly mounted on the board)
5. When, for example, "P/J1-2PIN ↔ P/J3-4PIN" is indicated in FIP for the voltage check, set the plus side of a measuring tool to "2PIN" on "P/J1" and set the minus side of the tool to "4PIN" on "P/J3".
6. When, for example, "P/J1 ↔ P/J2" is indicated in FIP for the voltage check, check for the all relating terminals between "P/J1" and "P/J2" with reference to the Connection Diagram.
7. Taking "P/J1-2PIN ↔ P/J3-4PIN" as an example, the minus side "P/J3-4PIN" is AG (Analog Ground), SG (Signal Ground), or RTN (Return). Therefore it is possible to connect to another AG, SG, or RTN pin as the minus side instead of "P/J3-4PIN". Before doing so, check that each AG-to-AG, SG-to-SG, or RTN-to-RTN has continuity properly. Be careful not to connect to a wrong pin since the level of AG, SG and RTN are different from each other.
8. When measuring the voltage, perform measurement with the Photoconductor Unit, 2ND BTR ASSY, and paper cassette loaded, covers closed, and power ON.
9. All voltage values given in the FIP are approximate values. So actually measured values should not be completely the same as those given in the FIP.
10. Note that FIP does not provide any description on removal of parts which are supposed to be removed to remove the target part, and the procedures.
11. Any parts listed in "Possible parts that caused the error" in the FIP are regarded as the source of the trouble and signifies that the parts or the assemblies (HIGH ASSY) containing those parts should be replaced with normal ones one by one, and checking should be repeated.
12. In the FIP, the optional paper feeder of the printer is called "Tray1".
13. FIP may contain descriptions that distinguish between certain specifications. Be sure to follow such instructions properly to remedy the problem.

3.1.5 Warming-Up Flowchart at Power-ON

The following flowchart (outline) shows the printer's warm-up operation, from power-on to when the printer is ready to print.

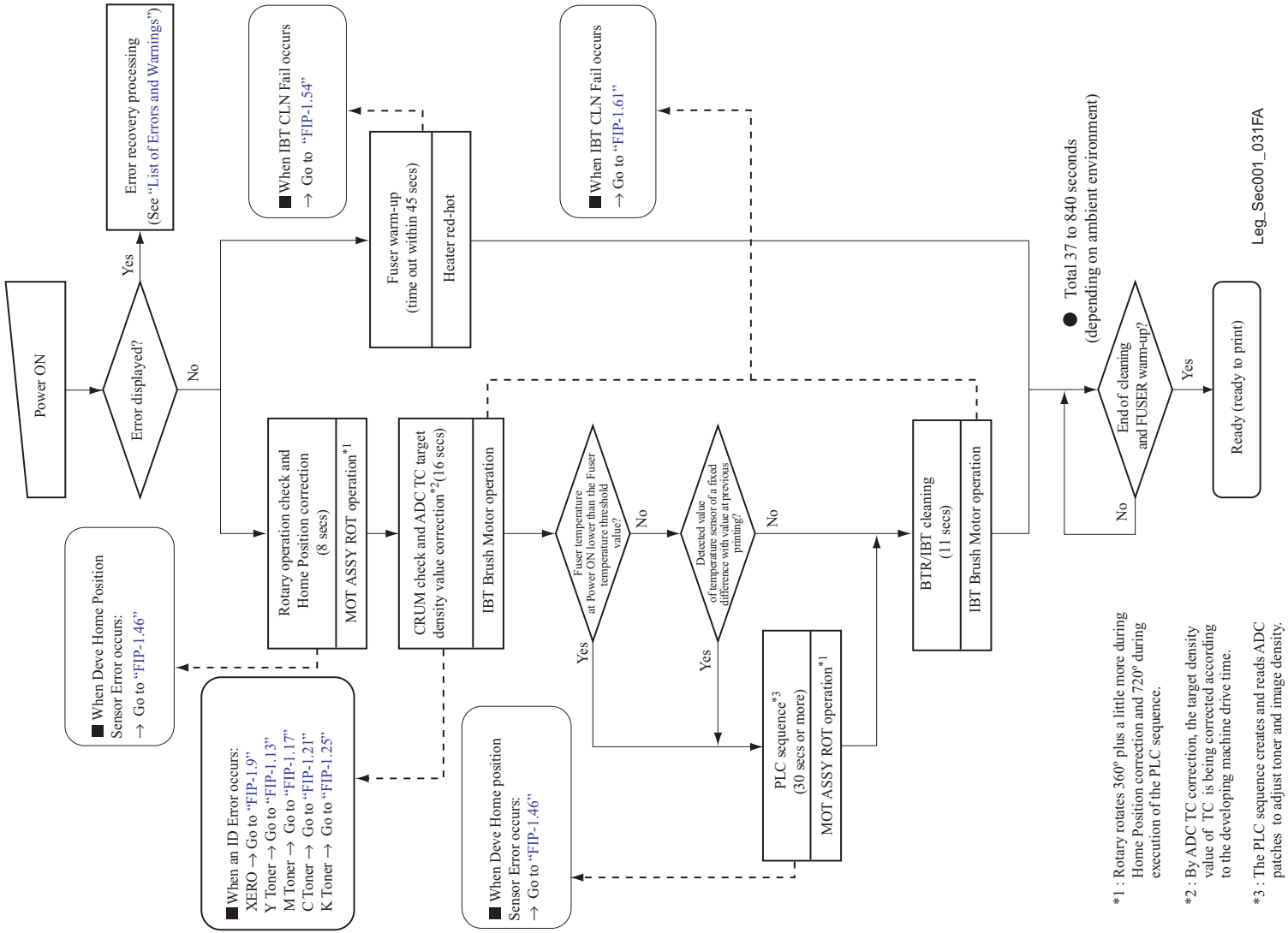


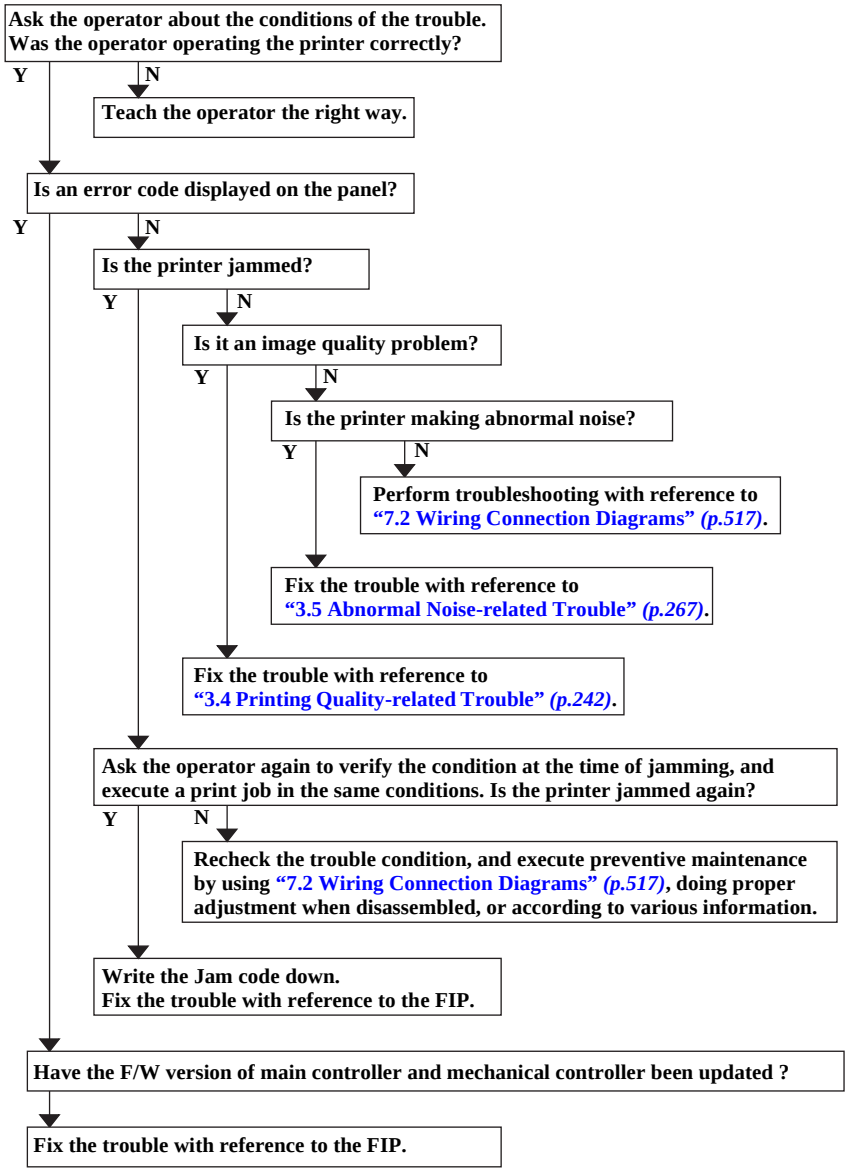
Figure 3-2. Warming-up flowchart at power-on

3.2 FIP

3.2.1 Outline

FIP is provided as the first step to identify the cause of trouble. FIP is a guide for proceeding with troubleshooting while checking error codes and for various other symptoms of trouble.

3.2.2 FIP Procedure



3.3 FIP according to the printer message

3.3.1 List of Errors and Warnings

ERROR LIST RELATED TO PAPER JAM

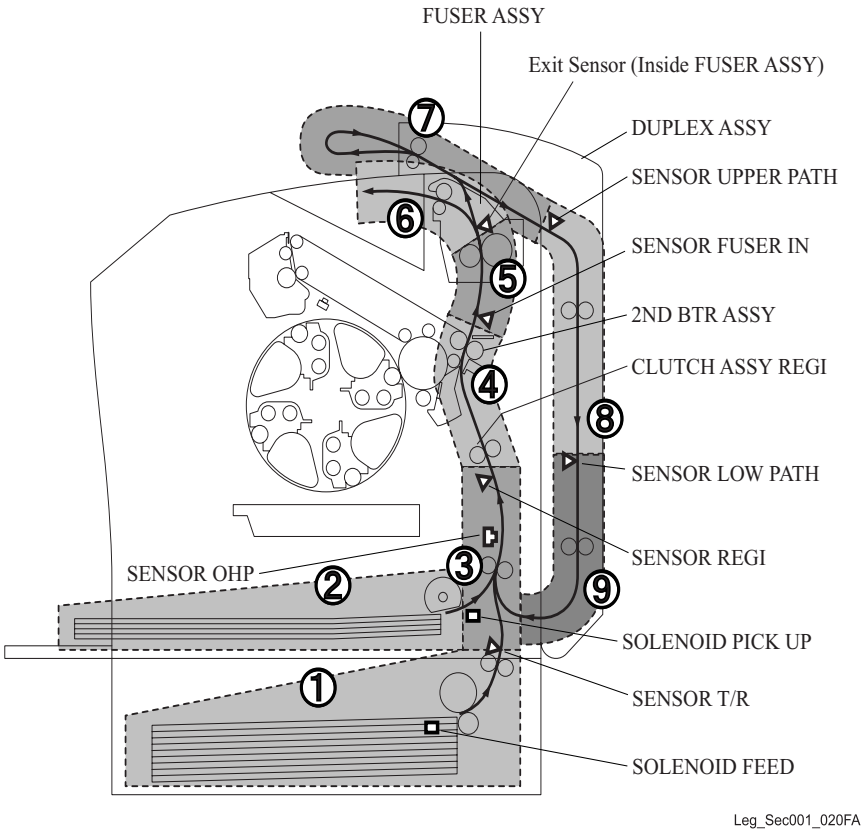


Figure 3-3. Jammed Location

Table 3-1. List of Paper Jam Error

Panel Message	Jammed Location	Description	See FIP
Jam LC, G	(1)	The SENSOR T/R did not turn ON within the specified time from SOLENOID FEED - ON.	26 *(p.159)*
Jam MP, E Jam D, E	(2)	The SENSOR REGI did not turn ON within the specified time from SOLENOID PICK UP - ON.	27 *(p.162)*
Jam E	(3)	The SENSOR REGI did not turn ON within the specified time from SENSOR T/R - ON.	28 *(p.165)*
Jam E Jam D, E	(3)(4)	The SENSOR REGI did not turn OFF within the specified time from CLUTCH ASSY REGI - ON.	29 *(p.168)*
Jam E, F Jam D, E, F	(4)(5)	The Exit Sensor did not turn ON and SENSOR FUSER IN turned OFF within the specified time from CLUTCH ASSY REGI - ON.	30 *(p.170)*
Jam C, E, F Jam D, E, F	(4)(5)	The Exit Sensor did not turn ON and SENSOR FUSER IN turned ON within the specified time from CLUTCH ASSY REGI - ON.	31 *(p.174)*
Check Transparency	(3)	SENSOR OHP detected media other than OHP at the OHP setting or detected OHP at a setting other than OHP.	32 *(p.178)*
Jam E Jam D, E	(4)	The SENSOR FUSER IN did not turn ON within the specified time from CLUTCH ASSY REGI - ON.	33 *(p.179)*
Jam C Jam D	(4)(5)(6)	Exit Sensor did not turn OFF within the specified time from SENSOR REGI - OFF.	34 *(p.182)*
Jam D, E, DM	(8)(9)(3)	SENSOR REGI did not turn ON within the specified time from DUPLEX load signal (MCU)	35 *(p.184)*
Jam DM	(8)	The SENSOR LOW PATH did not turn ON within the specified time from SENSOR UPPER PATH - ON.	36 *(p.187)*
Jam C Jam D	(7)	SENSOR UPPER PATH did not turn ON within the specified time from Exit Sensor - OFF.	37 *(p.189)*

Table 3-1. List of Paper Jam Error

Panel Message	Jammed Location	Description	See FIP
Jam DM	---	SENSOR LOW PATH was ON at Power ON or when I/L was closed. (Static Jam)	38 *(p.191)*
Jam C Jam D	---	SENSOR UPPER PATH was ON at Power ON or when I/L was closed. (Static Jam)	
Jam LC, G	---	SENSOR T/R was ON at Power ON or when I/L was closed. (Static Jam)	
Jam E Jam D, E	---	SENSOR OHP was ON at Power ON or when I/L was closed. (Static Jam)	
Jam E Jam D, E	---	SENSOR REGI was ON at Power ON or when I/L was closed. (Static Jam)	
Jam C, E, F Jam D, F	---	SENSOR FUSER IN was ON at Power ON or when I/L was closed. (Static Jam)	
Jam C Jam D	---	Exit Sensor was ON at Power ON or when I/L was closed. (Static Jam)	

OTHER ERRORS AND WARNINGS

Table 3-2. List of Errors and Warnings

Class	Panel Message	Error LED	Description	See FIP
Warning	Y Toner Low	---	The toner supply time of the Yellow toner cartridge has reached the preset time. The printer, however, can be operated.	72 *(p.231)*
	M Toner Low	---	The toner supply time of the Magenta toner cartridge has reached the preset time. The printer, however, can be operated.	73 *(p.232)*
	C Toner Low	---	The toner supply time of the Cyan toner cartridge has reached the preset time. The printer, however, can be operated.	74 *(p.233)*
	K Toner Low	---	The toner supply time of the Black toner cartridge has reached the preset time. The printer, however, can be operated.	75 *(p.234)*
	Worn Photoconductor	---	SENSOR TNER FULL of the Waste Toner Box has detected a toner full state. The printer, however, can operated.	76 *(p.235)*
		---	The number of drum rotations has exceeded the specified value. The printer, however, can be operated.	77 *(p.236)*
Error	Install Y TnrCart	ON	The Yellow toner cartridge is not mounted.	1 *(p.134)*
	Install M TnrCart	ON	The Magenta toner cartridge is not mounted.	2 *(p.135)*
	Install C TnrCart	ON	The Cyan toner cartridge is not mounted.	3 *(p.136)*
	Install K TnrCart	ON	The Black toner cartridge is not mounted.	4 *(p.137)*
	Install Photocondctr	ON	The photoconductor unit is not mounted.	5 *(p.138)*
	Photocondctr Trouble	ON	A communication error occurred between PWBA MCU and ANTENNA ASSY (CRUM XERO).	6 *(p.139)*
			An error occurred when writing data to ANTENNA ASSY (CRUM XERO).	7 *(p.140)*
			A photoconductor unit with a memory of different specification device is attached.	8 *(p.141)*
	Wrong Photocondctr	ON	A drum cartridge of a different specification is attached.	9 *(p.142)*
	TonerCart Error Y	ON	A communication error occurred between PWBA MCU and ANTENNA CTRG (CRUM CTRIG).	10 *(p.143)*
			An error occurred when writing data to ANTENNA CTRG (CRUM CTRIG).	11 *(p.144)*
			A Yellow toner cartridge with a memory of different specification device is attached.	12 *(p.145)*
	Wrong Toner Y	ON	A Yellow toner cartridge of a different specification is attached.	13 *(p.146)*

Table 3-2. List of Errors and Warnings

Class	Panel Message	Error LED	Description	See FIP
Error	TonerCart Error M	ON	A communication error occurred between PWBA MCU and ANTENNA CTRG (CRUM CTRIG).	14 *(p.147)*
			An error occurred when writing data to ANTENNA CTRG (CRUM CTRIG).	15 *(p.148)*
			A Magenta toner cartridge with a memory of different specification device is attached.	16 *(p.149)*
	Wrong Toner M	ON	A Magenta toner cartridge of a different specification is attached.	17 *(p.150)*
	TonerCart Error C	ON	A communication error occurred between PWBA MCU and ANTENNA CTRG (CRUM CTRIG).	18 *(p.151)*
			An error occurred when writing data to ANTENNA CTRG (CRUM CTRIG).	19 *(p.152)*
			A Cyan toner cartridge with a memory of different specification device is attached.	20 *(p.153)*
	Wrong Toner C	ON	A Cyan toner cartridge of a different specification is attached.	21 *(p.154)*
	TonerCart Error K	ON	A communication error occurred between PWBA MCU and ANTENNA CTRG (CRUM CTRIG).	22 *(p.155)*
			An error occurred when writing data to ANTENNA CTRG (CRUM CTRIG).	23 *(p.156)*
			A Black toner cartridge with a memory of different specification device is attached.	24 *(p.157)*
	Wrong Toner K	ON	A Black toner cartridge of a different specification is attached.	25 *(p.158)*
	Irregular Density	ON	The Coverage for 500msec of the image exceeds the limit.	50 *(p.205)*
	Replace Toner Y	ON	It is time to replace the Yellow toner cartridge.	59 *(p.217)*
	Replace Toner M	ON	It is time to replace the Magenta toner cartridge.	60 *(p.218)*
	Replace Toner C	ON	It is time to replace the Cyan toner cartridge.	61 *(p.219)*
	Replace Toner K	ON	It is time to replace the Black toner cartridge.	62 *(p.220)*
	Replace Photocondctr	ON	It is time to replace the photoconductor unit.	63 *(p.221)*
		Blink	The number of drum rotations has exceeded the specified value.	77 *(p.236)*
	A Open	ON	COVER FRONT ASSY U is open.	64 *(p.222)*
	E Open	ON	CHUTE ASSY-REAR is open.	65 *(p.223)*
	F Open	ON	CHUTE ASSY-FSR is open.	66 *(p.224)*
	C Open	ON	COVER FUSER is open.	67 *(p.225)*

Table 3-2. List of Errors and Warnings

Class	Panel Message	Error LED	Description	See FIP
Eeeor	G Open	ON	The Cover of Tray 1 is open.	68 *(p.226)*
	DM Open	ON	Duplex Cover is open.	69 *(p.227)*
	D Open	ON	Duplex is open.	70 *(p.228)*
	B Open	ON	COVER TOP is open.	71 *(p.229)*

3.3.2 List of Service Request

Table 3-3. List of Service Request

Class	Panel Messaeg	Description	See FIP
Engine Related (E)	Service Req E510	ROS Motor Failure	44 *(p.197)*
		PWBA MCU could not receive signals output from SOS Sensor in ROS within the specified time.	
	Service Req E511	TR0 Failure	43 *(p.195)*
		PWBA MCU could not receive signals output from SENSOR TR-0 (TR0 Sensor) at the specified timing.	
	Service Req E513	NVRAM Error	42 *(p.194)*
		An error occurred in NVRAM on PWBA MCU.	
	Service Req E514	PAGE Timeout	41 *(p.194)*
		The PAGEC/PAGE signal was not received within 60sec after transmitting PFA.	
	Service Req E516	Communication Error Duplex	40 *(p.193)*
		A communication error occurred between PWBA MCU and Duplex.	
	Service Req E517	Communication Error Feeder	39 *(p.192)*
		A communication error occurred between PWBA MCU and Feeder.	
	Service Req E520	BTR 2 Advance Error	52 *(p.208)*
		The 2nd BTR Retract Sensor does not turn ON within the specified time.	
	Service Req E521	BTR 2 Error	51 *(p.206)*
		The input of 2nd BTR Retract Sensor does not change when 2nd BTR is initialized.	
	Service Req E523	PCDC Error	49 *(p.204)*
		PCDC is not functioning normally.	
	Service Req E524	Low Density	48 *(p.202)*
		The output value of SENSOR ASSY ADC (ADC Sensor) is below the specified value.	
	Service Req E525	High Density	47 *(p.200)*
		The output value of SENSOR ASSY ADC (ADC Sensor) exceeds the specified value.	
	Service Req E526	ADC Contamination	46 *(p.199)*
		SENSOR ASSY ADC (ADC Sensor) error	

Table 3-3. List of Service Request

Class	Panel Messaeg	Description	See FIP
Engine Related (E)	Service Req E527	Deve Home Position Sensor Error	45 *(p.198)*
		PWBA MCU could not receive signals output from Rotary Home Position Sensor within the specified time after rotation of Rotary Developer.	
	Service Req E530	Humidity Sensor Error	55 *(p.211)*
		When the Input from SENSOR HUM & TEMP is out of specification.	
	Service Req E533	Temp Sensor Error	54 *(p.211)*
		SENSOR HUM & TEMP detected a temperature below -7°C or over 55°C.	
	Service Req E537	Fuser Fail	53 *(p.210)*
		• Control Thermistor detected a temperature exceeding the specified temperature. Safety Thermistor detected a temperature exceeding the specified temperature. • The Control Thermistor did not detect a Ready even though the specified time elapsed from Main Lamp ON at Warm Up. • The Main Lamp continues to stay lit even after time specified for the Main Lamp elapsed after the Control Thermistor detected a Ready. • The Control Thermistor detected a temperature below the specified temperature even after the specified time elapsed from Main Lamp ON at Warm Up. • The latch lever of FUSER ASSY is set incorrectly.	
	Service Req E542	IBT CLN Fail	58 *(p.216)*
		SENSOR IBT RETRACT cannot detect Advance/Retract of CAM ASSY-IBT CL.	
	Service Req E546	Duplex Motor Failure	57 *(p.214)*
		The MOTOR ASSY DUP (Lower Roll Motor) or MOTOR ASSY DUP INV (Upper Roll Motor) of Duplex is not rotating at the specified speed.	
	Service Req E547	Feed Motor Failure	56 *(p.212)*
		DRIVE ASSY FEED (Feed Motor) of the Feeder is not rotating at the specified speed.	
	Service Req E998	Engine Communication Error	78 *(p.237)*
		Acommunication error between the controller and the PWBA MCU via the video I/F occured	

Table 3-3. List of Service Request

Class	Panel Messaeg	Description	See FIP
Controller Related (C)	Service Req C0017	CPU error (undefined interruption)	C1 *(p.239)*
	Service Req C0081	CPU error (TLB modification exception)	
	Service Req C0082	CPU error (TLB miss exception [Load/Fetch])	
	Service Req C0083	CPU error (TLB miss exception [Store])	
	Service Req C0084	CPU error (address error exception [Load/Fetch])	
	Service Req C0085	CPU error (address error exception [Store])	
	Service Req C0086	CPU error (bus error exception [Fetch])	
	Service Req C0087	CPU error (bus error exception [Load/Store])	
	Service Req C0088	CPU error (SYSCALL exception)	
	Service Req C0089	CPU error (Break exception)	
	Service Req C0090	CPU error (reserving command exception)	
	Service Req C0091	CPU error (unused coprocessor exception)	
	Service Req C0092	CPU error (FPU exception)	
	Service Req C0093	CPU error (TLB exception)	
	Service Req C0094	CPU error (XTLB exception)	
	Service Req C0095	CPU error (cache exception)	
	Service Req C0096	CPU error (Trap exception)	
	Service Req C0097	CPU error (FPU exception)	
	Service Req C0098	CPU error (watch exception)	
	Service Req C0128 ~ 0254	CPU error (undefined trap)	
	Service Req C0255	CPU error (NMI exception)	

Table 3-3. List of Service Request

Class	Panel Messaeg	Description	See FIP
Controller Related (C)	Service Req C0256	CPU error (divide by 0)	C1 *(p.239)*
	Service Req C0257	CPU error (arithmetic overflow)	
	Service Req C0258	CPU error (break occurrence)	
	Service Req C0800	IPL error (controller defect)	
	Service Req C0998	Engine communication error (only when power-on)	
	Service Req C0999	Engine flash ROM has no program data	C2 *(p.240)*
	Service Req C1002	Standard RAM error (standard size is undefined, etc.)	
	Service Req C1010	Verification error	
	Service Req C1020	RAM error (slot 0)	C3 *(p.240)*
	Service Req C1021	RAM error (slot 1)	
	Service Req C1120	ROM checksum error (bit 0 to 7) (program)	C4 *(p.241)*
	Service Req C1121	ROM checksum error (bit 8 to 15) (program)	
	Service Req C1122	ROM checksum error (bit 16 to 23) (program)	
	Service Req C1123	ROM checksum error (bit 24 to 31) (program)	
	Service Req C1200	EEPROM writing error	C1 *(p.239)*
	Service Req C1210	EEPROM writing times limit	
	Service Req C1400	Engine initialization error	
	Service Req C1500	CCNV hardware error	
	Service Req C1550	Initialization hardware error for SRAM for compression	
	Service Req C1600	Video series hardware error (including PWM IC calibration error)	
	Service Req C1610	Video series hardware error (VCNV error)	
	Service Req C1800	Illegal SPD	
	Service Req C1999	Other hardware errors	
	Service Req C2000	Software error	C5 *(p.241)*

3.3.3 Error Code FIP

3.3.3.1 Engine related error

FIP-1

☐ Panel Message

- ■ Install Y TnrCart

☐ Possible parts that caused the error

- ■ Toner Cartridge Y
- ■ ANTENNA CTRG
- ■ ANTENNA ASSY-CTRG
- ■ HOUSING ASSY-DEVE Y
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge Y** Is a Toner Cartridge Y that complies with the specifications attached?	Go to Step[2].	Replace with a Toner Cartridge Y that complies with the specifications.
2	**Attachment check of Toner Cartridge Y** Is the Toner Cartridge Y attached correctly?	Go to Step[3].	After re-attachment Go to Step[3].
3	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[4].	End of procedure
4	**Attachment check of HOUSING ASSY-DEVE Y** Is the HOUSING ASSY-DEVE Y attached correctly?	Go to Step[5].	After re-attachment Go to Step[5].
5	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[6].	End of procedure
6	**Check after replacement of Toner Cartridge Y** Replace Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step[7].	End of procedure
7	**ANTENNA CTRG operation check** Disconnect and then re-connect P/J415 on PWBA MCU. Does the error recur when the power is turned ON?	Go to Step[8].	Go to Step[9].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step[9].	Repair broken or shorted part.
9	**Check after replacement of HOUSING ASSY-DEVE Y** Replace HOUSING ASSY-DEVE Y *(p.383)* Does the error recur when the power is turned ON?	Go to Step[10].	End of procedure
10	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-2

☐ Panel Message

- ■ Install M TnrCart

☐ Possible parts that caused the error

- ■ Toner Cartridge M
- ■ ANTENNA CTRG
- ■ ANTENNA ASSY-CTRG
- ■ HOUSING ASSY-DEVE M
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge M** Is a Toner Cartridge M that complies with the specifications attached?	Go to Step[2].	Replace with a Toner Cartridge M that complies with the specifications.
2	**Attachment check of Toner Cartridge M** Is the Toner Cartridge M attached correctly?	Go to Step[3].	After re-attachment Go to Step[3].
3	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[4].	End of procedure
4	**Attachment check of HOUSING ASSY-DEVE M** Is the HOUSING ASSY-DEVE M attached correctly?	Go to Step[5].	After re-attachment Go to Step[5].
5	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[6].	End of procedure
6	**Check after replacement of Toner Cartridge M** Replace Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step[7].	End of procedure
7	**ANTENNA CTRG operation check** Disconnect and then re-connect P/J415 on PWBA MCU. Does the error recur when the power is turned ON?	Go to Step[8].	Go to Step[9].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step[9].	Repair broken or shorted part.
9	**Check after replacement of HOUSING ASSY-DEVE M** Replace HOUSING ASSY-DEVE M. *(p.383)* Does the error recur when the power is turned ON?	Go to Step[10].	End of procedure
10	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-3

☐ Panel Message

■ Install C TnrCart

☐ Possible parts that caused the error

■ Toner Cartridge C
■ ANTENNA CTRG
■ ANTENNA ASSY-CTRG
■ HOUSING ASSY-DEVE C
■ HARNESS ASSY MAIN
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge C** Is a Toner Cartridge C that complies with the specifications attached?	Go to Step[2].	Replace with a Toner Cartridge C that complies with the specifications.
2	**Attachment check of Toner Cartridge C** Is the Toner Cartridge C attached correctly?	Go to Step[3].	After re-attachment Go to Step[3].
3	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[4].	End of procedure
4	**Attachment check of HOUSING ASSY-DEVE C** Is the HOUSING ASSY-DEVE C attached correctly?	Go to Step[5].	After re-attachment Go to Step[5].
5	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[6].	End of procedure
6	**Check after replacement of Toner Cartridge C** Replace Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step[7].	End of procedure
7	**ANTENNA CTRG operation check** Disconnect and then re-connect P/J415 on PWBA MCU. Does the error recur when the power is turned ON?	Go to Step[8].	Go to Step[9].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step[9].	Repair broken or shorted part.
9	**Check after replacement of HOUSING ASSY-DEVE C** Replace HOUSING ASSY-DEVE C. *(p.383)* Does the error recur when the power is turned ON?	Go to Step[10].	End of procedure
10	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-4

☐ Panel Message

- ■ Install K TnrCart

☐ Possible parts that caused the error

- ■ Toner Cartridge K
- ■ ANTENNA CTRG
- ■ ANTENNA ASSY-CTRG
- ■ HOUSING ASSY-DEVE K
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge K** Is a Toner Cartridge K that complies with the specifications attached?	Go to Step[2].	Replace with a Toner Cartridge K that complies with the specifications.
2	**Attachment check of Toner Cartridge K** Is the Toner Cartridge K attached correctly?	Go to Step[3].	After re-attachment Go to Step[3].
3	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[4].	End of procedure
4	**Attachment check of HOUSING ASSY-DEVE K** Is the HOUSING ASSY-DEVE K attached correctly?	Go to Step[5].	After re-attachment Go to Step[5].
5	**Does the error recur even if the power is turned ON/OFF several times?**	Go to Step[6].	End of procedure
6	**Check after replacement of Toner Cartridge** Replace Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step[7].	End of procedure
7	**ANTENNA CTRG operation check** Disconnect and then re-connect P/J415 on PWBA MCU. Does the error recur when the power is turned ON?	Go to Step[8].	Go to Step[9].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step[9].	Repair broken or shorted part.
9	**Check after replacement of HOUSING ASSY-DEVE K** Replace HOUSING ASSY-DEVE K. *(p.383)* Does the error recur when the power is turned ON?	Go to Step[10].	End of procedure
10	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-5

☐ Panel Message

■ Install Photocondctr

☐ Possible parts that caused the error

■ Photoconductor Unit
■ GUIDE CRU ASSY D or ANTENNA ASSY
■ HARNESS-ASSY XERO
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Photoconductor Unit** Is a Photoconductor Unit that complies with the specifications attached?	Go to Step[2].	Replace with a Photoconductor Unit that complies with the specifications.
2	**Attachment check of Photoconductor Unit** Re-attach Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step[3].	End of procedure
3	**ANTENNA CTRG operation check** Disconnect and the re-connect P/J416 on PWBA MCU. Does the error recur when the power is turned ON?	Go to Step[4].	Go to Step[5].
4	**Continuity check of HARNESS-ASSY XERO** Disconnect the P/J416 from PWBA MCU. Do all of the wiring below have normal continuity? J416-4 ↔ J109-2 J416-5 ↔ J109-1	Go to Step[5].	Replace HARNESS-ASSY XERO.
5	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Check after replacement of GUIDE CRU ASSY D or ANTENNA ASSY** Replace GUIDE CRU ASSY D or ANTENNA ASSY. *(p.362)* or *(p.365)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-6

☐ Panel Message

■ Photocondctr Trouble

☐ Possible parts that caused the error

■ Photoconductor Unit
■ HARNESS-ASSY XERO
■ LV/HVPS
■ GUIDE CRU ASSY D or ANTENNA ASSY
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Photoconductor Unit** Is a Photoconductor Unit that complies with the specifications attached?	Go to Step [2].	Replace with a Photoconductor Unit that complies with the specifications.
2	**Attachment check of Photoconductor Unit** Re-attach Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA ASSY** Is ANTENNA ASSY dirty and damaged?	Clean ANTENNA ASSY, and then proceed to step [5].	Go to Step [6].
5	**Does the error recur when the power is turned ON?**	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS-ASSY XERO** Disconnect P/J416 from PWBA MCU. Do all of the wiring below have normal continuity. J416-4 ↔ J109-2 J416-5 ↔ J109-1	Go to Step [7].	Replace HARNESS-ASSY XERO.
7	**Check after replacement of GUIDE CRU ASSY D or ANTENNA ASSY** Replace GUIDE CRU ASSY D or ANTENNA ASSY. *(p.362)* or *(p.365)* Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-7

☐ Panel Message

- ■ Photocondctr Trouble

☐ Possible parts that caused the error

- ■ Photoconductor Unit
- ■ HARNESS-ASSY XERO
- ■ LV/HVPS
- ■ GUIDE CRU ASSY D or ANTENNA ASSY
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Attachment check of Photoconductor Unit** Re-attach Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check of ANTENNA ASSY** Is ANTENNA ASSY dirty and damaged?	Clean ANTENNA ASSY, and then proceed to step [4].	Go to Step [5].
4	**Does the error recur when the power is turned ON?**	Go to Step [5].	End of procedure
5	**Continuity check of HARNESS-ASSY XERO** Disconnect P/J416 from PWBA MCU. Do all of the wiring below have normal continuity? J416-4 ↔ J109-2 J416-5 ↔ J109-1	Go to Step [6].	Replace HARNESS-ASSY XERO.
6	**Check after replacement of GUIDE CRU ASSY D or ANTENNA ASSY** Replace GUIDE CRU ASSY D or ANTENNA ASSY. *(p.362)* or *(p.365)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-8

☐ Panel Message

■ Photocondctr Trouble

☐ Possible parts that caused the error

■ Photoconductor Unit
■ HARNESS ASSY MAIN
■ PWBA MCU
■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Photoconductor Unit** Is a Photoconductor Unit that complies with the specifications attached?	Go to Step [2].	Replace with a Photoconductor Unit that complies with the specifications.
2	**Attachment check of Photoconductor Unit** Re-attach Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-9

☐ Panel Message

■ Wrong Photocondctr

☐ Possible parts that caused the error

■ Photoconductor Unit
■ HARNESS ASSY MAIN
■ PWBA MCU
■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Photoconductor Unit** Is a Photoconductor Unit that complies with the specifications attached?	Go to Step [2].	Replace with a Photoconductor Unit that complies with the specifications.
2	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [4].
4	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-10

☐ Panel Message

- ■ TonerCart Error Y

☐ Possible parts that caused the error

- ■ Toner Cartridge Y
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge Y** Is a Toner Cartridge Y that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge Y that complies with the specifications.
2	**Attachment check of Toner Cartridge Y** Re-attach Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge Y** Replace Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [6].
5	**Does the error recur when the power is turned ON?**	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-11

☐ Panel Message

- ■ TonerCart Error Y

☐ Possible parts that caused the error

- ■ Toner Cartridge Y
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Attachment check of Toner Cartridge Y** Re-attach Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Check after replacement of Toner Cartridge Y** Replace Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [4].	Go to Step [5].
4	**Does the error recur when the power is turned ON?**	Go to Step [5].	End of procedure
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [6].	Repair broken or shorted part.
6	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-12

☐ Panel Message

- ■ TonerCart Error Y

☐ Possible parts that caused the error

- ■ Toner Cartridge Y
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge Y** Is a Toner Cartridge Y that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge Y that complies with the specifications.
2	**Attachment check of Toner Cartridge Y** Re-attach Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge Y** Replace Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-13

☐ Panel Message

- ■ Wrong Toner Y

☐ Possible parts that caused the error

- ■ Toner Cartridge Y
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge Y** Is a Toner Cartridge Y that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge Y that complies with the specifications.
2	**Check after replacement of Toner Cartridge Y** Replace Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [4].
4	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-14

☐ Panel Message

- ■ TonerCart Error M

☐ Possible parts that caused the error

- ■ Toner Cartridge M
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge M** Is a Toner Cartridge M that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge M that complies with the specifications.
2	**Attachment check of Toner Cartridge M** Re-attach Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge M** Replace Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [6].
5	**Does the error recur when the power is turned ON?**	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-15

☐ Panel Message

- ■ TonerCart Error M

☐ Possible parts that caused the error

- ■ Toner Cartridge M
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Attachment check of Toner Cartridge M** Re-attach Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Check after replacement of Toner Cartridge M** Replace Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [4].	Go to Step [5].
4	**Does the error recur when the power is turned ON?**	Go to Step [5].	End of procedure
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [6].	Repair broken or shorted part.
6	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-16

☐ Panel Message

■ TonerCart Error M

☐ Possible parts that caused the error

■ Toner Cartridge M
■ HARNESS ASSY MAIN
■ PWBA MCU
■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge M** Is a Toner Cartridge M that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge M that complies with the specifications.
2	**Attachment check of Toner Cartridge M** Re-attach Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge M** Replace Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-17

☐ Panel Message

- ■ Wrong Toner M

☐ Possible parts that caused the error

- ■ Toner Cartridge M
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge M** Is a Toner Cartridge M that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge M that complies with the specifications.
2	**Check after replacement of Toner Cartridge M** Replace Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [4].
4	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-18

☐ Panel Message

- ■ TonerCart Error C

☐ Possible parts that caused the error

- ■ Toner Cartridge C
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge C** Is a Toner Cartridge C that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge C that complies with the specifications.
2	**Attachment check of Toner Cartridge C** Re-attach Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge C** Replace Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [6].
5	**Does the error recur when the power is turned ON?**	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-19

☐ Panel Message

- ■ TonerCart Error C

☐ Possible parts that caused the error

- ■ Toner Cartridge C
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Attachment check of Toner Cartridge C** Re-attach Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Check after replacement of Toner Cartridge C** Replace Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [4].	Go to Step [5].
4	**Does the error recur when the power is turned ON?**	Go to Step [5].	End of procedure
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [6].	Repair broken or shorted part.
6	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Continuity check between PWBA MCU and LV/HVPS of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-20

☐ Panel Message

- ■ TonerCart Error C

☐ Possible parts that caused the error

- ■ Toner Cartridge C
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge C** Is a Toner Cartridge C that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge C that complies with the specifications.
2	**Attachment check of Toner Cartridge C** Re-attach Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge C** Replace Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-21

☐ Panel Message

- ■ Wrong Toner C

☐ Possible parts that caused the error

- ■ Toner Cartridge C
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge C** Is a Toner Cartridge C that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge C that complies with the specifications.
2	**Check after replacement of Toner Cartridge C** Replace Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [4].
4	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-22

☐ Panel Message

- ■ TonerCart Error K

☐ Possible parts that caused the error

- ■ Toner Cartridge K
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge K** Is a Toner Cartridge K that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge K that complies with the specifications.
2	**Attachment check of Toner Cartridge K** Re-attach Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge K** Replace Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [6].
5	**Does the error recur when the power is turned ON?**	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-23

☐ Panel Message

- ■ TonerCart Error K

☐ Possible parts that caused the error

- ■ Toner Cartridge K
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ ANTENNA ASSY-CTRG or ANTENNA CTRG
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge K** Re-attach Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Check after replacement of Toner Cartridge K** Replace Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [4].	Go to Step [5].
4	**Does the error recur when the power is turned ON?**	Go to Step [5].	End of procedure
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [6].	Repair broken or shorted part.
6	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-24

☐ Panel Message

- ■ TonerCart Error K

☐ Possible parts that caused the error

- ■ Toner Cartridge K
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge K** Is a Toner Cartridge K that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge K that complies with the specifications.
2	**Attachment check of Toner Cartridge K** Re-attach Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge K** Replace Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-25

☐ Panel Message

- ■ Wrong Toner K

☐ Possible parts that caused the error

- ■ Toner Cartridge K
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Model check of Toner Cartridge K** Is a Toner Cartridge K that complies with the specifications attached?	Go to Step [2].	Replace with a Toner Cartridge K that complies with the specifications.
2	**Check after replacement of Toner Cartridge K** Replace Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [3].	End of procedure
3	**Power supply check to PWBA MCU** Are the following power voltages being supplied to PWBA MCU from LV/HVPS? J410-1 ↔ J410-2: 3. 3 VDC J410-3 ↔ J410-4: 5 VDC J410-5/6 ↔ J410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [4].
4	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-26

☐ Panel Message

- ■ Jam LC, G

☐ Possible parts that caused the error

- ■ ROLL ASSY TURN 500
- ■ HOLDER ASSY RETARD 500
- ■ HARNESS ASSY MAIN
- ■ PWBA TRAY 500
- ■ ACTUATOR T/R
- ■ HARNESS ASSY FEED 3
- ■ LV/HVPS
- ■ HARNESS-ASSY FEED MAIN
- ■ ROLL ASSY FEED 500
- ■ SOLENOID FEED
- ■ DRIVE ASSY FEED
- ■ HARNESS-ASSY FEED 1
- ■ SENSOR T/R
- ■ PWBA MCU
- ■ CLUTCH ASSY FEED
- ■ DRIVE ASSY FEED

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of the paper** Is the paper loaded in the paper tray wrinkled or torn?	Replace with new, dry paper.	Go to Step [2].
2	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step [4].	Change the paper size setting, and proceed to step [3].
3	**Does the error recur when a test print is made?**	Go to Step [4].	End of procedure
4	**Shape and operation check of ROLL ASSY of Feeder section** Open COVER-REAR 500 of Feeder. Are ROLL ASSY TURN 500, HOLDER ASSY RETARD 500, ROLL ASSY FEED 500 and other parts attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [5].	Replace the ROLL in question.
5	**Does the error recur when a test print is made?**	Go to Step [6].	End of procedure
6	**Operation check of SOLENOID FEED** Does SOLENOID FEED operate correctly? Make a test print and confirm.	Go to Step [12].	Go to Step [7].
7	**Continuity check of HARNESS-ASSY FEED MAIN** Disconnect P/J437 from PWBA TRAY 500. Do all of the wiring below have normal continuity? J437-16 ↔ P610-2 J437-17 ↔ P610-1	Go to Step [8].	Replace HARNESS-ASSY FEED MAIN.
8	**Check after replacement of DRIVE ASSY FEED** Replace DRIVE ASSY FEED 250. *(p.458)* Does the error recur when a test print is made?	Go to Step [9].	End of procedure
9	**Check after replacement of PWBA TRAY 500** Replace PWBA TRAY 500. *(p.456)* Does the error recur when a test print is made?	Go to Step [10].	End of procedure
10	**Continuity check of HARNESS-ASSY FEED 1** Disconnect P/J435 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J435-2 ↔ P608-9 J435-3 ↔ P608-8 J435-4 ↔ P608-7	Go to Step [11].	Replace HARNESS-ASSY FEED 1. *(p.462)*

Step	Check	Yes	No
11	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J421 from PWBA MCU. Do all of the wiring below have normal continuity? J421-7 ↔ J608-4 J421-8 ↔ J608-3 J421-9 ↔ J608-2	Replace PWBA MCU. *(p.404)*	Repair broken or shorted part.
12	**Operation check of ACTUATOR T/R** Does ACTUATOR T/R move smoothly without any damage? Does it leave the sensing area of Tray Path Sensor when there is paper? Does it enter the sensing area when there is no paper?	Go to Step [13].	Replace ACTUATOR T/R. *(p.481)*
13	**Operation check of SENSOR T/R** The voltage of P437-15 ↔ P437-14 on PWBA TRAY CONT is 0 VDC when ACTUATOR T/R enters the sensing area of SENSOR T/R, and is 5 VDC when it leaves the sensing area?	Go to Step [22].	Go to Step [14].
14	**5 VDC power supply check to SENSOR T/R** Remove COVER LEFT 500. The voltage of P437-13 ↔ P437-14 on PWBA TRAY 500 is 5 VDC?	Go to Step [15].	Go to Step [17].
15	**Continuity check of HARNESS-ASSY FEED MAIN** Disconnect P/J437 and P/J618 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J437-13 ↔ J618-3 J437-14 ↔ J618-2 J437-15 ↔ J618-1	Go to Step [16].	Replace HARNESS-ASSY FEED MAIN.
16	**Continuity check of HARNESS ASSY FEED 3** Disconnect P/J618. Do all of the wiring below have normal continuity? P618-4 ↔ J120-3 P618-5 ↔ J120-2 P618-6 ↔ J120-1	Replace SENSOR T/R. *(p.482)*	Repair broken or shorted part.
17	**5 VDC power supply check to PWBA TRAY 500** The voltage of P435-6 ↔ P435-5 on PWBA TRAY 500 is 5 VDC?	Go to Step [9].	Go to Step [18].
18	**Continuity check of HARNESS-ASSY FEED 1** Disconnect P/J435 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J435-6 ↔ P608-5 J435-5 ↔ P608-6	Go to Step[19].	Replace HARNESS-ASSY FEED 1. *(p.462)*
19	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J421 from PWBA MCU. Do all of the wiring below have normal continuity? J421-5 ↔ J608-6 J421-6 ↔ J608-5	Go to Step [20].	Repair broken or shorted part.
20	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [21].
21	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

Step	Check	Yes	No
22	**Operation check of CLUTCH ASSY FEED** Does CLUTCH ASSY FEED operate normally? Make a test print and confirm by the operating noise.	Go to Step [30].	Go to Step [23].
23	**Continuity check of HARNESS-ASSY FEED MAIN** Disconnect P/J437 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J437-6 ↔ P609-2 J437-7 ↔ P609-1	Go to Step [24].	Replace HARNESS-ASSY FEED MAIN.
24	**Check of resistance value of CLUTCH ASSY FEED** The winding resistance between the terminals of CLUTCH ASSY FEED is 144Ω ± 10% (20°C)?	Go to Step [25].	Replace CLUTCH ASSY FEED. *(p.461)*
25	**24 VDC power supply check to PWBA TRAY 500** The voltage of P435-9/10 ↔ 435-7/8 on PWBA TRAY 500 is 24 VDC?	Go to Step [9].	Go to Step [26].
26	**Continuity check of HARNESS-ASSY FEED 1** Disconnect P/J435 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J435-7 ↔ P608-4 J435-8 ↔ P608-3 J435-9 ↔ P608-2 J435-10 ↔ P608-1	Go to Step [27].	Replace HARNESS-ASSY FEED 1. *(p.462)*

Step	Check	Yes	No
27	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J421 from PWBA MCU. Do all of the wiring below have normal continuity? J421-1 ↔ J608-10 J421-2 ↔ J608-9 J421-3 ↔ J608-8 J421-4 ↔ J608-7	Go to Step [28].	Repair broken or shorted part.
28	**24 VDC power supply check to PWBA MCU** Disconnect the P/J410 from PWBA MCU. The voltage of P410-5/6 ↔ P410-7/8 P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [29].
29	**Continuity check of HARNESS-ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
30	**Check of 24 VDC power supply to DRIVE ASSY FEED** The voltage of P437-4 ↔ P437-5 on PWBA TRAY CONT is 24 VDC?	Go to Step [31].	Go to Step [25].
31	**Continuity check of HARNESS-ASSY FEED MAIN** Disconnect P/J437 from PWBA TRAY 500. Do all of the wiring below have normal continuity? J437-5 ↔ J440-1 J437-4 ↔ J440-2 J437-2 ↔ J440-4 J437-1 ↔ J440-5	Go to Step [8].	Replace HARNESS-ASSY FEED MAIN.

FIP-27

☐ Panel Message

- ■ Jam MP, E
- ■ Jam D, E

☐ Possible parts that caused the error

- ■ ROLL MSI
- ■ CHUTE ASSY PAPER GUIDE
- ■ ROLL-PINCH
- ■ SENSOR REGI
- ■ HARNESS-ASSY P/H2
- ■ LV/HVPS
- ■ HARNESS ASSY MAIN
- ■ HOLDER ASSY RETARD MSI
- ■ ROLL ASSY-PRE REGI
- ■ ACTUATOR-REGI.
- ■ HARNESS-ASSY P/H1
- ■ PWBA MCU
- ■ MOTOR-PH
- ■ CLUTCH ASSY PRE REGI

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of the paper** Is the paper loaded in the paper tray wrinkled or torn?	Replace with new, dry paper.	Go to Step [2].
2	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step [4].	Change the paper size setting, and proceed to step [3].
3	**Does the error recur when a test print is made?**	Go to Step [4].	End of procedure
4	**Shape and operation check of ROLL ASSY of MSI section** Remove MSI. *(p.304)* Are ROLL MSI, HOLDER ASSY RETARD MSI, CHUTE ASSY PAPER GUIDE, and other parts attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [5].	Replace ROLL ASSY in question.
5	**Shape and operation check of ROLL ASSY-PRE REGI and ROLL-PINCH** Open CHUTE ASSY-REAR. Are ROLL ASSY-PRE REGI and ROLL-PINCH attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [6].	Replace ROLL in question.
6	**Does the error recur when a test print is made?**	Go to Step [7].	End of procedure
7	**Check of the paper position** Is the leading edge of the paper passing through PRE REGI ROLL?	Go to Step [8].	Go to Step [20].
8	**Operation check of ACTUATOR-REGI** Does ACTUATOR-REGI move smoothly without any damage? Does it enter the sensor sensing area when there is paper? Does it leave the sensor sensing area when there is no paper?	Go to Step [9].	Replace ACTUATOR-REGI. *(p.335)*
9	**Operation check of SENSOR REGI** The voltage of P408-12 ↔ P408-11 on PWBA MCU is 0 VDC when ACTUATOR REGI enters the sensor sensing area, and is 5 VDC when it leaves the sensing area?	Go to Step [15].	Go to Step [10].
10	**5 VDC power supply check to SENSOR REGI** The voltage of P408-10 ↔ P408-11 on PWBA MCU is 5 VDC?	Go to Step [11].	Go to Step [13].

Step	Check	Yes	No
11	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-10 ↔ J603-3 J408-11 ↔ J603-2 J408-12 ↔ J603-1	Go to Step [12].	Replace HARNESS-ASSY P/H1.
12	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603 and P/J102 from PWBA MCU. Do all of the wiring below have normal continuity. P603-10 ↔ J102-3 P603-11 ↔ J102-2 P603-12 ↔ J102-1	Replace SENSOR REGI. *(p.336)*	Replace HARNESS-ASSY P/H2.
13	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [14].
14	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
15	**24 VDC power supply check to P/H MOTOR** The voltage of P409-6 ↔ P409-5 on PWBA MCU is 24 VDC?	Go to Step [16].	Go to Step [18].
16	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J409 from PWBA MCU. Do all of the wiring below have normal continuity? J409-1 ↔ P604-6 J409-2 ↔ P604-5 J409-3 ↔ P604-4 J409-4 ↔ P604-3 J409-5 ↔ P604-2 J409-6 ↔ P604-1	Go to Step [17].	Replace HARNESS-ASSY P/H1.
17	**Check after replacement of MOTOR-PH** Replace MOTOR-PH. *(p.337)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.404)*	End of procedure
18	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [19].
19	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
20	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-1 ↔ J603-12 J408-2 ↔ J603-11	Go to Step [21].	Replace HARNESS-ASSY P/H1.

Step	Check	Yes	No
21	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603. Do all of the wiring below have normal continuity? P603-1 ↔ P202-2 P603-2 ↔ P202-1	Go to Step [22].	Replace HARNESS-ASSY P/H2.
22	**Check of resistance value of CLUTCH ASSY PRE REGI** Disconnect P/J202. The winding resistance between the terminals of CLUTCH ASSY PRE REGI is 144Ω ± 10% (20°C)?	Go to Step [18].	Replace CLUTCH ASSY PRE REGI. *(p.338)*

FIP-28

☐ Panel Message

- ■ Jam E

☐ Possible parts that caused the error

- ■ ROLL ASSY TURN 500
- ■ ROLL ASSY FEED 500
- ■ ROLL PINCH B
- ■ ROLL-PINCH
- ■ SENSOR REGI
- ■ HARNESS-ASSY P/H2
- ■ LV/HVPS
- ■ HARNESS ASSY MAIN
- ■ HOLDER ASSY RETARD 500
- ■ ROLL PINCH A
- ■ ROLL ASSY-PRE REGI
- ■ ACTUATOR-REGI
- ■ HARNESS-ASSY P/H1
- ■ PWBA MCU
- ■ MOTOR-PH
- ■ CLUTCH ASSY PRE REGI

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Feeder attachment on printer** Remove the Feeder and re-attach, then made a test print. Does the error recur?	Go to Step [2].	End of procedure
2	**Check of the paper** Is the paper loaded in the paper tray wrinkled or torn?	Replace with new, dry paper.	Go to Step [3].
3	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step [5].	Change the paper size setting, and proceed to step [4].
4	**Does the error recur when a test print is made?**	Go to Step [5].	End of procedure
5	**Shape and operation check of ROLL ASSY of Feeder section** Open COVER-REAR 500 of Feeder. Are ROLL ASSY TURN 500, HOLDER ASSY RETARD 500, ROLL ASSY FEED 500 and other parts attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [6].	Replace ROLL ASSY in question.
6	**Shape and operation check of ROLL PINCH A and ROLL PINCH B of Tray1 Feeder** Open COVER-REAR 500. Are ROLL PINCH A and ROLL PINCH B attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [7].	Replace ROLL PINCH in question.
7	**Shape and operation check of ROLL ASSY-PRE REGI and ROLL-PINCH** Open CHUTE ASSY-REAR. Are ROLL ASSY-PRE REGI and ROLL-PINCH attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [8].	Replace ROLL in question.
8	**Does the error recur when a test print is made?**	Go to Step [9].	End of procedure
9	**Check of paper position** Is the leading edge of the paper passing through PRE REGI ROLL?	Go to Step [10].	Go to Step [22].
10	**Operation check of ACTUATOR-REGI** Does ACTUATOR-REGI move smoothly without any damage? Does it enter the sensor sensing area when there is paper? Does it leave the sensor sensing area when there is no paper?	Go to Step [11].	Replace ACTUATOR-REGI. *(p.335)*

Step	Check	Yes	No
11	**Operation check of SENSOR REGI** The voltage of P408-12 ↔ P408-11 on PWBA MCU is 0 VDC when ACTUATOR REGI enters the sensor sensing area, and is 5 VDC when it leaves the sensing area?	Go to Step [17].	Go to Step [12].
12	**5 VDC power supply check to SENSOR REGI** The voltage of P408-10 ↔ P408-11 on PWBA MCU is 5 VDC?	Go to Step [13].	Go to Step [15].
13	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-10 ↔ J603-3 J408-11 ↔ J603-2 J408-12 ↔ J603-1	Go to Step [14].	Replace HARNESS-ASSY P/H1.
14	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603 and P/J102 from PWBA MCU. Do all of the wiring below have normal continuity? P603-10 ↔ J102-3 P603-11 ↔ J102-2 P603-12 ↔ J102-1	Replace SENSOR REGI. *(p.336)*	Replace HARNESS-ASSY P/H2.
15	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [16].
16	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

Step	Check	Yes	No
17	**24 VDC power supply check to P/H MOTOR** The voltage of P409-6 ↔ P409-5 on PWBA MCU is 24 VDC?	Go to Step [18].	Go to Step [20].
18	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J409 from PWBA MCU. Do all of the wiring below have normal continuity? J409-1 ↔ P604-6 J409-2 ↔ P604-5 J409-3 ↔ P604-4 J409-4 ↔ P604-3 J409-5 ↔ P604-2 J409-6 ↔ P604-1	Go to Step [19].	Replace HARNESS-ASSY P/H1.
19	**Check after replacement of MOTOR-PH** Replace MOTOR-PH. *(p.337)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.404)*	End of procedure
20	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [21].
21	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
22	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-1 ↔ J603-12 J408-2 ↔ J603-11	Go to Step [23].	Replace HARNESS-ASSY P/H1.

Step	Check	Yes	No
23	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603. Do all of the wiring below have normal continuity? P603-1 ↔ P202-2 P603-2 ↔ P202-1	Go to Step [24].	Replace HARNESS-ASSY P/H2.
24	**Check of resistance value of CLUTCH ASSY PRE REGI** Disconnect P/J202. The winding resistance between the terminals of CLUTCH ASSY PRE REGI is 144Ω ± 10% (20°C)?	Go to Step [20].	Replace CLUTCH ASSY PRE REGI. *(p.338)*

FIP-29

☐ Panel Message

- ■ Jam E
- ■ Jam D, E

☐ Possible parts that caused the error

- ■ ROLL ASSY PRE-REGI
- ■ ROLL-REGI METAL
- ■ ACTUATOR-REGI
- ■ MOTOR-PH
- ■ HARNESS-ASSY P/H2
- ■ LV/HVPS
- ■ ROLL-PINCH
- ■ ROLL REGI RUBBER
- ■ SENSOR REGI
- ■ HARNESS-ASSY P/H1
- ■ PWBA MCU
- ■ HARNESS ASSY MAIN

☐ Troubleshooting

Step	Check	Yes	No
1	**Paper size check** Is the paper size compliant with the specifications?	Go to Step[2].	Use paper of size compliant with the specifications.
2	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step[4].	Change the paper size setting, and proceed to step [3].
3	**Does the error recur when a test print is made by dialog operations?**	Go to Step[4].	End of procedure
4	**Shape and operation check of ROLL ASSY PRE-REGI and ROLL-PINCH** Open CHUTE ASSY-REAR. Are ROLL ASSY PRE-REGI and ROLL-PINCH attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step[5].	Replace or re-attach ROLL in question.
5	**Shape and operation check of ROLL-REGI METAL and ROLL REGI RUBBER** Open CHUTE ASSY-REAR. Are the ROLL-REGI and ROLL REGI RUBBER attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step[6].	Replace or re-attach ROLL in question.
6	**Operation check of ACTUATOR-REGI** Does ACTUATOR-REGI move smoothly without any damage? Does ACTUATOR-REGI enter the sensor sensing area when there is paper? Does it leave the sensor sensing area when there is no paper?	Go to Step[7].	Replace ACTUATOR-REGI. *(p.335)*
7	**Operation check of SENSOR REGI** The voltage of P408-12 ↔ P408-11 on PWBA MCU is 0 VDC when ACTUATOR REGI enters the sensing area of SENSOR REGI, and is 5 VDC when it leaves the sensing area?	Go to Step[8].	Go to Step[11].
8	**24 VDC power supply check to MOTOR-PH** The voltage of P409-6 ↔ P409-5 on PWBA MCU is 24 VDC?	Go to Step[9].	Go to Step[14].
9	**Continuity check of HARNESS-ASSY P/H1** Disconnect P/J405 and P/J604 from PWBA MCU. Do all of the wiring below have normal continuity? J409-1 ↔ P604-6 J409-2 ↔ P604-5 J409-3 ↔ P604-4 J409-4 ↔ P604-3 J409-5 ↔ P604-2 J409-6 ↔ P604-1	Go to Step[10].	Replace HARNESS-ASSY P/H1.

Step	Check	Yes	No
10	**Check after replacement of MOTOR-PH** Replace MOTOR-PH. *(p.337)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure
11	**5 VDC power supply check to SENSOR REGI** The voltage of P408-10 ↔ P408-11 on PWBA MCU is 5 VDC?	Go to Step[12].	Go to Step[16].
12	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-10 ↔ J603-3 J408-11 ↔ J603-2 J408-12 ↔ J603-1	Go to Step [13].	Replace HARNESS-ASSY P/H1.
13	**Continuity check of HARNESS-ASSY P/H2** Disconnect the P/J603 from PWBA MCU. Do all of the wiring below have normal continuity? P603-10 ↔ J102-3 P603-11 ↔ J102-2 P603-12 ↔ J102-1	Replace SENSOR REGI. *(p.336)*	Replace HARNESS-ASSY P/H2.
14	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [15].
15	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
16	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [17].
17	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-30

☐ Panel Message

- ■ Jam E, F
- ■ Jam D, E, F

☐ Possible parts that caused the error

- ■ FUSER ASSY
- ■ ROLL REGI RUBBER
- ■ HARNESS-ASSY P/H1
- ■ MOTOR-PH
- ■ 2ND BTR ASSY
- ■ FRAME ASSY BTR
- ■ Photoconductor Unit
- ■ HARNESS ASSY ADC
- ■ CAM ASSY-2ND
- ■ HARNESS ASSY MAIN
- ■ EXIT SENSOR (Sensor in Fuser)
- ■ LV/HVPS
- ■ ROLL-REGI METAL
- ■ CLUTCH ASSY REGI
- ■ HARNESS-ASSY P/H2
- ■ PWBA MCU
- ■ SHAFT-CENT 2ND
- ■ BEARING-BRUSH CAM
- ■ SENSOR FUSER IN
- ■ HARNESS ASSY 2BTR SENS
- ■ SENSOR 2BTR RETRACT
- ■ MOT ASSY MICRO
- ■ MOT ASSY FSR
- ■ HARNESS ASSY MCU C/L

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of the paper** Is the paper loaded in the paper tray wrinkled or torn?	Replace with new, dry paper.	Go to Step [2].
2	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step [4].	Change the paper size setting, and proceed to step [3].
3	**Does the error recur when a test print is made?**	Go to Step [4].	End of procedure
4	**Paper check at Gate section inside FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Is there any paper remaining at the Gate section inside FUSER ASSY.	Remove the remaining paper and proceed to step [5].	Go to Step [6].
5	**Does the error recur when the power is turned ON?**	Go to Step[6].	End of procedure
6	**Shape and operation check of ROLL-REGI METAL** Open CHUTE ASSY-REAR. Is ROLL REGI RUBBER attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [7].	Replace ROLL in question.
7	**Does the error recur when a test print is made?**	Go to Step [8].	End of procedure
8	**Check of paper position** Is the leading edge of the paper stopping before REGI-ROLL?	Go to Step [10].	Go to Step [9].
9	**Check of paper position** Has the leading edge of the paper passed through REGI-ROLL, and stopped before Fuser Roll inside FUSER ASSY?	Go to Step [17].	Go to Step [30].
10	**Operation check of CLUTCH ASSY REGI** Does CLUTCH ASSY REGI operate normally? Make a test print and confirm by the operating noise.	Go to Step [14].	Go to Step [11].

Step	Check	Yes	No
11	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-3 ↔ J603-10 J408-4 ↔ J603-9	Go to Step [12].	Replace HARNESS-ASSY P/H1.
12	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603. Do all of the wiring below have normal continuity? P603-3 ↔ P203-2 P603-4 ↔ P203-1	Go to Step [13].	Replace HARNESS-ASSY P/H2.
13	**Check of resistance value of CLUTCH ASSY REGI** Disconnect P/J203. The winding resistance between the terminals of CLUTCH ASSY REGI is 144Ω ± 10% (20°C)?	Go to Step [36].	Replace CLUTCH ASSY REGI. *(p.329)*
14	**Check of 24 VDC power supply to MOTOR-PH** The voltage of P409-6 ↔ P409-5 on PWBA MCU is 24 VDC?	Go to Step [15].	Go to Step [36].
15	**Continuity check HARNESS-ASSY P/H1** Disconnect the P/J409 from PWBA MCU. Do all of the wiring below have normal continuity? Is the continuity normal between all terminals of J409 ↔ P604?	Go to Step [16].	Replace HARNESS-ASSY P/H1.
16	**Check after replacement of MOTOR-PH** Replace MOTOR-PH. Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

Step	Check	Yes	No
17	**Shape and operation check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY damaged? Are the SHAFT-CENT 2ND, FRAME ASSY BTR and BEARING-BRUSH CAM damaged? Does any of them operate abnormally?	Replace 2ND BTR ASSY and other relevant parts.	Go to Step [18].
18	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when a test print is made?	Go to Step [19].	End of procedure
19	**Operation check of SENSOR FUSER IN** The voltage of P418-2 ↔ P418-1 on PWBA MCU is 5 VDC when white paper is brought to the sensor sensing area, and is 0 VDC when paper is removed?	Go to Step [23].	Go to Step [20].
20	**5 VDC power supply check to SENSOR FUSER IN** The voltage of P418-3 ↔ P418-1 on PWBA MCU is 5 VDC?	Go to Step [21].	Go to Step [39].
21	**Continuity check of HARNESS ASSY ADC** Disconnect P/J418 and P/J620 from PWBA MCU. Do all of the wiring below have normal continuity? J418-1 ↔ J620-3 J418-2 ↔ J620-2 J418-3 ↔ J620-1	Go to Step [22].	Replace HARNESS ASSY ADC.

Step	Check	Yes	No
22	**Continuity check of HARNESS ASSY 2BTR SENS** Disconnect P/J620 from HARNESS ASSY 2BTR SENS. Do all of the wiring below have normal continuity? P620-1 ↔ J111-3 P620-2 ↔ J111-2 P620-3 ↔ J111-1	Replace SENSOR FUSER IN. *(p.344)*	Replace HARNESS ASSY 2BTR SENS.
23	**Shape and operation check of CAM ASSY-2ND** Does CAM ASSY-2ND move smoothly without any damage, and does it enter the sensor sensing area?	Go to Step [24].	Replace CAM ASSY-2ND. *(p.350)*
24	**Operation check of SENSOR 2BTR RETRACT** Remove 2ND BTR ASSY. *(p.348)* The voltage of P418-6 ↔ P418-5 on PWBA MCU is 0 VDC when CAM ASSY-2ND enters the sensing area of SENSOR 2BTR RETRACT, and is 5 VDC when it leaves the sensing area?	Go to Step [27].	Go to Step [25].
25	**5 VDC power supply check to SENSOR 2BTR RETRACT** Disconnect P/J418 from PWBA MCU. The voltage of P418-4 ↔ P418-5 on PWBA MCU is 5 VDC?	Go to Step [26].	Go to Step [39].
26	**Continuity check of HARNESS ASSY ADC** Disconnect P/J418 from PWBA MCU. Do all of the wiring below have normal continuity? J418-4 ↔ J112-3 J418-5 ↔ J112-2 J418-6 ↔ J112-1	Replace SENSOR 2BTR RETRACT. *(p.356)*	Replace HARNESS ASSY ADC.

Step	Check	Yes	No
27	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J403 from PWBA MCU. Do all of the wiring below have normal continuity? J403-1 ↔ J600-3 J403-2 ↔ J600-2 J403-3 ↔ J600-1	Go to Step [28].	Repair broken or shorted part.
28	**24 VDC power supply check to MOT ASSY MICRO (2ND BTR Retract Motor)** The voltage of P403-3 ↔ P403-2 on PWBA MCU is 24 VDC?	Go to Step [29].	Go to Step [36].
29	**Check after replacement of MOT ASSY MICRO** Replace MOT ASSY MICRO. *(p.399)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.407)*	End of procedure
30	**Operation check of EXIT SENSOR in FUSER ASSY** The voltage of P417-8 ↔ P417-7 on PWBA MCU is 0 VDC when ACTUATOR enters the sensing area of EXIT SENSOR, and is 5 VDC when it leaves the sensing area?	Go to Step [33].	Go to Step [31].
31	**5 VDC power supply check to EXIT SENSOR in FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* The voltage of connector J614A-7 ↔ J614A-6 that connects FUSER ASSY on the printer is 5 VDC?	Go to Step [32].	Go to Step [38].

Step	Check	Yes	No
32	**Continuity check of HARNESS ASSY FUSER SENS and HARNESS ASSY FUSER in FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Disconnect P/J619 and P/J110 in FUSER ASSY. Do all of the wiring below have normal continuity? P619-1 ↔ J110-3 P619-2 ↔ J110-2 P619-3 ↔ J110-1 J619-3 ↔ P614A-7 J619-2 ↔ P614A-8 J619-1 ↔ P614A-9	Replace EXIT SENSOR.	Replace FUSER ASSY. *(p.388)*
33	**Shape and operation check of FUSER ASSY parts** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Are the gears, FUSER ROLL, EXIT ROLL, PINCH ROLL and other parts in FUSER ASSY attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [34].	Replace FUSER ASSY. *(p.388)*
34	**24 VDC power supply check to MOT ASSY FSR (Fuser Motor)** The voltage of P404-6 ↔ P404-5 on PWBA MCU is 24 VDC?	Go to Step [35].	Go to Step [36].
35	**Check after replacement of MOT ASSY FSR** Replace MOT ASSY FSR. *(p.395)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure
36	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [37].
37	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
38	**Continuity check of HARNESS ASSY MCU C/L** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Disconnect the P/J417 from PWBA MCU. Do all of the wiring below have normal continuity? J417-6 ↔ J614A-7 J417-7 ↔ J614A-6	Go to Step [39].	Repair broken or shorted part.
39	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [40].
40	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-31

☐ Panel Message

- ■ Jam C, E, F
- ■ Jam D, E, F

☐ Possible parts that caused the error

- ■ FUSER ASSY
- ■ ROLL REGI RUBBER
- ■ HARNESS-ASSY P/H1
- ■ MOTOR-PH
- ■ 2ND BTR ASSY
- ■ FRAME ASSY BTR
- ■ Photoconductor Unit
- ■ HARNESS ASSY ADC
- ■ CAM ASSY-2ND
- ■ HARNESS ASSY MAIN
- ■ EXIT SENSOR (Sensor in Fuser)
- ■ LV/HVPS
- ■ ROLL-REGI METAL
- ■ CLUTCH ASSY REGI
- ■ HARNESS-ASSY P/H2
- ■ PWBA MCU
- ■ SHAFT-CENT 2ND
- ■ BEARING-BRUSH CAM
- ■ SENSOR FUSER IN
- ■ HARNESS ASSY 2BTR SENS
- ■ SENSOR 2BTR RETRACT
- ■ MOT ASSY MICRO
- ■ MOT ASSY FSR
- ■ HARNESS ASSY MCU C/L

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of the paper** Is the paper loaded in the paper tray wrinkled or torn?	Replace with new, dry paper.	Go to Step [2].
2	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step [4].	Change the paper size setting, and proceed to step [3].
3	**Does the error recur when a test print is made?**	Go to Step [4].	End of procedure
4	**Paper check at Gate section inside FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Is there any paper remaining at the Gate section inside FUSER ASSY.	Remove the remaining paper and proceed to step [5].	Go to Step [6].
5	**Does the error recur when the power is turned ON?**	Go to Step[6].	End of procedure
6	**Shape and operation check of ROLL-REGI METAL** Open CHUTE ASSY-REAR. Is ROLL REGI RUBBER attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [7].	Replace ROLL in question.
7	**Does the error recur when a test print is made?**	Go to Step [8].	End of procedure
8	**Check of paper position** Is the leading edge of the paper stopping before REGI-ROLL?	Go to Step [10].	Go to Step [9].
9	**Check of paper position** Has the leading edge of the paper passed through REGI-ROLL, and stopped before Fuser Roll inside FUSER ASSY?	Go to Step [17].	Go to Step [30].
10	**Operation check of CLUTCH ASSY REGI** Does CLUTCH ASSY REGI operate normally? Make a test print and confirm by the operating noise.	Go to Step [14].	Go to Step [11].

Step	Check	Yes	No
11	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-3 ↔ J603-10 J408-4 ↔ J603-9	Go to Step [12].	Replace HARNESS-ASSY P/H1.
12	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603. Do all of the wiring below have normal continuity? P603-3 ↔ P203-2 P603-4 ↔ P203-1	Go to Step [13].	Replace HARNESS-ASSY P/H2.
13	**Check of resistance value of CLUTCH ASSY REGI** Disconnect P/J203. Is the winding resistance between the terminals of CLUTCH ASSY REGI is 144Ω ± 10% (20°C)?	Go to Step [36].	Replace CLUTCH ASSY REGI. *(p.329)*
14	**Check of 24 VDC power supply to MOTOR-PH** The voltage of P409-6 ↔ P409-5 on PWBA MCU is 24 VDC?	Go to Step [15].	Go to Step [36].
15	**Continuity check HARNESS-ASSY P/H1** Disconnect the P/J409 from PWBA MCU. Do all of the wiring below have normal continuity? Is the continuity normal between all terminals of J409 ↔ P604?	Go to Step [16].	Replace HARNESS-ASSY P/H1.
16	**Check after replacement of MOTOR-PH** Replace MOTOR-PH. Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

Step	Check	Yes	No
17	**Shape and operation check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY damaged? Are SHAFT-CENT 2ND, FRAME ASSY BTR and BEARING-BRUSH CAM damaged? Does any of them operate abnormally?	Replace 2ND BTR ASSY and other relevant parts.	Go to Step [18].
18	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when a test print is made?	Go to Step [19].	End of procedure
19	**Operation check of SENSOR FUSER IN** The voltage of P418-2 ↔ P418-1 on PWBA MCU is 5 VDC when white paper is brought to the sensor sensing area, and is 0 VDC when paper is removed?	Go to Step [23].	Go to Step [20].
20	**5 VDC power supply check to SENSOR FUSER IN** The voltage of P418-3 ↔ P418-1 on PWBA MCU is 5 VDC?	Go to Step [21].	Go to Step [39].
21	**Continuity check of HARNESS ASSY ADC** Disconnect P/J418 and P/J620 from PWBA MCU. Do all of the wiring below have normal continuity? J418-1 ↔ J620-3 J418-2 ↔ J620-2 J418-3 ↔ J620-1	Go to Step [22].	Replace HARNESS ASSY ADC.

Step	Check	Yes	No
22	**Continuity check of HARNESS ASSY 2BTR SENS** Disconnect P/J620 from HARNESS ASSY 2BTR SENS. Do all of the wiring below have normal continuity? P620-1 ↔ J111-3 P620-2 ↔ J111-2 P620-3 ↔ J111-1	Replace SENSOR FUSER IN. *(p.344)*	Replace HARNESS ASSY 2BTR SENS.
23	**Shape and operation check of CAM ASSY-2ND** Does CAM ASSY-2ND move smoothly without any damage, and does it enter the sensor sensing area?	Go to Step [24].	Replace CAM ASSY-2ND. *(p.350)*
24	**Operation check of SENSOR 2BTR RETRACT** Remove 2ND BTR ASSY. *(p.348)* The voltage of P418-6 ↔ P418-5 on PWBA MCU is 0 VDC when CAM ASSY-2ND enters the sensing area of SENSOR 2BTR RETRACT, and is 5 VDC when it leaves the sensing area?	Go to Step [27].	Go to Step [25].
25	**5 VDC power supply check to SENSOR 2BTR RETRACT** Disconnect P/J418 from PWBA MCU. The voltage of P418-4 ↔ P418-5 on PWBA MCU is 5 VDC?	Go to Step [26].	Go to Step [39].
26	**Continuity check of HARNESS ASSY ADC** Disconnect P/J418 from PWBA MCU. Do all of the wiring below have normal continuity? J418-4 ↔ J112-3 J418-5 ↔ J112-2 J418-6 ↔ J112-1	Replace SENSOR 2BTR RETRACT. *(p.356)*	Replace HARNESS ASSY ADC.

Step	Check	Yes	No
27	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J403 from PWBA MCU. Do all of the wiring below have normal continuity? J403-1 ↔ J600-3 J403-2 ↔ J600-2 J403-3 ↔ J600-1	Go to Step [28].	Repair broken or shorted part.
28	**24 VDC power supply check to MOT ASSY MICRO (2ND BTR Retract Motor)** The voltage of P403-3 ↔ P403-2 on PWBA MCU is 24 VDC?	Go to Step [29].	Go to Step [36].
29	**Check after replacement of MOT ASSY MICRO** Replace MOT ASSY MICRO. *(p.399)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.407)*	End of procedure
30	**Operation check of EXIT SENSOR in FUSER ASSY** The voltage of P417-8 ↔ P417-7 on PWBA MCU is 0 VDC when ACTUATOR enters the sensing area of EXIT SENSOR, and is 5 VDC when it leaves the sensing area?	Go to Step [33].	Go to Step [31].
31	**5 VDC power supply check to EXIT SENSOR in FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* The voltage of connector J614A-7 ↔ J614A-6 that connects FUSER ASSY on the printer is 5 VDC?	Go to Step [32].	Go to Step [38].

Step	Check	Yes	No
32	**Continuity check of HARNESS ASSY FUSER SENS and HARNESS ASSY FUSER in FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Disconnect P/J619 and P/J110 in FUSER ASSY. Do all of the wiring below have normal continuity? P619-1 ↔ J110-3 P619-2 ↔ J110-2 P619-3 ↔ J110-1 J619-3 ↔ P614A-7 J619-2 ↔ P614A-8 J619-1 ↔ P614A-9	Replace EXIT SENSOR.	Replace FUSER ASSY. *(p.388)*
33	**Shape and operation check of FUSER ASSY parts** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Are the gears, FUSER ROLL, EXIT ROLL, PINCH ROLL and other parts in FUSER ASSY attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [34].	Replace FUSER ASSY. *(p.388)*
34	**24 VDC power supply check to MOT ASSY FSR (Fuser Motor)** The voltage of P404-6 ↔ P404-5 on PWBA MCU is 24 VDC?	Go to Step [35].	Go to Step [36].
35	**Check after replacement of MOT ASSY FSR** Replace MOT ASSY FSR. *(p.395)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure
36	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [37].
37	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
38	**Continuity check of HARNESS ASSY MCU C/L** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Disconnect the P/J417 from PWBA MCU. Do all of the wiring below have normal continuity? J417-6 ↔ J614A-7 J417-7 ↔ J614A-6	Go to Step [39].	Repair broken or shorted part.
39	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [40].
40	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-32

☐ Panel Message

- ■ Check Transparency

☐ Possible parts that caused the error

- ■ SENSOR OHP
- ■ HARNESS-ASSY P/H2
- ■ HARNESS ASSY MAIN
- ■ HARNESS-ASSY P/H1
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of transparency setting** Does the transparency in use match the NVRAM setting (which type of transparency (with or without white margin) is enabled or disabled.)	Go to Step [3].	Replace the transparency in use with a one that matches the NVRAM settings, or change the NVRAM setting and go to [2].
2	**Does the error recur when a test print is made?**	Go to Step[3].	End of procedure
3	**Check of dirt and foreign bodies on surface of SENSOR OHP** Open COVER-P/H. Are there any dirt or foreign bodies on the SENSOR surface?	Clean to remove any dirt or foreign bodies, and go to step [4].	Go to Step [5].
4	**Does the error recur when a test print is made?**	Go to Step[5].	End of procedure
5	**Operation check of SENSOR OHP** The voltage of P408-8 ↔ P408-7 on PWBA MCU is 5 VDC when white paper is brought to the sensor sensing area (transparency must not be used), and becomes 0 VDC when paper is removed?	Replace PWBA MCU. *(p.404)*	Go to Step [6].
6	**Power supply check to SENSOR OHP** Disconnect the P/J408 from PWBA MCU. The voltage of P408-9 ↔ P408-7 on PWBA MCU is 5 VDC?	Go to Step [7].	Go to Step [9].
7	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-7 ↔ J603-6 J408-8 ↔ J603-5 J408-9 ↔ J603-4	Go to Step [8].	Replace HARNESS-ASSY P/H1.
8	**Continuity check of HARNESS-ASSY P/H2** Disconnect the P/J603 from PWBA MCU. Do all of the wiring below have normal continuity? P603-7 ↔ J101-3 P603-8 ↔ J101-2 P603-9 ↔ J101-1	Replace SENSOR OHP. *(p.334)*	Replace HARNESS-ASSY P/H2.
9	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [10].
10	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-33

☐ Panel Message

- ■ Jam E
- ■ Jam D, E

☐ Possible parts that caused the error

- ■ ROLL-REGI METAL
- ■ 2ND BTR ASSY
- ■ FRAME ASSY BTR
- ■ Photoconductor Unit
- ■ HARNESS ASSY ADC
- ■ CAM ASSY-2ND
- ■ PWBA MCU
- ■ LV/HVPS
- ■ CLUTCH ASSY REGI
- ■ HARNESS-ASSY P/H2
- ■ ROLL REGI RUBBER
- ■ SHAFT-CENT 2ND
- ■ BEARING-BRUSH CAM
- ■ SENSOR FUSER IN
- ■ HARNESS ASSY 2BTR SENS
- ■ SENSOR 2BTR RETRACT
- ■ HARNESS ASSY MAIN
- ■ MOT ASSY MICRO
- ■ HARNESS-ASSY P/H1
- ■ MOTOR-PH

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of the paper** Is the paper loaded in the paper tray wrinkled or torn?	Replace with new, dry paper.	Go to Step [2].
2	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step [4].	Change the paper size setting, and proceed to step [3].
3	**Does the error recur when a test print is made?**	Go to Step [4].	End of procedure
4	**Shape and operation check of ROLL-REGI METAL** Open CHUTE ASSY-REAR. Is ROLL REGI RUBBER attached correctly? Also, does this part rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [5].	Replace ROLL in question.
5	**Does the error recur when a test print is made?**	Go to Step [6].	End of procedure
6	**Check of paper position** Is the leading edge of the paper passing through REGI ROLL?	Go to Step [7].	Go to Step [24].
7	**Shape and operation check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY damaged? Are SHAFT-CENT 2ND, FRAME ASSY BTR and BEARING-BRUSH CAM damaged? Does any of them operate abnormally?	Replace 2ND BTR ASSY and other relevant parts.	Go to Step [8].
8	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when a test print is made?	Go to Step [9].	End of procedure
9	**Operation check of SENSOR FUSER IN** The voltage of P418-2 ↔ P418-1 on PWBA MCU is 5 VDC when white paper is brought to the sensor sensing area, and becomes 0 VDC when paper is removed?	Go to Step [13].	Go to Step [10].
10	**5 VDC power supply check to SENSOR FUSER IN** The voltage of P418-3 ↔ P418-1 on PWBA MCU is 5 VDC?	Go to Step [11].	Go to Step [17].

Step	Check	Yes	No
11	**Continuity check of HARNESS ASSY ADC** Disconnect P/J418 and P/J620 from PWBA MCU. Do all of the wiring below have normal continuity? J418-1 ↔ J620-3 J418-2 ↔ J620-2 J418-3 ↔ J620-1	Go to Step [12].	Replace HARNESS ASSY ADC.
12	**Continuity check of HARNESS ASSY 2BTR SENS** Disconnect P/J620 from HARNESS ASSY 2BTR SENS. Do all of the wiring below have normal continuity? P620-1 ↔ J111-3 P620-2 ↔ J111-2 P620-3 ↔ J111-1	Replace SENSOR FUSER IN. *(p.344)*	Replace HARNESS ASSY 2BTR SENS.
13	**Shape and operation check of CAM ASSY-2ND** Does CAM ASSY 2ND move smoothly without any damage, and does it enter the sensor sensing area?	Go to Step [14].	Replace CAM ASSY-2ND. *(p.350)*
14	**Operation check of SENSOR 2BTR RETRACT** Remove 2ND BTR ASSY. *(p.348)* The voltage of P418-6 ↔ P418-5 on PWBA MCU is 0 VDC when Actuator of CAM ASSY-2ND enters the sensing area of SENSOR 2BTR RETRACT, and is 5 VDC when it leaves the sensing area?	Go to Step [19].	Go to Step [15].
15	**5 VDC power supply check to SENSOR 2BTR RETRACT** Disconnect P/J418 from PWBA MCU. The voltage of P418-4 ↔ P418-5 on PWBA MCU is 5 VDC?	Go to Step [16].	Go to Step [17].
16	**Continuity check of HARNESS ASSY ADC** Disconnect P/J418 from PWBA MCU. Do all of the wiring below have normal continuity? J418-4 ↔ J112-3 J418-5 ↔ J112-2 J418-6 ↔ J112-1	Replace SENSOR 2BTR RETRACT. *(p.356)*	Replace HARNESS ASSY ADC.
17	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [18].
18	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
19	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J403 from PWBA MCU. Do all of the wiring below have normal continuity? J403-1 ↔ J600-3 J403-2 ↔ J600-2 J403-3 ↔ J600-1	Go to Step [20].	Repair broken or shorted part.
20	**24 VDC power supply check to MOT ASSY MICRO (2nd BTR Retract Motor)** The voltage of P403-3 ↔ P403-2 on PWBA MCU is 24 VDC?	Go to Step [21].	Go to Step [22].
21	**Check after replacement of MOT ASSY MICRO** Replace MOT ASSY MICRO. *(p.399)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.404)*	End of procedure
22	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [23].

Step	Check	Yes	No
23	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
24	**Operation check of CLUTCH ASSY REGI** Does CLUTCH ASSY REGI operate normally? Make a test print and confirm by the operating noise.	Go to Step [28].	Go to Step [25].
25	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-3 ↔ J603-10 J408-4 ↔ J603-9	Go to Step [26].	Replace HARNESS-ASSY P/H1.
26	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603. Do all of the wiring below have normal continuity? P603-3 ↔ P203-2 P603-4 ↔ P203-1	Go to Step [27].	Replace HARNESS-ASSY P/H2.
27	**Check of resistance value of CLUTCH ASSY REGI** Disconnect P/J203. The winding resistance between the terminals of CLUTCH ASSY REGI is 144Ω ± 10% (20°C)?	Go to Step [22].	Replace CLUTCH ASSY REGI. *(p.329)*

Step	Check	Yes	No
28	**Check of 24 VDC power supply to MOTOR-PH** The voltage of P409-6 ↔ P409-5 on PWBA MCU is 24 VDC?	Go to Step [29].	Go to Step [22].
29	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J409 from PWBA MCU. Do all of the wiring below have normal continuity? J409-1 ↔ P604-6 J409-2 ↔ P604-5 J409-3 ↔ P604-4 J409-4 ↔ P604-3 J409-5 ↔ P604-2 J409-6 ↔ P604-1	Go to Step [30].	Replace HARNESS-ASSY P/H1.
30	**Check after replacement of MOTOR-PH** Replace MOTOR-PH. *(p.337)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-34

☐ Panel Message

- ■ Jam C
- ■ Jam D

☐ Possible parts that caused the error

- ■ EXIT SENSOR (Sensor in Fuser)
- ■ HARNESS ASSY MCU C/L
- ■ LV/HVPS
- ■ FUSER ASSY
- ■ PWBA MCU
- ■ MOT ASSY FSR

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of the paper** Is the paper loaded in the paper tray wrinkled or torn?	Replace with new, dry paper.	Go to Step [2].
2	**Paper size setting check** Does the size of the paper in use match the size of the paper set on the control panel?	Go to Step [4].	Change the paper size setting, and proceed to step [3].
3	**Does the error recur when a test print is made?**	Go to Step [4].	End of procedure
4	**Paper check at Gate section inside FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Is there any paper remaining at the Gate section inside FUSER ASSY.	Remove the paper, and go to [5].	Go to Step [6].
5	**Does the error recur when a test print is made?**	Go to Step [6].	End of procedure
6	**Shape and operation check of ACTUATOR in EXIT SENSOR** Does ACTUATOR move smoothly and enter the sensing area of EXIT SENSOR?	Go to Step [7].	Replace FUSER ASSY. *(p.388)*
7	**Operation check of EXIT SENSOR in FUSER ASSY** The voltage of P417-8 ↔ P417-7 on PABW MCU is 0 VDC when ACTUATOR on EXIT SENSOR is moved and entered the sensing area of EXIT SENSOR (when there is no paper), and is 5 VDC when the actuator leaves the sensing area (when there is paper)?	Go to Step [13].	Go to Step [8].
8	**5 VDC power supply check to EXIT SENSOR in FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* The voltage of connector J614A-7 ↔ J614A-6 on the printer (connected to FUSER ASSY) is 5 VDC?	Go to Step [9].	Go to step [10]
9	**Continuity check of HARNESS ASSY FUSER SENS and HARNESS ASSY FUSER in FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Disconnect P/J619 and P/J110 in FUSER ASSY. Do all of the wiring below have normal continuity? P619-1 ↔ J110-3 P619-2 ↔ J110-2 P619-3 ↔ J110-1 J619-3 ↔ P614A-7 J619-2 ↔ P614A-8 J619-1 ↔ P614A-9	Replace EXIT SENSOR.	Replace FUSER ASSY. *(p.388)*

Step	Check	Yes	No
10	**Continuity check of HARNESS ASSY MCU C/L** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Disconnect P/J417 from PWBA MCU. Do all of the wiring below have normal continuity? J417-6 ↔ J614A-7 J417-7 ↔ J614A-6	Go to Step [11].	Repair broken or shorted part.
11	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [12].
12	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
13	**Shape and operation check of FUSER ASSY parts** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Are the gears, Fuser Roll, Exit Roll, Pinch Roll and other parts in FUSER ASSY attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [14].	Replace FUSER ASSY. *(p.388)*
14	**24 VDC power supply check to MOT ASSY FSR (Fuser Motor)** The voltage of P404-6 ↔ P404-5 on PWBA MCU is 24 VDC?	Go to Step [15].	Go to Step [16].

Step	Check	Yes	No
15	**Check after replacement of MOT ASSY FSR** Replace MOT ASSY FSR. *(p.395)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.404)*	End of procedure
16	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [17].
17	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-35

☐ Panel Message

- ■ Jam D, E, DM

☐ Possible parts that caused the error

- ■ ROLLER ASSY INVERTER
- ■ ROLL ASSY PINCH DUP
- ■ MOTOR ASSY DUP INV
- ■ ROLLER ASSY DUP OUT
- ■ MOTOR ASSY DUP
- ■ ROLL ASSY-PRE REGI
- ■ ACTUATOR-REGI
- ■ HARNESS-ASSY P/H1
- ■ PWBA MCU
- ■ MOTOR-PH
- ■ CLUTCH ASSY PRE REGI
- ■ ROLL PINCH DUP
- ■ FUSER ASSY
- ■ ROLLER ASSY DUP
- ■ ROLL PINCH DUP
- ■ PWBA DUP-L
- ■ ROLL-PINCH
- ■ SENSOR REGI
- ■ HARNESS-ASSY P/H2
- ■ LV/HVPS
- ■ HARNESS ASSY MAIN

☐ Troubleshooting

Step	Check	Yes	No
1	**Paper check at SENSOR UPPER PASS section** Open Duplex. Is there any paper remaining at the SENSOR UPPER PASS section?	Remove the remaining paper and proceed to Step [2].	Go to Step [9].
2	**Check of Duplex attachment** Open and close Duplex. Also, disconnect and re-attach the connector from the printer to Duplex. Does the error recur when a test print is made in the duplex mode?	Go to Step [3].	End of procedure
3	**Check of ROLLER ASSY INVERTER, ROLL PINCH DUP, and ROLL ASSY PINCH DUP** Open Duplex. Are ROLLER ASSY INVERTER, ROLL PINCH DUP, and ROLL ASSY PINCH DUP attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [5].	Replace or re-attach ROLL in question, and go to [4].
4	**Does the error recur when a test print is made in the duplex mode?**	Go to Step [5].	End of procedure
5	**Check of paper position** Is the leading edge of the paper passing through ROLLER ASSY INVERTER?	Go to Step [6].	Replace FUSER ASSY. *(p.388)*
6	**Check of transmission of drive force of ROLLER ASSY INVERTER section** Open Duplex. Remove COVER-INV, COVER-R DUP, and COVER-L DUP *(p.415)*, *(p.413)* and *(p.414)* Are all gears that transmit rotation of MOTOR ASSY DUP INV to ROLLER ASSY INVERTER turning smoothly? Turn gears by hand to check.	Go to Step [7].	Replace the gear in question.
7	**Check after replacement of MOTOR ASSY DUP INV** Replace MOTOR ASSY DUP INV. *(p.424)* Does the error recur when a test print is made in the duplex mode?	Go to Step [8].	End of procedure
8	**Paper check at SENSOR LOW PASS section** Open Duplex. Is there any paper remaining at the SENSOR LOW PASS section?	Remove the remaining paper and proceed to Step [9].	Go to Step [14].

Step	Check	Yes	No
9	**Check of ROLLER ASSY DUP, ROLLER ASSY DUP OUT and ROLL PINCH DUP** Open Duplex. Are ROLLER ASSY DUP, ROLLER ASSY DUP OUT, and ROLL PINCH DUP attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [11].	Replace or re-attach ROLL in question, and go to [10].
10	**Does the error recur when a test print is made in the duplex mode?**	Go to Step [11].	End of procedure
11	**Check of transmission of drive force to ROLLER ASSY DUP** Open Duplex. Remove COVER-L DUP. *(p.414)* Are all gears that transmit rotation of MOTOR ASSY DUP (Lower Roll Motor) to ROLLER ASSY DUP turning smoothly? Turn gears by hand to check.	Go to Step [12].	Replace the gear in question.
12	**Check after replacement of MOTOR ASSY DUP (Lower Roll Motor)** Replace MOTOR ASSY DUP. *(p.443)* Does the error recur when a test print is made in the duplex mode?	Go to Step [13].	End of procedure
13	**Check after replacement of PWBA DUP-L** Replace PWBA DUP-L. *(p.442)* Does the error recur when a test print is made in the duplex mode?	Go to Step [14].	End of procedure
14	**Shape and operation check of ROLL ASSY-PRE REGI and ROLL-PINCH** Open CHUTE ASSY-REAR. Are ROLL ASSY-PRE REGI and ROLL-PINCH attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [15].	Replace ROLL in question.
15	**Does the error recur when a test print is made?**	Go to Step [16].	End of procedure
16	**Check of paper position** Is the leading edge of the paper passing through PRE REGI ROLL?	Go to Step [17].	Go to Step [29].
17	**Operation check of ACTUATOR-REGI** Does ACTUATOR-REGI move smoothly without any damage? Does it enter the sensor sensing area when there is paper? Does it leave the sensor sensing area when there is no paper?	Go to Step [18].	Replace ACTUATOR-REGI. *(p.335)*
18	**Operation check of SENSOR REGI** The voltage of P408-12 ↔ P408-11 on PWBA MCU is 0 VDC when ACTUATOR REGI enters the sensor sensing area, and is 5 VDC when it leaves the sensing area?	Go to Step [24].	Go to Step [19].
19	**5 VDC power supply check to SENSOR REGI** The voltage of P408-10 ↔ P408-11 on PWBA MCU is 5 VDC?	Go to Step [20].	Go to Step [22].
20	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-10 ↔ J603-3 J408-11 ↔ J603-2 J408-12 ↔ J603-1	Go to Step [21].	Replace HARNESS-ASSY P/H1.
21	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603 and P/J102 from PWBA MCU. Do all of the wiring below have normal continuity? P603-10 ↔ J102-3 P603-11 ↔ J102-2 P603-12 ↔ J102-1	Replace SENSOR REGI. *(p.336)*	Replace HARNESS-ASSY P/H2.

Step	Check	Yes	No
22	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [23].
23	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
24	**24 VDC power supply check to P/H MOTOR** The voltage of P409-6 ↔ P409-5 on PWBA MCU is 24 VDC?	Go to Step [25].	Go to Step [27].
25	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J409 from PWBA MCU. Do all of the wiring below have normal continuity? J409-1 ↔ P604-6 J409-2 ↔ P604-5 J409-3 ↔ P604-4 J409-4 ↔ P604-3 J409-5 ↔ P604-2 J409-6 ↔ P604-1	Go to Step [26].	Replace HARNESS-ASSY P/H1.
26	**Check after replacement of MOTOR-PH** Replace MOTOR-PH. *(p.337)* Does the error recur when a test print is made?	Replace PWBA MCU. *(p.404)*	End of procedure
27	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [28].
28	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
29	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-1 ↔ J603-12 J408-2 ↔ J603-11	Go to Step [30].	Replace HARNESS-ASSY P/H1.
30	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603. Do all of the wiring below have normal continuity? P603-1 ↔ P202-2 P603-2 ↔ P202-1	Go to Step [31].	Replace HARNESS-ASSY P/H2.
31	**Check of resistance value of CLUTCH ASSY PRE REGI** Disconnect P/J202. The winding resistance between the terminals of CLUTCH ASSY PRE REGI is 144Ω ± 10% (20°C)?	Go to Step [27].	Replace CLUTCH ASSY PRE REGI. *(p.338)*

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☐ Panel Message

- ■ Jam DM

☐ Possible parts that caused the error

- ■ SENSOR LOW PASS
- ■ ROLLER ASSY DUP OUT
- ■ ACTUATOR DUP
- ■ HARNESS-ASSY DUP2
- ■ PWBA DUP-L
- ■ LV/HVPS
- ■ ROLLER ASSY DUP
- ■ ROLL PINCH DUP
- ■ MOTOR ASSY DUP
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Paper check at SENSOR LOW PASS section** Open Duplex. Is there any paper remaining at the SENSOR LOW PASS section?	Remove the remaining paper and proceed to Step [2].	Go to Step [2].
2	**Check of ROLLER ASSY DUP, ROLLER ASSY DUP OUT and ROLL PINCH DUP** Open Duplex. Are ROLLER ASSY DUP, ROLLER ASSY DUP OUT, and ROLL PINCH DUP attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [4].	Replace or re-attach ROLL in question, and go to [3].
3	**Does the error recur when a test print is made in the duplex mode?**	Go to Step [4].	End of procedure
4	**Check of transmission of drive force to ROLLER ASSY DUP** Open Duplex. Remove COVER-L DUP. *(p.414)* Are all gears that transmit rotation of MOTOR ASSY DUP (Lower Roll Motor) to ROLLER ASSY DUP turning smoothly? Turn gears by hand to check.	Go to Step [5].	Replace the gear in question.
5	**Operation check of ACTUATOR DUP** Does ACTUATOR DUP move smoothly without any damage? Does ACTUATOR DUP leave the sensing area of the sensor when there is paper? Does it enter the sensing area when there is no paper?	Go to Step [6].	Replace ACTUATOR DUP. *(p.431)*
6	**Operation check of SENSOR LOW PASS** The voltage of P443-15 ↔ P443-14 on PWBA DUP-L is 0 VDC when ACTUATOR enters the sensing area of SENSOR LOW PASS, and is 5 VDC when it leaves the sensing area?	Go to Step [7].	Go to Step [11].
7	**Continuity check of HARNESS-ASSY DUP2** Disconnect P/J443 from PWBA DUP-L. Is the continuity normal between all terminals of J443 ↔ P607?	Go to Step [8].	Replace HARNESS-ASSY DUP2.
8	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J420 from PWBA MCU. Is the continuity normal between all terminals of J420 ↔ J607?	Go to Step [9].	Repair broken or shorted part.
9	**Check after replacement of PWBA DUP-L** Replace PWBA DUP-L. *(p.442)* Does the error recur when a test print is made in the duplex mode?	Replace PWBA MCU. *(p.404)*	End of procedure

Step	Check	Yes	No
10	**Check after replacement of MOTOR ASSY DUP (Lower Roll Motor)** Replace MOTOR ASSY DUP. *(p.443)* Does the error recur when a test print is made in the duplex mode?	Go to Step [9].	End of procedure
11	**5 VDC power supply check to SENSOR LOW PASS** The voltage of P443-13 ↔ P443-14 on PWBA DUP-L is 5 VDC?	Go to Step [12].	Go to Step [13].
12	**Continuity check of HARNESS-ASSY DUP2** Disconnect P/J443 from PWBA DUP-L. Do all of the wiring below have normal continuity? J443-13 ↔ J123-3 J443-14 ↔ J123-2 J443-15 ↔ J123-1	Replace SENSOR LOW PASS. *(p.432)*	Replace HARNESS-ASSY DUP2.
13	**5 VDC power supply check to PWBA DUP-L** The voltage of P443-7 ↔ P443-8 on PWBA DUP-L is 5 VDC?	Replace PWBA DUP-L. *(p.442)*	Go to Step [14].
14	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J420 from PWBA MCU. Do all of the wiring below have normal continuity? J420-6 ↔ J607-7 J420-5 ↔ J607-8	Go to Step [15].	Repair broken or shorted part.
15	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [16].
16	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-37

☐ Panel Message

- ■ Jam C
- ■ Jam D

☐ Possible parts that caused the error

- ■ SENSOR UPPER PASS
- ■ ROLL PINCH DUP
- ■ FUSER ASSY
- ■ MOTOR ASSY DUP INV
- ■ HARNESS ASSY DUP2
- ■ PWBA DUP-L
- ■ LV/HVPS
- ■ ROLLER ASSY INVERTER
- ■ ROLL ASSY PINCH DUP
- ■ ACTUATOR INV
- ■ HARNESS-ASSY DUP1
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Paper check at SENSOR UPPER PASS section** Open Duplex. Is there any paper remaining at the SENSOR UPPER PASS section?	Remove the remaining paper and proceed to Step [2].	Go to Step [2].
2	**Check of Duplex attachment** Open and close Duplex. Also, disconnect and re-attach the connector from the printer to Duplex. Does the error recur when a test print is made in the duplex mode?	Go to Step [3].	End of procedure
3	**Check of ROLLER ASSY INVERTER, ROLL PINCH DUP, and ROLL ASSY PINCH DUP** Open Duplex. Are ROLLER ASSY INVERTER, ROLL PINCH DUP, and ROLL ASSY PINCH DUP attached correctly? Also, do these parts rotate smoothly without any dirt or damage? Turn by hand to check.	Go to Step [5].	Replace or re-attach ROLL in question, and go to [4].
4	**Does the error recur when a test print is made in the duplex mode?**	Go to Step [5].	End of procedure
5	**Check of paper position** Is the leading edge of the paper passing through ROLLER ASSY INVERTER?	Go to Step [6].	Replace FUSER ASSY. *(p.388)*
6	**Check of transmission of drive force of ROLLER ASSY INVERTER section** Open Duplex. Remove COVER-INV, COVER-R DUP, and COVER-L DUP *(p.415)*, *(p.413)* and *(p.414)* Are all gears that transmit rotation of MOTOR ASSY DUP INV to ROLLER ASSY INVERTER turning smoothly? Turn gears by hand to check.	Go to Step [7].	Replace the gear in question.
7	**Operation check of ACTUATOR INV** Does ACTUATOR INV move smoothly without any damage? Does ACTUATOR leave the sensing area of the sensor when there is paper? Does it enter the sensing area when there is no paper?	Go to Step [8].	Replace ACTUATOR INV. *(p.421)*
8	**Operation check of SENSOR UPPER PASS** The voltage of P444-10 ↔ P444-9 VDC on PWBA DUP-L is 0 VDC when ACTUATOR enters the sensing area of SENSOR UPPER PASS, and is 5 VDC when it leaves the sensing area?	Go to Step [12].	Go to Step [9].

Step	Check	Yes	No
9	**5 VDC power supply check to SENSOR UPPER PASS** The voltage of P444-8 ↔ P444-9 on PWBA DUP-L is 5 VDC?	Go to Step [10].	Go to Step [15].
10	**Continuity check of HARNESS-ASSY DUP1** Disconnect P/J444 from PWBA DUP-L. Do all of the wiring below have normal continuity? J444-6 ↔ J124-3 J444-7 ↔ J124-2 J444-8 ↔ J124-1	Replace SENSOR UPPER PASS. *(p.422)*	Replace HARNESS-ASSY DUP1.
11	**Check after replacement of MOTOR ASSY DUP INV** Replace MOTOR ASSY DUP INV. *(p.424)* Does the error recur when a test print is made in the duplex mode?	Go to Step [12].	End of procedure
12	**Check after replacement of PWBA DUP-L** Replace PWBA DUP-L. *(p.442)* Does the error recur when a test print is made in the duplex mode?	Go to Step [13].	End of procedure
13	**Continuity check of HARNESS ASSY DUP2** Disconnect P/J443 from PWBA DUP-L. Is the continuity normal between all terminals of J443 ↔ P607?	Go to Step [14].	Replace HARNESS ASSY DUP2.
14	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J420 from PWBA MCU. Is the continuity normal between all terminals of J420 ↔ J607?	Replace PWBA MCU. *(p.404)*	Repair broken or shorted part.
15	**5 VDC power supply check to PWBA DUP-L** The voltage of P443-7 ↔ P443-8 on PWBA DUP-L is 5 VDC?	Replace PWBA DUP-L. *(p.442)*	Go to Step [16].
16	**Continuity check of HARNESS ASSY DUP2** Disconnect P/J443 from PWBA DUP-L. Do all of the wiring below have normal continuity? J443-7 ↔ P607-6 J443-8 ↔ P607-5	Go to Step [17].	Replace HARNESS ASSY DUP2.
17	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J420 from PWBA MCU. Do all of the wiring below have normal continuity? J420-6 ↔ J607-7 J420-5 ↔ J607-8	Go to Step [18].	Repair broken or shorted part.
18	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [19].
19	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-38

☐ Panel Message

- ■ Jam DM
- ■ Jam C
- ■ Jam D
- ■ Jam LC, G
- ■ Jam E
- ■ Jam D, E
- ■ Jam C, E, F
- ■ Jam D, F

☐ Possible parts that caused the error

- ■ SENSOR LOW PASS
- ■ SENSOR T/R
- ■ SENSOR REGI
- ■ EXIT SENSOR (Sensor in Fuser)
- ■ SENSOR UPPER PASS
- ■ SENSOR OHP
- ■ SENSOR FUSER IN

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of error/status code** Specify the problem Sensor by the error/status code: Jam DM: SENSOR LOW PASS Jam C, Jam D: SENSOR UPPER PASS EXIT SENSOR (Sensor in Fuser) Jam LC, G: SENSOR T/R Jam E, Jam D, E: SENSOR OHP SENSOR REGI Jam C, E, F, Jam D, F: SENSOR FUSER IN Is there paper remaining on the problem Sensor?	Remove the remaining paper and proceed to Step [2].	Go to Step [3].
2	**Does the error recur when a test print is made?**	Go to Step [3].	End of procedure
3	**Operation check (1) of problem Sensor** Does the ACTUATOR move smoothly without any damage? Or, is the light emitter of the Sensor clean?	Go to Step [4].	Re-attach or replace the actuator, or clean the light emitter.
4	**Operation check (2) of problem Sensor** The voltage of the common line and signal line to each Sensor on PWBA MCU is 0 VDC in a sensor detecting state, or is 5 VDC in a sensor non-sensing state?	Replace PWBA MCU. *(p.404)*	Replace the problem Sensor.

FIP-39

☐ Panel Message

- ■ Service Req E517

☐ Possible parts that caused the error

- ■ HARNESS ASSY MAIN
- ■ HARNESS-ASSY FEED 1
- ■ HARNESS-ASSY FEED 2
- ■ PWBA TRAY 500
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Feeder attachment on printer** Remove and re-attach Feeder. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Continuity check of HARNESS ASSY MAIN** Remove Feeder from the printer. Disconnect P/J421 from PWBA MCU. Is the continuity normal between all terminals of J421 ↔ J608 (connector on the printer to connect Feeder)?	Go to Step [3].	Repair broken or shorted part.
3	**Does the error recur when the power is turned ON?**	Go to Step [4].	End of procedure
4	**Continuity check of HARNESS-ASSY FEED 1 of Feeder** Remove Feeder. Disconnect P/J435 from PWBA TRAY 500. Is the continuity normal between all terminals of J435 ↔ P608 (connector on Feeder to be connected to the printer)?	Go to Step [5].	Replace HARNESS-ASSY FEED 1. *(p.462)*
5	**Check after replacement of PWBA TRAY 500** Replace PWBA TRAY 500. *(p.456)* Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Is the continuity normal between all terminals of J410 ↔ J502?	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-40

☐ Panel Message

- ■ Service Req E516

☐ Possible parts that caused the error

- ■ HARNESS ASSY MAIN
- ■ HARNESS-ASSY DUP2
- ■ PWBA DUP-L
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Duplex attachment on printer** Open and re-attach Duplex. Also, re-connect connector (P/J607) to printer. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Continuity check of HARNESS ASSY MAIN** Open Duplex, and disconnect the connector to the printer. Disconnect the P/J420 from PWBA MCU. Is the continuity normal between all terminals of J420 ↔ J607?	Go to Step [3].	Repair broken or shorted part.
3	**Continuity check of HARNESS-ASSY DUP2 of Duplex** Open Duplex, and disconnect the connector to the printer. Disconnect P/J443 from PWBA DUP-L. Is the continuity normal between all terminals of J443 ↔ P607?	Go to Step [4].	Replace HARNESS-ASSY DUP2.
4	**Check after replacement of PWBA DUP-L** Replace PWBA DUP-L. *(p.442)* Does the error recur when the power is turned ON?	Go to Step [5].	End of procedure
5	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Is the continuity normal between all terminals of J410 ↔ J502?	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-41

☐ Panel Message

■ Service Req E514

☐ Possible parts that caused the error

■ FFC-ASSY ESS
■ PWBA ESS
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of connection of FFC-ASSY ESS** Re-connect FFC-ASSY ESS of PWBA ESS to PWBA MCU. Does the error recur when a test print is made?	Go to Step [2].	End of procedure
2	**Check of connection of FFC-ASSY ESS** Is FFC-ASSY ESS damaged or broken?	Replace FFC-ASSY ESS. *(p.409)*	Go to Step [3].
3	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when a test print is made?	Replace PWBA ESS. *(p.409)*	End of procedure

FIP-42

☐ Panel Message

■ Service Req E513

☐ Possible parts that caused the error

■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Does the error recur when the power is turned off and back on?**	Go to Step [4].	Go to Step [2].
2	**Does the error recur even when the power is turned off and back on again?**	Go to Step [4].	Go to Step [3].
3	**Does the error recur even after the power has been switched several times?**	Go to Step[4].	End of procedure*
4	**Disconnect and re-connect all connectors connected to PWBA MCU.** Does the error recur when the power is turned ON?	Go to Step [5].	End of procedure
5	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Go to "FIP-79 Electrical Noise". *(p.238)*	End of procedure

*1: It is assumed to be due to external noise.
Proceed to "FIP-79 Electrical Noise" to check to be sure.

FIP-43

☐ Panel Message

- ■ Service Req E511

☐ Possible parts that caused the error

- ■ Photoconductor Unit
- ■ HARNESS-ASSY XERO
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ SENSOR TR-0
- ■ MOTOR ASSY P/R
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Photoconductor Unit attachment** Re-attach Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Operation check of Photoconductor Unit** Is the Drum of Photoconductor Unit rotating?	Go to Step [3].	Go to Step [10].
3	**Check for dirt on silver seal on Belt in Photoconductor Unit** Remove Photoconductor Unit. Turn gear of Photoconductor Unit until silver seal attached to Belt can be seen. Is silver seal dirty?	Replace Photoconductor Unit.	Go to Step [4].
4	**Check of SENSOR TR-0 (TR0 Sensor) attachment** Remove Photoconductor Unit. Is SENSOR TR-0 attached securely?	Go to Step [5].	Re-attach the SENSOR TR-0, and go to step [5].
5	**Check of dirt and foreign bodies on surface of SENSOR TR-0** Remove Photoconductor Unit. Are there any dirt or foreign bodies on the SENSOR TR-0 surface?	Clean to remove any dirt or foreign bodies, and go to step [6].	Go to Step [7].
6	**Does the error recur when the power is turned ON?**	Go to Step [7].	End of procedure
7	**Operation check of SENSOR TR-0** Remove Photoconductor Unit. The voltage of P416-2 ↔ P416-3 on PWBA MCU is 5 VDC when silver paper or other reflective object comes close to the sensing area of SENSOR TR-0, and is 0 VDC when the object is released?	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Check of 5 VDC power supply to SENSOR TR-0** The voltage of P416-1 ↔ P416-3 on PWBA MCU is 5 VDC?	Go to Step [9].	Go to Step [14].
9	**Continuity check of HARNESS-ASSY XERO** Disconnect the P/J416 from PWBA MCU. Do all of the wiring below have normal continuity? J416-1 ↔ J108-3 J416-2 ↔ J108-2 J416-3 ↔ J108-1	Replace SENSOR TR-0. *(p.361)*	Replace HARNESS-ASSY XERO.
10	**Check after replacement of MOTOR ASSY P/R** Replace MOTOR ASSY P/R. *(p.398)* Does the error recur when the power is turned ON?	Go to Step [11].	End of procedure
11	**24 VDC power supply check to MOTOR ASSY P/R** Disconnect P/J201 from MOTOR ASSY P/R. The voltage of J201-1 ↔ J201-2 is 24 VDC?	Go to Step [12].	Go to Step [13].
12	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J403 from PWBA MCU. Is the continuity normal between all terminals of J403 ↔ J200?	Replace PWBA MCU. *(p.404)*	Repair broken or shorted part.

Step	Check	Yes	No
13	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J502-9 ↔ J201-1 J502-10 ↔ J201-2	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
14	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [15].
15	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-44

☐ Panel Message

- ■ Service Req E510

☐ Possible parts that caused the error

- ■ ROS ASSY
- ■ PWBA MCU
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of ROS ASSY attachment** Re-attach ROS ASSY. *(p.375)* Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Continuity check of HARNESS ASSY MAIN** Remove ROS ASSY. *(p.375)* Disconnect the P/J407 from PWBA MCU. Is the continuity normal between all terminals of J407 ↔ J601?	Go to Step [3].	Repair broken or shorted part.
3	**5 VDC power supply check to ROS and PWB SOS** The voltage of P407-16 ↔ P407-14 on PWBA MCU is 5 VDC?	Go to Step [4].	Go to Step [6].
4	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Go to Step [5].	End of procedure
5	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Does the error recur when the power is turned ON?	Go to FIP-1 81 Electrical noise.	End of procedure
6	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [7].
7	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-45

☐ Panel Message

- ■ Service Req E527

☐ Possible parts that caused the error

- ■ MOTOR ASSY MAG
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ SENSOR ROTARY HOME POSI
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of FRAME ASSY-ROTARY and MOTOR ASSY MAG attachment** Are FRAME ASSY-ROTARY and MOTOR ASSY MAG attached correctly?	Go to Step [2].	Re-attach, and go to step [2].
2	**Rotation check of FRAME ASSY-ROTARY and MOTOR ASSY MAG** Do FRAME ASSY-ROTARY and MOTOR ASSY MAG rotate smoothly? Turn by hand to check.	Go to Step [3].	Remove any items that hinder rotation.
3	**Check of SENSOR ROTARY HOME POSI attachment** Is SENSOR ROTARY HOME POSI attached correctly?	Go to Step [4].	Re-attach, and go to step [4].
4	**Operation check of SENSOR ROTARY HOME POSI** The voltage of P413-7 ↔ P413-6 on PWBA MCU is 0 VDC when FRAME ASSY ROTARY enters the sensing area, and is 5 VDC when it leaves the sensing area?	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**5 VDC power supply check to SENSOR ROTARY HOME POSI** The voltage of P413-5 ↔ P413-6 on PWBA MCU is 5 VDC?	Go to Step [6].	Go to Step [7].
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J413 from PWBA MCU. Do all of the wiring below have normal continuity? J413-5 ↔ J105-3 J413-6 ↔ J105-2 J413-7 ↔ J105-1	Replace SENSOR ROTARY HOME POSI. *(p.382)*	Repair broken or shorted part.
7	**5 VDC power supply check to PWBA MCU** The voltage of J410-3 ↔ J410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-46

☐ Panel Message

- ■ Service Req E526

☐ Possible parts that caused the error

- ■ SENSOR ASSY ADC
- ■ HARNESS ASSY ADC
- ■ PWBA MCU
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of dirt and foreign bodies on surface of SENSOR ASSY ADC** Are there any dirt or foreign bodies on the SENSOR ASSY ADC surface?	Clean to remove any dirt or foreign bodies, and go to step [2].	Go to Step [2].
2	**Check of SENSOR ASSY ADC attachment** Is SENSOR ASSY ADC attached correctly?	Go to Step [4].	Re-attach, and go to step [3].
3	**Does the error recur when the power is turned ON?**	Go to Step [4].	End of procedure
4	**5 VDC and 24 VDC power supply check to SENSOR ASSY ADC** The voltage of P422-2 ↔ P422-4 on PWBA MCU is 24 VDC? And the voltage of P422-8 ↔ P422-4 is 5 VDC?	Go to Step [5].	Go to Step [7].
5	**Continuity check of HARNESS ASSY ADC** Disconnect P/J422 from PWBA MCU. Do all of the wiring below have normal continuity? J422-8 ↔ J431-1 J422-4 ↔ J431-5 J422-2 ↔ J431-7	Go to Step [6].	Replace HARNESS ASSY ADC.
6	**Check after replacement of SENSOR ASSY ADC** Replace SENSOR ASSY ADC. *(p.353)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Power supply check to PWBA MCU** Are each of the power voltages being supplied to the following terminals on PWBA MCU from LV/HVPS? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [8].
8	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-47

☐ Panel Message

- ■ Service Req E525

☐ Possible parts that caused the error

- ■ Photoconductor Unit
- ■ Toner Cartridge K
- ■ Toner Cartridge M
- ■ HARNESS ASSY ADC
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ SENSOR ASSY ADC
- ■ Toner Cartridge Y
- ■ Toner Cartridge C
- ■ SENSOR HUM & TEMP
- ■ ROS ASSY
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of connection between Photoconductor Unit and CONDUCTOR attached to frame** Remove Photoconductor Unit. Is the contact surface of Photoconductor Unit and CONDUCTOR attached to the frame deformed or are there foreign objects on the surface?	Clean, and go to Step [2].	Go to Step [2].
2	**Check of dirt and foreign bodies on surface of SENSOR ASSY ADC** Are there any dirt or foreign bodies on the SENSOR ASSY ADC surface?	Clean, and go to Step [3].	Go to Step [4].
3	**Does the error recur when the power is turned ON?**	Go to Step [4].	End of procedure
4	**Check after replacement of Toner Cartridge** Replace Toner Cartridge of each color. Does the error recur when the power is turned ON?	Go to Step [5].	End of procedure
5	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**5 VDC and 24 VDC power supply check to SENSOR ASSY ADC** The voltage of P422-2 ↔ P422-4 on PWBA MCU is 24 VDC? And the voltage of P422-8 ↔ P422-4 is 5 VDC?	Go to Step [7].	Go to Step [14].
7	**Continuity check of HARNESS ASSY ADC** Disconnect P/J422 from PWBA MCU. Do all of the wiring below have normal continuity? J422-8 ↔ J431-1 J422-4 ↔ J431-5 J422-2 ↔ J431-7	Go to Step [8].	Replace HARNESS ASSY ADC.
8	**Check after replacement of SENSOR ASSY ADC** Replace SENSOR ASSY ADC. *(p.353)* Does the error recur when the power is turned ON?	Go to Step [9].	End of procedure
9	**Check of 5 VDC power supply to SENSOR ASSY HUM & TEMP** The voltage of P413-4 ↔ P413-2 on PWBA MCU is 5 VDC?	Go to Step [10].	Go to Step [14].
10	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J413 from PWBA MCU. Do all of the wiring below have normal continuity? J413-1 ↔ J104-4 J413-2 ↔ J104-3 J413-3 ↔ J104-2 J413-4 ↔ J104-1	Go to Step [11].	Repair broken or shorted part.

Step	Check	Yes	No
11	**Check after replacement of SENSOR HUM & TEMP** Replace SENSOR HUM & TEMP. *(p.400)* Does the error recur when the power is turned ON?	Go to Step [12].	End of procedure
12	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Does the error recur when the power is turned ON?	Go to Step [13].	End of procedure
13	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Replace LV/HVPS. *(p.407)*	End of procedure
14	**Power supply check to PWBA MCU** Are each of the power voltages being supplied to the following terminals on PWBA MCU from LV/HVPS? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [15].
15	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-48

☐ Panel Message

- ■ Service Req E524

☐ Possible parts that caused the error

- ■ Photoconductor Unit
- ■ Toner Cartridge K
- ■ Toner Cartridge M
- ■ HARNESS ASSY ADC
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ SENSOR ASSY ADC
- ■ Toner Cartridge Y
- ■ Toner Cartridge C
- ■ SENSOR HUM & TEMP
- ■ ROS ASSY
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of connection between Photoconductor Unit and CONDUCTOR attached to frame** Is the contact surface of Photoconductor Unit and CONDUCTOR attached to the frame deformed or are there foreign objects on the surface?	Clean, and go to Step [2].	Go to Step [2].
2	**Check of dirt and foreign bodies on surface of SENSOR ASSY ADC** Are there any dirt or foreign bodies on the SENSOR ASSY ADC surface?	Clean, and go to Step [3].	Go to Step [4].
3	**Does the error recur when the power is turned ON?**	Go to Step [4].	End of procedure
4	**Check after replacement of Toner Cartridge** Replace Toner Cartridge of each color. Does the error recur when the power is turned ON?	Go to Step [5].	End of procedure
5	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**5 VDC and 24 VDC power supply check to SENSOR ASSY ADC** The voltage of P422-2 ↔ P422-4 on PWBA MCU is 24 VDC? And the voltage of P422-8 ↔ P422-4 is 5 VDC?	Go to Step [7].	Go to Step [14].
7	**Continuity check of HARNESS ASSY ADC** Disconnect P/J422 from PWBA MCU. Do all of the wiring below have normal continuity? J422-8 ↔ J431-1 J422-4 ↔ J431-5 J422-2 ↔ J431-7	Go to Step [8].	Replace HARNESS ASSY ADC.
8	**Check after replacement of SENSOR ASSY ADC** Replace SENSOR ASSY ADC. *(p.353)* Does the error recur when the power is turned ON?	Go to Step [9].	End of procedure
9	**5 VDC power supply check to SENSOR HUM & TEMP** The voltage of P413-4 ↔ P413-2 on PWBA MCU is 5 VDC?	Go to Step [10].	Go to Step [14].
10	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J413 from PWBA MCU. Do all of the wiring below have normal continuity? J413-1 ↔ J104-4 J413-2 ↔ J104-3 J413-3 ↔ J104-2 J413-4 ↔ J104-1	Go to Step [11].	Repair broken or shorted part.

Step	Check	Yes	No
11	**Check after replacement of SENSOR HUM & TEMP** Replace SENSOR HUM & TEMP. *(p.400)* Does the error recur when the power is turned ON?	Go to Step [12].	End of procedure
12	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Does the error recur when the power is turned ON?	Go to Step [13].	End of procedure
13	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Replace LV/HVPS. *(p.407)*	End of procedure
14	**Power supply check to PWBA MCU** Are each of the power voltages being supplied to the following terminals on PWBA MCU from LV/HVPS? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [15].
15	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-49

☐ Panel Message

- ■ Service Req E523

☐ Possible parts that caused the error

- ■ Toner Cartridge K
- ■ Toner Cartridge M
- ■ PWBA MCU
- ■ Toner Cartridge Y
- ■ Toner Cartridge C

☐ Troubleshooting

Step	Check	Yes	No
1	**Check after replacement of Toner Cartridge K/Y/M/C** Replace Toner Cartridge K/Y/M/C. Does the error recur when the power is turned ON?	Go to Step [2].	End of procedure
2	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Go to FIP-1 81 Electrical Noise *(p.238)*	End of procedure

FIP-50

☐ Panel Message

- ■ Irregular Density

☐ Possible parts that caused the error

- ■ SENSOR ASSY ADC
- ■ PWBA MCU
- ■ Toner Cartridge Y
- ■ Toner Cartridge C
- ■ LV/HVPS
- ■ Photoconductor Unit
- ■ Toner Cartridge K
- ■ Toner Cartridge M
- ■ ROS ASSY

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of dirt and foreign bodies on surface of SENSOR ASSY ADC** Are there any dirt or foreign bodies on the SENSOR ASSY ADC surface?	Clean to remove any dirt or foreign bodies, and go to step [2].	Go to Step [2].
2	**Check of SENSOR ASSY ADC attachment** Is SENSOR ASSY ADC attached correctly?	Go to Step [4].	Re-attach, and go to step [3].
3	**Does the error recur when the power is turned ON?**	Go to Step [4].	End of procedure
4	**Check after replacement of SENSOR ASSY ADC** Replace SENSOR ASSY ADC. *(p.353)* Does the error recur when the power is turned ON?	Go to Step [5].	End of procedure
5	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Check after replacement of Toner Cartridge** Replace Toner Cartridge K/Y/M/C. Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Does the error recur when the power is turned ON?	Go to Step [9].	End of procedure
9	**Check after replacement of LV/HVPS** Replace LV/HVPS. *(p.407)* Does the error recur when the power is turned ON?	Go to "FIP-79 Electrical Noise". *(p.238)*	End of procedure

FIP-51

☐ Panel Message

- ■ Service Req E521

☐ Possible parts that caused the error

- ■ HARNESS ASSY MAIN
- ■ SENSOR 2BTR RETRACT
- ■ PWBA MCU
- ■ MOT ASSY MICRO
- ■ HARNESS ASSY ADC
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of 2ND BTR ASSY attachment** Is 2ND BTR ASSY attached correctly?	Go to Step [2].	Re-attach, and go to step [2].
2	**Does the error recur when restarting the printer?**	Go to Step [3].	End of procedure
3	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J403 from PWBA MCU. Do all of the wiring below have normal continuity? J403-1 ↔ J600-3 J403-2 ↔ J600-2 J403-3 ↔ J600-1	Go to Step [4].	Repair broken or shorted part.
4	**24 VDC power supply check to MOT ASSY MICRO (2nd BTR Retract Motor)** The voltage of P403-3 ↔ P403-2 on PWBA MCU is 24 VDC?	Go to Step [5].	Go to Step [10].
5	**Check after replacement of MOT ASSY MICRO** Replace MOT ASSY MICRO. *(p.399)* Does the error recur when restarting the printer?	Go to Step [6].	End of procedure
6	**5 VDC power supply check to SENSOR 2BTR RETRACT.** The voltage of P418-4 ↔ P418-5 on PWBA MCU is 5 VDC?	Go to Step [7].	Go to Step [10].
7	**Continuity check of HARNESS ASSY ADC** Disconnect the P/J418 from PWBA MCU. Do all of the wiring below have normal continuity? J418-4 ↔ J112-3 J418-5 ↔ J112-2 J418-6 ↔ J112-1	Go to Step [8].	Replace HARNESS ASSY ADC.
8	**Check after replacement of SENSOR 2BTR RETRACT** Replace SENSOR 2BTR RETRACT. Does the error recur when restarting the printer?	Go to Step [9].	End of procedure
9	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when restarting the printer?	Go to Step [11].	End of procedure

Step	Check	Yes	No
10	**Power supply check to PWBA MCU** Are each of the power voltages being supplied to the following terminals on PWBA MCU from LV/HVPS? P410-1 ↔ P410-2: 3. 3VDC P410-3 ↔ P410-4: 5VDC P410-5/6 ↔P410-7/8: 24VDC	Replace PWBA MCU. *(p.404)*	Go to Step [11].
11	**Continuity check of HARNESS ASSY MAIN** Are each of the power voltages being supplied to the following terminals on PWBA MCU from LV/HVPS? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/ HVPS. *(p.407)*	Repair broken or shorted part.

FIP-52

☐ Panel Message

- ■ Service Req E520

☐ Possible parts that caused the error

- ■ HARNESS ASSY MAIN
- ■ SENSOR 2BTR RETRACT
- ■ PWBA MCU
- ■ MOT ASSY MICRO
- ■ HARNESS ASSY ADC
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of DRIVE ASSY BTR attachment** Is the DRIVE ASSY BTR attached correctly?	Go to Step [2].	Re-attach, and go to step [2].
2	**Check of 2ND BTR ASSY attachment** Is 2ND BTR ASSY attached correctly?	Go to Step [4].	Re-attach, and go to step [3].
3	**Does the error recur when a test print is made?**	Go to Step [4].	End of procedure
4	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J403 from PWBA MCU. Do all of the wiring below have normal continuity? J403-1 ↔ J600-3 J403-2 ↔ J600-2 J403-3 ↔ J600-1	Go to Step [5].	Repair broken or shorted part.
5	**24 VDC power supply check to MOT ASSY MICRO (2nd BTR Retract Motor)** The voltage of P403-3 ↔ P403-2 on PWBA MCU is 24 VDC?	Go to Step [6].	Go to Step [11].
6	**Check after replacement of MOT ASSY MICRO** Replace MOT ASSY MICRO. *(p.399)* Does the error recur when a test print is made?	Go to Step [7].	End of procedure
7	**5 VDC power supply check to SENSOR 2BTR RETRACT** The voltage of P418-4 ↔ P418-5 on PWBA MCU is 5 VDC?	Go to Step [8].	Go to Step [11].
8	**Continuity check of HARNESS ASSY ADC** Disconnect the P/J418 from PWBA MCU. Do all of the wiring below have normal continuity? J418-4 ↔ J112-3 J418-5 ↔ J112-2 J418-6 ↔ J112-1	Go to Step [9].	Replace HARNESS ASSY ADC.
9	**Check after replacement of SENSOR 2BTR RETRACT** Replace SENSOR 2BTR RETRACT. *(p.356)* Does the error recur when a test print is made?	Go to Step [10].	End of procedure
10	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when a test print is made?	Go to Step [12].	End of procedure

Step	Check	Yes	No
11	**Power supply check to PWBA MCU** Are each of the power voltages being supplied to the following terminals on PWBA MCU from LV/HVPS? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [12].
12	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-53

☐ Panel Message

- ■ Service Req E537

☐ Possible parts that caused the error

- ■ FUSER ASSY
- ■ FFC-ASSY LV/MCU
- ■ PWBA FUSER CONT
- ■ HARNESS ASSY MAIN
- ■ HARNESS ASSY MCU C/L
- ■ HARNESS ASSY AC
- ■ LV/HVPS
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of FUSER ASSY attachment** Is the FUSER ASSY attached correctly to the printer? In particular, is the connector connected firmly to the printer? Is the connector latched normally?	Go to Step [3].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of the FUSER ASSY** Replace FUSER ASSY. *(p.388)* Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Continuity check of HARNESS ASSY MCU C/L** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Is the continuity normal between all terminals of J614A ↔ J417 and J614 ↔ J3?	Go to Step [5].	Replace HARNESS ASSY MCU C/L.
5	**Continuity check of FFC-ASSY LV/MCU** Disconnect P/J401 from PWBA MCU and P/J500 from LV/HVPS. Do all of the wiring below have normal continuity? P401-21 ↔ J500-2 P401-22 ↔ J500-1	Go to Step [6].	Replace FFC-ASSY LV/MCU.
6	**Continuity check of HARNESS ASSY AC** Disconnect P/J503 from LV/HVPS and P/J2 from PWBA FUSER CONT. Do all of the wiring below have normal continuity? J503-5 ↔ J2-5 J503-6 ↔ J2-6	Go to Step [7].	Replace HARNESS ASSY AC.
7	**Check after replacement of PWBA FUSER CONT** Replace PWBA FUSER CONT. *(p.410)* Does the error occur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Check after replacement of LV/HVPS** Replace LV/HVPS. *(p.407)* Does the error occur when the power is turned ON?	Go to Step [9].	End of procedure
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J1 from PWBA FUSER CONT and P/J410 from PWBA MCU. Do all of the wiring below have normal continuity? P/J1-1 ↔ P/J410-10 P/J1-3 ↔ P/J410-9	Replace PWBA MCU. *(p.404)*	Replace HARNESS ASSY MAIN.

FIP-54

☐ Panel Message

- ■ Service Req E533

☐ Possible parts that caused the error

- ■ SENSOR HUM & TEMP
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Temperature check of printer installation site** Has the ambient temperature where the printer is installed fallen to -7°C or below or reached or risen to 55°C or more.	Ask the customer to improve the installation environment for the printer.	Go to Step [2].
2	**Check of SENSOR HUM & TEMP thermistor resistance value** Disconnect P/J413 from PWBA MCU. The resistance value of P104-4 ↔ P104-3 is 10k Ω ± 1k Ω (approx. 20°C)?	Go to Step [3].	Replace SENSOR HUM & TEMP. *(p.400)*
3	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J413 from PWBA MCU. Is the continuity normal between all terminals of J413 ↔ J104?	Replace PWBA MCU. *(p.404)*	Repair broken or shorted part.

FIP-55

☐ Panel Message

- ■ Service Req E530

☐ Possible parts that caused the error

- ■ HARNESS ASSY MAIN
- ■ SENSOR HUM & TEMP
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J413 from PWBA MCU. Is the continuity normal between all terminals of J413 ↔ J104?	Go to Step [2].	Repair broken or shorted part.
2	**Check after replacement of SENSOR HUM & TEMP** Replace SENSOR HUM & TEMP. *(p.400)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-56

☐ Panel Message

- ■ Service Req E547

☐ Possible parts that caused the error

- ■ HARNESS-ASSY FEED MAIN
- ■ PWBA TRAY 500
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ DRIVE ASSY FEED
- ■ HARNESS-ASSY FEED 1
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of DRIVE ASSY FEED attachment** Is DRIVE ASSY FEED attached correctly?	Go to Step [2].	Re-attach, and go to step [2].
2	**Continuity check of HARNESS-ASSY FEED MAIN** Disconnect P/J437 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J437-1 ↔ J440-5 J437-2 ↔ J440-4 J437-4 ↔ J440-2 J437-5 ↔ J440-1	Go to Step [3].	Replace HARNESS-ASSY FEED MAIN.
3	**24 VDC power supply check to DRIVE ASSY FEED** The voltage of P440-2 ↔ P440-1 on PWBA FEED DRV is 24 VDC?	Go to Step [4].	Go to Step [5].
4	**Check of FEED MOTOR START signal** The voltage of P440-5 ↔ P440-1 on PWBA FEED DRV is xx VDC when FEED MOTOR START signal is ON?	Replace DRIVE ASSY FEED. *(p.458)*	Go to Step [10].
5	**24 VDC power supply check to PWBA TRAY 500** The voltage of P435-9/10 ↔ P435-7/8 on PWBA TRAY 500 is 24 VDC?	Replace PWBA TRAY 500. *(p.456)*	Go to Step [6].
6	**Continuity check of HARNESS-ASSY FEED 1** Disconnect P/J435 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J435-10 ↔ P608-1 (connector on Feeder to be connected to the printer) J435-9 ↔ P608-2 J435-8 ↔ P608-3 J435-7 ↔ P608-4	Go to Step [7].	Replace PWBA TRAY 500. *(p.456)*
7	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J421 from PWBA MCU. Do all of the wiring below have normal continuity? J421-1 ↔ J608-10 (connector on the printer to connect Feeder) J421-2 ↔ J608-9 J421-3 ↔ J608-8 J421-4 ↔ J608-7	Go to Step [8].	Repair broken or shorted part.
8	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

Step	Check	Yes	No
10	**5 VDC power supply check to PWBA TRAY 500** The voltage of P435-6 ↔ P435-5 on PWBA TRAY CONT is 5 VDC?	Replace PWBA TRAY 500. *(p.456)*	Go to Step [11].
11	**Continuity check of HARNESS-ASSY FEED 1** Disconnect P/J435 from PWBA TRAY CONT. Do all of the wiring below have normal continuity? J435-6 ↔ P608-5 (connector on Feeder to be connected to the printer) J435-5 ↔ P608-6	Go to Step [12].	Replace HARNESS-ASSY FEED 1. *(p.462)*
12	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J421 from PWBA MCU. Do all of the wiring below have normal continuity? J421-5 ↔ J608-6 (connector on the printer to connect Feeder) J421-6 ↔ J608-5	Go to Step [13].	Repair broken or shorted part.
13	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [14].
14	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-57

☐ Panel Message

- ■ Service Req E546

☐ Possible parts that caused the error

- ■ MOTOR ASSY DUP
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ HARNESS-ASSY DUP1
- ■ MOTOR ASSY DUP INV
- ■ HARNESS-ASSY DUP2
- ■ LV/HVPS
- ■ PWBA DUP-L

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of MOTOR ASSY DUP (DUP Lower Motor) and MOTOR ASSY DUP (DUP Upper Motor) attachment** Are the Lower and Upper MOTOR ASSY DUP attached correctly?	Go to Step [2].	Re-attach, and go to step [2].
2	**Check of load of transmission section of MOTOR driving force** Do the Gears that transmit rotation of MOTOR rotate smoothly?	Go to Step [3].	Replace parts that hinder rotation.
3	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J420 from PWBA MCU. Is the continuity normal between all terminals of J420 ↔ J607 (connector on the printer to connect Duplex)?	Go to Step [4].	Repair broken or shorted part.
4	**Continuity check of HARNESS-ASSY DUP2** Disconnect P/J443 from PWBA DUP-L. Is the continuity normal between all terminals of J443 ↔ P607 (connector on Duplex to be connected to the printer)?	Go to Step [5].	Replace HARNESS-ASSY DUP2.
5	**24 VDC power supply check to MOTOR ASSY DUP (DUP Lower Motor)** The voltage of both P442-1 ↔ Frame Chassis and P442-2 ↔ Frame Chassis on PWBA DUP-L are 24 VDC?	Go to Step [6].	Go to Step [13].
6	**24 VDC power supply check to MOTOR ASSY DUP INV (DUP Upper Motor)** The voltage of both J612-6 ↔ Frame Chassis and P612-5 ↔ Frame Chassis on PWBA DUP-L are 24 VDC?	Go to Step [7].	Go to Step [12].
7	**Check after replacement of PWBA DUP-L** Replace PWBA DUP-L. *(p.442)* Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Check after replacement of MOTOR ASSY DUP (DUP Lower Motor)** Replace MOTOR ASSY DUP. *(p.443)* Does the error recur when the power is turned ON?	Go to Step [9].	End of procedure
9	**Check after replacement of MOTOR ASSY DUP INV (DUP Upper Motor)** Replace MOTOR ASSY DUP. *(p.424)* Does the error recur when the power is turned ON?	Go to Step [10].	End of procedure
10	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.407)*	Go to Step [11].

Step	Check	Yes	No
11	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.
12	**Continuity check of HARNESS-ASSY DUP1** Disconnect P/J444 from PWBA DUP-L. Do all of the wiring below have normal continuity? J444-11 ↔ J612-4 J444-12 ↔ J612-3 J444-13 ↔ J612-2 J444-14 ↔ J612-1	Go to Step [13].	Replace HARNESS-ASSY DUP1.
13	**24 VDC power supply check to PWBA DUP-L** The voltage of P443-9/10 ↔ P443-11/12 on PWBA DUP-L is 24 VDC?	Replace PWBA DUP-L. *(p.442)*	Go to Step [14].
14	**Continuity check of HARNESS ASSY DUP2** Disconnect P/J443 from PWBA DUP-L. Do all of the wiring below have normal continuity? J443-9 ↔ P607-4 J443-10 ↔ P607-3 J443-11 ↔ P607-2 J443-12 ↔ P607-1	Go to Step [15].	Replace HARNESS ASSY DUP2.
15	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J420 from PWBA MCU. Do all of the wiring below have normal continuity? J420-1 ↔ J607-12 J420-2 ↔ J607-11 J420-3 ↔ J607-10 J420-4 ↔ J607-9	Go to Step [16].	Repair broken or shorted part.
16	**24 VDC power supply check to PWBA MCU** The voltage of P410-5/6 ↔ P410-7/8 on PWBA MCU is 24 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [17].
17	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-58

☐ Panel Message

- ■ Service Req E542

☐ Possible parts that caused the error

- ■ DRIVE ASSY PRO
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ SENSOR IBT RETRACT
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of connection of DRIVE ASSY PRO (IBT Cleaner Retract Motor)** Is connector P/J414 connected firmly to PWBA MCU?	Go to Step [2].	Re-connect the connector.
2	**24 VDC power supply check to DRIVE ASSY PRO (IBT Cleaner Retract Motor)** The voltage of P414-3 ↔ P414-2 on PWBA MCU 2 is 4 VDC?	Go to Step [3].	Go to Step [8].
3	**Check after replacement of DRIVE ASSY PRO** Replace DRIVE ASSY PRO. *(p.394)* Does the error recur when a test print is made?	Go to Step [4].	End of procedure
4	**5 VDC power supply check to SENSOR IBT RETRACT** The voltage of P415-3 ↔ P415-4 on PWBA MCU is 5 VDC?	Go to Step [5].	Go to Step [8].
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-3 ↔ J107-3 J415-4 ↔ J107-2 J415-5 ↔ J107-1	Go to Step [6].	Replace HARNESS ASSY MAIN.
6	**Check after replacement of SENSOR IBT RETRACT** Replace SENSOR IBT RETRACT. *(p.357)* Does the error recur when a test print is made?	Go to Step [7].	End of procedure
7	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when a test print is made?	Go to Step [9].	End of procedure
8	**Power supply check to PWBA MCU** Are each of the power voltages being supplied to the following terminals on PWBA MCU from LV/HVPS? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-59

☐ Panel Message

■ Replace Toner Y

☐ Possible parts that caused the error

■ Toner Cartridge Y
■ ANTENNA ASSY-CTRG or ANTENNA CTRG
■ HARNESS ASSY MAIN
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge Y attachment** Is Toner Cartridge Y attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge Y** Replace Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from PWBA MCU and reconnect it. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-60

☐ Panel Message

■ Replace Toner M

☐ Possible parts that caused the error

■ Toner Cartridge M
■ HARNESS ASSY MAIN
■ ANTENNA ASSY-CTRG or ANTENNA CTRG
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge M attachment** Is Toner Cartridge M attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge M** Replace Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from PWBA MCU and reconnect it. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-61

☐ Panel Message

■ Replace Toner C

☐ Possible parts that caused the error

■ Toner Cartridge C
■ ANTENNA ASSY-CTRG or ANTENNA CTRG
■ HARNESS ASSY MAIN
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge C attachment** Is Toner Cartridge C attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge C** Replace Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from PWBA MCU and reconnect it. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

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☐ Panel Message

■ Replace Toner K

☐ Possible parts that caused the error

■ Toner Cartridge K
■ ANTENNA ASSY-CTRG or ANTENNA CTRG
■ HARNESS ASSY MAIN
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge K attachment** Is Toner Cartridge K attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge K** Replace Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from PWBA MCU and reconnect it. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-63

☐ Panel Message

■ Replace Photocondctr

☐ Possible parts that caused the error

■ Photoconductor Unit
■ HARNESS ASSY MAIN
■ LV/HVPS
■ SENSOR TNER FULL
■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Attachment check of Photoconductor Unit** Is Photoconductor Unit attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error occur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Operation check of SENSOR TNER FULL (Toner Full Sensor)** Remove Photoconductor Unit. The voltage of P413-11 ↔ P413-10 on PWBA MCU is 0 VDC when the sensor sensing area is blocked, and is 5 VDC when the sensing area is not blocked?	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**5 VDC power supply check to SENSOR TNER FULL** The voltage of P413-12 ↔ P413-10 on PWBA MCU is 5 VDC?	Go to Step [6].	Go to Step [8].
6	**Continuity check of HARNESS ASSY MAIN** Do all of the wiring below have normal continuity? J413-10 ↔ J617-3 J413-11 ↔ J617-2 J413-12 ↔ J617-1	Go to Step [7].	Repair broken or shorted part.
7	**Continuity check of HARNESS ASSY TNR FULL** Disconnect P/J617. Do all of the wiring below have normal continuity? P617-1 ↔ J126-3 P617-2 ↔ J126-2 P617-3 ↔ J126-1	Replace SENSOR TNER FULL. *(p.374)*	Repair broken or shorted part.
8	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-64

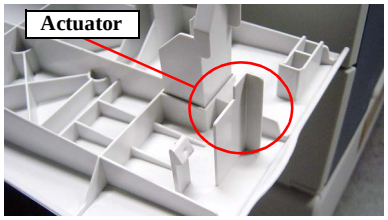
☐ Panel Message

■ A Open

☐ Possible parts that caused the error

■ COVER FRONT ASSY U
■ SWITCH-FRONT DOOR
■ PWBA MCU
■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of open/close state of COVER** Is COVER FRONT ASSY U closed?	Go to Step [3].	Close the cover. Go to Step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Shape check of COVER FRONT ASSY U** Is the actuator of COVER FRONT ASSY U that presses SWITCH-FRONT DOOR deformed or damaged? 	Replace COVER FRONT ASSY U. *(p.292)*	Go to Step [4].
4	**Operation check of SWITCH-FRONT DOOR** Disconnect SWITCH-FRONT DOOR P/J125. Is there continuity on P125-1 ↔ P125-2 when SWITCH-FRONT DOOR is pressed, and does the continuity stop when SWITCH-FRONT DOOR is released?	Go to Step [5].	Replace SWITCH-FRONT DOOR. *(p.300)*
5	**Continuity check of HARNESS ASSY MAIN** Do all of the wiring below have normal continuity? J415-10 ↔ J125-2 J415-11 ↔ J125-1	Go to Step [6].	Repair broken or shorted part.
6	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [7].
7	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-65

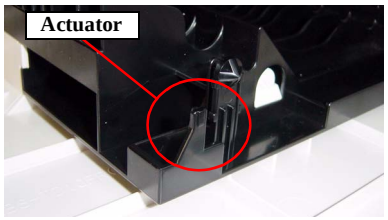
☐ Panel Message

- ■ E Open

☐ Possible parts that caused the error

- ■ CHUTE ASSY-REAR
- ■ HARNESS-ASSY P/H1
- ■ PWBA MCU
- ■ LV/HVPS
- ■ SWITCH-PH DOOR
- ■ HARNESS-ASSY P/H2
- ■ HARNESS ASSY MAIN

☐ Troubleshooting

Step	Check	Yes	No
1	**Shape check of CHUTE ASSY-REAR** Is the actuator of CHUTE ASSY-REAR that presses SWITCH I/L CAB (P/H Cover Switch) damaged? 	Replace CHUTE ASSY-REAR. *(p.325)*	Go to Step [2].
2	**Operation check of SWITCH-PH DOOR** Disconnect the P/J408 from the PWBA MCU. Is there continuity on J408-5 ↔ J408-6 when SWITCH-I/L CAB is pressed, and does the continuity stop when the switch is released?	Go to Step [5].	Go to Step [3].
3	**Continuity check of HARNESS-ASSY P/H1** Disconnect the P/J408 from PWBA MCU. Do all of the wiring below have normal continuity? J408-5 ↔ J603-8 J408-6 ↔ J603-7	Go to Step [4].	Replace HARNESS-ASSY P/H1.
4	**Continuity check of HARNESS-ASSY P/H2** Disconnect P/J603. Do all of the wiring below have normal continuity? P603-5 ↔ J100-2 P603-6 ↔ J100-1	Replace SWITCH-PH DOOR. *(p.339)*	Replace HARNESS-ASSY P/H2.
5	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [6].
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-66

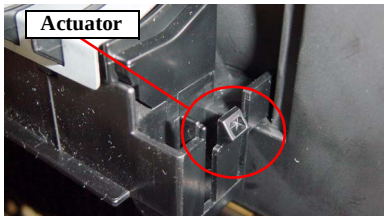
☐ Panel Message

- ■ F Open

☐ Possible parts that caused the error

- ■ CHUTE ASSY-FSR
- ■ HARNESS ASSY ADC
- ■ PWBA MCU
- ■ SWITCH 2BTR COVER
- ■ HARNESS ASSY 2BTR SW
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Shape check of CHUTE ASSY-FSR** Is the actuator of CHUTE ASSY-FSR that presses SWITCH 2BTR COVER damaged? 	Replace CHUTE ASSY-FSR. *(p.341)*	Go to Step [2].
2	**Operation check of SWITCH 2BTR COVER** Disconnect the P/J418 from PWBA MCU. Is there continuity on J418-7 ↔ J418-8 when SWITCH 2BTR COVER is pressed, and does the continuity stop when the switch is released?	Go to Step [5].	Go to Step [3].
3	**Continuity check of HARNESS ASSY ADC** Disconnect the P/J418 from the PWBA MCU. Do all of the wiring below have normal continuity? J418-7 ↔ J621-2 J418-8 ↔ J621-1	Go to Step [4].	Replace HARNESS ASSY ADC.
4	**Continuity check of HARNESS ASSY 2BTR SW** Disconnect the P/J418 from the PWBA MCU. Do all of the wiring below have normal continuity? P621-1 ↔ J113-2 P621-2 ↔ J113-1	Replace SWITCH 2BTR COVER. *(p.352)*	Replace HARNESS ASSY 2BTR SW.
5	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [6].
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-67

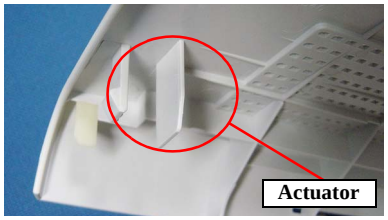
☐ Panel Message

■ C Open

☐ Possible parts that caused the error

■ COVER FUSER
■ PWBA MCU
■ SWITCH-FUSER DOOR
■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of open/close state of COVER** Is COVER FUSER closed?	Go to Step [3].	Close the cover. Go to Step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Shape check of COVER FUSER** Is the actuator of COVER FUSER that presses SWITCH-FUSER DOOR deformed or damaged?  	Replace COVER FUSER. *(p.285)*	Go to Step [4].
4	**Operation check of SWITCH-FUSER DOOR** Disconnect SWITCH-FUSER DOOR P/J114. Is there continuity on P114-1 ↔ P114-2 when SWITCH-FUSER DOOR is pressed, and does the continuity stop when the switch is released?	Go to Step [5].	Replace SWITCH-FUSER DOOR. *(p.298)*
5	**Continuity check of HARNESS ASSY MAIN** Do all of the wiring below have normal continuity? J403-11 ↔ J114-2 J403-12 ↔ J114-1	Go to Step [6].	Repair broken or shorted part.
6	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [7].
7	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-68

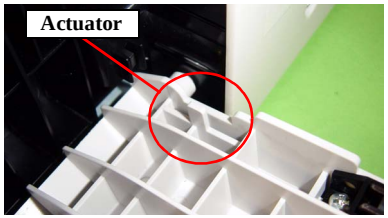
☐ Panel Message

- ■ G Open

☐ Possible parts that caused the error

- ■ CHUTE FDR ASSY 500
- ■ HARNESS-ASSY FEED MAIN
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ SWITCH FEEDER DOOR
- ■ HARNESS-ASSY FEED 1
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Shape check of CHUTE FDR ASSY 500** Is the actuator of CHUTE FDR ASSY 500 that presses SWITCH FEEDER DOOR damaged? 	Replace CHUTE FDR ASSY 500. *(p.454)*	Go to Step [2].
2	**Operation check of SWITCH FEEDER DOOR** Disconnect P/J437 from PWBA TRAY 500. Is there continuity on J437-8 ↔ J437-9 when SWITCH FEEDER DOOR is pressed, and does the continuity stop when the switch is released?	Go to Step [4].	Go to Step [3].
3	**Continuity check of HARNESS-ASSY FEED MAIN** Disconnect P/J437 from PWBA TRAY 500. Do all of the wiring below have normal continuity? J437-8 ↔ J121-2 J437-9 ↔ J121-1	Replace SWITCH FEEDER DOOR. *(p.464)*	Replace HARNESS-ASSY FEED MAIN.
4	**Continuity check of HARNESS-ASSY FEED 1** Disconnect P/J435 from PWBA TRAY CONT. Is the continuity normal between all terminals of J435 ↔ P608 (connector on Feeder to be connected to the printer)?	Go to Step [5].	Replace HARNESS-ASSY FEED 1. *(p.462)*
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J421 from PWBA MCU. Is the continuity normal between all terminals of J421 ↔ J608 (connector on the printer to connect Feeder)?	Go to Step [6].	Repair broken or shorted part.
6	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [7].
7	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-69

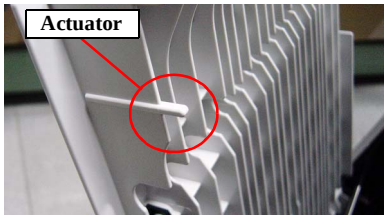
☐ Panel Message

- ■ DM Open

☐ Possible parts that caused the error

- ■ COVER UP-DUP TRANS
- ■ HARNESS-ASSY DUP1
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ SWITCH-DUP DOOR
- ■ HARNRSS-ASSY DUP2
- ■ PWBA DUP-L
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Shape check of COVER UP-DUP TRANS** Is the actuator of COVER UP-DUP TRANS that presses SWITCH-DUP DOOR damaged? 	Replace COVER UP-DUP TRANS. *(p.437)*	Go to Step [2].
2	**Operation check of SWITCH-DUP DOOR** Disconnect P/J444 from PWBA DUP-L. Is there continuity on J444-1 ↔ J444-2 when SWITCH-DUP DOOR is pressed, and does continuity stop when the switch is released?	Go to Step [4].	Go to Step [3].
3	**Continuity check of HARNESS-ASSY DUP1** Disconnect P/J444 from PWBA DUP-L. Do all of the wiring below have normal continuity? J444-1 ↔ J122-2 J444-2 ↔ J122-1	Replace SWITCH-DUP DOOR. *(p.430)*	Replace HARNESS-ASSY DUP1.
4	**Continuity check of HARNESS-ASSY DUP2** Disconnect P/J443 from PWBA DUP-L. Is the continuity normal between all terminals of J443 ↔ P607 (connector on Duplex to be connected to the printer)?	Go to Step [5].	Replace HARNESS-ASSY DUP2.
5	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J420 from PWBA MCU. Is the continuity normal between all terminals of J420 ↔ J607?	Go to Step [6].	Repair broken or shorted part.
6	**Check after replacement of PWBA DUP-L** Replace PWBA DUP-L. *(p.442)* Does the error recur when the power is turned ON?	Go to Step [7].	End of procedure
7	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Does the error recur when the power is turned ON?	Go to Step [8].	End of procedure
8	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-70

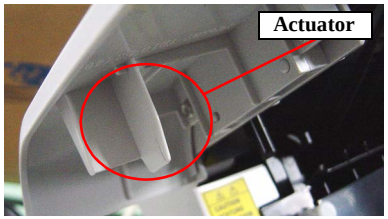
☐ Panel Message

- ■ D Open

☐ Possible parts that caused the error

- ■ COVER-L DUP
- ■ HARNESS ASSY MAIN
- ■ LV/HVPS
- ■ SWITCH-FUSER DOOR
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Shape check of COVER-L DUP on Duplex** Is the actuator of the Duplex that presses SWITCH-FUSER DOOR damaged? 	Replace COVER-L DUP. *(p.414)*	Go to Step [2].
2	**Operation check of SWITCH-FUSER DOOR** Disconnect the P/J403 from PWBA MCU. Is there continuity on J403-11 ↔ J402-12 when the switch of SWITCH-FUSER DOOR is pressed, and does the continuity stop when the switch is released?	Go to Step [4].	Go to Step [3].
3	**Continuity check of HARNESS ASSY MAIN** Disconnect the P/J403 from PWBA MCU. Do all of the wiring below have normal continuity? J403-11 ↔ J114-2 J403-12 ↔ J114-1	Replace SWITCH-FUSER DOOR. *(p.298)*	Repair broken or shorted part.
4	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-71

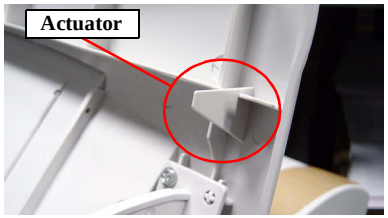
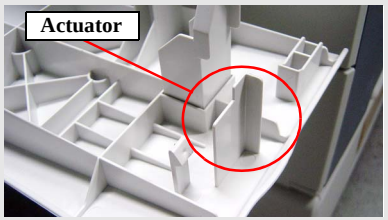
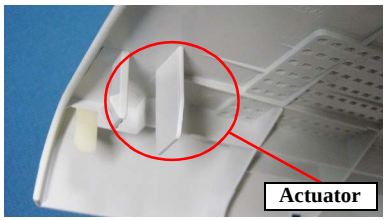
☐ Panel Message

- ■ B Open

☐ Possible parts that caused the error

- ■ COVER TOP
- ■ COVER FUSER
- ■ SWITCH-INLK FRONT
- ■ PWBA MCU
- ■ COVER FRONT ASSY U
- ■ SWITCH ASSY TOP
- ■ SWITCH-INLK FUSER
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of open/close state of COVER** Are all the COVER TOP, COVER FRONT ASSY U, and COVER FUSER closed?	Go to Step [3].	Close the cover. Go to Step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Shape check of COVER TOP** Is the actuator of COVER TOP that presses SWITCH ASSY TOP deformed or damaged? 	Replace COVER ASSY TOP. *(p.283)*	Go to Step [4].
4	**Shape check of COVER FRONT ASSY U** Is the actuator of COVER FRONT ASSY U that presses SWITCH-INLK FRONT deformed or damaged? 	Replace COVER FRONT ASSY U. *(p.292)*	Go to Step [5].
5	**Shape check of COVER FUSER** Is the actuator of COVER FUSER that presses SWITCH-INLK FUSER deformed or damaged? 	Replace COVER FUSER. *(p.285)*	Go to Step [6].
6	**Operation check of SWITCH ASSY TOP** Disconnect P/J116 from SWITCH ASSY TOP. Is there continuity on P116-1 ↔ P116-3 when SWITCH ASSY TOP is pressed, and does the continuity stop when the switch is released?	Go to Step [7].	Replace SWITCH ASSY TOP. *(p.288)*
7	**Operation check of SWITCH-INLK FRONT** Disconnect P/J115 from SWITCH-INLK FRONT. Is there continuity on P115-1 ↔ P115-3 when SWITCH-INLK FRONT is pressed, and does the continuity stop when the switch is released?	Go to Step [8].	Replace SWITCH-INLK FRONT. *(p.300)*

Step	Check	Yes	No
8	**Operation check of SWITCH-INLK FUSER** Disconnect P/J117 from SWITCH-INLK FUSER. Is there continuity on P117-1 ↔ P117-3 when SWITCH-INLK FUSER is pressed, and does the continuity stop when the switch is released?	Go to Step [9].	Replace SWITCH-INLK FUSER. *(p.303)*
9	**Power supply check to PWBA MCU** Is the specified DC voltage being supplied to the following terminals on PWBA MCU? P410-1 ↔ P410-2: 3. 3 VDC P410-3 ↔ P410-4: 5 VDC P410-5/6 ↔ P410-7/8: 24 VDC	Replace PWBA MCU. *(p.404)*	Go to Step [10].
10	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-1 ↔ J502-1 J410-2 ↔ J502-2 J410-3 ↔ J502-3 J410-4 ↔ J502-4 J410-5 ↔ J502-5 J410-6 ↔ J502-6 J410-7 ↔ J502-7 J410-8 ↔ J502-8	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-72

☐ Panel Message

- ■ Y Toner Low

☐ Possible parts that caused the error

- ■ Toner Cartridge Y
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ ANTENNA ASSY-CTRG
- ■ ANTENNA CTRG

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge Y attachment** Is Toner Cartridge Y attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge Y** Replace Toner Cartridge Y. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from the PWBA MCU. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-73

☐ Panel Message

- ■ M Toner Low

☐ Possible parts that caused the error

- ■ Toner Cartridge M
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ ANTENNA ASSY-CTRG
- ■ ANTENNA CTRG

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge M attachment** Is Toner Cartridge M attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge M** Replace Toner Cartridge M. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from PWBA MCU and reconnect it. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-74

☐ Panel Message

- ■ C Toner Low

☐ Possible parts that caused the error

- ■ Toner Cartridge C
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ ANTENNA ASSY-CTRG
- ■ ANTENNA CTRG

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge C attachment** Is Toner Cartridge C attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge C** Replace Toner Cartridge C. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from PWBA MCU. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-75

☐ Panel Message

- ■ K Toner Low

☐ Possible parts that caused the error

- ■ Toner Cartridge K
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ ANTENNA ASSY-CTRG
- ■ ANTENNA CTRG

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Toner Cartridge K attachment** Is Toner Cartridge K attached correctly?	Go to Step [4].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Toner Cartridge K** Replace Toner Cartridge K. Does the error recur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Check of ANTENNA CTRG** Is ANTENNA CTRG dirty and damaged?	Clean ANTENNA CTRG, and then proceed to step [5].	Go to Step [5].
5	**Operation check of ANTENNA CTRG** Disconnect the P/J415 from PWBA MCU and reconnect it. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
6	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J415 from PWBA MCU. Do all of the wiring below have normal continuity? J415-1 ↔ J106-2 J415-2 ↔ J106-1	Go to Step [7].	Repair broken or shorted part.
7	**Check after replacement of ANTENNA ASSY-CTRG or ANTENNA CTRG** Replace ANTENNA ASSY-CTRG or ANTENNA CTRG. *(p.379)* or *(p.380)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-76

☐ Panel Message

- ■ Worn Photoconductor

☐ Possible parts that caused the error

- ■ Photoconductor Unit
- ■ HARNESS ASSY MAIN
- ■ PWBA MCU
- ■ SENSOR TNER FULL
- ■ HARNESS-ASSY TNER FULL
- ■ LV/HVPS

☐ Troubleshooting

Step	Check	Yes	No
1	**Attachment check of Photoconductor Unit** Is Photoconductor Unit attached correctly?	Go to Step [3].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error occur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Operation check of SONSOR TNER FULL (Toner Full Sensor)** Remove Photoconductor Unit. The voltage of P413-11 ↔ P413-10 on PWBA MCU is 0 VDC when the sensor sensing area is blocked, and is 5 VDC when the sensing area is not blocked?	Replace PWBA MCU. *(p.404)*	Go to Step [5].
5	**5 VDC power supply check to SENSOR TNER FULL** The voltage of P413-12 ↔ P413-10 on PWBA MCU is 5 VDC?	Go to Step [6].	Go to Step [8].
6	**Continuity check of HARNESS ASSY MAIN** Do all of the wiring below have normal continuity. J413-10 ↔ J617-3 J413-11 ↔ J617-2 J413-12 ↔ J617-1	Go to Step [7].	Repair broken or shorted part.
7	**Continuity check of HARNESS ASSY TNR FULL** Disconnect P/J617. Do all of the wiring below have normal continuity? P617-1 ↔ J126-3 P617-2 ↔ J126-2 P617-3 ↔ J126-1	Replace SENSOR TNER FULL. *(p.374)*	Repair broken or shorted part.
8	**5 VDC power supply check to PWBA MCU** The voltage of P410-3 ↔ P410-4 on PWBA MCU is 5 VDC?	Replace PWBA MCU. *(p.404)*	Go to Step [9].
9	**Continuity check of HARNESS ASSY MAIN** Disconnect P/J410 from PWBA MCU and P/J502 from LV/HVPS. Do all of the wiring below have normal continuity? J410-3 ↔ J502-3 J410-4 ↔ J502-4	Replace LV/HVPS. *(p.407)*	Repair broken or shorted part.

FIP-77

☐ Panel Message

- ■ Worn Photoconductor

☐ Possible parts that caused the error

- ■ Photoconductor Unit
- ■ HARNESS-ASSY XERO
- ■ LV/HVPS
- ■ GUIDE CRU ASSY D or ANTENNA ASSY
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Attachment check of Photoconductor Unit** Is Photoconductor Unit attached correctly?	Go to Step [3].	Re-attach, and go to step [2].
2	**Does the error recur when the power is turned ON?**	Go to Step [3].	End of procedure
3	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Does the error occur when the power is turned ON?	Go to Step [4].	End of procedure
4	**Operation check of ANTENNA CTRG** Disconnect the P/J416 from the PWBA MCU. Does the error recur when the power is turned ON?	Go to Step [6].	End of procedure
5	**Continuity check of HARNESS-ASSY XERO** Disconnect the J416 from PWBA MCU. Do all of the wiring below have normal continuity? J416-4 ↔ J109-2 J416-5 ↔ J109-1	Go to Step [6].	Replace HARNESS-ASSY XERO.
6	**Check after replacement of GUIDE CRU ASSY D or ANTENNA ASSY** Replace GUIDE CRU ASSY D or ANTENNA ASSY. *(p.362)* or *(p.365)* Does the error recur when the power is turned ON?	Replace PWBA MCU. *(p.404)*	End of procedure

FIP-78

☐ Panel Message

- ■ Service Req E998

☐ Possible parts that caused the error

- ■ FFC-ASSY ESS
- ■ PWBA MCU
- ■ BOARD ASSY., MAIN

☐ Troubleshooting

Step	Check	Yes	No
1	**Check if the firmware version of the PWBA MCU** Check the firmware version of the PWBA MCU. Is the version latest ?	Go to Step [2].	Update the firmware.
2	**Check if the firmware version of the printer controller** Check the firmware version of the printer controller Is the version latest ?	Go to Step [3].	Update the firmware.
3	**Continuity check of FFC-ASSY ESS** 1. Disconnect the P/J400 on the PWBA MCU. 2. Disconnect the CN601 on the BOARD ASSY., MAIN 3. Check each wiring for continuity. Do all of the wiring have continuity ?	Go to Step [4].	Replace the FFC-ASSY ESS.
4	**Replacement of the BOARD ASSY., MAIN** Replace the BOARD ASSY., MAIN. Does the error occur ?	Replace the PWBA MCU.	End of procedure

FIP-79 Electrical Noise

☐ Possible parts that caused the error

- ■ Photoconductor Unit
- ■ FUSER ASSY
- ■ LV/HVPS
- ■ HOUSING ASSY-GUIDE AD
- ■ PWBA MCU

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of external noise** Are there any other electrical apparatus (e. g. generators, wireless transmitters, or equipment that use motors) within 3 m of the printer? Either turn the other electrical apparatus OFF, or reposition the printer at least 6 m away from other electrical apparatus. Does the electrical noise problem still continue?	Go to Step [2].	End of procedure
2	**Check of AC ground** Is the AC power outlet wired and grounded correctly?	Go to Step [3].	Ask the customer to repair the AC power outlet.
3	**Check after replacement of Photoconductor Unit** Replace DRU ASSY. Does the electrical noise problem still continue after replacement?	Go to Step [4].	End of procedure
4	**Check of contact between Photoconductor Unit and HOUSING ASSY-GUIDE AD** Remove Photoconductor Unit. Is the contact surface of Photoconductor Unit and CONDUCTOR attached to HOUSING ASSY-GUIDE AD deformed or are there foreign objects on the surface?	Replace GUIDE CRU ASSY AD.	Go to Step [5].
5	**Check of grounding of boards** Are all screws fastening PWBA MCU and LV/HVPS to the frame tightened firmly? Also, are all screws fastening the PWBA TRAY 500 of Feeder to the frame tightened firmly? Likewise, are all screws fastening PWBA DUP-L of DUPLEX to the frame tightened firmly?	Go to Step [6].	Tighten the screws.
6	**Check after replacement of FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Replace FUSER. *(p.388)* Does the electrical noise problem still continue after replacement?	Go to Step [7].	End of procedure
7	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.407)* Does the electrical noise problem still continue after replacement?	Replace all related parts.	End of procedure

3.3.3.2 Controller related error

CHECK POINT

Since a controller-related service call error may occur due to the print data structure sent by the host/application, make operation check while simultaneously changing the operating environment, print data, etc.

FIP-C1

☐ Panel Message

- Service Req C0017
- Service Req C0081
- Service Req C0082
- Service Req C0083
- Service Req C0084
- Service Req C0085
- Service Req C0086
- Service Req C0087
- Service Req C0088
- Service Req C0089
- Service Req C0090
- Service Req C0091
- Service Req C0092
- Service Req C0093
- Service Req C0094
- Service Req C0095
- Service Req C0096
- Service Req C0097
- Service Req C0098
- Service Req C0128-0254
- Service Req C0255
- Service Req C0256
- Service Req C0257
- Service Req C0258
- Service Req C0800
- Service Req C0998
- Service Req C1400
- Service Req C1500
- Service Req C1550
- Service Req C1600
- Service Req C1610
- Service Req C1800
- Service Req C1999

☐ Possible parts that caused the error

- PWBA ESS

☐ Troubleshooting

Step	Check	Yes	No
1	**External noise** 1. Check the surrounding of the printer for electrical equipment. 2. Disconnect all cables connected to the printer, except the AC cable, and make operation check. Does the error occur?	Replace the PWBA ESS. *(p.409)*	End of procedure

FIP-C2

☐ Panel Message

- ■ Service Req C0999
- ■ Service Req C1002
- ■ Service Req C1010
- ■ Service Req C1120
- ■ Service Req C1121
- ■ Service Req C1122
- ■ Service Req C1123

☐ Possible parts that caused the error

- ■ PWBA ESS
- ■ Standard ROM-DIMM

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of Standard ROM-DIMM** 1. Check whether the installed ROM-DIMM is the specified one and is securely connected. (Remove it once and reinstall it again.) Does the error occur?	To Step [2]	End of procedure
2	**Replace the Standard ROM-DIMM** 1. Replace the Standard ROM-DIMM. Does the error occur?	To Step [3]	End of procedure
3	**External noise** 1. Check the surrounding of the printer for electrical equipment. 2. Disconnect all cables connected to the printer, except the AC cable, and make operation check. Does the error occur?	Replace the PWBA ESS. *(p.409)*	End of procedure

FIP-C3

☐ Panel Message

- ■ Service Req C1020
- ■ Service Req C1021

☐ Possible parts that caused the error

- ■ PWBA ESS
- ■ RAM-DIMM

☐ Troubleshooting

Step	Check	Yes	No
1	**Check of RAM-DIMM** Check whether the installed RAM-DIMM is the specified one and is securely connected. (Remove it once and reinstall it again.) Does the error occur?	To Step [2]	End of procedure
2	**Replace the RAM-DIMM** 1. Replace the Standard RAM-DIMM. Does the error occur?	To Step [3]	End of procedure
3	**External noise** 1. Check the surrounding of the printer for electrical equipment. 2. Disconnect all cables connected to the printer, except the AC cable, and make operation check. Does the error occur?	Replace the PWBA ESS. *(p.409)*	End of procedure

FIP-C4

- ☐ Panel Message
  - ■ Service Req C1200
  - ■ Service Req C1210
- ☐ Possible parts that caused the error
  - ■ PWBA ESS
- ☐ Troubleshooting

Step	Check	Yes	No
1	**Check of EEPROM** Initialize the EEPROM. Refer to "EEPROM initialization" *(p.55)* Does the error occur?	To Step [2]	End of procedure
2	**External noise** 1. Check the surrounding of the printer for electrical equipment. 2. Disconnect all cables connected to the printer, except the AC cable, and make operation check. Does the error occur?	Replace the PWBA ESS. *(p.409)*	End of procedure

FIP-C5

- ☐ Panel Message
  - ■ Service Req C2000
- ☐ Possible parts that caused the error
  - ■ PWBA ESS
- ☐ Troubleshooting

Step	Check	Yes	No
1	**Check of host PC** Restart the host PC. Does the error occur?	To Step [2]	End of procedure
2	**Check of Printer Driver** Reinstall the Printer Driver. Does the error occur?	To Step [3]	End of procedure
3	**External noise** 1. Check the surrounding of the printer for electrical equipment. 2. Disconnect all cables connected to the printer, except the AC cable, and make operation check. Does the error occur?	Replace the PWBA ESS. *(p.409)*	End of procedure

3.4 Printing Quality-related Trouble

3.4.1 Printing-quality troubleshooting Entry Chart

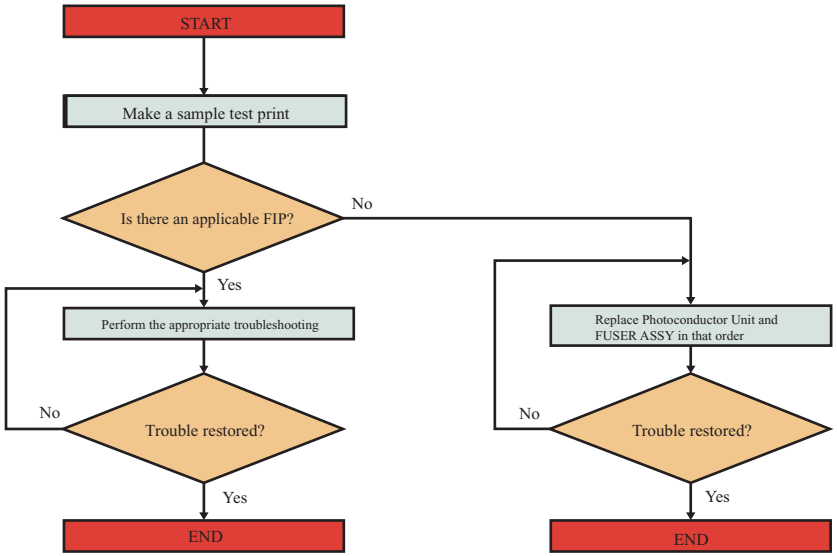


Figure 3-4. Printing-quality troubleshooting Entry Chart

NOTE: *The printing-quality troubleshooting described here is based on a condition that the printer controller has no problems.*
However, making a test print with only the engine side, allows you to find out roughly which side (controller side or engine side) is causing the trouble, except for cases that cannot be checked by the test print.
• Test print with the engine alone is normal → Printer controller trouble
• Test print on engine alone is abnormal → Printer engine trouble
If the probable cause is "printer controller trouble," replace with a normal printer controller and interface cable, and check.
If the trouble recurs after replacing with the normal parts, check on the host side, and use the printer quality FIPs to perform efficient troubleshooting.

To reliably judge and understand the details of trouble, and perform the correct remedy efficiently when printing quality-related trouble occurs, make a test print, and use the FIP tables corresponding to the phenomena.
When trouble cannot be restored by the printing quality-related FIP, check again using the FIP, and then replace all parts indicated in the "ESS and possible parts that caused the error" one by one to check the parts and perform troubleshooting.

The printing quality-related FIPs describe typical troubles as below.

- FIP-P1 Printing is Faint (Weak Tones)
- FIP-P2 Blank Print
- FIP-P3 Solid Black Print
- FIP-P4 Vertical White Bands or Lines
- FIP-P5 Horizontal White Bands or Lines
- FIP-P6 Vertical Black Lines
- FIP-P7 Horizontal Black Lines
- FIP-P8 Image is Partially Not Printed
- FIP-P9 Toner Smudges
- FIP-P10 Residual Image
- FIP-P11 Dark or Dirty Background
- FIP-P12 Skew Print
- FIP-P13 Print Paper Damage
- FIP-P14 Image Not Fixed
- FIP-P15 Color Shift
- FIP-P16 Uneven Density/Thin-Spot
- FIP-P17 Entirely Faint
- FIP-P18 Entirely Fogged in Black
- FIP-P19 Entirely Thin
- FIP-P20 Uneven Density in Horizontal Direction

NOTE: *When horizontal stripes and spots appear at fixed intervals, it is highly possible that a specific roll has caused the trouble. If this happens, you might be able to easily solve the problem by measuring the interval between the stripes or spots on a test print, and checking the relationship between the pitches shown in the table below (note that the pitch does not necessarily match the length of the roll periphery).*

Table 3-4. Trouble occurrence pitches

Pitch (mm)	Roll	Unit to be replaced
150. 41	Drum	Photoconductor Unit
38. 40	BCR	Photoconductor Unit
37. 52	1st BTR	Photoconductor Unit
25. 73	• IBT Belt • Cleaner Brush	Photoconductor Unit
51. 05	2nd BTR	2ND BTR ASSY
82. 33	Heat Roll	FUSER ASSY
94. 42	Pressure Roll	FUSER ASSY
7. 54	PR Motor	MOT ASSY P/R

3.4.2 Printing quality-related FIP

FIP-P1 Printing is Faint (Weak Tones)

Leg_Sec001_002FA

☐ Problems

Overall density of image is too weak.

☐ ESS and possible parts that caused the error

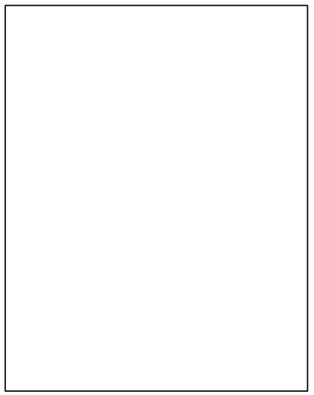
- Photoconductor Unit
- ROS ASSY
- Toner Cartridge Y
- Toner Cartridge M
- Toner Cartridge C
- Toner Cartridge K
- 2ND BTR ASSY
- HOUSING ASSY-GUIDE AD
- MOT ASSY MAG
- PWBA ESS
- PWBA MCU
- LV/HVPS
- FUSER ASSY
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Paper** Load new, dry recommended paper, and execute a test print. Is the image printed normally?	End of procedure	Go to Step [2].
2	**Check of laser beam path** Are there any obstructions between ROS ASSY and Photoconductor Unit?	Remove obstacles.	Go to Step [3].
3	**Check of ROS window** Is ROS window dirty?	Clean the ROS window with CLEANER ASSY.	Go to Step [4].
4	**Check of toner cartridge attachment** Re-attach the toner cartridge, and make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [5].
5	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [6].	Replace 2ND BTR ASSY. *(p.348)*
6	**Check of contact between Photoconductor Unit and frame** Are the contacts of Photoconductor Unit and HOUSING ASSY-GUIDE AD dirty or deformed?	Clean or replace relevant parts.	Go to Step [7].
7	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [8].
8	**Check after replacement of Toner Cartridge** Replace Toner Cartridge Y/M/C/K. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [9].
9	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [10].
10	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [11].

Step	Check	Yes	No
11	**Check after replacement of the MOT ASSY MAG** Replace MOT ASSY MAG. *(p.396)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [12].
12	**Check of image primary transfer process** Is the toner image on the drum transferred normally to IBT BELT? Execute a test print, turn the power OFF when you think that the primary transfer process is in progress during printing, and check the toner image on IBT BELT.	Go to Step [13].	Replace LV/ HVPS. *(p.407)*
13	**Check of image secondary transfer process** Is the toner image on IBT BELT transferred normally to the paper? Execute a test print, turn the power OFF when you think that the image transfer process is in progress during printing, and check the paper.	Replace “ESS and possible parts that caused the error”.	Replace LV/ HVPS. *(p.407)*

FIP-P2 Blank Print


Leg_Sec001_003FA

☐ Problems

Completely blank pages are printed.

☐ ESS and possible parts that caused the error

- Photoconductor Unit
- ROS ASSY
- Toner Cartridge Y
- Toner Cartridge M
- Toner Cartridge C
- Toner Cartridge K
- 2ND BTR ASSY
- HOUSING ASSY-GUIDE AD
- MOTOR ASSY MAG
- PWBA ESS
- PWBA MCU
- LV/HVPS
- FUSER ASSY
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of laser beam path** Are there any obstructions between ROS ASSY and Photoconductor Unit?	Remove obstacles.	Go to Step [2].
2	**Is ROS window completely covered by obstacles, or is it dirty?**	Remove obstacles, and clean ROS window with CLEANER ASSY.	Go to Step [3].
3	**Check connection of ROS ASSY connector** Is the connector firmly connected to ROS ASSY?	Go to Step [4].	Connect the connector.
4	**Check of toner cartridge attachment** Re-attach the toner cartridge, and make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [5].
5	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [6].	Replace 2ND BTR ASSY. *(p.348)*
6	**Check of contact between Photoconductor Unit and frame** Are the contacts of Photoconductor Unit and HOUSING ASSY-GUIDE AD dirty or deformed?	Clean or replace relevant parts.	Go to Step [7].
7	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [8].
8	**Check after replacement of Toner Cartridge** Replace Toner Cartridge Y/M/C/K. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to step [9]
9	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [10].
10	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [11].
11	**Check after replacement of MOT ASSY MAG** Replace MOT ASSY MAG. *(p.396)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [12].

Step	Check	Yes	No
12	**Check of image primary transfer process** Is the toner image on the drum transferred normally to IBT BELT? Execute a test print, turn the power OFF when you think that the primary transfer process is in progress during printing, and check the toner image on IBT BELT.	Go to Step [13].	Replace LV/ HVPS. *(p.407)*
13	**Check of image secondary transfer process** Is the toner image on IBT BELT transferred normally to the paper? Execute a test print, turn the power OFF when you think that the image transfer process is in progress during printing, and check the paper.	Go to Step [14].	Replace LV/ HVPS. *(p.407)*
14	**Check after replacement of ESS** Replace ESS. Make a test print of the problem image. Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P3 Solid Black Print

Leg_Sec001_004FA

☐ Problems

Completely black pages are printed.

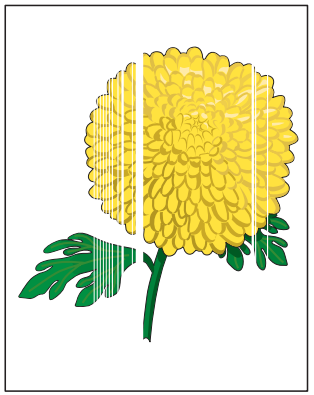
☐ ESS and possible parts that caused the error

- ROS ASSY
- Photoconductor Unit
- HOUSING ASSY-GUIDE AD
- 2ND BTR ASSY
- PWBA MCU
- LV/HVPS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check connection of ROS ASSY connector** Is the connector firmly connected to ROS ASSY?	Go to Step [2].	Connect the connector.
2	**Check of contact between Photoconductor Unit and frame** Are the contacts of Photoconductor Unit and HOUSING ASSY-GUIDE AD dirty or deformed?	Clean or replace relevant parts.	Go to Step [3].
3	**Cover the entire window of ROS ASSY and execute a test print.** Is the print completely black?	Replace LV/HVPS. *(p.407)*	Go to Step [4].
4	**Cover half of the window of ROS ASSY and execute a test print.** Is the print, half white and half black?	Go to Step [5].	Replace PWBA MCU. *(p.404)*
5	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P4 Vertical White Bands or Lines



Leg_Sec001_005FA

☐ Problems

Vertical (along the paper feed direction) white bands or lines appear almost all over the printout. Some bands or lines are extremely faint and some are completely white (blank) missing the part of the image which should be printed.

☐ ESS and possible parts that caused the error

- ROS ASSY
- Photoconductor Unit
- 2ND BTR ASSY
- FUSER ASSY
- PWBA ESS
- PWBA MCU
- LV/HVPS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Paper** Load new, dry recommended paper, and execute a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [2].
2	**Check of the paper feed path** Are there any dirt or obstacles on the paper feed path from feeding section to the ejecting section?	Remove obstacles.	Go to Step [3].
3	**Check of laser beam path** Are there any obstructions between ROS ASSY and Photoconductor Unit?	Remove obstacles.	Go to Step [4].
4	**Check of ROS window** Is ROS window dirty?	Clean the ROS window with CLEANER ASSY.	Go to Step [5].
5	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [6].	Replace 2ND BTR ASSY *(p.348)*
6	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [7].
7	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [8].
8	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Replace “ESS and possible parts that caused the error”.

FIP-P5 Horizontal White Bands or Lines

Leg_Sec001_006FA

☐ Problems

Horizontal (vertical to the paper feed direction) white bands or lines appear almost all over the printout. Some bands or lines are extremely faint and some are completely white (blank) missing the part of the image which should be printed.

☐ ESS and possible parts that caused the error

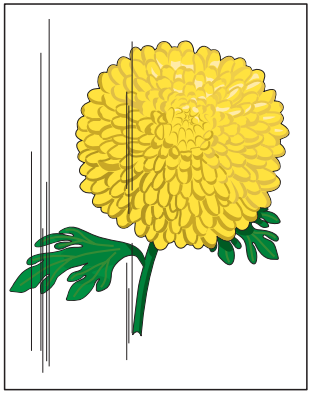
- ROS ASSY
- 2ND BTR ASSY
- Photoconductor Unit
- PWBA MCU
- LV/HVPS
- FUSER ASSY
- HOUSING ASSY-GUIDE AD
- PWBA ESS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Paper** Load new, dry recommended paper, and execute a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [2].
2	**Check of Rollers on the paper feed path** Are Rollers on the paper feed path normal without any dirt, damage or wear?	Go to Step [4].	After cleaning or replacing the relevant Rollers, go to step [3].
3	**Execution of a test print** Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [4].
4	**Connection check of ROS ASSY connector** Is the connector firmly connected to ROS ASSY?	Go to Step [5].	Connect the connector.
5	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [6].	Replace 2ND BTR ASSY. *(p.348)*
6	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [7].
7	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [8].
8	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [9].
9	**Check of image primary transfer process** Is the toner image on the drum transferred normally to IBT BELT? Also, are there any horizontal white bands? Execute a test print, turn the power OFF when you think that the primary transfer process is in progress during printing, and check the toner image on IBT BELT.	Go to Step [10].	Replace LV/HVPS. *(p.407)*

Step	Check	Yes	No
10	**Check of image secondary transfer process** Is the toner image on IBT BELT transferred normally to the paper? Execute a test print, turn the power OFF when you think that the image transfer process is in progress during printing, and check the paper.	Go to Step [11].	Replace LV/ HVPS. *(p.407)*
11	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Replace “ESS and possible parts that caused the error”.

FIP-P6 Vertical Black Lines


Leg_Sec001-007FA

☐ Problems

Vertical (along the paper feed direction) black lines appear on printout.

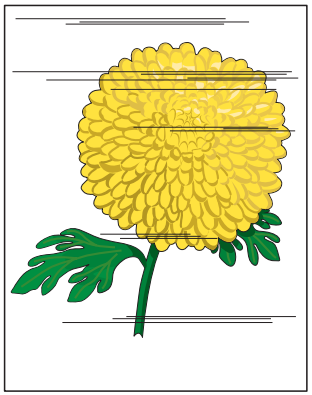
☐ ESS and possible parts that caused the error

- 2ND BTR ASSY
- Photoconductor Unit
- ROS ASSY
- PWBA MCU
- FUSER ASSY
- HOUSING ASSY-GUIDE AD
- PWBA ESS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Rollers on the paper feed path** Are Rollers on the paper feed path normal without any dirt, damage or wear?	Go to Step [3].	After cleaning or replacing the relevant Rollers, go to step [2].
2	**Execution of a test print** Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [3].
3	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [4].	Replace 2ND BTR ASSY *(p.348)*
4	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [5].
5	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [6].
6	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [7].
7	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Replace "ESS and possible parts that caused the error".

FIP-P7 Horizontal Black Lines



Leg_Sec001_008FA

☐ Problems

Horizontal (vertical to the paper feed direction) black lines appear on printout.

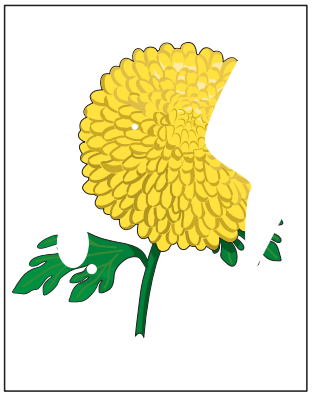
☐ ESS and possible parts that caused the error

- ROS ASSY
- 2ND BTR ASSY
- Photoconductor Unit
- LV/HVPS
- FUSER ASSY
- HOUSING ASSY-GUIDE AD
- PWBA MCU
- PWBA ESS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Connection check of ROS ASSY connector** Is the connector firmly connected to ROS ASSY?	Go to Step [2].	Connect the connector.
2	**Check of contact between Photoconductor Unit and frame** Are the contacts of Photoconductor Unit and HOUSING ASSY-GUIDE AD dirty or deformed?	Clean or replace relevant parts.	Go to step [3]
3	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [4].	Replace 2ND BTR ASSY *(p.348)*
4	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [5].
5	**Check after replacement of ROS ASSY** Replace ROS ASSY. *(p.375)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [6].
6	**Check of image primary transfer process** Is the toner image on the drum transferred normally to IBT BELT? Execute a test print, turn the power OFF when you think that the primary transfer process is in progress during printing, and check the toner image on IBT BELT.	Go to Step [7].	Replace LV/HVPS. *(p.407)*
7	**Check of image secondary transfer process** Is the toner image on IBT BELT transferred normally to the paper? Execute a test print, turn the power OFF when you think that the image transfer process is in progress during printing, and check the paper.	Go to Step [8].	Replace LV/HVPS. *(p.407)*
8	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Replace “ESS and possible parts that caused the error”.

FIP-P8 Image is Partially Not Printed


Leg_Sec001-009FA

☐ Problems

Some areas of the printed image are missing or extremely faint.

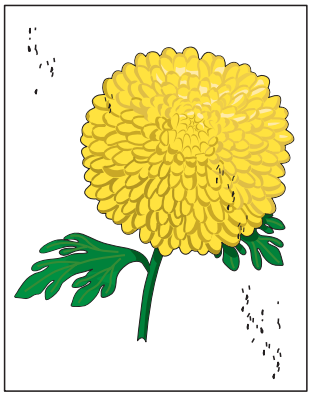
☐ ESS and possible parts that caused the error

- 2ND BTR ASSY
- Photoconductor Unit
- LV/HVPS
- FUSER ASSY
- PWBA MCU
- ROS ASSY
- PWBA ESS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Paper** Load new, dry recommended paper, and execute a test print. Is the image printed normally?	End of procedure	Go to Step [2].
2	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [3].	Replace 2ND BTR ASSY *(p.348)*
3	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [4].
4	**Check of image primary transfer process** Is the toner image on the drum transferred normally to IBT BELT? Execute a test print, turn the power OFF when you think that the primary transfer process is in progress during printing, and check the toner image on IBT BELT.	Go to Step [5].	Replace LV/HVPS. *(p.407)*
5	**Check of image secondary transfer process** Is the toner image on IBT BELT transferred normally to the paper? Execute a test print, turn the power OFF when you think that the image transfer process is in progress during printing, and check the paper.	Go to Step [6].	Replace LV/HVPS. *(p.407)*
6	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Go to Step [7].
7	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P9 Toner Smudges


Leg_Sec001_010FA

☐ Problems

Toner smudges appear randomly over the entire surface of the paper.

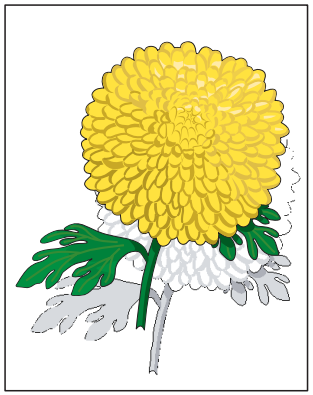
☐ ESS and possible parts that caused the error

- ROS ASSY
- Photoconductor Unit
- HOUSING ASSY-GUIDE AD
- 2ND BTR ASSY
- PWBA MCU
- LV/HVPS
- FUSER ASSY
- PWBA ESS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Rollers on the paper feed path** Are Rollers on the paper feed path normal without any dirt, damage or wear?	Go to Step [2].	After cleaning and replacing the relevant Rollers, go to step [2].
2	**Connection check of ROS ASSY connector** Is the connector firmly connected to ROS ASSY?	Go to Step [3].	Connect the connector.
3	**Check of contact between Photoconductor Unit and frame** Are the contacts of Photoconductor Unit and HOUSING ASSY-GUIDE AD dirty or deformed?	Clean or replace relevant parts.	Go to Step [4].
4	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [5].	Replace 2ND BTR ASSY. *(p.348)*
5	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [6].
6	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [7].
7	**Check after replacement of LV/HVPS** Replace LV/HVPS. *(p.407)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [8].
8	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Replace “ESS and possible parts that caused the error”.

FIP-P10 Residual Image


Leg_Sec001_011FA

☐ Problems

A ghost image appears on the printout. An image of the previous page or part of the currently printing page lap over like a ghost.

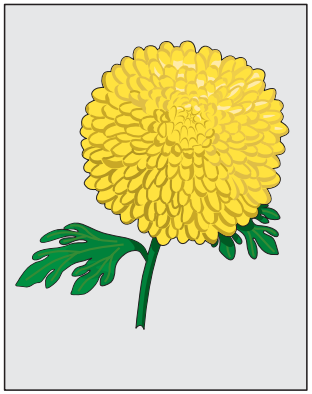
☐ ESS and possible parts that caused the error

- Photoconductor Unit
- HOUSING ASSY- GUIDE AD
- 2ND BTR ASSY
- FUSER ASSY
- ROS ASSY
- MOT ASSY MAG
- PWBA ESS
- PWBA MCU
- LV/HVPS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of repeated printing** Check the residual image Is the customer printing lots of the same images?	Go to Step [2].	Go to Step [3].
2	**Check of the residual image.** Print out 30 pages of various images. Did any residual images appear?	Go to Step [3].	End of procedure (Advise the customer not to print same image in large quantities at a time.)
3	**Check of contact between Photoconductor Unit and frame** Are the contacts of Photoconductor Unit and HOUSING ASSY-GUIDE AD dirty or deformed?	Clean or replace relevant parts.$	Go to Step [4].
4	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [5].
5	**Check of 2ND BTR ASSY** Remove 2ND BTR ASSY. *(p.348)* Is 2ND BTR ASSY normal without any dirt, damage or wear?	Go to Step [6].	Replace 2ND BTR ASSY. *(p.348)*
6	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Replace “ESS and possible parts that caused the error”.

FIP-P11 Dark or Dirty Background



Leg_Sec001_012FA

☐ Problems

The entire page or part of the page is dirtied with toner. It appears as extremely light gray dirt.

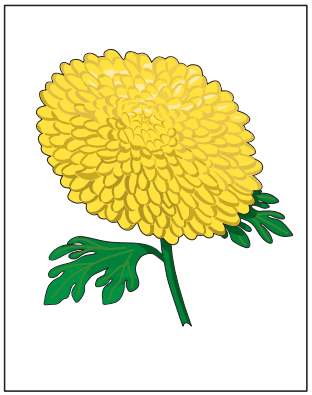
☐ ESS and possible parts that caused the error

- ROS ASSY
- Photoconductor Unit
- SENSOR ASSY ADC
- LV/HVPS
- HOUSING ASSY-GUIDE AD
- 2ND BTR ASSY
- PWBA MCU
- FUSER ASSY
- PWBA ESS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Connection check of ROS ASSY connector** Is the connector firmly connected to ROS ASSY?	Go to Step [2].	Connect the connector.
2	**Check of contact between Photoconductor Unit and frame** Are the contacts of Photoconductor Unit and HOUSING ASSY-GUIDE AD dirty or deformed?	Clean or replace relevant parts.	Go to Step [3].
3	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [4].
4	**Check of dirt and foreign bodies on surface of SENSOR ASSY ADC** Are there any dirt or foreign bodies on the SENSOR ASSY ADC surface?	Clean to remove any dirt or foreign bodies, and go to step [5].	Go to Step [6].
5	**Execution of a test print** Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [6].
6	**Check after replacement of SENSOR ASSY ADC** Replace SENSOR ASSY ADC. *(p.353)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [7].
7	**Check after replacement of LV/HVPS** Replace LV/HVPS. *(p.407)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P12 Skew Print



Leg_Sec001_013FA

☐ Problems

The printed image is not parallel to both sides of the paper.

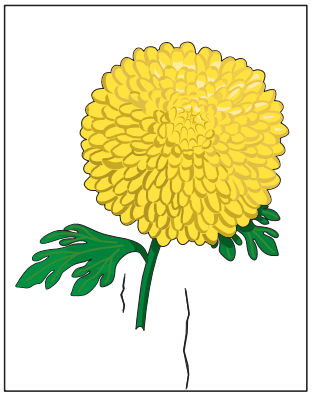
☐ ESS and possible parts that caused the error

- 500 PAPER CASSETTE ASSY
- PLATE ASSY BOTTOM 500
- Photoconductor Unit
- 2ND BTR ASSY
- FUSER ASSY
- PWBA ESS
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of printer installation surface** Is the printer installed on level surface? Also, are the printer's feet attached correctly?	Go to Step [2].	Correct the inappropriate installation.
2	**Check of paper feed** Remove the Paper Cassette, and load paper correctly. Attach the Paper Cassette correctly into the printer. Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [3].
3	**Operation check of PLATE ASSY BOTTOM 500 in the Paper Cassette** Remove the Paper Cassette. Does the PLATE ASSY BOTTOM 500 in the Paper Cassette rise up correctly without any inclination on the left or right sides?	Go to Step [4].	Re-attach PLATE ASSY BOTTOM. *(p.448)*
4	**Check the Rollers on the paper feed path for damage and wear, and check attachment.** Are Rollers on the paper feed path normal without any dirt, damage or wear? Also, are those Rollers attached correctly?	Go to Step [5].	Clean and re-attach, or replace the Roller in question, and go to Step [5].
5	**Check of Photoconductor Unit attachment** Is Photoconductor Unit attached correctly?	Go to Step [6].	Re-attach, and go to step [6].
6	**Execution of a test print** Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [7].
7	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Make a test print of the problem image. Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P13 Print Paper Damage



Leg_Sec001_014FA

☐ Problems

Is the printed out paper wrinkled, folded or frayed?

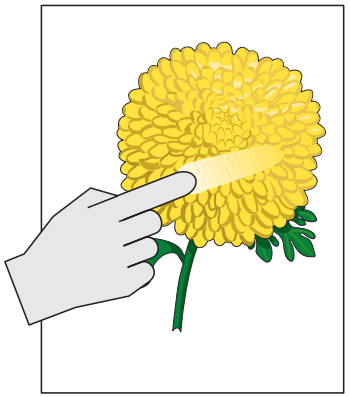
☐ ESS and possible parts that caused the error

- FUSER ASSY
- 2ND BTR ASSY
- ROS ASSY
- Photoconductor Unit
- PWBA ESS
- 500 PAPER CASSETTE ASSY
- PLATE ASSY BOTTOM 500
- 500 FEEDER ASSY OPTION

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Paper** Load new, dry recommended paper, and execute a test print. Is the image printed normally?	End of procedure	Go to Step [2].
2	**Check of paper feed path** Are there any dirt or obstacles on the paper feed path from the paper feed tray to the output section?	Remove dirt and obstacles.	Go to Step [3].
3	**Check of all Rollers on the paper feed path** Are all Rollers on the paper feed path normal without any dirt, damage or wear?	Go to Step [4].	Clean the relevant Rollers.
4	**Attachment check of FUSER ASSY** Is FUSER ASSY attached correctly?	Go to Step [5].	Re-attach.
5	**Check after replacement of FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Replace FUSER ASSY. *(p.388)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P14 Image Not Fixed



Leg_Sec001_015FA

☐ Problems

The printed image is not sufficiently fixed to the paper. The image is easily removed by rubbing it with your fingers.

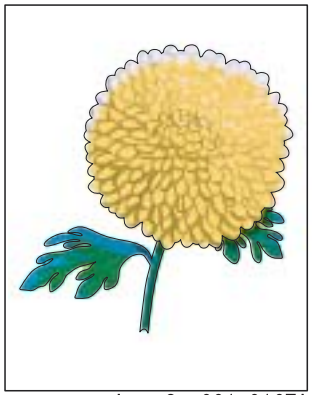
☐ ESS and possible parts that caused the error

- FUSER ASSY
- PWBA ESS
- PWBA MCU

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of Paper** Load new, dry recommended paper, and execute a test print. Is the image printed normally?	End of procedure	Go to Step [2].
2	**Check of print setup mode** Is the printer set to a Transfer Voltage suited to the type of paper in use?	Go to Step [3].	Adjust the Transfer Voltage.
3	**Check of Heat Roll and Pressure Roll** WARNING **Allow FUSER ASSY to cool down before performing work.** Remove FUSER ASSY. *(p.388)* Turn the Gear by hand, and inspect Heat Roll and Pressure Roll. Are Heat Roll and Pressure Roll scratched or dirty and damaged?	Replace FUSER ASSY. *(p.388)*	Go to Step [4].
4	**Check after replacement of FUSER ASSY** WARNING **Allow FUSER ASSY to cool down before performing work.** Replace FUSER ASSY. *(p.388)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Go to Step [5].
5	**Check after replacement of PWBA MCU** Replace PWBA MCU. *(p.404)* Make a test print of the problem image. Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P15 Color Shift



Leg_Sec001_016FA

☐ Problems

The printed Yellow or Black image does not accurately overlap the Cyan or Magenta image, and is out of position.

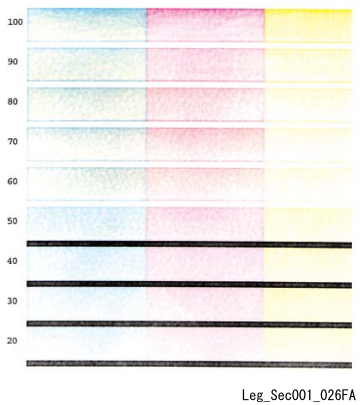
☐ ESS and possible parts that caused the error

- SENSOR TR-0
- Photoconductor Unit
- MOT ASSY P/R
- PWBA ESS

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check of SENSOR TR-0 attachment** Is SENSOR TR-0 attached correctly?	Go to Step [2].	Re-attach, and go to step [3].
2	**Check after replacement of Photoconductor Unit** Replace Photoconductor Unit. Is the image printed normally?	End of procedure	Go to Step [3].
3	**Check after replacement of MOT ASSY P/R** Replace MOT ASSY P/R. *(p.398)* Is the image printed normally?	End of procedure	Go to Step [4].
4	**Check after replacement of PWBA ESS** Replace PWBA ESS. *(p.409)* Is the image printed normally?	End of procedure	Replace “ESS and possible parts that caused the error”.

FIP-P16 Uneven Density/Thin-Spot



Leg_Sec001_026FA

☐ Problems

Uneven density/thin-spots appear on entire surface. This occurs due to disconnection of connector (P/J504) from LV/HVPS.

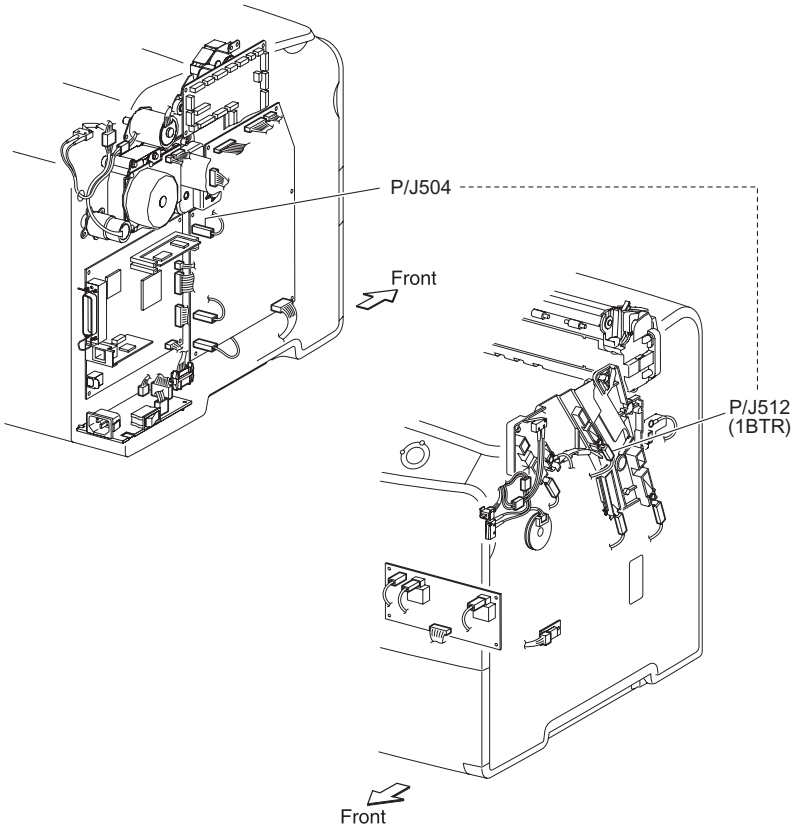
☐ ESS and possible parts that caused the error

- WIRE ASSY BTR
- LV/HVPS

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

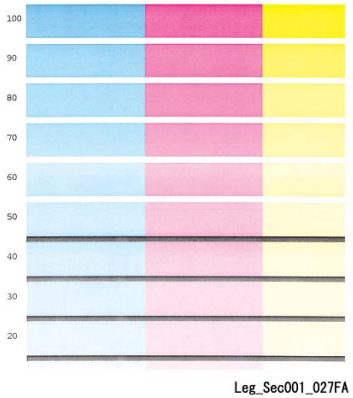
Step	Check	Yes	No
1	**Check the connectors for LV/HVPS.** Make sure that the connector (P/J504) on LV/HVPS and the connector (P/J512) on 1st BTR are connected properly. Print the problem image. Or, execute the test print. Was the trouble fixed?	End of procedure	Replace "ESS and possible parts that caused the error".

☐ Connecting location of the connectors



Leg_Sec001_021FA

FIP-P17 Entirely Faint



☐ Problems

The color over the entire surface is faint. This occurs due to disconnection of connector (P/J509) from LV/HVPS.

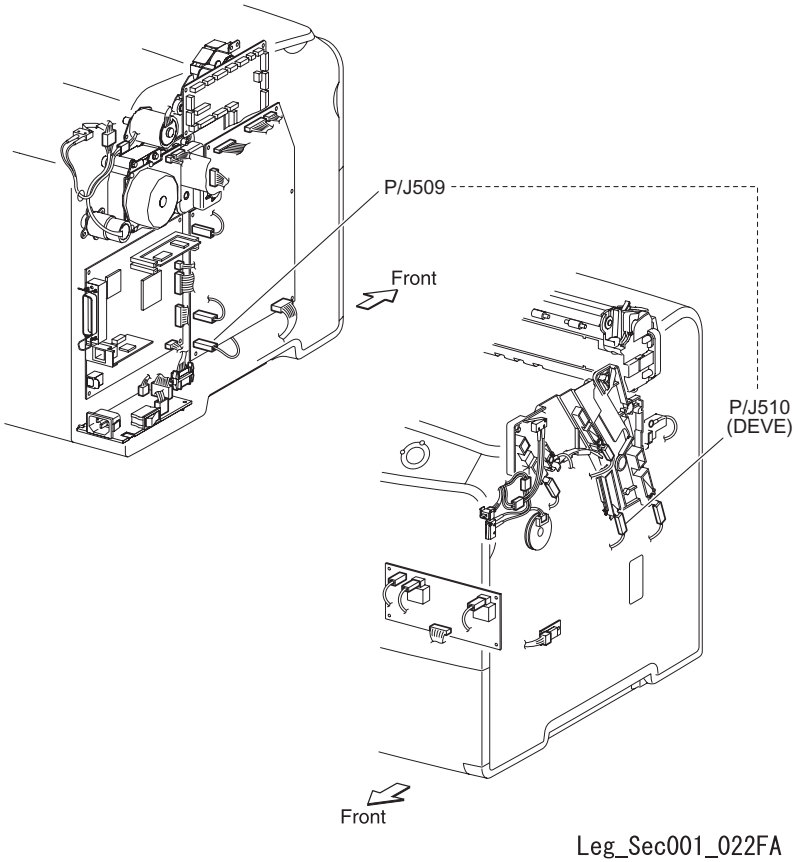
☐ ESS and possible parts that caused the error

- ■ WIRE ASSY DEVE
- ■ LV/HVPS

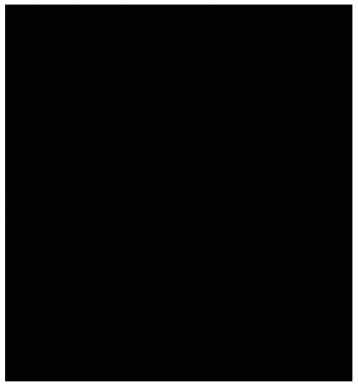
Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check the connectors for LV/HVPS.** Make sure that the connector (P/J509) on LV/HVPS and the connector (P/J510) on DEVE are connected properly. Print the problem image. Or, execute the test print. Was the trouble fixed?	End of procedure	Replace “ESS and possible parts that caused the error”.

☐ Connecting location of the connectors



FIP-P18 Entirely Fogged in Black



Leg_Sec001_030FA

☐ Problems

All of the four colors are printed all over the page resulting in completely black printout. This occurs due to disconnection of connector (P/J508) from LV/HVPS.

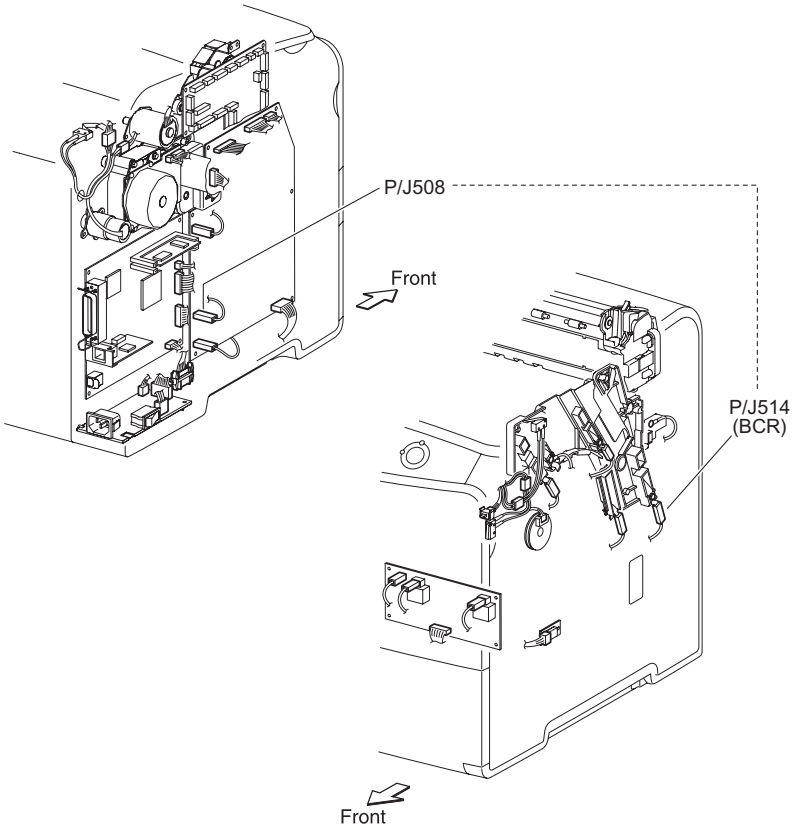
☐ ESS and possible parts that caused the error

- WIRE ASSY BCR
- LV/HVPS

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

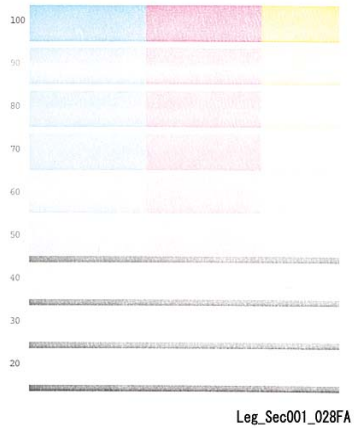
Step	Check	Yes	No
1	**Check the connectors for LV/HVPS.** Make sure that the connector (P/J508) on LV/HVPS and connector (P/J514) on BCR are connected properly. Print the problem image. Or, execute the test print. Was the trouble fixed?	End of procedure	Replace "ESS and possible parts that caused the error".

☐ Connecting location of the connectors



Leg_Sec001_023FA

FIP-P19 Entirely Thin



Leg_Sec001_028FA

☐ Problems

Strong faintness occurs on entire surface. This occurs due to disconnection of connector (P/J505) from PWBA HVPS.

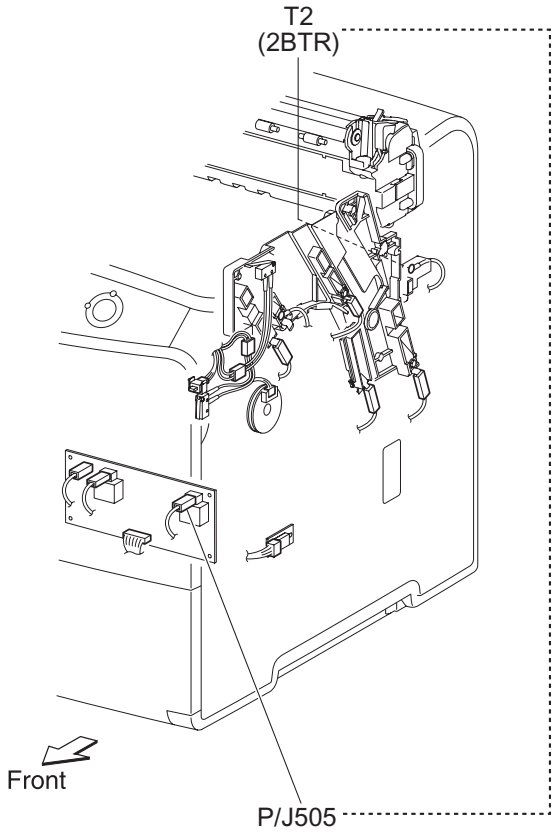
☐ ESS and possible parts that caused the error

- ■ WIRE ASSY 2BTR
- ■ PWBA HVPS

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

Step	Check	Yes	No
1	**Check connector of PWBA HVPS.** Check connection of connector (P/J505) of PWBA. Also, make sure that 2ND BTR ASSY that contacts with T2 shown in the figure left is correctly attached. Print the problem image. Or, execute the test print. Was the trouble fixed?	End of procedure	Replace "ESS and possible parts that caused the error".

☐ Connecting location of the connectors



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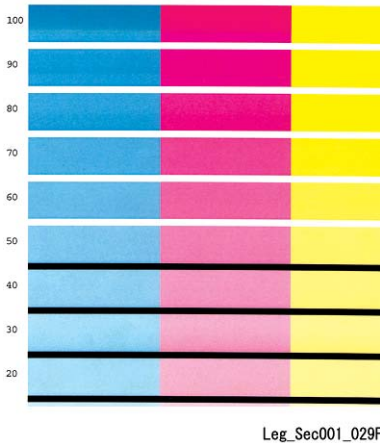
FIP-P20 Uneven Density in Horizontal Direction



☐ Problems

Uneven density in the horizontal direction in high-density color areas (color is faint in a stripe pattern) is occurring. This occurs due to disconnection of connector (P/J506) from PWBA HVPS.

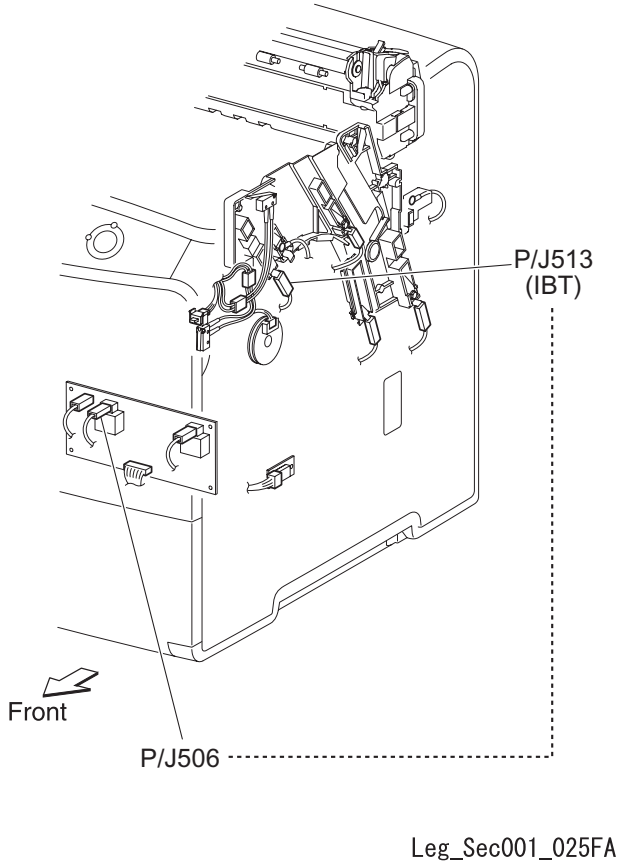
☐ ESS and possible parts that caused the error

- ■ WIRE ASSY IBT
- ■ PWBA HVPS

Before starting troubleshooting, inspect the feed path of the printer paper. Check the paper feed path for metal staples, paper clips, paper scraps, and other foreign matter.

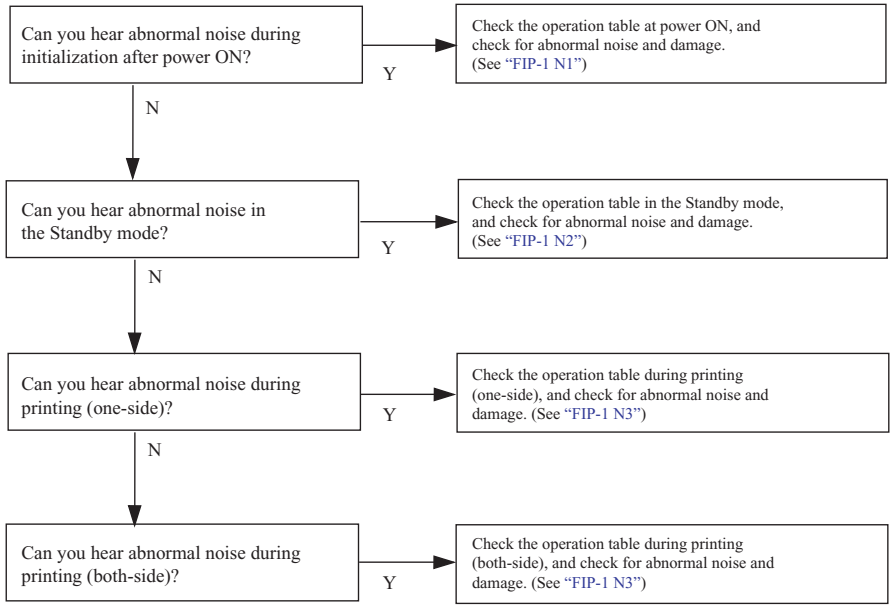
Step	Check	Yes	No
1	**Check the connectors for PWBA HVPS.** Make sure that the connector (P/J506) on PWBA and the connector (P/J513) on IBT are connected properly. Print the problem image. Or, execute the test print. Was the trouble fixed?	End of procedure	Replace "ESS and possible parts that caused the error".

☐ Connecting location of the connectors



3.5 Abnormal Noise-related Trouble

3.5.1 Abnormal noise-related troubleshooting entry chart



3.5.2 Abnormal Noise-related FIP

FIP-N1 At Power On

☐ Possible parts that caused the error

- MOT ASSY ROT
- MOT ASSY MICRO
- Photoconductor Unit
- FRAME ASSY-PH
- FRAME ASSY-ROTARY
- 2ND BTR ASSY
- MOT ASSY P/R
- ROLL MSI

☐ Troubleshooting

Step	Check	Yes	No
1	**Is abnormal noise being generated by MOT ASSY ROT?**	Replace MOT ASSY ROT.	Go to Step [2].
2	**Is abnormal noise being generated by FRAME ASSY-ROTARY that is driven by MOT ASSY ROT?**	Clean or replace FRAME ASSY-ROTARY.	Go to Step [3].
3	**Is abnormal noise being generated by MOT ASSY MICRO?**	Replace MOT ASSY MICRO.	Go to Step [4].
4	**Is abnormal noise being generated by 2ND BTR ASSY that is driven by MOT ASSY MICRO?**	Clean or replace 2ND BTR ASSY.	Go to Step [5].
5	**Is abnormal noise being generated by MOT ASSY P/R?**	Replace MOT ASSY P/R.	Go to Step [6].
6	**Is abnormal noise being generated from inside Photoconductor Unit?**	Replace Photoconductor Unit.	Go to Step [7].
7	**Is abnormal noise being generated by MOTOR-PH inside FRAME ASSY-PH?**	Replace FRAME ASSY-PH.	Go to Step [8].
8	**Is abnormal noise being generated from ROLL ASSY-PRE REGI in FRAME ASSY-PH that is driven by MOTOR-PH?**	Clean or replace ROLL ASSY-PRE REGI.	Go to Step [9].
9	**Is abnormal noise being generated from ROLL REGI RUBBER in FRAME ASSY-PH that is driven by MOTOR-PH?**	Clean or replace ROLL ASSY-REGI.	Go to Step [10].
10	**Is abnormal noise being generated from ROLL MSI that is driven by MOTOR-PH?**	Clean or replace ROLL MSI.	

FIP-N2 At Standby

☐ Possible parts that caused the error

- ■ MOT ASY FSR
- ■ FUSER ASSY
- ■ 2ND BTR ASSY

☐ Troubleshooting

Step	Check	Yes	No
1	**Is abnormal noise being generated from MOT ASSY FSR?** (It rotates when the temperature of FUSER ASSY reaches the specified value)	Replace MOT ASSY FSR.	Go to Step [2].
2	**Is abnormal noise being generated by FUSER ROLL in FUSER ASSY that is driven by MOT ASSY FSR?**	Clean or replace FUSER ROLL.	Go to Step [3].
3	**Is abnormal noise being generated from 2ND BTR ASSY that is driven by MOT ASSY FSR?**	Clean or replace 2ND BTR ASSY.	

FIP-N3 At Printing (One Side)

☐ Possible parts that caused the error

- 500 FEEDER ASSY OPTION
- ROLL MSI
- FUSER ASSY
- MOT ASSY P/R
- MOT ASSY MAG
- HOUSING ASSY-DEVE Y
- HOUSING ASSY-DEVE C
- FRAME ASSY-ROTARY
- FRAME ASSY-2ND
- FRAME ASSY-PH
- MOT ASY FSR
- 2ND BTR ASSY
- Photoconductor Unit
- HOUSING ASSY-DEVE K
- HOUSING ASSY-DEVE M
- MOT ASSY ROT
- MOT ASSY MICRO
- ROS ASSY

☐ Troubleshooting

Step	Check	Yes	No
1	**Is abnormal noise being generated from DRIVE ASSY FEED in 500 FEEDER ASSY OPTION?**	Replace 500 FEEDER ASSY OPTION.	Go to Step [2].
2	**Is abnormal noise being generated from ROLL ASSY TURN 500 that is driven by DRIVE ASSY FEED in 500 FEEDER ASSY OPTION?**	Clean or replace ROLL ASSY TURN 500.	Go to Step [3].
3	**Is abnormal noise being generated from ROLL ASSY FEED 500 that is driven by DRIVE ASSY FEED in 500 FEEDER ASSY OPTION?**	Clean or replace ROLL ASSY FEED 500.	Go to Step [4].
4	**Is abnormal noise being generated by MOTOR-PH inside FRAME ASSY-PH?**	Replace FRAME ASSY-PH.	Go to Step [5].
5	**Is abnormal noise being generated from ROLL ASSY-PRE REGI in FRAME ASSY-PH that is driven by MOTOR-PH?**	Clean or replace ROLL ASSY-PRE REGI.	Go to Step [6].
6	**Is abnormal noise being generated from ROLL REGI RUBBER in FRAME ASSY-PH that is driven by MOTOR-PH?**	Clean or replace ROLL REGI RUBBER.	Go to Step [7].
7	**Is abnormal noise being generated from ROLL MSI that is driven by MOTOR-PH?**	Clean or replace ROLL MSI.	Go to Step [8].
8	**Is abnormal noise being generated from GEAR ASSY DRIVE that is driven by MOTOR-PH?**	Replace FRAME ASSY-PH.	Go to Step [9].
9	**Is abnormal noise being generated from MOT ASSY FSR?**	Replace MOT ASSY FSR.	Go to Step [10].
10	**Is abnormal noise being generated by FUSER ROLL in FUSER ASSY that is driven by MOT ASSY FSR?**	Replace FUSER ASSY.	Go to Step [11].
11	**Is abnormal noise being generated from 2ND BTR ASSY that is driven by MOT ASSY FSR?**	Clean or replace 2ND BTR ASSY.	Go to Step [12].
12	**Is abnormal noise being generated by EXIT ROLL in FUSER ASSY that is driven by MOT ASSY FSR?**	Clean or replace FUSER ASSY.	Go to Step [13].
13	**Is abnormal noise being generated by MOT ASSY P/R?**	Replace MOT ASSY P/R.	Go to Step [14].
14	**Is abnormal noise being generated from inside Photoconductor Unit?**	Replace Photoconductor Unit.	Go to Step [15].
15	**Is abnormal noise being generated by MOT ASSY MAG?**	Replace MOT ASSY MAG.	Go to Step [16].
16	**Is abnormal noise being generated from HOUSING ASSY-DEVE K, HOUSING ASSY-DEVE Y, HOUSING ASSY-DEVE M, or HOUSING ASSY-DEVE C that are driven by MOT ASSY MAG?**	Replace HOUSING ASSY-DEVE K, HOUSING ASSY-DEVE Y, HOUSING ASSY-DEVE M, or HOUSING ASSY-DEVE C.	Go to Step [17].

Step	Check	Yes	No
17	**Is abnormal noise being generated by MOT ASSY ROT?**	Replace MOT ASSY ROT.	Go to Step [18].
18	**Is abnormal noise being generated by FRAME ASSY-ROTARY that is driven by MOT ASSY ROT?**	Replace FRAME ASSY-ROTARY.	Go to Step [19].
19	**Is abnormal noise being generated by MOT ASSY MICRO?**	Replace MOT ASSY MICRO.	Go to Step [20].
20	**Is abnormal noise being generated by FRAME ASSY-2ND that is driven by MOT ASSY MICRO?**	Replace FRAME ASSY-2ND.	Go to Step [21].
21	**Is abnormal noise being generated by ROS ASSY?**	Replace ROS ASSY.	

FIP-N4 At Printing (Both Sides)

☐ Possible parts that caused the error

- 500 FEEDER ASSY OPTION
- ROLL MSI
- FUSER ASSY
- MOT ASSY P/R
- MOT ASSY MAG
- HOUSING ASSY-DEVE Y
- HOUSING ASSY-DEVE C
- FRAME ASSY-ROTARY
- FRAME ASSY-2ND
- ROS ASSY
- FRAME ASSY-PH
- MOT ASY FSR
- 2ND BTR ASSY
- Photoconductor Unit
- HOUSING ASSY-DEVE K
- HOUSING ASSY-DEVE M
- MOT ASSY ROT
- MOT ASSY MICRO
- DUPLEX ASSY

☐ Troubleshooting

Step	Check	Yes	No
1	**Is abnormal noise being generated from DRIVE ASSY FEED in 500 FEEDER ASSY OPTION?**	Replace 500 FEEDER ASSY OPTION.	Go to Step [2].
2	**Is abnormal noise being generated from ROLL ASSY TURN 500 that is driven by DRIVE ASSY FEED in 500 FEEDER ASSY OPTION?**	Clean or replace ROLL ASSY TURN 500.	Go to Step [3].
3	**Is abnormal noise being generated from ROLL ASSY FEED 500 that is driven by DRIVE ASSY FEED in 500 FEEDER ASSY OPTION?**	Clean or replace ROLL ASSY FEED 500.	Go to Step [4].
4	**Is abnormal noise being generated by MOTOR-PH inside FRAME ASSY-PH?**	Replace FRAME ASSY-PH.	Go to Step [5].
5	**Is abnormal noise being generated from ROLL ASSY-PRE REGI in FRAME ASSY-PH that is driven by MOTOR-PH?**	Clean or replace ROLL ASSY-PRE REGI.	Go to Step [6].
6	**Is abnormal noise being generated from ROLL REGI RUBBER in FRAME ASSY-PH that is driven by MOTOR-PH?**	Clean or replace ROLL REGI RUBBER.	Go to Step [7].
7	**Is abnormal noise being generated from ROLL MSI that is driven by MOTOR-PH?**	Clean or replace ROLL MSI.	Go to Step [8].
8	**Is abnormal noise being generated from GEAR ASSY DRIVE that is driven by MOTOR-PH?**	Replace FRAME ASSY-PH.	Go to Step [9].
9	**Is abnormal noise being generated from MOT ASSY FSR?**	Replace MOT ASSY FSR.	Go to Step [10].
10	**Is abnormal noise being generated by FUSER ROLL in FUSER ASSY that is driven by MOT ASSY FSR?**	Replace FUSER ASSY.	Go to Step [11].
11	**Is abnormal noise being generated from 2ND BTR ASSY that is driven by MOT ASSY FSR?**	Clean or replace 2ND BTR ASSY.	Go to Step [12].
12	**Is abnormal noise being generated by EXIT ROLL in FUSER ASSY that is driven by MOT ASSY FSR?**	Clean or replace FUSER ASSY.	Go to Step [13].
13	**Is abnormal noise being generated by MOT ASSY P/R?**	Replace MOT ASSY P/R.	Go to Step [14].
14	**Is abnormal noise being generated from inside Photoconductor Unit?**	Replace Photoconductor Unit.	Go to Step [15].
15	**Is abnormal noise being generated by MOT ASSY MAG?**	Replace MOT ASSY MAG.	Go to Step [16].

Step	Check	Yes	No
16	**Is abnormal noise being generated from HOUSING ASSY-DEVE K, HOUSING ASSY-DEVE Y, HOUSING ASSY-DEVE M, or HOUSING ASSY-DEVE C that are driven by MOT ASSY MAG?**	Replace HOUSING ASSY-DEVE K, HOUSING ASSY-DEVE Y, HOUSING ASSY-DEVE M, or HOUSING ASSY-DEVE C.	Go to Step [17].
17	**Is abnormal noise being generated by MOT ASSY ROT?**	Replace MOT ASSY ROT.	Go to Step [18].
18	**Is abnormal noise being generated by FRAME ASSY-ROTARY that is driven by MOT ASSY ROT?**	Replace FRAME ASSY-ROTARY.	Go to Step [19].
19	**Is abnormal noise being generated by MOT ASSY MICRO?**	Replace MOT ASSY MICRO.	Go to Step [20].
20	**Is abnormal noise being generated by FRAME ASSY-2ND that is driven by MOT ASSY MICRO?**	Replace FRAME ASSY-2ND.	Go to Step [21].
21	**Is abnormal noise being generated from MOTOR ASSY DUP INV in DUPLEX OPTION?**	Replace DUPLEX OPTION.	Go to Step [22].
22	**Is abnormal noise being generated from ROLLER ASSY INVERTER that is driven by MOTOR ASSY DUP INV in DUPLEX OPTION?**	Clean or replace ROLLER ASSY INVERTER.	Go to Step [23].
23	**Is abnormal noise being generated from MOTOR ASSY DUP in DUPLEX OPTION?**	Replace DUPLEX OPTION.	Go to Step [24].
24	**Is abnormal noise being generated from ROLLER ASSY DUP that is driven by MOTOR ASSY DUP in DUPLEX OPTION?**	Clean or replace ROLLER ASSY DUP.	Go to Step [25].
25	**Is abnormal noise being generated from ROLLER ASSY DUP OUT that is driven by MOTOR ASSY DUP in DUPLEX OPTION?**	Clean or replace ROLLER ASSY DUP OUT.	Go to Step [26].
26	**Is abnormal noise being generated by ROS ASSY?**	Replace ROS ASSY.	

3.6 Test Print

3.6.1 Overview

To check the IOT operation, it is possible to print PWBA MCU built-in sample continuously without being routed through the controller. If the problem does not occur on the PWBA MCU built-in sample, the cause of the problem may be controller.

3.6.2 Printing Procedure of Test Print Pattern

1. Remove the COVER ASSY LH. *(p.295)*

WARNING

Never touch the energized or driving part when performing the following procedure.

2. Set paper into MSI and turn the power on.
3. In Ready mode, short-circuit the pad for test print on the PWBA MCU with a small screwdriver or a similar tool. The pad is located at upper right of the interface connector (P411).

WARNING

When short-circuiting the pad, be careful not to contact the other elements by hand or tool.

CAUTION

- **1 sheet of test print is printed out by 1 time of short-circuiting.**
- **It cannot be printed when the engine is in error status.**
- **As for Ready mode, refer to "2.7 Operating Modes" *(p.109)***

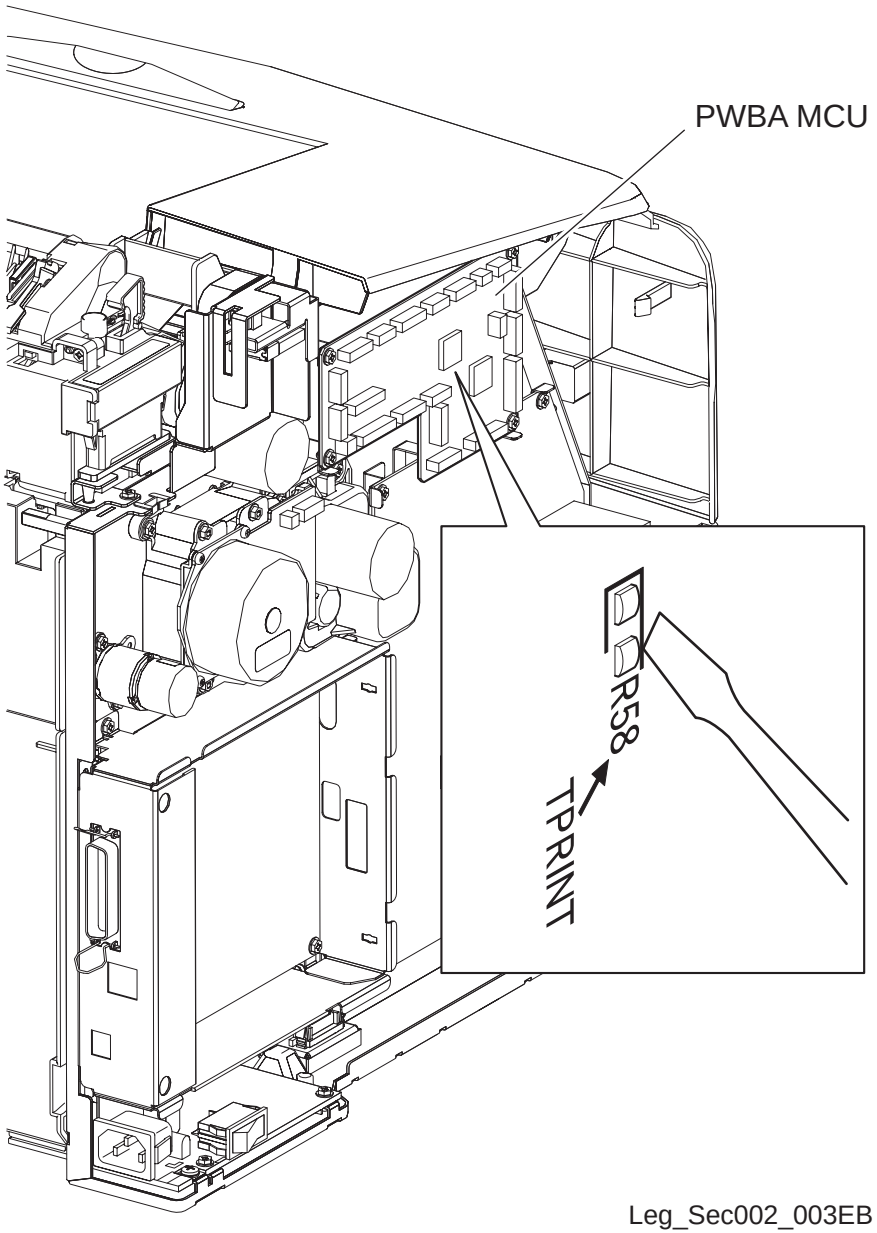


Figure 3-5. Printing Test print Pattern

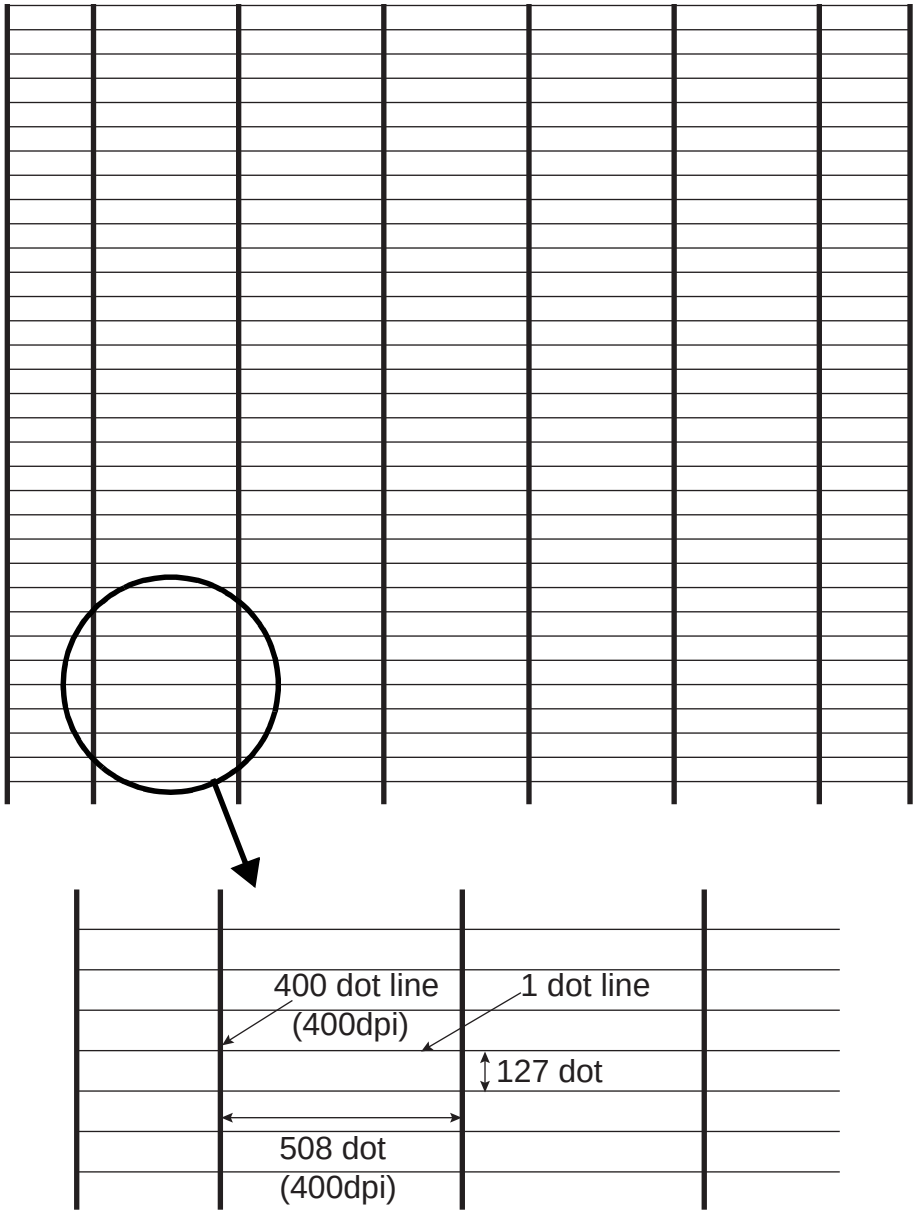


Figure 3-6. Test Print Pattern

CHAPTER

4

DISASSEMBLY AND ASSEMBLY

4.1 Overview

This section describes procedures for disassembling the main components of the product. Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

Procedures which, if not strictly observed, could result in personal injury are described under the heading “WARNING”.

“CAUTION” signals a precaution which, if ignored, could result in damage to equipment.

Important tips for procedures are described under the heading “CHECK POINT”.

If the assembly procedure is different from the reversed disassembly procedure, the correct procedure is described under the heading “REASSEMBLY”.

Any adjustments required after reassembly of components or parts are described under the heading “ADJUSTMENT REQUIRED”.

When you have to remove any units or parts that are not described in this chapter, refer to the exploded diagrams in the appendix.

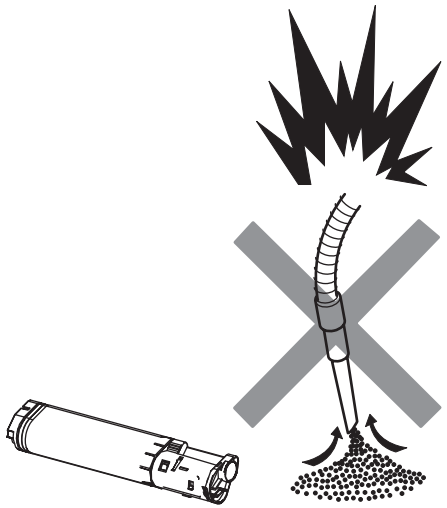
4.1.1 Precautions

The precautions below (WARNING and CAUTION), must always be followed during disassembly and assembly.

- **Disconnect the power cable before disassembling or assembling the printer. If you need to work on the printer with power applied, strictly follow the instructions in this manual.**
- **Always wear gloves for disassembly and reassembly to avoid injury from sharp metal edges.**
- **To protect sensitive microprocessors and circuitry, use static discharge equipment, such as anti-static wrist straps, when accessing internal components.**
- **Be aware that letting the laser beam get into your eye directly could result in loss of vision.**
- **Never open any cover on which a Warning Label for Laser Beam is attached.**
- **Use extreme caution to avoid injury of yourself and anyone around you with a clear understanding of hazardous nature of the laser beam.**
- **The Fuser unit and other high-temperature parts remain at hazardous temperature for a certain period of time even after stop of operation and turning off of the power. To prevent suffering a burn, be sure to wait after power turning off until the temperature of the parts cool down to a safe level, and then start working on the printer.**
- **To avoid dust explosion or ignition, never bring any consumables close to flame or throw them into fire.**
- **When developer or oil stuck to your skin or clothes, wipe it off with a dry cloth carefully and wash it off with water immediately.**

WARNING

- **Be careful not to let the developer or toner get into your eye or mouth, and not to inhale it. And also care should be taken for people around you to prevent them from the same thing. (Spread a sheet of paper inside and around the printer to prevent soiling.)**
- **Since there are many different screws, use them in correct positions. Be extremely careful of the difference between the screws for resin and those for sheet metal. If the screw for resin is mistaken for the screw for sheet metal, its threads will be broken, leading to a crushed screw hole or trouble.**
- **Do not pick up the spilt toner with a vacuum cleaner (for home use). To do so may cause the sucked toner particles to catch fire by sparks of the electric contacts. If the toner has spilt on the floor, etc., clean it with a broom or wipe it with a cloth moistened with neural detergent. If it is necessary to clean a lot of spilt toner with a cleaner, use a cleaner exclusively designed for toner.**



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WARNING

- **Use only recommended tools for disassembling, assembling or adjusting the printer.**
- **Apply lubricants and adhesives as specified.**
- **Make the specified adjustments when you disassemble the printer. (Refer to Chapter5 for details.)**

4.1.2 Before you start work

This chapter describes the procedures for removing and attaching the main parts of the printer with the printer broken down into 12 main components according to the parts list.

Category	Disassembly/Reassembly Reference Page (Section No.)
COVER	p.283 *(4.2)*
MSI	p.304 *(4.3)*
PH ASSY	p.324 *(4.4)*
TRANSFER	p.341 *(4.5)*
XERO	p.361 *(4.6)*
ROS	p.375 *(4.7)*
DEVE	p.378 *(4.8)*
FUSER	p.388 *(4.9)*
DRIVE	p.393 *(4.10)*
ELECTRICAL	p.400 *(4.11)*
DUPLEX	p.412 *(4.12)*
500 PAPER CASSETTE & 500 PAPER FEEDER	p.446 *(4.13)*

- **When performing work on parts controlled as spare parts which the disassembling procedures are not given in this manual, fully observe how they are attached before starting work.**
- **In principle, options must already have been removed before starting work. However, if there is no need to remove them, it is allowed to service with them attached.**

- ☐ Turn the printer OFF, and disconnect the power cord before starting work.
- ☐ Before disassembling the printer, remove Photoconductor Unit.
- ☐ If necessary, remove DUPLEX before disassembling the printer.
- ☐ Before performing work around FUSER ASSY, allow the FUSER ASSY and its surrounding area to sufficiently cool down.
- ☐ Take sufficient care during work as exerting unnecessary force may damage parts or cause them to malfunction.
- ☐ Avoid staticky places such as on a carpet when servicing.
- ☐ Wear a wrist strap to discharge static electricity from the human body, whenever possible. When must work without an antistatic wrist band or any other goods for static protection, touch metallic portion of the printer connected to the earth before getting started.
- ☐ After work is finished, use CLEANER ASSY to clean the window of ROS ASSY.

4.1.3 List of Screws

Many types of screws are used on this printer. Do not mistakenly attach them at the wrong positions. Pay special attention when handling screws for plastic and screws for metal plates. If you mix up these screws, screw holes will be damaged. Screw threads also will be damaged, which may cause further trouble.

CAUTION

Positions inscribed with the letter "T" on the frame indicate screws for plastic.

Table 4-1. List of screws

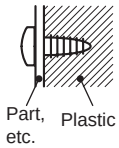
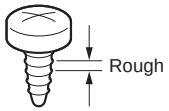
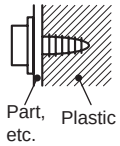
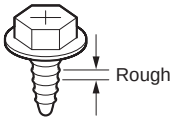
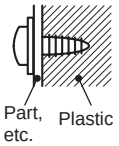
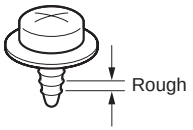
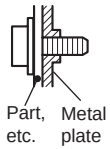
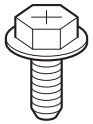
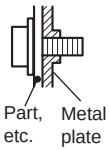
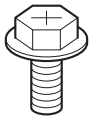
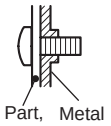
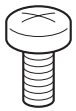
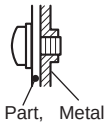
No.	Type	Application	Shape	How to Recognize Screw Type	Cautions
1	For plastic Screw Silver tapping	Resin 		• Silver colored • Screw threads are rougher than metal plate TYPE • Screw tip is fine.	This is a self-tapping screw. It threads the screw hole, so take care not to screw it diagonally.
2	For plastic Screw Silver tapping with flange	Plastic 		• Silver colored • With flange • Screw threads are rougher than metal plate TYPE • Screw tip is fine.	This is a self-tapping screw. It threads the screw hole, so take care not to screw it diagonally
3	For plastic Screw Silver tapping with washer	Plastic 		• Silver colored • With washer • Screw threads are rougher than metal plate TYPE • Screw tip is fine.	This is a self-tapping screw. It threads the screw hole, so take care not to screw it diagonally
4	For metal plate Screw Silver tapping with flange	Metal plate 		• Silver colored • With flange • Screw tip is slightly fine.	This is a self-tapping screw. It threads the screw hole, so take care not to screw it diagonally
5	For metal plate Screw Silver tapping with flange	Metal plate 		• Silver colored • With flange • Uniform screw diameter	

Table 4-1. List of screws

No.	Type	Application	Shape	How to Recognize Screw Type	Cautions
6	For metal plate Screw Silver	Metal plate 		• Silver colored • Uniform screw diameter	
7	For metal plate Screw Silver with external toothed washer	Metal plate 		• Silver colored • With external toothed washer • Uniform screw diameter	

4.1.4 Tools

Use only specified tools to avoid damaging the printer.

Name	Commercial Availability	Code
Phillips screwdriver No.1	Available	B743800100
Phillips screwdriver No.2	Available	B743800500
Slotted screwdriver	Available	B743000100
Cutting pliers	Available	B740400100
Tweezers	Available	---
E-Ring holder	Available	---

4.1.5 Conventions used in descriptions of procedures

- Expressions relating to directions in procedures are defined as follows:
  - FRONT : Front direction facing the front side of the printer
  - REAR : Rear direction facing the front side of the printer
  - LEFT : Left direction facing the front side of the printer
  - RIGHT : Right direction facing the front side of the printer

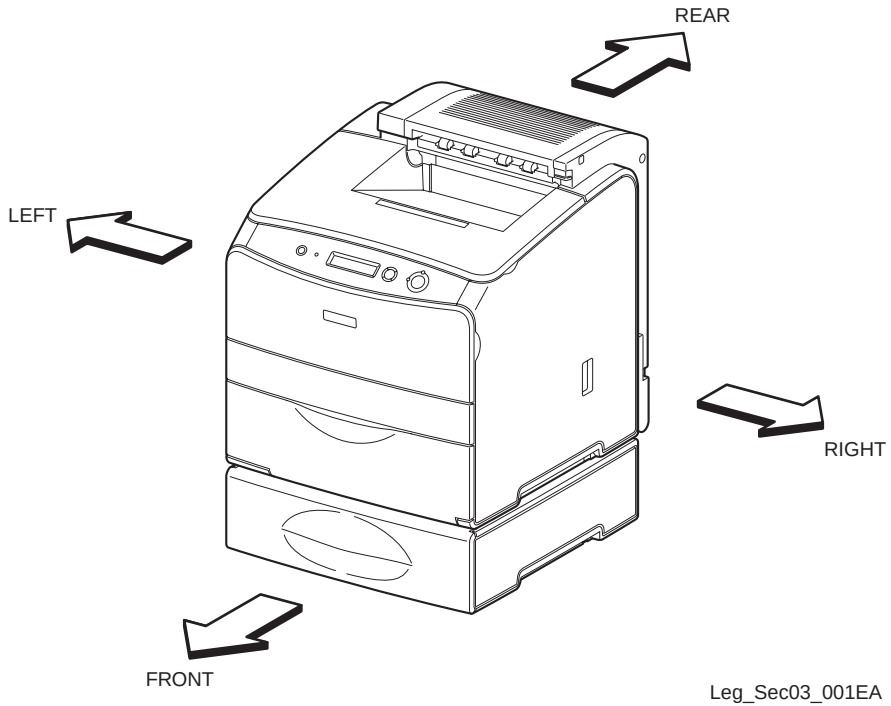


Figure 4-1. Definition of Printer Orientation

- Sections in procedures described as “In the case of the … specification” refer to work to be performed on printers of a specific specification. (Work is not to be performed on printers that do not fall under this specification.)
- Screws in illustrations are to be loosened and removed using a Phillips screwdriver unless otherwise specified.
- Black arrows in illustrations indicate that the part should be moved in the indicated direction.
  When black arrows are given a consecutive number, this indicates that they should be moved in the indicated order.
- For details on positions of connectors (P/J), refer to “ APPENDIX” *(p510)*

4.2 COVER

4.2.1 COVER ASSY TOP

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove the 2 E-rings fastening COVER ASSY TOP to the main unit.
3. Open COVER ASSY TOP and side it to the right to remove it.

REINSTALLATION

1. Attach COVER ASSY TOP to the printer with the COVER ASSY TOP opened.

CAUTION

When performing the following work, use the outer of the two grooves located on the stud.

2. Fasten COVER ASSY TOP with the 2 E-rings.
3. Attach COVER ASSY RH. *(p.301)*

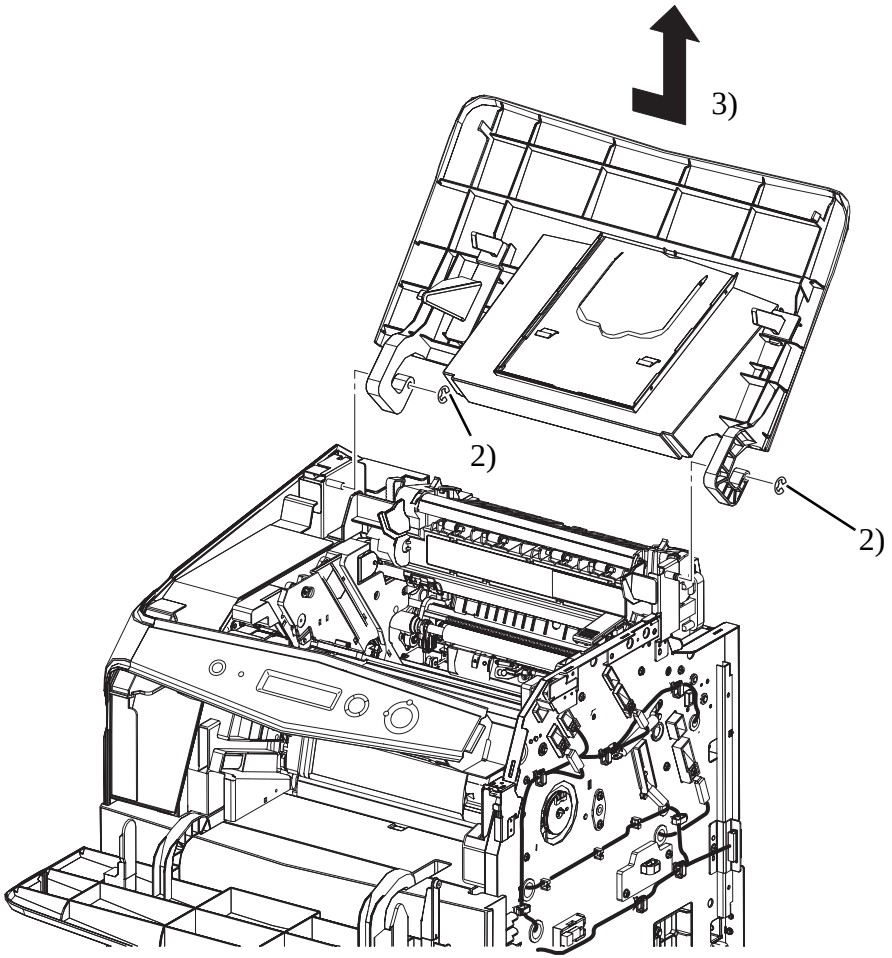


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Figure 4-2. Removal of COVER ASSY TOP

4.2.2 TRAY EXTENSION, COVER TRAY

REMOVAL

1. Draw out COVER TRAY until it comes to a stop.
2. Open COVER ASSY TOP.
3. Unhook the hook fastening COVER TRAY to COVER ASSY TOP, and remove COVER TRAY together with TRAY EXTENSION.
4. Open TRAY EXTENSION.

CAUTION

When performing the following work, take care not to damage the TRAY EXTENSION boss.

5. Bend the TRAY EXTENSION boss with a small screw driver or similar tool, and draw out and remove the TRAY EXTENSION boss from the hole on COVER TRAY.

REINSTALLATION

CAUTION

When performing the following work, take care not to damage the TRAY EXTENSION boss.

1. With TRAY EXTENSION opened, insert the boss on one side of the TRAY EXTENSION into the hole on COVER TRAY, and attach the TRAY EXTENSION boss on the other side into the hole on COVER TRAY while bending down the TRAY EXTENSION boss.
2. Close TRAY EXTENSION.
3. Align COVER TRAY with the attachment position on COVER ASSY TOP, and attach COVER TRAY together with TRAY EXTENSION.
4. Close COVER ASSY TOP.
5. Push in COVER TRAY gently until it comes to a stop.

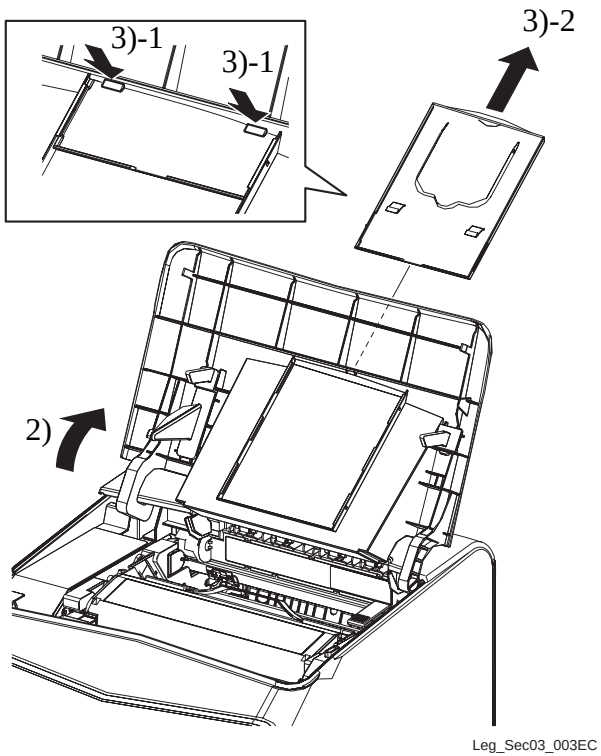

Figure 4-3. Removal of TRAY EXTENSION and COVER TRAY (1)

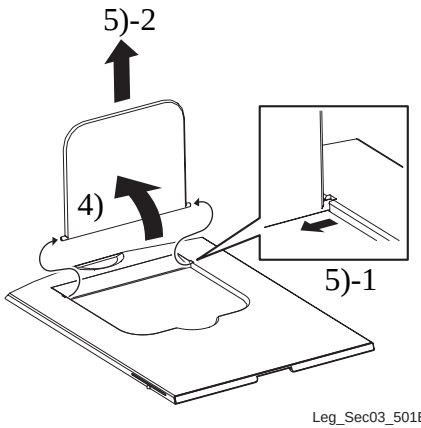

Figure 4-4. Removal of TRAY EXTENSION and COVER TRAY (2)

4.2.3 COVER FUSER

REMOVAL

1. Open COVER FUSER.
2. Draw out the COVER RH boss from the hole on COVER FUSER while pushing COVER RH outward, and remove COVER FUSER.

REINSTALLATION

CAUTION

When performing the following work, firmly insert the protrusions on the left and right sides of COVER FUSER into the respective inner sides of COVER LH and COVER RH.

1. With COVER FUSER opened, insert the hole on the left side of COVER FUSER into the COVER LH boss while inserting the protrusion on the left side of COVER FUSER into the inside of COVER LH, and insert the COVER RH boss into the hole on the right side of COVER FUSER to attach while inserting the protrusion on the right side of COVER FUSER into the inside of COVER RH.
2. Close COVER FUSER.

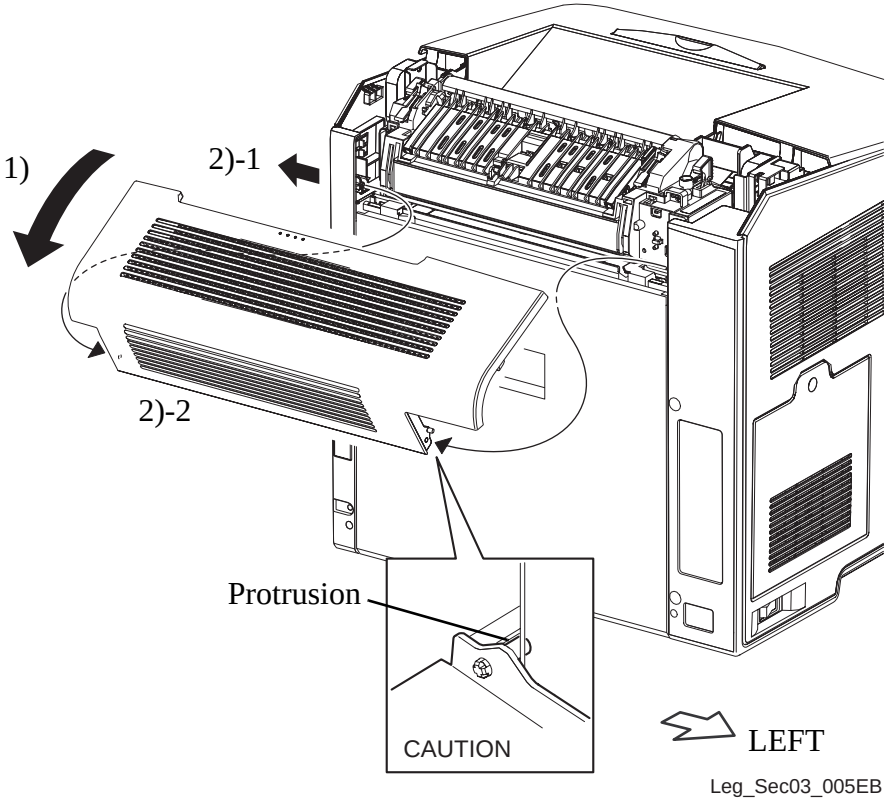

Figure 4-5. Removal of COVER FUSER

4.2.4 COVER TOP SIDE L

REMOVAL

1. In the case of the DUPLEX specification, open DUPLEX ASSY.
2. In the case of the standard specification, open COVER FUSER. *(p.285)*
3. Open COVER ASSY TOP.
4. Loosen the screw (silver, with flange, 8 mm) fastening COVER TOP SIDE L to the main unit.

CAUTION

The screw fastening COVER TOP SIDE L is designed not to come loose from COVER TOP SIDE L.

5. Remove COVER TOP SIDE L from the main unit.

REINSTALLATION

1. Match the hole on COVER TOP SIDE L with the boss on the main unit.
2. Fasten COVER TOP SIDE L to the main unit with the screw (silver, with flange, 8 mm).
3. Close COVER ASSY TOP.
4. In the case of the standard specification, close COVER FUSER. *(p.285)*
5. In the case of the DUPLEX specification, close DUPLEX ASSY.

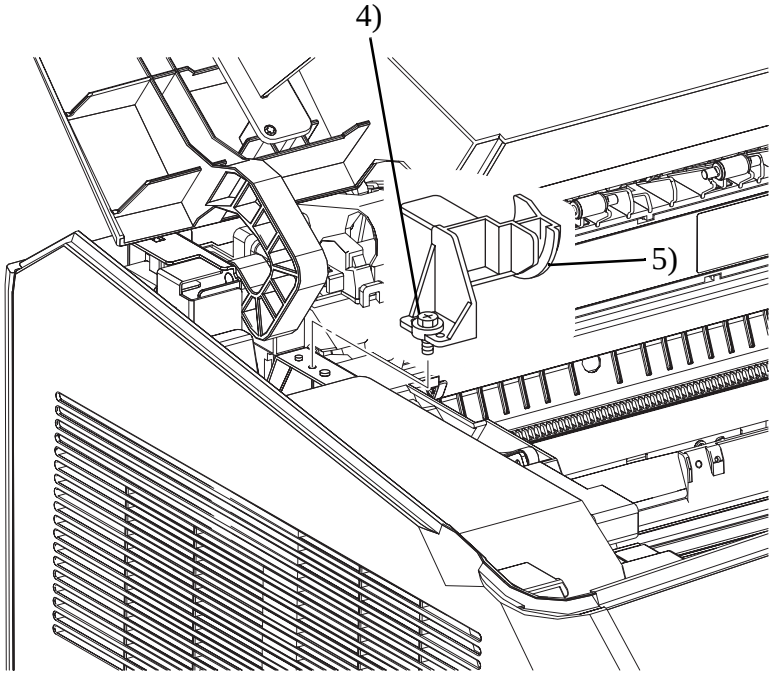

Figure 4-6. Removal of COVER TOP SIDE L

4.2.5 COVER TOP SIDE R

REMOVAL

1. In the case of the DUPLEX specification, open DUPLEX ASSY.
2. In the case of the standard specification, open COVER FUSER. *(p.285)*
3. Open COVER ASSY TOP.
4. Remove the screw (silver, with flange, 8 mm) fastening COVER TOP SIDE R to the main unit.
5. Remove COVER TOP SIDE R from the main unit.

REINSTALLATION

1. Match the hole on COVER TOP SIDE R with the boss on the main unit.
2. Fasten COVER TOP SIDE R to the main unit with the screw (silver, with flange, 8 mm).
3. Close COVER ASSY TOP.
4. In the case of the standard specification, close COVER FUSER. *(p.285)*
5. In the case of the DUPLEX specification, close DUPLEX ASSY.

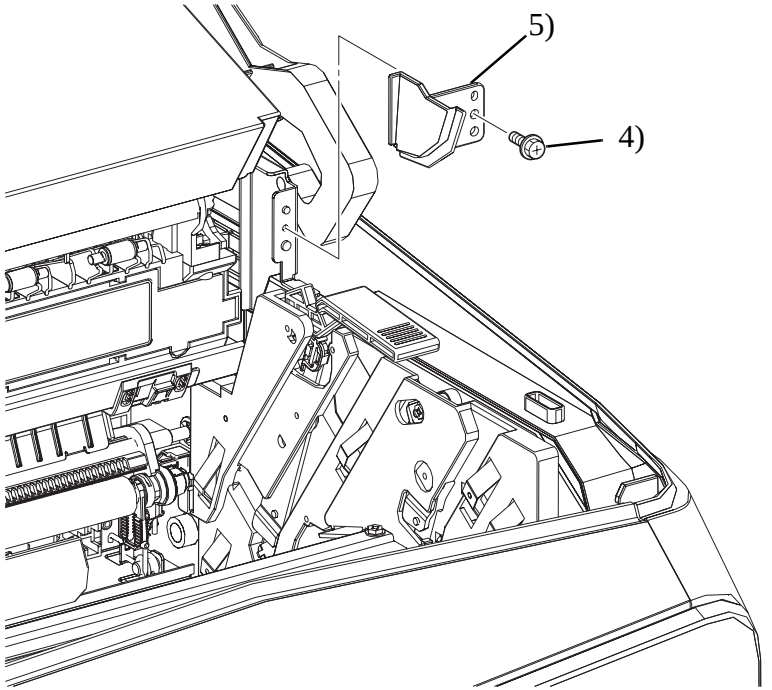

Figure 4-7. Removal of COVER TOP SIDE R

4.2.6 SWITCH ASSY TOP

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Unclamp the two clamps fastening the harness of SWITCH ASSY TOP, and remove the harness.

CAUTION

When performing the following work, leave the intermediate connector (blue) on the harness side.

3. Disconnect connector (P/J116, blue) of SWITCH ASSY TOP.
4. Remove the screw (silver, with flange, 8 mm) fastening SWITCH ASSY TOP to the main unit.
5. Remove SWITCH ASSY TOP from the main unit.

REINSTALLATION

1. Match the hole on SWITCH ASSY TOP with the boss on the main unit, and attach.
2. Fasten SWITCH ASSY TOP to the main unit with the screw (silver, with flange, 8 mm).
3. Connect connector (P/J116, blue) of SWITCH ASSY TOP.
4. Clamp the harness of SWITCH ASSY TOP with the two clamps.
5. Attach COVER ASSY RH. *(p.301)*

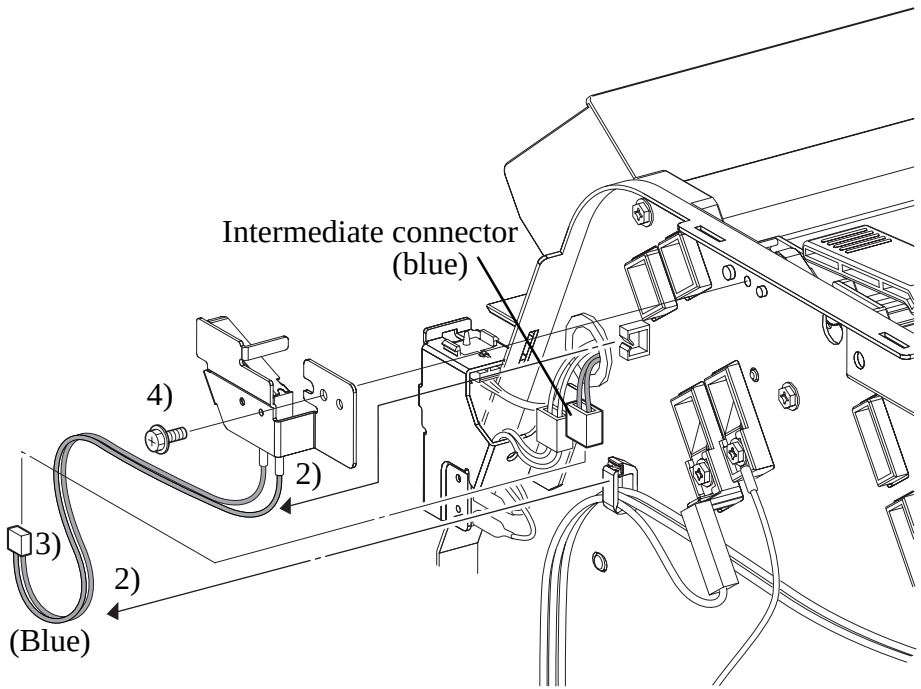

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Figure 4-8. Removal of SWITCH ASSY TOP

4.2.7 SWITCH ASSY FRONT

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Unclamp the clamp fastening the harness of SWITCH ASSY FRONT and remove the harness.
3. Remove the screw (silver, with flange, 8 mm) fastening SWITCH ASSY FRONT to the main unit.
4. Remove SWITCH ASSY FRONT from the main unit.

CAUTION

When performing the following work, leave the intermediate connector (white) on the harness side.

5. Disconnect connector (P/J115, white) and connector (P/J125) from SWITCH ASSY FRONT.

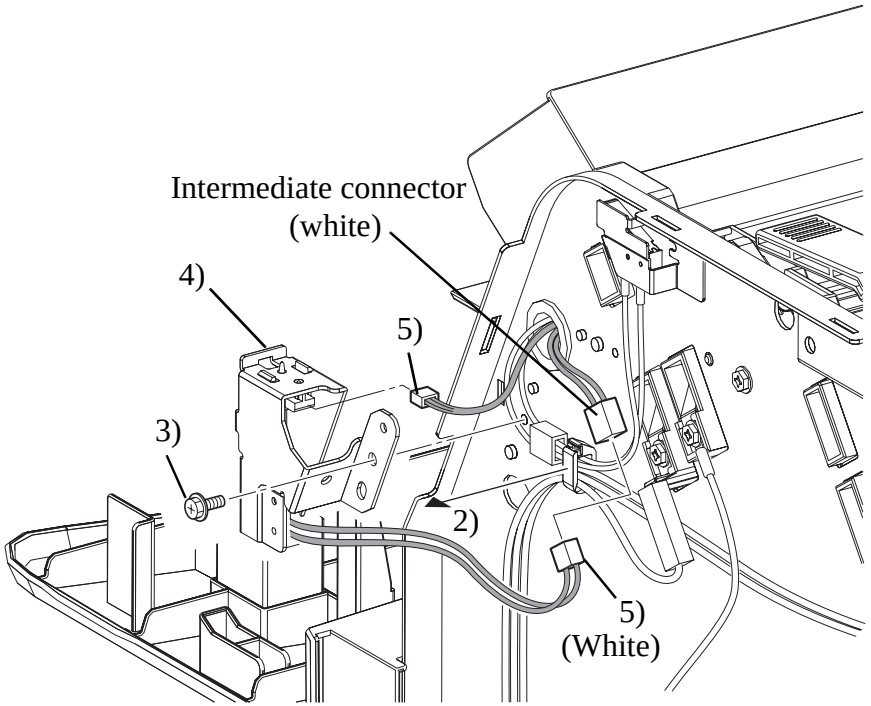

Figure 4-9. Removal of SWITCH ASSY FRONT

REINSTALLATION

1. Connect connector (P/J115, white) and connector (P/J125) to SWITCH ASSY FRONT.
2. Match the hole on SWITCH ASSY FRONT with the boss on the main unit.
3. Fasten SWITCH ASSY FRONT to the main unit with the screw (silver, with flange, 8 mm).
4. Fasten the harness of SWITCH ASSY FRONT with the clamp.
5. Attach COVER ASSY RH. *(p.301)*

4.2.8 COVER RH, SLIDE BAR, COVER ROS WINDOW

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Unhook the four hooks fastening GUIDE BAR to COVER RH, and remove GUIDE BAR.
3. Remove the screw (silver, with flange, tapping, 8 mm) fastening COVER ROS WINDOW to SLIDE BAR.
4. Slide COVER ROS WINDOW along the rib of COVER RH, and remove COVER ROS WINDOW from the protrusion on COVER RH.
5. Remove SLIDE BAR from COVER RH.

REINSTALLATION

1. Attach SLIDE BAR at the attachment position on the rear side of COVER RH.

CAUTION

When performing the following work, be sure to insert the top and bottom of COVER ROS WINDOW inside the protrusions on COVER RH.

2. Match COVER ROS WINDOW with the attachment position on the rear of COVER RH, slide COVER ROS WINDOW along the ribs on COVER RH, and attach COVER ROS WINDOW to SLIDE BAR.
3. Fasten COVER ROS WINDOW to SLIDE BAR with the screw (silver, with flange, tapping, 8 mm).
4. Match the holes on GUIDE BAR with the boss of COVER RH, attach GUIDE BAR, and fasten by the four hooks.

CAUTION

After performing the above work, move SLIDE BAR to make sure that COVER ROS WINDOW can be opened/closed smoothly.

5. Attach COVER ASSY RH. *(p.301)*

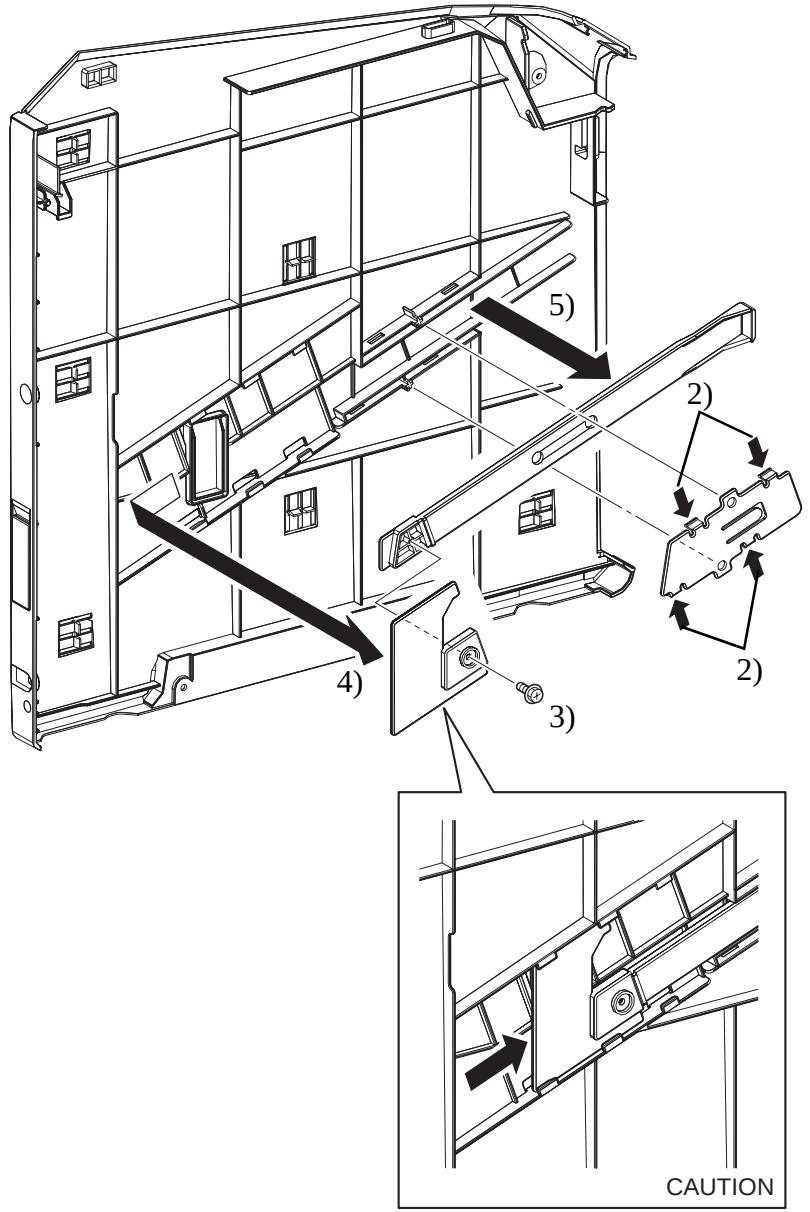

Figure 4-10. Removal of COVER RH, SLIDE BAR and COVER ROS WINDOW

4.2.9 COVER MSI

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Slide COVER MSI in a slightly open state to the right to remove from the main unit.

REINSTALLATION

1. Match the hole on COVER MSI with the boss on the main unit with COVER MSI in a slightly open state, and slide COVER MSI to the left to attach.
2. Attach COVER ASSY RH. *(p.301)*

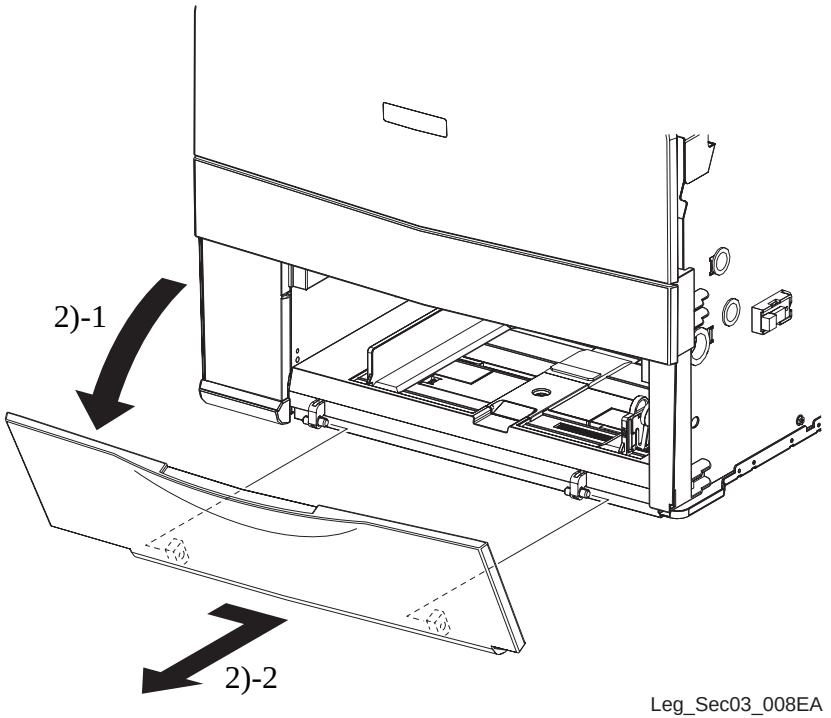

Figure 4-11. Removal of COVER MSI

4.2.10 COVER FRONT L, COVER FRONT ASSY U

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove the 3 screws (silver, with flange, 8 mm) fastening COVER FRONT L to the main unit.
5. Slide COVER FRONT L to the right, unhook the two hooks on the rear of COVER FRONT L from the holes on the main unit, and remove COVER FRONT L together with COVER FRONT ASSY U.

CAUTION

When performing the following work, take care not to damage the COVER FRONT ASSY U boss.

6. Press the bosses on the left and right of COVER FRONT ASSY U by inserting a screwdriver, and draw out from the holes on COVER FRONT L to remove COVER FRONT ASSY U from COVER FRONT L.

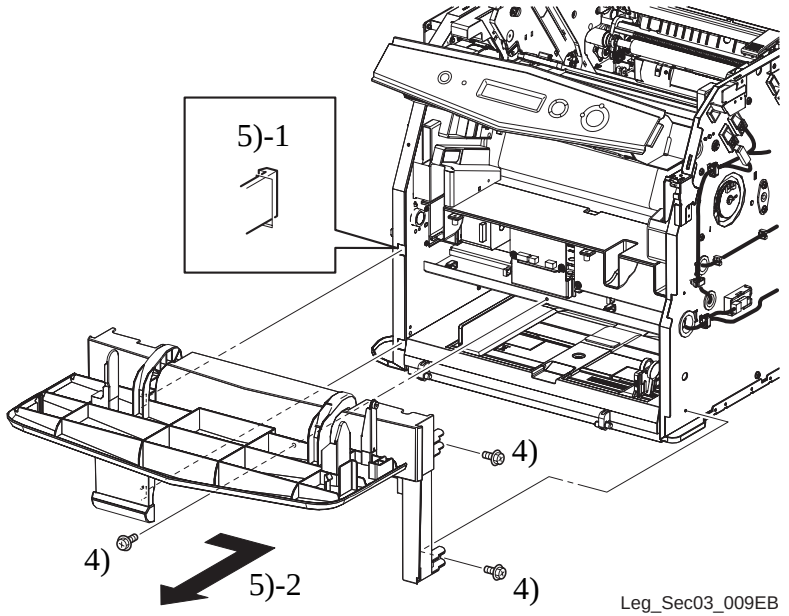

Figure 4-12. Removal of COVER FRONT L and COVER FRONT ASSY U (1)

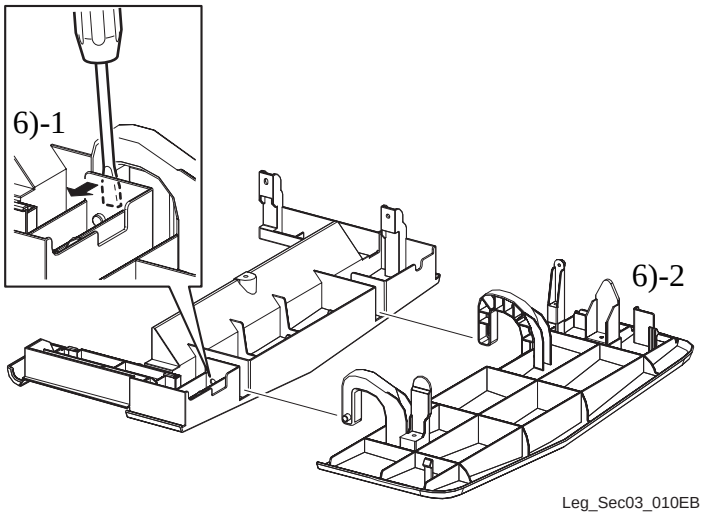

Figure 4-13. Removal of COVER FRONT L and COVER FRONT ASSY U (2)

REINSTALLATION

CAUTION

When performing the following work, take care not to damage the COVER FRONT ASSY U boss.

1. Match the boss on COVER FRONT ASSY U with the holes on COVER FRONT L while bending down COVER FRONT ASSY U, and attach COVER FRONT ASSY U to COVER FRONT L.
2. Match the two hooks on the rear of COVER FRONT L with the holes on the main unit, and attach COVER FRONT L together with COVER FRONT ASSY U.
3. Fasten COVER FRONT L to the main unit with the 3 screws (silver, with flange, 8 mm).
4. Attach COVER MSI. *(p.291)*
5. Attach COVER ASSY LH. *(p.295)*
6. Attach COVER ASSY RH. *(p.301)*

4.2.11 OP PANEL (CONTROL, PANEL)

REMOVAL

1. Open COVER ASSY TOP.
2. Open COVER FRONT ASSY U.

CAUTION

When performing the following work, take care not to remove OP PANEL too far as it is connected by a harness.

3. Remove the 3 screws (silver, with flange, 6 mm) fastening OP PANEL to the main unit.
4. Remove the protrusions on the left and right of OP PANEL from COVER RH and COVER LH while pushing them outward, and slightly remove OP PANEL from the main unit.
5. Disconnect connector CN1 and the terminal connected to OP PANEL to remove OP PANEL.

REINSTALLATION

CAUTION

When performing the following work, take care to prevent the harness from being caught between the main unit and OP PANEL.

1. Connect connector CN1 and the terminal to OP PANEL.
2. While extending COVER RH and COVER LH each to the left and right, put the protrusions on the left and right of OP PANEL inside COVER RH and COVER LH, and attach OP PANEL to the main unit.
3. Fasten OP PANEL to the main unit with the 3 screws (silver, with flange, 6 mm).
4. Close COVER FRONT ASSY U.
5. Close COVER ASSY TOP.

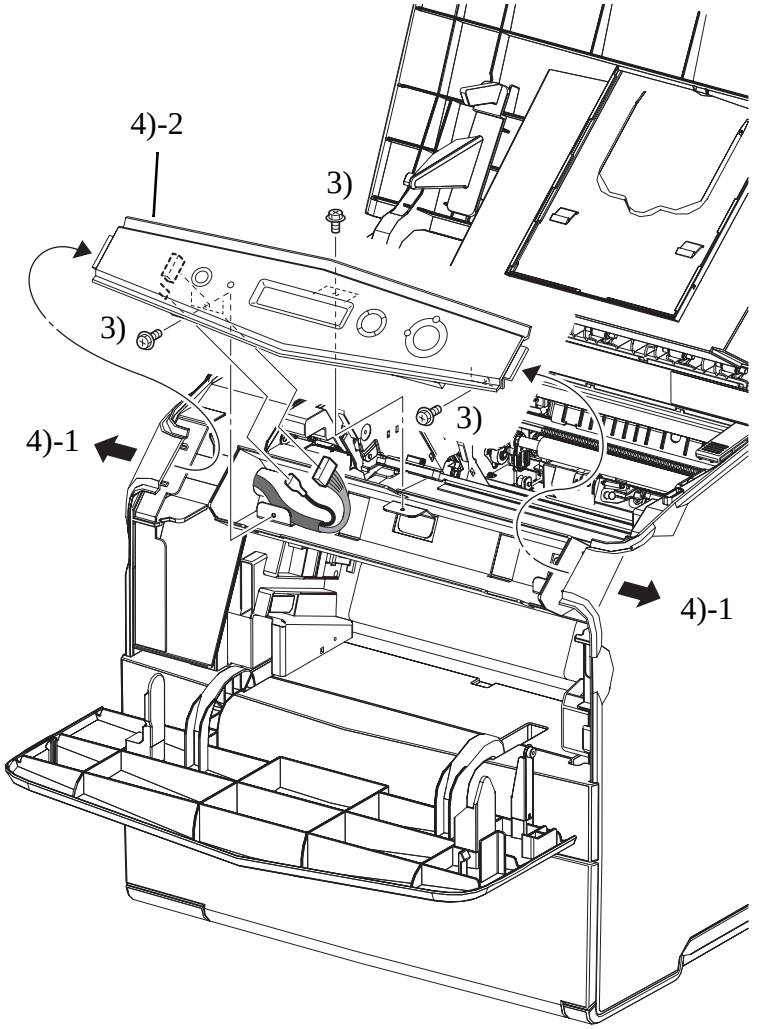

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Figure 4-14. Removal of OP PANEL

4.2.12 COVER ASSY LH

REMOVAL

1. In the case of the DUPLEX specification, remove DUPLEX ASSY. *(p.412)*
2. In the case of the standard specification, remove COVER FUSER. *(p.285)*
3. Remove OP PANEL. *(p.294)*
4. Open COVER MSI.
5. Remove COVER ESS. *(p.297)*
6. Remove the 4 screws (silver, with flange, 8 mm) fastening COVER ASSY LH to the main unit.
7. Lift up COVER ASSY LH, and unhook the 4 hooks on the rear of COVER ASSY LH from the holes on the main unit.
8. Remove COVER ASSY LH from the main unit while avoiding the interface connector on the rear of the main unit.

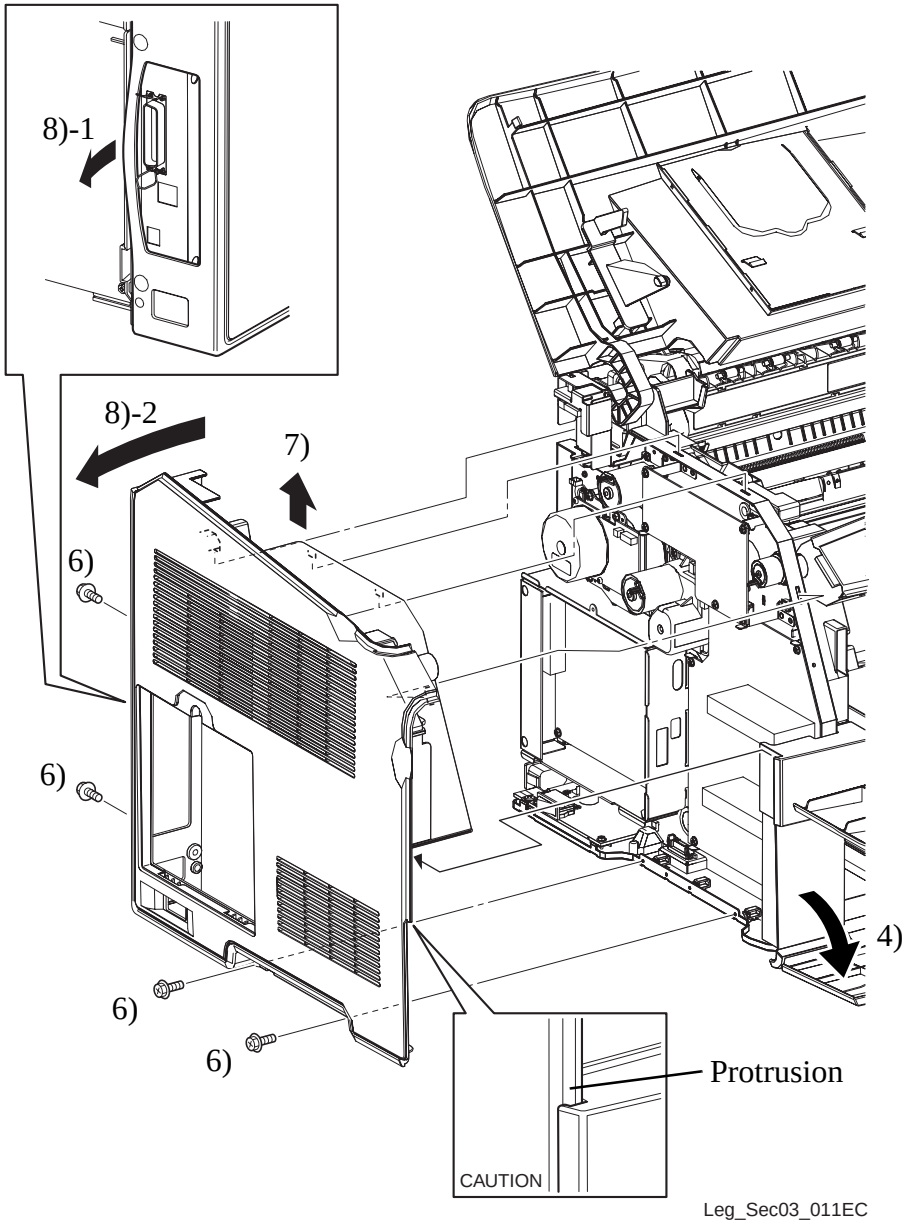

Figure 4-15. Removal of COVER ASSY LH

REINSTALLATION

1. Match the square hole on the rear side of COVER ASSY LH with the interface connector on the rear side of the main unit.

CAUTION

When performing the following work, firmly insert the protrusion on the front side of COVER ASSY LH into the indent on COVER FRONT L.

2. Match the 4 hooks on the rear side of COVER ASSY LH with the holes on the main unit while inserting the protrusion on the front side of COVER ASSY LH into the concave portion on COVER FRONT L, and attach COVER ASSY LH.
3. Fasten COVER ASSY LH to the main unit with the 4 screws (silver, with flange, 8 mm).
4. Attach COVER ESS. *(p.297)*
5. Close COVER MSI.
6. Attach OP PANEL. *(p.294)*
7. In the case of the standard specification, attach COVER FUSER. *(p.285)*
8. In the case of the DUPLEX specification, attach DUPLEX ASSY. *(p.412)*

4.2.13 COVER ESS

REMOVAL

1. Loosen the screw fastening COVER ESS to the main unit.
2. Remove COVER ESS from the main unit.

REINSTALLATION

1. Match the two protrusions on the bottom side of COVER ESS with the holes on COVER LH, and attach COVER ESS.
2. Fasten COVER ESS to the main unit with the screw.

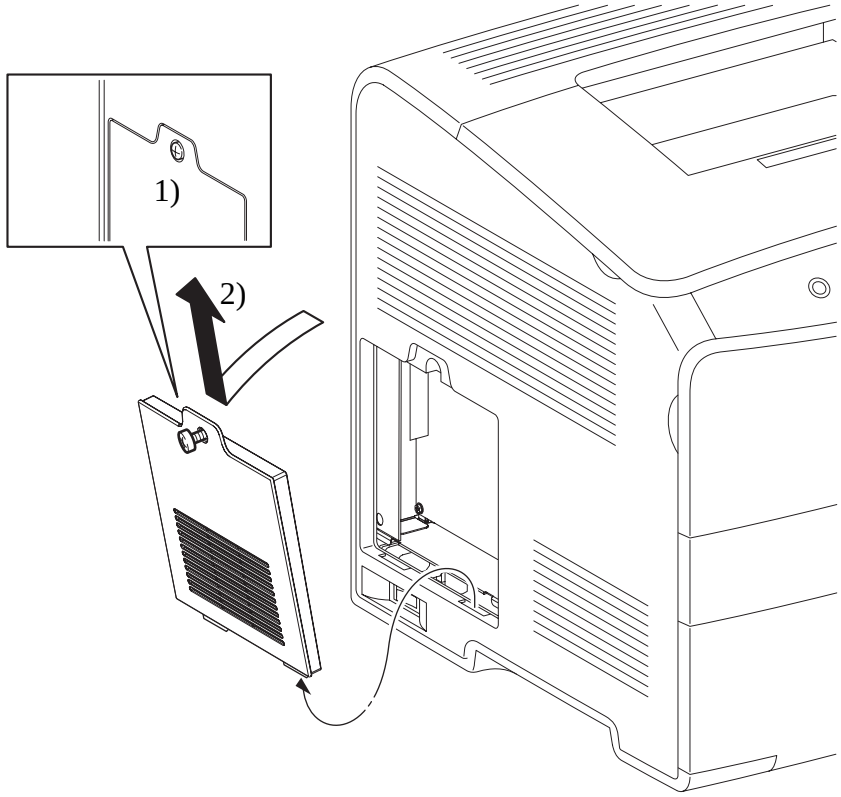

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Figure 4-16. Removal of COVER ESS

4.2.14 SWITCH ASSY FUSER, SWITCH-FUSER DOOR

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Unclamp the clamp fastening the harness of SWITCH ASSY FUSER and remove the harness.
3. Remove the screw (silver, with flange, 8 mm) fastening SWITCH ASSY FUSER to the main unit.
4. Remove SWITCH ASSY FUSER from the main unit.

CAUTION

When performing the following work, leave the intermediate connector on the harness side.

5. Disconnect the connector (P/J117, blue) from SWITCH ASSY FUSER.
6. Unhook the two hooks fastening SWITCH-FUSER DOOR to BRACKET INLK FUSER, and remove SWITCH-FUSER DOOR.
7. Disconnect connector (P/J114) from SWITCH-FUSER DOOR.

REINSTALLATION

1. Connect connector (P/J114) to SWITCH-FUSER DOOR.
2. Match the hooks on SWITCH-FUSER DOOR with the attachment position, and attach to BRACKET INLK FUSER.
3. Connect the connector (P/J117, blue) to SWITCH ASSY FUSER.
4. Match the hole on SWITCH ASSY FUSER with the boss on the main unit.
5. Fasten SWITCH ASSY FUSER to the main unit with the screw (silver, with flange, 8 mm).
6. Fasten the harness of SWITCH ASSY FUSER with the clamp.
7. Attach COVER ASSY LH. *(p.295)*

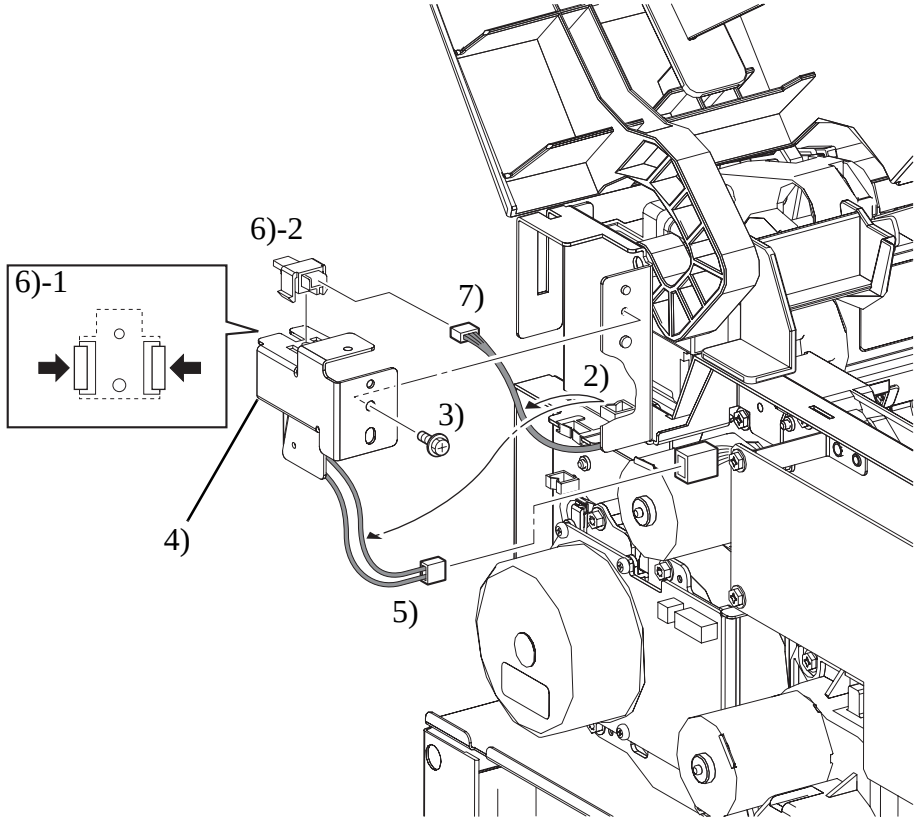

Figure 4-17. Removal of SWITCH ASSY FUSER and SWITCH-FUSER DOOR

4.2.15 COVER INNER TOP

REMOVAL

1. Remove OP PANEL. *(p.294)*
2. Remove the 2 screws (silver, with flange, 6 mm) fastening COVER INNER TOP to the main unit.
3. Remove COVER INNER TOP from the main unit.

REINSTALLATION

1. Match the hole on COVER INNER TOP with the boss on the main unit.
2. Fasten COVER INNER TOP to the main unit with the 2 screws (silver, with flange, 6 mm).
3. Attach OP PANEL. *(p.294)*

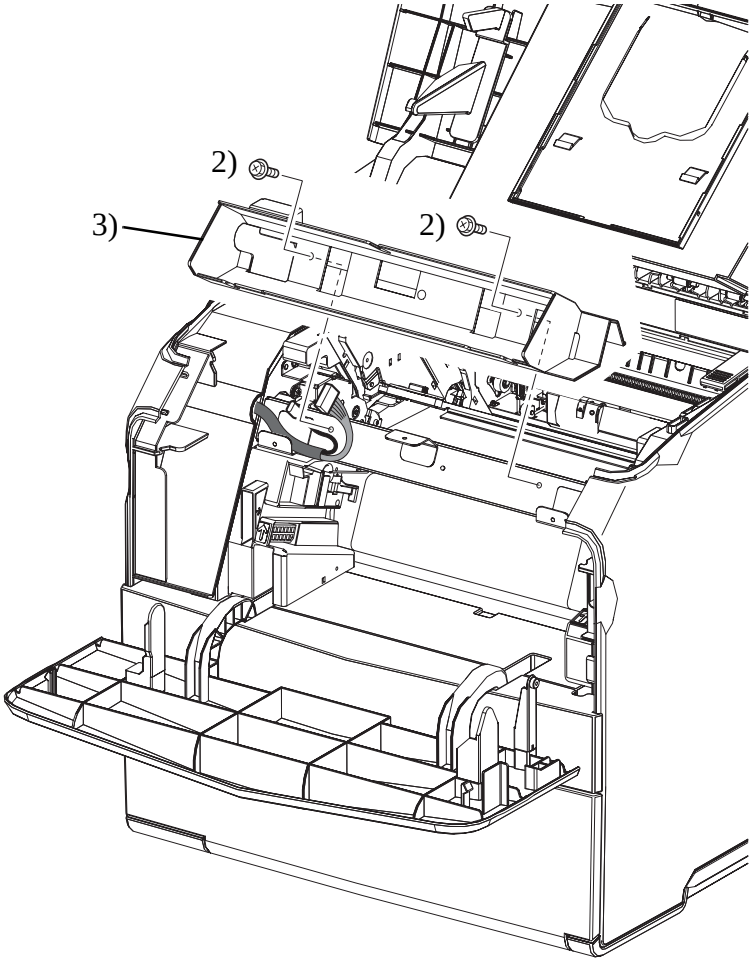

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Figure 4-18. Removal of COVER INNER TOP

4.2.16 SWITCH-FRONT DOOR, SWITCH-INLK FRONT

REMOVAL

CHECK POINT

SWITCH-FRONT DOOR and SWITCH-INLK FRONT can each be removed separately.

1. Remove COVER ASSY RH. *(p.301)*
2. Remove SWITCH ASSY FRONT. *(p.289)*
3. Remove the screw (gold, 8 mm) fastening SWITCH-INLK FRONT to BRACKET INLK FRONT.
4. Remove SWITCH-INLK FRONT from BRACKET INLK FRONT.
5. Unhook the two hooks fastening SWITCH-FRONT DOOR to BRACKET INLK FRONT, and remove SWITCH-FRONT DOOR.

REINSTALLATION

1. Match the hooks on SWITCH-FRONT DOOR with the attachment position, and attach to BRACKET INLK FRONT.
2. Match the hole on SWITCH-INLK FRONT with the boss on BRACKET INLK FRONT.
3. Fasten SWITCH-INLK FRONT to BRACKET INLK FRONT with the screw (gold, 8 mm).
4. Attach SWITCH ASSY FRONT. *(p.289)*
5. Attach COVER ASSY RH. *(p.301)*

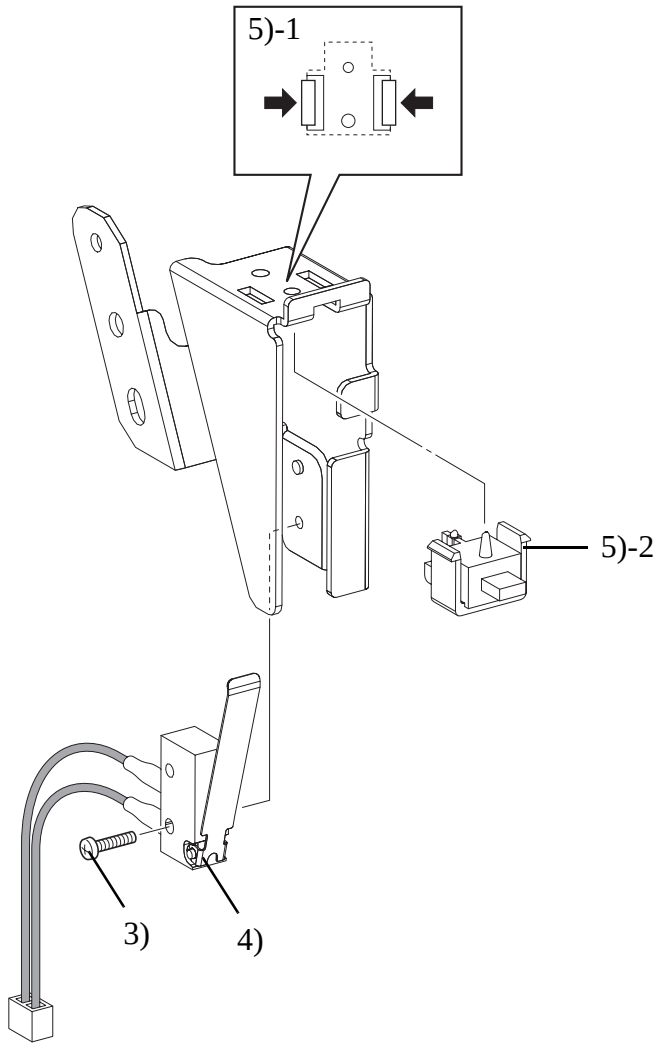

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Figure 4-19. Removal of SWITCH-FRONT DOOR and SWITCH-INLK FRONT

4.2.17 COVER ASSY RH

REMOVAL

1. In the case of the DUPLEX specification, remove DUPLEX ASSY. *(p.412)*
2. In the case of the standard specification, remove COVER FUSER. *(p.285)*
3. Remove OP PANEL. *(p.294)*
4. Open COVER MSI.
5. Remove the 4 screws (silver, with flange, 8mm) fastening COVER ASSY RH to the main unit.
6. Lift up COVER ASSY RH, and unhook the 4 hooks on the rear of COVER ASSY RH from the holes on the main unit, and remove COVER ASSY RH.

REINSTALLATION

CAUTION

When performing the following work, be sure to insert the protrusion on the front side of COVER ASSY RH into the concave portion on COVER FRONT L.

1. Fit section A of COVER ASSY PH over the front surface of COVER FRONT L while inserting the protrusion on the front of COVER ASSY RH into the concave portion on COVER FRONT L, match the four hooks on the rear of COVER ASSY RH with the holes on the main unit, and attach COVER ASSY RH.
2. Fasten COVER ASSY RH to the main unit with the 4 screws (silver, with flange, 8mm).
3. Close COVER MSI.
4. Attach OP PANEL. *(p.294)*
5. In the case of the standard specification, attach COVER FUSER. *(p.285)*
6. In the case of the DUPLEX specification, attach DUPLEX ASSY. *(p.412)*

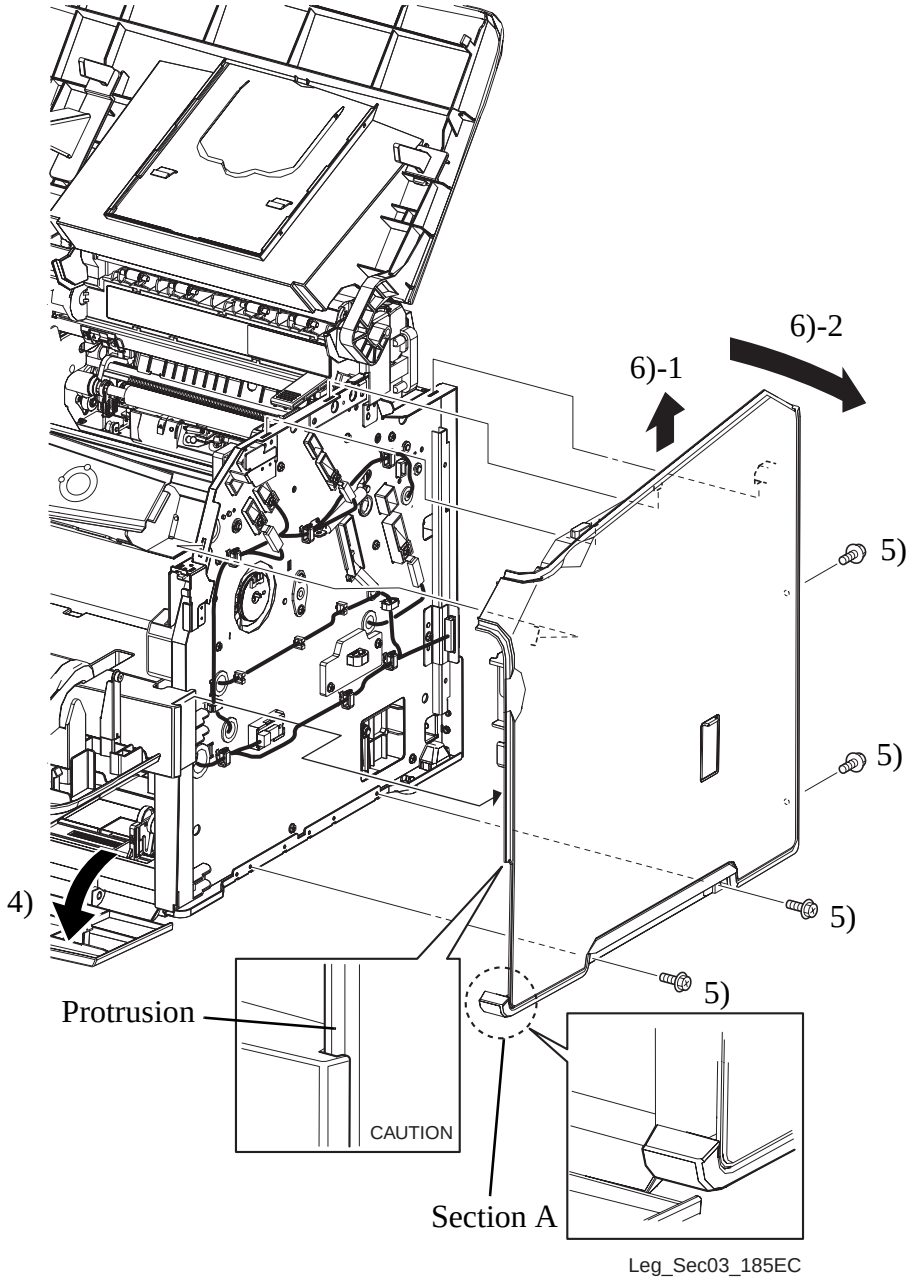

Figure 4-20. Removal of COVER ASSY RH

4.2.18 COVER INNER L

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove the 2 screws (silver, with flange, 8 mm) fastening COVER INNER L to the main unit.
6. Unhook the hook on the rear of COVER INNER L from the hole on the main unit, and remove COVER INNER L.

REINSTALLATION

1. Match the hook on the rear of COVER INNER L with the hole on the main unit, and attach COVER INNER L.
2. Fasten COVER INNER L to the main unit with the 2 screws (silver, with flange, 8 mm).
3. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
4. Attach COVER MSI. *(p.291)*
5. Attach COVER ASSY LH. *(p.295)*
6. Attach COVER ASSY RH. *(p.301)*

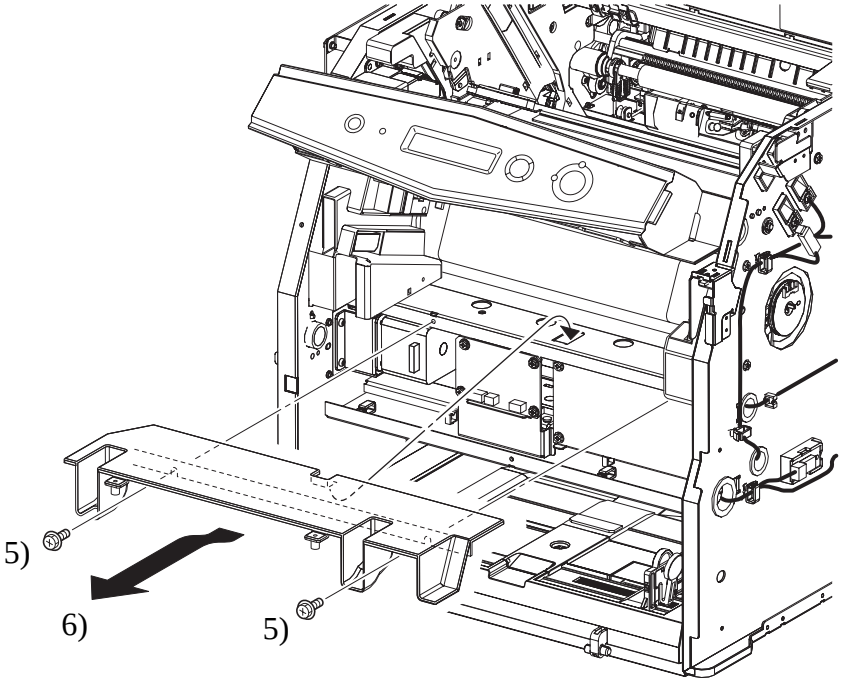

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Figure 4-21. Removal of COVER INNER L

4.2.19 SWITCH-INLK FUSER

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Remove SWITCH ASSY FUSER. *(p.298)*
3. Remove the screw (silver, 8 mm) fastening SWITCH-INLK FUSER to BRACKET INLK FUSER.
4. Remove SWITCH-INLK FUSER from BRACKET INLK FUSER.

REINSTALLATION

1. Match the hole on SWITCH-INLK FUSER with the boss on BRACKET INLK FUSER.
2. Fasten SWITCH-INLK FUSER to BRACKET INLK FUSER with the screw (silver, 8 mm).
3. Attach SWITCH ASSY FUSER. *(p.298)*
4. Attach COVER ASSY LH. *(p.295)*

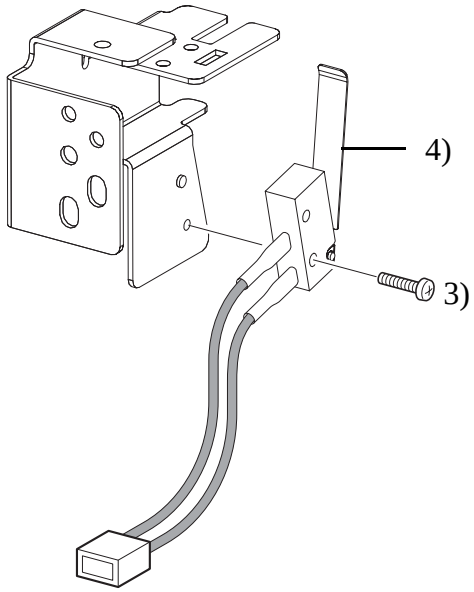

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Figure 4-22. Removal of SWITCH-INLK FUSER

4.3 MSI

4.3.1 MSI ASSY

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Disconnect connector (P/J408) and connector (P/J409) from PWBA MCU.
7. Unclamp the two clamps on CHASSIS ESS, and disconnect the harness from HARNESS-ASSY P/H 1.
8. Remove the 6 screws (silver, with flange, tapping, 8 mm) fastening MSI ASSY to the main unit.

CAUTION

- **When performing the following work, take care to prevent the cable tie that bundles the harness of HARNESS-ASSY P/H 1 from being caught on the holes, etc. on the main unit.**
- **When performing the following work, take care to prevent the HARNESS-ASSY P/H 1 from being sandwiched between the main unit and MSI ASSY.**

9. Draw out MSI ASSY slightly toward you, lift up MSI ASSY slightly to avoid TIE PLATE under the main unit, gently draw out MSI ASSY forward again and draw out HARNESS-ASSY P/H 1 from the hole on the main unit to remove MSI ASSY.

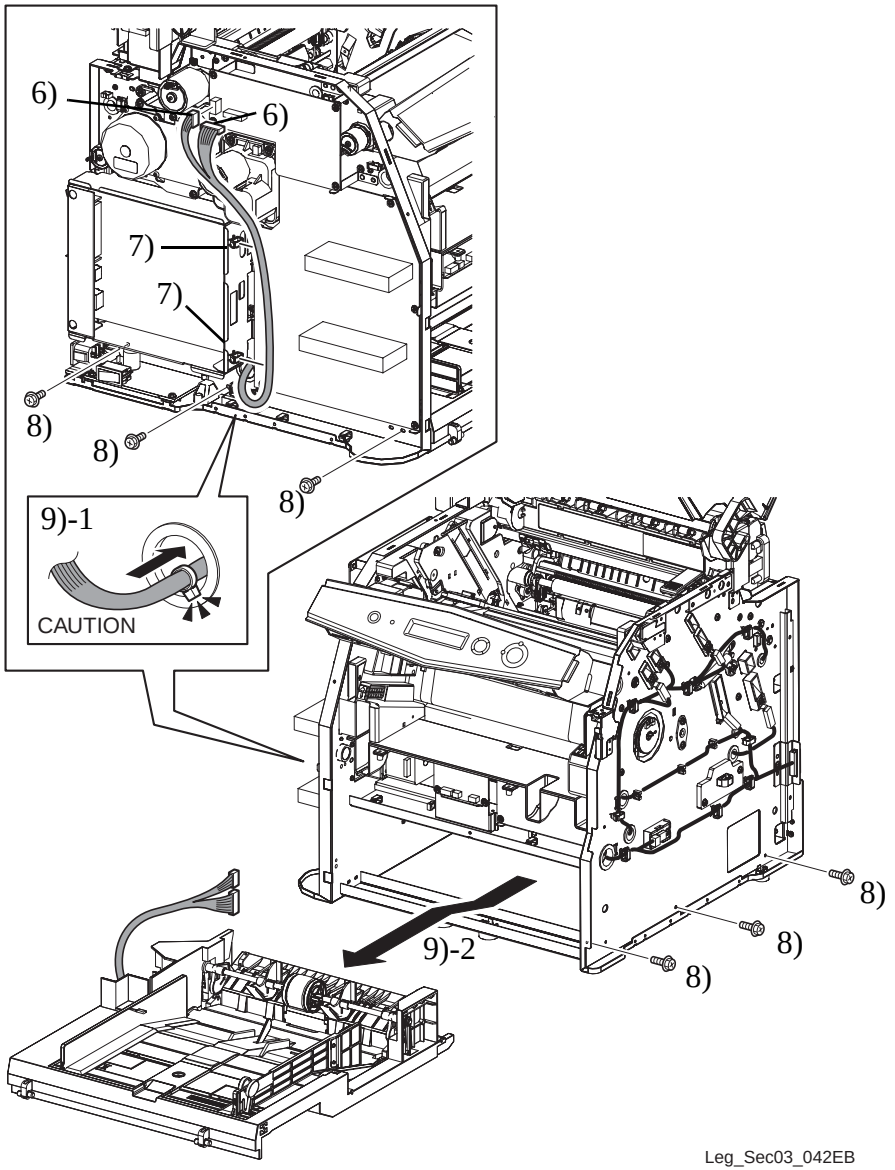

Figure 4-23. Removal of MSI ASSY

REINSTALLATION

CAUTION

- **When performing the following work, take care to prevent the cable tie that bundles the harness of HARNESS-ASSY P/H 1 from being caught on the holes, etc. on the main unit.**
- **When performing the following work, take care to prevent the HARNESS-ASSY P/H 1 from being sandwiched between the main unit and MSI ASSY.**

1. Gently insert HARNESS-ASSY P/H 1 along the left side of MSI ASSY together with MSI ASSY from the front of the main unit.
2. Insert MSI ASSY about halfway with the front of MSI ASSY lifted slightly to avoid TIE PLATE under the main unit, and then bring out the connector of HARNESS-ASSY P/H 1 from the hole on the main unit.
3. After matching MSI ASSY to the main unit attachment position, gently pull HARNESS-ASSY P/H 1 from the outside to take up any slack inside the main unit.
4. Fasten MSI ASSY to the main unit with the 6 screws (silver, with flange, tapping, 8 mm).
5. Connect connector (P/J408) and connector (P/J409) to PWBA MCU.
6. Fasten the harness of HARNESS-ASSY P/H 1 with the two clamps on CHASSIS ESS.
7. Attach FRAME ASSY-PH. *(p.327)*
8. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
9. Attach COVER MSI. *(p.291)*
10. Attach COVER ASSY LH. *(p.295)*
11. Attach COVER ASSY RH. *(p.301)*

Table 4-2. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J408	E Open	Printing is not possible.	Paper Feeder Rear Cover is open.
P/J409	Service Req E511	Printing is not possible.	Sensor TR0 error

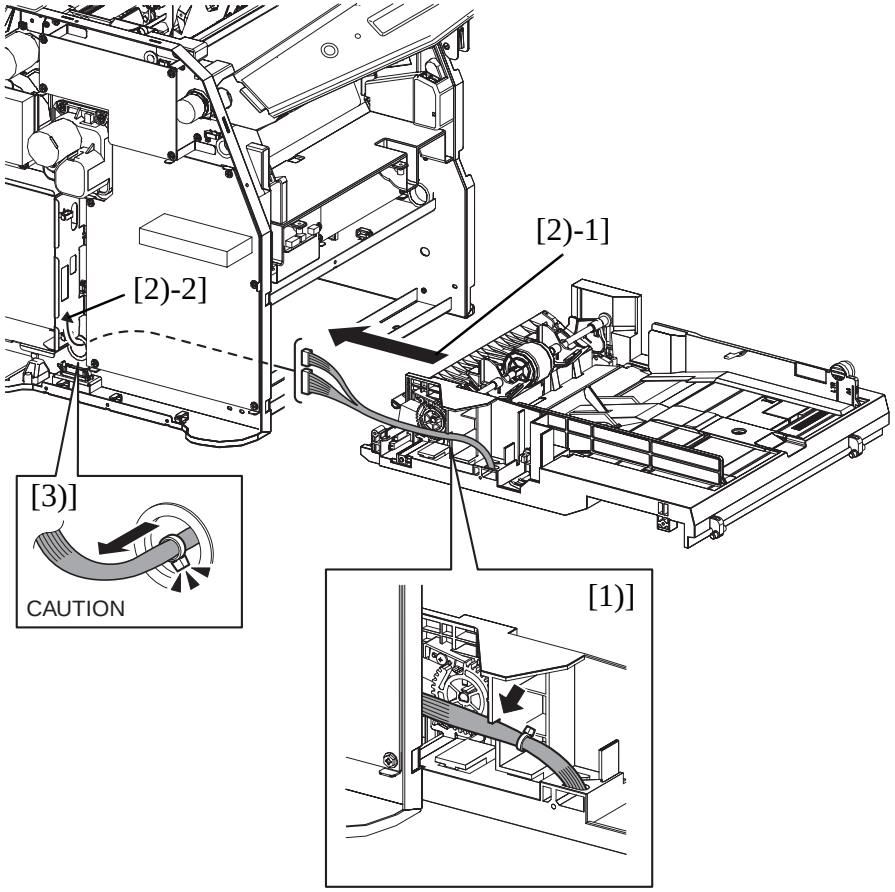

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Figure 4-24. Reinstallation of MSI ASSY

4.3.2 ROLL ASSY MSI

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Remove MSI ASSY. *(p.304)*
7. Remove SOLENOID PICK UP. *(p.319)*

CHECK POINT

When performing the following work, work can be performed more easily by turning ROLL ASSY MSI in the direction of the arrow to release CAM PICK UP MSI and to set PLATE BOTTOM ASSY MSI to a raised state.

8. Remove the left and right SPRING-N/F MSI hooked on the left and right BEARING MSI from MSI ASSY.
9. Remove the E-rings fastening the left and right CAM PICK UP MSI on SHAFT ASSY MSI from MSI ASSY.
10. Match the notch of CAM PICK UP MSI with the positioning pin of SHAFT ASSY MSI, and slide the left and right CAM PICK UP MSI to the inside.
11. Match the notch of BEARING MSI with the positioning pin of SHAFT ASSY MSI, and slide the left and right BEARING MSIs to the inside from the left and right holes of MSI ASSY.
12. Temporarily slide ROLL ASSY MSI to the left, and draw out the shaft of ROLL ASSY MSI from the right-side bearing of MSI ASSY to remove ROLL ASSY MSI.

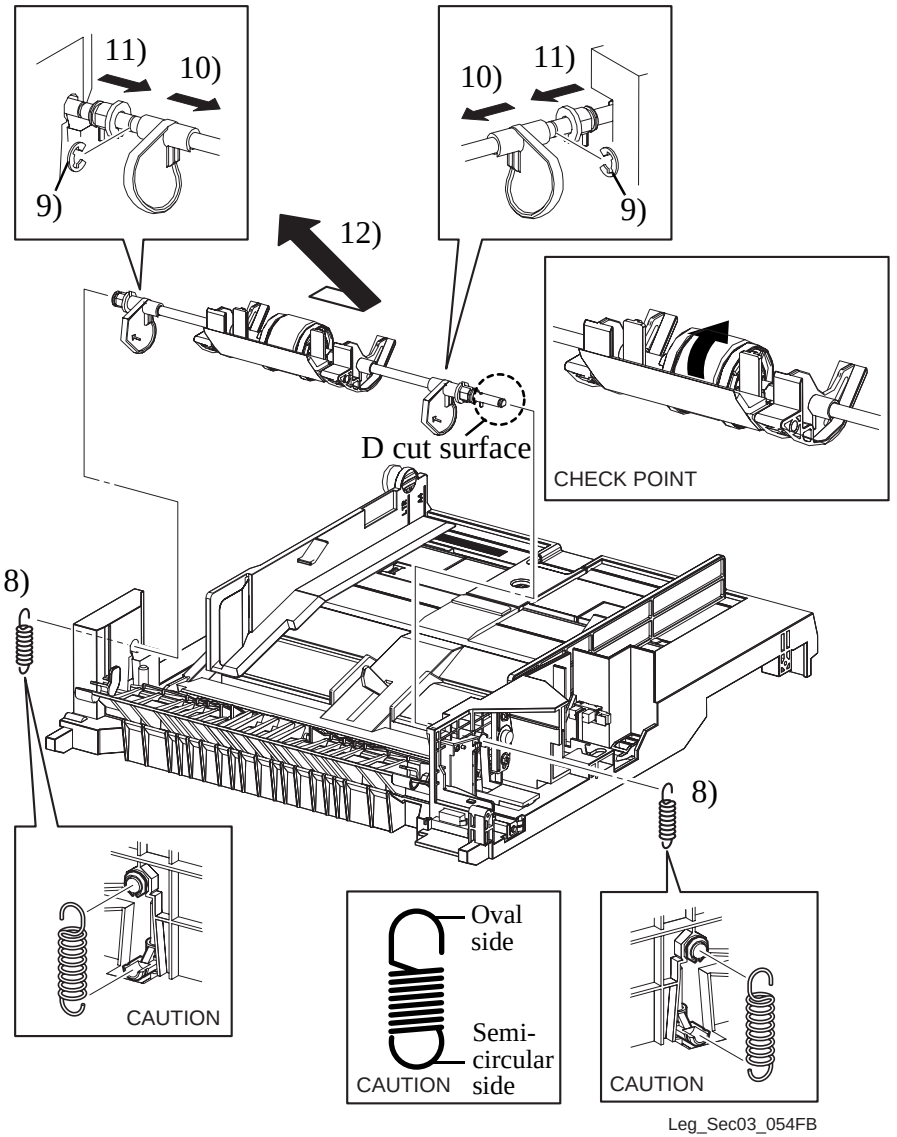

Figure 4-25. Removal of ROLL ASSY MSI

REINSTALLATION

CAUTION

When performing the following work, attach with the retainer of PAPER GUIDE facing down.

1. Insert the left side of the shaft on ROLL ASSY MSI into the left-side bearing of MSI ASSY, and then slide ROLL ASSY MSI to the right and attach ROLL ASSY MSI.
2. Match the notch of left and right BEARING MSI on ROLL ASSY MSI with the positioning pin of SHAFT ASSY MSI, and insert BEARING MSI into the left and right bearings of MSI ASSY to fasten ROLL ASSY MSI in place.
3. Match the notch of the left and right CAM PICK UP MSI on ROLL ASSY MSI with the positioning pin of SHAFT ASSY MSI, and slide the left and right CAM PICK UP MSI to the outside.

CAUTION

The notch of CAM PICK UP MSI must be properly matched with the positioning pin of ROLL ASSY MSI.

4. Fasten the left and right CAM PICK UP MSI to SHAFT ASSY MSI with E-rings.

CHECK POINT

When performing the following work, work can be performed more easily by turning ROLL ASSY MSI in the direction of the arrow to release CAM PICK UP MSI and to set PLATE BOTTOM ASSY MSI to a raised state.

CAUTION

When performing the following work, pay attention to the attachment direction of SPRING-N/F MSI.
The oval side of the attachment section of SPRING-N/F MSI is attached to BEARING MSI.
The semi-circular side of the attachment section of SPRING-N/F MSI is attached to PLATE BOTTOM ASSY MSI.

5. Attach SPRING-N/F MSI to the left and right BEARING MSI.
6. Attach SOLENOID PICK UP. *(p.319)*
7. Attach MSI ASSY. *(p.304)*
8. Attach FRAME ASSY-PH. *(p.327)*
9. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
10. Attach COVER MSI. *(p.291)*
11. Attach COVER ASSY LH. *(p.295)*
12. Attach COVER ASSY RH. *(p.301)*

4.3.3 ROLL MSI

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Unhook the hook on the right-side CORE fastening SHAFT ASSY MSI, and slide to the right.
3. Slide ROLL MSI to the right, and draw out the attachment groove of ROLL MSI from the pin of SHAFT ASSY MSI to remove ROLL MSI from SHAFT ASSY MSI.

REINSTALLATION

CAUTION

Pay attention to the attachment orientation of ROLL MSI. (Attach with the direction of the arrows indicated on ROLL MSI aligned with the directions in the illustration.)

1. Place the U cut section of ROLL MSI on SHAFT ASSY MSI and slide to the left, and insert the positioning pin of SHAFT ASSY MSI into the notch of ROLL ASSY to attach ROLL ASSY to SHAFT ASSY MSI.
2. Slide the right-side CORE to the left, and fasten the CORE hook to the groove on SHAFT ASSY MSI.
3. Attach FRAME ASSY-PH. *(p.327)*

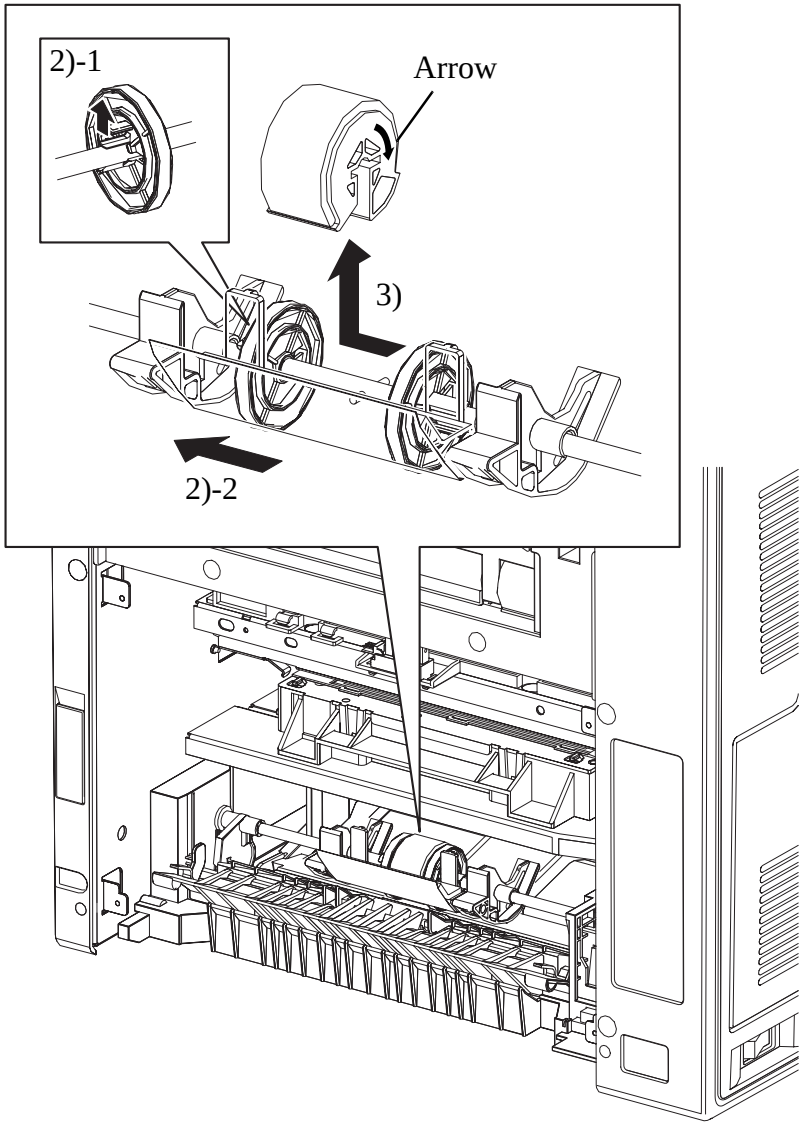

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Figure 4-26. Removal of ROLL MSI

4.3.4 CHUTE MSI

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Bend down CHUTE MSI, and draw out the right-side boss on CHUTE MSI from the right-side hole on MSI ASSY to remove CHUTE MSI.

REINSTALLATION

1. Insert the left-side boss on CHUTE MSI into the left-side hole of MSI ASSY, then bend down CHUTE MSI, insert the right-side boss of CHUTE MSI, and attach CHUTE MSI.
2. Attach FRAME ASSY-PH. *(p.327)*

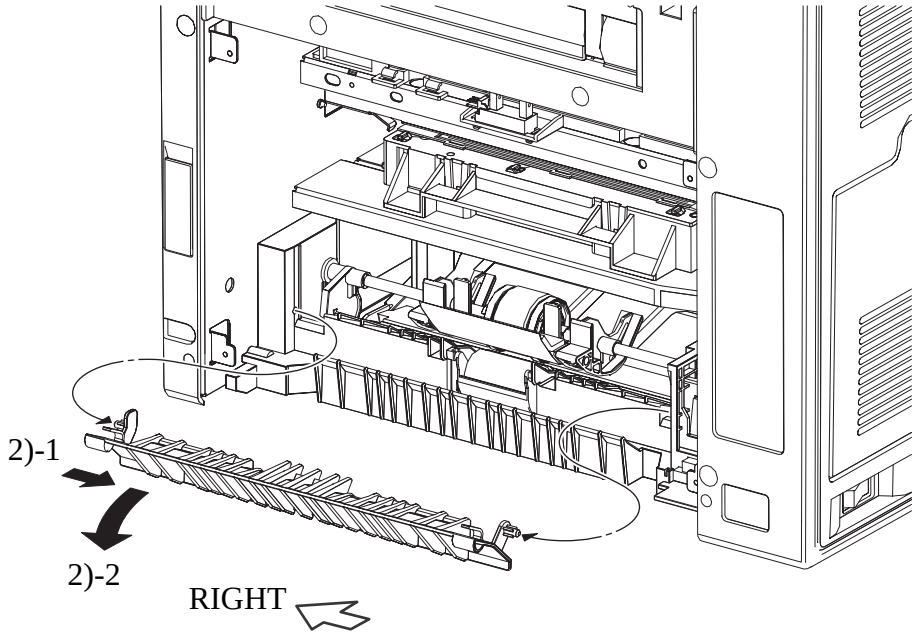

Figure 4-27. Removal of CHUTE MSI

4.3.5 GUIDE SIDE L, GUIDE ASSY SIDE R

REMOVAL

1. Open COVER MSI.
2. Unhook the hooks fastening the holes at the center of GUIDE SIDE COVER and the hooks at the left and right of GUIDE SIDE COVER from the holes on FRAME ASSY BOTTOM, and remove GUIDE SIDE COVER.
3. Remove GEAR MANUAL from FRAME ASSY BOTTOM.
4. Slide GUIDE SIDE L to the right, remove the protrusion on GUIDE SIDE L from the attachment section of FRAME ASSY BOTTOM, and remove GUIDE SIDE L.
5. Slide the lever of GUIDE ASSY SIDE R to the left, remove the protrusion of GUIDE ASSY SIDE R from the attachment section of FRAME ASSY BOTTOM, and remove GUIDE ASSY SIDE R.

REINSTALLATION

1. Match the protrusion of GUIDE ASSY SIDE R with the attachment section of FRAME ASSY BOTTOM, insert the tension section of GUIDE ASSY SIDE R into the groove of FRAME ASSY BOTTOM, and slide the lever of GUIDE ASSY SIDE R to attach.
2. Match the protrusion of GUIDE SIDE L with the attachment section of FRAME ASSY BOTTOM, insert the tension section of GUIDE ASSY SIDE L into the groove of FRAME ASSY BOTTOM, and slide GUIDE ASSY SIDE L to the left to attach.
3. Open GUIDE ASSY SIDE R and GUIDE ASSY SIDE L as far as possible, and attach GEAR MANUAL to FRAME ASSY BOTTOM.
4. Attach GUIDE SIDE COVER to FRAME ASSY BOTTOM, fasten the hooks on the left and right of GUIDE SIDE COVER, and fasten the hole at the center of GUIDE SIDE COVER by the hook on FRAME ASSY BOTTOM to attach GUIDE SIDE COVER.
5. Close COVER MSI.

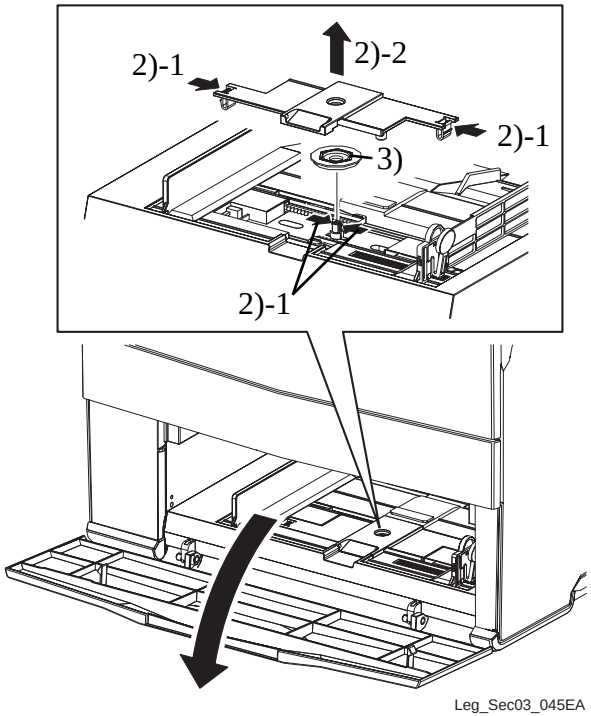

Figure 4-28. Removal of GUIDE SIDE L and GUIDE ASSY SIDE R (1)

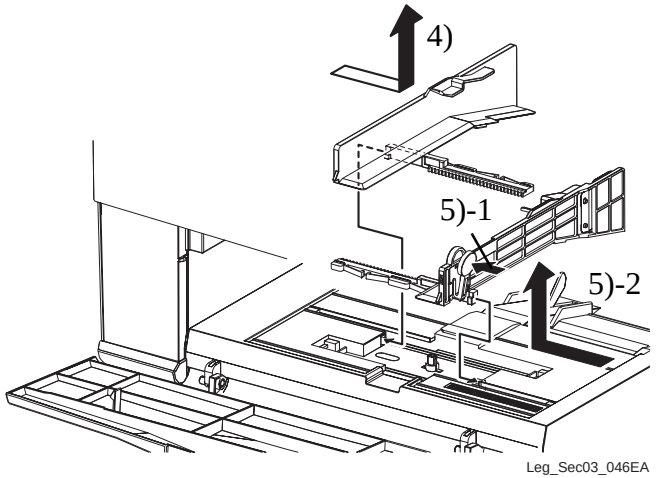

Figure 4-29. Removal of GUIDE SIDE L and GUIDE ASSY SIDE R (2)

4.3.6 PLATE BOTTOM ASSY MSI

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Remove MSI ASSY. *(p.304)*
7. Remove SOLENOID PICK UP. *(p.319)*
8. Remove ROLL ASSY MSI. *(p.306)*
9. Remove the holes on PLATE BOTTOM 2 from the boss on PLATE BOTTOM ASSY MSI while extending the attachment sections on the left and right of PLATE BOTTOM 2.
10. Lift up PLATE BOTTOM ASSY MSI, and remove the holes on the left and right of PLATE BOTTOM ASSY MSI from the left and right shafts of MSI ASSY.
11. Remove the right side of PLATE BOTTOM ASSY MSI from the right-side notch of MSI ASSY, and remove PLATE BOTTOM ASSY MSI.

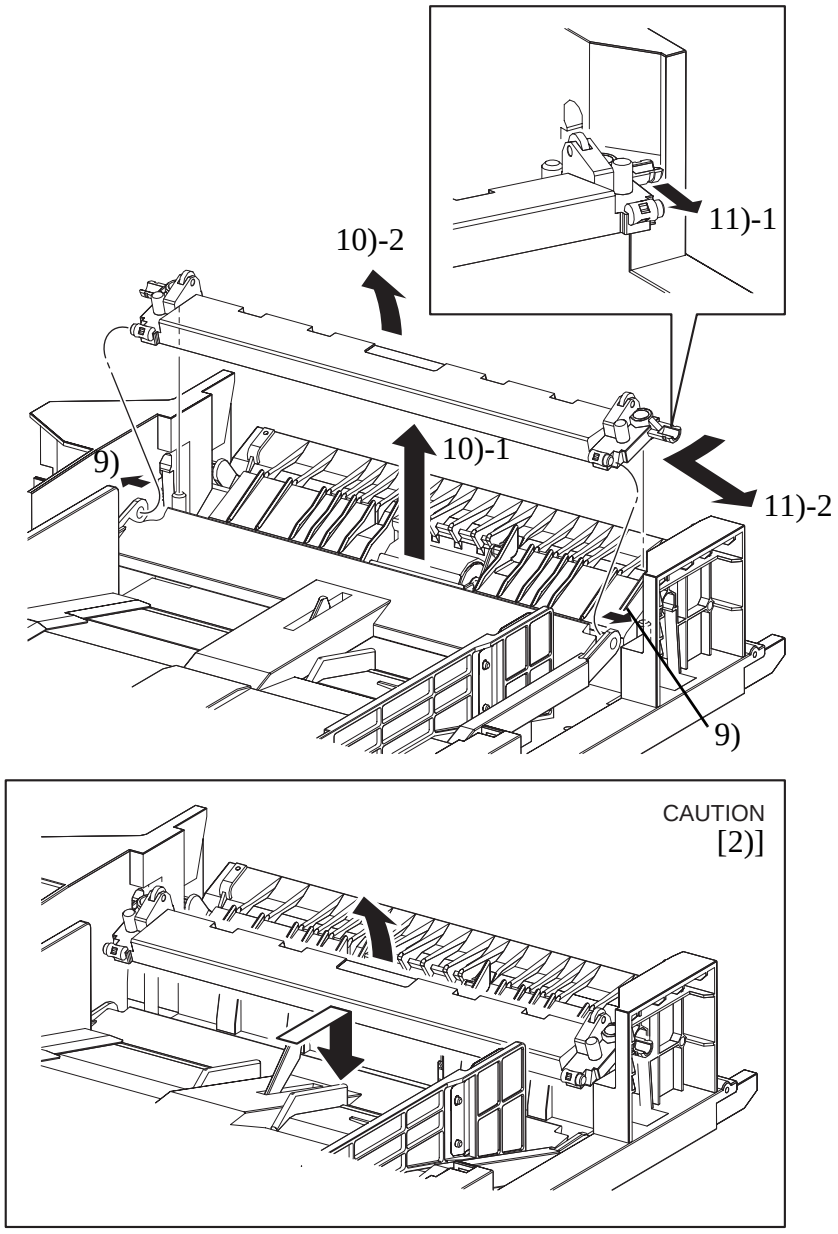

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Figure 4-30. Removal of PLATE BOTTOM ASSY MSI

REINSTALLATION

1. Match the left side of PLATE BOTTOM ASSY MSI with the attachment position on the left side of MSI ASSY, and insert the right side of PLATE BOTTOM ASSY MSI from the notch on the right side of MSI ASSY.

CHECK POINT

When performing the following work, work can be performed more easily by slightly lifting up the rear of PLATE BOTTOM ASSY MSI.

2. Insert the left and right holes of PLATE BOTTOM ASSY MSI into the shafts on the left and right of MSI ASSY, and attach PLATE BOTTOM ASSY MSI.
3. Insert the holes of PLATE BOTTOM 2 into the boss on PLATE BOTTOM ASSY MSI to attach while extending the left and right attachment sections of PLATE BOTTOM 2.
4. Attach ROLL ASSY MSI. *(p.306)*
5. Attach SOLENOID PICK UP. *(p.319)*
6. Attach MSI ASSY. *(p.304)*
7. Attach FRAME ASSY-PH. *(p.327)*
8. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
9. Attach COVER MSI. *(p.291)*
10. Attach COVER ASSY LH. *(p.295)*
11. Attach COVER ASSY RH. *(p.301)*

4.3.7 HOLDER ASSY RETARD MSI

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove CHUTE MSI. *(p.309)*
3. Unhook the hooks of the PAPER GUIDEs on the left and right sides fastened to SHAFT ASSY MSI, slide each PAPER GUIDE to the outside, and remove CHUTE ASSY PAPER GUIDE.
4. Unhook the hooks of CORE on the left and right sides fastening SHAFT ASSY MSI, and slide each to the outside.
5. Remove ROLL MSI. *(p.308)*

CAUTION

When performing the following work, take care not to lose SPRING RETARD MSI.

6. Remove HOLDER ASSY RETARD MSI from FRAME ASSY BOTTOM while bending down the boss on both sides of HOLDER ASSY RETARD MSI.

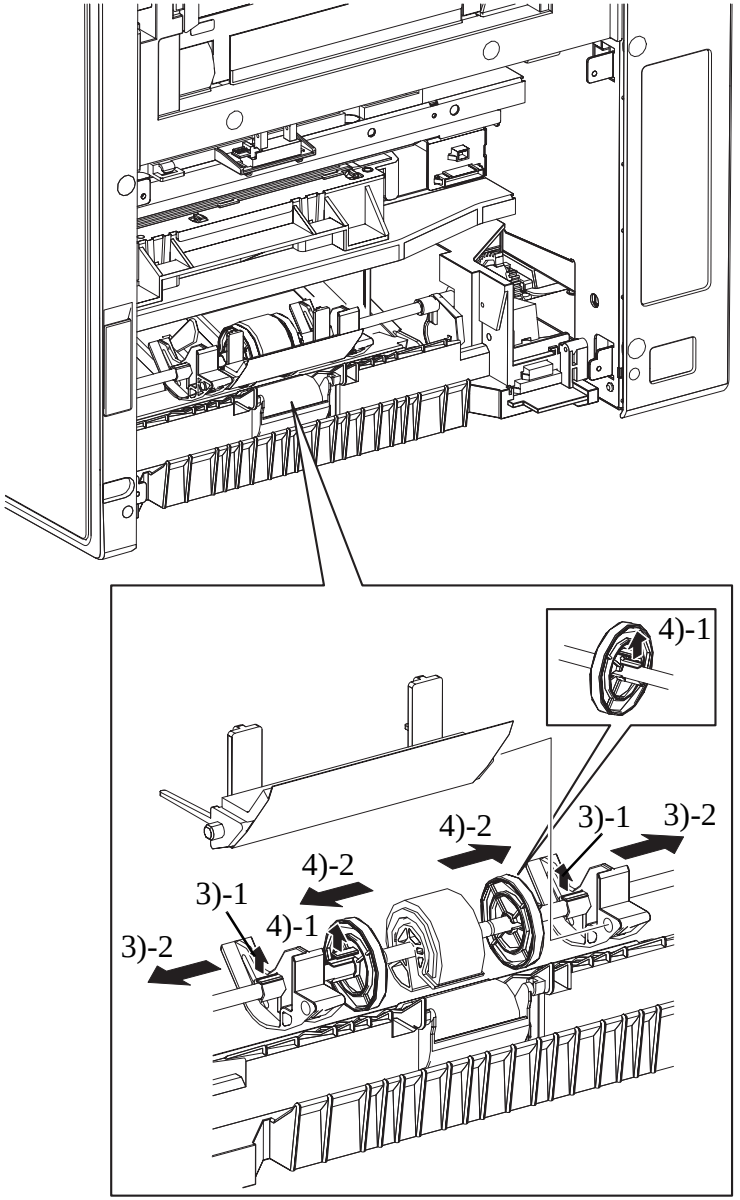

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Figure 4-31. Removal of HOLDER ASSY RETARD MSI (1)

REINSTALLATION

CAUTION

When SPRING RETARD MSI has come off from HOLDER ASSY RETARD MSI, attach SPRING RETARD MSI to the boss on HOLDER ASSY RETARD MSI, and then perform the following work.

1. Match SPRING RETARD MSI attached to HOLDER ASSY RETARD MSI with the spring bearing of FRAME ASSY BOTTOM, and attach the bosses on both sides of HOLDER ASSY RETARD MSI to FRAME ASSY BOTTOM while bending down the bosses.

CAUTION

SPRING RETARD MSI must be properly matched with the boss on the spring bearing of FRAME ASSY BOTTOM.

2. Attach ROLL MSI. *(p.308)*
3. Slide each of the left- and right-side COREs to the inside, and fasten the CORE hook to the groove on SHAFT ASSY MSI.
4. Slide each of the PAPER GUIDEs on the left and right sides to inside, attach CHUTE ASSY PAPER GUIDE, and fasten the hooks on the PAPER GUIDEs to the grooves on the SHAFT ASSY MSI.
5. Attach CHUTE MSI. *(p.309)*
6. Attach FRAME ASSY-PH. *(p.327)*

CAUTION

Make sure to install the FRAME ASSY-PH correctly by referring the caution described in the "REINSTALLATION" of the "4.4.4 FRAME ASSY-PH" (p.327).

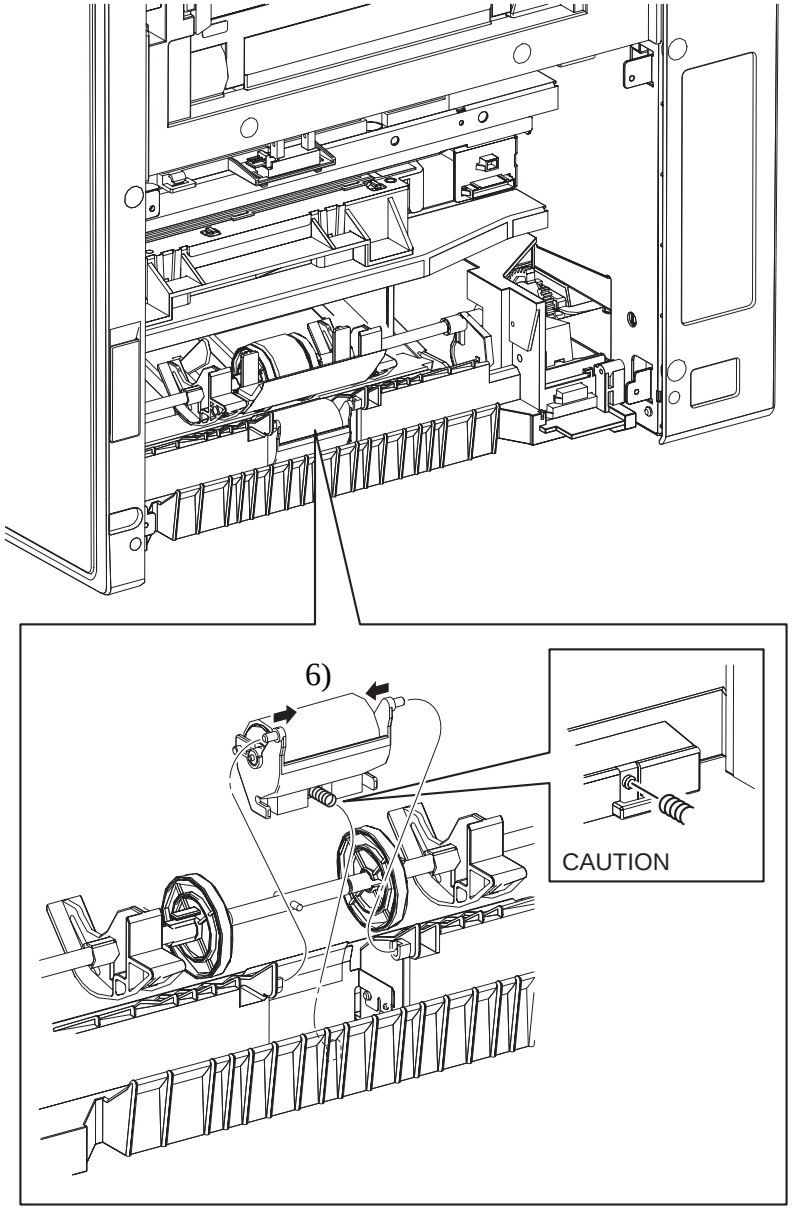

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Figure 4-32. Removal of HOLDER ASSY RETARD MSI (2)

4.3.8 PLATE ASSY RETARD

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove CHUTE MSI. *(p.309)*
3. Remove ROLL MSI. *(p.308)*
4. Remove HOLDER ASSY RETARD MSI. *(p.313)* Bend down PLATE ASSY RETARD, remove the holes on the left and right from the boss on FRAME ASSY BOTTOM, and remove PLATE ASSY RETARD.

CAUTION

When performing the following work, do not fold or bend PLATE ASSY RETARD.

5. Bend down PLATE ASSY RETARD, remove the holes on the left and right from the boss on FRAME ASSY BOTTOM, and remove PLATE ASSY RETARD.

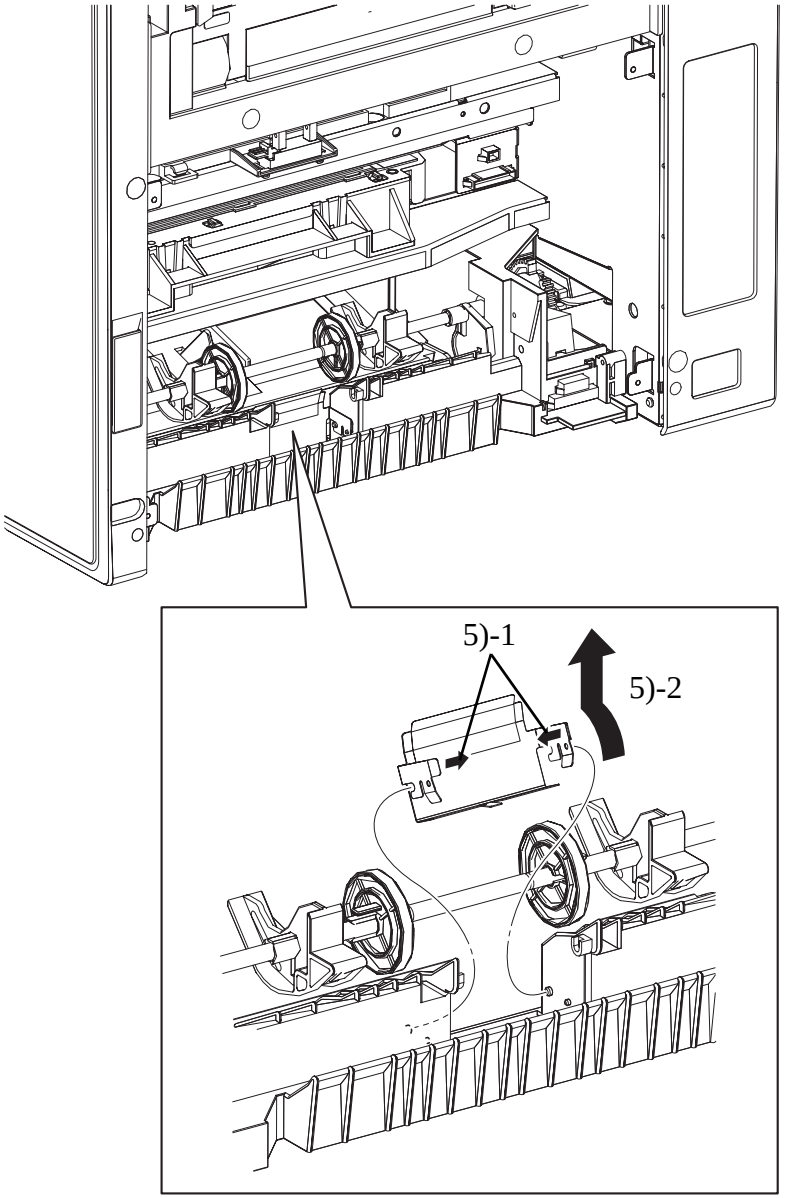

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Figure 4-33. Removal of PLATE ASSY RETARD

REINSTALLATION

CAUTION

When performing the following work, do not fold or bend PLATE ASSY RETARD.

1. Match the left and right U grooves of PLATE ASSY RETARD with the bosses on the front of FRAME ASSY BOTTOM.
2. Turn the bosses aligned with the U-grooves as the fulcrum while bending down PLATE ASSY RETARD, insert the bosses on the rear side of FRAME ASSY BOTTOM into the left and right holes of PLATE ASSY RETARD, and attach PLATE ASSY RETARD.
3. Attach HOLDER ASSY RETARD MSI. *(p.313)*
4. Attach ROLL MSI. *(p.308)*
5. Attach CHUTE MSI. *(p.309)*
6. Attach FRAME ASSY-PH. *(p.327)*

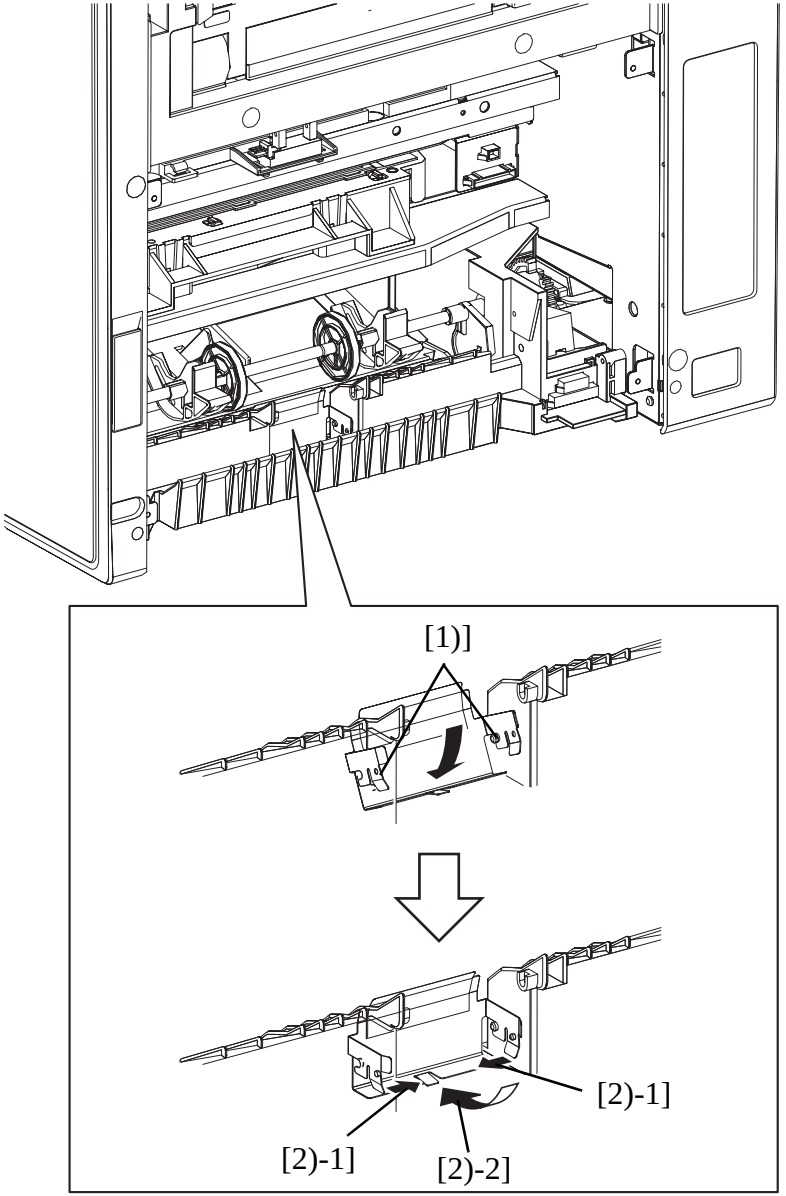

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Figure 4-34. Reinstallation of PLATE ASSY RETARD

4.3.9 OIL DAMPER

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Remove MSI ASSY. *(p.304)*
7. Unhook the hook on GEAR PICK UP fastened to SHAFT ASSY MSI from MSI ASSY, and remove GEAR PICK UP.
8. Remove the 2 screws (silver, with flange, tapping, 8 mm) fastening DAMPER BRACKET to the MSI ASSY.
9. Remove OIL DAMPER together with DAMPER BRACKET from MSI ASSY.
10. Remove OIL DAMPER from DAMPER BRACKET.

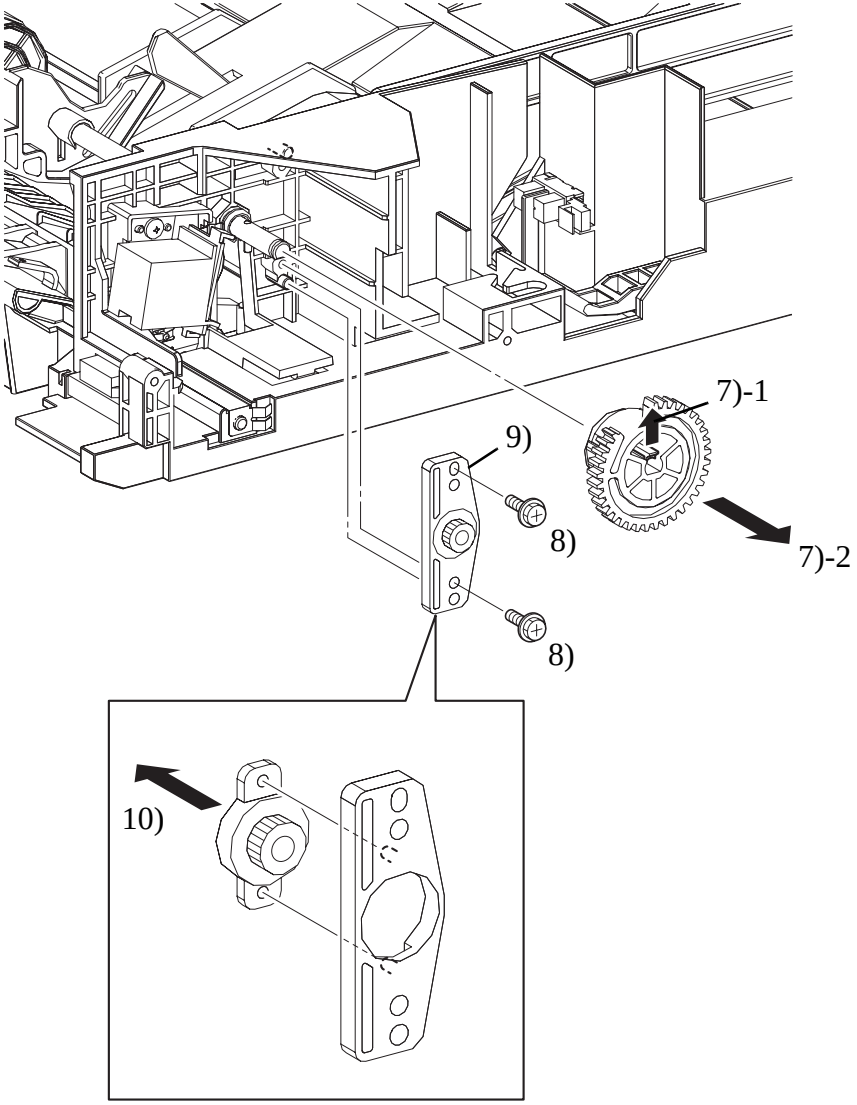

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Figure 4-35. Removal of OIL DAMPER

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of OIL DAMPER.

1. Match the hole on OIL DAMPER with the boss on DAMPER BRACKET, and attach OIL DAMPER to DAMPER BRACKET.
2. Match the hole on DAMPER BRACKET with the boss on MSI ASSY, and attach OIL DAMPER together with DAMPER BRACKET.
3. Fasten DAMPER BRACKET to MSI ASSY with the 2 screws (silver, with flange, tapping, 8 mm).
4. Attach GEAR PICK UP to SHAFT ASSY MSI, and fasten the hook on GEAR PICK UP to the groove on SHAFT ASSY MSI.
5. Attach MSI ASSY. *(p.304)*
6. Attach FRAME ASSY-PH. *(p.327)*
7. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
8. Attach COVER MSI. *(p.291)*
9. Attach COVER ASSY LH. *(p.295)*
10. Attach COVER ASSY RH. *(p.301)*

4.3.10 SOLENOID PICK UP

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Remove MSI ASSY. *(p.304)*
7. Unhook the hook on GEAR PICK UP fastened to SHAFT ASSY MSI from MSI ASSY, and remove GEAR PICK UP.

CAUTION

When performing the following work, leave the intermediate connector on the harness side.

8. Disconnect connector (P/J605) from SOLENOID PICK UP, and remove the harness from the groove on MSI ASSY.
9. Remove the screw (silver, tapping, 8mm) fastening SOLENOID PICK UP to MSI ASSY.
10. Remove SOLENOID PICK UP from MSI ASSY.

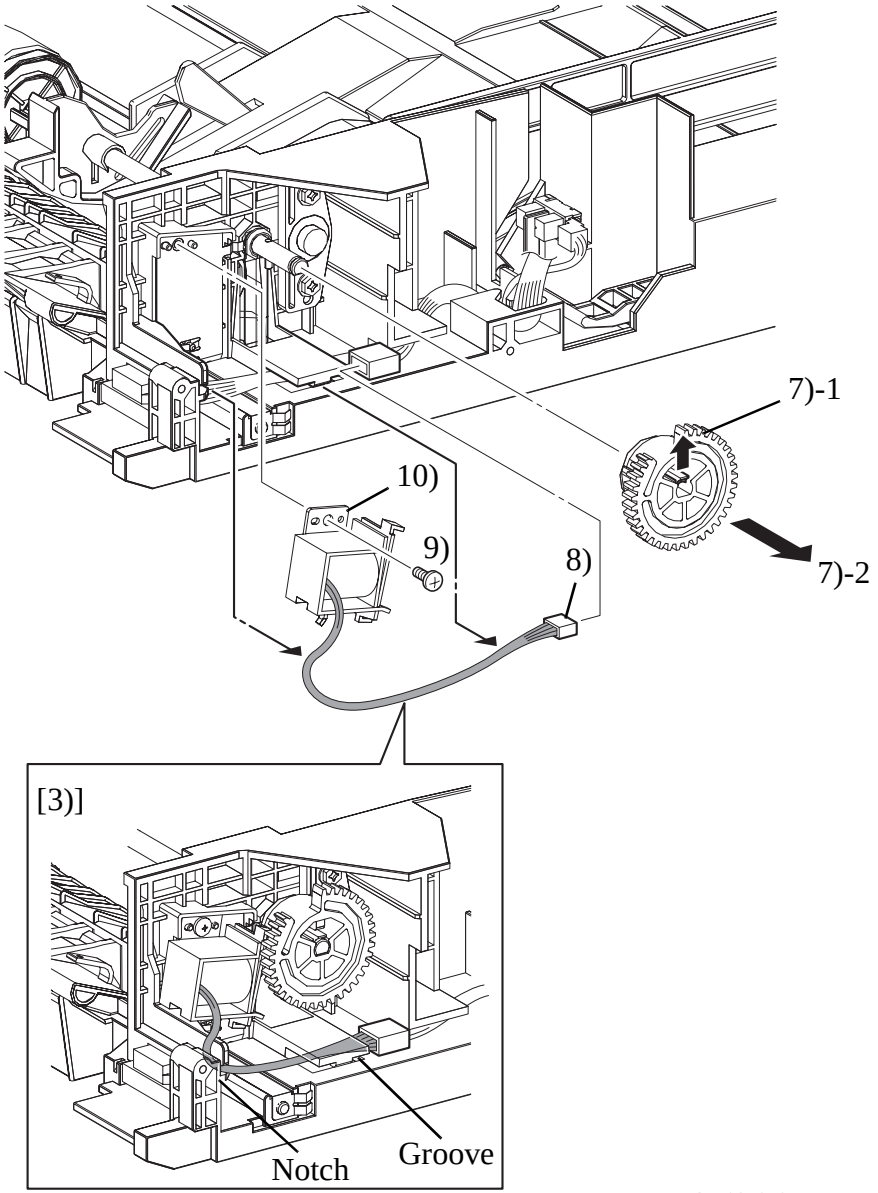

Figure 4-36. Removal of SOLENOID PICK UP

REINSTALLATION

1. Match the hole on SOLENOID PICK UP with the boss on MSI ASSY, and attach SOLENOID PICK UP.
2. Fasten SOLENOID PICK UP to MSI ASSY with the screw (silver, tapping, 8mm).
3. Connect connector (P/J605) to SOLENOID PICK UP, and route the harness in the notch and groove on MSI ASSY.
4. Attach GEAR PICK UP to SHAFT ASSY MSI while pulling the lever on SOLENOID PICK UP, and fasten the hook on GEAR PICK UP to the groove on SHAFT ASSY MSI.
5. Attach MSI ASSY. *(p.304)*
6. Attach FRAME ASSY-PH. *(p.327)*
7. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
8. Attach COVER MSI. *(p.291)*
9. Attach COVER ASSY LH. *(p.295)*
10. Attach COVER ASSY RH. *(p.301)*

4.3.11 SENSOR PAPER EMPTY

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Remove MSI ASSY. *(p.304)*
7. Unhook the three hooks on SENSOR PAPER EMPTY fastened to FRAME ASSY BOTTOM using a small screwdriver or similar tool, and turn ACTUATOR EMPTY to remove SENSOR PAPER EMPTY.
8. Disconnect connector (P/J103) from SENSOR PAPER EMPTY.

REINSTALLATION

1. Connect connector (P/J103) to SENSOR PAPER EMPTY.
2. Turn ACTUATOR EMPTY to align the three hooks on SENSOR PAPER EMPTY to the attachment position, and attach SENSOR PAPER EMPTY to FRAME ASSY BOTTOM.
3. Attach MSI ASSY. *(p.304)*
4. Attach FRAME ASSY-PH. *(p.327)*
5. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
6. Attach COVER MSI. *(p.291)*
7. Attach COVER ASSY LH. *(p.295)*
8. Attach COVER ASSY RH. *(p.301)*

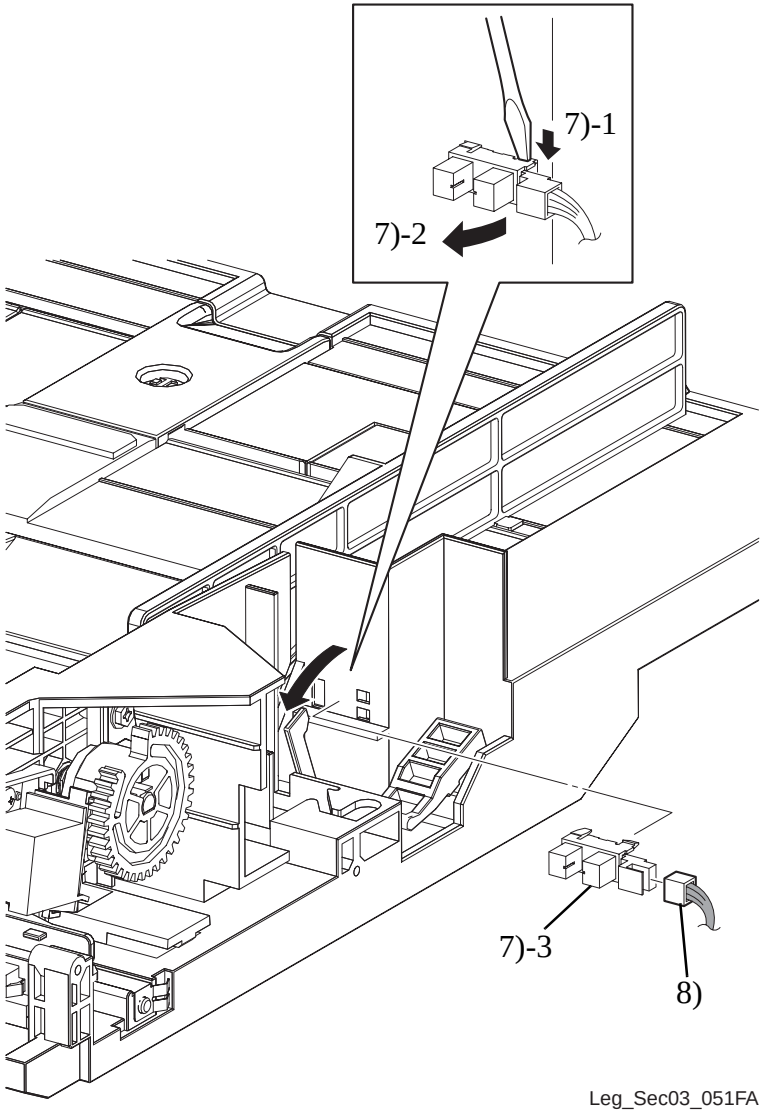

Figure 4-37. Removal of SENSOR PAPER EMPTY

4.3.12 ACTUATOR EMPTY

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Remove MSI ASSY. *(p.304)*
7. Remove GUIDE SIDE L and GUIDE ASSY SIDE R. *(p.310)*

CHECK POINT

When performing the following work, connectors need not be disconnected from SENSOR PAPER EMPTY.

8. Remove SENSOR PAPER EMPTY. *(p.321)*
9. Remove the holes on PLATE BOTTOM 2 from the boss on PLATE BOTTOM ASSY MSI while extending the attachment sections on the left and right of PLATE BOTTOM 2.
10. Turn PLATE BOTTOM 2, remove the bosses on the left and right of PLATE BOTTOM 2 from the notches of MSI ASSY, and remove PLATE BOTTOM 2.

CAUTION

When performing the following work, take care not to fold ACTUATOR EMPTY.

11. Remove the groove on the left-side shaft on ACTUATOR EMPTY from the hook on MSI ASSY, and draw out the right-side shaft on ACTUATOR EMPTY from the hole on MSI ASSY.
12. Slide ACTUATOR EMPTY to the left, slide the shaft of ACTUATOR EMPTY along the notch of MSI ASSY, and remove ACTUATOR EMPTY.

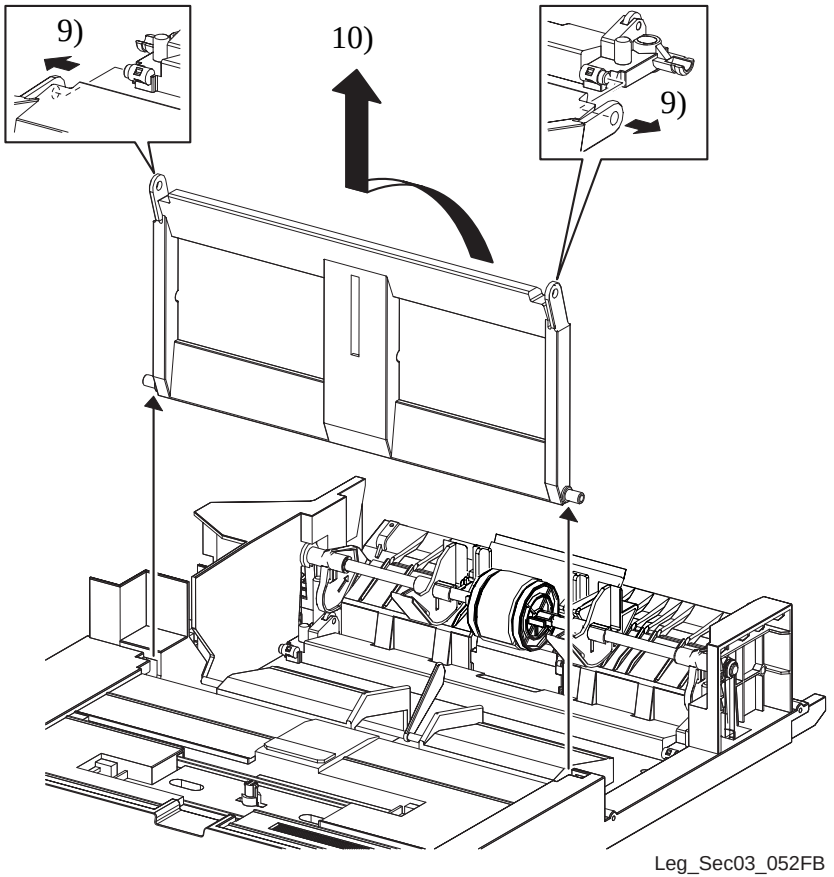

Figure 4-38. Removal of ACTUATOR EMPTY (1)

REINSTALLATION

1. Slide the actuator of ACTUATOR EMPTY into the clearance of MSI ASSY, slide the shaft on ACTUATOR EMPTY along the notch on MSI ASSY, and attach ACTUATOR EMPTY.
2. Insert the right-side shaft of ACTUATOR EMPTY into the hole on MSI ASSY, and fasten the groove on the left-side shaft of ACTUATOR EMPTY to the hook on MSI ASSY.

CAUTION

Make sure that ACTUATOR EMPTY is firmly fastened to the hook.

3. Insert the left and right bosses into the notch on MSI ASSY with PLATE BOTTOM 2 raised 90°, and attach PLATE BOTTOM 2.
4. Insert the holes of PLATE BOTTOM 2 into the boss on PLATE BOTTOM ASSY MSI while extending the left and right attachment sections of PLATE BOTTOM 2.
5. Attach SENSOR PAPER EMPTY. *(p.321)*
6. Attach GUIDE SIDE L and GUIDE ASSY SIDE R. *(p.310)*
7. Attach MSI ASSY. *(p.304)*
8. Attach FRAME ASSY-PH. *(p.327)*
9. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
10. Attach COVER MSI. *(p.291)*
11. Attach COVER ASSY LH. *(p.295)*
12. Attach COVER ASSY RH. *(p.301)*

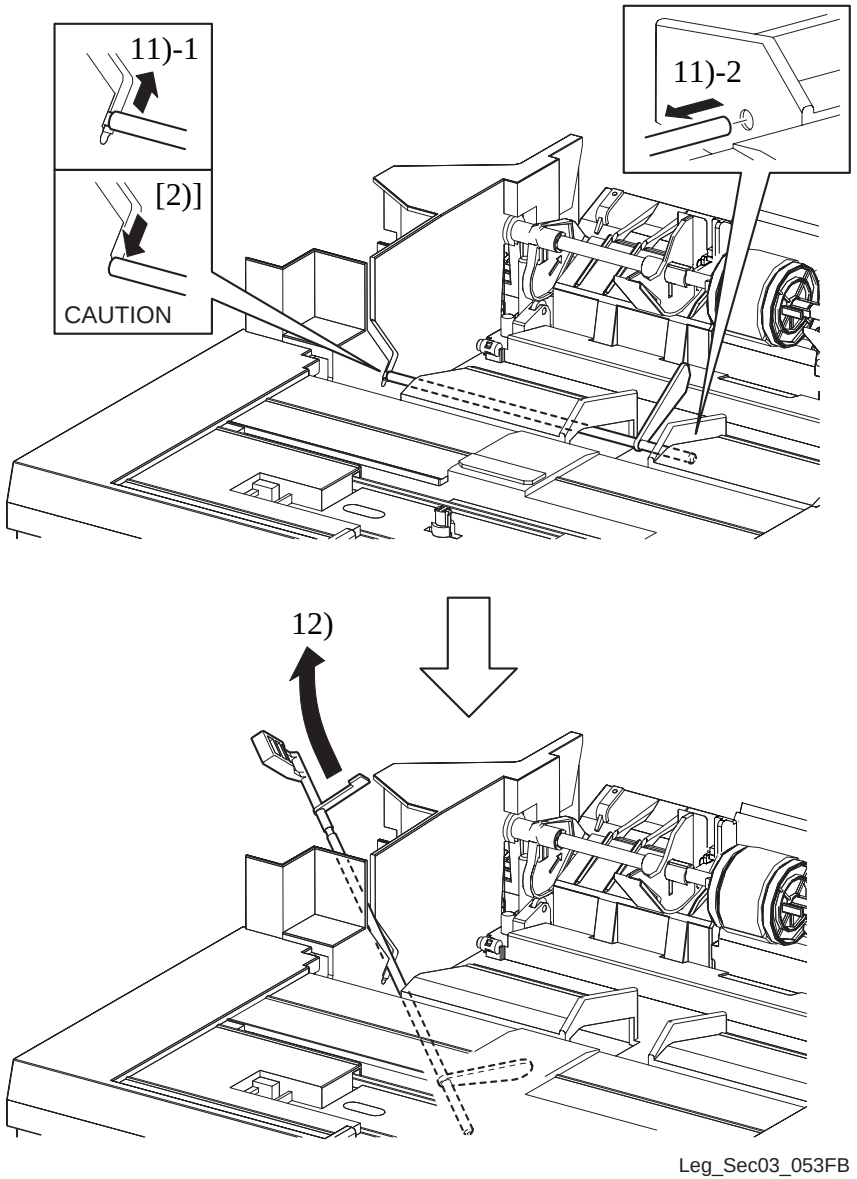

Figure 4-39. Removal of ACTUATOR EMPTY (2)

4.4 PH ASSY

4.4.1 COVER-PH

REMOVAL

1. Open COVER-PH.
2. Unhook the hooks on both the left and right sides fastening COVER-PH to CHUTE ASSY-REAR, and remove COVER-PH.

REINSTALLATION

1. Match the two hooks under COVER-PH with CHUTE ASSY-REAR, attach COVER-PH, and fasten with the hooks on both the left and right sides.
2. Close COVER-PH.

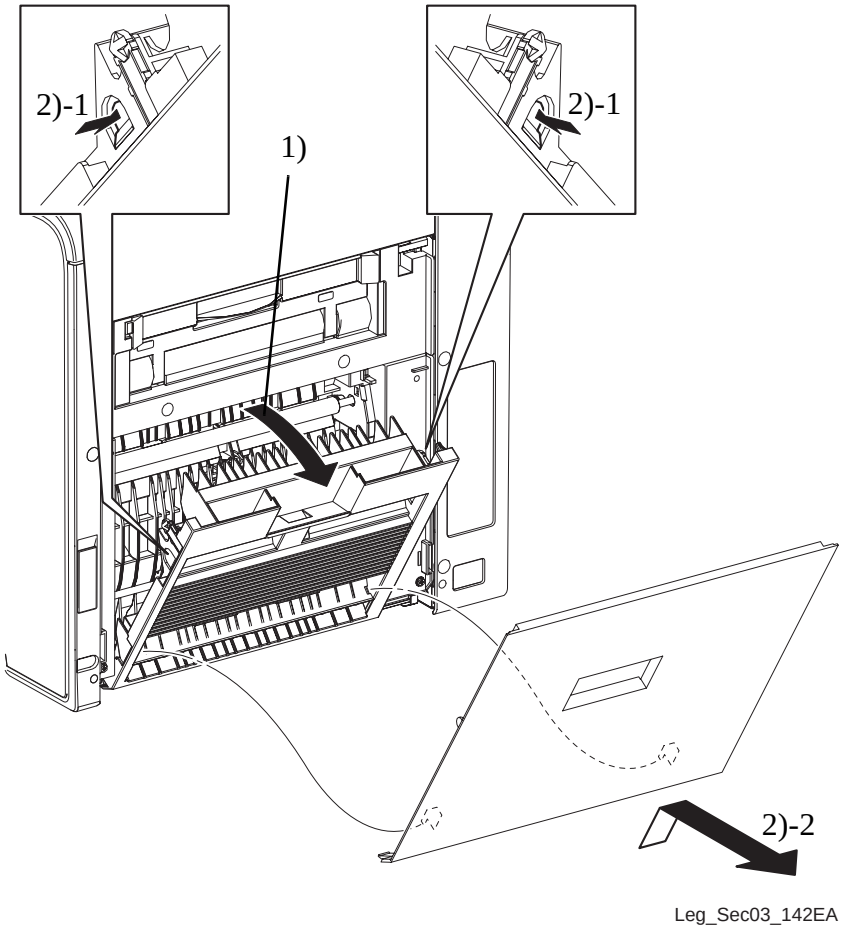

Figure 4-40. Removal of COVER-PH

4.4.2 CHUTE ASSY-REAR

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. In the case of the DUPLEX specification, remove DUPLEX ASSY. *(p.412)*
2. In the case of the standard specification, remove COVER-PH. *(p.324)*
3. Open CHUTE ASSY-REAR.

CAUTION

When performing the following work, take care not to damage the CHUTE ASSY-REAR boss.

4. Bend the attachment section on the right side of CHUTE ASSY-REAR with a small screwdriver or similar tool, remove the right-side boss from the hole on FRAME-PH, and remove CHUTE ASSY-REAR.

REINSTALLATION

CAUTION

When performing the following work, take care not to damage the CHUTE ASSY-REAR boss.

1. Insert the left-side boss on CHUTE ASSY-REAR into the hole on the left side of FRAME-PH, insert the right-side boss on CHUTE ASSY-REAR into the hole on the right side of FRAME-PH so that it slides in from a diagonal direction, and attach CHUTE ASSY-REAR.
2. Close CHUTE ASSY-REAR.
3. In the case of the standard specification, attach COVER-PH. *(p.324)*
4. In the case of the DUPLEX specification, attach DUPLEX ASSY. *(p.412)*

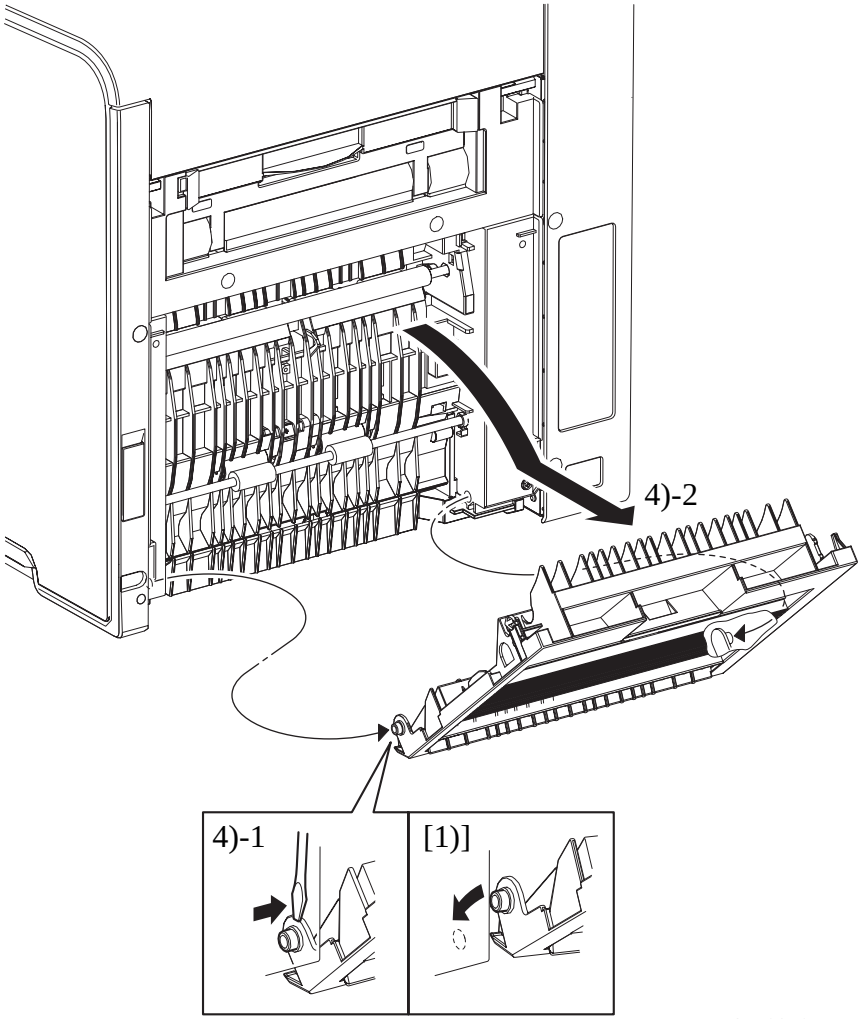

Figure 4-41. Removal of CHUTE ASSY-REAR

4.4.3 CHUTE-REAR UP, CHUTE-REAR LOW

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove CHUTE ASSY-REAR. *(p.325)*
2. Remove the 2 screws (silver, with flange, tapping, 8 mm) fastening CHUTE-REAR LOW to CHUTE-REAR UP.
3. Remove the concave portion on CHUTE-REAR LOW from the protrusion on CHUTE-REAR UP, and remove CHUTE-REAR LOW from CHUTE-REAR UP.

REINSTALLATION

1. Match the hole on CHUTE-REAR LOW with the boss on CHUTE-REAR UP, and insert the protrusion on CHUTE-REAR UP into the concave portion on CHUTE-REAR LOW to attach.

CAUTION

The protrusion on CHUTE REAR UP must be inserted firmly into the concave portion on CHUTE-REAR LOW.

2. Fasten CHUTE-REAR LOW to CHUTE-REAR UP with the 2 screws (silver, with flange, tapping, 8 mm).
3. Attach CHUTE ASSY-REAR. *(p.325)*

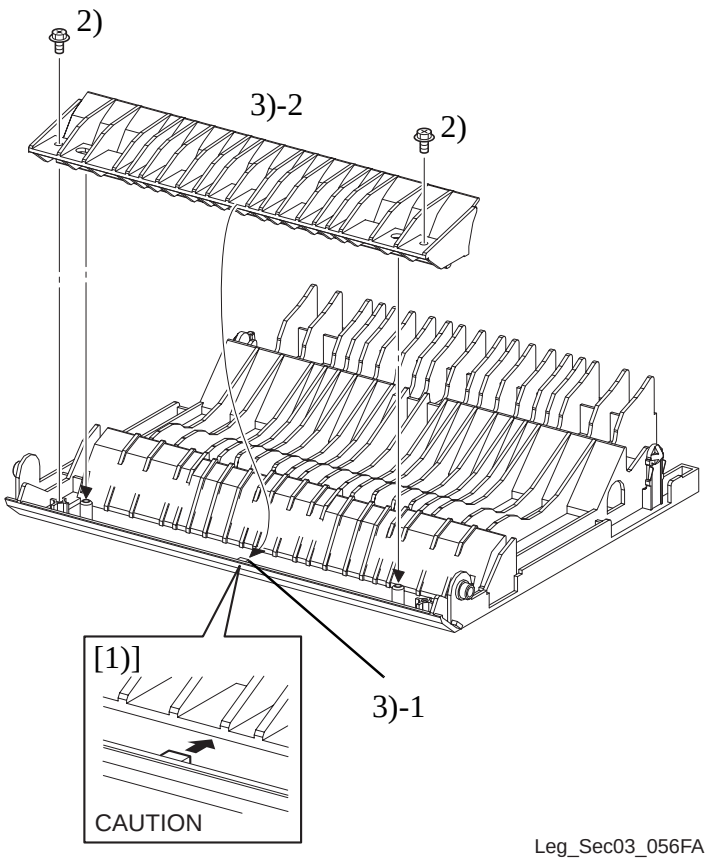

Figure 4-42. Removal of CHUTE-REAR UP and CHUTE-REAR LOW

4.4.4 FRAME ASSY-PH

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. In the case of the DUPLEX specification, remove DUPLEX ASSY. *(p.412)*
2. In the case of the standard specification, remove COVER-PH. *(p.324)*
3. Open CHUTE ASSY-REAR.
4. Remove the 4 screws (silver, with flange, 8 mm) fastening FRAME ASSY-PH to the main unit.
5. Close CHUTE ASSY-REAR.

CAUTION

When performing the following work, take care not to remove FRAME ASSY-PH too far as it is connected by a harness.

6. Slightly remove FRAME ASSY-PH together with CHUTE ASSY-REAR from the main unit.
7. Disconnect connector (P/J603) and connector (P/J604) connected to the main unit, and remove FRAME ASSY-PH together with CHUTE ASSY-REAR.
8. Remove CHUTE ASSY-REAR. *(p.325)*

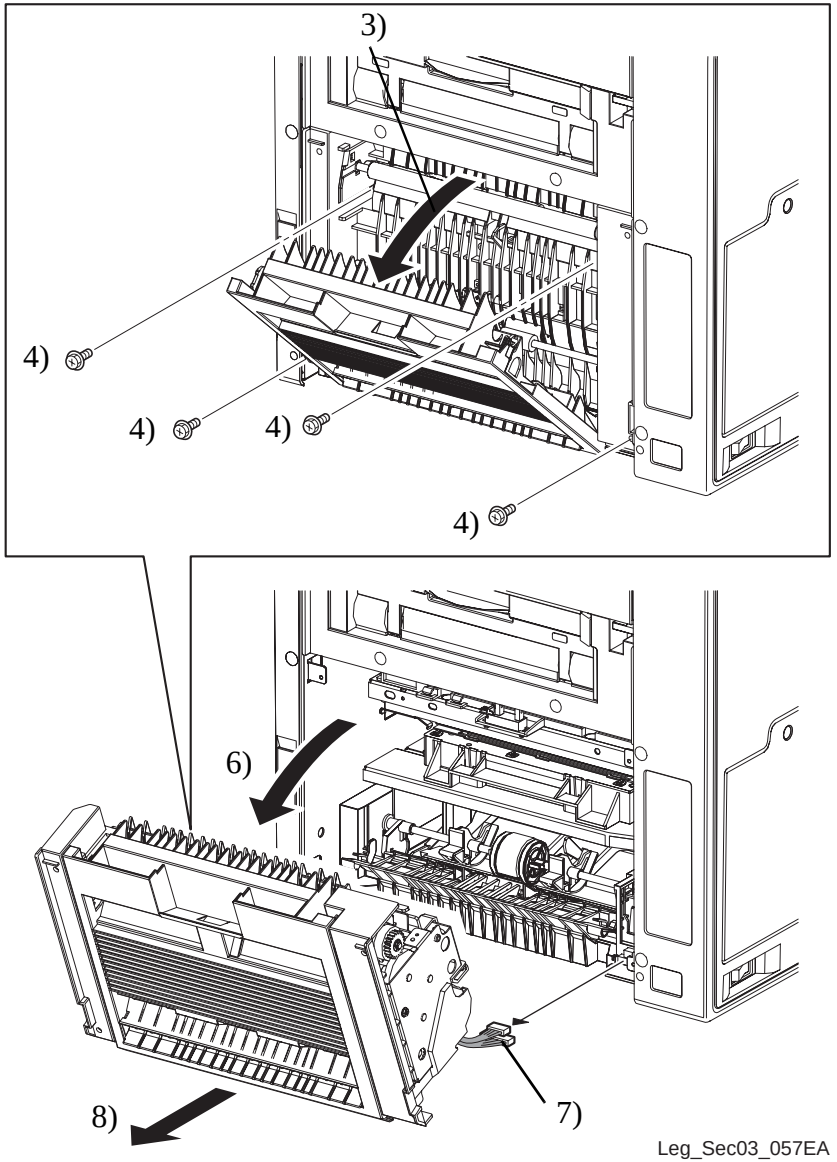

Figure 4-43. Removal of FRAME ASSY-PH

REINSTALLATION

1. Attach CHUTE ASSY-REAR. *(p.325)*
2. Turn FRAME ASSY-PH 90° in the direction of the arrow, and connect connector (P/J603) and connector (P/J604) connected to the main unit.

CAUTION

When performing the following work, take care to prevent the harness from being sandwiched between the main unit and FRAME ASSY-PH.

3. Open CHUTE ASSY-REAR.
4. While pushing down the film part of the HOLDER ASSY RETARD MSI, match FRAME ASSY-PH with the attachment position of the main unit.

CAUTION

Make sure to confirm that the film part of the HOLDER ASSY RETARD MSI is located lateral to the FRAME ASSY-PH after installing the FRAME ASSY-PH to the main unit. If the film part gets through the inside of the FRAME ASSY-PH, a paper jam is occurred by blocking a paper feeding path. (See Figure 4-45)

5. Fasten FRAME ASSY-PH to the main unit with the 4 screws (silver, with flange, 8 mm).
6. Close CHUTE ASSY-REAR.
7. In the case of the standard specification, attach COVER-PH. *(p.324)*
8. In the case of the DUPLEX specification, attach DUPLEX ASSY. *(p.412)*

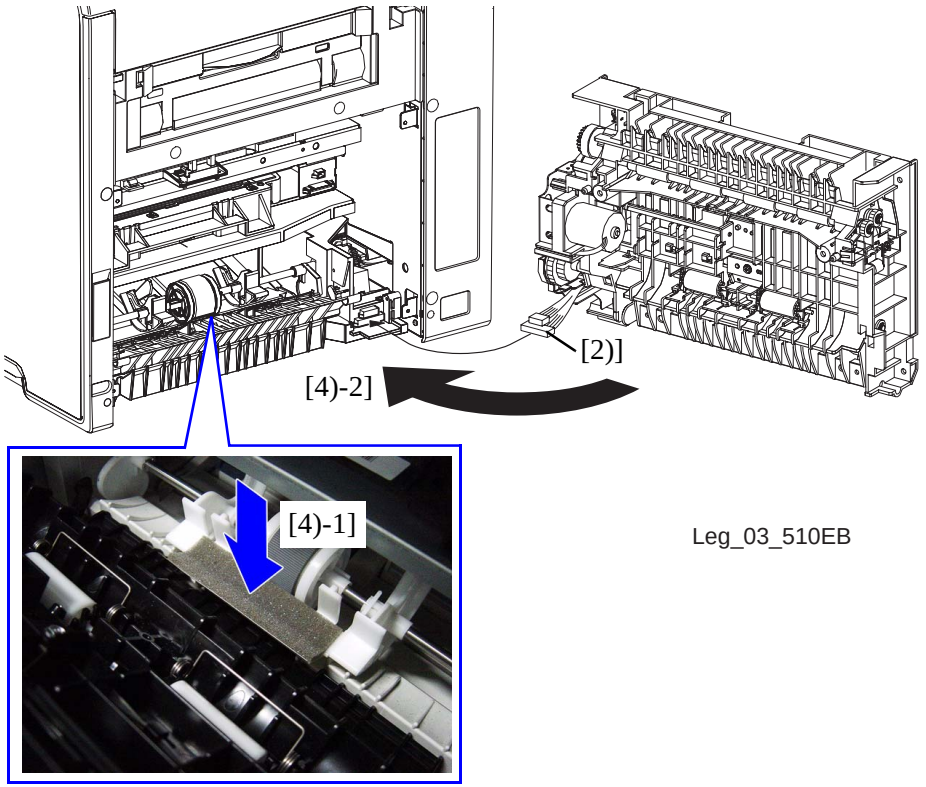

Figure 4-44. Reinstallation of FRAME ASSY-PH

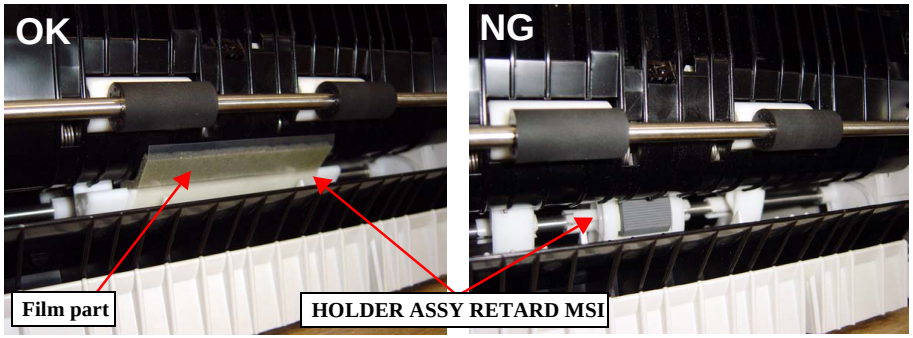

Figure 4-45. Check point after installing FRAME ASSY-PH

4.4.5 CLUTCH ASSY REGI

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove MOTOR-PH. *(p.337)*
3. Remove DRIVE ASSY-PH. *(p.340)*

CAUTION

When performing the following work, leave the intermediate connector on the harness side.

4. Disconnect the connector (P/J203) from CLUTCH ASSY REGI, and remove the harness of CLUTCH ASSY REGI from the groove on FRAME ASSY-PH.
5. Remove the E-ring fastening CLUTCH ASSY REGI to FRAME ASSY-PH.
6. Remove CLUTCH ASSY REGI from FRAME ASSY-PH.

REINSTALLATION

1. Match the hole position of CLUTCH ASSY REGI with the D cut surface on the shaft of ROLL-REGI METAL, and attach CLUTCH ASSY REGI so that the protrusion of FRAME ASSY-PH enters the concave portion on CLUTCH ASSY REGI.
2. Fasten CLUTCH ASSY REGI to FRAME ASSY-PH with the E-ring.
3. Route the harness of CLUTCH ASSY REGI in the groove on FRAME ASSY-PH, and connect the connector (P/J203) to CLUTCH ASSY REGI.
4. Attach DRIVE ASSY-PH. *(p.340)*
5. Attach MOTOR-PH. *(p.337)*
6. Attach FRAME ASSY-PH. *(p.327)*

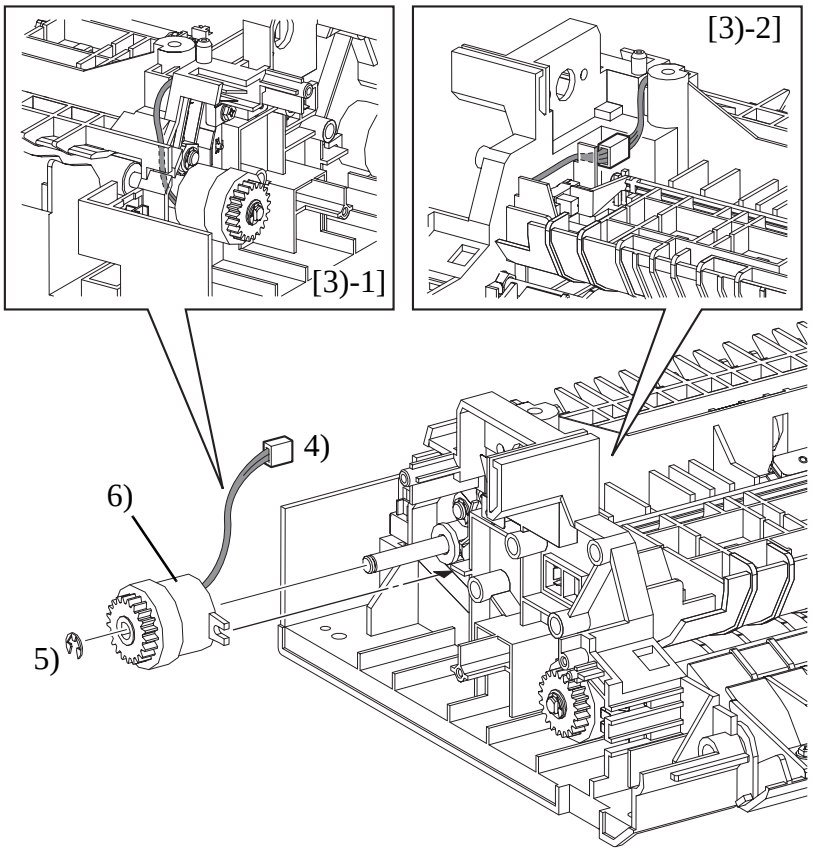

Figure 4-46. Removal of CLUTCH ASSY REGI

4.4.6 ROLL-REGI METAL

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove MOTOR-PH. *(p.337)*
3. Remove DRIVE ASSY-PH. *(p.340)*
4. Remove CLUTCH ASSY REGI. *(p.329)*
5. Remove the two E-rings fastening GEAR-REGI from FRAME ASSY-PH, and remove the two GEAR-REGIs.
6. Remove the left and right BEARING METALs fastening ROLL-REGI METAL from FRAME ASSY-PH.
7. Open CHUTE ASSY-REAR.
8. Temporarily slide ROLL-REGI METAL to the left, draw out the shaft on ROLL-REGI METAL from the right-side bearing on FRAME ASSY-PH, and remove ROLL-REGI METAL.

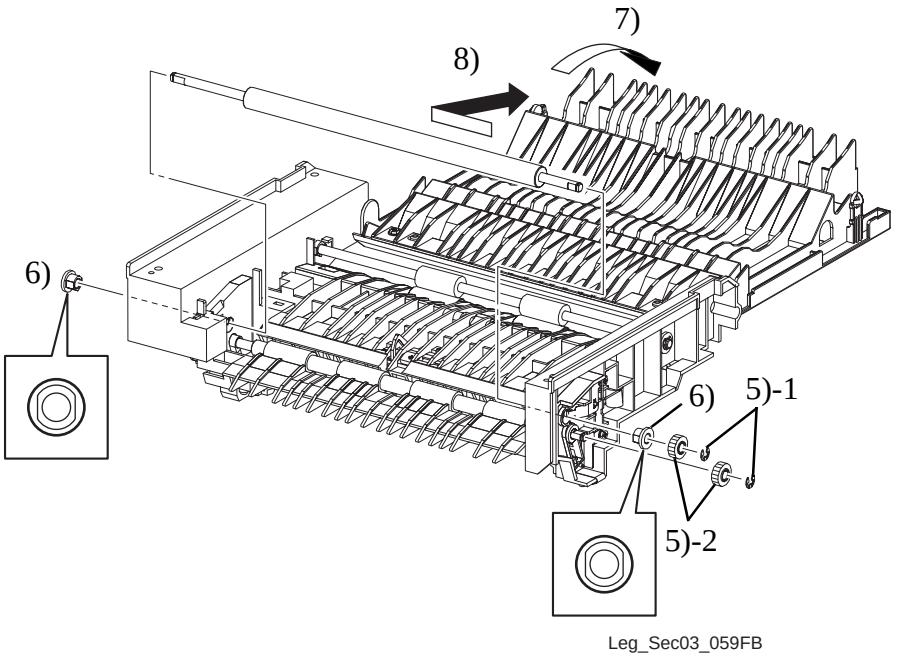

Figure 4-47. Removal of ROLL-REGI METAL

REINSTALLATION

1. Insert the shaft left side on ROLL-REGI METAL into the left-side bearing on FRAME ASSY-PH, and slide ROLL-REGI METAL to the right to attach.
2. Close CHUTE ASSY-REAR.
3. Match the double D cut surface of BEARING METAL with the left and right bearings of FRAME ASSY-PH, attach BEARING METAL, and fasten ROLL-REGI METAL.
4. Attach GEAR-REGI to the right side of the shaft on ROLL-REGI METAL and the right side of the shaft on ROLL REGI RUBBER, and fasten with the E-ring.
5. Attach CLUTCH ASSY REGI. *(p.329)*
6. Attach DRIVE ASSY-PH. *(p.340)*
7. Attach MOTOR-PH. *(p.337)*
8. Attach FRAME ASSY-PH. *(p.327)*

4.4.7 ROLL REGI RUBBER

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove MOTOR-PH. *(p.337)*
3. Remove DRIVE ASSY-PH. *(p.340)*
4. Remove CLUTCH ASSY REGI. *(p.329)*
5. Remove the E-ring fastening GEAR-REGI on ROLL REGI RUBBER from FRAME ASSY-PH, and remove GEAR-REGI.
6. Remove the right-side BEARING RUBBER and SPRING-REGI R (METAL) fastening ROLL REGI RUBBER from FRAME ASSY-PH.
7. Remove the E-ring fastening ROLL REGI RUBBER from FRAME ASSY-PH, and BEARING RUBBER and SPRING-REGI L (BLACK) on the left side.
8. Temporarily slide ROLL REGI RUBBER to the left, draw out the shaft on ROLL REGI RUBBER from the right-side bearing on FRAME ASSY-PH, and remove ROLL REGI RUBBER.

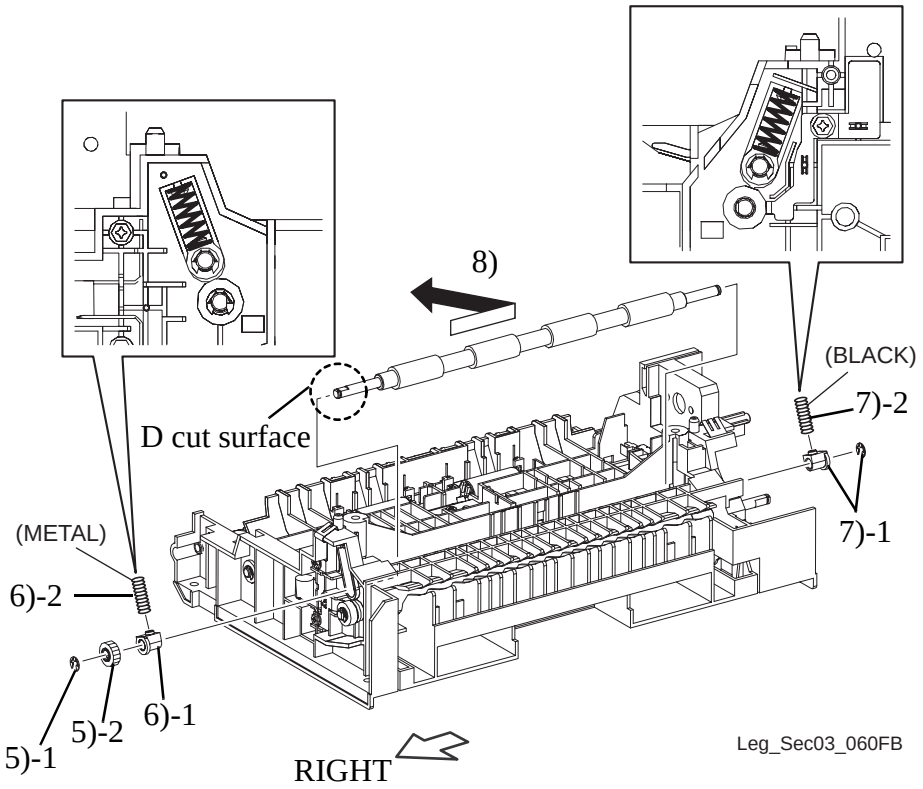

Figure 4-48. Removal of ROLL REGI RUBBER

REINSTALLATION

CAUTION

Attach ROLL REGI RUBBER to FRAME ASSY-PH so that the D cut surface of the shaft comes to the right side.

1. Insert the shaft left side on ROLL REGI RUBBER into the left-side bearing on FRAME ASSY-PH, and slide ROLL REGI RUBBER to the right to attach.
2. Fasten ROLL REGI RUBBER to FRAME ASSY-PH by the left and right BEARING RUBBER.

CAUTION

When performing the following work, take care not to attach SPRING-REGI R (METAL) and SPRING-REGI L (BLACK) to the wrong side (not to confuse left and right).

3. Attach SPRING-REGI R (METAL) to the boss on the right-side BEARING RUBBER and the boss on the right-side bearing of FRAME ASSY-PH fastening ROLL REGI RUBBER.
4. Attach SPRING-REGI L (BLACK) to the boss on the left-side BEARING RUBBER and the boss on the left-side bearing of FRAME ASSY-PH fastening ROLL REGI RUBBER.

CAUTION

Make sure that SPRING-REGI R (METAL) and SPRING-REGI L (BLACK) are inserted in the boss on the left and right BEARING RUBBER and the bearing on FRAME ASSY-PH.

5. Attach GEAR-REGI to the right side of the shaft on ROLL REGI RUBBER, and fasten with the two E-rings on the left and right of the shaft.
6. Attach CLUTCH ASSY REGI. *(p.329)*
7. Attach DRIVE ASSY-PH. *(p.340)*
8. Attach MOTOR-PH. *(p.337)*
9. Attach FRAME ASSY-PH. *(p.327)*

4.4.8 ROLL ASSY-PRE REGI

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove MOTOR-PH. *(p.337)*
3. Remove DRIVE ASSY-PH. *(p.340)*
4. Remove CLUTCH ASSY PRE REGI. *(p.338)*
5. Remove the E-rings fastening the right side of the shaft on ROLL ASSY-PRE REGI from FRAME ASSY-PH.
6. Remove the left and right BEARING METALs fastening ROLL ASSY-PRE REGI from FRAME ASSY-PH.
7. Open CHUTE ASSY-REAR.
8. Temporarily slide ROLL ASSY-PRE REGI to the left, draw out the shaft on ROLL ASSY-PRE REGI from the right-side bearing on FRAME ASSY-PH, and remove ROLL ASSY-PRE REGI.

REINSTALLATION

CAUTION

Attach ROLL ASSY-PRE REGI to FRAME ASSY-PH so that the D cut surface of the shaft comes to the left side.

1. Insert the shaft left side on ROLL ASSY-PRE REGI into the left-side bearing on FRAME ASSY-PH, and slide ROLL ASSY-PRE REGI to the right to attach.
2. Close CHUTE ASSY-REAR.
3. Match the double D cut surface of BEARING METAL with the left and right bearings of FRAME ASSY-PH, attach BEARING METAL, and fasten ROLL ASSY-PRE REGI.
4. Fasten the shaft right side of ROLL ASSY-PRE REGI with an E-ring.
5. Attach CLUTCH ASSY PRE REGI. *(p.338)*
6. Attach DRIVE ASSY-PH. *(p.340)*
7. Attach MOTOR-PH. *(p.337)*
8. Attach FRAME ASSY-PH. *(p.327)*

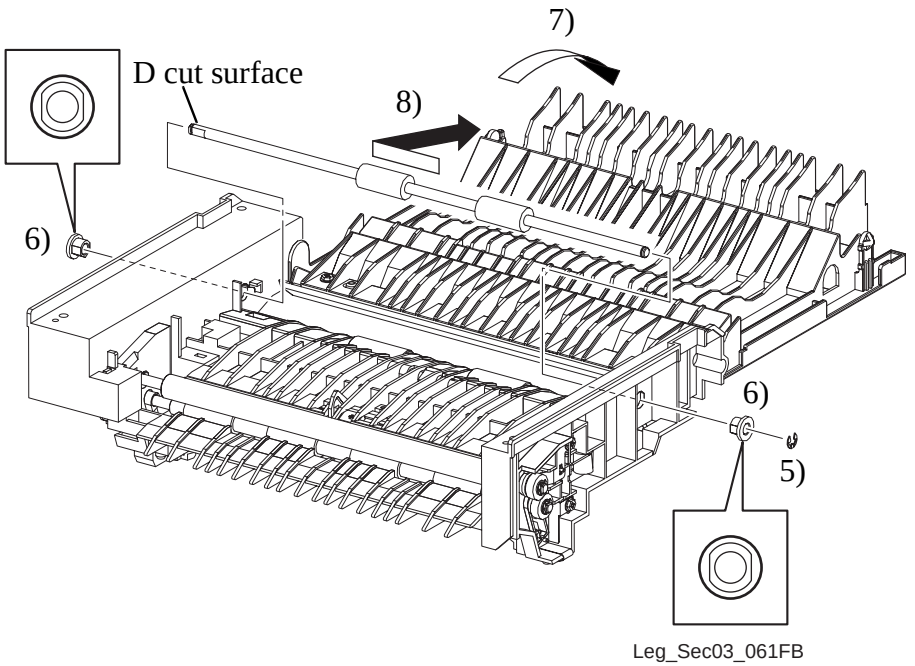

Figure 4-49. Removal of ROLL ASSY-PRE REGI

4.4.9 SENSOR OHP

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove the screw (silver, with flange, tapping, 8 mm) fastening BRACKET-SENSOR OHP to FRAME ASSY-PH.

CAUTION

When performing the following work, take care not to remove FRAME ASSY-PH and BRACKET-SENSOR OHP too far as they are connected by harnesses.

3. Remove BRACKET-SENSOR OHP together with SENSOR OHP from FRAME ASSY-PH.
4. Disconnect connector (P/J101) from SENSOR OHP.
5. Remove the screw (silver, tapping, 8 mm) fastening SENSOR OHP to BRACKET-SENSOR OHP.
6. Remove SENSOR OHP from BRACKET-SENSOR OHP.

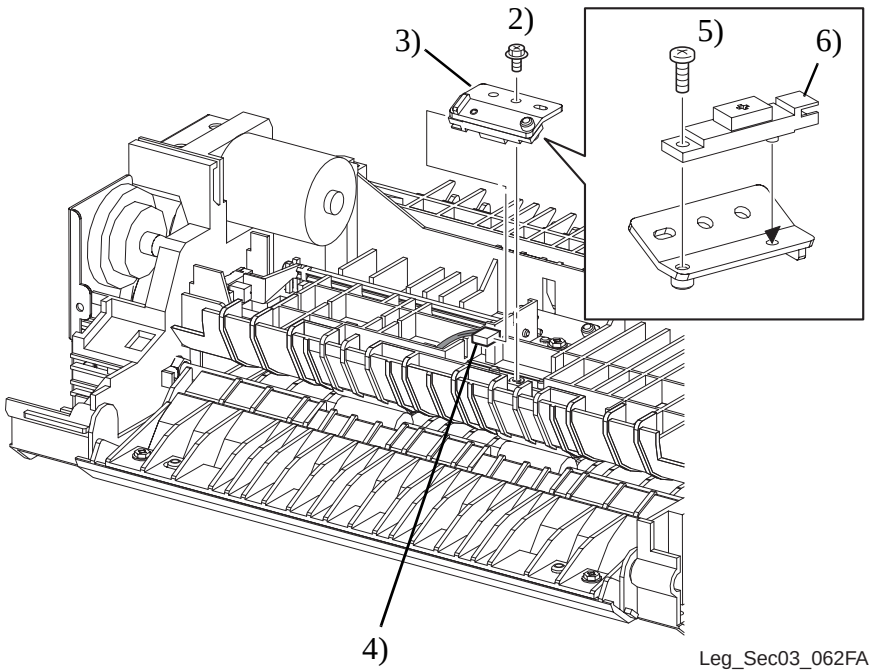

Figure 4-50. Removal of SENSOR OHP

REINSTALLATION

1. Match the boss on SENSOR OHP with the hole on BRACKET-SENSOR OHP, and attach SENSOR OHP to BRACKET-SENSOR OHP.
2. Fasten SENSOR OHP to BRACKET-SENSOR OHP with the screw (silver, tapping, 8 mm).
3. Connect connector (P/J101) to SENSOR OHP.
4. Match the hole on BRACKET-SENSOR OHP with the boss on FRAME ASSY-PH, and attach BRACKET-SENSOR OHP together with SENSOR OHP.
5. Fasten BRACKET-SENSOR OHP to FRAME ASSY-PH with the screw (silver, with flange, tapping, 8 mm).
6. Attach FRAME ASSY-PH. *(p.327)*

4.4.10 ACTUATOR-REGI

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove the left-side shaft on ACTUATOR-REGI from the hook on FRAME ASSY-PH.
3. Draw out the right-side shaft on ACTUATOR-REGI from the hole on FRAME ASSY-PH, and remove ACTUATOR-REGI together with SPRING-ACTUATOR.
4. Remove SPRING-ACTUATOR from ACTUATOR-REGI.

REINSTALLATION

1. Attach SPRING-ACTUATOR to ACTUATOR-REGI.
2. Insert the right-side shaft on ACTUATOR-REGI into the hole on FRAME ASSY-PH, and hook SPRING-ACTUATOR onto the notch on FRAME ASSY-PH.

CAUTION

SPRING-ACTUATOR must be hooked firmly on ACTUATOR-REGI and FRAME ASSY-PH.

3. Fasten the left-side shaft on ACTUATOR-REGI by the hook on FRAME ASSY-PH.
4. Attach FRAME ASSY-PH. *(p.327)*

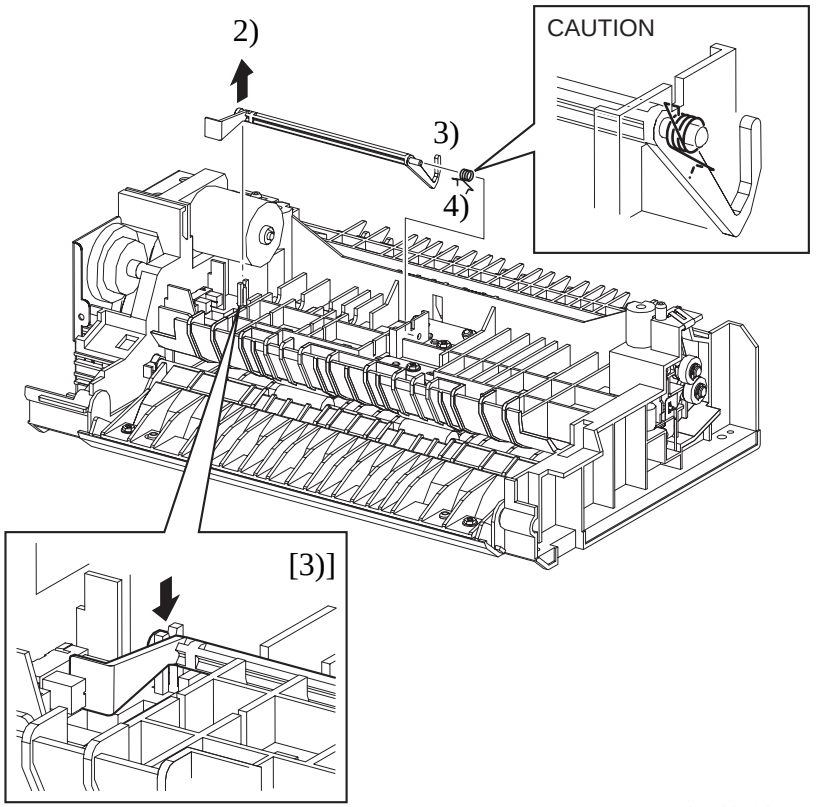

Figure 4-51. Removal of ACTUATOR-REGI

4.4.11 SENSOR REGI

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove MOTOR-PH. *(p.337)*
3. Remove DRIVE ASSY-PH. *(p.340)*
4. Unhook the three hooks fastening SENSOR REGI to FRAME ASSY-PH, down ACTUATOR-REGI with your fingers press and remove SENSOR REGI.
5. Disconnect connector (P/J102) from SENSOR REGI.

REINSTALLATION

1. Connect connector (P/J102) to SENSOR REGI.
2. Press down ACTUATOR-REGI with your fingers, match the hooks on SENSOR REGI with the attachment position, and attach to FRAME ASSY-PH.
3. Attach DRIVE ASSY-PH. *(p.340)*
4. Attach MOTOR-PH. *(p.337)*
5. Attach FRAME ASSY-PH. *(p.327)*

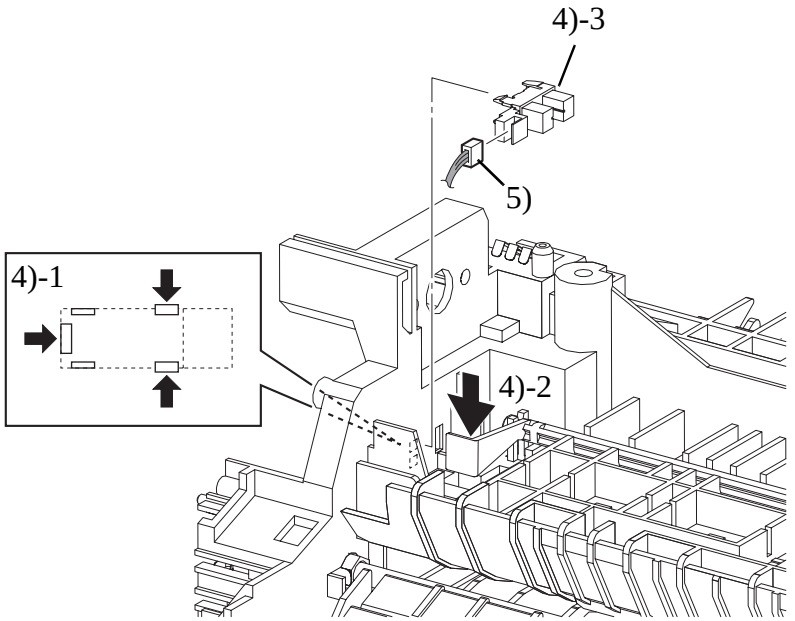

Figure 4-52. Removal of SENSOR REGI

4.4.12 MOTOR-PH

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Unhook the two hooks fastening COVER-HARNESS to FRAME ASSY-PH, and remove COVER-HARNESS.
3. Unclamp the clamp on DRIVE ASSY-PH, and remove the harness of MOTOR-PH from the groove on FRAME ASSY-PH.
4. Remove the 2 screws (silver, with flange, 6 mm) fastening MOTOR-PH to FRAME ASSY-PH.
5. Remove MOTOR-PH from FRAME ASSY-PH.

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of MOTOR-PH.

1. Attach MOTOR-PH to FRAME ASSY-PH with the harness of MOTOR-PH facing the front.
2. Fasten MOTOR-PH to FRAME ASSY-PH with the 2 screws (silver, with flange, 6 mm).
3. Route the harness of MOTOR-PH in the groove on FRAME ASSY-PH, and fasten with the clamp on DRIVE ASSY-PH.
4. Match the boss and protrusion of COVER-HARNESS with the hole on FRAME ASSY-PH, attach and fasten with the 2 hooks.
5. Attach FRAME ASSY-PH. *(p.327)*

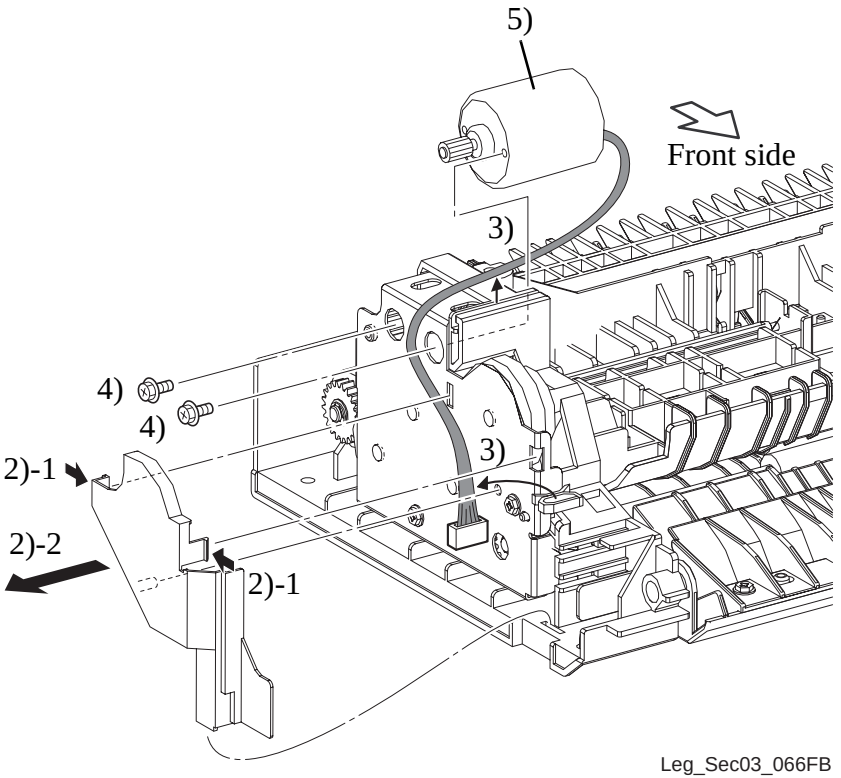

Figure 4-53. Removal of MOTOR-PH

4.4.13 CLUTCH ASSY PRE REGI

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove MOTOR-PH. *(p.337)*
3. Remove DRIVE ASSY-PH. *(p.340)*

CAUTION

When performing the following work, do not disconnect the relay connectors.

4. Disconnect the connector (P/J202) from CLUTCH ASSY REGI, and remove the harness of CLUTCH ASSY REGI from the groove on FRAME ASSY-PH.
5. Remove the E-rings fastening CLUTCH ASSY PRE REGI to FRAME ASSY-PH.
6. Remove CLUTCH ASSY PRE REGI from FRAME ASSY-PH, and remove the harness of CLUTCH ASSY PRE REGI from the hole on FRAME ASSY-PH.

REINSTALLATION

1. Insert the harness of CLUTCH ASSY PRE REGI into the hole on FRAME ASSY-PH.
2. Match the hole position of CLUTCH ASSY PRE REGI with the D cut surface on the shaft of ROLL ASSY-PRE REGI, and attach CLUTCH ASSY PRE REGI so that the protrusion on FRAME ASSY-PH enters the concave portion on CLUTCH ASSY PRE REGI.
3. Fasten CLUTCH ASSY PRE REGI to FRAME ASSY-PH with an E-ring.
4. Route the harness of CLUTCH ASSY PRE REGI in the groove on FRAME ASSY-PH, and connect the connector (P/J202) to CLUTCH ASSY PRE REGI.
5. Attach DRIVE ASSY-PH. *(p.340)*
6. Attach MOTOR-PH. *(p.337)*
7. Attach FRAME ASSY-PH. *(p.327)*

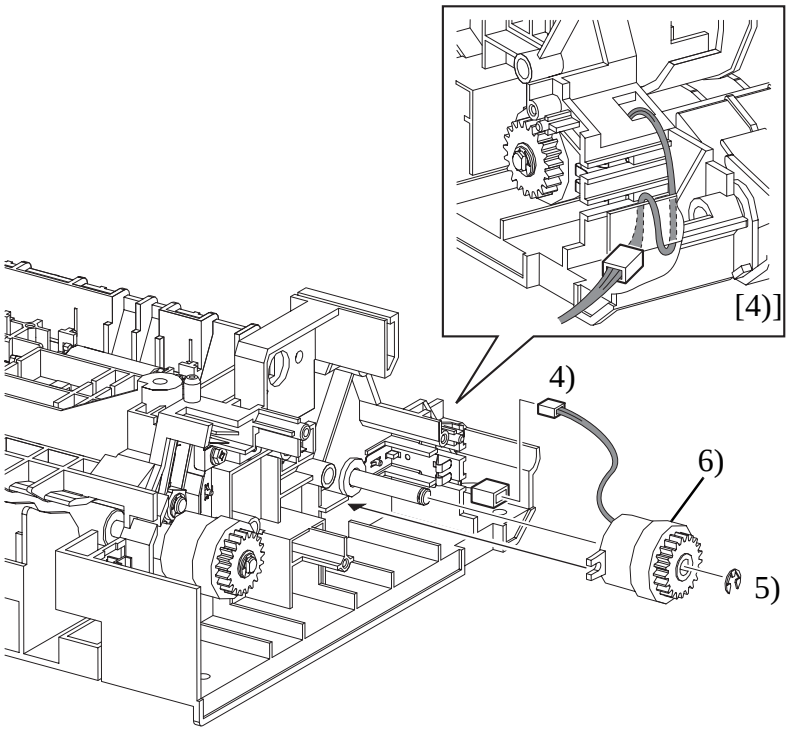

Figure 4-54. Removal of CLUTCH ASSY PRE REGI

4.4.14 SWITCH-PH DOOR

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Disconnect connector (P/J100) from SWITCH-PH DOOR.
3. Open CHUTE ASSY-REAR.
4. Unhook the two hooks fastening SWITCH-PH DOOR to FRAME ASSY-PH, and remove SWITCH-PH DOOR.

REINSTALLATION

1. Open CHUTE ASSY-REAR.
2. Match the hooks on SWITCH-PH DOOR with the attachment position, and attach to FRAME ASSY-PH.
3. Connect connector (P/J100) to SWITCH-PH DOOR.
4. Attach FRAME ASSY-PH. *(p.327)*

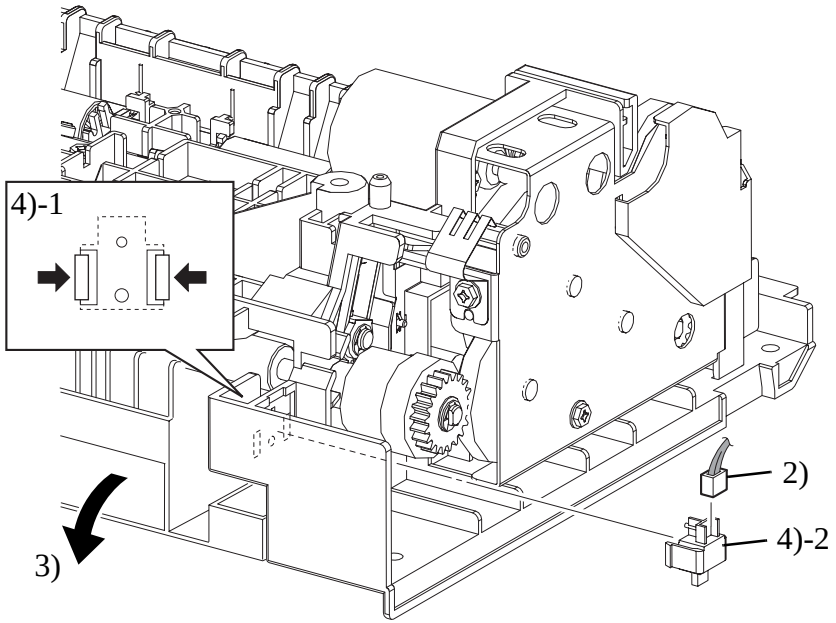

Figure 4-55. Removal of SWITCH-PH DOOR

4.4.15 DRIVE ASSY-PH

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Remove MOTOR-PH. *(p.337)*
3. Unclamp the clamp on DRIVE ASSY-PH, and remove the harness.
4. Remove the 2 screws (silver, with flange, tapping, 8 mm) fastening DRIVE ASSY-PH to FRAME ASSY-PH.
5. Remove DRIVE ASSY-PH from FRAME ASSY-PH.

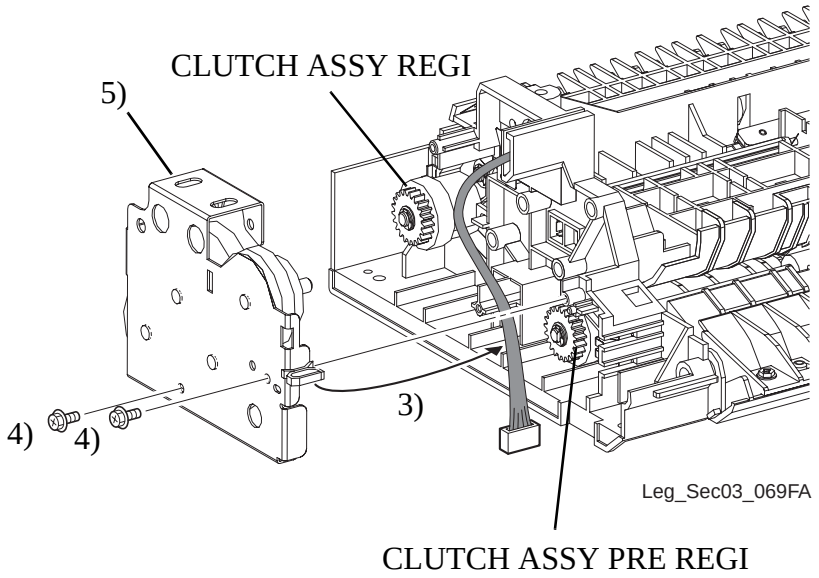

Figure 4-56. Removal of DRIVE ASSY-PH

REINSTALLATION

CAUTION

When performing the following work, make sure that the gears on CLUTCH ASSY REGI and CLUTCH ASSY PRE REGI are correctly engaged.

1. Match the hole on DRIVE ASSY-PH with the boss on FRAME ASSY-PH, and attach DRIVE ASSY-PH.
2. Fasten DRIVE ASSY-PH to FRAME ASSY-PH with the 2 screws (silver, with flange, tapping, 8 mm).
3. Fasten the harness with the clamp on DRIVE ASSY-PH.
4. Attach MOTOR-PH. *(p.337)*
5. Attach FRAME ASSY-PH. *(p.327)*

4.5 TRANSFER

4.5.1 CHUTE ASSY-FSR, COVER ASSY-RR 2ND

REMOVAL

☐ CHUTE ASSY-FSR.

1. Open CHUTE ASSY-FSR.

CAUTION

When performing the following work, take care not to remove CHUTE ASSY-FSR too far as it is connected by a harness.

2. Press the hinge on CHUTE ASSY-FSR to the inside with a flat-blade screwdriver or a similar tool, and remove CHUTE ASSY-FSR from the main unit.

CAUTION

When performing the following work, leave the intermediate connector on the harness side.

3. Disconnect the connector (P/J620) from CHUTE ASSY-FSR connected to the main unit.

CHECK POINT

When HARNESS ASSY 2BTR SW need not be removed in the following procedure, COVER ASSY-RR 2ND can be removed without removing COVER ASSY LH by disconnecting connector (P/J113) from SWITCH 2BTR COVER instead of connector (P/J621).

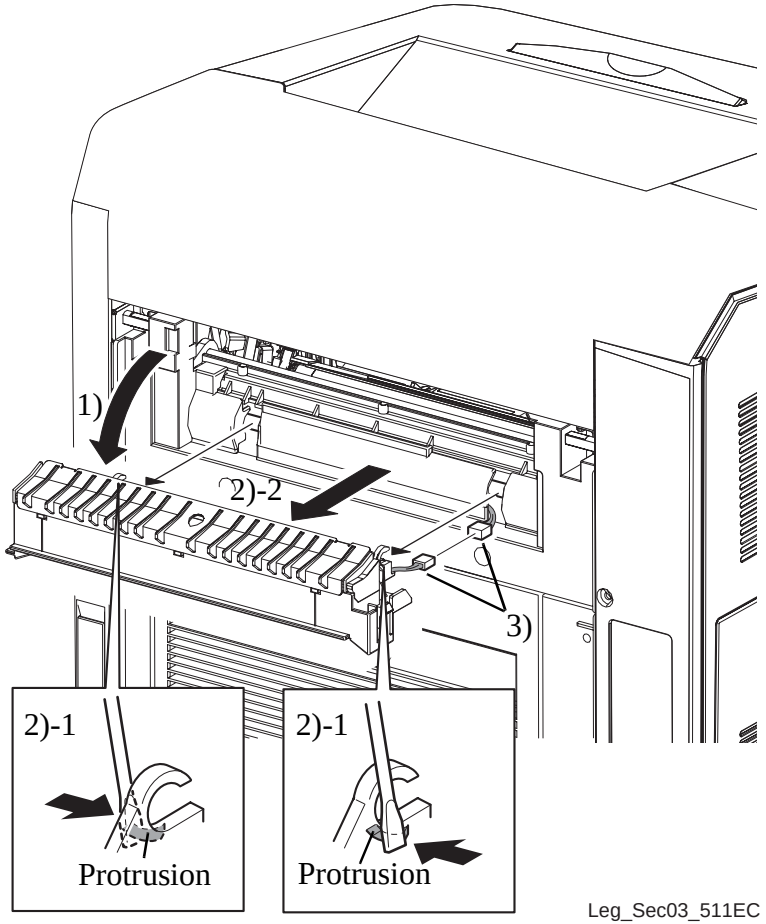

Figure 4-57. Removal of CHUTE ASSY-FSR

☐ COVER ASSY-RR 2ND

1. Remove COVER ASSY LH. *(p.295)*
2. Unclamp the clamp fastening the harness of COVER ASSY-RR 2ND, and remove the harness.

CAUTION

When performing the following work, leave the intermediate connector on the harness side.

3. Disconnect connector (P/J621) connected to the main unit, and insert the connector inside through the hole on the main unit.
4. Remove the 2 screws (silver, with flange, 8 mm) fastening COVER ASSY-RR 2ND to the main unit.
5. Remove COVER ASSY-RR 2ND from the main unit.

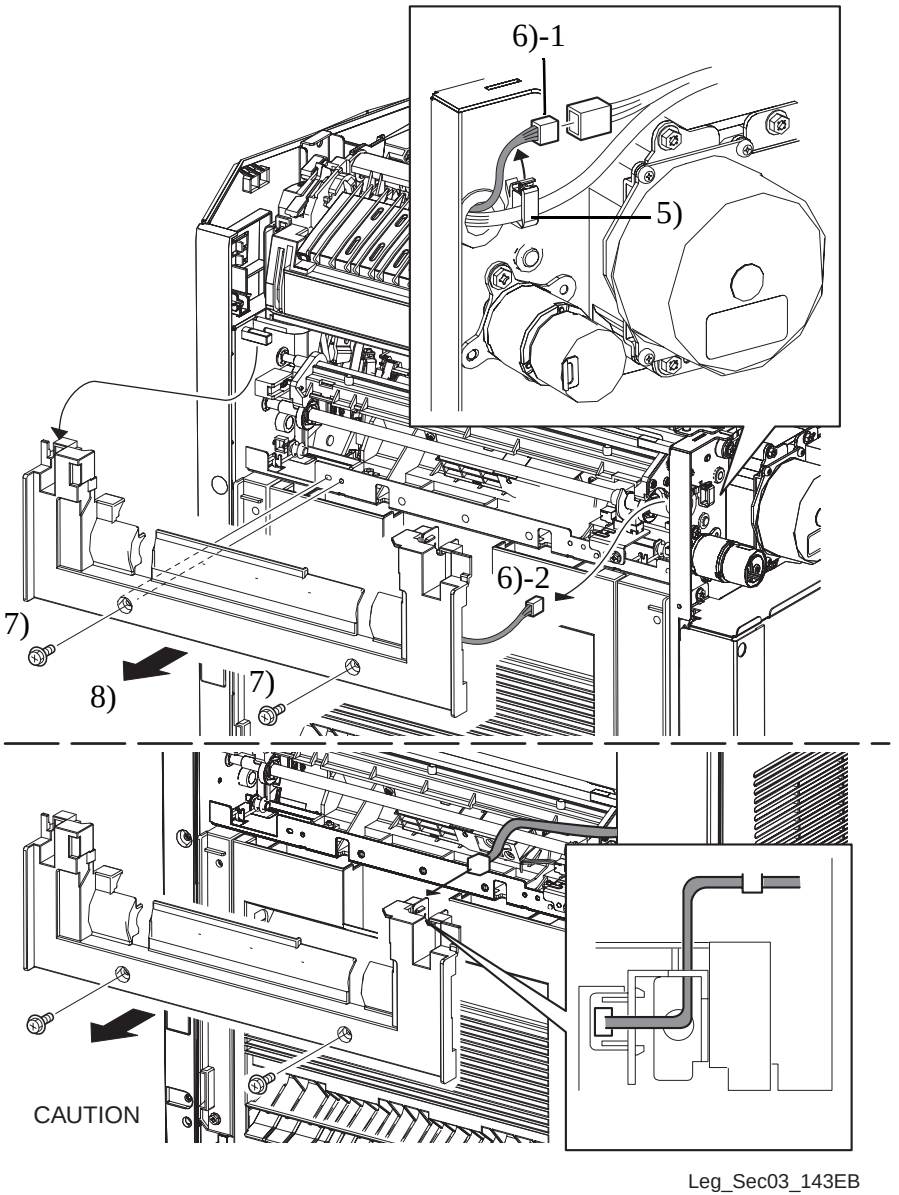

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Figure 4-58. Removal of COVER ASSY-RR 2ND

REINSTALLATION

☐ COVER ASSY-RR 2ND

CAUTION

When performing the following work, take care to prevent the harness from being sandwiched between the main unit and COVER ASSY-RR 2ND.

1. Lead out the connector of the harness of COVER ASSY-RR 2ND from the hole on the main unit.
2. Match the boss on COVER ASSY-RR 2ND with the hole on the main unit, and attach COVER ASSY-RR 2ND.
3. Lead out the relay connector connected to the connector on CHUTE ASSY-FSR to the outside from the left-side notch on COVER ASSY-RR 2ND.
4. Fasten COVER ASSY-RR 2ND to the main unit with the 2 screws (silver, with flange, 8 mm).
5. Connect connector (P/J621) on the harness of COVER ASSY-RR 2ND to the main unit, and fasten the harness by the clamp.

☐ CHUTE ASSY-FSR.

1. Attach the connector (P/J620) on CHUTE ASSY-FSR connected to the main unit, and insert the connector into the main unit from the left-side notch on COVER ASSY-RR 2ND.
2. Fit the U groove on the both the left- and right-side hinges of CHUTE ASSY-FSR into the shaft on CAM ASSY-2ND, and attach CHUTE ASSY-FSR to the main unit.
3. Close CHUTE ASSY-FSR.
4. Attach COVER ASSY LH. *(p.295)*

4.5.2 SENSOR FUSER IN

REMOVAL

1. Remove CHUTE ASSY-FSR. *(p.341)*
2. Remove the 2 screws (silver, with washer, tapping, 8 mm) fastening DIODE FUSER to CHUTE ASSY-FSR.
3. Remove DIODE FUSER from CHUTE ASSY-FSR.
4. Remove the screw (silver, with washer, tapping, 8 mm) fastening CHUTE-FSR and PLATE DIS 2ND to CHUTE ASSY-FSR.
5. Remove PLATE DIS 2ND from CHUTE ASSY-FSR.
6. Remove CHUTE-FSR from CHUTE ASSY-FSR.
7. Disconnect connector (P/J111) from SENSOR FUSER IN.
8. Remove the screw (silver, tapping, 6 mm) fastening SENSOR FUSER IN to CHUTE ASSY-FSR.
9. Remove SENSOR FUSER IN from CHUTE ASSY-FSR.

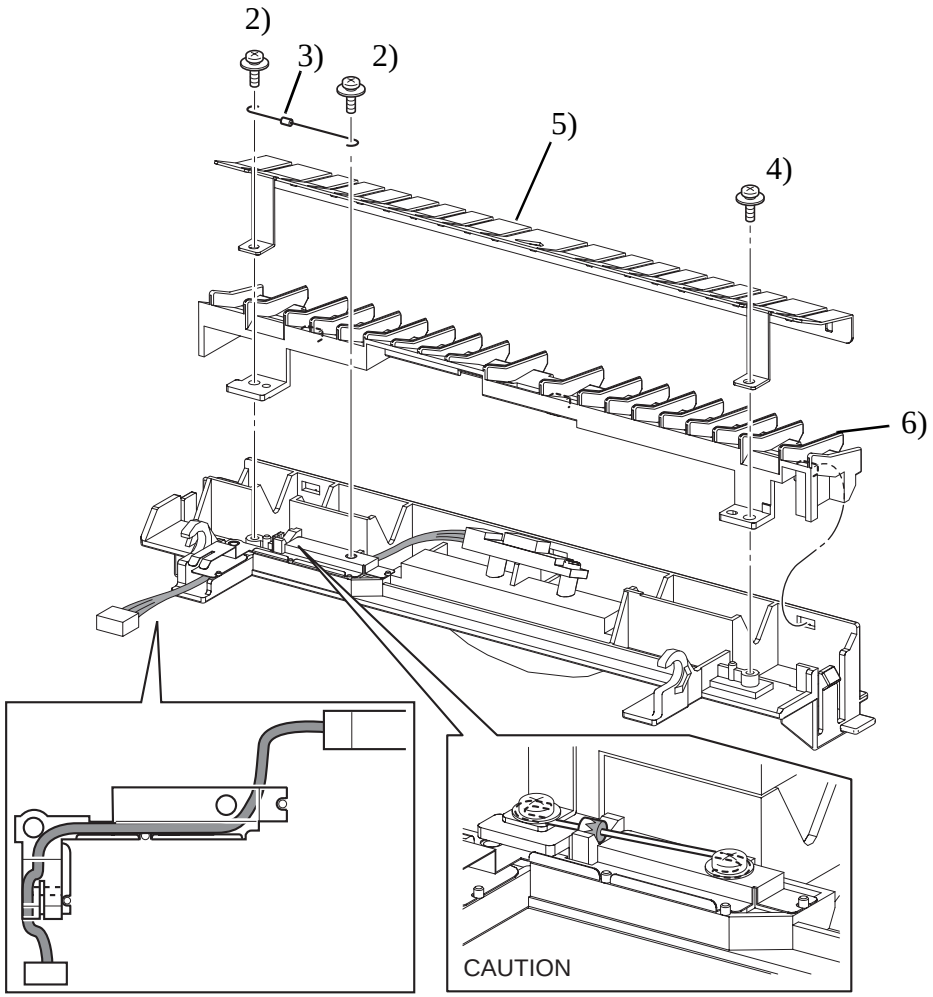

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Figure 4-59. Removal of SENSOR FUSER IN (1)

REINSTALLATION

1. Match the boss on SENSOR FUSER IN with the hole on CHUTE ASSY-FSR, and attach SENSOR FUSER IN.
2. Fasten SENSOR FUSER IN to CHUTE ASSY-FSR with the screw (silver, tapping, 6 mm).
3. Connect connector (P/J111) to SENSOR FUSER IN.
4. Insert the three protrusions on CHUTE-FSR into the holes on CHUTE ASSY-FSR, match the holes on CHUTE-FSR with the boss on CHUTE ASSY-FSR, and attach CHUTE-FSR.
5. Attach PLATE DIS 2ND to CHUTE ASSY-FSR.
6. Tighten and fasten both CHUTE-FSR and the right side of PLATE DIS 2ND to CHUTE ASSY-FSR with the screw (silver, with washer, tapping, 8 mm).

CAUTION

When performing the following work, pay attention to the attachment direction of DIODE FUSER.
Attach so that the white painted side of DIODE FUSER is on the side where DIODE FUSER is screwed together with CHUTE-FSR.

7. Match DIODE FUSER with the concave portion on CHUTE ASSY-FSR, and attach.

CAUTION

When performing the following work, the terminal on DIODE FUSER must be attached between the washer and the plate.

8. Fasten the right-side terminal of DIODE FUSER to CHUTE ASSY-FSR with the screw (silver, with washer, tapping, 8 mm).
9. Fasten both the left-side terminal of DIODE FUSER and the left side of PLATE DIS 2ND to CHUTE ASSY-FSR with the screw (silver, with washer, tapping, 8 mm).
10. Attach CHUTE ASSY-FSR. *(p.341)*

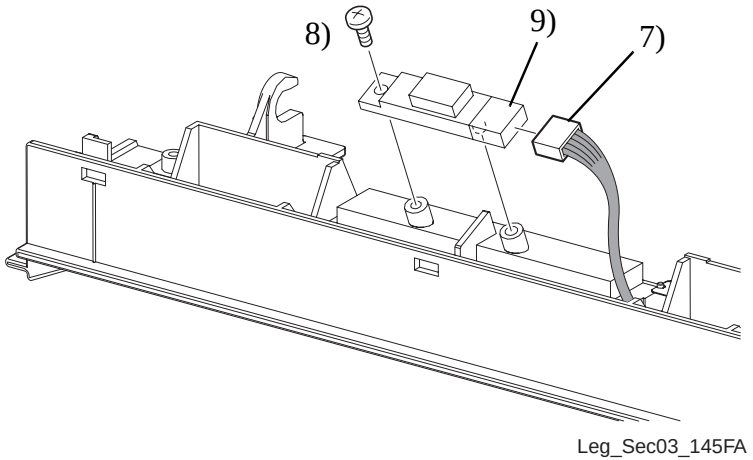

Figure 4-60. Removal of SENSOR FUSER IN (2)

4.5.3 FRAME ASSY-2ND

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
3. Remove 2ND BTR ASSY. *(p.348)*
4. Remove PLATE BIAS-2ND ASSY. *(p.358)*
5. Remove CAM ASSY-2ND. *(p.350)*
6. Remove SPRING-2ND fastening both the left and right sides of FRAME ASSY-2ND to the main unit.
7. Remove the E-ring fastening the right-side shaft on FRAME ASSY-2ND to the main unit, and slide BEARING-BRUSH CAM to the left.

CAUTION

When performing the following work, take care not to drop or lose BEARING-BRUSH CAM.

8. Temporarily slide FRAME ASSY-2ND to the right, and draw out the shaft on FRAME ASSY-2ND from the left-side bearing on the main unit, and remove FRAME ASSY-2ND together with BEARING-BRUSH CAM.
9. Remove BEARING-BRUSH CAM from FRAME ASSY-2ND.

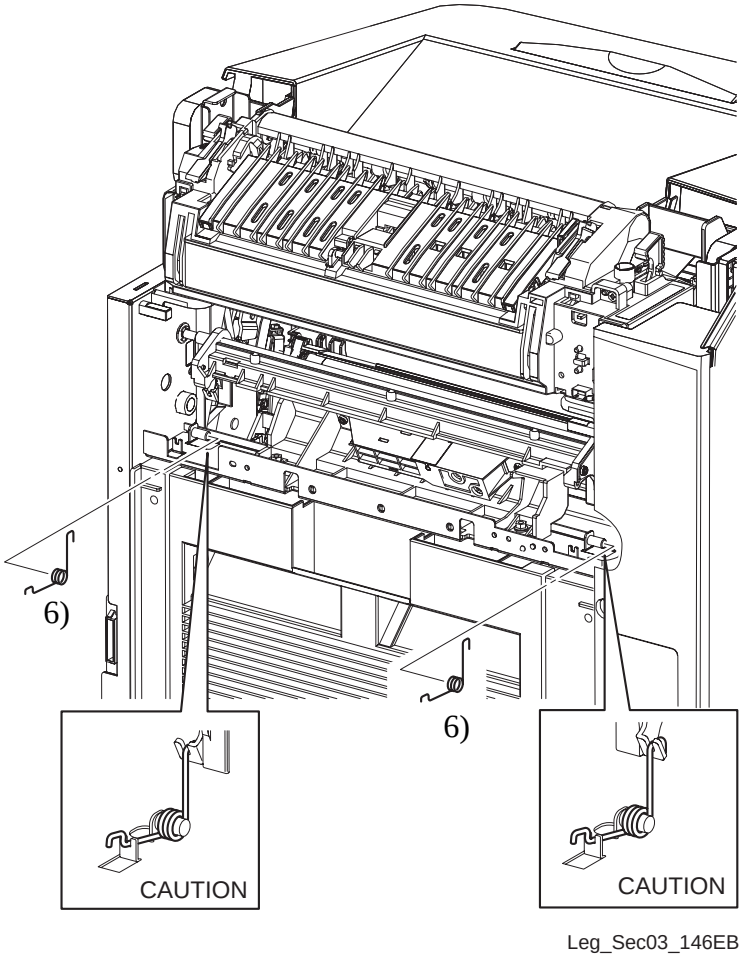

Figure 4-61. Removal of FRAME ASSY-2ND (1)

REINSTALLATION

1. Attach BEARING-BRUSH CAM to the left-side bearing on the main unit.
2. Attach BEARING-BRUSH CAM to the right-side shaft on FRAME ASSY-2ND.
3. Insert the right-side shaft on FRAME ASSY-2ND into the right-side bearing on the main unit, slide FRAME ASSY-2ND to the left, insert the flange of GEAR 27 on FRAME ASSY-2ND as far as possible into the gear of DRIVE ASSY BTR, and attach FRAME ASSY-2ND.
4. Insert the right-side BEARING-BRUSH CAM on FRAME ASSY-2ND into the right-side bearing on the main unit, and fasten with an E-ring.

CAUTION

When performing the following work, firmly hook SPRING-2ND onto the concave portion on FRAME ASSY-2ND.

5. Fasten both the left and right sides of FRAME ASSY-2ND to the main unit with SPRING-2ND.
6. Attach CAM ASSY-2ND. *(p.350)*
7. Attach PLATE BIAS-2ND ASSY. *(p.358)*
8. Attach 2ND BTR ASSY. *(p.348)*
9. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
10. Attach COVER ASSY RH. *(p.301)*

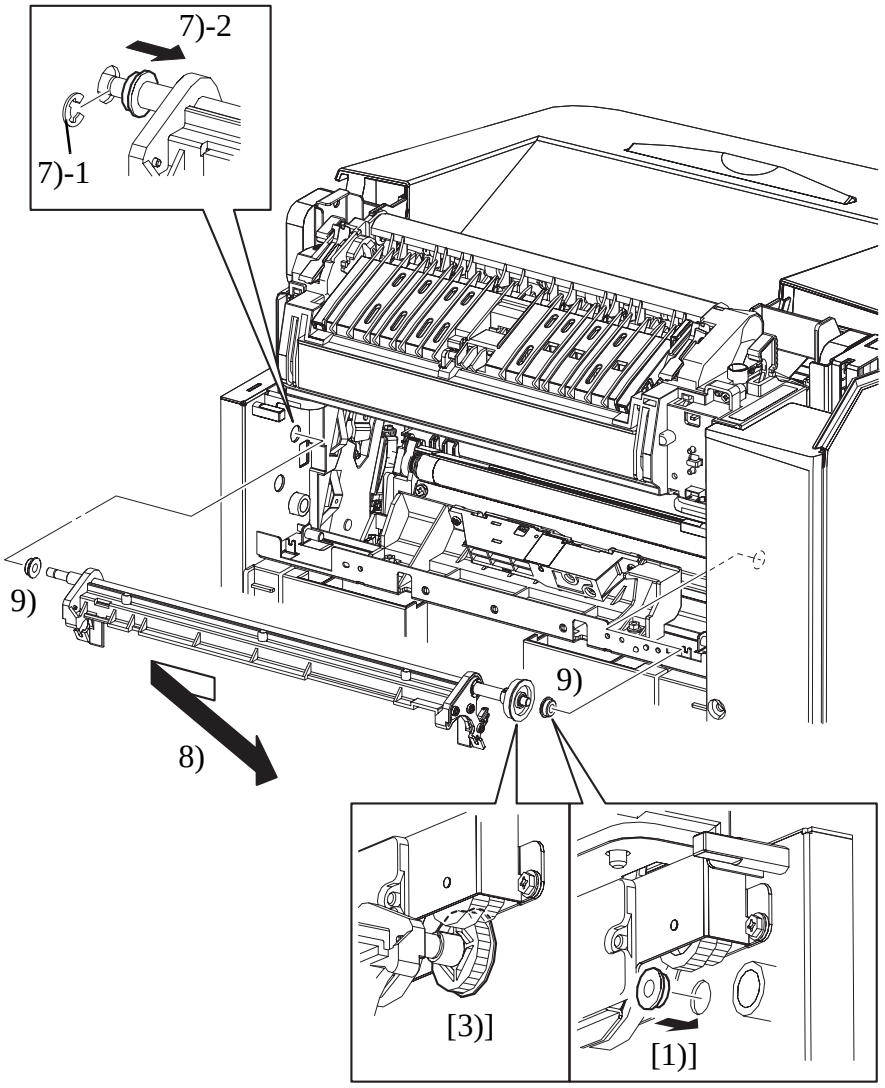

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Figure 4-62. Removal of FRAME ASSY-2ND (2)

4.5.4 2ND BTR ASSY

REMOVAL

1. Open COVER ASSY TOP.
2. Remove Photoconductor Unit.

CAUTION

When performing the following work, press LATCH ROTARY on LATCH ASSY ROTARY to release the latch, turn FRAME ASSY-ROTARY by hand, and move HOUSING ASSY-DEVE to prevent it from contacting MAG ROLL.

3. Turn the levers on both the left and right sides of 2ND BTR ASSY towards you, and unlock the lever lock from FRAME ASSY-2ND.
4. Hold the lever on 2ND BTR ASSY, draw out the right side of 2ND BTR ASSY from FRAME ASSY-2ND, and then draw out the left side to remove 2ND BTR ASSY from the main unit.

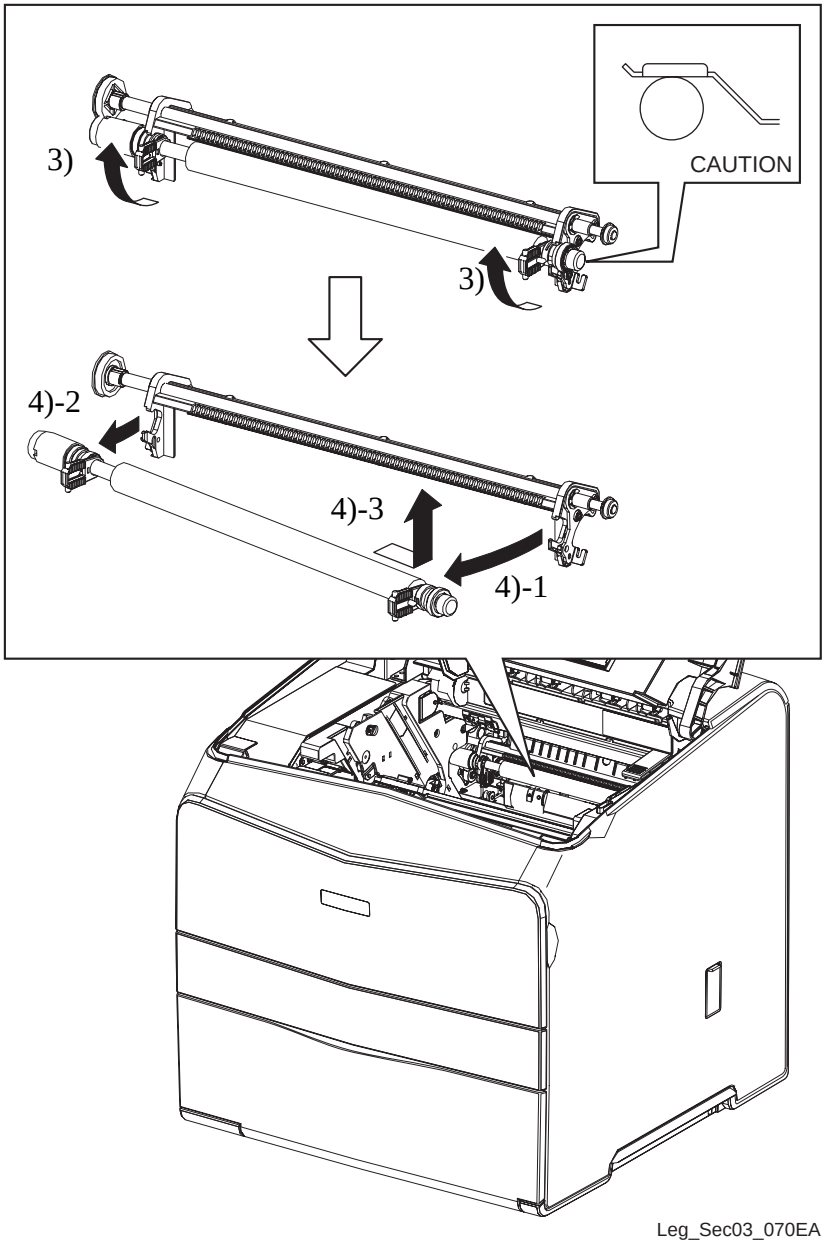

Figure 4-63. Removal of 2ND BTR ASSY

REINSTALLATION

CAUTION

- **When performing the following work, press LATCH ROTARY on LATCH ASSY ROTARY to release the latch, turn FRAME ASSY-ROTARY by hand, and move HOUSING ASSY-DEVE to prevent it from contacting MAG ROLL.**
- **When performing the following work, the right-side shaft on 2ND BTR ASSY must be inserted into the bottom side of the terminal on PLATE BIAS-2ND ASSY.**

1. Insert the left-side gear on 2ND BTR ASSY into the main unit, and then fit the left and right bearings on 2ND BTR ASSY into FRAME ASSY-2ND to attach 2ND BTR ASSY.

CAUTION

After attaching 2ND BTR ASSY, make sure that the levers on both the left and right sides move smoothly up and down.

2. Turn the levers on both the left and right sides of 2ND BTR ASSY down, and make FRAME ASSY-2ND lock the lever.
3. Attach Photoconductor Unit.
4. Close COVER ASSY TOP.

CAUTION

When replaced 2ND BTR ASSY with a new one, clear the life counter to zero. (Refer to "6.3.1 Maintenance Menu Items" *(p497)*)

4.5.5 CAM ASSY-2ND

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
3. Remove 2ND BTR ASSY. *(p.348)*

CAUTION

When performing the following work, there is no need to remove WIRE ASSY 2BTR from PLATE BIAS-2ND ASSY.

4. Remove PLATE BIAS-2ND ASSY. *(p.358)*

CAUTION

When performing the following work, there is no need to remove SENSOR 2BTR RETRACT from BRACKET-SENSOR PHOTO.

5. Remove SENSOR 2BTR RETRACT. *(p.356)*

CAUTION

When performing the following work, take care not to drop or lose BEARING.

6. Remove the E-ring fastening the right-side shaft on CAM ASSY-2ND to the main unit, and slide BEARING to the left.

CHECK POINT

When performing the following work, work can be performed more easily by pressing FRAME ASSY-2ND in the direction of the arrow, and releasing FRAME ASSY-2ND from the cam on CAM ASSY-2ND.

7. Temporarily slide CAM ASSY-2ND to the right, and draw out the shaft on CAM ASSY-2ND from the left-side bearing on the main unit, and remove CAM ASSY-2ND together with BEARING.
8. Remove BEARING from CAM ASSY-2ND.

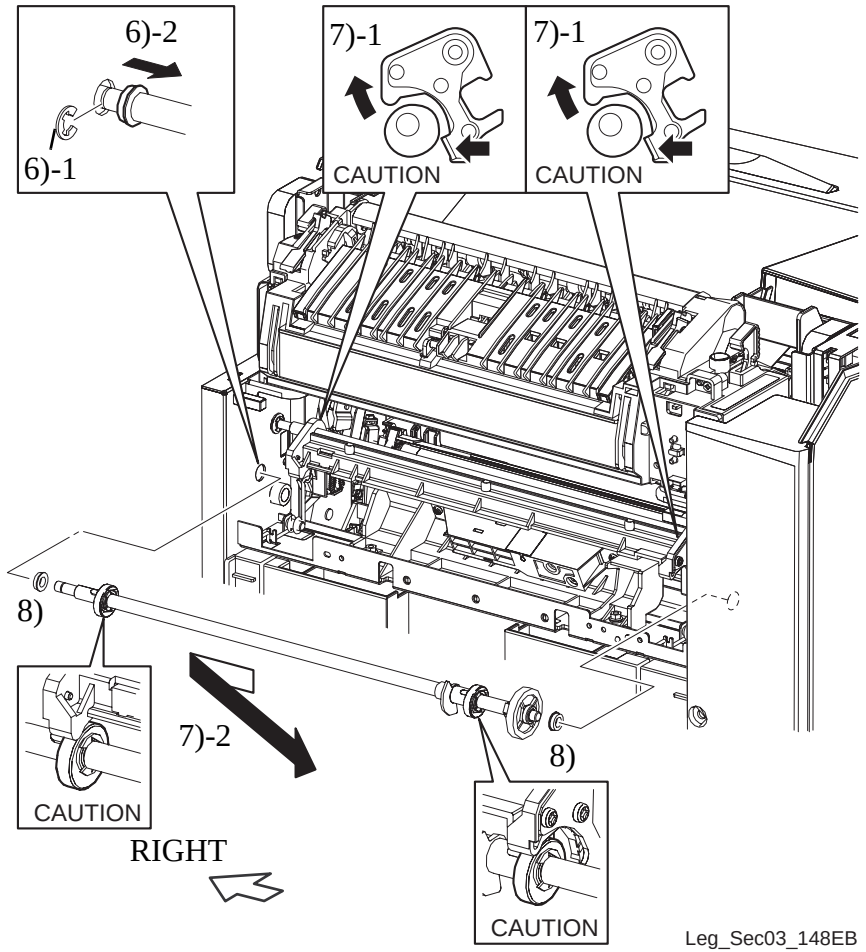

Figure 4-64. Removal of CAM ASSY-2ND

REINSTALLATION

1. Attach BEARING to the left-side bearing on the main unit.
2. Attach BEARING to the right-side bearing on CAM ASSY-2ND.

CHECK POINT

When performing the following work, work can be performed more easily by pressing FRAME ASSY-2ND in the direction of the arrow, and releasing FRAME ASSY-2ND from the cam on CAM ASSY-2ND.

3. Insert the right-side bearing on CAM ASSY-2ND into the right-side bearing on the main unit, slide CAM ASSY-2ND to the left, and attach CAM ASSY-2ND together with BEARING.
4. Insert the right-side BEARING on CAM ASSY-2ND into the right-side bearing on the main unit, and fasten with an E-ring.

CAUTION

Make sure that the cam on CAM ASSY-2ND is matched with the cam receptacle on FRAME ASSY-2ND.

5. Remove SENSOR 2BTR RETRACT. *(p.356)*
6. Attach PLATE BIAS-2ND ASSY. *(p.358)*
7. Attach 2ND BTR ASSY. *(p.348)*
8. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
9. Attach COVER ASSY RH. *(p.301)*

4.5.6 SWITCH 2BTR COVER

REMOVAL

1. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
2. Disconnect the connector (P/J113) from SWITCH 2BTR COVER.
3. Remove the screw (silver, tapping, 6 mm) fastening BRACKET-SWITCH 2ND to COVER-RR 2ND.
4. Remove BRACKET-SWITCH 2ND from COVER-RR 2ND together with SWITCH 2BTR COVER.
5. Unhook the two hooks fastening SWITCH 2BTR COVER to BRACKET-SWITCH 2ND, and remove SWITCH 2BTR COVER.

REINSTALLATION

1. Match the hooks on SWITCH 2BTR COVER with the attachment position, and attach to BRACKET-SWITCH 2ND.
2. Match the hole on BRACKET-SWITCH 2ND with the boss on COVER-RR 2ND, and attach together with SWITCH 2BTR COVER.
3. Fasten BRACKET-SWITCH 2ND to COVER-RR 2ND with the screw (silver, tapping, 6 mm).
4. Connect the connector (P/J113) to SWITCH 2BTR COVER.
5. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*

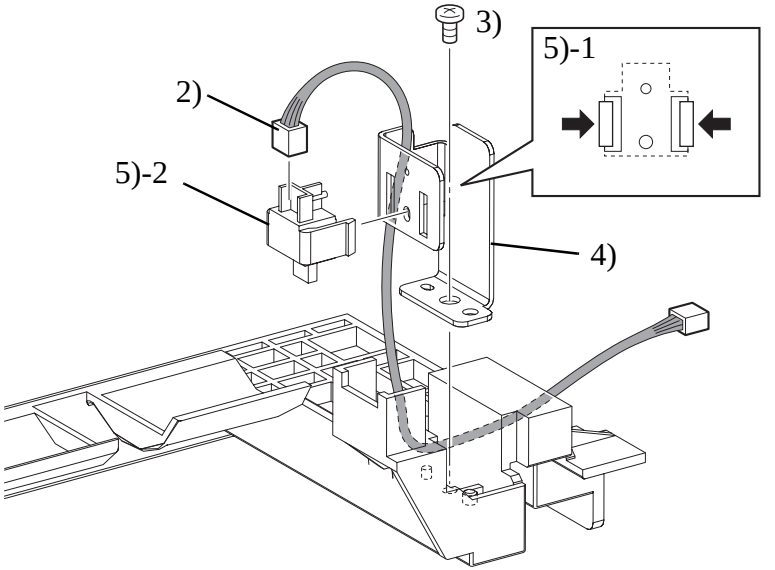

Figure 4-65. Removal of SWITCH 2BTR COVER

4.5.7 SENSOR ASSY ADC

REMOVAL

1. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
2. Remove the 2 screws (silver, with washer, tapping, 8 mm) fastening SENSOR ASSY ADC to the main unit.

CAUTION

When performing the following work, take care not to remove SENSOR ASSY ADC too far as it is connected by a harness.

3. Remove SENSOR ASSY ADC from the main unit.
4. Disconnect connector (P/J431) from SENSOR ASSY ADC.

REINSTALLATION

1. Connect connector (P/J431) to SENSOR ASSY ADC.
2. Match the boss on SENSOR ASSY ADC with the hole on the main unit, and attach SENSOR ASSY ADC.
3. Fasten SENSOR ASSY ADC to the main unit with the 2 screws (silver, with washer, tapping, 8 mm).
4. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*

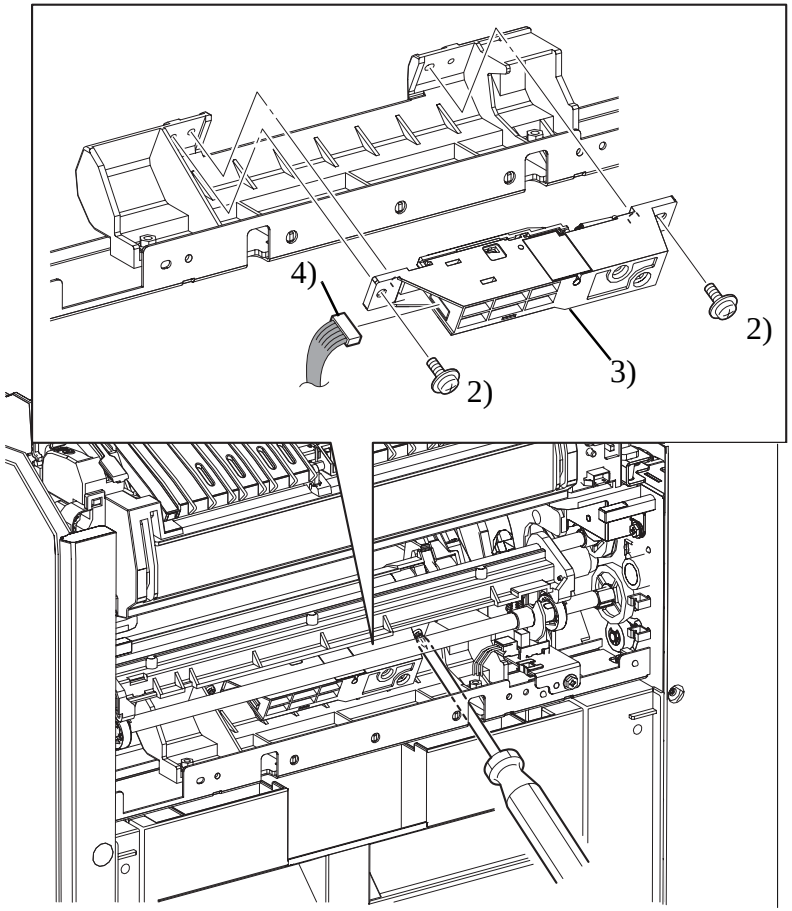

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Figure 4-66. Removal of SENSOR ASSY ADC

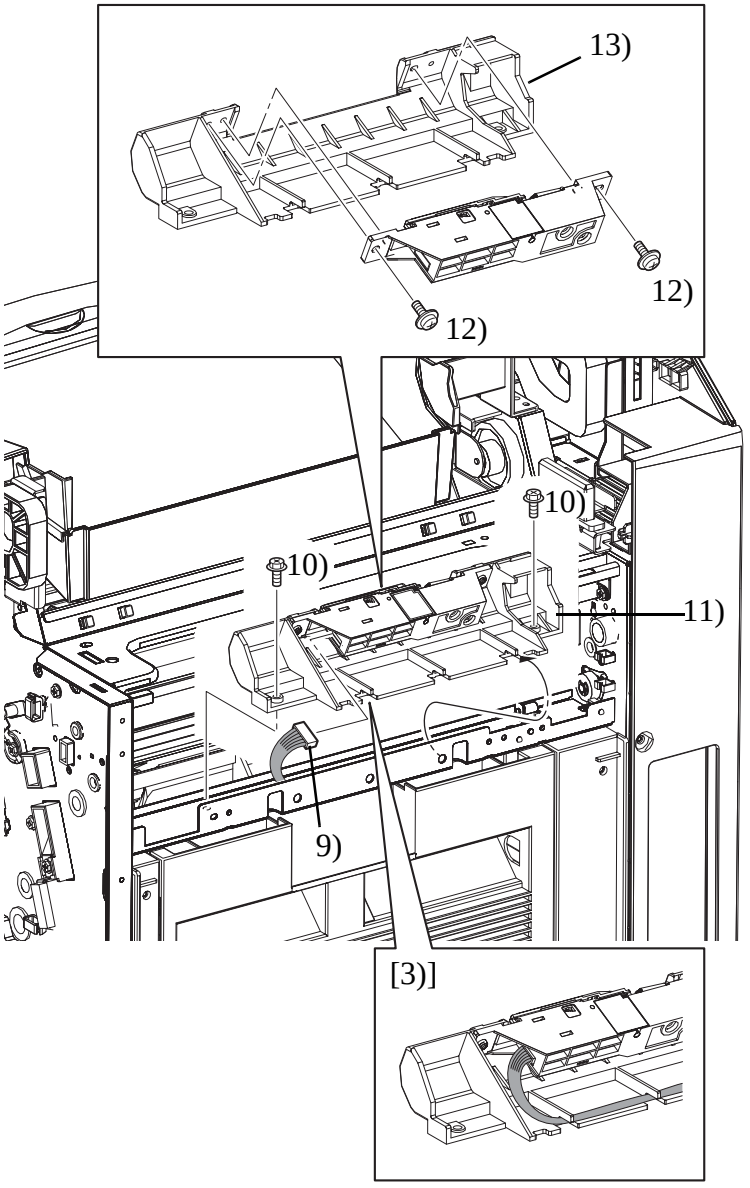
4.5.8 HOLDER-ADC 2ND

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
3. Remove 2ND BTR ASSY. *(p.348)*
4. Remove PLATE BIAS-2ND. *(p.358)*
5. Remove SENSOR 2BTR RETRACT. *(p.356)*
6. Remove CAM ASSY-2ND. *(p.350)*
7. Remove SPRING-2ND fastening both ends of FRAME ASSY-2ND to the main unit. *(p.346)*
8. Remove FUSER ASSY. *(p.388)*
9. Disconnect connector (P/J431) from SENSOR ASSY ADC.
10. Remove the 2 screws (silver, with flange, 8 mm) fastening HOLDER-ADC 2ND to the main unit.
11. Remove HOLDER-ADC 2ND from the main unit together with SENSOR ASSY ADC.
12. Remove the 2 screws (silver, with washer, tapping, 8 mm) fastening SENSOR ASSY ADC to HOLDER-ADC 2ND.
13. Remove SENSOR ASSY ADC from HOLDER-ADC 2ND.



Leg_Sec03_512EB

Figure 4-67. Removal of HOLDER-ADC 2ND

REINSTALLATION

1. Match the boss on SENSOR ASSY ADC with the hole on HOLDER-ADC 2ND, and attach SENSOR ASSY ADC.
2. Fasten SENSOR ASSY ADC to HOLDER-ADC 2ND with the 2 screws (silver, with washer, tapping, 8 mm).
3. Route the harness in HOLDER-ADC 2ND, match the protrusion on HOLDER-ADC 2ND with the hole on the main unit, and attach HOLDER-ADC 2ND together with SENSOR ASSY ADC.
4. Fasten HOLDER-ADC 2ND to the main unit with the 2 screws (silver, with flange, 8 mm).
5. Connect connector (P/J431) to SENSOR ASSY ADC.
6. Attach FUSER ASSY. *(p.388)*
7. Attach SPRING-2ND fastening both ends of FRAME ASSY-2ND to the main unit. *(p.346)*
8. Attach CAM ASSY-2ND. *(p.350)*
9. Remove SENSOR 2BTR RETRACT. *(p.356)*
10. Attach PLATE BIAS-2ND. *(p.358)*
11. Attach 2ND BTR ASSY. *(p.348)*
12. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
13. Attach COVER ASSY RH. *(p.301)*

4.5.9 SENSOR 2BTR RETRACT

REMOVAL

1. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
2. Disconnect connector (P/J112) from SENSOR 2BTR RETRACT.
3. Remove the screw (silver, with flange, 8 mm) fastening BRACKET-SENSOR PHOTO to the main unit.
4. Remove BRACKET-SENSOR PHOTO from the main unit together with SENSOR 2BTR RETRACT.
5. Unhook the three hooks fastening SENSOR 2BTR RETRACT to BRACKET-SENSOR PHOTO, and remove SENSOR 2BTR RETRACT.

REINSTALLATION

1. Match the hooks on SENSOR 2BTR RETRACT with the attachment position, and attach to BRACKET-SENSOR PHOTO.
2. Match the hole on BRACKET-SENSOR PHOTO with the boss on the main unit, and attach BRACKET-SENSOR PHOTO together with SENSOR 2BTR RETRACT.
3. Fasten BRACKET-SENSOR PHOTO to the main unit with the screw (silver, with flange, 8mm).
4. Connect connector (P/J112) to SENSOR 2BTR RETRACT.

CAUTION

The shutter of CAM ASSY-2ND must be inserted inside the sensor on SENSOR 2BTR RETRACT.

5. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*

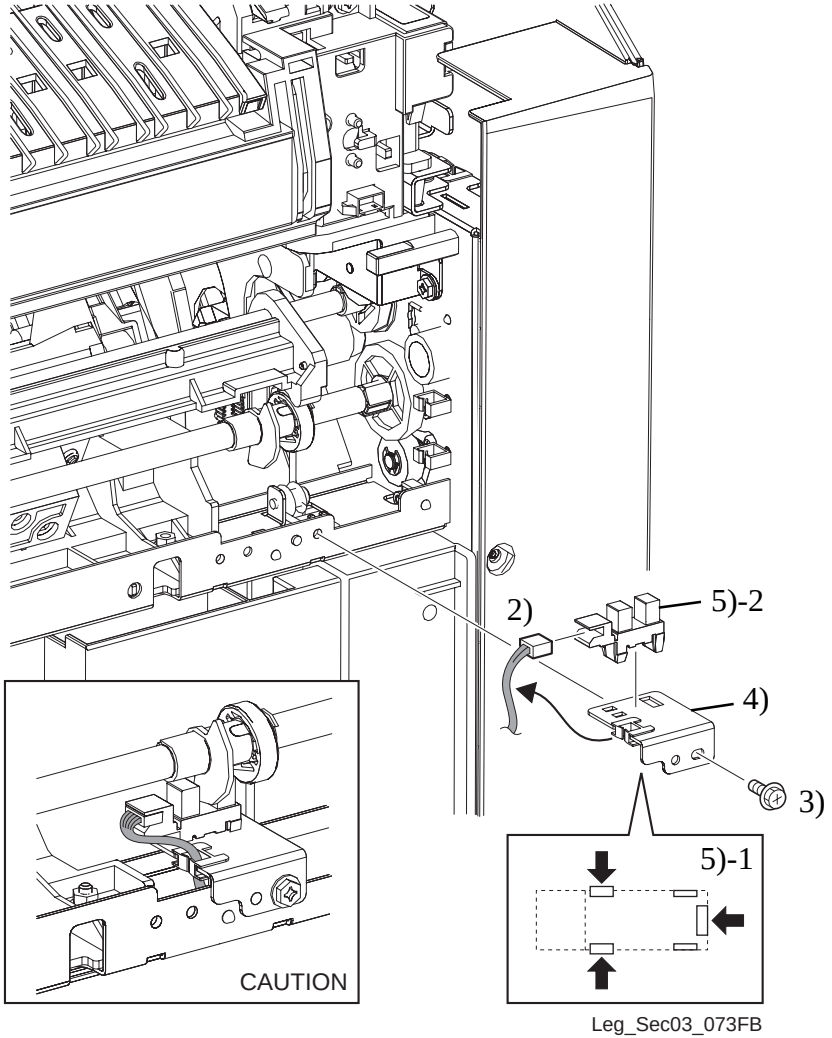


Figure 4-68. Removal of SENSOR 2BTR RETRACT

4.5.10 SENSOR IBT RETRACT

REMOVAL

1. Remove OP PANEL. *(p.294)*
2. Remove COVER INNER TOP. *(p.299)*
3. Disconnect connector (P/J107) from SENSOR IBT RETRACT.
4. Remove the screw (silver, with flange, 6 mm) fastening BRACKET-SENSOR CLN to the main unit.
5. Remove BRACKET-SENSOR CLN from the main unit together with SENSOR IBT RETRACT.
6. Unhook the three hooks fastening SENSOR IBT RETRACT to BRACKET-SENSOR CLN, and remove SENSOR IBT RETRACT.

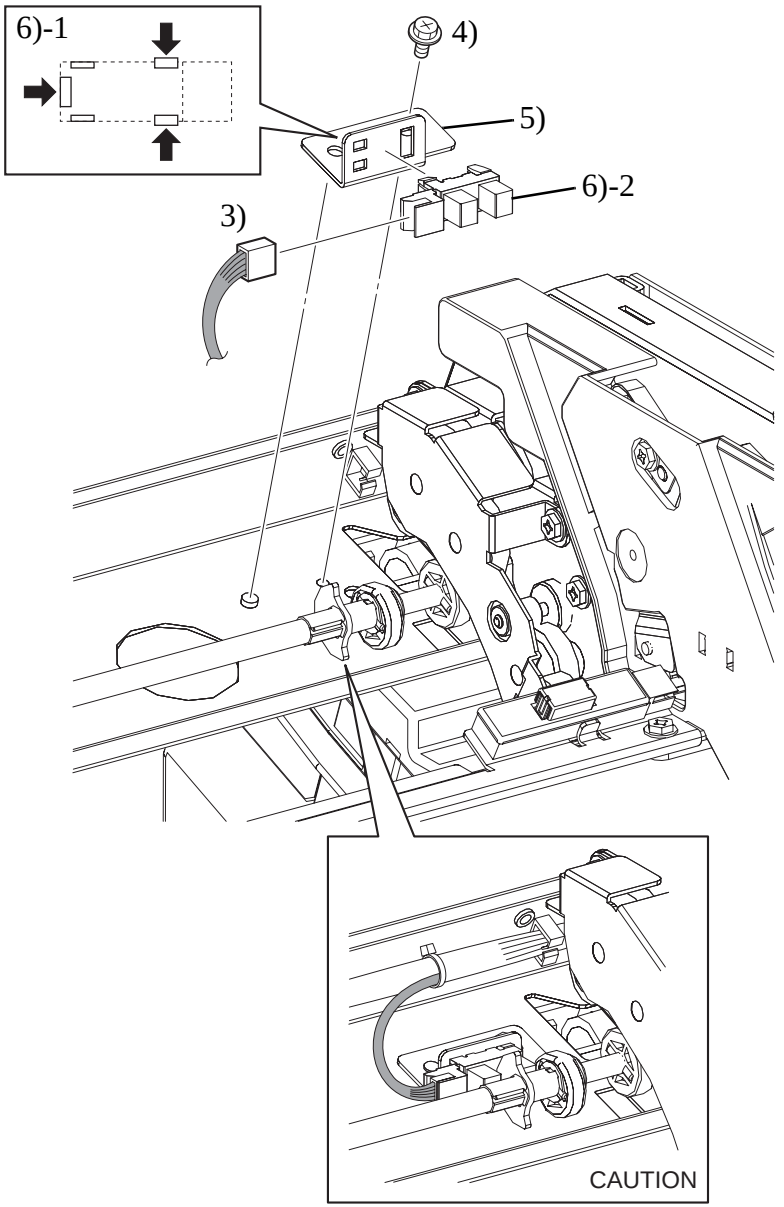
REINSTALLATION

1. Match the hooks on SENSOR IBT RETRACT with the attachment position, and attach to BRACKET-SENSOR CLN.
2. Match the hole on BRACKET-SENSOR CLN with the boss on the main unit, and attach BRACKET-SENSOR CLN together with SENSOR IBT RETRACT.

CAUTION

The shutter of CAM ASSY-IBT CL must be inserted inside the sensor on SENSOR IBT RETRACT.

3. Fasten BRACKET-SENSOR CLN to the main unit with the screw (silver, with flange, 6 mm).
4. Connect connector (P/J107) to SENSOR IBT RETRACT.
5. Attach COVER INNER TOP. *(p.299)*
6. Attach OP PANEL. *(p.294)*



Leg_Sec03_074FA

Figure 4-69. Removal of SENSOR IBT RETRACT

4.5.11 PLATE BIAS-2ND ASSY

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
3. Remove 2ND BTR ASSY. *(p.348)*
4. Remove the 2 screws (silver, with flange, tapping, 6 mm) fastening PLATE BIAS-2ND ASSY to the main unit.

CAUTION

When performing the following work, take care not to remove PLATE BIAS-2ND ASSY too far as it is connected by WIRE ASSY 2BTR.

5. Unclamp the clamp fastening WIRE ASSY 2BTR, and slightly release PLATE BIAS-2ND ASSY from the main unit.
6. Remove the screw (silver, tapping, 6 mm) fastening the terminal of WIRE ASSY 2BTR to PLATE BIAS-2ND ASSY.
7. Remove WIRE ASSY 2BTR from PLATE BIAS-2ND ASSY, and remove PLATE BIAS-2ND ASSY.

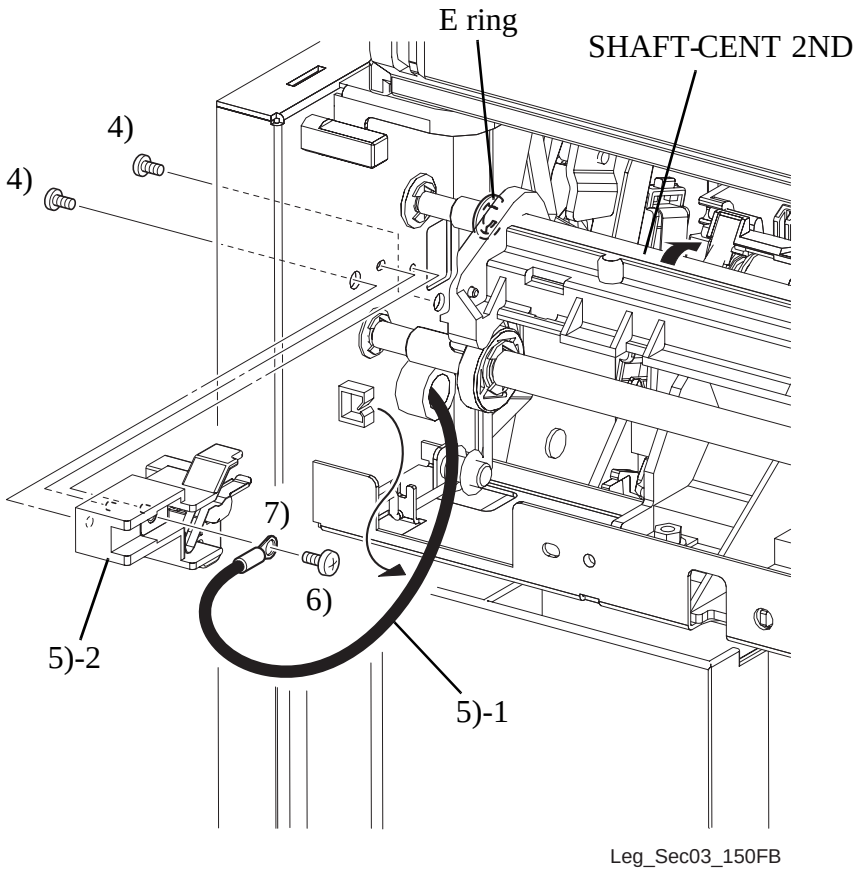


Figure 4-70. Removal of PLATE BIAS-2ND ASSY

REINSTALLATION

1. Attach WIRE ASSY 2BTR to PLATE BIAS-2ND ASSY.
2. Fasten the terminal of WIRE ASSY 2BTR to PLATE BIAS-2ND ASSY with the screw (silver, tapping, 6 mm).

When performing the following work, route WIRE ASSY 2BTR connected to PLATE BIAS-2ND ASSY so that it does not come into contact with CAM ASSY-2ND.

When the E-ring on FRAME ASSY-2ND is contacting the PLATE BIAS-2ND ASSY and is difficult to attach, turn SHAFT-CENT 2ND to facilitate attachment.

3. Match the boss on PLATE BIAS-2ND ASSY with the hole on the main unit, and attach PLATE BIAS-2ND ASSY.
4. Fasten PLATE BIAS-2ND ASSY to the main unit with the 2 screws (silver, with flange, tapping, 6 mm), and fasten WIRE ASSY 2BTR with the clamp.
5. Attach 2ND BTR ASSY. *(p.348)*
6. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
7. Attach COVER ASSY RH. *(p.301)*

4.5.12 CAM ASSY-IBT CL

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove OP PANEL. *(p.294)*
4. Remove COVER INNER TOP. *(p.299)*
5. Remove PWBA MCU. *(p.404)*

CAUTION

When performing the following work, there is no need to remove SENSOR IBT RETRACT from BRACKET-SENSOR CLN.

6. Remove SENSOR IBT RETRACT. *(p.357)*
7. Remove the left and right E-rings fastening CAM ASSY-IBT CL to the main unit.
8. Remove the left and right BEARING-BRUSH CAMs fastening CAM ASSY-IBT CL to the main unit.
9. Temporarily slide CAM ASSY-IBT CL to the left, and draw out the shaft of CAM ASSY-IBT CL from the right-side bearing on the main unit to remove CAM ASSY-IBT CL.

REINSTALLATION

1. Insert the shaft left side of CAM ASSY-IBT CL into the left-side bearing of the main unit, slide CAM ASSY-IBT CL to the right, and attach CAM ASSY-IBT CL.
2. Fasten CAM ASSY-IBT CL to the main unit by the left and right BEARING-BRUSH CAMs.
3. Fasten CAM ASSY-IBT CL to the main unit by the left and right E-rings.
4. Attach SENSOR IBT RETRACT. *(p.357)*

CAUTION

The shutter of CAM ASSY-IBT CL must be inserted inside the sensor on SENSOR IBT RETRACT.

5. Attach PWBA MCU. *(p.404)*
6. Attach COVER INNER TOP. *(p.299)*
7. Attach OP PANEL. *(p.294)*
8. Attach COVER ASSY LH. *(p.295)*
9. Attach COVER ASSY RH. *(p.301)*

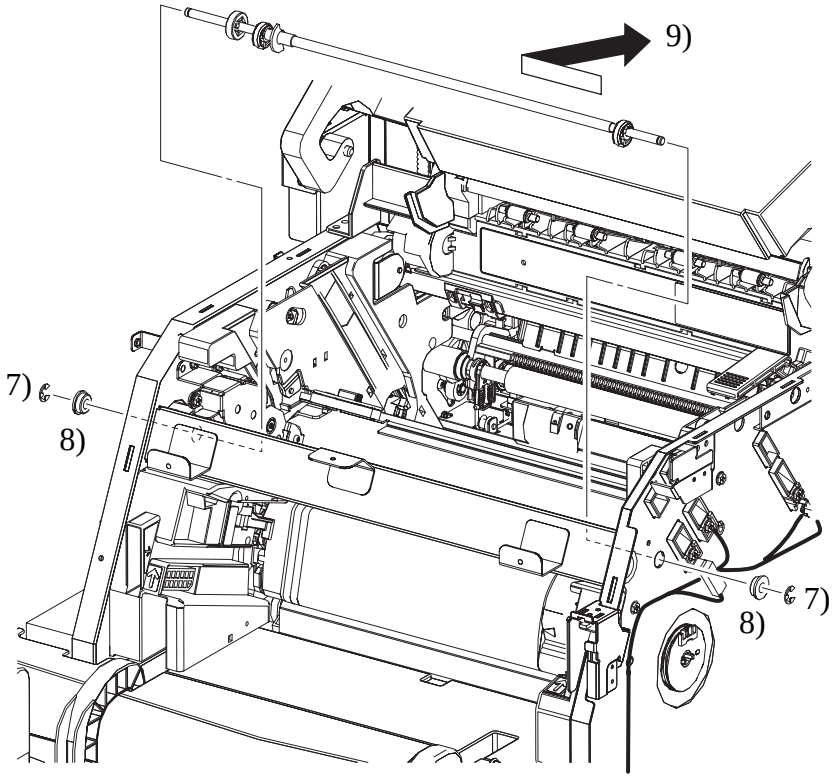


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Figure 4-71. Removal of CAM ASSY-IBT CL

4.6 XERO

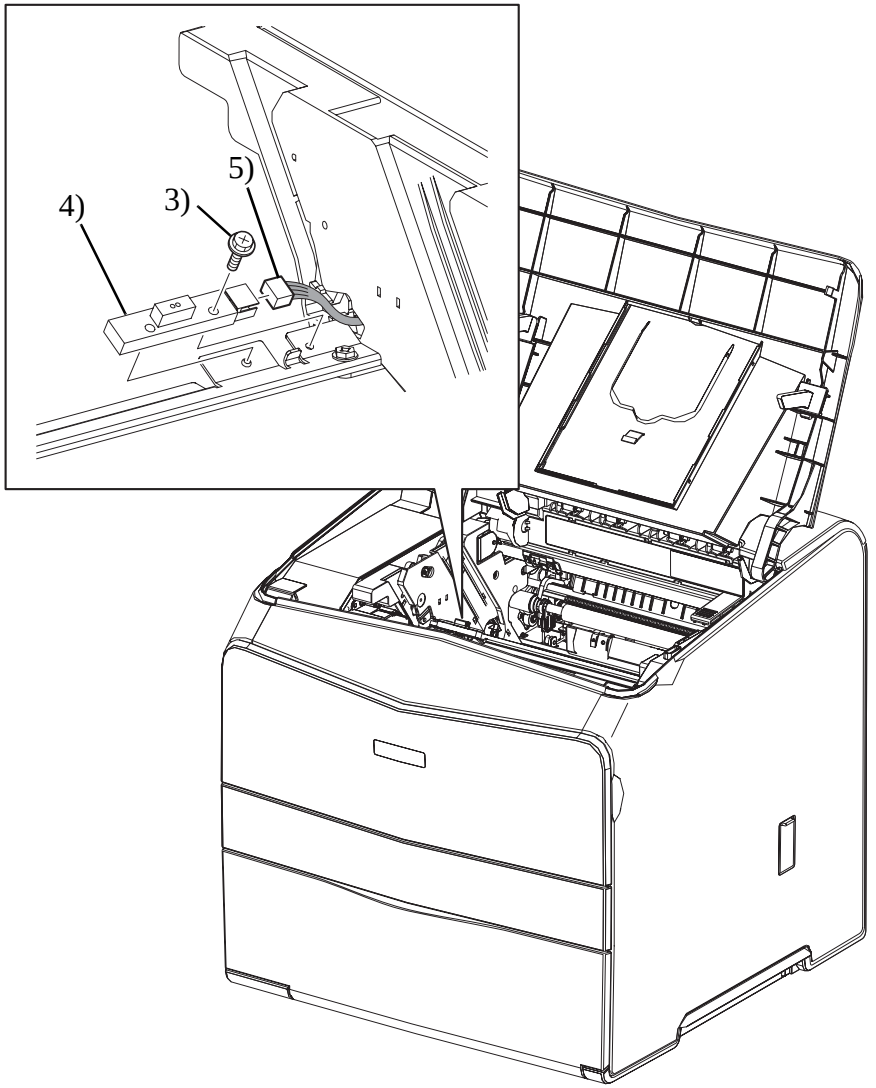
4.6.1 SENSOR TR-0

REMOVAL

1. Open COVER ASSY TOP.
2. Remove Photoconductor Unit.
3. Remove the screw (silver, with flange, 10mm) fastening SENSOR TR-0 to PLATE-TR-0.
4. Remove SENSOR TR-0 from PLATE-TR-0.
5. Disconnect connector (P/J108) from SENSOR TR-0.

REINSTALLATION

1. Connect connector (P/J108) to SENSOR TR-0.
2. Match the hole on SENSOR TR-0 with the boss on PLATE-TR-0, and attach SENSOR TR-0.
3. Fasten SENSOR TR-0 to PLATE-TR-0 with the screw (silver, with flange, 10mm).
4. Attach Photoconductor Unit.
5. Close COVER ASSY TOP.



Leg_Sec03_076EA

Figure 4-72. Removal of SENSOR TR-0

4.6.2 GUIDE CRU ASSY D

REMOVAL

1. Remove 2ND BTR ASSY. *(p.348)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove PWBA MCU. *(p.404)*

CHECK POINT

When performing the following work, connectors need not be disconnected from PWBA ESS.

4. Remove CHASSIS ASSY ESS. *(p.411)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove the 2 screws (silver, with flange, tapping, 6 mm) fastening PLATE-TR-0 to GUIDE CRU ASSY D and GUIDE CRU ASSY AD.
7. Remove PLATE-TR-0 from GUIDE CRU ASSY D and GUIDE CRU ASSY AD.

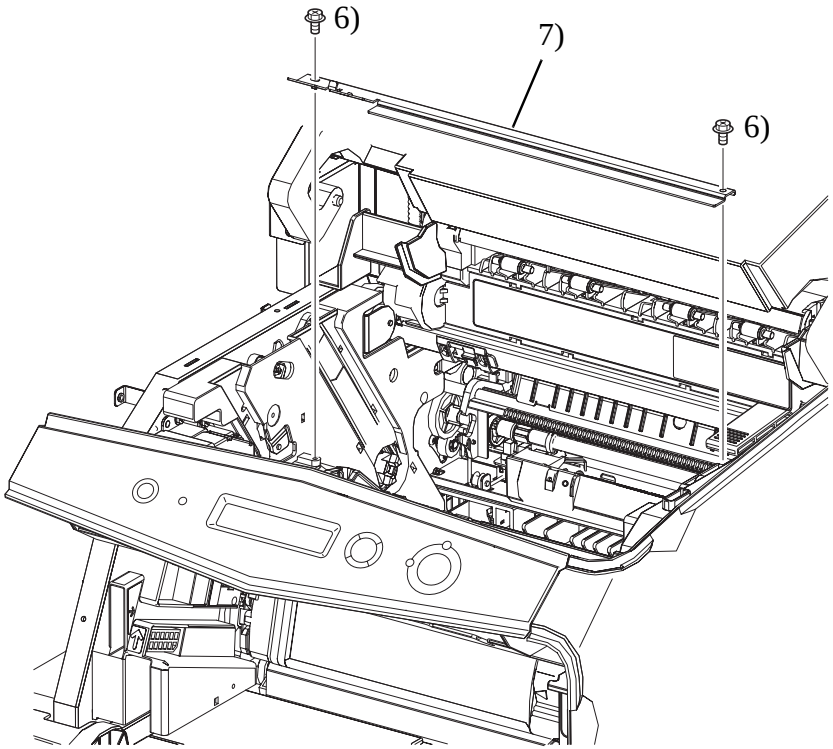


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Figure 4-73. Removal of GUIDE CRU ASSY D (1)

8. Unclamp the clamp fastening HARNESS-ASSY XERO on the left side of the main unit.
9. Remove the 5 screws (silver, with flange, tapping, 6 mm) fastening GUIDE CRU ASSY D to the main unit.
10. Remove GUIDE CRU ASSY D from the main unit.

REINSTALLATION

1. Insert HARNESS-ASSY XERO into the hole on the left side of the main unit, and match the boss on GUIDE CRU ASSY D into the hole on the main unit to attach GUIDE CRU ASSY D.
2. Fasten GUIDE CRU ASSY D to the main unit with the 5 screws (silver, with flange, tapping, 6 mm).
3. Fasten HARNESS-ASSY XERO on the left side of the main unit with the clamp.
4. Attach PLATE-TR-0 to GUIDE CRU ASSY D and GUIDE CRU ASSY AD.
5. Fasten PLATE-TR-0 to GUIDE CRU ASSY D and GUIDE CRU ASSY AD with the 2 screws (silver, with flange, tapping, 6 mm).

CAUTION

Lightly open/close COVER ASSY TOP, and check operation of the coupling on MOT ASSY P/R.

6. Attach SENSOR TR-0. *(p.361)*
7. Attach CHASSIS ASSY ESS. *(p.411)*
8. Attach PWBA MCU. *(p.404)*
9. Attach COVER ASSY LH. *(p.295)*
10. Attach 2ND BTR ASSY. *(p.348)*

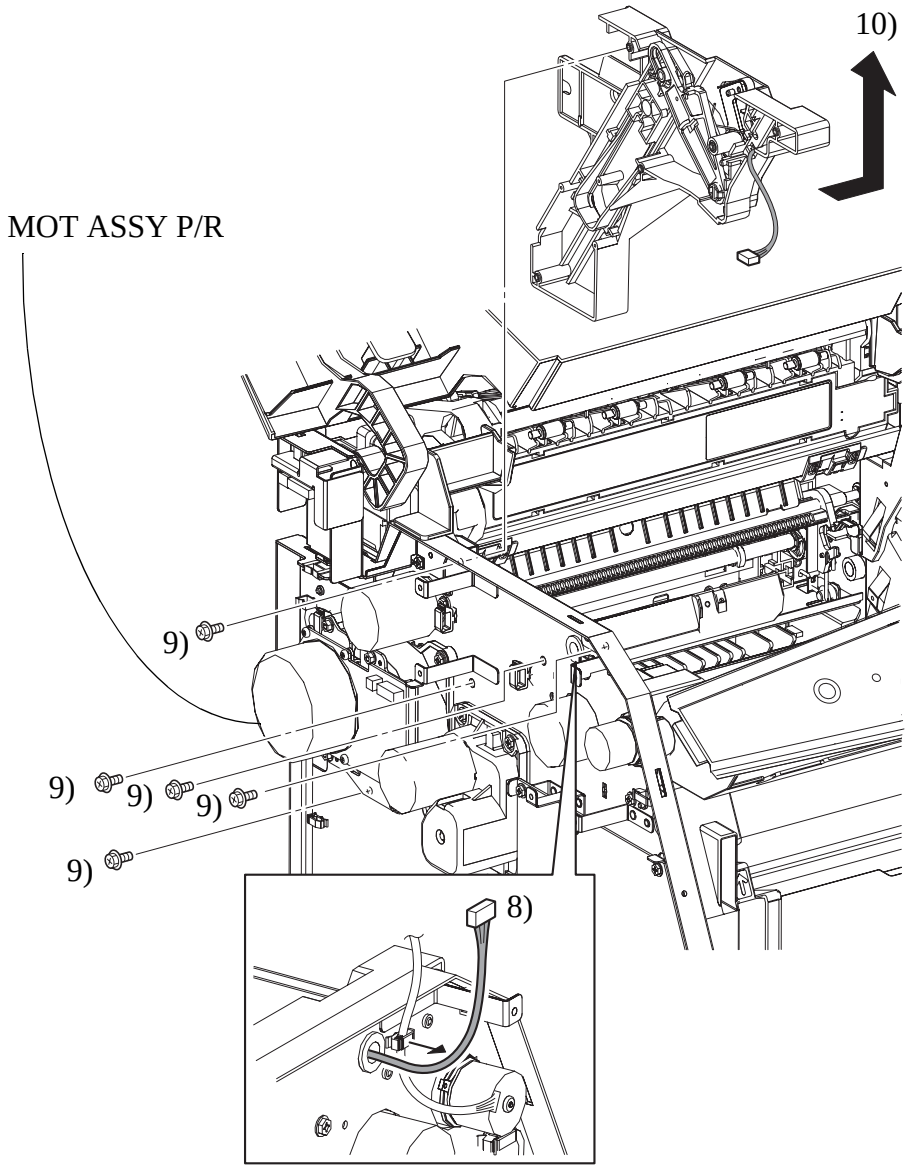

Figure 4-74. Removal of GUIDE CRU ASSY D (2)

4.6.3 LATCH ASSY D

REMOVAL

1. Remove 2ND BTR ASSY. *(p.348)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove PWBA MCU. *(p.404)*
4. Remove CHASSIS ASSY ESS. *(p.411)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove GUIDE CRU ASSY D. *(p.362)*
7. Remove ANTENNA ASSY. *(p.365)*
8. Unhook SPRING-TORSION D from the hook on GUIDE CRU ASSY D.
9. Slightly rotate LATCH ASSY D together with SPRING-TORSION D in the direction of the arrow so that they escape the notch on GUIDE CRU ASSY D to remove.
10. Remove SPRING-TORSION D from LATCH ASSY D.

REINSTALLATION

1. Attach SPRING-TORSION D to LATCH ASSY D.
2. Attach LATCH ASSY D to GUIDE CRU ASSY D together with SPRING-TORSION D, and insert the bottom front side of LATCH ASSY D into the notch on GUIDE CRU ASSY D.
3. Hook SPRING-TORSION D onto the hook on GUIDE CRU ASSY D.

CAUTION

SPRING-TORSION D must be firmly attached onto the hooks on LATCH ASSY D and GUIDE CRU ASSY D.

4. Attach ANTENNA ASSY. *(p.365)*
5. Attach GUIDE CRU ASSY D. *(p.362)*
6. Attach SENSOR TR-0. *(p.361)*
7. Attach CHASSIS ASSY ESS. *(p.411)*
8. Attach PWBA MCU. *(p.404)*
9. Attach COVER ASSY LH. *(p.295)*
10. Attach 2ND BTR ASSY. *(p.348)*

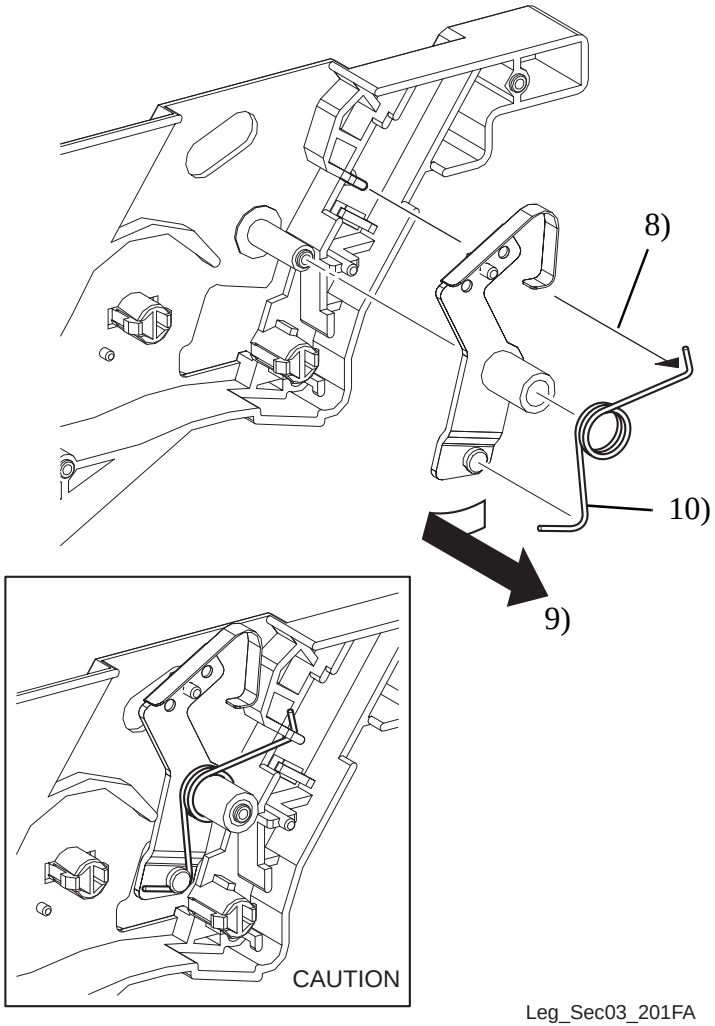

Figure 4-75. Removal of LATCH ASSY D

4.6.4 ANTENNA ASSY

REMOVAL

1. Remove 2ND BTR ASSY. *(p.348)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove PWBA MCU. *(p.404)*
4. Remove CHASSIS ASSY ESS. *(p.411)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove GUIDE CRU ASSY D. *(p.362)*
7. Unhook the hook fastening ARM-COUPLING to GUIDE CRU ASSY D, and remove ARM-COUPLING from the shaft on GUIDE CRU ASSY D together with SPRING-TORSION ARM.
8. Turn ARM-COUPLING 90°, and remove ARM-COUPLING.

CAUTION

When unhooking the hook fastening ANTENNA ASSY, take care not to damage the hook.

9. Unhook the hook fastening ANTENNA ASSY to GUIDE CRU ASSY D, and remove ANTENNA ASSY.
10. Disconnect connector (P/J109) from ANTENNA ASSY.

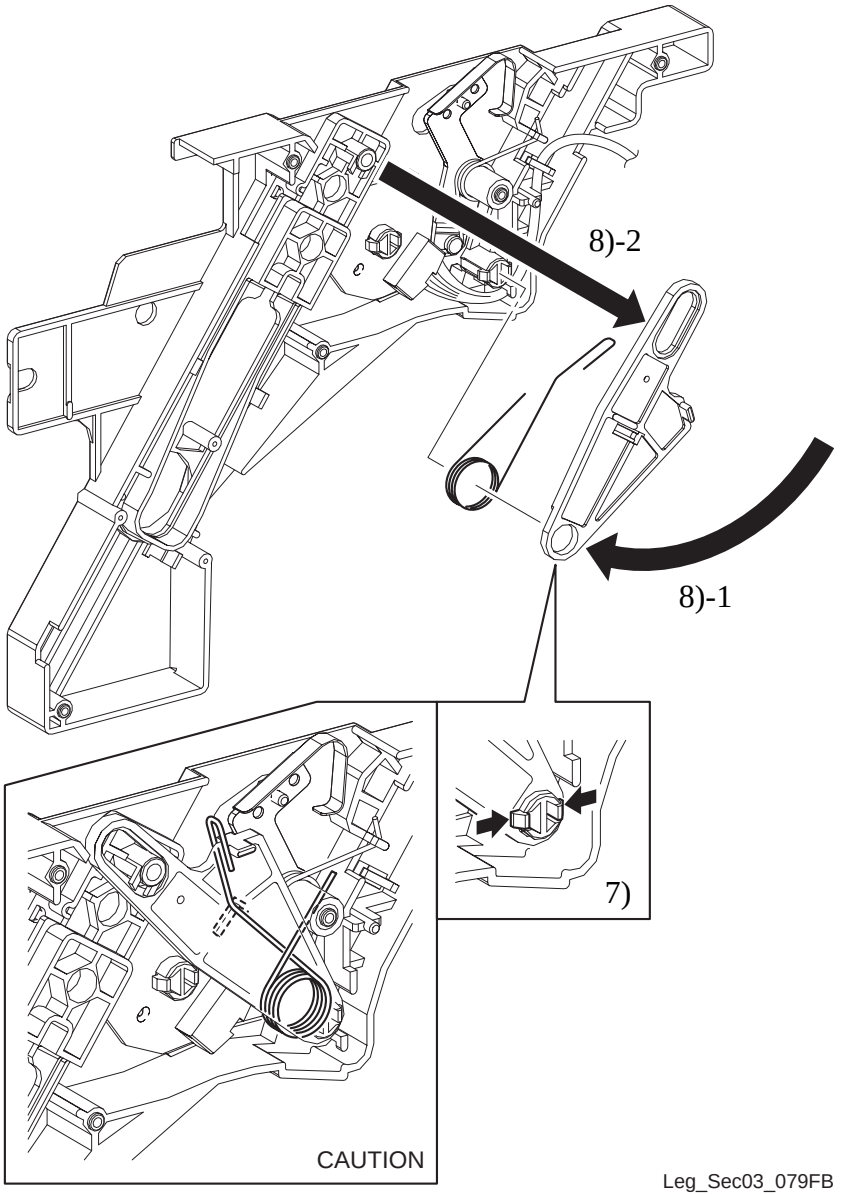

Figure 4-76. Removal of ANTENNA ASSY (1)

REINSTALLATION

1. Connect connector (P/J109) to ANTENNA ASSY.
2. Match the boss on GUIDE CRU ASSY D with the hole on ANTENNA ASSY, attach ANTENNA ASSY, and fasten with a hook.
3. Attach SPRING-TORSION ARM to ARM-COUPLING, and insert the shaft on LINK-COUPLING into the long oblong hole on ARM-COUPLING.
4. Turn ARM-COUPLING 90°, attach ARM-COUPLING to the shaft on GUIDE CRU ASSY D, fasten with a hook, and hook SPRING-TORSION ARM onto the notch of GUIDE CRU ASSY D.

CAUTION

SPRING-TORSION ARM must be firmly hooked onto the shaft of ARM-COUPLING and LATCH ASSY D.

5. Attach GUIDE CRU ASSY D. *(p.362)*
6. Attach SENSOR TR-0. *(p.361)*
7. Attach CHASSIS ASSY ESS. *(p.411)*
8. Attach PWBA MCU. *(p.404)*
9. Attach COVER ASSY LH. *(p.295)*
10. Attach 2ND BTR ASSY. *(p.348)*

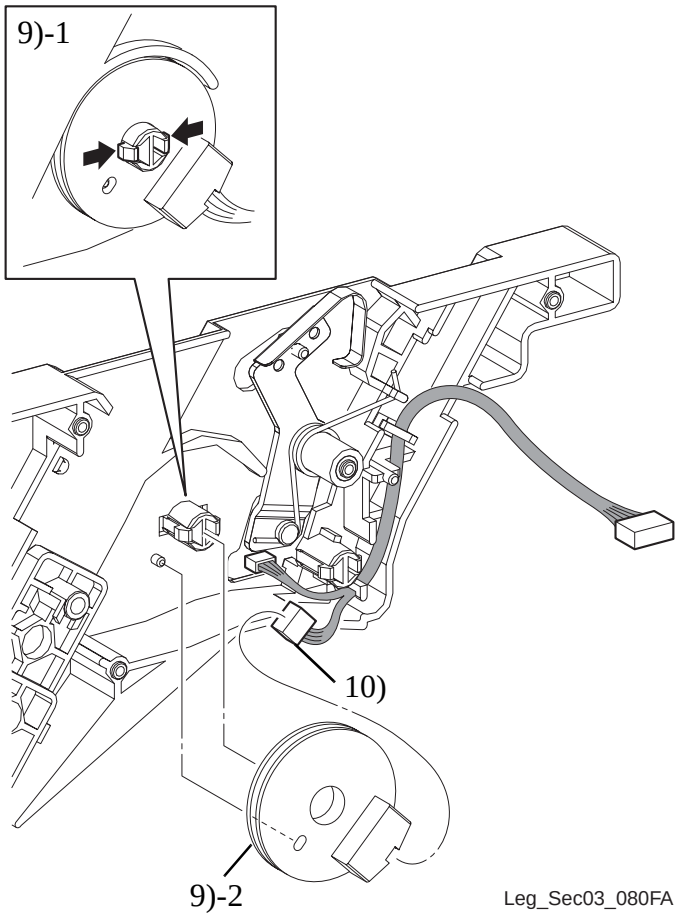

Figure 4-77. Removal of ANTENNA ASSY (2)

4.6.5 GUIDE CRU ASSY AD

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove 2ND BTR ASSY. *(p.348)*
3. Remove FRAME ASSY-PH. *(p.327)*
4. Remove BCR CLN XERO ASSY. *(p.373)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove the 2 screws (silver, with flange, tapping, 6 mm) fastening PLATE-TR-0 to GUIDE CRU ASSY D and GUIDE CRU ASSY AD.
7. Remove PLATE-TR-0 from GUIDE CRU ASSY D and GUIDE CRU ASSY AD.

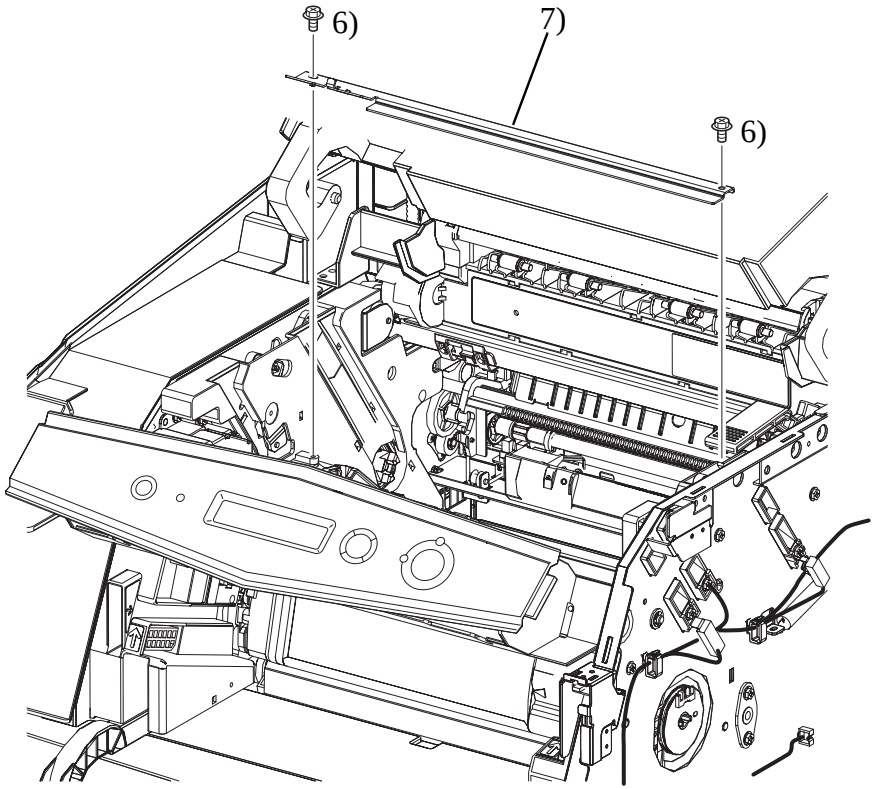

Figure 4-78. Removal of GUIDE CRU ASSY AD (1)

8. Remove WIRE ASSY BTR, WIRE ASSY IBT and WIRE ASSY BCR from GUIDE CRU ASSY AD.
9. Remove the screw (silver, with flange, tapping, 6 mm) fastening WIRE ASSY DTN to GUIDE CRU ASSY AD.
10. Remove WIRE ASSY DTN from GUIDE CRU ASSY AD.
11. Remove SPRING-LATCH hooked onto the main unit and the stud of GUIDE CRU ASSY AD.
12. Remove the screw (silver, with flange, tapping, 6 mm) fastening both PLATE-ASSY GND and GUIDE CRU ASSY AD to the main unit, and remove PLATE-ASSY GND.

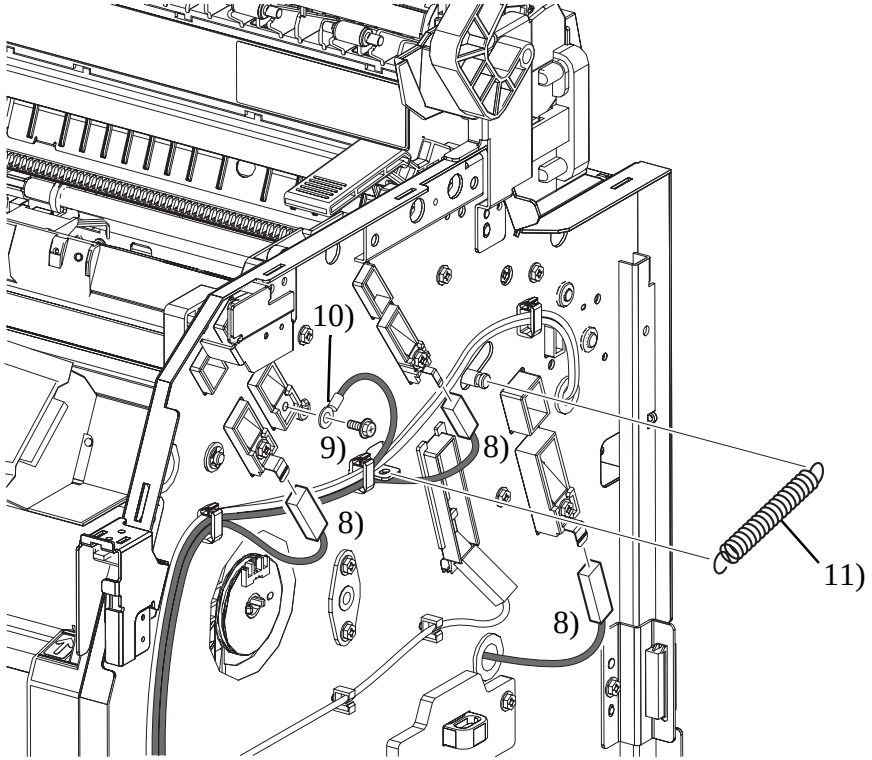

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Figure 4-79. Removal of GUIDE CRU ASSY AD (2)

13. Remove the 7 screws (silver, with flange, tapping, 6 mm) fastening GUIDE CRU ASSY AD to the main unit.
14. Draw out the protrusion on GUIDE CRU ASSY AD from the hole on the main unit, and remove GUIDE CRU ASSY AD.

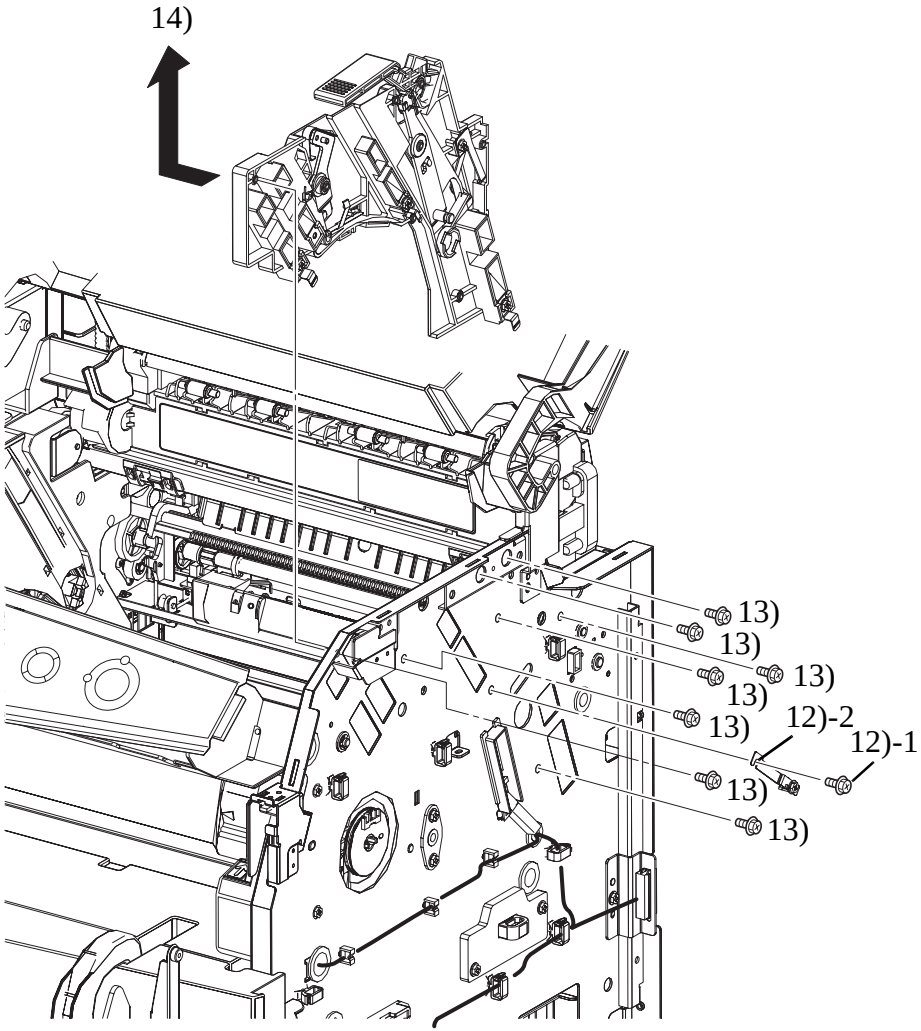

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Figure 4-80. Removal of GUIDE CRU ASSY AD (3)

REINSTALLATION

1. Match the protrusion and boss on GUIDE CRU ASSY AD with the hole on the main unit, and attach GUIDE CRU ASSY AD.
2. Fasten GUIDE CRU ASSY AD to the main unit with the 7 screws (silver, with flange, tapping, 6 mm).
3. Attach PLATE-ASSY GND to the main unit, and tighten together with GUIDE CRU ASSY AD with the screw (silver, with flange, tapping, 6 mm).

When performing the following work, work can be performed more easily with LEVER-LATCH PR on GUIDE CRU ASSY AD closed.

4. Attach SPRING-LATCH onto the main unit and the stud on GUIDE CRU ASSY AD.
5. Attach WIRE ASSY DTN to GUIDE CRU ASSY AD.
6. Fasten WIRE ASSY DTN to GUIDE CRU ASSY AD with the screw (silver, with flange, tapping, 6 mm).
7. Attach WIRE ASSY BTR, WIRE ASSY IBT and WIRE ASSY BCR to GUIDE CRU ASSY AD.
8. Attach PLATE-TR-0 to GUIDE CRU ASSY D and GUIDE CRU ASSY AD.
9. Fasten PLATE-TR-0 to GUIDE CRU ASSY D and GUIDE CRU ASSY AD with the 2 screws (silver, with flange, tapping, 6 mm).
10. Attach SENSOR TR-0. *(p.361)*
11. Attach BCR CLN XERO ASSY. *(p.373)*
12. Attach FRAME ASSY-PH. *(p.327)*
13. Attach 2ND BTR ASSY. *(p.348)*
14. Attach COVER ASSY RH. *(p.301)*

Table 4-3. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
D (504)	---	Printed light and faint.	---
A (508)	---	Entire surface printed black.	---
G (506)	---	Normal printing	---

4.6.6 LEVER-LATCH PR

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove 2ND BTR ASSY. *(p.348)*
3. Remove FRAME ASSY-PH. *(p.327)*
4. Remove BCR CLN XERO ASSY. *(p.373)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove GUIDE CRU ASSY AD. *(p.367)*
7. Turn LEVER-LATCH PR in the direction of the arrow, match the notch on LEVER-LATCH PR with the protrusion on the boss of GUIDE CRU ASSY AD, and remove LEVER-LATCH PR.

REINSTALLATION

1. Match the notch on LEVER-LATCH PR with the protrusion on the boss of GUIDE CRU ASSY AD, and attach LEVER-LATCH PR.
2. Attach GUIDE CRU ASSY AD. *(p.367)*
3. Attach SENSOR TR-0. *(p.361)*
4. Attach BCR CLN XERO ASSY. *(p.373)*
5. Attach FRAME ASSY-PH. *(p.327)*
6. Attach 2ND BTR ASSY. *(p.348)*
7. Attach COVER ASSY RH. *(p.301)*

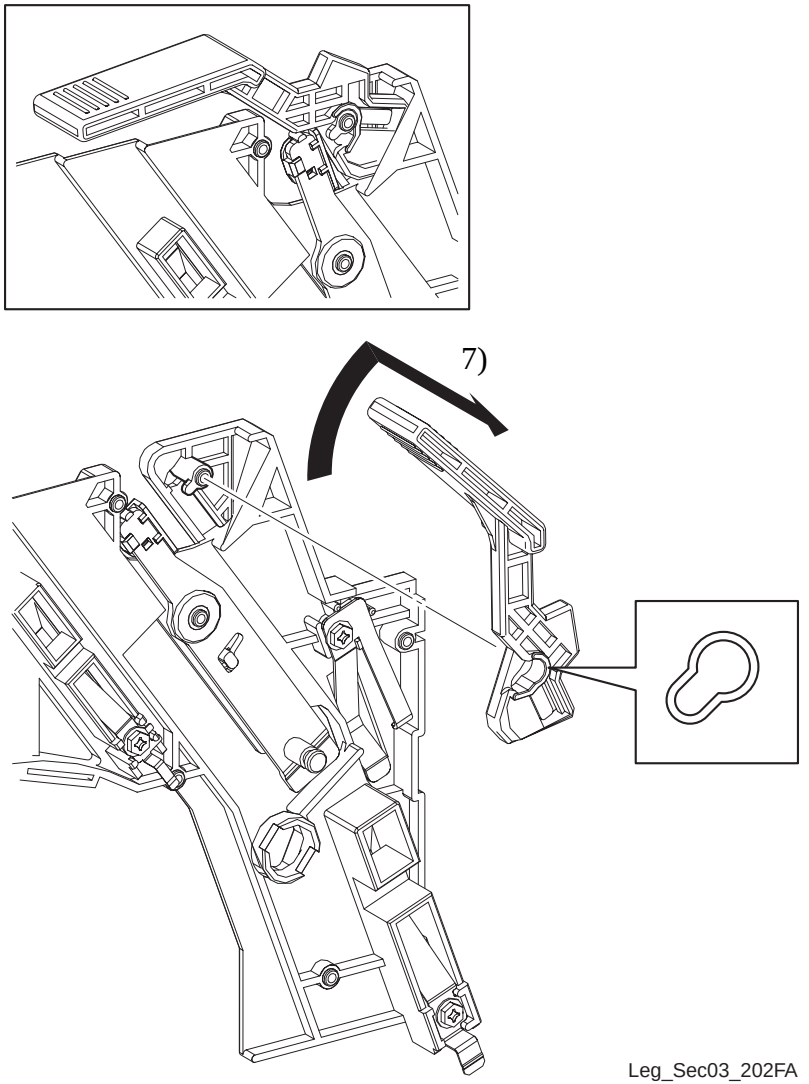


Figure 4-81. Removal of LEVER-LATCH PR

4.6.7 CAP-PLATE PR, PLATE-ASSY PR

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove 2ND BTR ASSY. *(p.348)*
3. Remove FRAME ASSY-PH. *(p.327)*
4. Remove BCR CLN XERO ASSY. *(p.373)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove GUIDE CRU ASSY AD. *(p.367)*
7. Remove LEVER-LATCH PR. *(p.370)*
8. Turn PLATE-ASSY PR in the direction of the arrow, match the notch on PLATE-ASSY PR with the protrusion on GUIDE CRU ASSY AD, and remove PLATE-ASSY PR together with CAP-PLATE PR.
9. Unhook the hook on CAP-PLATE PR, and remove CAP-PLATE PR from PLATE-ASSY PR.

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of CAP-PLATE PR.

1. Attach CAP-PLATE PR to PLATE-ASSY PR.
2. Match the notch on PLATE-ASSY PR with the protrusion on GUIDE CRU ASSY AD, and attach PLATE-ASSY PR together with CAP-PLATE PR.
3. Attach LEVER-LATCH PR. *(p.370)*
4. Attach GUIDE CRU ASSY AD. *(p.367)*
5. Attach SENSOR TR-0. *(p.361)*
6. Attach BCR CLN XERO ASSY. *(p.373)*
7. Attach FRAME ASSY-PH. *(p.327)*
8. Attach 2ND BTR ASSY. *(p.348)*
9. Attach COVER ASSY RH. *(p.301)*

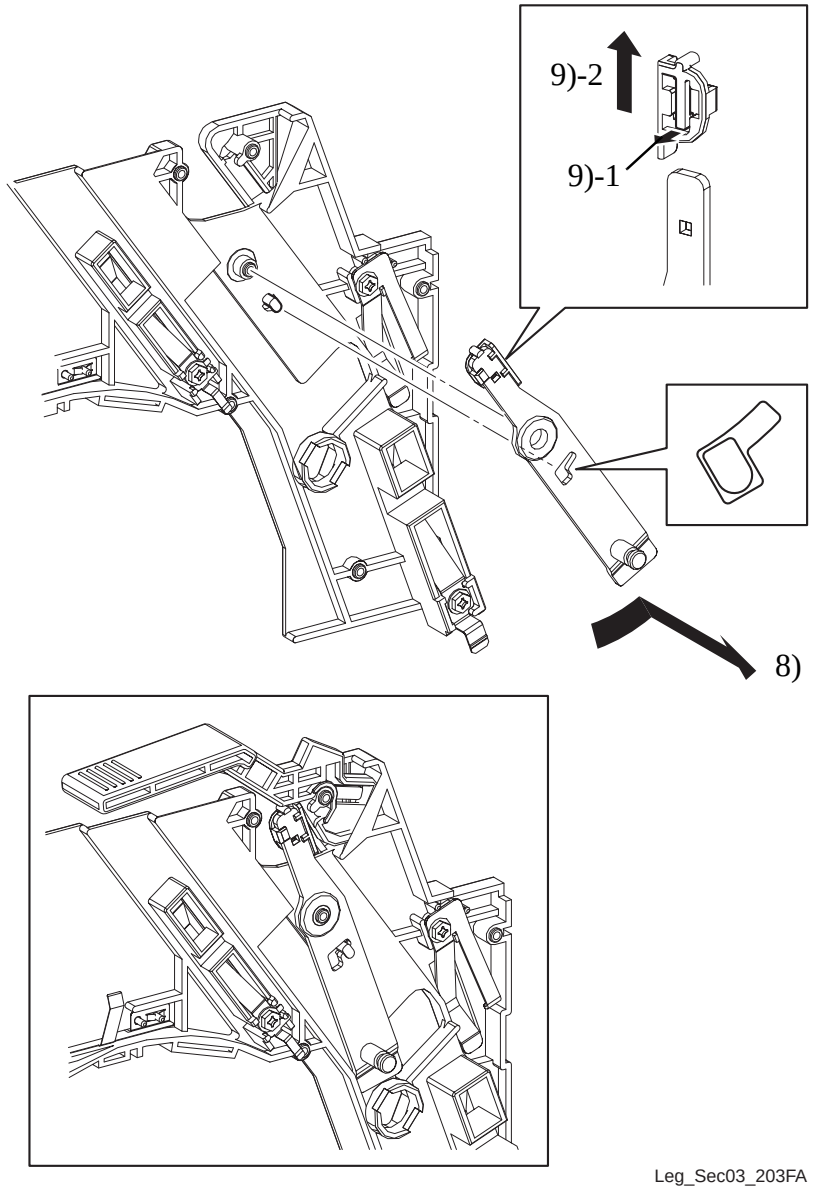


Figure 4-82. Removal of CAP-PLATE PR and PLATE-ASSY PR

4.6.8 LATCH ASSY AD

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove 2ND BTR ASSY. *(p.348)*
3. Remove FRAME ASSY-PH. *(p.327)*
4. Remove BCR CLN XERO ASSY. *(p.373)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove GUIDE CRU ASSY AD. *(p.367)*
7. Unhook SPRING-TORSION AD from the hook on GUIDE CRU ASSY AD.
8. Remove LATCH ASSY AD together with SPRING-TORSION AD from GUIDE CRU ASSY AD.
9. Remove SPRING-TORSION AD from LATCH ASSY AD.

REINSTALLATION

1. Attach SPRING-TORSION AD to LATCH ASSY AD.
2. Attach LATCH ASSY AD together with SPRING-TORSION AD to GUIDE CRU ASSY AD.
3. Hook SPRING-TORSION AD onto the hook on GUIDE CRU ASSY AD.

CAUTION

SPRING-TORSION AD must be firmly attached onto the hooks on LATCH ASSY AD and GUIDE CRU ASSY AD.
(Do not attach SPRING-TORSION AD in the reverse direction)

4. Attach GUIDE CRU ASSY AD. *(p.367)*
5. Attach SENSOR TR-0. *(p.361)*
6. Attach BCR CLN XERO ASSY. *(p.373)*
7. Attach FRAME ASSY-PH. *(p.327)*
8. Attach 2ND BTR ASSY. *(p.348)*
9. Attach COVER ASSY RH. *(p.301)*

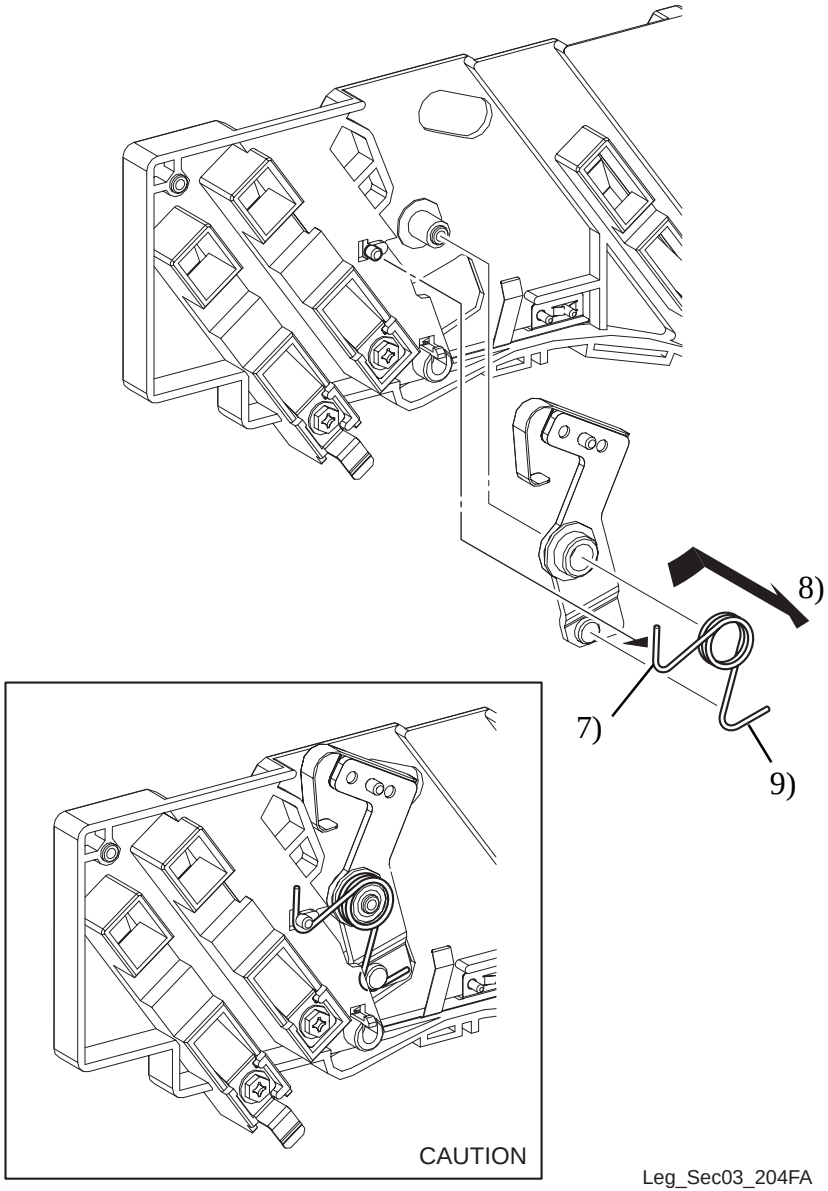


Figure 4-83. Removal of LATCH ASSY AD

4.6.9 BCR CLN XERO ASSY

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove FRAME ASSY-PH. *(p.327)*
3. Disconnect connector (P/J617) from BCR CLN XERO ASSY on the right side of the main unit.
4. Unclamp the clamp on the right side of the main unit, and move the harness on BCR CLN XERO ASSY to inside the main unit from the hole on the right side of the main unit.

CAUTION

When performing the following work, press LATCH ROTARY on LATCH ASSY-ROTARY to release the latch, turn FRAME ASSY-ROTARY by hand, and move HOUSING ASSY-DEVE to prevent contact with MAG ROLL.

5. Remove the 2 screws (silver, with flange, 6 mm) fastening BCR CLN XERO ASSY to the main unit.
6. Remove BCR CLN XERO ASSY from the main unit.

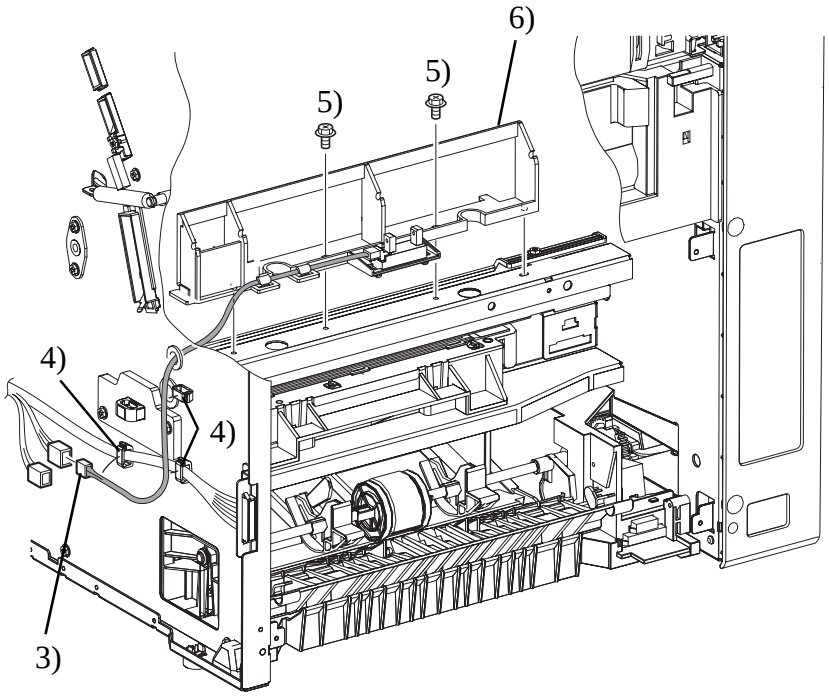
REINSTALLATION

1. Match the boss on BCR CLN XERO ASSY with the hole on the main unit, and attach BCR CLN XERO ASSY.

CAUTION

When performing the following work, press LATCH ROTARY on LATCH ASSY-ROTARY to release the latch, turn FRAME ASSY-ROTARY by hand, and move HOUSING ASSY-DEVE to prevent contact with MAG ROLL.

2. Fasten BCR CLN XERO ASSY to the main unit with the 2 screws (silver, with flange, 6 mm).
3. Take out the harness of BCR CLN XERO ASSY to the outside from the hole on the right side of the main unit, and connect connector (P/L617) for BCR CLN XERO ASSY to the harness.
4. Fasten the harness on BCR CLN XERO ASSY with the clamp on the right side of the main unit.
5. Attach FRAME ASSY-PH. *(p.327)*
6. Attach COVER ASSY RH. *(p.301)*



Leg_Sec03_084EB

Figure 4-84. Removal of BCR CLN XERO ASSY

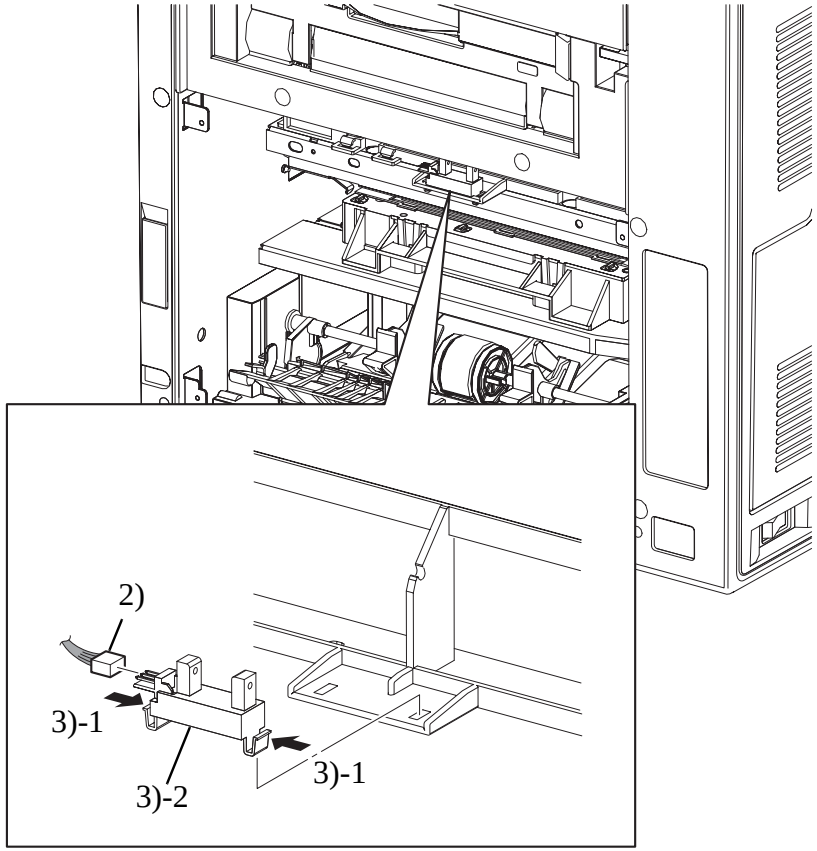
4.6.10 SENSOR TNER FULL

REMOVAL

1. Remove FRAME ASSY-PH. *(p.327)*
2. Disconnect connector (P/J126) from SENSOR TNER FULL.
3. Unhook the two hooks fastening SENSOR TNER FULL to the main unit, and remove SENSOR TNER FULL.

REINSTALLATION

1. Match the hook on SENSOR TNER FULL with the attachment position, and attach to the main unit.
2. Connect connector (P/J126) to SENSOR TNER FULL.
3. Attach FRAME ASSY-PH. *(p.327)*



Leg_Sec03_183EB

Figure 4-85. Removal of SENSOR TNER FULL

4.7 ROS

4.7.1 ROS ASSY

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove COVER INNER L. *(p.302)*
6. Remove FRAME ASSY-PH. *(p.327)*
7. Remove CLEANER ASSY. *(p.377)*
8. Disconnect connector (P/J601) and connector (P/J602) from ROS ASSY.
9. Remove the screw (silver, with flange, 6 mm) fastening the ground lead on ROS ASSY to the main unit, and disconnect the ground lead on ROS ASSY from the main unit.

CAUTION

When performing the following work, press LATCH ROTARY on LATCH ASSY-ROTARY to release the latch, turn FRAME ASSY-ROTARY by hand, and move HOUSING ASSY-DEVE to prevent contact with MAG ROLL.

10. Remove the 5 screws (silver, with flange, 10mm) fastening ROS ASSY to the main unit.
11. Slightly lift up ROS ASSY, remove the boss on ROS ASSY from the hole on the main unit, and remove ROS ASSY towards the rear of the main unit.

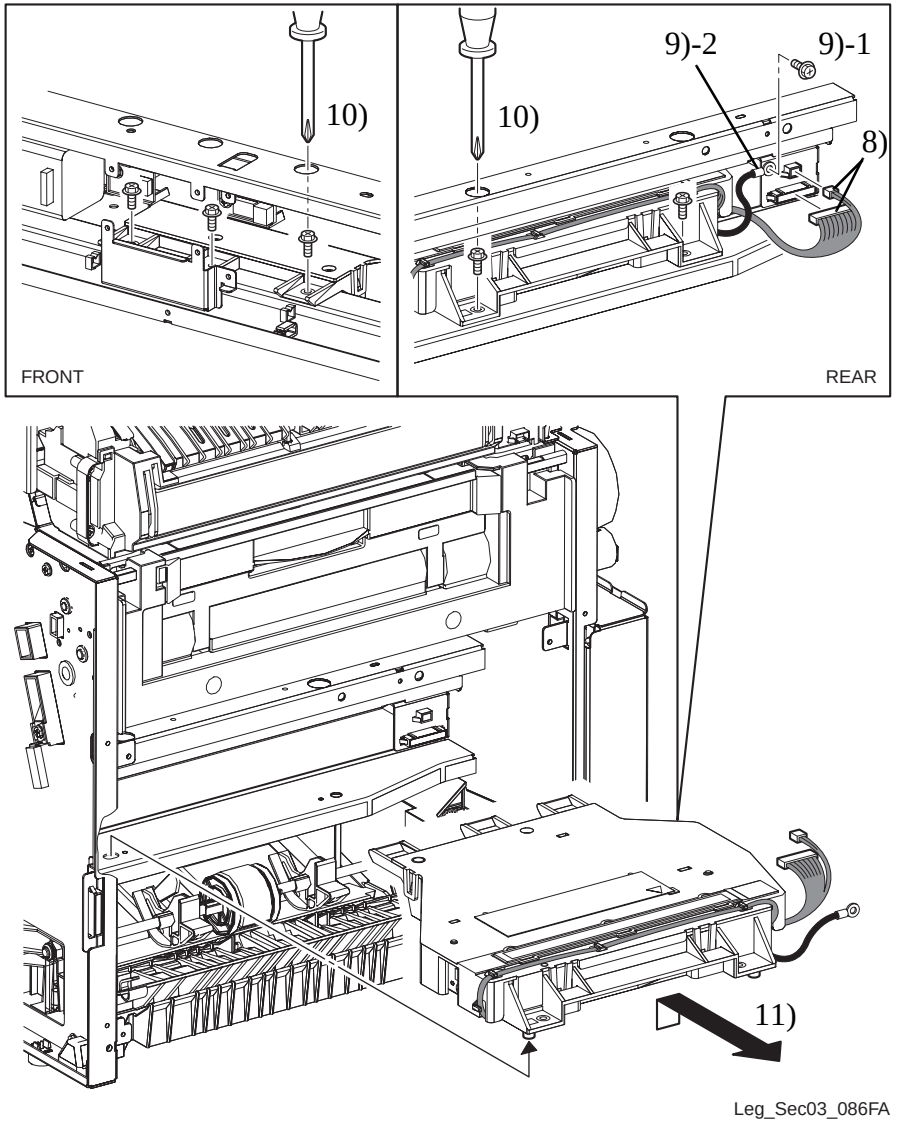


Figure 4-86. Removal of ROS ASSY

REINSTALLATION

1. Match the boss on ROS ASSY with the hole on the main unit, and attach ROS ASSY.

CAUTION

When performing the following work, press LATCH ROTARY on LATCH ASSY-ROTARY to release the latch, turn FRAME ASSY-ROTARY by hand, and move HOUSING ASSY-DEVE to prevent contact with MAG ROLL.

2. Fasten ROS ASSY to the main unit with the 5 screws (silver, with flange, 10mm).
3. Attach the ground lead of ROS ASSY to the main unit, and fasten with the screw (silver, with flange, 6 mm).
4. Connect connector (P/J601) and connector (P/J602) to ROS ASSY.
5. Attach CLEANER ASSY. *(p.377)*
6. Attach FRAME ASSY-PH. *(p.327)*
7. Attach COVER INNER L. *(p.302)*
8. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
9. Attach COVER MSI. *(p.291)*
10. Attach COVER ASSY LH. *(p.295)*
11. Attach COVER ASSY RH. *(p.301)*

4.7.2 CLEANER ASSY

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove the 2 screws (silver, with flange, 10mm) fastening GUIDE-ROS CLN to the main unit.
3. Remove GUIDE-ROS CLN from the main unit.
4. Remove CLEANER ASSY from the main unit.

REINSTALLATION

1. Align CLEANER ASSY with the rails on the main unit, and insert.
2. Match the boss on GUIDE-ROS CLN with the hole on the main unit, and attach.
3. Fasten GUIDE-ROS CLN to the main unit with the 2 screws (silver, with flange, 10mm).
4. Attach COVER ASSY RH. *(p.301)*

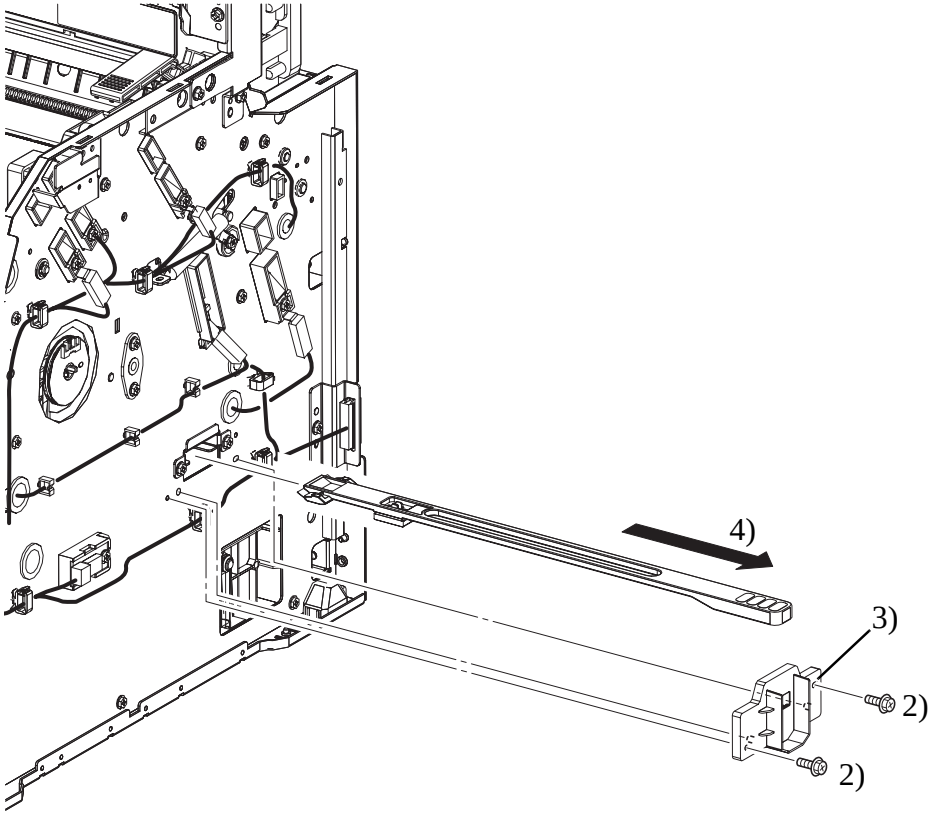


Figure 4-87. Removal of CLEANER ASSY

4.8 DEVE

4.8.1 LATCH ASSY-ROTARY

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Remove LV/HVPS. *(p.407)*
3. Remove the 3 screws (silver, with flange, tapping, 8 mm) fastening LATCH ASSY-ROTARY to the main unit.
4. Unhook the three hooks fastening LATCH ASSY-ROTARY to the main unit, and remove LATCH ASSY-ROTARY.

REINSTALLATION

CAUTION

Pay attention to the levers and springs inside LATCH ASSY-ROTARY as they easily come loose.
When a part on LATCH ASSY-ROTARY comes off, referring to the assembly drawing, assemble the part, and attach LATCH ASSY-ROTARY to the main unit.

1. Match the hook on LATCH ASSY-ROTARY with the attachment position, and attach to the main unit.
2. Fasten LATCH ASSY-ROTARY to the main unit with the 3 screws (silver, with flange, tapping, 8 mm).
3. Attach LV/HVPS. *(p.407)*
4. Attach COVER ASSY LH. *(p.295)*

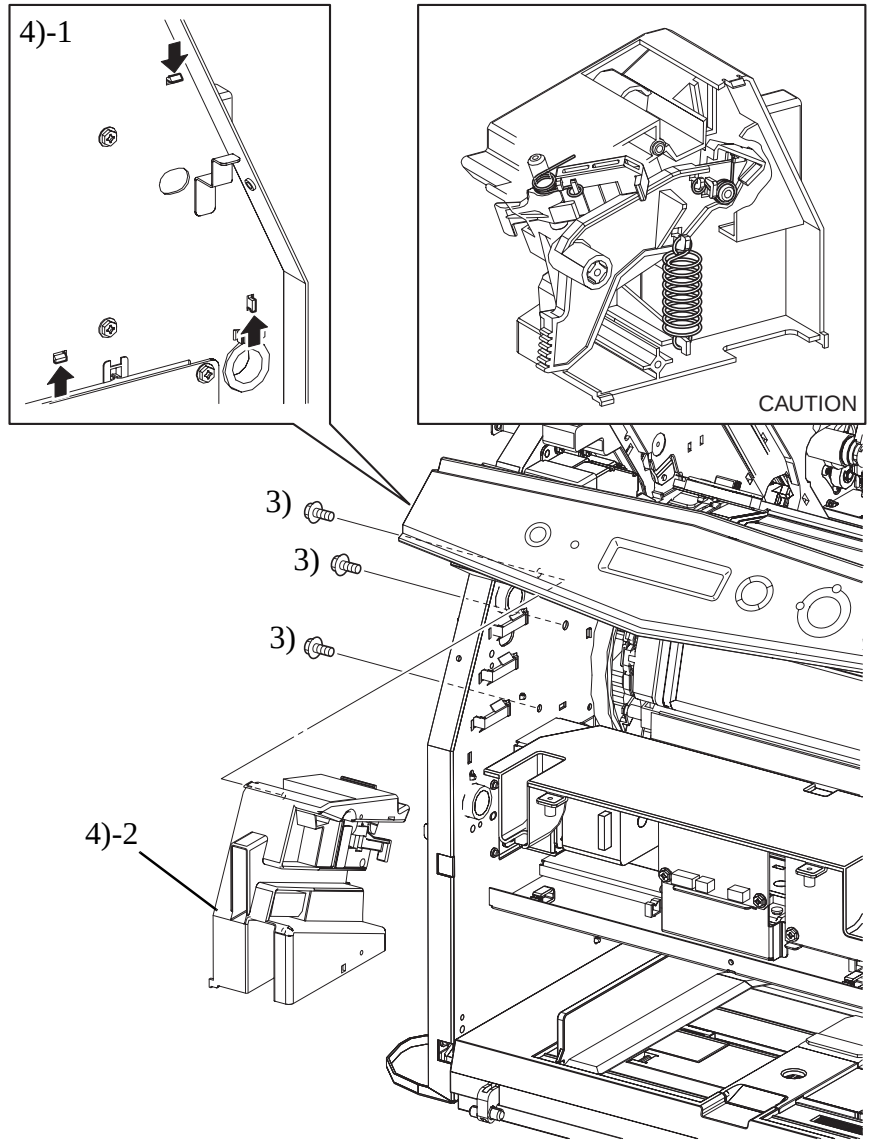


Figure 4-88. Removal of LATCH ASSY-ROTARY

4.8.2 ANTENNA ASSY-CTRG

CAUTION

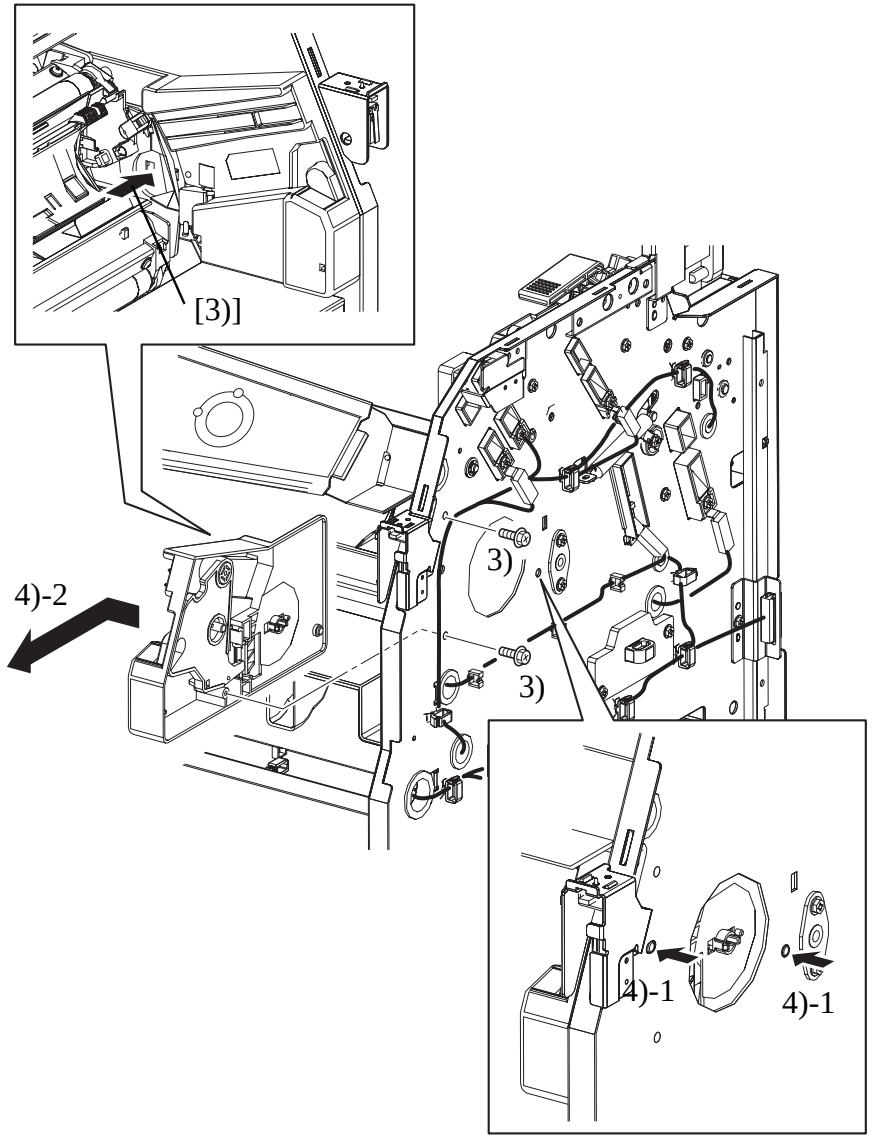
Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove ANTENNA CTRG. *(p.380)*
3. Remove the 2 screws (silver, with flange, tapping, 8 mm) fastening ANTENNA ASSY-CTRG to the main unit.
4. Press the boss fastening ANTENNA ASSY-CTRG to the main unit, and remove ANTENNA ASSY-CTRG.

REINSTALLATION

1. Remove the toner cartridge overlaying the attachment position of ANTENNA ASSY-CTRG.
2. Match the boss on ANTENNA ASSY-CTRG with the attachment position, and attach to the main unit.
3. Press ANTENNA ASSY-CTRG from the inside of the main unit (hole on FRAME ASSY-ROTARY), and firmly insert the boss on ANTENNA ASSY-CTRG into the hole on the main unit.
4. Fasten ANTENNA ASSY-CTRG to the main unit with the 2 screws (silver, with flange, tapping, 8 mm).
5. Attach ANTENNA CTRG. *(p.380)*
6. Attach COVER ASSY RH. *(p.301)*



Leg_Sec03_089EB

Figure 4-89. Removal of ANTENNA ASSY-CTRG

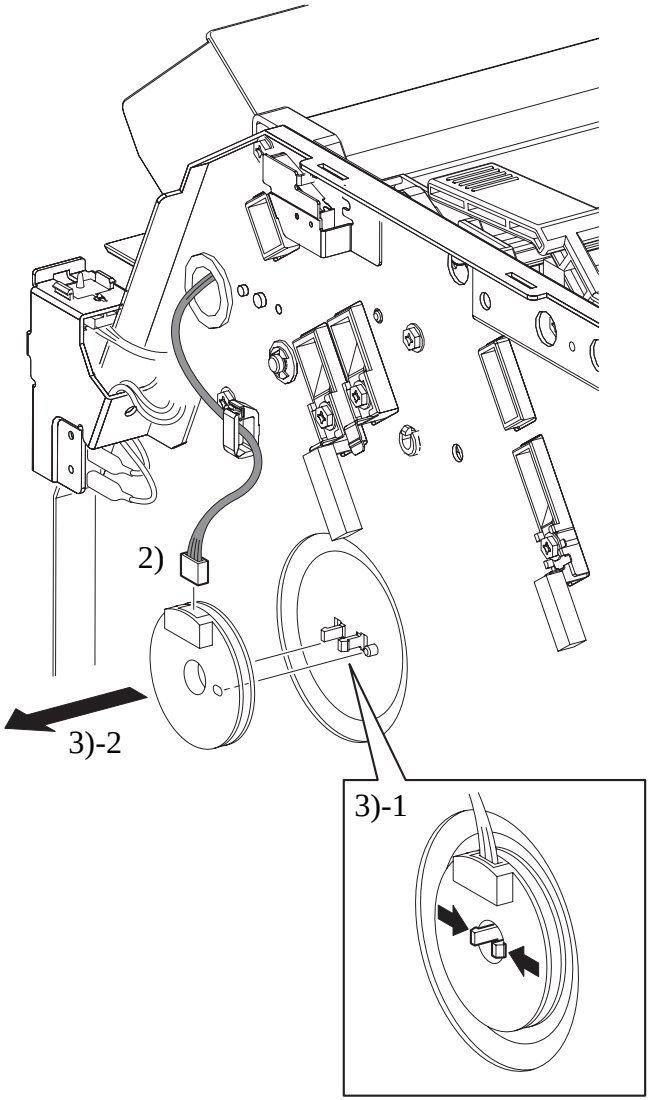
4.8.3 ANTENNA CTRG

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Disconnect connector (P/J106) from ANTENNA CTRG.
3. Unhook the hook fastening ANTENNA CTRG to ANTENNA ASSY-CTRG, and remove ANTENNA ASSY-CTRG.

REINSTALLATION

1. Match the boss on ANTENNA ASSY-CTRG with the hole on ANTENNA CTRG, attach ANTENNA CTRG, and fasten with a hook.
2. Connect connector (P/J106) to ANTENNA CTRG.
3. Attach COVER ASSY RH. *(p.301)*



Leg_Sec03_091EB

Figure 4-90. Removal of ANTENNA CTRG

4.8.4 HOLDER ASSY-BIAS

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove WIRE ASSY DEVE connected to HOLDER ASSY-BIAS.
3. Unhook the hook on HOLDER ASSY-BIAS from the main unit, and slide down, match the protrusion on HOLDER ASSY-BIAS with the notch on the main unit, and remove HOLDER ASSY-BIAS.

REINSTALLATION

1. Match the protrusion on HOLDER ASSY-BIAS with the notch of the attachment hole on the main unit, and attach, and slide HOLDER ASSY-BIAS upwards and fasten with a hook.
2. Attach WIRE ASSY DEVE to HOLDER ASSY-BIAS.
3. Attach COVER ASSY RH. *(p.301)*

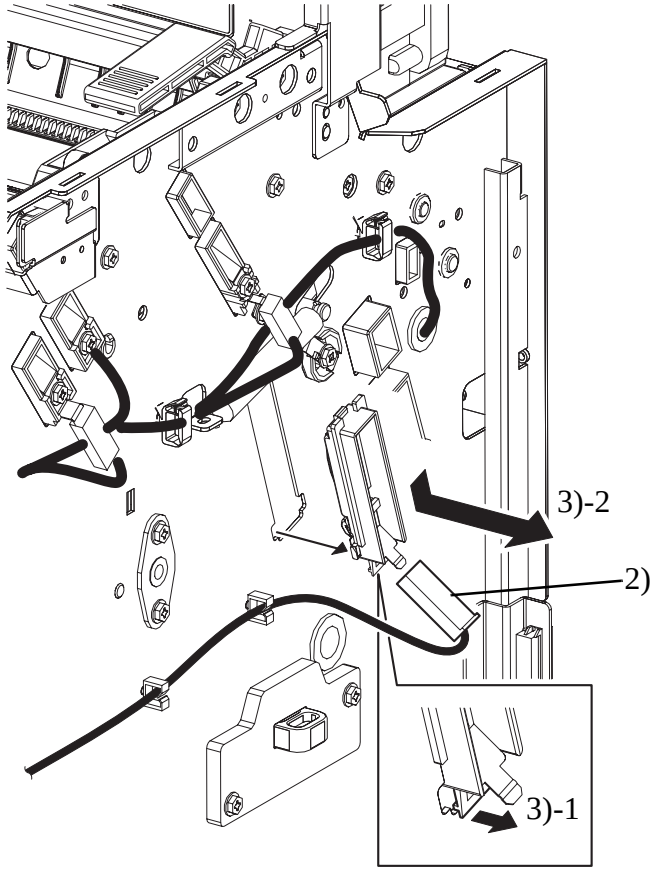


Figure 4-91. Removal of HOLDER ASSY-BIAS

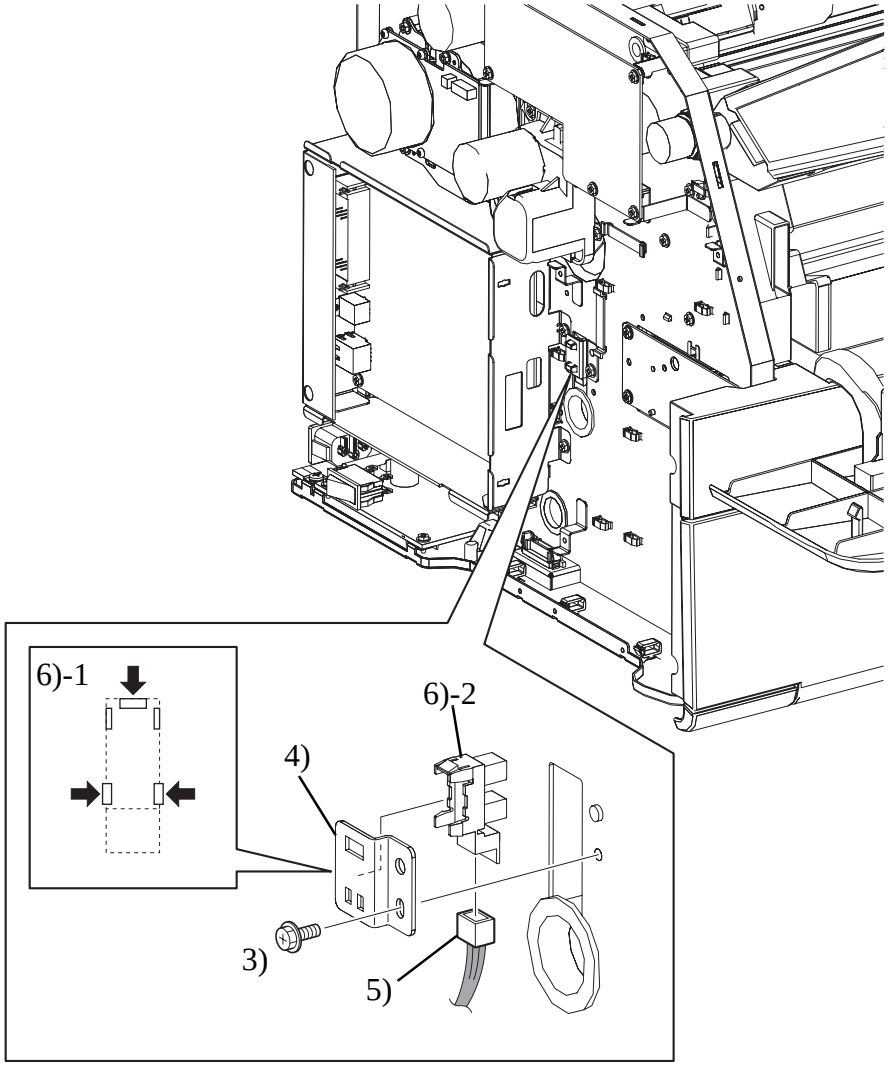
4.8.5 SENSOR ROTARY HOME POSI

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Remove LV/HVPS. *(p.407)*
3. Remove the screw (silver, with flange, 6 mm) fastening BRACKET SENSOR to the main unit.
4. Remove BRACKET SENSOR from the main unit together with SENSOR ROTARY HOME POSI.
5. Disconnect connector (P/J105) from SENSOR ROTARY HOME POSI.
6. Unhook the three hooks fastening SENSOR ROTARY HOME POSI to BRACKET SENSOR, and remove SENSOR ROTARY HOME POSI.

REINSTALLATION

1. Match the hooks on SENSOR ROTARY HOME POSI with the attachment position, and attach to BRACKET SENSOR.
2. Connect connector (P/J105) to SENSOR ROTARY HOME POSI.
3. Match the hole on BRACKET SENSOR with the boss on the main unit, and attach BRACKET SENSOR together with SENSOR ROTARY HOME POSI.
4. Fasten BRACKET SENSOR to the main unit with the screw (silver, with flange, 6 mm).
5. Attach LV/HVPS. *(p.407)*
6. Attach COVER ASSY LH. *(p.295)*



Leg_Sec03_093EB

Figure 4-92. Removal of SENSOR ROTARY HOME POSI

4.8.6 HOUSING ASSY-DEVE K, HOUSING ASSY-DEVE Y, HOUSING ASSY-DEVE M, HOUSING ASSY-DEVE C

REMOVAL

CAUTION

- **When removing the Toner Cartridge, put several sheets of copy paper on COVER FRONT ASSY U and other parts to prevent them from getting dirty.**
- **Before removing HOUSING ASSY-DEVE, be sure to wipe off any residual toner on it.**

WARNING

Do not vacuum off spilled toner using an usual vacuum cleaner because there is a possibility of taking fire.

CAUTION

When wiping off the residual toner on HOUSING ASSY-DEVE, take care to prevent any toner from static cling to the sensors on HOUSING ASSY-DEVE.

1. Remove the Toner Cartridge.
2. Remove COVER ASSY RH. *(p.301)*
3. Remove COVER ASSY TOP. *(p.283)*
4. Remove 2ND BTR ASSY. *(p.348)*
5. Remove FRAME ASSY-PH. *(p.327)*
6. Remove BCR CLN XERO ASSY. *(p.373)*
7. Remove SENSOR TR-0. *(p.361)*
8. Remove GUIDE CRU ASSY AD. *(p.367)*
9. Press LATCH ROTARY on LATCH ASSY-ROTARY to release the latch, turn FRAME ASSY-ROTARY by hand, and move HOUSING ASSY-DEVE to a position where is easy to work.

CAUTION

After moving HOUSING ASSY-DEVE, make sure that FRAME ASSY-ROTARY is firmly locked by LATCH ROTARY.

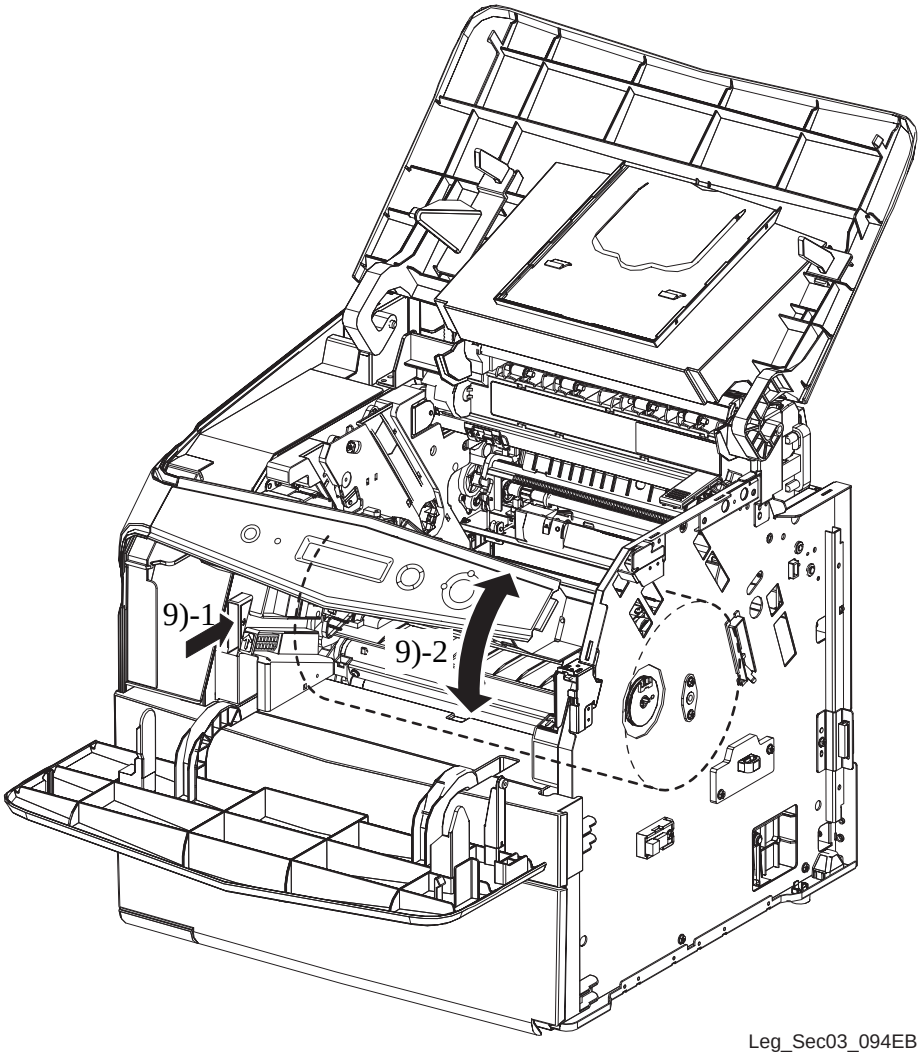


Figure 4-93. Removal of HOUSING ASSY-DEVE (1)

10. Unhook the hook on PIVOT AD fastening the right side of HOUSING ASSY-DEVE to FRAME ASSY-ROTARY, and remove PIVOT AD.
11. Remove the screw (silver, with flange, tapping, 8mm) fastening PIVOT ASSY fastening the left side of HOUSING ASSY-DEVE to FRAME ASSY-ROTARY, and remove PIVOT ASSY.
12. Lift up the right side of HOUSING ASSY-DEVE, remove the gear on the left side of HOUSING ASSY-DEVE from the gear on FRAME ASSY-ROTARY, and remove HOUSING ASSY-DEVE.

REINSTALLATION

CAUTION

Holes are provided in the protrusion portion on FRAME ASSY-ROTARY for preventing mis-insertion of HOUSING ASSY-DEVE. The attachment positions of each color of HOUSING ASSY-DEVE is indicated as K, Y, M, and C on FRAME ASSY-ROTARY.

1. Match the gear on the left side of HOUSING ASSY-DEVE of the same color as the indicated color on FRAME ASSY-ROTARY with the gear on FRAME ASSY-ROTARY, and attach HOUSING ASSY-DEVE.

CAUTION

- **The spring under both sides of the bottom of HOUSING ASSY-DEVE must be placed firmly on the spring receptacle of FRAME ASSY-ROTARY.**
- **A spring having a thick right side and a thin left side is used as the spring under HOUSING ASSY-DEVE.**

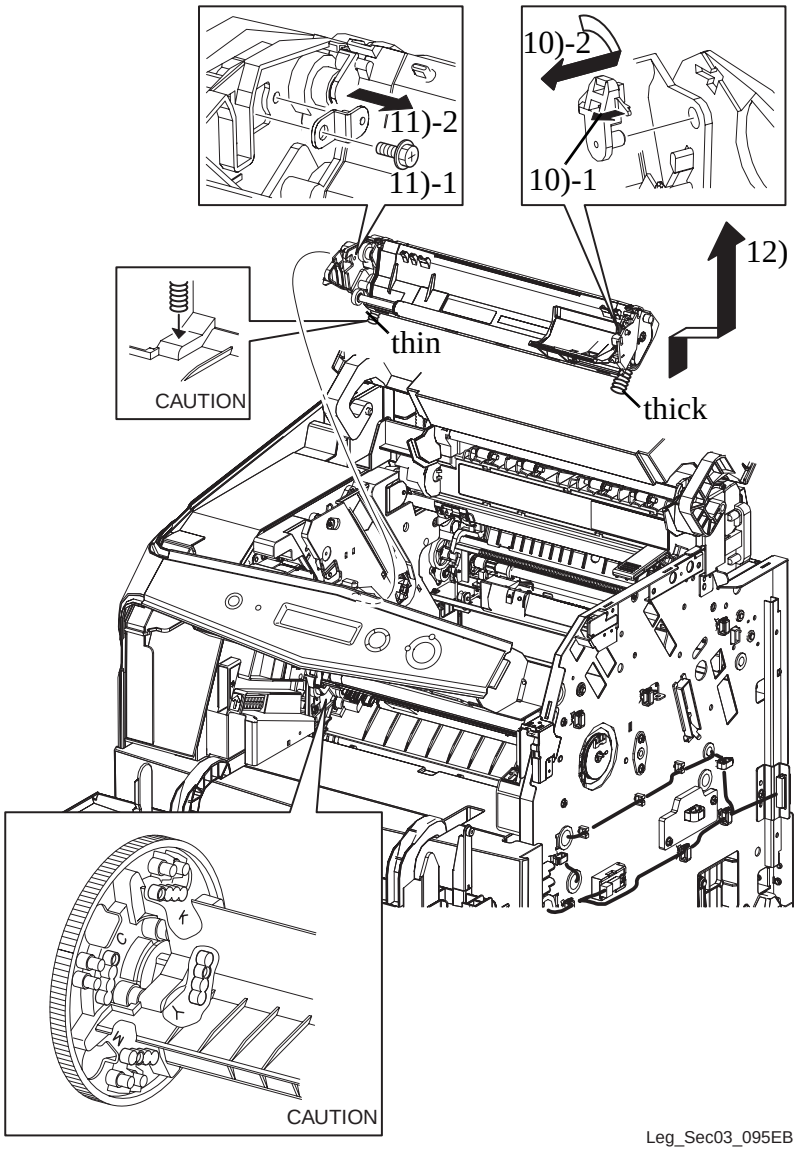


Figure 4-94. Removal of HOUSING ASSY-DEVE (2)

2. Match the hole on HOUSING ASSY-DEVE with the attachment hole on the left side of FRAME ASSY-ROTARY, insert the shaft on PIVOT ASSY, and fasten the left side of HOUSING ASSY-DEVE with the screw (silver, with flange, tapping, 8 mm).
3. Match the hole on HOUSING ASSY-DEVE with the attachment hole on the right side of FRAME ASSY-ROTARY, insert the shaft of PIVOT AD, and fasten the hook on PIVOT AD to attach HOUSING ASSY-DEVE.

CAUTION

Removed PIVOT ADs should not be re-used; only new PIVOT ADs in the KIT should be used.

4. Attach GUIDE CRU ASSY AD. *(p.367)*
5. Attach SENSOR TR-0. *(p.361)*
6. Attach BCR CLN XERO ASSY. *(p.373)*
7. Attach FRAME ASSY-PH. *(p.327)*
8. Attach 2ND BTR ASSY. *(p.348)*
9. Attach COVER ASSY TOP. *(p.283)*
10. Attach COVER ASSY RH. *(p.301)*
11. Attach the Toner Cartridge.
12. Use CLEANER ASSY to clean the window of ROS ASSY.

CAUTION

When replaced HOUSING ASSY-DEVE with a new one, clear the DEVE life counter to zero. (Refer to "6.3.1 Maintenance Menu Items" *(p497)*)

4.8.7 FRAME ASSY-ROTARY

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY TOP. *(p.283)*
3. Remove 2ND BTR ASSY. *(p.348)*
4. Remove COVER ASSY LH. *(p.295)*
5. Remove COVER MSI. *(p.291)*
6. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
7. Remove COVER INNER TOP. *(p.299)*
8. Remove PWBA MCU. *(p.404)*
9. Remove LV/HVPS. *(p.407)*
10. Remove CHASSIS ASSY ESS. *(p.411)*
11. Remove DRIVE ASSY PRO. *(p.394)*
12. Remove MOT ASSY MAG. *(p.396)*
13. Remove LATCH ASSY-ROTARY. *(p.378)*
14. Remove SENSOR ROTARY HOME POSI. *(p.382)*
15. Remove FRAME ASSY-PH. *(p.327)*
16. Remove BCR CLN XERO ASSY. *(p.373)*
17. Remove SENSOR TR-0. *(p.361)*
18. Remove GUIDE CRU ASSY D. *(p.362)*
19. Remove GUIDE CRU ASSY AD. *(p.367)*
20. Remove HOUSING ASSY-DEVE. *(p.383)*
21. Remove the 3 screws (silver, with flange, 6 mm) fastening BRACKET ASSY 2ND GEAR to the main unit.
22. Remove BRACKET ASSY 2ND GEAR and GEAR 2ND from the main unit.
23. Remove the 2 screws (silver, with flange, 6 mm) fastening SHAFT ASSY-ROTARY on the right side of the main unit.

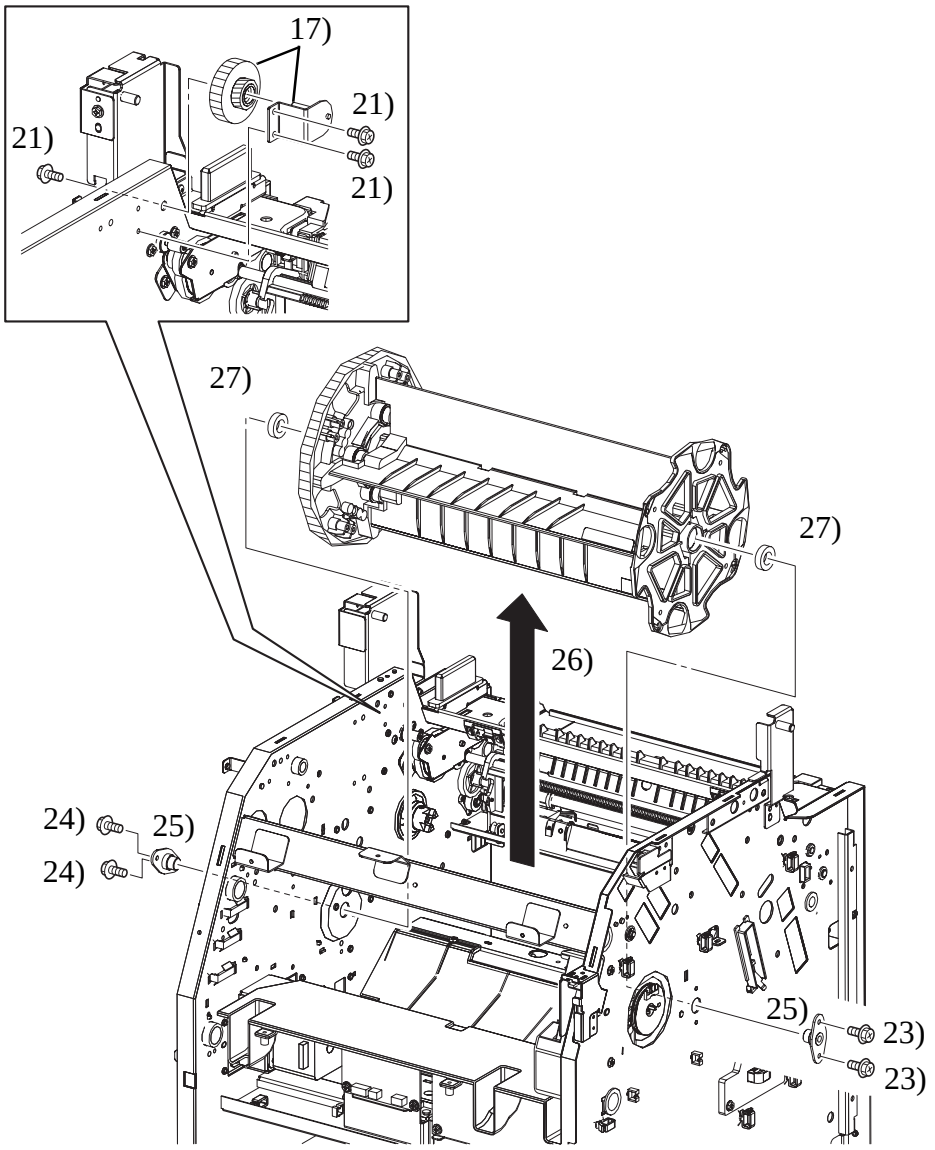


Figure 4-95. Removal of FRAME ASSY-ROTARY

24. Remove the 2 screws (silver, with flange, 6 mm) fastening SHAFT ASSY-ROTARY on the left side of the main unit.
25. Remove SHAFT ASSY-ROTARY from both sides of the main unit.

CAUTION

When performing the following work, take care not to drop or lose BEARING BALL.

26. Remove FRAME ASSY-ROTARY upwards together with BEARING BALL.
27. Remove BEARING BALL from FRAME ASSY-ROTARY.

REINSTALLATION

1. Attach BEARING BALL to FRAME ASSY-ROTARY.
2. Match with the attachment position and attach so that the gear of FRAME ASSY-ROTARY is at the left side.
3. Insert the shaft of SHAFT ASSY-ROTARY into the hole on FRAME ASSY-ROTARY, and fasten FRAME ASSY-ROTARY to the main unit.
4. Fasten SHAFT ASSY-ROTARY on the left side of the main unit with the 2 screws (silver, with flange, 6 mm).
5. Fasten SHAFT ASSY-ROTARY on the right side of the main unit with the 2 screws (silver, with flange, 6 mm).
6. Attach BRACKET ASSY 2ND GEAR and GEAR 2ND to the main unit.
7. Fasten BRACKET ASSY 2ND GEAR to the main unit with the 3 screws (silver, with flange, 6 mm).
8. Attach HOUSING ASSY-DEVE. *(p.383)*
9. Attach GUIDE CRU ASSY AD. *(p.367)*
10. Attach GUIDE CRU ASSY D. *(p.362)*
11. Attach SENSOR TR-0. *(p.361)*
12. Attach BCR CLN XERO ASSY. *(p.373)*
13. Attach FRAME ASSY-PH. *(p.327)*
14. Remove SENSOR ROTARY HOME POSI. *(p.382)*
15. Attach LATCH ASSY-ROTARY. *(p.378)*
16. Attach MOT ASSY MAG. *(p.396)*
17. Attach DRIVE ASSY PRO. *(p.394)*
18. Attach CHASSIS ASSY ESS. *(p.411)*
19. Attach LV/HVPS. *(p.407)*
20. Attach PWBA MCU. *(p.404)*
21. Attach COVER INNER TOP. *(p.299)*
22. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
23. Attach COVER MSI. *(p.291)*
24. Attach COVER ASSY LH. *(p.295)*
25. Attach 2ND BTR ASSY. *(p.348)*
26. Attach COVER ASSY TOP. *(p.283)*
27. Attach COVER ASSY RH. *(p.301)*

4.9 FUSER

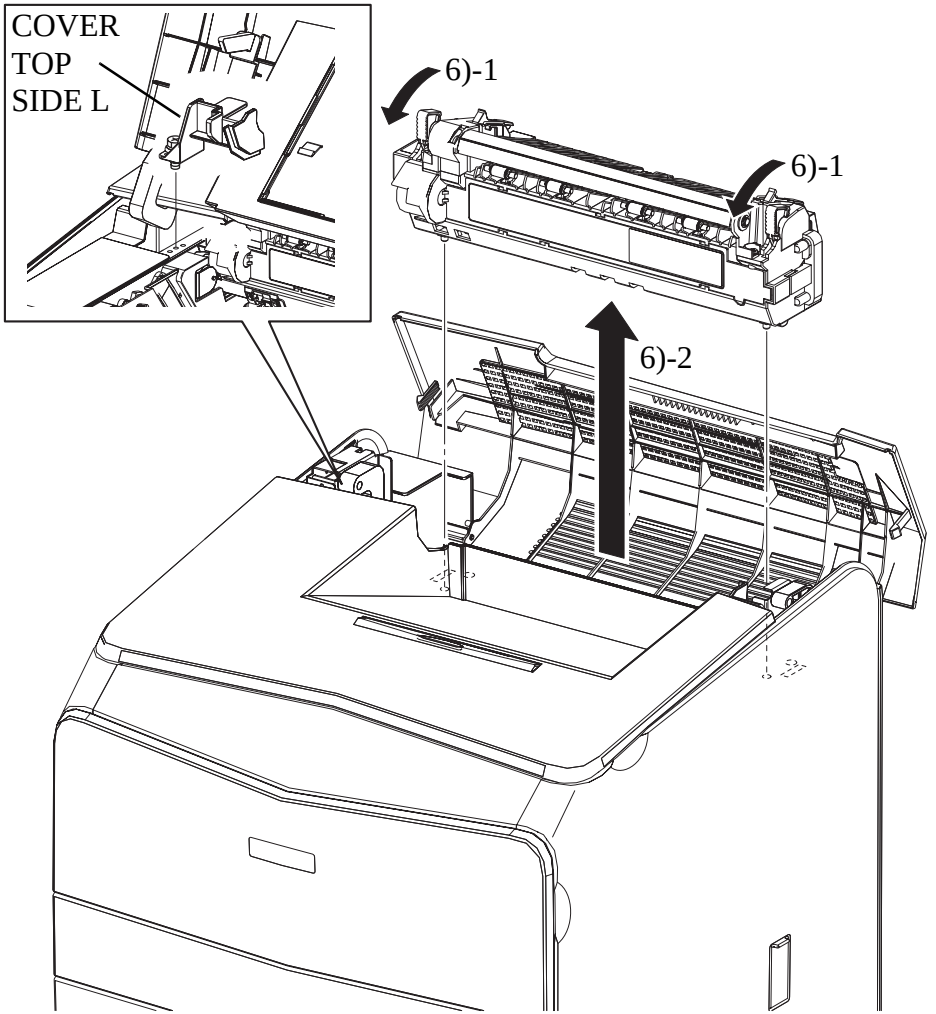
4.9.1 FUSER ASSY

CAUTION

Take care when handling the FUSER as it is hot. Take care not to burn yourself.

REMOVAL

1. In the case of the DUPLEX specification, press LINK-BUTTON upwards, release the latch, and open DUPLEX ASSY.
2. In the case of the standard specification, open COVER FUSER.
3. Open COVER ASSY TOP.
4. Remove COVER TOP SIDE L. *(p.286)*
5. Close COVER ASSY TOP.
6. Lift up the levers on both sides of FUSER ASSY, and unlock the lock to remove FUSER ASSY.
7. With Chute on FUSER ASSY open, draw out the shaft of Actuator, and remove Actuator together with Spring.
8. Remove Spring from Actuator.



Leg_Sec03_097EB

Figure 4-96. Removal of FUSER ASSY

REINSTALLATION

1. Attach Spring to Actuator.
2. With Chute on FUSER ASSY open, insert the shaft of Actuator to the main unit, and attach together with Spring.
3. Match the connector and the boss on the FUSER ASSY side with the connector and the hole on the main unit side, and attach FUSER ASSY.
4. Return the levers on both sides of FUSER ASSY, and firmly lock on the main unit.
5. Open COVER ASSY TOP.
6. Attach COVER TOP SIDE L. *(p.286)*

CAUTION

COVER TOP SIDE L cannot be attached on the main unit unless the lever on FUSER ASSY is firmly locked.

7. Close COVER ASSY TOP.
8. In the case of the standard specification, close COVER FUSER.
9. In the case of the DUPLEX specification, close DUPLEX ASSY.

CAUTION

When replaced FUSER ASSY with a new one, clear the life counter to zero. (Refer to "6.3.1 Maintenance Menu Items" *(p497)*)

4.9.2 FUSER LOCK SWITCH

REMOVAL

1. Remove FUSER ASSY. *(p.388)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*

CAUTION

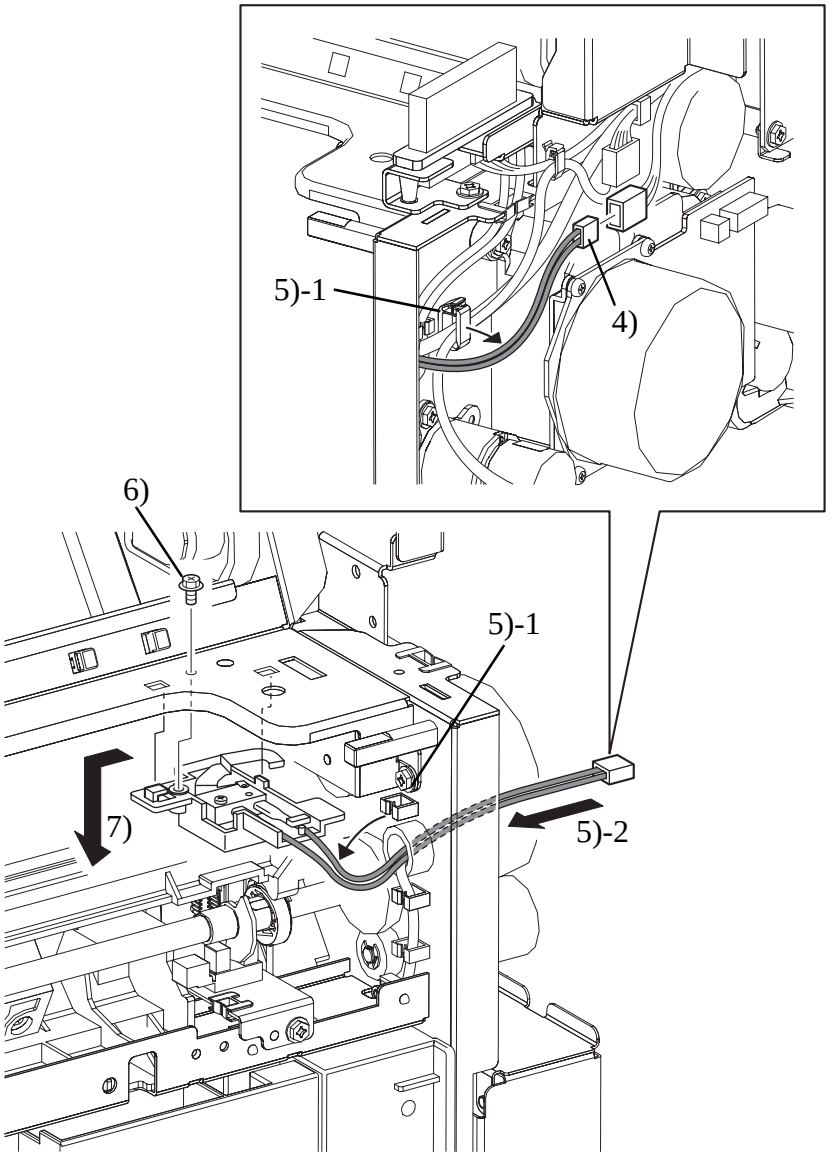
When performing the following work, leave the intermediate connector on the harness side.

4. Disconnect the connector (P/J128, blue) from FUSER LOCK SWITCH.
5. Unclamp the two clamps fastening the harness on FUSER LOCK SWITCH to remove the harness, and put the connector of FUSER LOCK SWITCH to the inside the main unit from the hole on the main unit.

CAUTION

When performing the following, take care not to damage FUSER LOCK SWITCH by falling or dropping it.

6. Remove the screw (silver, with flange, tapping, 6 mm) fastening FUSER LOCK SWITCH to the main unit.
7. Slide FUSER LOCK SWITCH to the right, unhook the hook on FUSER LOCK SWITCH from the hole on the main unit, and remove FUSER LOCK SWITCH.



Leg_Sec03_519EA

Figure 4-97. Removal of FUSER LOCK SWITCH

REINSTALLATION

CAUTION

When performing the following, take care not to damage FUSER LOCK SWITCH by falling or dropping it.

1. Match the protrusion and hook on FUSER LOCK SWITCH with the hole on the main unit, slide FUSER LOCK SWITCH to the left, and attach FUSER LOCK SWITCH.
2. Putting your hand beneath FUSER LOCK SWITCH to prevent it from dropping, fasten FUSER LOCK SWITCH with the screw (silver, with flange, tapping, 6 mm).
3. Bring out the connector on FUSER LOCK SWITCH to the outside from the hole on the main unit.
4. Attach the connector (P/J128, blue) to FUSER LOCK SWITCH, and fasten the harness on FUSER LOCK SWITCH with the two clamps.
5. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
6. Attach COVER ASSY LH. *(p.295)*
7. Attach FUSER ASSY. *(p.388)*

4.9.3 HARNESS ASSY MCU C/L

REMOVAL

1. Remove FUSER ASSY. *(p.388)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove CHASSIS ASSY ESS. *(p.411)*
4. Disconnect the connector (black-and-white) from PWBA FUSER CONT.
5. Disconnect connector (P417) from PWBA MCU.
6. Remove the 2 screws (silver, with flange, 6 mm) fastening BRACKET-RIZ to the main unit, remove the harness from the clamp, and remove BRACKET-RIZ from the main unit.
7. Draw out HARNESS ASSY MCU C/L from BRACKET-RIZ while pressing the claw on HARNESS ASSY MCU C/L.

CAUTION

The claw on HARNESS ASSY MCU C/L is easily broken. Take care not to press it too much.

REINSTALLATION

1. Insert the claw on HARNESS ASSY MCU C/L into the hole on BRACKET-RIZ to attach.
2. Fasten BRACKET-RIZ to the main unit with the 2 screws (silver, with flange, 6 mm), and fasten each harness with the clamps.
3. Attach the harness (yellow) to the connector (P417) on PWBA MCU.
4. Connect the harness (black-and-white) to PWBA FUSER CONT.
5. Attach CHASSIS ASSY ESS. *(p.411)*
6. Attach COVER ASSY LH. *(p.295)*
7. Attach FUSER ASSY. *(p.388)*

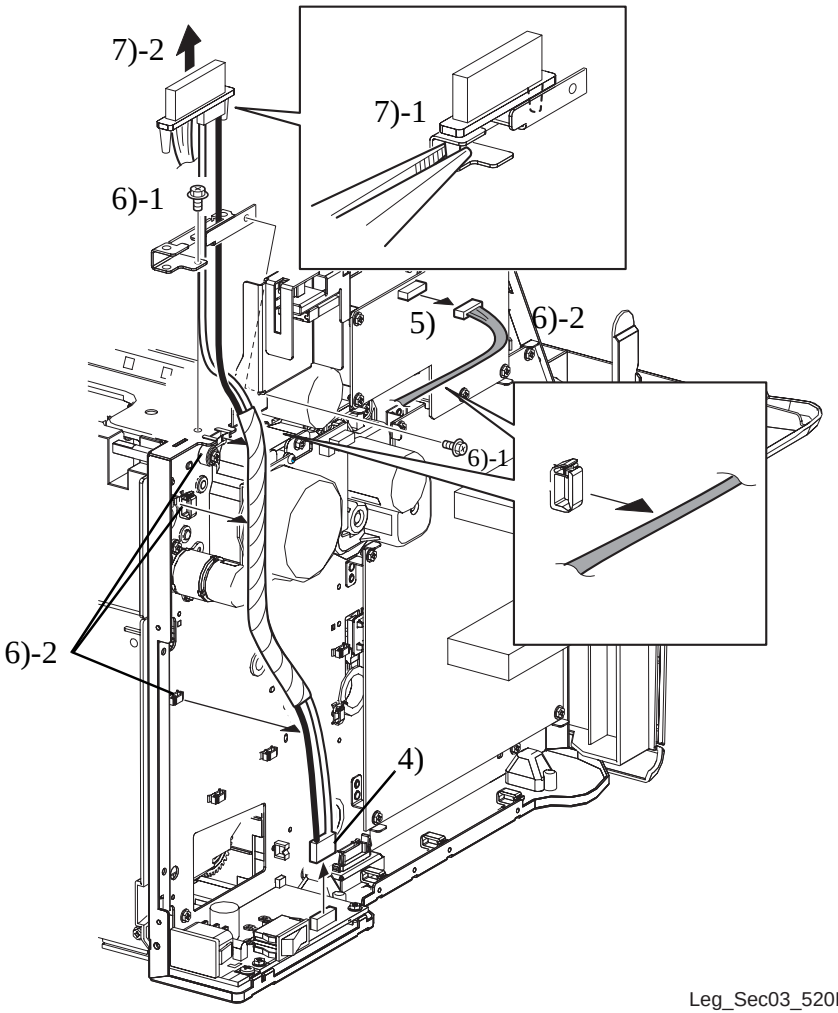


Figure 4-98. Removal of HARNESS ASSY MCU C/L

4.10 DRIVE

4.10.1 DRIVE ASSY BTR

REMOVAL

1. Remove 2ND BTR ASSY. *(p.348)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove PWBA MCU. *(p.404)*
4. Remove CHASSIS ASSY ESS. *(p.411)*
5. Remove SENSOR TR-0. *(p.361)*
6. Remove GUIDE CRU ASSY D. *(p.362)*
7. Remove CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
8. Remove the 2 screws (silver, with flange, 6mm) fastening DRIVE ASSY BTR to the main unit.
9. Remove DRIVE ASSY BTR from the main unit.

REINSTALLATION

1. Match the shaft on DRIVE ASSY BTR with the hole on the main unit, and attach DRIVE ASSY BTR.
2. Fasten DRIVE ASSY BTR to the main unit with the 2 screws (silver, with flange, 6mm).
3. Attach CHUTE ASSY-FSR and COVER ASSY-RR 2ND. *(p.341)*
4. Attach GUIDE CRU ASSY D. *(p.362)*
5. Attach SENSOR TR-0. *(p.361)*
6. Attach CHASSIS ASSY ESS. *(p.411)*
7. Attach PWBA MCU. *(p.404)*
8. Attach COVER ASSY LH. *(p.295)*
9. Attach 2ND BTR ASSY. *(p.348)*

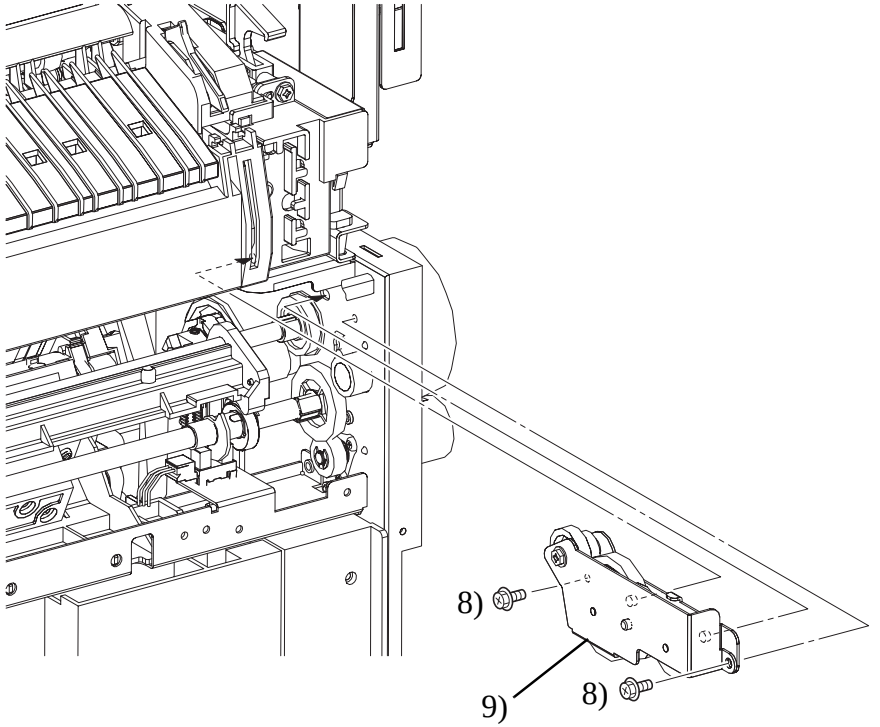


Figure 4-99. Removal of DRIVE ASSY BTR

4.10.2 DRIVE ASSY PRO

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Remove OP PANEL. *(p.294)*
3. Remove COVER INNER TOP. *(p.299)*
4. Disconnect connector (P/J411,P/J414) from the PWBA MCU.
5. Unclamp the harness on DRIVE ASSY PRO on the left side of the main unit from the clamp. If the harness is difficult to remove, remove PWBA MCU. *(p.404)*
6. Remove the 4 screws (silver, with flange, 6 mm) fastening DRIVE ASSY PRO to the main unit.
7. Remove DRIVE ASSY PRO from the main unit.

REINSTALLATION

1. Inset the motor section and harness on DRIVE ASSY PRO into the hole on the main unit, match the hole on DRIVE ASSY PRO with the boss on the main unit, and attach DRIVE ASSY PRO.
2. Fasten DRIVE ASSY PRO to the main unit with the 4 screws (silver, with flange, 6 mm).
3. Fasten the harness on DRIVE ASSY PRO with the clamp on the left side of the main unit.
4. Connect connector (P/J411,P/J414) to the PWBA MCU.
5. Attach COVER INNER TOP. *(p.299)*
6. Attach OP PANEL. *(p.294)*
7. Attach COVER ASSY LH. *(p.295)*

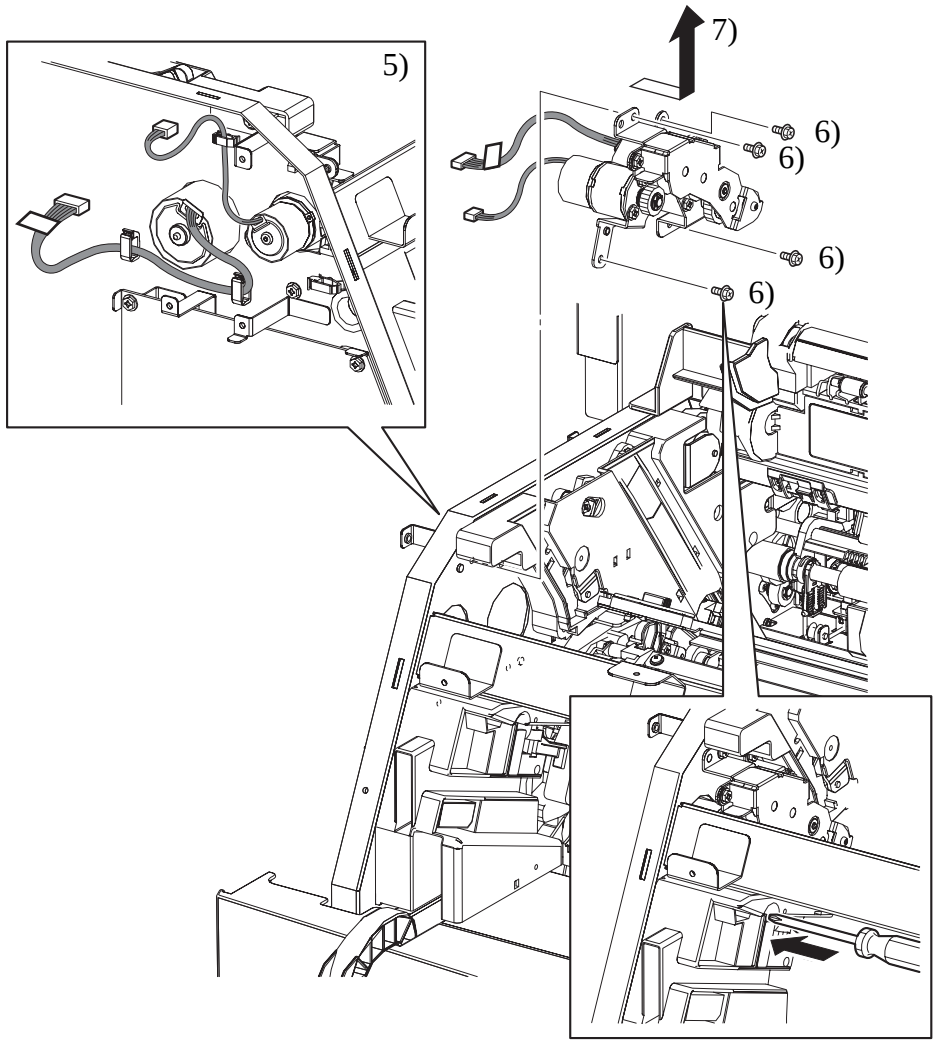


Figure 4-100. Removal of DRIVE ASSY PRO

4.10.3 MOT ASSY FSR

REMOVAL

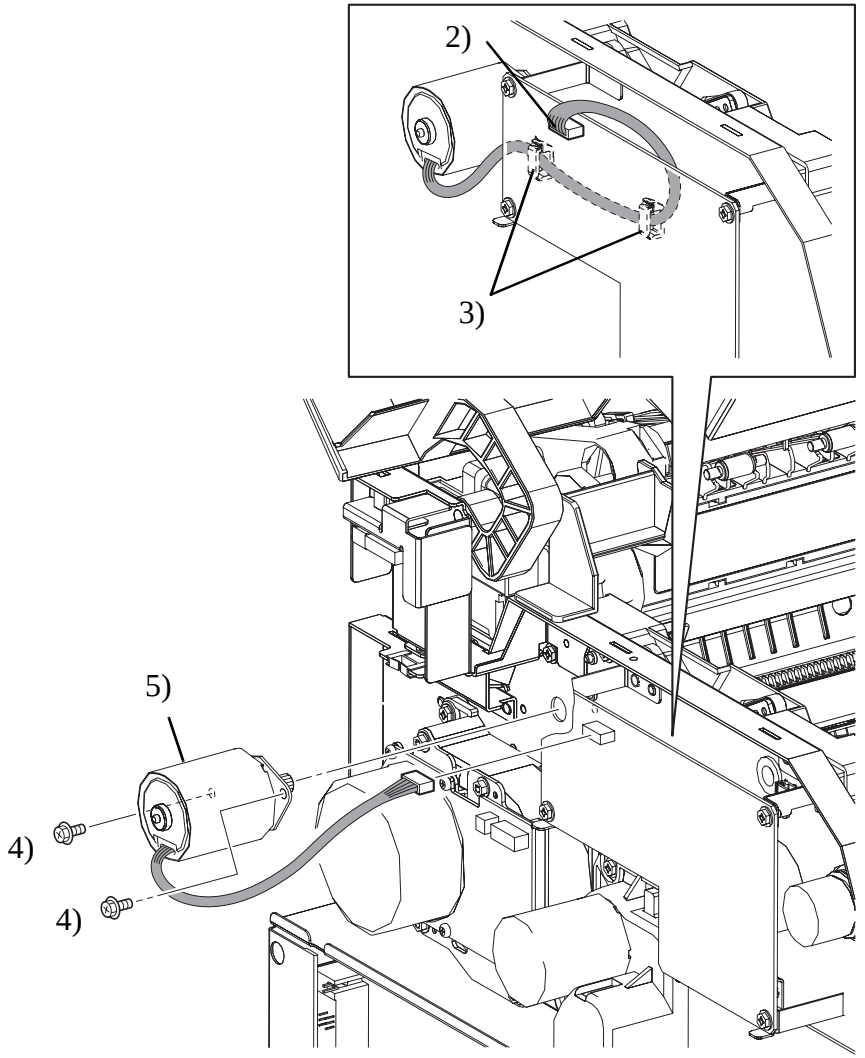
1. Remove COVER ASSY LH. *(p.295)*
2. Disconnect connector (P/J404) from the PWBA MCU.
3. Unclamp the clamp fastening the harness on MOT ASSY FSR and remove the harness.
4. Remove the 2 screws (silver, with flange, 4mm) fastening MOT ASSY FSR to the main unit.
5. Remove MOT ASSY FSR from the main unit.

REINSTALLATION

1. Attach MOT ASSY FSR to the main unit.
2. Fasten MOT ASSY FSR to the main unit with the 2 screws (silver, with flange, 4mm).
3. Connect the (P/J404) to the PWBA MCU.
4. Fasten the harness of MOT ASSY FSR with the clamp.
5. Attach COVER ASSY LH. *(p.295)*

Table 4-4. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J404	Jam C, E, F Jam D, F	Paper Jam at 2nd BTR section	---



Leg_Sec03_100FA

Figure 4-101. Removal of MOT ASSY FSR

4.10.4 MOT ASSY MAG

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*

CHECK POINT

When performing the following work, the connector of PWBA ESS does not need to be removed.

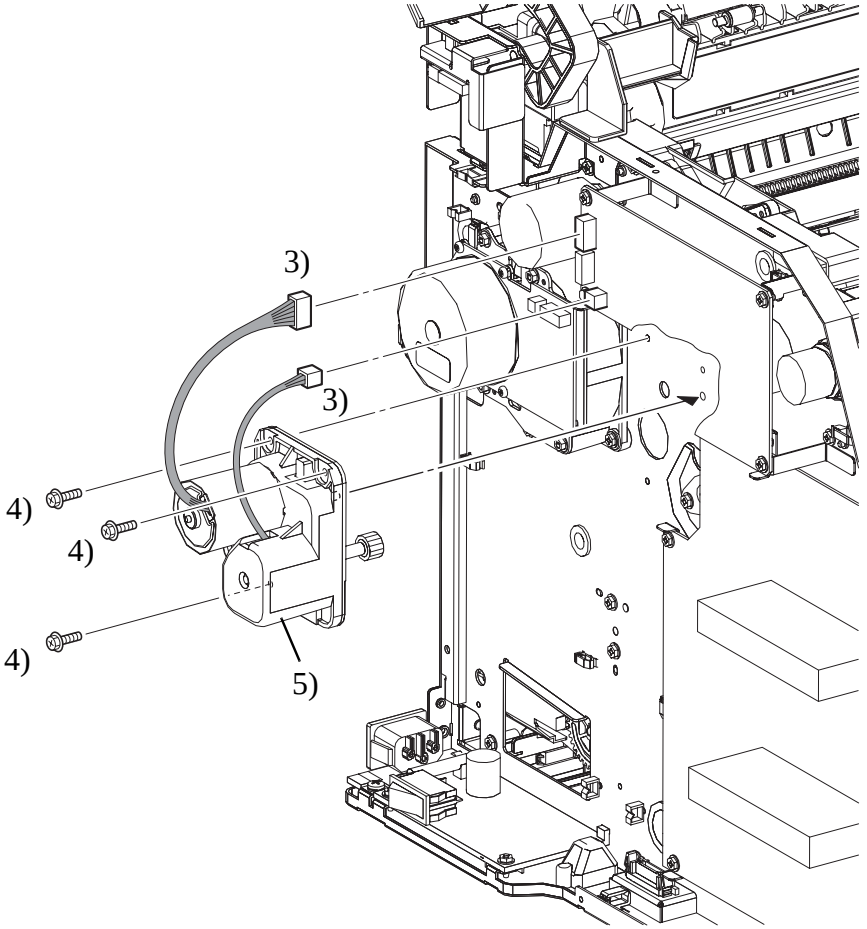
2. Remove CHASSIS ASSY ESS. *(p.411)*
3. Disconnect connector (P/J405) and connector (P/J406) from PWBA MCU.
4. Remove the 3 screws (silver, with flange, 10 mm) fastening MOT ASSY MAG to the main unit.
5. Remove MOT ASSY MAG from the main unit.

REINSTALLATION

1. Match the boss on MOT ASSY MAG with the hole on the main unit, and attach.
2. Fasten MOT ASSY MAG to the main unit with the 3 screws (silver, with flange, 10 mm).
3. Connect connector (P/J405) and connector (P/J406) to PWBA MCU.
4. Attach CHASSIS ASSY ESS. *(p.411)*
5. Attach COVER ASSY LH. *(p.295)*

Table 4-5. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J405	---	Printed light and faint	---
P/J406	---	Normal printing	---



Leg_Sec03_102FA

Figure 4-102. Removal of MOT ASSY MAG

4.10.5 MOT ASSY ROT

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove LV/HVPS. *(p.407)*
6. Unclamp the clamp fastening WIRE ASSY DEVE, and remove WIRE ASSY DEVE.
7. Disconnect connector (P/J433) from PWB ASSY ROT.
8. Remove the 4 screws (silver, with flange, 6 mm) fastening MOT ASSY ROT to the main unit.
9. Remove MOT ASSY ROT from the main unit.

REINSTALLATION

CAUTION

When doing the following work, take care so that WIRE ASSY DEVE, WIRE ASSY BTR, and FFC-ASSY ESS are not sandwiched between the main unit and MOT ASSY ROT.

1. Match the boss on MOT ASSY ROT with the hole on the main unit, and attach.
2. Fasten MOT ASSY ROT to the main unit with the 4 screws (silver, with flange, 6 mm).
3. Connect connector (P/J433) to PWB ASSY ROT.
4. Fasten WIRE ASSY DEVE with the clamp.
5. Attach LV/HVPS. *(p.407)*
6. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
7. Attach COVER MSI. *(p.291)*
8. Attach COVER ASSY LH. *(p.295)*
9. Attach COVER ASSY RH. *(p.301)*

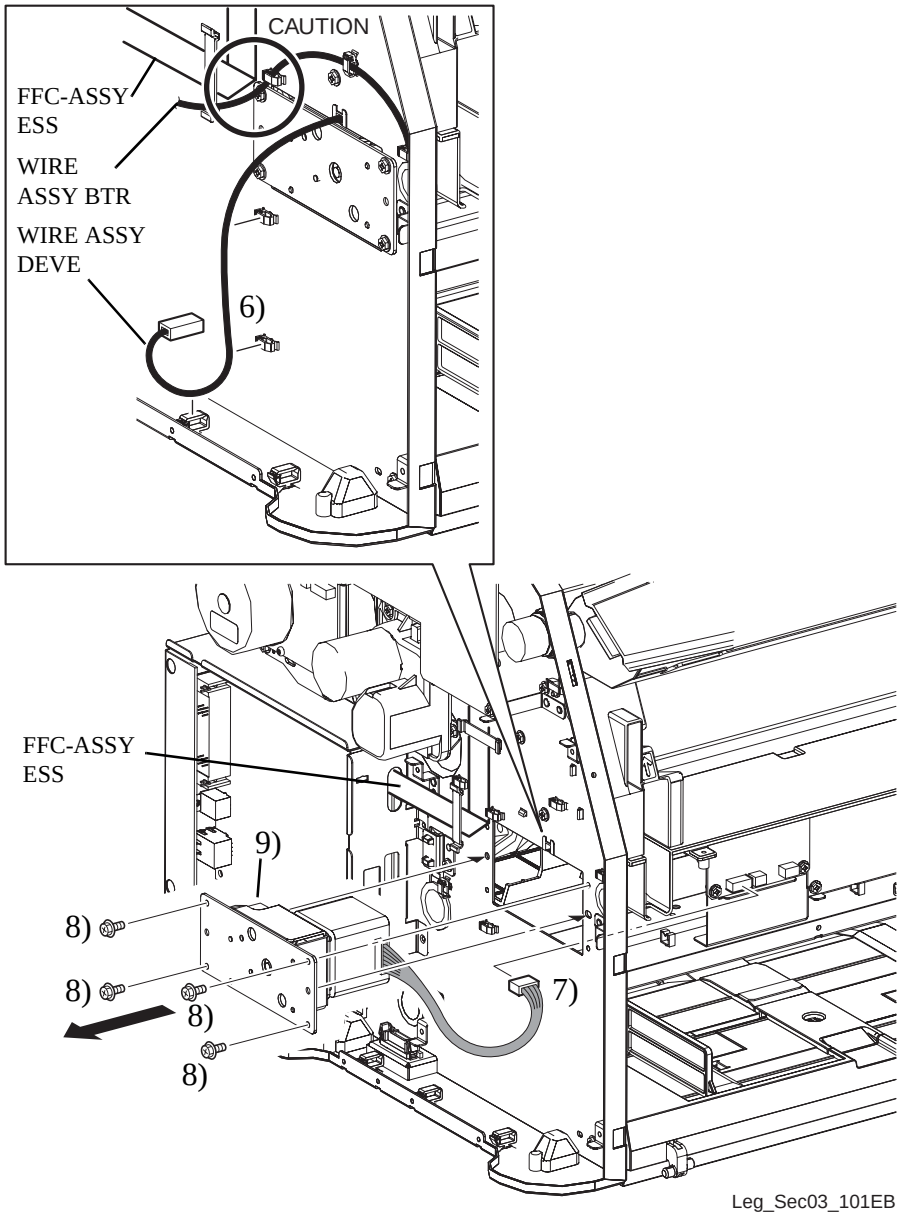


Figure 4-103. Removal of MOT ASSY ROT

4.10.6 MOT ASSY P/R

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Disconnect connector (P/J200) and connector (P/J201) from MOT ASSY P/R.
3. Remove the 4 screws (silver, with flange, 10 mm) fastening MOT ASSY P/R to the main unit.
4. Remove MOT ASSY P/R from the main unit.

REINSTALLATION

1. Attach MOT ASSY P/R to the main unit while lightly pressing LINK-COUPLING.
2. Fasten MOT ASSY P/R to the main unit with the 4 screws (silver, with flange, 10 mm).

CAUTION

Lightly open/close COVER ASSY TOP, and check operation of the coupling on MOT ASSY P/R.

3. Attach connector (P/J200) and connector (P/J201) to MOT ASSY P/R.
4. Attach COVER ASSY LH. *(p.295)*

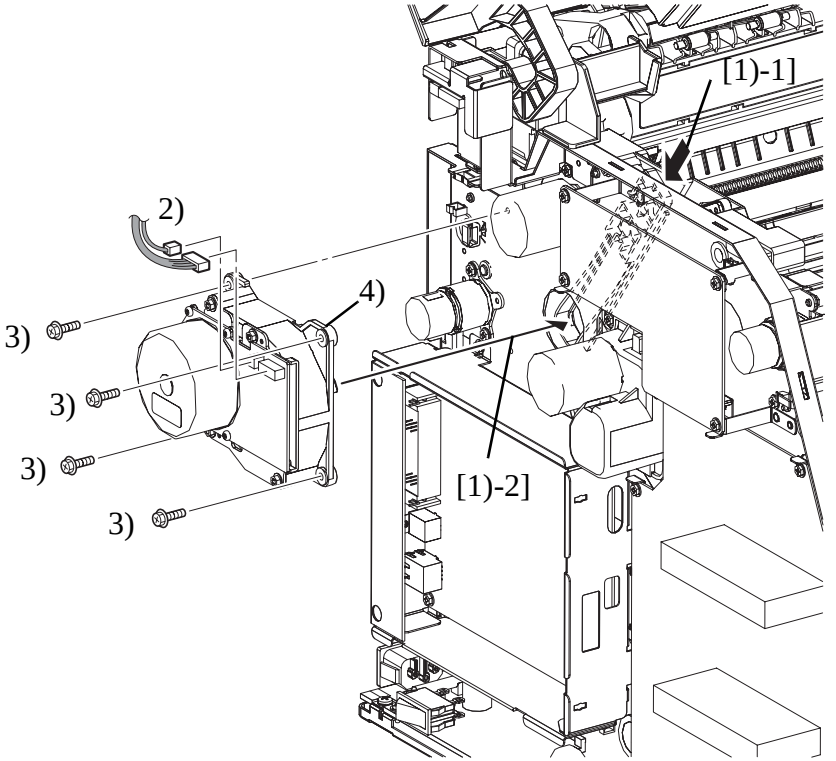


Figure 4-104. Removal of MOT ASSY P/R

4.10.7 MOT ASSY MICRO

REMOVAL

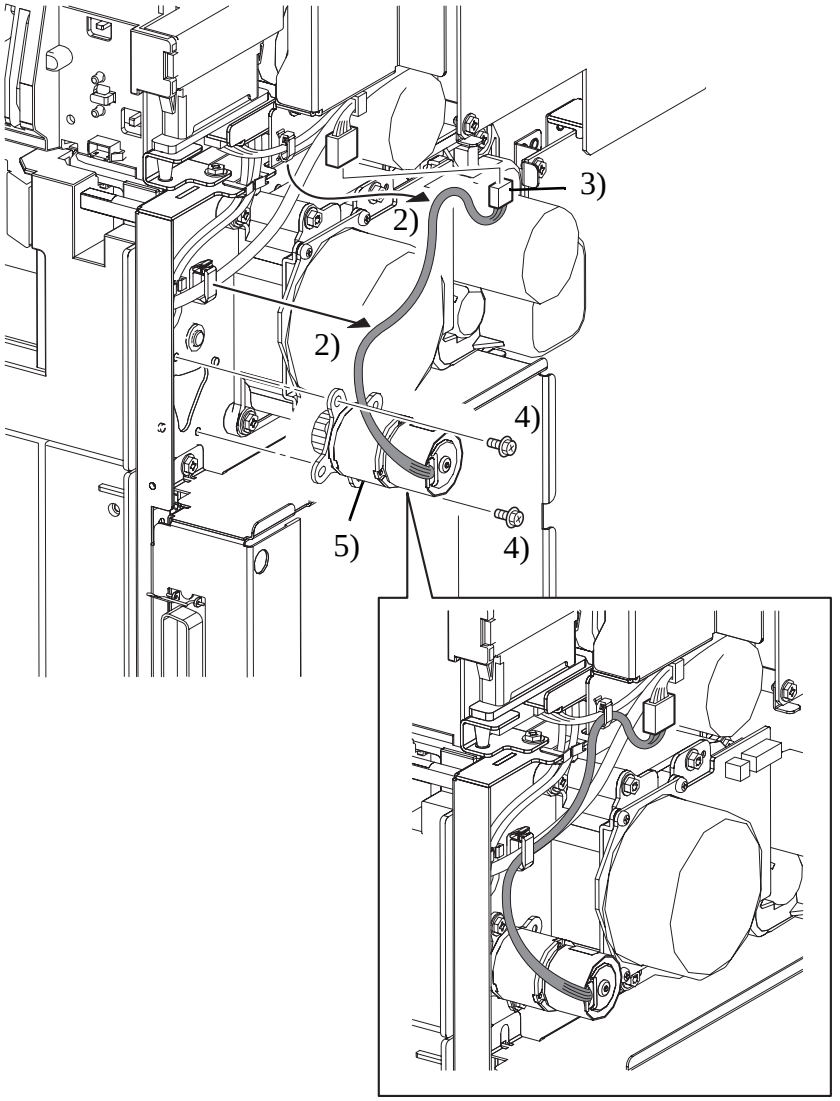
1. Remove COVER ASSY LH. *(p.295)*
2. Unclamp the clamp fastening the harness on MOT ASSY MICRO.
3. Disconnect connector (P/J600) from MOT ASSY MICRO.
4. Remove the 2 screws (silver, with flange, 4mm) fastening MOT ASSY MICRO to the main unit.
5. Remove MOT ASSY MICRO from the main unit.

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of MOT ASSY MICRO.

1. Attach MOT ASSY MICRO to the main unit with the harness on MOT ASSY MICRO facing the rear side.
2. Fasten MOT ASSY MICRO to the main unit with the 2 screws (silver, with flange, 4mm).
3. Connect connector (P/J600) to MOT ASSY MICRO.
4. Fasten the harness on MOT ASSY MICRO with the clamp.
5. Attach COVER ASSY LH. *(p.295)*



Leg_Sec03_104FA

Figure 4-105. Removal of MOT ASSY MICRO

4.11 ELEC

4.11.1 SENSOR HUM & TEMP

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Disconnect connector (P/J104) from SENSOR HUM & TEMP.
3. Remove the screw (silver, with flange, tapping, 8 mm) fastening SENSOR HUM & TEMP to the main unit.
4. Remove SENSOR HUM & TEMP from the main unit.

REINSTALLATION

1. Attach SENSOR HUM & TEMP to the main unit.
2. Fasten SENSOR HUM & TEMP to the main unit with the screw (silver, with flange, tapping, 8 mm).
3. Connect the connector (P/J104) to SENSOR HUM & TEMP.
4. Attach COVER ASSY RH. *(p.301)*

Table 4-6. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J104	Service Req E530	Printing is not possible.	Sensor HUM & TEMP error

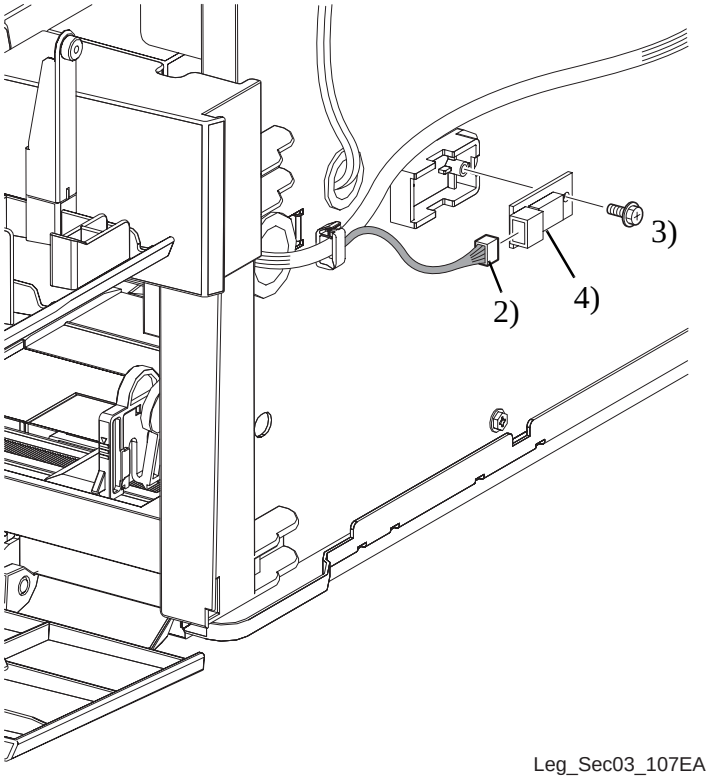


Figure 4-106. Removal of SENSOR HUM & TEMP

4.11.2 PWBA HVPS

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove COVER INNER L. *(p.302)*
6. Disconnect connector (P/J516) from PWBA HVPS, and remove WIRE ASSY 2BTR, WIRE ASSY IBT and WIRE ASSY DTN (white).
7. Remove the 4 screws (silver, with flange, 6 mm) fastening PWBA HVPS to the main unit.
8. Remove PWBA HVPS from the main unit.

REINSTALLATION

1. Attach PWBA HVPS to the main unit.
2. Fasten PWBA HVPS to the main unit with the 4 screws (silver, with flange, 6 mm).
3. Connect connector (P/J516) to PWBA HVPS, and attach WIRE ASSY 2BTR, WIRE ASSY IBT and WIRE ASSY DTN (white).
4. Attach COVER INNER L. *(p.302)*
5. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
6. Attach COVER MSI. *(p.291)*
7. Attach COVER ASSY LH. *(p.295)*
8. Attach COVER ASSY RH. *(p.301)*

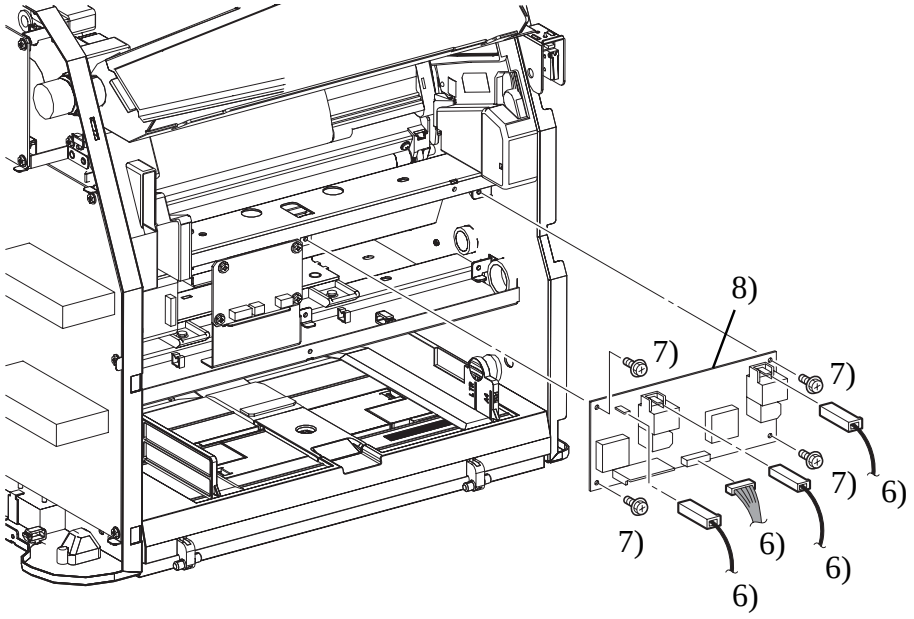


Figure 4-107. Removal of PWBA HVPS

Table 4-7. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
F (505)	---	Printed light and faint	---
G (506)	---	Normal printing	---

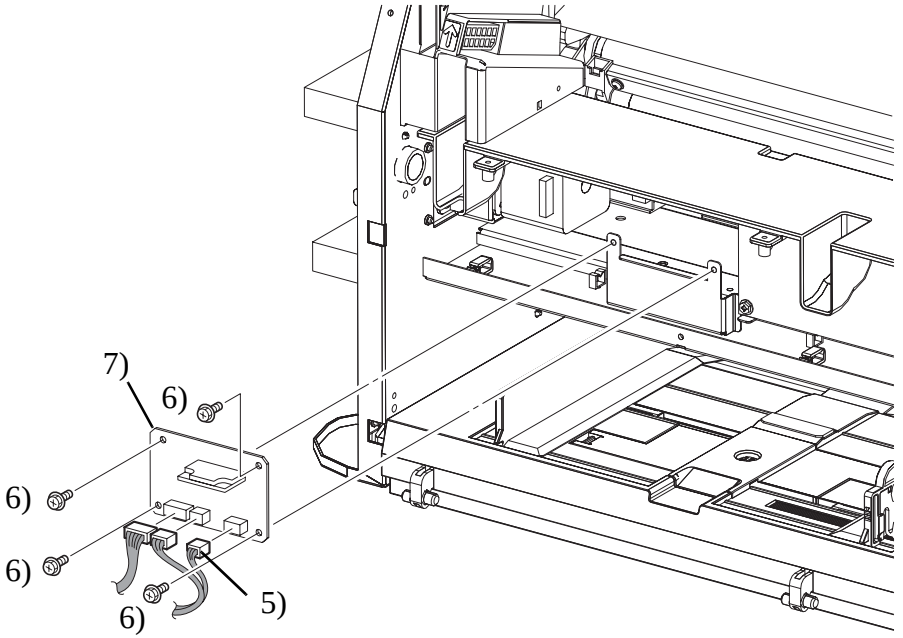
4.11.3 PWB ASSY ROT

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Disconnect connector (P/J430), connector (P/J432) and connector (P/J433) from PWB ASSY ROT.
6. Remove the 4 screws (silver, with flange, 6 mm) fastening PWB ASSY ROT to the main unit.
7. Remove PWB ASSY ROT from the main unit.



Leg_Sec03_106FA

Figure 4-108. Removal of PWB ASSY ROT

REINSTALLATION

1. Attach PWB ASSY ROT to the main unit.
2. Fasten PWB ASSY ROT to the main unit with the 4 screws (silver, with flange, 6 mm).
3. Connect connector (P/J430), connector (P/J432) and connector (P/J433) to PWB ASSY ROT.
4. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Attach COVER MSI. *(p.291)*
6. Attach COVER ASSY LH. *(p.295)*
7. Attach COVER ASSY RH. *(p.301)*

4.11.4 PWBA CRUM

CAUTION

When the printer is turned on after replacing either the PWBA MCU or the PWBA CRUM, the information that specific to each printer unit is automatically stored on a memory of replaced circuit board. Due to this reason, the board becomes unique to specific printer unit, and the board is no longer usable on another printer unit. Do not reuse the board that previously installed on another printer unit.

REMOVAL

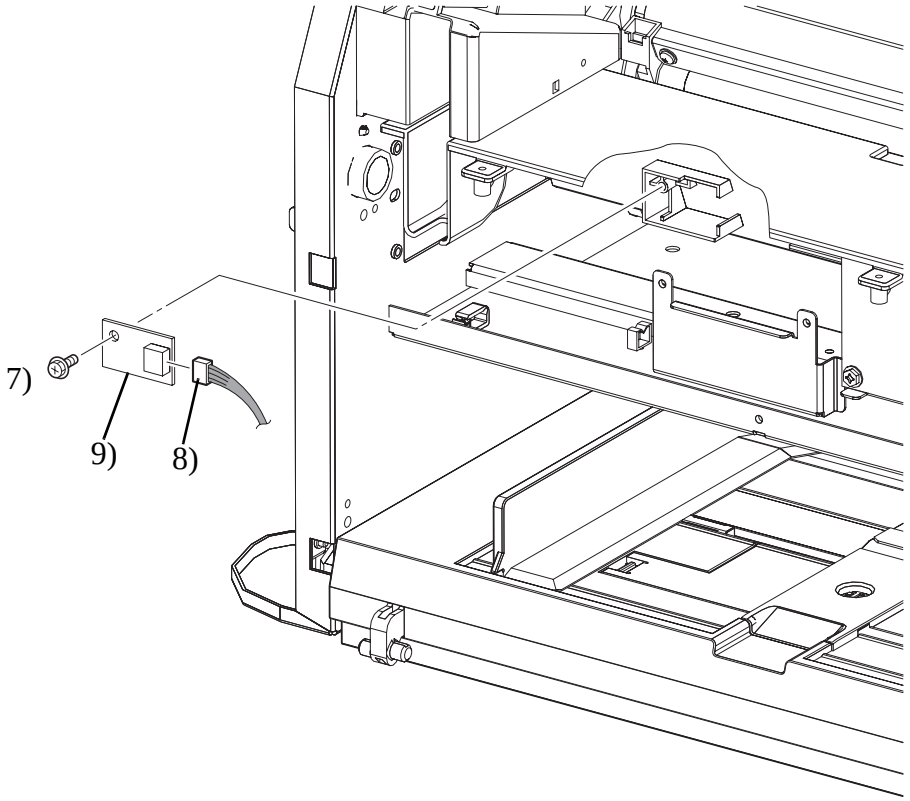
1. Remove COVER ASSY RH. *(p.301)*
2. Remove COVER ASSY LH. *(p.295)*
3. Remove COVER MSI. *(p.291)*
4. Remove COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
5. Remove LV/HVPS. *(p.407)*
6. Remove MOT ASSY ROT. *(p.397)*
7. Remove the screw (silver, with flange, 8mm) fastening PWBA CRUM to the main unit.
8. Disconnect connector (P/J429) from PWBA CRUM.
9. Remove PWBA CRUM from the main unit.

REINSTALLATION

1. Attach PWBA CRUM to the main unit.
2. Connect connector (P/J429) to PWBA CRUM.
3. Fasten PWBA CRUM to the main unit with the screw (silver, with flange, tapping, 8mm).
4. Attach MOT ASSY ROT. *(p.397)*
5. Attach LV/HVPS. *(p.407)*
6. Attach COVER FRONT L and COVER FRONT ASSY U. *(p.292)*
7. Attach COVER MSI. *(p.291)*
8. Attach COVER ASSY LH. *(p.295)*
9. Attach COVER ASSY RH. *(p.301)*

CAUTION

Do not replace both PWBA CRUM and PWBA MCU at a time.



Leg_Sec03_108FA

Figure 4-109. Removal of PWBA CRUM

4.11.5 PWBA MCU

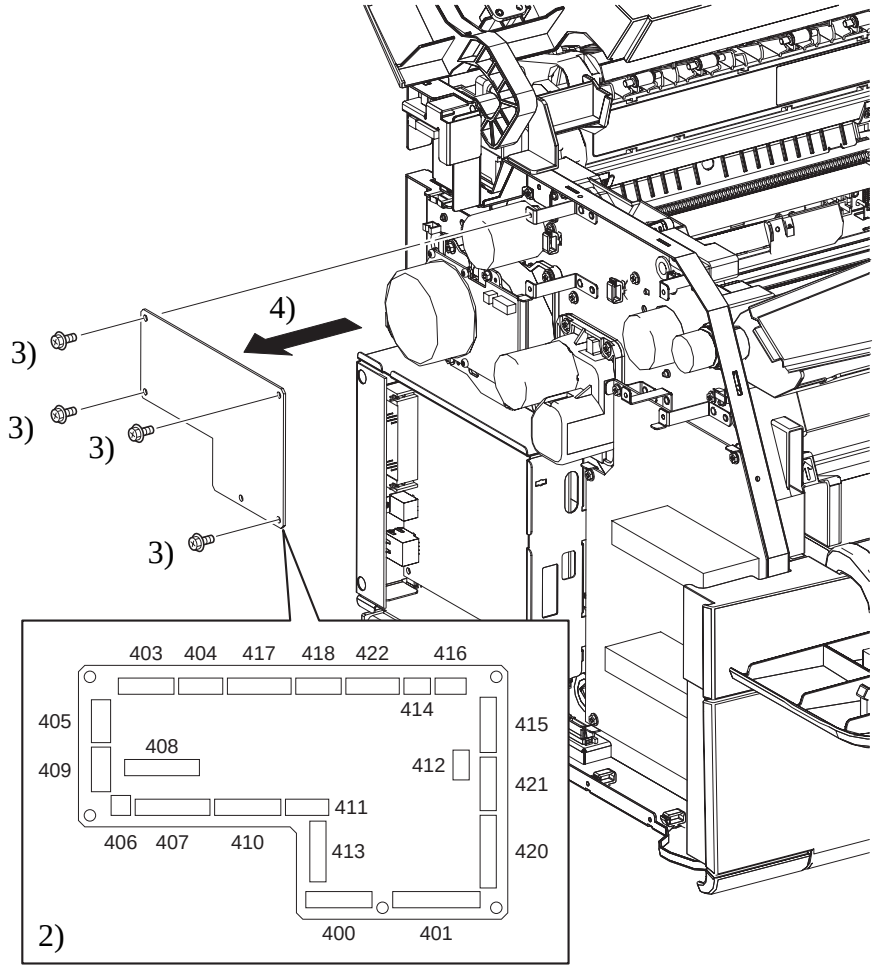
☐ When using the old PWBA MCU

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Disconnect all connectors from the PWBA MCU.
3. Remove the 4 screws (silver, with flange, 6mm) fastening PWBA MCU to the main unit.
4. Remove PWBA MCU from the main unit.

REINSTALLATION

1. Attach PWBA MCU to the main unit.
2. Fasten PWBA MCU to the main unit with the 4 screws (silver, with flange, 6 mm).
3. Connect all connectors to the PWBA MCU.
4. Attach COVER ASSY LH. *(p.295)*



Leg_Sec03_110EB

Figure 4-110. Removal of PWBA MCU

☐ When replacing PWBA MCU with a new one

The life information of the replacement parts, correction parameters, etc are stored in EEPROM on the MCU board (PWBA MCU). The EEPROM was mounted in IC socket of the MCU board on previous models, whereas the EEPROM of this product is soldered directly on the MCU board and it is quite difficult to replace it. Therefore, when the PWBA MCU is replaced with a new one, the data in the EEPROM must be backed-up and re-stored to the EEPROM on the new MCU board.

CAUTION

- ☐ **When the printer is turned on after replacing either the PWBA MCU or the PWBA CRUM, the information that specific to each printer unit is automatically stored on a memory of replaced circuit board. Due to this reason, the board becomes unique to specific printer unit, and the board is no longer usable on another printer unit. Do not reuse the board that previously installed on another printer unit.**
- ☐ **When replacing the PWBA MCU, verify that the version of firmware on new PWBA MCU matches the version of previous PWBA MCU. If not, be sure to make them matches each other by either upgrading or downgrading the firmware. Make sure to execute [MCU Data Restore] in the MAINTENANCE menu only after matching the firmware version.**

REMOVAL

1. To enter the maintenance mode, while holding down the [Back], [Up], [Down] and [Enter] buttons, turn the printer on.
2. Execute the “MCU DATA BackUp” in the maintenance menu to temporarily store the data stored in the old EEPROM on PWBA MCU.

CAUTION

- ☐ **When printer is in the following condition, [MCU DATA BackUp] and [MCU DATA Restore] cannot be executed.**
  - ■ **During power-save mode**
  - ■ **During warming up**
  - ■ **During printing**
  - ■ **During adjustment**
- ☐ **Once the backup has started, do not turn the printer's power off until the engine stops.**

3. Remove COVER ASSY LH. *(p.295)*
4. Disconnect all connectors from the PWBA MCU.
5. Remove the 4 screws (silver, with flange, 6mm) fastening PWBA MCU to the main unit.
6. Remove PWBA MCU from the main unit.

REINSTALLATION

1. Attach PWBA MCU to the main unit.
2. Fasten PWBA MCU to the main unit with the 4 screws (silver, with flange, 6 mm).
3. Connect all connectors to the PWBA MCU.
4. Attach COVER ASSY LH. *(p.295)*
5. To enter the maintenance mode, while holding down the [Back], [Up], [Down] and [Enter] buttons, turn the printer on.
6. Execute the “MCU DATA Restore” in the maintenance menu to write the data onto a new PWBA MCU.

CAUTION

Once the restoring has started, do not turn the printer's power off until the engine stops.

Table 4-8. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J400	---	Printing is not possible.	---
P/J401	Service Req E537	Printing is not possible.	Fuser error
P/J403	C Open	Printing is not possible.	The Cover Fuser is open.
P/J404	Jam C, E, F Jam E, F	Paper Jam at 2nd BTR	---
P/J405	---	Printed light and faint	---
P/J406	---	Normal printing	---
P/J407	Service Req E510	Printing is not possible.	ROS Motor error
P/J408	E Open	Printing is not possible.	Paper Feeder Rear Cover is open.
P/J409	---	Printing is not possible.	Sensor TR0 error
P/J410	---	The printer does not work	---
P/J411	---	Normal printing	---
P/J412	Service Req E513	Printing is not possible.	NVM error
P/J413	Service Req E533	Printing is not possible.	Temperature sensor error
P/J414	---	Printing is not possible.	---
P/J415	A Open	Printing is not possible.	COVER FRONT ASSY U is open.
P/J416	Install Photocondctr	Printing is not possible.	IBT Assy error
P/J417	---	Printing is not possible.	Fuser error

Table 4-8. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J418	F Open	Printing is not possible.	Housing Chute Fuser is open.
P/J421	Service Req E547	Printing is not possible.	Paper Feeder error
P/J422	Service Req E526	Printing is not possible.	Sensor ADC error

4.11.6 LV/HVPS

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Disconnect all connectors from the LV/HVPS.
3. Remove the 6 screws (silver, with flange, 6 mm) fastening LV/HVPS to the main unit.
4. Remove the top part of LV/HVPS from the protrusion of the bracket attached to the main unit while taking out the front side of LV/HVPS from between the main unit and COVER FRONT L, and remove LV/HVPS.

REINSTALLATION

1. Put the top part of LV/HVPS inside the protrusion of the bracket while inserting the front side of LV/HVPS in between the main unit frame and COVER FRONT L to attach LV/HVPS.
2. Fasten LV/HVPS to the main unit with the 6 screws (silver, with flange, 6 mm).
3. Connect all connectors to the LV/HVPS.
4. Attach COVER ASSY LH. *(p.295)*

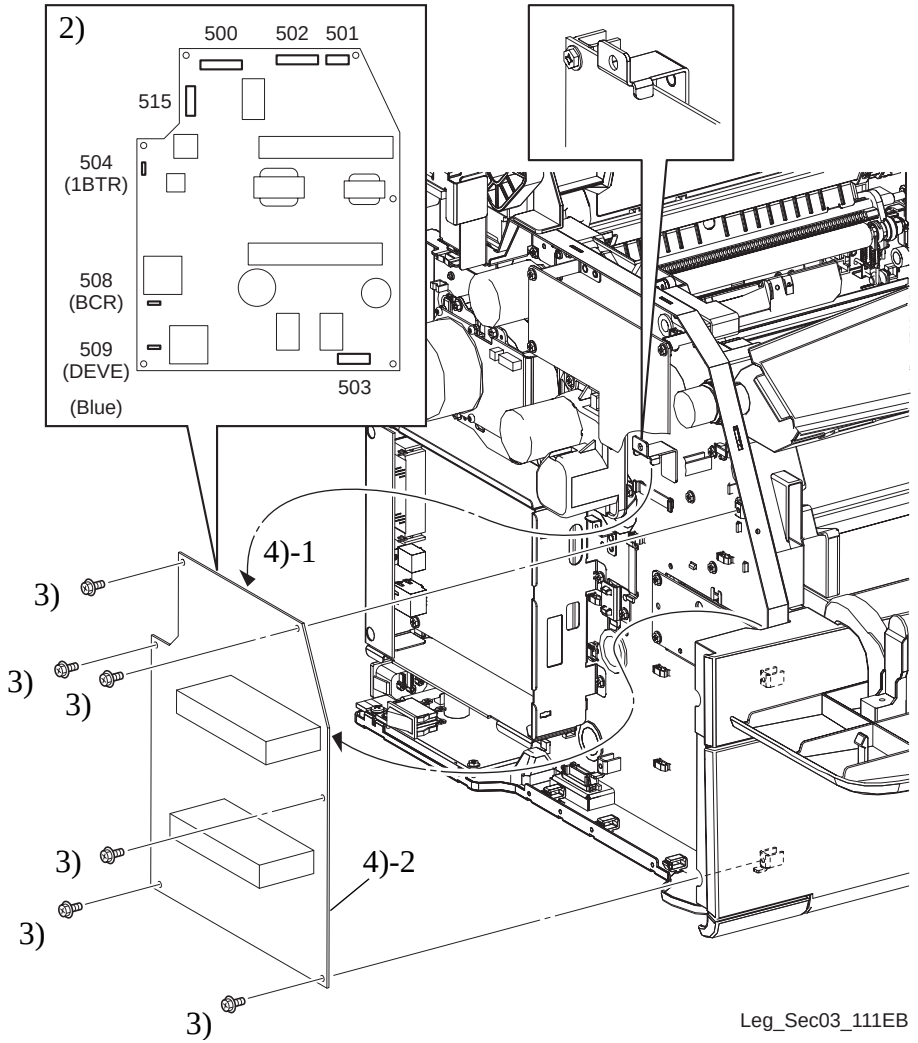


Figure 4-111. Removal of LV/HVPS

Table 4-9. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J501	---	Control panel is not available.	---
P/J502	---	Printing is not possible.	---
P/J503	---	Main power is not supplied.	---
D (504)	---	Printed light and faint	---
A (508)	---	Entire surface printed black	---
C (509)	---	Printed light and faint	---
P/J515	---	Printed light and faint	---

4.11.7 PWBA ESS (BOARD ASSY., MAIN)

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Disconnect all connectors from the PWBA ESS.
3. Remove the 4 screws (silver, with flange, 6 mm) fastening PWBA ESS to CHASSIS ESS and the screws fastening the interface connectors.
4. Remove PWBA ESS while disconnecting the interface connectors on PWBA ESS and removing them through the hole on CHASSIS ESS.

REINSTALLATION

1. First insert the interface connector of PWBA ESS into the hole on CHASSIS ESS and then attach PWBA ESS.
2. Fasten PWBA ESS to CHASSIS ESS with the 4 screws (silver, with flange, 6 mm) and the screws fastening the interface connectors.
3. Connect all connectors to the PWBA ESS.
4. Attach COVER ASSY LH. *(p.295)*

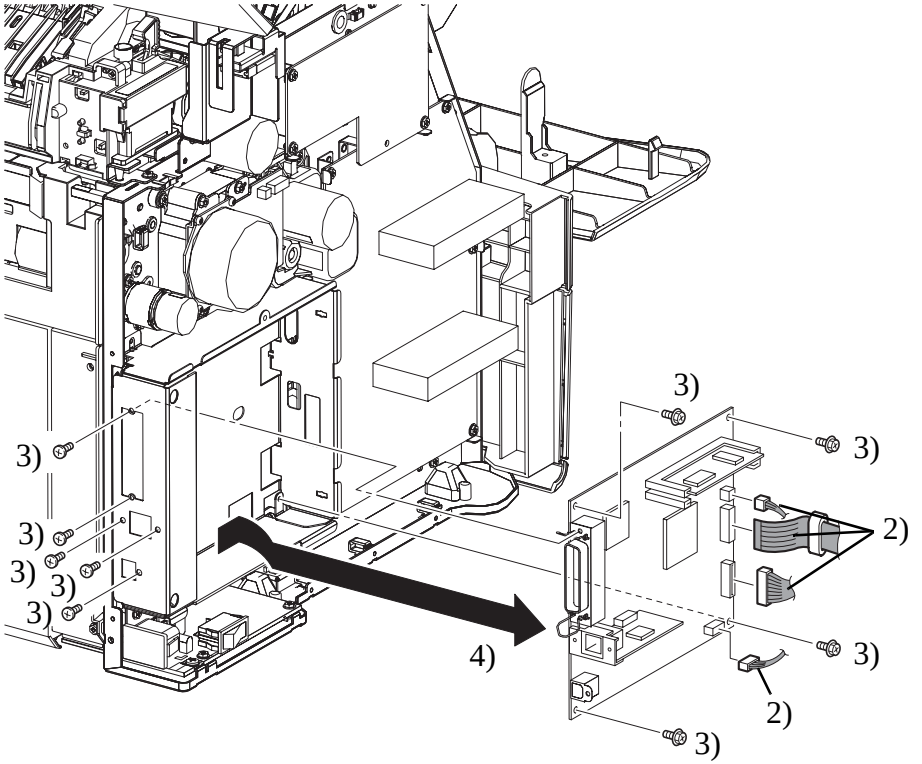


Figure 4-112. Removal of PWBA ESS

Table 4-10. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
CN405	---	Printing is not possible.	---
CN501	---	Printing is not possible.	---
CN502	---	Paper is ejected without printing.	---
CN601	---	Printing is not possible.	---

4.11.8 PWBA FUSER CONT

CAUTION

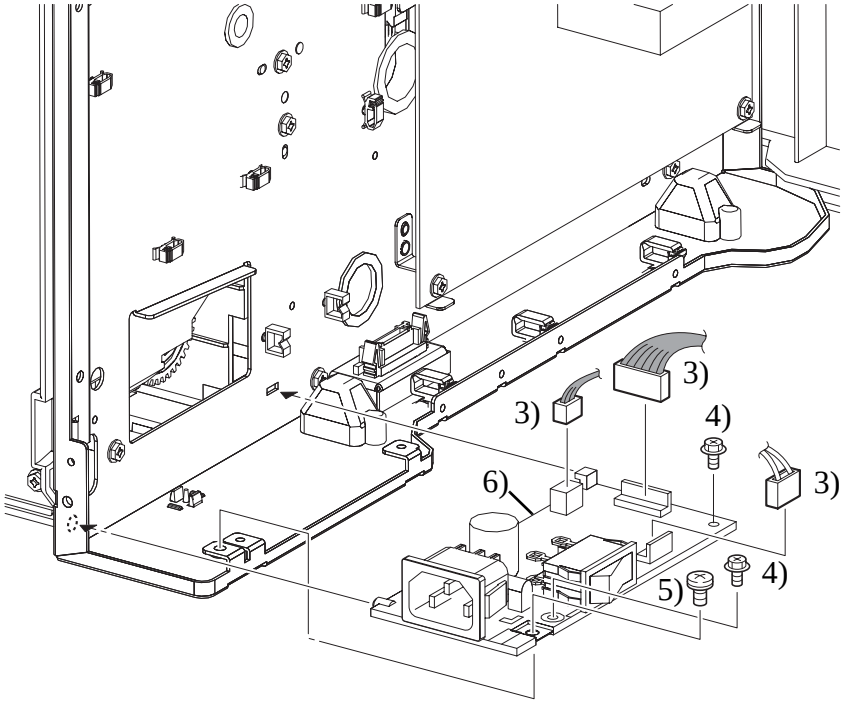
Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Remove CHASSIS ASSY ESS. *(p.411)*
3. Disconnect all connectors from the PWBA FUSER CONT.
4. Remove the 2 screws (silver, with flange, 8mm) fastening PWBA FUSER CONT to the main unit.
5. Remove the screw (silver, with external toothed washer, 5 mm) fastening PWBA FUSER CONT to the main unit.
6. Remove PWBA FUSER CONT from the main unit.

REINSTALLATION

1. Match the boss and protrusion on PWBA FUSER CONT with the hole on the main unit, and attach PWBA FUSER CONT.
2. Fasten PWBA FUSER CONT to the main unit with the screw (silver, with external toothed washer, 5 mm).
3. Fasten PWBA FUSER CONT to the main unit with the 2 screws (silver, with flange, 8mm).
4. Connect all connectors to the PWBA FUSER CONT.
5. Attach CHASSIS ASSY ESS. *(p.411)*
6. Attach COVER ASSY LH. *(p.295)*



Leg_Sec03_113FB

Figure 4-113. Removal of PWBA FUSER CONT

4.11.9 CHASSIS ASSY ESS (REFERENCE ONLY)

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER ASSY LH. *(p.295)*
2. Disconnect all connectors from the PWBA ESS.
3. Remove disconnected connectors from the hole on CHASSIS ESS.
4. Unclamp the clamp on CHASSIS ASSY ESS, and remove the harness.
5. Remove the 5 screws (silver, with flange, 6 mm) fastening CHASSIS ASSY ESS to the main unit.
6. Remove CHASSIS ASSY ESS from the main unit.

REINSTALLATION

CAUTION

When performing the following work, take care to prevent the harness from being sandwiched between the main unit and CHASSIS ESS.

1. Matched the protrusion on CHASSIS ASSY ESS with the hole on the main unit, and attach CHASSIS ASSY ESS.
2. Fasten CHASSIS ASSY ESS to the main unit with the 5 screws (silver, with flange, 6 mm).
3. Insert disconnected connectors from the hole on CHASSIS ESS.
4. Connect all connectors to the PWBA ESS.
5. Fasten the harness with the clamp on CHASSIS ASSY ESS.
6. Attach COVER ASSY LH. *(p.295)*

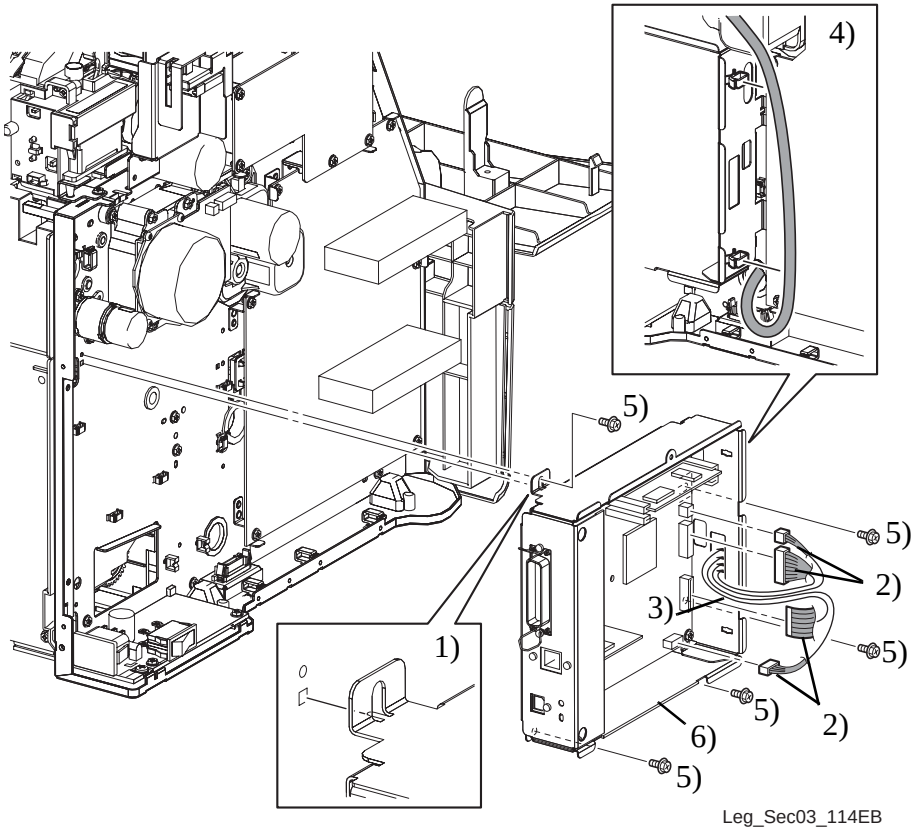


Figure 4-114. Removal of CHASSIS ASSY ESS

Table 4-11. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
CN405	---	Printing is not possible.	---
CN501	---	Printing is not possible.	---
CN502	---	Paper is ejected without printing.	---
CN601	---	Printing is not possible.	---

4.12 DUPLEX

4.12.1 DUPLEX ASSY

REMOVAL

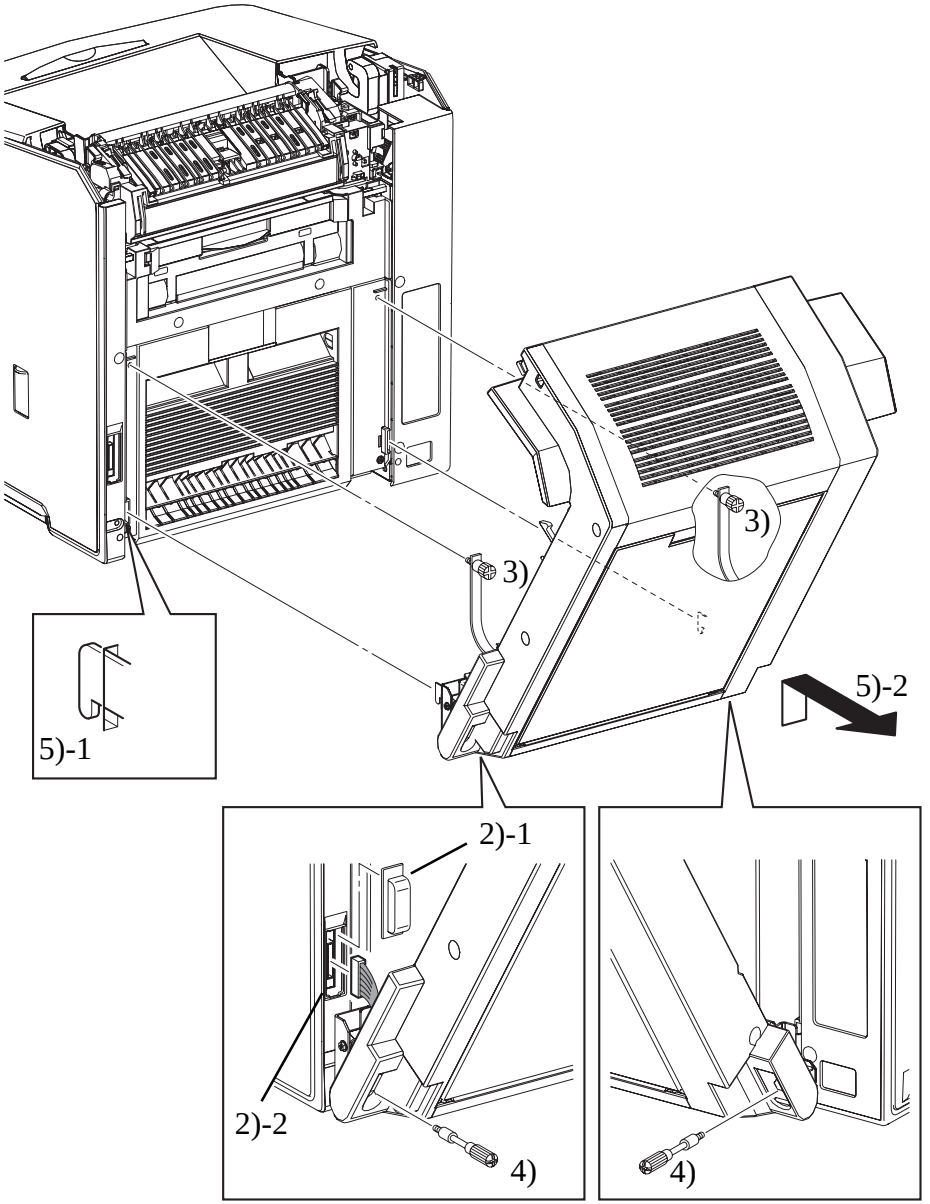
CAUTION

When performing the following, take care not to damage DUPLEX ASSY by falling or dropping it.

1. Press LINK-BUTTON upward to release the latch and open DUPLEX ASSY.
2. Remove COVER CONNECTOR, and disconnect connector (P/J607) connected to the main unit.
3. Remove the 2 SCREW SUPPORTs fastening the left and right SUPPORT DUPs to the main unit.
4. Remove the 2 SCREW THUMBs fastening DUPLEX ASSY to the main unit.
5. Slightly lift up DUPLEX ASSY, unhook the both left and right hooks on DUPLEX ASSY from the holes on the main unit, and remove DUPLEX ASSY.

REINSTALLATION

1. Hook the left and right hooks on DUPLEX ASSY onto the holes on the main unit, and attach DUPLEX ASSY.
2. Fasten DUPLEX ASSY to the main unit with the 2 SCREW THUMBs.
3. Fasten the left and right SUPPORT DUPs to the main unit with the 2 SCREW SUPPORTs.
4. Connect connector (P/J607) connected to the main unit and attach COVER CONNECTOR.
5. Gently close DUPLEX ASSY.



Leg_Sec03_115EA

Figure 4-115. Removal of DUPLEX ASSY

4.12.2 COVER-R DUP

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the 3 screws (silver, with flange, tapping, 10mm) fastening COVER-R DUP to DUPLEX ASSY.
3. Remove COVER-R DUP from DUPLEX ASSY.

REINSTALLATION

CAUTION

When performing the following work, take care to prevent the harness from being sandwiched between DUPLEX ASSY and COVER-R DUP.

1. Attach COVER-R DUP to DUPLEX ASSY.
2. Attach COVER-R DUP to DUPLEX ASSY with the 3 screws (silver, with flange, tapping, 10mm).
3. Attach DUPLEX ASSY. *(p.412)*

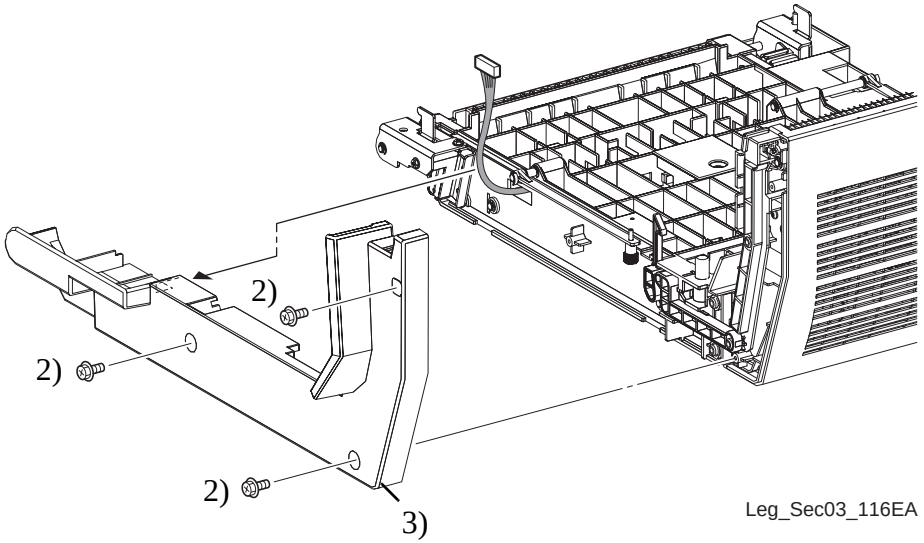


Figure 4-116. Removal of COVER-R DUP

4.12.3 COVER-L DUP

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the 3 screws (silver, with flange, tapping, 10mm) fastening COVER-L DUP to DUPLEX ASSY.
3. Remove COVER-L DUP from DUPLEX ASSY.

REINSTALLATION

1. Attach COVER-L DUP to DUPLEX ASSY.
2. Attach COVER-L DUP to DUPLEX ASSY with the 3 screws (silver, with flange, tapping, 10mm).
3. Attach DUPLEX ASSY. *(p.412)*

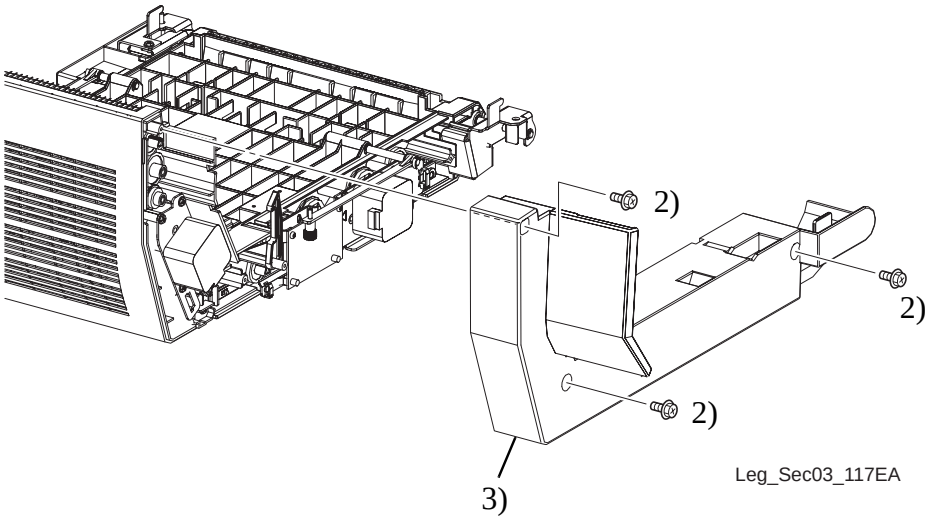


Figure 4-117. Removal of COVER-L DUP

4.12.4 COVER-INV

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove LINK LATCH and LINK-BUTTON. *(p.416)*
5. Open COVER UP-DUP TRANS, and remove INVERTER ASSY DUP. Note that COVER LOW-DUP TRANS and COVER UP-DUP TRANS need not be removed. *(p.417)*
6. Remove the 2 screws (silver, with flange, tapping, 10mm) fastening COVER-INV to INVERTER ASSY DUP.
7. Slide COVER-INV to the front side, unhook the 4 holes on the rear of COVER-INV from the hooks on INVERTER ASSY DUP, and remove COVER-INV.

REINSTALLATION

1. Match the 4 holes on the rear of COVER-INV with the hooks on INVERTER ASSY DUP, and attach COVER-INV.
2. Attach COVER-INV to INVERTER ASSY DUP with the 2 screws (silver, with flange, tapping, 10 mm).
3. Attach INVERTER ASSY DUP. *(p.417)*
4. Attach LINK LATCH and LINK-BUTTON. *(p.416)*
5. Attach COVER-L DUP. *(p.414)*
6. Attach COVER-R DUP. *(p.413)*
7. Attach DUPLEX ASSY. *(p.412)*

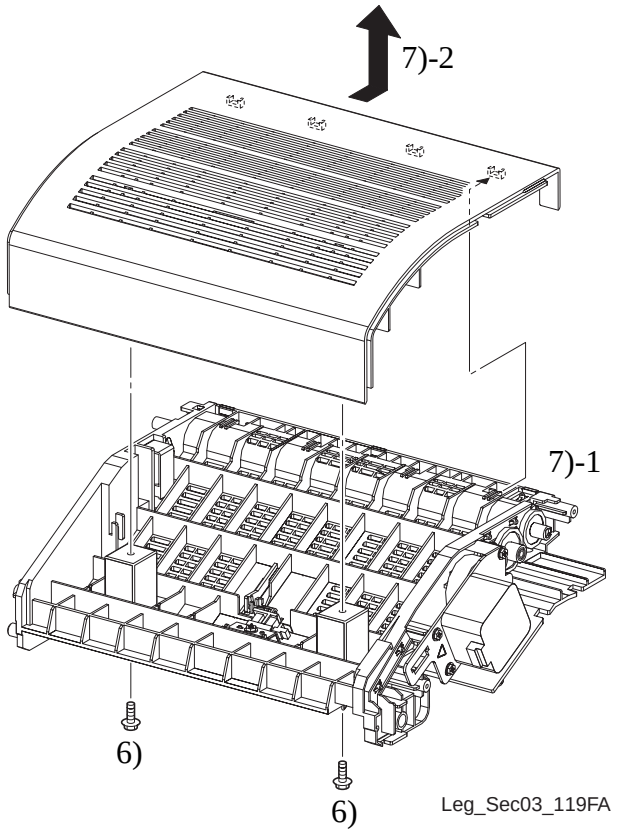


Figure 4-118. Removal of COVER-INV

4.12.5 LINK-LATCH, LINK-BUTTON

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Unhook the hook fastening LINK-BUTTON to DUPLEX ASSY, and remove LINK-BUTTON together with LINK-LATCH and SPRING-LINK.
4. Remove SPRING-LINK from LINK-BUTTON.
5. Turn LINK-LATCH, remove the protrusion on LINK-LATCH from the protrusion on LINK-BUTTON, and remove LINK-LATCH.

REINSTALLATION

1. Attach LINK-LATCH to LINK-BUTTON, turn LINK-LATCH, and match the protrusion on LINK-LATCH with the protrusion on LINK-BUTTON.
2. Attach SPRING-LINK to the boss on LINK-BUTTON.

CAUTION

When performing the following work, make sure to match SPRING-LINK with the spring receptacle on FRAME-INV.

3. Attach LINK-BUTTON to DUPLEX ASSY together with LINK-LATCH and SPRING-LINK, and fasten by the hooks.
4. Attach COVER-R DUP. *(p.413)*
5. Attach DUPLEX ASSY. *(p.412)*

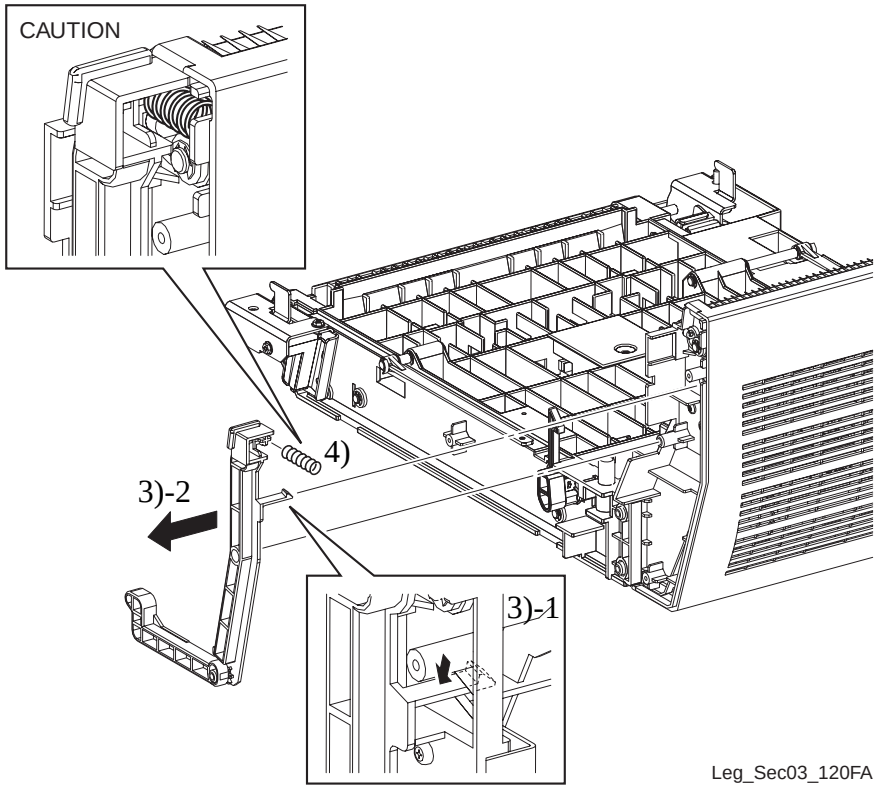


Figure 4-119. Removal of LINK-LATCH and LINK-BUTTON (1)

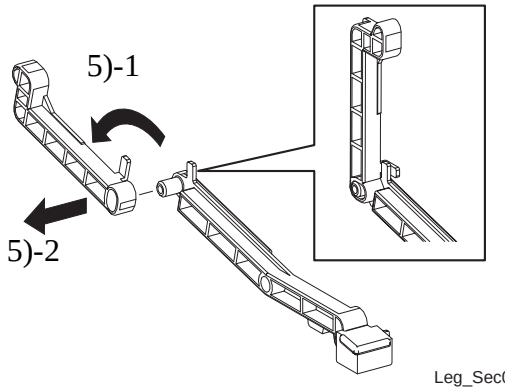


Figure 4-120. Removal of LINK-LATCH and LINK-BUTTON (2)

4.12.6 INVERTER ASSY DUP, TRANSPORT ASSY DUP

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove LINK-LATCH and LINK-BUTTON. *(p.416)*
5. Remove COVER LOW-DUP TRANS. *(p.436)*
6. Remove COVER UP-DUP TRANS. *(p.437)*
7. Remove the screw (silver, with flange, tapping, 10mm) fastening COVER REAR to DUPLEX ASSY.
8. Slide COVER REAR to the right, unhook the 2 hooks on the rear of COVER REAR from DUPLEX ASSY, and remove COVER REAR.
9. Disconnect connector (P/J122) from SWITCH-DUP DOOR, and remove the harness from the hole on DUPLEX ASSY.
10. Unclamp the clamp on BKT MOTOR DUP TRANS, and remove the harness.
11. Disconnect connector (P/J444) from PWBA DUP-L.
12. Remove the 2 screws (silver, with flange, tapping, 10mm) fastening INVERTER ASSY DUP to TRANSPORT ASSY DUP.
13. Slide INVERTER ASSY DUP to the left from TRANSPORT ASSY DUP, and draw out each of the bosses from the holes to remove INVERTER ASSY DUP.

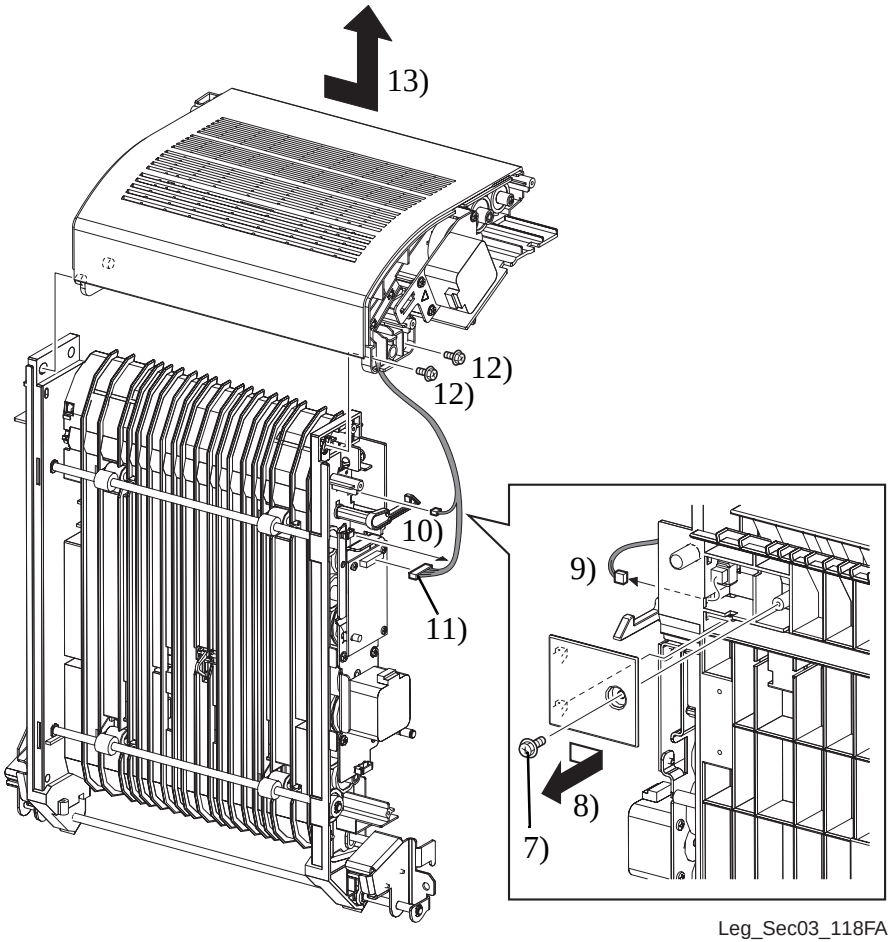


Figure 4-121. Removal of INVERTER ASSY DUP and TRANSPORT ASSY DUP

REINSTALLATION

1. Match each of the bosses and holes on INVERTER ASSY DUP with TRANSPORT ASSY DUP, and attach INVERTER ASSY DUP to TRANSPORT ASSY DUP.
2. Attach INVERTER ASSY DUP to TRANSPORT ASSY DUP with the 2 screws (silver, with flange, tapping, 10mm).
3. Connect connector (P/J444) to PWBA DUP-L.
4. Route the harness, and fasten the harness by the clamp on BKT MOTOR DUP TRANS.
5. Pass the harness through the hole on DUPLEX ASSY, and connect connector (P/J122) to SWITCH-DUP DOOR.
6. Match the 2 hooks on the rear of COVER REAR with DUPLEX ASSY, and attach COVER REAR.
7. Fasten COVER REAR to DUPLEX ASSY with the screw (silver, with flange, tapping, 10 mm).
8. Attach COVER UP-DUP TRANS. *(p.437)*
9. Attach COVER LOW-DUP TRANS. *(p.436)*
10. Attach LINK-LATCH and LINK-BUTTON. *(p.416)*
11. Attach COVER-L DUP. *(p.414)*
12. Attach COVER-R DUP. *(p.413)*
13. Attach DUPLEX ASSY. *(p.412)*

4.12.7 SOLENOID ASSY DUP

REMOVAL

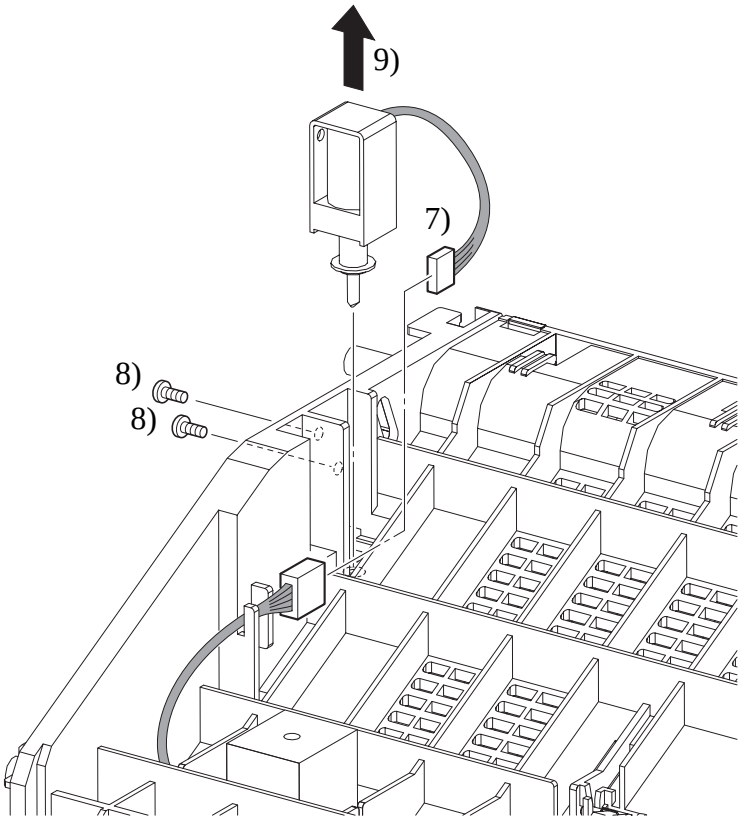
1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove LINK-LATCH and LINK-BUTTON. *(p.416)*
5. Open COVER UP-DUP TRANS, and remove INVERTER ASSY DUP. Note that COVER LOW-DUP TRANS and COVER UP-DUP TRANS need not be removed. *(p.417)*
6. Remove COVER-INV. *(p.415)*
7. Disconnect connector (P/J611) from SOLENOID ASSY DUP.
8. Remove the 2 screws (silver, 5mm) fastening SOLENOID ASSY DUP to INVERTER ASSY DUP.
9. Remove SOLENOID ASSY DUP from INVERTER ASSY DUP.

REINSTALLATION

1. Insert the pin on SOLENOID ASSY DUP into the hole on INVERTER ASSY DUP, and attach SOLENOID ASSY DUP.
2. Remove the 2 screws (silver, 5mm) fastening SOLENOID ASSY DUP to INVERTER ASSY DUP.

CAUTION

After connecting the connectors on SOLENOID ASSY DUP, make sure that HARNESS-ASSY DUP1 is firmly hooked on the hook on FRAME-INV.



Leg_Sec03_122FA

Figure 4-122. Removal of SOLENOID ASSY DUP

3. Connect connector (P/J611) to SOLENOID ASSY DUP.

CAUTION

When performing the following work, take care to prevent the harness on SOLENOID ASSY DUP from being nipped.

4. Attach COVER-INV. *(p.415)*
5. Attach INVERTER ASSY DUP. *(p.417)*
6. Attach LINK-LATCH and LINK-BUTTON. *(p.416)*
7. Attach COVER-L DUP. *(p.414)*
8. Attach COVER-R DUP. *(p.413)*
9. Attach DUPLEX ASSY. *(p.412)*

4.12.8 ACTUATOR INV

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove LINK-LATCH and LINK-BUTTON. *(p.416)*
5. Open COVER UP-DUP TRANS, and remove INVERTER ASSY DUP. Note that COVER LOW-DUP TRANS and COVER UP-DUP TRANS need not be removed. *(p.417)*
6. Remove COVER-INV. *(p.415)*
7. Unhook the hook fastening ACTUATOR INV to INVERTER ASSY DUP, and remove ACTUATOR together with SPRING ACTUATOR.
8. Remove SPRING ACTUATOR from ACTUATOR INV.

REINSTALLATION

1. Attach SPRING ACTUATOR to ACTUATOR INV.
2. After inserting the left-side shaft of ACTUATOR into the hole on INVERTER ASSY DUP, attach ACTUATOR INV together with SPRING ACTUATOR, and fasten by the hook.

CAUTION

SPRING ACTUATOR must be firmly hooked onto ACTUATOR INV and DUPLEX ASSY.

3. Attach COVER-INV. *(p.415)*
4. Attach INVERTER ASSY DUP. *(p.417)*
5. Attach LINK-LATCH and LINK-BUTTON. *(p.416)*
6. Attach COVER-L DUP. *(p.414)*
7. Attach COVER-R DUP. *(p.413)*
8. Attach DUPLEX ASSY. *(p.412)*

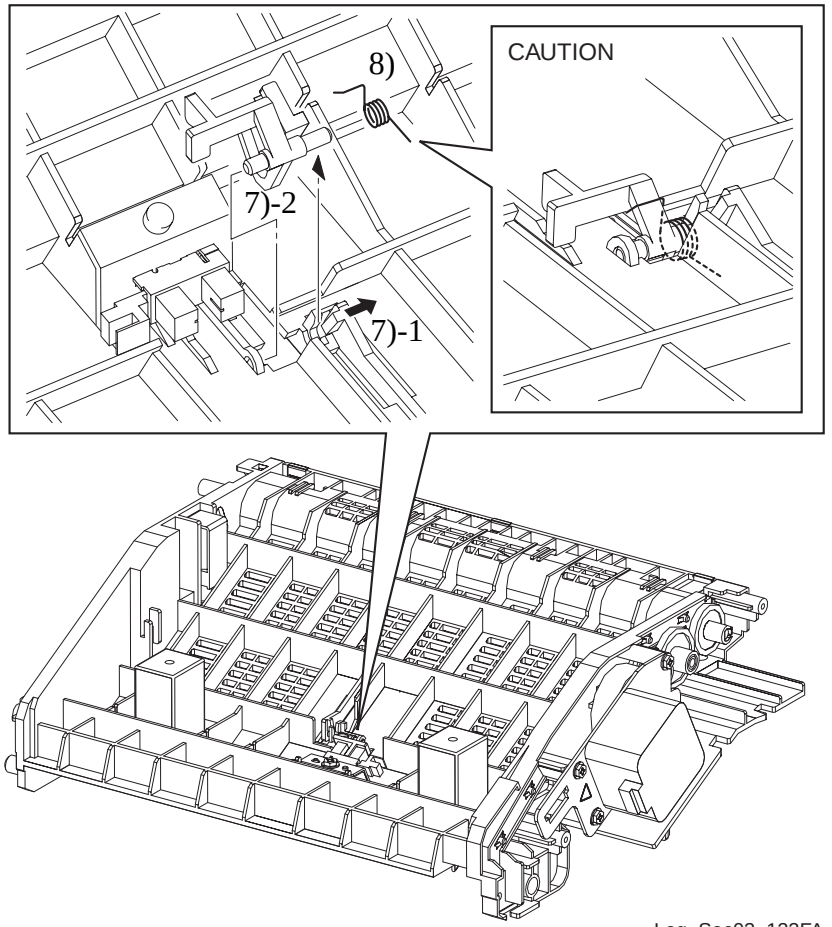
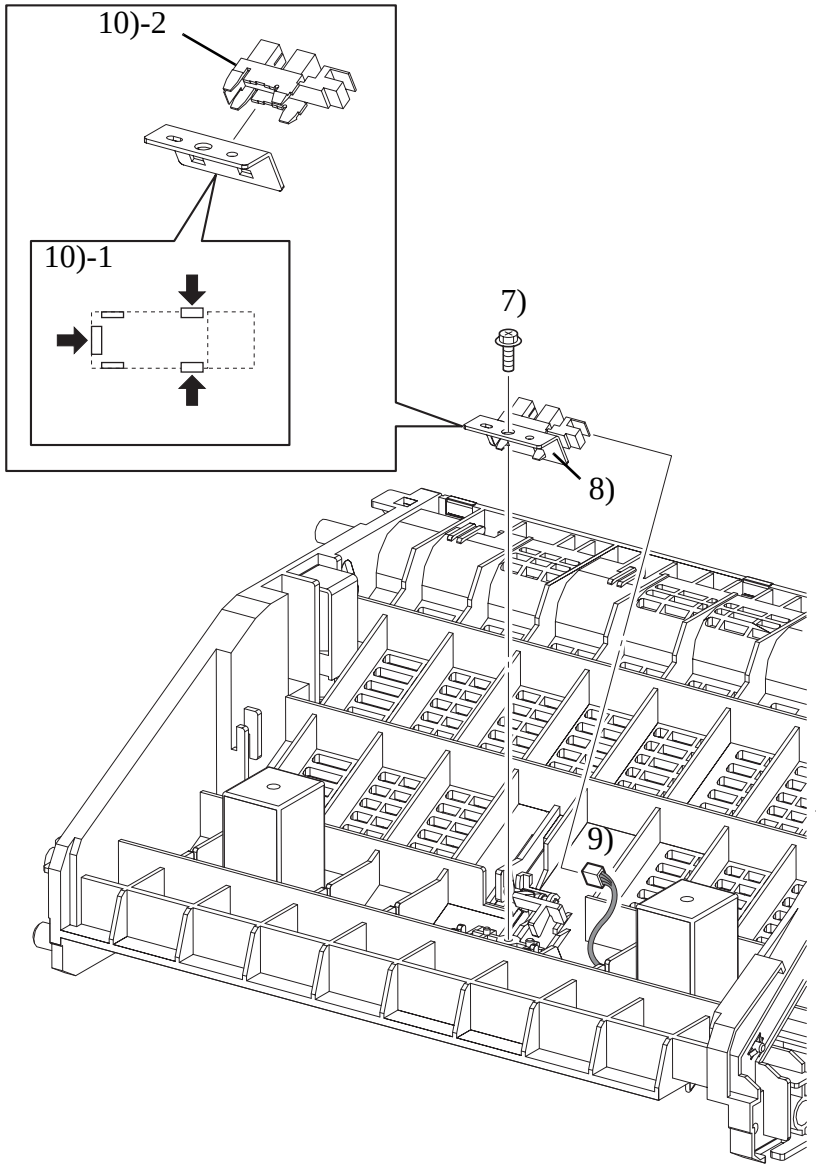


Figure 4-123. Removal of ACTUATOR INV

4.12.9 SENSOR UPPER PASS

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove LINK-LATCH and LINK-BUTTON. *(p.416)*
5. Open COVER UP-DUP TRANS, and remove INVERTER ASSY DUP. Note that COVER LOW-DUP TRANS and COVER UP-DUP TRANS need not be removed. *(p.417)*
6. Remove COVER-INV. *(p.415)*
7. Remove the screw (silver, with flange, tapping, 10 mm) fastening BRACKET-SNS to INVERTER ASSY DUP.
8. Remove BRACKET-SNS from INVERTER ASSY DUP together with SENSOR UPPER PASS.
9. Disconnect connector (P/J124) from SENSOR UPPER PASS.
10. Unhook the 3 hooks fastening SENSOR UPPER PASS to BRACKET-SNS, and remove SENSOR UPPER PASS.



Leg_Sec03_124FA

Figure 4-124. Removal of SENSOR UPPER PASS

REINSTALLATION

1. Match the hook on SENSOR UPPER PASS with the attachment position, and attach to BRACKET-SNS.
2. Connect connector (P/J124) to SENSOR UPPER PASS.
3. Match the hole on BRACKET-SNS with the boss on INVERTER ASSY DUP, and attach BRACKET-SNS together with SENSOR UPPER PASS.
4. Attach BRACKET-SNS to INVERTER ASSY DUP with the screw (silver, with flange, tapping, 10 mm).
5. Attach COVER-INV. *(p.415)*
6. Attach INVERTER ASSY DUP. *(p.417)*
7. Attach LINK-LATCH and LINK-BUTTON. *(p.416)*
8. Attach COVER-L DUP. *(p.414)*
9. Attach COVER-R DUP. *(p.413)*
10. Attach DUPLEX ASSY. *(p.412)*

4.12.10 MOTOR ASSY DUP INV

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-L DUP. *(p.414)*
3. Remove the 4 screws (silver, with flange, tapping, 10mm) fastening BRACKET-MOTO INV to DUPLEX ASSY.

CAUTION

- **When performing the following work, take care not to remove DUPLEX ASSY and BRACKET-MOTO INV too far as they are connected by a harness.**
- **When performing the following work, take care not to drop or lose gears, and other parts.**

4. Remove BRACKET-MOTO INV from DUPLEX ASSY together with MOTOR ASSY DUP INV.
5. Disconnect connector (P/J612) of MOTOR ASSY DUP INV from BRACKET-MOTO INV.
6. Remove the 4 screws (silver, 5mm) fastening MOTOR ASSY DUP INV to BRACKET-MOTO INV.
7. Remove MOTOR ASSY DUP INV from BRACKET-MOTO INV.

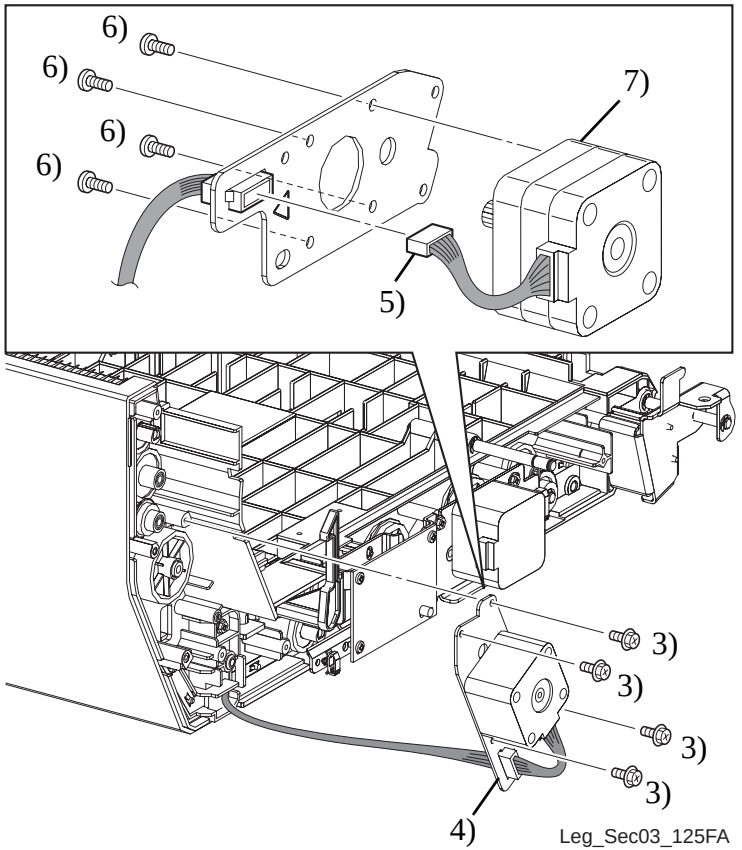


Figure 4-125. Removal of MOTOR ASSY DUP INV

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of MOTOR ASSY DUP INV.

1. Match the harness side of MOTOR ASSY DUP INV with the △ mark on BRACKET-MOTO INV, and attach to MOTOR ASSY DUP INV.
2. Fasten MOTOR ASSY DUP INV to BRACKET-MOTO INV with the 4 screws (silver, 5 mm).

3. Connect connector (P/J612) of MOTOR ASSY DUP INV to BRACKET-MOTO INV.

CAUTION

When performing the following work, take care to prevent the harness from being sandwiched between DUPLEX ASSY and BRACKET-MOTO INV.

4. Match the hole on BRACKET-MOTO INV with the shaft on DUPLEX ASSY, and attach together with MOTOR ASSY DUP INV.
5. Fasten BRACKET-MOTO INV to DUPLEX ASSY with the 4 screws (silver, with flange, tapping, 10mm).
6. Attach COVER-L DUP. *(p.414)*
7. Attach DUPLEX ASSY. *(p.412)*

4.12.11 ROLLER ASSY INVERTER

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove LINK-LATCH and LINK-BUTTON. *(p.416)*
5. Remove CHUTE ASSY-INV LOW. *(p.427)*
6. Unhook the hook on GEAR 30 fastened to ROLLER ASSY INVERTER from DUPLEX ASSY, and remove GEAR 30.
7. Remove the E-ring fastening the right side of ROLLER ASSY INVERTER from DUPLEX ASSY.
8. Remove the left and right BEARING DUP fastening ROLLER ASSY INVERTER from DUPLEX ASSY.
9. Temporarily slide ROLLER ASSY INVERTER to the front and then slide to the left, and draw out the shaft of ROLLER ASSY INVERTER from the right-side bearing of DUPLEX ASSY to remove ROLLER ASSY INVERTER.

REINSTALLATION

1. Insert the shaft left side on ROLLER ASSY INVERTER into the left-side bearing on DUPLEX ASSY, and slide ROLLER ASSY INVERTER to the right to attach.
2. Match the double D cut surface of BEARING DUP with the left and right bearings of DUPLEX ASSY, attach BEARING DUP, and fasten ROLLER ASSY INVERTER.
3. Fasten the right side of ROLLER ASSY INVERTER to DUPLEX ASSY with the E-ring.
4. Match the hole on GEAR 30 with the D cut surface on ROLLER ASSY INVERTER, fasten the hook on GEAR 30 with the groove on ROLLER ASSY INVERTER, and attach.
5. Attach CHUTE ASSY-INV LOW. *(p.427)*
6. Attach LINK-LATCH and LINK-BUTTON. *(p.416)*
7. Attach COVER-L DUP. *(p.414)*
8. Attach COVER-R DUP. *(p.413)*
9. Attach DUPLEX ASSY. *(p.412)*

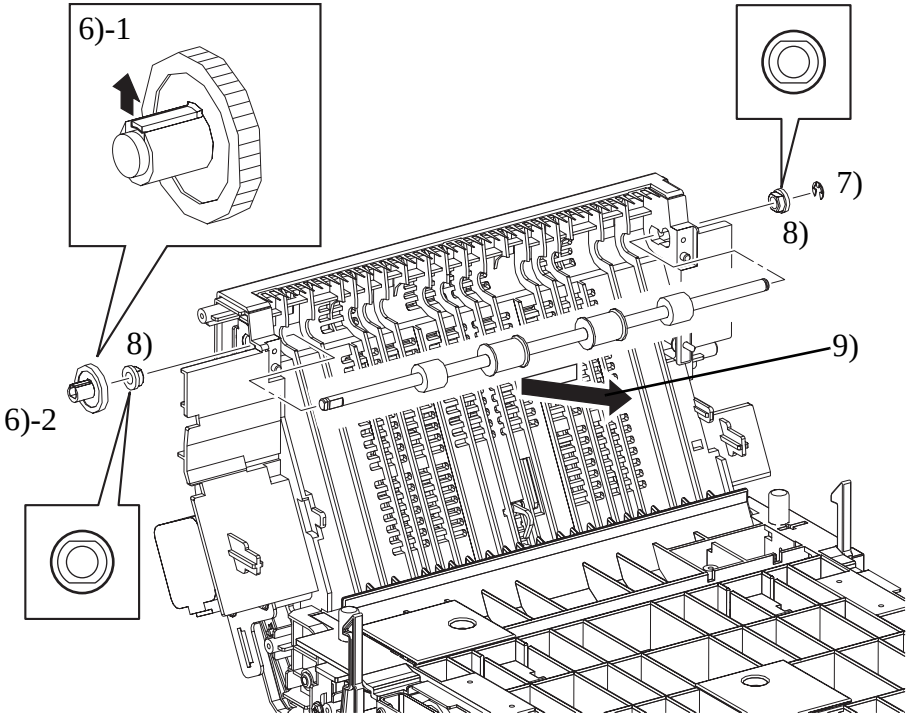


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Figure 4-126. Removal of ROLLER ASSY INVERTER

4.12.12 CHUTE ASSY-INV LOW

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the 2 screws (silver, with flange, tapping, 10mm) CHUTE ASSY-INV LOW to DUPLEX ASSY.
3. Remove CHUTE ASSY-INV LOW from DUPLEX ASSY.

REINSTALLATION

1. Match the hole on CHUTE ASSY-INV LOW with the boss on DUPLEX ASSY, and attach CHUTE ASSY-INV LOW.
2. Fasten CHUTE ASSY-INV LOW to DUPLEX ASSY with the 2 screws (silver, with flange, tapping, 10mm).
3. Attach DUPLEX ASSY. *(p.412)*

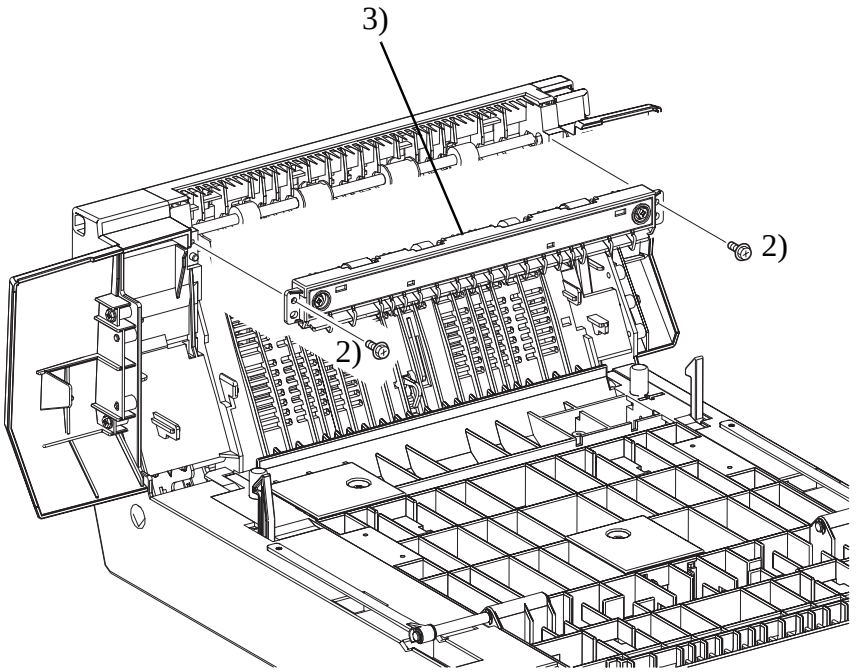

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Figure 4-127. Removal of CHUTE ASSY-INV LOW

4.12.13 LATCH DUP R, LATCH DUP L

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove LINK-LATCH and LINK-BUTTON. *(p.416)*
5. Unclamp the clamp on BKT MOTOR DUP TRANS, and remove the harness.
6. Disconnect connector (P/J444) from PWBA DUP-L.
7. Remove the 4 screws (silver, with flange, tapping, 10mm) fastening BKT MOTOR DUP TRANS to DUPLEX ASSY.

CAUTION

- **When performing the following work, take care not to remove DUPLEX ASSY and BKT MOTOR DUP TRANS too far as they are connected by a harness.**
- **When performing the following work, take care not to drop or lose gears, and other parts.**

8. Remove BKT MOTOR DUP TRANS from DUPLEX ASSY together with PWBA DUP-L and MOTOR ASSY DUP.
9. Remove SPRING LATCH from LATCH DUP R.
10. Remove the screw (silver, with flange, tapping, 10 mm) fastening LATCH DUP L to DUPLEX ASSY.
11. Turn LATCH DUP R and LATCH DUP L, match the protrusions on LATCH DUP R and LATCH DUP L with the notches of hole on DUPLEX ASSY, and remove LATCH DUP R and LATCH DUP L.

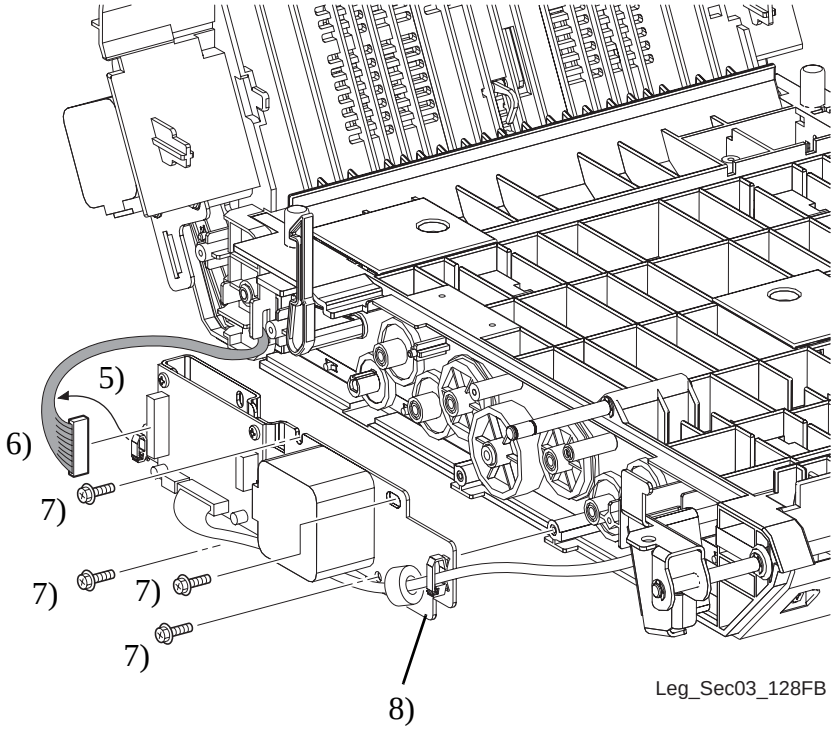

Figure 4-128. Removal of LATCH DUP R and LATCH DUP L (1)

REINSTALLATION

1. Match the protrusions on LATCH DUP R and LATCH DUP L with the notches of hole on DUPLEX ASSY, attach to SHAFT LATCH, turn LATCH DUP R and LATCH DUP L, and fasten LATCH DUP R and LATCH DUP L to DUPLEX ASSY.
2. Fasten LATCH DUP L to DUPLEX ASSY with the screw (silver, with flange, tapping, 10 mm).
3. Attach SPRING LATCH to LATCH DUP R.
4. Match the hole on BKT MOTOR DUP TRANS with the shaft on DUPLEX ASSY, and attach together with PWBA DUP-L and MOTOR ASSY DUP.
5. Fasten BKT MOTOR DUP TRANS to DUPLEX ASSY with the 4 screws (silver, with flange, tapping, 10mm).
6. Connect connector (P/J444) to PWBA DUP-L.
7. Route the harness, and fasten the harness by the clamp on BKT MOTOR DUP TRANS.
8. Attach LINK-LATCH and LINK-BUTTON. *(p.416)*
9. Attach COVER-L DUP. *(p.414)*
10. Attach COVER-R DUP. *(p.413)*
11. Attach DUPLEX ASSY. *(p.412)*

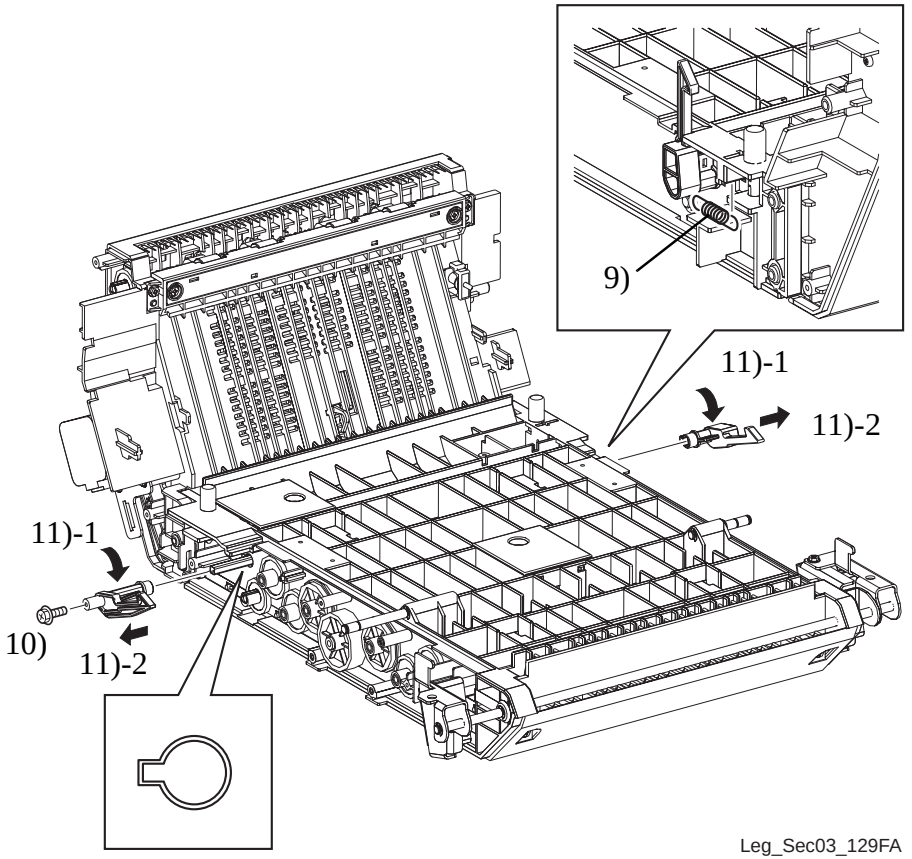

Figure 4-129. Removal of LATCH DUP R and LATCH DUP L (2)

4.12.14 SWITCH-DUP DOOR

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the screw (silver, with flange, tapping, 10 mm) fastening COVER REAR from DUPLEX ASSY.
3. Slide COVER REAR to the right, unhook the 2 hooks on the rear of COVER REAR from DUPLEX ASSY, and remove COVER REAR.
4. Disconnect connector (P/J122) from SWITCH-DUP DOOR.
5. Open COVER UP-DUP TRANS.
6. Unhook the two hooks fastening SWITCH-DUP DOOR to DUPLEX ASSY, and remove SWITCH-DUP DOOR.

REINSTALLATION

1. Open COVER UP-DUP TRANS.
2. Match the hook on SWITCH-DUP DOOR with the attachment position, and attach to DUPLEX ASSY.
3. Connect connector (P/J122) to SWITCH-DUP DOOR.
4. Match the 2 hooks on the rear of COVER REAR with DUPLEX ASSY, and attach COVER REAR.
5. Fasten COVER REAR to DUPLEX ASSY with the screw (silver, with flange, tapping, 10 mm).
6. Attach DUPLEX ASSY. *(p.412)*

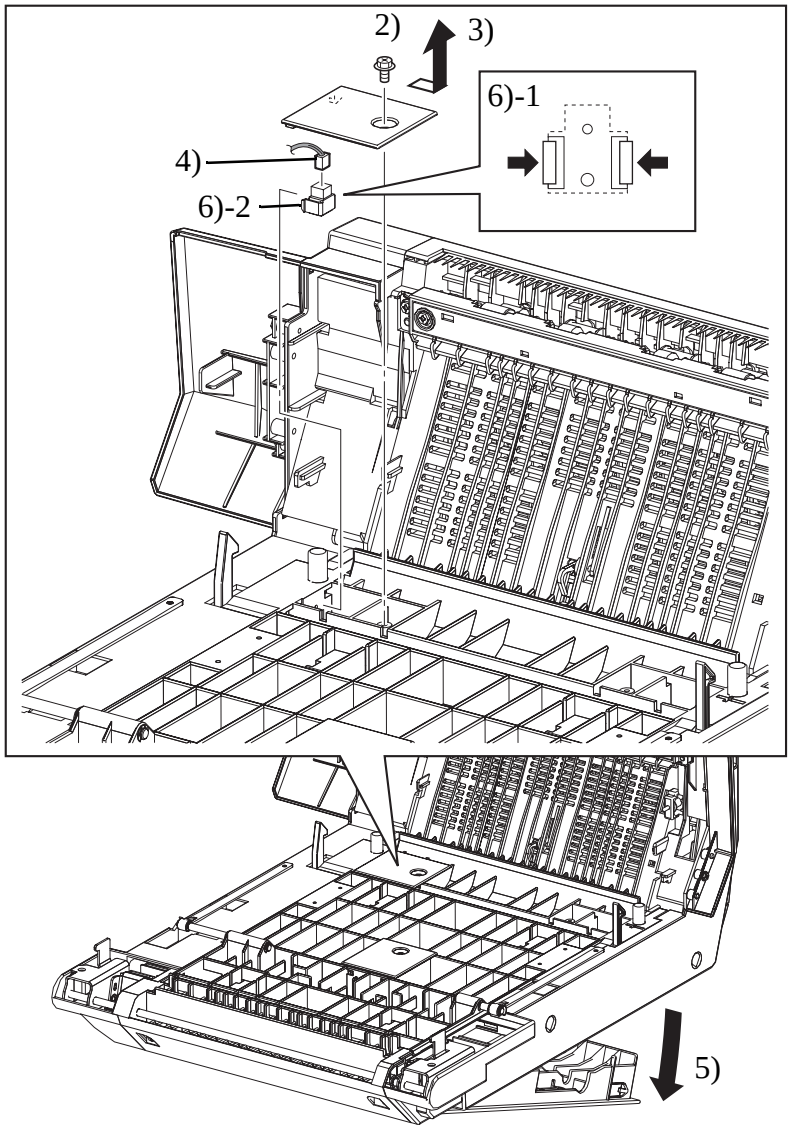

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Figure 4-130. Removal of SWITCH-DUP DOOR

4.12.15 ACTUATOR DUP

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the screw (silver, with flange, tapping, 10mm) fastening COVER REAR from DUPLEX ASSY.
3. Slide COVER REAR to the right, unhook the 2 hooks on the rear of COVER REAR from DUPLEX ASSY, and remove COVER REAR.
4. Unhook the hook fastening ACTUATOR DUP to DUPLEX ASSY, and remove ACTUATOR DUP together with SPRING ACTUATOR.
5. Remove SPRING ACTUATOR from ACTUATOR DUP.

REINSTALLATION

1. Attach SPRING ACTUATOR to ACTUATOR DUP.
2. After inserting the right-side shaft of ACTUATOR DUP into the hole on DUPLEX ASSY, attach ACTUATOR DUP together with SPRING ACTUATOR, and fasten by the hook.

CAUTION

SPRING ACTUATOR must be firmly hooked onto ACTUATOR DUP and DUPLEX ASSY.

3. Match the 2 hooks on the rear of COVER REAR with DUPLEX ASSY, and attach COVER REAR.
4. Fasten COVER REAR to DUPLEX ASSY with the screw (silver, with flange, tapping, 10 mm).
5. Attach DUPLEX ASSY. *(p.412)*

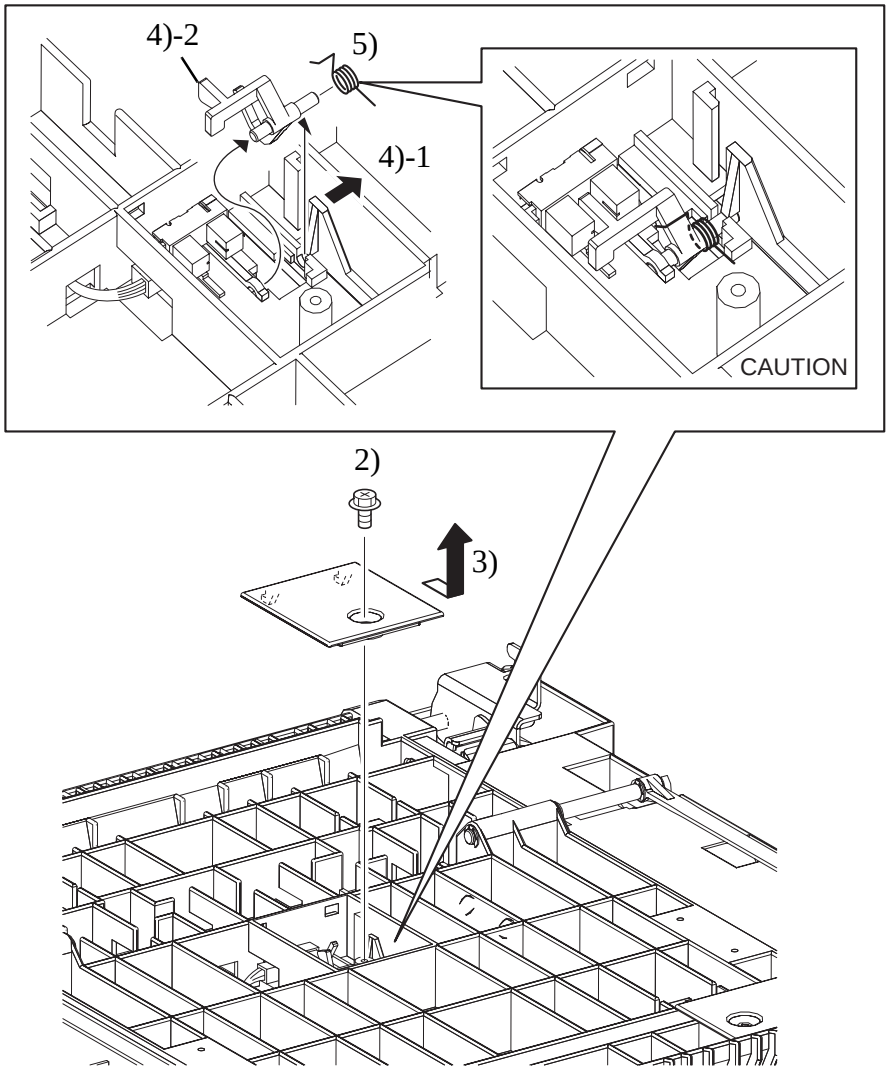

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Figure 4-131. Removal of ACTUATOR DUP

4.12.16 SENSOR LOW PASS

CAUTION

Step numbers with [ ] in the figure indicate the step of reinstallation.

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the screw (silver, with flange, tapping, 10mm) fastening COVER REAR from DUPLEX ASSY.
3. Slide COVER REAR to the right, unhook the 2 hooks on the rear of COVER REAR from DUPLEX ASSY, and remove COVER REAR.
4. Unhook the 3 hooks fastening SENSOR LOW PASS to DUPLEX ASSY, and remove SENSOR LOW PASS.
5. Disconnect connector (P/J123) from SENSOR LOW PASS.

REINSTALLATION

1. Connect connector (P/J123) to SENSOR LOW PASS.
2. Match the hook on SENSOR LOW PASS with the attachment position, and attach to DUPLEX ASSY while lifting up ACTUATOR DUP.
3. Match the 2 hooks on the rear of COVER REAR with DUPLEX ASSY, and attach COVER REAR.
4. Fasten COVER REAR to DUPLEX ASSY with the screw (silver, with flange, tapping, 10 mm).
5. Attach DUPLEX ASSY. *(p.412)*

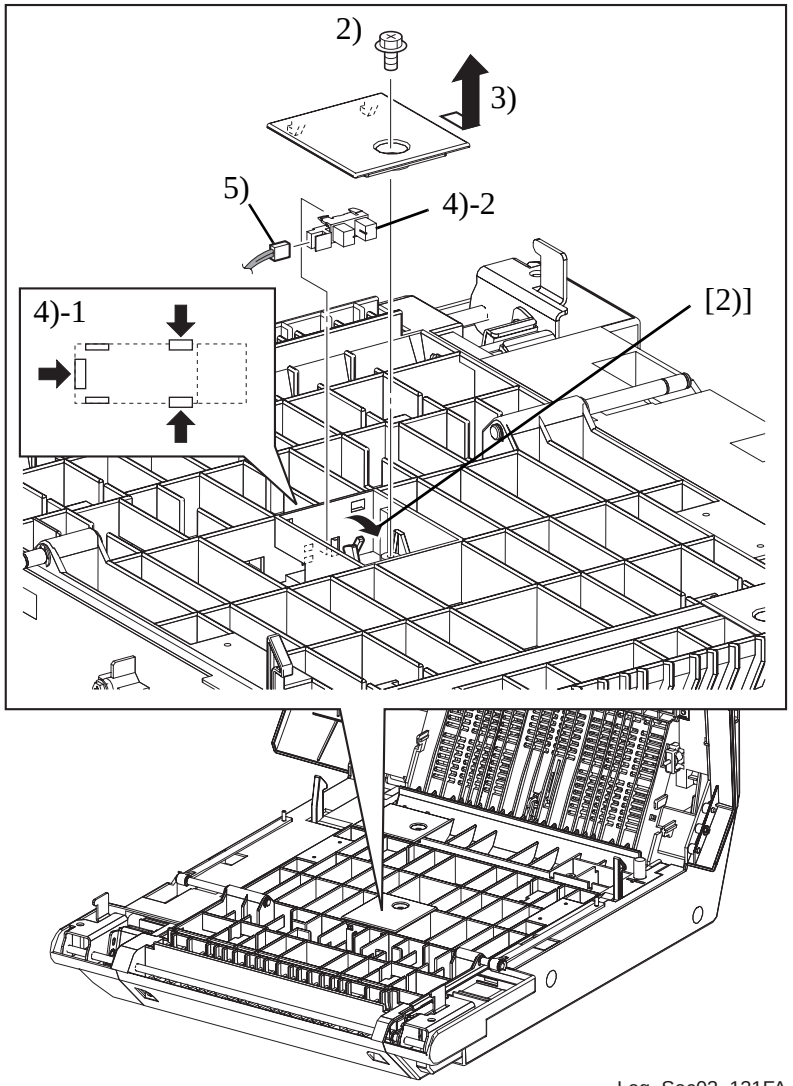

Figure 4-132. Removal of SENSOR LOW PASS

4.12.17 SUPPORT DUP

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the KL ring fastening SUPPORT DUP to the shaft on DUPLEX ASSY.
3. Remove SUPPORT DUP from the shaft on DUPLEX ASSY.

REINSTALLATION

1. Attach SUPPORT DUP to the shaft on DUPLEX ASSY.
2. Fasten SUPPORT DUP to the shaft on DUPLEX ASSY with the KL ring.
3. Attach DUPLEX ASSY. *(p.412)*

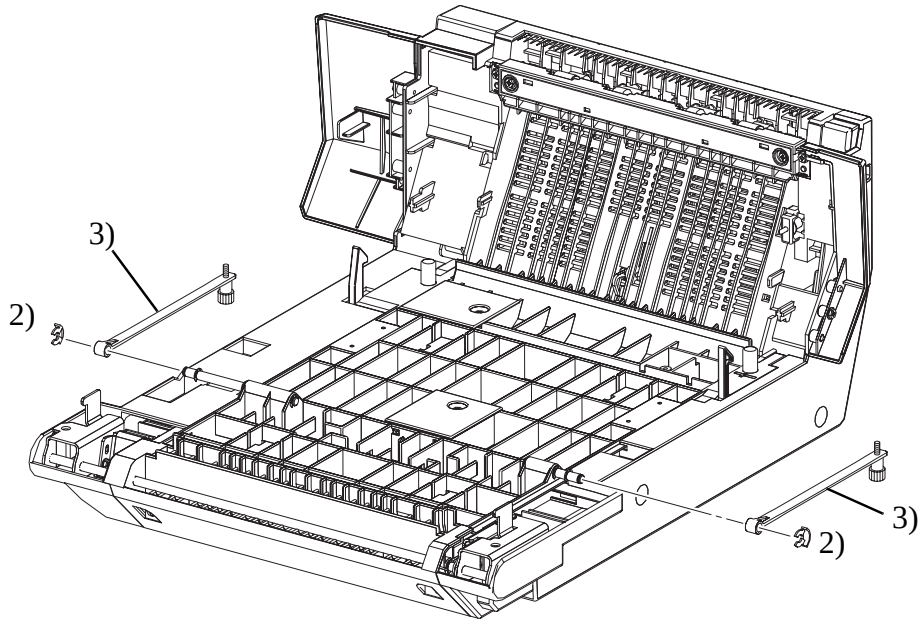

Figure 4-133. Removal of SUPPORT DUP

4.12.18 HINGE ASSY L

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-L DUP. *(p.414)*
3. Remove the E-ring fastening HINGE ASSY L to DUPLEX ASSY.
4. Remove HINGE ASSY L from DUPLEX ASSY.

REINSTALLATION

1. Match the hole on HINGE ASSY L with the D cut surface on SHAFT HINGE, insert SHAFT DAMPER between the top and bottom pads of HINGE ASSY L, and attach HINGE ASSY L.
2. Fasten HINGE ASSY L to DUPLEX ASSY with the E-ring.
3. Attach COVER-L DUP. *(p.414)*
4. Attach DUPLEX ASSY. *(p.412)*

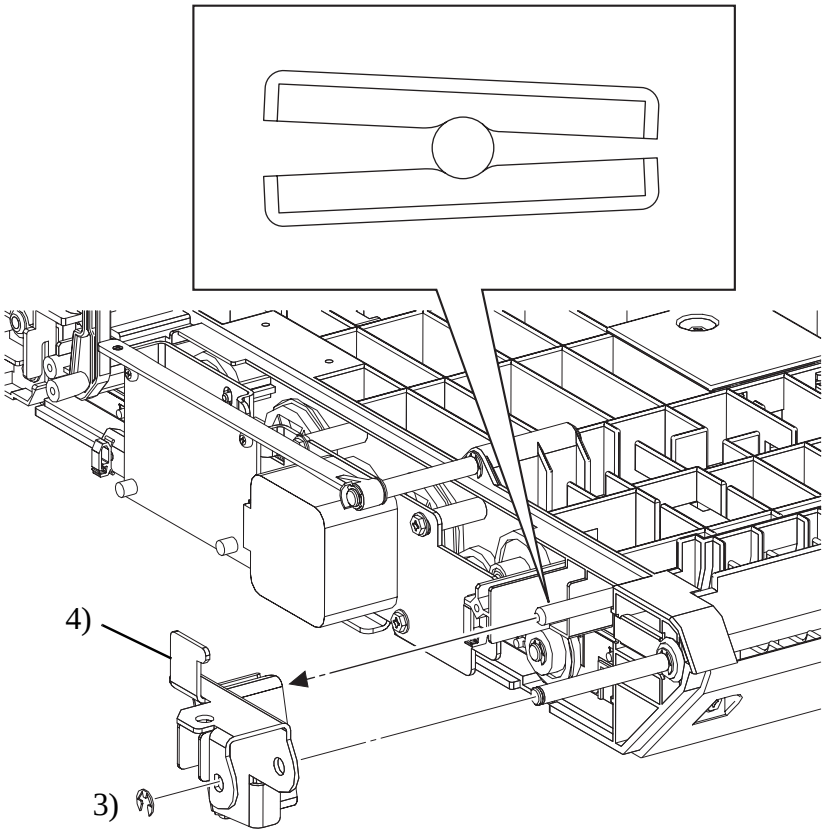

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Figure 4-134. Removal of HINGE ASSY L

4.12.19 HINGE ASSY R

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove the E-ring fastening HINGE ASSY R to DUPLEX ASSY.
4. Remove HINGE ASSY R from DUPLEX ASSY together with HINGE-R.
5. Remove the 2 screws (silver, with flange, 6 mm) fastening HINGE-R to HINGE ASSY R.
6. Remove HINGE-R from HINGE ASSY R.

REINSTALLATION

1. Attach HINGE-R to HINGE ASSY R.
2. Fasten HINGE-R to HINGE ASSY R with the 2 screws (silver, with flange, 6 mm).
3. Match the hole on HINGE ASSY R with the D cut surface on SHAFT HINGE, insert SHAFT DAMPER between the top and bottom pads of HINGE ASSY R, and attach HINGE ASSY R together with HINGE-R.
4. Fasten HINGE ASSY R to DUPLEX ASSY with the E-ring.
5. Attach COVER-R DUP. *(p.413)*
6. Attach DUPLEX ASSY. *(p.412)*

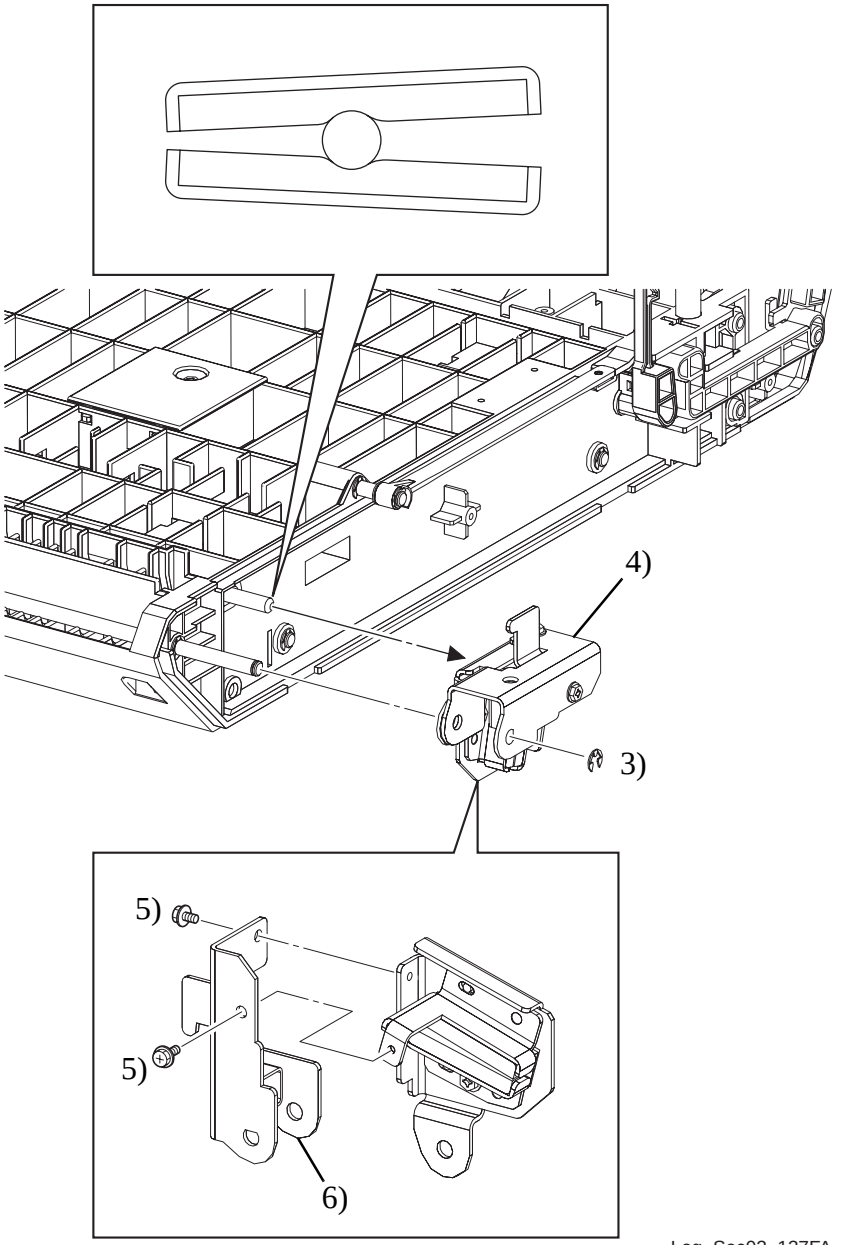

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Figure 4-135. Removal of HINGE ASSY R

4.12.20 COVER LOW-DUP TRANS

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove the 2 screws (silver, with flange, tapping, 10mm) fastening COVER LOW-DUP TRANS to DUPLEX ASSY.
3. Remove COVER LOW-DUP TRANS from DUPLEX ASSY.

REINSTALLATION

1. Match the protrusion on COVER LOW-DUP TRANS with the concave portion on the left side of DUPLEX ASSY, and the concave portion on COVER LOW-DUP TRANS with the protrusion on the right side of DUPLEX ASSY, and attach COVER LOW-DUP TRANS so that SHAFT HINGE is nipped by it.
2. Fasten COVER LOW-DUP TRANS to DUPLEX ASSY with the 2 screws (silver, with flange, tapping, 10mm).
3. Attach DUPLEX ASSY. *(p.412)*

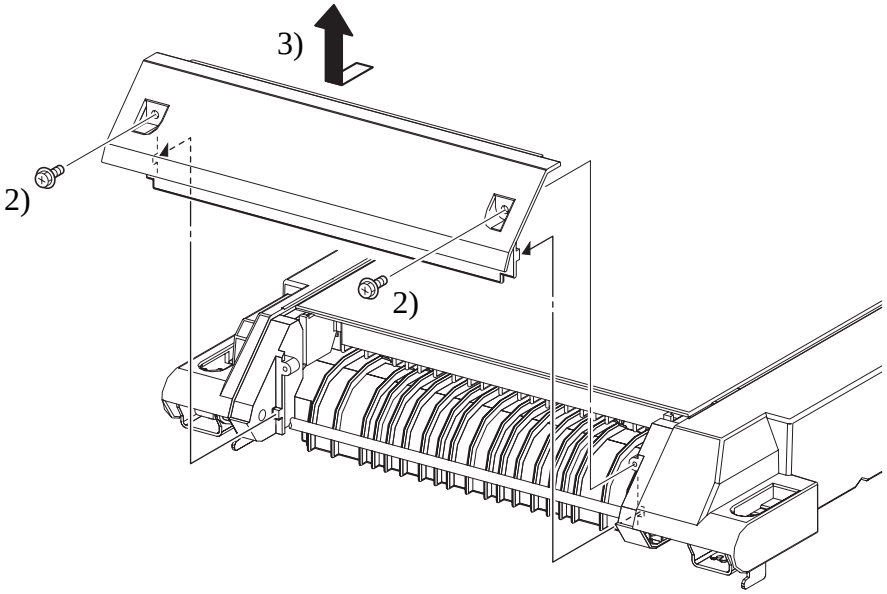

Figure 4-136. Removal of COVER LOW-DUP TRANS

4.12.21 COVER UP-DUP TRANS

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER LOW-DUP TRANS. *(p.436)*
3. Open COVER UP-DUP TRANS.

CAUTION

When performing the following work, take care not to damage the COVER UP-DUP TRANS boss.

4. Bend down the attachment section on the right side of COVER UP-DUP TRANS with a small screwdriver or a similar tool, draw out the boss on the right side from the hole on DUPLEX ASSY, and remove COVER UP-DUP TRANS.

REINSTALLATION

CAUTION

When performing the following work, take care not to damage the COVER UP-DUP TRANS boss.

1. After inserting the boss on the left side into the hole on DUPLEX ASSY with COVER UP-DUP TRANS open, attach COVER UP-DUP TRANS to DUPLEX ASSY while bending down the boss on the right side.
2. Open COVER UP-DUP TRANS.
3. Attach COVER LOW-DUP TRANS. *(p.436)*
4. Attach DUPLEX ASSY. *(p.412)*

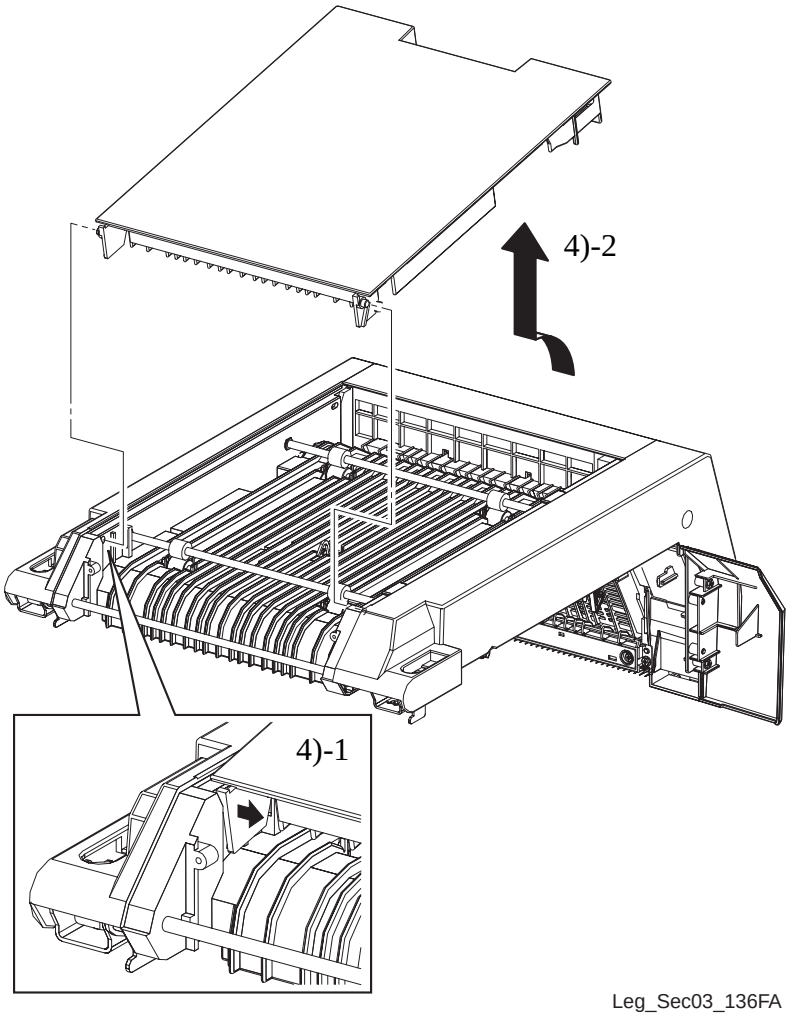

Figure 4-137. Removal of COVER UP-DUP TRANS

4.12.22 PAD DAMPER L

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-L DUP. *(p.414)*
3. Remove HINGE ASSY L. *(p.434)*
4. Remove the screw (silver, with flange, 6 mm) fastening BRACKET PAD L to HINGE-L.
5. Remove BRACKET PAD L from HINGE-L together with PAD DAMPER L.
6. Peel off and remove PAD DAMPER L from HINGE-L and BRACKET PAD L.

REINSTALLATION

CAUTION

The shapes of the left and right PAD DAMPERs are different. Take care not to confuse these dampers.
PAD DAMPER L is broad, while PAD DAMPER R is narrow.

1. Cleanly peel off any old double-sided adhesive tape from the attachment surfaces of HINGE-L and BRACKET PAD L, and wipe off with drum cleaner or similar solution.

CAUTION

When performing the following work, match PAD DAMPER L with the area shown in the Figure right, located on HINGE-L and BRACKET PAD L, and then affix PAD DAMPER L.

2. Peel off the protective paper from the dual-sided adhesive tape of PAD DAMPER L, and affix PAD DAMPER L to the affixing surfaces of HINGE-L and BRACKET PAD L.
3. Match the hole on BRACKET PAD L with the boss on HINGE-L, and attach BRACKET PAD L together with PAD DAMPER L.
4. Fasten BRACKET PAD L to HINGE-L with the screw (silver, with flange, 6 mm).
5. Attach HINGE ASSY L. *(p.434)*
6. Attach COVER-L DUP. *(p.414)*
7. Attach DUPLEX ASSY. *(p.412)*

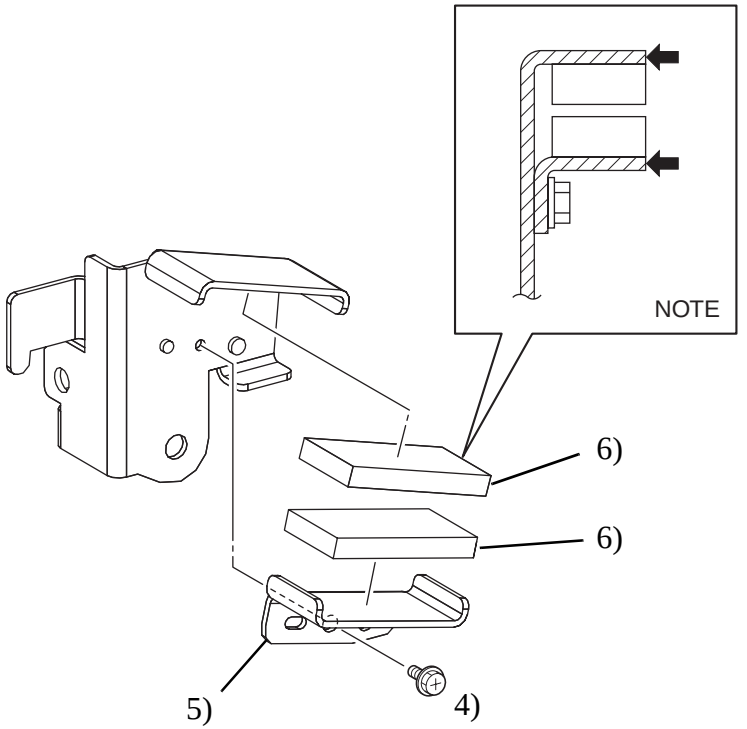

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Figure 4-138. Removal of PAD DAMPER L

4.12.23 PAD DAMPER R

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove HINGE ASSY R. *(p.435)*
4. Remove the screw (silver, with flange, 6 mm) fastening BRACKET PAD R LOWER to BRACKET ASSY R.
5. Remove BRACKET PAD R LOWER from BRACKET ASSY R together with PAD DAMPER R.
6. Peel off and remove PAD DAMPER R from BRACKET ASSY R and BRACKET PAD R LOWER.

REINSTALLATION

CAUTION

The shapes of the left and right PAD DAMPERs are different. Take care not to confuse these dampers.
PAD DAMPER L is broad, while PAD DAMPER R is narrow.

1. Cleanly peel off any old double-sided adhesive tape from the attachment surfaces of BRACKET ASSY R and BRACKET PAD R LOWER, and wipe off with drum cleaner or similar solution.

CAUTION

When performing the following work, match PAD DAMPER R with the area shown in the Figure right, located on BRACKET ASSY R and BRACKET PAD R LOWER, and then affix PAD DAMPER R,

2. Peel off the protective paper from the dual-sided adhesive tape of PAD DAMPER R, and affix PAD DAMPER R to the affixing surfaces of BRACKET ASSY R and BRACKET PAD R LOWER.
3. Match the hole on BRACKET PAD R LOWER with the boss on BRACKET ASSY R, and attach BRACKET PAD R LOWER together with PAD DAMPER R.
4. Fasten BRACKET PAD R LOWER to BRACKET ASSY R with the screw (silver, with flange, 6 mm).
5. Attach HINGE ASSY R. *(p.435)*
6. Attach COVER-R DUP. *(p.413)*
7. Attach DUPLEX ASSY. *(p.412)*

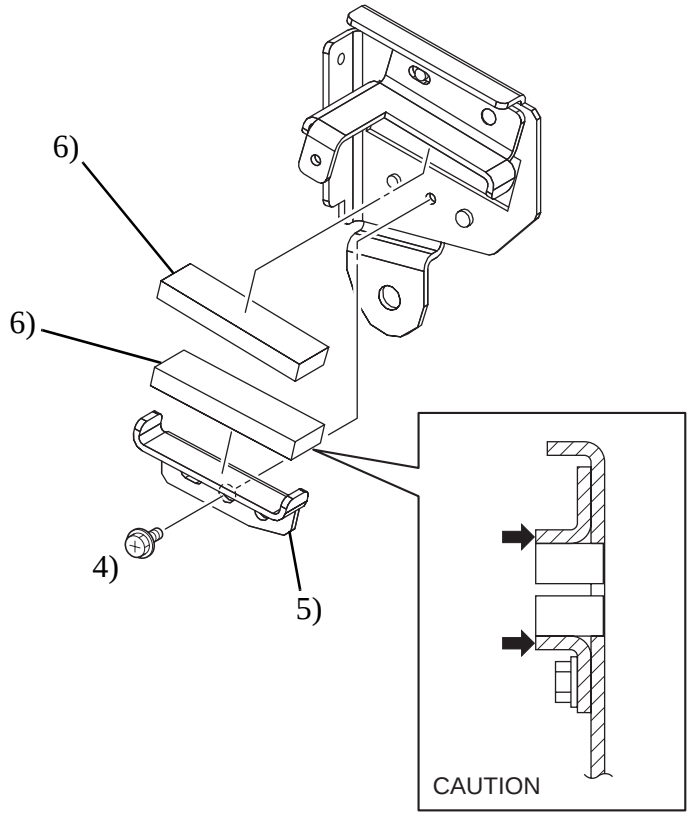

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Figure 4-139. Removal of PAD DAMPER R

4.12.24 ROLLER ASSY DUP

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove COVER LOW-DUP TRANS. *(p.436)*
5. Remove COVER UP-DUP TRANS. *(p.437)*
6. Unclamp the clamp on BKT MOTOR DUP TRANS, and remove the harness.
7. Disconnect connector (P/J444) from PWBA DUP-L.
8. Remove the 4 screws (silver, with flange, tapping, 10mm) fastening BKT MOTOR DUP TRANS to DUPLEX ASSY.

CAUTION

- **When performing the following work, take care not to remove DUPLEX ASSY and BKT MOTOR DUP TRANS too far as they are connected by a harness.**
- **When performing the following work, take care not to drop or lose gears, and other parts.**

9. Remove BKT MOTOR DUP TRANS from DUPLEX ASSY together with PWBA DUP-L and MOTOR ASSY DUP.
10. Unhook the hook on GEAR 30 fastened to ROLLER ASSY DUP, and remove GEAR 30 from DUPLEX ASSY.
11. Remove the E-ring fastening the right side of ROLLER ASSY DUP from DUPLEX ASSY.
12. Remove the left and right BEARING DUP fastening ROLLER ASSY DUP from DUPLEX ASSY.
13. Temporarily slide ROLLER ASSY DUP to the left, and draw out the shaft of ROLLER ASSY DUP from the right-side bearing of DUPLEX ASSY to remove ROLLER ASSY DUP.

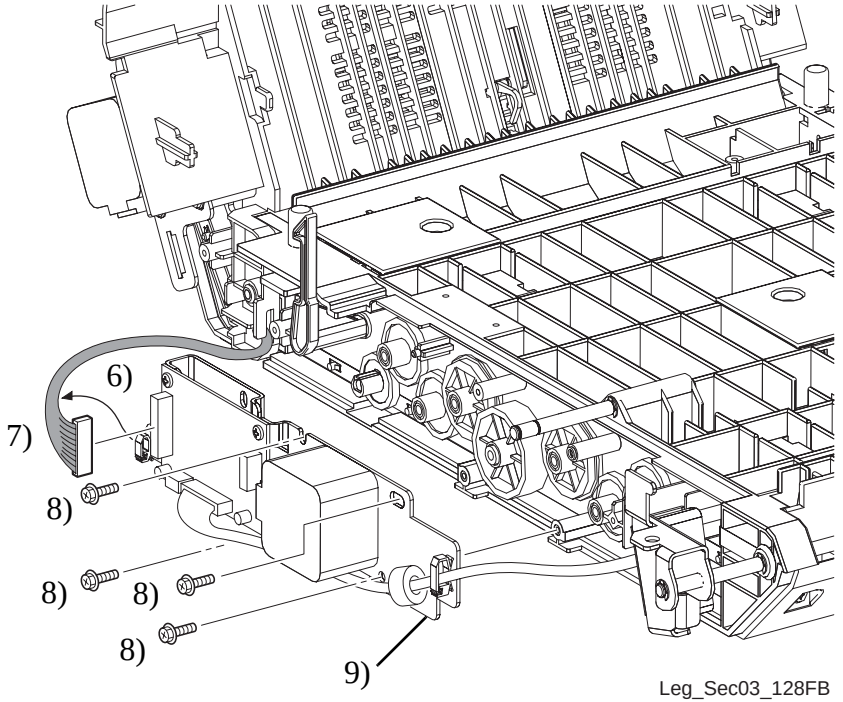

Figure 4-140. Removal of ROLLER ASSY DUP (1)

REINSTALLATION

1. Insert the shaft left side on ROLLER ASSY DUP into the left-side bearing on DUPLEX ASSY, and slide ROLLER ASSY DUP to the right to attach.
2. Match the double D cut surface of BEARING DUP with the left and right bearings of DUPLEX ASSY, attach BEARING DUP, and fasten ROLLER ASSY DUP.
3. Fasten the right side of ROLLER ASSY DUP to DUPLEX ASSY with the E-ring.
4. Match the hole on GEAR 30 with the D cut surface on ROLLER ASSY DUP, fasten the hook on GEAR 30 to the groove on ROLLER ASSY DUP, and attach.
5. Match the hole on BKT MOTOR DUP TRANS with the shaft on DUPLEX ASSY, and attach together with PWBA DUP-L and MOTOR ASSY DUP.
6. Fasten BKT MOTOR DUP TRANS to DUPLEX ASSY with the 4 screws (silver, with flange, tapping, 10mm).
7. Connect connector (P/J444) to PWBA DUP-L.
8. Route the harness, and fasten the harness by the clamp on BKT MOTOR DUP TRANS.
9. Attach COVER UP-DUP TRANS. *(p.437)*
10. Attach COVER LOW-DUP TRANS. *(p.436)*
11. Attach COVER-L DUP. *(p.414)*
12. Attach COVER-R DUP. *(p.413)*
13. Attach DUPLEX ASSY. *(p.412)*

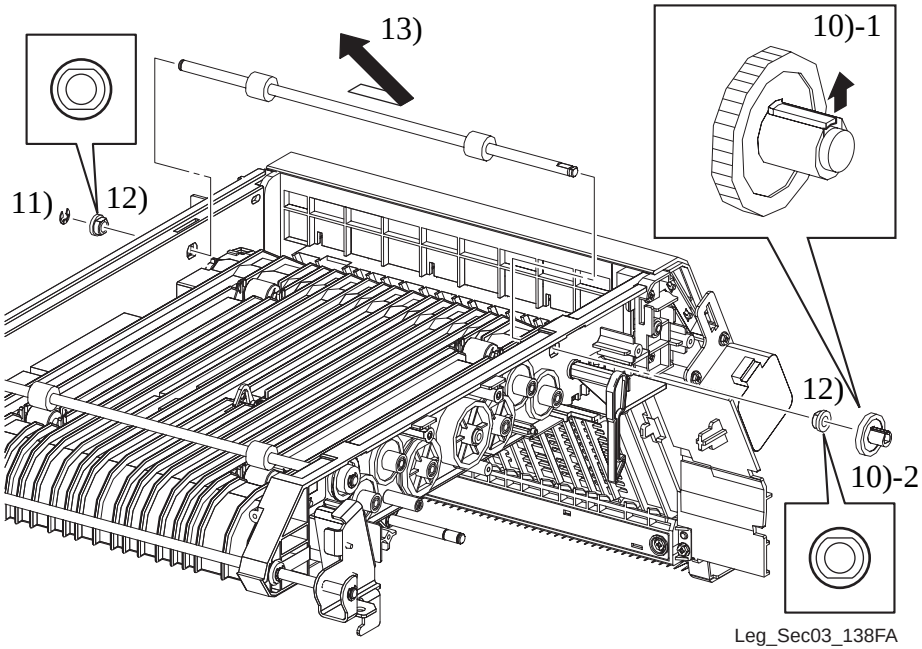

Figure 4-141. Removal of ROLLER ASSY DUP (2)

4.12.25 PWBA DUP-L

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-L DUP. *(p.414)*
3. Disconnect connector (P/J442), connector (P/J443) and connector (P/J444) from PWBA DUP-L.
4. Remove the 2 screws (silver, tapping, 5mm) fastening PWBA DUP-L to DUPLEX ASSY.
5. Unhook the hook on SUPPORT PWB fastening PWBA DUP-L to DUPLEX ASSY, and remove PWBA DUP-L.

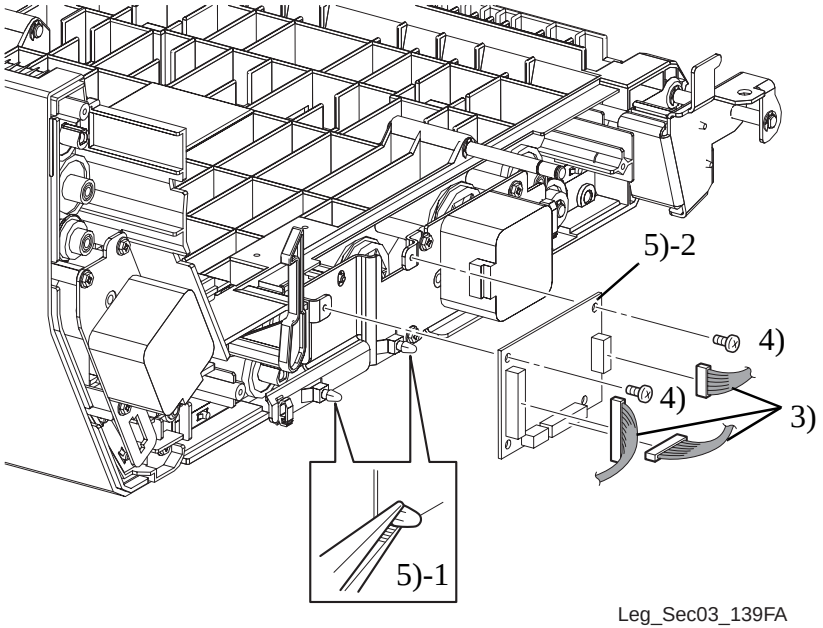

Figure 4-142. Removal of PWBA DUP-L

REINSTALLATION

1. Attach PWBA DUP-L to DUPLEX ASSY, and fasten by the hook on SUPPORT PWB.
2. Fasten PWBA DUP-L to DUPLEX ASSY with the 2 screws (silver, 5mm).
3. Connect connector (P/J442), connector (P/J443) and connector (P/J444) to PWBA DUP-L.
4. Attach COVER-L DUP. *(p.414)*
5. Attach DUPLEX ASSY. *(p.412)*

4.12.26 MOTOR ASSY DUP

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-L DUP. *(p.414)*
3. Unclamp the clamp on BKT MOTOR DUP TRANS, and remove the harness.
4. Disconnect connector (P/J444) from PWBA DUP-L.
5. Remove the 4 screws (silver, with flange, tapping, 10 mm) fastening BKT MOTOR DUP TRANS to DUPLEX ASSY.

CAUTION

- **When performing the following work, take care not to remove DUPLEX ASSY and BKT MOTOR DUP TRANS too far as they are connected by a harness.**
- **When performing the following work, take care not to drop or lose gears, and other parts.**

6. Remove BKT MOTOR DUP TRANS from DUPLEX ASSY together with PWBA DUP-L and MOTOR ASSY DUP.
7. Unclamp the clamp, and disconnect connector (P/J442) of MOTOR ASSY DUP on PWBA DUP-L.
8. Remove the 4 screws (silver, 5mm) fastening MOTOR ASSY DUP to BKT MOTOR DUP TRANS.
9. Remove MOTOR ASSY DUP from BKT MOTOR DUP TRANS.

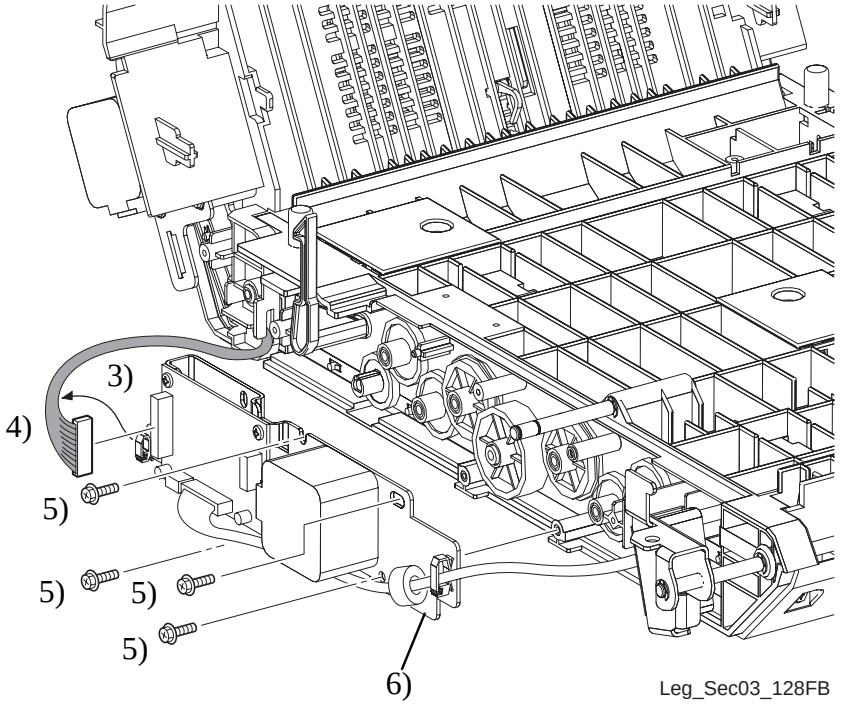

Figure 4-143. Removal of MOTOR ASSY DUP (1)

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of MOTOR ASSY DUP.

1. Match the harness side of MOTOR ASSY DUP with the △ mark on BKT MOTOR DUP TRANS, and attach to MOTOR ASSY DUP.
2. Fasten MOTOR ASSY DUP to BKT MOTOR DUP TRANS with the 4 screws (silver, 5mm).
3. Connect connector (P/J442) of MOTOR ASSY DUP on PWBA DUP-L, and fasten the harness on MOTOR ASSY DUP with the clamp.
4. Match the hole on BKT MOTOR DUP TRANS with the shaft on DUPLEX ASSY, and attach together with PWBA DUP-L and MOTOR ASSY DUP.
5. Fasten BKT MOTOR DUP TRANS to DUPLEX ASSY with the 4 screws (silver, with flange, tapping, 10mm).
6. Connect connector (P/J444) to PWBA DUP-L.
7. Route the harness, and fasten the harness by the clamp on BKT MOTOR DUP TRANS.
8. Attach COVER-L DUP. *(p.414)*
9. Attach DUPLEX ASSY. *(p.412)*

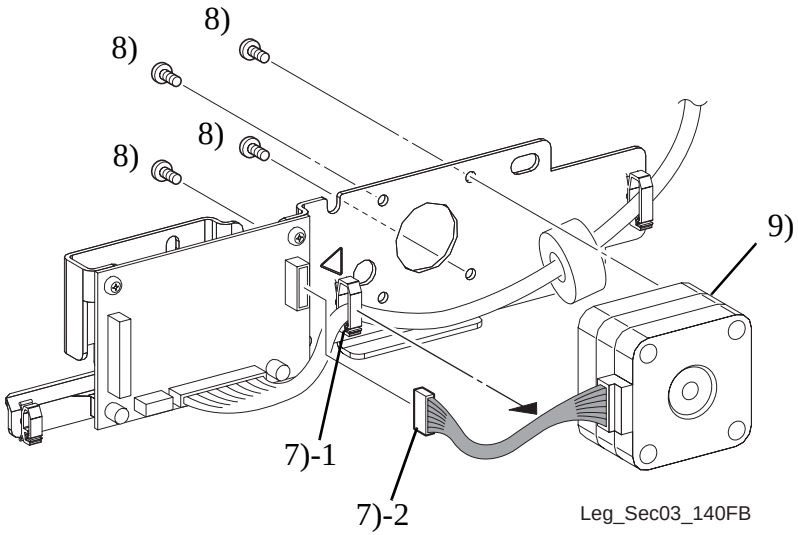

Figure 4-144. Removal of MOTOR ASSY DUP (2)

4.12.27 ROLLER ASSY DUP OUT

REMOVAL

1. Remove DUPLEX ASSY. *(p.412)*
2. Remove COVER-R DUP. *(p.413)*
3. Remove COVER-L DUP. *(p.414)*
4. Remove COVER LOW-DUP TRANS. *(p.436)*
5. Remove COVER UP-DUP TRANS. *(p.437)*
6. Remove the E-ring fastening ROLLER ASSY DUP OUT to DUPLEX ASSY.
7. Remove GEAR 30 OW from the left side of ROLLER ASSY DUP OUT.
8. Remove the left and right BEARING DUP fastening ROLLER ASSY DUP OUT from DUPLEX ASSY.
9. Temporarily slide ROLLER ASSY DUP OUT to the left, and draw out the shaft of ROLLER ASSY DUP OUT from the right-side bearing of DUPLEX ASSY to remove ROLLER ASSY DUP OUT.

REINSTALLATION

1. Insert the shaft left side on ROLLER ASSY DUP OUT into the left-side bearing on DUPLEX ASSY, and slide ROLLER ASSY DUP OUT to the right to attach.
2. Match the double D cut surface of BEARING DUP with the left and right bearings of DUPLEX ASSY, attach BEARING DUP, and fasten ROLLER ASSY DUP OUT.

CAUTION

When performing the following work, pay attention to the attachment direction of GEAR 30 OW.

3. Attach GEAR 30 OW to the left side of ROLLER ASSY DUP OUT with the flange of GEAR 30 OW facing the outside.
4. Fasten the left and right sides of ROLLER ASSY DUP OUT to DUPLEX ASSY with the E-rings.
5. Attach COVER UP-DUP TRANS. *(p.437)*
6. Attach COVER LOW-DUP TRANS. *(p.436)*
7. Attach COVER-L DUP. *(p.414)*
8. Attach COVER-R DUP. *(p.413)*
9. Attach DUPLEX ASSY. *(p.412)*

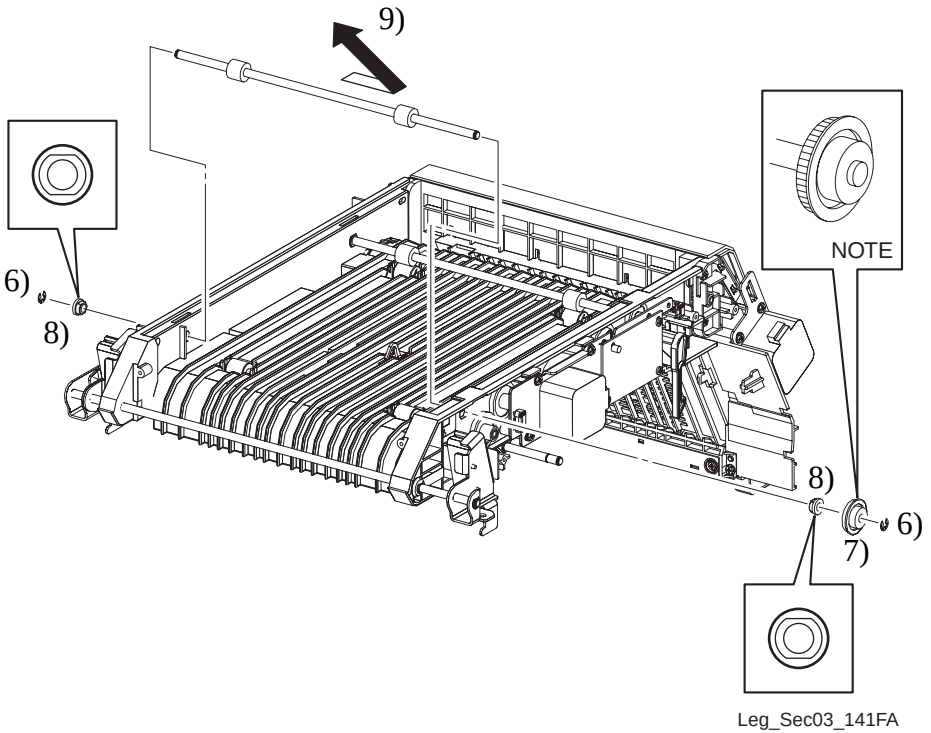

Figure 4-145. Removal of ROLLER ASSY DUP OUT

4.13 500 PAPER CASSETTE & 500 PAPER FEEDER

4.13.1 500 PAPER CASSETTE ASSY

REMOVAL

1. Draw out 500 PAPER CASSETTE ASSY until it comes to a stop, then slightly lift up the front side, and remove 500 PAPER CASSETTE ASSY from 500 PAPER FEEDER.

REINSTALLATION

1. Insert the front side of 500 PAPER CASSETTE ASSY into 500 PAPER FEEDER with the front side of 500 PAPER CASSETTE ASSY slightly lifted up, then hold it horizontal and insert it all the way seated in 500 PAPER FEEDER.

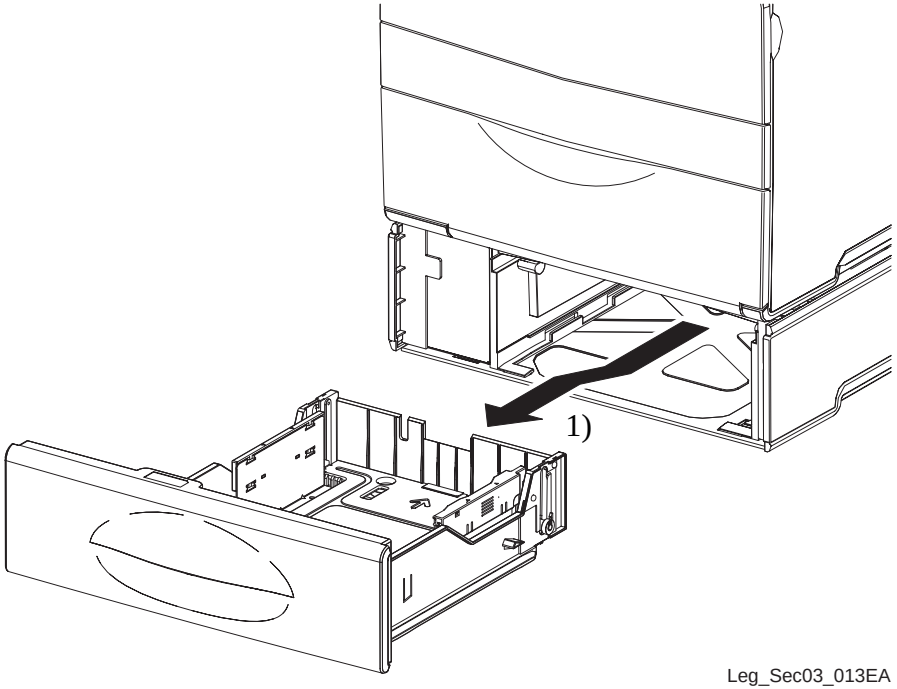

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Figure 4-146. Removal of 500 PAPER CASSETTE ASSY

4.13.2 GUIDE END ASSY

CAUTION

Step numbers with [ ] in the figure indicate the step during attachment.

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove PLATE ASSY BOTTOM 500. *(p.448)*
3. Slide GUIDE END ASSY to the rear, match the 4 protrusions on GUIDE END ASSY with the notches on CASSETTE 500, and lift up to remove.

REINSTALLATION

1. Match the 4 protrusions on GUIDE END ASSY with the notches on CASSETTE 500, and attach.
2. Slide GUIDE END ASSY to the front, and insert the protrusion on GUIDE END ASSY into the groove on PAPER SLIDE 500.
3. Attach PLATE ASSY BOTTOM 500. *(p.448)*
4. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

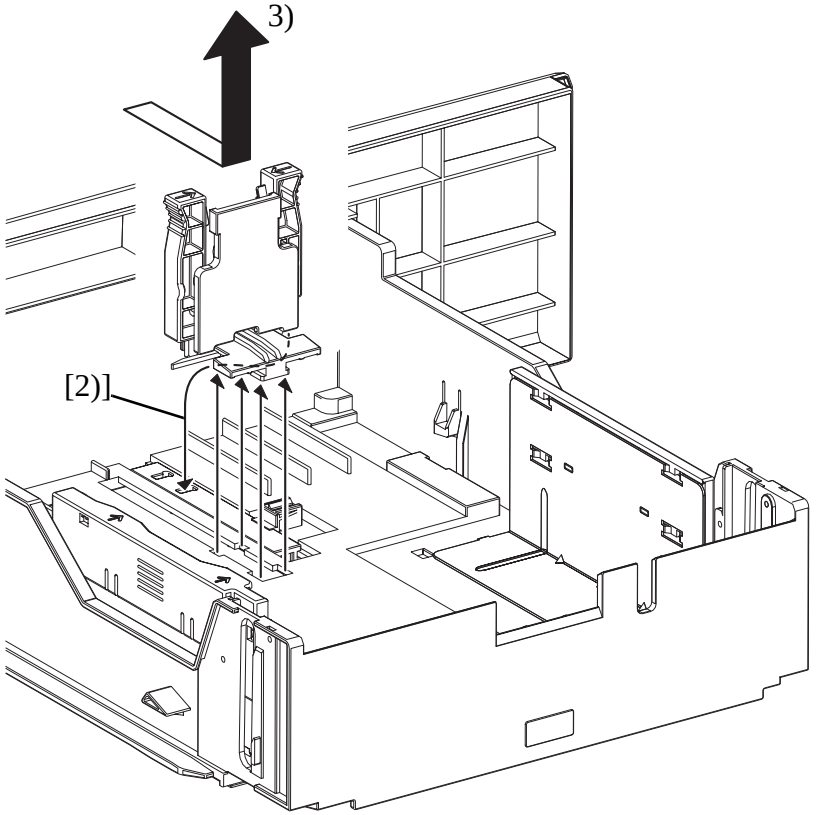

Figure 4-147. Removal of GUIDE END ASSY

4.13.3 PLATE ASSY BOTTOM 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Slide LOCK LIFT R and LOCK LIFT L, and unlock the locks.
3. Unhook the hooks on ROLL LINK fastened to the shaft of PLATE ASSY BOTTOM 500 on both the left and right sides, and remove ROLL LINK, LOCK LIFT R and LOCK LIFT L.
4. Remove the 4 screws (silver, tapping, 6 mm) (2 each on left and right) fastening the left and right PLATE ROLL STOPPER 500s to 500 PAPER CASSETTE ASSY.
5. Remove the protrusion on PLATE ROLL STOPPER from the hole on 500 PAPER CASSETTE ASSY, and remove the left and right PLATE ROLL STOPPERs.
6. Press the two hooks on CASSETTE 500, and release the front side of PLATE ASSY BOTTOM 500.
7. Remove the protrusion of PLATE ASSY BOTTOM 500 from the indent on PAPER SLIDE 500.
8. Draw out the shaft on PLATE ASSY BOTTOM 500 from the oblong hole on CASSETTE 500 while pushing the side of CASSETTE 500 outward, and remove PLATE ASSY BOTTOM 500.

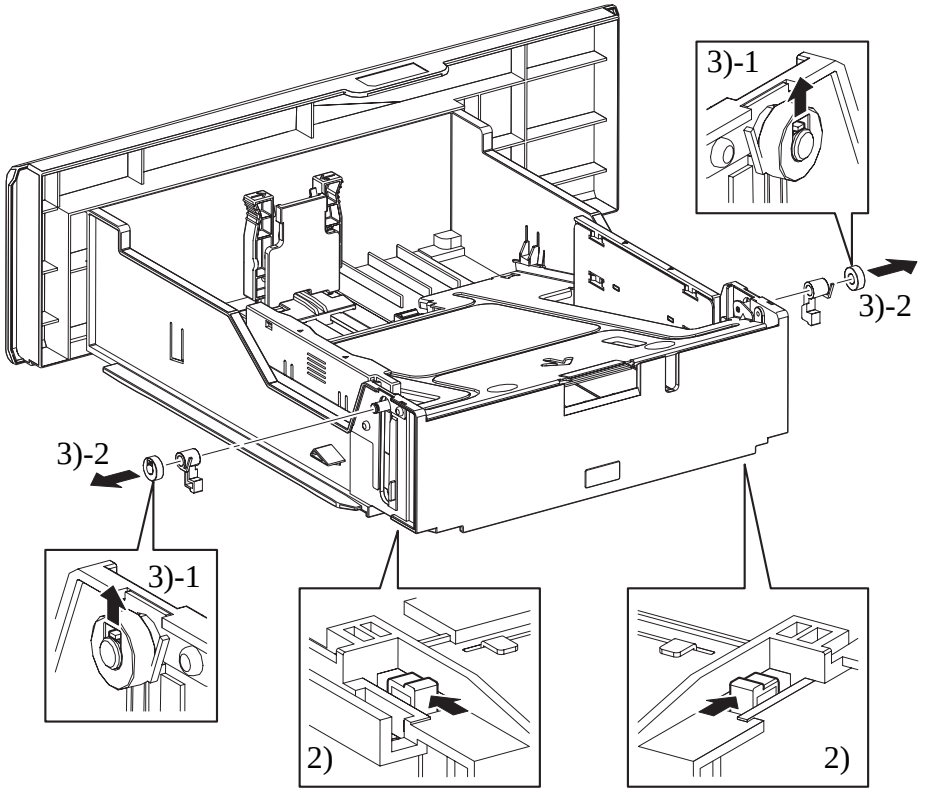

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Figure 4-148. Removal of PLATE ASSY BOTTOM 500 (1)

REINSTALLATION

1. Match the boss on the rear of PLATE ASSY BOTTOM 500 with SPRING NF.

CAUTION

Make sure that the boss on the rear of PLATE ASSY BOTTOM 500 is inserted into SPRING NF.

2. Insert the shaft on PLATE ASSY BOTTOM 500 into the oblong hole on CASSETTE 500 while pushing the side of CASSETTE 500 outward, and attach PLATE ASSY BOTTOM 500.
3. Fasten the front side of PLATE ASSY BOTTOM 500 with the two hooks on CASSETTE 500 while inserting the protrusion on PLATE ASSY BOTTOM 500 into the concave portion on PAPER SLIDE 500.

CAUTION

The protrusion on PLATE ASSY BOTTOM 500 must be inserted into the concave portion on PAPER SLIDE 500.

4. Match the protrusion on PLATE ROLL STOPPER with the hole on 500 PAPER CASSETTE ASSY, and attach the left and right PLATE ROLL STOPPERs.
5. Fasten the left and right PLATE ROLL STOPPERs to 500 PAPER CASSETTE ASSY with the 4 screws (silver, tapping, 6 mm) (2 each on left and right).
6. Attach LOCK LIFT R, LOCK LIFT L and ROLL LINK to the bearing on PLATE ASSY BOTTOM 500 on both the left and right sides, and fasten the hook on ROLL LINK to the groove on the shaft of PLATE ASSY BOTTOM 500.
7. Press PLATE ASSY BOTTOM 500 to lock LOCK LIFT R and LOCK LIFT L.
8. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

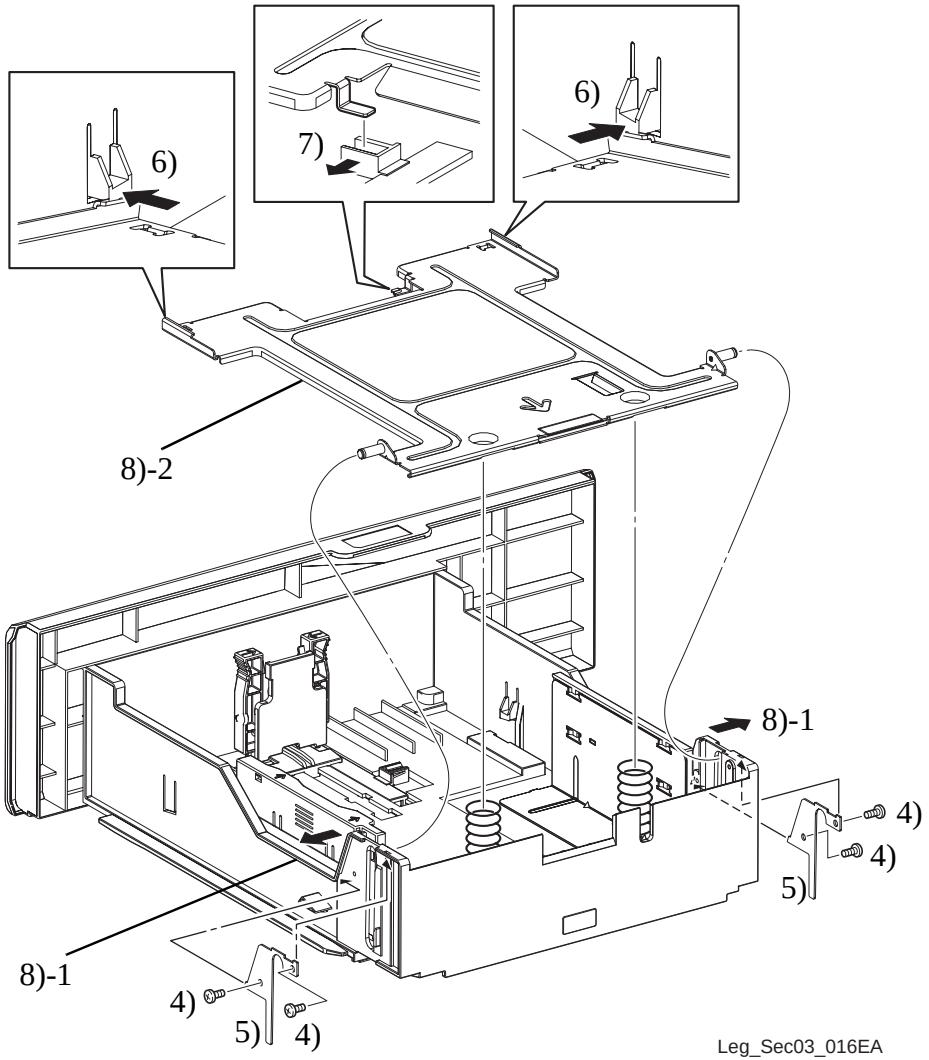

Figure 4-149. Removal of PLATE ASSY BOTTOM 500 (2)

4.13.4 GUIDE PAPER L ASSY 500, GUIDE PAPER R ASSY 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove PLATE ASSY BOTTOM 500. *(p.448)*
3. Unhook the hook on CASSETTE 500 fastening PINION 12, and remove PINION 12.
4. Slide GUIDE PAPER L ASSY 500 to the right, match the 3 protrusions on GUIDE PAPER L ASSY 500 with the notches on CASSETTE 500, and lift up to remove.
5. Slide GUIDE PAPER R ASSY 500 to the left, match the 3 protrusions on GUIDE PAPER R ASSY 500 with the notches on CASSETTE 500, and lift up to remove.

REINSTALLATION

1. Match the 3 protrusions on GUIDE PAPER R ASSY 500 with the notches on CASSETTE 500, and attach.
2. Match the 3 protrusions on GUIDE PAPER L ASSY 500 with the notches on CASSETTE 500, and attach.
3. Set GUIDE PAPER L ASSY 500 and GUIDE PAPER R ASSY 500 to their maximum open states, attach PINION 12 to CASSETTE 500, and fasten with the hooks.
4. Attach PLATE ASSY BOTTOM 500. *(p.453)*
5. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

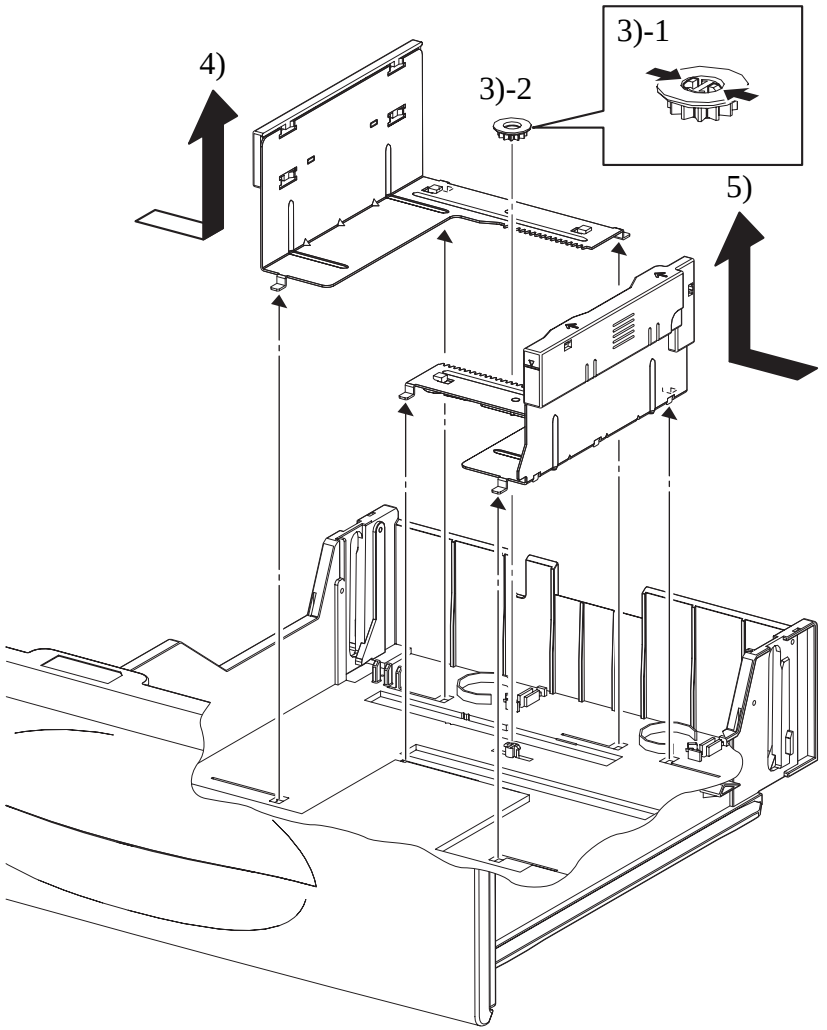

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Figure 4-150. Removal of GUIDE PAPER L ASSY 500 and GUIDE PAPER R ASSY 500

4.13.5 COVER FRONT CST 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove the 2 screws (silver, with flange, tapping, 8 mm) fastening COVER FRONT CST 500 to 500 PAPER CASSETTE ASSY.
3. Unhook the hook on the base of COVER FRONT CST 500 using a small screwdriver or a similar tool, pull down COVER FRONT CST 500 towards you to release the three protrusions on the rear of COVER FRONT CST 500 from the hole on the 500 PAPER CASSETTE ASSY, and remove COVER FRONT CST 500.

REINSTALLATION

1. Match the three protrusions on the rear of COVER FRONT CST 500 with the hole on 500 PAPER CASSETTE ASSY, attach COVER FRONT CST 500, and fasten the hook on the base of COVER FRONT CST 500.
2. Fasten COVER FRONT CST 500 to 500 PAPER CASSETTE ASSY with the 2 screws (silver, with flange, tapping, 8 mm).
3. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

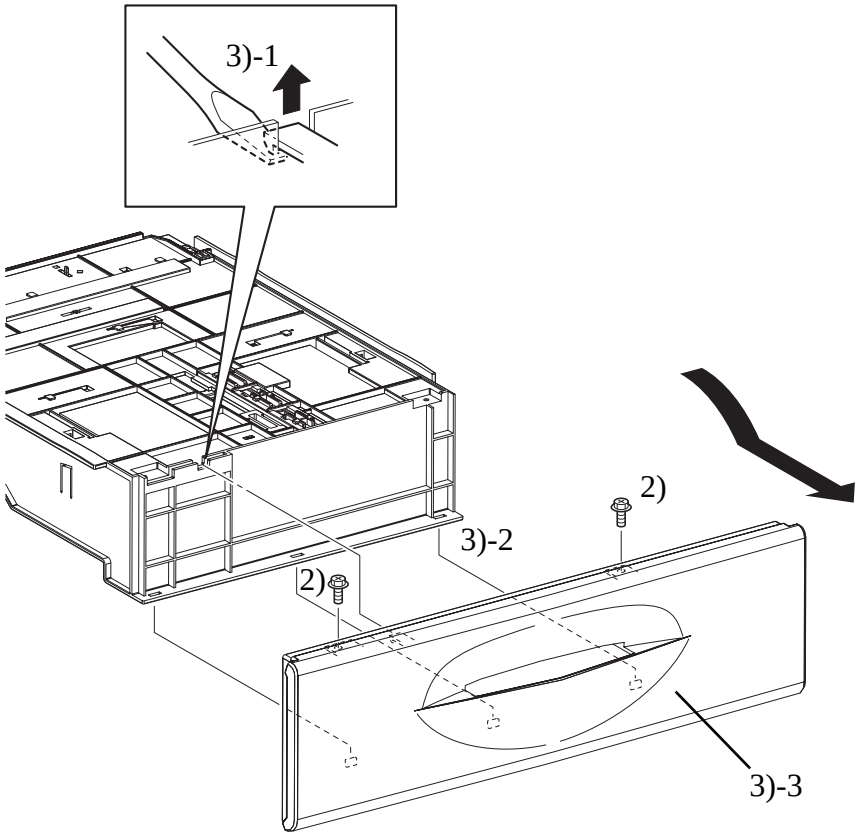

Figure 4-151. Removal of COVER FRONT CST 500

4.13.6 500 PAPER FEEDER ASSY (REFERENCE ONLY)

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Turn LOCK MC TO FDR on both the left and right sides CW by 90° to unlock from the main unit.
3. Holding the pitted area on the lower side of both the left and right sides of the main unit, lift up the main unit, and remove from 500 PAPER FEEDER ASSY.

REINSTALLATION

CAUTION

When performing the following work, the lengthwise direction of the oval shape (section that enters the attachment hole on the main unit) on the top of LOCK MC TO FDR must be facing left and right.

1. Match the attachment holes on the main unit with the three bosses on 500 PAPER FEEDER ASSY, and attach the main unit to 500 PAPER FEEDER ASSY.
2. Turn LOCK MC TO FDR on both the left and right sides CCW by 90° to lock with the main unit.
3. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

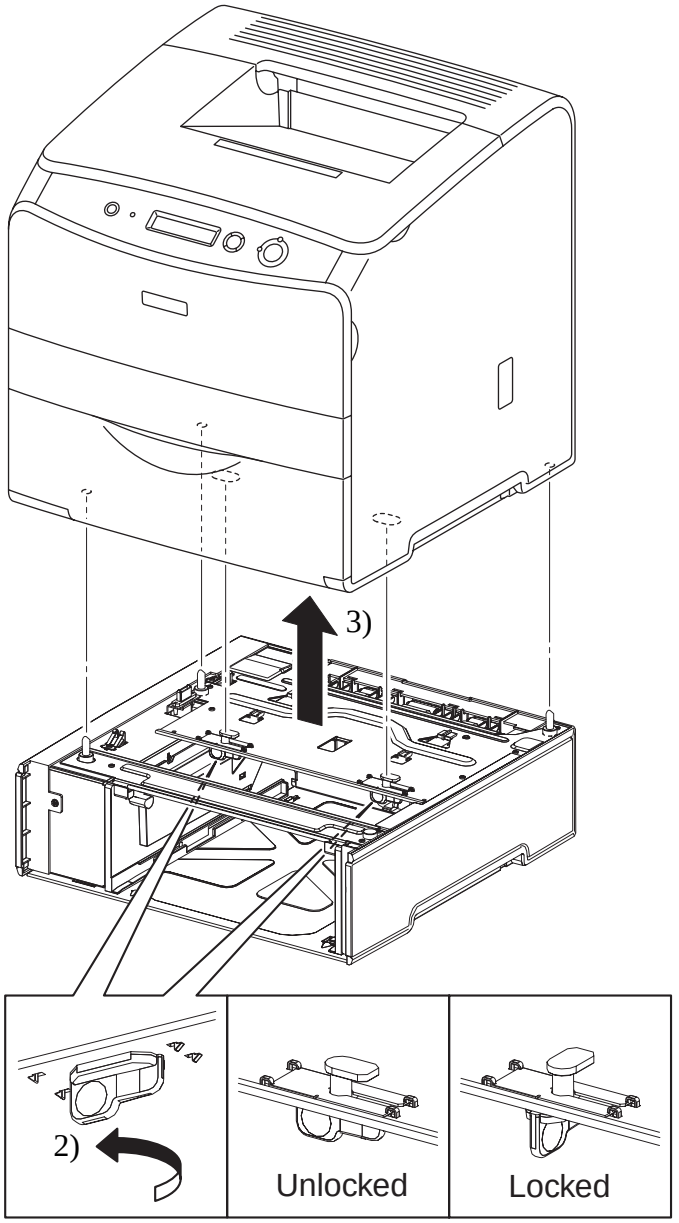

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Figure 4-152. Removal of 500 PAPER FEEDER ASSY

4.13.7 COVER LEFT 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove the 5 screws (silver, with flange, 8 mm) fastening COVER LEFT 500 to 500 PAPER FEEDER ASSY.
3. Remove COVER LEFT 500 from 500 PAPER FEEDER ASSY while pulling the rear side of COVER LEFT 500 outward.

REINSTALLATION

1. Match the boss on COVER LEFT 500 with the hole on 500 PAPER FEEDER ASSY while inserting the metal plate section of the frame at the front and rear of 500 PAPER FEEDER ASSY into the clearance between the rib sections on the front and rear of COVER LEFT 500, and attach COVER LEFT 500.
2. Fasten COVER LEFT 500 to 500 PAPER FEEDER ASSY with the 5 screws (silver, with flange, 8 mm).
3. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

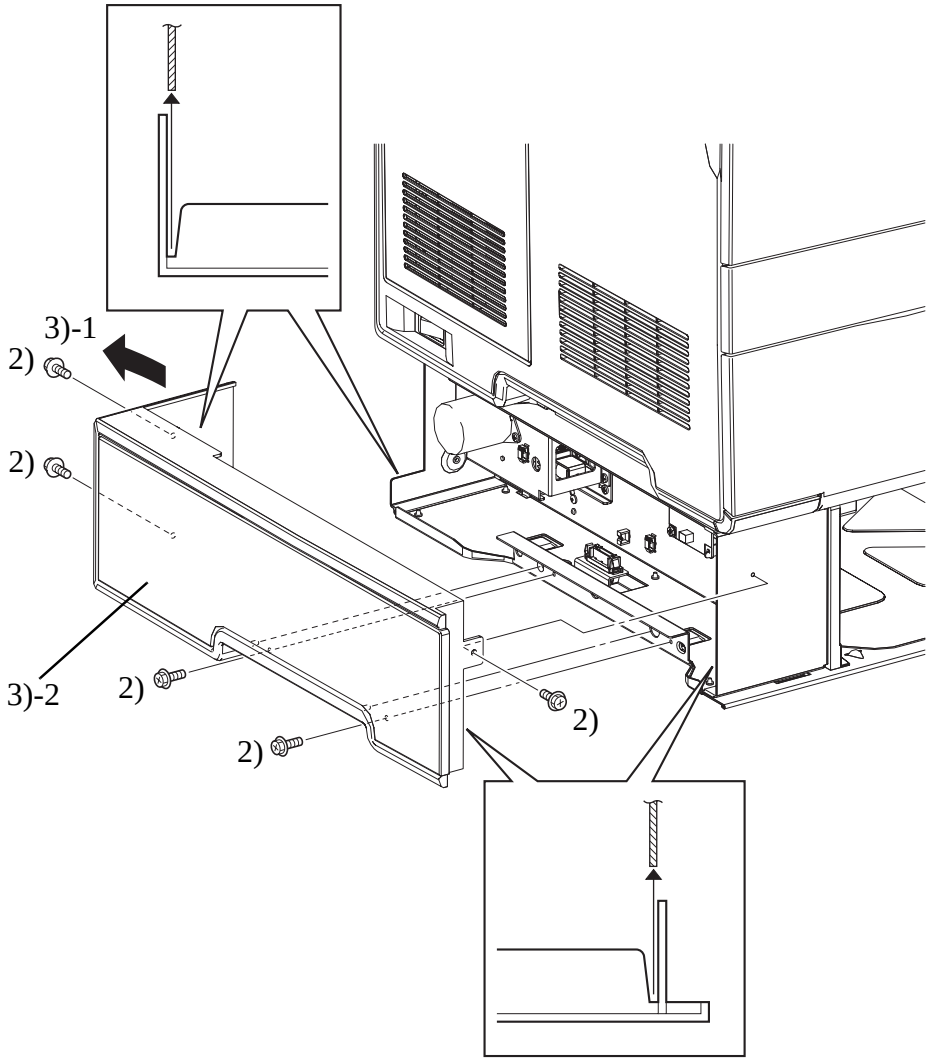

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Figure 4-153. Removal of COVER LEFT 500

4.13.8 CHUTE FDR ASSY 500

REMOVAL

CAUTION

When performing the following work, take care not to damage the boss on CHUTE FDR ASSY 500.

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove COVER RIGHT 500. *(p.455)*
3. Remove the screw (silver, with flange, tapping, 8 mm) fastening CHUTE FDR ASSY 500.
4. Open CHUTE FDR ASSY 500.
5. Press the attachment section on the right side of CHUTE FDR ASSY 500 with your finger to bend down, draw out the boss on the right side from the hole on 500 PAPER FEEDER ASSY, and remove CHUTE FDR ASSY 500.

REINSTALLATION

1. With CHUTE FDR ASSY 500 slightly open, insert the boss on the left side into the hole on 500 PAPER FEEDER ASSY, then attach CHUTE FDR ASSY 500 to 500 PAPER FEEDER ASSY while bending down the boss on the right side.
2. Close CHUTE FDR ASSY 500.
3. Fasten CHUTE FDR ASSY 500 with the screw (silver, with flange, tapping, 8 mm).
4. Attach COVER RIGHT 500. *(p.455)*
5. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

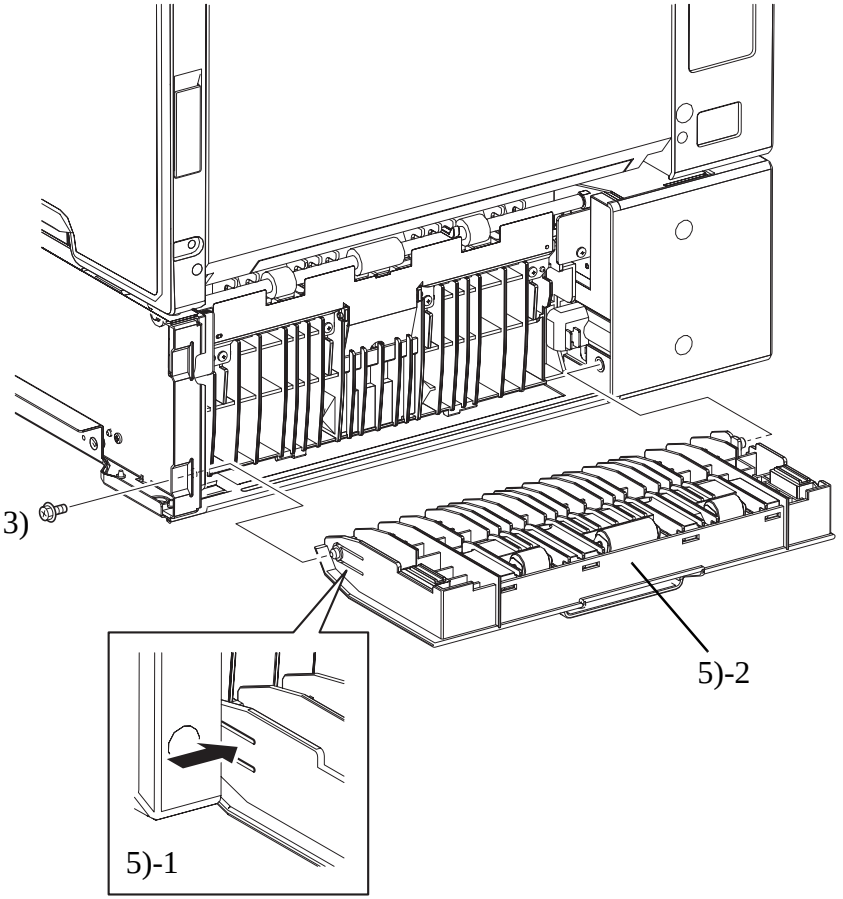

Figure 4-154. Removal of CHUTE FDR ASSY 500

4.13.9 COVER RIGHT 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove the 5 screws (silver, with flange, 8 mm) fastening COVER RIGHT 500 to 500 PAPER FEEDER ASSY.
3. Remove COVER RIGHT 500 from 500 PAPER FEEDER ASSY.

REINSTALLATION

1. Match the boss on COVER RIGHT 500 with the hole on 500 PAPER FEEDER ASSY while inserting the metal plate section of the frame at the front and rear of 500 PAPER FEEDER ASSY into the clearance between the rib sections on the front and rear of COVER RIGHT 500, and attach COVER RIGHT 500.
2. Fasten COVER RIGHT 500 to 500 PAPER FEEDER ASSY with the 5 screws (silver, with flange, 8 mm).
3. Attach 500 PAPER FEEDER ASSY. *(p.446)*

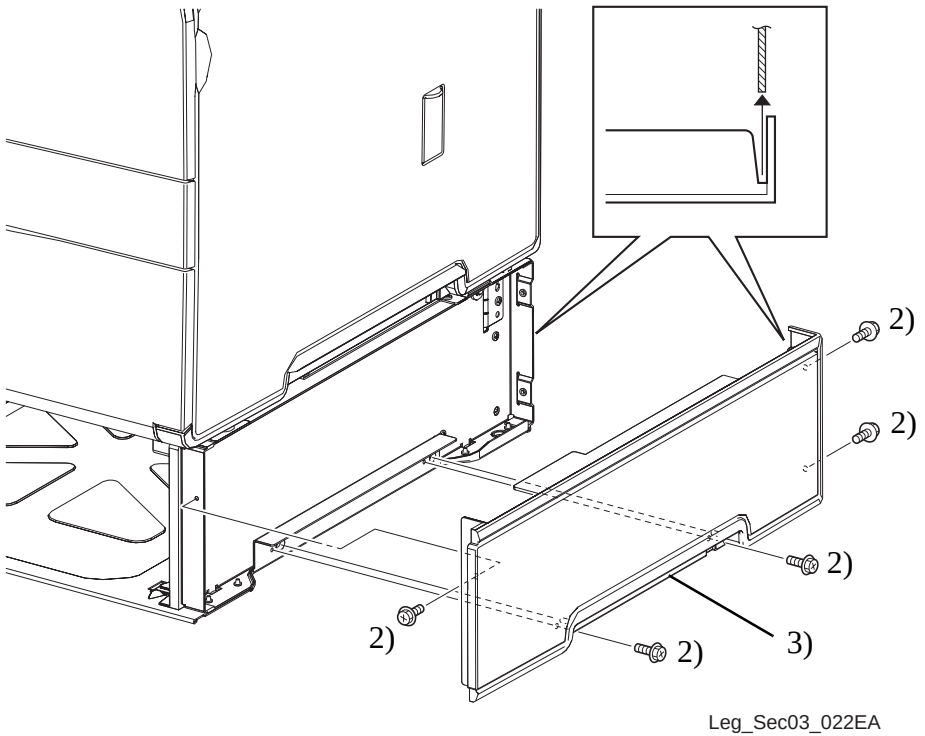

Figure 4-155. Removal of COVER RIGHT 500

4.13.10 PWBA TRAY 500

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER LEFT 500. *(p.453)*
2. Disconnect connector (P/J435), connector (P/J436) and connector (P/J437) from PWBA TRAY 500.
3. Remove the 3 screws (silver, with flange, 6 mm) fastening PWBA TRAY 500 to 500 PAPER FEEDER ASSY.
4. Remove PWBA TRAY 500 from 500 PAPER FEEDER ASSY.

REINSTALLATION

1. Match the notch at the bottom right of PWBA TRAY 500 with the protrusion on 500 PAPER FEEDER ASSY to attach.
2. Fasten PWBA TRAY 500 to 500 PAPER FEEDER ASSY with the 3 screws (silver, with flange, 6 mm).
3. Connect connector (P/J435), connector (P/J436) and connector (P/J437) to PWBA TRAY 500.
4. Attach COVER LEFT 500. *(p.453)*

Table 4-12. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J435	Service Req E547	Printing is not possible.	Paper Feeder cannot be detected.
P/J437	G Open	Printing is not possible.	Paper Feeder Rear Cover is open.

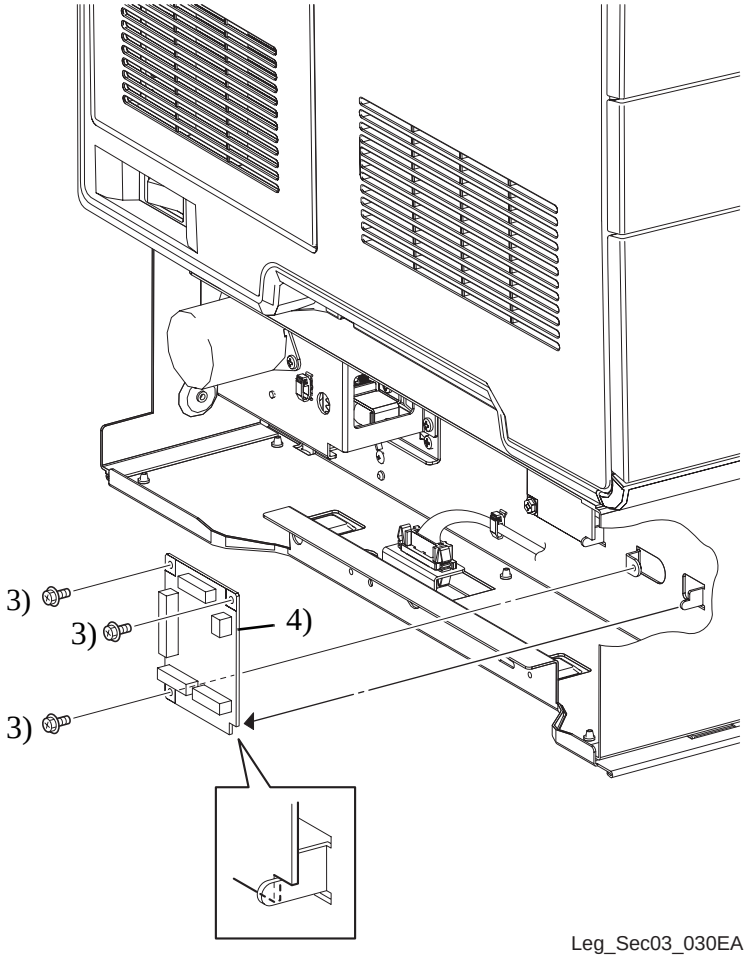

Figure 4-156. Removal of PWBA TRAY 500

4.13.11 PWBA MOT

CAUTION

Avoid staticky places such as on a carpet especially when removing or inserting a Board. Before starting work with the Board, make sure to touch metallic portion of the printer connected to the earth to let your body come out free of static electricity.

REMOVAL

1. Remove COVER LEFT 500. *(p.453)*
2. Disconnect connector (P/J440) and connector (P/J446) from PWBA MOT.
3. Remove the 3 screws (silver, with flange, 6 mm) fastening PWBA MOT to 500 PAPER FEEDER ASSY.
4. Remove PWBA MOT from 500 PAPER FEEDER ASSY.

REINSTALLATION

1. Match the notch at the bottom right of PWBA MOT with the protrusion on 500 PAPER FEEDER ASSY to attach.
2. Fasten PWBA MOT to 500 PAPER FEEDER ASSY with the 3 screws (silver, with flange, 6 mm).
3. Connect connector (P/J440) and connector (P/J446) to PWBA MOT.
4. Attach COVER LEFT 500. *(p.453)*

Table 4-13. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J446	Jam LC, G	FEEDER Jam	---

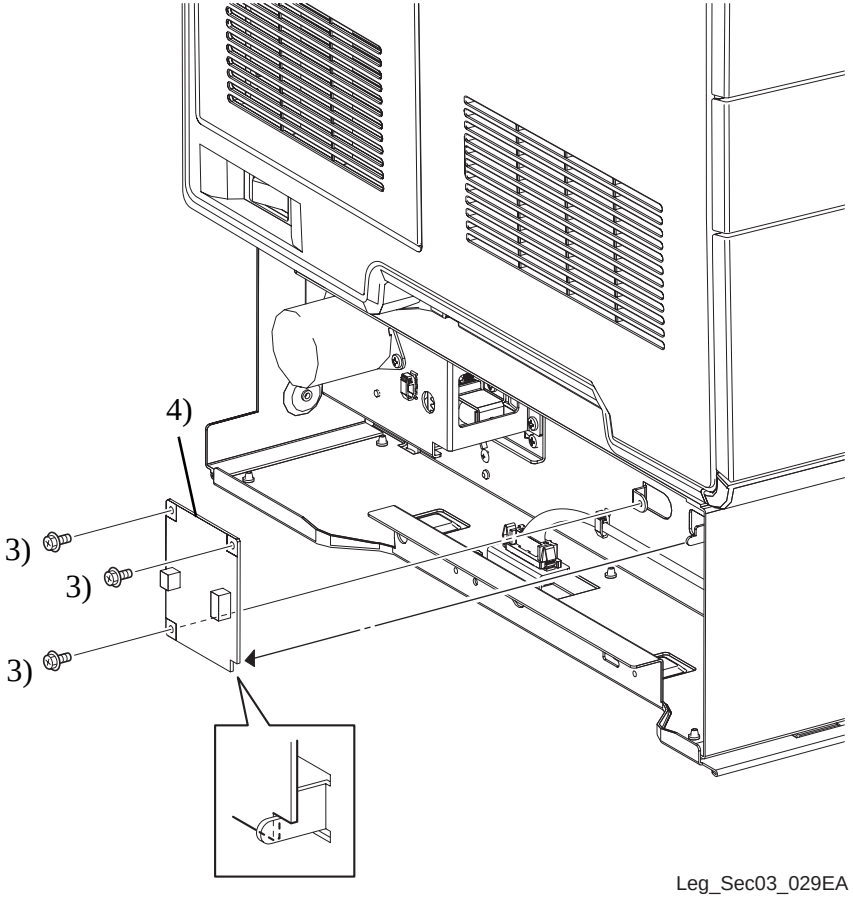

Figure 4-157. Removal of PWBA MOT

4.13.12 DRIVE ASSY FEED

REMOVAL

1. Remove COVER LEFT 500. *(p.453)*
2. Remove CLUTCH ASSY FEED. *(p.461)*

CAUTION

When performing the following work, leave the intermediate connector of the connector (P/J610) on SOLENOID FEED on the harness side.

3. Disconnect connector (P/J446) from PWBA MOT and connector (P/J610) from SOLENOID FEED.

CAUTION

The screws to be removed in the following work are those fastening the four corners (marked by △) on DRIVE ASSY FEED. Other screws must not be removed.

4. Remove the 4 screws (silver, 6 mm) fastening DRIVE ASSY FEED to 500 PAPER FEEDER ASSY.
5. Remove the protrusion on the top right of DRIVE ASSY FEED from 500 PAPER FEEDER ASSY, and remove DRIVE ASSY FEED.

REINSTALLATION

1. Hook the protrusion on the top right of DRIVE ASSY FEED onto the notch on 500 PAPER FEEDER ASSY, and match the hole on DRIVE ASSY FEED with the boss on 500 PAPER FEEDER ASSY to attach.
2. Fasten DRIVE ASSY FEED to 500 PAPER FEEDER ASSY with the 4 screws (silver, 6 mm).
3. Connect connector (P/J446) to PWBA MOT and connector (P/J610) to SOLENOID FEED.
4. Attach CLUTCH ASSY FEED. *(p.461)*
5. Attach COVER LEFT 500. *(p.453)*

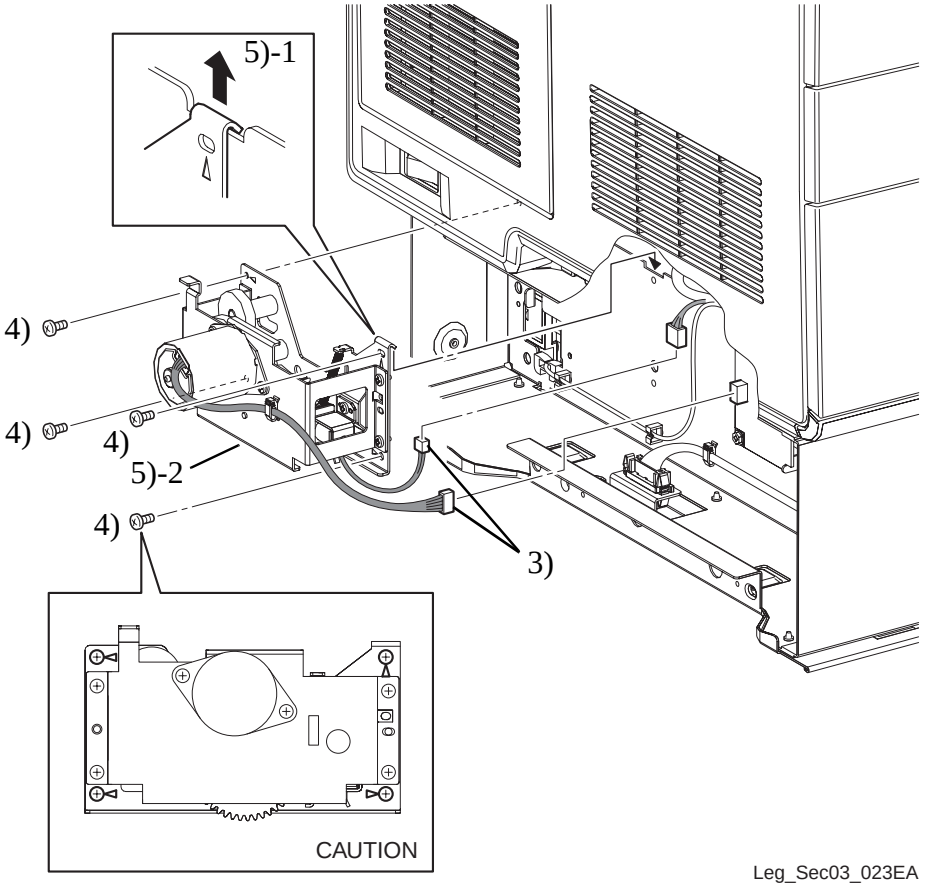

Figure 4-158. Removal of DRIVE ASSY FEED

Table 4-14. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J446	Jam LC, G	FEEDER Jam	---
P/J610	Paper Out LC1	Printing is not possible.	No paper in Paper Cassette

4.13.13 SOLENOID FEED

REMOVAL

1. Remove COVER LEFT 500. *(p.453)*
2. Remove CLUTCH ASSY FEED. *(p.461)*
3. Remove DRIVE ASSY FEED. *(p.458)*
4. Remove the screw (silver, 6 mm) fastening SOLENOID FEED to DRIVE ASSY FEED.
5. Remove SOLENOID FEED from DRIVE ASSY FEED.

REINSTALLATION

1. Match the hole on SOLENOID FEED with the boss on DRIVE ASSY FEED.
2. Fasten SOLENOID FEED to DRIVE ASSY FEED with the screw (silver, 6 mm).
3. Attach DRIVE ASSY FEED. *(p.458)*
4. Attach CLUTCH ASSY FEED. *(p.461)*
5. Attach COVER LEFT 500. *(p.453)*

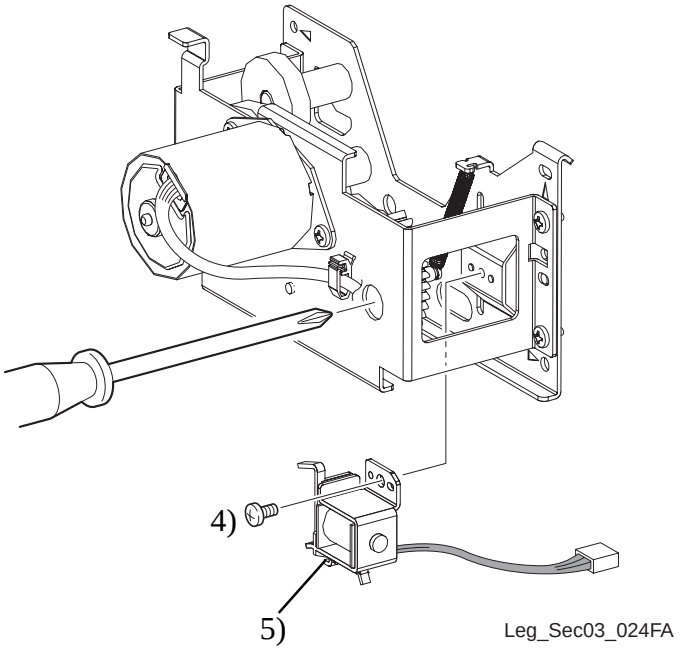

Figure 4-159. Removal of SOLENOID FEED

4.13.14 MOTOR ASSY FEEDER

REMOVAL

1. Remove COVER LEFT 500. *(p.453)*
2. Unclamp the clamp on DRIVE ASSY FEED, and remove the harness on MOTOR ASSY FEEDER.
3. Disconnect connector (P/J446) from PWBA MOT.
4. Remove the 2 screws (silver, 6 mm) fastening MOTOR ASSY FEEDER to DRIVE ASSY FEED.
5. Remove MOTOR ASSY FEEDER from DRIVE ASSY FEED.

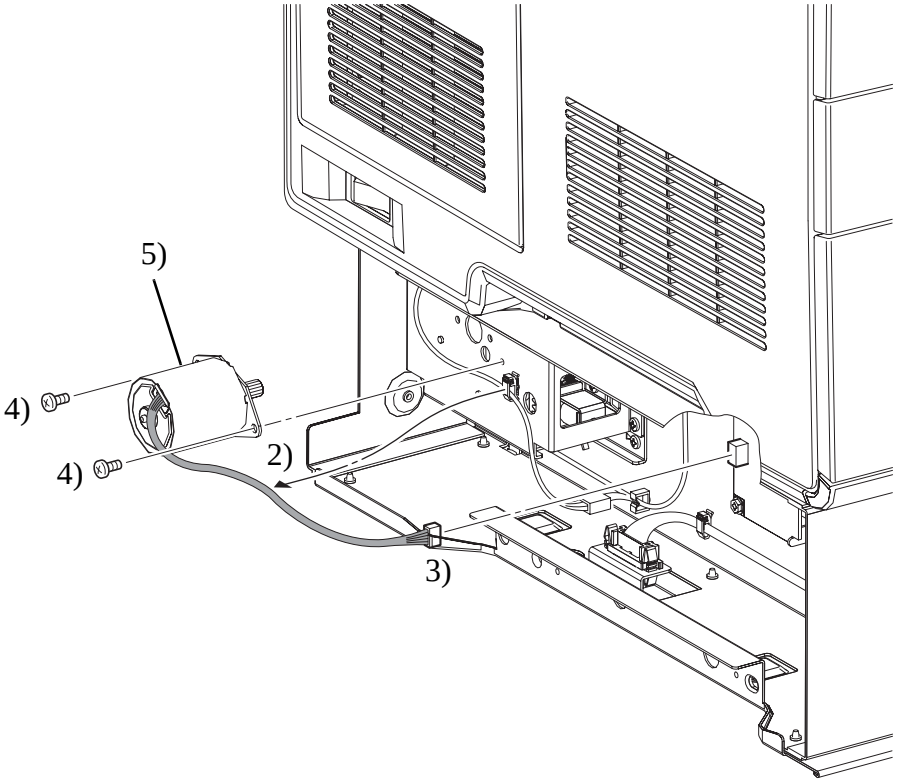

Figure 4-160. Removal of MOTOR ASSY FEEDER

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of MOTOR ASSY FEEDER.

1. Attach MOTOR ASSY FEEDER to DRIVE ASSY FEED with the harness of MOTOR ASSY FEEDER facing up.
2. Fasten MOTOR ASSY FEEDER to DRIVE ASSY FEED with the 2 screws (silver, 6 mm).
3. Connect connector (P/J446) to PWBA MOT.
4. Fasten the harness on MOTOR ASSY FEEDER with the clamp on DRIVE ASSY FEED.
5. Attach COVER LEFT 500. *(p.453)*

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J446	Jam LC, G	FEEDER Jam	---

4.13.15 CLUTCH ASSY FEED

REMOVAL

1. Remove COVER LEFT 500. *(p.453)*
2. Unclamp the clamp on DRIVE ASSY FEED, and remove the harness on CLUTCH ASSY FEED.
3. Disconnect connector (P/J609) from CLUTCH ASSY FEED.
4. Remove the KL ring fastening CLUTCH ASSY FEED to 500 PAPER FEEDER ASSY.
5. Remove CLUTCH ASSY FEED from 500 PAPER FEEDER ASSY.

REINSTALLATION

1. Match the hole position of CLUTCH ASSY FEED with the D cut surface on the shaft of ROLL ASSY TURN 500, and attach CLUTCH ASSY FEED so that the protrusion of DRIVE ASSY FEED enters the concave portion on CLUTCH ASSY FEED.
2. Fasten CLUTCH ASSY FEED to 500 PAPER FEEDER ASSY with the KL ring.
3. Connect connector (P/J609) to CLUTCH ASSY FEED.
4. Fasten the harness on CLUTCH ASSY FEED with the clamp on DRIVE ASSY FEED.
5. Attach COVER LEFT 500. *(p.453)*

Table 4-15. Symptoms when the connector is Loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J609	Paper Out LC1	Printing is not possible.	No paper in Paper Cassette

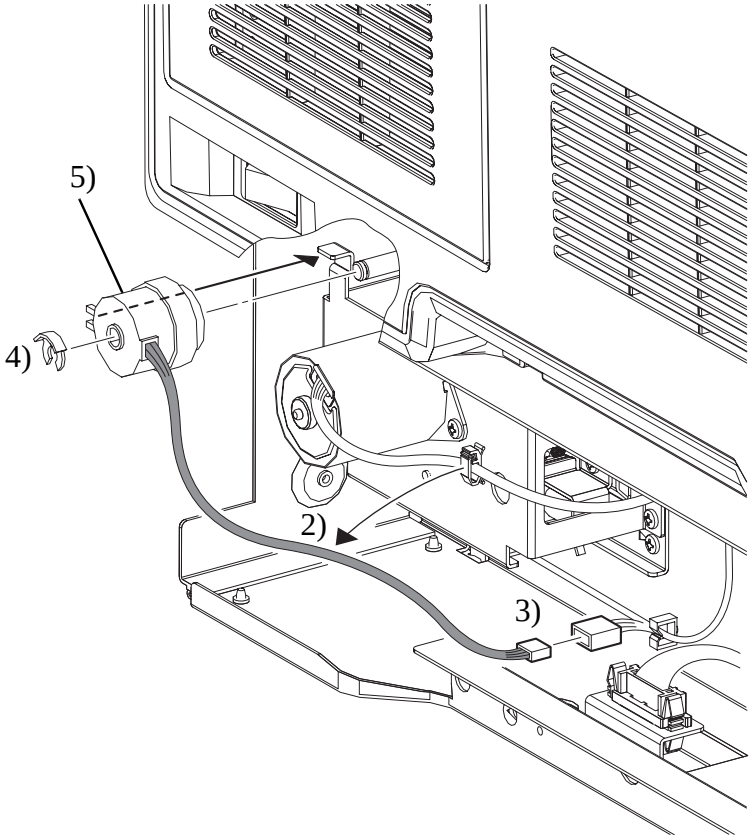

Figure 4-161. Removal of CLUTCH ASSY FEED

4.13.16 HARNESS-ASSY FEED 1

REMOVAL

1. Remove 500 PAPER FEEDER ASSY. *(p.452)*
2. Remove COVER LEFT 500. *(p.453)*
3. Unclamp the clamp fastening the harness of HARNESS-ASSY FEED 1.
4. Disconnect connector (P/J435) from PWBA-TRAY 500.
5. Unhook the 2 hooks fastening HARNESS-ASSY FEED 1 to 500 PAPER FEEDER ASSY, and remove HARNESS-ASSY FEED 1.

REINSTALLATION

1. Pass the connector (P/J43) on HARNESS-ASSY FEED through the hole on 500 PAPER FEEDER ASSY.
2. Attach HARNESS-ASSY FEED 1 to 500 PAPER FEEDER ASSY, and fasten with the hook.
3. Connect connector (P/J435) to PWBA-TRAY 500.
4. Fasten the harness of HARNESS-ASSY FEED 1 with the clamp.
5. Attach COVER LEFT 500. *(p.453)*
6. Attach 500 PAPER FEEDER ASSY. *(p.452)*

Table 4-16. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J435	Service Req E547	Printing is not possible.	Paper Feeder cannot be detected.

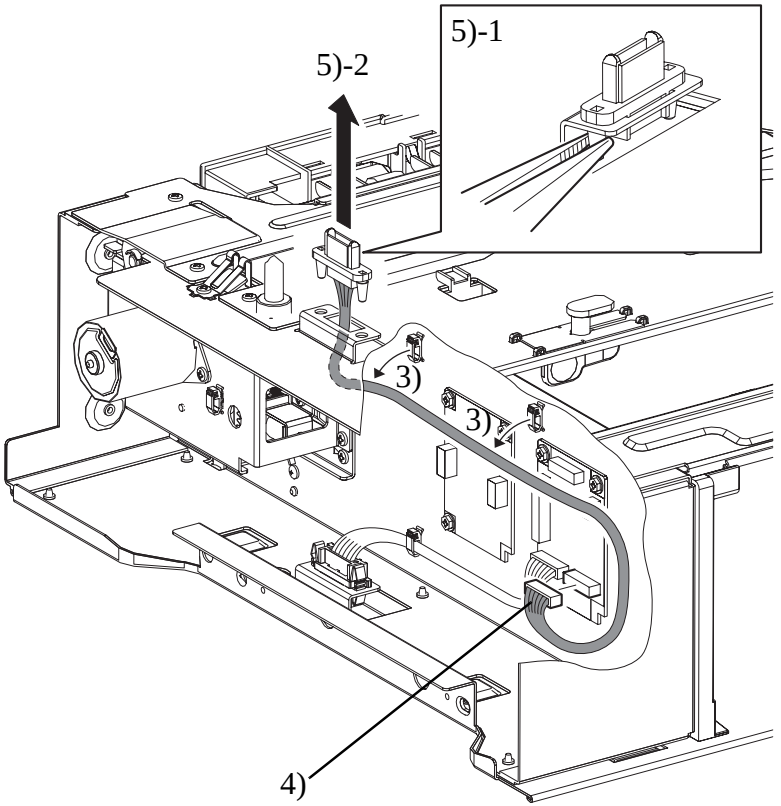

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Figure 4-162. Removal of HARNESS-ASSY FEED 1

4.13.17 ROLL ASSY TURN 500

REMOVAL

1. Remove CHUTE FDR ASSY 500. *(p.454)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove COVER RIGHT 500. *(p.455)*
4. Remove CLUTCH ASSY FEED. *(p.461)*
5. Remove DRIVE ASSY FEED. *(p.458)*
6. Remove HOUSING ASSY FEED. *(p.476)*
7. Remove CHUTE ASSY 500. *(p.466)*
8. Remove the E-rings fastening both sides of the shaft on ROLL ASSY TURN 500 from 500 PAPER FEEDER ASSY.
9. Remove the left and right BEARING FEEDs fastening ROLL ASSY TURN 500 from 500 PAPER FEEDER ASSY.
10. Temporarily slide ROLL ASSY TURN 500 to the left, and draw out the shaft of ROLL ASSY TURN 500 from the right-side bearing on 500 PAPER FEEDER ASSY to remove ROLL ASSY TURN 500.

REINSTALLATION

1. Insert the shaft left side on ROLL ASSY TURN 500 into the left-side bearing on 500 PAPER FEEDER ASSY, and slide ROLL ASSY TURN to the right to attach.
2. Match the double D cut surface of BEARING FEED with the left and right bearings of 500 PAPER FEEDER ASSY, attach BEARING FEED, and fasten ROLL ASSY TURN 500.
3. Fasten the shafts on both sides on ROLL ASSY TURN to 500 PAPER FEEDER ASSY with the E-rings.
4. Attach CHUTE ASSY 500. *(p.466)*
5. Attach HOUSING ASSY FEED. *(p.476)*
6. Attach DRIVE ASSY FEED. *(p.458)*
7. Attach CLUTCH ASSY FEED. *(p.461)*
8. Attach COVER RIGHT 500. *(p.455)*
9. Attach COVER LEFT 500. *(p.453)*
10. Attach CHUTE FDR ASSY 500. *(p.454)*

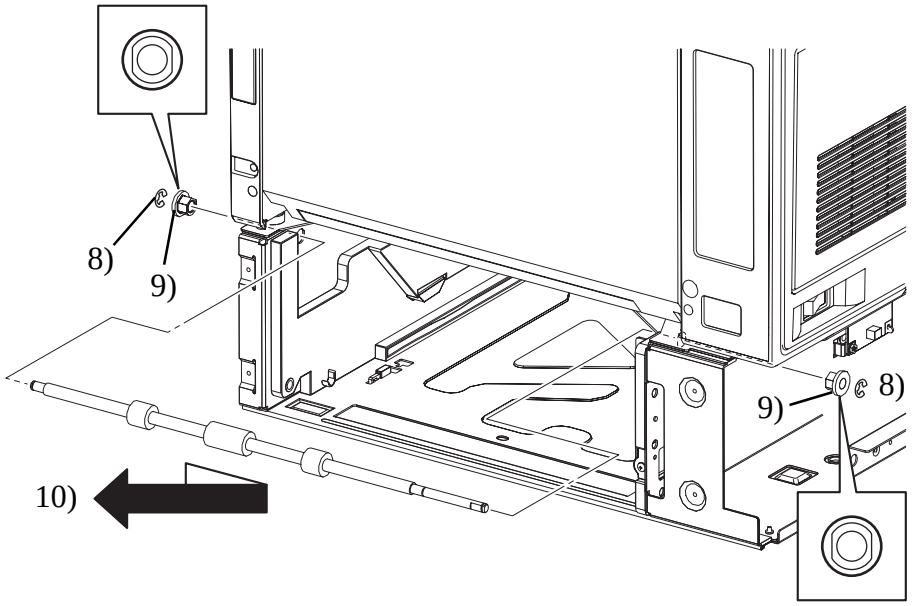

Figure 4-163. Removal of ROLL ASSY TURN 500

4.13.18 SWITCH FEEDER DOOR

CAUTION

Step numbers with [ ] in the figure indicate the step during attachment.

REMOVAL

1. Remove CHUTE FDR ASSY 500. *(p.454)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove the screw (silver, tapping, 8 mm) fastening CAP FEEDER to 500 PAPER FEEDER ASSY.
4. Remove CAP FEEDER from 500 PAPER FEEDER ASSY.
5. Unhook the 2 hooks fastening SWITCH FEEDER DOOR to 500 PAPER FEEDER ASSY, and remove SWITCH FEEDER DOOR.
6. Disconnect connector (P/J121) from SWITCH FEEDER DOOR.

REINSTALLATION

1. Connect connector (P/J121) to SWITCH FEEDER DOOR.
2. Match the hook on SWITCH FEEDER DOOR with the attachment position, and attach to 500 PAPER FEEDER ASSY.
3. Pull the harness of the connector on SWITCH FEEDER DOOR from the outside of 500 PAPER FEEDER ASSY, and take up any slack from the harness on the SWITCH FEEDER DOOR side.
4. Match the boss on CAP FEEDER with the hole on 500 PAPER FEEDER ASSY, and attach CAP FEEDER.
5. Fasten CAP FEEDER to 500 PAPER FEEDER ASSY with the screw (silver, tapping, 8 mm).
6. Attach COVER LEFT 500. *(p.453)*
7. Attach CHUTE FDR ASSY 500. *(p.454)*

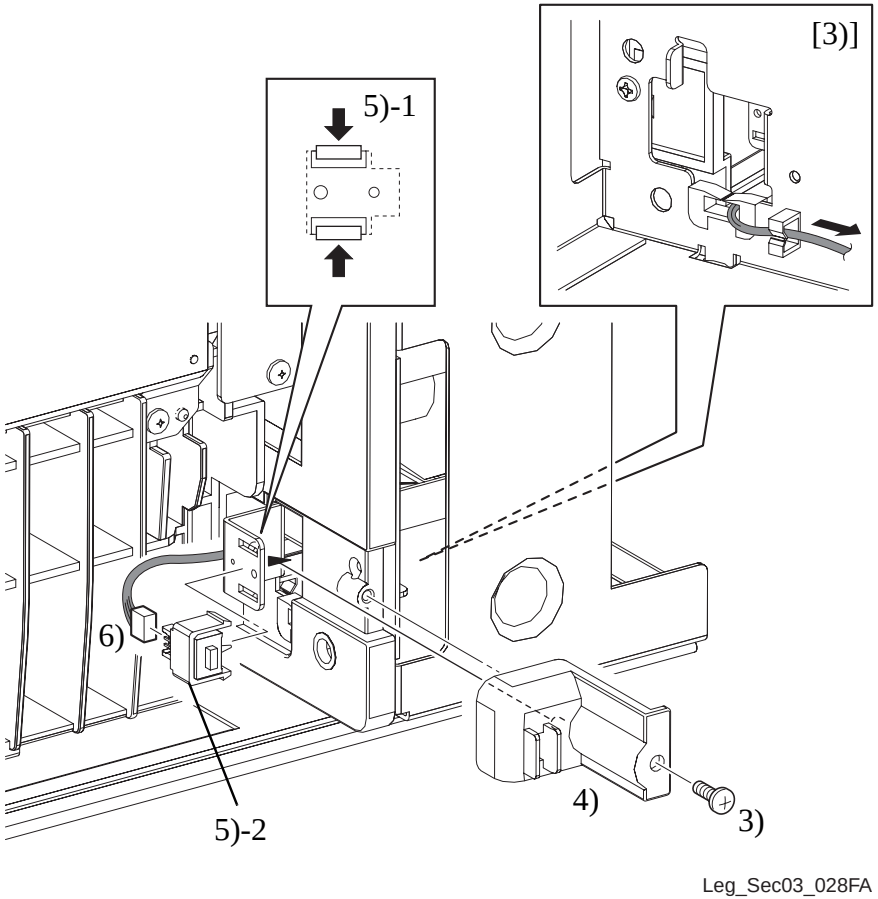

Figure 4-164. Removal of SWITCH FEEDER DOOR

Table 4-17. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J121	G Open	Printing is not possible.	Paper Feeder Rear Cover is open.

4.13.19 HARNESS-ASSY FEED 2

REMOVAL

1. Remove 500 PAPER FEEDER ASSY. *(p.452)*
2. Remove COVER LEFT 500. *(p.453)*
3. Unclamp the clamp fastening the harness of HARNESS-ASSY FEED 2.
4. Disconnect connector (P/J436) from PWBA-TRAY 500.
5. Unhook the 2 hooks fastening HARNESS-ASSY FEED 2 to 500 PAPER FEEDER ASSY, and remove HARNESS-ASSY FEED 2.

REINSTALLATION

1. Attach HARNESS-ASSY FEED 2 to 500 PAPER FEEDER ASSY, and fasten with the hook.
2. Connect connector (P/J436) to PWBA-TRAY 500.
3. Fasten the harness of HARNESS-ASSY FEED 2 with the clamp.
4. Attach COVER LEFT 500. *(p.453)*
5. Attach 500 PAPER FEEDER ASSY. *(p.452)*

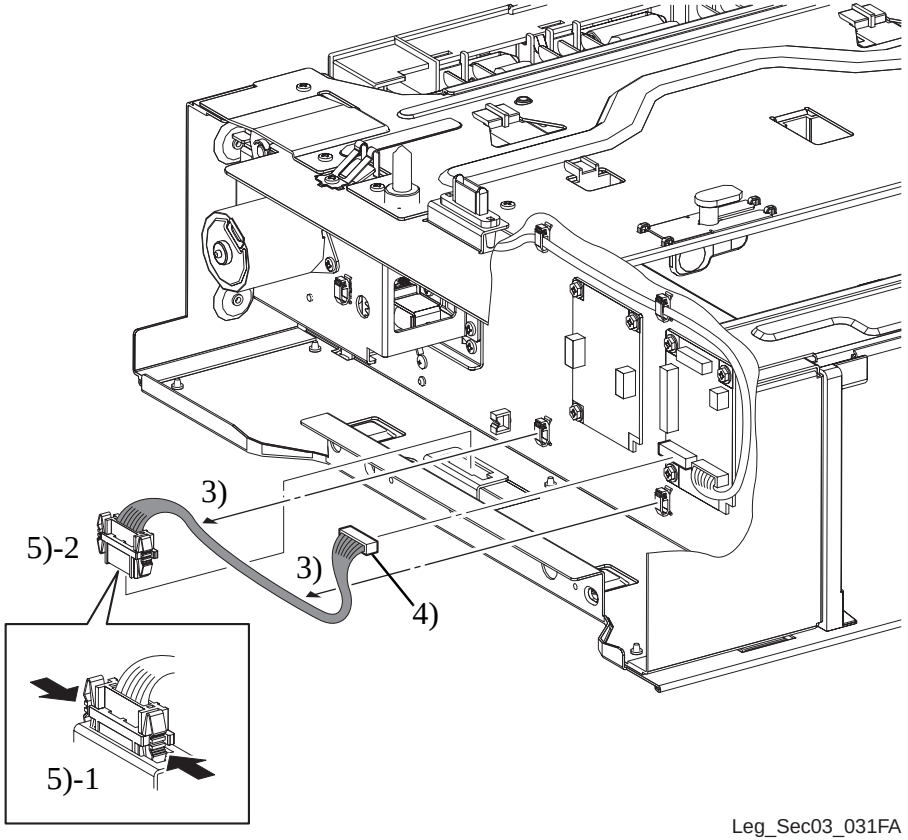

Figure 4-165. Removal of HARNESS-ASSY FEED 2

4.13.20 CHUTE ASSY 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove CHUTE FDR ASSY 500. *(p.454)*
3. Remove COVER RIGHT 500. *(p.455)*
4. Remove COVER LEFT 500. *(p.453)*
5. Remove CLUTCH ASSY FEED. *(p.461)*
6. Remove DRIVE ASSY FEED. *(p.458)*
7. Remove HOUSING ASSY FEED. *(p.476)*
8. Remove the 2 screws (silver, tapping, 8 mm) fastening CHUTE ASSY 500 to 500 PAPER FEEDER ASSY.
9. Remove the screw (silver, 6 mm) fastening BRACKET MAG R to 500 PAPER FEEDER ASSY.
10. Remove BRACKET MAG R from 500 PAPER FEEDER ASSY.
11. Remove the right-side shaft on CHUTE ASSY 500 from the bearing on GUIDE CST R.
12. Remove the left-side shaft on CHUTE ASSY 500 from 500 PAPER FEEDER ASSY, and remove CHUTE ASSY 500 from 500 PAPER FEEDER ASSY.

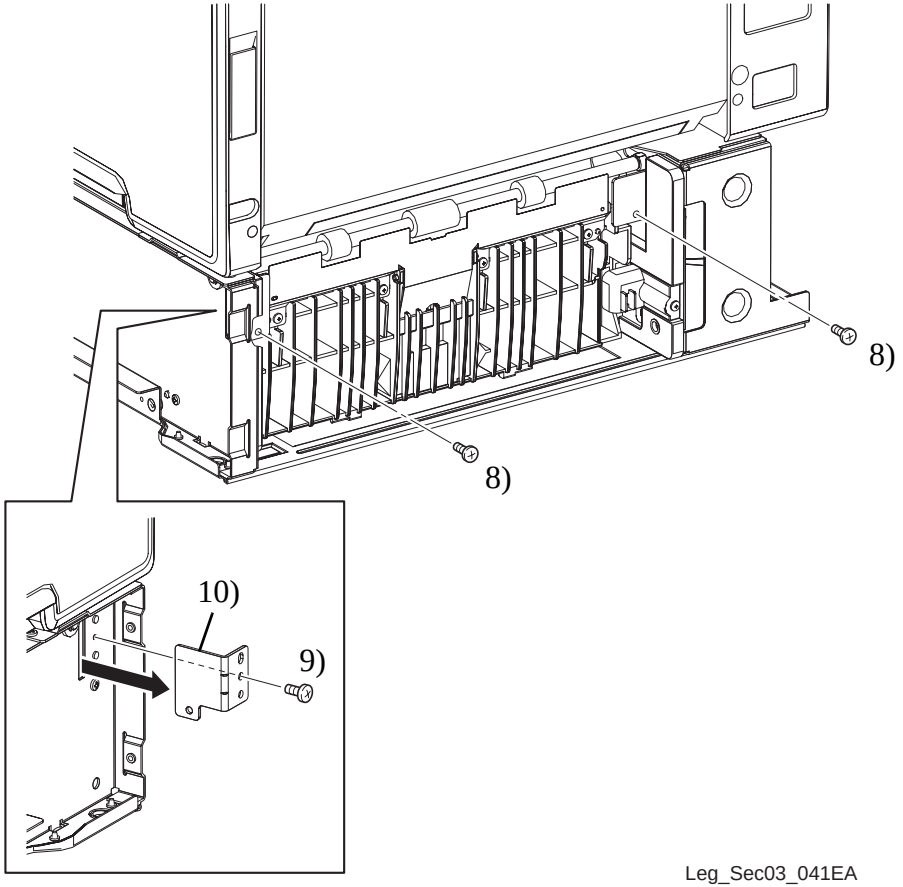

Figure 4-166. Removal of CHUTE ASSY 500 (1)

REINSTALLATION

1. Insert the left-side shaft on CHUTE ASSY 500 into the bearing on GUIDE CST L.
2. Insert the right-side shaft on CHUTE ASSY 500 into the bearing on GUIDE CST R, and attach CHUTE ASSY 500 to 500 PAPER FEEDER ASSY.
3. Match the hole on BRACKET MAG R with the boss on 500 PAPER FEEDER ASSY while inserting BRACKET MAG R into the notch on 500 PAPER FEEDER ASSY, and attach BRACKET MAG R.
4. Fasten BRACKET MAG R to 500 PAPER FEEDER ASSY with the screw (silver, 6 mm).
5. Fasten CHUTE ASSY 500 to 500 PAPER FEEDER ASSY with the 2 screws (silver, tapping, 8 mm).
6. Attach HOUSING ASSY FEED. *(p.476)*
7. Attach DRIVE ASSY FEED. *(p.458)*
8. Attach CLUTCH ASSY FEED. *(p.461)*
9. Attach COVER LEFT 500. *(p.453)*
10. Attach COVER RIGHT 500. *(p.455)*
11. Attach CHUTE FDR ASSY 500. *(p.454)*
12. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

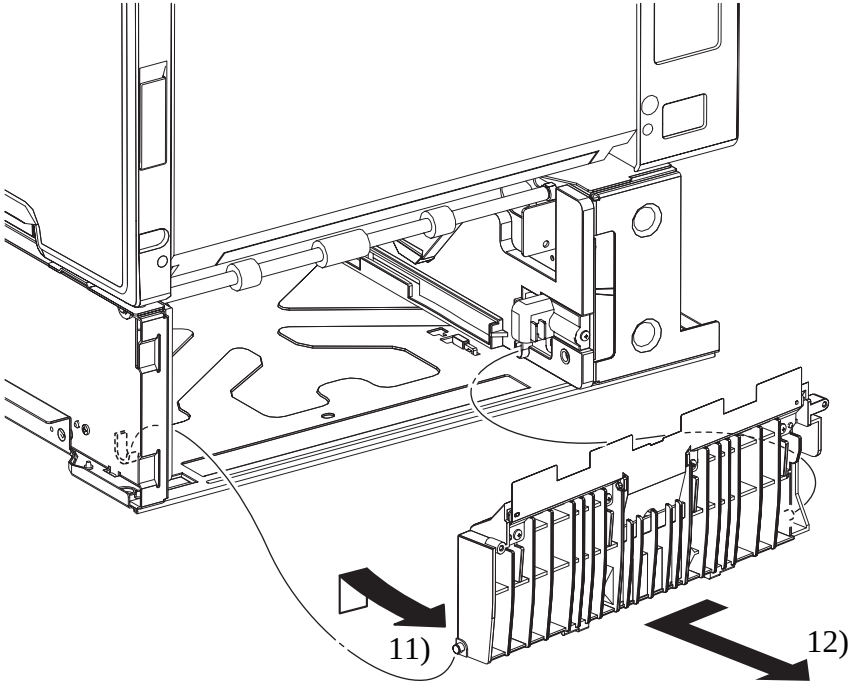

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Figure 4-167. Removal of CHUTE ASSY 500 (2)

4.13.21 HOLDER ASSY RETARD 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove CHUTE FDR ASSY 500. *(p.454)*
3. Remove COVER RIGHT 500. *(p.455)*
4. Remove COVER LEFT 500. *(p.453)*
5. Remove CLUTCH ASSY FEED. *(p.461)*
6. Remove DRIVE ASSY FEED. *(p.458)*
7. Remove HOUSING ASSY FEED. *(p.476)*
8. Remove CHUTE ASSY 500. *(p.466)*

CAUTION

- **When performing the following work, take care not to damage the LEVER 500 boss.**
- **When performing the following work, take care not to lose SPRING LEVER 500.**

9. Remove LEVER 500 and SPRING LEVER 500 from CHUTE ASSY 500 while bending down the bosses on both sides of LEVER 500.

CAUTION

- **When performing the following work, take care not to damage the HOLDER ASSY RETARD 500 boss.**
- **When performing the following work, take care not to lose SPRING RETARD.**

10. Remove HOLDER ASSY RETARD 500 from CHUTE ASSY 500 while bending down the bosses on both sides of HOLDER ASSY RETARD 500.

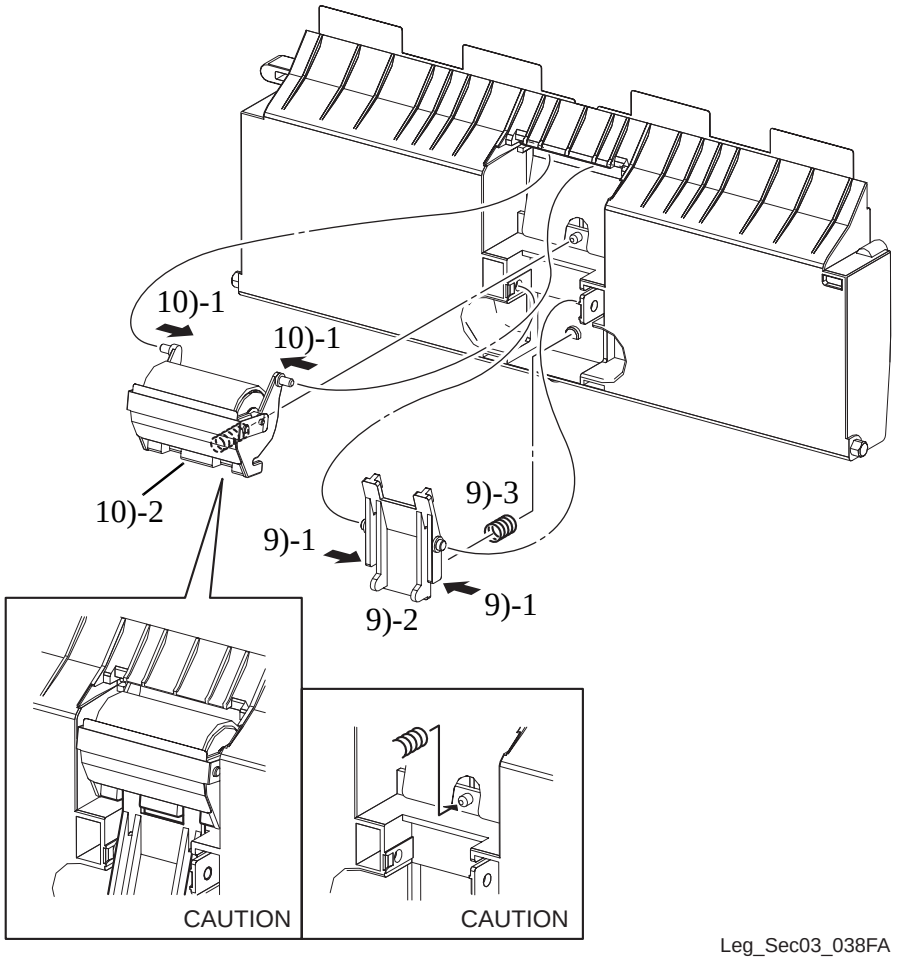

Figure 4-168. Removal of HOLDER ASSY RETARD 500

REINSTALLATION

CAUTION

When performing the following work, take care not to damage the boss of the HOLDER ASSY RETARD 500.

1. Match SPRING RETARD with the boss on CHUTE ASSY 500, and attach HOLDER ASSY RETARD 500 to CHUTE ASSY 500 while bending down the bosses on both sides of HOLDER ASSY RETARD 500.

CAUTION

- **Make sure that SPRING RETARD is in the boss on HOLDER ASSY RETARD 500 and the boss on CHUTE ASSY 500.**
- **When performing the following work, take care not to damage the boss of LEVER 500.**
- **When performing the following work, pay attention to the attachment direction of LEVER 500.**

2. Attach LEVER 500 to CHUTE ASSY 500 while attaching SPRING LEVER 500 to the boss on CHUTE ASSY 500 and bending down the bosses on both sides of LEVER 500.

CAUTION

- **Make sure that SPRING LEVER 500 is in the boss on LEVER 500 and the boss on CHUTE ASSY 500.**
- **The protrusion on LEVER 500 must be firmly inserted into the concave portion on the bottom of HOLDER ASSY RETARD 500.**

3. Attach CHUTE ASSY 500. *(p.466)*
4. Attach HOUSING ASSY FEED. *(p.476)*
5. Attach DRIVE ASSY FEED. *(p.458)*
6. Attach CLUTCH ASSY FEED. *(p.461)*
7. Attach COVER LEFT 500. *(p.453)*
8. Attach COVER RIGHT 500. *(p.455)*
9. Attach CHUTE FDR ASSY 500. *(p.454)*
10. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

4.13.22 FILM ASSY FDR

REMOVAL

1. Open CHUTE FDR ASSY 500.
2. Remove the 4 screws (silver, tapping, 8 mm) fastening FILM ASSY FDR to CHUTE ASSY 500.
3. Remove FILM ASSY FDR from CHUTE ASSY 500.

REINSTALLATION

1. Match the hole on FILM ASSY FDR with the boss on CHUTE ASSY 500, and attach FILM ASSY FDR while inserting the film base on FILM ASSY FDR to the inside of CHUTE ASSY 500.
2. Fasten FILM ASSY FDR to CHUTE ASSY 500 with the 4 screws (silver, tapping, 8 mm).
3. Close CHUTE FDR ASSY 500.

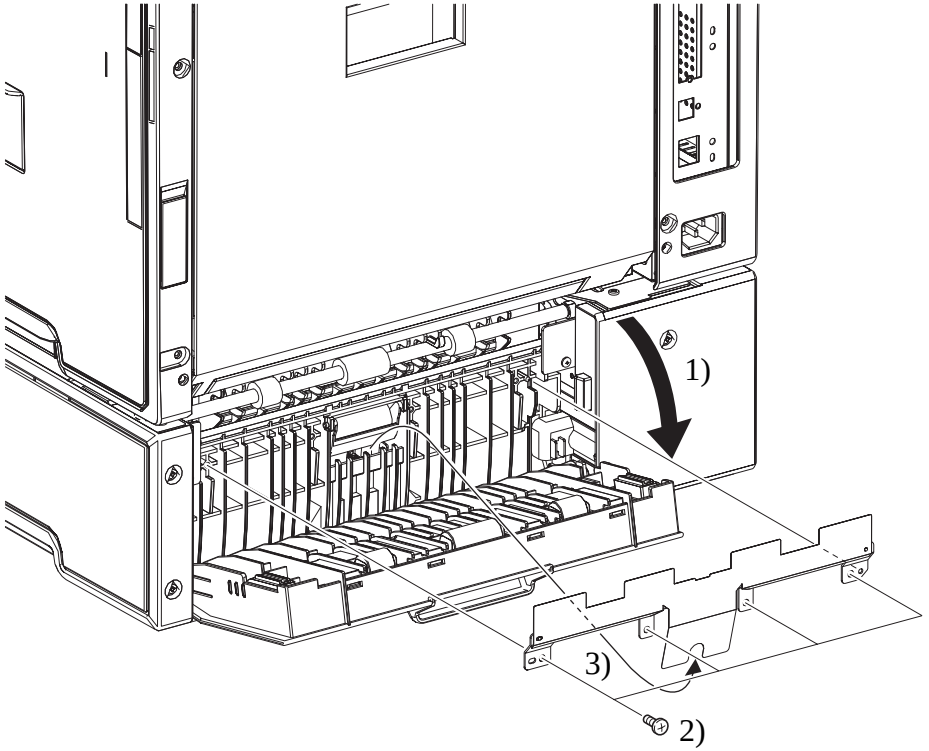

Figure 4-169. Removal of FILM ASSY FDR

4.13.23 STOPPER CST R

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove CHUTE FDR ASSY 500. *(p.454)*
3. Remove COVER RIGHT 500. *(p.455)*
4. Remove COVER LEFT 500. *(p.453)*
5. Remove CLUTCH ASSY FEED. *(p.461)*
6. Remove DRIVE ASSY FEED. *(p.458)*
7. Remove HOUSING ASSY FEED. *(p.476)*
8. Remove CHUTE ASSY 500. *(p.466)*
9. Remove GUIDE CST R. *(p.472)*

CAUTION

When performing the following work, take care not to lose SPG LOCK CST LL.

10. Remove STOPPER CST R and SPG LOCK CST LL from GUIDE CST R.

REINSTALLATION

1. Attach SPG LOCK CST LL to the boss on STOPPER CST R, and attach STOPPER CST R to GUIDE CST R.

CAUTION

Make sure that SPG LOCK CST LL is inserted into the boss on STOPPER CST R and the boss on GUIDE CST R.

2. Attach GUIDE CST R. *(p.472)*
3. Attach CHUTE ASSY 500. *(p.466)*
4. Attach HOUSING ASSY FEED. *(p.476)*
5. Attach DRIVE ASSY FEED. *(p.458)*
6. Attach CLUTCH ASSY FEED. *(p.461)*
7. Attach COVER LEFT 500. *(p.453)*
8. Attach COVER RIGHT 500. *(p.455)*
9. Attach CHUTE FDR ASSY 500. *(p.454)*
10. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

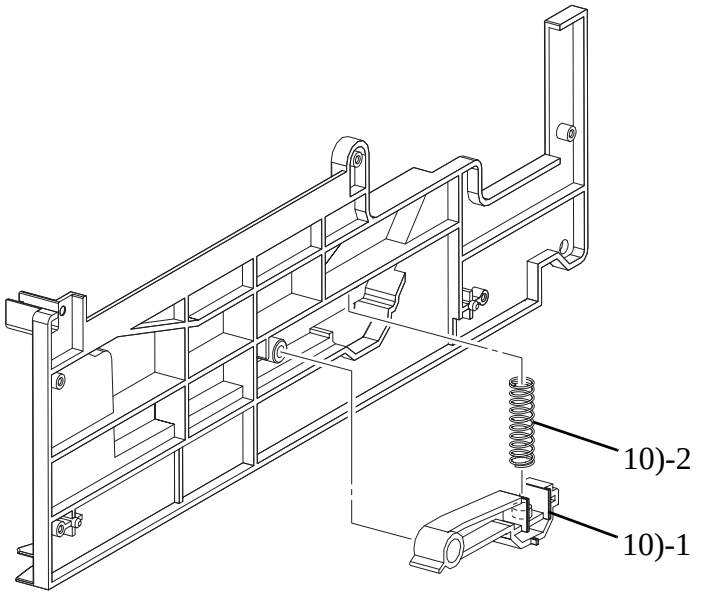

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Figure 4-170. Removal of STOPPER CST R

4.13.24 GUIDE CST R

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove CHUTE FDR ASSY 500. *(p.454)*
3. Remove COVER RIGHT 500. *(p.455)*
4. Remove COVER LEFT 500. *(p.453)*
5. Remove CLUTCH ASSY FEED. *(p.461)*
6. Remove DRIVE ASSY FEED. *(p.458)*
7. Remove HOUSING ASSY FEED. *(p.476)*
8. Remove CHUTE ASSY 500. *(p.466)*
9. Remove the 5 screws (silver, tapping, 6mm) fastening GUIDE CST R to 500 PAPER FEEDER ASSY.
10. Remove GUIDE CST R from 500 PAPER FEEDER ASSY together with SPG LOCK CST LL and STOPPER CST R.
11. Remove STOPPER CST R. *(p.471)*

REINSTALLATION

1. Attach STOPPER CST R. *(p.471)*
2. Match the boss on the GUIDE CST R with the hole on 500 PAPER FEEDER ASSY, and attach GUIDE CST R.
3. Fasten GUIDE CST R to 500 PAPER FEEDER ASSY with the 5 screws (silver, tapping, 6mm).
4. Attach CHUTE ASSY 500. *(p.466)*
5. Attach HOUSING ASSY FEED. *(p.476)*
6. Attach DRIVE ASSY FEED. *(p.458)*
7. Attach CLUTCH ASSY FEED. *(p.461)*
8. Attach COVER LEFT 500. *(p.453)*
9. Attach COVER RIGHT 500. *(p.455)*
10. Attach CHUTE FDR ASSY 500. *(p.454)*
11. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

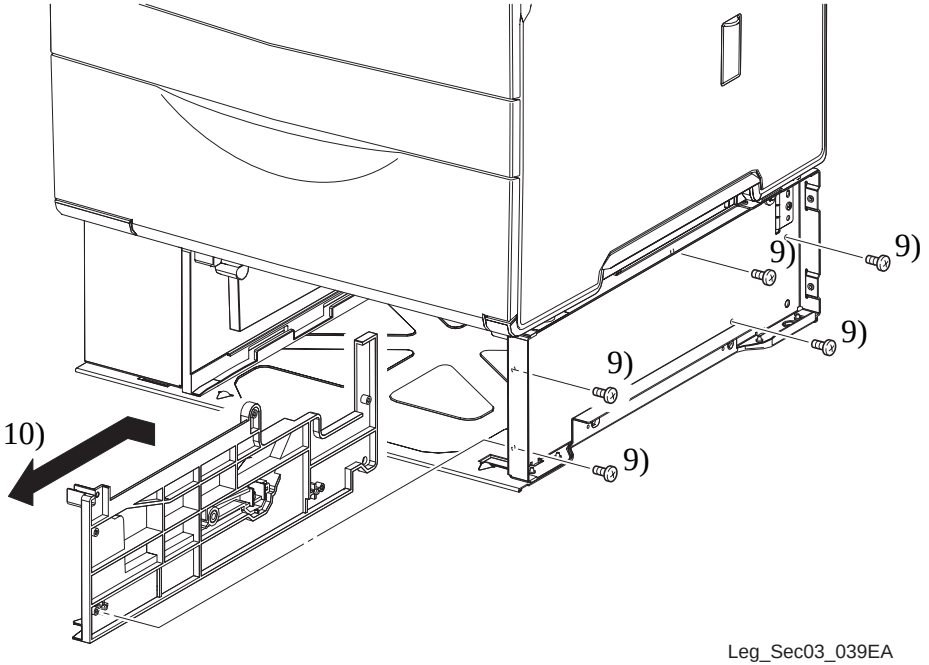


Figure 4-171. Removal of GUIDE CST R

4.13.25 GUIDE CST L

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove CHUTE FDR ASSY 500. *(p.454)*
3. Remove COVER RIGHT 500. *(p.455)*
4. Remove COVER LEFT 500. *(p.453)*
5. Remove CLUTCH ASSY FEED. *(p.461)*
6. Remove DRIVE ASSY FEED. *(p.458)*
7. Remove HOUSING ASSY FEED. *(p.476)*
8. Remove CHUTE ASSY 500. *(p.466)*
9. Remove the screw (silver, tapping, 8 mm) fastening CAP FEEDER to 500 PAPER FEEDER ASSY.
10. Remove CAP FEEDER from 500 PAPER FEEDER ASSY.
11. Remove the 5 screws (silver, tapping, 6mm) fastening GUIDE CST L to 500 PAPER FEEDER ASSY.
12. To remove GUIDE CST L from SWITCH FEEDER DOOR, slide GUIDE CST L slightly to the right, and remove GUIDE CST L from 500 PAPER FEEDER ASSY together with SPG LOCK CST LL and STOPPER CST L.
13. Remove STOPPER CST L. *(p.475)*

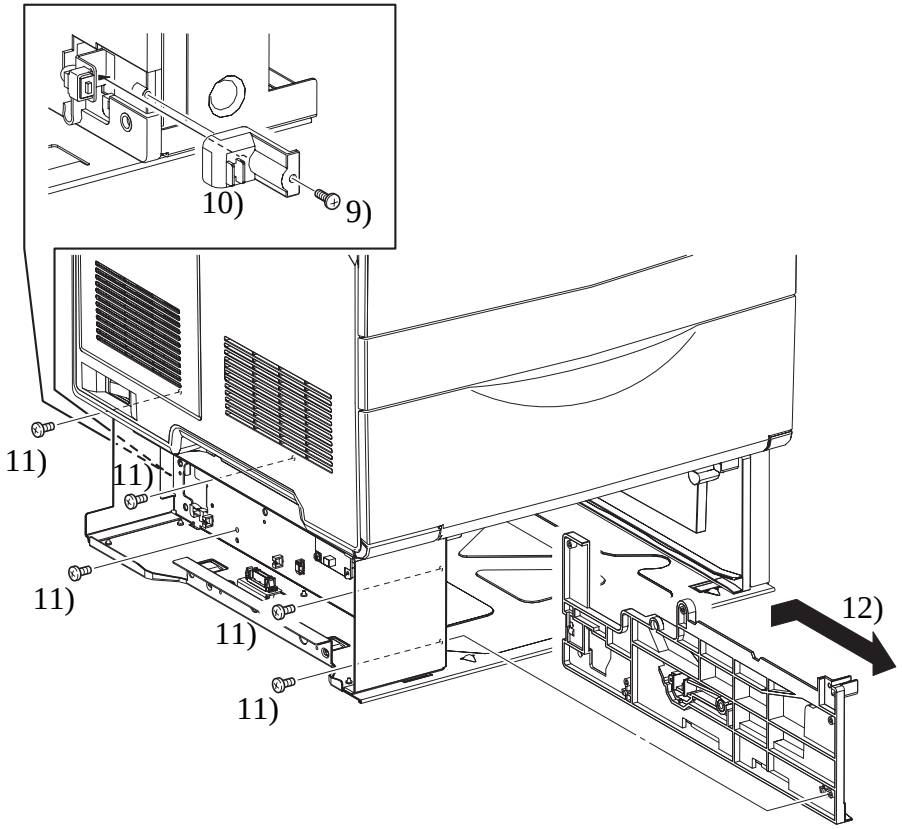


Figure 4-172. Removal of GUIDE CST L

REINSTALLATION

1. Attach STOPPER CST L. *(p.475)*
2. Match the boss on GUIDE CST L with the hole on 500 PAPER FEEDER ASSY while inserting SWITCH FEEDER DOOR into the hole on the rear of GUIDE CST L, and attach GUIDE CST L.
3. Fasten GUIDE CST L to 500 PAPER FEEDER ASSY with the 5 screws (silver, tapping, 6mm).
4. Match the boss on CAP FEEDER with the hole on 500 PAPER FEEDER ASSY, and attach CAP FEEDER.
5. Fasten CAP FEEDER to 500 PAPER FEEDER ASSY with the screw (silver, tapping, 8 mm).
6. Attach CHUTE ASSY 500. *(p.466)*
7. Attach HOUSING ASSY FEED. *(p.476)*
8. Attach DRIVE ASSY FEED. *(p.458)*
9. Attach CLUTCH ASSY FEED. *(p.461)*
10. Attach COVER LEFT 500. *(p.453)*
11. Attach COVER RIGHT 500. *(p.455)*
12. Attach CHUTE FDR ASSY 500. *(p.454)*
13. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

4.13.26 STOPPER CST L

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove CHUTE FDR ASSY 500. *(p.454)*
3. Remove COVER RIGHT 500. *(p.455)*
4. Remove COVER LEFT 500. *(p.453)*
5. Remove CLUTCH ASSY FEED. *(p.461)*
6. Remove DRIVE ASSY FEED. *(p.458)*
7. Remove HOUSING ASSY FEED. *(p.476)*
8. Remove CHUTE ASSY 500. *(p.466)*
9. Remove GUIDE CST L. *(p.473)*

CAUTION

When performing the following work, take care not to lose SPG LOCK CST LL.

10. Remove STOPPER CST L from GUIDE CST L.

REINSTALLATION

1. Attach SPG LOCK CST LL to the boss on STOPPER CST L, and attach STOPPER CST L to GUIDE CST L.

CAUTION

Make sure that the boss of STOPPER CST and that of GUIDE CST L are inserted into SPG LOCK CST LL.

2. Attach GUIDE CST L. *(p.473)*
3. Attach CHUTE ASSY 500. *(p.466)*
4. Attach HOUSING ASSY FEED. *(p.476)*
5. Attach DRIVE ASSY FEED. *(p.458)*
6. Attach CLUTCH ASSY FEED. *(p.461)*
7. Attach COVER LEFT 500. *(p.453)*
8. Attach COVER RIGHT 500. *(p.455)*
9. Attach CHUTE FDR ASSY 500. *(p.454)*
10. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

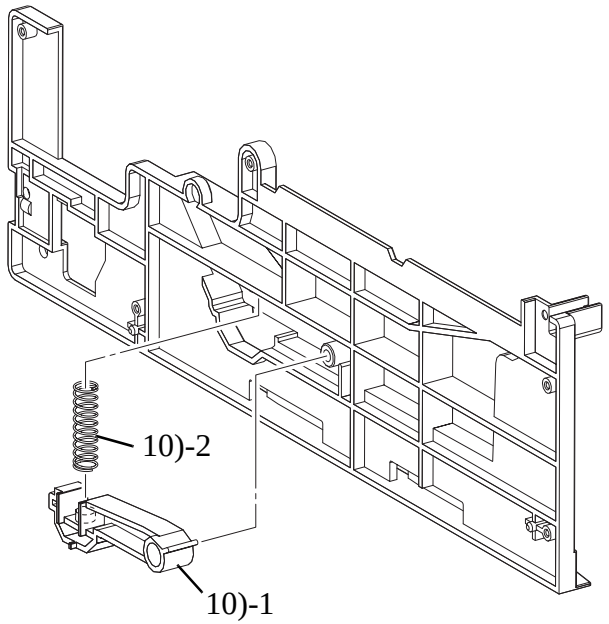


Figure 4-173. Removal of STOPPER CST L

4.13.27 HOUSING ASSY FEED

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove CLUTCH ASSY FEED. *(p.461)*
4. Remove DRIVE ASSY FEED. *(p.458)*
5. Unhook the hook on GEAR FEED fastened to the shaft on HOUSING ASSY FEED, and remove GEAR FEED.
6. Disconnect connector (P/J618) from HOUSING ASSY FEED.
7. Remove the screw (silver, with flange, 6 mm) fastening HOUSING ASSY FEED to 500 PAPER FEEDER ASSY.
8. Insert both hands from the front side of 500 PAPER FEEDER ASSY, pull the 2 levers on HOUSING ASSY FEED towards you, and remove the boss on HOUSING ASSY FEED from the hole on 500 PAPER FEEDER ASSY.
9. Slide HOUSING ASSY FEED to the front side, unhook the 4 hooks at the top fastened to 500 PAPER FEEDER ASSY, remove the hole on HOUSING ASSY FEED from the protrusion at the front side of 500 PAPER FEEDER ASSY, and push down HOUSING ASSY FEED to remove.

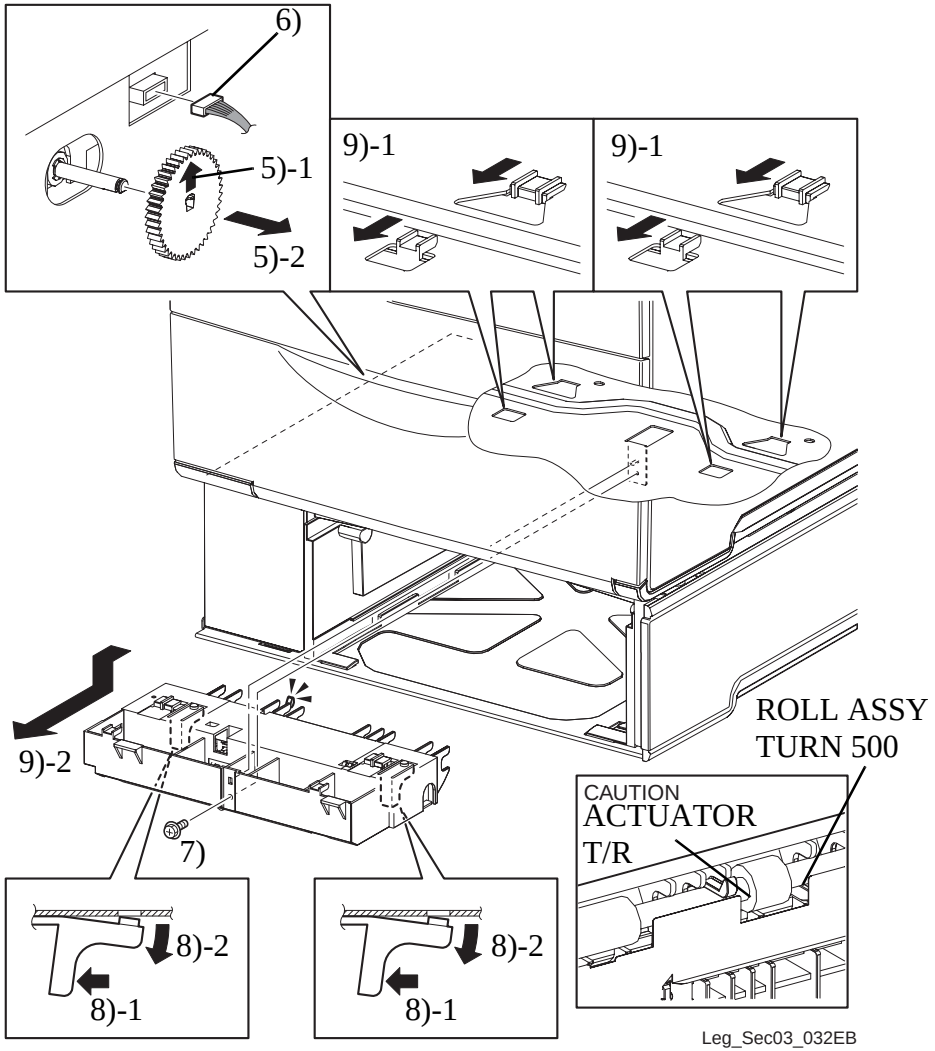


Figure 4-174. Removal of HOUSING ASSY FEED

REINSTALLATION

CAUTION

When performing the following work, take care not to damage ACTUATOR T/R attached to HOUSING ASSY FEED. Also, make sure that ACTUATOR T/R locates at the position above ROLL ASSY TURN 500.

1. Match the 4 hooks on HOUSING ASSY FEED with the attachment positions, and attach to 500 PAPER FEEDER ASSY.
2. Slide HOUSING ASSY FEED to the rear side, insert the boss on HOUSING ASSY FEED into the hole on 500 PAPER FEEDER ASSY, and insert the protrusion on 500 PAPER FEEDER ASSY into the hole at the front side of HOUSING ASSY FEED.
3. Fasten HOUSING ASSY FEED to 500 PAPER FEEDER ASSY with the screw (silver, with flange, 6 mm).
4. Connect connector (P/J618) to HOUSING ASSY FEED.
5. Attach GEAR FEED to the shaft on HOUSING ASSY FEED, and fasten the hook on GEAR FEED to the groove on the shaft of HOUSING ASSY FEED.
6. Attach DRIVE ASSY FEED. *(p.458)*
7. Attach CLUTCH ASSY FEED. *(p.461)*
8. Attach COVER LEFT 500. *(p.453)*

Attach 500 PAPER CASSETTE ASSY. *(p.446)*

Table 4-18. Symptoms when the connector is loose

Connector No.	Panel Indication	Symptom	Error Caused by Connector Disconnection
P/J618	Paper Out LC1	Printing is not possible.	No paper in Paper Cassette

4.13.28 SENSOR NO PAPER

REMOVAL

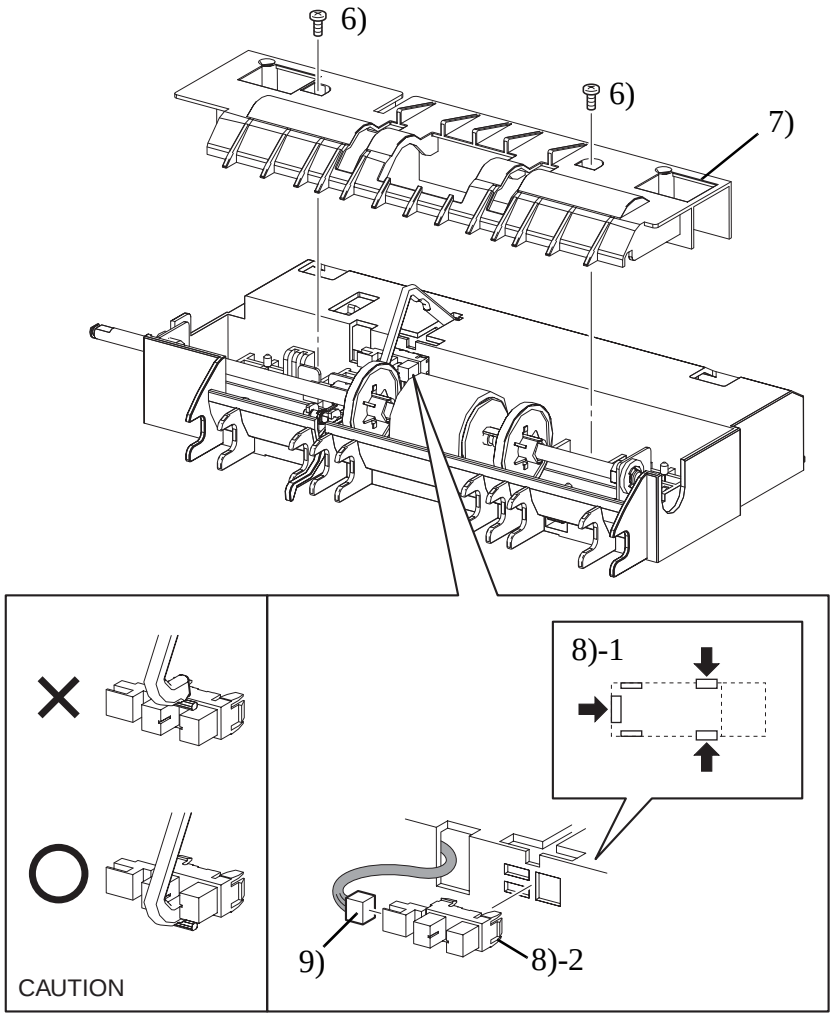
1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove CLUTCH ASSY FEED. *(p.461)*
4. Remove DRIVE ASSY FEED. *(p.458)*
5. Remove HOUSING ASSY FEED. *(p.476)*
6. Remove the 2 screws (silver, tapping, 8 mm) fastening COVER FEED to HOUSING ASSY FEED.
7. Remove COVER FEED from HOUSING ASSY FEED.
8. Unhook the 3 hooks fastening SENSOR NO PAPER to HOUSING ASSY FEED, and remove SENSOR NO PAPER.
9. Disconnect connector (P/J119) from SENSOR NO PAPER.

REINSTALLATION

CAUTION

When performing the following work, pay attention to the positional relationship between SENSOR NO PAPER and ACTUATOR NO PAPER CST.

1. Connect connector (P/J119) to SENSOR NO PAPER.
2. Match the hook on SENSOR NO PAPER with the attachment position while inserting ACTUATOR NO PAPER CST into the sensor on SENSOR NO PAPER, and attach to HOUSING ASSY FEED.
3. Attach COVER FEED to HOUSING ASSY FEED.
4. Fasten COVER FEED to HOUSING ASSY FEED with the 2 screws (silver, tapping, 8 mm).
5. Attach HOUSING ASSY FEED. *(p.476)*
6. Attach DRIVE ASSY FEED. *(p.458)*
7. Attach CLUTCH ASSY FEED. *(p.461)*
8. Attach COVER LEFT 500. *(p.453)*
9. Attach 500 PAPER CASSETTE ASSY. *(p.446)*



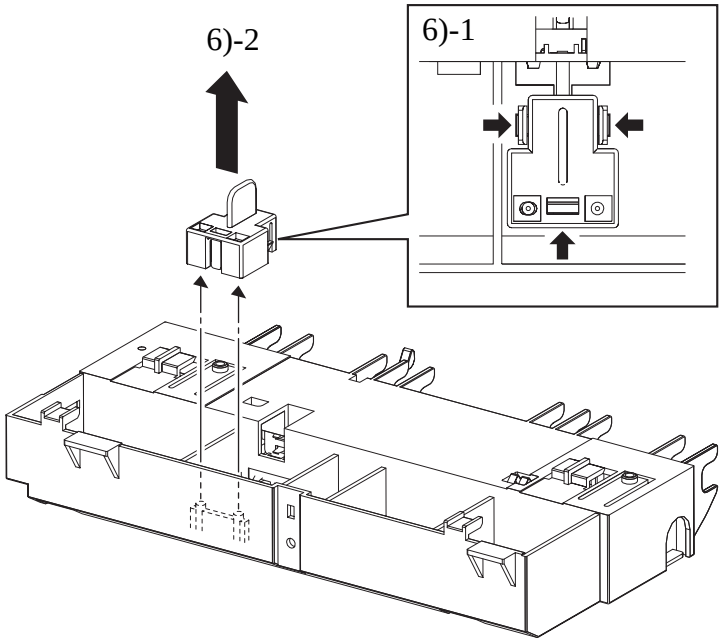
Leg_Sec03_033FA

Figure 4-175. Removal of SENSOR NO PAPER

4.13.29 ACTUATOR NO PAPER CST

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove CLUTCH ASSY FEED. *(p.461)*
4. Remove DRIVE ASSY FEED. *(p.458)*
5. Remove HOUSING ASSY FEED. *(p.476)*
6. Unhook the 3 hooks fastening CAP ACTUATOR to HOUSING ASSY FEED, and remove CAP ACTUATOR.
7. Remove the 2 screws (silver, tapping, 8 mm) fastening COVER FEED to HOUSING ASSY FEED.
8. Remove COVER FEED from HOUSING ASSY FEED.
9. Draw out the shaft of ACTUATOR NO PAPER CST from the hook on HOUSING ASSY FEED, slide along the notch on HOUSING ASSY FEED, and remove ACTUATOR NO PAPER CST.



Leg_Sec03_206FA

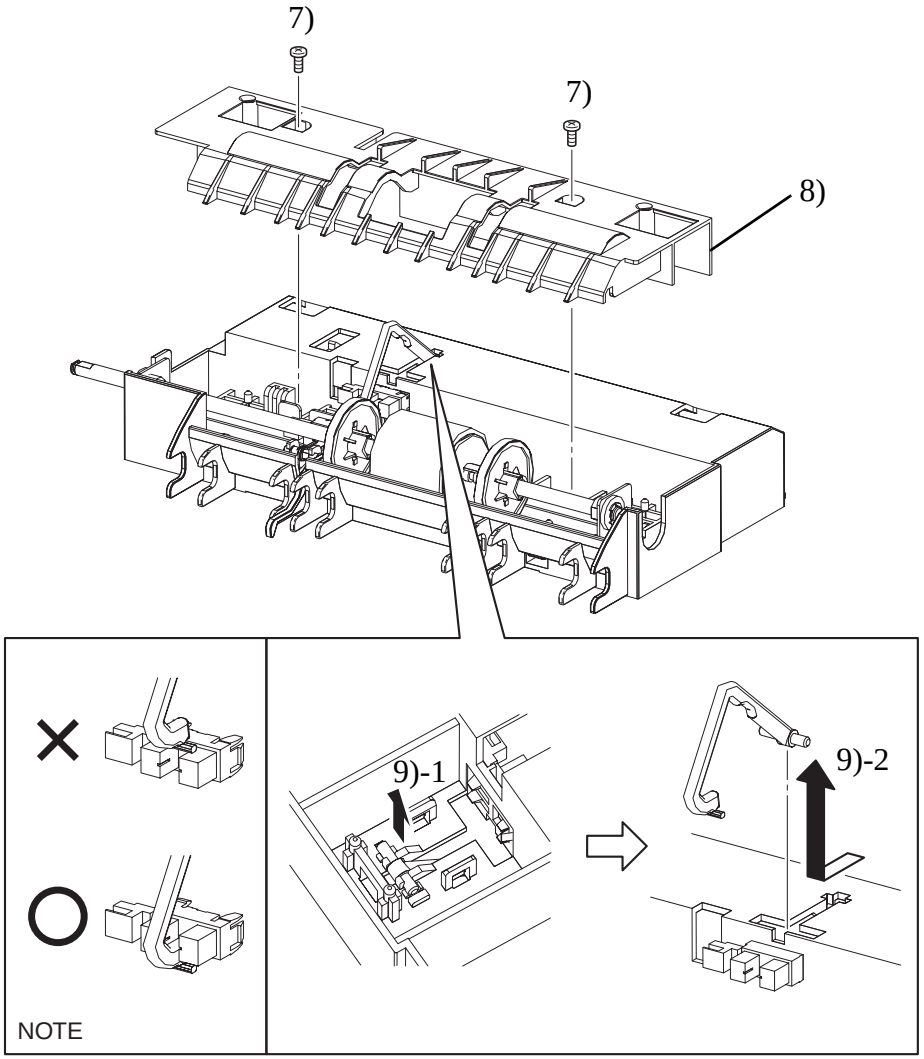
Figure 4-176. Removal of ACTUATOR NO PAPER CST (1)

REINSTALLATION

CAUTION

When performing the following work, pay attention to the positional relationship between SENSOR NO PAPER and ACTUATOR NO PAPER CST.

1. Insert the shaft on ACTUATOR NO PAPER CST from the notch on HOUSING ASSY FEED.
2. Fit the shaft on ACTUATOR NO PAPER CST onto the hook on HOUSING ASSY FEED while inserting ACTUATOR NO PAPER CST into the sensor on SENSOR NO PAPER, and attach.
3. Attach COVER FEED to HOUSING ASSY FEED.
4. Fasten COVER FEED to HOUSING ASSY FEED with the 2 screws (silver, tapping, 8 mm).
5. Match the hole on CAP ACTUATOR with the boss on HOUSING ASSY FEED, and attach CAP ACTUATOR.
6. Attach HOUSING ASSY FEED. *(p.476)*
7. Attach DRIVE ASSY FEED. *(p.458)*
8. Attach CLUTCH ASSY FEED. *(p.461)*
9. Attach COVER LEFT 500. *(p.453)*
10. Attach 500 PAPER CASSETTE ASSY. *(p.446)*



Leg_Sec03_034FA

Figure 4-177. Removal of ACTUATOR NO PAPER CST (2)

4.13.30 ACTUATOR T/R

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove CLUTCH ASSY FEED. *(p.461)*
4. Remove DRIVE ASSY FEED. *(p.458)*
5. Remove HOUSING ASSY FEED. *(p.476)*
6. Remove ROLL ASSY FEED 500. *(p.483)*
7. Remove SPRING ACTUATOR from the notch on HOUSING ASSY FEED.
8. Draw out the shaft on ACTUATOR T/R from the hook on HOUSING ASSY FEED, and remove ACTUATOR T/R together with SPRING ACTUATOR.
9. Remove SPRING ACTUATOR from ACTUATOR T/R.

REINSTALLATION

1. Attach SPRING ACTUATOR to ACTUATOR T/R.
2. Fit the shaft on ACTUATOR T/R into the hook on HOUSING ASSY FEED, and attach ACTUATOR T/R together with SPRING ACTUATOR.
3. Hook SPRING ACTUATOR onto the notch on HOUSING ASSY FEED.

CAUTION

SPRING ACTUATOR must be firmly hooked onto the notch on ACTUATOR T/R and HOUSING ASSY FEED.

4. Attach ROLL ASSY FEED 500. *(p.483)*
5. Attach HOUSING ASSY FEED. *(p.476)*
6. Attach DRIVE ASSY FEED. *(p.458)*
7. Attach CLUTCH ASSY FEED. *(p.461)*
8. Attach COVER LEFT 500. *(p.453)*
9. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

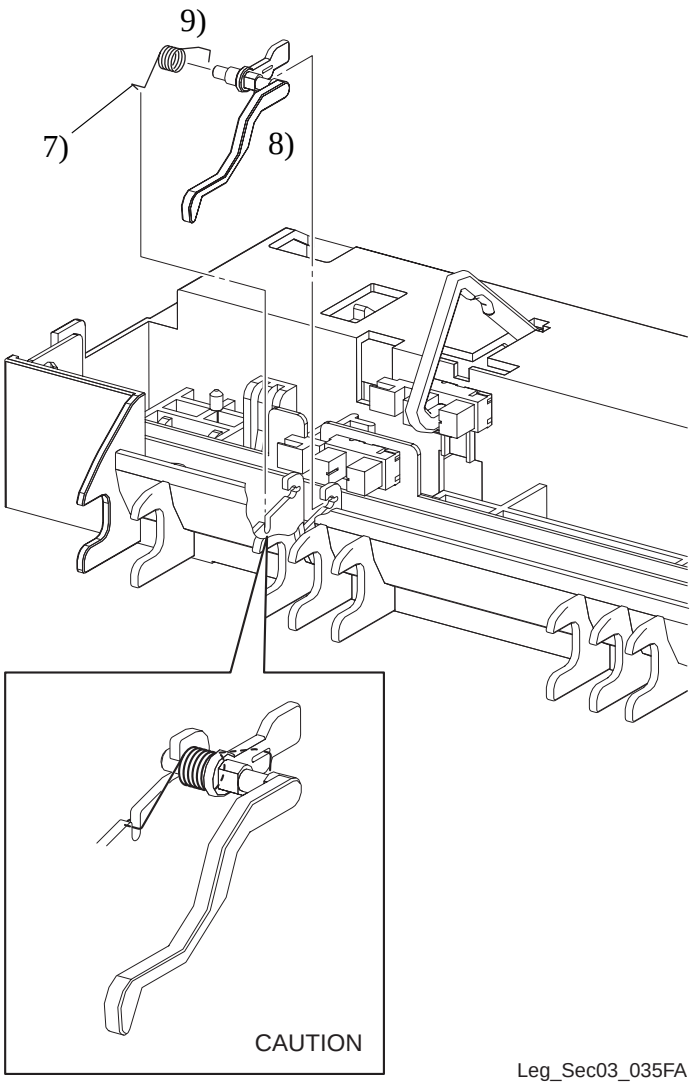


Figure 4-178. Removal of ACTUATOR T/R

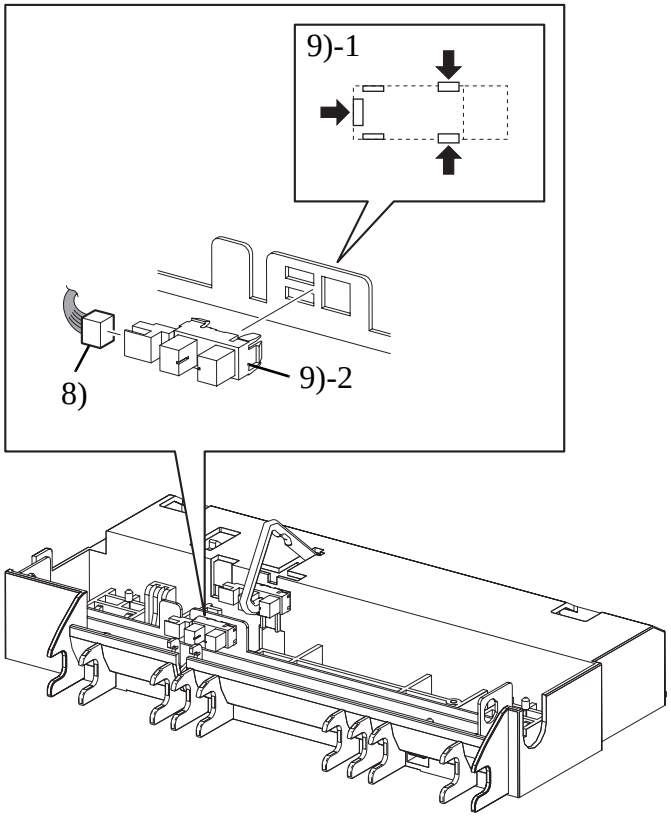
4.13.31 SENSOR T/R

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove CLUTCH ASSY FEED. *(p.461)*
4. Remove DRIVE ASSY FEED. *(p.458)*
5. Remove HOUSING ASSY FEED. *(p.476)*
6. Remove ROLL ASSY FEED 500. *(p.483)*
7. Remove ACTUATOR T/R. *(p.481)*
8. Disconnect connector (P/J120) from SENSOR T/R.
9. Unhook the three hooks fastening SENSOR T/R to HOUSING ASSY FEED, and remove SENSOR T/R.

REINSTALLATION

1. Match the hooks on SENSOR T/R with the attachment positions, and attach to HOUSING ASSY FEED.
2. Connect connector (P/J120) to SENSOR T/R.
3. Attach ACTUATOR T/R. *(p.481)*
4. Attach ROLL ASSY FEED 500. *(p.483)*
5. Attach HOUSING ASSY FEED. *(p.476)*
6. Attach DRIVE ASSY FEED. *(p.458)*
7. Attach CLUTCH ASSY FEED. *(p.461)*
8. Attach COVER LEFT 500. *(p.453)*
9. Attach 500 PAPER CASSETTE ASSY. *(p.446)*



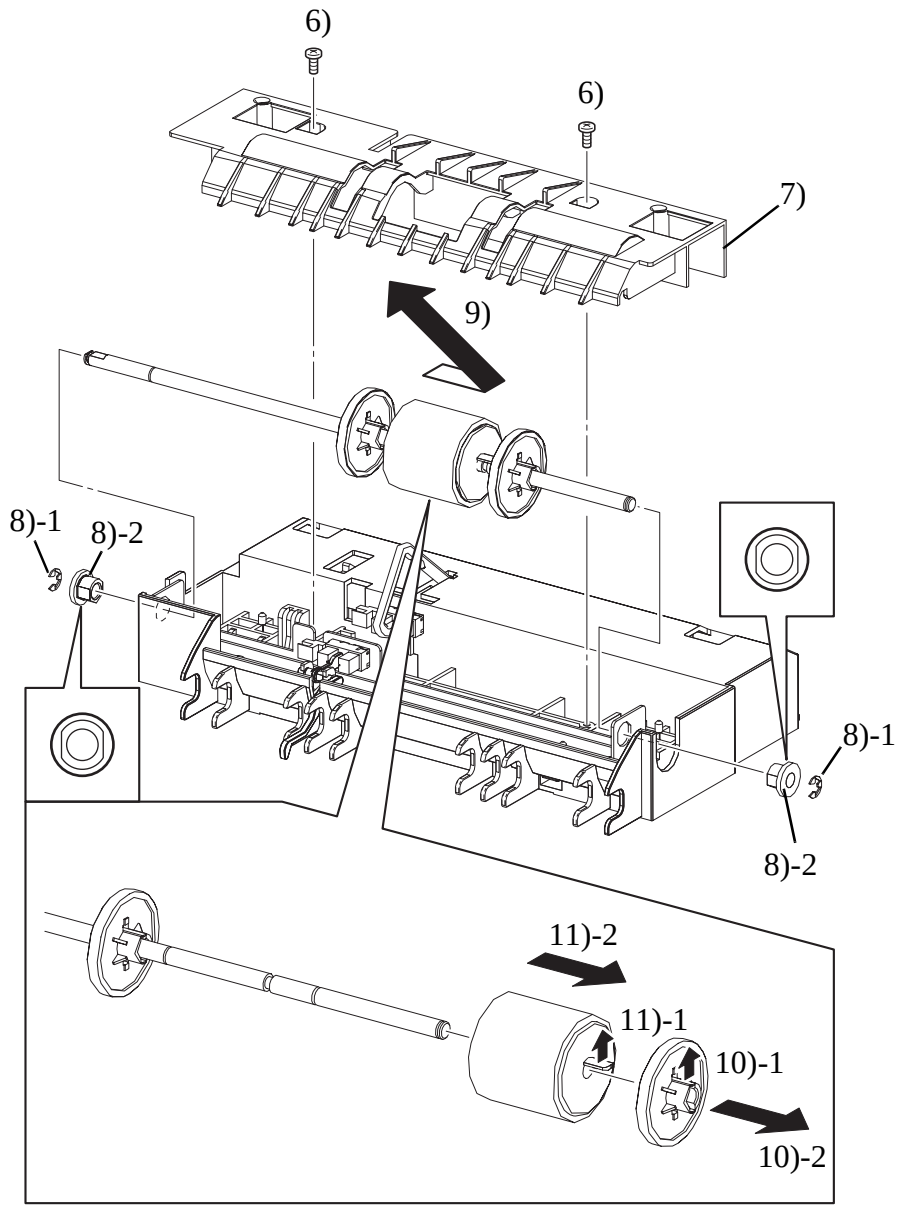
Leg_Sec03_036FA

Figure 4-179. Removal of SENSOR T/R

4.13.32 ROLL ASSY FEED 500

REMOVAL

1. Remove 500 PAPER CASSETTE ASSY. *(p.446)*
2. Remove COVER LEFT 500. *(p.453)*
3. Remove CLUTCH ASSY FEED. *(p.461)*
4. Remove DRIVE ASSY FEED. *(p.458)*
5. Remove HOUSING ASSY FEED. *(p.476)*
6. Remove the 2 screws (silver, tapping, 8 mm) fastening COVER FEED to HOUSING ASSY FEED.
7. Remove COVER FEED from HOUSING ASSY FEED.
8. Remove the E-rings fastening both sides of SHAFT FEED from HOUSING ASSY FEED, and remove the left and right BEARING SLEEVEs.
9. Temporarily slide SHAFT FEED to the right, draw out SHAFT FEED from the left-side bearing on HOUSING ASSY FEED, and remove together with ROLL ASSY FEED 500 and ROLL SUPPORT 500.
10. Unhook the hook on ROLL SUPPORT 500 on the right side fastened to SHAFT FEED, and remove ROLL SUPPORT 500.
11. Unhook the hook on ROLL ASSY FEED 500 fastened to SHAFT FEED, and remove ROLL ASSY FEED 500.



Leg_Sec03_037FA

Figure 4-180. Removal of ROLL ASSY FEED 500

REINSTALLATION

CAUTION

When performing the following work, pay attention to the attachment direction of ROLL ASSY FEED 500.

1. Attach ROLL ASSY FEED 500 to SHAFT FEED so that the hook on ROLL ASSY FEED 500 is facing the right side, and fasten the hook on ROLL ASSY FEED 500 to the groove on SHAFT FEED.
2. Attach ROLL SUPPORT 500 to SHAFT FEED, and fasten the hook on ROLL SUPPORT 500 to the groove on SHAFT FEED.
3. Insert the right side of SHAFT FEED into the right-side bearing on HOUSING ASSY FEED, then slide SHAFT FEED to the left, and attach together with ROLL ASSY FEED 500 and ROLL SUPPORT 500.
4. Match the double D cut surface of BEARING SLEEVE with the left and right bearings of HOUSING ASSY FEED, attach BEARING SLEEVE, and fasten both sides of SHAFT FEED with the E-rings.
5. Attach COVER FEED to HOUSING ASSY FEED.
6. Fasten COVER FEED to HOUSING ASSY FEED with the 2 screws (silver, tapping, 8 mm).
7. Attach HOUSING ASSY FEED. *(p.476)*
8. Attach DRIVE ASSY FEED. *(p.458)*
9. Attach CLUTCH ASSY FEED. *(p.461)*
10. Attach COVER LEFT 500. *(p.453)*
11. Attach 500 PAPER CASSETTE ASSY. *(p.446)*

CHAPTER

5

ADJUSTMENT

5.1 Overview

This chapter explains the adjustment necessary to maintain the functions and performance of the AcuLaser C1100.

5.1.1 Instructions

Before starting your adjustment work, always check the CAUTION on the right.

CAUTION

- **Refer to " 5.1.2 Part/unit-based adjustment items" *(p.486)*, always confirm the adjustment items and the orders for the replaced/removed parts and units in advance.**
- **Start adjustment after fully checking the Caution given in the explanation area of each adjustment item. Incorrect work may interfere with the product operations and/or functions.**

5.1.2 Part/unit-based adjustment items

The following table indicates the adjustment items and life counter clear items necessary when the specific unit is replaced or removed.

Table 5-1. Adjustment Item List

Repaired Part	Adjustment Item	Execution Timing	Adjustment Execution Means	Reference
FUSER ASSY	Life counter clear	After replacement with a new one	Execute by the operation panel (Maintenance Menu [Reset Fuser Counter])	*p.497*
2ND BTR ASSY	Life counter clear	After replacement with a new one	Execute by the operation panel (Maintenance Menu [Reset 2ndBTRCounter])	*p.497*
HOUSING ASSY-DEVE	Life counter clear	After replacement with a new one	Execute by the operation panel (Maintenance Menu [Reset X DvopCounter])	*p.497*
BOARD ASSY., MAIN	Writing USB ID	After replacement with a new one	Execute by the dedicated program	*p.487*
—	Controller Firmware Update	—	Start the printer by performing special operation [Program ROM update], and send the firmware data from the PC.	*p.489*
—	MCU Firmware Update	—	Start the printer by performing special operation [Engine program update], and send the firmware data from the PC.	*p.490*

5.1.3 Writing USB ID

AcuLaser C1100 is equipped with a USB interface as a standard feature. The PC connected to the printer via the USB interface identifies the printer by referring to the USB ID information specific to each printer. This USB ID information is stored on EEPROM on the controller of the printer. Therefore, you have to rewrite the ID information by the procedure described below when you have replaced the BOARD ASSY., MAIN with a new one.

The following are the name of the program to input the ID, and the operating environment.

- Program
  PagePrinter_Ver10E.exe
- Operating environment
  - OS:
    Windows95 OSR2.0 or later, Windows98, Windows Me or Windows 2000/XP
  - Port used:
    LPT, USB

5.1.3.1 Installing the Program and the Basic Operation

1. Copy a set of files related to USB-ID input program into a folder.

CAUTION

Be sure to store the setting information file (Setting.ini) in the same drive holder where the main program file is stored.

2. Double-click the program icon [ ] to start the program.
3. Select “AL-C1100” at the [Model Name].
4. Select the port used to connect the printer at the [Interface].

CHECK POINT

If you select “Auto”, connected printers are detected and communication with the first detected one start automatically. When connecting with 2 or more printers, specify the target port to avoid unexpected connection since the auto detection varies depending on the connection state.

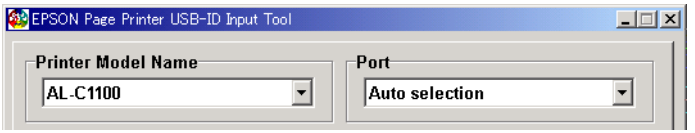


Figure 5-1. Basic Operation

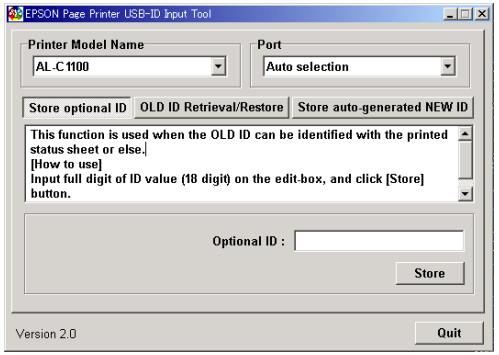
5.1.3.2 Writing Method

The method of writing USB ID differs according to the condition of the main board. Referring to the following table, figure out what to do depending on the conditions. Follow the instructions shown in the program to do the writings.

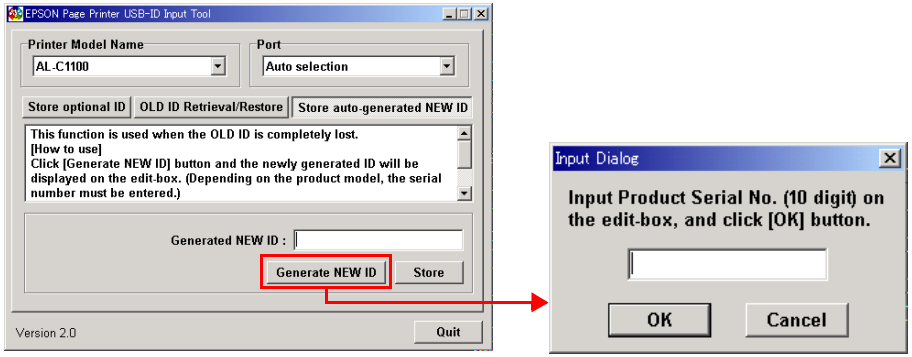
Table 5-2. Writing Method

Condition of Main Board	Check of the previous ID	Writing Method (Button Name)	Descriptions
Communication is impossible between PC and the Main Board	The previous ID can be confirmed by a status sheet or something else that has been already printed out.	Store optional ID	Enter the previous ID to write it into the new Main Board.
	There is no way to confirm the previous ID.	Store auto-generated NEW ID	The program automatically creates the new ID from the serial number of the printer and write it into the new Main Board.
Communication is possible between PC and the Main Board	(Can retrieve the previous ID from the previous Main Board)	OLD ID Retrieval/ Restore	Retrieve the ID from the old board, and then enter the retrieved ID value into the new board.

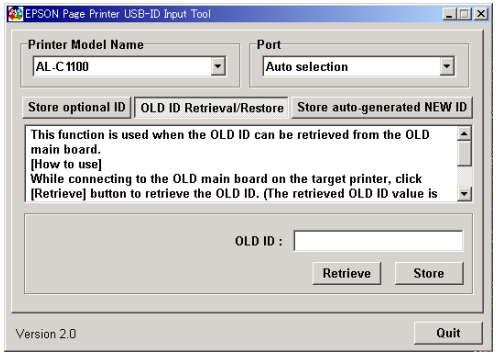
☐ Store optional ID



☐ Store auto-generated NEW ID



☐ OLD ID Retrieval/Restore



5.1.3.3 Confirming the Writing

When completed to write USB-ID, print a status sheet to confirm that the serial number printed on the sheet is identical to that on the label attached to the printer.
(Refer to " 1.19 Status Sheet" *(p.67)*)

5.1.4 Controller Firmware Update

This section explains a Controller firmware update.

NOTE: *The computer should be able to send binary data under DOS via a parallel interface.*

1. Print a status sheet, and check the current firmware version.
2. After turning the power off for both the printer and computer, connect them with a parallel cable.

Disconnect all interface cables except the parallel cable in advance.

3. After turning the computer back on, copy the program data for the update (file name.CRB) to any route directory of the computer.
4. Turn the printer on while pressing the [Down], [Job Cancel] and [Start/Stop] buttons.
5. The LCD panel of the printer will indicate the messages as follows:

   Program Device → Ver. xx.xx → Please Send Data

6. Check that the message “Please Send Data” is indicated on the LCD panel.
7. To transfer the program data file from the computer to the printer, type the command (shown below) on the DOS prompt (from the directory that has “****.crb”) and press the ENTER key of the computer.

   copy␣/b␣filename.crb␣LPT1

8. The LCD panel of the printer will indicate the message as follow:

   OLD: xxxx NEW: xxxx

9. Press the [Enter] button on the operation panel of the printer.
10. Message will be changed as follow

    Erasing Device → PRG FF XXXXC0

11. When downloading the program data is finished, the checksum will be indicated on the LCD panel. Confirm the checksum and turn the printer off.
12. Turn the printer back on and print a status sheet.
13. Referring to the status sheet printed in step 1, make sure the program firmware version has been updated.

5.1.5 MCU Firmware Update

This section explains an MCU firmware (engine firmware) update.

NOTE: *The computer should be able to send binary data under DOS via a parallel interface.*

1. Print a status sheet or engine status sheet to check the current MCU firmware version. (Refer to " 1.19 Status Sheet" *(p.67)*, " 6.4.1 Engine Status Sheet" *(p.499)*)
2. Turn the power off for both the printer and computer, and connect them with a parallel cable.

CAUTION

Disconnect all interface cables except the parallel cable.

3. After turning the computer back on, copy the program data for the update (file name.MOT) to any route directory of the computer.
4. Turn the printer on while pressing the [Up], [Down], [Job Cancel] and [Start/Stop] buttons.
5. The LCD panel of the printer will indicate the messages as follows:

Engine Firmware Update → EFU Ver. 100 → Please send EFU data

6. Check that the message "Please Send EFU Data" is indicated on the LCD panel.
7. To transfer the program data file from the computer to the printer, type the command (shown below) on the DOS prompt and press the ENTER key of the computer.

copy␣/b␣file name.mot␣LPT1

8. The LCD panel of the printer will indicate the message as follow:

send size=********** → SEND SIZE=********** → Type:***** sum=****

CAUTION

In Step 9 below, press the [Enter] button after making sure that the engine has completely stopped.

9. Press the [Enter] button on the operation panel of the printer. This displays the following message and starts writing.

Writing:Size=******

10. When the writing is completed, the following message appears and the printer automatically starts warm-up operation.

TYPE:***** SUM=****

CAUTION

In Step 11 below, turn the printer off after making sure that the engine has completely stopped.

11. Confirm the check sum and turn the printer off.
12. After turning the printer back on, print a status sheet or engine status sheet.
13. Compare the status sheet or engine status sheet printed in Step 1, and confirm that the MCU firmware version has been updated. (Refer to " 1.19 Status Sheet" *(p.67)*, " 6.4.1 Engine Status Sheet" *(p.499)*)

CHAPTER

6

MAINTENANCE

6.1 Overview

This section gives information necessary for maintaining the printer in its optimum condition.
In maintenance and checks, never fail to observe the following precautions.

- **To prevent an electric shock, burn, injury, etc., always turn the printer off and unplug it from power outlet before starting maintenance work.**
  When the power supply cable must be connected to measure voltage or for any other task, use extreme caution in working on electronic components.
- **While the printer is operating, never inspect the drive areas such as the motor, sprockets and gears.**
- **Weight: Since this printer is heavy (about 25kg, consumables not included), it should be moved by two or more people and lift it with your legs not with your back.**
- **Safety devices: Special care must be taken to maintain safety devices such as fuse, INTERLOCK S/W, which are provided to prevent the printer from malfunction and accidents, and also carefully check the parts such as panel, covers, which are directly operated by the user.**
- **Immediately after the printer has stopped operating, do not touch the FUSER ASSY (Fuser unit) as it is hot.**
- **Pay attention to the following when turning the printer back on after servicing.**
  - **Be careful not to get your hands and clothes caught up in the rotating parts (various rollers and cooling fans) of the printer.**
  - **Never touch the electrical terminals and high-voltage components. (HVPS or LVPS unit, etc.)**
- **To avoid dust explosion or ignition, never bring any consumables close to flame or throw them into fire.**

- **Take extra care not to let the laser beam get into your eye, or it could cause loss of sight.**
- **While servicing the laser printer, never open any cover on which a Warning Label for Laser beam is attached.**
- **Use extreme caution to avoid injury of yourself and anyone around you with a clear understanding of hazardous nature of the laser beam.**
- **When you need to work on the hot part or unit (Fuser Assy, for example), make sure to unplug the printer from power outlet in advance. And do not start the work basically until the part or unit cool down sufficiently to avoid burn injury.**
- **This printer produces a laser beam when the following conditions are all satisfied.**
  - **The printer turns on.**
  - **The interlock switches are OFF.**
- **Do not use a general vacuum cleaner to clean spilt toner. To do so may cause the sucked toner particles to catch fire by sparks of the electric contacts. If the toner has spilt on the floor, etc., clean it with a broom or wipe it with a cloth moistened with neutral detergent. If it is necessary to clean a lot of spilt toner with a cleaner, use a cleaner exclusively designed for toner.**

CAUTION

- **Since this printer has many metal parts, beware of the frame edges and similar portions and be sure to wear gloves to work.**
- **Do not disassemble the Toner Cartridge and the Photoconductor Unit.**
- **Do not expose the Photoconductor Unit to direct sunlight.**
- **Do not disassemble the ROS ASSY.**
- **Do not touch the onboard components by bare hands to prevent the ICs and other electrical components from being damaged by static electricity. (When necessary, wear a wrist strap.)**
- **To ensure safety and workability, use the specified tools.**
- **Do not turn the printer's power off S/W until all motors stop completely.**
- **Should the printer be transported, use the special packing material, pallet, etc.**
- **Do not use alcohol, paint thinner, or any other such solvents.**

6.2 About On-site Servicing

This section explains the maintenance work to be done when you actually visit the user site. To prevent possible accidents during maintenance work, strictly observe the servicing warnings and cautions. Never perform dangerous operations.

CAUTION

- **When it is necessary to transport the main unit, use the special packing material, pallet, etc.**
- **Bring trash created during the work, and old parts or consumables that are replaced, back. Never leave them at the customer's place.**
- **Before starting your work, spread a sheet of cloth or paper over the working place to prevent the place from getting dirt with spilt toner.**

6.2.1 On-site Servicing Flowchart

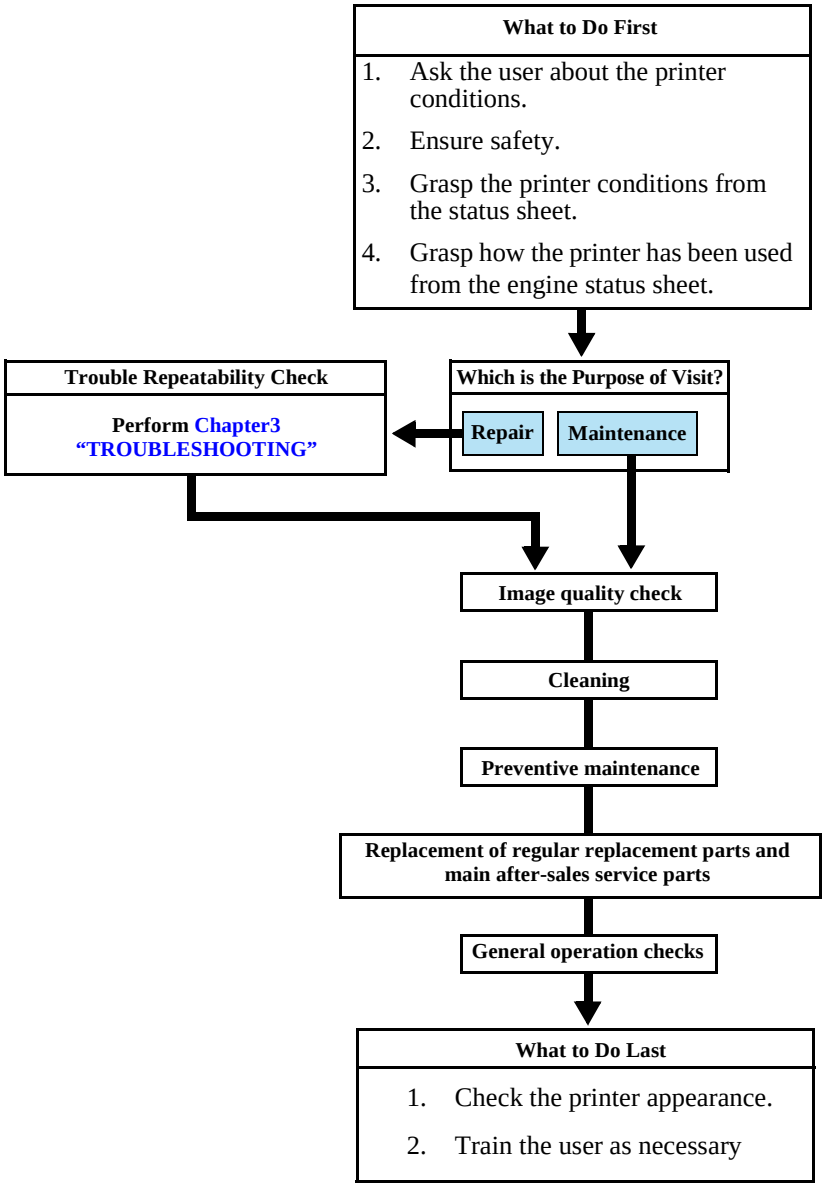


Figure 6-1. On-site Servicing Flowchart

6.2.2 Details of On-site Servicing

This section explains the details of on-site servicing.

What to Do First

1. Ask the user about the printer conditions.
   - Frequency of paper feeding errors (jams)
   - How the printer has been used (paper type, printing frequency, environment, etc.)
   - Image quality status (front and back, separately)
2. Check how the power cord is plugged, damage to the cord and plug, etc. to ensure safety.
3. Print and check several status sheets to grasp the printer conditions.
4. Print the engine status sheet, and grasp the lives of the consumables, regular replacement parts and how the printer has been used.

Trouble Repeatability Check

Do “Troubleshooting” in Chapter3.

1. Refer to “3.2 FIP” *(p124)* and confirm the trouble conditions and execute troubleshooting.
2. If a fatal image quality problem (all white, all black, etc.) has occurred due to an engine fault, perform troubleshooting with reference to “3.4 Printing Quality-related Trouble” *(p242)*.

Image Quality Check

1. Print the status sheet and confirm the image quality.

   <Image quality check items>

   - Color balance
   - Color shift
   - Density (color) unevenness
   - Poor color reproducibility with low density
   - Others
2. If any of the image quality problem described above is shown:
   - Take corrective action with reference to “3.4 Printing Quality-related Trouble” *(p242)* of Chapter3 “TROUBLESHOOTING”.

Cleaning

1. Check the paper path and remove paper dust and foreign matter. Clean the path with a brush or dry cotton waste when it is dirty. Especially check the following.
   - Rollers in the paper transport path

   NOTE: *When the parts are extremely dirty, clean them with a wet cloth, and then wipe them with a dry cloth. Be careful not to scratch the parts.*
2. Check the entire printer inside and remove spilt toner, paper dust and foreign matter. Clean a dirty part or area with a brush or dry cotton waste. Especially check the following.
   - Around the exhaust vent
   - Around the HOUSING ASSY-DEVE (Developer unit)
3. When printing quality trouble occurs, pull out the Cleaner once to clean the exposure window.

Clogging of the exhaust vent and fan produces an increase in temperature inside the printer and cause the printer to malfunction.

Preventive Maintenance (Consumables/Components needing periodic replacement)

Do preventive maintenance work to maintain the printer performance and prevent failures from occurring.

1. After completion of repair or maintenance, print several status sheets and make sure that there are no problems.
2. After completion of repair or maintenance, print the engine status sheet.

   NOTE: *The judgement whether to replace components needing periodic replacement can be done by the cumulative numbers of printed sheets. Replace the components as the occasion arises.*

Replacement of Consumables and Components needing Periodic Replacement

Do the replacement with reference to "6.5 Consumables and Components needing Periodic Replacement" *(p506)*.

General Operation Checks

After completion of servicing, make general operation checks. Print a status sheet and perform several printjobs from the host computer testing both one-side printing and duplex printing (if an optional unit for dupulexing is installed).

1. Make sure that there are no image quality problems.
2. Make sure that the paper feeding is normal and there is no abnormal noise.

What to Do Last

1. Check the appearance of the printer.
2. If necessary, inform the user on how to handle the printer, deal with paper jam, and replace the consumables.

6.3 Maintenance Menu

CAUTION

This menu is provided only for a service personnel to perform maintenance.
Do not disclose it to the users.

This menu is displayed and selectable only when a special operation performed at power-on to enter the maintenance mode. Basically, this menu is provided to be used by a service personnel for maintenance.
At the time of maintenance, print the Engine Status Sheet from the Maintenance Menu and grasp the usage conditions of various consumables and components needing periodic replacement.

6.3.1 Maintenance Menu Items

This menu is displayed and selectable only when a special operation performed at power-on to enter the maintenance mode.
When the power is then turned off once and on again, the Maintenance Menu is deleted (the printer returns to the normal operating mode).

- ☐ Engine Status Sheet*1
  Before entering the maintenance mode, make sure that there is no engine-related service call in the normal operating mode (not maintenance mode).
  After the printer enters into the maintenance mode, press the Enter switch to print an engine status sheet. The sheet is printed according to the default settings, except RIT, toner save, and resolution settings (current settings are applied for those settings). While the printing is in progress, the LCD keeps flashing. The user default environment (settings) does not change after the printing.
  The contents of the engine status sheet are the counted values of each unit which makes up the printer engine.
- ☐ Print Log Report*2
  Prints a log file of printing status.
- ☐ Reset 2ndBTRCounter
  Reset the counter of the 2nd BTR assy consumption and count up the exchange counter. The counter must be reset after the 2nd BTR assy is replaced with a new one. After executing the counter reset, open and close the cover A. Do not turn the printer off until the engine stops completely.
- ☐ Reset Y (M, C, K) DvlpCounter
  Reset the counter of the Y (M, C, K) developer unit consumption and count up the exchange counter. The counter must be reset after the Y (M, C, K) developer unit is replaced with a new one. After executing the counter reset, open and close the cover A. Do not turn the printer off until the engine stops completely.
- ☐ Reset Fuser Counter
  Reset the counter of the fuser assy consumption and count up the exchange counter. The counter must be reset after the Fuser unit is replaced with a new one. When resetting the counter, the number of printed pages for the Fuser Assy is stored on the EEPROM. The stored value will be printed on the Engine Status Sheet as the number of previous replacement.

CHECK POINT

Same function is also available in the reset menu. (See " Reset Menu" *(p50)*)

- ☐ Clear Error Log
  Clear error log list stored for display on Engine Status Sheet.
  Performing this operation reboots the printer.
- ☐ MCU DATA BackUp*3
  Backup the data of the engine. "MCU Data BackUp" is displayed until back up processing ends.
- ☐ MCU DATA Restore*3
  Restore the data of the engine to the mechanical controller. "MCU DATA Restore" is displayed until restore processing ends.

NOTE ****1:*** *Refer to "6.4.1 Engine Status Sheet" (p499)*
****2:*** *Refer to "6.4.2 Print Log Report" (p504)*
****3:*** *Execution of the mechanical controller backup is not possible in the following states:*
- *During a power save*
- *During warming-up*
- *During printing*
- *During printer adjustments*

The power must not be turned OFF during the backup/restore process until the engine has stopped.

6.3.2 Entry into Maintenance Mode

1. While holding down the [Back], [Up], [Down] and [Enter] buttons, turn the printer on.

   When the printer is turned on, all LEDs and LCD light and the following message is then displayed.
   (When “MAINTENANCE MODE” appears, release your hand from the switches.)

RAM CHECK **.*MB → MAINTENANCE MODE → Ready

2. Refer to the Maintenance Menu process flowchart in Figure6-2, perform each function of the Maintenance Menu by operating the panel switches.

NOTE 1: *Disconnect all the Interface Cables in advance.*

2: *Engine-related service call errors are ignored when the Maintenance Mode starts. Before starting the printer in the Maintenance Mode and executing printing, make sure that no errors have occurred in the normal operating mode.*

3: *To exit from the Maintenance Menu, make sure that the engine is not operating and then turn the printer off.*

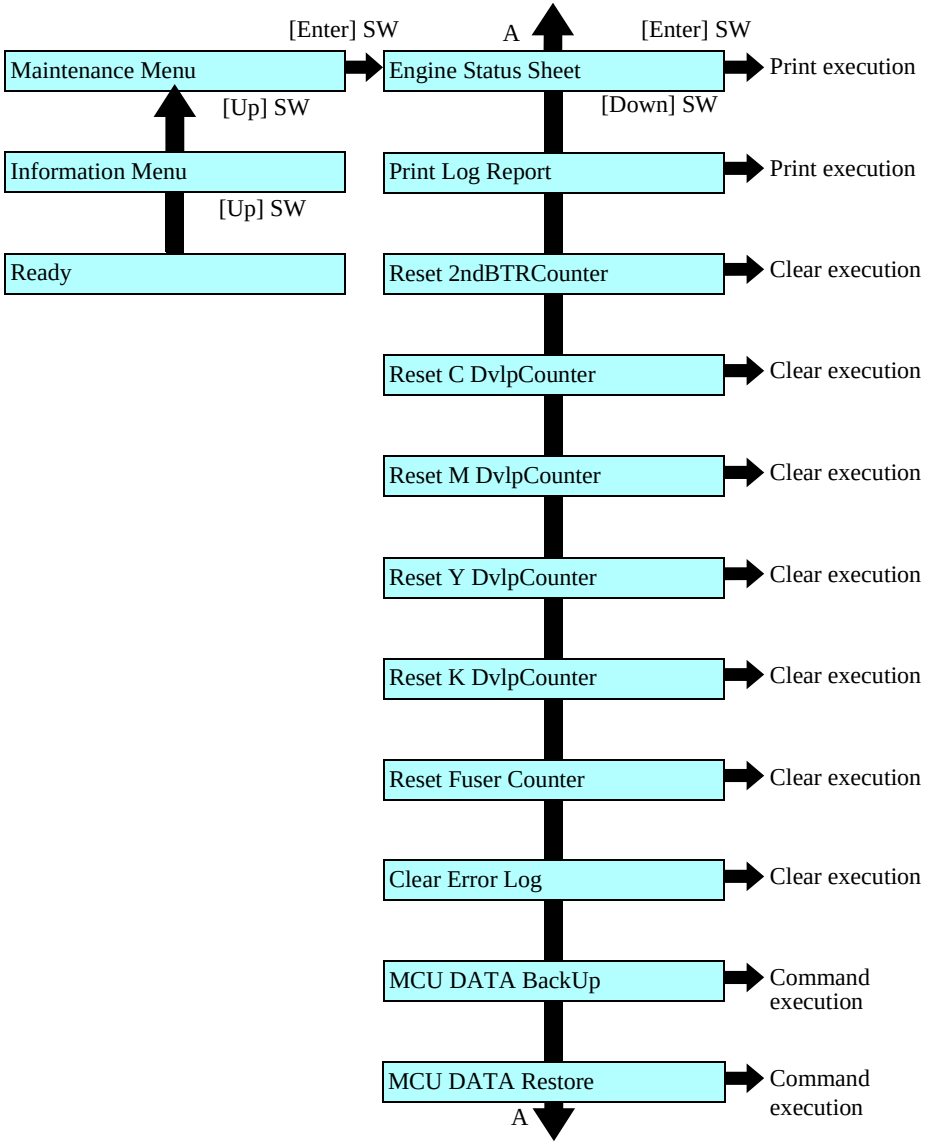


Figure 6-2. Maintenance Menu Process Flowchart

6.4 Sheet for Servicing

6.4.1 Engine Status Sheet

CAUTION

This Engine Status Sheet is used only by a service personnel for maintenance, and must not be disclosed to the users.

6.4.1.1 Engine Status Sheet Items

- ☐ Total Counts
  - ■ Total Pages : Total number of pages printed to date.
  - ■ Color Pages : Total number of pages printed in color to date.
- ☐ Jam Counts : Number of occurrence of a jam.
- ☐ ET Cartridge (Toner Cartridge)
  - ■ C Toner : Amount of C toner used (dispense time), C toner limit value, C total dots.
  - ■ M Toner : Amount of M toner used (dispense time), M toner limit value, M total dots.
  - ■ Y Toner : Amount of Y toner used (dispense time), Y toner limit value, Y total dots.
  - ■ K Toner : Amount of K toner used (dispense time), K toner limit value, K total dots.
  - ■ C Toner Change : Number of replacements of C toner (for4K), That of C toner (for 1.5K).
  - ■ M Toner Change : Number of replacements of M toner (for 4K), That of M toner (for 1.6K).
  - ■ Y Toner Change : Number of replacements of Y toner (for 4K), That of Y Toner (for 1.7K).
  - ■ K Toner Change : Number of replacements of K toner (for 4K), That of K Toner (for 1.8K).
- ☐ Photoconductor : Number of revolutions of photoconductor.
- ☐ Photoconductor Change : Number of replacements of Photoconductor Unit.
- ☐ Fuser : Total number of pages printed using the current FUSER ASSY
- ☐ Fuser Change : Number of replacements of FUSER ASSY. / Number of pages printed at the time of replacing the previous.
- ☐ 2nd BTR : Total number of pages printed using the current 2nd BTR.
- ☐ 2nd BTR Change : Number of replacements of 2nd BTR ASSY.
- ☐ Development Unit
  - ■ C Development : Operating time of the motor for Developer C.
  - ■ M Development : Operating time of the motor for Developer M.
  - ■ Y Development : Operating time of the motor for Developer Y.
  - ■ K Development : Operating time of the motor for Developer K.
  - ■ C Deve Change : Number of replacements of HOUSING ASSY-DEVE C.
  - ■ M Deve Change : Number of replacements of HOUSING ASSY-DEVE M.
  - ■ Y Deve Change : Number of replacements of HOUSING ASSY-DEVE Y.
  - ■ K Deve Change : Number of replacements of HOUSING ASSY-DEVE K.

- 2nd BTR Offset
  - Normal : Setting value of the transfer voltage for plain paper.
  - SemiThk : Setting value of the transfer voltage for High quality paper.
  - Thick : Setting value of the transfer voltage for thick paper.
  - ExtraThk : Setting value of the transfer voltage for Extra thick paper.
  - Card : Setting value of the transfer voltage for postcard paper.
  - Envelope : Setting value of the transfer voltage for envelope.
- Power On : Number of times power is turned on.
- Sleep : Number of times printer returns from standby mode.
- Engine Version
  - MCU : Firmware version of mechanical controller.
  - Duplex : Firmware version of the Duplex unit.
- Error Log : Displays the latest 20 errors listing in order of the number of pages with the largest one first. The description for each error consists of; the panel message, the EJL status code, the number of printed sheets, the jam code, the paper size, and the paper type.
  Service call errors which occurred after the Ready mode and jam errors are included.
  The errors with the same total pages as a previously recorded error are not included.
  - Jam code : The location of the jam is indicated by 8-digit hexadecimal strings as bit data.

Table 6-1. Jam code

Bit	Location of jam
31-24	---
23	At Exit sensor
22	At Fuser In sensor
21	At Regi sensor
20	At OHP sensor
19	At Tray Path1 sensor
18	At Tray Path2 sensor
17	At Dup In sensor
16	At Dup Out sensor
15	After Exit sensor turns off, Dup In sensor does not turn off
14	After Dup In sensor turns on, Dup Out sensor stays off
13	After Duplex loading signal, Regi sensor stays off
12	After Regi sensor turns off, Exit sensor stays off
11	After Regi Roll turns on, Exit Fuser In sensor stays off
10	---
9	The setting is for transparency, but media other than transparencies was fed. The setting is for other than transparency, but transparencies were fed.
8	---
7	After Regi Roll turns on, Exit sensor stays off. Fuser In sensor off
6	After Regi Roll turns on, Exit sensor is stays off. Fuser In sensor on
5	After Regi Roll turns on, Regi sensor stays on
4	Regi sensor signal from cassette 1 or 2 is not received.
3	Regi sensor signal from MP tray is not received.
2	Tray Path1 sensor signal from cassette 1 is not received.
1	(Tray Path1 sensor signal from cassette 2) is not received.
0	(Tray Path2 sensor signal from cassette 2) is not received.

- Paper size:

  Indicated same as the panel display.

- Paper type:

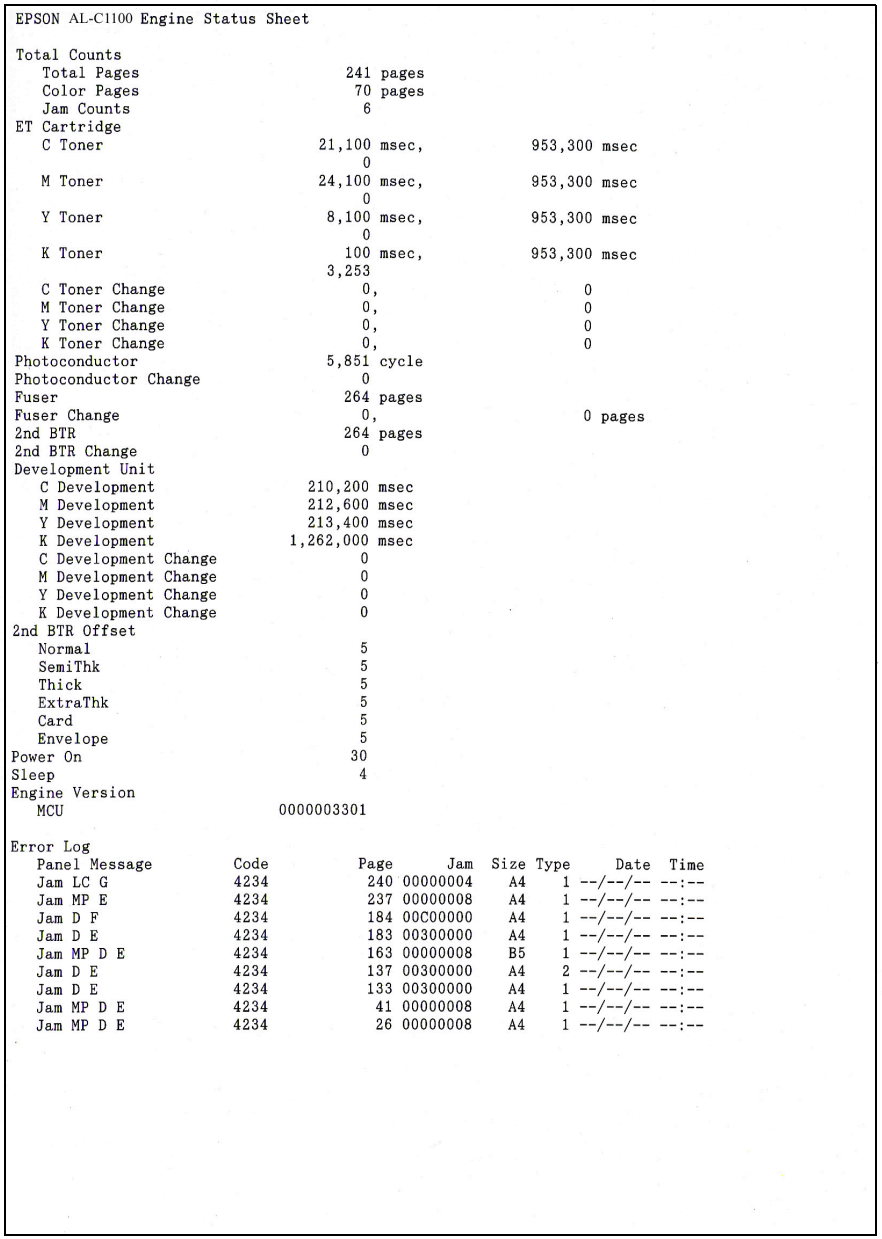
  Indicated as the specified value set for each media to control the engine.

Table 6-2. Paper type

Paper type	Front side	Back side
Plain paper	9	25
High quality paper	8	24
Thick paper	4	20
Extra thick paper	10	26
Coated paper	7	23
Transparency	2	---
Labels	5	---
Envelopes	15	---
Postcards	14	30

Note *1: The date and time are indicated in the local time when generated. (yy/mm/dd hh:mm (The date and time is not re-calculated even if the time difference is changed.)) yy are the lower two digits of the calendar year.
In the non-synchronous mode, "--/--/-- --:--" is displayed.

*2: The value of the total dot counter on ASIC is used in the dot calculation. Threshold is 128.



```
EPSON AL-C1100 Engine Status Sheet

Total Counts
   Total Pages                    241 pages
   Color Pages                     70 pages
   Jam Counts                       6
ET Cartridge
   C Toner                  21,100 msec,          953,300 msec
                                    0
   M Toner                  24,100 msec,          953,300 msec
                                    0
   Y Toner                   8,100 msec,          953,300 msec
                                    0
   K Toner                     100 msec,          953,300 msec
                                3,253
   C Toner Change                 0,                    0
   M Toner Change                 0,                    0
   Y Toner Change                 0,                    0
   K Toner Change                 0,                    0
Photoconductor                5,851 cycle
Photoconductor Change             0
Fuser                           264 pages
Fuser Change                      0,                    0 pages
2nd BTR                         264 pages
2nd BTR Change                    0
Development Unit
   C Development              210,200 msec
   M Development              212,600 msec
   Y Development              213,400 msec
   K Development            1,262,000 msec
   C Development Change              0
   M Development Change              0
   Y Development Change              0
   K Development Change              0
2nd BTR Offset
   Normal                            5
   SemiThk                           5
   Thick                             5
   ExtraThk                          5
   Card                              5
   Envelope                          5
Power On                            30
Sleep                                4
Engine Version
   MCU                      0000003301

Error Log
   Panel Message          Code          Page      Jam  Size Type     Date  Time
   Jam LC G               4234           240 00000004    A4    1 --/--/-- --:--
   Jam MP E               4234           237 00000008    A4    1 --/--/-- --:--
   Jam D F                4234           184 00C00000    A4    1 --/--/-- --:--
   Jam D E                4234           183 00300000    A4    1 --/--/-- --:--
   Jam MP D E             4234           163 00000008    B5    1 --/--/-- --:--
   Jam D E                4234           137 00300000    A4    2 --/--/-- --:--
   Jam D E                4234           133 00300000    A4    1 --/--/-- --:--
   Jam MP D E             4234            41 00000008    A4    1 --/--/-- --:--
   Jam MP D E             4234            26 00000008    A4    1 --/--/-- --:--
```

Figure 6-3. Engine Status Sheet

6.4.1.2 List of information managed and methods of management

Table 6-3. List of information managed and methods of management

Information name		Count processing and storage location	Range	Unit	Count conditions	Clear conditions
Total Pages		Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Color Pages		Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Jam Counts		Controller	0 to 100,000	Times	When a jam occurs	(EEPROM initialization)
C Toner	Dispense time	Engine	0 to 99,999,999	msec	During printing	New C toner detected
	Limit value	Engine		msec	(Fixed value)	---
	Total dots	Controller	0 to 2,147,483,647	---	4096dots	(EEPROM initialization)
M Toner	Dispense time	Engine	0 to 99,999,999	msec	During printing	New M toner detected
	Limit value	Engine		msec	(Fixed value)	---
	Total dots	Controller	0 to 2,147,483,647	---	4096dots	(EEPROM initialization)
Y Toner	Dispense time	Engine	0 to 99,999,999	msec	During printing	New Y toner detected
	Limit value	Engine		msec	(Fixed value)	---
	Total dots	Controller	0 to 2,147,483,647	---	4096dots	(EEPROM initialization)
K Toner	Dispense time	Engine	0 to 99,999,999	msec	During printing	New K toner detected
	Limit value	Engine		msec	(Fixed value)	---
	Total dots	Controller	0 to 2,147,483,647	---	4096dots	(EEPROM initialization)
C Toner Change	4K toner	Controller	0 to 255	Times	When replaced C Toner	(EEPROM initialization)
	1.5K toner	Controller	0 to 255	Times	When replaced C Toner	(EEPROM initialization)
M Toner Change	4K toner	Controller	0 to 255	Times	When replaced M Toner	(EEPROM initialization)
	1.5K toner	Controller	0 to 255	Times	When replaced M Toner	(EEPROM initialization)
Y Toner Change	4K toner	Controller	0 to 255	Times	When replaced Y Toner	(EEPROM initialization)
	1.5K toner	Controller	0 to 255	Times	When replaced Y Toner	(EEPROM initialization)
K Toner Change	4K toner	Controller	0 to 255	Times	When replaced K Toner	(EEPROM initialization)
	1.5K toner	Controller	0 to 255	Times	When replaced K Toner	(EEPROM initialization)
Photoconductor		Engine	0 to 99,999,999	Rotation	During printing	New photoconductor detected
Photoconductor Change		Controller	0 to 255	Times	When replaced Photo conductor	(EEPROM initialization)
Fuser		Engine	0 to 99,999,999	Pages	During printing	Counter clear
Fuser Change		Controller	0 to 255	Times	Counter clear	(EEPROM initialization)
Fuser Change (Pages at the time of replacing the pervious one)		Controller	0 to 99,999,999	Pages	Counter clear	(EEPROM initialization)

Table 6-3. List of information managed and methods of management

Information name	Count processing and storage location	Range	Unit	Count conditions	Clear conditions
2nd BTR	Engine	0 to	pages	During printing	Counter clear
2nd BTR Change	Controller	0 to 255	Times	Counter clear	(EEPROM initialization)
Development Unit					
C Development	Engine	0 to 13,631,488	msec	During printing	Counter clear
M Development	Engine	0 to 13,631,488	msec	During printing	Counter clear
Y Development	Engine	0 to 13,631,488	msec	During printing	Counter clear
K Development	Engine	0 to 13,631,488	msec	During printing	Counter clear
C Deve Change	Controller	0 to 255	Times	Counter clear	(EEPROM initialization)
M Deve Change	Controller	0 to 255	Times	Counter clear	(EEPROM initialization)
Y Deve Change	Controller	0 to 255	Times	Counter clear	(EEPROM initialization)
K Deve Change	Controller	0 to 255	Times	Counter clear	(EEPROM initialization)
2nd BTR Offset					
Normal	Engine	0 to 15	---	(Setting value)	(Setting)
SemiThk	Engine	0 to 15	---	(Setting value)	(Setting)
Thick	Engine	0 to 15	---	(Setting value)	(Setting)
ExtraThk	Engine	0 to 15	---	(Setting value)	(Setting)
Card	Engine	0 to 15	---	(Setting value)	(Setting)
Envelope	Engine	0 to 15	---	(Setting value)	(Setting)
Power On (Times power is turned on)	Controller	0 to 99,999,999	Times	When the power is turned on	(EEPROM initialization)
Sleep (Number of recoveries from standby)	Controller	0 to 99,999,999	Times	When returning from standby	(EEPROM initialization)
MCU	Engine	---	---	(Fixed value)	None
Duplex	Engine	---	---	(Fixed value)	None
Panel Message 1	Controller	---	---	When an error occurs	SelecType, (EEPROM initialization)
Error Code 1	Controller	---	---	When an error occurs	
Error Page 1	Controller	---	---	When an error occurs	
Jam Code 1	Controller	---	---	When an error occurs	
Page Size 1	Controller	---	---	When an error occurs	
Paper Type 1	Controller	---	---	When an error occurs	
Date, Time 1	Controller	---	---	When an error occurs	

6.4.2 Print Log Report

6.4.2.1 Print Log Report Items

- ☐ S/N : Serial number of main unit
- ☐ Date : yyyy/mm/dd hh:mm (Local time)
  Not displayed when it is in asynchronous state.
- ☐ Toner Remain
  - ■ C Toner : Remaining amount of C toner [%]
  - ■ M Toner : Remaining amount of M toner [%]
  - ■ Y Toner : Remaining amount of Y toner [%]
  - ■ K Toner : Remaining amount of K toner [%]
- ☐ Print of papers [pages] : Number of printed pages by paper size.
  - ■ Total : Number of printed pages.
  - ■ Mono Simplex : Monochrome — Number of printed pages by one-side printing.
    Duplex : Number of printed pages by duplex printing.
  - ■ Color Simplex : Color (process color) — Number of printed pages by one-side printing.
    : Number of printed pages by duplex printing.
  - ■ Dummy : Number of duplex pages not actually printed.
    Paper sizes not supported for duplex printing are displayed as "---".
- ☐ Print of mode : Number of printed pages by print mode.
- ☐ Coverage Duty[%] : Percentage of printed dots in total dots per page of each color. It is avaraged each time one page is printed.
- ☐ Dots/1%[dots] : Number of dots when 1% of each toner is used.
  Updated with every reduction of 1%.
- ☐ Estimate [pages] : Estimated number of pages that can be print with remained toner. The estimate is made based on the "Coverage Duty [%]" and "Dots/1%[dots]".

EPSON AL-C1100 Print Log Report
S/N **********

Toner Remain

C Toner	98 %
M Toner	98 %
Y Toner	100 %
K Toner	100 %

Print of papers [pages]

Paper	Total	Mono Simplex	Mono Duplex	Color Simplex	Color Duplex	Dummy
A4	19	18	1	0	0	1
A5	15	5	---	10	---	---
B5	9	9	0	0	0	0
LT	0	0	0	0	0	0
HLT	0	0	---	0	---	---
GLT	0	0	---	0	---	---
EXE	191	71	60	24	36	0
POST	0	0	---	0	---	---
RNCRD	0	0	---	0	---	---
4CARD	0	0	---	0	---	---
Y0	1	1	---	0	---	---
Y4	0	0	---	0	---	---
Y6	0	0	---	0	---	---
CH3	5	5	---	0	---	---
CH4	0	0	---	0	---	---
K3	0	0	---	0	---	---
CTM	0	0	---	0	---	---

Print of mode [pages]

Mode	Simplex	Duplex	Total
Mono	109	61	170
Color	34	36	70
Total	143	97	240

	C	M	Y	K
Coverage Duty[%]	0.0	0.0	0.0	2.5
Dots/1%[dots]	16,991	16,991	16,991	16,991
Estimate[pages]	---	---	---	10,276

Figure 6-4. Print Log Report

6.4.2.2 List of information managed and methods of management

Table 6-4. List of information managed and methods of management

Information name	Count processing and storage location	Range	Unit	Count conditions	Clear conditions
Serial Number	Controller	xxxxxxxxxx	---	---	None
Date, Time	Controller	---	---	---	At Power on
C Toner	Engine	0 to 100	%	During printing	New C toner detected
M Toner	Engine	0 to 100	%	During printing	New M toner detected
Y Toner	Engine	0 to 100	%	During printing	New Y toner detected
K Toner	Engine	0 to 100	%	During printing	New K toner detected
Print [pages]					
Total	Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Mono Simplex	Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Mono Duplex	Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Color Simplex	Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Color Duplex	Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Dummy	Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)
Coverage Duty[%] C,M,Y,K	Controller	0 to 100.0	%	During printing	(EEPROM initialization)
Dots/1%[dots] C,M,Y,K	Controller	0 to 2,147,483,647	dots	During printing	(EEPROM initialization)
Estiamte[pages]	Controller	0 to 99,999,999	pages	During printing	(EEPROM initialization)

Note *1 Values in parentheses in the Clear Condition column are cleared as a result.

*2 If a value exceeds its range, it is not guaranteed if it is controlled by the controller.

6.5 Consumables and Components needing Periodic Replacement

CAUTION

The print page-based service life values of the Consumables and Periodical Replacement Parts are guidelines. The number of printable pages varies depending on how they are printed. The number of printable pages decreases depending on the intermittent printing (where a few pages, one to several pages, are printed each time), paper size, paper orientation, thick paper printing, printed document, frequent power-on/off, etc. Hence, the number of printable pages of the consumables and periodical replacement parts may become less than a half depending on the operating conditions and environment of the user.

6.5.1 Consumables

Table 6-5. Information on Consumables

Part Name			Part Code	Life (Pages)	Service life indication	Remarks
Toner Cartridge	Y	Standard capacity	0191	1,500	Replace Toner C	There are two types of toner cartridge: standard cartridge with a life of 1,500 pages, and a high-capacity cartridge with a life of 4,000 pages. (1,500 pages by the K toner is the figure for the packaged cartridge only.)
		High capacity	0187	4,000		
	M	Standard capacity	0192	1,500	Replace Toner M	
		High capacity	0188	4,000		
	C	Standard capacity	0193	1,500	Replace Toner Y	
		High capacity	0189	4,000		
	K	Standard capacity	---	---	Replace Toner K	
		High capacity	0190	4,000		
Photoconductor Unit			1104	14,000	Replace Photocondctr	---

6.5.2 Regular Replacement Parts

Table 6-6. Maintenance Information on Regular Replacement Parts

Part Name		Part Code	Life (Pages)	Service life indication	Part to be replaced at the same time	Remedy after Replacement	Remarks
FUSER ASSY		2090471	100,000	Worn Fuser	2ND BTR ASSY	Execute “Reset Fuser Counter” in the maintenance mode to reset the life counter. *1	While it can still be printed, it is desirable to replace the unit. If printing is continued, the FUSER UNIT breaks down for the last time and the following troubles may be occurred. • Fusing defect • Stain of the back side • Paper jam in the fusing section
HOUSING ASSY-DEVE	K	1292991	100,000	Worn K Dev Unit	PIVOT AD	Execute “Reset X DvlpCounter” (X=Y, M, C, K) in the maintenance mode to reset the life counter. After executing the counter reset, open and close the cover A. Do not turn the printer off until the engine completely stops.	□ While it can still be printed, it is desirable to replace the unit. □ The “PIVOT AD” is packed with the ASP “HOUSING ASSY-DEVE”.
	Y	1292994	66,700	Worn Y Dev Unit	PIVOT AD		
	M	1292996		Worn M Dev Unit	PIVOT AD		
	C	1292999		Worn C Dev Unit	PIVOT AD		
2ND BTR ASSY		1292981	100,000	---	FUSER ASSY	Execute “Reset 2ndBTRCounter” in the maintenance mode to reset the life counter. After executing the counter reset, open and close the cover A. Do not turn the printer off until the engine completely stops.	While it can still be printed, it is desirable to replace the unit.

*1:The same function is also available in the reset menu.

6.6 Glueing/Lubrication

This section explains the part required glueing and lubrication when performing the service work, or replacing the unit or parts.

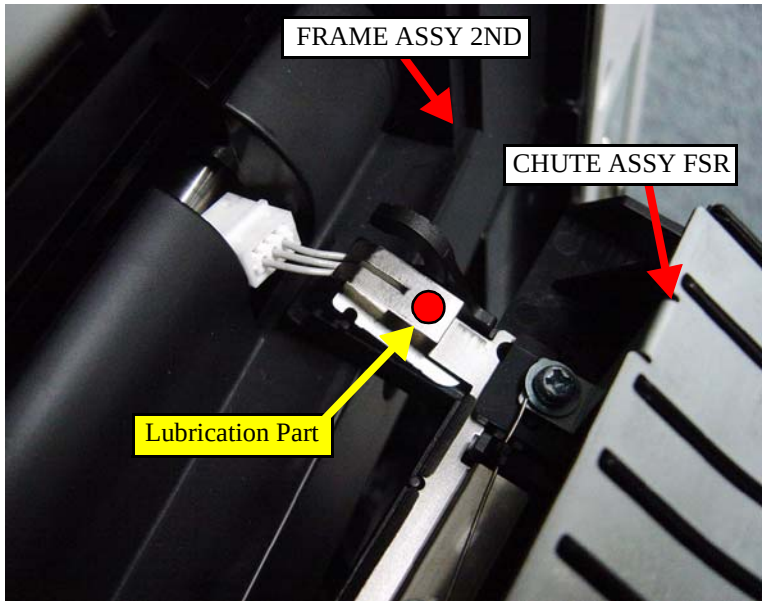
6.6.1 Glueing

There is no relevant glueing part for this unit.

6.6.2 Lubrication

The part requires lubrication for this unit is as below

Parts Name	CHUTE ASSY FSR
Lubrication Part	Spring attached on the [CHUTE ASSY FSR]
Types of oil applied	Parts Name : GREASE G76 Parts Number : 1304691
Amount of lublicate	About 5mm
Note	Lubrication is required when CHUTE ASSY FSR and FRAME ASSY 2ND are replaced at the same time. When replacing only one of them, lubrication is not necessary as the grease is remaining on the other one.



CHAPTER

7

APPENDIX

7.1 Connectors

This section shows the connector locations of EPSON AcuLaser C1100. [P] and [J] represent “plug” and “jack”, respectively.

7.1.1 The List of Plugs and Jacks

IOT

Table 7-1. IOT

P/J	Location	Remarks
1	G-156	Connects PWBA FUSER CONT and HARNESS ASSY MAIN
2	G-156	Connects PWBA FUSER CONT and HARNESS ASSY AC
3	G-157	Connects PWBA FUSER CONT and HARNESS ASSY MCU C/L
100	F-122	Connects SWITCH-P/H DOOR and HARNESS ASSY P/H2
101	G-123	Connects SENSOR OHP and HARNESS ASSY P/H2
102	F-123	Connects SENSOR REGI and HARNESS ASSY P/H2
103	D-124	Connects SENSOR PAPER EMPTY and HARNESS ASSY P/H1
104	H-110	Connects SENSOR HUM&TEMP and HARNESS ASSY MAIN
105	D-108	Connects SENSOR ROTARY HOME POSI and HARNESS ASSY MAIN
106	H-108	Connects ANTENNA CTRG and HARNESS ASSY MAIN
107	D-107	Connects SENSOR IBT RETRACT and HARNESS ASSY MAIN
108	D-106	Connects SENSOR TR-0 and HARNESS-ASSY XERO
109	D-106	Connects ANTENNA ASSY and HARNESS-ASSY XERO
111	G-137	Connects SENSOR FUSER IN and HARNESS ASSY 2BTR SENS
112	H-137	Connects SENSOR 2BTR RETRUCT and HARNESS ASSY ADC
113	H-136	Connects SWITCH 2BTR COVER and HARNESS ASSY 2BTR SW
114	D-104	Connects SWITCH -INLK FUSER and HARNESS ASSY MAIN
115	G-107	Connects SWITCH-INLK FRONT and HARNESS ASSY MAIN
116	G-108	Connects SWITCH ASSY TOP and HARNESS ASSY MAIN
117	D-105	Connects SWITCH-INLK FUSER and HARNESS ASSY MAIN
125	G-108	Connects SWITCH-FRONT DOOR and HARNESS ASSY MAIN

Table 7-1. IOT

P/J	Location	Remarks
126	F-138	Connects SENSOR TNER FULL and HARNESS ASSY TNER FULL
128	G-153	Connects FUSER LOCK SWITCH and HARNESS ASSY MAIN
200	H-153	Connects MOT ASSY P/R and HARNESS ASSY MAIN
201	G-153	Connects MOT ASSY P/R and HARNESS ASSY MAIN
202	F-124	Connects CLUTCH ASSY PRE REGI and HARNESS ASSY P/H2
203	F-122	Connects CLUTCH ASSY REGI and HARNESS ASSY P/H2
204	C-109	For connection inside of MOT ASSY ROT
400	I-149	Connects PWBA MCU and FFC-ASSY ESS
401	I-149	Connects PWBA MCU and FFC-ASSY LV/MCU
403	H-148	Connects PWBA MCU and HARNESS ASSY MAIN
404	H-148	Connects PWBA MCU and MOT ASSY FSR
405	H-148	Connects PWBA MCU and MOT ASSY MAG
406	H-149	Connects PWBA MCU and MOT ASSY MAG
407	H-149	Connects PWBA MCU and HARNESS ASSY MAIN
408	H-148	Connects PWBA MCU and HARNESS ASSY P/H1
409	H-148	Connects PWBA MCU and HARNESS ASSY P/H1
410	I-148	Connects PWBA MCU and HARNESS ASSY MAIN
411	I-148	Connects PWBA MCU and DRIVE ASSY PRO
412	I-148	Connects PWBA MCU and HARNESS ASSY MAIN
413	I-148	Connects PWBA MCU and HARNESS ASSY MAIN
414	I-147	Connects PWBA MCU and DRIVE ASSY PRO
415	J-147	Connects PWBA MCU and HARNESS-ASSY MAIN
416	J-147	Connects PWBA MCU and HARNESS-ASSY XERO
417	I-147	Connects PWBA MCU and HARNESS ASSY MCU C/L
418	I-147	Connects PWBA MCU and HARNESS ASSY ADC
420	J-148	Connects PWBA MCU and HARNESS ASSY MAIN
421	J-148	Connects PWBA MCU and HARNESS ASSY MAIN
422	I-147	Connects PWBA MCU and HARNESS ASSY ADC
429	D-109	Connects PWBA CRUM and HARNESS ASSY MAIN

Table 7-1. IOT

P/J	Location	Remarks
430	E-109	Connects PWB ASSY ROT and HARNESS ASSY MAIN
431	F-138	Connects SENSOR ASSY ADC and HARNESS ASSY ADC
432	D-109	Connects PWB ASSY ROT and HARNESS ASSY MAIN
433	D-109	Connects PWB ASSY ROT and PWB ASSY MOT
500	H-153	Connects LV/HVPS and FFC-ASSY LV/MCU
501	I-152	Connects LV/HVPS and HARNESS ASSY MAIN
502	I-153	Connects LV/HVPS and HARNESS ASSY MAIN
503	I-155	Connects LV/HVPS and HARNESS ASSY AC
504	H-154	Connects LV/HVPS and WIRE ASSY BTR
505	F-109	Connects LV/HVPS and WIRE ASSY 2BTR
506	E-109	Connects PWBA HVPS and WIRE ASSY IBT
507	E-109	Connects PWBA HVPS and WIRE ASSY DTN
508	H-155	Connects LV/HVPS and WIRE ASSY BCR
509	H-156	Connects LV/HVPS and WIRE ASSY DEVE
510	I-108	Connects HOLDER ASSY BIAS and WIRE ASSY DEVE
512	I-107	Connects GUIDE CRU ASSY AD and WIRE ASSY BTR
513	H-107	Connects GUIDE CRU ASSY AD and WIRE ASSY IBT
514	I-108	Connects GUIDE CRU ASSY AD and WIRE ASSY BCR
515	H-153	Connects LV/HVPS and HARNESS ASSY MAIN
516	F-110	Connects PWBA HVPS and HARNESS ASSY MAIN
600	F-153	Connects MOT ASSY MICRO and HARNESS ASSY MAIN
601	H-138	Connects ROS ASSY and HARNESS ASSY MAIN
602	H-138	Connects ROS ASSY and HARNESS ASSY MAIN
603	F-124	Connects HARNESS ASSY P/H1 and HARNESS ASSY P/H2
604	F-124	Connects MOTOR-PH and HARNESS ASSY P/H1
605	E-124	Connects SOLENOID PICK UP and HARNESS ASSY P/H1
607	E-140	Connects HARNESS ASSY MAIN and HARNESS ASSY DUP2
614	E-105	Connects FUSER ASSY and HARNESS ASSY MCU C/L
617	D-140	Connects HARNESS-ASSY TNER FULL and HARNESS ASSY MAIN

Table 7-1. IOT

P/J	Location	Remarks
620	H-137	Connects HARNESS ASSY 2BTR SENS and HARNESS ASSY ADC
621	I-136	Connects HARNESS ASSY 2BTR SW and HARNESS ASSY ADC
CN1	B-106	Connects OP PANEL and HARNESS ASSY PANEL
CN405	G-155	Connects PWBA ESS and HARNESS ASSY PANEL
CN501	G-156	Connects PWBA ESS and HARNESS ASSY MAIN
CN502	G-155	Connects PWBA ESS and HARNESS ASSY MAIN
CN601	G-155	Connects PWBA ESS and FFC-ASSY ESS
T2	I-107	Connects PLATE BIAS-2ND ASSY and WIRE ASSY 2BTR
T4	H-107	Connects GUIDE CRU ASSY AD and WIRE ASSY DTN

DUP

Table 7-2. DUP

P/J	Location	Remarks
122	G-207	Connects SWITCH-DUP DOOR and HARNESS-ASSY DUP1
123	E-209	Connects SENSOR LOW PASS and HARNESS-ASSY DUP2
124	F-205	Connects SENSOR UPPER PASS and HARNESS-ASSY DUP1
442	H-209	Connects SENSOR UPPER PASS and MOTOR ASSY DUP
443	G-209	Connects PWBA DUP-L and HARNESS-ASSY DUP2
444	H-208	Connects PWBA DUP-L and HARNESS-ASSY DUP1
607	B-209	Connects HARNESS ASSY MAIN and HARNESS-ASSY DUP2
611	D-204	Connects SOLENOID ASSY DUP and HARNESS-ASSY DUP1
612	G-206	Connects MOTOR ASSY DUP INV and HARNESS-ASSY DUP1

500 FEEDER

Table 7-3. 500 FEEDER

P/J	Location	Remarks
119	E-307	Connects SENSOR NO PAPER and HARNESS ASSY FEED3
120	D-307	Connects SENSOR T/R (P120) and HARNESS ASSY FEED3
121	C-308	Connects SWITCH FEEDER DOOR and HARNESS-ASSY FEED MAIN
435	E-309	Connects PWBA TRAY 500 and HARNESS-ASSY FEED1
436	E-309	Connects PWBA TRAY 500 and HARNESS-ASSY FEED2
437	E-309	Connects PWBA TRAY 500 and HARNESS-ASSY FEED MAIN
440	E-308	Connects PWBA MOT and HARNESS-ASSY FEED MAIN
446	D-308	Connects PWBA MOT and MOTOR ASSY FEEDER
608	D-307	Connects HARNESS ASSY MAIN and HARNESS-ASSY FEED1
609	C-309	Connects CLUTCH ASSY FEED and HARNESS-ASSY FEED MAIN
610	C-308	Connects SOLENOID FEED and HARNESS-ASSY FEED MAIN
618	D-307	Connects HARNESS ASSY FEED MAIN and HARNESS ASSY FEED3
4358	D-309	Not Connects

7.1.2 P/J Layout Diagram

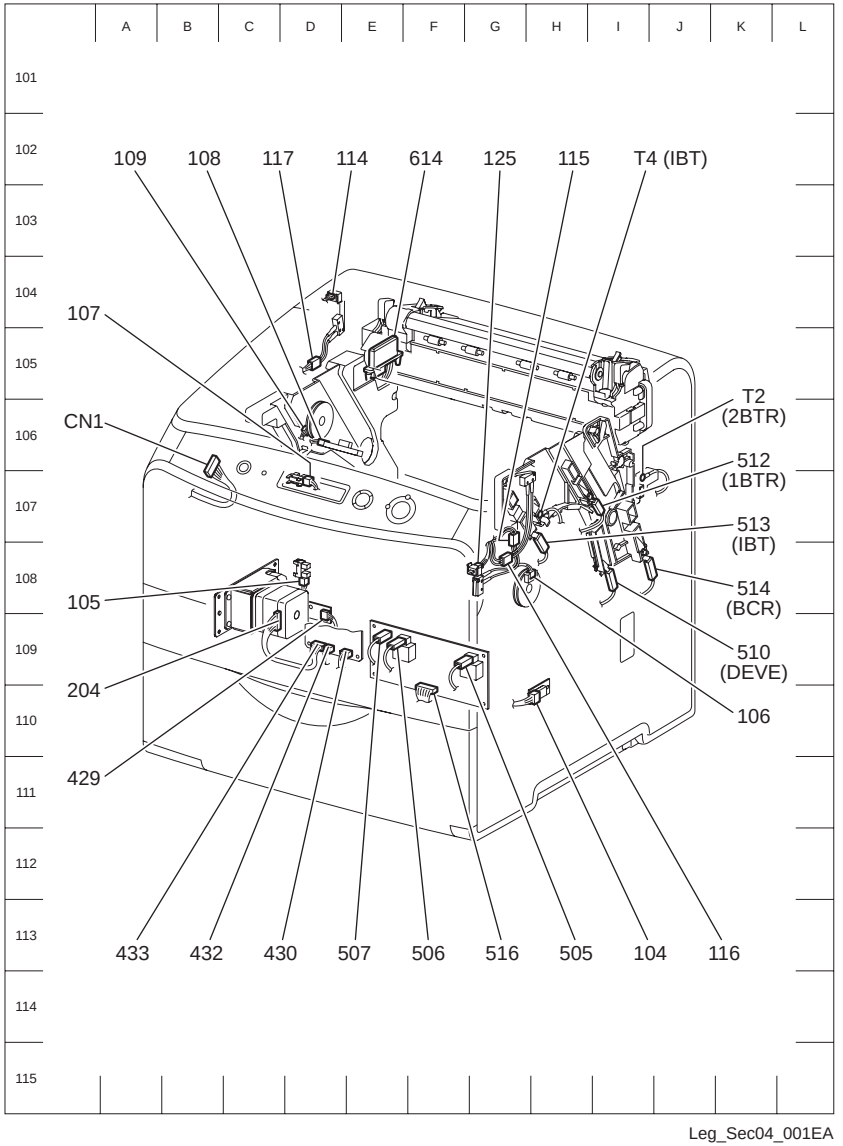


Figure 7-1. IOT P/J Layout Diagram (1)

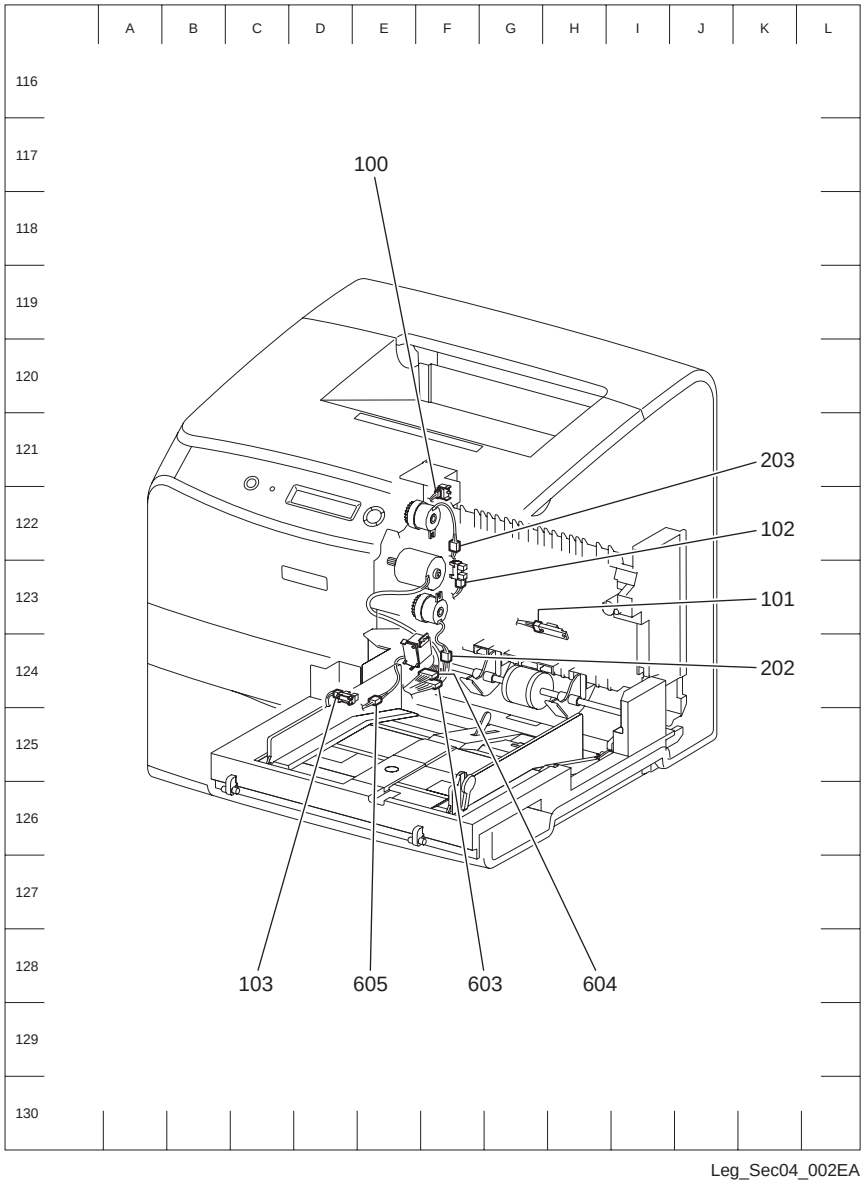


Figure 7-2. IOT P/J Layout Diagram (2)

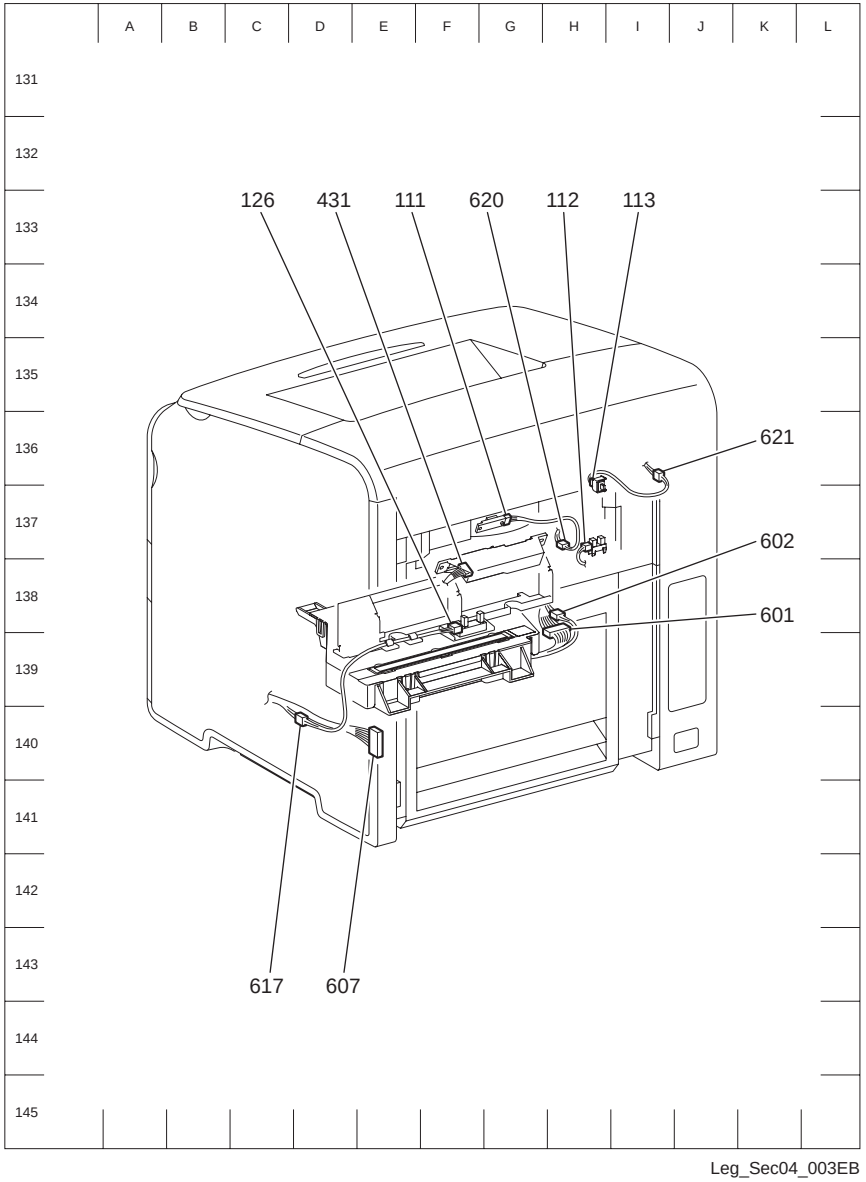


Figure 7-3. IOT P/J Layout Diagram (3)

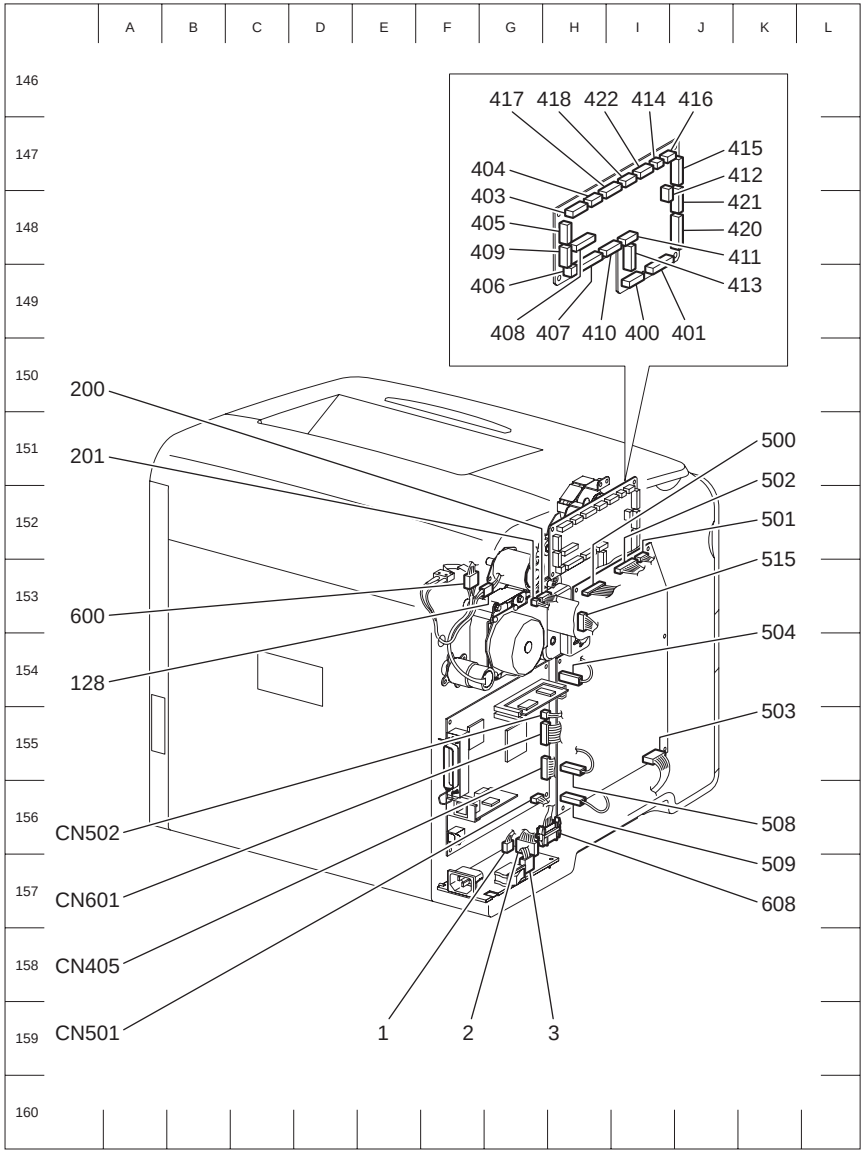


Figure 7-4. IOT P/J Layout Diagram (4)

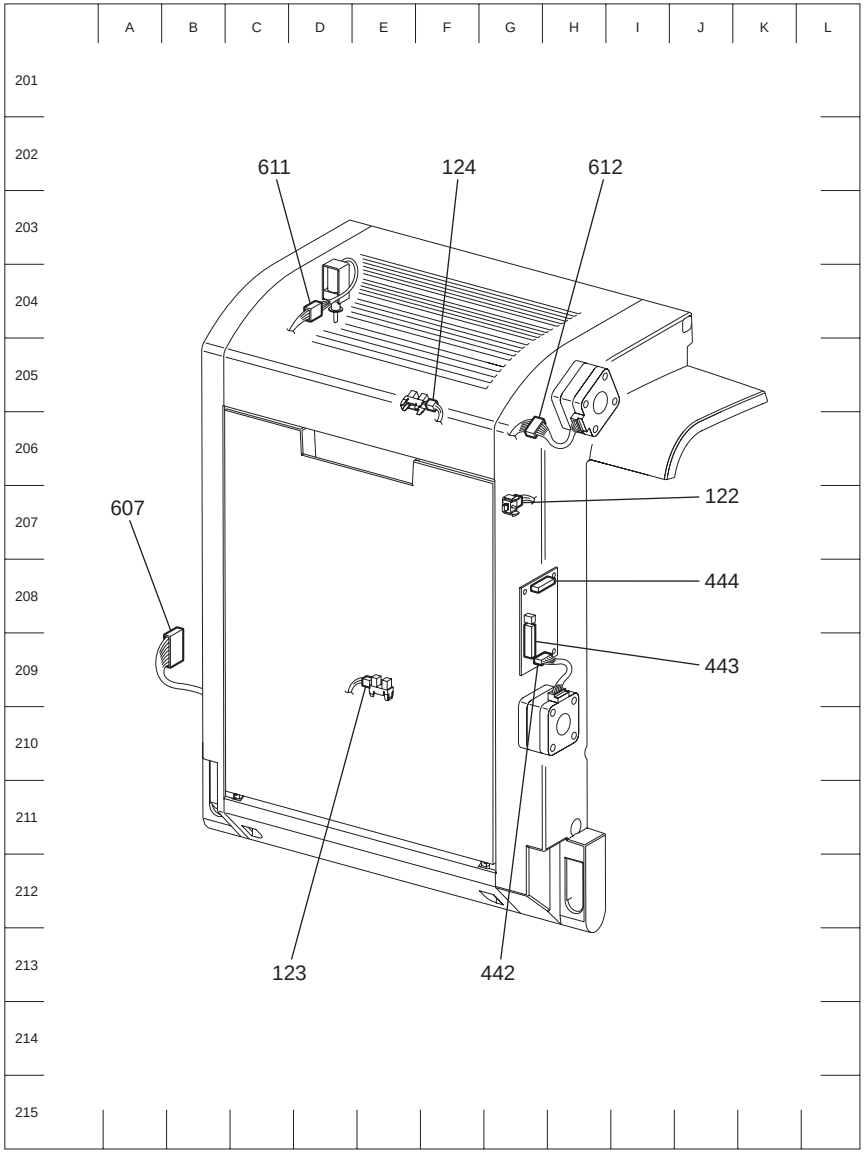


Figure 7-5. DUP P/J Layout Diagram

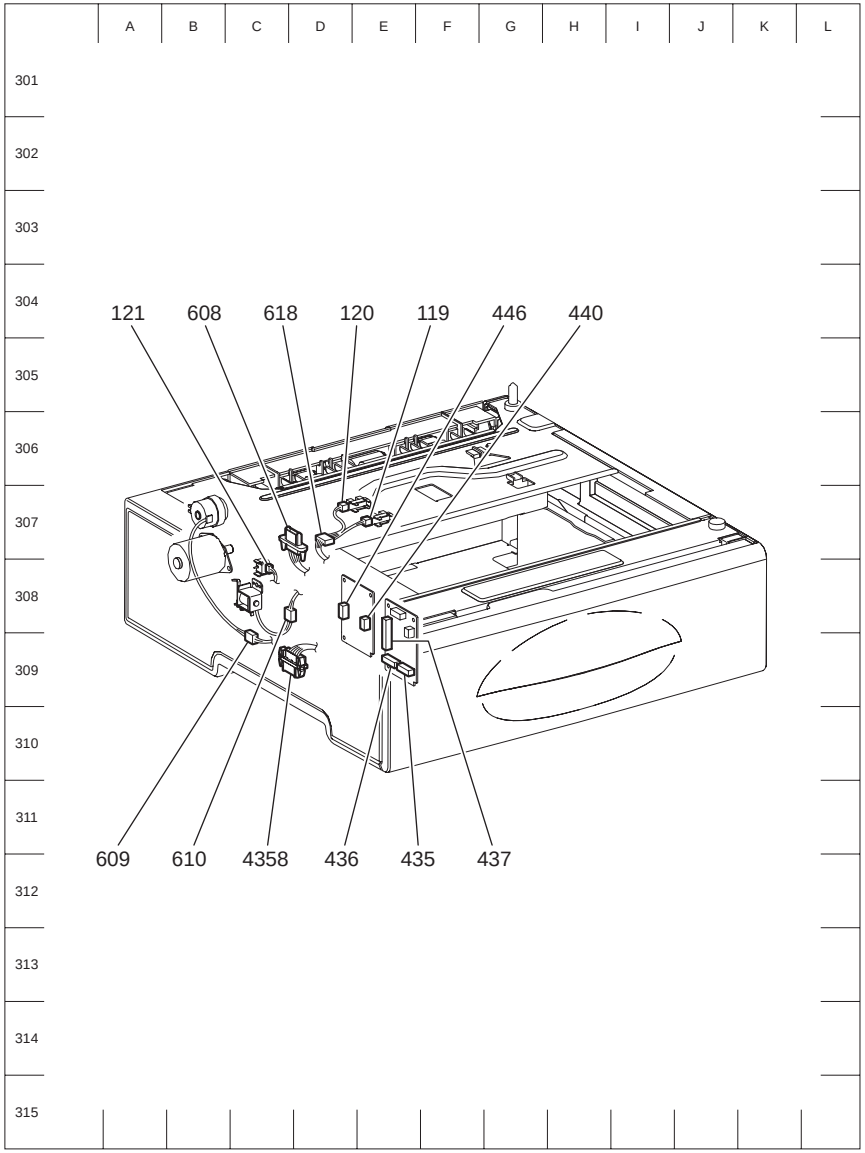


Figure 7-6. 500 FEEDER P/J Layout Diagram

7.2 Wiring Connection Diagrams

7.2.1 Marks used in the Overall Wiring Connection Diagram

The table below shows how to interpret the Overall Wiring Connection Diagrams.

Table 7-4. List of the Marks

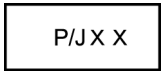
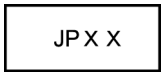
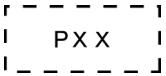
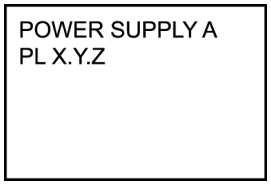
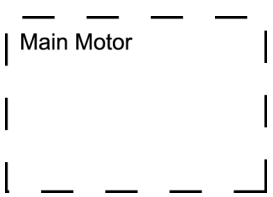
Name of signal line	Remarks
	Indicates a connection between parts by harness, wire, etc.
	Indicates a connection that differs according to the specification.
	Indicates a connection between parts by conductive materials such as a leaf spring.
	Indicates a connection between parts by tightening of screws.
	Indicates Frame Ground.
	Indicates a connector, and the connector No.
	Indicates a connection terminal with an on-board leaf spring, etc., and the connector (terminal) No.
	Indicates a connector attached directly to the board, and the connector No.
	Box with a part name in it indicates the part.

Table 7-4. List of the Marks

Name of signal line	Remarks
	Indicates a functional component in a part, and its name.
	Indicates a section in "7.3 Wiring Connection Diagram between Parts" *(p519)*, and the section No.
	Indicates the screw for fastening conductive materials such as leaf springs to harnesses.
	Indicates conductive materials such as leaf spring.

7.2.2 Overall Wiring Connection Diagrams

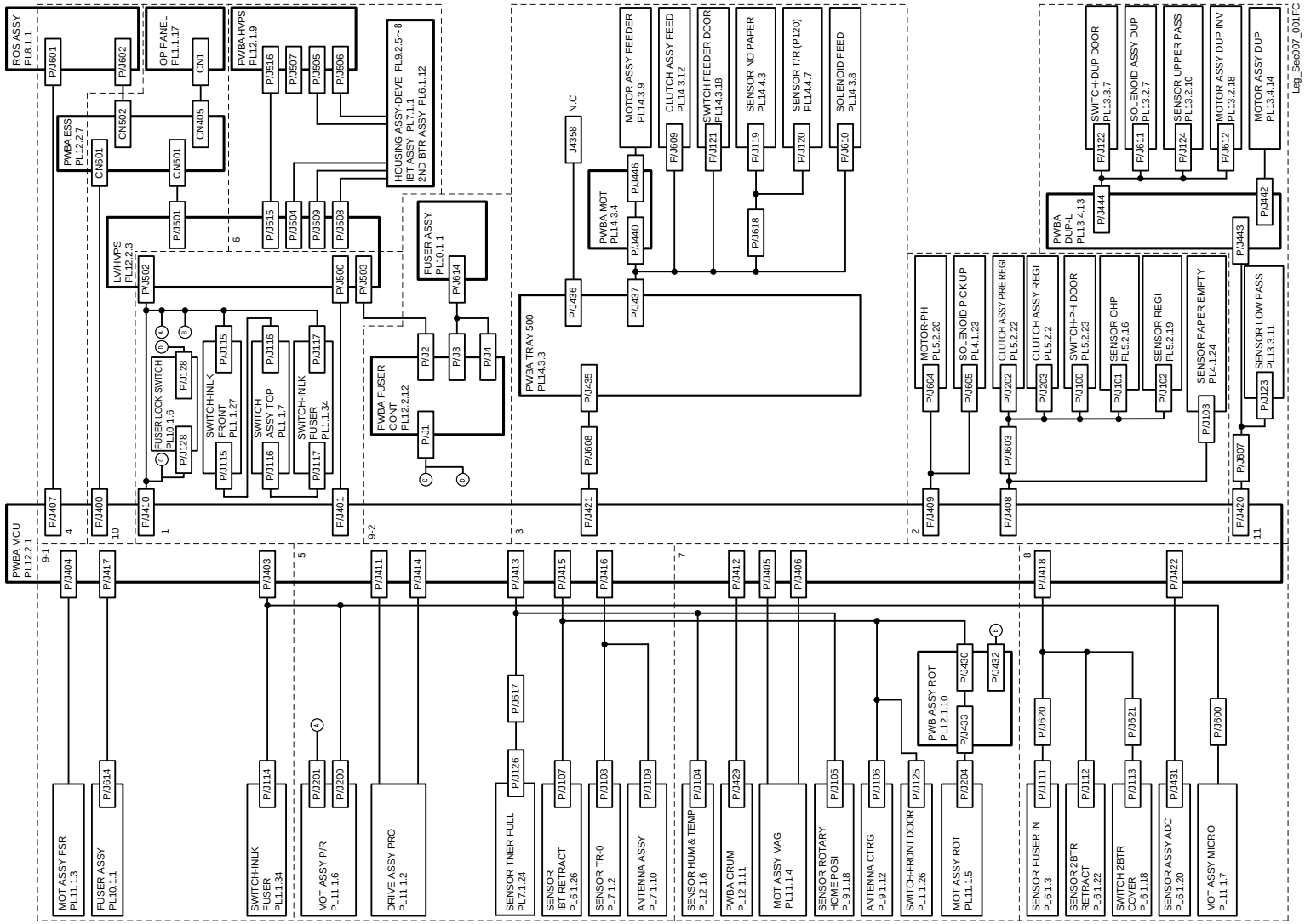


Figure 7-7. Overall Wiring Connection Diagrams

7.3 Wiring Connection Diagram between Parts

7.3.1 Marks used in the Diagram and Instructions for Use

The table below shows how to interpret the Wiring Connection Diagram between Parts. Commonly used marks and symbols are omitted here.

Table 7-5. List of the Marks

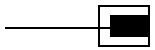
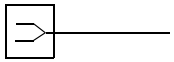
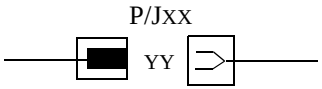
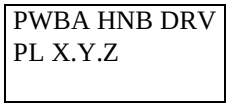
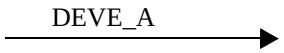
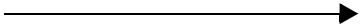
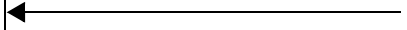
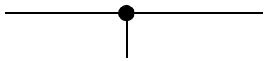
Name of signal line	Remarks
	Indicates a plug.
	Indicates a jack.
	Indicates a Pin YY or Jack YY for the connector PXX and JXX.
	Indicates a part.
	Indicates a functional component in a part, and its name.
	Indicates control inside of PWB, and a brief outline of the control.
	Indicates a connection between parts by a harness, wire, etc., and its signal name/details. The arrow indicates the direction of the signal.

Table 7-5. List of the Marks

Name of signal line	Remarks
	Indicates the logical value (Low: L, High: H) of the signal for enabling the function. The voltage is the value when the signal is High. The arrow indicates the direction of the signal.
	Indicates the logical value (Low: L, High: H) of the signal when the function is detected. The voltage is the value when the signal is High. The arrow indicates the direction of the signal.
	Indicates connection such as between wiring.
I/L +24VDC	Indicates the DC voltage when the HNB MCU WITH CPU internal interlock switch is ON.
+5VDC +3.3VDC	Indicates DC voltage.
SG	Indicates a Signal Ground.
AG	Indicates a Analog Ground.
RTN	Indicates a Return.

7.3.2 Composition of the Wiring Connection Diagram between Parts

The Overall Wiring Connection Diagram is divided into 11 sections as shown below to indicate the detailed connection between parts.

1. DC POWER SUPPLY *(p522)*
   - Connection between PWBA MCU and LV/HVPS
   - Connection between LV/HVPS and PWBA FUSER CONTROL
   - Connection between LV/HVPS and MOT ASSY P/R
   - Connection between LV/HVPS and PWB ASSY ROT
   - Connection between LV/HVPS and SWITCH-INLK FRONT
   - Connection between SWITCH-INLK FRONT and SWITCH ASSY TOP
   - Connection between SWITCH ASSY TOP and SWITCH-INLK FUSER
   - Connection between SWITCH-INLK FUSER and LV/HVPS

2. MSI REGI *(p523)*
   - Connection between PWBA MCU and MOTOR-PH
   - Connection between PWBA MCU and SOLENOID PICK UP
   - Connection between PWBA MCU and CLUTCH ASSY PRE REGI
   - Connection between PWBA MCU and CLUTCH ASSY REGI
   - Connection between PWBA MCU and SWICH-PH DOOR
   - Connection between PWBA MCU and SENSOR OHP
   - Connection between PWBA MCU and SENSOR REGI
   - Connection between PWBA MCU and SENSOR PAPER EMPTY

3. FEEDER (500) *(p524)*
   - Connection between PWBA MCU and PWBA TRAY 500
   - Connection between PWBA TRAY 500 and CLUTCH ASSY FEED
   - Connection between PWBA TRAY 500 and SWITCH FEEDER
   - Connection between PWBA TRAY 500 and SENSOR NO PAPER
   - Connection between PWBA TRAY 500 and SENSOR T/R
   - Connection between PWBA TRAY 500 and SOLENOID FEED
   - Connection between PWBA TRAY 500 and PWBA MOT
   - Connection between PWBA MOT and MOTOR ASSY FEEDER

4. ROS *(p525)*
   - Connection between PWBA MCU and ROS ASSY
   - Connection between ROS ASSY and PWBA ESS

5. XEROGRAPHIC *(p526)*
   - Connection between PWBA MCU and DRIVE ASSY PRO
   - Connection between PWBA MCU and SENSOR TNER FULL
   - Connection between PWBA MCU and SENSOR IBT RETRACT
   - Connection between PWBA MCU and SENSOR TR-0
   - Connection between PWBA MCU and ANTENNA ASSY
   - Connection between PWBA MCU and MOT ASSY P/R
   - Connection between LV/HVPS and MOT ASSY P/R

6. HIGH VOLTAGE *(p527)*
   - Connection between LV/HVPS and PWBA HVPS
   - Connection between LV/HVPS and HOUSING ASSY-DEVE, IBT ASSY, 2ND BTR ASSY
   - Connection between LV/HVPS and PWBA MCU

7. DEVELOPER *(p528)*
   - Connection between PWBA MCU and SWITCH FRONT-DOOR
   - Connection between PWBA MCU and SENSOR HUM & TEMP
   - Connection between PWBA MCU and PWBA CRUM
   - Connection between PWBA MCU and MOT ASSY MAG
   - Connection between PWBA MCU and SENSOR ROTARY HOME POSI
   - Connection between PWBA MCU and ANTENNA CTRG
   - Connection between PWBA MCU and PWB ASSY ROT
   - Connection between PWB ASSY ROT and MOT ASSY ROT
   - Connection between PWB ASSY ROT and LV/HVPS

8. 2nd BTR *(p529)*
   - Connection between PWBA MCU and SENSOR FUSER IN
   - Connection between PWBA MCU and SENSOR 2BTR RETRACT
   - Connection between PWBA MCU and SWITCH 2BTR COVER
   - Connection between PWBA MCU and SENSOR ASSY ADC
   - Connection between PWBA MCU and MOT ASSY MICRO

9. FUSER *(p530)*
   - Connection between PWBA MCU and MOT ASSY FUSER
   - Connection between PWBA MCU and FUSER ASSY
   - Connection between PWBA MCU and SWITCH-FUSER DOOR
   - Connection between PWBA MCU and FUSER LOCK SWITCH
   - Connection between LV/HVPS and PWBA FUSER CONT
   - Connection between PWBA FUSER CONT and FUSER ASSY
   - Connection between PWBA FUSER CONT and PWBA MCU
   - Connection between PWBA FUSER CONT and FUSER LOCK SWITCH
   - Connection between LV/HVPS and PWBA MCU

10. CONTROLLER *(p531)*
    - Connection between PWBA MCU and PWBA ESS
    - Connection between PWBA ESS and OP PANEL
    - Connection between PWBA ESS and LV/HVPS

11. DUPLEX *(p532)*
    - Connection between PWBA MCU and PWBA DUP-L
    - Connection between PWBA DUP-L and SENSOR LOW PASS
    - Connection between PWBA DUP-L and SWITCH-DUP DOOR
    - Connection between PWBA DUP-L and SOLENOID ASSY DUP
    - Connection between PWBA DUP-L and SENSOR UPPER PASS
    - Connection between PWBA DUP-L and MOTOR ASSY DUP INV
    - Connection between PWBA DUP-L and MOTOR ASSY DUP

1. DC POWER SUPPLY

☐ Overcurrent Protection
All outputs (+24VDC, +5VDC, +3.3VDC) from LV/HVPS are stopped when short-circuiting on the way to the earth or ground. Each output is restored by eliminating the cause of the short-circuit, and turning the printer OFF and then back ON after a fixed time has elapsed. The overcurrent protection circuit is actuated when a current exceeds 16A flows.

☐ Overvoltage Protection
All outputs from LV/HVPS are stopped when an overvoltage is detected.The operating voltages for overvoltage protection of each output are as follows:

- ■ +24VDC:36VDC
- ■ +5VDC:7VDC
- ■ +3.3VDC:5VDC

☐ Power save

Name of signal line	Remarks
POWER SAVE	Signal for turning +24VDC OFF

☐ Output stopped by Interlock Switch

Name of signal line	Remarks
I/L +5VDC	

- ■ The I/L +5VDC signal that arrives via Front Interlock Switch, Upper Interlock Switch and Fuser Interlock Switch becomes the power source of the LV/HVPS internal Relay coil. This signal opens/closes Relay contacts, and controls INTERLOCK +24VDC and INTERLOCK +5VDC.

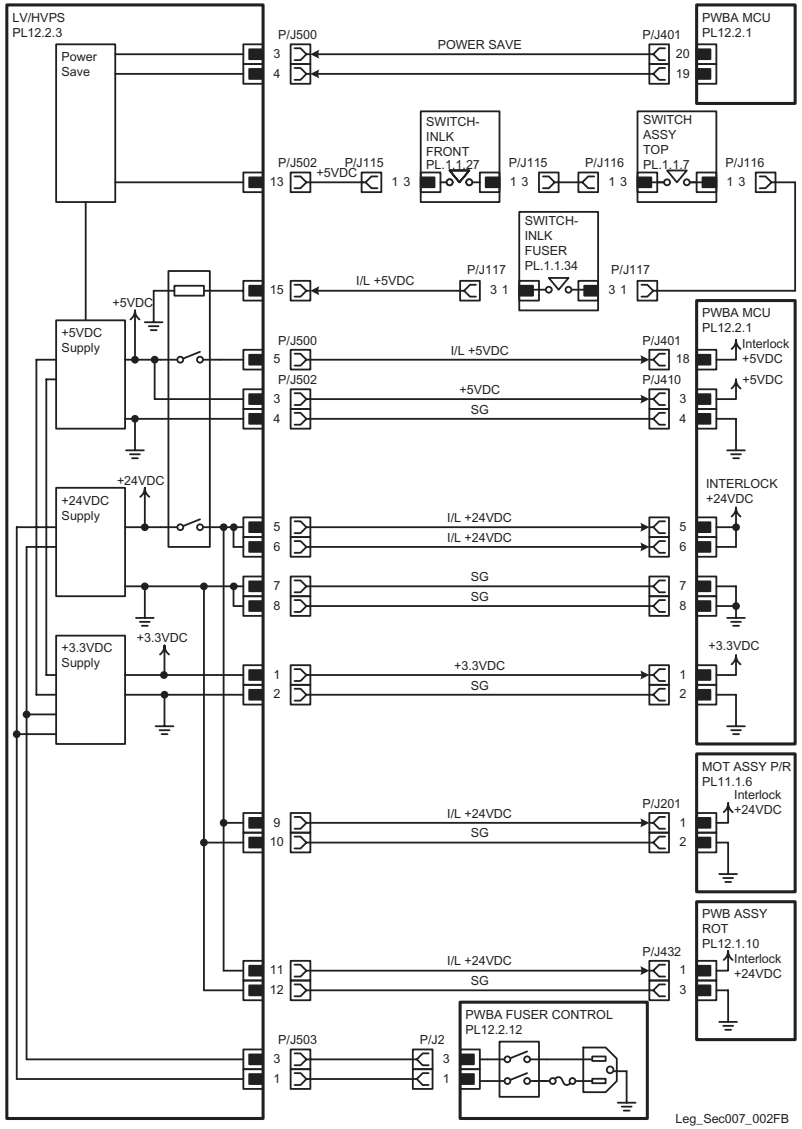


Figure 7-8. DC POWER SUPPLY Connection and Wiring Diagram

2. MSI&REGI

Name of signal line	Remarks
PAPER EMPTY SENSED (H) +5VDC	Paper detection signal for MSI generated by Sensor Photo (No Paper Sensor)
P/H MOTER ON (H)+3.3VDC P/H MOTER PWM P/H MOTER FG P/H MOTER CW/CCW	P/H MOTOR drive control signal
FEED SOL ON (L)+24VDC	Solenoid Feed ON/OFF signal
PREREGI CL ON (L)+24VDC	Pre-Regi Clutch ON/OFF signal
REGI CL ON (L)+24VDC	Regi Clutch ON/OFF signal
P/H DOOR SW OPEND (H)+3.3VDC	CHTE ASSY REATR open/close detection signal generated by P/H Door Switch
OHP SENSED (H)+5VDC	OHP media detection signal generated by Sensor Photo (OHP Sensor)
REGI SENSED (H)+5VDC	Paper detection signal at REGI section generated by Sensor Photo (REGI Sensor)

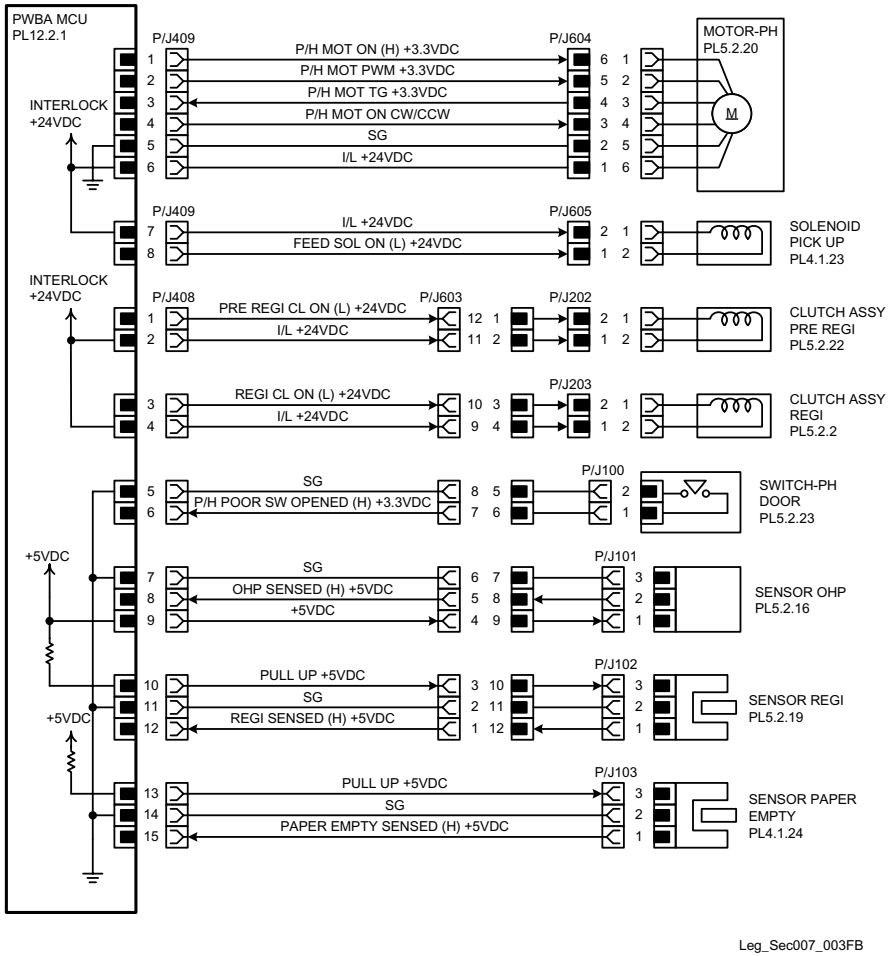


Figure 7-9. MSI&REGI Connection and Wiring Diagram

3. FEEDER (500)

Name of signal line	Remarks
TRAY SENSOR RXD TXD	PWBA TRAY CONT. control signal
FEED MOTOR ON (H)+	FEEDER MOTOR control signal
FEED CL ON (L)+24VDC	Feed Clutch ON/OFF signal
DOOR SW OPEND (H)+5VDC	Rear Cover open/close detection signal generated by Door Rear Cover Switch
NO PAPER SENSED (H)+5VDC	Paper detection signal at Paper Tray generated by Sensor Photo (No Paper Sensor)
PAPER PASS SENSED (L)+5VDC	Paper feed start detection signal generated by Sensor Photo (Paper Pass Sensor)
FEED SOL ON (L)+24VDC	Solenoid Feed ON/OFF signal

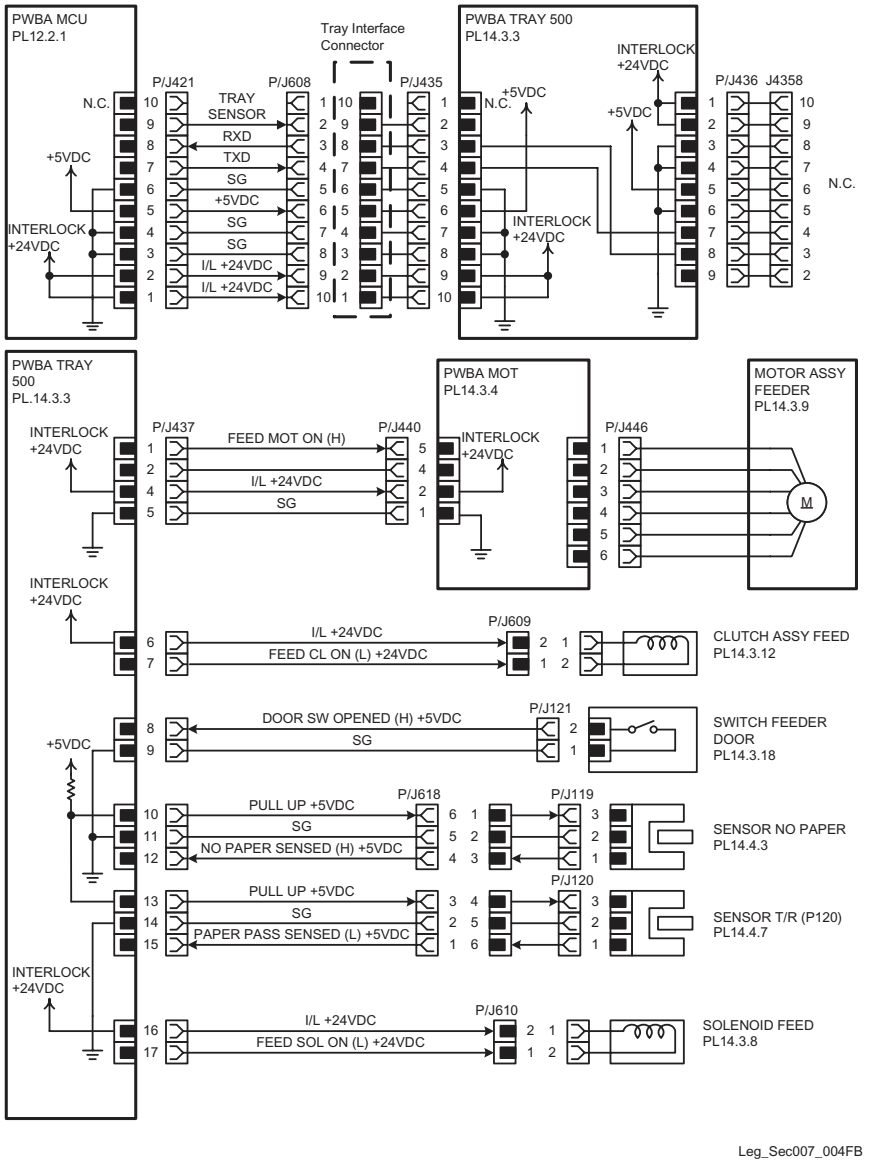


Figure 7-10. FEEDER (500) Connection and Wiring Diagram

4. ROS

Name of signal line	Remarks
ESS DATA- ESS DATA+	Image signal from Controller
MCU DATA- MCU DATA+	Image signal from MCU
PCONT LASER ON (L)+5VDC VREF	PWBA LD control signal in ROS ASSY
SCANNER MOTOR ON (L)+5VDC SCANNER MOTOR CLOCK	PWBA Scanner control signal in ROS ASSY
SOS SENSED (L)+5VDC	Reference signal for start of laser scanning

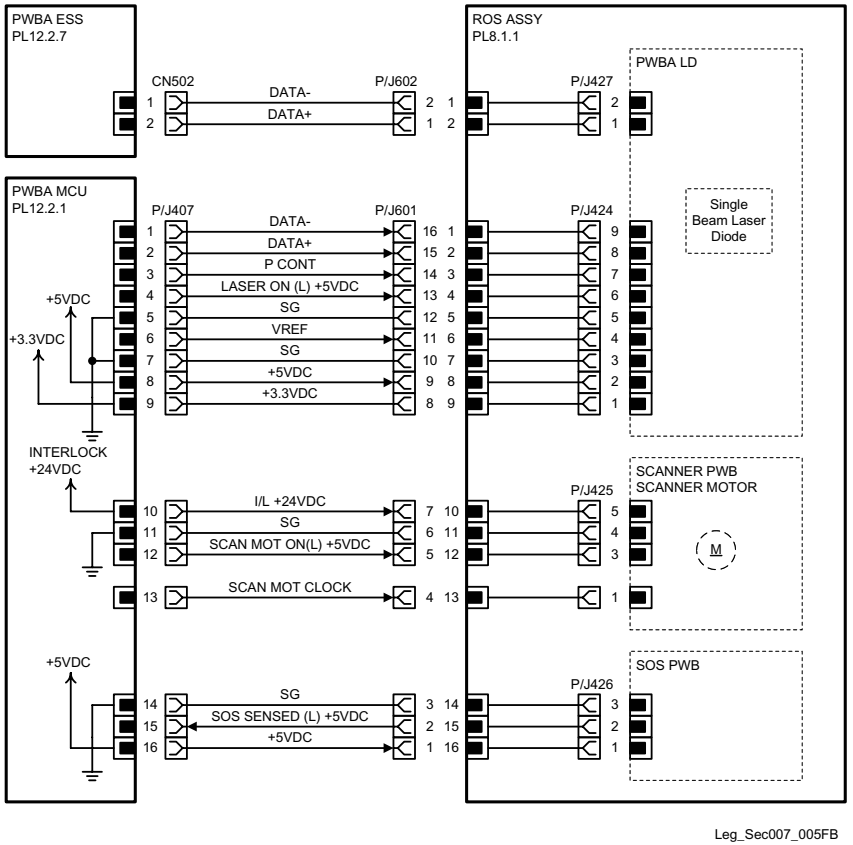


Figure 7-11. ROS Connection and Wiring Diagram

5. XEROGRAPHIC

Name of signal line	Remarks
IBT BRUSH MOT ON IBT BRUSH MOT PWM IBT BRUSH MOT TG IBT BRUSH MOT CW/CCW	IBT Brush Motor drive control signal
IBT CLEN RET MOT START IBT CLEN RET MOT PWM IBT CLEN RET MOT TG	IBT Cleaner Retract Motor drive control signal
FULL TONER SENSED (H)+5VDC	Full toner detection signal generated by Sensor Photo (Sensor Toner Full)
IBT RETRACT SENSED (L)+5VDC	IBT Cleaner retract detection signal generated by Sensor Photo (IBT Retract Sensor)
TR0 SENSED (H)+5VDCS	Belt position detection signal generated by Sensor Photo (TR0 Sensor)
ANTENNA OUT ANTENNA IN	Crum XERO Antenna control signal
P/R MOT GAIN P/R MOT CLK P/R MOT LD P/R MOT FG P/R MOT ON (L)+	P/R Motor drive control signal

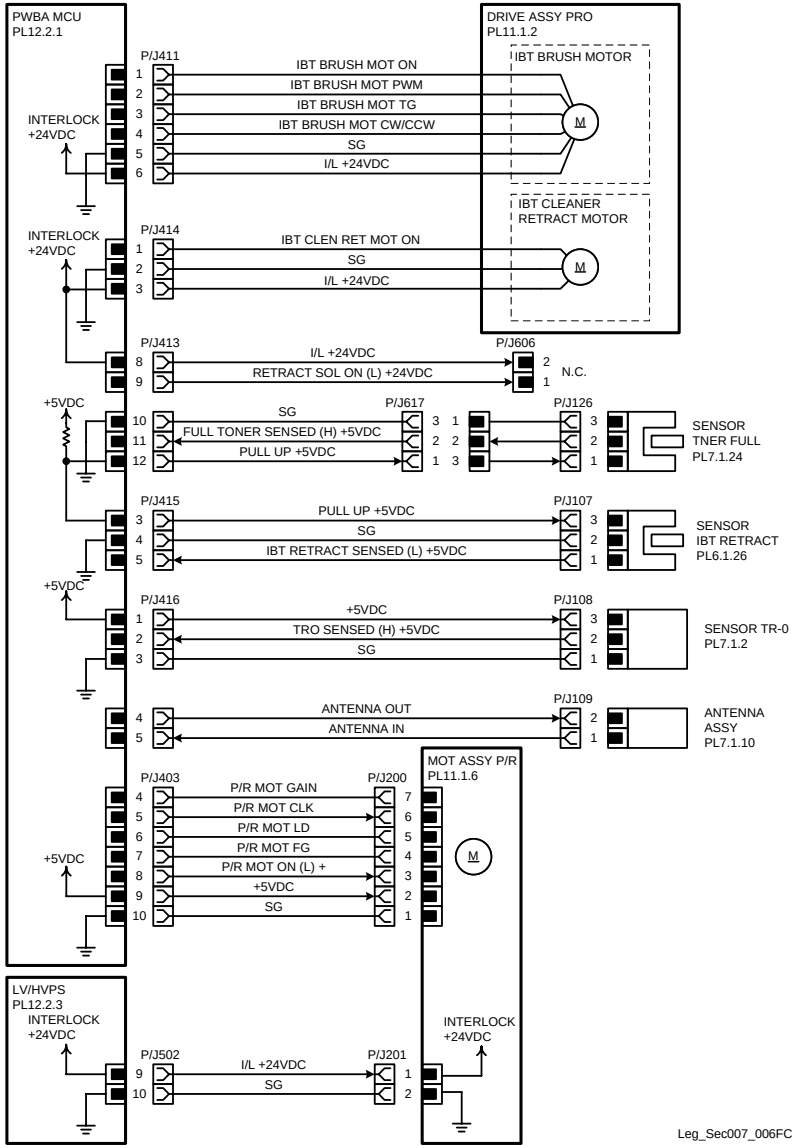


Figure 7-12. XEROGRAPHIC Connection and Wiring Diagram

6. HIGH VOLTAGE

Name of signal line	Remarks
1st BTR CONT	1st BTR Bias voltage control signal
IBT CLEANER H/L	1BT CLEANER Bias voltage control signal
BCR CONT	BCR Bias voltage control signal
DE-TONER CONT	DE-TONER Bias voltage control signal
DEVE BIAS ON	DEVE Bias ON/OFF signal
DEVE BIAS CONT	DEVE Bias voltage control signal
IBT CLEANER ON	Belt Cleaning Brush Bias ON/OFF signal
1st BTR REV ON	1st BTR DC Bias control signal
2nd BTR REV ON	2nd BTR DC Bias control signal
1st BTR ON	1st BTR DC ON/OFF signal
2nd BTR ON	2nd BTR DC ON/OFF signal
DEVE BIAS CLK	DEVE AC Bias cycle control signal
2nd BTR CONT	2nd BTR Bias voltage control signal
BCR CLK	BCR Bias cycle control signal

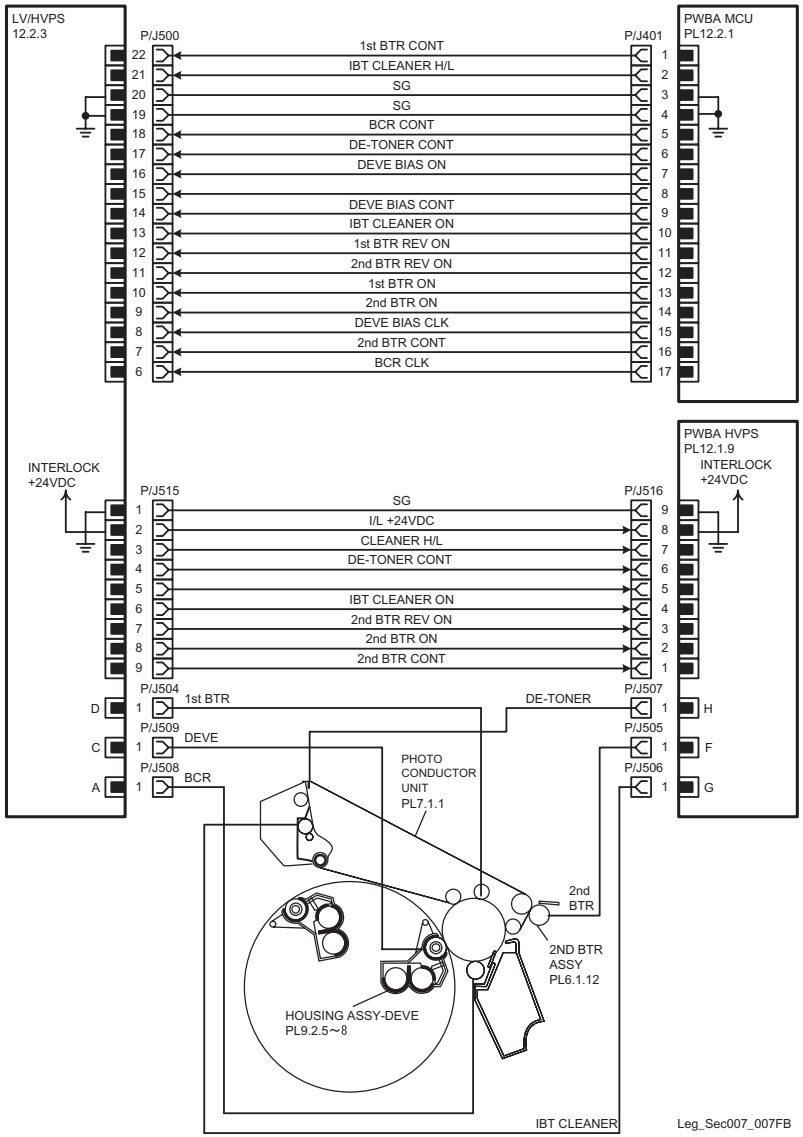


Figure 7-13. HIGH VOLTAGE Connection and Wiring Diagram

7. DEVELOPER

Name of signal line	Remarks
MAG ROLL MOT ON MAG ROLL MOT PWM MAG ROLL MOT TG MAG ROLL MOT CW/CCW	Magnet Roll Motor drive control signal
TEMP.	Temperature data (analog value) inside printer measured by Sensor
HUMI.	Humidity data (analog value) inside printer measured by Sensor
HOME POSITION SENSED (H)+5VDC	Home position detection signal of Deve Rotary generated by Sensor Photo (Rotary Home Position Sensor)
ANTENNA OUT ANTENNA IN	CRUME Cartridge Antenna control signal
SG HOLD CLOCK ON (H) +5VDC	PWBA Rotate Motor Control control signal
DEVE ROT A,XA,B,XB	Deve Rotate Motor excitation signal
DATA CLOCK	PWBA CRUM control signal
FRONT DOOR OPEN (H)+3.3VDC	Front Door open/close detection signal

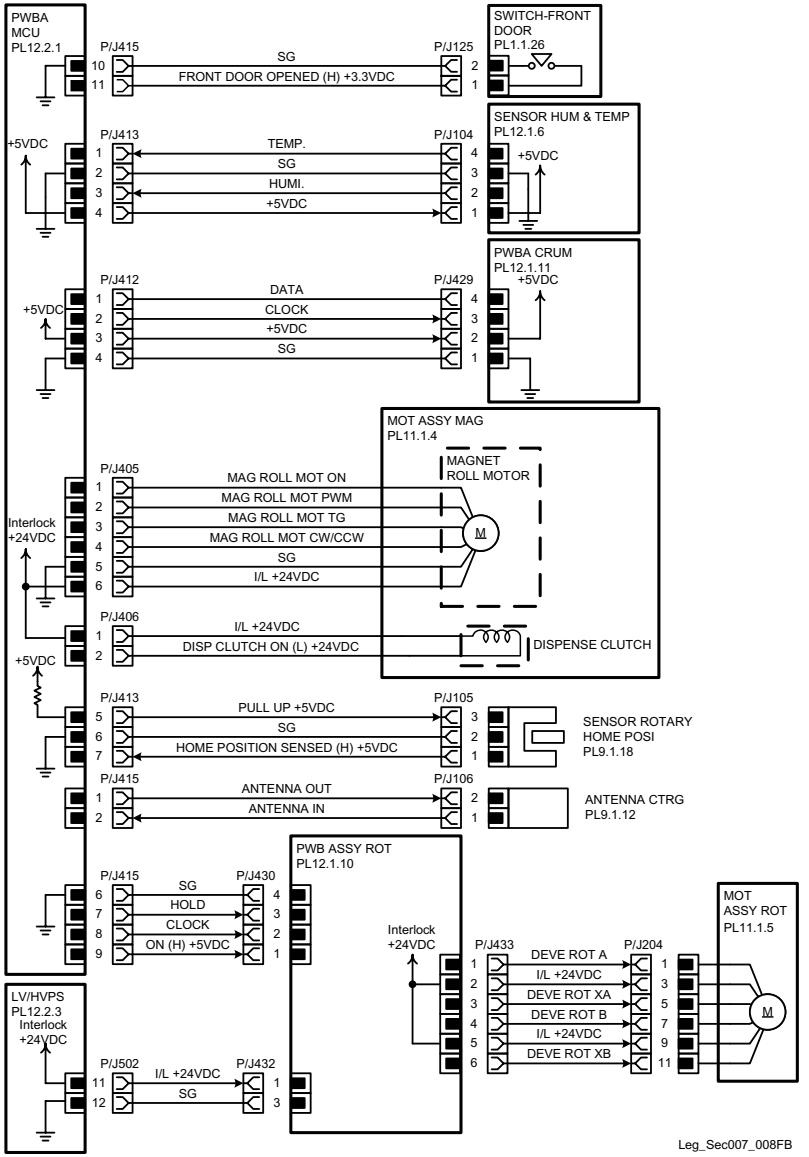


Figure 7-14. DEVELOPER Connection and Wiring Diagram

8. 2ND BTR

Name of signal line	Remarks
FUSER IN SENSED (L)+5VDC	2nd BTR paper detection signal generated by Sensor Photo (Fuser In Sensor)
RETRACT SENSED (H)+5VDC	2nd BTR retract detection signal generated by Sensor Photo (2nd BTR Retract Sensor)
ADC SOL RELEASE ON (L)+24VDC	Sensor ADC internal Solenoid ON/OFF signal
ADC SOL NIP ON (L)+24VDC	Sensor ADC internal Solenoid ON/OFF signal
ADC LED COLOR ON (L)+5VDC	Lighting signal of LED for detection of Sensor ADC internal color toner patch
ADC LED BLACK ON (L)+5VDC	Lighting signal of LED for detection of Sensor ADC internal black toner patch
ADC SENSOR	Toner patch density data (analog value) measured by sensor
RETRACT MOT ON (H)+3.3VDC RETRACT MOT PWM	2nd BTR Retract Motor control signal

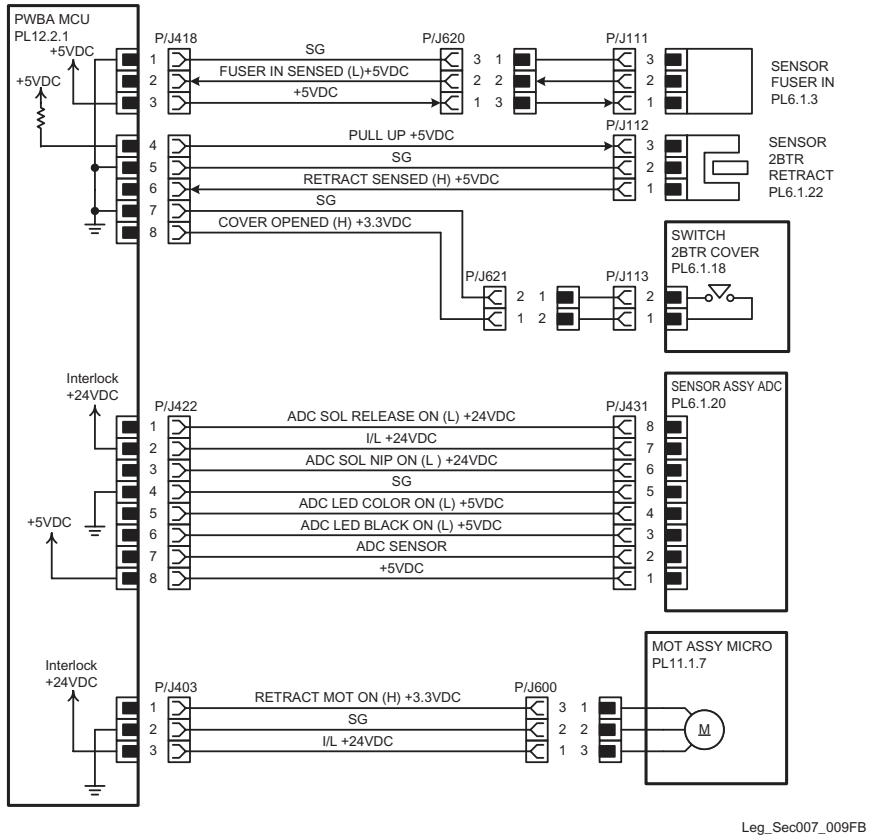


Figure 7-15. 2nd BTR Connection and Wiring Diagram

9. FUSER

Name of signal line	Remarks
FUSER MOT ON (H)+3.3VDC FUSER MOT PWM FUSER MOT TG FUSER MOT CW/CCW	Fuser Motor drive control signal
RL	Temperature data (analog value) of Heat Roll surface temperature measured by Temp. Sensor for high-temperature detection
VC	Temperature data (analog value) measured by Temp. Sensor for temperature control
VD	Temperature data (analog value) measured by Temp. Sensor for temperature control
FUSER EXIT SENSED (L)+5VDC	Paper ejection detection signal generated by Sensor Photo (Fuser Exit Sensor)
DATA CLOCK	Crum control signal
FLICKER CLK +3.3VDC	Flicker countermeasure control signal (AC220V/ AC240V only)
LAMP ON (L)+	Fuser Lamp lighting signal
RELAY ON (L)+24VDC	Fuser Lamp Relay ON/OFF signal in PWBA Fuser Cont
FUSER DOOR SW OPEND (H)+3.3VDC	Cover Fuser open/close detection signal

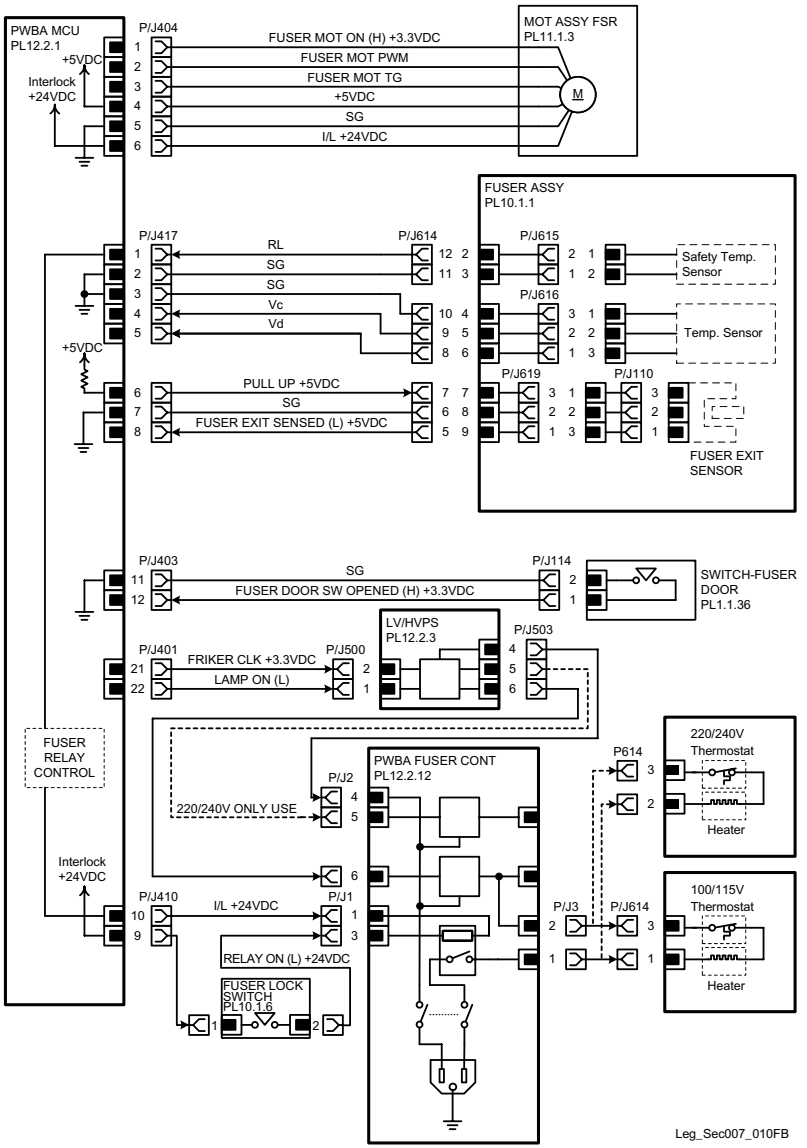


Figure 7-16. FUSER Connection and Wiring Diagram

10. CONTROLLER

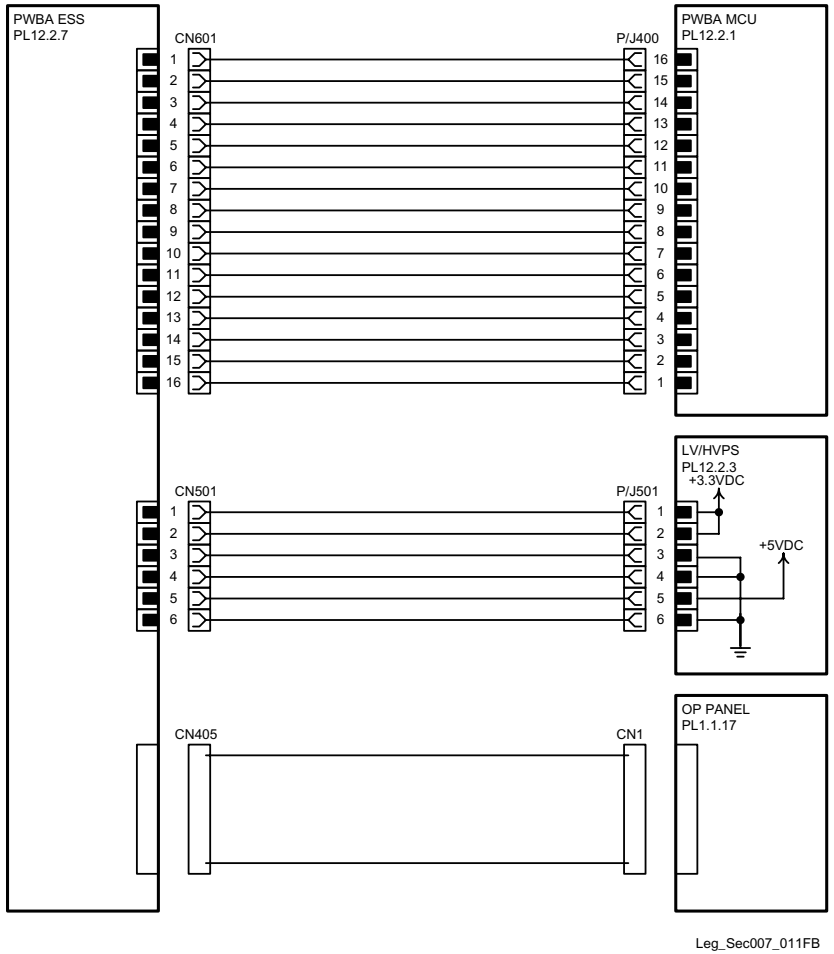


Figure 7-17. CONTROLLER Connection and Wiring Diagram

11. DUPLEX

Name of signal line	Remarks
DUPLEX START DUPLEX READY FUSER EXIT SENSOR PRE REGI CLUTCH TXD RXD	PWBA DUP control signal
LOW PASS SENSED (L)+5VDC	Paper detection signal for Transport section generated by Sensor Photo (Low Pass Sensor)
DOOR SW OPEND (H)+5VDC	Cover Dup open/close detection signal generated by Duplex Door Switch
GATE SOL PULL ON (L)+24VDC	Gate Solenoid pull (one-side printing) signal
GATE SOL PUSH ON (L)+24VDC	Gate Solenoid push (duplex printing) signal
UPPER PASS SENSED (L)+5VDC	Paper detection signal for Invert section generated by Sensor Photo (Upper Pass Sensor)
DUP UPPER A, XA, B, XB	Upper roll Motor excitation signal
DUP LOWER A, XA, B, XB	Lower roll Motor excitation signal

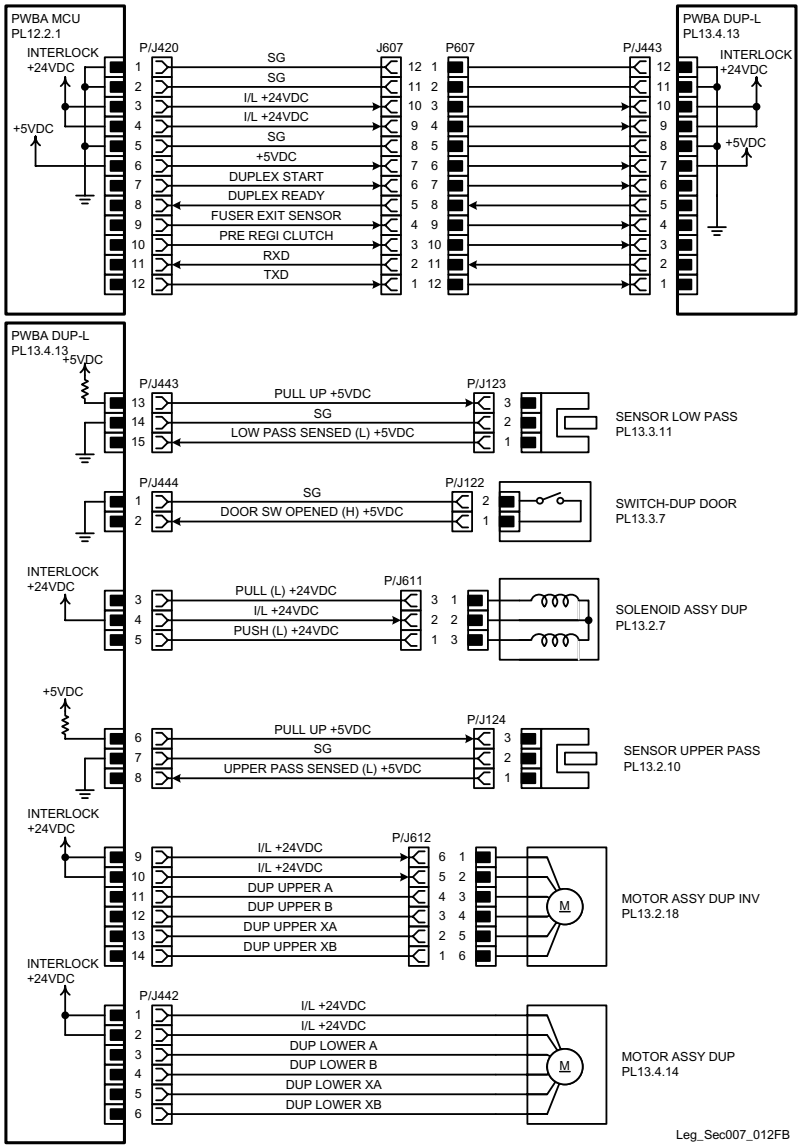


Figure 7-18. DUPLEX Connection and Wiring Diagram

7.4 Unpacking the Printer

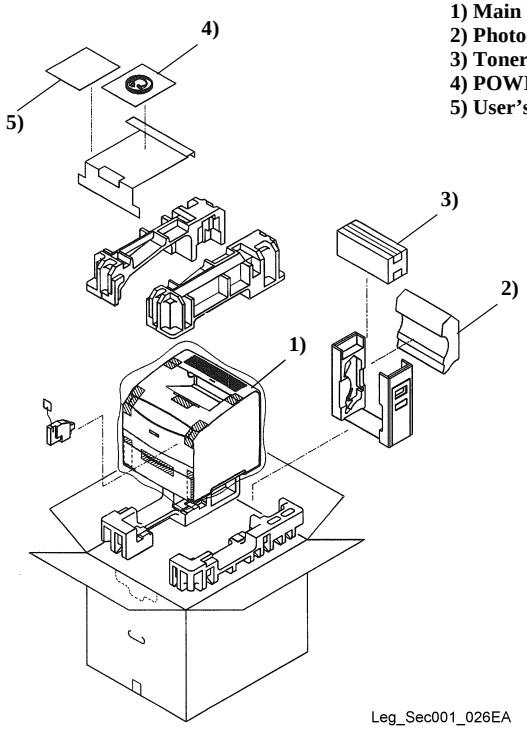
CAUTION

- **Carrying the printer should be done by at least two people keeping it in a horizontal position.**
- **Since the rear side of the printer is heavier than its front side, be aware of the difference when carrying the printer.**
- **Use extreme care during the installation to avoid an accident and injury.**

After unpacking, make sure that there is no missing component, and check the appearance.

Then remove all tapes and protection materials.

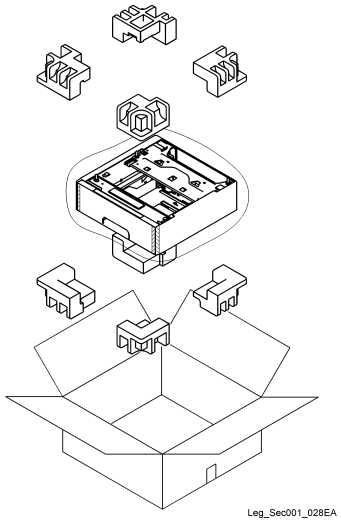
☐ Printer Main Unit



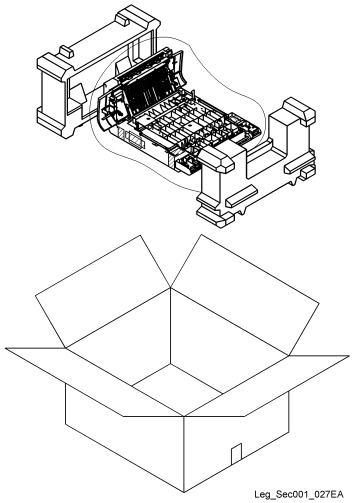
1) Main Unit
2) Photoconductor Unit
3) Toner Cartridge (YMCK)
4) POWER CORD
5) User's Guide

☐ 500-Sheet Paper Cassette Unit

1) Main Unit



☐ Duplex Print Unit



1) Main Unit
2) COVER CONNECTOR
3) SCREW THUMB (2 pcs.)

7.5 Parts List

MAIN UNIT

Table 7-6. MAIN UNIT

No.	Part Name
01-01-02	TRAY EXTENSION
01-01-03	COVER TOP
01-01-04	COVER HUSER
01-01-05	COVER TOP SIDE L
01-01-06	COVER TOP SIDE R
01-01-07	SWITCH ASSY TOP
01-01-10	COVER CLEANER
01-01-100	“LOGO PLATE,13X54;C”
01-01-12	FOOT REAR
01-01-13	FOOT FRONT
01-01-14	COVER MSI
01-01-15	COVER FRONT-L
01-01-16	COVER FRONT ASSY-U
01-01-17	“CONTROL,PANEL”
01-01-18	HARNESS
01-01-19	COVER ASSY LH
01-01-20	COVER LH
01-01-21	COVER ESS
01-01-22	SWITCH ASSY FUSER
01-01-23	COVER TRAY
01-01-24	COVER INNER TOP
01-01-26	EXIT CHUTE SWITCH
01-01-27	SWITCH INLK FRONT
01-01-28	COVER ASSY RH

Table 7-6. MAIN UNIT

No.	Part Name
01-01-32	COVER DUP
01-01-33	COVER INNER L
01-01-34	SWITCH INLK FRONT
01-01-36	EXIT CHUTE SWITCH
01-01-99	KIT SLIDE BAR
12-02-01	PWBA MCU
12-02-02	FFC-ASSY LV/MCU
12-02-03	LV/HVPS
12-02-04	HARNESS ASSY AC
12-02-05	FFC-ASSY ESS
12-02-07	“BOARD ASSY., MAIN”
12-02-08	“BOARD ASSY.,MEMORY”
12-02-10	HARNESS ASSY MAIN
12-02-12	PWBA FUSER CONT
12-02-13	POWER CABLE
12-02-13	POWER CABLE
04-01-01	MSI ASSY
04-01-02	ROLL ASSY MSI
04-01-08	ROLL MSI
04-01-09	CHUTE MSI
04-01-11	GEAR MANUAL
04-01-12	GUIDE SIDE L
04-01-13	GUIDE ASSY SIDE R
04-01-15	PLATE BOTTOM ASSY MSI
04-01-16	HOLDER ASSY RETARD MSI
04-01-17	PLATE ASSY RETARD
04-01-20	OIL DAMPER
04-01-22	GEAR PICK UP

Table 7-6. MAIN UNIT

No.	Part Name
04-01-23	SOLENOID PICK UP
04-01-24	SENSOR UPPER PASS
04-01-25	ACUTUATOR EMPTY
04-01-26	HARNESS-ASSY P/H1
05-01-01	COVER-PH
05-01-02	CHUTE ASSY-REAR
05-02-01	FRAME ASSY-PH
05-02-02	CLUTCH ASSY REGI
05-02-06	GEAR-REGI
05-02-08	ROLL REGI RUBBER
05-02-11	VARISTOR
05-02-12	ROLL ASSY-PRE REGI
05-02-16	SENSOR
05-02-17	SPRING-ACTUATOR
05-02-18	ACTUATOR-REGI
05-02-19	SENSOR UPPER PASS
05-02-20	MOTOR-PH
05-02-21	HARNESS ASSY P/H2
05-02-22	CLUTCH ASSY REGI
05-02-23	EXIT CHUTE SWITCH
05-02-24	DRIVE ASSY PH
05-02-25	COVER HARNESS
06-01-01	CHUTE ASSY-FSR
06-01-03	SENSOR
06-01-04	HARNESS ASSY 2BTR SENS
06-01-06	DIODE FUSER
06-01-07	FRAME ASSY-2ND
06-01-08	GEAR 27

Table 7-6. MAIN UNIT

No.	Part Name
06-01-12	2ND BTR ASSY
06-01-13	CAM ASSY-2ND
06-01-15	COVER ASSY-RR 2ND
06-01-16	HARNESS ASSY 2BTR SW
06-01-18	EXIT CHUTE SWITCH
06-01-20	SENSOR ASSY ADC
06-01-21	HOLDER-ADC 2ND
06-01-22	SENSOR UPPER PASS
06-01-26	SENSOR UPPER PASS
06-01-27	PLATE BIAS-2ND ASSY
06-01-29	CAM ASSY-IBT CL
06-01-30	HARNESS ASSY ADC
07-01-02	SENSOR TR-0
07-01-04	GUIDE CRU ASSY D
07-01-12	HARNESS ASSY XERO
07-01-13	GUIDE CRU ASSY AD
07-01-15	LEVER-LATCH PR
07-01-16	CAP-PLATE PR
07-01-20	BCR CLN XERO ASSY
07-01-24	SENSOR TNER FULL
07-01-27	GUIDE CRU
07-01-30	WIRE ASSY IBT
07-01-31	WIRE ASSY BTR
07-01-32	WIRE ASSY BCR
07-01-33	WIRE ASSY DTN
08-01-01	ROS ASSY
08-01-02	CLEANER ASSY
08-01-05	CLEANER ASSY BASE

Table 7-6. MAIN UNIT

No.	Part Name
09-01-01	LATCH ASSY-ROTARY
09-01-04	LEVER LATCH
09-01-10	ANTENNA ASSY-CTRG
09-01-15	LEVER CTRG SET
09-01-17	HOLDER ASSY-BIAS
09-01-18	SENSOR UPPER PASS
09-01-20	WIRE ASSY DEVE
09-02-05	HOUSING ASSY-DEVE K
09-02-06	HOUSING ASSY-DEVE Y
09-02-07	HOUSING ASSY-DEVE M
09-02-08	HOUSING ASSY-DEVE C
09-02-09	FRAME ASSY-ROTARY
09-02-10	PIVOT ASSY
09-02-11	PIVOT AD
09-02-13	BEARING BALL
10-01-01	FUSER ASSY
10-01-02	HARNESS ASSY MCU C/L
10-01-06	FUSER LOCK SWITCH
11-01-01	DRIVE ASSY BTR
11-01-02	DRIVE ASSY PRO
11-01-03	MOT ASSY FSR
11-01-04	MOT ASSY MAG
11-01-05	MOT ASSY ROT
11-01-06	MOT ASSY P/R
11-01-07	MOT ASSY MICRO
11-01-09	GEAR 2ND
12-01-06	SENSOR HUM & TEMP
12-01-09	PWBA HVPS

Table 7-6. MAIN UNIT

No.	Part Name
12-01-10	PWB ASSY ROT
12-01-11	PWBA CRUM
NONFIG	GREASE G76

DUPLEX UNIT

Table 7-7. DUPLEX UNIT

No.	Part Name
01-01-02	COVER-R DUP
01-01-03	COVER-L DUP
01-01-04	SCREW THUMB
01-01-06	COVER CONNECTOR
01-02-01	COVER INV
01-02-03	LINK-BUTTON
01-02-04	SPRING-LINK
01-02-05	INVERTER ASSY DUP
01-02-07	SOLENOID ASSY DUP
01-02-08	SPRING ACTUATOR
01-02-09	ACTUATOR INV
01-02-10	SENSOR UPPER PASS
01-02-15	GEAR 20/21H
01-02-16	GEAR 30
01-02-17	GEAR 36
01-02-18	MOTOR ASSY DUP INV
01-02-20	GEAR 48H
01-02-21	ROLLER ASSY INVERTER
01-02-22	CHUTE ASSY-INV LOW
01-02-23	ROLL PINCH DUP
01-02-28	HARNESS-ASSY DUP 1
01-02-29	ROLL ASSY PINCH DUP
01-03-01	TRANSPORT ASSY DUP
01-03-03	LATCH DUP R
01-03-07	EXIT CHUTE SWITCH
01-03-09	ACTUATOR INV

Table 7-7. DUPLEX UNIT

No.	Part Name
01-03-10	SPRING ACTUATOR
01-03-11	SENSOR UPPER PASS
01-03-12	LATCH DUP L
01-03-22	HARNESS-ASSY DUP 2
01-03-23	COVER LOW DUP TRANS
01-03-24	COVER-UP DUP TRANS
01-03-25	PAD DAMPER L
01-03-30	PAD DAMPER R
01-03-99	KIT SUPPORT DUP
01-04-01	ROLLER ASSY DUP
01-04-06	GEAR 30
01-04-07	GEAR 36
01-04-08	GEAR 40/42
01-04-09	GEAR 48H
01-04-10	GEAR 30 OW
01-04-13	PWBA DUP-L
01-04-14	MOTOR ASSY DUP INV
01-04-17	ROLLER ASSY DUP OUT

500-SHEET PAPER CASSETTE UNIT

Table 7-8. 500-SHEET PAPER CASSETTE UNIT

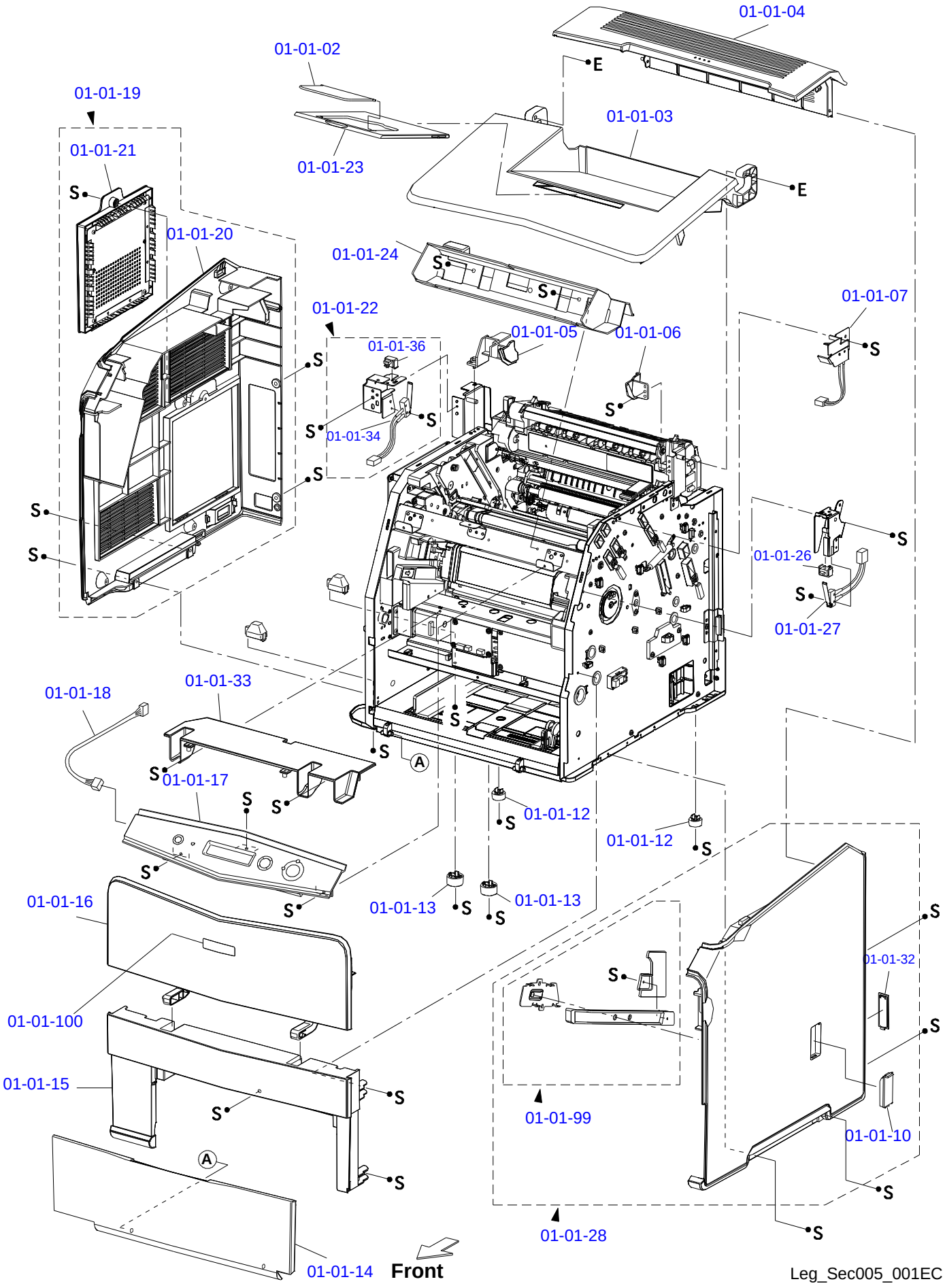
No.	Part Name
01-01-01	500 PAPER CASSETTE ASSY
01-01-02	GUIDE END ASSY
01-01-04	GUIDE PAPER L ASSY 500
01-01-05	PINION 12
01-01-06	GUIDE PAPER R ASSY 500
01-01-09	LOCK LIFT R
01-01-10	ROLL LINK
01-01-12	COVER FRONT CST 500
01-01-14	LOCK LIFT L
01-02-01	COVER LEFT 500
01-02-02	CHUTE FDR ASSY 500
01-02-10	COVER RIGHT 500
01-03-02	HARNESS-ASSY FEED MAIN
01-03-03	PWB TRAY 500
01-03-04	PWBA MOT
01-03-08	SOLENOID FEED
01-03-09	MOT ASSY FSR
01-03-10	GEAR ASSY DRIVE
01-03-11	GEAR FEED
01-03-12	CLUTCH ASSY FEED
01-03-14	HARNESS-ASSY FEED 1
01-03-16	ROLL ASSY TURN 500
01-03-18	EXIT CHUTE SWITCH
01-03-20	FOOT FEEDER
01-03-21	BLOCK CST
01-03-22	HARNESS-ASSY FEED 2

Table 7-8. 500-SHEET PAPER CASSETTE UNIT

No.	Part Name
01-03-23	CHUTE ASSY 500
01-03-24	HOLDER ASSY RETARD 500
01-03-26	FILM ASSY FDR
01-03-29	LEVER 500
01-03-32	GUIDE CST R
01-03-34	GUIDE CST L
01-04-01	HOUSING ASSY FEED
01-04-03	SENSOR UPPER PASS
01-04-04	ACTUATOR NO PAPER CST
01-04-05	SPRING ACTUATOR
01-04-06	ACTUATOR T/R
01-04-07	SENSOR UPPER PASS
01-04-11	ROLL ASSY FEED 500
01-04-14	HARNESS ASSY FEED 3
01-04-15	CAP ACTUATOR

7.6 Exploded Diagrams

The parts to which no reference number is assigned will not be available as after-sale service parts.



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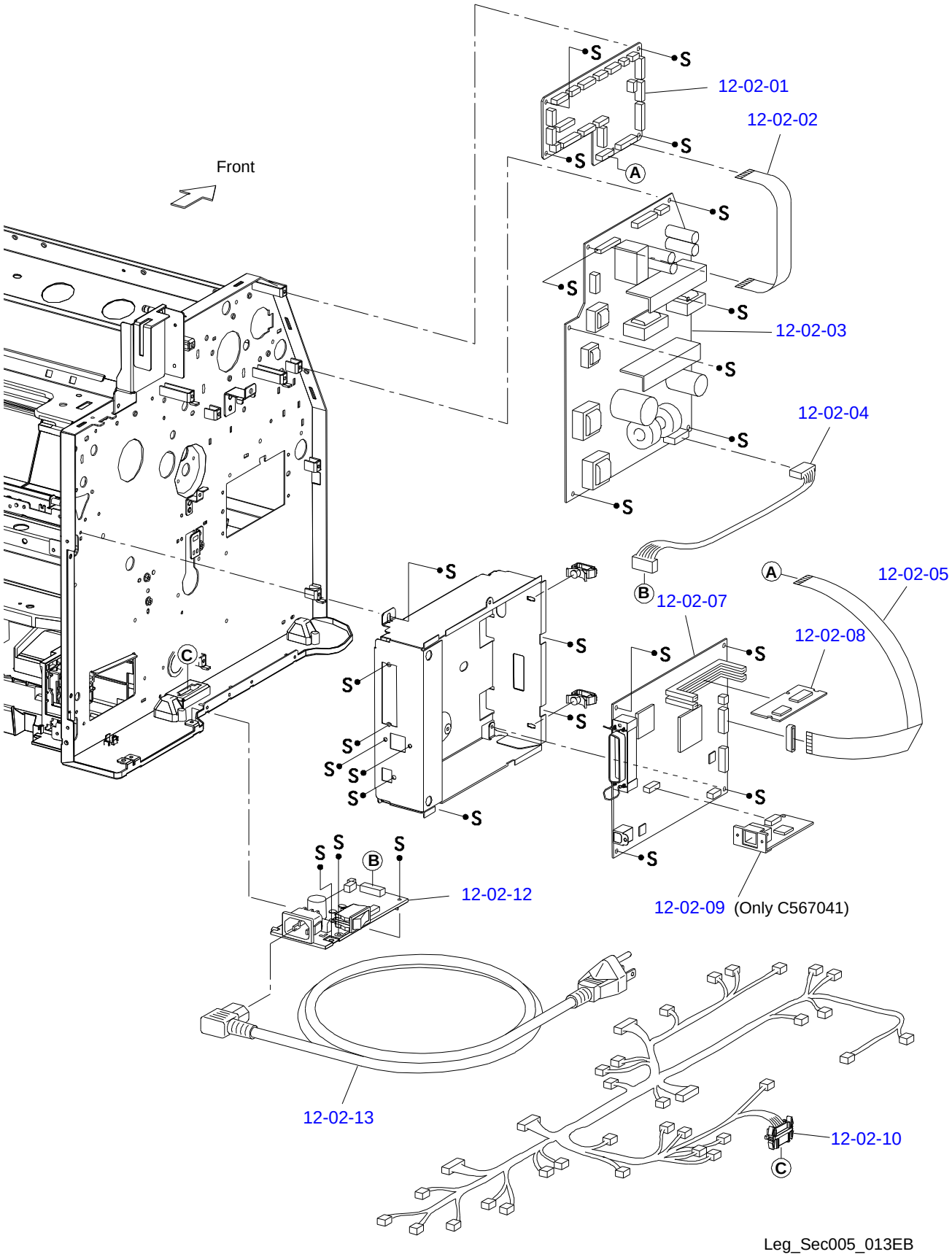

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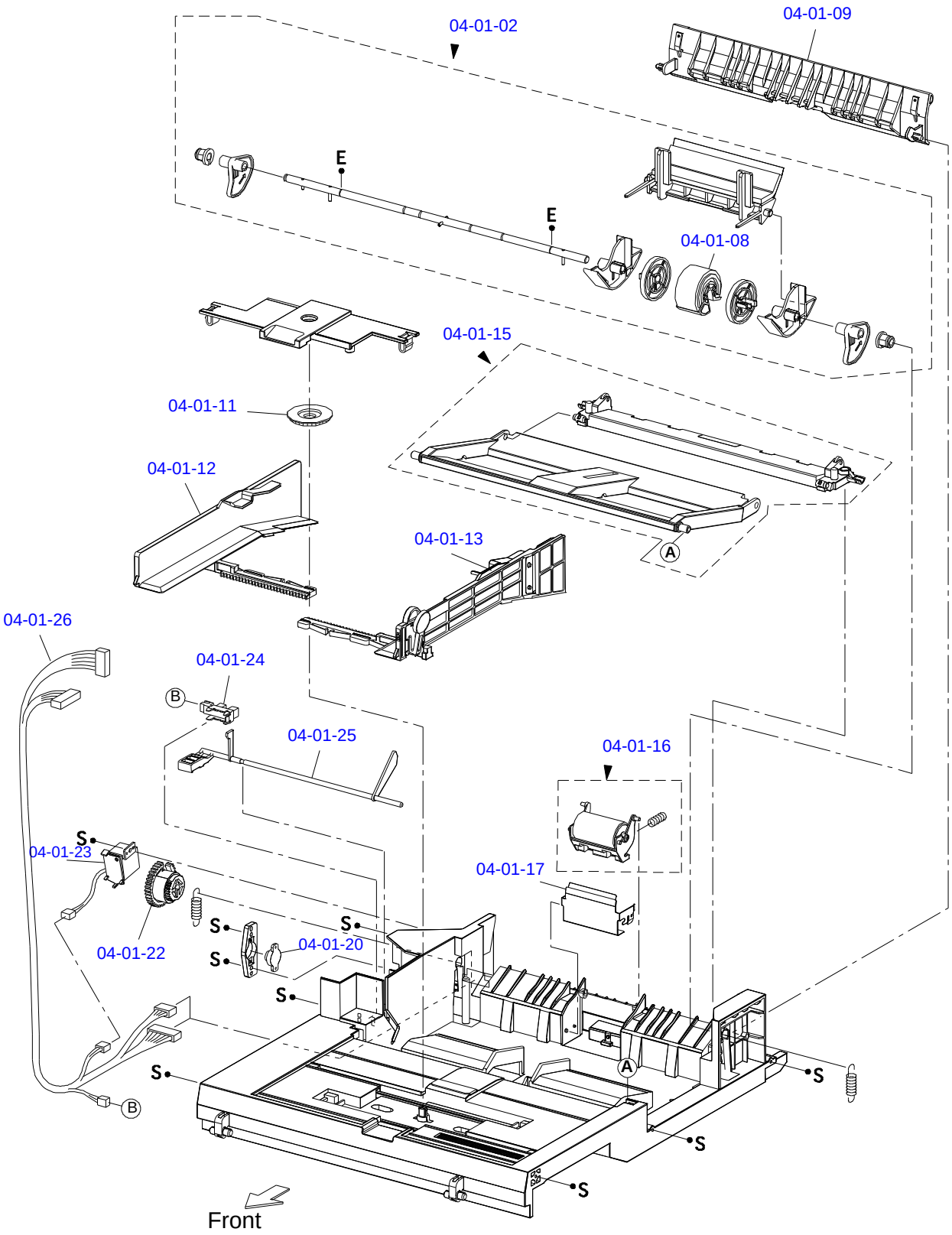

Leg_Sec005_002EB

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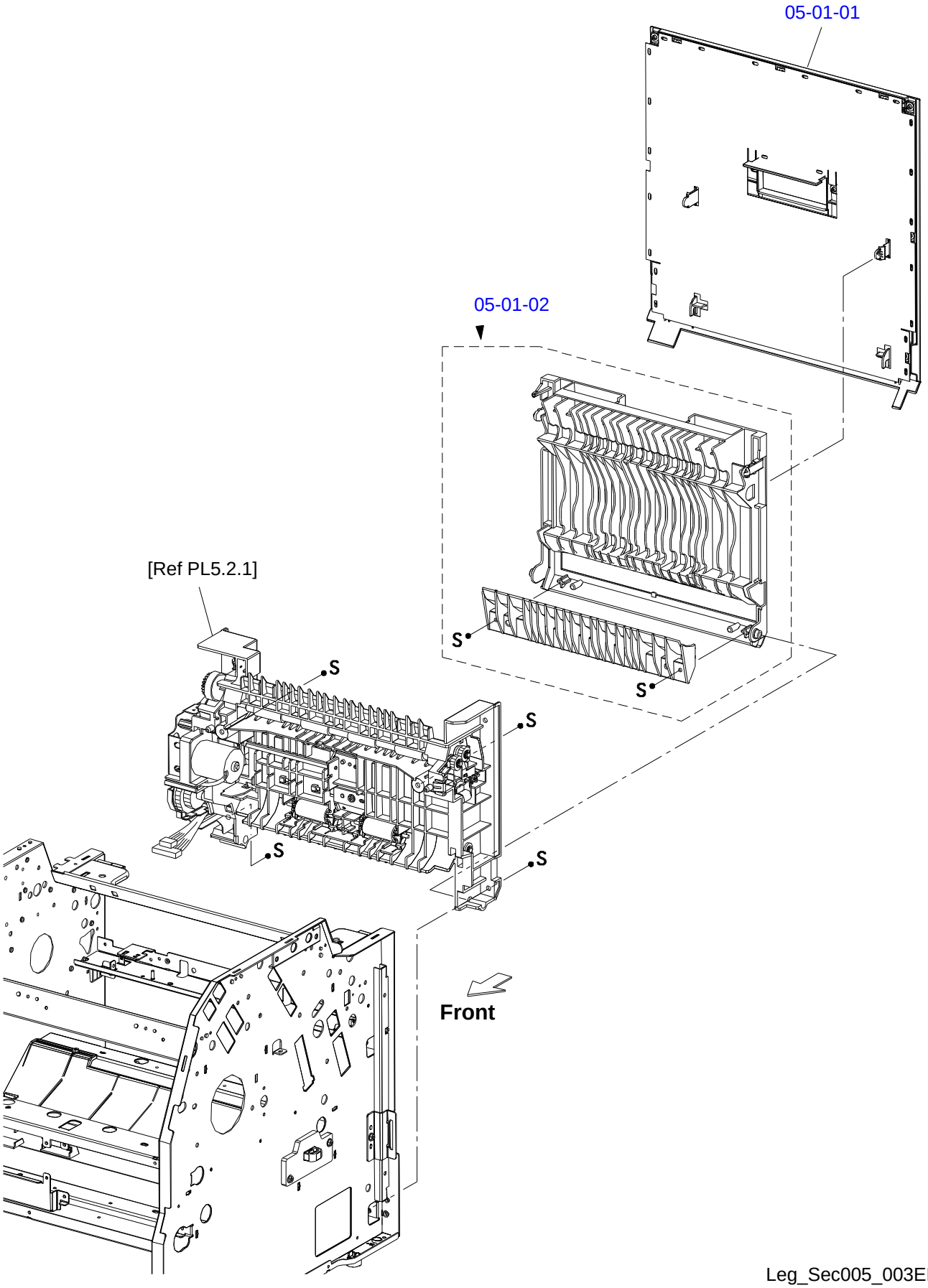

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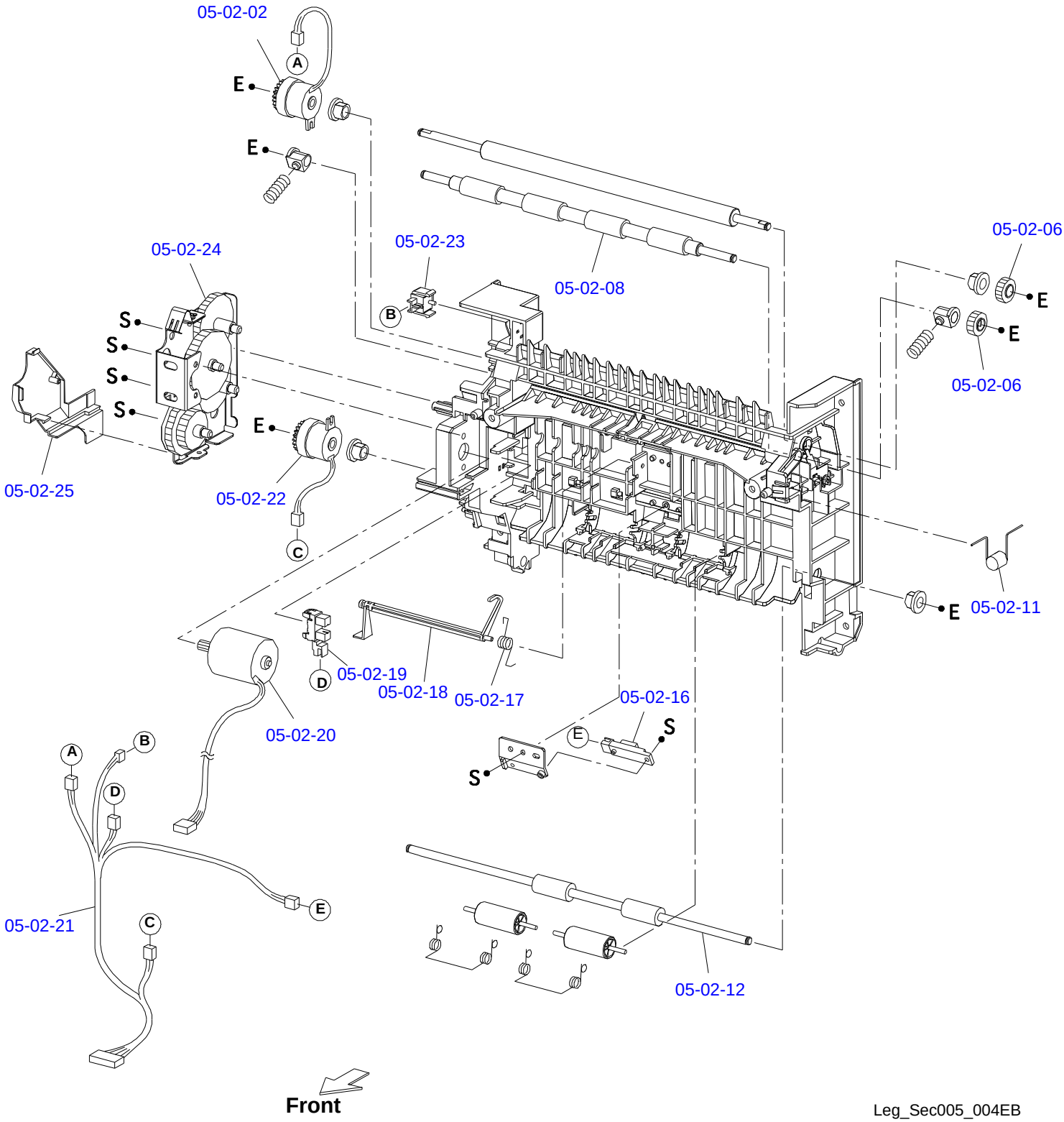

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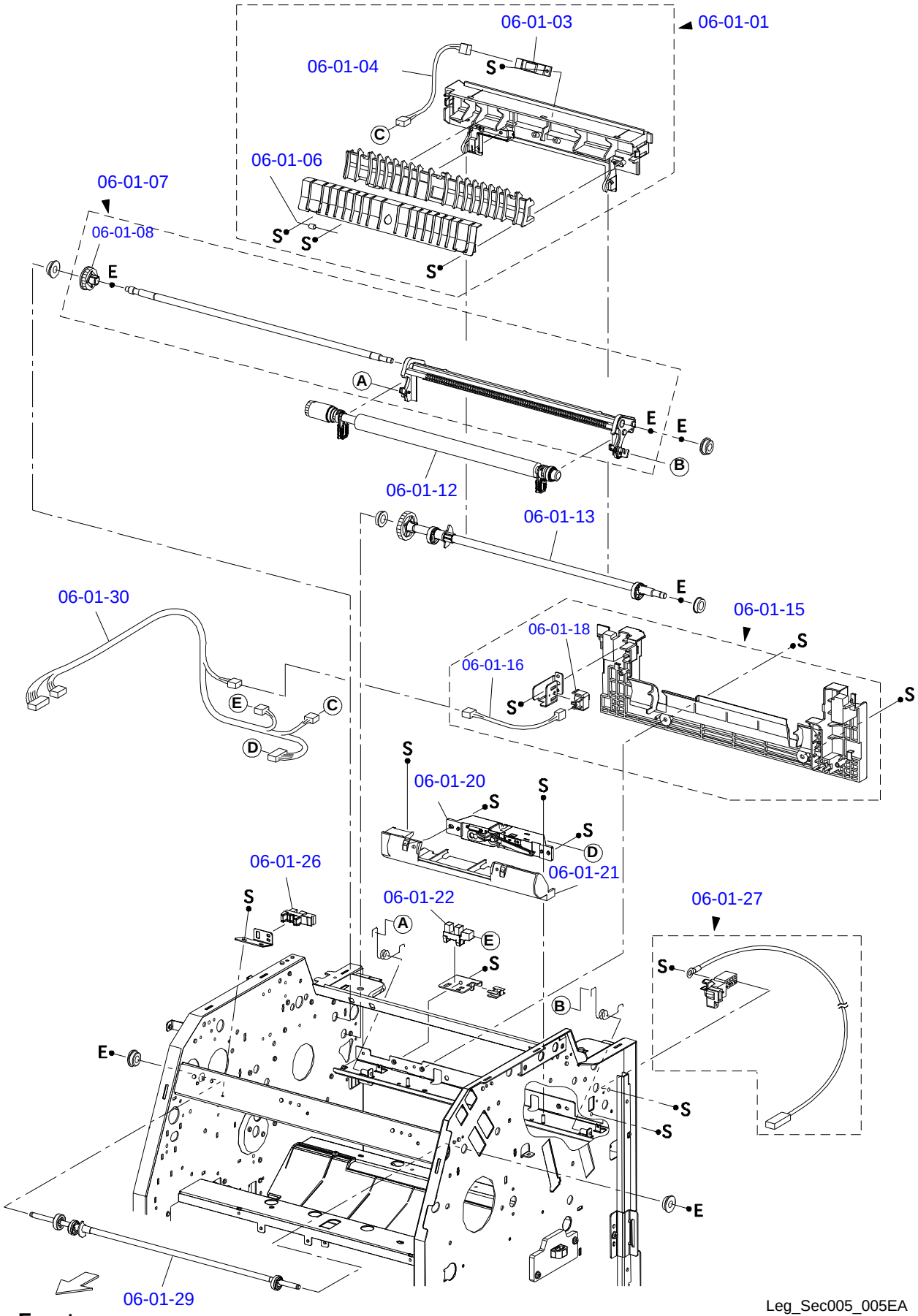

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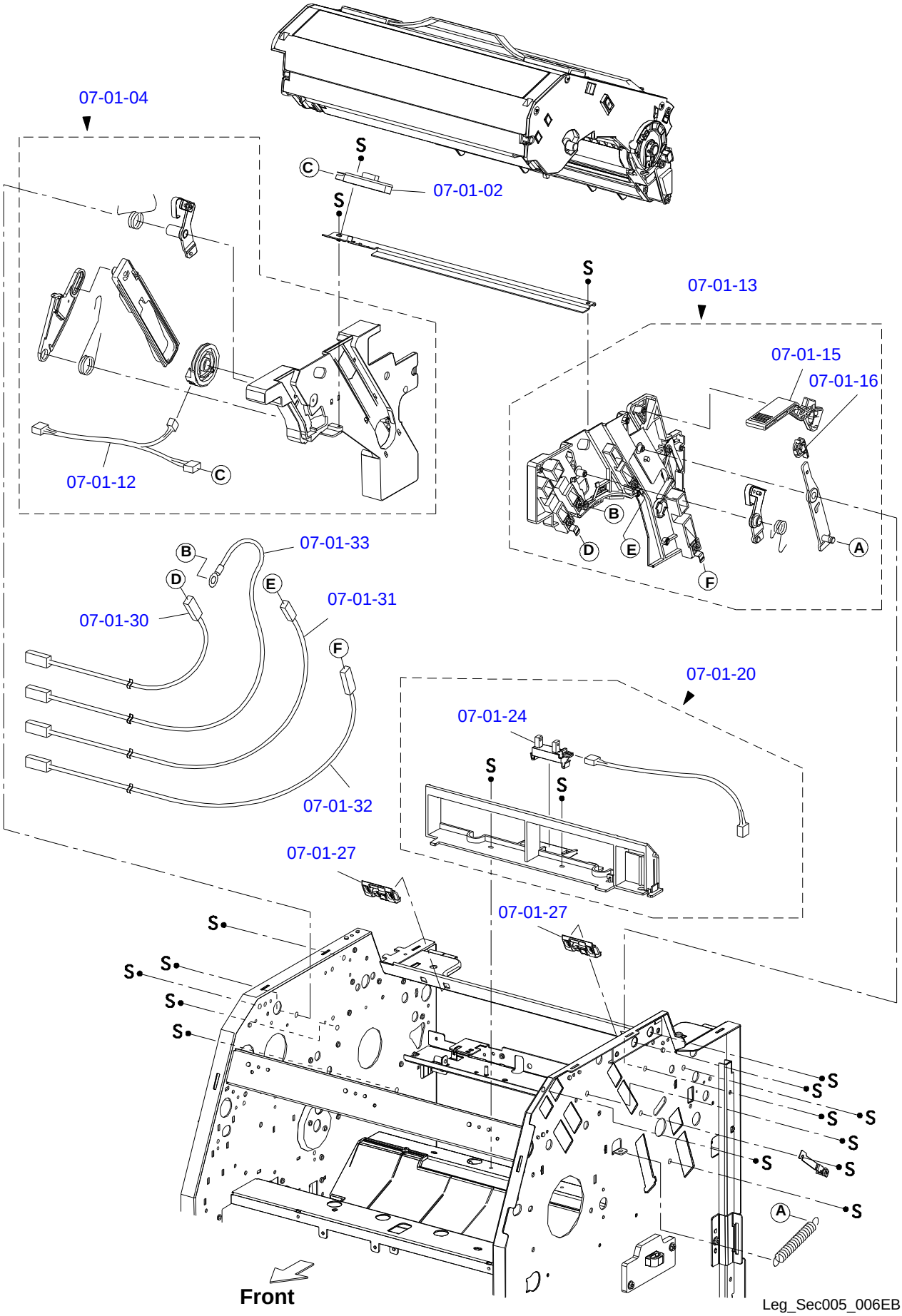

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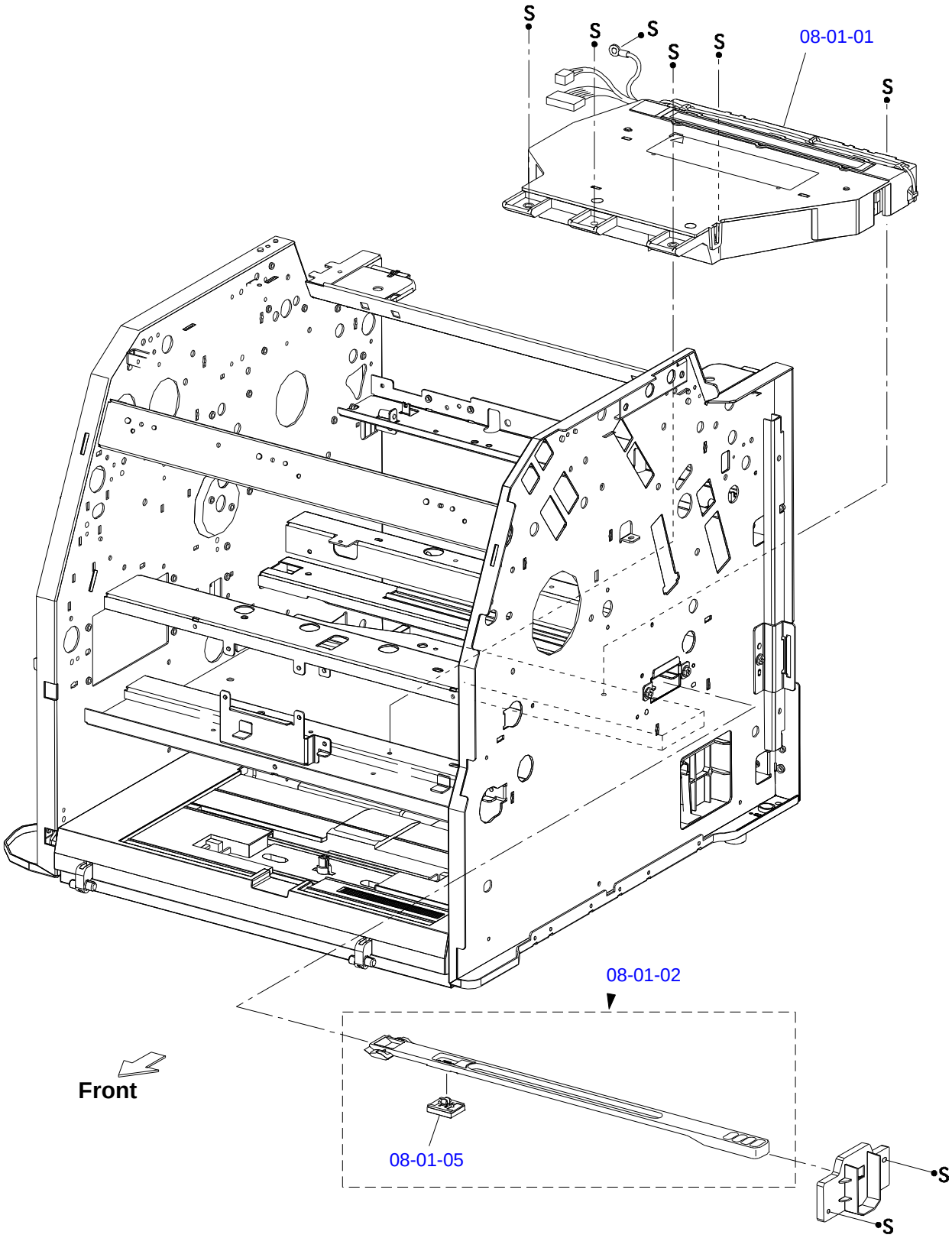

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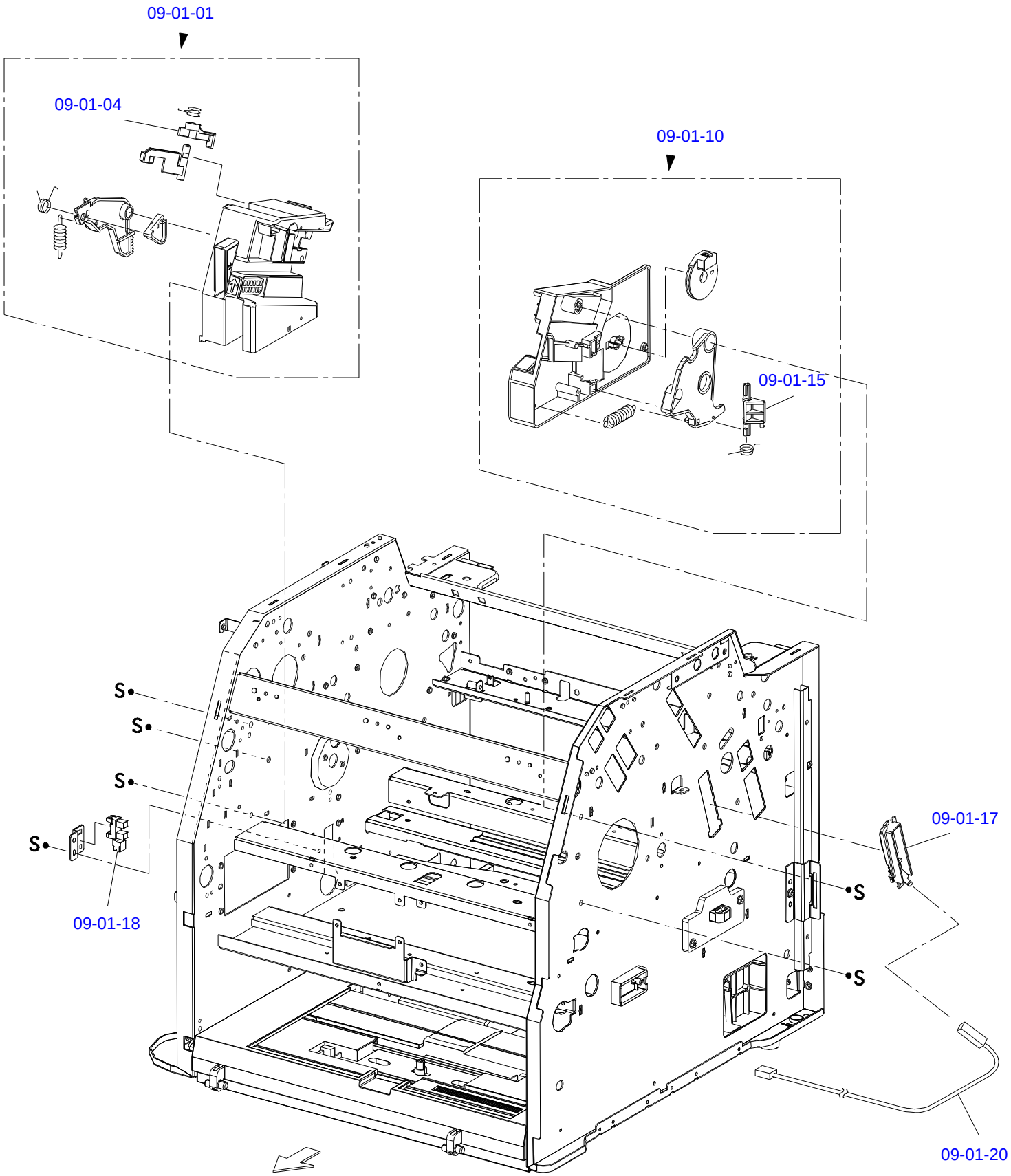

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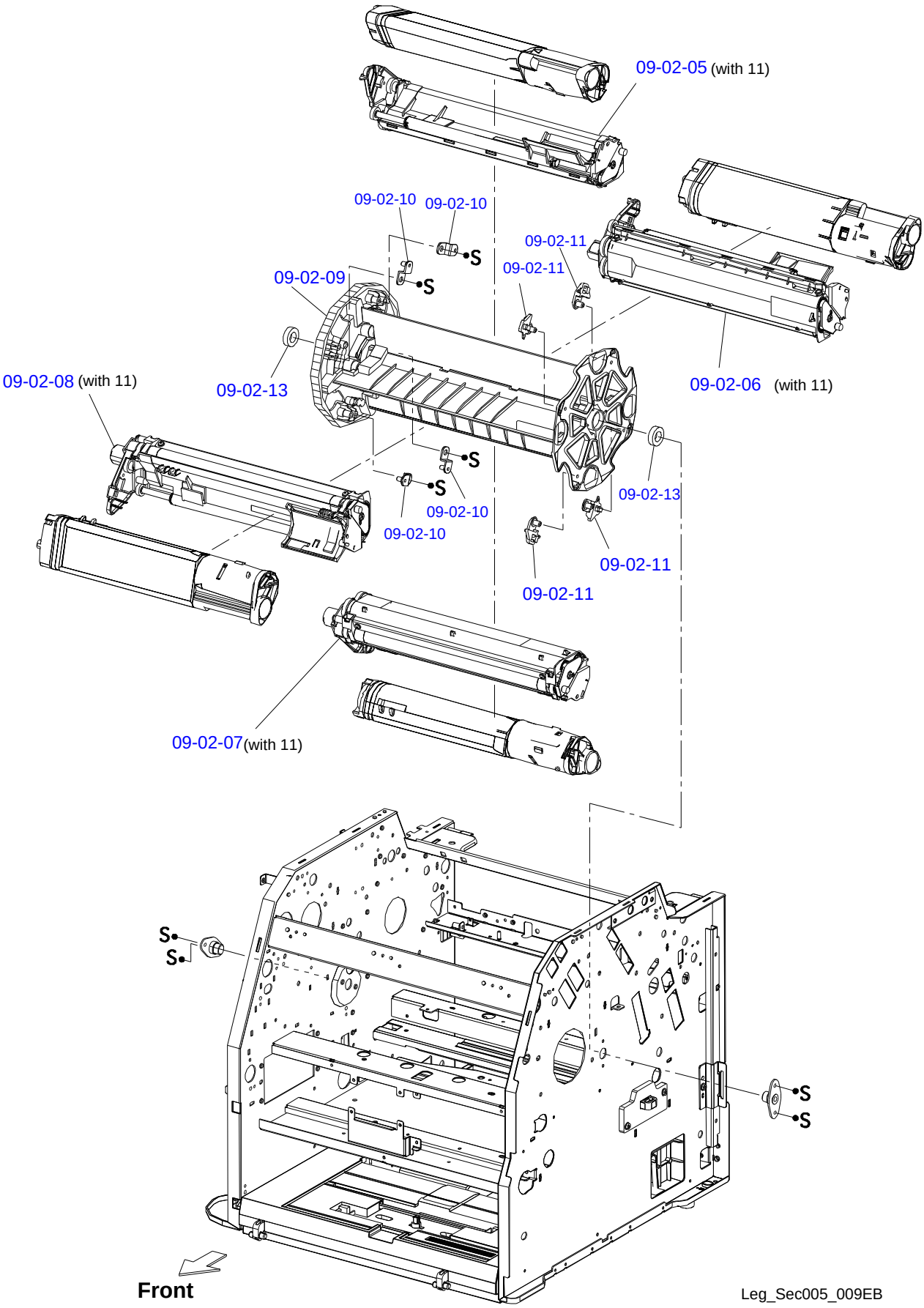

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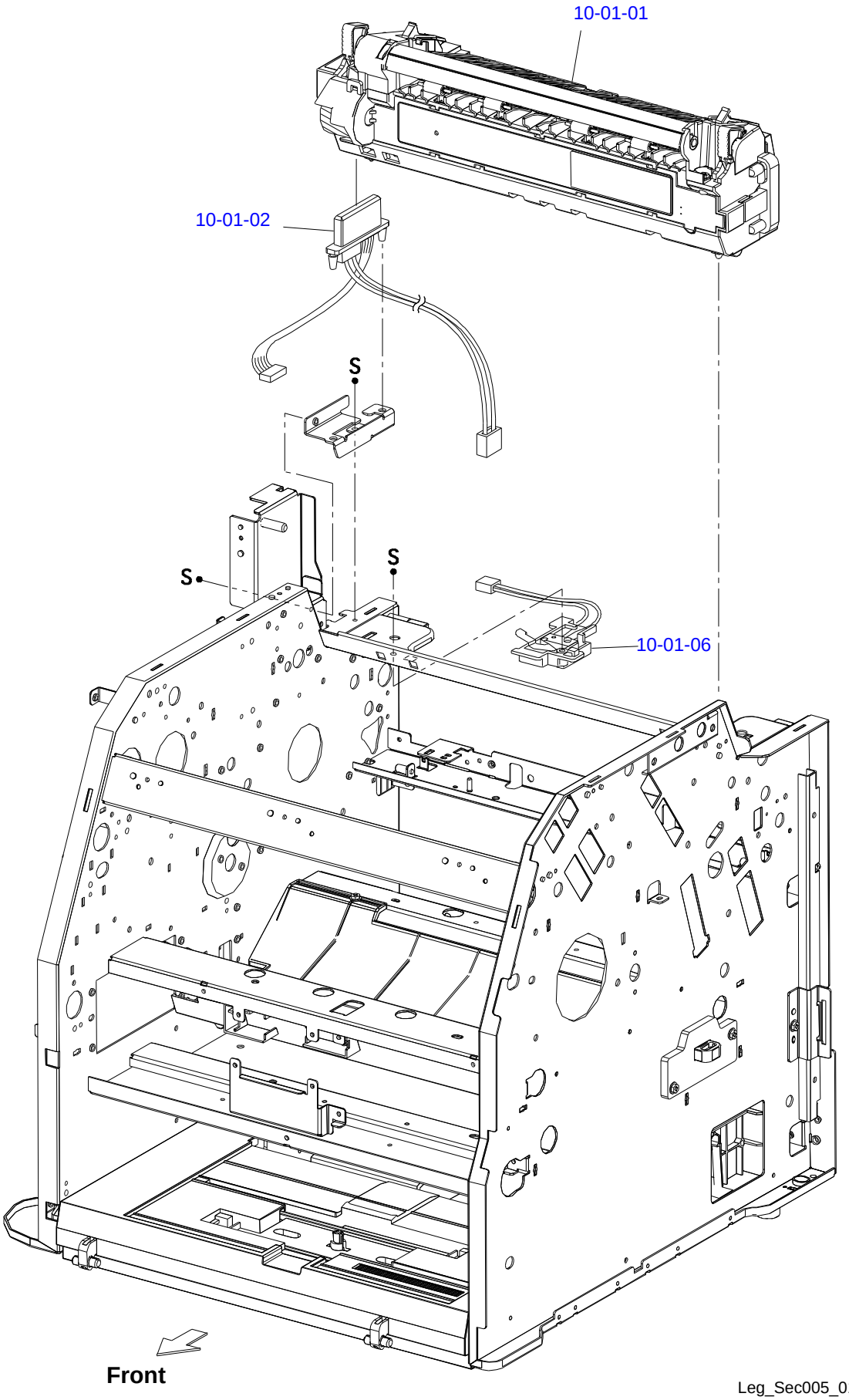

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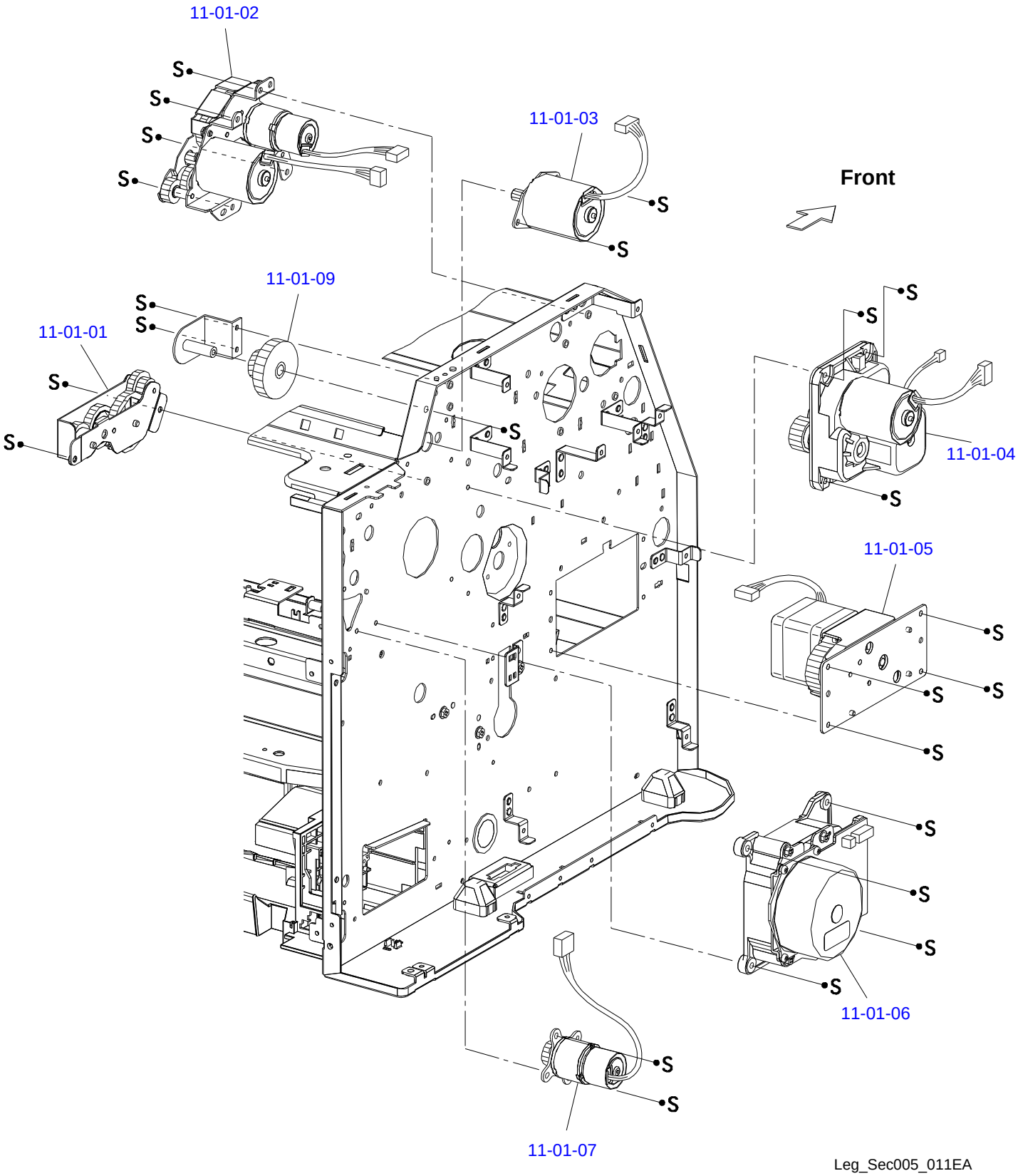

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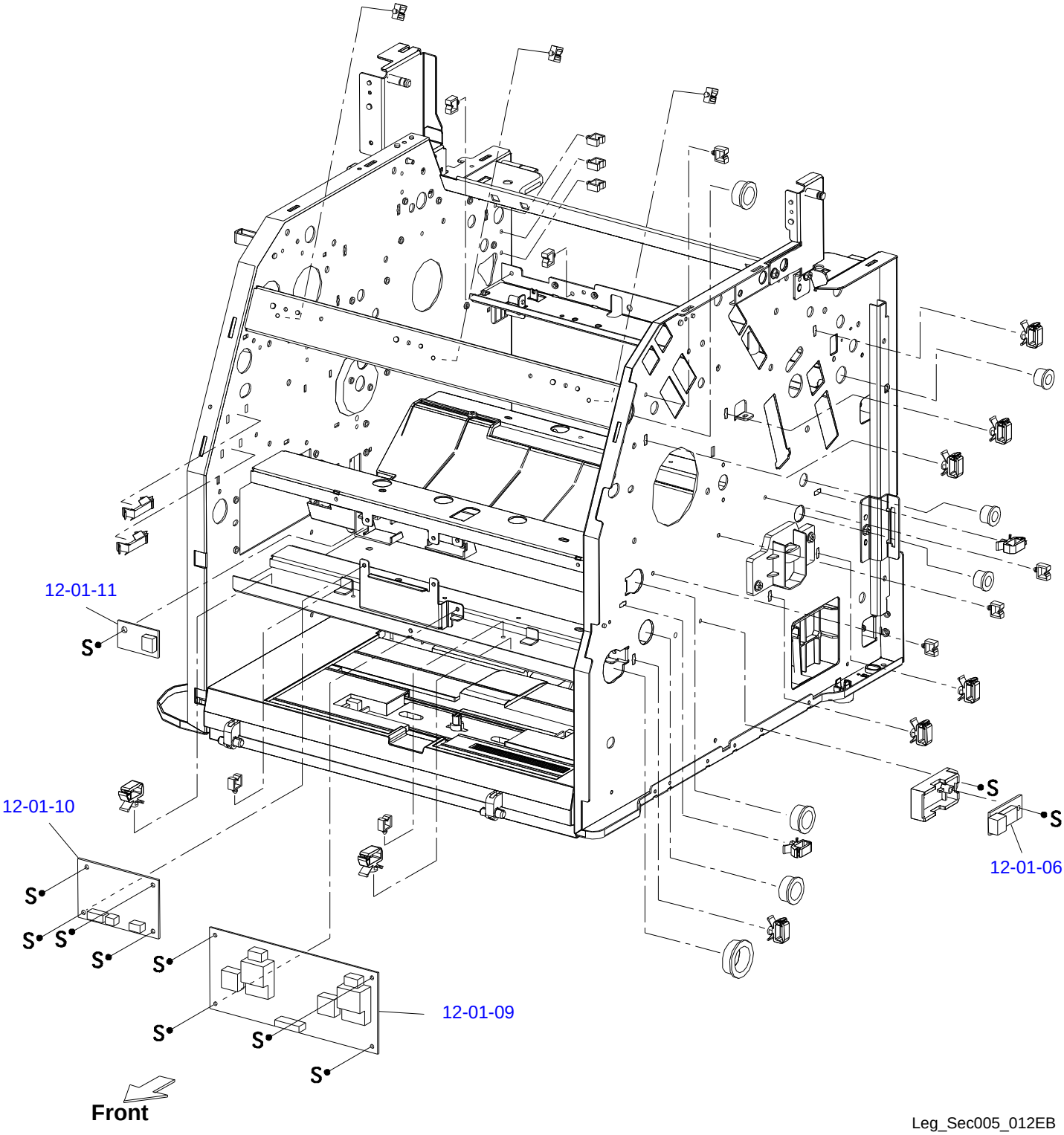

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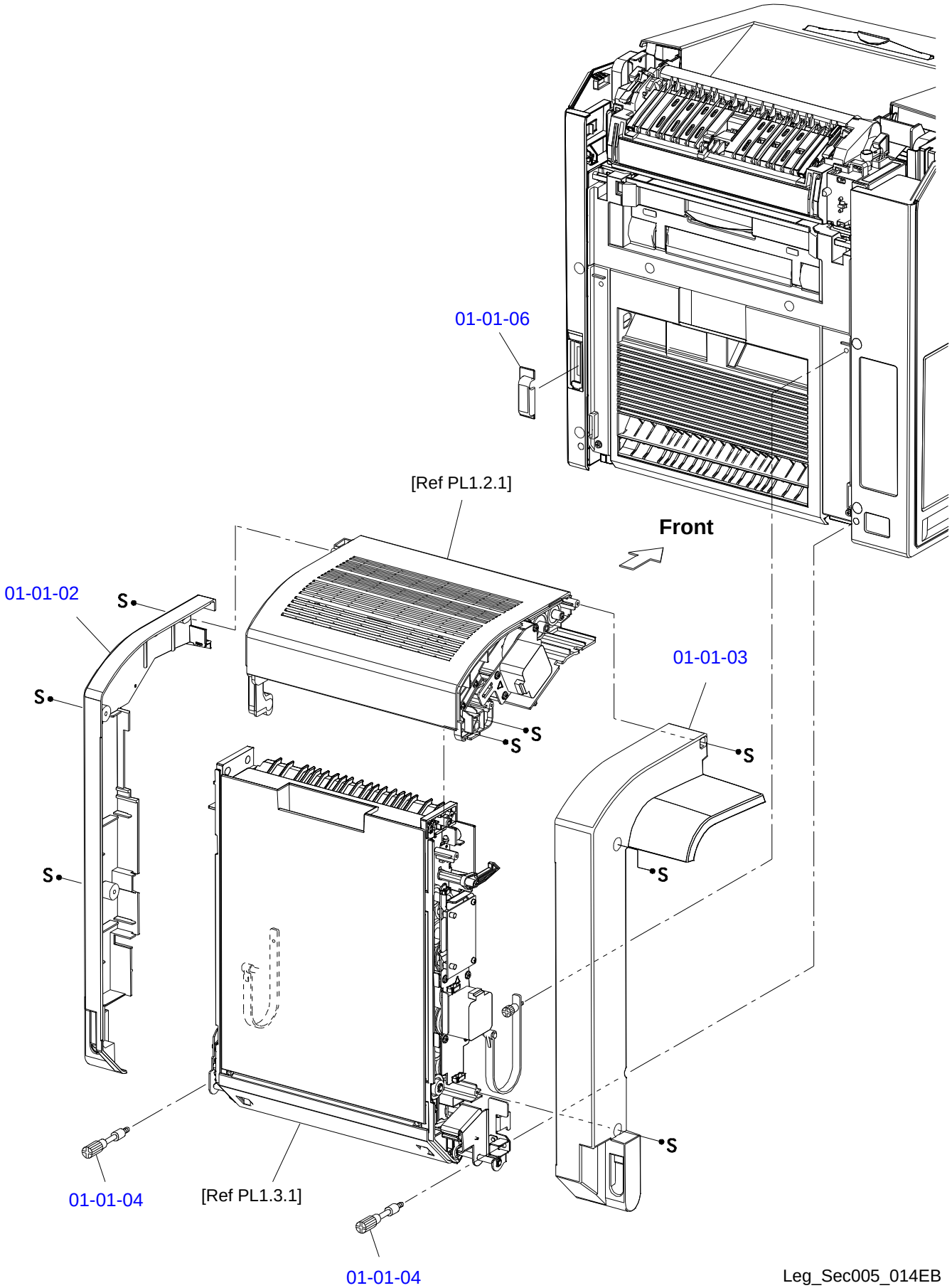

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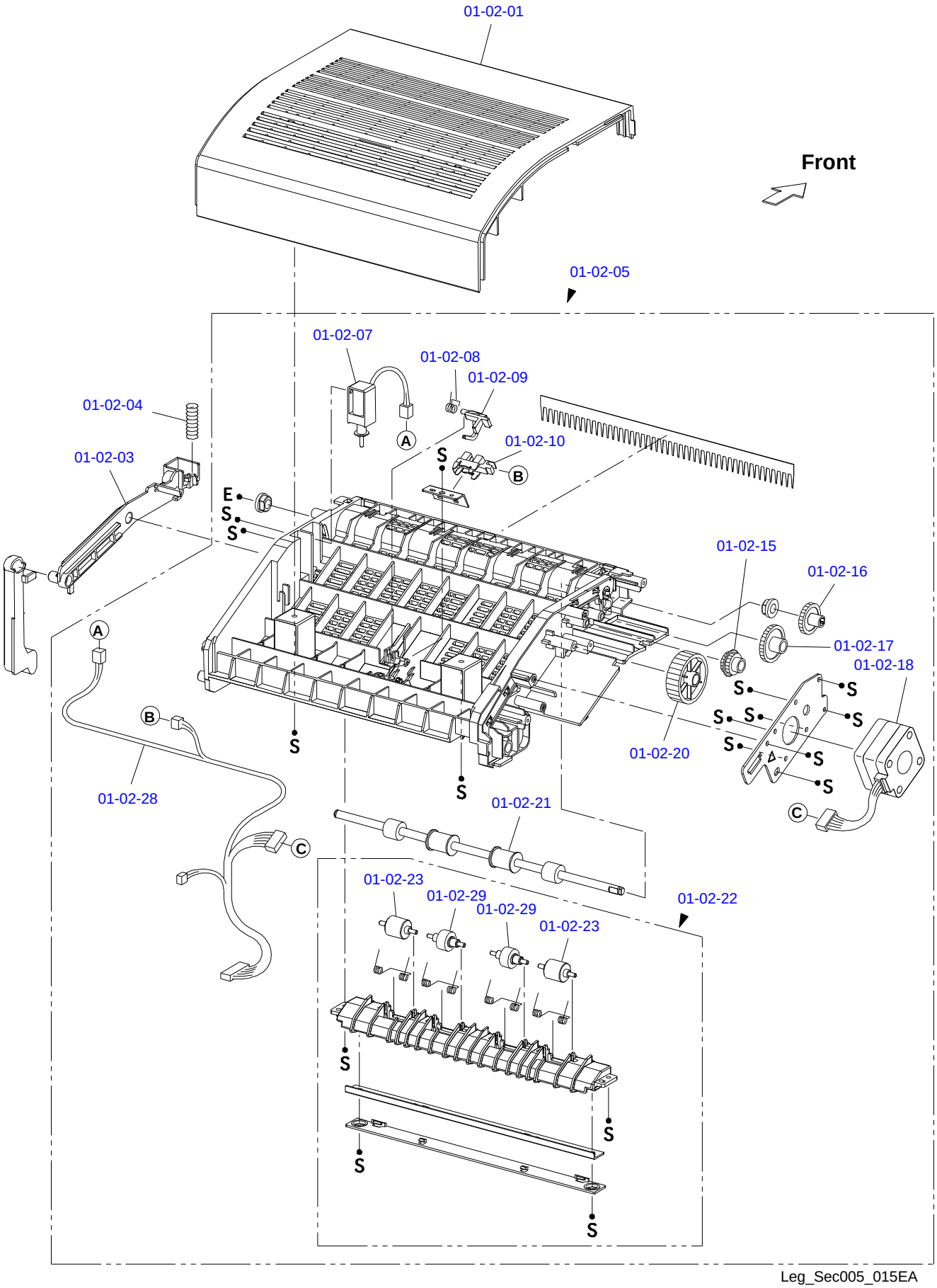

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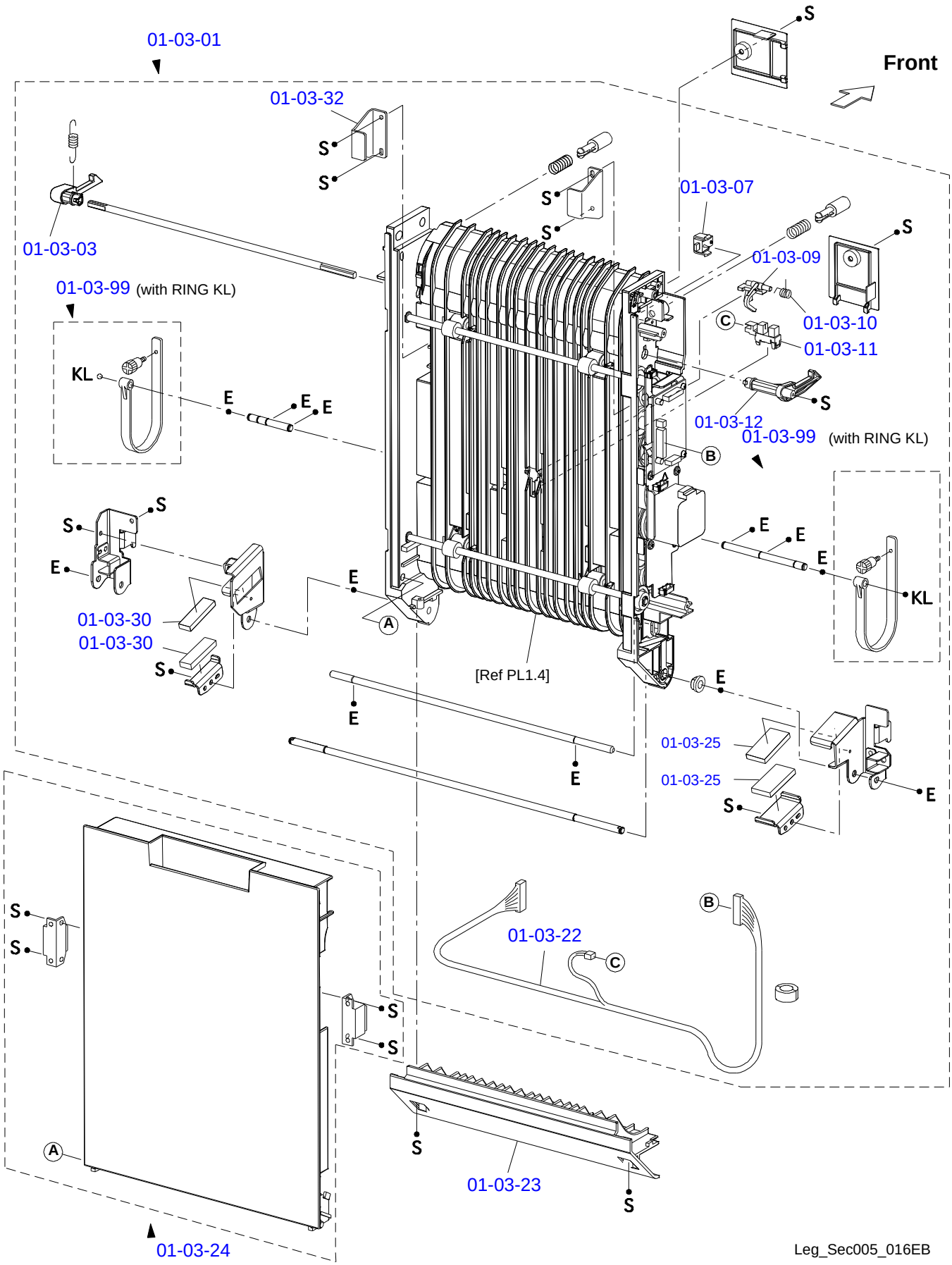

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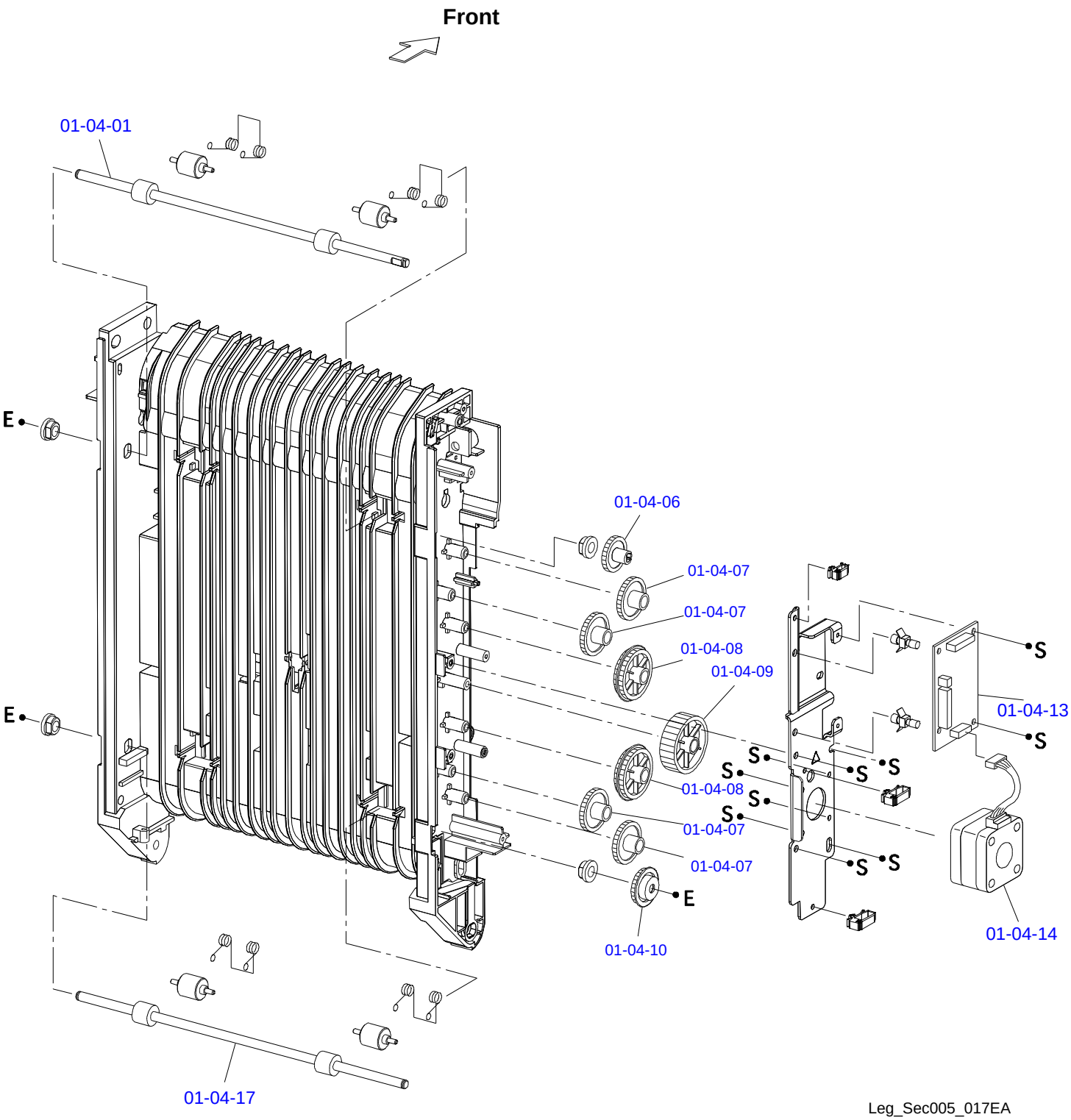

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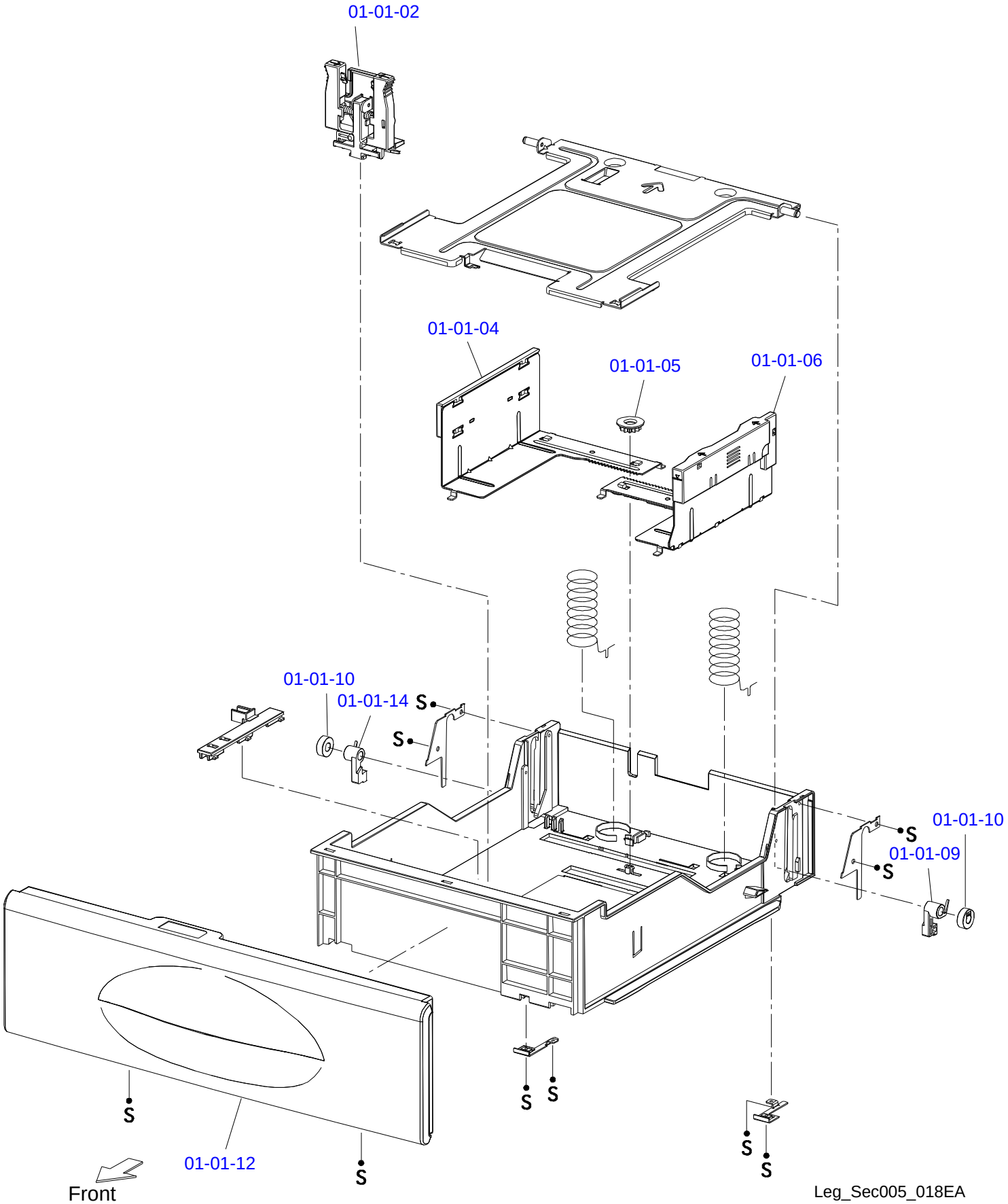

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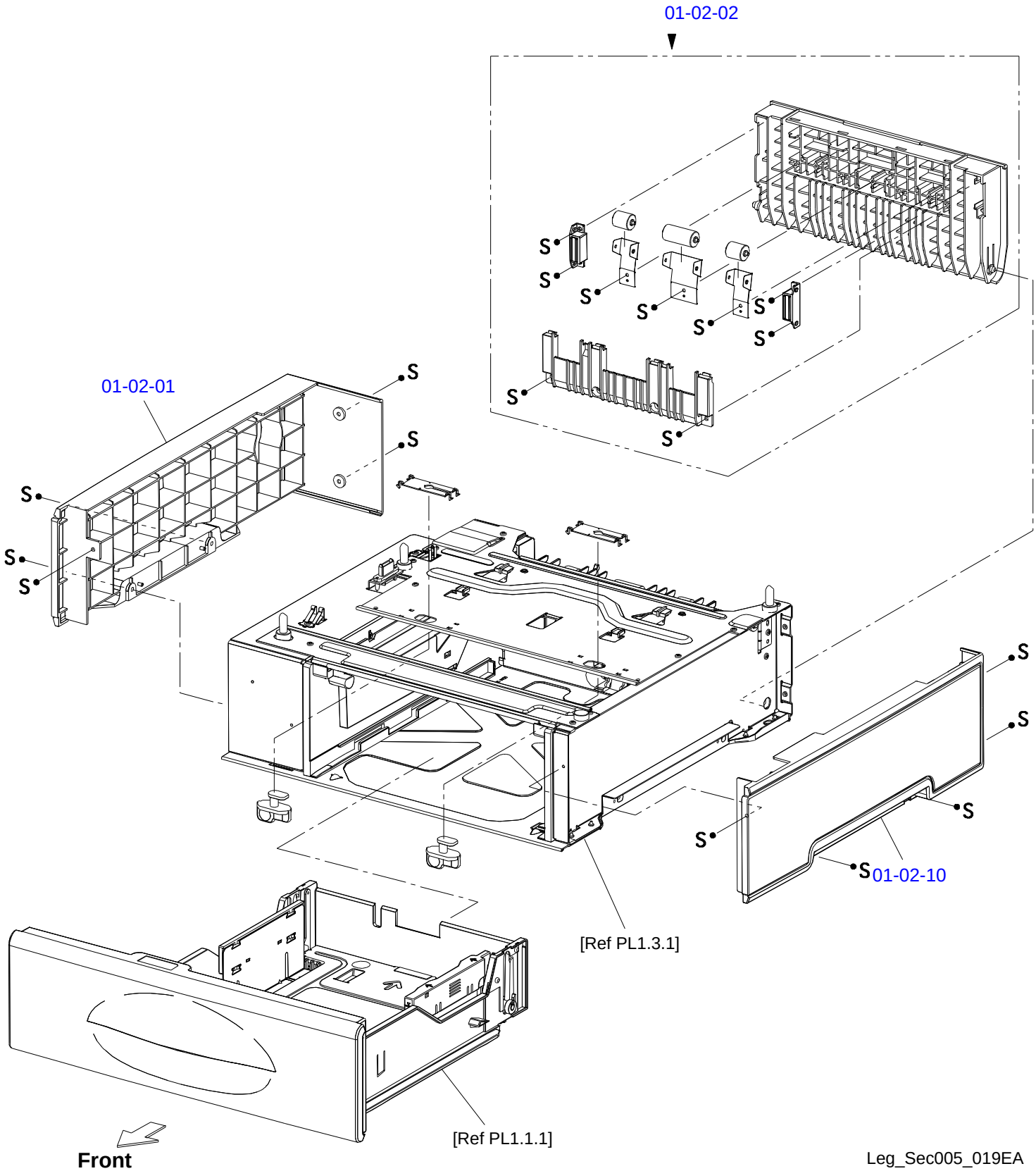

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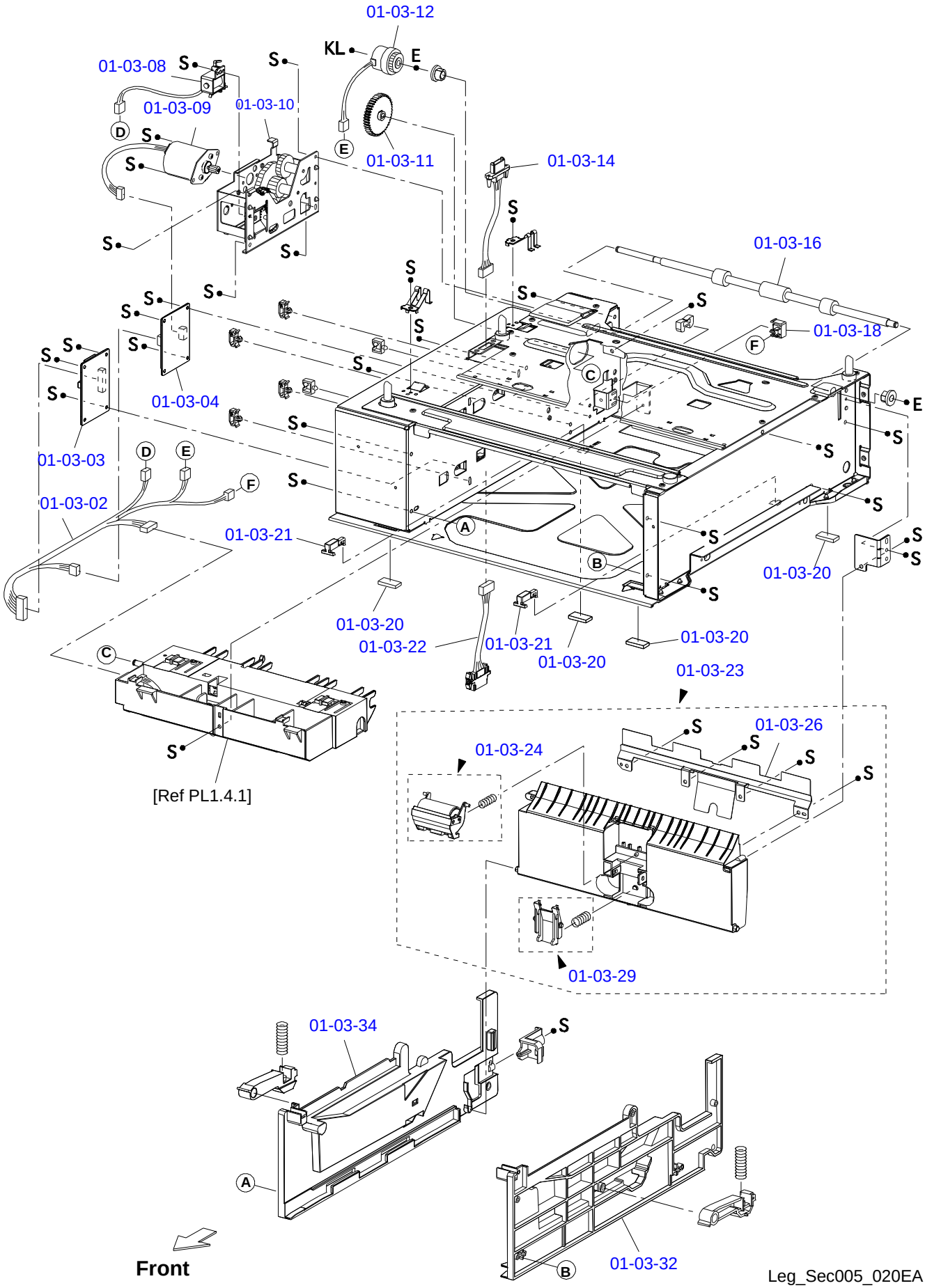

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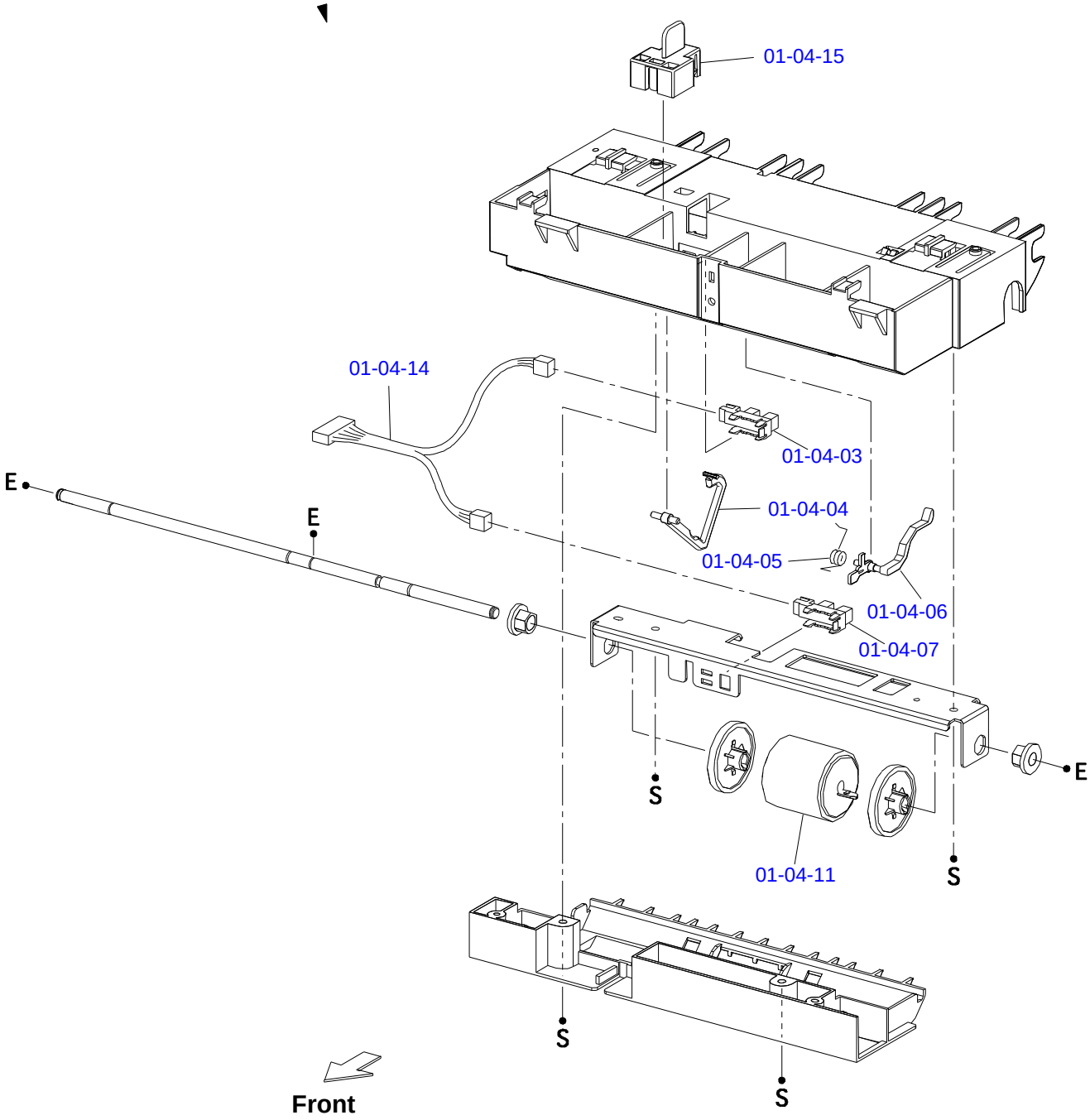

Leg_Sec005_021EB

7.7 Circuit Diagrams

- C567MAIN (Total: 4 pages)

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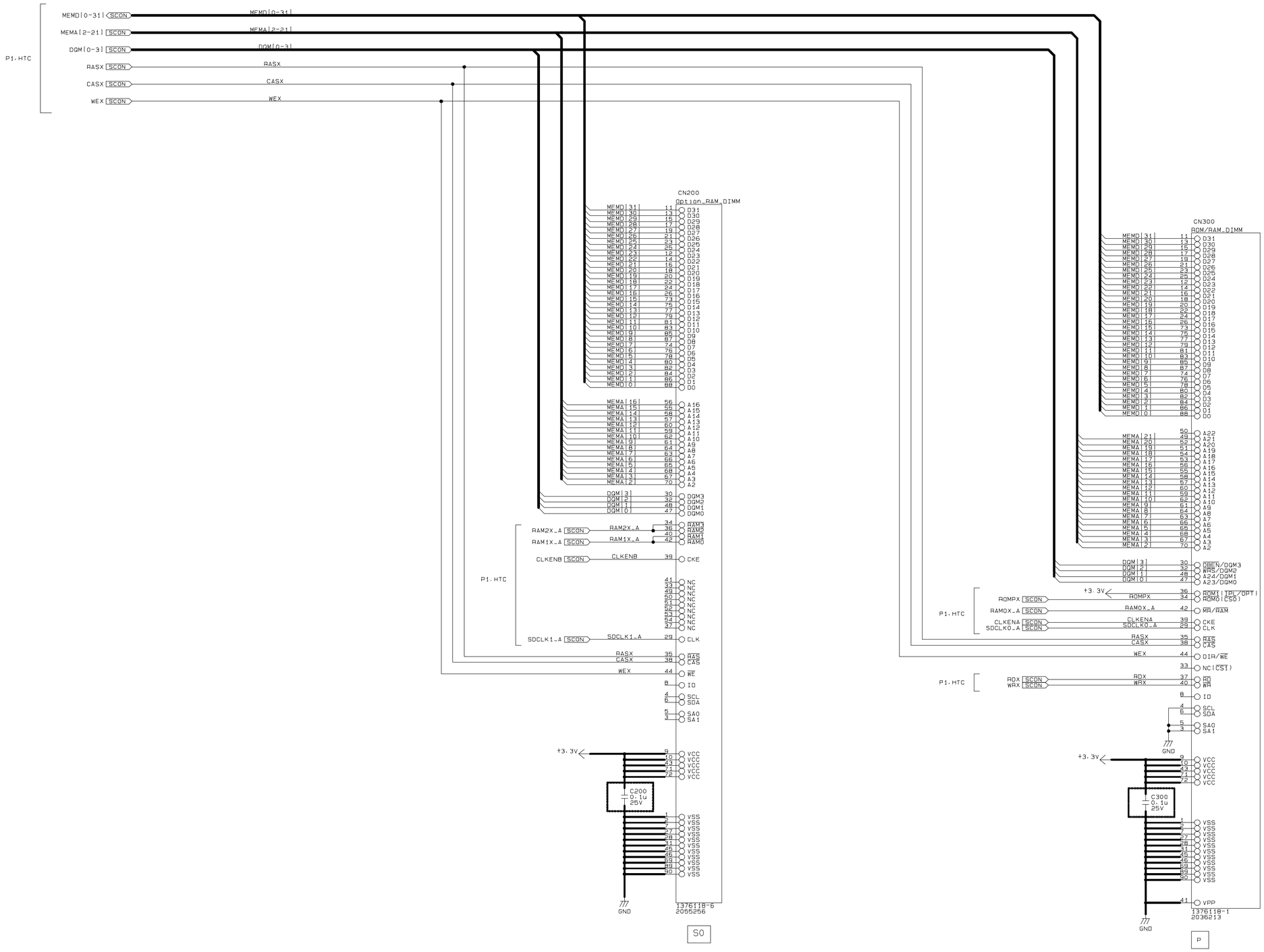
Board : C567MAIN

Sheet : 1 of 4

Rev. : A



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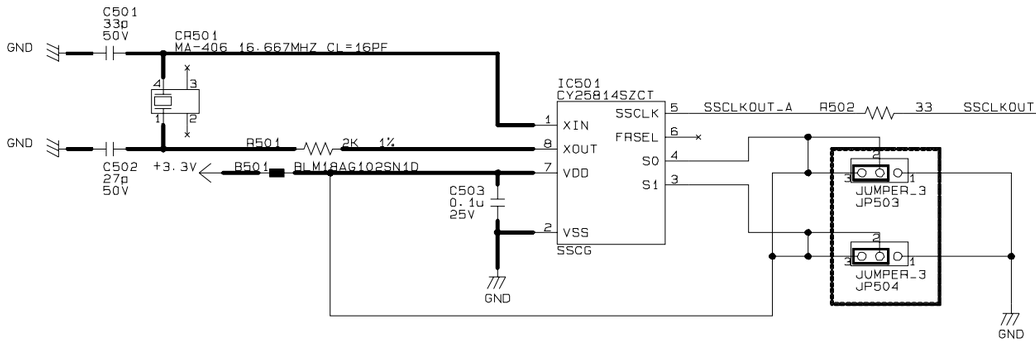
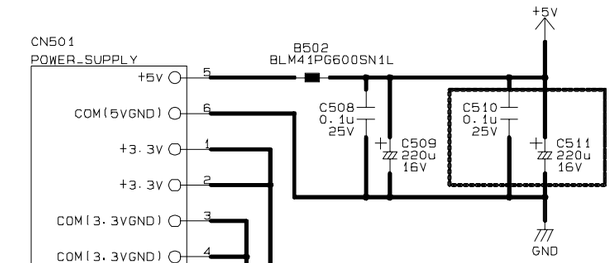
Board : C567MAIN
Sheet : 2 of 4
Rev. : A



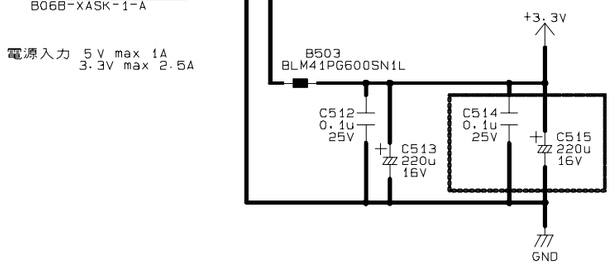
Spread% Selection

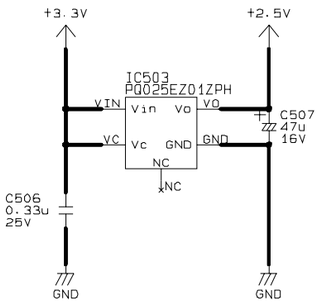
JP503	1-2	open	2-3	1-2	2-3	1-2	2-3	open	open
JP504	1-2	1-2	1-2	open	2-3	2-3	open	2-3	open
SS%	±1.4	±1.2	±0.6	±0.5	-3.0	-2.2	-1.9	-0.7	0

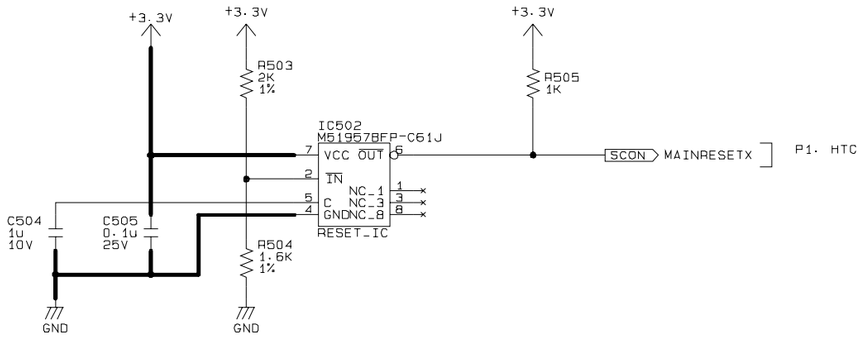
↑
Redpoll_ES設定値



電源入力 5V max 1A
3.3V max 2.5A







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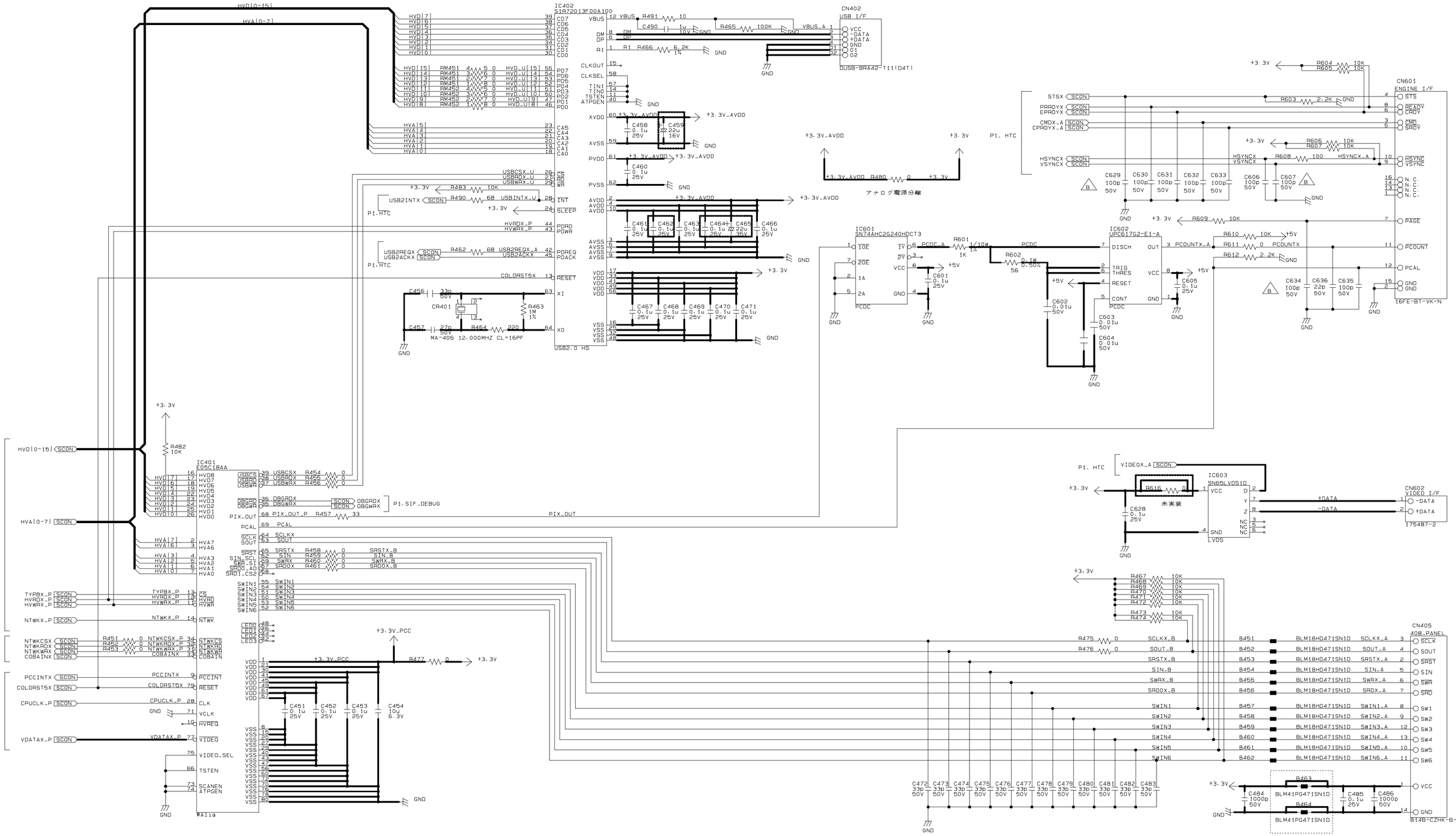
Board : C567MAIN
Sheet : 3 of 4
Rev. : A



（注）

□ は未実装とする。

Model : AcuLaser C1100/LP-V500
Board : C567MAIN
Sheet : 4 of 4
Rev. : A