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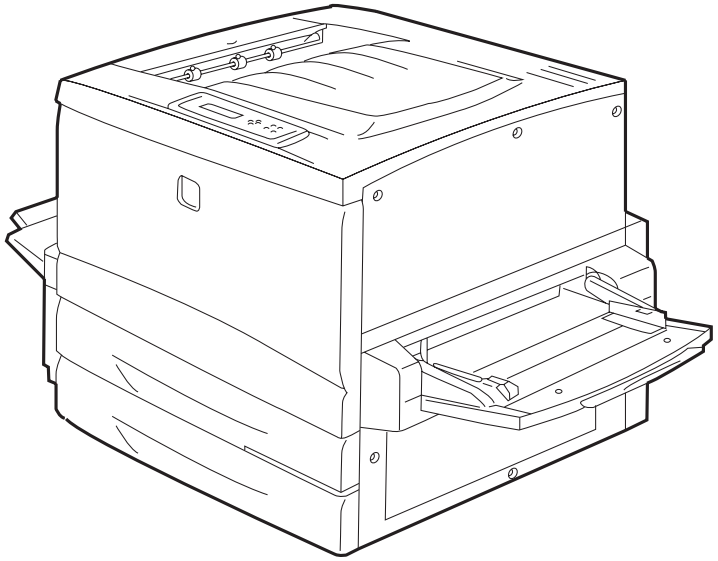

A3 Wide Color Laser Printer

EPSON AcuLaser C8600
AcuLaser C7000

COLOR IMAGING EPSON

EPSON®

SEPG010013

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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.

Abbreviation

This manual uses original abbreviations, in addition to general abbreviations.

Typical abbreviations are as follows:

ADC .....Automatic Density Control
AG .....Analog Ground
ASSY .....Assembly
AUX. .....Auxiliary
B/W ..... Black and White
BCR ..... Bias Charge Roll
Bk ..... Black
BK ..... Black
BTR .....Bias Transfer Roll
BUR ..... Back Up Roll
C .....Cyan
CART. ..... Cartridge
CCW ..... Counter Clock Wise
CL. .....Clutch
CLN .....Cleaning (or Cleaner)
CLK ..... Clock
CONT. .....Controller
CR ..... Charge Roll
CRU ..... Customer Replaceable Unit
CRUM ..... CRU Monitor
CW ..... Clock Wise
DB ..... Developing Bias
DEVE. .....Developer
DIAG. ..... Diagnostic
dpi .....dots per inch
DTS .....Detack Saw
ELEC. ..... Electric
EP .....Electrophotography
FDR .....Feeder
FG .....Frame Ground
FRU .....Field Replaceable Unit
GND ..... Ground
H/R .....Heat Roll
Hex .....Hexadecimal
HVPS .....High Voltage Power Supply
I/F .....Interface
IBT ..... Intermediate Belt Transfer
ID .....Image Density (or Identification)
INTL .....Interlock
L .....Left
L/H .....Left Hand
L/P ..... Low Paper
LD ..... Laser Diode
LEF .....Long Edge Feed
LV/HV POWER SUPPLY ..... Low Voltage / High Voltage Power Supply
M .....Magenta
MAG. .....Magnetic
MCU .....Machine Control Unit
MECH. ..... Mechanical
MOT. ..... Motor
MSI ..... Multi Sheet Inserter
N/F .....Normal Force
N/P ..... No Paper
NVM ..... Non Volatile Memory
O/H .....Option Hinge
OHP ..... Overhead Projector (In this manual, OHP means OHP film)
OPC .....Organic Photo Conductor
P/H .....Paper Handling
P/R .....Pressure Roll
PCDC .....Pixel Count Dispense Control
Pixel ..... Picture Cell
PPM .....Prints Per Minute
PV .....Print Volume
PWB .....Printed Wiring Board
R .....Right
R/H .....Right Hand
REGI. .....Registration
ROS ..... Raster Output Scanner
RTN ..... Return
SEF .....Short Edge Feed
SG .....Signal Ground
SNR .....Sensor
SOL. .....Solenoid
SOS ..... Start Of Scan
SPI .....Scans Per Inch
SYNC. .....Synchronous
SW ..... Switch
TC ..... Toner Concentration
TEMP. ..... Temperature
TR .....Transfer
TRANS. .....Transport
XERO. .....Xerographic
Y ..... Yellow
YMCBk ..... Yellow, Magenta, Cyan, Black

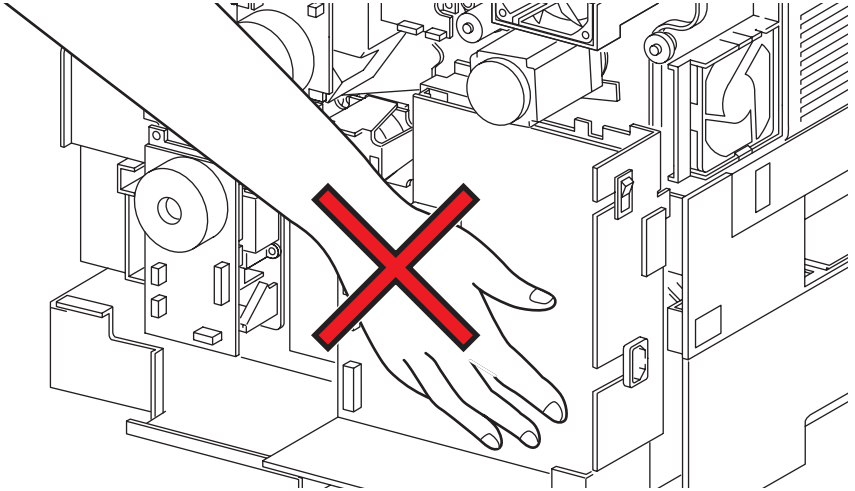
Safety Information

To prevent accidents during a maintenance procedure, strictly observe the Warnings and Cautions.
Do not do anything that is dangerous or not within the scope of 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 are dangerous.
Be aware of these when you are working with the printer.

Power Supply

Before starting any service procedure, switch off the printer power and unplug the power cord from the wall outlet. If you must service the printer when the power is applied, be aware of the potential for electrical shock and do all tasks by following the procedures in this manual.

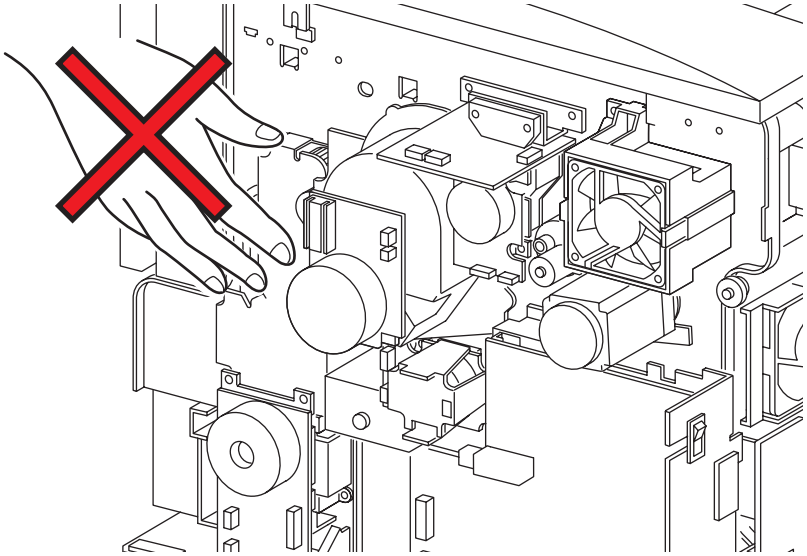
Do not touch any live part unless you are instructed to do so by a service procedure. The LV/HV POWER SUPPLY power supply switch/inlet part is live even when the power switch has been turned off. Do not touch any live part.



Mechanical Components

If you service a driving assembly (e.g., gears), first turn off the power and unplug the power cord. Then manually rotate the assembly.

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

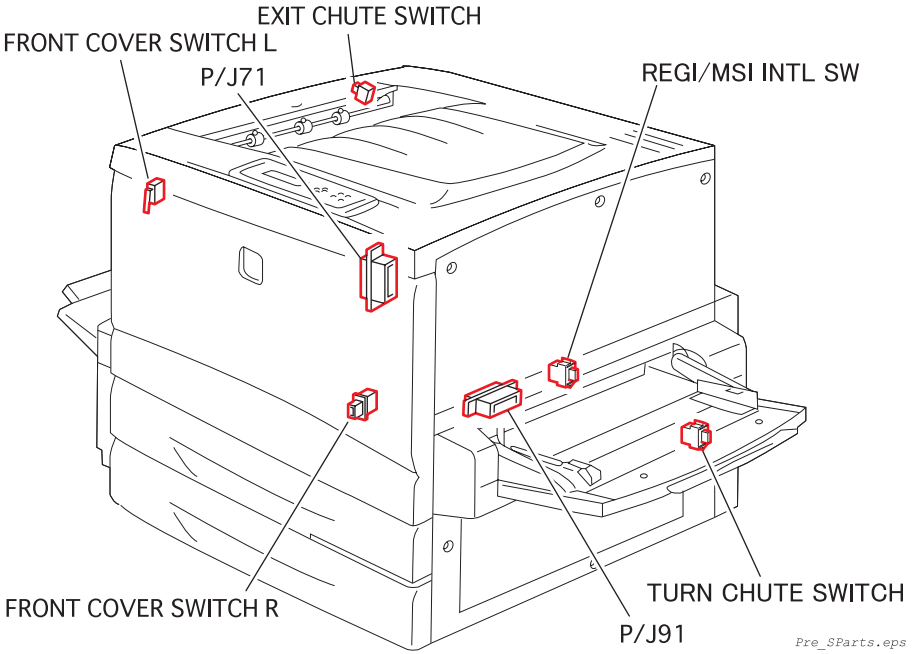


Safety Components

The printer is equipped with safety components (e.g., interlock switches, fuses, thermostat) and safety switches for protecting users and service personnel from injury and the equipment from damage.

The printer has three interlock switches, four safety switches and two interlock connectors that serve as the main safety mechanism.

- ☐ FRONT COVER SWITCH R
  This switch is turned off when the front cover (FRONT COVER ASSY) is opened. It stops all operations and disconnects the output (5VDC-LD) circuit from the power supply to stop the laser beam emission.
  This switch consists of the following two switches:
  - ■ A safety switch in the control circuit that stops all operations.
  - ■ A physical interlock switch that directly cuts off the power supply circuit (5VDC-LD) to the laser beam output circuit.
- ☐ FRONT COVER SWITCH L
  This is an interlock in the control circuit switch which is turned off when the front cover (FRONT COVER ASSY) is opened. It cuts off the power supply (24VDC, 5VDC-LD) from the power supply unit to stop all operations.
- ☐ TURN CHUTE SWITCH
  This is a safety switch in the control circuit which is turned off to stop all operations when the lower right side cover (TURN CHUTE COVER) is opened.
- ☐ REGI/MSI INTL SW
  This is a safety switch in the control circuit which is turned off to stop all operations when the right side drawer type unit (MSI/REGI HIGH ASSY) is drawn out.
- ☐ EXIT CHUTE SWITCH
  This switch is a safety switch. This switch is turned off when the EXIT UPPER ASSY (the cover on the upper left side of the printer) is opened.
- ☐ P/J91 (Connector that connects the MAIN HARNESS ASSY and REGI. HARNESS ASSY)
  This is an interlock connector that cuts off the power supply (24VDC, 5VDC-LD) to the control circuit and related parts.
  This connector is disconnected when the MSI/REGI HIGH ASSY (pull-out type unit on the right side of the printer) is pulled out, cutting off the output (24VDC, 5VDC-LD) from the power supply and stopping the printer operation without control units.
- ☐ P/J71 (Connector that connects the FUSER CONNECTOR and FUSER HARNESS ASSY)
  This is an interlock connector that cuts off the power supply (24VDC, 5VDC-LD) to the control circuit and related parts.
  This connector is disconnected when the FUSER ASSY (pull-out type unit on the left side of the printer) is pulled out, cutting off the output (24VDC, 5VDC-LD) from the power supply and stopping the printer operation without control units.



Laser Beam

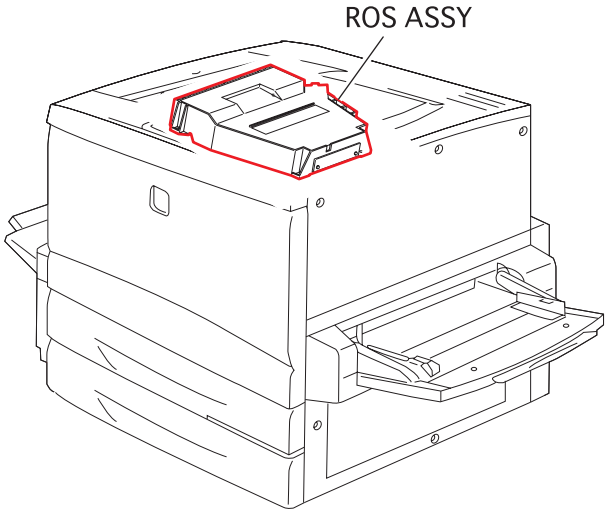
To protect the user or service personnel from exposure to the laser beam from the ROS Assembly, this printer is equipped with not only a protective control circuit but also an interlock switch (FRONT COVER SWITCH R) which physically cuts off the power to the laser beam output circuit. The interlock switch is turned off when the front cover is opened.
(See “Safety Components” for detailed operation of the interlock switch.)

A laser beam may be emitted during a maintenance operation. Do not turn on these interlock switches simultaneously under any circumstances except in a normal operation.

- **Do not expose yourself to the laser beam to prevent injury (blindness).**
- **Do not open the cover that has the laser beam warning label.**
- **If you disassemble or assemble the printer, turn off the power.**
- **If you need to work on the printer with power applied, strictly follow the instructions in this manual.**
- **Understand how the laser beam functions and take maximum precautions not to injure yourself or anyone around you.**

The laser beam has a narrower frequency band and more coherent phases than any other light (sunlight, electric light). It has excellent monochromaticity and convergence. A thin laser beam reaches long distances. Because of its convergence characteristic, the laser beam converges into one point, causing high density and high temperature. A laser beam is harmful to the human body.

NOTE: *The laser beam in this printer is invisible.*



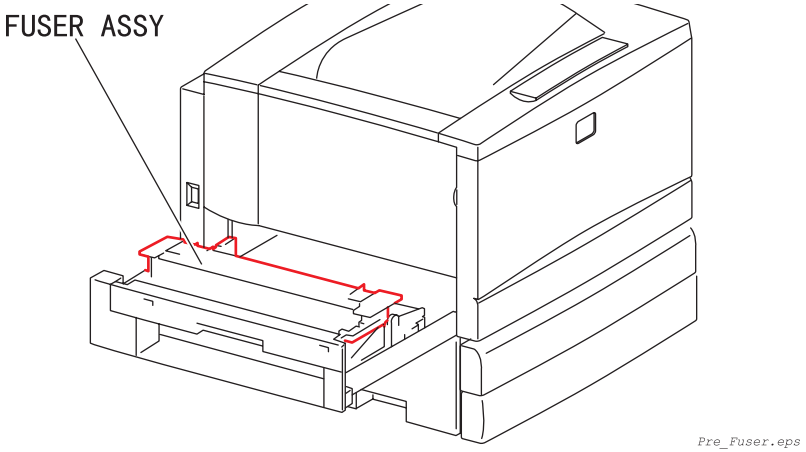
Pre_ROS.eps

High Temperature Assembly

To prevent you from becoming injured or burned, do the following: Before working with a high temperature Assembly (e.g., FUSER ASSY), turn off the power, unplug the power cord and wait until it cools down.

CAUTION

The high temperature Assembly is very hot immediately after any printer operations. Wait at least 40 minutes before you start working on the printer.



Parts

To prevent you from becoming injured, keep the following in mind:

- ☐ When handling heavy parts (including the printer itself), use good posture to protect your back whenever you lift, move or place parts.

CAUTION

Do not lift, move or place heavy parts in a body posture that is likely to cause injury to yourself or cause the part to drop.

- ☐ Be careful not to injure yourself with the sharp edges of the parts.
- ☐ Do not work with wet or oily hands-you may drop a part or injure yourself. Dry your hands first.
- ☐ When pulling out a part (including a harness), do not use too much force. Pull out the part carefully and slowly step by step.

Consumables

Understand the following explanation and handle the consumables carefully.

- ☐ Some parts may cause a particulate explosion or fire if handled improperly. Do not handle these parts near fire or throw into a fire.
- ☐ Some materials (e.g., Developer or Fuser Oil) may cause bodily injury. Do not swallow or inhale these materials or allow them to come in contact with the eyes. Help to protect those around you and follow the prohibitions against swallowing or inhaling those materials. Be careful to protect the eyes at all times.
  Place a sheet inside or under the printer so that the floor or workbench is protected.
- ☐ If the Developer or Fuser Oil gets on your clothing, dry it with a cloth and wash with clean water.

The printer has the following consumable parts:

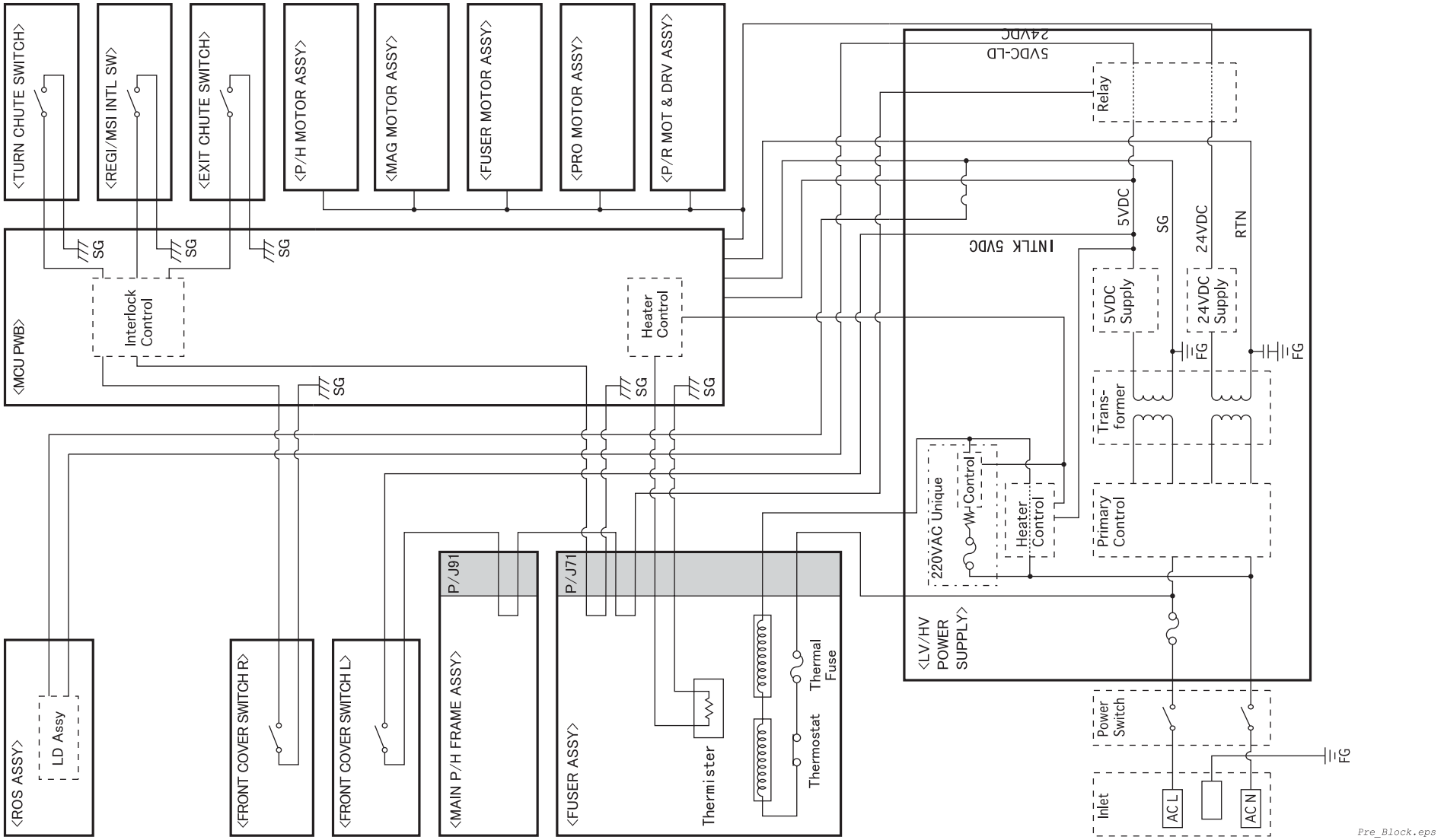
- DRUM CARTRIDGE (Photoconductor Unit)
- TONER CARTRIDGE Y
- TONER CARTRIDGE C
- WASTE TONER BOX
- TONER CARTRIDGE M
- TONER CARTRIDGE BK

Improper Printer Use

Modifying, revising, tampering with the printer, especially to the safety mechanism, is strictly prohibited in all circumstances.

Safety System Outline Diagram

The following diagram shows outline of the safety system of this printer.
For names and other details of signal lines, refer to "*7.2 Wiring Diagrams and Signal Information (p. 465)*".



Revision Status

Revision	Date of Issue	Description
A	March 14, 2002	Formal First Release Note: Exploded Diagrams and ASP List for AcuLaser C7000 are not included in this revision.
B	April 10, 2002	Revision up: [Appendix] 7.8 Optional Units *(p.562)* (Description for available options are added.)
C	June 27, 2002	Revision up: [Chapter-3] 3.4.2.1 Rolls and Print Quality Defect Intervals *(p.250)* (Interval pitch for "HEAR ROLL", "PRESSURE ROLL" is corrected.) 3.4.2.12 FIP-1.P11 Interval Print Quality Defect *(p.256)* (Newly added.)

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CHAPTER

1

PRODUCT DESCRIPTION

1.1 Features

AcuLaser C8600/AcuLaser C7000 is a non-impact color page printer driven by a laser and electrophotographic technologies. The resolution is 600/300 dpi and the printing speed is 8 ppm (A4 color)/35 ppm (A4 monochrome). The printer is equipped with AcuLaser Color Halftoning as its full color technology.

1.1.1 Engine Features

AcuLaser C8600 has the following features.

- ☐ High-speed engine that supports A5 to A3W. Printing speed is 8 ppm for color/35 ppm for monochrome (when printing A4 paper).
- ☐ Full-color printing engine that supports duplex printing and True 600 dpi of high resolution.
- ☐ Higher quality printing is possible with high quality plain paper.
- ☐ Capable of printing on thick paper, extra thick paper, coated paper, and transparency (dedicated OHP sheets).
- ☐ Easy maintenance for a color laser printer.
- ☐ As the standard paper feeders, the printer has two bins, namely, the MP Tray (up to 150 sheets, A3W supported) and the standard universal cassette (up to 250 sheets, A3 supported).
  Adding an optional Large Capacity Paper Unit (two 500-sheet cassettes, A3 supported) allows paper feeding a maximum of 1400 sheets from 4 bins.
  Adding an optional 500-Sheet Paper Cassette Unit (one 500-sheet cassette, A3 supported) allows paper feeding a maximum of 900 sheets from 3 bins.
  Substituting the standard universal cassette with an A3W paper cassette allows feeding A3W paper from the Lower Cassette 1.
- ☐ As paper ejection, a maximum of 250 sheets can be ejected into the Face-down tray and 150 sheets into the Face-up tray.

1.1.2 Controller Features

1.1.2.1 Controller Features for AcuLaser C8600

- ☐ Newly developed high-speed controller
  - ■ New RISC CPU PowerPC750CX (400MHz)
  - ■ 64-bit high-speed memory ..... SDRAM DIMM (PC100 or PC133)
  - ■ 64 MB of standard RAM. By installing additional RAM (2-slot), the memory can be expanded up to 1 GB (removing the standard RAM and installing 512 MB RAM on both slots). Using the standard RAM as it is expands up to 576 MB.
- ☐ Color technologies
  - ■ Enhanced ASIC (VIPS, CDMC) installed
  - ■ Data compression has been incorporated into the hardware to achieve high-speed processing.
  - ■ Equipped with AcuLaser Color Halftoning and CRIT (color RIT)
- ☐ On-board option of color photocopier (AcuLaser Color Copy Station 8600) supported
- ☐ Three types of standard interfaces available
  - ■ IEEE1284 compatible parallel interface (ECP supported)
  - ■ USB (Rev. 1.1) interface
  - ■ Ethernet interface (100Base-TX/10Base-T)
- ☐ By expanding memory with RAM DIMMs, the following functions can be enhanced and speeded up.
  - ■ Drawing area for AcuLaser Color Halftoning
  - ■ Printing speed
  - ■ Resolution
  - ■ Receive buffer capacity
  - ■ Collate (printing of multiple copies) (with memory expanded to 128 MB or more)
- ☐ New control panel (control panel 2001)
- ☐ HDD can be installed.

1.1.2.2 Controller Features for AcuLaser C7000

- Host-based controller
  - CPU: TMPR4955AF-200 MHz
  - Standard RAM: 32 MB, adding RAM DIMM expands to a maximum of 256 MB (Requires to replace the standard 32MB RAM DIMM with 128MB.)
- Color technologies
  - Enhanced ASIC (VIPS) installed
  - Equipped with AcuLaser Color Halftoning and CRIT (color RIT)
- Two types of standard interfaces installed
  - IEEE1284 compatible parallel interface supporting ECP
  - USB I/F
- Expanding RAM DIMM allows providing enhanced and high-speed performances on the following functions
  - Drawing area for AcuLaser Color Halftoning
  - Printing speed
  - Resolution

1.1.3 Software Features

1.1.3.1 Software Features for AcuLaser C8600

- Installed emulation
  - Standard ..... ESC/Page-Color mode
  - Standard ..... LJ4, GL2, ESCP2, FX, I239X, and ESC/Page (monochrome) modes (these have complete compatibility with AcuLaser C8500)
  - Optional ..... PostScript 3 mode (PostScript 3 module)
  - Optional ..... Color Copy Unit (AcuLaser Color Copy Station 8600)
- Printer status and printer environment monitors by EJL, PJL, and Printer MIB
- Remote panel function through HTTP browser by the EpsonNet WebAssist
- ROM update function when a flash DIMM is installed (RCC is supported)
- Upgrade function of the engine controller ROM (flash)
- Engine transfer voltage adjustment function by DIAG mode and control panel
- HP LaserJet4000, 80 Scalable font and compatible fonts and NLSP font ROM are installed, and Euro Symbol is supported
- Electronic sort, extended interface receive buffer size (for Ethernet interface only, excluding when emulation is fixed for PS3), font registration when PostScript 3 mode is selected (with an HDD installed)
- Calibration function
- Form Overlay function (for ESC/Page Color mode of Windows driver only, with an HDD installed)
- Reserve job function (Re-Print Job, Verify Job, Stored Job, Confidential Job, with an HDD installed)
- Color design has been changed (sRGB, gray scale guarantee for graphics, can be rewritten into the color design of AcuLaser C8500 (for Flash Program DIMM only))

  NOTE: *This is not described in manuals.*

- Specifications of manual feed have been changed (same as EPL-5900).

1.1.3.2 Software Features for AcuLaser C7000

- ESC/PageS implemented
  - Supports color
  - Supports duplex printing
  - Supports 2up
- Network compatibility
  - Background job commands establish network connections

1.2 Basic Specifications

1.2.1 Printer Basic Specifications

☐ Printing Method
Semi-conductor laser beam scanning and dry two-component toner electrophotography

☐ Resolution
600 dpi

☐ Print Mode

- ■ B/W mode ..... Standard monochrome print mode in which printing is performed at the fastest speed.
- ■ Color mode..... Color mode which uses the color toner of Y, M, C, and K.

☐ Speed Mode

- ■ Standard mode..... Transports paper at the highest speed supported by the printer.
- ■ Middle speed mode ... This mode ensures satisfactory fusing of image on thick paper exceeding 105 g/m^2 (28 lb) or envelopes, and monochrome image on transparencies.
  This mode also reduces printing speed to enhance the degree of gloss on the surface of the dedicated coated paper.
- ■ Low speed mode ..... This mode reduces printing speed to ensure satisfactory fusing of image on thick paper exceeding 220g/m^2, and color image on transparencies.

☐ Printing Speed *3

Both face-up and face-down satisfy the conditions below.
All of the standard tray, the standard universal cassette and the expanded cassette satisfy the following conditions:

Table 1-1. Printing Speed (Unit: ppm)

Print Mode	Speed Mode		A4 LEF 2UP *2	LT LEF 2UP *2	A3 SEF	B(LD) LEF
B/W	Standard	Simplex printing	35.0 (33.7/27.5)	34.4 (32.9/27.5)	18.8 (18.3)	18.3 (17.9)
		Duplex printing *4	27.4 (25.5)	27.1 (25.4)	15.7 (15.6)	15.5 (15.4)
	Middle speed	Simplex printing	5.3	5.3	2.6	2.6
	Low speed	Simplex printing	4.0	4.0	2.0	2.0
Color	Standard	Simplex printing	8.0	8.0	4.0	4.0
		Duplex printing *4	8.0	8.0	4.0	4.0
	Middle speed	Simplex printing	3.5	3.5	1.8	1.8
	Low speed	Simplex printing	2.9	2.9	1.4	1.4

Note *1: LEF (Long Edge Feed): the long edge of the paper is fed to the printer.
SEF (Short Edge Feed): the short edge of the paper is fed to the printer.

*2: In 2UP mode, the printer creates two print images on the IBT belt and the images are transferred in sequence onto two sheets of paper. This mode is available for LT/A4 (LEF) or smaller.

*3: Not applicable to any operation for which the printing speed is restricted as specified in *1.8 "Engine Restrictions"*.

*4: The printing speed (ppm) for Duplex printing represents the number of pages printed per minute.
The values in parentheses represent the printing speeds when paper is fed from the optional 500-Sheet Paper Cassette Unit (500 sheets x 1) or the optional Large Capacity Paper Unit (500 sheets x 2). (The two values given in parentheses indicate the printing speeds with the optional upper cassette and lower cassette, respectively.)

■ Reference values
B/W, standard mode. With paper sizes other than indicated above when paper is fed from the standard universal cassette, the printing speeds for your information are as shown below.

Table 1-2. Reference Values (Unit: ppm)

Paper Size	EXE LEF	B5 LEF	LD14"	B4 SEF
Simplex printing	39.2	39.8	21.9	21.5
Duplex printing	40.4	40.7	17.1	16.9

<How to measure continuous printing speed>

The number of sheets printed per minute is measured as follows: Let t seconds be the time from the ejection of the tail end of the 1st sheet to the ejection of the 11th sheet. Then the number of sheets printed per minute is calculated as 60/t times the measured number of pages.

☐ First Printing Time *

■ Face-up..... B/W : 8.3 seconds or less
Color : 19.6 seconds or less

■ Face-down..... B/W : 10.4 seconds or less
Color : 21.7 seconds or less

NOTE 1: *First print is defined as the duration taken after receiving the start command until completion of outputting the first print. It is applicable when a feeder in the printer body is selected in the standard mode. (Not applied during the process control operation.)*

2: *The time as indicated above is common to all the feeders including all the optional feeders.*

3: *The values as indicated above are applicable when the paper is A4 LEF.*

☐ Warm-up time
Within 330 seconds (at 22°C, 55% Rh, rated voltage: 100V, 115V, 220V)

☐ Paper feed

Table 1-3. Paper Feed

Paper Source		Capacity	Applicable Paper Size	Applicable Paper Thickness
Standard	Standard MSI (MP tray) *1,*4	150 sheets (16 mm)	Regular size sheets and custom size sheets whose dimensions are within the limits specified below: • Min.: Width 90 mm (3.5")x Length 139.7 mm (5.5") • Max.: Width 330.2 mm (13")x Length 457.2 mm (18") A3, A3W, A4, A5, B4, B5, I-B5, LT, HLT, LG, EXE, GLG, GLT, B(LD), F4	64~105g/m^2 (Recommended paper, Plain paper)
		75 sheets	90x139.7 mm~330.2x457.2 mm Postcard, Double postcard, Quadruple postcard, Transparencies, Labels, Thick paper	105~250g/m^2 (Thick paper, Special paper)
		20 sheets	Custom-size envelopes *3 Monarch, C10, DL, C6, C5 Yokei #0 *6, Yokei #4 *6, Yokei #6 *6	-
	Standard universal cassette	250 sheets (26 mm)	B5, LT, A4, B4, A3, LG, B(LD), EXE	64~105g/m^2 (Recommended paper, Plain paper)
Optional Cassette Unit *2	A3W Cassette	250 sheets (26 mm)	A3W	64~105g/m^2 (Recommended paper, Plain paper)
	500-Sheet Paper Cassette Unit	500 sheets (53 mm)	B5, LT, A4, B4, A3, LG, B(LD), EXE	64~105g/m^2 (Recommended paper, Plain paper)
	Large Capacity Paper Unit	500 sheets (53 mm)	B5, LT, A4, B4, A3, LG, B(LD), EXE	64~105g/m^2 (Recommended paper, Plain paper)

Note *1: For the paper whose width is more than 304.8 mm (12 inch), the side guide in the MSI tray must be adjusted.

*2: Each cassette is equipped with the side guide and end guide (also used to detect paper size). They can be adjusted by users.

*3: Note the following points when setting envelopes:
Open the flaps and set the envelopes with the flaps positioned at the tail in the paper feed direction.
Set the envelopes so that the longer edge is fed to the printer, if the length (excluding the flap) is shorter than the width. (Except for C5)
The minimum length with the flap open must be 143 mm.
The minimum width must be 90 mm.

*4: The MSI tray has the function to detect Paper Empty condition.

*5: Each cassette is equipped with the Paper Out sensor and paper near empty sensor. Paper Near Empty condition is defined as follows: 40 sheets ± 30 sheets of FX P paper (64 g/m2)

*6: JIS envelope

■ Combinations with Optional Cassettes and Resultant Capacity

Combination	MSI (MP Tray)	Standard Universal Cassette	A3W Cassette	500-Sheet Paper Cassette Unit	Large Capacity Paper Unit	Total Capacity
1	150 sheets	250 sheets	-	500 sheets	-	900 sheets
2		250 sheets	-	-	1000 sheets	1400 sheets
3		-	250 sheets	500 sheets	-	900 sheets
4		-	250 sheets	-	1000 sheets	1400 sheets

NOTE a: The number of sheets is applicable when recommended paper or plain paper is used.

b: Use the A3W cassette by inserting it into the standard universal cassette slot.

c: Either 500-Sheet Paper Cassette Unit or Large Capacity Paper Unit can be installed only at the bottom.

☐ Duplex Printing

- Minimum size ..... 182 mm/7.16” (W) x 210 mm/8.26” (L)
- Maximum size ..... 304.8mm/12” (W) x 457.2mm/18” (L)
- Paper wight ..... 64 g/m^2~105 g/m^2 (17 lb~28 lb)

☐ Paper Size / Paper Orientation / 2-UP Mode Availability

Table 1-4. Paper Size / Paper Orientation / 2-UP Mode Availability

	Paper Size	Dimensions mm (inch)	Paper Orientation				2UP mode	Duplex print
			MSI (MP Tray)	Universal Casette	500-Sheet/ LCP Unit	A3W Cassette		
Plain paper	A3W	328x453	SEF	-	-	SEF	X	X
	A3	297x420	SEF	SEF	SEF	-	X	O
	A4	210x297	LEF	LEF	LEF	-	O	O
	A5	148x210	LEF	-	-	-	O	X
	B4	257x364	SEF	SEF	SEF	-	X	O
	B5	182x257	LEF	LEF	LEF	-	O	O
	I-B5	176x250	LEF	-	-	-	O	X
	LT	215.9x279.4 (8.5”x11”)	LEF	LEF	LEF	-	O	O
	HLT	139.7x215.9 (5.5”x8.5”)	LEF	-	-	-	O	X
	LG	215.9x355.6 (8.5”x14”)	SEF	SEF	SEF	-	X	O
	EXE	184.15x266.7 (7.25”x10.5”)	LEF	LEF	LEF	-	O	O
	GLG	215.9x330.2 (8.5”x13”)	SEF	-	-	-	X	O
	GLT	203.2x266.7 (8”x10.5”)	LEF	-	-	-	O	O
	B(LD)	279.4x431.8 (11”x17”)	SEF	SEF	SEF	-	X	O
	F4	210x330	SEF	-	-	-	X	O

Table 1-4. Paper Size / Paper Orientation / 2-UP Mode Availability (continued)

Paper Size		Dimensions mm (inch)	Paper Orientation				2UP mode	Duplex print
			MSI (MP Tray)	Universal Casette	500-Sheet/ LCP Unit	A3W Cassette		
Special applications	Transparencies	210x297 (8.5"x11")	LEF	-	-	-	○	×
	Postcard	100x148	SEF	-	-	-	○	×
	Double postcard	148x200	LEF	-	-	-	○	×
	Quadruple postcard	200x296	LEF	-	-	-	○	×
	MON	98.43x190.54 (37/8"x71/2")	LEF*2	-	-	-	○	×
	C10	104.78x241.3 (41/8"x91/2")	LEF*2	-	-	-	○	×
	DL	110x220	LEF*2	-	-	-	○	×
	C5	162x229	SEF	-	-	-	×	×
	C6	114x162	LEF*2	-	-	-	○	×
	Yokei #0 *3	120x235	LEF*2	-	-	-	○	×
	Yokei #4 *3	105x235	LEF*2	-	-	-	○	×
	Yokei #6 *3	98x190	LEF*2	-	-	-	○	×

NOTE a: LEF (Long Edge Feed): the long edge of the paper is fed to the printer.

b: SEF (Short Edge Feed): the short edge of the paper is fed to the printer.

c: The envelopes supported vary with intended markets.

Note *1: 2UP is available only for paper size of LT (LEF) or smaller. For custom size paper, paper length along the transport direction must be 210 mm (8.5 inches) or shorter. As for envelopes, the length with its flap opened along the transport direction must be 210 mm (8.5 inches) or shorter.

*2: When setting envelopes, open the flaps and set the envelopes with the flaps positioned at the tail in the paper feed direction.

*3: JIS envelope

☐ Paper Feed Reference
Single side aligning (front side) for all sizes (both standard tray (MSI) and each cassette)

☐ Consumables
- ■ Toner Cartridge (Black, Cyan, Magenta, Yellow)
- ■ Drum Cartridge (including one Waste Toner Box)
- ■ Waste Toner Box

☐ Regularly Replaced Parts
Main Fuser Assembly
Exhaust Filter

☐ Paper Output
Paper output capacity with the recommended paper (EPSON high-quality paper) is as follows:
- ■ Face-down (FD) ..... 250 sheets (B5/EXE or larger, up to 105 g/m^2 (28 lb))
- ■ Face-up (FU) ..... 150 sheets (A4 or smaller)
  50 sheets (larger than A4)

NOTE: *The FD and FU output capacities are applicable to both simplex and duplex prints. (when recommended paper is used)*

See Table 1-5 on page 13 for face-down (FD) output availability.

Table 1-5. Face-Down Output Availability

Paper Size		Dimensions in mm (inch)	FD Availability
Plain paper	A3W	328x453	○
	A3	297x420	○
	A4	210x297	○
	A5	148x210	×
	B4	257x364	○
	B5	182x257	○
	I-B5	176x250	×
	LT	215.9x279.4 (8.5”x11”)	○
	HLT	139.7x215.9 (5.5”x8.5”)	×
	LG	215.9x355.6 (8.5”x14”)	○
	EXE	184.15x266.7 (7.25”x10.5”)	○
	GLG	215.9x330.2 (8.5”x13”)	○
	GLT	203.2x266.7 (8”x10.5”)	○
	B(LD)	279.4x431.8 (11”x17”)	○
	F4	210x330	○
Special applications	Transparencies	210x297 (8.5”x11”)	FU *
	Postcard	100x148	FU *
	Double postcard	148x200	FU *
	Quadruple postcard	200x296	FU *
	MON	98.43x190.54 (37/8”x71/2”)	FU *
	C10	104.78241.3 (41/8”x91/2”)	FU *
	DL	110x220	FU *
	C5	162x229	FU *
	C6	114x162	FU *
	Yokei #0 *1	120x235	FU *
	Yokei #4 *1	105x235	FU *
	Yokei #6 *1	98x190	FU *

NOTE a: FD ejection is not available with sheets larger than 181.9 mm in the paper feeding direction and 209.9 mm in width.

b: “FU” in the FD availability columns means face-up ejection for transparencies, thick paper, and envelope.*

c: The FD and FU output capacities are applicable to both simplex and duplex prints (when recommended paper is used).

Note *1: JIS envelope

☐ Dimensions and Weight

Table 1-6. Dimensions and Weight of Each of AcuLaser C8600 Printer Body and Optional Units

		Dimensions			Weight (kg ±1%kg)
		Width (mm)	Depth (mm)	Height (mm)	
Printer body	AcuLaser C8600	650 *1	647	554	70.0
	AcuLaser C7000	650 *1	647	554	69.5
Option	Duplex Unit *2	-	-	-	8.2
	500-Sheet Paper Cassette Unit (with Feet)	575	602	164	13.3
	500-Sheet Paper Cassette Unit (with Castors)	575	602	206	14.0
	Large Capacity Paper Unit	578	602	264	21.2
	A3W Cassette	560	547	87.4 ± 1.2	2.7

Note *1: With the MSI (MP Tray) and the paper eject (FU) tray folded

*2: Since the Duplex Unit consists of three separate components, the dimensions of the Duplex Unit as a single unit are not given.

NOTE a: For printer dimensions with its optional units installed, see Section 1.3.2 "Dimensional Drawing (in mm)".

b: The tolerance of the dimensions is ± 1 mm.

c: The total weight after installing optional units is not the total sum of the weights of the printer body and the installed optional units, since their installation involves some part removal.

☐ Power Supply

- ■ 100/120V version:100/120V±10% (90V~132V) 50/60Hz±3Hz
- ■ 220/240V version:220/240V±10% (198V~264V) 50/60Hz±3Hz

☐ Power Consumption
Power consumption with the rated voltage (100, 115 or 240 VAC) input is as follows:

Table 1-7. Power Consumption

	Power Consumption		Remarks
Operating (color) *1	Average	550 Wh or less	
	Maximum	1100 W or less	100V/120V version (Fuser is on)
		1200 W or less	220V/240V version (Fuser is on)
Operating (B/W) *1	Average	750 Wh or less	
	Maximum	1100 W or less	100V/120V version (Fuser is on)
		1200 W or less	220V/240V version (Fuser is on)
Standby mode	Average	240 Wh or less	
	Maximum	1000 W or less	(Fuser is on)
		100 W or less	(Fuser is off)
Low power mode *2	Average	20 Wh or less	Only with Japanese models (Not applicable to AcuLaser C8600/AcuLaser C7000)
		15 Wh or less	

Note *1: Including the optional cassette unit and duplex printing unit.
*2: Full pause status. Conforms to the Energy Star program.

☐ Current Consumption
- ■ 100 V .....11 A or less (at rated voltage)
- ■ 115 V .....10 A or less (at rated voltage)
- ■ 240 V .....5 A or less (at rated voltage)

☐ Product Life
- ■ Printer body (including the standard tray):
  Approximately 180,000*1 printed pages (450,000 images) on A4 LEF or five years, whichever comes first.
- ■ Option
  - 500-Sheet Paper Cassette Unit ..... 180,000 sheets
  - Large Capacity Paper Unit ..... 180,000 sheets
  - A3W Cassette ..... 180,000 sheets
  - Duplex Unit 180,000 sheets*2

Note *1: Note one full color print is formed with four images. So the printer can prints 180, 000 sheets (= 450,000 images) if its job ratio of monochrome printing to color printing is 1:1. (450,000 images = 90,000 x 4 + 90,000).
If the printer is used only for monochrome print, it can prints 450,000 sheets
*2: In duplex printing, each side of paper is counted as one sheet.

☐ Noise

Table 1-8. Noise

Status	Printer Body Only	Printer Body + Optional Units
Operating	54.8dB(A) or less	59.4dB(A) or less
Standby mode	38.3dB(A) or less	38.3dB(A) or less
Low power mode	35.0 dB(A) or less	35.0 dB(A) or less

Note *1: Duplex Unit + Large Capacity Paper Unit

☐ Ozone Concentration
The saturated concentration of ozone emission does not exceed 0.02 mg/m^3. Measurement is based on the BAM standard. The volume subjected to measurement is 29.3 m^3.

☐ Dust Emission
Dust concentration is not more than 0.075 mg/m^3. Measurement is based on the BAM standard.

☐ Toxicity
Photoconductor unit (OPC), toner, carrier, and plastic materials are all non-toxic.

1.2.2 Paper Specifications

1.2.2.1 Paper Type

☐ Recommended Paper
4200 paper (B/W), X-Pressions paper (color), EPSON high-quality plain paper (for color single-side only), EPSON coated paper

☐ Plain Paper
Generally applied copier paper, Recycled paper,
64 g/m^2 ~ 105 g/m^2 (17 lb ~ 28 lb)

☐ Special Applications
- ■ Exclusive OHP film (Type: LPCOHPS1)
- ■ Postcard
- ■ Labels
- ■ Color paper
- ■ Thick paper (105 g/m^2 ~ 250 g/m^2)
- ■ Envelope

NOTE 1: *lb: Ream Weight =lb/500 sheets/17" × 22"*
1g/m^2=0.2659763 lb

2: *Before purchasing a large amount of paper, try it out and check that it is properly fed.*

3: *The following types of paper should not be used with this printer. They could cause printing defects, paper jams or printer malfunctions.*
- *Carbon paper, non-carbon paper, thermal paper, impact paper, acid-based paper*
- *Paper that was previously used in a thermal or ink jet printer*
- *Paper that is too thin or too thick*
- *Paper that is wet or damp*
- *Paper with special coatings or colored paper with processed surfaces*
- *Paper that is too smooth or slippery on the surface*
- *Paper with significantly different roughness on each surface*
- *Paper with punch holes or perforations*
- *Irregularly shaped paper or paper with non-perpendicular corners*
- *Labels that peel off easily*
- *Paper with glue, staples or paper clips attached to it*
- *Ink jet paper for special applications (super-fine, glossy, glossy film, etc.)*
- *OHP sheets manufactured for other color laser printers, monochrome printers, and photocopiers*
- *Sheets already printed on other color/monochrome laser printers or photocopiers*
- *Sheets of paper stuck together*

1.2.2.2 Paper Feedings

Table 1-9. Paper Feedings

Paper Source	Recommended Paper	Plain Paper	Special Applications				
			OHP	Postcard Double postcard Quadruple postcard	Labels	Thick paper (105~250 g/m^2)	Envelope (MON, C10, DL, C6, C5, Yokei #0*3, #4*3, #6*3)
Standard tray (MSI)	○	Δ	○ *2	Δ	Δ	Δ	Δ
Standard Universal Cassette	○	Δ	×	×	×	×	×
A3W Cassette *1	○	Δ	×	×	×	×	×
500-sheet Cassette *1	○	Δ	×	×	×	×	×
Duplex Unit *1	○	Δ	×	×	×	×	×

Note *1: Option

*2: Exclusive OHP sheet only

○: Paper feed reliability and image quality are ensured.

Δ: Paper feed and printing are possible for only generally applied types of paper.

×: Sheets cannot be fed.

1.2.2.3 Printing Area

PRODUCT SPECIFICATIONS

There are two types of printing areas, namely, the guaranteed print area and the printable area.

- Guaranteed Print Area:
  Print quality is guaranteed all over the guaranteed print area.
- Printable Area:
  Printing is always possible all over the printable area. (Print quality is not guaranteed out of the guaranteed print area, even within the printable area.)
  Printing is not always possible out of the available printing area. (Printing out of the printable area sometimes may be achieved successfully, but can not always be achieved.)

The guaranteed print area and printable area are all the area of the sheet except vertical and horizontal margins of 5 mm. (See illustration below)
However, with the A3W sheet or custom-size sheets with a large size, the guaranteed print area is different from the printable area.

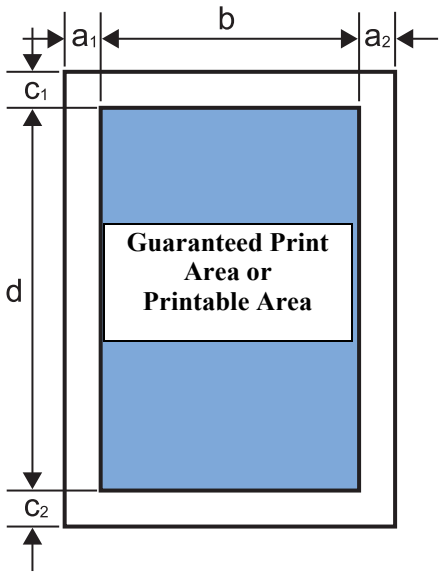


Figure 1-1. Guaranteed Print Area

- Guaranteed Print Area List

Table 1-10. Guaranteed Print Area List (Unit: dots) (600dpi)

Paper Size		a_1	b	a_2	c_1	d	c_2
Regular size paper	A3W *1	390	7016	342	120	10174	406
	A3	120	6776	120	120	9680	120
	A4	120	4720	120	120	6776	120
	A5	120	3256	120	120	4720	120
	B4	120	5832	120	120	8360	120
	B5	120	4060	120	120	5832	120
	LT	120	4860	120	120	6360	120
	HLT	120	3060	120	120	4860	120
	LG	120	4860	120	120	8160	120
	EXE	120	4110	120	120	6060	120
	GLG	120	4860	120	120	7560	120
	GLT	120	4560	120	120	6060	120
	B(LD)	120	6360	120	120	9960	120
	F4	120	4720	120	120	7556	120
	Postcard	120	2122	120	120	3256	120
	Double postcard	120	4484	120	120	3256	120
	Quadruple postcard	120	4484	120	120	6752	120
	Envelope (Yokei #0) *2	120	2594	120	120	5310	120
	Envelope (Yokei #4) *2	120	2240	120	120	5310	120
	Envelope (Yokei #6) *2	120	2074	120	120	4248	120
Custom size paper	Minimum size	120	1886	120	120	3060	120
	Maximum size *1	390	7016	342	120	10174	406

Note *1: With the A3W sheet or custom-size sheets with a large size, the guaranteed print area is different from the printable area.

*2: JIS envelope

☐ Printable Area List

Table 1-11. Printable Area List (Unit: dots) (600dpi)

Paper Size		a_1	b	a_2	c_1	d	c_2
Regular size paper	A3W *1	120	7508	120	120	10460	120
	A3	120	6776	120	120	9680	120
	A4	120	4720	120	120	6776	120
	A5	120	3256	120	120	4720	120
	B4	120	5832	120	120	8360	120
	B5	120	4060	120	120	5832	120
	LT	120	4860	120	120	6360	120
	HLT	120	3060	120	120	4860	120
	LG	120	4860	120	120	8160	120
	EXE	120	4110	120	120	6060	120
	GLG	120	4860	120	120	7560	120
	GLT	120	4560	120	120	6060	120
	B(LD)	120	6360	120	120	9960	120
	F4	120	4720	120	120	7556	120
	Postcard	120	2122	120	120	3256	120
	Double postcard	120	4484	120	120	3256	120
	Quadruple postcard	120	4484	120	120	6752	120
	Envelope (Yokei #0) *2	120	2594	120	120	5310	120
	Envelope (Yokei #4) *2	120	2240	120	120	5310	120
	Envelope (Yokei #6) *2	120	2074	120	120	4248	120
Custom size paper	Minimum size	120	1886	120	120	060	120
	Maximum size *1	120	7508	120	120	10460	120

Note *1: With the A3W sheet or custom-size sheets with a large size, the printable area is different from the guaranteed print area.

*2: JIS envelope

ENGINE SPECIFICATIONS

- ☐ Maximum Printable Area
  320 mm (12.6") (W) / 457.2 mm (18") (L)
- ☐ Guaranteed Print Area
  All area of the sheet except vertical and horizontal margins of 4 mm.
  However, the guaranteed print area is limited to within the maximum guaranteed print area: 297 mm (11.7") (W) /444.5 mm (17.5") (L)
- ☐ Printable Area
  - ■ Paper whose width is 304.8 mm (12") or less:
    Printing is possible up to each edge of the sheet.
  - ■ Paper whose width exceeds 304.8mm (12")*:
    Printing is possible all over the area of the sheet except the vertical and horizontal margins of 5 mm.
    (See Figure 1-2)

Note "*": For paper whose width is more than 304.8 mm (12"), the side guide in the MSI must be moved. So print start position changes to 5 mm from the paper edge (a). This change also applies to A3W cassette.

- ■ When Standard Tray (MSI) or A3W Cassette is used
  - Maximum paper size: 330.2 mm (13") (W) / 457.2 mm (18") (L)
  - Printable area: 320 mm (12.6") (W) / 449.2 mm (17.7") (L)
  - Guaranteed print area: 297 mm (11.7") (W) / 431.8 mm (17") (L)

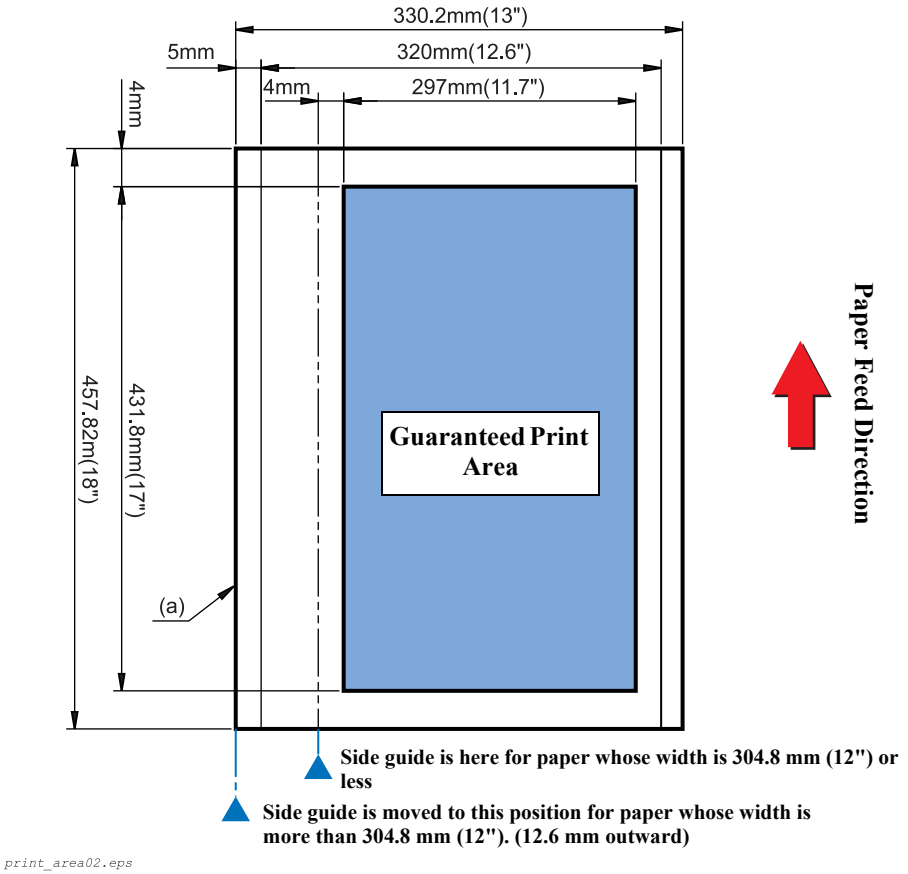
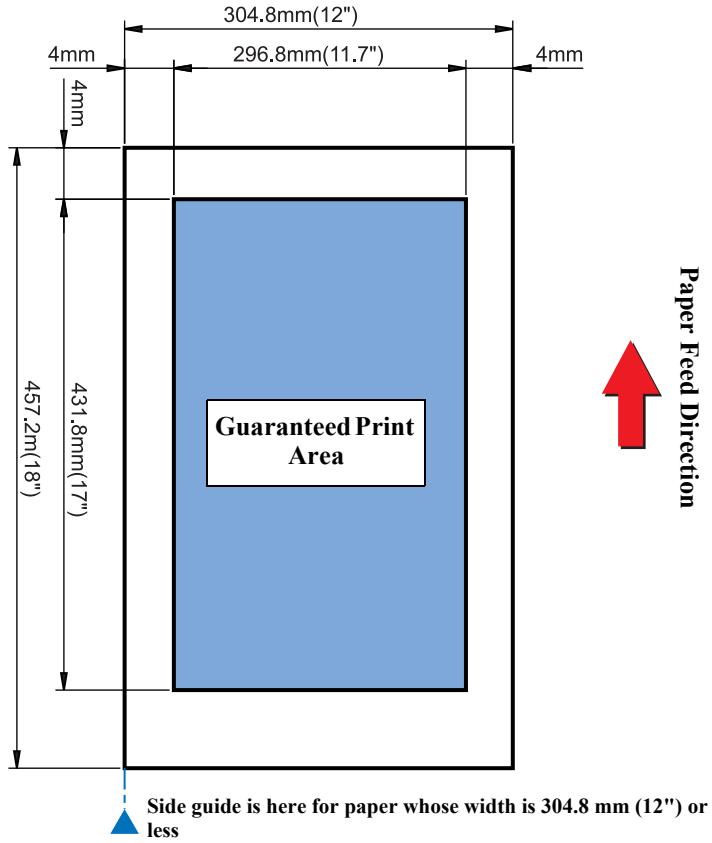


Figure 1-2. Maximum Printable Area (Standard Tray (MSI) / A3W Cassette)

■ When Standard Universal Cassette is used

- Maximum paper size: 304.8 mm (12") (W) / 457.2 mm (18") (L)
- Printable area: 296.8 mm (11.7") (W) / 449.2 mm (17.7") (L)
- Guaranteed print area: 296.8 mm (11.7") (W) / 431.8 mm (17") (L)



print_area03.eps

Figure 1-3. Maximum Printable Area (Standard Universal Cassette)

■ When 500-Sheet Paper Cassette Unit / Large Capacity Paper Unit is used

- Maximum paper size: 304.8 mm (12") (W) / 431.8 mm (17") (L)
- Printable area: 296.8 mm (11.7") (W) / 423.8 mm (16.7") (L)
- Guaranteed print area: 296.8 mm (11.7") (W) / 423.8 mm (16.7") (L)

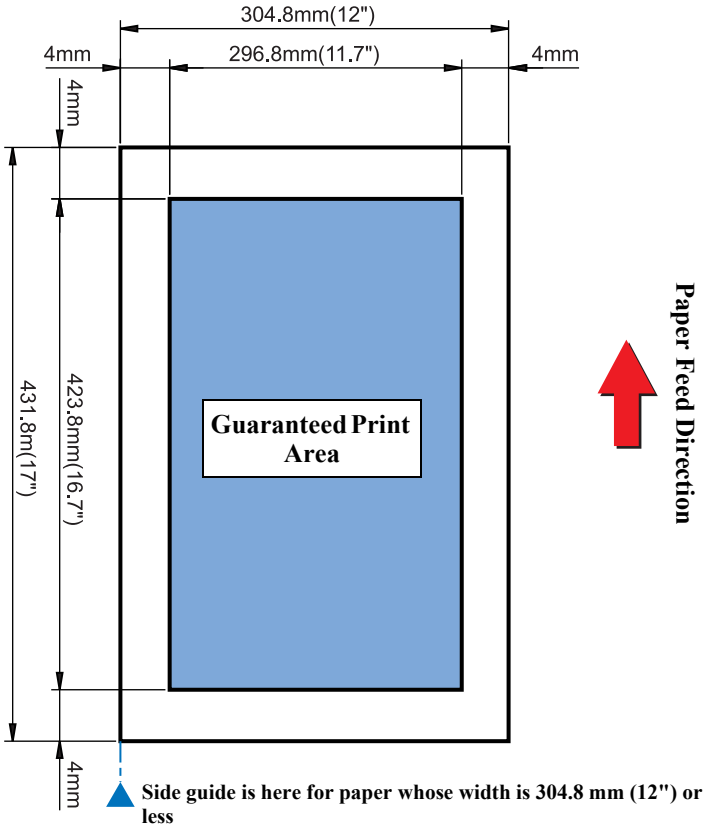


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Figure 1-4. Maximum Printable Area (500-Sheet Paper Cassette Unit / Large Capacity Paper Unit)

1.2.3 Reliability, Durability and Maintainability

MPBF

- ☐ Printer body (including the standard tray (MSI)):
  40,000 pages or more (100,000 images or more*)
- ☐ Printer body (including the standard tray (MSI) and Duplex Unit):
  40,000 pages or more (100,000 images or more*)
- ☐ Printer body + 500-Sheet Paper Cassette Unit:
  40,000 pages or more (100,000 images or more*)
- ☐ Printer body + Large Capacity Paper Unit:
  40,000 pages or more (100,000 images or more*)

Note "*": Since one page of color print is formed with 4 images, the value "100,000 images" is calculated from the MPBF on the assumption that the job ratio of color printing to monochrome printing is 1:1.
100,000 = 40,000/2 + (40,000/2 x 4)

PAPER FEED RELIABILITY

- ☐ Standard Paper Tray

	Recommended Paper	Plain Paper	Special Applications*
Paper jam rate (simplex print)	1/1000 or less	1/500 or less	1/100
Paper jam rate (duplex print)	1/600 or less	1/300 or less	-
Multiple-sheet feed rate	1/1000 or less	1/1000 or less	1/50

Note "*": Feeding reliability for envelopes is defined when printed on the front side at normal temperature only. Envelopes that are adherent due to high temperature are excluded. (Print on a back side is not guaranteed.)

- ☐ Standard Universal Cassette

	Recommended Paper	Plain Paper	Special Applications*
Paper jam rate (simplex print)	1/3000 or less	1/2000 or less	1/100 or less
Paper jam rate (duplex print)	1/1800 or less	1/1200 or less	-
Multiple-sheet feed rate	1/800 or less	1/500 or less	1/50 or less

- ☐ 500-Sheet Paper Cassette Unit / Large Capacity Paper Unit

	Recommended Paper	Plain Paper	Special Applications*
Paper jam rate (simplex print)	1/5000 or less	1/3000 or less	1/100 or less
Paper jam rate (duplex print)	1/3000 or less	1/1800 or less	-
Multiple-sheet feed rate	1/5000 or less	1/3000 or less	1/50 or less

- ☐ A3W Cassette

	A3W Paper
Paper jam rate	1/2000 or less
Multiple-sheet feed rate	1/500 or less

NOTE: *The paper jam rate and multiple-sheet feed rate do not include those at the sheets boundary between original paper and replenished paper, occurring after paper is replenished.*

PRINTING START POSITION ACCURACY

- Reference point of Main scanning direction (c) ±2.5 mm
- Reference point of Sub scanning direction (a) ±2.0 mm

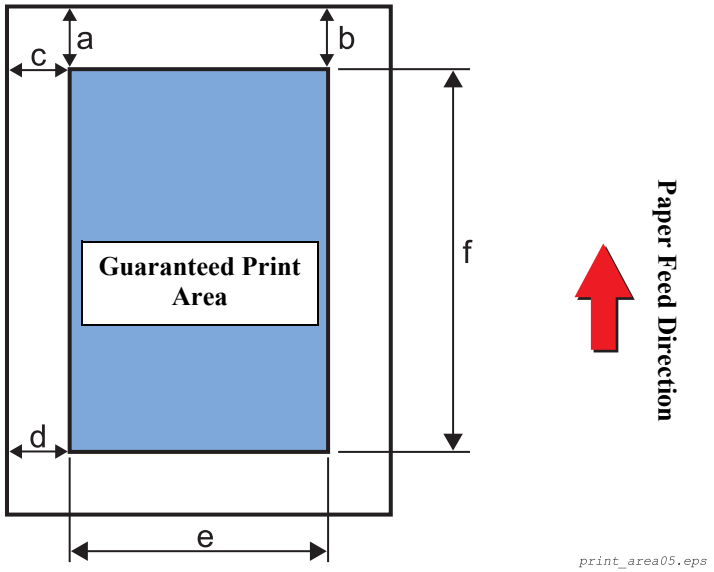


Figure 1-5. Printing Start Position Accuracy

SKEW

Direction	A4 (Landscape)	A3
Main scanning direction (|c-d|)	±1.5 mm (f=196 mm)	±3.0 mm (f=406 mm)
Sub scanning direction (|a-b|)	±2.0 mm (e=271 mm)	±2.0 mm (e=271 mm)

SERVICEABILITY

MTTR: Averages within 30 minutes. 95% is completed within 50 minutes.

HEIGHT OF CURL OF PRINTED PAGES

±15 mm or less (for color printing with the image ratio of 5% in non- aligned condition). (This value varies with the image ratio and aligning pattern.)

1.2.4 Operating Conditions (Including Consumables)

- Temperature and Humidity Conditions
  - Temperature: 10 ~ 32°C
  - Humidity: 15 ~ 85%RH (no condensation, however)
- Altitude

  3,100 m or less
- Level

  Front-rear direction on the table: 5 mm or less (within 646 mm)

  Right-left direction on the table: 10 mm or less (within 560 mm)
- Lighting

  3,000 lx or less (not to be exposed to direct sunlight)
- Space Requirements

  In order to ensure that the printer operates properly, provide at least as much space as shown in Figure 1-6.

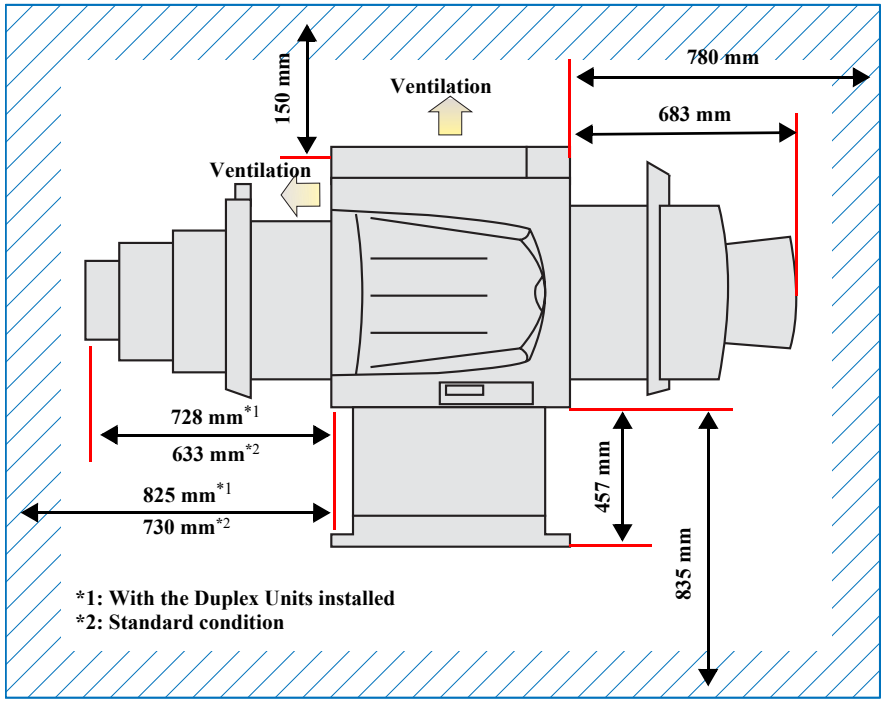


Figure 1-6. Space Requirement

1.2.5 Storage and Transport of the Printer Body and Optional Products (Consumables Packaged)

TEMPERATURE AND HUMIDITY CONDITIONS

Table 1-12. Temperature and Humidity Conditions

	Temperature	Humidity	Warranty Period
Normal conditions	0~35°C	15~ 80%RH*	12 months
Severe Conditions	High temperature: 35~40°C Low temperature: -20~0°C	High humidity: 80~ 95%RH* Low humidity: 5~15%RH*	1 month max.

Note "*": No condensation, however

STORAGE BAROMETRIC PRESSURE (ALTITUDE)

0~3,100 m
(0 to 15,000m is possible during air shipping, but the air pressure in the cargo room must be 70.9275 kPa or more.)

DROPPING

☐ Printer Body

■ Free drop

Height:
<Bottom]> 457 mm (18")
<Other than bottom> 305 mm (12")
Test times:
<Bottom> Once
<Other than bottom> Once for each face (5 times in total)

■ Edge drop

Height: 457 mm (18")
Test times: Once for each edge (4 times in total)

- Optional Units
  - Dropping direction
    1 corner, 3 edges, 6 sides
  - Dropping height

Table 1-13. Dropping Height

Optional Unit	Height
Duplex Unit	760 mm
500-Sheet Paper Cassette Unit	760 mm
Large Capacity Paper Unit	760 mm
A3W Cassette	920 mm

VIBRATION

- Frequency ..... 2 ~ 500Hz
- Acceleration ..... 12.6 m/s^2 (on the vibration board)*1
- Direction of application ..... Three directions (x, y and z axes)*2
- Duration of application ..... 50 minutes

Note *1: Overall rms value

*2: X, Y: Vertical, Z: Horizontal

1.2.6 Electrical Features

Specifications here are not applicable to any optional units.

- AC Line Noise
  - Pulse width: 50 ~ 1,000 ns
  - Pulse polarity: +/–
  - Repeat: Not synchronous
  - Modes: Common/normal
  - Voltage: 1kV
    (However, the parts can withstand up to 2kv without damage.)
- Instantaneous Outages
  DIP 100% (at rated voltage-10% and rated frequency-10%) for one cycle without any effect on print quality.
- Resistance to Static Electricity
  No possibility of any error which affects on print quality under the following conditions:
  - Contact discharging: ±6kV
  - Atmospheric discharging: ±8kV
- Inrush Current
  1/2 cycle, 100 A or less, 10 msec or less
- Insulation Resistance
  10MΩ or more
- Dielectric Strength
  There is no breakdown when the following voltages are applied for one minute.

Table 1-14. Voltage to be Applied

	Between Primary Side and Chassis
100V/120V version	AC2,000V
220V/240V version	AC3,000V

- Leak Current

100V:	0.25 mA or less
120V:	3.5 mA or less
220/240V:	3.5 mA or less
Conditions:	1.5kΩ, 0.15μF (between frames and non-charged metallic parts) The measurement circuit is in compliance with IEC60960.

1.2.7 Process Specifications

- Printer Type:
  Dry electrophotographic with 2 ingredients using the intermediate belt transfer system
- Light Source:
  Semi-conductor laser
  Laser power: 5mW (rated)
  Wave length: 785 nm +10/-15 nm (at 25°C)
- Photoconductor Unit:
  OPC drum (organic photoconductor)
- Charging:
  Roller transfer system
- Development:
  Exposed area development
- Toner:
  Non-magnetic toner with carrier
- 1st transfer:
  Intermediate belt transfer system
- 2nd transfer:
  Roller transfer system
- Fusing:
  Oil-less heat roller system
- Density Adjustment:
  Automatic (can not be set by user)

1.2.8 Compliance with Standards and Regulations

- Safety Standards
  - 100V/120V version
    - UL1950 3rd Edition
    - CSA C22.2 No.950-M95
  - 220V/240V version
    - IEC950 2nd Edition
    - EN60950
    - A3 by VDE with GS-mark
- Safety Regulations (Laser Transmission)
  - 100V/120V version
    FDA21CFR Chapter 1, Subchapter J, Section 1010,1040
  - 220V/240V version
    IEC825 Class I Laser Product

    NOTE: *Laser power: 5mW (rated)*
    Wave length: 785 nm +10/-15 nm (at 25℃)
- EMI
  - 120V (US): FCC Part15 SubpartB, ClassB (ANSI C63.4/11.4D)
  - 220/240V (Europe): EN 55022(CISPR Publication22), ClassB
    Also, the printer main body meets the following standards:
    EN61000-3-2(Harmonics)
    EN61000-3-3(Flicker)
- Power Supply Harmonic
  Complies with the power supply harmonic control guide line
- Power Consumption
  Conforms to International Energy Star Program standards
  (30W or less in the low power mode)
- Others
  - Toner: No effect on human health (OSHA, TSCA, EINECS)
  - Carrier: No effect on human health
  - OPC: No effect on human health (OSHA)
  - Ozone generation: UL478 (5th edition)

■ Materials: Swiss Environmental Protection Standards compliance (contains no Cds)

1.2.9 Consumable Components

1.2.9.1 Consumables

TONER CARTRIDGES

CHECK POINT

- **The Toner Cartridges for AcuLaser C8600/C7000 are not interchangeable with those for EPL-C8000/8200.**
- **The Toner Cartridges for AcuLaser C8600/C7000 are interchangeable with those for AcuLaser C8500.**

☐ Constitution and Life (Toner Consumption)

Table 1-15. Constitution and Life (Toner Consumption)

Name	Constitution	Life
Toner Cartridge (Black)	Black toner, etc.	5,500 images (Average) *
Toner Cartridge (Cyan)	Cyan toner, etc.	6,000 images (Average) *
Toner Cartridge (Magenta)	Magenta toner, etc.	6,000 images (Average) *
Toner Cartridge (Yellow)	Yellow toner, etc.	6,000 images (Average) *

Note "*": The number of images indicated here is defined on the assumption that the image ratio is 5% on A4 (LEF) paper during continuous printing, and does not represent the number of pages for color printing. The life varies with the image ratio and printer usage (whether continuous or intermittent).

☐ Dimensions and Weight

■ Unpacked

<Dimensions> 50 mm (W) x 400 mm (D) x 54.5 mm (H)

<Weight> K 0.356 kg

Y/M/C 0.351 kg

■ Packed

<Dimensions> 85 mm (W) x 435 mm (D) x 0 mm (H)

<Weight> K 0.459kg

Y/M/C 0.474kg

NOTE: *Tolerance for the dimension and weight is ± 1%.*

☐ Environmental Conditions for Storage and Transportation (common to all the Toner Cartridges)

■ Temperature/humidity

Table 1-16. Temperature/Humidity

	Temperature	Humidity	Warranty Period*2
Normal conditions	0~35°C	15~ 80%RH*1	24 months
Severe conditions	High temperature: 35~40°C Low temperature: -20~0°C	High humidity: 80~ 95%RH*1 Low humidity: 5~15%RH*1	1 month max.

Note *1: No condensation

*2: 12 months for unpacked cartridge under the conditions where the printer is used. (No condensation, however)

■ Storage barometric pressure (altitude):
0 ~ 3,100m
(0 to 15000 m is possible during air shipping, but the air pressure in the cargo room must be 70.9275 KPa or more.)

■ Drop test (packed):
<Height> ..... 910 mm
<Dropping direction>..... 1 corner, 3 edges, 6 sides

■ Resistance to vibration (packed):
<Frequency> ..... 5 ~ 100Hz
<Acceleration>..... 6.9 m/s^2
<Direction of application>..... 3 directions (X, Y, Z)
<Duration of application>..... 50 minutes for each direction
(150 minutes in total)

PHOTOCONDUCTOR UNIT

CHECK POINT

The Photoconductor Unit (Drum Cartridge) for AcuLaser C8600/ C7000 is not interchangeable with that for EPL-C8000/8200 or AcuLaser C8500.

☐ Constitution and Life

Constitution	Life	Life (Continuous printing)
• Photoconductor • Drum Cleaner • Waste Toner Box, etc.	20,000 pages * The waste toner box has the same life	B/W: 50,000 pages Color: 12,500 pages

Note "*": The number of pages indicated here is defined on the assumption that A4 (LEF) paper is used, the job ratio of monochrome printing to color printing is 1:1 and printing is at 4P/J. The life varies with the image ratio and printer usage (whether continuous or intermittent). The life by use at 1P/J is approximately 8,000 pages.

☐ Dimensions and Weight

■ Unpacked
<Dimensions> 213 mm (W) x 510 mm (D) x181 mm (H)
<Weight> 3.4 kg

■ Packed
<Dimensions> 318 mm (W) x 618 mm (D) x280 mm (H)
<Weight> 3.6 kg

NOTE: *Tolerance for the dimension and weight is ± 1%.*

☐ Environmental Conditions for Storage and Transportation
Same as for Toner Cartridges

WASTE TONER BOX

CHECK POINT

The Waste Toner Box for AcuLaser C8600/C7000 is interchangeable with those for EPL-C8000/8200 and AcuLaser C8500.

☐ Constitution and Life

Constitution	Life	Life (Continuous printing)
Waste Toner Box, etc.	20,000 pages *	B/W: 50,000 pages
		Color: 12,500 pages

Note "*": The number of pages indicated here is defined on the assumption that the image ratio is 5% on A4 (LEF) paper, the job ratio of monochrome printing to color printing is 1:1 and printing is at 4P/J. The life varies with the image ratio and printer usage (whether continuous or intermittent).

☐ Dimensions and Weight

■ Unpacked

<Dimensions> 75.5 mm (W) x 444 mm (D) x 131 mm (H)

<Weight> 0.73kg

■ Packed

<Dimensions> 149 mm (W) x 495 mm (D) x 192 mm (H)

<Weight> 0.87kg

NOTE: *Tolerance for the dimension and weight is ± 1%.*

☐ Environmental Conditions for Storage and Transportation
Same as for Toner Cartridges

1.2.9.2 Regularly Replaced Parts

Without taking into account replacement by user, the periodical replacement parts for this printer are as follows:

☐ Main Fuser Assembly
100,000 pages

☐ Exhaust Filter: 100,000 pages

1.3 External View and Parts Names

1.3.1 External View and Parts Names

Table 1-17. Parts Names

Symbol	Name of Part	Symbol	Name of Part
a	Control Panel	r	USB I/F Connector
b	Cover A / EXIT UPPER COVER (Output path cover)	s	FRONT MID COVER (Duplex unit slot cover)
c	FRONT COVER	t	Lower Cassette 2 / LC2 (Option)
d	Face-up Tray	u	Lower Cassette 3 / LC3 (Option)
e	Standard tray / MSI Tray / MP Tray (Unit C)	v	Cover E / FEEDER CHUTE ASSY
f	Standard Universal Cassette / Lower Cassette 1 (LC1)	w	Unit B / DUP TRANSPORT ASSY
g	RIGHT COVER	x	INVERTER ASSY
h	Unit C / MSI ASSY (Paper path unit)	y	Cover F / INVERTER ASSY
i	Parallel I/F Connector	z	Unit G / DUPLEX UNIT
j	Grounding Screw (2 positions)	A	DUP TRANSPORT ASSY Connector
k	Option Slot Cover (for Color Copy Station)	B	INVERTER ASSY Connector
l	Power Switch	C	Large Capacity Paper Unit Connector
m	AC Inlet	D	Connector
n	Fuser Unit / Unit B	E	Large Capacity Paper Unit
o	Cover D / TURN CHUTE COVER (Paper cassette cover)	F	Logo Plate
p	Filter Assy	G	500-Sheet Paper Cassette Unit
q	Option Slot Cover (for Type-B)		

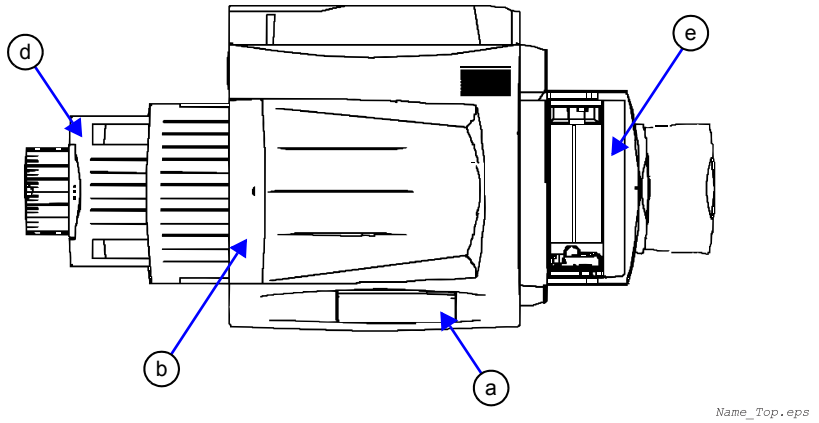


Figure 1-7. Top View

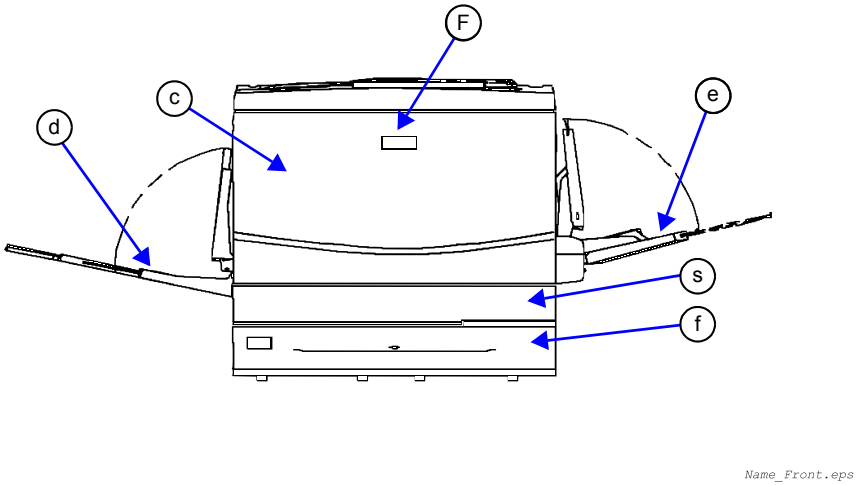


Figure 1-8. Front View

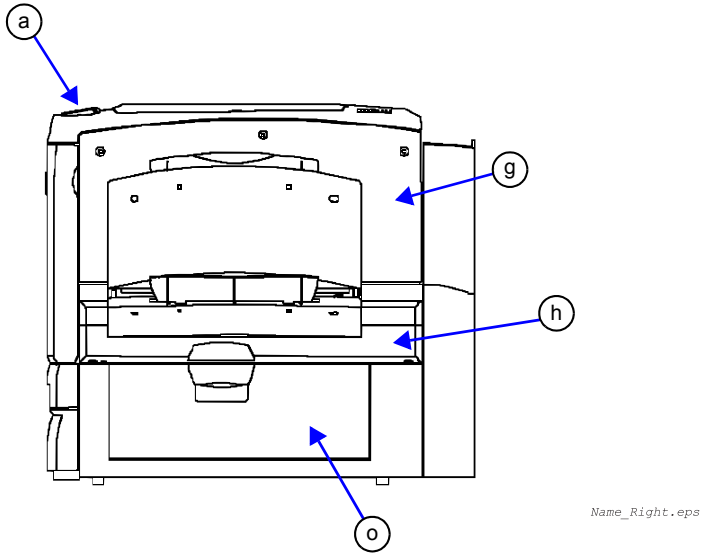


Figure 1-9. Right Side View

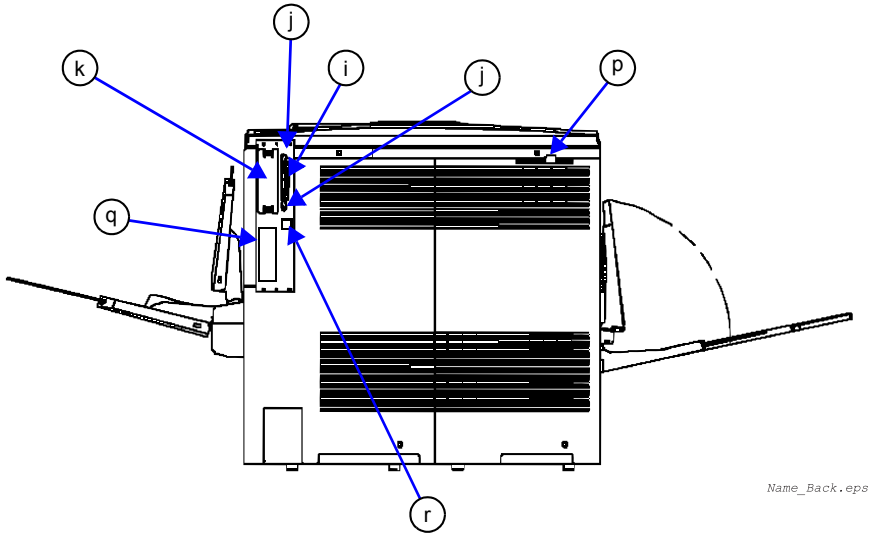


Figure 1-11. Rear View

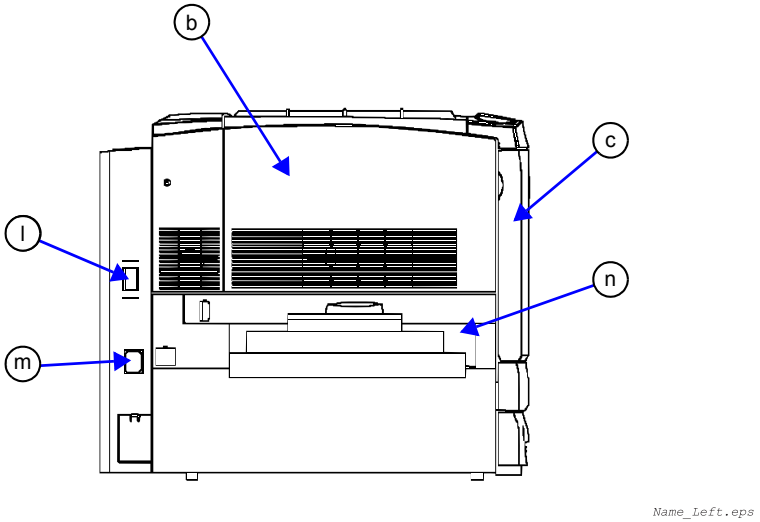


Figure 1-10. Left Side View

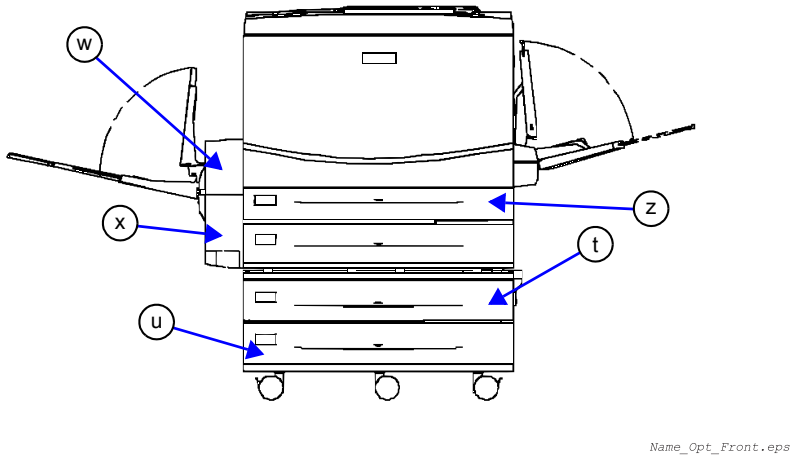
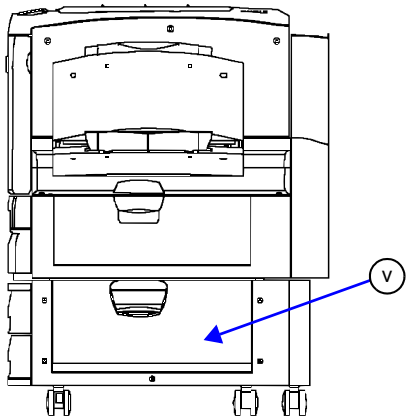
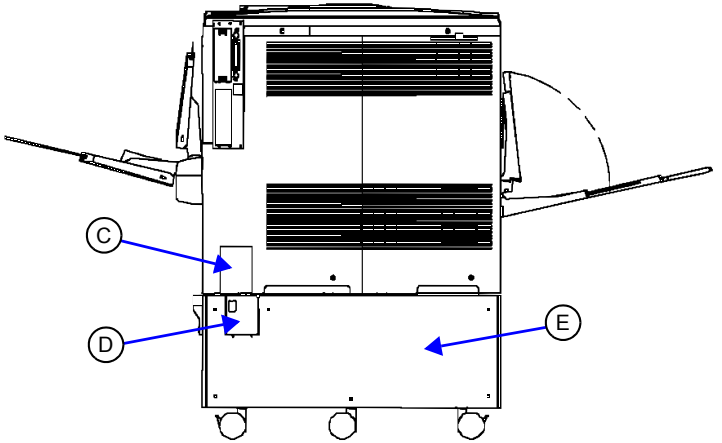


Figure 1-12. Front View
with Duplex Unit and Large Capacity Paper Unit Installed



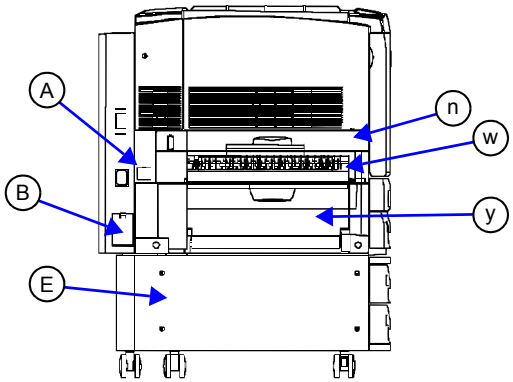
Name_Opt_Right.eps

Figure 1-13. Right Side View with Duplex Unit and Large Capacity Paper Unit Installed



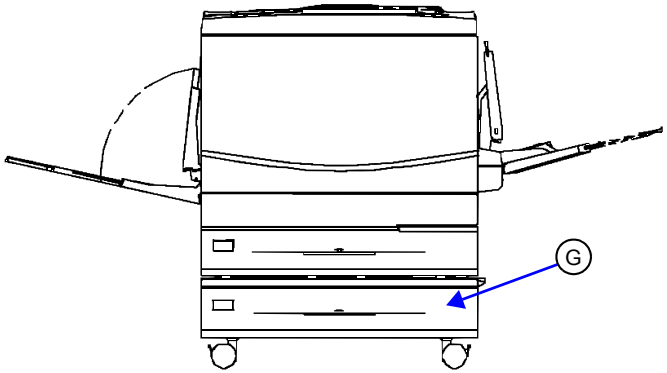
Name_Opt_Back.eps

Figure 1-15. Rear View with Duplex Unit and Large Capacity Paper Unit Installed



Name_Opt_Left.eps

Figure 1-14. Left Side View with Duplex Unit and Large Capacity Paper Unit Installed



Name_Opt2_Front.eps

Figure 1-16. Front View with 500-Sheet Paper Cassette Unit Installed

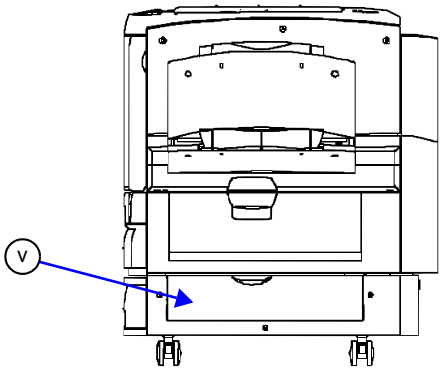


Figure 1-17. Right Side View with 500-Sheet Paper Cassette Unit Installed

1.3.2 Dimensional Drawing (in mm)

The dimensions of EPSON AcuLaser C8600/AcuLaser C7000 are shown below.

NOTE: *The dimensions as shown below do not include ribs.*

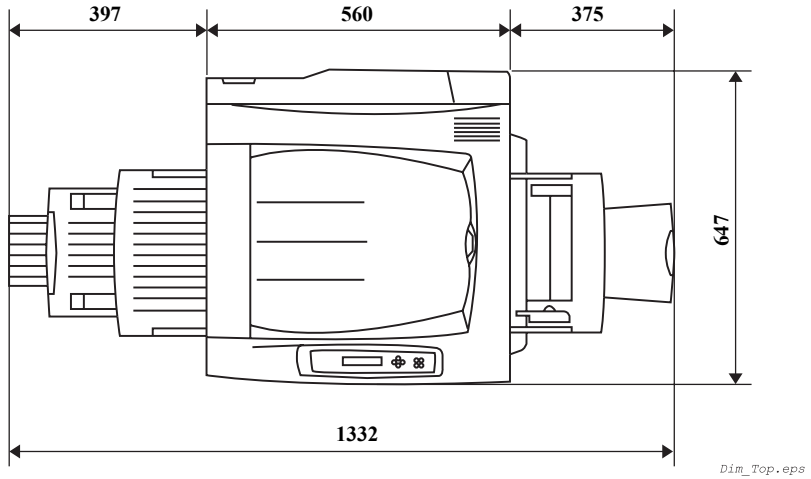


Figure 1-18. Top View

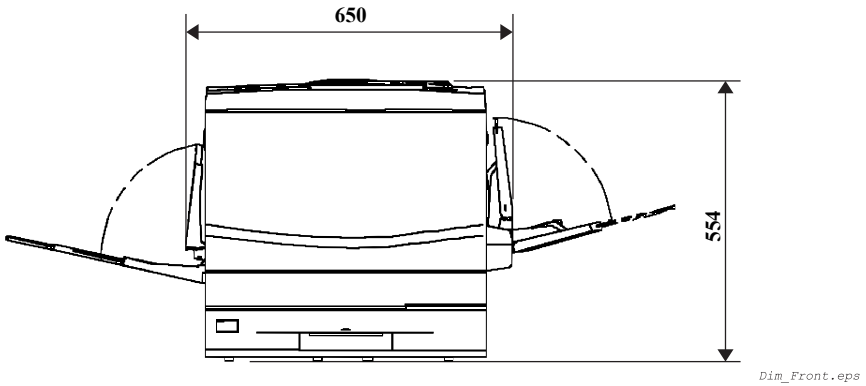
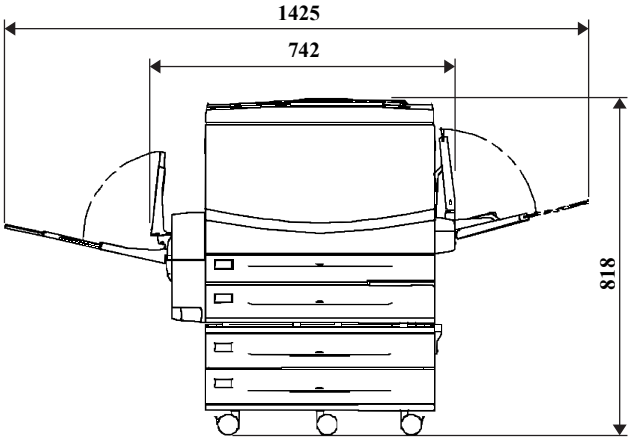
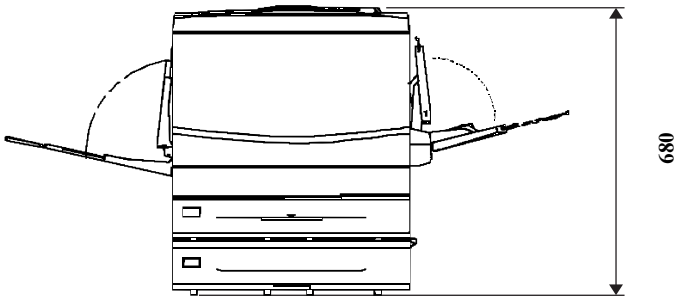


Figure 1-19. Front View



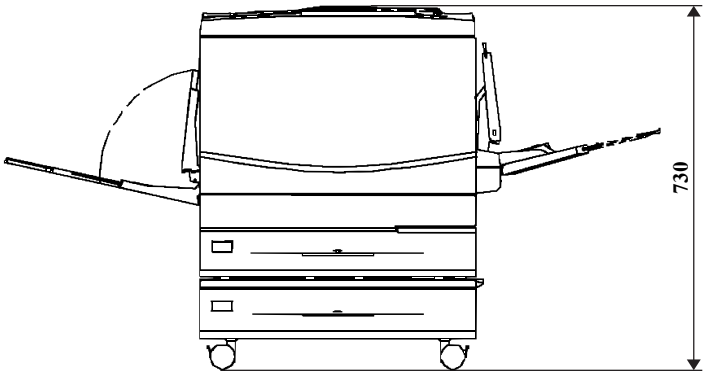
Dim_Opt_Front.eps

Figure 1-20. Overall Dimensions with Large Capacity Paper Unit and Duplex Unit Installed



Dim_Opt3_Front.eps

Figure 1-22. Overall Dimensions with 500-Sheet Paper Cassette Unit (with Supplied Rubber Feet) Installed



Name_Opt2_Front.eps

Figure 1-21. Overall Dimensions with 500-Sheet Paper Cassette Unit (with Standard Castors) Installed

1.4 Controller Specifications

1.4.1 Basic Controller Specifications

1.4.1.1 Basic Controller Specifications for AcuLaser C8600

- CPU: PowerPC750CX (400MHz)
- Enhanced Technology: AcuLaser Color Halftoning
  CRIT, RIT (VIPS, CDMC)
- RAM: SDRAM 64-bit width DIMM
  (PC-100 or PC-133)
  Maximum: 1024MB (with the standard RAM removed and 512 MB of RAM installed in each of the 2 slots. Up to 576 MB unless the standard RAM is removed)
  2 slots (1 slot is used with standard RAM)
  - Standard: 64MB
  - Optional RAM: 64MB, 128MB, 256MB, 512MB
- ROM: 32-bit width (3.3 V)
  - Program: 4MB (ROM DIMM)
  - Font: 4MB (ROM DIMM, Mask)
- Expansion ROM: 2 slots (ROM DIMM slots, 3.3V, must be installed and removed only with power turned off)
  - Slots A, B: Font ROM module, PostSccipt3 module, AcuLaser Color Copy Station 8600 module
- Control Panel: 1-line 20-digit LCD, 3 LEDs, 6 buttons
  (control panel 2001)
- Interfaces
  - Standard: Parallel 1ch
    1EEE1284 compliant bi-directional
    B-type connector
    Compatibility, Nibble, ECP
    USB (Rev.1.1) 1ch
    Ethernet 100 Base-TX/10 Base-T 1ch
  - Optional: Type-B 1-slot (Level 3 compatible)
    Dedicated interface for AcuLaser Color Copy Station 8600
- HDD: 1 (the same option as for EPL-N2120)
- Printer Settings: Control panel settings, EJL, PJL commands, and MIB
  - Storage cell: EEPROM serial type 16-kbyte
- Printer Modes
  - Standard: ESC/Page-Color mode, ESC/Page(B/W) mode, LJ4 mode (B/W), GL2 mode (B/W), ESCP2 mode (B/W), FX mode (B/W), I239X mode (B/W)
  - Optional: PostScript 3 (PostScript 3 module)
    AcuLaser Color Copy Station 8600
  - Others: EJL, PJL mode
    RCC mode
    DIAG mode
- Installation Method: Fixed to the printer body

1.4.1.2 Basic Controller Specifications for AcuLaser C7000

- CPU: TMPR4955AF-200 MHz
- Enhanced technology: AcuLaser Color Halftoning (supporting monochrome)
  CRIT, RIT
- RAM: 2 slots (1 slot for the standard RAM)
  - Standard: 32 MB, Maximum 256 MB
  - DIMM options: SDRAM DIMM dedicated to AcuLaser C1000/ AcuLaser C7000 (slot shape is different from PC slots)
    16 MB, 32 MB, 64 MB and 128 MB
- Program ROM: 2 MB (32-bit width)
- EEPROM: 256-byte
- Panel: 2 LEDs
- Interfaces
  - Standard: Parallel interface 1 ch
    IEEE1284 compatible bi-directional, B-Type connector
    Compatibility, Nibble, ECP
    USB 1.1 1ch
  - Options: Type-B 1 slot (compatible with Level-2)
    However, currently Leo2.1 is only supported
- Printer mode: ESC/PageS Printing System

1.4.2 Controller Configuration

The AcuLaser C8600/AcuLaser C7000 controller can set the following configurations. Since jumper resistors are used for the settings, these settings are determined when the printers are shipped from the factory.

1.4.2.1 Controller Configuration for AcuLaser C8600

NOTE: *For AcuLaser C8600, controller configurations are A4 setting for all markets, that is, LT setting is not used.*

Table 1-18. Jumper Resisters for AcuLaser C8600

		RJ401	RJ402	RJ403
Setting Item		N/W I/F	Cassette Size	Paper Size
Jumper Resister	Mounted	Exist	EXE	LTR
	Not mounted	Not exist	B5	A4

Table 1-19. Jumper Resister Factory Setting for AcuLaser C8600

	RJ401	RJ402	RJ403
For China	Mounted	Not mounted	Not mounted
Other Countries	Mounted	Mounted	Not mounted

1.4.2.2 Controller Configuration for AcuLaser C7000

Table 1-20. Jumper Setting for AcuLaser C7000

		JP100 Pattern Jumper (INPT1)	JP101 Pattern Jumper (INPT3)	JP102 DIC Jumper (INPT7)
Setting Item		Default setting for MP tray paper size	Setting for intended market	Parallel interface receive mode
Jumper Setting	1: Open	A4	Other than Japan	Nibble
	0: Short	LT	Japan	ECP

Note: B5/EXE switching of paper cassettes is not available, and B5 is set for all markets.

1.4.3 Calibration Function (only with AcuLaser C8600)

AcuLaser C8600 has a calibration function. Calibration can be made by changing the contents of the calibration table (1D) for AcuLaser C8600. Changing the contents of the calibration table can be achieved by means of the Resource Data Control Code. The default values in the calibration table are those set in the code area. After change, however, the values stored in EEPROM will work as the values in the calibration table. After change, the version information (date and time) of the changed calibration table (for example, the table of gradation 600DPI) is indicated on the status sheet.

You must rewrite the Calibration Table only when necessary. Execute rewriting of the Calibration Table according to the Calibration Table Data and rewriting procedure given in Technical Information which is supplied separately.

This function is not described in manuals, that is, it is not disclosed to users.

1.5 External Interface Specifications

<AcuLaser C8600>

AcuLaser C8600 is equipped with the external host interfaces as listed below:

- Parallel interface (standard)
- USB (Rev. 1.1) interfaces (standard)
- Ethernet interface (standard)
- Type-B host interface 1-slot (optional)

By installing the interface board for AcuLaser Color Copy Station 8600, the printer is equipped with the AcuLaser Color Copy Station 8600 panel and scanner interface.

Figure 1-23 below shows the locations of the external interfaces of AcuLaser C8600.

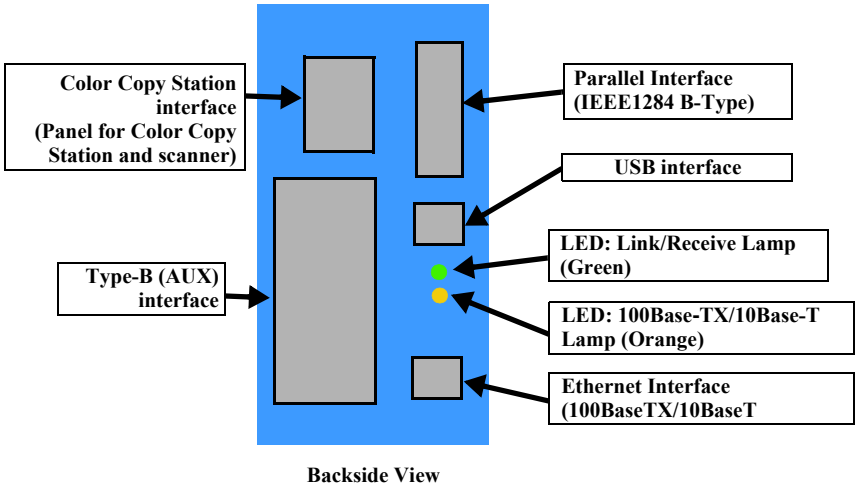


Figure 1-23. Locations of External Interfaces (AcuLaser C8600)

<AcuLaser C7000>

AcuLaser C7000 is equipped with the external host interfaces as listed below:

- Parallel interface (standard)
- USB (Rev. 1.1) interfaces (standard)
- Type-B host interface 1-slot (optional)

Host interfaces' actual operations are limited to automatic interface switching only.

Figure 1-24 below shows the locations of the external interfaces of AcuLaser C7000.

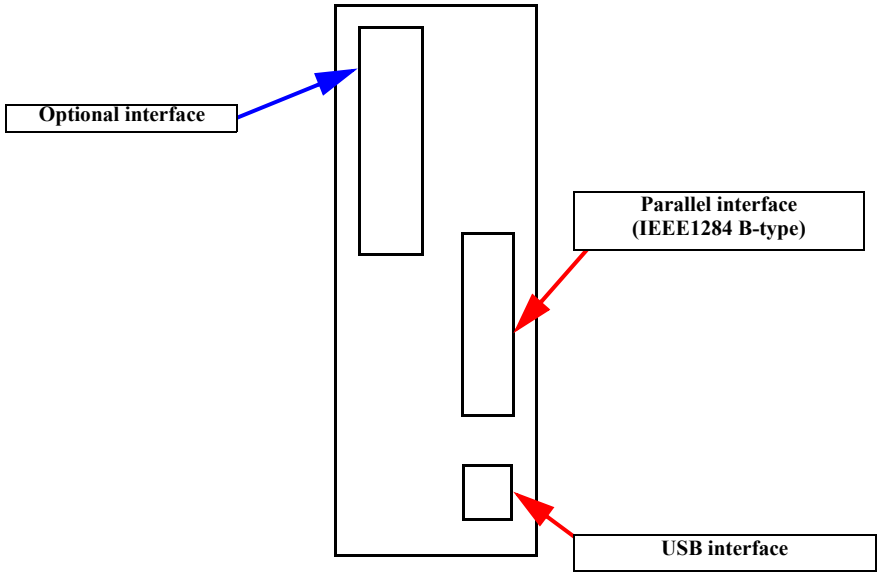


Figure 1-24. Locations of External Interfaces (AcuLaser C7000)

1.5.1 Parallel Interface Specifications

- Interface Type
  IEEE 1284 bi-directional high speed parallel interface
- Operating Modes
  Compatibility, Nibble, ECP
- Connector Model Name
  57RE-40360-830B (D7A) DDK or the equivalent
- Conforming Plug
  Amphenol or its equivalent

1.5.1.1 Parallel Interface Specifications for AcuLaser C8600

The initial Device ID value of AcuLaser C8600 is described below. Carriage returns have been inserted into the list below to make it easier to read, but in actual practice the device ID values are displayed as a continuous character string, and no carriage return codes are inserted. The CMD parameters are not shown here in the actual order. None of MODE and STATUS parameters is included. The DES parameter is a combination of the MFG and MDL parameters with a space between them.

**†1;
MFG:EPSON;
CMD:PJL,EJL,ESCPL2,ESCP9,PRPXL24-01,PCL,HPGL2-01,ESCPAGE-04,
ESCPAGECOLOR-01**†2;
MDL:**†3;
CLS:PRINTER;
DES:**†4;

†1: “Total number of characters + 2" of the device ID appears in hexadecimal.

†2: “**POSTSCRIPT**” is added only when the PostScript 3 module is installed.

†3: The model name appears **AL-C8600**

†4: The manufacturer and model name appears **EPSON AL-C8600**

Furthermore, the user can redefine the Device ID MFG, MDL, DES and CID.
Also, the CID Field does not respond with the default value, but does respond with the defined character string only when it has been redefined. The Device ID when redefined is as follows. The asterisks “*****” are the user defined character strings.

MFG:*****;
CMD:PJL,EJL,ESCPL2,ESCP9,PRPXL24-01,PCL,HPGL2-01,ESCPAGE-04,
ESCPAGECOLOR-01**†2;
MDL:*****;
CLS:PRINTER;
DES:*****;
CID:*****;

1.5.1.2 Parallel Interface Specifications for AcuLaser C7000

Device ID values of AcuLaser C7000 are described below:

MFG:EPSON;CMD:ESCPAGES-02;MDL: AL-C7000;CLS:PRINTER;DES:EPSON AL-C7000;

Communication modes are switched with the jumper switch on the controller board.

- Nibble: The ECP communication mode is not supported, and the Reverse mode is only available in the Nibble communication mode
- ECP: The ECP communication is supported (ECP is the default specification)

1.5.2 USB Interface Specifications

- ☐ The USB interface is in compliance with the Universal Serial Bus specification Rev. 1.1.
- ☐ Difference from Rev. C:
  Rev. 1.1 replies to the following requests without rejecting:
  - ■ CLEAR_FEATURE Endpoint0
  - ■ GET_STATUS Endpoint0

AcuLaser C8600/AcuLaser C7000 has an 18-digit serial ID number for USB Rev. 1.1. This ID number is displayed at the bottom of the Status Sheet. Each digit denotes the information as described below.

1, 2:	Number from 00 to 99 specific to model ("09" for AcuLaser C8600/"13" for AcuLaser C7000)
3:	P for page printer
4, 5:	PC number on the assembly belt
6, 7:	Year of assembly
8, 9:	Month of assembly
10, 11:	Day of assembly
12, 13:	Hour of assembly
14, 15:	Minute of assembly
16, 17:	Second of assembly
18:	Reserved digit (0 is normally specified)

CAUTION

If the circuit board is replaced for maintenance services or some other reason, the USB serial number must be changed to another USB ID. Consequently, the printer may be recognized as a different printer when it is connected to the computer.

1.5.3 Ethernet Interface

- ☐ Interface type
  10Base-T, 100BaseT-X, Half Duplex, Full Duplex (Switched at power on)
- ☐ Printing protocols
  - ■ TCP/IP..... LPR, FTP, IPP, PORT2501, PORT9100
  - ■ Microsoft Network ... SMB
  - ■ NetWare
    Operating mode
    Standby (factory default), NDS Print Server, Bindery Print Server, Remote Printer)
  - ■ AppleTalk
- ☐ Management protocols
  - ■ TCP/IP..... SNMP, ENPC, HTTP, TELNET, DHCP, BOOTP, PING
  - ■ Microsoft Network ... Auto-IP, SSDP
  - ■ NetBEUI ..... SNMP, ENPC
  - ■ NetWare ..... SNMP, ENPC
  - ■ AppleTalk ..... SNMP, ENPC

NOTE a: ENPC: EPSON Network Peripheral Control Protocol

b: IPP: Internet Printing Protocol

- ☐ Connector type: RJ45
- ☐ Applicable cable: 2-pair STP (10Base-T, 100Base-TX)

NOTE: *In order to conform to FCC Class B, EN55022 Class B, and VCCI Class B, a shielded type cable must be used.*

- Pin configuration

  See Table 1-21.

Table 1-21. Pin Configuration for the Ethernet I/F

Pin	Signal Name	I/O
1	Tx+	O
2	Tx-	O
3	Rx+	I
4	N.C.	-
5	N.C.	-
6	Rx-	I
7	N.C.	-
8	N.C.	-

- Entity type

  See Section 1.5.4 "Type-B Interface Specifications".

1.5.4 Type-B Interface Specifications

AcuLaser C8600/AcuLaser C7000 has one Type-B optional interface slot as standard equipment.

1.5.4.1 Type-B Interface Specifications for AcuLaser C8600

- Main System Type:
  MTP600dpi,PW7748dt600dpi,PRG(*****)rev,AP800ma,SPD0fast,D4

  NOTE: *The asterisks***** *represent the ROM version.*

- Printer Name:
  Factory default Printer Name is the same as the Product Name.
- Product Name: AL-C8600
- Emulation Type: See the table below
- Entity Type: See the table below

Table 1-22. Emulation Type/Entity Type

Emulation	Emulation Type	Entity Type
PS *1	POSTSCRIPT-00 *1	LaserWriter *1
ESC/Page Color	ESCPAGECOLOR-01	EPSONPAGECOLOR1
ESC/Page	ESCPAGE-04	
LJ4	PCL5E-00	EPSONPCL5
1239X	PRPXL24-01	EPSONPRPXL24
GL2	HPGL2-01	EPSONHPGL2
FX	ESCP9	EPSONFX
ESCP2	ESCPL2	EPSONLQ2

Note: *1: Added when a PostScript 3 module is installed.

- Emulation Type:
  - When Emulation is set to AUTO;
    If PS is not started: AUTO (Emulation Types 1, 2, 3, . . .)
    If PS is started: EJL (POSTSCRIPT-00, other Emulation Types 1, 2, 3, . . .)
  - When Emulation is fixed: EJL (Default Emulation Type, other Emulation Types 1, 2, 3, . . .)

- Entity Type:
  - When Emulation is set to AUTO: Refer to the above list.
  - When Emulation is fixed: The default Emulation Type and EPSONPAGECOLOR1 are returned.

1.5.4.2 Type-B Interface Specifications for AcuLaser C7000

Applicable Type-B optional interface is Leo2.1 only.

- Main System Type: MTP600dpi,PW7748dt600dpi,PRG(*****)rev, AP800ma,SPD0fast,GDI
  ***** is a ROM version
- Printer Name: AL-C7000
- Product Name: AL-C7000
- Emulation Type: ESCPAGES-02
- Entity Type: EPSONPAGES2

1.6 Control Panel (AcuLaser C8600)

1.6.1 External View and Names

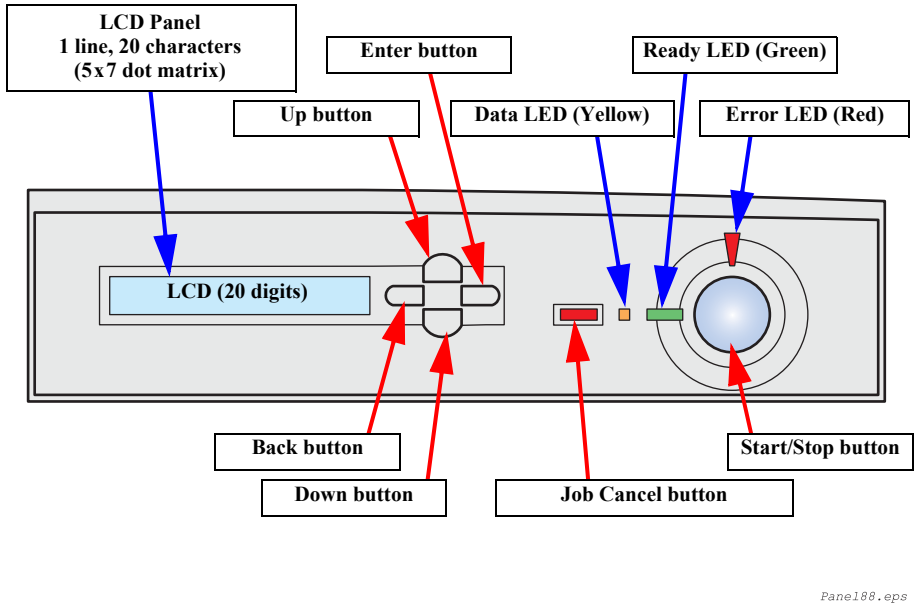


Figure 1-25. External View of Control Panel (AcuLaser C8600)

NOTE: *Enter button, Back button, Up button and Down button can be used for password input. The key assignment of password, which is shown on the label, is as follows:*
Enter button:3
Back button:1
Up button:2
Down button:4

1.6.2 Description of Indicators

LCD PANEL

- One-line 20-character (5 x 7 dot matrix) liquid crystal display
- Normally displays printer status.
- In panel setting mode, LCD displays setting menus, setting items or setting values.

READY LED

- On: The printer is On Line.
- Off: The printer is in a pause status.

If any error occurs, the printer goes into a pause status, with the Ready LED going out.

DATA LED

- On: Printer contains data that has not been processed yet.
- Off: No effective print data remains in the printer.
- Blinking: The printer is processing data now.

ERROR LED

- Blinking1: An error has occurred which permits continuing to print by pressing the Continue button.
  When "Auto Cont" is ON, error status will be automatically cleared after a while even without pressing the Start/Stop button.
  Example: "Paper Set" error
- On: An error has occurred which does not permit the printer to recover without its clearing by the user.
  Clearing the error will automatically recover the printer.
  Example: "Front Cover Open" error
- Blinking 2: An error has occurred which requires the user to clear the error and press the Start/Stop button.
  Setting "Auto Cont" to "ON" will not affect this error.
  Example: "Multi-bin Paper Eject Full" error

NOTE: *Blinking 1 repeats a cycle of 0.3-second ON and 0.3-second OFF.*
Blinking 2 repeats a cycle of 0.6-second ON and 0.6-second OFF.

1.6.3 Description of Buttons

START/STOP BUTTON

- In normal operation:
  Pressing this button interrupts or resumes printing operation. Pressing the button will change the state of the Ready LED between ON and OFF alternately.
  Pressing this button after start of printing operation will stop printing after completion of the printing of the currently printed page.
  Another pressing of this button resumes printing.

NOTE: *Even when the Ready LED is off and thus printing is not performed, other operations are kept on. This means that data receive is continued until the receive buffer is filled up to its full capacity.*

- When this button is pressed for an extended period of time with the printer in the pause status:
  The printer ejects paper forcibly if it has print data.
- When any error has occurred:
  - If the error permits the printer to recover only by pressing the button:
    Pressing this button clears the error and turns off the Error LED.
  - If the error does not permit the printer to recover only by pressing the button:
    Pressing this button does not change the state of the Error LED but changes the LCD indication to “Unable Clear Error”.

JOB CANCEL BUTTON

- Pressing normally:
  Deletes the currently printed data.
  Each pressing deletes one job.
- Pressing for 2 seconds or longer:
  Deletes all of the data in the printing queue, the job and data currently received and the data currently printed.

ENTER BUTTON

- In normal operation:
  The printer enters the panel setting mode.
- In panel setting mode:
  The printer displays the next lower rank in the hierarchical setting system.
  The setting value is registered or the selected item is executed.

BACK BUTTON

- In normal operation:
  The printer enters the panel setting mode.
- In panel setting mode:
  The printer displays the previous higher rank in the hierarchical setting system.
  When this button is pressed in the top rank (menu) in the hierarchy, the printer leaves the panel setting mode to return to the normal operation mode.

UP BUTTON

- In normal operation:
  The printer enters the panel setting mode.
- In panel setting mode:
  Displays the previous value of the currently selected rank (menu, item or setting value) in the hierarchy.

DOWN BUTTON

- In normal operation:
  The printer enters the panel setting mode menu.
- In panel setting mode:
  Displays the next value of the currently selected rank (menu, item or setting value) in the hierarchy.

☐ Functions of Buttons

Table 1-23. Summary of Button Functions

Button Name	On Line	In Pause Status	Error Has Occurred	In Panel Setting Mode
Ready	Into pause status	1. Pressing normally: Into On Line 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)
Job Cancel	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
Enter	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
Back	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
Up	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
Down	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

1.6.4 Operation and Indications on the Control Panel

- Switching between On Line and Pause Status:
  Switched alternately by pressing the Start/Stop button.
  Switching is impossible when any error has occurred.

- Forced Paper Eject:
  In a Pause Status, hold down the Start/Stop button for 2 seconds or longer.
  Upon 2-second pressing, the printer displays “Form Feed”.
  Upon release of the button, if it has printing data, the printer prints one page by the specified number of sheets.
  Even when the control code has not been terminated for the receive data, the data that has been received will be printed.
  Upon release of the button, if the printer does not have printing data, the display “Form Feed” will go out.
  The Ready LED remains OFF, without change in its state.
  When any error has occurred, pressing the Start/Stop button is invalid, so that forced paper eject will not be executed.

- Clearing “Warning”:
  Execute “xxx Warning clear” in the panel setting mode. Then the relevant “Warning” and all the other “Warning”, if any, will be cleared.

- Clearing “Error”
  - Error LED Blinking 1:
    Cleared by pressing the Start/Stop button. When “Auto Cont” is ON, error status will be automatically cleared after a while even without pressing the Start/Stop button.
  - Error LED On:
    When the Start/Stop button is pressed with the Error LED lighting, the LCD indication changes to “Unable Clear Error”.
    Take an appropriate corrective action, and the printer will automatically clear “Error” status.
  - Error LED Blinking 2:
    Take an appropriate corrective action and then press the Start/Stop button, so that the “Error” status will be cleared.
    If the appropriate corrective action is not taken, the same error occurs again.
    Setting “Auto Cont” to “ON” will not affect this error.

- Deleting the Printing Data:
  Press the Job Cancel button.
  The display shows “Cancel Print Job”.
  Each pressing deletes one of the printing data. However, pressing the Job Cancel button is invalid as long as “Cancel Print Job” is being displayed.
  Upon completion of deletion, the printer enters into the On Line status.
  In the panel setting mode, pressing the Job Cancel button is invalid.
  Clear any of the following errors resulting from printing data after deleting the printing data.
  - Check Paper Size
  - Check Transparency
  - Check Paper Type
  - Irregular Density
  - Manual Feed ssss tttt
  - Can't Print Duplex
  - Paper Out ssss tttt
  - Paper Set ssss tttt
  - uuuu Toner Out
  - Print Overrun
  - Mem Overflow
  - Duplex Mem Overflow

- Deleting All the Printing Data:
  Hold down the Job Cancel button for 2 seconds or longer.
  The display shows “Cancel All Print Job”.
  Stored Job is not deleted.
  Upon completion of deletion, the printer enters into the On Line status.

<For reference only>

When the top page of the unprinted data is contained in a job, all the job is deleted.
When the top page of the unprinted data is not contained in a job, deletion will be continued until a lapse of about 10 seconds after the end of data or until just before the start of the next job.
The LCD shows “Cancel Print Job” just when the Job Cancel button is pressed. And when you release the button, the printer will delete the data currently printed.
The page being printed just when the Job Cancel button is pressed will be printed and output.

- Reset All:
  Execute “Reset All” in the panel setting mode.
  Execute “Reset” in the panel setting mode.

☐ Panel Setting

- Transition to panel setting mode:
  Press one of the Back, Up, Down and Enter buttons.
  The printer enters the first setting menu.
  The display shows “v setting menu”.
  “v” means that the setting can be changed by the Up or Down button.

NOTE: *When any error has occurred, transition to the panel setting mode can not be made.*

- Changing the setting menu:
  Press the Up or Down button with the setting menu displayed.
  Pressing the Down button displays the next menu.
  Pressing the Up button displays the previous menu.
- Transition to display of setting item:
  Press the Enter button with the setting menu displayed.
  The display shows “v Setting Item = setting value”.
  For an execution item, the display shows “v Setting Item”.
  Pressing the Back button returns the display to setting menu.
- Changing the setting item:
  Press the Up or Down button with the setting item displayed.
- Executing the setting item:
  Press the Enter button with “v Setting Item” displayed.
  The printer will execute processing and return to the same status as it was before entering the panel setting mode.
- Transition to display of setting value:
  Press the Enter button with the setting item displayed.
  The display shows “Setting Item = v setting value”.
  Pressing the Back button returns the display to the setting item.
- Changing the setting value:
  Press the Up or Down button with the setting value displayed.
  Pressing the Up button will increment the numerical value, while pressing the Down button will decrement it.
  Pressing the Up button will display the previous character, while pressing the Down button will display the next character.
- Registering the setting value:
  Press the Enter button with the setting value displayed.
  The setting value will be registered and the display will return to “v Setting Item = setting value”.
  The setting value of this display means the registered value.
- Leaving the panel setting mode:
  Press the Start/Stop button, or press the Back button with the setting menu displayed.

1.6.5 Panel Setting Item List

This section describes setting items for AcuLaser C8600.
Values shown in bold and underlined characters are the factory default setting values.
Each item of Menu, Item, and Value is applicable when "Lang = English" is set.

Table 1-24. Panel Setting Item List (1)

Menu	Item	Value
Information Menu		
	Status Sheet	
	Reserve Job List *1	
	Form Overlay List *2	
	NetworkStatus Sheet *3	
	AUX Status Sheet *4, *5	
	PS3 Status Sheet *6	
	PS3 Font Sample *6	
	ESC/Page Font Sample *7	
	LJ4 Font Sample	
	ESCP2 Font Sample	
	FX Font Sample	
	I239X Font Sample	
	C Toner *8	E****F, E***□F, E**□□F, E*□□□F, E □□□□F
	M Toner *8	E****F, E***□F, E**□□F, E*□□□F, E □□□□F
	Y Toner *8	E****F, E***□F, E**□□F, E*□□□F, E □□□□F
	K Toner *8	E****F, E***□F, E**□□F, E*□□□F, E □□□□F
	Photocondctr *8	E****F, E***□F, E**□□F, E*□□□F, E □□□□F
	Total Pages *8	0 ~ 99999999
	Color Pages *8	0 ~ 99999999
	B/W Pages *8	0 ~ 99999999

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Note *1: Displayed only when a Job is registered in the Quick Print Job.		
*2: Displayed only when the Form Overlay is implemented.		
*3: Displayed only when starting up with the setting Network Menu → Network I/F = On		
*4: Displayed only when the printer is equipped with Type-B Level 3.		
*5: Displayed only when starting up with the setting AUX Menu → AUX I/F = On.		
*6: Displayed only when the PostScript 3 module is installed.		
*7: This is not displayed on the control panel. It can be executed in EJL.		
*8: This item is only displayed, so that its setting can not be changed.		
Tray Menu		
	MP Tray Size	**A4** *1, A3, A5, B4, B5, **LT** *1, HLT, LGL, GLT, GLG, B, EXE, F4, MON, C10, DL, C6, IB5, A3W
	LC1 Size *2	When installing the standard 250 sheets cassette: A4, A3, B4, B5 *5, LT, LGL, B, EXE *5
	LC2 Size *2, *3	A4, A3, B4, B5 *5, LT, LGL, B, EXE *5
	LC3 Size *2, *4	A4, A3, B4, B5 *5, LT, LGL, B, EXE *5
	MP Type	**Plain**, Letterhead, Recycled, Color, Trnsprncy, Labels
	LC1 Type	**Plain**, Letterhead, Recycled, Color
	LC2 Type*3	**Plain**, Letterhead, Recycled, Color
	LC1 Type*4	**Plain**, Letterhead, Recycled, Color
Note *1: This item depends on the factory default paper size of the controller configuration.		
*2: This item is only displayed, so that its setting can not be changed.		
*3: Displayed only when the Large Capacity Paper Unit or 500-Sheet Paper Cassette Unit is installed.		
*4: Displayed only when the Large Capacity Paper Unit are installed.		
*5: This item depends on the paper size (EXE/B5) for paper cassette of the controller configuration.		

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Emulation Menu		
	Parallel	**Auto**, LJ4, ESCP2, FX, I239X, PS3 *1, GL2
	USB	**Auto**, LJ4, ESCP2, FX, I239X, PS3 *1, GL2
	Network	**Auto**, LJ4, ESCP2, FX, I239X, PS3 *1, GL2
	AUX *2	**Auto**, LJ4, ESCP2, FX, I239X, PS3 *1, GL2
Note *1: Displayed only when the PostScript 3 module is installed. *2: Displayed only when the Type-B interface card is installed.		
Printing Menu		
	Page Size	**A4** *1, A3, A5, B4, B5, **LT** *1, HLT, LGL, GLT, GLG, B, EXE, F4, MON, C10, DL, C6, IB5, CTM *3, A3W
	Wide A4	**Off**, On
	Orientation	**Port**, Land
	Resolution	**600**, 300
	RITech	**On**, Off
	Toner Save	**Off**, On
	Image Optimum	**Auto**, Off, On
	Top Offset	-99.0 ~ **0.0** ~ 99.0 mm step 0.5 mm
	Left Offset	-99.0 ~ **0.0** ~ 99.0 mm step 0.5 mm
	T Offset B *2	-99.0 ~ **0.0** ~ 99.0 mm step 0.5 mm
	L Offset B *2	-99.0 ~ **0.0** ~ 99.0 mm step 0.5 mm
Note *1: This item depends on the factory default paper size of the controller configuration. *2: Displayed only when the optional duplex print unit is installed. *3: The paper size of CTM is minimum 90 × 139.7 mm, maximum 328 × 453mm.		

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Setup Menu	Lang	**English** Lang: Francais Sprache: Deutsch LINGUA: ITALIANO LENG: ESPANOL SPRAK: SVENSKA Sprog: Dansk Taal: Nederl. KIELI: SUOMI Ling): Portugues
	Time Out	0, 5 ~ **60** ~ 300 step 1
	Paper Source	**Auto**, MP, LC1, LC2 *1, LC3 *2
	Out Bin	**Face-down**, Face-up
	MP Mode	**Normal**, Last
	Manual Feed	**Off**, On
	Copies	**1** ~ 999
	Quantity *3	**1** ~ 999
	Duplex *4	**Off**, On
	Binding *4	**Long Edge**, Short Edge
	Start Page *4	**Front**, Back
	Paper Type	Normal, Thick, ExtraThk, Trnsprnc, Coated
	Page Side	**Front**, Back
	Skip Blank Page *5	**Off**, On
	Auto Eject Page	**Off**, On
	Size Ignore	**Off**, On
	Auto Cont	**Off**, On
	Page Protect	**Auto**, On
	LCD Contrast	0 ~ **9** ~ 15
	Panel Lock *6	**Off**, On

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Note *1: This item is displayed only when the Large Capacity Paper Unit or 500-Sheet Paper Cassette Unit is installed. *2: Displayed only when the Large Capacity Paper Unit are installed. *3: This is not displayed on the control panel, and is not printed on the Status Sheet ether. It can be set in EJL or PJL. It is not stored in NVRAM. *4: Displayed only when the optional duplex print unit is installed. *5: Valid in ESC/Page, PCL5e, ESC/P2, FX and I239X modes. *6: This is not displayed on the control panel, and is not printed on the Status Sheet ether. It can be set in EJL.		
Quick Print JobMenu *1		
	User	xxxxxxxxxxxxxx
	Job *2	xxxxxxxxxxxxxx
	Copies *3	1 ~ 999
	Delete *3, *4	
Note *1: This menu is not displayed when nothing is registered in the Verify Job, Re-print Job, and Stored Job. *2: This item appears only when selecting Quick Print Job Menu → User = <User name>. *3: This item appears only when selecting Quick Print Job Menu → Job = <Job name>. After executing this item, the printer returns to the status when recovering from the SelecType mode. *4: After executing this item, the printer returns to Quick Print Job Menu → Job. If available Job is not exist, the printer returns to Quick Print Job Menu → User. If available User is not exist, the printer returns to the status when recovering from the SelecType mode.		
ConfidentialJobMenu *1		
	User	xxxxxxxxxxxxxx
	Enter Password *2	XXXX
	Job *3	xxxxxxxxxxxxxx
	Copies *4	1 ~ 999
	Delete *4, *5	

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Note *1: This menu is not displayed when nothing is registered in the Confidential Job. *2: This item appears only when selecting Confidential Job Menu → User = <User name>. A password can be input by means of the 1 (Back), 2 (Up), 3 (Enter), and 4 (Down) buttons. *3: After entering a Confidential Job Menu → Enter Password = <Password>, this item appears if a job matching the password exists. *4: This item appears only when selecting Confidential Job Menu → Job = <Job name>. After executing this item, the printer returns to the same status as it has left the SelecType mode. *5: After executing this item, the printer returns to Quick Print Job Menu → Job. If no Job available exists, the printer returns to Quick Print Job Menu → User. If no User available exists, the printer returns to the same status as it has left the SelecType mode.		
Reset Menu		
	Clear Warning	
	Reset	
	Reset All	
	SelecType Init	
Parallel Menu *1		
	Parallel I/F	**On**, Off
	Speed	**Fast**, Normal
	Bi-D	Nibble, **ECP**, OffF
	Buffer Size	**Normal**, Maximum, Minimum
Note *1: The interface setting is reflected immediately to the Status Sheet and EJL read-back, but the setting is not effective just after it is changed. The changed setting becomes valid in practice after warm boot or restarting the printer.		
USB Menu *1		
	USB I/F	**On**, Off
	Buffer Size	**Normal**, Maximum, Minimum
Note *1: The interface setting is reflected immediately to the Status Sheet and EJL read-back, but the setting is not effective just after it is changed. The changed setting becomes valid in practice after warm boot or restarting the printer.		

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Network Menu *1		
	Network I/F	**On**, Off
	Network Config *2	**No**, Yes
	Get IPAddress *3	Panel, **Auto**, PING
	IP Byte 1 *3, *4	0 ~ **192** ~ 255
	IP Byte 2 *3, *4	0 ~ **168** ~ 255
	IP Byte 3 *3, *4	0 ~ **192** ~ 255
	IP Byte 4 *3, *4	0 ~ **168** ~ 255
	SM Byte 1 *3	0 ~ **255**
	SM Byte 2 *3	0 ~ **255**
	SM Byte 3 *3	0 ~ **255**
	SM Byte 4 *3	**0** ~ 255
	GW Byte 1*3	0 ~ **255**
	GW Byte 2 *3	0 ~ **255**
	GW Byte 3 *3	0 ~ **255**
	GW Byte 4 *3	0 ~ **255**
	Buffer Size	**Normal**, Maximum, Minimum

Note *1: The interface setting is reflected immediately to the Status Sheet and EJL read-back, but the setting is not effective just after it is changed. The changed setting becomes valid in practice after warm boot or restarting the printer.

*2: After switching to "On Line", the value is automatically changed to "No".

*3: This item appears only when "Network Menu → Network Config = Yes" is set.

*4: This item does not appear when "Network Menu → Get IPAddress = Auto" is set.

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
AUX Menu *1, *2		
	AUX I/F	**On**, Off
	AUX Config *3	**No**, Yes
	Get IPAddress *4	Panel, Auto, PING
	IP Byte 1 *4, *5	0 ~ 255
	IP Byte 2 *4, *5	0 ~ 255
	IP Byte 3 *4, *5	0 ~ 255
	IP Byte 4 *4, *5	0 ~ 255
	SM Byte 1 *4	0 ~ 255
	SM Byte 2 *4	0 ~ 255
	SM Byte 3 *4	0 ~ 255
	SM Byte 4 *4	0 ~ 255
	GW Byte 1*4	0 ~ 255
	GW Byte 2 *4	0 ~ 255
	GW Byte 3 *4	0 ~ 255
	GW Byte 4 *4	0 ~ 255
	NetWare *4	On, Off
	AppleTalk *4	On, Off
	NetBEUI *4	On, Off
	AUX Init *6	
	Buffer Size	**Normal**, Maximum, Minimum

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Note *1: Displayed only when the Type-B interface card is installed. *2: The interface setting is reflected immediately to the Status Sheet and EJL read-back, but the setting is not effective just after it is changed. The changed setting becomes valid in practice after warm boot or restarting the printer. *3: Displayed only when the printer is equipped with Type-B Level 3 host interface. After switching to "On Line", the value is automatically changed to "No". *4: Displayed only when the printer is equipped with Type-B Level 3 host interface. It appears only when "AUX Menu → AUX Config = Yes" is set. This setting depends on the Type-B Level 3 board setting. The setting value shifts to On Line status, and becomes effective when the network card restarts. Therefore even after changing the setting value, the previous setting value can be output if you execute "AUX Status Sheet" in the Information Menu before exiting from the panel setting mode. *5: This item does not appear when "AUX Menu → Get IPAddress = Auto" is set. *6: Displayed only when the printer is equipped with Type-B Level 3 host interface. It appears only when "AUX Menu → AUX Config = Yes" is set.		
ESC/Page Menu *1		
	Auto CR	**On**, Off
	Auto FF	**On**, Off
	CR Function	**CR**, CR+LF
	LF Function	**CR+LF**, LF
	FF Function	**CR+FF**, FF
	Error Code	**Ignore**, Space
	Avoid Error	**Off**, On
	PGI	**On**, Off
	TriColorSpace	**Normal,** sRGB
	CM Media Type	**Off,** Opt1, Opt2
Note *1: This is not displayed on the control panel, and is not printed on the Status Sheet ether. It can be set in EJL.		

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
LJ4 Menu		
	FontSource	**Resident**, Download *1, ROM A *2, ROM B *2
	Font Number	**0** ~ availableÅiMax 65535Åj
	Pitch *3	0.44 ~ **10.00** ~ 99.99 cpi step 0.01cpi
	Height *3	4.00 ~ **12.00** ~ 999.75 pt step 0.25 pt
	SymSet	**IBM-US**, Roman-8, Roman-9, ECM94-1, 8859-2 ISO, 8859-9 ISO, 8859-10ISO, 8859-15ISO, PcBlt775, IBM-DN, PcMultiling, PcE.Europe, PcTk437, PcEur858, Pc1004, WiAnsi, WiE.Europe, WiTurkish, WiBALT, DeskTop, PsText, VeInternati, VeUS, MsPublishin, Math-8, PsMath, VeMath, PiFont, Legal, UK, ANSI ASCII, Swedis2, Italian, Spanish, German, Norweg1, French2, Windows, McText, PcIcelandic *4, PcLt774 *4, PcTurk1 *4, PcPortugues *4, PcEt850 *4, PcTurk2 *4, PcCanFrench *4, PcSl437 *4, PcNordic *4, 8859-3 ISO *4, 8859-4 ISO *4, WiBaltic *4, WiEstonian *4, WiLatvian *4, Mazowia *4, CodeMJK *4, BpBRASCII *4, BpAbicomp *4, PcGk437 *4, PcGk851 *4, PcGk869 *4, 8859-7 ISO *4, WiGreek *4, Europe3 *4, PcCy855 *4, PcCy866 *4, PcLt866 *4, PcUkr866 *4, PcLit771 *4, 8859-5 ISO *4, WiCyrillic *4, Bulgarian *4, Hebrew7 *4, 8859-8 ISO *4, Hebrew8 *4, PcHe862 *3, Arabic8 *4, PcAr864 *4, 8859-6 ISO *4, OCR A *4, OCR B *4
	Form	5 ~ **60** *5 ~ **64** *5 ~ 128 Lines
	Source SymSet	0 ~ **277** ~ 3199
	Dest SymSet	0 ~ **277** ~ 3199
	CR Function	**CR**, CR+LF
	LF Function	**LF**, CR+LF
	Tray Assign	4, **4K**, 5S

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Note *1: Displayed only when some download fonts exist. *2: Displayed only when an optional font module is inserted to the ROM DIMM socket. *3: Either of these is displayed depending on the selected font type. "Pitch" is displayed in the case of a fixed pitch font, while "Height" is displayed in the case of a proportional spacing font. Neither of these is displayed in the case of a bitmap font. When Font Source and Font Number are redetermined, both "Pitch" and "Height" appear until the LJ4 mode starts up next. *4: When changing the value of "LJ4 Menu → SymSet" to this symbol set, Font Source = Resident and Font Number = 0 are set accordingly. Therefore, when printing with this symbol set, set the value of Font Source and Font Number to a font that supports this symbol set. *5: The factory default value is 64 if the factory default paper size of the controller configuration is A4, while it is 60 if the paper size is LT.		
GL2 Menu		
	GLMode	**LJ4GL2**, Gllike
	Scale	**Off**, A0, A1, A2, A3
	Origin	**Corner**, Center
	Pen	**Pen0**, Pen1, Pen2 *1, Pen3 *1, Pen4 *1, Pen5 *1, Pen6 *1
	End	**Butt**, Square, Triangular, Round
	Join	**Mitered**, Miteredbeveled, Triangular, Round, Beveled, None
	Pen0	0.05 ~ **0.35** ~ 5.00 mm step 0.05 mm
	Pen1	0.05 ~ **0.35** ~ 5.00 mm step 0.05 mm
	Pen2 *1	0.05 ~ **0.35** ~ 5.00 mm step 0.05 mm
	Pen3 *1	0.05 ~ **0.35** ~ 5.00 mm step 0.05 mm
	Pen4 *1	0.05 ~ **0.35** ~ 5.00 mm step 0.05 mm
	Pen5 *1	0.05 ~ **0.35** ~ 5.00 mm step 0.05 mm
	Pen6 *1	0.05 ~ **0.35** ~ 5.00 mm step 0.05 mm
Note *1: Displayed only in the GLlike mode.		

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
PS3 Menu *1		
	Error Sheet	**Off**, On
	Coloration	**Color**, Mono, TrueCol.
	Image Protect	**Off**, On
Note *1: Displayed only when the PostScript 3 module is installed.		
ESCP2 Menu		
	Font	**Courier**, Prestige, Roman, Sans serif, Roman T, Orator S, Sans H, Script, OCR A, OCR B
	Pitch	**10cpi**, 12cpi, 15cpi, Prop.
	Condensed	**Off**, On
	T.Margin	0.40 ~ **0.50** ~ 1.50 inch step 0.05 inch
	Text	1 ~ **62** *1 ~ **66** *1 ~ available (Max: 104) Lines
	CGTable	**PcUSA**, Italic, PcMultilin, PcPortugue, PcCanFrenc, PcNordic, PcTurkish2, PcIcelandic, PcE.Europe, BpBRASCII, BpAbicomp, Roman-8, PcEur858, ISO Latin1, 8859-15ISO, PcSl437, PcTurkish1, 8859-9 ISO, Mazowia, CodeMJK, PcGk437, PcGk851, PcGk869, 8859-7 ISO, PcCy855, PcCy866, PcUkr866, PcLit771, Bulgarian, Hebrew7, Hebrew8, PcHe862, PcAr864
	Country	**USA**, France, Germany, UK, Denmark, Sweden, Italy, Spain1, Japan, Norway, Denmark2, Spain2, LatinAmeric, Korea, Legal
	Auto CR	**On**, Off
	Auto LF	**Off**, On
	Bit Image	**Dark**, Light, BarCode
	ZeroChar	**0**, ϕ
Note *1: The factory default value is 66 if the factory default paper size of the controller configuration is A4, while it is 62 if the paper size is LT.		

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
FX Menu		
	Font	**Courier**, Prestige, Roman, Sans serif, Script, Orator S, OCR A, OCR B
	Pitch	**10cpi**, 12cpi, 15cpi, Prop.
	Condensed	**Off**, On
	T.Margin	0.40 ~ **0.50** ~ 1.50 inch step 0.05 inch
	Text	1 ~ **62** *1 ~ **66** *1 ~ availableÅiMax: 104) Lines
	CGTable	**PcUSA**, Italic, PcMultilin, PcPortugue, PcCanFrenc, PcNordic, PcTurkish2, PcIcelandic, PcE.Europe, BpBRASCII, BpAbicomp, Roman-8, PcEur858, ISO Latin1, 8859-15ISO
	Country	**USA**, France, Germany, UK, Denmark, Sweden, Italy, Spain1, Japan, Norway, Denmark2, Spain2, LatinAmeric
	Auto CR	**On**, Off
	Auto LF	**Off**, On
	Bit Image	**Dark**, Light, BarCode
	ZeroChar	**0**, ϕ
Note *1: The factory default value is 66 if the factory default paper size of the controller configuration is A4, while it is 62 if the paper size is LT.		
1239X Menu		
	Font	**Courier**, Prestige, Gothic, Orator, Script, Presentor, Sans serif
	Pitch	**10cpi**, 12cpi, 15cpi, 17 cpi, 20 cpi, 24 cpi, Prop..
	Code Page	**437**, 850, 858, 860, 863, 865
	T.Margin	0.30 ~ **0.40** ~ 1.50 inch step 0.05 inch
	Text	1 ~ **63** *1 ~ **67** *1 ~ availableÅiMax: 104) Lines
	Auto CR	**Off**, On
	Auto LF	**Off**, On
	Alt. Graphics	**Off**, On
	Bit Image	**Dark**, Light
	ZeroChar	**0**, f
	CharacterSet	1 *2, 2 *2

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Note *1: The factory default value is 67 if the factory default paper size of the controller configuration is A4, while it is 63 if the paper size is LT. *2: The factory default value is 2 if the factory default paper size of the controller configuration is A4, while it is 1 if the paper size is LT.		
Support Menu *1		
	HDD Format *2	
	PS3 HDD Init *2, *3	
	Standby *4	**Enable**, Disable
Note *1: This setting menu is displayed only when the Support Mode has been activated by hidden operation at power-on. *2: Displayed only when the HDD Unit is installed. *3: Displayed only when the optional PostScript 3 module is installed. *4: The STANDBYTIME command (nondisclosure) of EJL is also supported. The default value is 30 minutes).		
Toner Transfer Menu *1		
	Normal *21	1 ~ **3** ~ 10
	Thick *2	1 ~ **3** ~ 10
	Transparency *2	1 ~ **3** ~ 10
	Coated *2	1 ~ **3** ~ 10
	ThickNarrow *2	1 ~ **3** ~ 10
	Envelope *2	1 ~ **3** ~ 10
Note *1: This setting menu is displayed only when the Support Mode has been activated by hidden operation at power-on. *2: This setting is not effective just after it is changed, but it becomes valid after warm boot or restarting the printer.		

Table 1-24. Panel Setting Item List (1) (continued)

Menu	Item	Value
Maintenance Menu *1	Engine Status Sheet	
	Reset 2ndBTRCounter	
	Reset IBTCleaner Ct	
	Reset IBTBelt Count	
	Reset C DvlpCounter	
	Reset M DvlpCounter	
	Reset Y DvlpCounter	
	Reset K DvlpCounter	
	Reset Fuser Counter	
	Reset Total Counter	
	Clear Error Log	

Note *1: This setting menu is displayed only when the Maintenance Mode has been activated by hidden operation at power-on. Always displayed in English regardless of the Setup → Lang setting value.

1.6.6 User Setting Items Other Than Setup Menu

Table below shows a list of user setting items which are not included in the Setup Menu.
Initialization by the initialization menu on the control panel does not clear these setting items.

Table 1-25. User Setting Items

Setting Item	Setting Value	Default Value	Setting Method
PrinterName	32-byte character string	AL-C8600	EJL, PrinterName command
MFG in the DeviceID	32-byte character string	(Undefined)	EJL
MDL in the DeviceID	32-byte character string	(Undefined)	EJL
DES in the DeviceID	32-byte character string	(Undefined)	EJL
CID in the DeviceID	32-byte character string	(Undefined)	EJL

1.6.7 Details of Setting Menus and Setting Items

This section contains the AcuLaser C8600 specific information on the setting menus and setting items.

INFORMATION MENU

☐ C Toner

The remaining C (Cyan) toner level is displayed in 5 steps (display only, exclusive readout).
E****F: 100% ≥ Remaining Toner > 75%
E*** F: 75% ≥ Remaining Toner > 50%
E** F: 50% ≥ Remaining Toner > 25%
E* F: 25% ≥ Remaining Toner > 0%
E F: Remaining Toner = 0%
Reference: (This cannot be included in the manual)
The remaining toner level is calculated according to the dispense time of each toner cartridge.
The engine stores the dispense time, and issues errors of each color such as Toner Empty according to the dispense time value.

☐ M Toner

The remaining M (Magenta) toner level is displayed in 5 steps (display only, exclusive readout).
The specifications are the same as the C Toner.

☐ Y Toner

The remaining Y (Yellow) toner level is displayed in 5 steps (display only, exclusive readout). The specifications are the same as the C Toner.

☐ K Toner

The remaining K (Black) toner level is displayed in 5 steps (display only, exclusive readout). The specifications are the same as the C Toner.

☐ Photoconductor

With AcuLaser C8600, this displays the remaining life of the Photoconductor Unit in 5 steps (display only, exclusive readout).

E****F: 100% ≥ life cycle > 75%
E*** F: 75% ≥ life cycle > 50%
E** F: 50% ≥ life cycle > 25%
E* F: 25% ≥ life cycle > 0%
E F: life cycle = 0%
Reference: (This cannot be included in the manual)
The counted value is counted by the engine and stored in the Photoconductor Unit.

☐ Total Pages

With AcuLaser C8600, this displays the number of sheets (regardless of paper sizes) printed by the printer up to present (display only).
When the count exceeds 99999999, the counter does not count up any more.
This printer displays the counted value obtained from the controller.
Display range: 0 ~ 99999999 (in a sheet unit)

☐ Color Pages

This displays only the number of sheets printed in color by the printer up to present (display only).
When the count exceeds 99999999, the counter does not count up any more.
Display range: 0 ~ 99999999 (in a sheet unit)

☐ B/W Pages

This displays only the number of sheets printed in monochrome by the printer up to present (display only).
Since this printer indicates the value of "Total Pages" - "Color Pages", when the Total Pages count exceeds 99999999, the correct value cannot be displayed.
Display range: 0 ~ 99999999 (in a sheet unit)

TRAY MENU

☐ MP Type

This menu specifies the type of paper loaded in the MP Tray.

Setting value	Paper types
Plain	Plain Paper (copy paper etc.)
Letterhead	Letter form
Recycled	Recycled paper
Color	Color paper
Trnsprncy	OHP transparency
Labels	Label paper

This menu selects the paper source that matches the specified paper type and paper size when Paper Type = Normal and Paper Source = Auto are selected. Usable paper sources are restricted depending on the Page Size and Paper Type settings. For details, refer to the Appendix F. Paper Handling algorithm.

☐ LC1 ~ 3 Type

This menu specifies the type of paper loaded in the Lower Cassette 1 ~ 3. The setting values are Plain, Letterhead, Recycled, and Color. The specification is the same as that of the MP Type.

PRINTING MENU

☐ Wide A4

This setting is invalid in this printer either in the ESC/Page or ESC/Page-Color mode.

☐ RITech

For B/W printing, this is an outline correction function which is equivalent to that of a monochrome page printer. For color printing, the outline correction function is accomplished by the CRIT function when the Halftoning mode of AcuLaser Color is selected.

☐ Toner Save

During color printing, by controlling the halftone growth and by printing with a low density, toner consumption is reduced.

SETUP MENU

- Paper Source

  Selects the paper source when Paper Type = Normal.

  Auto: Feeds paper from the paper source that loads paper of the specified paper type and paper size.

  MP: Feeds paper from the MP Tray.

  LC1: Feeds paper from the LC1.

  LC2: Feeds paper from the LC2.

  LC3: Feeds paper from the LC3.

  Paper sources that can feed paper are restricted according to the Page Size and Paper Type settings in some cases. Refer to the Appendix F. Paper Handling Algorithm for details.

- Out Bin

  Selects the output tray.

  Face-down: Ejects paper into the Face-down tray.

  Face-up: Ejects paper into the Face-up tray.

  Output trays where paper can be ejected are restricted according to the Page Size and Paper Type settings in some cases. Refer to the Appendix F. Paper Handling Algorithm for details.

- Manual Feed

  This printer always prints in 1 up when Manual Feed is activated.

- Quantity

  This menu sets the number of copies printed by collating a set of sequential pages (Collate printing), and it is specified prior to the Copies setting. Therefore, when Quantity is set to 2 or more, the setting value of Copies becomes invalid. The Collate printing is performed by the RAM or HDD. Unless an HDD is installed, the driver uses the Quantity setting when the printer's RAM size is 64 MB or more.
  This setting is specified only by PJL and EJL, or the ESC/Page and ESC/Page-Color commands, and the printer cannot store the setting value.
  If data for one job cannot be stored in the printer, the printer displays the “Collate was disabled” warning and prints only one copy.

- Paper Type

  This sets the engine control and CM to match the type of paper for use. Refer to the Appendix F. Paper Handling Algorithm for details of algorithms that determine the engine control and CM.

- Paper Side

  This sets the engine control and CM to match the side of paper for use. Refer to the Appendix F. Paper Handling Algorithm for details of algorithms that determine the engine control and CM.

- Size Ignore

  When this is set to “On”, the printer prints in 1 up.

- LCD Contrast

  This function adjusts the display density of LCD by adjusting the contrast voltage of LCD.
  When 0 is selected, the LCD display is lowest contrast and weakest.
  When 15 is selected, the LCD display is highest contrast and darkest.
  Selecting the Up button makes the contrast higher, while selecting the Down button makes it lower. Pressing the Up or Down button changes the contrast without pressing the Enter button.
  By pressing the Enter button, the setting is determined and becomes effective.
  The timing when this setting is made effective after turning the printer on is in the on-going system check, therefore the LCD shows the default value 7 just after powering on.
  When the panel setting value is set to 0 and the display is too light to be visible, initialize the panel setting by restarting the printer pressing the Job Cancel button.

  NOTE: *Since initialization of the panel setting deletes other setting values, especially calibration data, the calibration data must be downloaded again after the initialization.*

RESET MENU

- SelecType Init

  This function returns the panel setting values to the factory default. This does not reset Page Counter, CMYK Toner Counter, Photoconductor Unit Counter, Language, Parallel, USB, Network, and AUX Menu settings. Also, it does not delete calibration data.

SUPPORT MENU

This setting menu is displayed only when the Support Mode has been activated by a special operation when the power is turned on, and can be selected. Then restarting the printer deletes Support Menu from the Menu (deleting the Support Mode switches to the Normal mode).

- HDD Format

  Initializes HDD. Since HDD formatting takes time, the status appears in 1% increments as “HDD Format ***%” when executing format. After formatting, the printer reboots. In this case, all interfaces must be disconnected.

TONER TRANSFER MENU

This setting menu is displayed only when the Support Mode has been activated by a special operation when the power is turned on, and can be selected. Then restarting the printer deletes the Toner Transfer Menu from the Menu (deleting the Support Mode switches to the Normal mode).

- Normal

  Sets the offset value of 2nd BTR Transfer Current for plain (Plain Paper 1) paper. This setting becomes effective after restarting the printer.

- Thick

  Sets the offset value of 2nd BTR Transfer Current for thick (Cover) and extra thick (Cover HG) paper. This setting becomes effective after restarting the printer.

- Transparency

  Sets the offset value of 2nd BTR Transfer Current for OHP (Transparency) sheets. This setting becomes effective after restarting the printer.

- Coated

  Sets the offset value of 2nd BTR Transfer Current for coated (Coated Paper 1) paper. This setting becomes effective after restarting the printer.

- ThickNarrow

  Sets the offset value of 2nd BTR Transfer Current for postcards (Card). This setting becomes effective after restarting the printer.

- Envelope

  Sets the offset value of 2nd BTR Transfer Current for envelopes (Envelope). This setting becomes effective after restarting the printer.

MAINTENANCE MENU

This maintenance menu is to be used for maintenance by service personnel, not to be disclosed to users.

This setting menu is displayed and can be selected only when the Maintenance Mode has been activated by hidden operation at power-on. Then restarting the printer deletes the Maintenance Menu from the Menu (the Maintenance Mode is deleted = the printer switches to the normal mode). Basically, this setting is for maintenance by service personnel. This printer forcibly adjusts density (Cycle Up, Cycle Down) before and after the first printing when the Maintenance Menu is selected. Therefore, subsequent printing can obtain printing results where print density adjustment is controlled.

- Engine Status Sheet

  Pressing the Enter button starts printing the Engine Status Sheet. If data remains in the mode, paper is output. Make sure to switch to the Maintenance Mode after confirming that there are no engine related service call error in the normal mode (a mode that is not the Maintenance Mode), then execute. The RITech, Toner Save and Resolution values are printed with the value in operation, while the other values are printed with the factory default settings. Even after printing, the User Default environment (setting) is not changed. The LCD display blinks during printing. The contents of the Engine Status Sheet are output with the counted value of each unit of the engine.
  Also, the Engine Status Sheet is always printed as Lang = English regardless of the Lang setting of the Setup Menu

- Reset 2ndBTRCounter

  This function resets the counter for used amount of the 2nd BTR. This must be always performed after replacing the 2nd BTR with a new one (maintenance). Executing the setting performs reboot.
  After that, make sure to open the printer cover once, and then close it.

- Reset IBTCleaner Ct

  This function resets the counter for used amount of the IBT Cleaner. This must be always performed after replacing the IBT Cleaner with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.

- Reset IBTBelt Count

  This function resets the counter for used amount of the IBT Belt. This must be always performed after replacing the IBT Belt with a new one (maintenance). Executing the setting performs reboot.
  After that, make sure to open the printer cover once, and then close it.

- Reset C DvlpCounter

  This function resets the counter for used amount of the C Development. This must be always performed after replacing the C Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.

- Reset M DvlpCounter

  This function resets the counter for used amount of the M Development. This must be always performed after replacing the M Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.

- Reset Y DvlpCounter

  This function resets the counter for used amount of the Y Development. This must be always performed after replacing the Y Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.

- Reset K DvlpCounter

  This function resets the counter for used amount of the K Development. This must be always performed after replacing the K Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.

- Reset Fuser Counter

  This function resets the counter for used amount of the Fuser Unit. This must be always performed after replacing the Fuser Unit with a new one (maintenance). Executing the setting performs reboot.
  After that, make sure to open the printer cover once, and then close it.

- Reset Total Counter

  This function clears the Total Pages (to count 0). (It resets the Total Pages (A4) and Total Planes counter of the engine, and Total Pages and Total Colors counter of the controller.) Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.

- Clear Error Log

  This function clears the Error Log List stored to display on the Engine Status Sheet. The 20 latest Error Logs are memorized. Executing the setting performs reboot.

1.6.8 Special Operations

LIST OF OPERATING FUNCTIONS

Table blow shows a list of the special operating functions that AcuLaser C8600 supports.

CAUTION

Functions other than Hex dump and the Support Mode are not disclosed to users.

Table 1-26. Special Operations

Function	Operating Method
Hex Dump	Turn the power on while pressing the Start/Stop button
Support Mode	Turn the power on while pressing the Down button
Initialization of EEPROM	Turn the power on while pressing the Back, Job Cancel, and Start/Stop buttons
Panel Setting Value Initialization	Turn the power on while pressing the Job Cancel button
Forced Deleting of the Flash ROM A Module	Turn the power on while pressing the Up, Down, Enter, and Job Cancel buttons
Program ROM Update	Turn the power on while pressing the Down, Job Cancel, and Start/Stop buttons
ROM Module Copy	Turn the power on while pressing the Enter, Job Cancel, and Start/Stop buttons
Maintenance Mode	Turn the power on while pressing the Back, Up, Down, and Enter buttons
Engine Program Update	Turn the power on while pressing the Up, Down, Job Cancel, and Start/Stop buttons
CPU Reset in a Service Call Occurrence	Press the Back, Up, Down, Enter, and Job Cancel buttons when a Service Call error occurs
Detailed Information Display in a Service Call occurrence	Press the Back, Enter, and Job Cancel buttons when a Service Call error occurs
Error Sheet Printing	Press the Enter button after resetting the CPU when a Service Call error occurs

FUNCTIONS SPECIFIC TO ACULASER C8600

This section describes the functions specific to AcuLaser C8600.

- Initialization of EEPROM
  AcuLaser C8600 does not clear the counters for used amount of the 2nd BTR, IBT Cleaner, IBT Belt, C, M, Y, K Development, and Fuser Unit. It clears Total Pages and Color Pages. (This is because that the Total Pages and Color Pages are stored in the controller. Since the engine stores the counters for used amount of the 2nd BTR, IBT Cleaner, IBT Belt, C, M, Y, K Development, and Fuser Unit, these are not cleared.) Moreover, the calibration data are initialized.
- Initialization of panel setting value
  AcuLaser C8600 also initializes the calibration data.

1.7 Control Panel (AcuLaser C7000)

1.7.1 External View and Names

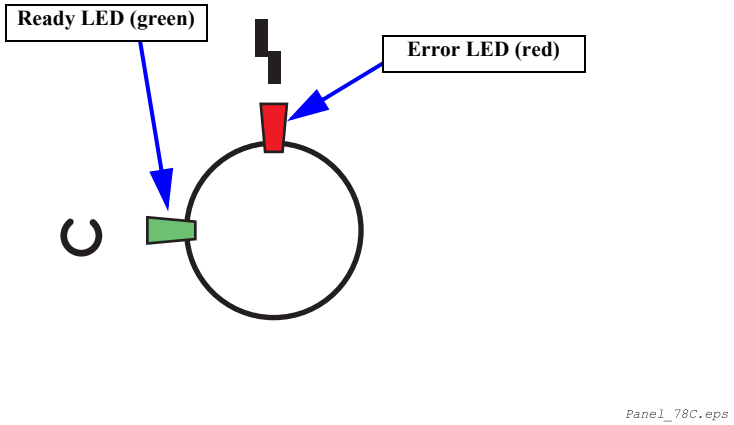


Figure 1-26. External View of Control Panel (AcuLaser C7000)

1.7.2 Indications of LEDs

Table 1-27. Indications of LEDs

Ready LED (green)	Error LED (red)	Supplement	Indications
Off	Off	-	Power OFF
Off	On	-	Controller fatal errors • Video error • Data expansion error • EEPROM access error • Software error
Flash 1	Off	-	Warming up, data receiving, resetting, calibrating Printer
Flash 3	Off	-	Warning of consumables (4 kinds)
Flash 1	Flash 1	LEDs flash alternately	Engine error
Flash 1	Flash 1	LEDs flash simultaneously	RAM check error, or no RAM installed
Flash 1 and Off	Flash 1	LEDs repeat twice a cycle of flashing simultaneously and individually	Other IPL error
Flash 1	On	-	Protocol error
On	Off	-	Ready to print, printing in progress, standby, Warnings for other than consumables
On	Flash 1	-	Recoverable errors • Check Transparency • Irregular Density • Install Consumables (3 kinds) • Wrong Photoconductor • Photoconductor Trouble • Replace Consumables (3 kinds) • Turn Paper • Paper Set • Invalid Size • Underrun Error • Mem Overflow • Duplex Mem Overflow • Invalid AUX I/F Card
On	On	-	Paper out, paper jam, cover open (5 kinds), unit open (3 kinds))

Table 1-27. Indications of LEDs (continued)

NOTE a: After turning on the printer, 2 LEDs light on for about 1.5 seconds, and then go off.

b: In RAMCHECK, the Ready LED blinks faster than the Flash 1 (turns on for 0.1 sec and off for 0.1 sec).

c: Three types of blink are available:
Flash 1 is fast blink that lights on and off for 0.3 sec each
Flash 2 lights on and off for 0.6 sec each
Flash 3 is slow blink, that lights on for 0.6 sec and off for 2.4 sec.

1.7.3 Printer Setting Items

The setting item list for AcuLaser C7000 is shown below.
Since character strings administrated in the printer do not exist, names of setting items and setting values are described in names for explanation. Consequently, these names do not match character strings displayed in driver's user interfaces and the Status Sheet.

1.7.3.1 Setting Items for which the Printer Stores the Setting Changes

Table 1-28.

Setting Items	Setting Values
Standby	**30**, 60, 120, 180, OFF
Paper Source Priority	**MP Tray***1, **LC***1, LC ONLY
MP Tray Size	**A4***1, A3, A5, B4, B5, **LT***1, HLT, LGL, GLT, GLG, B, EXE, F4, Postcard, WPostcard, QPostcard, MON, C10, DL, C5, C6, IB5, Yokei #0 *2, Yokei #4 *2, Yokei #6 *2, A3W
Transfer voltage offset of normal paper	1~**3**~10
Transfer voltage offset of thick paper	1~**3**~10
Transfer voltage offset of transparency	1~**3**~10
Transfer voltage offset of coated paper	1~**3**~10
Transfer voltage offset of thick narrow paper	1~**3**~10
Transfer voltage offset of envelope	1~**3**~10

NOTE a: Underlined bold values represent the factory default setting values.

Note *1: Default settings are determined depending on intended markets.

*2: JIS envelope.

☐ Standby
Sets the power saving function to reduce power consumption when the printer is in the standby mode.

NOTE: *The printer can use five setting values, while the driver for AcuLaser C7000 is limited to:*
ON (30 minutes), OFF

☐ Paper Source Priority
Sets a priority order when Auto Selection is selected from the Paper Source setting and a paper source matches the target paper size.
This is the same function to the "MP Mode" function of ESC/Page models.

- MP Tray: MP tray > LC1 > LC2 > LC3
- LC: LC1 > LC2 > LC3 > MP tray
- LC only: LC1 > LC2 > LC3

In the MP Tray or LC mode, however, to continue printing when none of paper sources have paper that matches the target paper size, paper is fed from paper sources that load paper in the order of MP tray > LC1 > LC2> LC3. In the "LC only" mode, paper is fed from paper source that load paper in the order of LC1 > LC2 > LC3.
The default setting for AcuLaser C7000 is "MP Tray". For ESC/Page models, "LC only" is a method substituting for functions that are enabled depending on paper types.

☐ MP Tray Size
Specifies a paper size for the MP tray.
If printing continues after the "Paper Set" error occurrence, and the paper size designated by the printing data matches the paper size that is actually fed, the paper size is stored in memory.
The default value is set to either "A4" or "LT" depending on controller configurations.

NOTE: *The printer can set all the paper sizes, but the driver for AcuLaser C7000 is limited to setting of the following sizes:*
A4, A3, A5, B4, B5, LT, HLT, LGL, GLT, GLG, B, EXE, F4, MON, C10, DL, C5, C6, IB5, A3W

☐ Transfer voltage offset of normal paper
Sets the offset value of 2nd BTR Transfer Current for plain (Plain Paper 1) paper.
This setting becomes effective after restarting the printer.

☐ Transfer voltage offset of thick paper
Sets the offset value of 2nd BTR Transfer Current for thick (Cover) and extra thick paper.
This setting becomes effective after restarting the printer.

- Transfer voltage offset of transparency
  Sets the offset value of 2nd BTR Transfer Current for OHP (Transparency) sheets.
  This setting becomes effective after restarting the printer.
- Transfer voltage offset of coated paper
  Sets the offset value of 2nd BTR Transfer Current for coated (Coated Paper 1) paper.
  This setting becomes effective after restarting the printer.
- Transfer voltage offset of thick narrow paper
  Sets the offset value of 2nd BTR Transfer Current for postcards (Card).
  This setting becomes effective after restarting the printer.
- Transfer voltage offset of envelope
  Sets the offset value of 2nd BTR Transfer Current for envelopes (Envelope).
  This setting becomes effective after restarting the printer.

1.7.3.2 Setting Items that are Valid Only in a Job, and are not Stored in the Printer

Table 1-29.

Setting Items	Setting Values
Paper Source	Auto, MP Tray, LC1, LC2, LC3
Paper Size	A4, A3, A5, B4, B5, LT, HLT, LGL, GLT, GLG, B, EXE, F4, Postcard, WPostcard, QPostcard, MON, C10, DL, C5, C6, IB5, Yokei #0 *1, Yokei #4 *1, Yokei #6 *1, A3W, Undefined
Output Tray	Face-down, Face-up
Copies	1～999
Resolution	300 dpi (Fast), 600 dpi (Fine)
Duplex Printing	ON, OFF
RITech	ON, OFF
Toner Save	ON, OFF
Top Offset	-30～ 0 ～30 mm
Left Offset	-30～ 0 ～30 mm
Paper Type	Normal, Thick, Extra Thick, Transparency Coated Paper
Page Side	Front, Back
Size Ignore	ON, OFF
Avoid Error	ON, OFF

Note: Users can select the setting items above from the driver, and actual processing is performed by the printer.

Note *1: JIS envelope.

- Paper Source
  Paper feed devices are determined in the Paper Source setting.
  Practically, the Paper Source setting is specified in the following priority order, since the Paper Type and the Paper Size settings influence the Paper Source selection.
  1. When Paper Type = Thick, Extra Thick paper or Transparency, MP tray is selected
  2. When Paper Type = Plain or Coated paper and when Paper Size = postcards or envelope, MP tray is selected
  3. When Paper Type = Plain, and when Paper Size ≠ postcards or envelope;
     a) When Paper Source = MP tray, LC 1 ~ 3, a specified paper source is selected
     b) When Paper Source = Auto Selection, and when a paper source that matches a specified paper size exists, the Paper Source setting is determined according to the priority order
     c) When Paper Source = Auto Selection, and none of paper sources matches a specified paper size, the Paper Source setting is determined according to the priority order among paper sources that load paper

  NOTE: *When driver settings are Paper Type ≠ Plain or Paper Size = postcards or envelope, the driver sets Paper Source to MP tray.*

- Paper Size
  Paper sizes for printing is selected in the Paper Size setting.
  Paper sizes that the driver for each market supports can only be selected for Paper Size, as well as MP tray paper sizes.

- Output Tray
  Paper eject device is determined in the Output Tray setting.
  When Paper Size = A5, HLT, IB5, Envelope, Postcard, Undefined size that the is less than 182 mm in length or is less than 210mm in width, the Face-up tray is selected.
  When Paper Type = Thick, Extra Thick, Transparency, the Face-up tray is selected.

  NOTE: *Output Tray is set to the Face-up tray on the driver according to the Paper Size and Paper Type settings.*

- Copies
  Number of multi-copies is designated in the Copies setting.

- Resolution
  Resolutions for internal processing are selected in Resolution.

- Duplex Printing
  Selects either simplex printing or duplex printing. Only when Paper Size is set to A4, A3, B4, B5, LT, LGL, GLT, GLG, B, EXE, F4, and Paper Type is set to Plain, duplex printing is enabled. Duplex printing is invalid with the other paper sizes and paper types, displaying the error message “Can't print duplex”.

  NOTE: *Duplex printing is disabled on the driver according to the Paper Size and Paper Type settings.*

- RITech
  The RITech function is enabled or disabled in the RITech setting.

- Toner Save
  Selects whether the Toner Save function is enabled or disabled.

- Top Offset
  Sets a print starting vertical position on a sheet.

  NOTE: *The printer can set about -30.0 ~ 30.0 mm in units of dots, while the driver setting is limited to -9 ~ 9 mm in units of millimeters. Binding margins for duplex printing with the Top Offset setting value are limited to 0 ~ 30 mm in units of millimeters.*

- Left Offset
  Sets a print starting horizontal position on a sheet.

  NOTE: *The printer can set about -30.0 ~ 30.0 mm in units of dots, while the driver setting is limited to -9 ~ 9 mm in units of millimeters. Binding margins for duplex printing with the Top Offset setting value are limited to 0 ~ 30 mm in units of millimeters.*

- Paper Type
  A printing speed, fuser temperature, and other necessary settings are determined depending on paper types for use.

  NOTE: *Label is not available in the list of the Paper Type setting from the AcuLaser C7000 driver. However, users can set “Thick Paper” when printing on rather thick label sheets.*

☐ Front/Back
In the case of printing a manual in duplex, determines whether the side of a sheet being printed first (front) or the opposite side to the already printed side (back).

NOTE: *User must select this in combination with the Paper Type setting. This setting is available when Paper Type is set to Thick paper, Extra thick paper, or Coated paper.*

☐ Size Ignore
Selects whether or not to ignore the errors "Paper Set" and "Check Paper Size".

☐ Avoid Error
Selects whether to display the error messages below or not.

NOTE: *"Paper Set", "Invalid Size", "Mem Overflow", "Duplex Mem Overflow"*

ON: *Printing continues without letting any of the above errors occur. Although "Paper Set" does not occur, "Check Paper Size" appears unless the paper size for feeding matches. Although none of "Invalid Size", "Mem Overflow", and "Duplex Mem Overflow" occurs, "Print Failure" appears.*

OFF: *If any of the aforementioned errors has occurred, the printer does not recover until receiving a release command through the ESCPAGES-02 protocol.*

"Avoid Error" is a method not to suspend the printer for a long time in a status where continual printer monitoring is unavailable, for example, in the case of printing from the Network.

1.7.3.3 Setting Items Requiring Control by the Printer for Each Printing or State Change

Control Item	Range of Values
Total Pages	0～99999999 pages
Color Pages	0～99999999 pages
MP Tray Feed Counter	0～150 sheets
LC 1 Feed Counter	0～500 sheets
LC 2 Feed Counter	0～500 sheets
LC 3 Feed Counter	0～500 sheets
Jam Counter	0～65535 times
C Toner Change	0～255 times
M Toner Change	0～255 times
Y Toner Change	0～255 times
K Toner Change	0～255 times
Photoconductor Change	0～255 times
Error Code	6001～6999
Total Pages of Error occurrence	0～99999999 pages

1. Total Pages
   A total number of printed pages in both color and monochrome.
2. Color Pages
   A total number of printed pages in color only.
3. MP Tray Feed Counter
   Counter for administrating remaining paper in the MP tray.
4. LC1 Feed Counter
   Counter for administrating remaining paper in the Lower Cassette 1.
5. LC2 Feed Counter
   Counter for administrating remaining paper in the Lower Cassette 2.
6. LC3 Feed Counter
   Counter for administrating remaining paper in the Lower Cassette 3.
7. Jam Counter
   The number of times of a paper jam.

8. C Toner Change
   The number of times of replacing the C Toner Cartridge. Counted up when new C Toner Cartridge is detected.
9. M Toner Change
   The number of times of replacing the M Toner Cartridge. Counted up when new M Toner Cartridge is detected.
10. Y Toner Change
    The number of times of replacing the Y Toner Cartridge. Counted up when new Y Toner Cartridge is detected.
11. K Toner Change
    The number of times of replacing the K Toner Cartridge. Counted up when new K Toner Cartridge is detected.
12. Photoconductor
    The number of times of replacing the Photoconductor Unit. Counted up when a new Photoconductor Unit is detected.
13. Error Number
    Save newest engine error code. When an engine error occurs, the error code is stored.
14. Total Page of Error occurrence
    The total number of printed copies when the latest engine error occurs.

Above values will be reset to zero when the InitializeEEPROM command of ESCPAGES-02 protocol is received. This operation will be done by hidden function of the printer driver. The Engine Status Sheet uses the information from 7 to 14 above. Only 1 and 2 can be got by ESCPAGES-02 protocol.

1.7.3.4 Setting Items Controlled by the Mechanical Controller, but Requires Reading out and Changing the Values

Setting Items	Outline of Operation
Total number of printed pages converted into A4	Reading out only
Total number of printing planes	Reading out only
Amount of C Toner used	Reading out only, clearing counter when detecting a new one
Amount of M Toner used	Reading out only, clearing counter when detecting a new one
Amount of Y Toner used	Reading out only, clearing counter when detecting a new one
Amount of k Toner used	Reading out only, clearing counter when detecting a new one
Amount of Photoconductor Unit used	Reading out only, clearing counter when detecting a new one
Amount of Fuser Unit used	Clearing counter, reading out
Amount of 2nd BTR used	Clearing counter, reading out
Amount of IBT Cleaner used	Clearing counter, reading out
Amount of IBT Belt used	Clearing counter, reading out
Amount of Developer C used	Clearing counter, reading out
Amount of Developer M used	Clearing counter, reading out
Amount of Developer Y used	Clearing counter, reading out
Amount of Developer K used	Clearing counter, reading out
Mechanical controller version	Reading out only
Mechanical controller version of Duplex	Reading out only
Mechanical controller version of LCC	Reading out only

- Total number of printed pages converted into A4 (Total Pages(A4)):
  The total number of printed pages. Considers A4 landscape size as one page regardless of color or B/W printing.

- Total number of printing plane (Total Planes):
  The total number of printing planes. Considers A4 landscape size for each color as one plane.
- Amount of C Toner used (C Toner)
- Amount of M Toner used (M Toner)
- Amount of Y Toner used (Y Toner)
- Amount of K Toner used (K Toner)
  Dispense time for each toner (in 100 msec unit).
- Amount of Photoconductor Unit used (Xero CRU):
  Revolving count of the Photoconductor Unit used.
- Amount of Fuser Unit used (Fuser):
  The number of used pages for the Fuser Unit. Replacing and modifying the Fuser Unit clears the counter.
- Amount of 2nd BTR used (2nd BTR):
  The number of used pages for 2nd BTR. Replacing and modifying 2nd BTR clears the counter.
- Amount of IBT Cleaner used (IBT Cleaner):
  The number of used pages for the IBT Cleaner. Replacing and modifying the IBT Cleaner clears the counter.
- Amount of IBT Belt used (IBT Belt):
  Revolving count of the IBT Belt used. Replacing and modifying the IBT Belt clears the counter.
- Amount of Developer C used (C Development)
- Amount of Developer M used (M Development)
- Amount of Developer Y used (Y Development)
- Amount of Developer K used (K Development):
  The number of planes used for each developer. Replacing and modifying each of the developer clears the counter.
- Mechanical controller version of main unit and Duplex and LCC:
  The mechanical controller firmware version. In the case of 1.03.02, it is displayed as 010302.

When you have replaced any of After-Sales Parts of AcuLaser C7000, clear the relevant counter by using the Service Utility.

1.8 Engine Restrictions

The engine restrictions are classified as follows. Refer to the following tables for more details.

- Restrictions on the period from turning power on to printing enable. See Table 1-30.
- Restrictions on the period from print command receiving to printing start (Density adjustment at Cycle up). See Table 1-31.
- Restrictions on continuous printing. See Table 1-32.
- Restrictions on the period from completion of printing to stop of mechanism operation.
  (Density adjustment at Cycle up). See Table 1-33.
- Others. See Table 1-34.

Table 1-30. Restrictions on the period from turning power on to printing enable

Item	IBT Rotations	Operational Conditions	Description	Notes
M/C Check	Approx. 6-7	Each time.	CRU installation, check if there is any paper jam remaining.	
Fuser Warm Up	--	Each time.	Fuser warm up	
Process Control (Power Up)	5-77	Printing stopped at the last time because of toner empty error.	Recovering operation from the toner empty error.	
Calibrating when new photoconductor unit is installed	10-84	A new photoconductor unit is installed.	Draws patches on both ends on the photoconductor and supplies toner to the cleaner.	Make density adjustment when toner density is detected to be too high or too low.
Print quality adjustment (IBT ghost measures)	12	When the IBT rotations are more than 1000 and 200 pages or more have been printed, and Humidity<35%Rh or Humidity>65%Rh	The wax adhering to the IBT is removed. (Wax contained in toner causes “ghost”.)	Once wax is removed, the counter is reset and restarts to count. 200pages regardless of paper size (A4/A3). Executed only when power is turned on or cover opened/closed.

NOTE: *Approx. 5 seconds for one rotation*

Table 1-31. Restrictions on the period from print command receiving to printing start (Density adjustment at Cycle up)

Item	IBT Rotations	Operational Conditions	Description	Notes
Density adjustment (Cycle Up)	3	1. Fuser temperature is 94°C or less at power on. 2. After Error or Jam. 3. The first printing after the amount of toner is adjusted (Addmix, Sweep Out). After Empty Reset operation is executed.	The BCR and laser output value are determined.	During the operation, the printer is in APQ mode.

NOTE: *Approx. 5 seconds for one rotation*

Table 1-32. Restricts on continuous printing

Item	IBT Rotations	Operational Conditions	Description	Notes
High coverage printing measures	Approx. 5	1. Color mode 65%: total A3 4 pages detected. 55%: total A3 12 pages detected. 35%: total A3 48 pages detected. 2. B/W mode 53%: total A3 4 pages detected. 41%: total A3 12 pages detected. 35%: total A3 48 pages detected. *Setting value may be changed.	Printing is stopped to recover print density if the printing with high coverage that exceeds dispense capacity has continued.	-Cycle-down is done after completion of the printing currently executed. -During density adjustment at cycle-down, it is decided whether to supply toner or not.
Continuous printing restriction	Approx. 5	From printing start till printing of A3 (50 pages), A4 LEF 2-up (100 pages) or the equivalent	Continuous printing is interrupted to keep toner density.	-Cycle-down is done after completion of the printing currently executed. -The operational conditions may be A3 (6 pages), A4 LEF 2-up (12 pages) if Toner Near Empty.occurs.
Detects low-density	Approx. 5	In case where low-density is detected during density adjustment in Cycle-up or during printing.	Printing is interrupted to supply toner when low density is detected.	-Cycle-down is done after completion of the printing currently executed. -During density adjustment at cycle-down, it is decided whether to supply toner or not.
After narrow B/W printing	Approx. 5	After 30 pages of B/W continuous printing on paper up to 257mm width (B5,B4)	Printing is interrupt to prevent Fuser from overheating.	-Cycle-down is done after completion of the printing currently executed. -Idle for 1 minute after Cycle-down. -During idling, printer is in APQ mode.

NOTE: *Approx. 5 seconds for one rotation*

Table 1-33. Restrictions on the period from completion of printing to stop of mechanism operation (Density adjustment at Cycle down)

Item	IBT Rotations	Operational Conditions	Description	Notes
Density adjustment (at cycle down)	7	1. Fuser temperature is 94°C or less. 2. Every 20 pages(40 pages when 2-up printing). 3. When the total waiting time exceeds 4 hours. 4. When high coverage is detected. 5. The first printing after the amount of toner is adjusted (Addmix, Sweep Out). After Empty Reset operation is executed. 6. In case where low-density is detected during density adjustment in Cycle-up or during printing.	TC control	-The operational conditions may be A3 (6 pages), A4 LEF 2-up (12 pages) when toner near empty occurs. -During the operation, the printer is in APQ mode.
Density adjustment (supply toner)	6-84	-Low-density is detected during the density adjustment. -During high-coverage measures(not necessary) -Near Toner Empty is detected.	Addmix (toner is supplied)	During the operation, the printer is in APQ mode.
Density adjustment (sweeps toner out)	6-12	High-density is detected during the density adjustment.	Sweep Out (toner is swept out)	During the operation, the printer is in APQ mode.
Print quality adjustment (Rotary idles)*1	Max 10 Rotary revolutions	When the total number of rotary revolutions is too small relative to the amount of supplied K toner.	The rotary is rotated and developer is collected into the cartridge collector. (Rotary home-positioning operation is repeated several times at cycle-down in order to loosen the toner inclined by B/W continuous printing and to stabilize dispense rate)	During the operation, the printer is in APQ mode.
Print quality adjustment (IBT ghost masures)*1	2	When the IBT rotations are more than 1000 and 200 pages or more have been printed, and Humidity<35%Rh or Humidity>65%Rh	The wax adhering to the IBT is removed. (Wax contained in toner causes “ghost”.)	Once wax is removed, the counter is reset and restarts to count. 200 pages regardless of paper size (A4/ A3). Rotates two times more than normal cycle-down.

Note *1: Used with AcuLaser 8500 and later models.

NOTE: *Approx. 5 seconds for one rotation*

Table 1-34. Others

Item	IBT Rotations	Operational Conditions	Description	Notes
P/H motor rotation during warm-up	1 minute	P/H motor starts running 1 minute before completion of warm-up.	Measures against faulty fixing is taken at start-up. (Photoconductor does not rotate)	
P/H motor rotation during standby	0.5 to 1 sec. at 15 to 30 min. intervals.	P/H motor operates momentary when the printer is on standby.	To prevent the Fuser Nip from leaving marks when P/H motor left heated. (Photoconductor does not rotate)	P/H motor operates momentary when the printer is in power save mode 1.

NOTE: *Approx. 5 seconds for one rotation*

- Toner duty limiting value: 260%* ±20% (±10% for each color)

  * (Total image occupation rate by YMCK)

  Total image occupation rate (toner duty) is limited to prevent paper jam resulting from paper winding round the fuser.
  If the value data has exceeded the toner image occupation rate, the printer will display "Error" and will shut down.
  In this case, the paper has been inserted in the Reg Roll of the Paper Path Unit.
  Therefore, the paper must be removed to recover the printer.

1.9 Status Sheet, etc.

1.9.1 Status Sheet for AcuLaser C8600

An example of the printout of the Status Sheet is shown on page 71.
The language in which the Status Sheet is printed changes depending on the selected Language.
The printout example is represents the case where English is selected.
The IP address is printed only when GetIPAddress = Panel or PING, and is not printed when Auto is selected. When changing the setting value, the IP address that is to be used at the next startup is printed. (The IP address in operation is printed on the Network Status Sheet.)

INFORMATION

Describes Name (English only, 36-digit), Remaining Amount (10-digit), Warning (20-digit), and Model Number (30-digit) of consumables that can be replaced by users.
"Needed soon" is added when the amount reaches the level where a warning occurs.

Name	Parts Numbers
Toner Cartridge Cyan	S050041
Toner Cartridge Magenta	S050040
Toner Cartridge Yellow	S050039
Toner Cartridge Black	S050038
Photoconductor Unit	S051082
Waste Toner Collector	S050020

DESCRIPTIONS ADDED WHEN OPTIONS INSTALLED

- ☐ RAM DIMM: Memory size is added to Installed Memory and Available Memory.
- ☐ Type-B I/F: AUX is added to Installed Interface.
- ☐ Two Optional Cassette Unit: Lower Cassette 2/3 is added to Other Options.
- ☐ One Optional Cassette Unit: Lower Cassette 2 is added to Other Options.
- ☐ Duplex Unit: Duplex Unit is added to Other Options.
- ☐ HDD: Hard Disk xGB is added to Other Options. Displayed up to one decimal place.
- ☐ PostScript 3 module: Adobe PostScript 3 is added to Installed Emulation. Version of PostScript 3 is added to Firmware Revision.
- ☐ Color Copy Station: Copy System is added to Other Options.
- ☐ A3W Cassette: LC1 Size = A3W is set in the Tray Menu.

WHEN STANDBY = DISABLE

Printed only when Standby = Disable.
Not printed when Standby = Enable.
Reason: This notifies the user that the Standby mode is disabled.

THE LOWEST DESCRIPTION SECTION OF THE STATUS SHEET

- ☐ IAddyme: Date of the firmware
- ☐ e: When "e" = ECP, when "n" = Nibble, when "" = Compatibility
- ☐ *: "*" appears when DIMM can be written
- ☐ Axxxx: Color Look Up Table version
- ☐ Jxxxxxx: Jam count
- ☐ MCxxxxxx: Mechanical control version
- ☐ 11PNNYYMMDDhhmmssX: USB serial number

COLOR CALIBRATION DESCRIPTION

NOTE: *Since this function is implemented in the utility for PostScript3, it is not described in the manual of the AcuLaser C8600 main unit.*

The meanings of G, D and 600 are as follows:

G: Increase Graduation
D: Increase Definition
600: 600 dpi

A combination such symbols means calibration data for, say, Increase Graduation at 600 dpi, and is displayed only when the calibration data are registered in the EEPROM.

MMMM, DD, YYYY, HH and MM represent the date and time when the calibration table is created.The meaning of each symbol is as follows:

MMMM: Month
DD: Day
YYYY: Year
HH: Hour
MM: Minute

EPSON ☐(Logo) EPSON AcuLaser™ C8600

Status Sheet

Information			Parts Numbers
Toner Cartridge Cyan	E****F	Needed soon	S050041
Toner Cartridge Magenta	E****F	Needed soon	S050040
Toner Cartridge Yellow	E****F	Needed soon	S050039
Toner Cartridge Black	E****F	Needed soon	S050038
Photoconductor Unit	E****F	Needed soon	S051082
Waste Toner Collector		Needed soon	S050020
Total Pages	1		
Color Pages	1		
B/W Pages	0		

Default Settings

Tray Menu
MP Tray Size = A4
LC1 Size = A4
LC2 Size = A4
LC3 Size = A4
MP Type = Plain
LC1 Type = Plain
LC2 Type = Plain
LC3 Type = Plain

Emulation Menu
Parallel = Auto
USB = Auto
Network = Auto
AUX = Auto

Printing Menu
Page Size = A4
Wide A4 = Off
Orientation = Port
Resolution = 600
RITech = On
Toner Save = Off
Image Optimum = Auto
Top Offset = 0.0mm
LeftOffset = 0.0mm
T Offset B = 0.0mm
L Offset B = 0.0mm

Setup Menu
Lang = English
Time Out = 60
Paper Source = Auto
Out Bin = Face-down
MP Mode = Normal
Manual Feed = Off
Copies = 1
Duplex = Off
Binding = Long Edge
Start Page = Front
Paper Type = Normal
Page Side = Front
Skip Blank Page = Off
Auto Eject Page = Off
Size Ignore = Off
Auto Cont = Off
Page Protect = Auto
LCD Contrast = 7
Standby = Disable

Parallel Menu
Parallel I/F = On
Speed = Fast
Bi-D = ECP
Buffer Size = Normal

USB Menu
USB I/F = On
Buffer Size = Normal
Network Menu
Network I/F = On

Network Config = No
Get IPAddress = Auto
IP = xxx.xxx.xxx.xxx
SM = xxx.xxx.xxx.xxx
GW = xxx.xxx.xxx.xxx
Buffer Size = Normal

AUX Menu
AUX I/F = On
AUX Config = No

LJ4 Menu
FontSource = Resident
Font Number = 0
Pitch = 10.00cpi
Height = 12.00pt.
SymSet = IBM-US
Form = 64Lines
Source SymSet = 277
Dest SymSet = 277
CR Function = CR
LF Function = LF
Tray Assign = 4K

GL2 Menu
GLMode = LJ4GL2
Scale = Off
Origin = Corner
Pen = Pen0
End = Butt
Join = Mitered
Pen0 = 0.35mm
Pen1 = 0.35mm
Pen2 = 0.35mm
Pen3 = 0.35mm
Pen4 = 0.35mm
Pen5 = 0.35mm
Pen6 = 0.35mm

PS3 Menu
Error Sheet = Off
Coloration = Color
Image Protect = Off

ESCP2 Menu
Font = Courier
Pitch = 10cpi
Condensed = Off
T.Margin = 0.50inch
Text = 66Lines
CGTable = PcUSA
Country = USA
Auto CR = On
Auto LF = Off
Bit Image = Dark
ZeroChar = 0

FX Menu
Font = Courier
Pitch = 10cpi
Condensed = Off
T.Margin = 0.50inch
Text = 66Lines
CGTable = PcUSA
Country = USA
Auto CR = On
Auto LF = Off
Bit Image = Dark
ZeroChar = 0

I239X Menu
Font = Courier
Pitch = 10cpi
Code Page = 437
T.Margin = 0.40inch
Text = 67Lines
Auto CR = Off
Auto LF = Off
Alt. Graphics = Off
Bit Image = Dark
ZeroChar = 0
CharacterSet = 2

Hardware Configurations

Installed Memory	64MB(65536KB)
Available Memory	xx.xMB(xxxxxKB)
Firmware Revision	158xxxxxxxxxx
Font Data Revision	500644120701
Installed Emulation	LJ4,GL2
	ESC/Page Color
	ESCP2,FX,I239X
	Abode PostScript3
Installed Interface	Parallel
	Network
	USB
	AUX
LAN HW Address	000048xxxxxx
LAN HW Revision	1

IAddyme*AxxxxJxxxxxxMCxxxxxx09PNNYYMMDDhhmmssX

Other Options
Lower Cassette 2
Lower Cassette 3
Duplex Unit
Hard Disk x.xGB
Copy System

Color Calibration
G600 MMMM DD, YYYY HH:MM
D600 MMMM DD, YYYY HH:MM

SEIKO EPSON CORPORATION

1.9.2 Status Sheet for AcuLaser C7000

Figure 1-27 shows an example of the printed Status Sheet. The printing data for the Status Sheet is created by the printer driver.

- The consumable information appears only when the remaining amount of consumables in the status is 25% or less for toners or 9% or less for the Photoconductor Unit.
- IAxxxx indicates the firmware version.
- Axxxxxxxx indicates the printer screen version in 8-digit numbers.
- MCxxxxxx indicates the mechanical controller version of the engine main unit in 6-digit numbers.
- 13Pxxxxxxxxxxxxxx indicates the USB ID only when executing the Status Sheet from the parallel interface or USB interface.

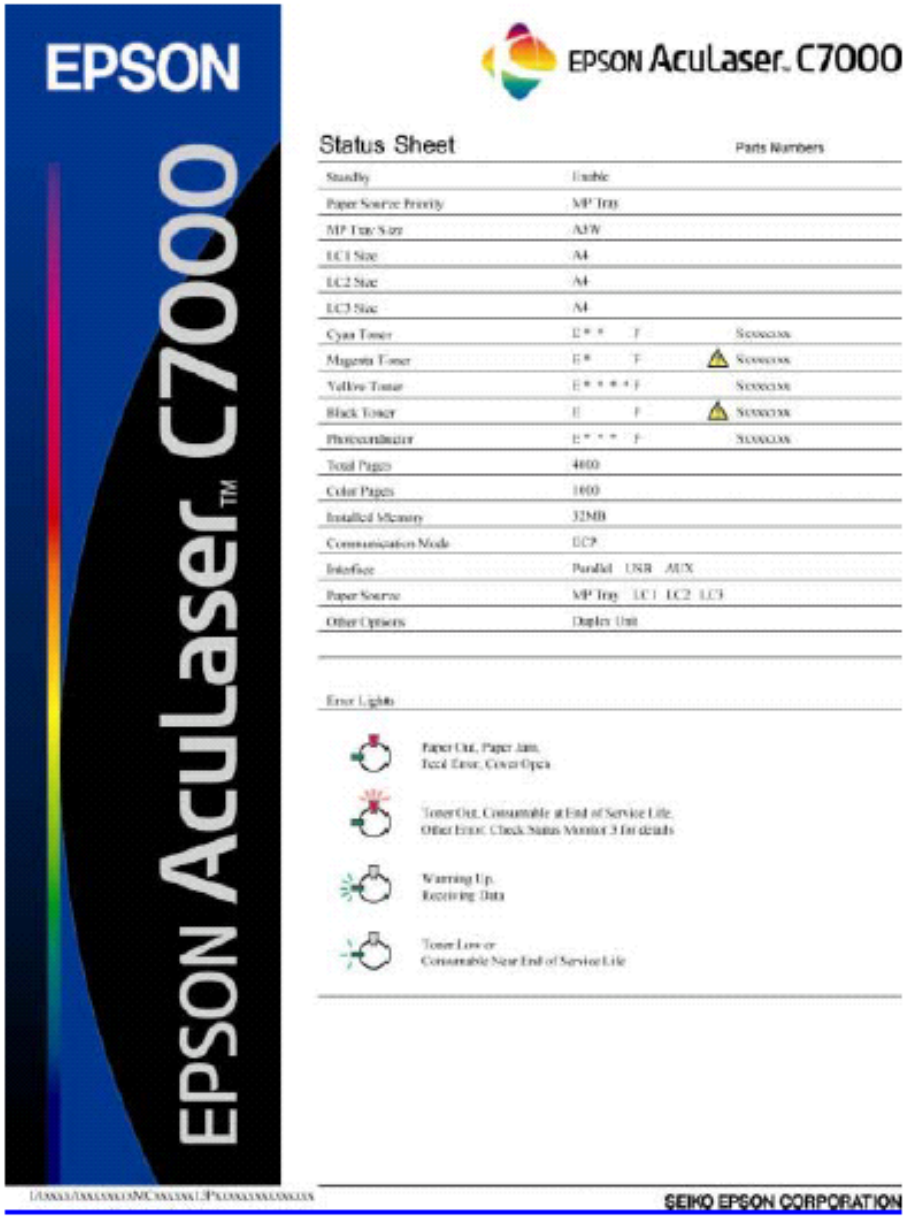


Figure 1-27. Status Sheet (AcuLaser C7000)

1.9.3 Reserve Job List (Only with AcuLaser C8600)

<Reserve Job List printing>

Prints the job attribute registered in the Quick Print Job Menu.

<Contents> (in the order)

- User Name (in alphabetical order)
- Job Name (in alphabetical order)
- Size

<Example>

EPSON AL-C8600

Reserve Job List

Quick Print Job

User Name	Job Name	Job Type
0unknown	0Untitled	Verify
0unknown	9Untitled	Stored
0unknown	AUntitled	Verify
0unknown	zUntitled	Verify
9unknown	Untitled	Verify
Aunknown	Untitled	Verify
unknown	Untitled	Re-Print

Total Job Number: XX

1.9.4 Form Overlay List (Only with AcuLaser C8600)

Prints the form attribute for Form Overlay registered in the HDD up to 200 forms.

<Contents>

- Form Name

  Maximum 2420 bytes

  Number 0 –9 (ASCII 48 – 57, 30H - 39H)
  Capital A - Z (ASCII 65 - 90, 41H - 5AH)
  Small a – z (ASCII 97 - 122, 61H - 7AH)

  Form Name is printed by the order below:

  Form Name {(Number (0>1..9))>alphabet (A>B>..>a>b..>z)}
  The same Form Name is printed in the entry order. If Form Name is blank, it is printed to the top.

- Comment

  Maximum 40 bytes

  Number 0 – 9 (ASCII 48 – 57, 30H - 39H)
  Capital A - Z (ASCII 65 - 90, 41H - 5AH)
  Small a – z (ASCII 97 - 122, 61H - 7AH)
  Space (ASCII 32, 20H)
  Symbol (ASCII 33 – 47, 21H - 2FH)
  (ASCII 58 – 63, 3AH - 3FH)
  (ASCII 91, 5BH)
  (ASCII 93, 5DH)
  (ASCII 95, 5FH)
  (ASCII 123, 7BH)
  (ASCII 125, 7DH)

- Date

  24 bytes

<Example>

EPSON AL-C8600

Name	Comment	Date	
form1		MMMM	DD YYYY HH:MM
form2		MMMM	DD YYYY HH:MM

Total Number: XXX

1.9.5 Network Status Sheet (Only with AcuLaser C8600)

An example of the printout of the Network Status Sheet is shown on page 74. The Network Status Sheet is not localized.

The Network Status Sheet describes the current operating status, but does not indicate setting values.

If values and names are unused or undefined, these are shown with (NONE).

<Example of Network Status sheet>

```
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HH EPSON Network Status Sheet (1/2) HH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
<General Information>
Card Type                   EPSON Built-in 10Base-T/100BaseTX Print Server
MAC Address                 00:00:48:XX:XX:XX
Hardware                    Ver. 01.00
Software                    Ver. 02.02

Printer Model               AL-C8600

Network Link Status         10BASE-T, Half Duplex

<TCP/IP>
Get IPAddress               Auto
IP Address                  192.168.192.168
Subnet Mask                 255.255.255.0
Default Gateway             255.255.255.255
Use a private IP address
when an IP address cannot
be assigned by the DHCP
server.                     Disable
Set by PING                 Disable
Universal Plug and Play     Disable
Universal Plug and Play
Device Name                 (NONE)

<IPP>
IPP URL                     http://xxx.xxx.xxx.xxx:631/EPSON_IPP_Printer
Printer Name                EPSON_IPP_Printer
Location                    (NONE)

<SNMP>
Read Community       public
IP Trap 1        Disable
IP Trap Address 1           (NONE)
IP Trap Community 1         (NONE)
IP Trap 2        Disable
IP Trap Address 2           (NONE)
IP Trap Community 2         (NONE)
IPX Trap 1       Disable
IPX Trap Address 1          (NONE)
IPX Trap Community 1        (NONE)
IPX Trap 2       Disable
IPX Trap Address 2          (NONE)
IPX Trap Community 2        (NONE)

HHHHHHHHHHHHHHHHHHHHHHHHHHHH AL-C8600 HH
```

```
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HH EPSON Network Status Sheet (2/2) HH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
<NetWare(R)>                Enable
Network Address             00000000:000000000000
Primary Frame Type          Ethernet_802.3
Mode                        Standby
Print Server Name           (NONE)
Polling Interval            (NONE)
NDS Tree                    (NONE)
NDS Context                 (NONE)
Primary File Server Name    (NONE)
Primary Print Server Name   (NONE)
Printer Port Number         (NONE)

<NetBEUI>                   Enable
NetBIOS Name                EPXXXXXX
Workgroup Name              WORKGROUP
Device Name                 EPSON

<AppleTalk(R)>       Enable
Printer Name       AL-C8600-XXXXXX
Zone Name         XXXX
Network Number Set       Auto
Network Number        XXXXX
Node ID       XXXXX
Entity Type #1       EPSONPAGECOLOR1
Entity Type #2       EPSONPCL5
Entity Type #3       EPSONPRPXL24
Entity Type #4       EPSONHPGL2
Entity Type #5       EPSONFX
Entity Type #6       EPSONLQ2

HHHHHHHHHHHHHHHHHHHHHHHHHHHH AL-C8600 HH
```

1.9.6 Engine Status Sheet

An example of the Engine Status Sheet printout is shown on page 76. The Engine Status Sheet is not localized.

The numerical values in the example are the upper limit count values.

- ☐ Total Counts
  - Total Pages: Same value as the Total Pages in the Information Menu. It is not dependent on the paper size.
  - Total Pages (A4): Number of deferred printed pages. A4 and LT landscape sizes are regarded as one page regardless of color and B/W.
  - Total Planes: Number of deferred print planes. A4 size is regarded as one plane for each color.
  - Color Pages: Same value as the Color Pages in the Information Menu. It is not dependent on the paper size.
- ☐ Jam Counts: The number of jam occurrence.
- ☐ ET Cartridge
  - C Toner: The amount of C Toner used (dispense time, in units of 100 ms). Installing a new toner cartridge clears it.
  - M Toner: The amount of M Toner used (dispense time, in units of 100 ms). Installing a new toner cartridge clears it.
  - Y Toner: The amount of Y Toner used (dispense time, in units of 100 ms). Installing a new toner cartridge clears it.
  - K Toner: The amount of K Toner used (dispense time, in units of 100 ms). Installing a new toner cartridge clears it.
- ☐ Xero CRU: The amount of the Photoconductor Unit used (number of revolutions). Installing a new Photoconductor Unit clears it.
  - Xero CRU Change: Number of replacements of the Photoconductor Unit. It is counted up by detecting a new one.
- ☐ Fuser: The amount of the Fuser Unit used. Number of pages after executing Fuser Counter Clear in the Maintenance Menu.
- ☐ 2nd BTR: The amount of the 2nd BTR used. Number of pages after executing 2nd BTR Clear in the Maintenance Menu.
- ☐ IBT Cleaner: The amount of the IBT Cleaner used. Number of pages after executing IBT Cleaner Clear in the Maintenance Menu.
- ☐ Development Unit
  - C Development: The amount of the Development C used. Number of planes after executing C Development Clear in the Maintenance Menu.
  - M Development: The amount of the Development M used. Number of planes after executing M Development Clear in the Maintenance Menu.
  - Y Development: The amount of the Development Y used. Number of planes after executing Y Development Clear in the Maintenance Menu.
  - K Development: The amount of the Development K used. Number of planes after executing K Development Clear in the Maintenance Menu.
- ☐ IBT Belt: The amount of the intermediate transfer belt used. Number of cycles after executing IBT Belt Clear in the Maintenance Menu.
- ☐ 2nd BTR Offset
  - Plain Paper 1: The offset value of 2nd BTR transfer voltage for Plain Paper 1.
  - Transparency: The offset value of 2nd BTR transfer voltage for Transparency.
  - Cover: The offset value of 2nd BTR transfer voltage for Cover and Cover HG.
  - Coated Paper 1: The offset value of 2nd BTR transfer voltage for Coated Paper 1.
  - Card: The offset value of 2nd BTR transfer voltage for Card.
  - Envelope: The offset value of 2nd BTR transfer voltage for Envelope.

- Engine Version

  MCU: The mechanical controller version of the printer's main unit that is read out from the engine.
  (Example: When the mechanical controller version is Version01.03.02, it is displayed as 010302.)

  Duplex: The mechanical controller version of the Duplex Unit that is read out from the engine.
  (Example: When the mechanical controller version is Version0.1.29, it is displayed as 000129.)

  LCC: The mechanical controller version of the 2/1 optional cassette unit that is read out from the engine.
  (Example: When the mechanical controller version is Version0.1.27, it is displayed as 000127.)

- Error Log: This is a history of the latest 20 panel messages, EJL status codes and Total Pages for errors occurred.
  The most recent error is displayed first, and rest of errors is shown in the datal order. Target errors are the service call errors occurred after “Ready”, and paper jams. In an error occurrence, if another error that occurred at the same Total Pages count has already stored, the current error is not stored.

<Contents of Engine Status Sheet>

```
Engine Status Sheet

Total Counts
     Total Pages           99,999,999 pages
     Total Pages (A4)      99,999,999 pages
     Total Planes          99,999,999 planes
     Color Pages           99,999,999 pages
     Jam Counts            100,000 (65535 : AcuLaser C7000)
ET Cartridge
     C Toner               10,933 (100msec)
     M Toner               9,600 (100msec)
     Y Toner               10,533 (100msec)
     K Toner               11,600 (100msec)
     C Toner Change        10,000 (255 : AcuLaser C7000)
     M Toner Change        10,000 (255 : AcuLaser C7000)
     Y Toner Change        10,000 (255 : AcuLaser C7000)
     K Toner Change        10,000 (255 : AcuLaser C7000)
Xero CRU                   110,000 cycle
Xero CRU Change            10,000 (255 : AcuLaser C7000)
Fuser                      999,999 pages
2nd BTR                    999,999 pages
IBT Cleaner                999,999 pages
IBT Belt                   999,999 cycle
Development Unit
     C Development         999,999 planes
     M Development         999,999 planes
     Y Development         999,999 planes
     K Development         999,999 planes
2nd BTR Offset
     Plain Paper 1              3  (10 : AcuLaser C7000)
     Transparency               3  (10 : AcuLaser C7000)
     Cover                      3  (10 : AcuLaser C7000)
     Coated Paper 1             3  (10 : AcuLaser C7000)
     Card                       3  (10 : AcuLaser C7000)
     Envelope                   3  (10 : AcuLaser C7000)
Engine Version
     MCU                   010302 (999999 : AcuLaser C7000)
     Duplex                000129 (999999 : AcuLaser C7000)
     LCC                   000127 (999999 : AcuLaser C7000)
Error Log*
     Panel Message              Code     Page
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
     zzzzzzzzzzzzzzzzzzzz       xxxx     yyyyyyyy
```

Note "*": Only Page and Code for AcuLaser C7000

CONTROL INFORMATION AND CONTROL METHODS

Table 1-35. Control Information and Control Methods

Information Name	Count Processing and Storage Location	Range	Units	Counting Conditions	Clear Conditions
Total Pages	Controller	99,999,999	pages	When printing	EJL, (EEPROM initialization), SelecType, Maintenance Menu → Total Counter Clear
Total Pages(A4)	Engine	99,999,999	pages	When printing	SelecType, Maintenance Menu → Total Counter Clear
Total Planes	Engine	99,999,999	planes	When transferring	SelecType, Maintenance Menu → Total Counter Clear
Color Pages	Controller	99,999,999	pages	When printing	EJL, (EEPROM initialization), SelecType, Maintenance Menu → Total Counter Clear
Jam Counts	Controller	~ 100,000 (65535)	-	When a jam occurs	(EEPROM initialization)
C Toner	Engine	~ 5,420	100msec	When providing toner for development	Detecting a new C Toner
M Toner	Engine	~ 5,420	100msec		Detecting a new M Toner
Y Toner	Engine	~ 5,573	100msec		Detecting a new Y Toner
K Toner	Engine	~ 5,933	100msec		Detecting a new K Toner
C Toner Change	Controller	~ 10,000 (255)	Times	When detecting a new toner	EEPROM initialization)
M Toner Change	Controller	~ 10,000 (255)	Times		EEPROM initialization)
Y Toner Change	Controller	~ 10,000 (255)	Times		EEPROM initialization)
K Toner Change	Controller	~ 10,000 (255)	Times		EEPROM initialization)
Xero CRU	Engine	~ 110,000	Cycle	When Photoconductor Unit is revolving	Detecting a new Photoconductor Unit
Xero CRU Change	Controller	~ 10,000 (255)	Times	When detecting a new Photoconductor Unit	EEPROM initialization)
Fuser	Engine	~ 999,999	Pages	When transferring	SelecType, Maintenance Menu → Fuser Counter Clear
2nd BTR	Engine	~ 999,999	Pages	When printing	SelecType, Maintenance Menu → 2nd BTR Clear
IBT Cleaner	Engine	~ 999,999	pages	When printing	SelecType, Maintenance Menu → IBT Cleaner Clear
C Development	Engine	~ 999,999	planes	When developing	SelecType, Maintenance Menu → C Development Clear
M Development	Engine	~ 999,999	planes		SelecType, Maintenance Menu → M Development Clear
Y Development	Engine	~ 999,999	planes		SelecType, Maintenance Menu → Y Development Clear
K Development	Engine	~ 999,999	planes		SelecType, Maintenance Menu → K Development Clear
IBT Belt	Engine	~ 999,999	cycle	When transferring	SelecType, Maintenance Menu → IBT Belt Clear
2nd BTR Offset					
Plain Paper 1	Engine	1~ 10	-	-	-
Transparency	Engine	1~ 10	-	-	-
Cover	Engine	1 ~ 10	-	-	-
Coated Paper 1	Engine	1 ~ 10	-	-	-
Card	Engine	1 ~ 10	-	-	-
Envelope	Engine	1 ~ 10	-	-	-

Table 1-35. Control Information and Control Methods (continued)

Information Name	Count Processing and Storage Location	Range	Units	Counting Conditions	Clear Conditions
MCU	Engine	-	-	-	-
Duplex	Duplex Unit	-	-	-	-
LCC	2-/1-Optional Cassette Unit	-	-	-	-
Error Code 1	Controller	-	-	When an error occurs	SelecType, (EEPROM initialization)
Error Page 1	Controller	-	-	When an error occurs	SelecType, (EEPROM initialization)
:					
Error Code 20	Controller	-	-	When an error occurs	SelecType, (EEPROM initialization)
Error Page 20	Controller	-	-	When an error occurs	SelecType, (EEPROM initialization)

NOTE a: The values in parentheses of the Clear Conditions indicate that these are cleared as the result.

b: When exceeding the ranges, the items controlled by the controller are not counted up beyond the maximum value.

c: The value in parentheses at "Range" represents the upper limit for AcuLaser C7000.

HOW TO PRINT THE ENGINE STATUS SHEET ON ACULASER C7000

Start the Service Utility by the procedure described in 5.3.2.1 "Starting the Service Utility" *(p.365)* and press the "Status Sheet" button on the screen.

Since the paper size supported is only A4, set A4 size paper in the printer.

When the engine status sheet is being printed, the process control (Cycle Up / Cycle Down process control) of the engine will forcedly be carried out.

1.10 Restrictions (Only for AcuLaser C7000)

For AcuLaser C7000, there are restrictions described below.

1.10.1 Network Environment Applicable to AcuLaser C7000

Table 1-36.

	Windows 95/98/Me	Windows NT4.0/2000	Mac
LPR	○	○	–
Port 9100	○	○	–
FTP	X	X	–
IPP	X	X	–
NetBEUI	X	X	–
AppleTalk	–	–	○
Netware	X	X	–
NDPS Gateway	X	X	–

○: Recommended environment

X: Not supported
Printing is possible by sending printing data. However, printing results are not guaranteed.

NOTE 1: *EpsonNet DirectPrint is required to use LPT and Port 9100 in Windows95/98/Me.*

2: *LPR and Port9100 for Windows 2000/NT 4.0 can be used by LPR of OS standard or EpsonNet DirectPrint.*

3: *NetBEUI and Netware IPX are enabled in Leo 2.1 as the default settings. However, the operations are not guaranteed in AcuLaser C7000. Manual descriptions for network setup include instructions that users must disable NetBEUI and NetWare by using tools such as WinAssist or WebAssist.*

4: *Among TCP/IP based protocols, FTP, IPP, and NDPS Gateway cannot be disabled, these can send data to the printer via above protocols. However the Status Monitor does not operate in such cases, these protocols are not supported in terms of a product. AcuLaser C7000 manual provides descriptions that AcuLaser C7000 does not guarantee these protocols.*

1.10.2 Restrictions on Network Connections

- Usable Type-B interface is Leo 2.1 only.
  Leo 1.x, 2.0 cannot be used.
  However, updating Leo firmware allows using Leo 2.0

1.10.3 Others

- Printing the Network Status Sheet of Leo2.1 is possible
  The Paper Source selection is set to the paper source that has paper size of the factory default setting of the MP Tray.
- MAC OS X support is TBD.

1.11 Operating Conditions of Host Computers (Only for AcuLaser C7000)

For AcuLaser C7000, which is a host-based printer, the host PC must the following conditions:

- Recommended host PC for Windows
  - CPU: Pentium II 450 MHz or higher
  - RAM: 96 MB or more
  - HDD free space: 500 MB (for spooling the driver)
  - Interfaces: IEEE1284 ECP mode
USB
100BaseTx Ethernet
- Minimum requirements for Windows
  - CPU: Pentium 233 MHz
  - RAM: 64 MB
  - HDD free space: Same as above
  - Interfaces: Same as above
- Recommended host PC for Macintosh
  - CPU: PowerPC G3 500 MHz or higher
  - RAM: 128 MB or more
  - Interfaces: USB
AppleTalk
- Minimum requirements for Macintosh
  - CPU: PowerPC G3 233 MHz
  - RAM: 128 MB
  - Interfaces: Same as above

1.12 RAM Expansion

With AcuLaser C8600/AcuLaser C7000, any of the following errors may occur when it detects insufficient memory condition:

“Print Underrun”*, “Mem Overflow”, “Image Optimum”, “Need Memory”, “Duplex Mem Overflow”

Note "*": Only with AcuLaser C7000

This problem may be solved by taking appropriate ones of the following measures:

- For B/W printing, lower the resolution to 300 dpi.
- For color printing, use a non-reciprocal compression format.
- Reduce the size of the data buffer.
- Use only one interface and set the other interfaces to “Off”.

The only way to definitely avoid memory shortages is to install more memory.

CAUTION

- **AcuLaser C8600 can use the same PC100 168-pin expansion RAMs as can be used for AcuLaser C8500.**
- **AcuLaser C7000 can use the same 90-pin RAM-DIMM (available on the market) as can be used for AcuLaser C1000. Therefore, there is no interchangeability between the expansion RAMs for AcuLaser C8600 and those for AcuLaser C7000. For details, see table below.**

Table 1-37. Printers with Interchangeable Expansion RAMs

Model	Printers with Interchangeable Expansion RAMs	Pins	Remarks
AcuLaser C8600	AcuLaser C8500	168 pins	Commercially available
AcuLaser C7000	AcuLaser C1000	90 pins	Dedicated 90-pin RAM-DIMM (Commercially available)

1.13 Precautions in Handling

1.13.1 Precaution in Turning Off the Power

AcuLaser C8600/AcuLaser C7000 incorporates an internal non-volatile memory (EEPROM). If the power to the printer is turned off during the process of writing in non-volatile memory, the successful writing in the non-volatile memory cannot be guaranteed. Therefore, the next time the printer is turned on or the "Reset All" is carried out, panel settings may be initialized or a service call error may occur.

AcuLaser C8600 permits connection of an HDD. If power is turned off while writing into the HDD, an HDD error may occur because successful writing in the HDD may not be ensured.

Never turn off power in any of the following cases, in which writing in EEPROM or HDD is being executed:

- After the power to the printer is turned on, until the Ready LED lights up.
- While the Ready LED is blinking
- While the printer is printing. (While the paper feed motor is operating.)
- While the Data LED is on or while it is blinking

Only AcuLaser C8600 supports an HDD.

1.13.2 Caution About Hot Parts

The fuser unit inside this printer becomes hot. Take great care not to touch the fuser unit when opening the printer covers to, say, remove jammed paper.

1.14 Paper Handling Algorithm (AcuLaser C8600)

ENGINE CONTROL, CM

Table 1-38. Engine Control, CM

Page Size	Paper Type	EJL PAPER FACE	Paper Source	Paper Type Specified by Driver (Host)	MP or LC1-3 Type *3	Engine Control (Speed Mode *4)	CM
Envelope *1	-	-	-	-	-	Envelop (Medium-speed)	Plain Paper
Postcard Size or Smaller *2	-	FRONT	-	-	-	Card (Medium-speed)	Plain Paper
		BACK				Card DUP (Medium-speed)	Plain Paper
Other Than Envelope, Postcard Size or Smaller *2	Normal	FRONT	Auto	Specified	Plain, Preprinted, Letterhead, Recycled, Color	Plain Paper 1 (Standard)	See Table 1-39
					Trnsprnc	Transparency (Medium-speed (B/W), Low-speed (Color))	See Table 1-39
					Labels	Cover (Medium-speed)	See Table 1-39
				Not Specified	-	Plain Paper 1 (Standard)	See Table 1-40
			Other Than Auto	-	-	Plain Paper 1 (Standard)	See Table 1-40
		BACK	Auto	Specified	Plain, Preprinted, Letterhead, Recycled, Color	Plain Paper 1 DUP (Standard)	See Table 1-39
					Trnsprnc	Transparency (Medium-speed (B/W), Low-speed (Color))	See Table 1-39
					Labels	Cover DUP (Medium-speed)	See Table 1-39
				Not Specified	-	Plain Paper 1 DUP (Standard)	See Table 1-40
			Other Than Auto	-	-	Plain Paper 1 DUP (Standard)	See Table 1-40
	Thick	FRONT	-	-	-	Cover (Medium-speed)	Plain Paper
		BACK	-	-	-	Cover DUP (Medium-speed)	Plain Paper
	ExtraThk	FRONT	-	-	-	Cover HG (Low-speed)	Plain Paper
		BACK	-	-	-	Cover HG DUP (Low -speed)	Plain Paper

Table 1-38. Engine Control, CM

Page Size	Paper Type	EJL PAPER FACE	Paper Source	Paper Type Specified by Driver (Host)	MP or LC1-3 Type *3	Engine Control (Speed Mode *4)	CM
	Trnsprnc		-	-	-	Transparency (Medium-speed (B/W), Low-speed (Color))	OHP
	Coated	FRONT	-	-	-	Coated Paper 1 (Medium-speed)	Plain Paper
		BACK	-	-	-	Coated Paper 1DUP(Medium-speed)	Plain Paper

Note *1: MON, C10, DL, C6

*2: 100 x 148 mm or less

*3: The Paper Type specified for the Paper Source that actually feeds paper.

*4: For the actual printing speed, refer to Table 1-1.

Table 1-39.

CM Media Type	MP or LC1-3 Type *3	CM
Off	Plain, Preprinted, Letterhead, Recycled, Color, Labels	Plain paper
	Trnsprnc	OHP
Option1	-	Option1
Option2	-	Option2

Table 1-40.

CM Media Type	CM
Off	Plain paper
Option1	Option1
Option2	Option2

PAPER FEED

Table 1-41. Paper Feed

Page Size	Paper Type	Paper Source
Envelope*1, Postcard size or smaller*2	-	MP Tray
-	Thick, ExtraThk, Trnsprnc, Coated	MP Tray

In cases other than above, Paper Source is determined according to the algorithm designated by Paper Source, Paper Type specified by the driver (host), and MP or LC1-3 Type.

PAPER EJECT

Table 1-42. Paper Eject

Page Size	Paper Type	Output Tray
Less than B5/EXE (182 x 210 mm), Envelope*1,	-	Face-up
-	Thick, ExtraThk, Trnsprnc	Face-up

In cases other than above, Out Bin is set.

DUPLEX PRINTING

Table 1-43. Duplex Printing

Page Size	Paper Type	Duplex Printing
B5 to A3 of standard sizes (A3, A4, B4, B5, LT, B, LGL, GLT, GLG, EXE, F4)	Normal	Possible

In cases other than above, duplex printing is not possible.

1.15 Differences in Specifications

1.15.1 Differences between AcuLaser C7000 and AcuLaser C8600

Described below are the differences of AcuLaser C7000 compared with AcuLaser C8600:

FEATURES THAT ARE NOT SUPPORTED

- Type-B interfaces are not supported except Leo2.1. The supported protocols are TCP/IP(LPR and Port9100) and AppleTalk (TBD).
- The photocopier system, PS options, and HDD are not supported.
- It cannot be used in the DOS environment (emulation mode is unavailable).
- The printer itself does not retain the MIB information.
- The calibration function is not available.
- The manual feed mode is not supported.

USABILITY

- An error status cannot be detected unless the EPSON Status Monitor is used.
- Jobs sent via a network cannot be canceled (the Job MIB is not supported).
- The consumable related warnings are cleared only after the consumables are actually replaced.

OPERATION

- The Paper Out error occurs in printing, but does not occur when turning on the printer even if all the paper sources are empty.
- The Paper Type setting is not supported. However, the function of excluding the MP Tray from the Automatic selection is available.
- When “Avoid Error = ON” is selected, the “Print Failure” warning appears instead of an error.
- The “Can't Print Duplex” warning appears instead of an error when duplex printing is impossible.
- Printing is impossible when “Mem Overflow” or “Duplex Mem Overflow” occur.
- The receive buffer size is fixed to 384KB for all interfaces.
- The printer will stop data reception immediately when any error has occurred.

OTHERS

- DIAG commands are not supported. DIAG tool for EPL-C8000/8200 is possible to use.
- An optional DIMM cannot change screen and LUT.
- The mechanical controller firmware is not rewritten even in the case of a flash ROM.
- Service Utility is necessary to clear the maintenance counter after replacing the service parts. (AcuLaser C8600 can clear them by Maintenance Menu of SelecType.)
- Power consumption of Standby mode is 15W.

1.15.2 Differences in Specifications between Models

The table below shows differences in specifications between printer models.

Table 1-44. Differences in Specifications between Printer Models

Model		AcuLaser C8500	AcuLaser C8600	LP-8800C	AcuLaser C7000	LP-7800C
Intended Market		(Former Similar Model for Other Than Japan)	Other Than Japan	Japan	Other Than Japan	Japan
Engine Specifications		A3 color	A3 color 8/35 ppm		A3 color 8/35 ppm	
CPU	Device	VR5000A-266	PowerPC 750CX-400		←	
	Internal operation clock	266 MHz	400 MHz		←	
	Interruption to CPU	5 lines	1 line			
ASIC	Memory ASIC	MR64	CDMC		←	
	I/O ASIC	IOC3	DIOC			
		IOBR				
	Video ASIC	VIP1a	VIPS: E05B93BA		←	
Clock	Clock driver	W154H	CY24246		←	
	System clock	66.6666MHz	100MHz		←	
	Command/Status		9600 bps		9600 bps Baud rate source: 27.37091 MHz Baud rate	
Reset	Device	M51953BFP	←		51953B	
	Voltage	5 V	←		←	
DMA	I/O		DIOC		←	
ROM	Shape	72-pin DIMM	90pin DIMM		←	
	IPL	MAIN Board (contained in Font ROM)	DIMM (contained in Code ROM)		←	
	Font	MAIN Board	DIMM		←	
	Code	DIMM	←		←	
		4 MB	←		←	
	Optional ROM slots	3 slots	2 slots		←	
EEPROM	Specification	128-kbit serial	←		←	
	Access to EEPROM	Software control	Hardware control			

Table 1-44. Differences in Specifications between Printer Models (continued)

Model		AcuLaser C8500	AcuLaser C8600	LP-8800C	AcuLaser C7000	LP-7800C
Intended Market		(Former Similar Model for Other Than Japan)	Other Than Japan	Japan	Other Than Japan	Japan
SDRAM	Specification	PC66	PC100		←	
	Standard SDRAM	168-pin DIMM	←		←	
		32 MB	64 MB	32 MB	32 MB: EP01-32M	
	SDRAM slots	3 slots	2 slots		←	
	SDRAM capacity available	A maximum of 256 MB DIMM supported	A maximum of 512 MB DIMM supported		←	
	Maximum SDRAM capacity	768 MB	1 GB		←	
Video	Video I/F	Tsubaki (FX)	Tsubaki 2 (FX)		Tsubaki Plus	
	Video clock	41.1698MHz	27.37091MHz		27.37091MHz (36.535ns)	
	Dot clock	20.5849MHz	27.37091MHz		27.37091MHz (36.535ns)	
	Video signal	Non-LVDS	LVDS		←	
PWM	Device	AD9561	PM-1075		←	
Control Panel	Specification	LCD (20 × 1)	LCD (120 dots × 8 dots)		←	
		8 switches	6 switches		←	
		6 LEDs	3 LEDs		←	
Parallel	Specification	IEEE1284 compatible	←		←	
	Transceiver	74ACT1284	74LVX161284A		←	
	Circuit board	Integral part of MAIN Board	Separate circuit board		←	
USB	Specification	None	USB 1.1 compatible		←	
	Clock		48.0000 MHz		←	
	Circuit board		Separate circuit board		←	
TypeB		1 channel	←		←	
IDE	HDD	Fujitsu MHK2060AT	IBM DJSA-205 5.0GB		←	
	HDD board	C82370* SUB	C82385* SUB			
	DMA transfer	Not available	Available			

Table 1-44. Differences in Specifications between Printer Models (continued)

Model		AcuLaser C8500	AcuLaser C8600	LP-8800C	AcuLaser C7000	LP-7800C
Intended Market		(Former Similar Model for Other Than Japan)	Other Than Japan	Japan	Other Than Japan	Japan
Onboard Network	Specification	10/100BaseT	10/100BaseT	None	←	
	MAC chip	DL10019C	DL10022A			
	DMA transfer	Not available	Available			
	Clock	50.0000MHz	50.0000MHz			
Color Photocopier		EPSON Color Copy Station 8500	AcuLaser Color Copy Station 8600		←	
RTC		Available	Not available			
Power Supply		5.0V, 3.3V, 2.5V	5.0V, 3.3V, 2.5V,1.75V *1		5V (max. 8A) 5V→.3V 3.3V→ 2.5, 1.5V 3.3, 2.5, 1.5V: generated on board	
Circuit Board Layers		4 layers	←		←	

Note *1: 1.85 V on the WS Board

CHAPTER

2

OPERATING PRINCIPLES

2.1 Print Process

2.1.1 Print Process Overview

This printer is a full color laser printer that works by the principle of electrophotographic recording. Printers using the principle of electrophotographic recording available up to now were only capable of printing with a single color of toner. This printer prints in full color by forming an image of the various color toners "Yellow, Magenta, Cyan, Black (YMCBk)" on the drum and overlapping the various toner images on the IBT BELT ASSY (hereinafter referred to as Belt).

The print process consists of the following basic steps:

1. Charging : The drum surface is charged with electricity.
2. Exposure : The image area is exposed by laser radiation.
3. Developing: The image area is developed with toner.
4. Primary transfer:Toner image on the drum is transferred to the belt.IBT TRANSFER ASSY (Belt)
5. Cleaning : The drum is cleaned.
6. Repeat : When in the YMCBk mode, steps 1 ~ 5 are repeated for each of the 4 toner colors, and the complete toner image is formed of the 4 toner colors on the Belt.
   (This step is not performed in the B/W mode.)
7. Secondary transfer:The complete 4-color toner image on the belt is transferred to the paper adhering to the belt.
8. Electrical discharging:The electric charge of the paper is discharged.
9. Cleaning : The Belt is cleaned.
10. Fixing : The toner is fixed on the paper by heat and pressure.

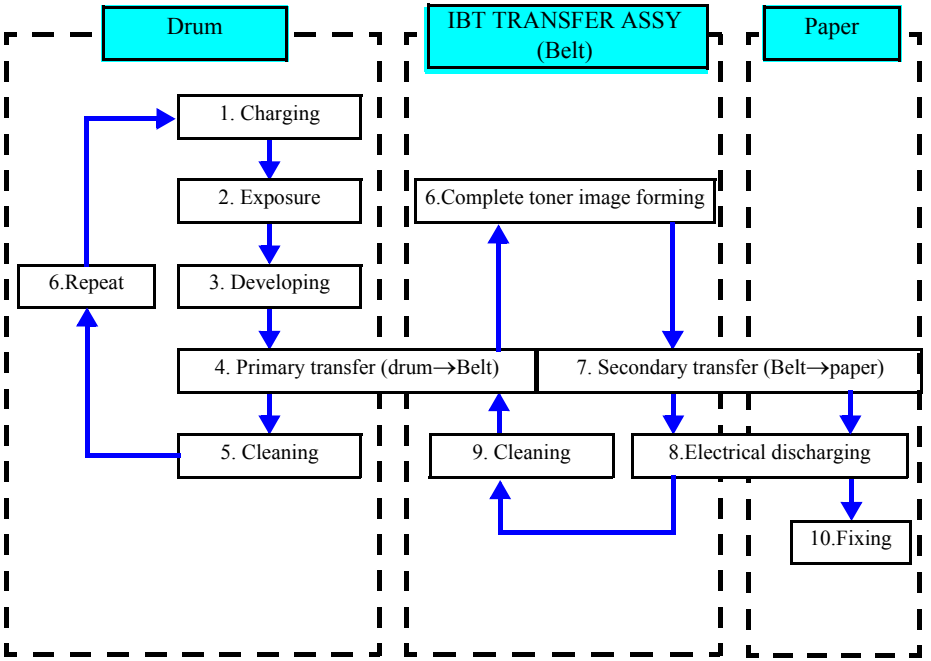


Figure 2-1. Print Process Overview

2.1.2 Total Print Process Schematic Diagram

NOTE 1: *DEVELOPER ASSY Y, DEVELOPER ASSY M, DEVELOPER ASSY C, and DEVELOPER ASSY BK are hereinafter referred to by the generic term "Developer Assy."*

2: *TONER CARTRIDGE Y, TONER CARTRIDGE M, TONER CARTRIDGE C and TONER CARTRIDGE BK are hereinafter referred to by the generic term "Toner Cartridge."*

Figure 2-2 shows the schematic diagram of the total print process.

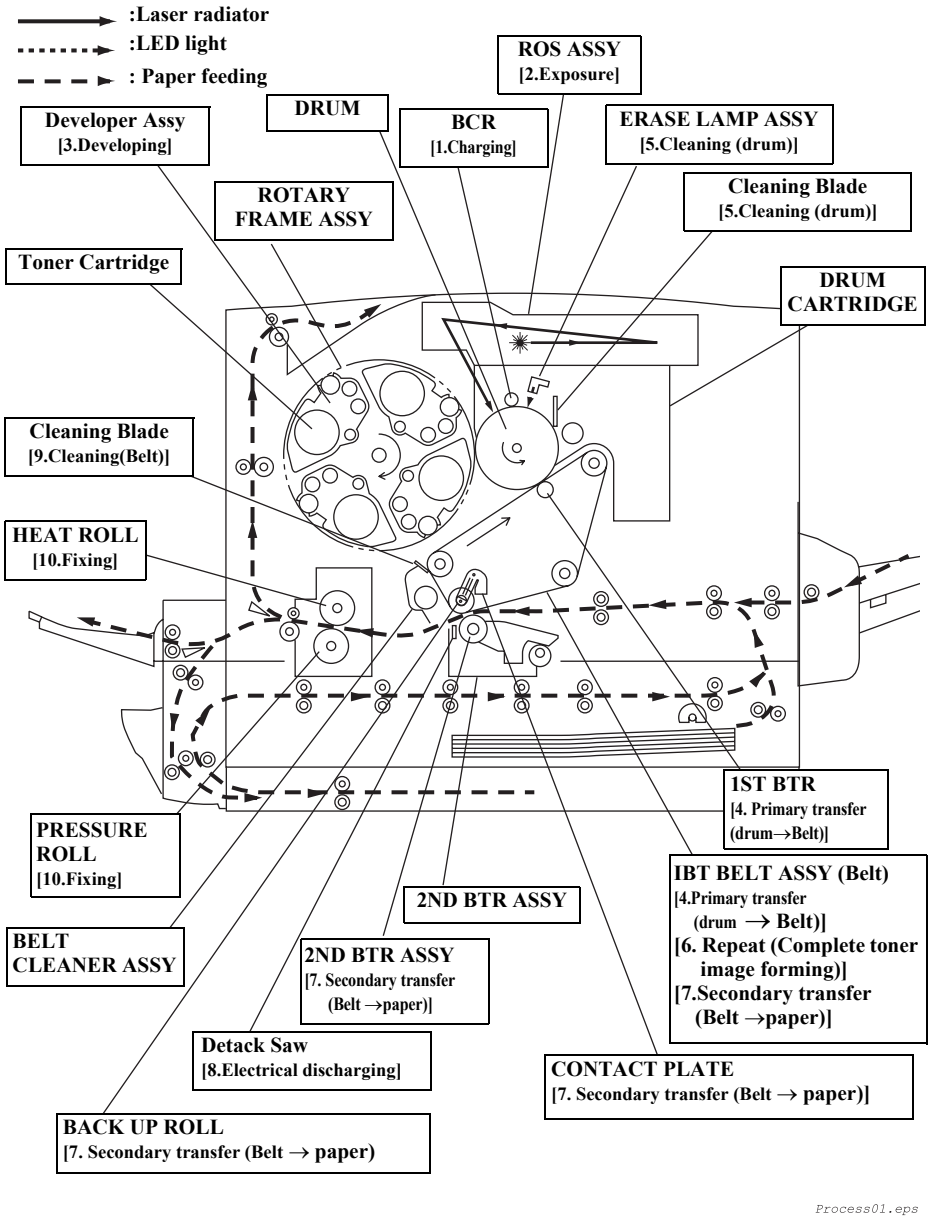


Figure 2-2. Total Print Process Schematic Diagram

2.1.3 Print Process Technical Explanation

1. Charging

The surface of the drum turning at a certain speed is uniformly electrified with a negative charge by discharging the BCR (Bias Charge Roll) inside the DRUM CARTRIDGE.

- The BCR is constantly in contact with the drum and turns together with the drum. The BCR is a conductive roll that receives a supply of discharge voltage from the LV/HV POWER SUPPLY, and discharges by negative DC voltage combined with AC voltage. BCR discharge is carried out in minute intervals near where contact is made with the drum. The drum surface is provided with a uniform negative charge by DC bias voltage. The drum surface is a photoconductor (insulator in the dark, and conductor when light is received), and the inside of the drum consists of a conductive material (aluminum cylinder).

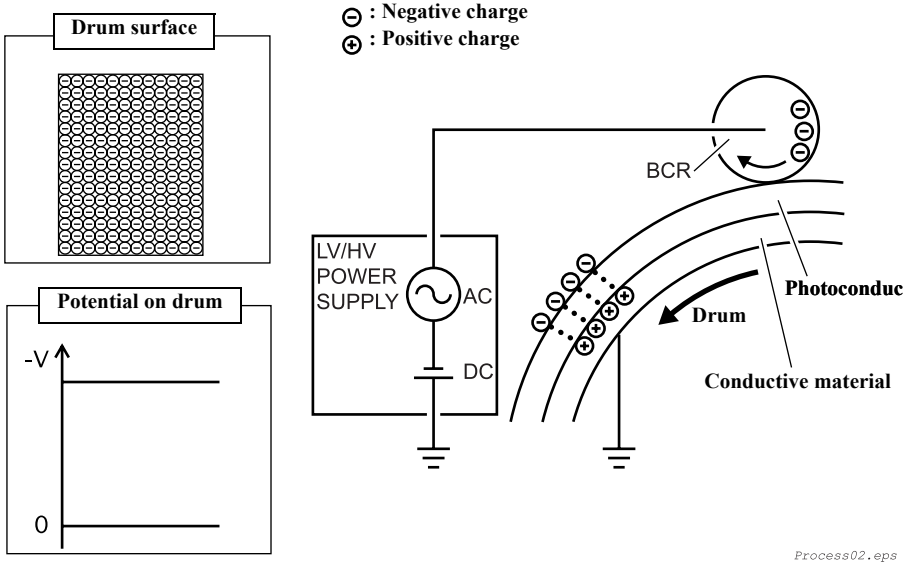


Figure 2-3. Charging

2. Exposure

This is the step where the negatively charged drum surface is scanned with laser radiation, forming an invisible electrostatic latent image.

- Laser radiation is emitted in accordance with print data (image data) from the printer controller. Laser radiation is output when print data instructs the printer to print a pixel; laser radiation is not output when instructed not to print (laser beam is emitted for the part to be developed with toner, and not emitted for the part not to be developed with toner).

  The laser beam is emitted by the laser diode inside the ROS ASSY. Via the spinning polygon mirror mounted on the Scanner Assy of the ROS ASSY, and fixed mirrors and a lens, the beam scans the drum surface in the axial direction from end to end.

  The laser radiation exposed to the drum surface generates a (electron ↔ hole) inside the photoconductive layer. (Electrons are excited in the photoconductive band, thus producing a hole in the valence band.) Attracted to the electric field, the electrons migrate toward and flow into the metal part inside.
  The hole moves toward the outer surface of the photoconductive layer, where it reunites with the negative charge (electron) of the outer surface, thus reducing the negative charge. As a result, an invisible electrostatic latent image (print image) is formed on the part where the potential of the drum surface rises.

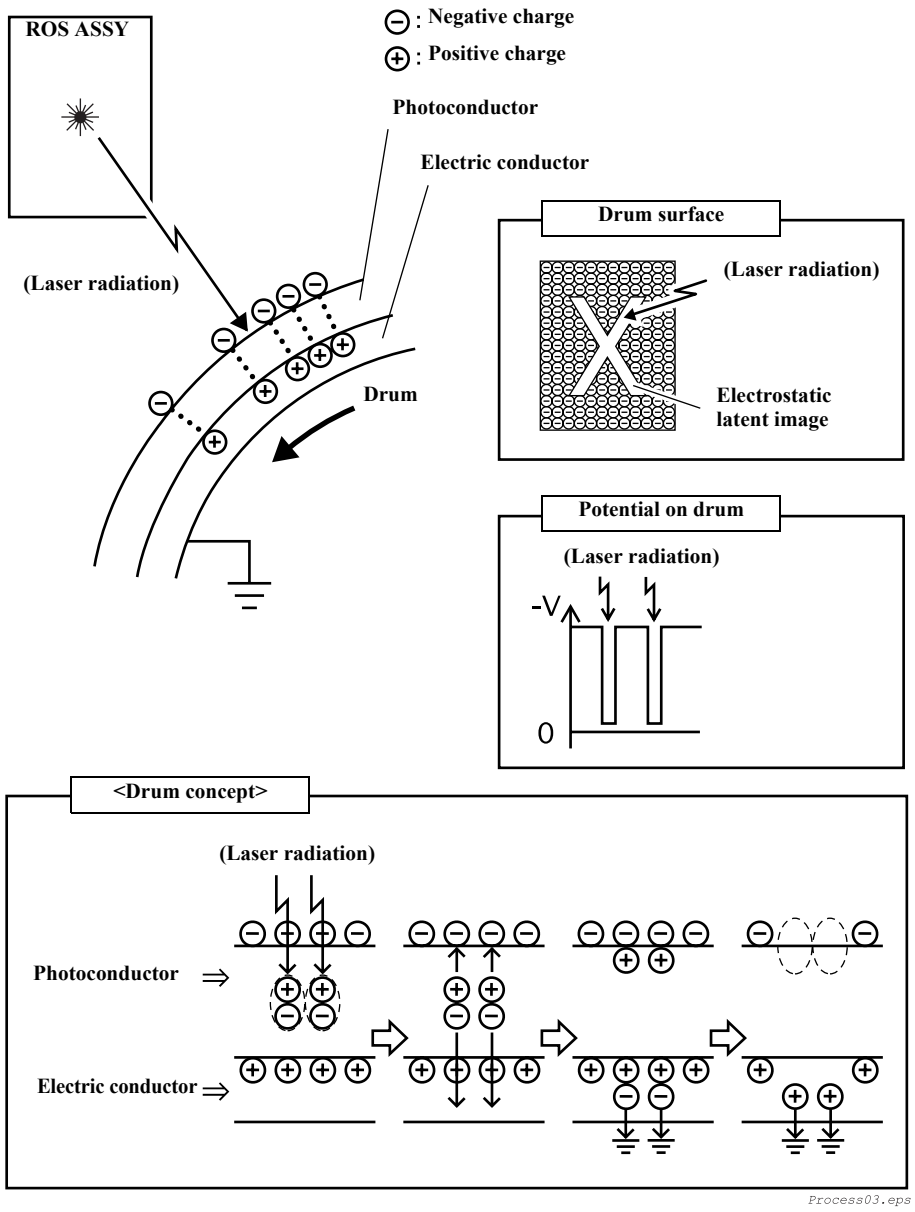


Figure 2-4. Exposure

3. Developing

In this step, toner is electrically applied to the invisible electrostatic latent image on the drum surface, forming a visible image with toner on the drum.

- The printer employs “rotary developing” whereby 4 developers (Developer Assy) are rotated/moved in sequence, and “trickle developing” consisting of a 2-part developer consisting of carrier and toner.
  The developer inside the Developer Assy is mixed by a spiral-shaped agitator called an “Auger,” and is furthermore supplied to the Magnet Roll located near the drum surface. The developer consisting of toner and carrier is provided with frictional electrification produced by mixing (toner is provided with a negative charge, and carrier with a positive charge) so that they electrically attract each other.
  The carrier is a magnetic substance that is attracted to the magnetic Magnet Roll, where a uniform layer is formed by passing of the Trimmer Blade.

  The surface of the Magnet Roll is coated with a thin semiconductor sleeve, which is supplied DB (Developing Bias) voltage from the LV/ HV POWER SUPPLY. DB voltage is negative DC voltage coupled with AC voltage. DC voltage keeps the Magnet Roll at a certain negative voltage relative to the photoconductive layer of the drum. Potential is lower for the part of the drum surface where the negative charge does not decrease than for the Magnet Roll, and higher than the Magnet Roll for the portion of the drum surface where the negative charge decreases. AC voltage shakes the developer on the surface of the Magnet Roll so the toner can more easily spring toward the drum.

  The negatively charged toner is therefore attracted only to the part (electrostatic latent image) where the negative charge of the drum surface has dropped lower than that of the Magnet Roll, forming a toner image on the drum.
  When toner adheres to the drum, the negative charge of that part increases, the potential drops, and the toner adherence capability falls.

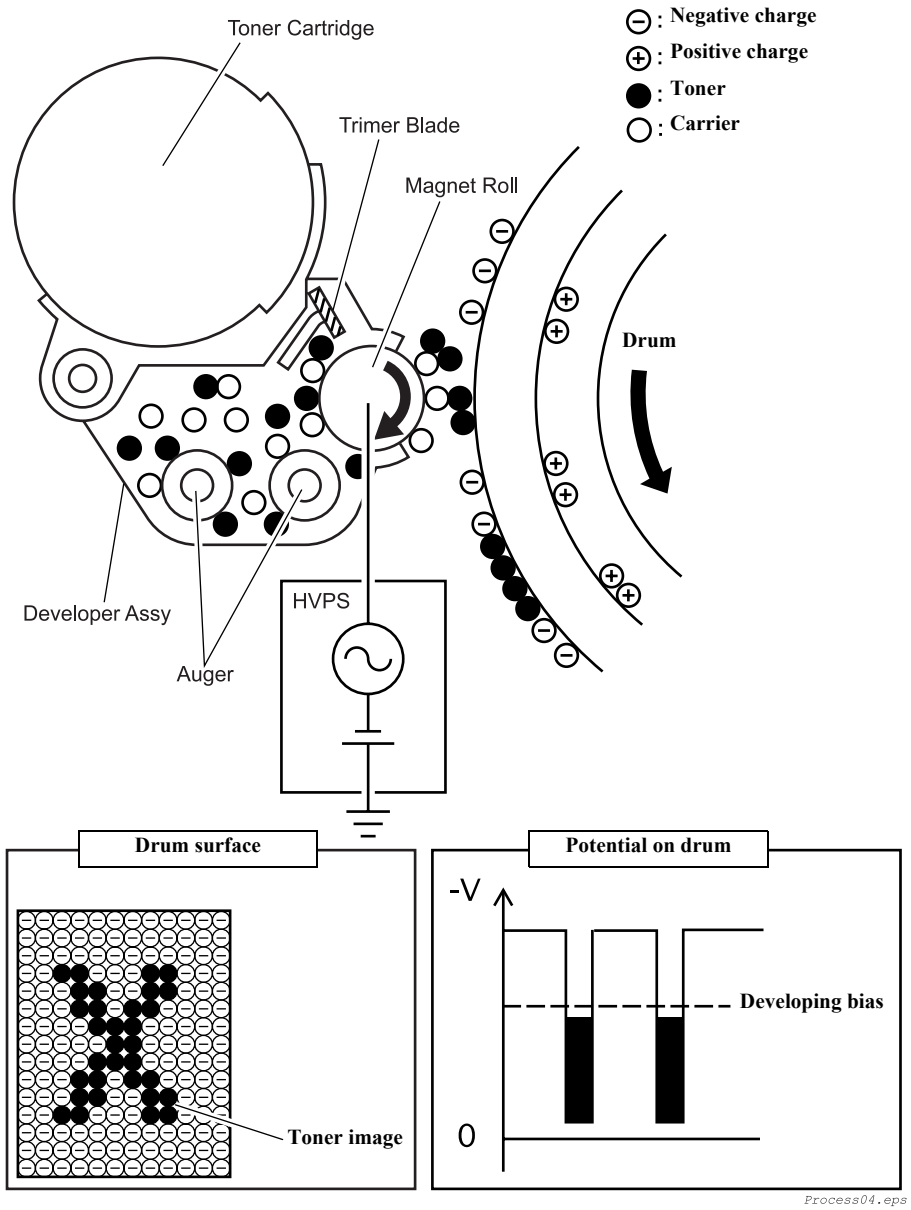


Figure 2-5. Developing 1

- As the number of prints increases, more toner in the developer is consumed. In order to maintain the proper developing concentration, an amount of toner equal to the amount consumed must be replenished from the Toner Cartridge to the Developer Assy. This is called the "toner dispenser." Two types of control are used for the toner dispenser: PCDC and ADC. (For more information concerning PCDC and ADC, see "*2.3.5 Process Control (p.134)*" in this chapter.
- In order to obtain a full color image consisting of 4 toner colors, a toner image of each of the colors YMCBk must be formed on the drum in sequence. The full color toner image is formed by facing the various Developer Assy's toward the drum in sequence by rotating the ROTARY FRAME ASSY's positioned at 90-degree intervals on the circumference of the 4 Developer Assy's.
  This is referred to as "rotary developing."
  For more information on each position, see "*2.3.7 DEVE. Control (p.145)*" in this chapter.

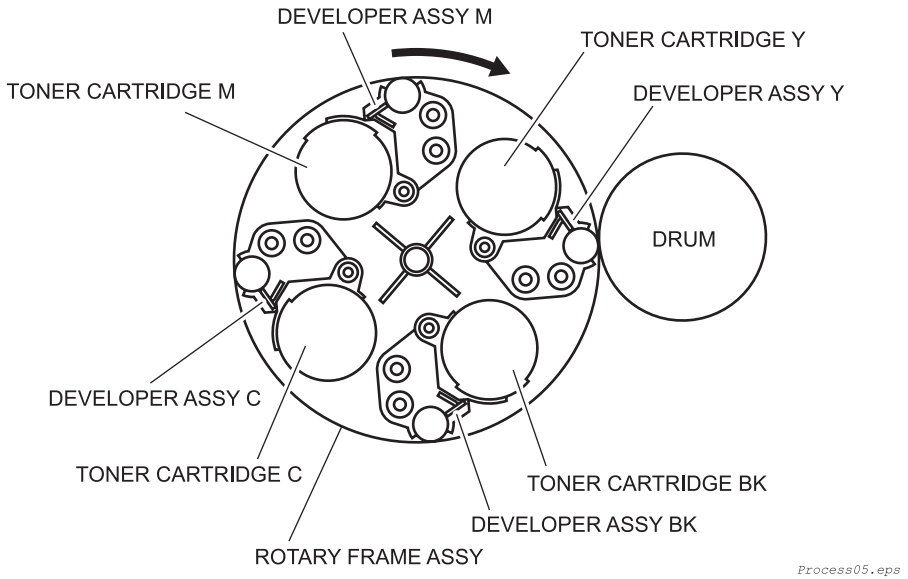


Figure 2-6. Developing 2

- The developing charge characteristics of the developer gradually deteriorate due to dirt on the surface produced by toner and smashing of the surface due to mixing. Small amounts of carrier are added to the toner in the Cartridge in order to maintain the charge characteristics, and carrier is dispensed at the same time with toner.
  Carrier collected a little at a time in a separate chamber in the Toner Cartridge. By doing so, developer (most of which is carrier) is replaced a little at a time, thus enabling charge characteristics to be maintained. This is referred to as "trickle developing." Trickle developing is carried out using the rotation of the ROTARY FRAM ASSY when rotary developing is performed.

  The mechanism if trickle developing is as follows:
  ① : An L-shaped pipe is inserted in the developer.
  ② : A small amount of developer is introduced to the pipe.
  ③ : The developer is scooped out and goes deeper into the pipe.
  ④ : Developer is collected in the Toner Cartridge.

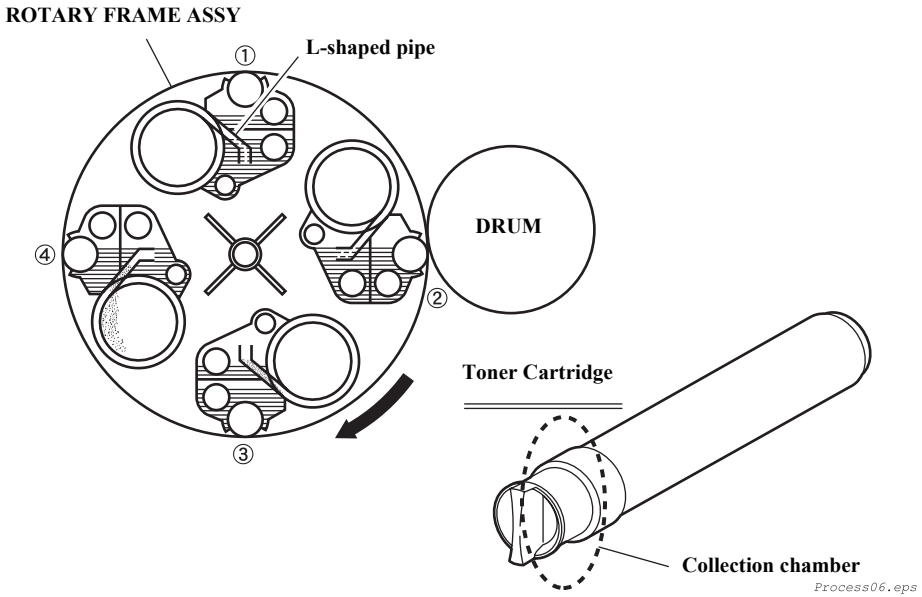


Figure 2-7. Developing 3

4. Primary Transfer (Drum → BELT)

This is the This is the step where toner image formed on the drum surface is transferred to the Belt of the TRANSFER ASSY by the 1ST BTR (First Bias Transfer Roll).

- The 1ST BTR is a conductive roll that receives a supply of positive high voltage from the LV/ HV POWER SUPPLY. The IST BTR touches the back surface of the Belt and turns with the Belt to provide the back surface of the Belt with a positive charge.
  The toner image (negatively charged) on the drum is attracted by the positive charge of the back surface of the Belt, and is transferred from the drum to the Belt.

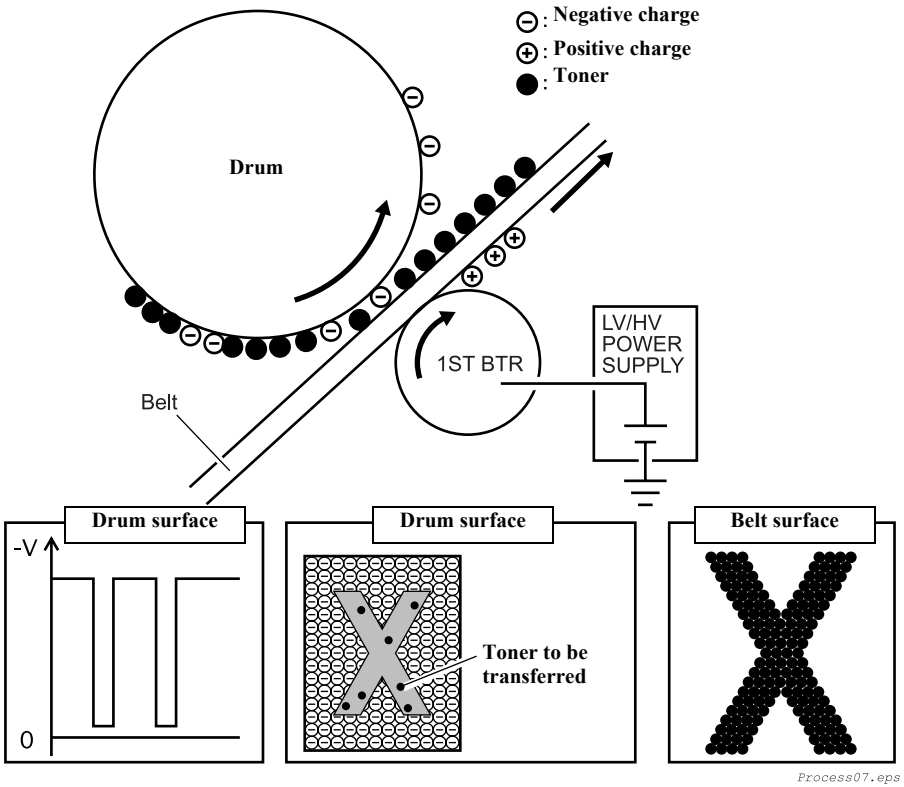


Figure 2-8. Primary Transfer (Drum → BELT)

5. Cleaning (Drum)

This is the step where excess toner and residual charge are eliminated from the drum.

- Physical drum cleaning
  If toner is allowed to remain on the drum, it will interfere with subsequent steps in the process.
  Remaining toner is scraped off by the Cleaning Blade in contact with the drum. The toner scraped off the drum is carried off by the Auger inside the DRUM CARTRIDGE, and is collected in the WASTE TONER BOX.
- Electrical drum cleaning
  A charge remains on the drum surface even after the excess toner is scraped off by the Cleaning Blade. If the charge is allowed to remain on the drum surface, it will interfere with subsequent steps in the process. Residual charge is therefore eliminated from the drum surface by LED light inside the ERASE LAMP ASSY.

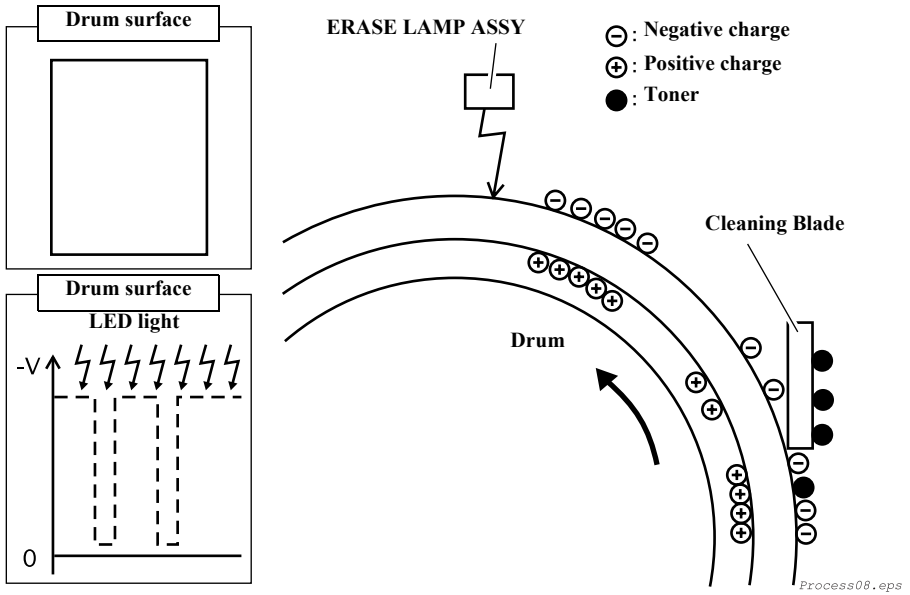


Figure 2-9. Cleaning (Drum)

6. Repeat (Complete Toner Image Forming)

This is the step where the complete toner image consisting of 4 colors is formed on the Belt by sequentially transferring toner images of each color on the drum surface to the Belt.

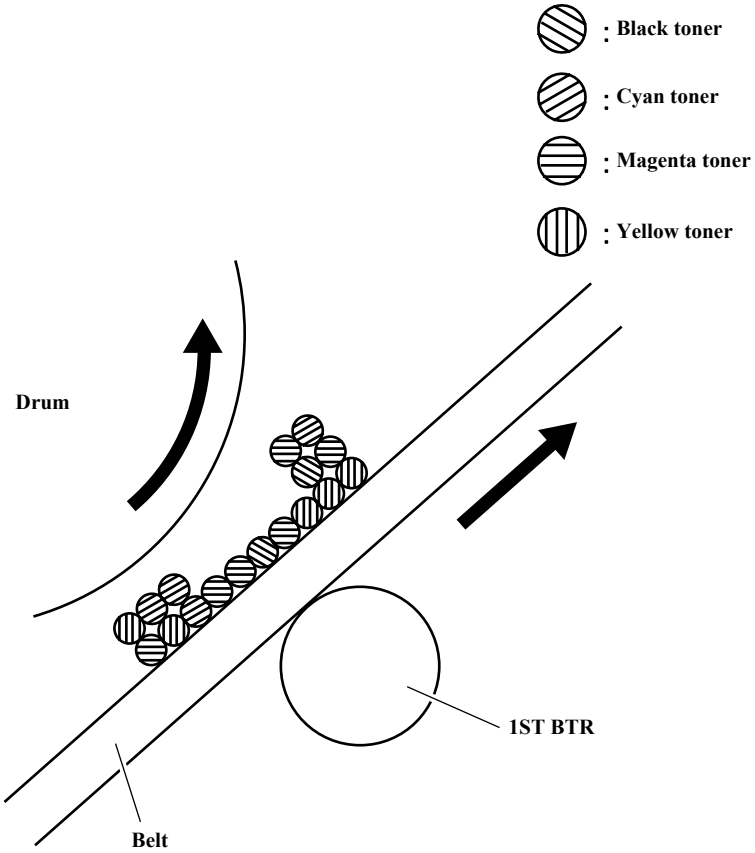


Figure 2-10. Repeat 1

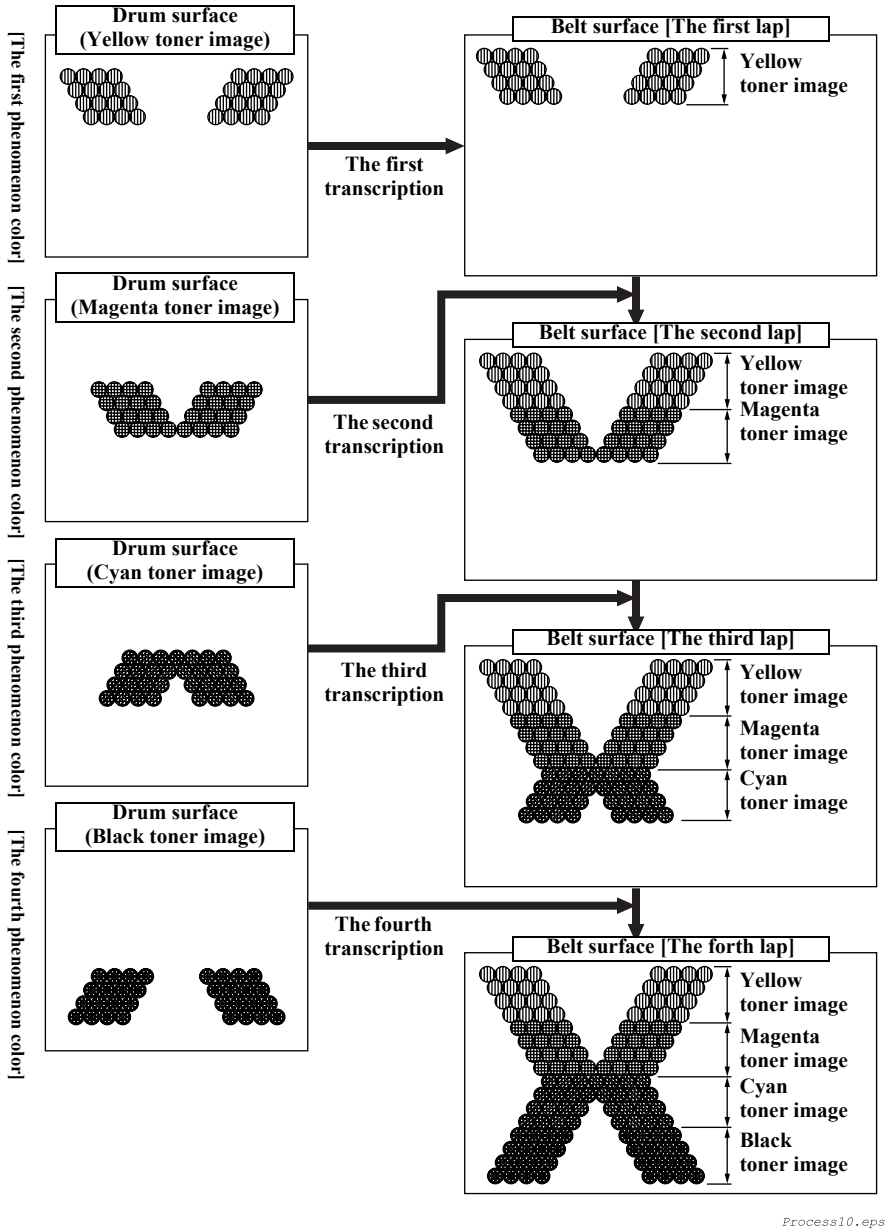


Figure 2-11. Repeat 2

7. Secondary Transfer (Belt → PAPER)

This is the step where the complete toner image formed on the Belt is transferred to paper by supplying voltage to the CONTACT ROLL, BACK UP ROLL, and 2ND BTR (Second Bias Transfer Roll).

- The CONTACT PLATE is a metal plate whose tail end is in contact with the BACK UP ROLL.
  The BACK UP ROLL is a conductive roll that is in contact with the back surface of the Belt, and the Belt is sandwiched between the BACK UP ROLL and the 2ND BTR. The 2ND BTR is a conductive roll that is grounded to the frame ground via the center metal shaft.
- The CONTACT ROLL receives a supply of negative high voltage (DC voltage) from the LV/ HV POWER SUPPLY, and provides the BACK UP ROLL with electric potential. Along with neutralizing the positive charge on the back surface of the Belt, the negative potential conveyed to the BACK UP ROLL induces a positive charge to the 2ND BTR via the Belt and paper. The BACK UP ROLL, Belt, and 2ND BTR each have resistance. Because the paper can act as a capacitor, a positive charge is induced for the 2ND BTR
  Neutralizing the charge on the back surface of the belt weakens the Belt's ability to maintain toner. The complete toner image on the Belt is transferred to paper by the positive charge induced for the 2ND BTR.
- The paper is fed in synch with the position of the complete toner image on the Belt, and is transported still adhering to the Belt. When the paper is fed into the area where the 2ND BTR and BACK UP ROLL face each other, high voltage is supplied by the LV/HV POWER SUPPLY.
- A total of 4 toner images is transferred from the drum to the Belt at the “Repeat (Complete Toner Image Formation) step. During this time, the toner image in the process of being formed on the Belt will be destroyed if the 2ND BTR touches the Belt. The 2ND BTR must therefore be moved away from the Belt (retract) except for when transferring the image to paper (advance). Advance and retract are switched by the 2ND BTR CAM ASSY.

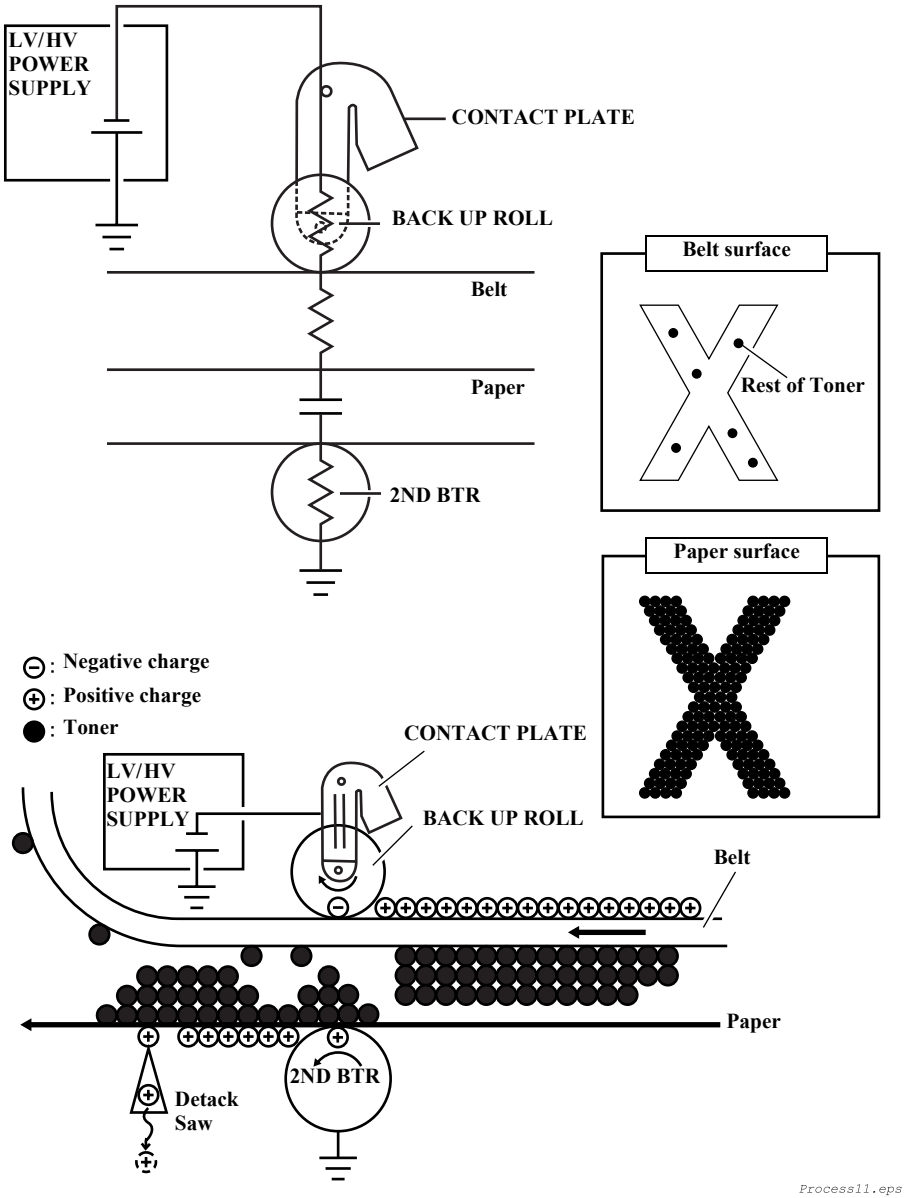


Figure 2-12. Secondary Transfer (Belt→Paper)

8. Electrical Discharge

This is the step where the electrical charge on the surface of the backside of the paper is eliminated (reduced) by the operation of the Detack Saw (discharge plate).

- Image quality could be negatively affected by scattering of toner caused by the positive charge induced at the “Secondary Transfer” step. To prevent such an effect on the image quality, the Detack Saw eliminates/reduces the positive charge (causes discharging to the air).

9. Cleaning (BELT)

This is the step where toner remaining on the belt after transferring the complete toner image to the paper is physically removed.

- Excess toner from the “Secondary Transfer” step remains on the Belt. If toner is allowed to remain on the Belt, it will interfere with subsequent steps in the process. Remaining toner is scraped off by the Cleaning Blade inside the BELT CLEANER ASSY in contact with the back surface of the Belt. The toner scraped off the Belt is conveyed to inside of the AUGER HIGH ASSY, and is collected in the WASTE TONER BOX.
- A total of 4 toner images are transferred from the drum to the Belt at the “Repeat (Complete Toner Image Formation) step. During this time, the toner image in the process of being formed on the Belt will be destroyed if the Cleaning Blade touches the Belt. The Cleaning Blade therefore must be moved away from the Belt (retract) except for when transferring the image to paper (advance).
  Advance and retract are switched by the CLEANER CAM SOLENOID.

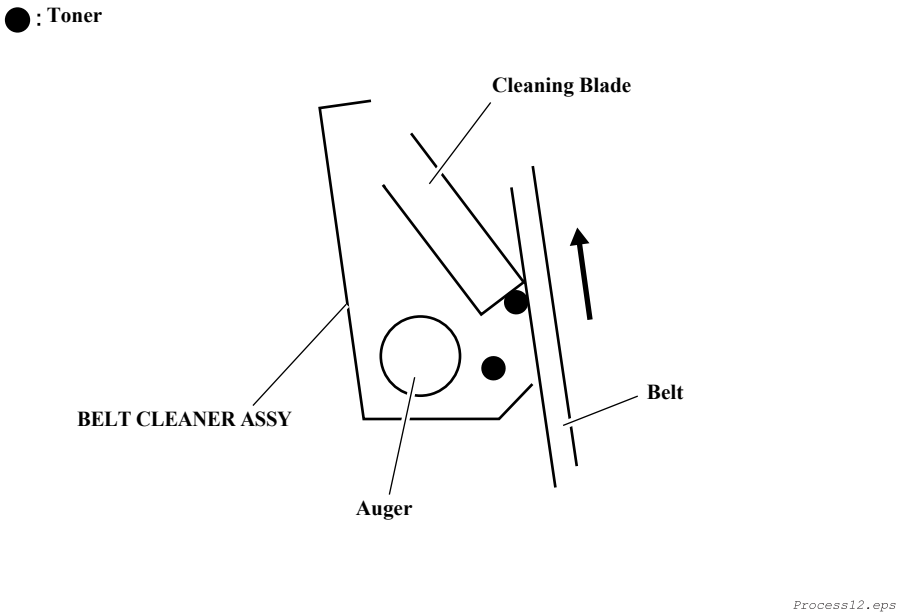


Figure 2-13. Cleaning (Belt)

10. FIXING

This is the step where toner is fixed on the paper by heat and pressure.

- Because even the slightest touch by the fingers would destroy the complete toner image transferred from the Belt, the toner image is fixed on the paper by the FUSER ASSY (fixer).
  Toner is melted by heat of the HEAT ROLL, which uses the H/R HEATER as a source of heat, and is fused on the paper by the pressure of being sandwiched between the HEAT ROLL and PRESSURE ROLL. The PRESSURE ROLL is equipped with a built-in P/R HEATER as an auxiliary source of heat.

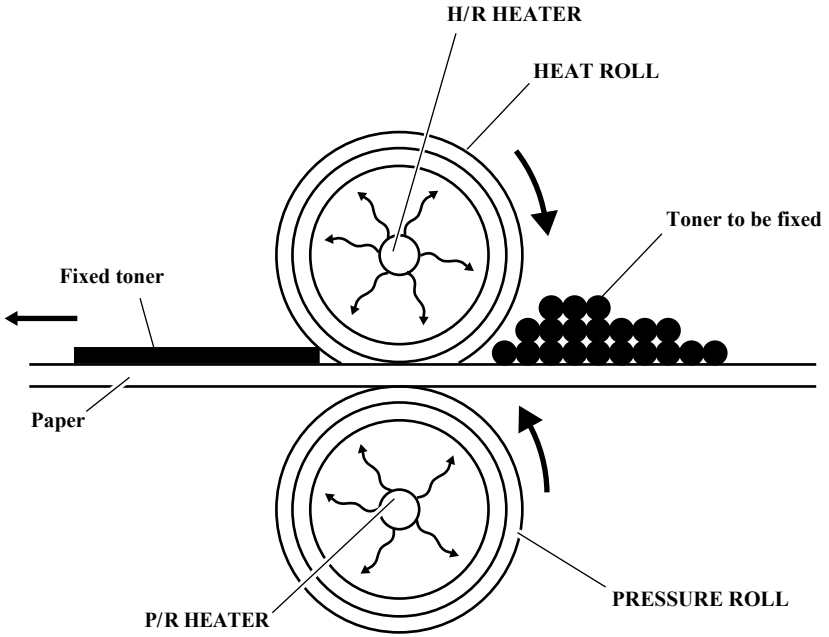
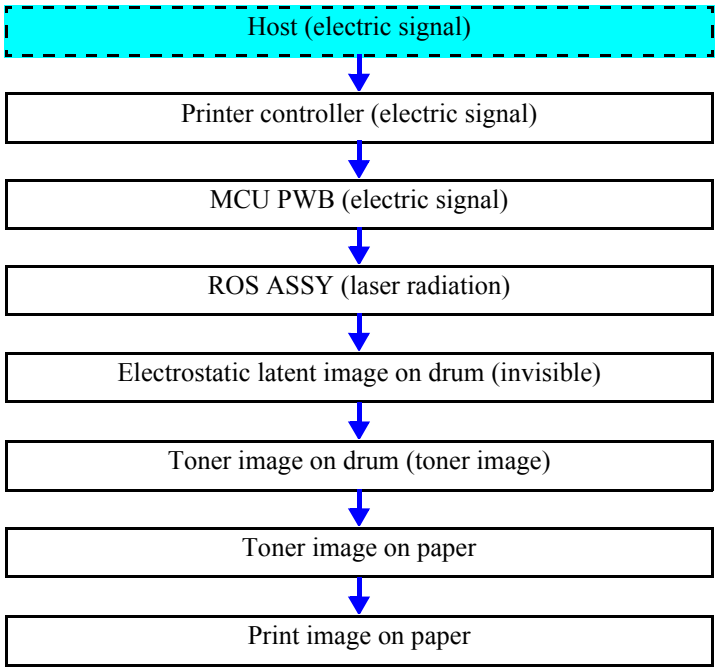


Figure 2-14. Fixing

2.1.4 Print Data Flow

☐ **Data Flow**

Print data (electric signal) from the printer controller forms a print image through the following flow:



NOTE: *Formation of secondary print image*

A line of dot images is formed by scanning while laser radiation is turned ON/OFF in accordance with electric signals (VIDEO signal: Expresses image data according to high/low voltage level) from the printer controller.
A single color image (secondary dot image) is completed by scanning 1 screen of the image. To get a full color image, a secondary dot image is formed for each of the 4 colors respectively.

Resolution is determined as follows:

- No. of dots in main scanning direction / inch
- No. of dots in sub scanning direction / inch

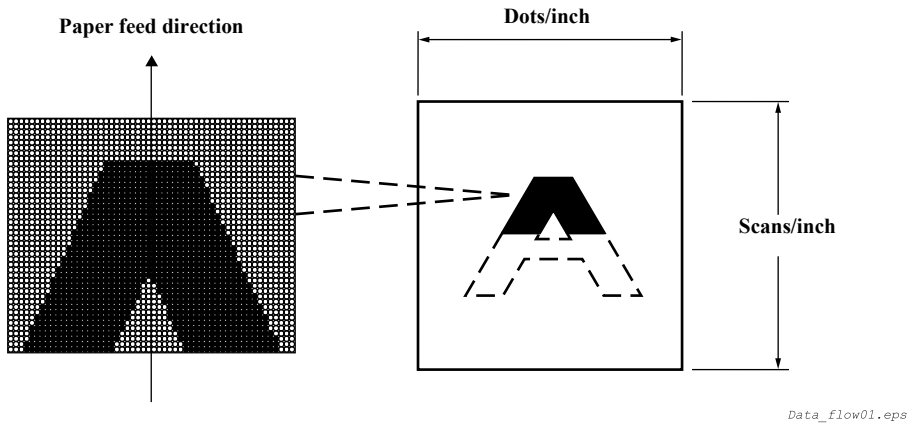


Figure 2-15. Formation of Secondary Print Image

2.1.5 Operation Mode

The printer is equipped with the following seven modes:

- WARM UP MODE
  Mode in which the printer warms up (until ready to print).
- READY MODE
  Mode in which the printer is ready to print after the WARM UP mode.
- RUNNING MODE
  Mode in which the printer is printing.
- LIGHT SLEEP MODE
  Mode in which the FUSER control temperature is set to low to save power.
- DEEP SLEEP MODE
  Mode in which power supply to the FUSER, FUSER FAN, EXIT CHUTE FAN and DEVE. FAN is cut off to save power.
- DIAG TEST MODE
  Mode in which the printer is able to receive diagnostics or is running diagnostics.
- ERROR MODE
  Mode in which the printer detects some kind of problem, not including errors related to no paper tray, paper empty, or life warning.

Transition from mode to mode is as shown below

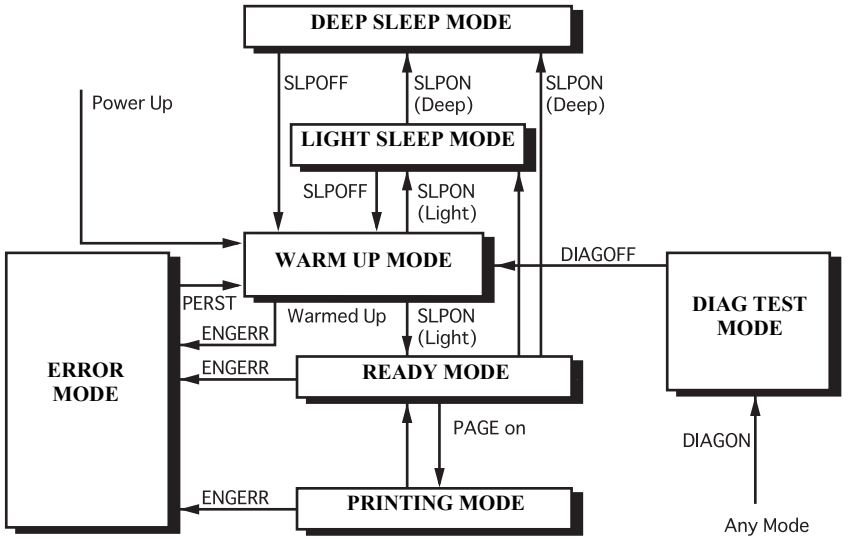


Figure 2-16. Translation of Operation Mode

2.2 Mechanism Operating Principles

2.2.1 Drive Transmission Route

P/R MOT & DRV ASSY

Rotation force of the PROCESS DRIVE ASSY is conveyed by the following flow.

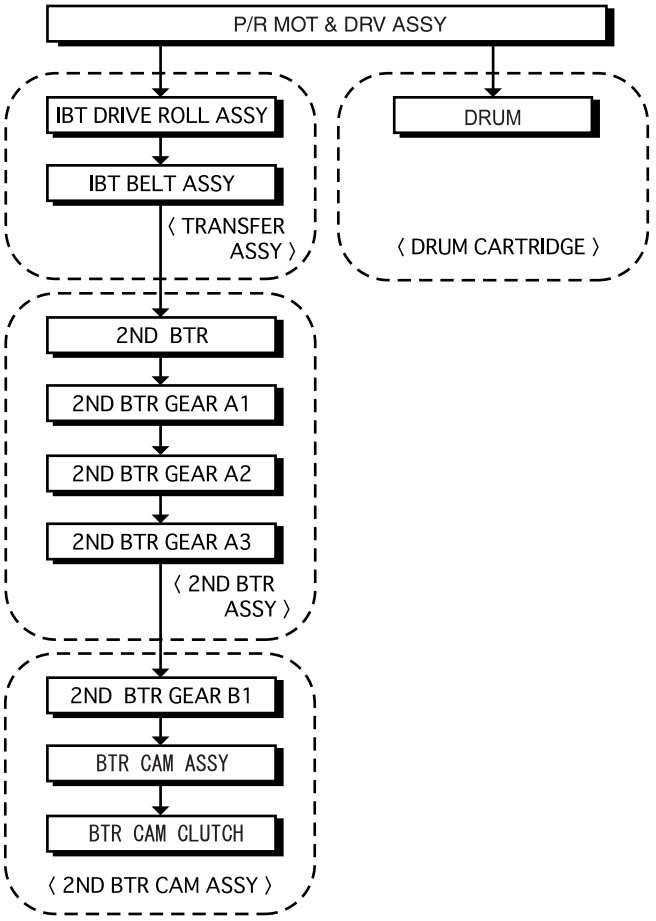


Figure 2-17. Driving Force Transmission Route for P/ R MOT & DRV ASSY

FUSER MOTOR ASSY

Rotation force of the FUSER MOTOR ASSY is conveyed by the following flow.

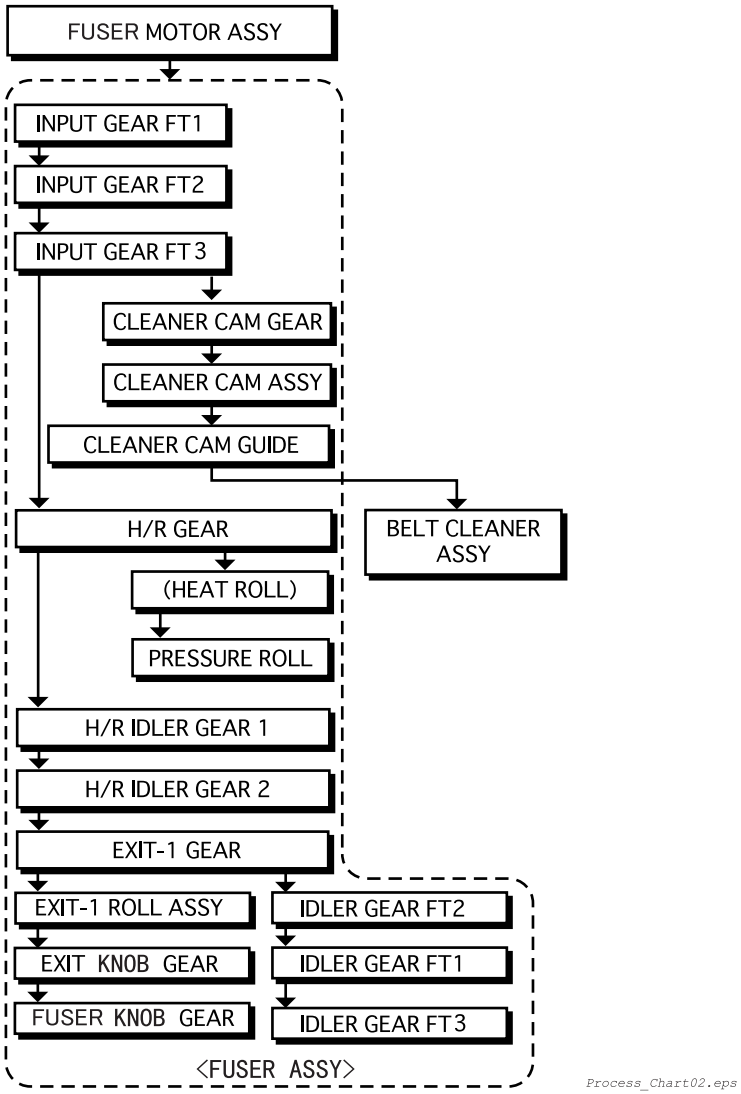
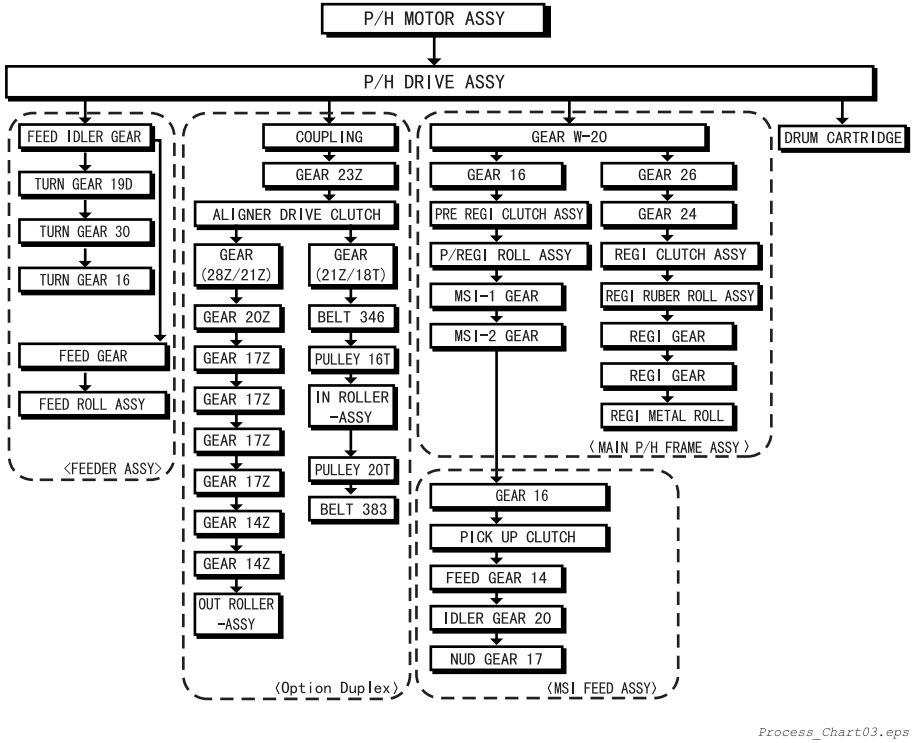


Figure 2-18. Driving Force Transmission Route for FUSER MOTOR ASSY

P/H MOTOR ASSY

Rotation force of the P/H MOTOR ASSY is conveyed via the P/H DRIVE ASSY by the following flow.

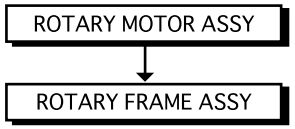


Process_Chart03.eps

Figure 2-19. Driving Force Transmission Route for P/H MOTOR ASSY

ROTARY MOTOR ASSY

Rotation force of the ROTARY MOTOR ASSY drives the ROTARY FRAME ASSY.

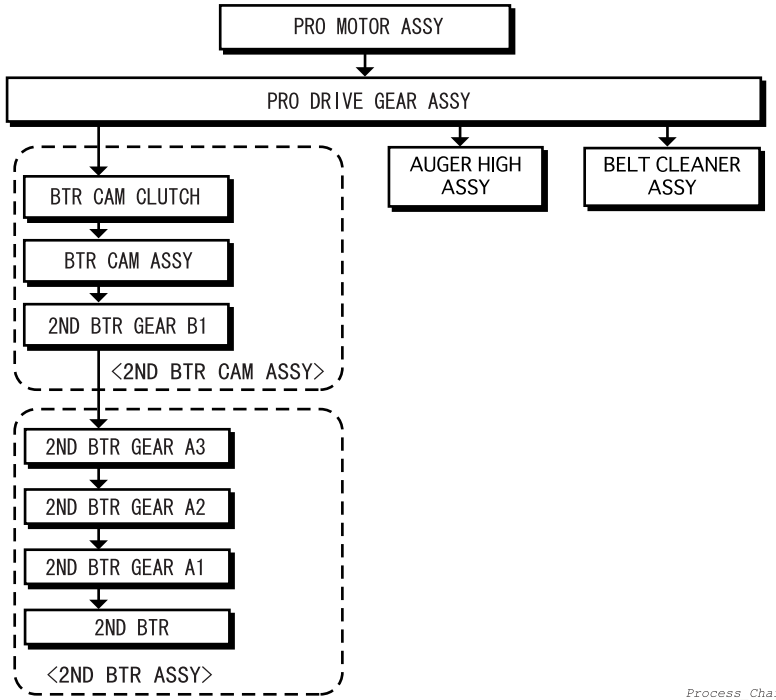


Process Chart04.eps

Figure 2-20. Driving Force Transmission Route for ROTARY MOTOR ASSY

PRO MOTOR ASSY

Rotation force of the PRO MOTOR ASSY is conveyed by the following flow.



Process_Chart05.eps

Figure 2-21. Driving Force Transmission Route for PRO MOTOR ASSY

DISPENSE MOTOR ASSY

Rotation force of the DISPENSE MOTOR ASSY is conveyed by the following flow.

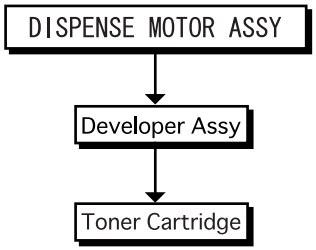


Figure 2-22. Driving Force Transmission Route for DISPENSE MOTOR ASSY

MAG MOTOR ASSY

Rotation force of the MAG MOTOR ASSY is conveyed by the following flow.

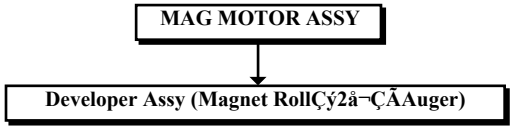


Figure 2-23. Driving Force Transmission Route for MAG MOTOR ASSY

INV MOT-ASSY (OPTION DUPLEX)

Rotation force of the INV MOT-ASSY is conveyed by the following flow.

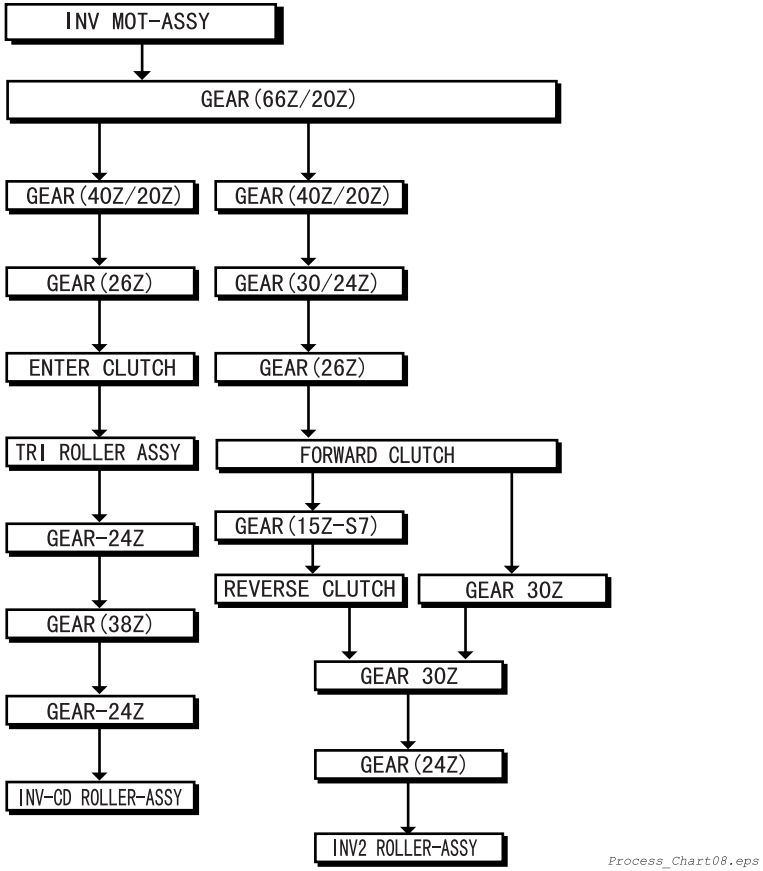


Figure 2-24. Driving Force Transmission Route for INV MOT-ASSY (Option Duplex)

2.2.2 Gear Layout

☐ Printer

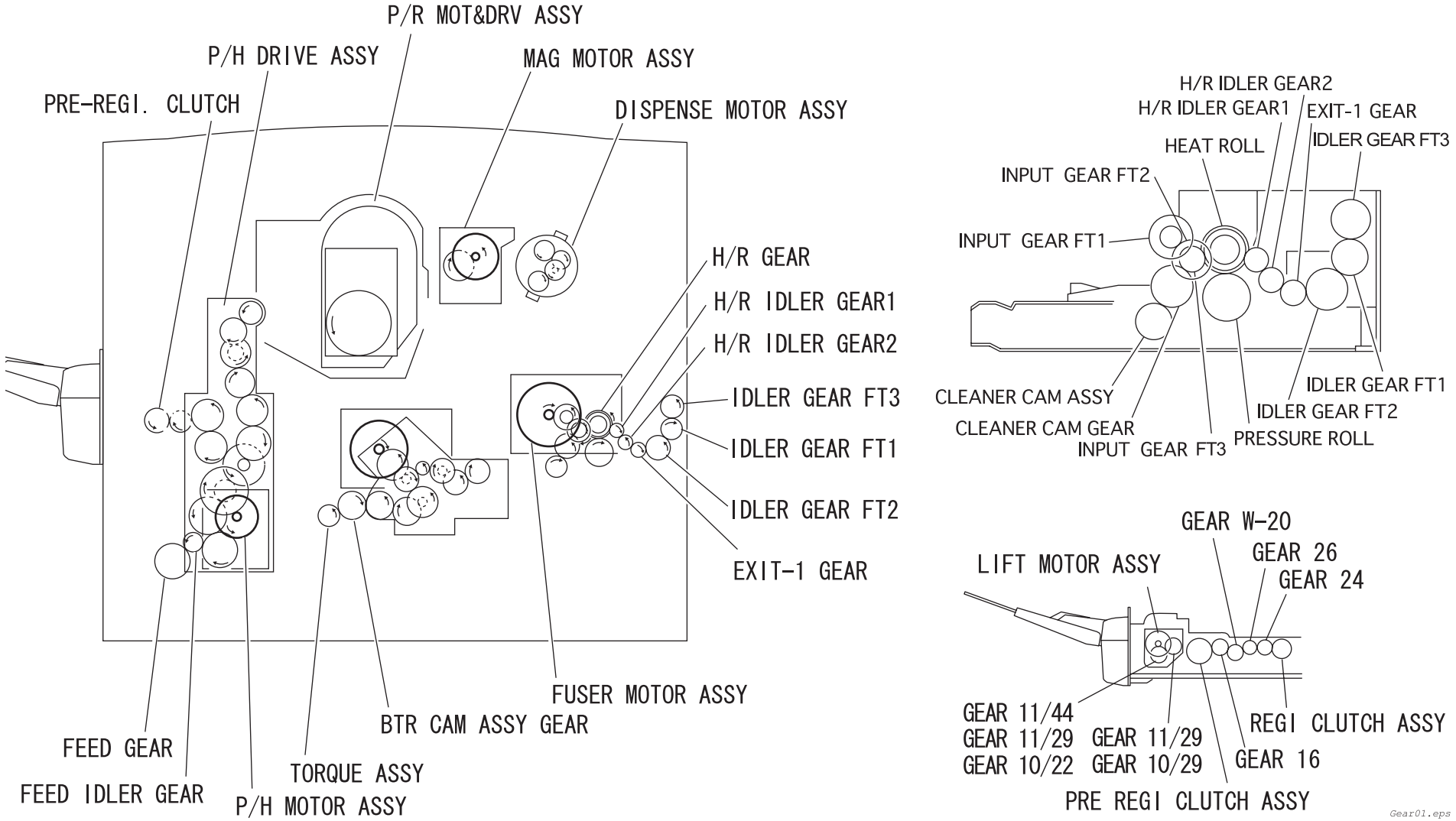


Figure 2-25. Gear Layout - Printer

☐ **Option Duplex**

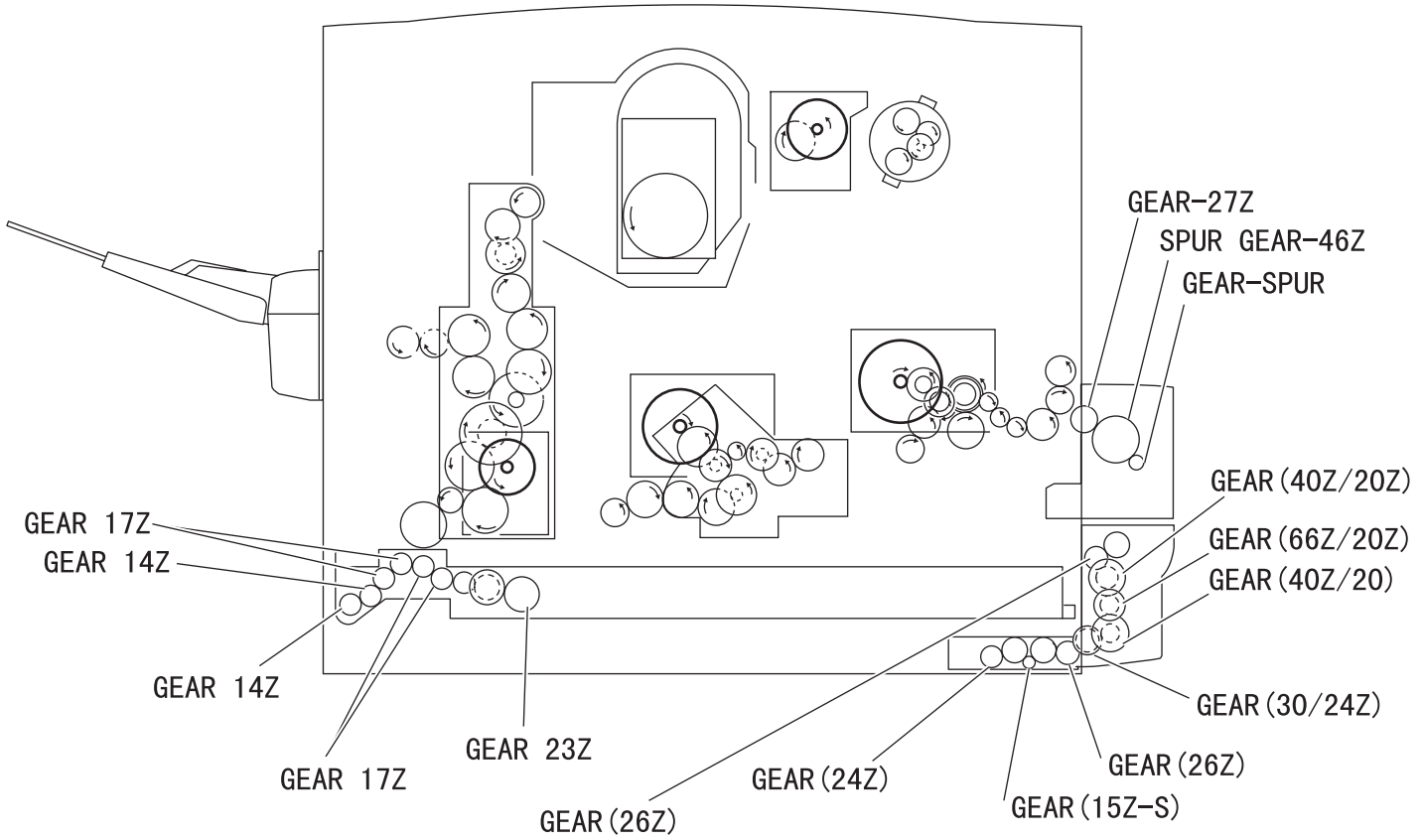


Figure 2-26. Gear Layout - Option Duplex

2.2.3 Paper Feed

2.2.3.1 Paper Feed Path (When no options are installed)

NOTE: *The paper tray feeder at the bottom of the printer is called "Lower Cassette 1" (standard cassette), the first level of the optional FEEDER UNIT is called "Lower Cassette 2", and the second level is called "Lower Cassette 3".*

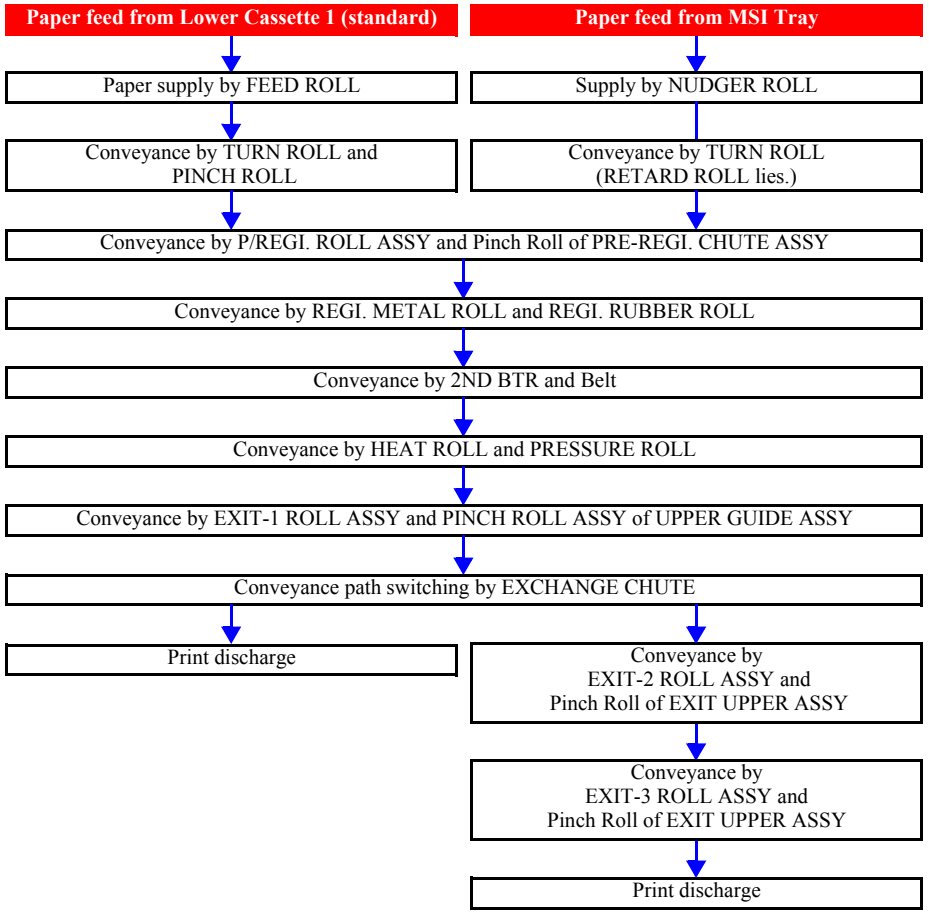


Figure 2-27. Paper Feed Path (When no options are installed)

2.2.3.2 Paper Feed Path (Option Duplex)

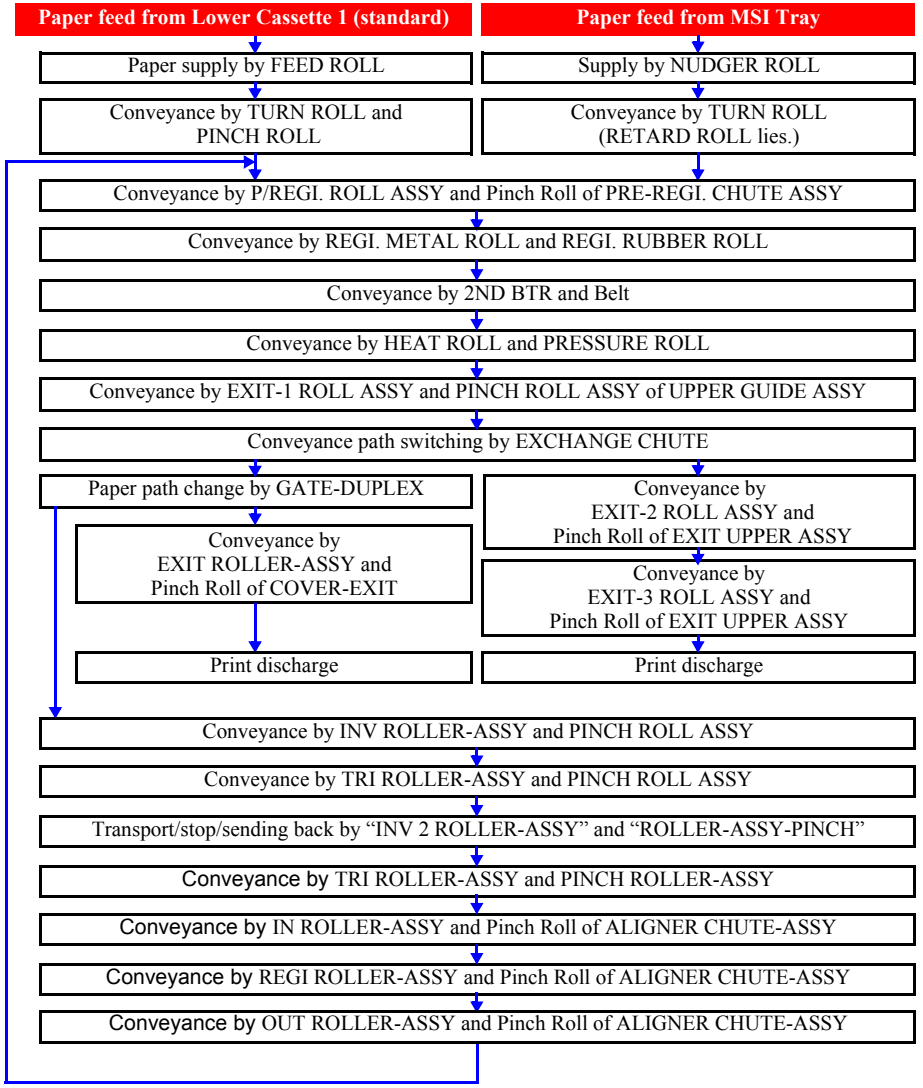


Figure 2-28. Paper Feed Path (Option Duplex)

2.2.3.3 Paper Conveyance Path Layout

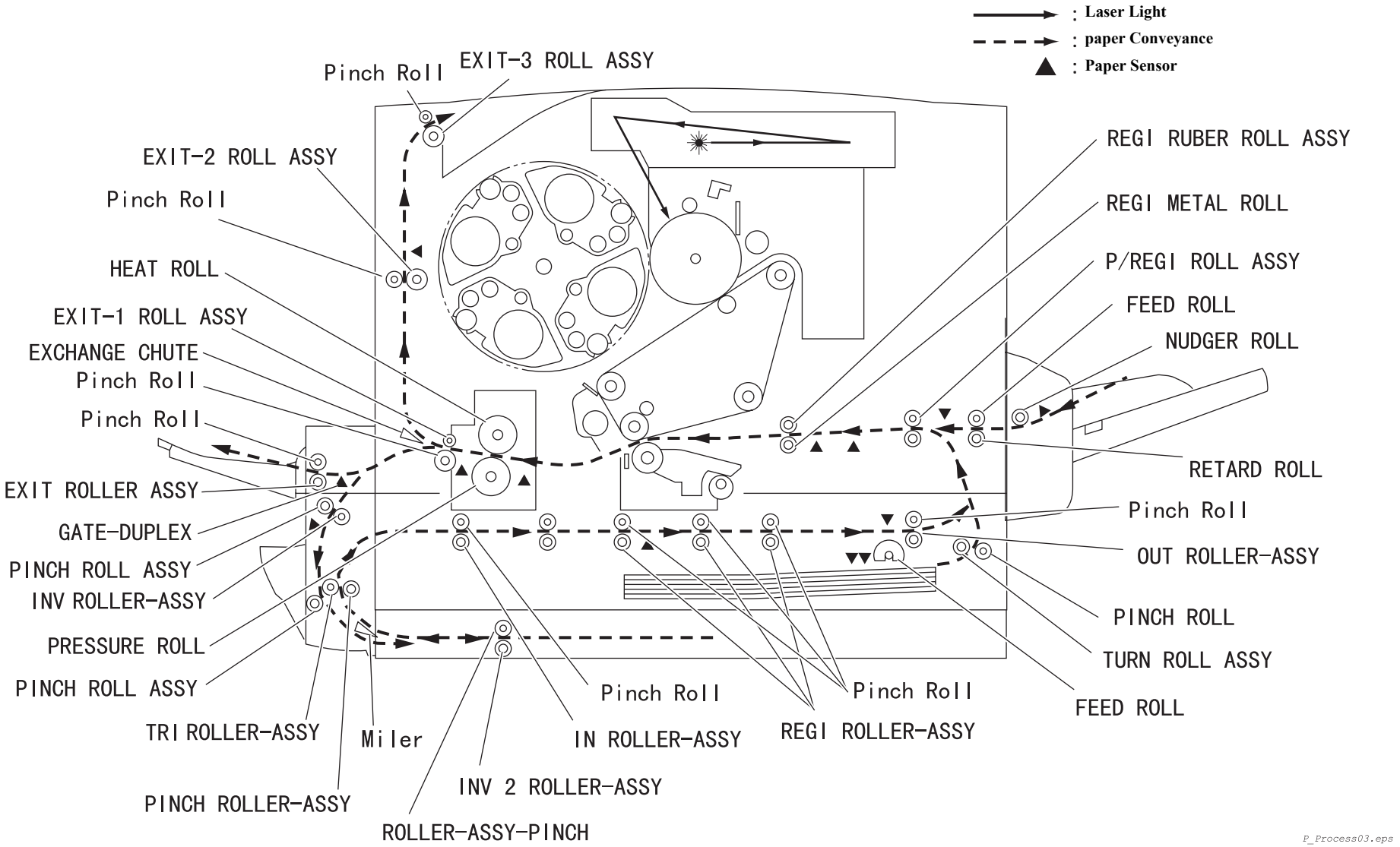


Figure 2-29. Paper Conveyance Path Layout

2.2.4 Function of Main Working Parts

The main working parts of the printer are explained in correspondence to the drawings.

The parts are divided into the following blocks according to configuration.

- 2.2.4.1 Paper Tray (p.111)
- 2.2.4.2 Paper Feeder (p.112)
- 2.2.4.3 MSI/Paper Transportation I (p.113)
- 2.2.4.4 MSI/Paper Transportation II (p.115)
- 2.2.4.5 Xerographics I (p.116)
- 2.2.4.6 Xerographics II (p.117)
- 2.2.4.7 Development (p.118)
- 2.2.4.8 IBT I (p.119)
- 2.2.4.9 IBT II (p.120)
- 2.2.4.10 Fusing I (p.121)
- 2.2.4.11 Fusing II (p.122)
- 2.2.4.12 Paper Exit (p.123)
- 2.2.4.13 Drive (p.124)
- 2.2.4.14 Electrical (p.125)
- 2.2.4.15 Option Duplex (p.127)

2.2.4.1 Paper Tray

MAJOR FUNCTIONS

- ☐ UNIVERSAL TRAY
  - ■ The END GUIDE is a movable guide that moves in the paper conveyance direction, and aligns the rear edge of the paper. Moving the END GUIDE moves the position of the TRAY SIZE ACTUATOR via the SECTOR GEAR. The TRAY SIZE ACTUATOR is turned ON by pushing in the Paper Size Switch on the SIZE SWITCH ASSY.
    By turning on of the TRAY SIZE ACTUATOR, the printer detects the setting of the UNIVERSAL TRAY.
    Changing the position of the TRAY SIZE ACTUATOR changes the ON/OFF combination of the 4 Paper Size Switches. The printer detects the paper size according to the ON/OFF combination.
  - ■ The REAR GUIDE ASS moves vertically in the paper conveyance direction, and aligns the sides of the paper.
  - ■ In order to obtain friction force by pushing on the paper FEED ROLL, the BOTTOM PLATE ASSY receives push up force by elastic force of the TRAY N/F SPRING.
    A Magnet that corresponds to the LOW PAPER SENSOR is attached to the back surface of the BOTTOM PLATE ASSY.
  - ■ The FRONT SNUBBER is a mechanism for preventing more than one sheet of paper from being fed at a time. The device utilizes the weight of the paper, pressing the corner of the paper edge to convey only one sheet at a time.

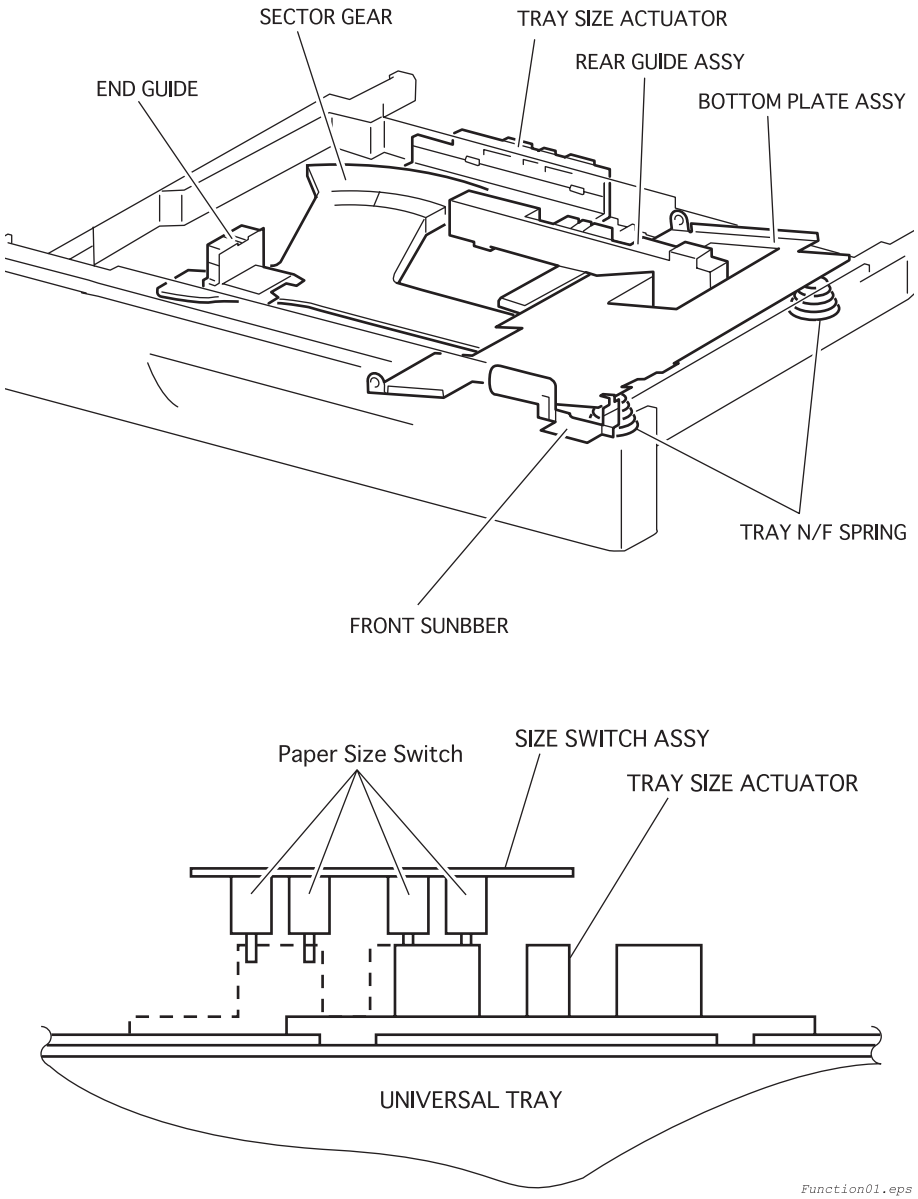


Figure 2-30. UNIVERSAL TRAY

2.2.4.2 Paper Feeder

MAJOR FUNCTIONS

- SIZE SWITCH ASSY
  With 4 Paper Size Switches are attached directly to the plate, the SIZE SWITCH ASSY detects paper size and whether or not there is paper in the paper by the switch ON/OFF combinations by change in position of the TRAY SIZE ACTUATOR.
- TRAY NO PAPER SENSOR
  Detects whether or not there is paper in the paper by change in position of the TRAY N/P ACTUATOR.
- LOW PAPER SENSOR
  When paper set in the paper gets low, the distance between the BOTTOM PLATE ASSY and LOW PAPER SENSOR gets shorter. When the Magnet on the back surface of the BOTTOM PLATE ASSY approaches the LOW PAPER SENSOR, the LOW PAPER SENSOR detects magnetism, thus sensing that the amount of paper remaining is low.
- FEED SOLENOID
  Controls operation (rotation/stop) of the FEED ROLL ASSY by controlling rotation of the FEED GEAR.
- FEED ROLL ASSY
  When the FEED SOLENOID operates, the FEED GEAR and FEED IDLER GEAR mesh. Thus being driven by the P/H MOTOR ASSY, the FEED ROLL ASSY begins to turn, and the FEED ROLL feeds paper from the paper tray. After completing an entire turn, the notch in the FEED GEAR stops the FEED ROLL ASSY from turning by disengaging the FEED GEAR and FEED IDLER GEAR, thus cutting off drive transmission. This feeds 1 sheet of paper per revolution.
- TURN ROLL ASSY
  The TURN ROLL ASSY receives drive by the P/H MOTOR ASSY and rotates, feeding paper discharged from the paper to the MAIN P/H FRAME ASSY.
- TURN CLUTCH
  The TURN CLUTCH is transmits a drive from P/H MOTOR ASSY to TURN ROLL ASSY.
- TURN CHUTE SWITCH
  When opening and closing of TURN CHUTE UP ASSY was detected and it opened, TURN CHUTE SWITCH is a safety switch in control which makes each movement stop.

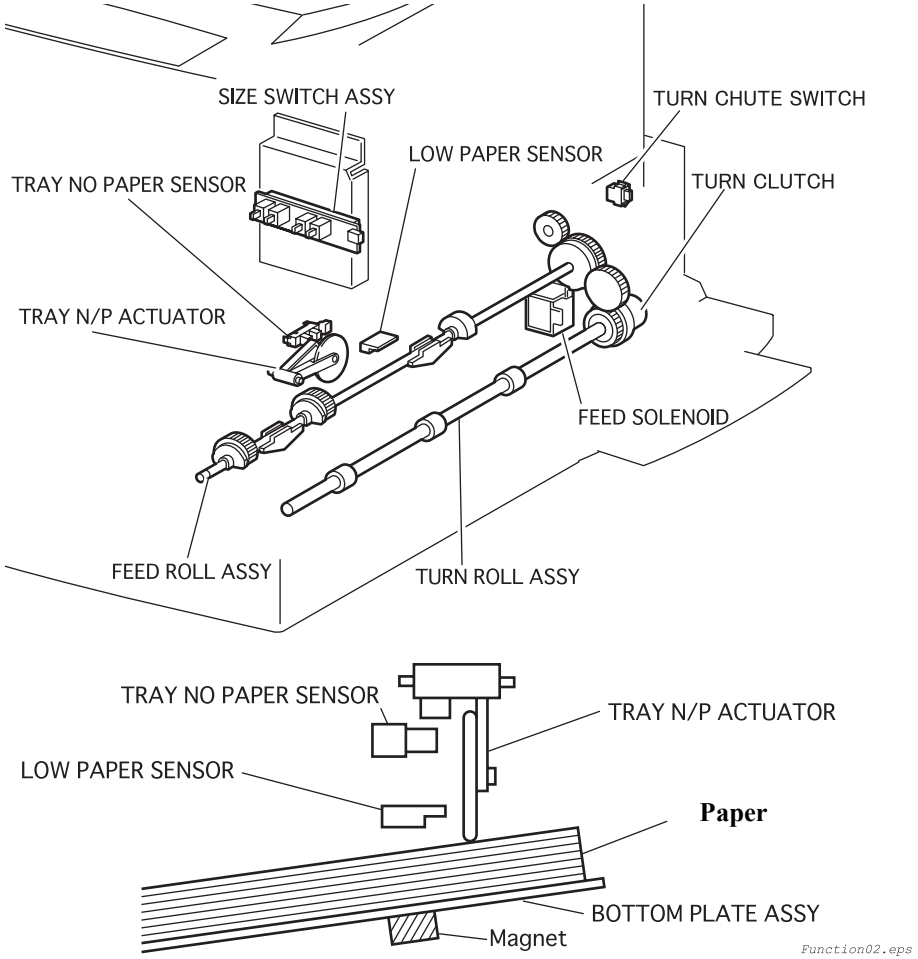


Figure 2-31. Paper Feeder

2.2.4.3 MSI/Paper Transportation I

MAJOR FUNCTIONS

- MSI BASE ASSY
  The MSI BASE ASSY consists of the BOTTOM PLATE SENSOR, LIFT MOTOR ASSY, etc.
  - BOTTOM PLATE SENSOR
    Detects the paper feed angle (max 15°) of the BOTTOM PLATE, and control the LIFT MOTOR ASSY.
  - LIFT MOTOR ASSY
    The driving force from the LIFT MOTOR ASSY, via the LIFT SHAFT, LIFT PLATE, etc., moves the BOTTOM PLATE up and down and adjusts its position so that the paper can be fed by the detection signal of the BOTTOM PLATE SENSOR and LEVEL SENSOR.
- MSI FEED ASSY
  The MSI FEED ASSY consists of the following parts:
  - EMPTY SENSOR
  - PITCH SENSOR
  - LEVEL SENSOR
  - NUDGER ROLL
  - FEED ROLL,RETARD ROLL
  - PICK UP CLUTCH
  - EMPTY SENSOR
    Detects presence/absence of paper on the BOTTOM PLATE.
  - PITCH SENSOR
    In 2UP mode, detects the paper interval (distance from the tail end of the preceding sheet to the front end of the next sheet).
    If the paper interval is too short, printing in 2UP mode is not performed normally. To prevent such a trouble, when the paper interval detected by the PITCH SENSOR is shorter than the specified value, the PICK UP CLUTCH is turned off to interrupt temporarily the transmission of driving force to the PINCH ROLL, thus optimizing the paper transport timing.
    Detects the interval of the paper sent off by the NUDGER ROLL/FEED ROLL, and controls the PICK UP CLUTCH.

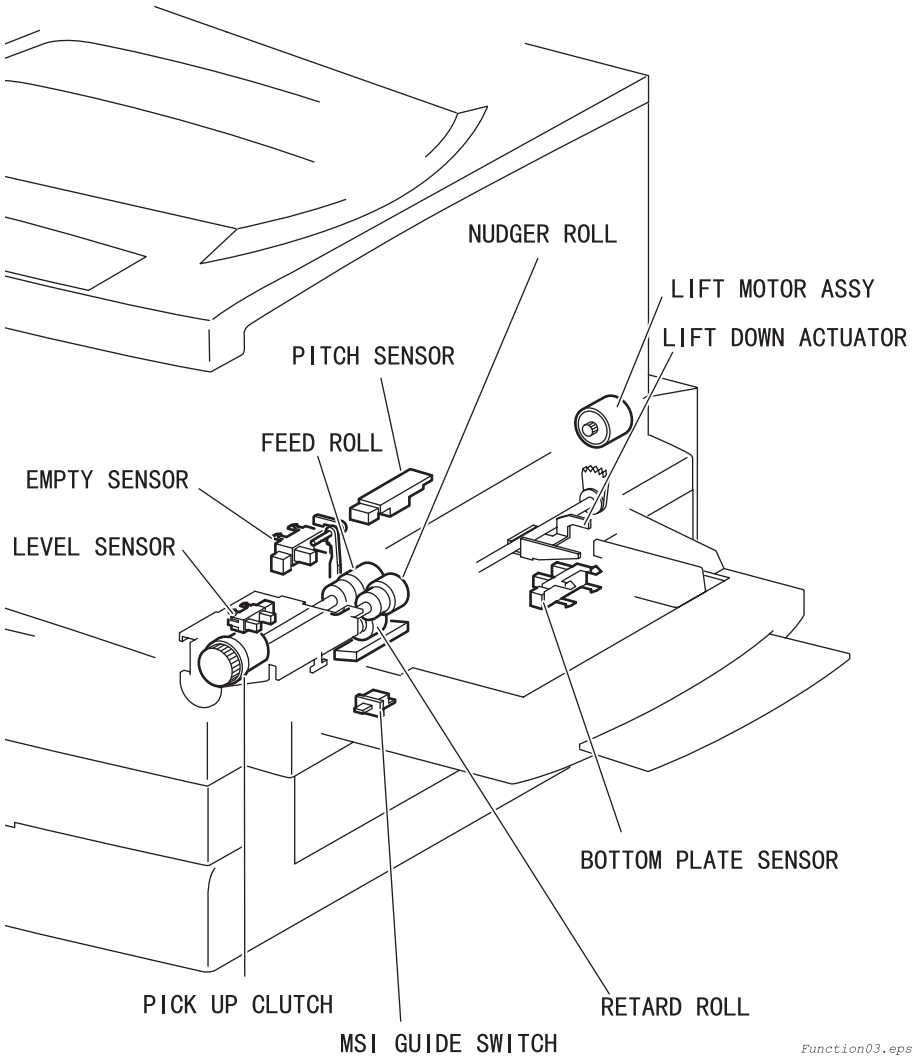


Figure 2-32. MSI/Paper Transportation I (1)

- LEVEL SENSOR
  Detects paper feed position (height) and controls the LIFT MOTOR ASSY accordingly.
  When the lift up operation of the LIFT MOTOR ASSY takes place or when the amount of paper has decreased as a result of paper feed, the NUDGER ROLL comes in contact with the paper. Then the position of the NUDGER SUPPORT ASSY incorporating the NUDGER ROLL changes. The LEVEL SENSOR detects the change of the projection position of the NUDGER SUPPORT ASSY and the LIFT MOTOR ASSY adjusts the paper feed position (height).
- NUDGER ROLL
  Takes a drive by the movement of PICK UP CLUTCH, and sends off a sheet of paper due to the rotation of NUDGER ROLL.
- FEED ROLL, RETARD ROLL
  The paper sent off by the NUDGER ROLL is carried through between the FEED ROLL and the RETARD ROLL to the P/REGI ROLL ASSY.
  If two or more sheets are sent off at a time by the NUDGER ROLL, the RETARD ROLL applies an appropriate abrasion force to the paper while the sheets are passing between FEED ROLL and RETARD ROLL. The abrasion force prevents the second and subsequent sheets from being fed, thus separating the sheets so that they are fed one by one.
- PICK UP CLUTCH
  Cut drive transmission to NUDGER ROLL temporarily, and make the timing of the paper proper to keep the interval of the paper detected by PITCH SENSOR properly.

- MSI GUIDE SWITCH
  The MSI GUIDE SWITCH detects the state of the MSI REGI GUIDE; The switch turns on when the MSI REGI GUIDE is in the standing position (standard) and turns off when the MSI REGI GUIDE is in the lying position (when a sheet exceeding 12 inches in width is used). With the MSI GUIDE SWITCH turned off, paper running is prohibited in the OPTION DUPLEX use mode and in the OPTION SORTER use mode or when sheets exceeding 12 inches in width are set.

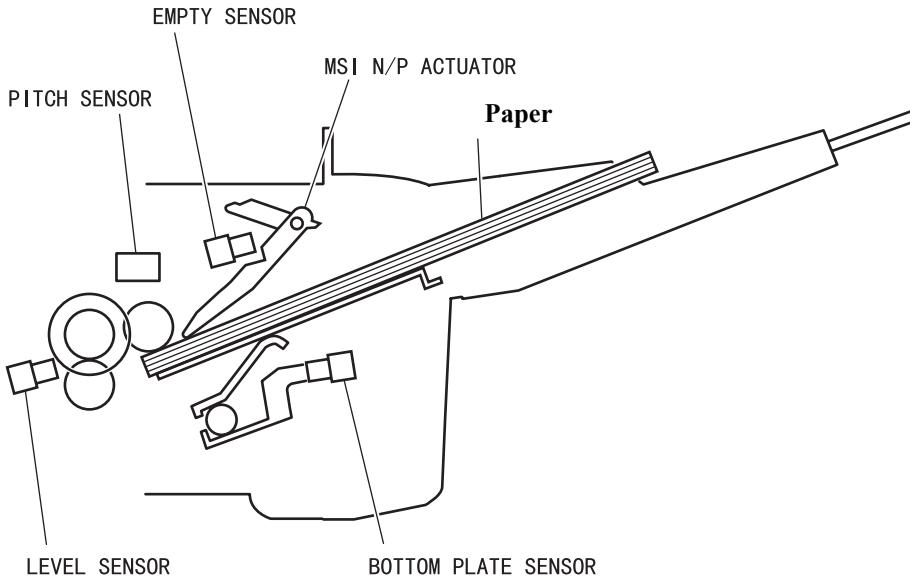


Figure 2-33. MSI/Paper Transportation I (2)

2.2.4.4 MSI/Paper Transportation II

MAJOR FUNCTIONS

☐ MAIN P/H FRAME ASSY
The MAIN P/H FRAME ASSY consists of the following parts:

- P/REGI. ROLL ASSY
- REGI. CLUTCH ASSY
- PRE-REGI. CLUTCH ASSY
- REGI. SENSOR
- OHP SENSOR
- REGI. METAL ROLL
- REGI. RUBBER ROLL ASSY

■ The REGI. METAL ROLL and REGI. RUBBER ROLL ASSY feed paper in synch with IBT BELT ASSY operation so that the complete toner image on the IBT BELT ASSY is correctly positioned on the paper.

■ The P/REGI. ROLL ASSY transports paper from the MSI ASSY to the REGI. METAL ROLL and REGI. RUBBER ROLL ASSY. The paper rear is also transported during the time when the top edge of the paper reaches the REGI. METAL ROLL and REGI. ROLL ASSY, and the REGI. METAL ROLL and REGI. ROLL ASSY turn, a loop is created for the paper, and paper edge skew is corrected.

■ The REGI. CLUTCH ASSY transmits drive of the P/H MOTOR ASSY to the REGI. METAL ROLL and REGI. RUBBER ROLL ASSY, and matches the paper with the secondary transfer position of the IBT BELT ASSY.

■ The PRE-REGI. CLUTCH ASSY transmits drive of the P/H MOTOR ASSY to the P/REGI. ROLL ASSY.

■ The REGI. SENSOR detects when the top edge of the paper reaches the REGI. METAL ROLL and REGI. RUBBER ROLL ASSY. The REGI. SENSOR also detects the rear edge of the paper in order to determine the size of the paper. (Paper size is determined from the time between when the REGI. CLUTCH turns ON until the REGI. SENSOR no longer detects paper.)

■ The OHP SENSOR detects the white frame of the white-frame OHP sheet and stops operation to prevent its winding jam inside the FUSER ASSY. (For details, see "*2.3.3 OHP Front/Back Detection Control (p.131)*")

☐ REGI/MSI INTL SW
The REGI/MSI INTL SW detects if the MSI/ REGI HIGH ASSY is installed to the printer. This is a safety switch for control which stops each function if the MSI/ REGI HIGH ASSY is not installed.

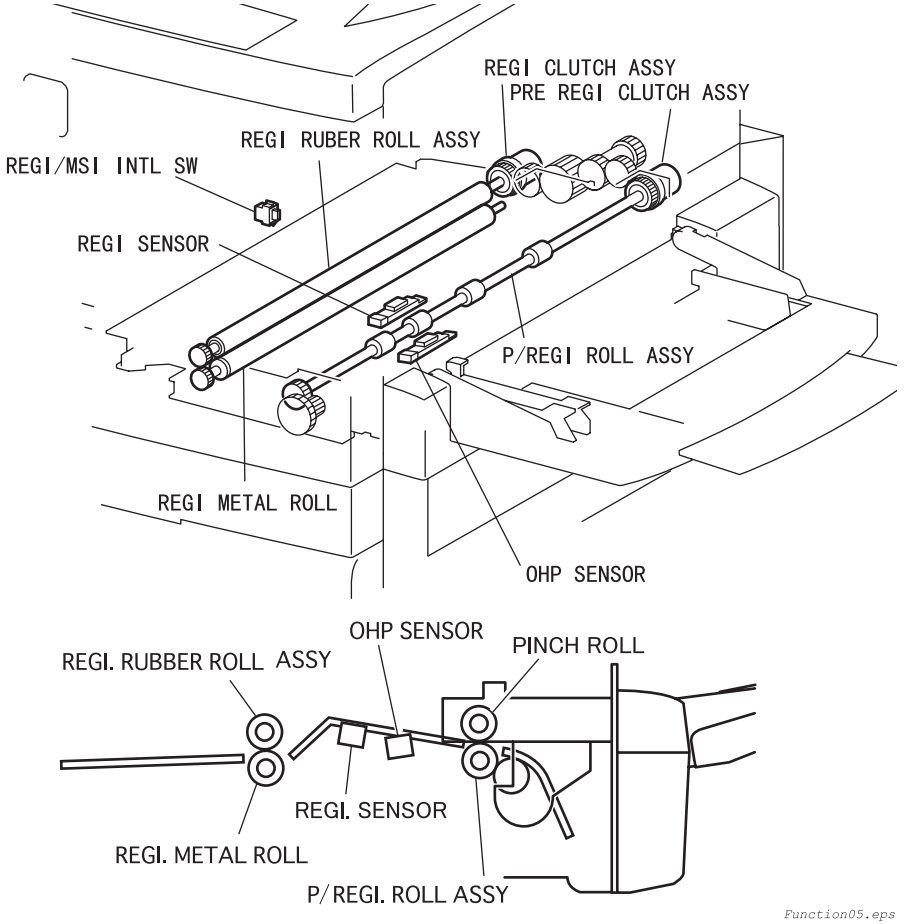


Figure 2-34. MSI/Paper Transportation II

2.2.4.5 Xerographics I

MAJOR FUNCTIONS

☐ ROS ASSY

The ROS ASSY (Raster Output Scanner Assembly) is the exposure unit that outputs laser radiation to form an electrostatic latent image on the drum surface. Items concerning the ROS ASSY are simply referred to as "ROS" in this manual. The ROS ASSY consists of the following parts:

- LD Assy
- Scanner Assy
- SOS PWB
- Lens
- Mirror
- Window

■ Image data is input to the ROS ASSY as an electric signal (expresses image data according to voltage level).The LD ASSY (Laser Diode Assembly) converts the image data from electric signals to light signals (expresses data by flashing the laser beam on and off). The proper electrostatic latent image cannot be obtained if the amount of laser radiation fluctuates, so the LD Assy constantly monitors LD output (LD Power) by monitor circuit, and controls power to keep a stable quantity of light. This control is referred to as "APC (Automatic Power Control)." (For details, see *"2.3.4.4 Quantity of Light Control (p.133)"* in this chapter.)

■ The Scanner Assy consists of a Scanner Motor that turns at half speed and polygon mirrors mounted on the Scanner Motor shaft.
Laser radiation output from the LD Assy strikes the polygon mirror.
The polygon mirror has 12 reflecting mirror sides, and reflecting angle of the laser light changes by rotation of the Scanner Motor. The drum surface is scanned lengthwise by laser radiation by changing the reflecting angle. Each reflecting mirror surface scans 1 line.

■ Laser radiation reflected by the polygon mirror reaches the drum surface by way of the lens, mirror and window. The lens corrects aberration, the mirror secures a light path, and the window prevents foreign matter from getting inside the ROS.

■ Image data writing timing must coincide with the beginning of laser scanning in order to properly form an electrostatic latent image on the drum surface. When laser light is received by the SOS Sensor on the SOS PWB (Start of Scan Printed Wiring Board), it is converted into an electric signal (SOS signal) for detecting the initial position (start of scan reference point) for scanning the various lines.

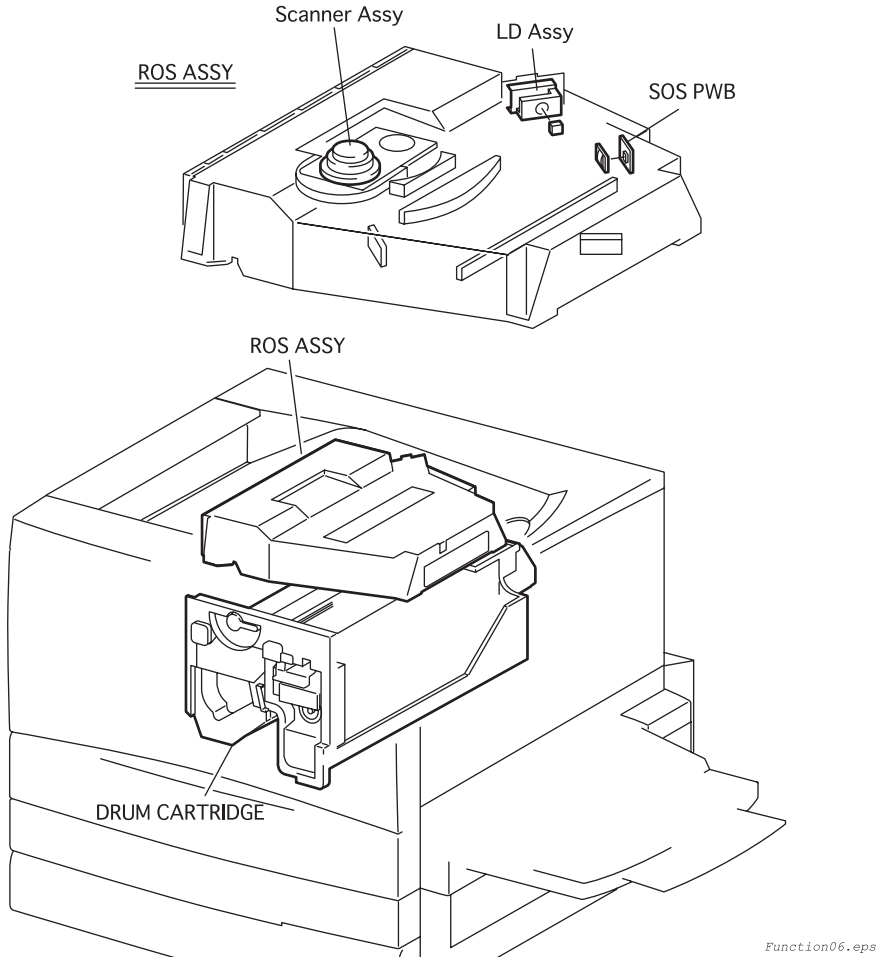


Figure 2-35. Xerographics I

2.2.4.6 Xerographics II

MAJOR FUNCTIONS

☐ DRUM CARTRIDGE
The DRUM CARTRIDGE consists of the XERO. CARTRIDGE and WASTE TONER BOX.

■ The XERO. CARTRIDGE consists of the drum, BCR and Cleaning Blade.

- The drum is an aluminum cylinder coated with OPC (Organic Photo Conductor) sensitive material. Because OPC sensitive material is photoconductive (maintains charge in the dark, and acts as a conductor to release the charge through earth when struck by light), it forms an electrostatic latent image on the drum by laser scanning.
- The BCR uniformly electrifies the surface of the drum in the "Charging" step of the print process.
- The Cleaning Blade scrapes toner left over from "Primary Transfer" of the print process from the surface of the drum.

■ The WASTE TONER BOX collects toner scraped from the surface of the drum by the Cleaning Blade, and toner scraped from the IBT BELT ASSY by the BELT CLEANER ASSY and brought in by the AUGER HIGH ASSY.

☐ ERASE LAMP ASSY
The ERASE LAMP ASSY eliminates remaining charge by irradiating the surface of the drum with light prior to being electrified by the BCR.

☐ WASTE TONER SENSOR
The WASTE TONER SENSOR detects when the WASTE TONER BOX is full of waste toner.

☐ TONER BOX SENSOR
The TONER BOX SENSOR detects whether or not the WASTE TONER BOX is mounted.

☐ ADC SENSOR ASSY
The ADC ASSY consists of the ADC Sensor and ADC Solenoid, ADC Sensor.

■ ADC Sensor
The ADC (Automatic Density Control) Sensor reads density of the toner image on the surface of the drum and of the surface of the drum itself, and feeds the information back to process control. (For details, see "*2.3.5 Process Control (p.134)*" in this chapter.)

■ ADC Solenoid
If the parts of the ADC Sensor that emit and receive light become dirty from toner, etc., it becomes difficult to accurately measure the concentration of the drum surface and toner image. The ADC Solenoid therefore actuates and cleans the parts of the ADC Sensor that emit and receive light with the cleaning lever.

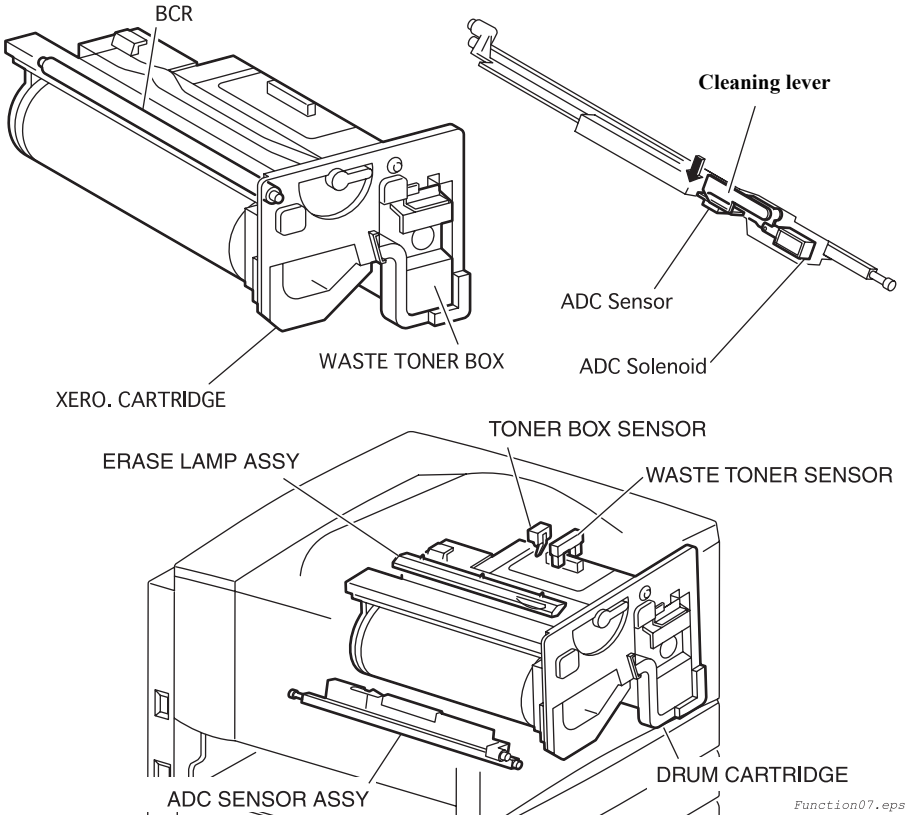


Figure 2-36. Xerographics II

2.2.4.7 Development

MAJOR FUNCTIONS

- CARTRIDGE SENSOR
  The CARTRIDGE SENSOR determines whether the Toner Cartridge for each color is mounted or not and whether the mounted Toner Cartridge for each color is new or old.
  By the trickle developing method, the used developer is collected into a separate chamber inside the Toner Cartridge. A white reflecting seal is applied inside the collecting chamber. When developer is collected it covers the reflecting surface so light is no longer reflected.
  The CARTRIDGE SENSOR is a reflecting photosensor that detects reflection from the reflection chambers inside the various color Toner Cartridges, and determines that no developer has been collected when there is reflection (in other words, the Toner Cartridge is new), or that developer has been collected when there is no reflection (in other words, the Toner Cartridge is not new).
  The CARTRIDGE SENSOR also detects reflection from each color Toner Cartridge, and determines that the Toner Cartridge is mounted when there is reflection, or that the Toner Cartridge is not mounted when there is no reflection. (The new/old detection and the mounting detection are performed for different positions of the Toner Cartridge.)
- ROTARY SENSOR
  Detects home position of the ROTARY FRAME ASSY. The home position is the starting point for DEVE. Control. (For details, see "*2.3.7 DEVE. Control (p.145)*" in this chapter.)
- DEVELOPER ASSY Y, DEVELOPER ASSY M, DEVELOPER ASSY C, DEVELOPER ASSY BK
  The Developer Assy consists of the Auger, Magnet Roll, etc.
  - The Developer Assy contains 3 Augers: one that supplies toner from the Toner Cartridge to the Developer Assy, one that mixes developer inside the Developer Assy, and one that supplies developer inside the Developer Assy to the Magnet Roll.
  - The Magnet Roll attracts carrier (which is a magnetic material) by force of magnetism, forms a uniform layer of developer, and supplies toner to the drum.
- TONER CARTRIDGE Y, TONER CARTRIDGE M, TONER CARTRIDGE C, TONER CARTRIDGE BK
  Toner Cartridges charge toner (including carrier) to be supplied and collect developer (mainly carrier) with reduced electrification characteristics.

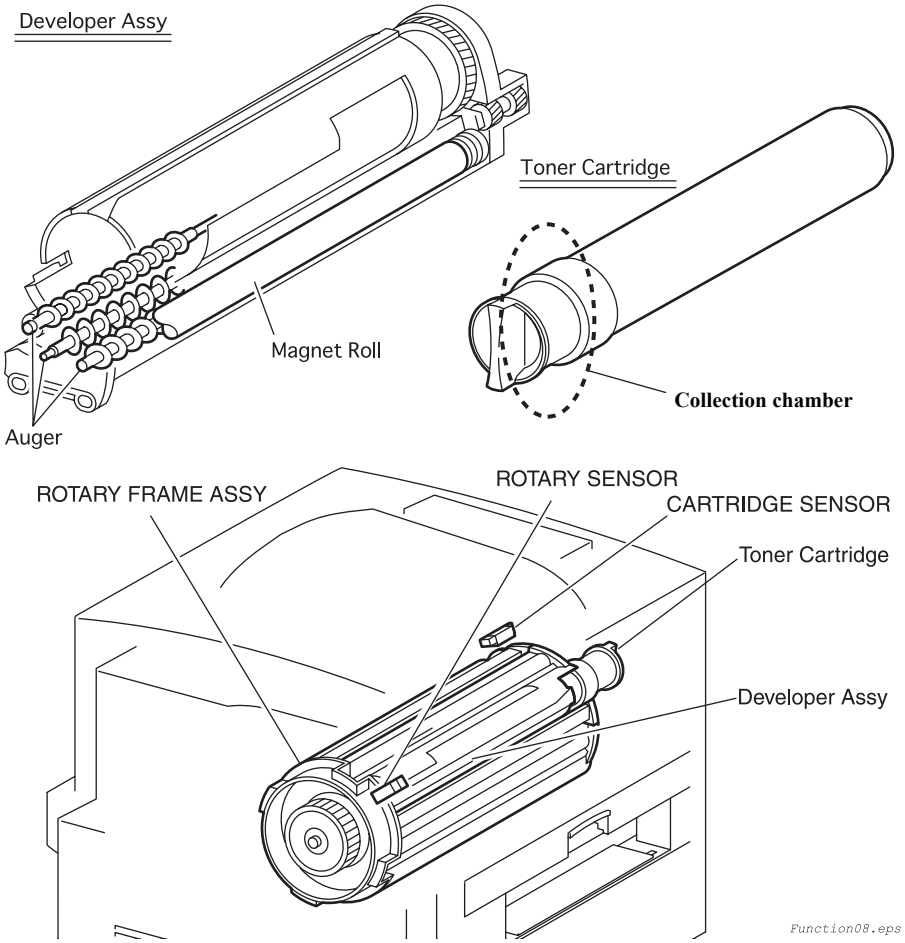


Figure 2-37. Development

2.2.4.8 IBT I

MAJOR FUNCTIONS

- TRANSFER ASSY
  The TRANSFER ASSY consists of the following parts.
  - 1ST BTR
  - BACK UP ROLL
  - CONTACT ROLL
  - IBT DRIVE ROLL ASSY
  - TR0 SENSOR
  - IBT BELT ASSY
- The 1ST BTR (First Bias Transfer Roll) is a conductive roll that sandwiches the IBT BELT ASSY together with drum, and transfers the toner image on the drum to the surface of the IBT BELT ASSY (primary transfer).
- The CONTACT PLATE is a metal plate whose tail end is in contact with the BACK UP ROLL and supplies transfer voltage to the BACK UP ROLL for secondary transfer.
- The BACK UP ROLL is a conductive roll that sandwiches the IBT BELT ASSY together with 2ND BTR from the inside, and induces a charge to the 2ND BTR for secondary transfer.
- The IBT DRIVE ROLL ASSY transmits the drive of the PROCESS DRIVE ASSY to the IBT BELT ASSY.
- The positions of the each color toner image transferred must line up accurately on the IBT BELT ASSY. A silver mark (TRO mark) is therefore applied to the rear edge of the IBT BELT ASSY as a reference for transfer position of toner images. The TRO SENSOR detects the transfer reference mark once per cycle of the IBT BELT ASSY. A TRO signal (signal for reference point for forming YMCBk image and transfer reference point) when a certain amount of time elapses following a detection signal.
  For B/W Mode (TRO-less mode), without using TRO signal, where the DRUM and the DEVELOPER ASSY Bk meet is the reference point and a print control is conducted.
- The IBT BELT ASSY transfers a toner image of each color developed on the drum to the IST BTR, forming a complete toner image of the 4 overlapped colors. When the 4-color toner image is formed, a supply of negative voltage is received from the BACK UP ROLL, and a complete toner image consisting of 4 colors is transferred (secondary transfer) to paper.

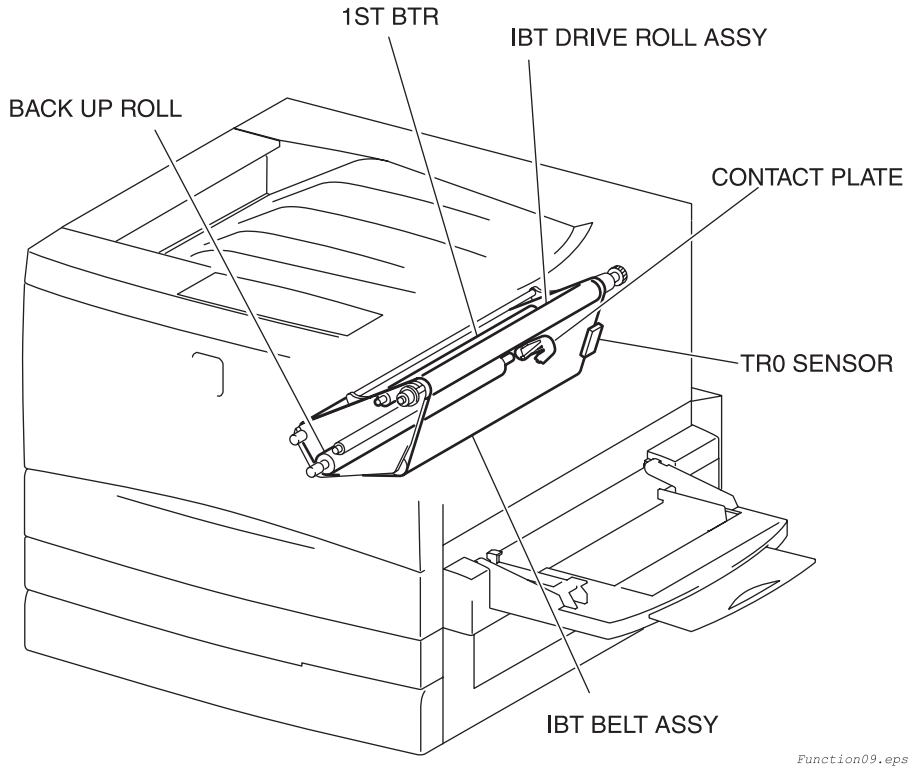


Figure 2-38. IBT I

2.2.4.9 IBT II

MAJOR FUNCTIONS

☐ 2ND BTR ASSY
The 2ND BTR ASSY consists of the following parts:

- 2ND BTR
- 2ND BTR CLEANER
- Detack Saw (discharge plate)

■ The 2ND BTR (Second Bias Transfer Roll) is a conductive roll that sandwiches the IBT BELT ASSY from the outside together with BACK UP ROLL, induces a charge with the voltage supplied by the BACK UP ROLL, and transfers the toner image on the IBT BELT ASSY to paper (secondary transfer).

■ The 2ND BTR CLEANER scrapes toner from the surface of the 2ND BTR and collects the toner in a space inside the 2ND BTR ASSY.

■ The Detack Saw (discharge plate) allows the charge to escape to the back side of the paper, and eliminates/reduces the charge of the paper.

☐ BELT CLEANER ASSY
The BELT CLEANER ASSY consists of the following parts:

- Cleaning Blade
- Auger

■ The Cleaning Blade makes contact with the IBT BELT ASSY after the secondary transfer step and scrapes residual toner from the IBT BELT ASSY.

■ The Auger transports the toners scraped away by the Cleaning Blade to the AUGER HIGH ASSY.
(The AUGER HIGH ASSY transports toner to the WASTE TONER BOX.)

☐ 2ND BTR CAM ASSY
2ND BTR CAM ASSY consists of the following parts:

- BTR CAM CLUTCH
- BTR WHEEL SENSOR
- BTR CAM ASSY

■ The BTR CAM ASSY transmits drive from the PRO MOTOR ASSY to the 2ND BTR CAM ASSY via the PRO DRIVE ASSY, and controls the advance (IBT BELT ASSY and 2ND BTR CLEANER make contact) and retract (IBT BELT ASSY and 2ND BTR CLEANER do not make contact) of the 2ND BTR ASSY.

■ The BTR WHEEL SENSOR detects the BTR WHEEL of the BTR CAM ASSY, and monitors the advance/ retract condition from the BTR CAM ASSY stop position (the CAM position).

■ The BTR CAM ASSY, by operating the BTR CAM CLUTCH, make the advance /retract of the 2ND BTR carry out.

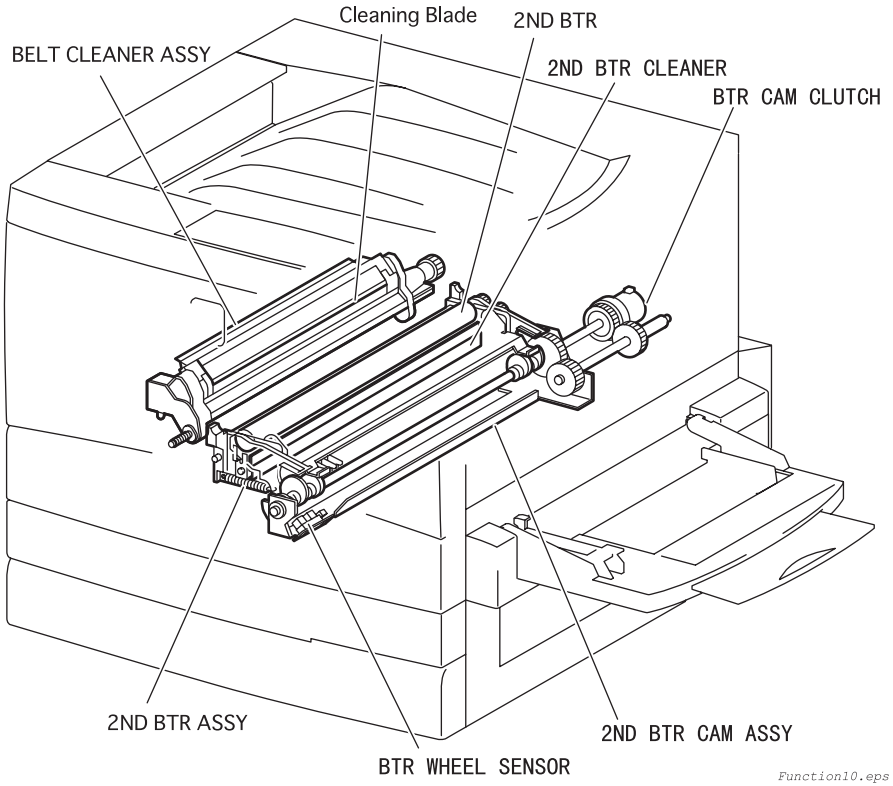


Figure 2-39. IBT II

2.2.4.10 Fusing I

MAJOR FUNCTIONS

☐ FUSER ASSY

Along with fixing unfixed toner transferred to paper with heat and pressure, the FUSER ASSY transports the paper before and after fixing. The FUSER ASSY consists of the MAIN FUSER ASSY and FUSER TRAY ASSY.

■ MAIN FUSER ASSY

The MAIN FUSER ASSY consists of the HEAT ROLL, PRESSURE ROLL, H/R HEATER, P/R HEATER and TEMP. SENSOR ASSY.

- The HEAT ROLL is a hollow metal roll whose surface is coated with a layer of rubber that adds heat for fixing toner on paper.
- The PRESSURE ROLL is a hollow metal roll whose surface is coated with a layer of rubber that adds heat and pressure for fixing toner on paper.
- The H/R HEATER is a halogen lamp with a sealed heating coil that serves as the source of heat for the HEAT ROLL. The H/R HEATER is contained in the hollow inside of the HEAT ROLL, and raises the temperature of the HEAT ROLL to a temperature where fixing is possible.
- The P/R HEATER is a halogen lamp with a sealed heating coil that serves as the source of heat for the PRESSURE ROLL. The P/R HEATER is contained in the hollow inside of the PRESSURE ROLL, and raises the temperature of the PRESSURE ROLL to a temperature at which fixing is possible.
- The TEMP. SENSOR ASSY is sensor for detecting temperature that uses a thermistor (device for which resistance changes according to temperature). Making constant contact with the HEAT ROLL, the TEMP. SENSOR ASSY detects the surface temperature of the HEAT ROLL. The TEMP. SENSOR ASSY turns the H/R HEATER and P/R HEATER ON/OFF (lamp on/off control) and prevents primary overheating based on the detected temperature.
- The Thermostat is directly connected to the power supply circuit for the H/R HEATER and P/R HEATER. If the TEMP. SENSOR ASSY device for preventing primary overheating fails to operate, the heat causes the contact inside the Thermostat to open, forcibly interrupting the power supply to the H/R HEATER and P/R HEATER, thus preventing secondary overheating.
- The Thermal Fuse is directly connected to the power supply circuit for the H/R HEATER and P/R HEATER. If the TEMP. SENSOR ASSY device for preventing primary overheating by fails to operate, the Thermal Fuse is melted by heating, forcibly interrupting the power supply to the H/R HEATER and P/R HEATER, and thereby preventing tertiary overheating.
- The FUSER EXIT SENSOR-1 and 2, with their AND signal, detect passage of paper by change in position of the FUSER EXIT ACTUATOR.
- The FUSER BAFFLE ASSY separates the paper from the HEAT ROLL and prevents the paper from winding on the HEAT ROLL.

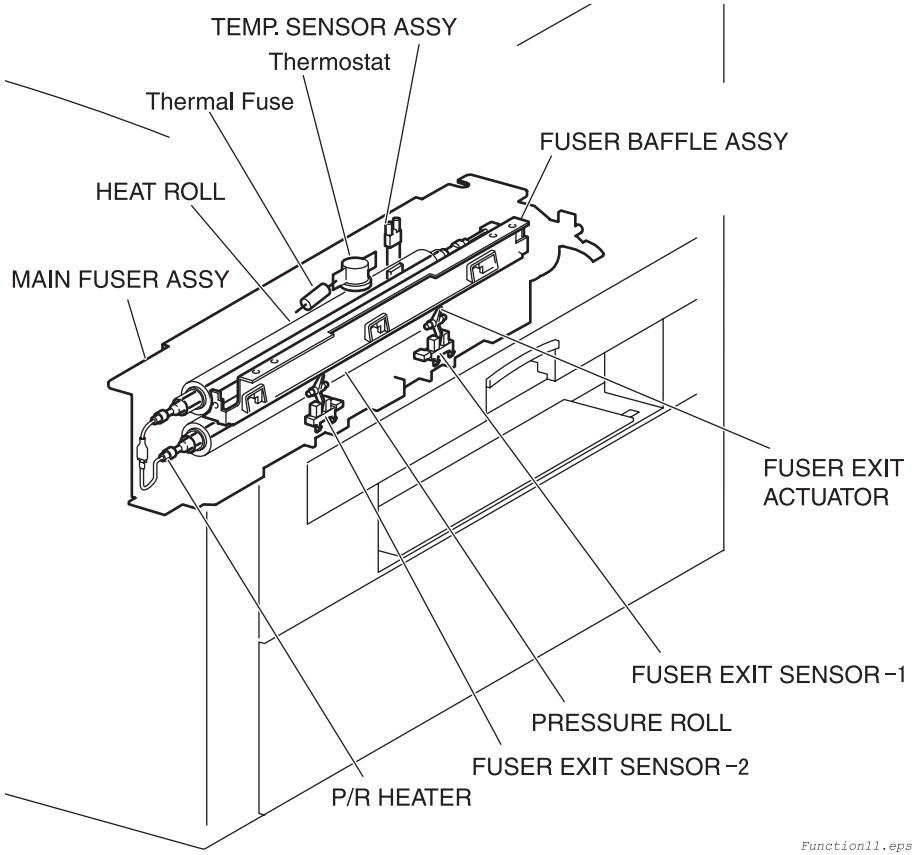


Figure 2-40. Fusing I

2.2.4.11 Fusing II

MAJOR FUNCTIONS

☐ FUSER ASSY
Along with fixing unfixed toner transferred to paper with heat and pressure, the FUSER ASSY transports the paper before and after fixing.
The FUSER ASSY consists of the MAIN FUSER ASSY and FUSER TRAY ASSY.

■ FUSER TRAY ASSY
Consisting of the FUSER IN SENSOR, and EXCHANGE SOLENOID etc., the FUSER TRAY ASSY transports paper before and after the MAIN FUSER ASSY.

- FUSER IN SENSOR
  The FUSER IN SENSOR detects passage of paper by change in the position of the FUSER IN ACTUATOR. (Detects top edge of paper using detection timing of FUSER EXIT SENSOR as a reference point.)
- FUSER CHUTE FAN
  The FUSER CHUTE FAN pulls the paper along the FUSER PAPER GUIDE and HORIZONTAL CHUTE in order to line up the paper transported to the MAIN FUSER ASSY.
- CLEANER CAM SOLENOID
  The toner image in the process of being formed will be destroyed if the Cleaning Blade of the BELT CLEANER ASSY touches the IBT BELT ASSY before the complete toner image is formed on the IBT BELT ASSY. The Cleaning Blade of the BELT CLEANER ASSY therefore must touch the IBT BELT ASSY only immediately after transferring the image to paper (secondary transfer), and must not touch the IBT BELT ASSY at any other time.
  The CLEANER CAM SOLENOID transmits the driving force from the FUSER MOTOR ASSY to the CLEANER CAM ASSY and CLN CAM GUIDE. And it advances the BELT CLEANER ASSY (brings the Cleaning Blade of the BELT CLEANER ASSY into contact with the IBT BELT ASSY) and retracts the BELT CLEANER ASSY (separates the Cleaning Blade of the BELT CLEANER ASSY from the IBT BELT ASSY).
- EXCHANGE SOLENOID
  There are two modes of discharging prints after fixing: FACE UP and FACE DOWN. The EXCHANGE SOLENOID controls the print discharge mode by switching the EXCHANGE CHUTE.
- EXIT-1 ROLL ASSY
  Transports prints coming from the MAIN FUSER ASSY after fixing.

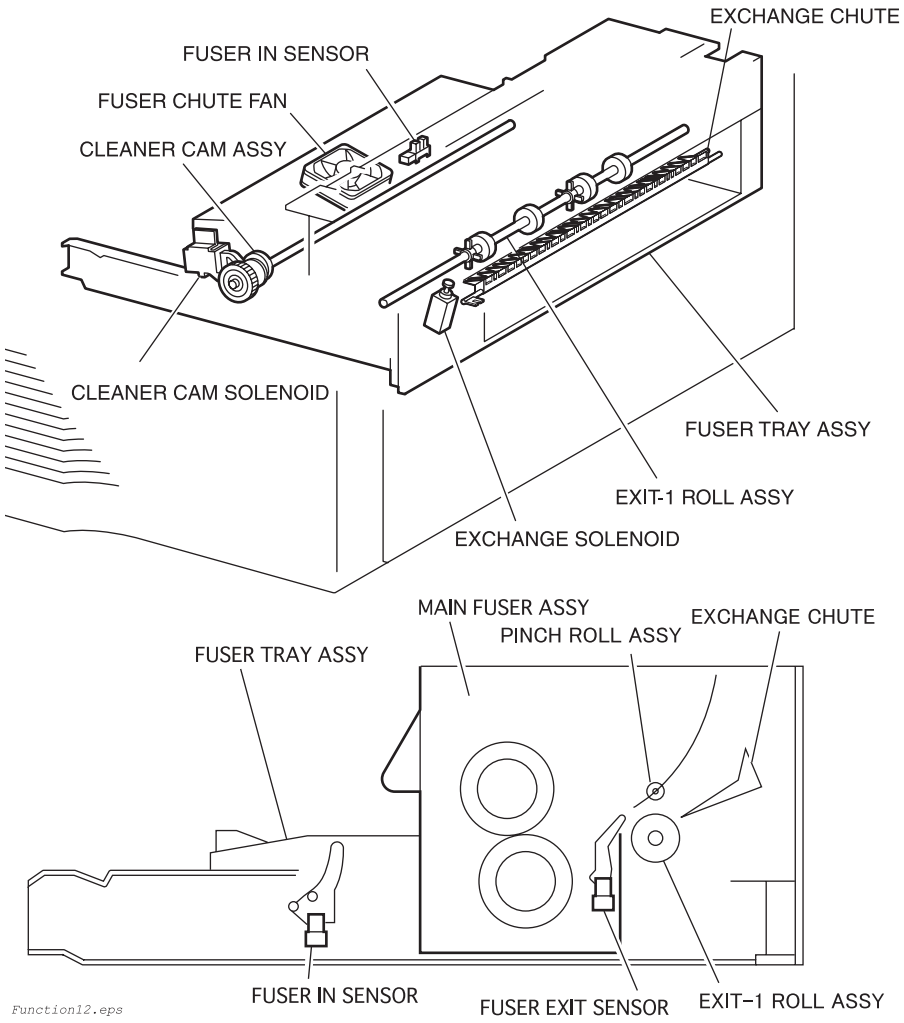


Figure 2-41. Fusing II

2.2.4.12 Paper Exit

MAJOR FUNCTIONS

- EXIT-2 ROLL ASSY
  Transports prints after fixing for FACE DOWN discharge on the TOP COVER ASSY.
- EXIT-3 ROLL ASSY
  Transports prints after fixing for FACE DOWN discharge on the TOP COVER ASSY.
- EXIT CHUTE SWITCH
  The EXIT CHUTE SWITCH is a safety switch that detects whether the EXIT UPPER ASSY is open or closed (ON when pushed in by rib of EXIT UPPER ASSY), and stops operation when the EXIT UPPER ASSY is open.
- FUSER FAN-1
  Discharges heat of the FUSER ASSY to prevent the internal temperature from rising excessively.
- EXIT CHUTE FAN
  Discharges heat of the FUSER ASSY to prevent the internal temperature from rising excessively.
- TOP EXIT SENSOR
  The TOP EXIT SENSOR detects passage of the print after fixing by change in position of the actuator.
- EXIT MOTOR ASSY
  The EXIT MOTOR ASSY drives the EXIT-3 ROLL ASSY and EXIT-2 ROLL ASSY.

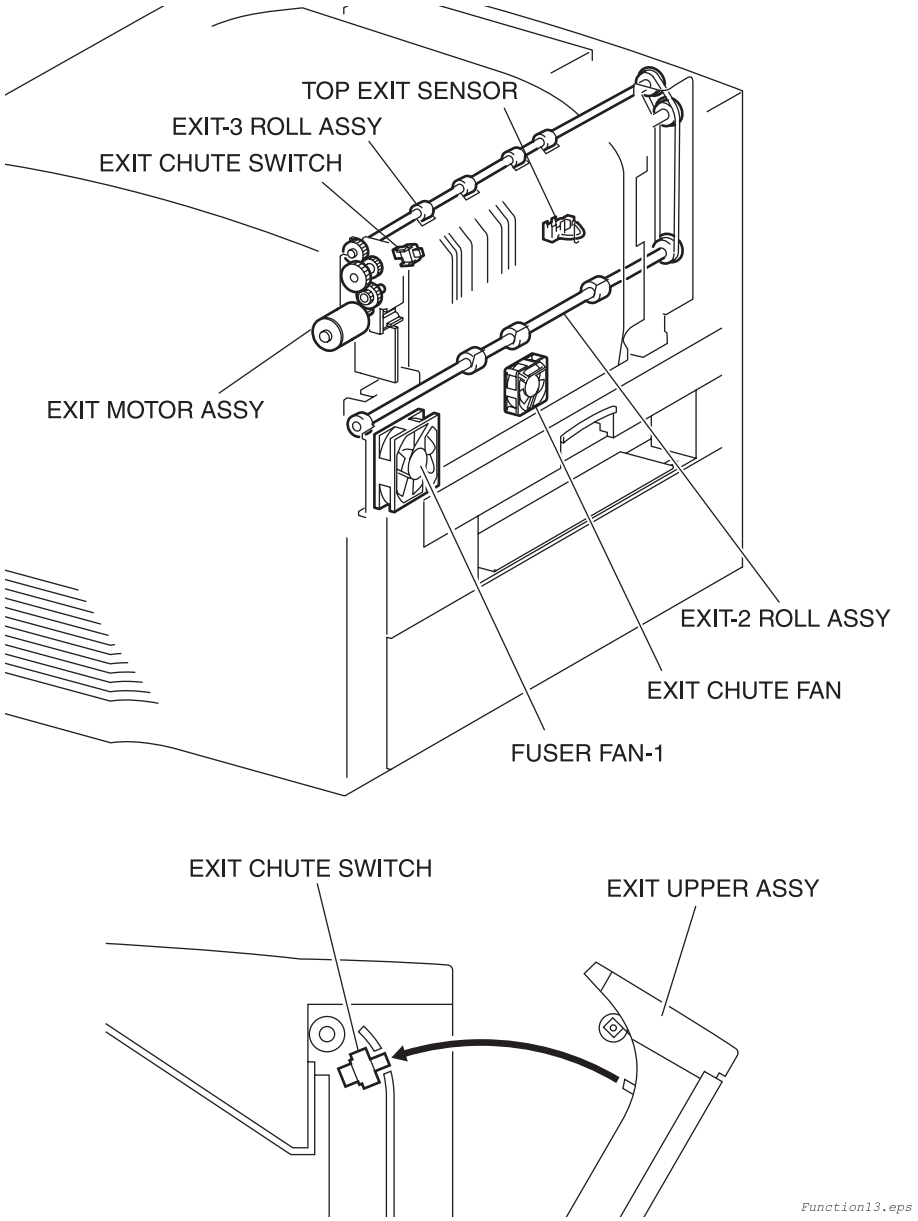


Figure 2-42. Paper Exit

2.2.4.13 Drive

MAJOR FUNCTIONS

- P/R MOT&DRV ASSY
  The P/R MOT&DRV ASSY provides drive for the DRUM CARTRIDGE and TRANSFER ASSY.
- P/H MOTOR ASSY
  The P/H MOTOR ASSY provides drive for the following parts via the P/H DRIVE ASSY.
  - MAIN P/H FRAME ASSY
  - DRUM CARTRIDGE
  - FEEDER ASSY
  - Option Duplex

  The P/H MOTOR ASSY controls the operation of the MAG MOTOR ASSY, FUSER MOTOR ASSY and PRO MOTOR ASSY and supplies them with power.
- FUSER MOTOR ASSY
  The FUSER MOTOR ASSY provides drive for the FUSER ASSY.
- P/H DRIVE ASSY
  Transmits drive of the P/H MOTOR ASSY to the MAIN P/H FRAME ASSY, etc.
- PRO MOTOR ASSY
  The PRO MOTOR ASSY drives the following parts via the PRO DRIVE GEAR ASSY.
  - 2ND BTR ASSY
  - BELT CLEANER ASSY
  - AUGER HIGH ASSY
- MAG MOTOR ASSY
  The MAG MOTOR ASSY drives the Developer Assy (Magnet Roll and two Augers).
- DISPENSE MOTOR ASSY
  The DISPENSE MOTOR ASSY drives the Auger inside the Developer Assy.
- ROTARY MOTOR ASSY
  Provides drive for rotating the ROTARY FRAME ASSY.
- ROTARY MOTOR DRIVE PWB
  Provides power for and controls rotation of the ROTARY MOTOR ASSY.

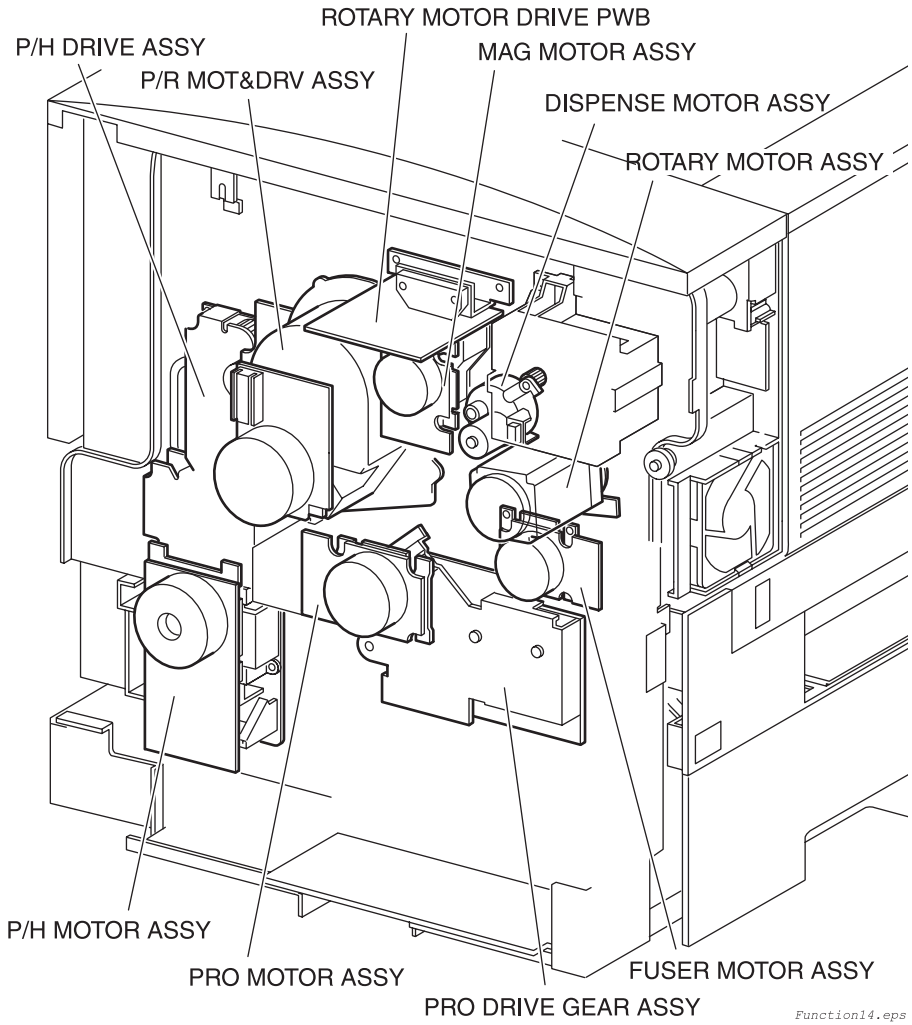


Figure 2-43. Drive

2.2.4.14 Electrical

MAJOR FUNCTIONS

- FRONT COVER SWITCH R
  FRONT COVER SWITCH R is composed of two switches of an interlock switch that detects whether the FRONT COVER ASSY is open or closed, and interrupts the 5VDC-LD circuit that shuts off output (5VDC-LD) from the LV/HV POWER SUPPLY when the FRONT COVER ASSY is open and a safety switch in control that makes each movement stop when the FRONT COVER ASSY is open.
- FRONT COVER SWITCH L
  FRONT COVER SWITCH L is a control safety switch that shuts off 24VDC when the FRONT COVER ASSY is open (interrupts Relay circuit in LV/HV POWER SUPPLY).
- DEVE. FAN
  Discharges internal heat to prevent the internal temperature from rising excessively.
- LV/HV POWER SUPPLY
  Long with providing AC power from the power source to the H/R HEATER and P/R HEATER of the FUSER ASSY, the LV/HV POWER SUPPLY creates and supplies low-voltage DC power used by the logic circuit, etc.
  Along with the power source circuit, the LV/HV POWER SUPPLY includes control circuits for the H/R HEATER and P/R HEATER, inlet, power switch, etc.
  Also supplies high voltage to the following parts to perform steps of the process such as charging, developing, primary transfer and secondary transfer.
  - BCR inside DRUM CARTRIDGE
  - Magnet Roll inside Developer Assy
  - 1ST BTR inside TRANSFER ASSY
  - CONTACT ROLL inside TRANSFER ASSY

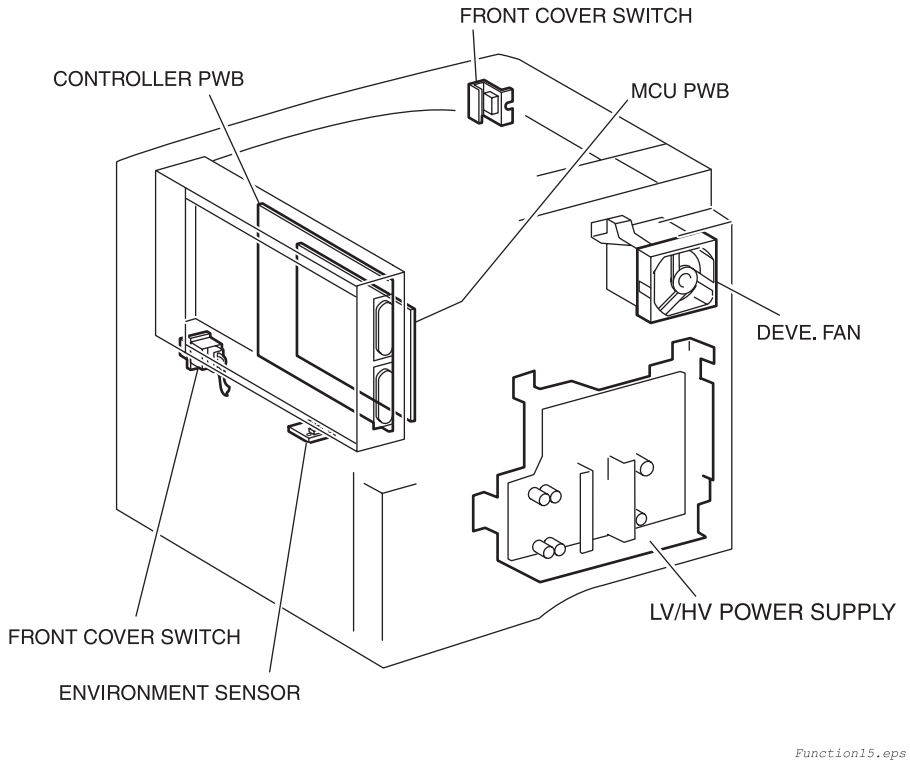


Figure 2-44. Electrical (1)

- MCU PWB
  Controls printing based on communication with the printer controller and data from the sensors and switches.
  The main functions of the MCU PWB are as follows:
  - Communication with the printer controller
  - Reception of data from sensors and switches
  - Control of ROS ASSY, FUSER ASSY and motors (P/R MOT&DRV ASSY, P/H MOTOR ASSY, FUSER MOTOR ASSY, ROTARY MOTOR ASSY, MAG MOTOR ASSY, PRO MOTOR ASSY)
  - Control of print process
  - Distribution of low voltage DC power output from the LV/HV POWER SUPPLY
- ENVIRONMENT SENSOR
  The ENVIRONMENT SENSOR is the sensor for detecting temperature/humidity that uses a thermistor (device for which resistance changes according to temperature) and humidity sensing element (device for which resistance changes according to humidity).
- CONTROLLER PWB
  Receives data from the host, prints and controls the entire printer.

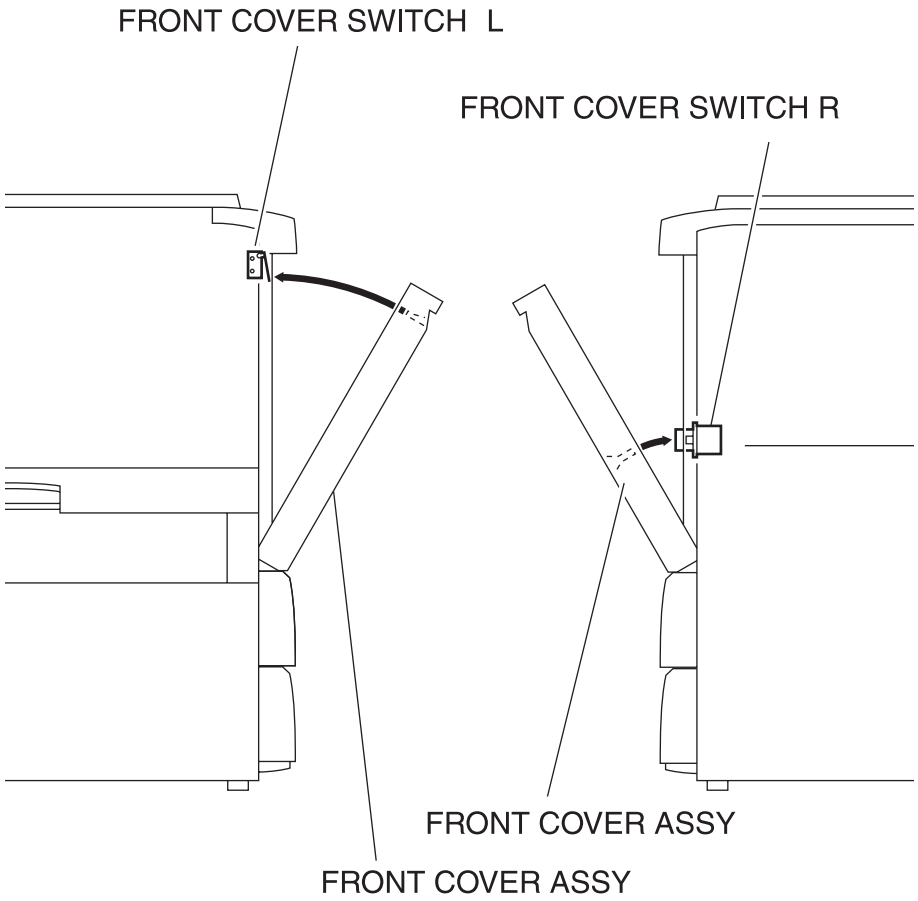


Figure 2-45. Electrical (2)

2.2.4.15 Option Duplex

Option Duplex consists of the following three components:

1) DUP TRANSPORT ASSY

2) INVERTER ASSY

3) ALIGNER ASSY

You can print on both sides of paper by adding this set of components.

MAJOR FUNCTIONS

- ☐ DUP TRANSPORT ASSY
  - ■ DUP GATE SOLENOID
    Control the way that there are two of the FACE DOWN discharge and the INVERTER ASSY carriage in the print carried by FUSER ASSY and DUP GATE SOLENOID changes GATE-DUPLEX it and it is carried.
  - ■ EXIT ROLLER-ASSY
    Discharge a print after the fixation with FACE UP.
- ☐ INVERTER ASSY
  The paper which a settlement side is printed on is made to turn over, and carry INVERTER ASSY to ALIGNER ASSY.
  - ■ CAB SWITCH-I/L
    The CAB SWITCH-I/L is a safety switch in the control circuit. It detects the opening/closing of the INV CHUTE-ASSY (turns ON when pushed in by the rib of the INVERTER CHUTE) and stops each operation at detection of opening.
  - ■ DUP CONTROLLER PWB
    Do the control of each movement of Option Duplex.
  - ■ FORWARD CLUTCH
    Transmit the drive of INV MOT-ASSY to INV2 ROLLER-ASSY.
  - ■ REVERSE CLUTCH
    Transmit the drive of INV MOT-ASSY to INV2 ROLLER-ASSY, and do a reversal movement.

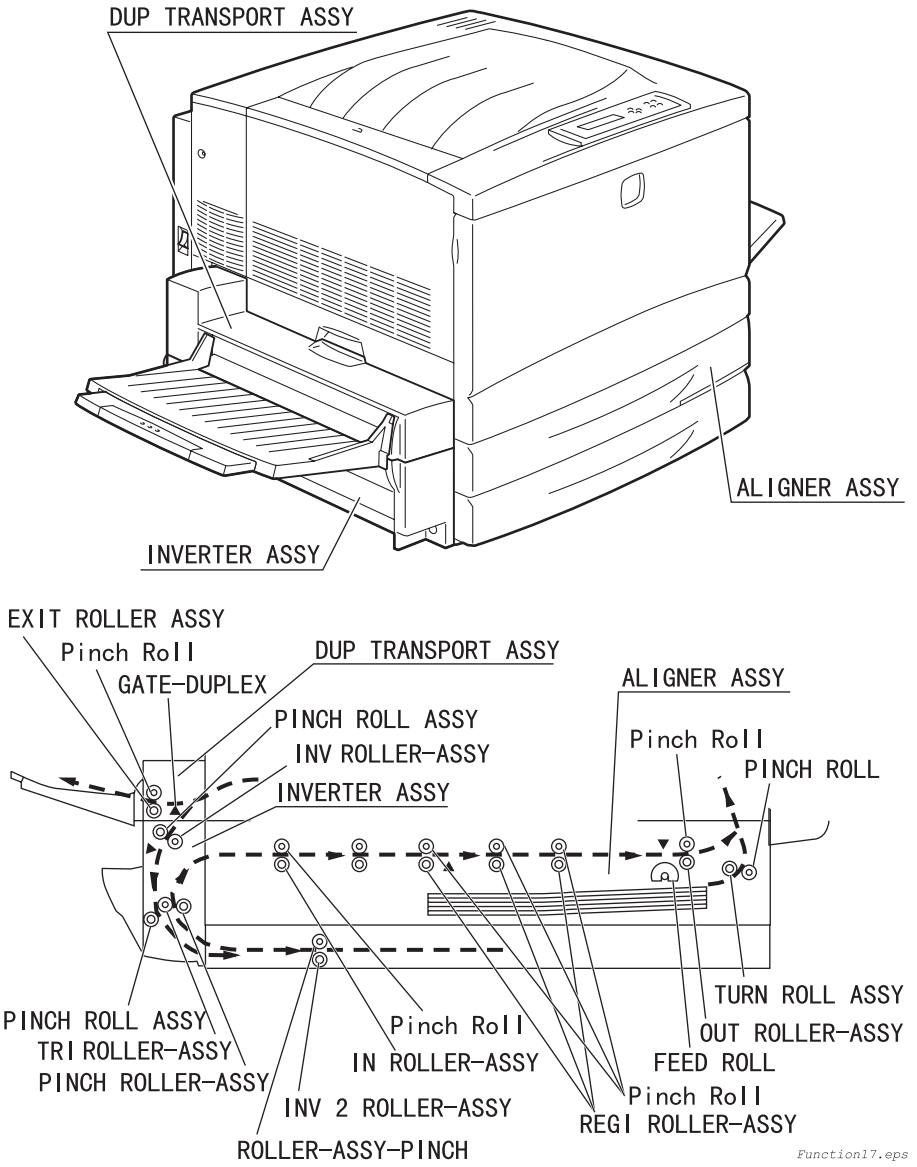


Figure 2-46. Option Duplex (1)

- INV MOT-ASSY
  INV MOT-ASSY supplies a drive to the following part.
  - INV2 ROLLER-ASSY
  - TRI ROLLER-ASSY
  - INV ROLLER-ASSY
  - FORWARD CLUTCH
  - REVERSE CLUTCH
- EXIT SENSOR
  EXIT SENSOR measures the end of the paper carried by DUP TRANSPORT ASSY, and detect the reversal timing.

☐ ALIGNER ASSY

- IN ROLLER-ASSY
  IN ROLLER-ASSY turns a drive from ALIGNER DRIVE CLUTCH through BELT 346, and carries the paper sent off from INVERTER ASSY into ALIGNER ASSY.
- OUT ROLLER-ASSY
  By receiving the driving force from the ALIGNER DRIVE CLUTCH, the OUT ROLLER-ASSY rotates to carry the paper to the MAIN P/H FRAME ASSY.
- ALIGNER OUT SENSOR
  A paper inside ALIGNER ASSY detects that carriage to MAIN P/H FRAME ASSY was finished with ALIGNER OUT SENSOR.
- ALIGNER SENSOR
  ALIGNER SENSOR detects that a paper was carried to ALIGNER ASSY by INVERTER ASSY.
- ALIGNER DRIVE CLUTCH
  ALIGNER DRIVE CLUTCH transmits the drive of P/H MOTOR ASSY to IN ROLLER-ASSY, OUT ROLLER-ASSY via P/H DRIVE ASSY.

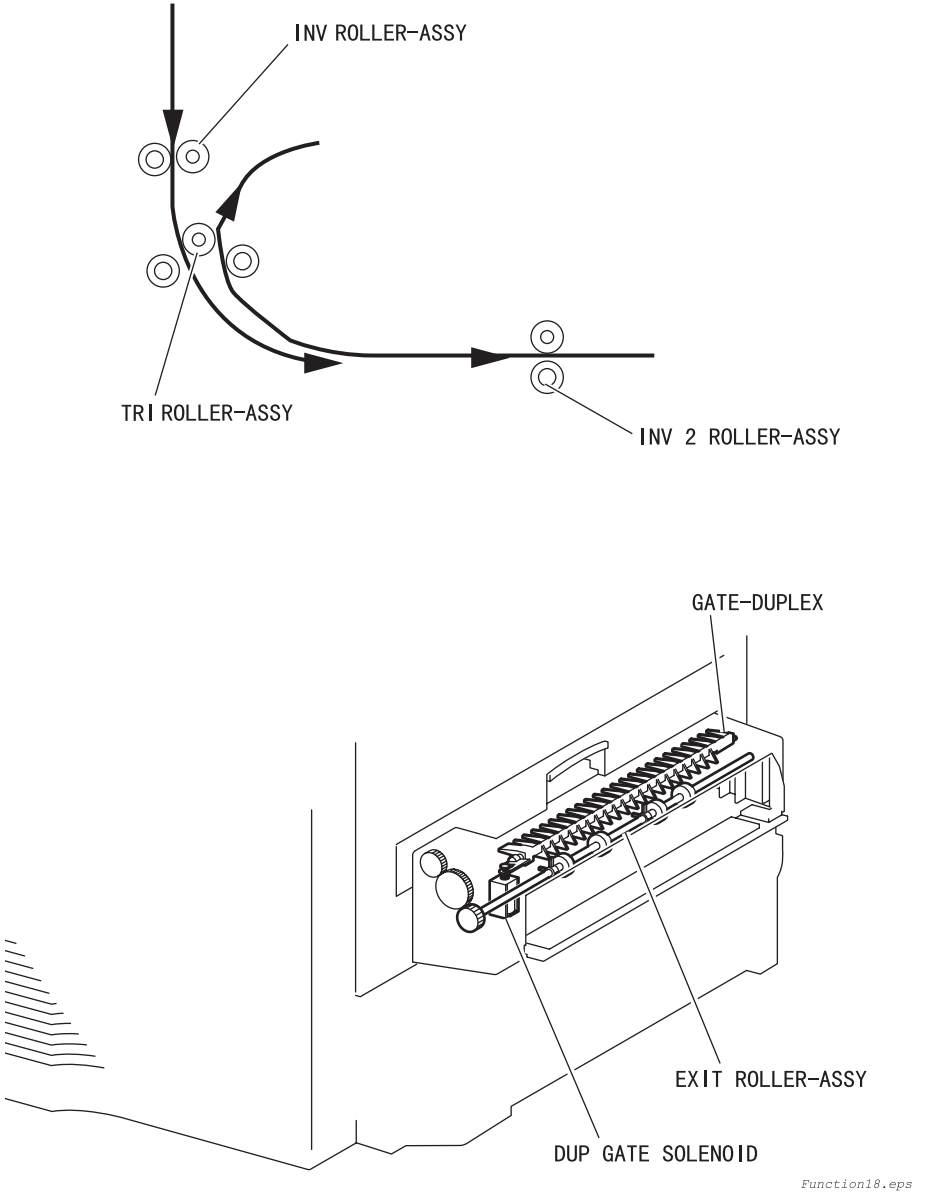


Figure 2-47. Option Duplex (2)

☐ LOWER INV SOLENOID

When the LOWER INV SOLENOID mounted on the printer body operates, the ROLLER-ASSY-PINCH incorporated in the INVERTER ASSY of the Option Duplex moves up and down. This movement controls the presence/absence of NIP (contact under pressure) between the ROLLER-ASSY-PINCH and the INV 2 ROLLER-ASSY.

If the ROLLER-ASSY-PINCH and INV 2 ROLLER-ASSY are always kept in the NIP state, paper transport is resisted at paper reversing (paper is transported with its old rear end as the new front end). In paper reversing, since this resistance can cause a paper jam, the ROLLER-ASSY-PINCH and INV 2 ROLLER-ASSY must be released from the NIP state.

When the LOWER INV SOLENOID is in the Pull state (default position), the ROLLER-ASSY-PINCH is pulled by the tensile force of the LINK SPRING-PINCH mounted between the LINK-PINCH on the shaft of the ROLLER-ASSY-PINCH and the frame. Consequently, the ROLLER-ASSY-PINCH, together with the INV 2 ROLLER-ASSY, is kept in the NIP state.

When the LOWER INV SOLENOID is in the Push state (kept in the Push state by the force of the LOWER INV SOL SPRING), it pushes the LINK-PINCH and rotates the ROLLER-ASSY-PINCH, thus releasing it from the NIP state.

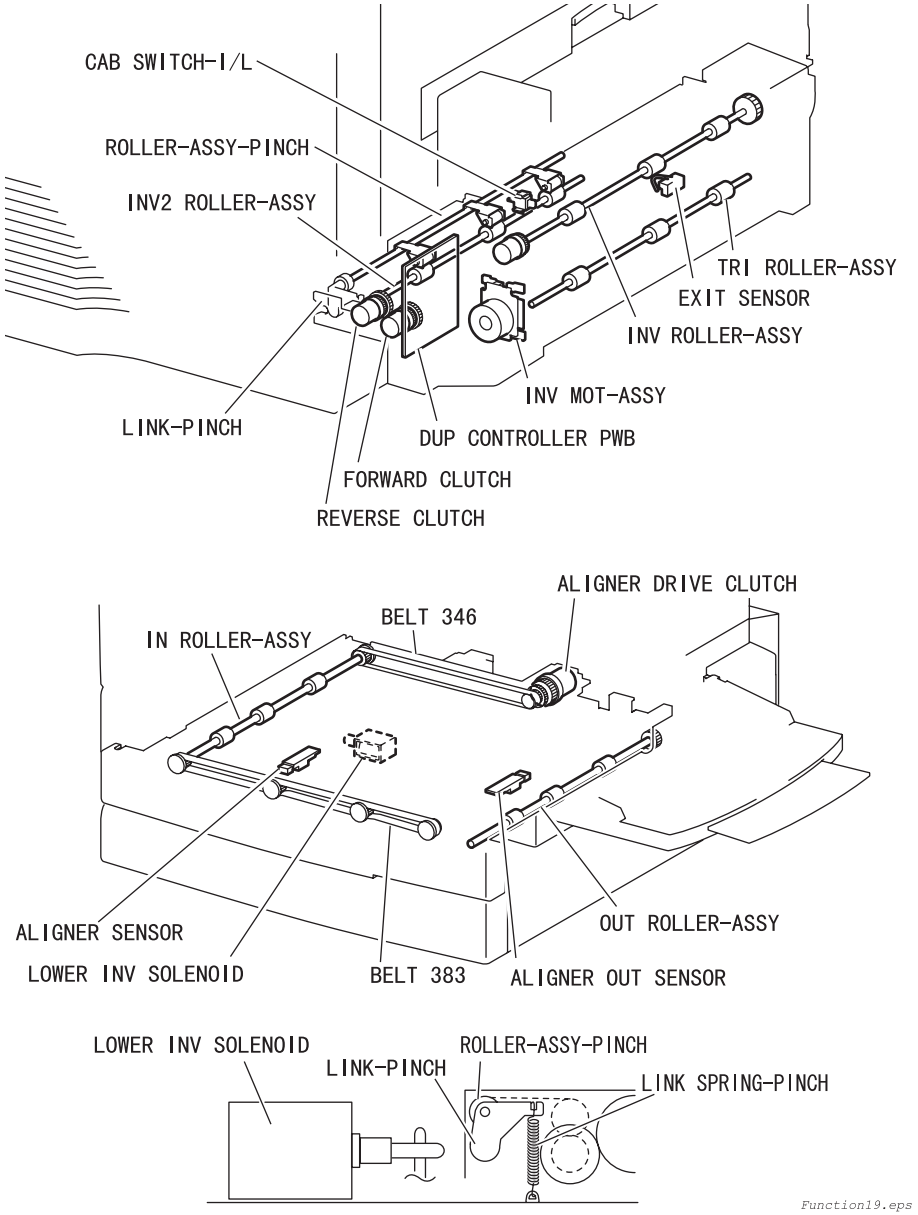


Figure 2-48. Option Duplex (3)

2.3 Control

2.3.1 Paper Size Control

2.3.1.1 Lower Cassette 1 (Standard Cassette) Paper Size Control

Table below shows “ON/OFF of Paper Size Switches in SIZE SWITCH ASSY” for each paper size available with the Lower Cassette 1 (standard cassette) and the corresponding “Analog Input Test Data” by the DIAG tool and “SIZE SWITCH signal voltage”.

Table 2-45. Lower Cassette 1 (Standard Cassette) Paper Size Control

Paper size	Paper Size Sensor				Diagnostics display data	Voltage (Unit: VDC)
	S1	S2	S3	S4		
No paper cassette	0	0	0	0	0E ~ 0F	0.275 ~ 0.293
B5(LEF) *1	1	1	0	0	BB ~ BE	3.671 ~ 3.715
EXECUTIVE(LEF) *2						
A4(LEF)	0	1	0	0	47 ~ 4A	1.396 ~ 1.445
LETTER(LEF)	1	0	1	0	9D ~ A1	3.098 ~ 3.152
A4(SEF) *1	0	1	1	1	72 ~ 76	2.248 ~ 2.298
LETTER(SEF) *2						
LEGAL(14")(SEF)	1	1	1	0	B8 ~ DB	4.247 ~ 4.276
B4(SEF)	0	1	0	1	55 ~ 59	1.680 ~ 1.730
A3(SEF)	0	0	1	0	2A ~ 2D	0.834 ~ 0.871
LEDGER(SEF)	0	0	1	1	3A ~ 3C	1.116 ~ 1.157
12"×18"(SEF)	0	0	0	1	1C ~ 1E	0.554 ~ 0.583
Nonstandard/A3 or larger (SEF)	1	1	1	1	E7 ~ E9	4.537 ~ 4.554
Not used	1	0	0	0	-	-
Not used	1	0	0	1	-	-
Not used	0	1	1	0	-	-
Not used	1	0	1	1	-	-
Not used	1	1	0	1	-	-

Note "*": For when the ON/OFF status of Paper Size Switches in the same, one of the two is selected according to the specifications.
(*1: mm unit specs, *:2 Inch unit specs.)

Note 1: The Paper Size Switches are from left to right S1 S2, S3, and S4. ON is 1 and OFF is 0.

2.3.1.2 Lower Cassette 2/ Lower Cassette 3 (500-sheet Lower Cassette) Paper Size Control

Table below shows “ON/OFF of Paper Size Switches in SIZE SWITCH ASSY” for each paper size available with the Lower Cassette 2 / Lower Cassette 3 (option)) and the corresponding “Analog Input Test Data” by the DIAG tool and “SIZE SWITCH signal voltage”.

Table 2-46. Lower Cassette 2/ Lower Cassette 3 (500-sheet Lower Cassette) Paper Size Control

Paper size	Paper Size Sensor				Diagnostics display data	Voltage (Unit: VDC)
	S1	S2	S3	S4		
No paper cassette	0	0	0	0	EBh ~ F0h	4.78 ± 0.05
B5(LEF)	0	1	0	1	9Ah ~ 9Fh	3.15 ± 0.05
EXECUTIVE(LEF)						
A4(LEF)	1	0	1	1	3Bh ~ 40h	1.24 ± 0.05
LETTER(LEF)	0	1	1	1	7Ah ~ 7Fh	2.50 ± 0.05
A4(SEF)	0	0	1	1	BAh ~ BFh	3.79 ± 0.05
LEGAL(14")(SEF)	0	0	1	0	CAh ~ CFh	4.11 ± 0.05
B4(SEF)	0	1	1	0	8Ah ~ 8Fh	2.82 ± 0.05
A3(SEF)	1	0	1	0	4Bh ~ 50h	1.56 ± 0.05
LEDGER(SEF)	0	1	0	0	AAh ~ AFh	3.47 ± 0.05

2.3.2 Paper Supply Unit Selection Control

If not controlled by the printer controller, the paper supply unit selected when the power is turned ON is as follows:

Table 2-47. Paper Supply Unit Selection Control

Priority sequence	Selected paper supply unit	Selection conditions
1st priority	Lower Cassette 1 (Standard)	When “Lower Cassette is present” and “Paper is present” for the Lower Cassette 1. Or “there is no paper” on any paper feeder.
2nd priority	Lower Cassette 2 (Option)	“Lower Cassette is present” and “paper is present” for the Lower Cassette 2 under the conditions where the Lower Cassette 1 is not selected.
3rd priority	Lower Cassette 3 (Option)	“Lower Cassette is present” and “paper is present” for the Lower Cassette 3 under the conditions where neither the Lower Cassette 1 nor the Lower Cassette 2 is selected.
4th priority	MSI Tray	“Paper is present” for MSI under the conditions where none of the Lower Cassette 1, Lower Cassette 2 and Lower Cassette 3 is selected.

Note: The paper tray feeder at the bottom of the printer is called “Lower Cassette 1" (standard cassette), the first level of the optional FEEDER UNIT is called “Lower Cassette 2" (optional cassette), and the second level is called “Lower Cassette 3" (optional cassette).

2.3.3 OHP Front/Back Detection Control

OHP white frame detection control is intended to prevent OHP film with white frame from getting stuck on the HEAT ROLL. The Top and bottom ends of the OHP film with white frame are detected by checking signal output of the OHP SENSOR. (See Figure 2-49)

☐ OHP white frame detection timing:
Table below shows the detection timing.

Table 2-48. OHP Front/Back Detection Control

Paper Feeder	Front end detection timing *1	Rear end detection timing *2
	Edge	Trigger
	Monitor range [msec]	Monitor range [msec]
MSI Tray	REGI SENSOR ON	REGI. CLUTCH ON
	“600”	At LEF: “887+225” At SEF: “1508+225”
Lower Cassette 1 (Standard)	REGI SENSOR ON	REGI. CLUTCH ON
	“1538”	At LEF: “887+225” At SEF: “1508+225”
Lower Cassette 2 Lower Cassette 3 (Option)	REGI SENSOR ON	REGI. CLUTCH ON
	Take-in signal ~ “1457”	At LEF: “887+225” At SEF: “1508+225”

Note *1: The paper is judged to be plain paper when Low level (white) is detected for 75 msec or longer between the monitors. When Low level (white) is detected for 38 msec or longer but for not longer than 75 msec, the paper is judged to be a white-frame OHP sheet and operation is brought into a stop.

*2: When Low level (white) is detected between the monitors, the paper is judged to be a white-frame OHP sheet and operation is brought into a stop. When Low level (white) is detected for 23 msec or longer but for not longer than 75 msec, the paper is judged to be a white-frame OHP sheet and operation is brought into a stop.

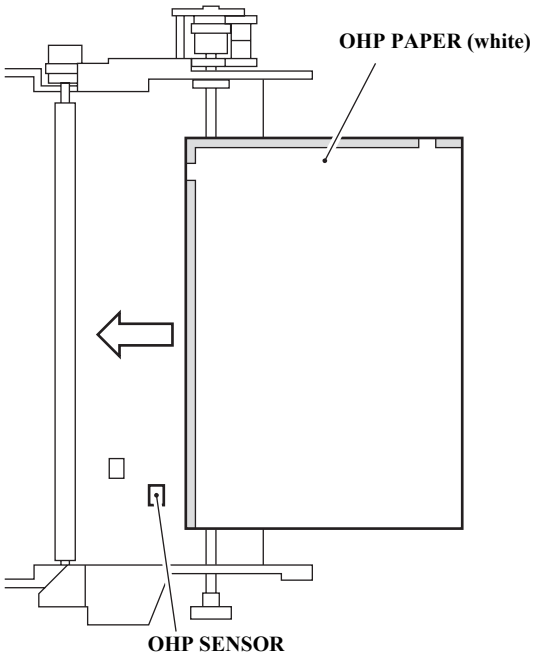
Note 1: The specifications do not include feed of OHP sheets from any of the Lower Cassette 1 (standard), Lower Cassette 2 and Lower Cassette 3. However, the detecting function is provided for misuse by users.

2: The values indicated above for monitor range timing are of standard speed mode or the equivalent. The values are doubled in the middle speed mode (except the case similar to the standard speed mode). The values are tripled in the low speed mode (except the case similar to the standard speed mode).

3: LEF (Long Edge Feed) means that the long edge of the paper is fed to the printer. SEF (Short Edge Feed) means that the short edge of the paper is fed to the printer. Where no SEF/LEF is specified, the paper setting is SEF, as a rule.

☐ OHP White Frame Detection Movement

There is a notch of the transparency in a part of the white zone at the end of the OHP paper with the white frame, and the signal level of two sensors is more different, and it can be detected.



Control01.eps

Figure 2-49. OHP Front/Back Detection Control

2.3.4 ROS Control

2.3.4.1 Scanner Motor Operation

The Scanner Motor is turned ON/OFF as follows for each mode:

Table 2-49. Scanner Motor Operation

Operation mode	Scanner Motor ON/OFF
WARM UP mode	OFF
READY mode	OFF
RUNNING mode	ON
DEEP SLEEP mode	OFF
LIGHT SLEEP mode	OFF

Note 1: The Scanner Motor runs when diagnostics tool “Printing/Status Control” / “PMSTT” is executed, regardless of the above.

2.3.4.2 ROS Warm-Up

The Scanner Motor starts running at the same time ROS warm-up begins.
If the Scanner Motor is running at a constant speed the SOS signal interval is shorter than the READY reference value. ROS warm-up is over when the SOS signal interval is shorter than the READY reference value 3 times consecutively after ROS warm-up starts.
ROS Warm-up is faulty if the SOS signal interval is longer than READY reference value even when 20 seconds passes after start of ROS warm-up.

2.3.4.3 Reference Values for ROS

Table 2-50. Reference Values for ROS

Reference Values for ROS	Description
READY reference value	SOS signal interval corresponding to 98% or more of the specified running speed of the SCANNER MOTOR
FAIL reference value	SOS signal interval corresponding to 90% or less of the specified running speed of the SCANNER MOTOR

Note 1: Runaway of the Scanner Motor is detected as an error by the FAIL reference value when the laser beam does not enter the SOS Sensor due to increase in motor running speed by 1.2% or more.

2.3.4.4 Quantity of Light Control

Image data is input to the ROS (LD Assy) as an electric signal (expresses image data according to differential signal), and the LD Assy converts the image data from an electric signal to an optical signal (expresses data by flashing the laser beam on and off).

If there is disparity in quantity of laser light (LD Power), the optical system (lens, etc.), or sensitivity of the drum, the proper electrostatic latent image cannot be obtained. The LD Assy therefore monitors and controls quantity of laser light based on feedback of potential control (see "*2.3.5.1 Potential Control (p.134)*" in this chapter) so a stable, proper electrostatic latent image can be obtained. This is called "APC (Automatic Power Control)."

APC EXECUTION TIMING

1. Prior to printing (print job).
2. When VREF signal (reference voltage corresponding to target values for quantity of light) is changed by potential control (when target values for quantity of light are altered).
3. Each line by timing of SOS light signal (internal signal to output laser radiation due to SOS signal) while printing.

APC PROCEDURE

☐ When APC execution timing is 1, 2.

1. VREF signal is set (by potential control feedback).
2. LD ENB signal is set to Low. (Permits emission of laser radiation.)
3. The different movement voltage at the VDATA signal /nVDATA sign is set to High. (Turns laser radiation on.)
4. PCONT signal is set to Low. (Adjusts quantity of laser radiation so that the quantity monitored is equal to the VREF signal.
5. PCONT signal is set to high and the different movement voltage at the VDATA signal /nVDATA signal is set to Low. (APC complete)

☐ When APC execution timing is 3.

1. The different movement voltage at the VDATA signal /nVDATA signal is set to High and PCONT signal are set to Low prior to SOS on signal. (Adjusts quantity of laser radiation so that the quantity monitored is equal to the VREF signal.
2. SOS signal is detected.
3. PCONT signal is set to high and the different movement voltage at the VDATA signal /nVDATA signal is set to Low. (APC complete)

2.3.5 Process Control

In order to conduct consistent printing, parameters concerning image forming must be corrected at the appropriate time.
Control of the entire printing process including parameter correction control is referred to as "process control."
Process control primarily consists of the following 3 types of control:

- Potential control
- Toner concentration control (PCDC)
- Toner concentration control (ADC)

2.3.5.1 Potential Control

The proper drum electrification (BCR) voltage and quantity of laser radiation are needed in order to obtain consistent printing quality.

Potential control controls potential on the drum by measuring by means of the ADC sensor the developing concentration of the Cin 50% patch of each color (Y, M, C, Bk) formed on the drum by BCR voltage, quantity of laser radiation, and developing voltage of differing specifications when printing and the concentration of the part of the drum not developed, calculating the proper BCR voltage / quantity of laser radiation, and feeding it back to the HVPS and ROS.

NOTE: *Cin 50% patch" is an image alternate development of every 3 dots. Whether a certain image will be formed with Bk alone or with the 4 colors YMCBk is determined by color mode. In the case of 4 colors YMCBk, the image is formed in the order of Bk → Y → M→ C two colors per single IBT cycle.*

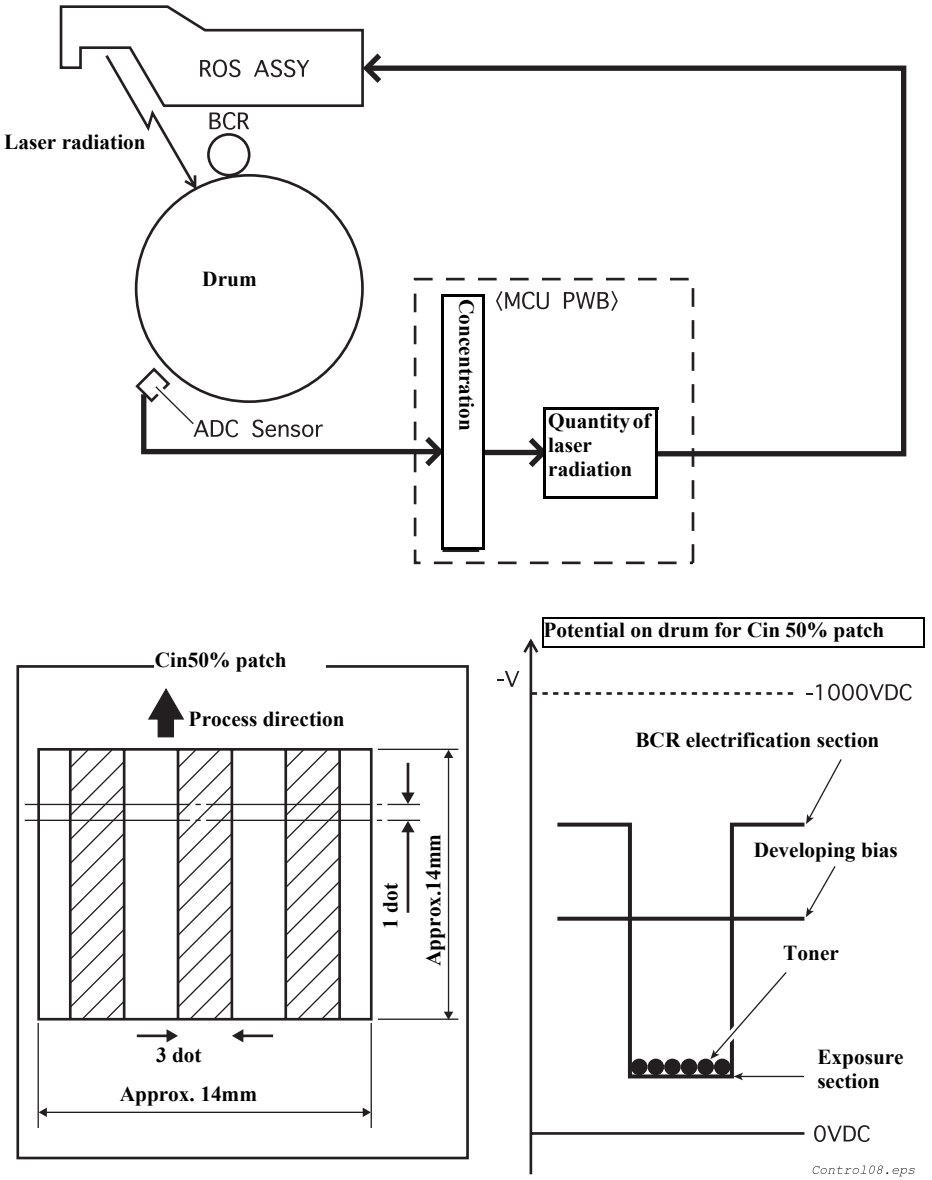


Figure 2-50. Process Control

2.3.5.2 Toner Concentration Control (PCDC)

Concentration of toner in the developer (amount of toner to developer) is reduced by printing. A certain amount of toner must be maintained in the developer in order to obtain consistent printing quality.

PCDS (Pixel Count Dispense Control) calculates the amount of toner consumed by the developing process by counting the video signals input to the ROS ASSY.

Turn on DISPENSE CLUTCH ASSY for the amount of time needed to supply that amount of toner (dispense time), turning the Auger in the Developer Assy to supply toner from the Toner Cartridge to the Developer Assy.

The method of counting video signals for PCDC entails charging and discharging the capacitor corresponding to the video signal by CR circuit arranged parallel to the video signal line.

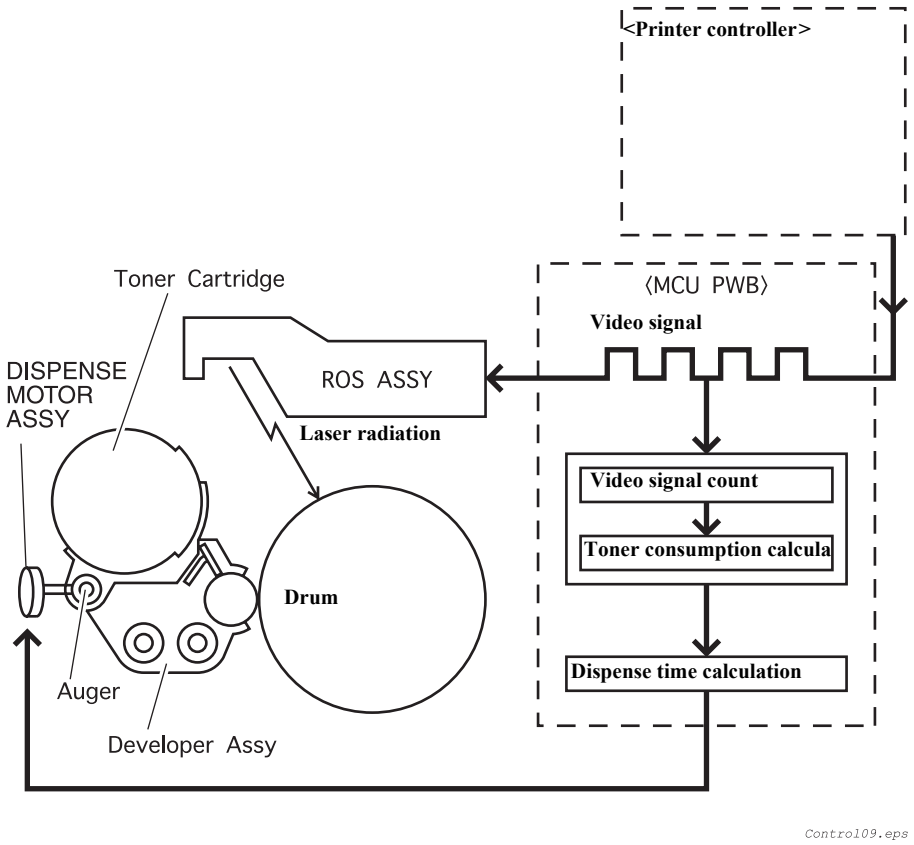


Figure 2-51. Toner Concentration Control (PCDC)

2.3.5.3 Toner Concentration Control (ADC)

In order to conduct consistent printing, the actual amount of toner in developer must be detected while not being affected by laser radiation, and must be maintained.

With ADC (Automatic Density Control), BIAS development bands are formed on the drum of the various colors (Y, M, C, Bk) by BCR voltage and developing voltage of differing specifications when printing, and the concentration of the bands is measured by ADC Sensor.
The measurement values are compared with reference values, and if the amount of toner has decreased (if concentration of toner in the developer is low), turn on the DISPENSE CLUTCH ASSY for the corresponding amount of time (dispense time), turning the Auger in the Developer Assy by the drive from DISPENSE MOTOR ASSY, and thereby supplying toner from the Toner Cartridge to the Developer Assy. If the amount of toner is excessive (concentration of toner in the developer is high), the toner in the developer is consumed by forming BIAS development bands the number of times it takes for the toner to be reduced to the proper amount.

NOTE: *BIAS development bands are images developed by negatively charged toner in the BCR electrification section by raising the BCR voltage and developing voltage.*

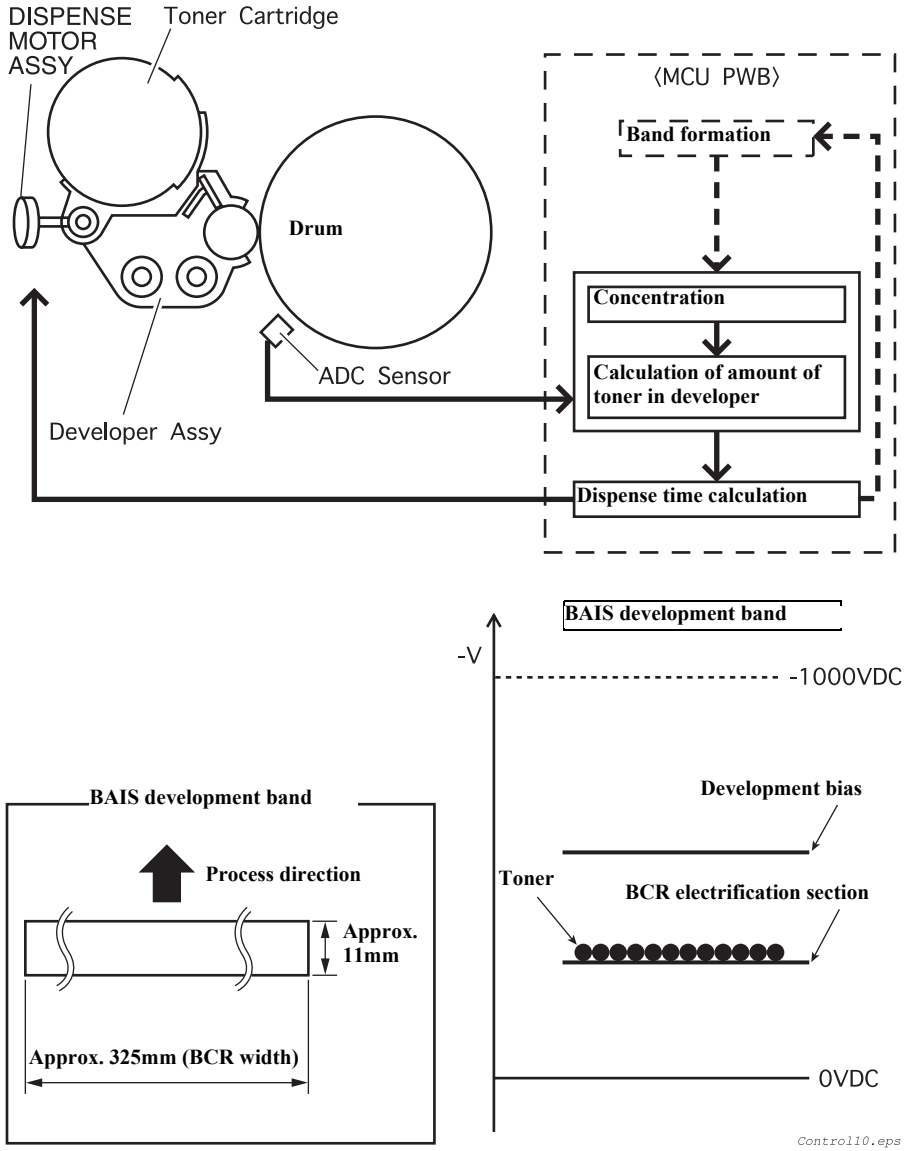


Figure 2-52. Toner Concentration Control (ADC)

2.3.5.4 ADC Solenoid Operation

Every 1000 counts (nominal) the ADC Solenoid operates twice (nominal) at a cycle of 0.5sec ON AND 0.5sec OFF. This causes the light emission/reception parts of the ADC Sensor to be cleaned by the cleaning lever.

NOTE: *Count is a cumulative total that is incremented by 1 when the length of paper in the paper transport direction is 215.9mm (LETTER [LEF]) or less, and incremented by 2 when the size of the paper exceeds 215.9mm (LETTER [LEF]).*

2.3.5.5 Sequence

The following four sequences are used for process control:

Table 2-1. Sequence

Sequence Name	Description	See
Power Up Sequence	Sequence during WARM UP mode (at turning power ON)	*p.138*
Cycle Up Sequence	Sequence which begins after receiving the printing signal in the READY mode and ends before executing printing	*p.139*
Print Sequence	Sequence during execution of printing	*p.140*
Cycle Down Sequence	Sequence at printing (print job) completion	*p.141*

OUTLINE OF POWER UP SEQUENCE

- [MRS (Mag Roll Speed) Control Sequence]
  Selects an appropriate Mag Roll Speed according to the ambient temperature.
- [ADCTC_SET_ADJUST]
  Cumulative number of rotations of the drum. Corrects the target toner density from the cumulative value of image count of the Developer Assy.
- [VCLEAN_READ]
  Measures with the ADC Sensor the density of the area on the drum surface where nothing is developed.
  (ADC Sensor errors are detected in this sequence.)
- [EMPTY_RESET]
  By toner density control (ADC), this sequence executes density reset (Empty cancel) for the color for which the Toner Empty Flag stands. (The “no toner” and “low density” errors are detected in this sequence.)

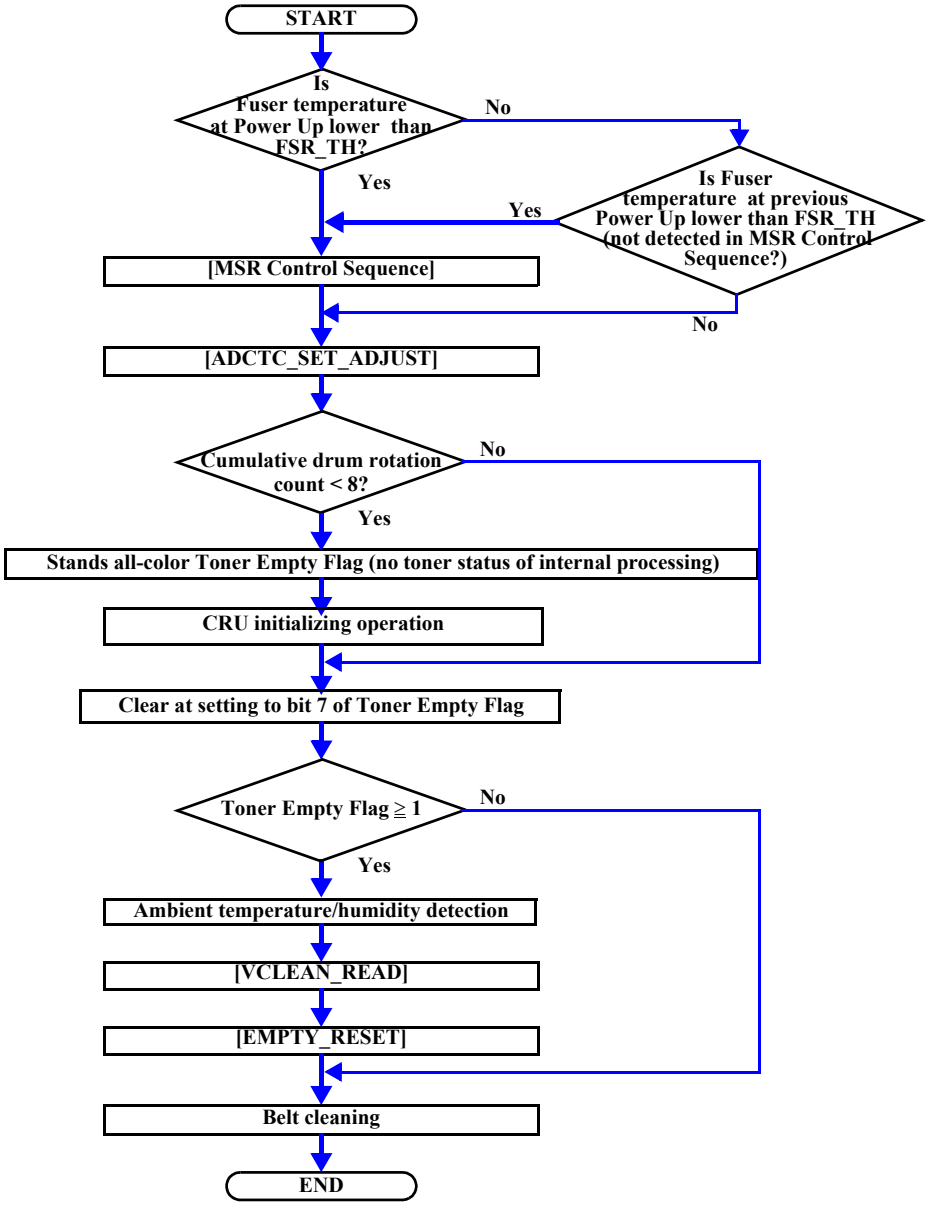


Figure 2-53. Outline Flow of Power Up Sequence

OUTLINE OF CYCLE UP SEQUENCE

- [PCDC_CAL]
  Compensates the PCDC circuit.
  (PCDC errors are detected in this sequence.)
- [VH/VL_CTRL]
  Compensates the "BCR voltage" / "laser beam light quantity" according to the cumulative drum rotation count and the ambient temperature/humidity.
- [PATCH_ADC_POTENTIAL]
  Prepares a Cin50% patch, and performs density measurement.
- [ADC_POTENTIAL_CONTROL]
  Calculates an optimum "laser beam light quantity" based on the measured value of density of the Cin50% patch.
- [EMPTY_RESET], [VCLEAN_READ]
  See Power Up Sequence *(p.138)*.

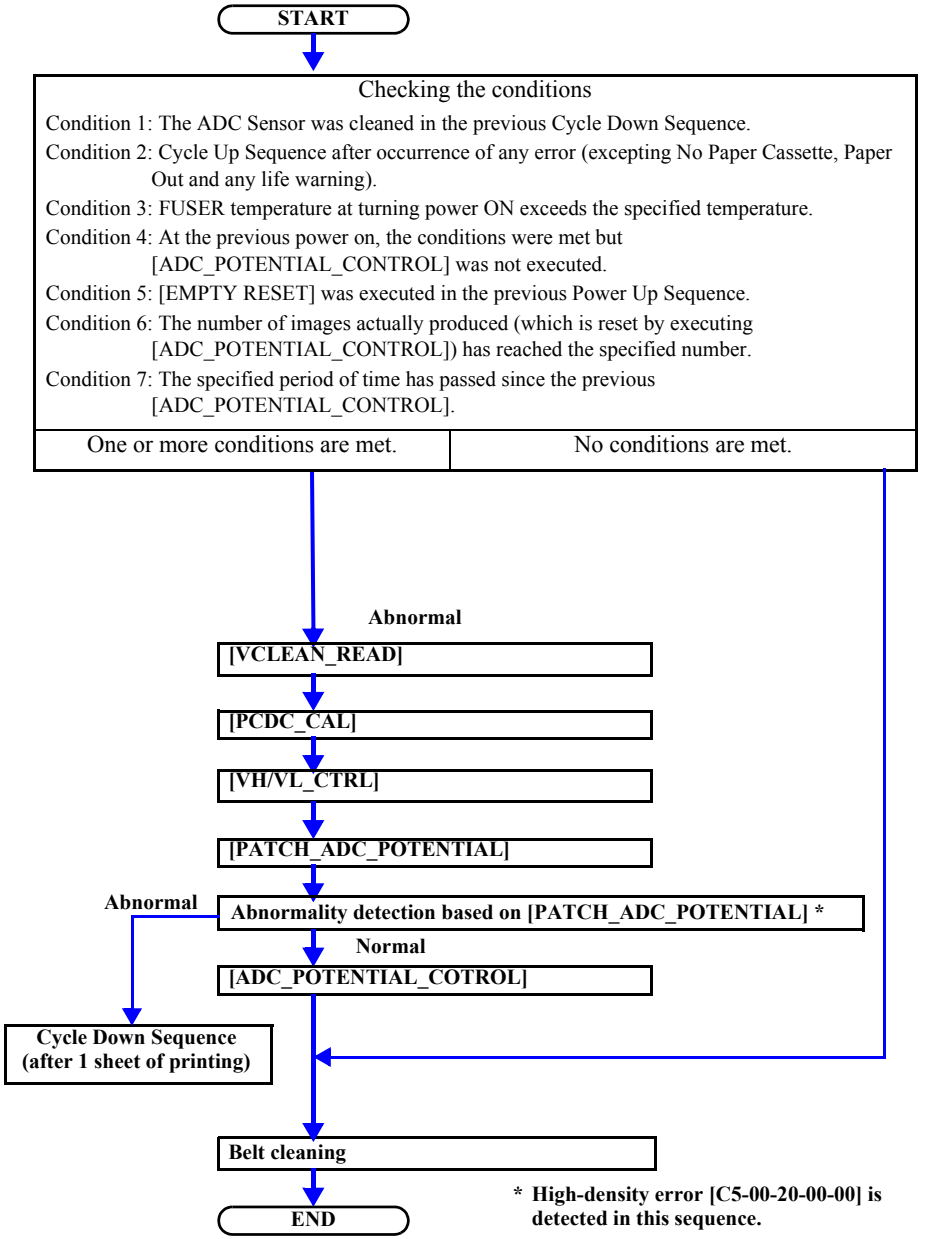


Figure 2-54. Outline Flow of Cycle Up Sequence

OUTLINE OF PRINT SEQUENCE

- [LOCOVCHECK]
  To prevent image quality deterioration at printing of low-density images, this sequence compares the total count by PCDC in previous prints with the specified value.
  When the total count is not larger than the specified value, Cycle Down Sequence is entered.
- [HICOVCHECK]
  To prevent image quality deterioration at printing of high-density images, this sequence compares the total count by PCDC in previous prints with the specified value.
  When the total count is larger than the specified value, Cycle Down Sequence is entered.
- [PCDC]
  Based on the laser beam emission time (count), this sequence calculates the amount of toner to be supplied to the Developer Assy for each color.
- [PATCH_ADC_POTENTIAL], [ADC_POTENTIAL_CONTROL]
  See Cycle Up Sequence *(p.139)*.

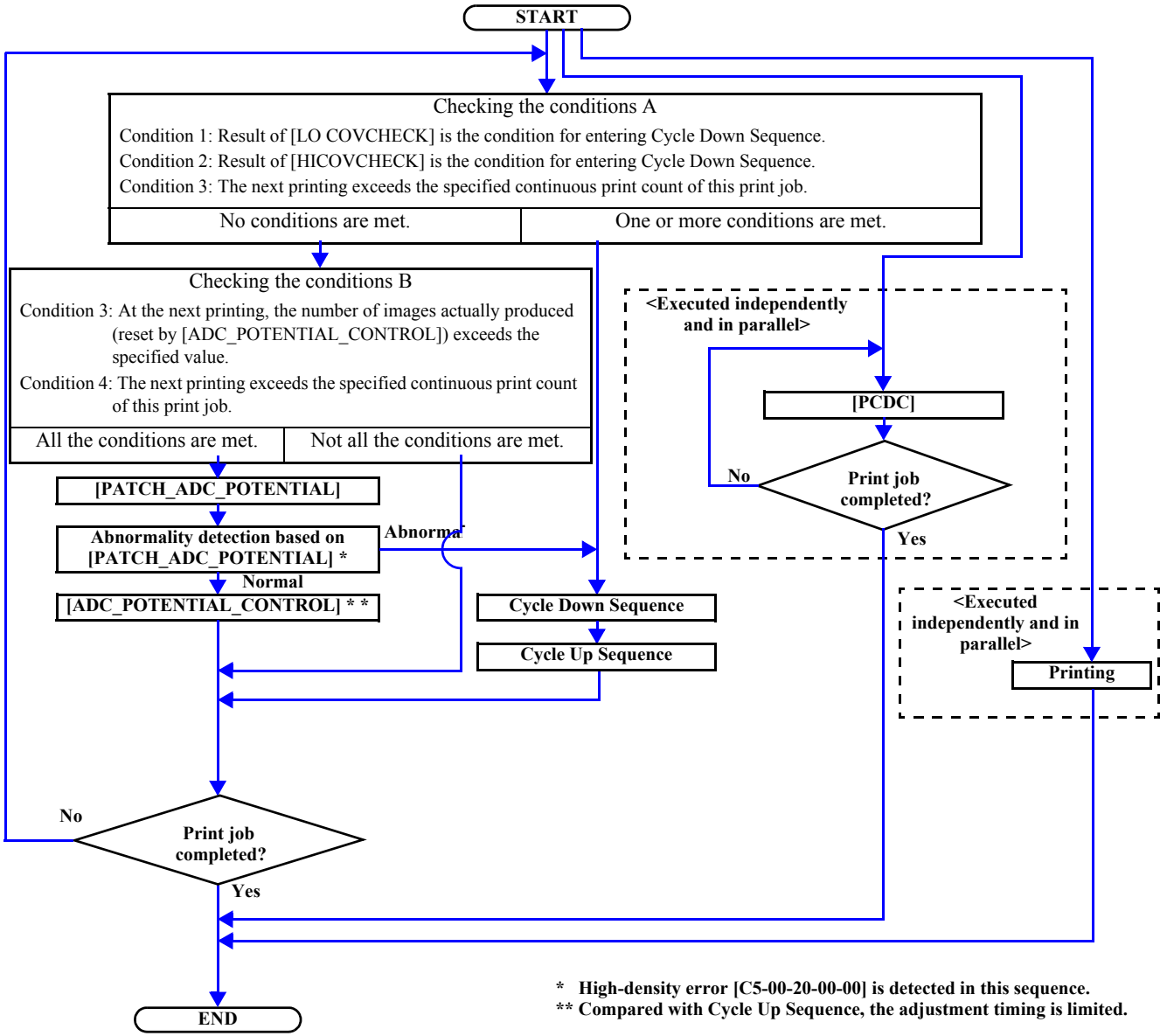


Figure 2-55. Outline Flow of Print Sequence

OUTLINE OF CYCLE DOWN SEQUENCE

- [PATCH_ADC_TC]
  Based on the ambient temperature/humidity and cumulative drum rotation count, this sequence prepares the BIAS development band and measures the density.
- [ADC_TC_CONTROL]
  Based on the density value measured with the BIAS development band, this sequence calculates the amount of toner to be supplied to the Developer Assy for each color.
- [TONER_EMPTY_TCPATCH]
  Sets "Toner Empty Flag=1" when Toner Cartridge is judged empty of toner based on the latest and the previous density value measured with the BIAS development band.
- [TONER_SWEEPOUT]
  When density value measured with BIAS development band is higher than reference value, prepares BIAS development band the corresponding number of times and optimizes toner density in developer.
- [TONER_ADDMIX]
  When density value measured with BIAS development band is lower than reference value, supplies toner forcibly to optimize toner density in developer. ("No toner" is detected in this sequence.)
- [EMPTY_RESET], [VCLEAN_READ], [PATCH_ADC_POTENTIAL], [LOCOVCHECK], [HICOVCHECK]
  See Power Up Sequence*(p.138)*, Cycle Up Sequence*(p.139)*, Print Sequence *(p.140)*.

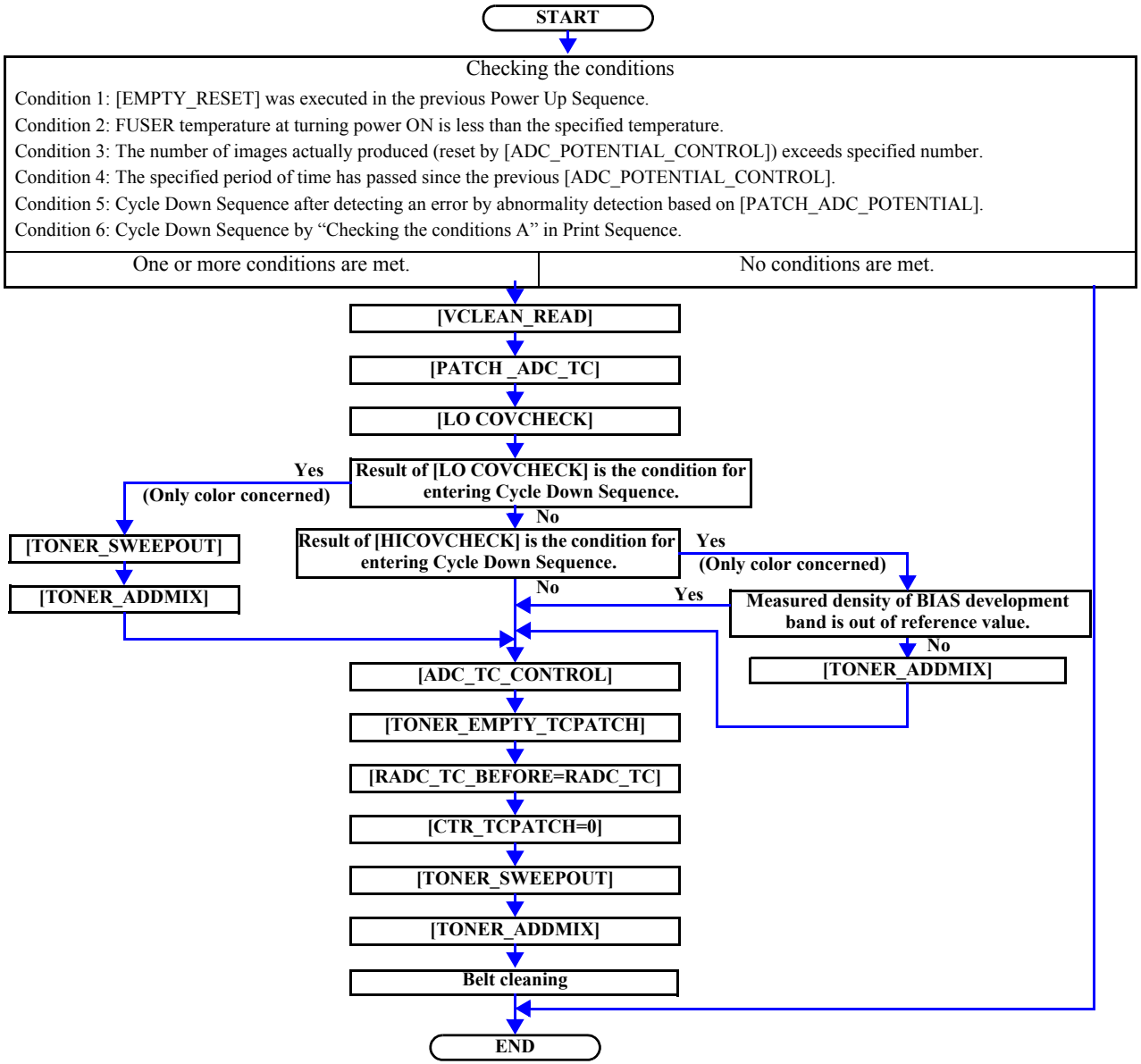


Figure 2-56. Outline Flow of Cycle Down Sequence

2.3.6 XERO. Control

2.3.6.1 Operation when DRUM CARTRIDGE is Replaced

When the DRUM CARTRIDGE is replaced with a new one, the following image is formed to prevent the Cleaning Blade touching the drum from reversing. By bringing the image to the Cleaning Blade section without carrying out primary transfer, the Cleaning Blade is prevented from reversing.

IMAGE WHEN DRUM CARTRIDGE IS REPLACED

The following image is formed the prescribed number of times.
This is performed for a total of 3 colors: Yellow, Magenta and Cyan.

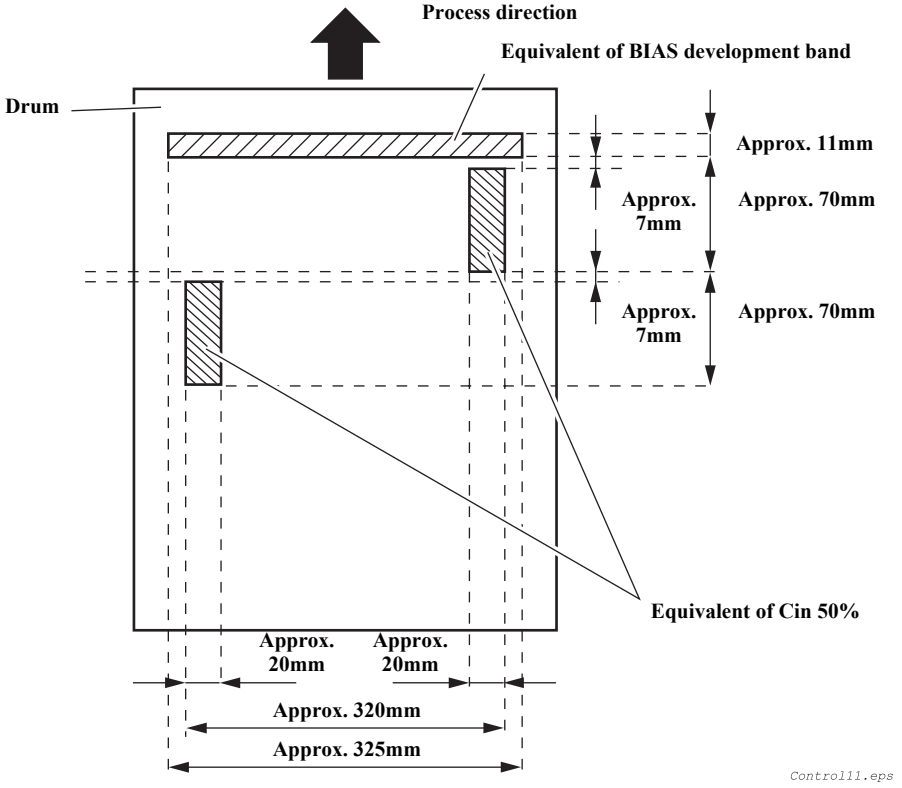


Figure 2-57. DRUM CARTRIDGE

2.3.6.2 DRUM CARTRIDGE Life Detection Control

LIFE DETECTION

Life of the DRUM CARTRIDGE is affected by the total number of revolutions of the drum. Life of the DRUM CARTRIDGE (drum) is detected by totaling the number of Belt revolutions that can be obtained by TRO signal. Detection conditions are as follows:

DRUM CARTRIDGE life warning (C8-02-00-00)	90,000 count (standard value)
DRUM CARTRIDGE life over (C6-02-00)	110,000 count (standard value)

Note 1: The count given above is a cumulative value incremented by 2 by TRO signal while the P/R MOT&DRV ASSY is running. (The drum turns twice per revolution of the Belt.)

PROCEDURES WHEN REPLACING

CAUTION

- **Be sure to perform the following measures after replacing with a new DRUM CARTRIDGE.**
  Performing these procedures before replacement can lead to many types of problems.
- **Be sure to turn the power OFF before starting to replace the DRUM CARTRIDGE.**

☐ When life is over
Replace with a new DRUM CARTRIDGE.

☐ For life warning
Replace with a new DRUM CARTRIDGE.

CHECK POINT

- **"Error Reset" means clearing the error/status code by sending a command "XX" from the print controller or DIAG tool, which is to be performed after removing the cause of the occurrence of the error/status code. (For details, see "5.4 Diagnostics (p.369)".)**
- **"Counter Clear" means clearing the value of the life counter corresponding to each error/status code in the MCU PWB to "0" by sending the command from the print controller or DIAG tool. (For details, see "5.4 Diagnostics (p.369)".)**

2.3.6.3 WASTE TONER BOX Full Detection Control

Judges that the WASTE TONER BOX is full of toner by the algorithm as shown in Figure 2-58, "Waste Toner Box Full Detection Control" to prevent wrong detection of the WASTE TONER SENSOR.

NOTE: *Counter A and Counter B described below count the total number of prints. Counter C counts dispense time for colors Y, M, C, and Bk.*

Paper size (paper length in transport direction)	YMCBk mode	B/W mode
Paper size in excess of 215.9mm	8 count	2 count
Paper size less than 215.9mm	4 count	1 count

CHECK POINT

The WASTE TONER SENSOR detects when the WASTE TONER BOX is full of toner. The WASTE TONER BOX full warning is given while Counters A/C are counting.

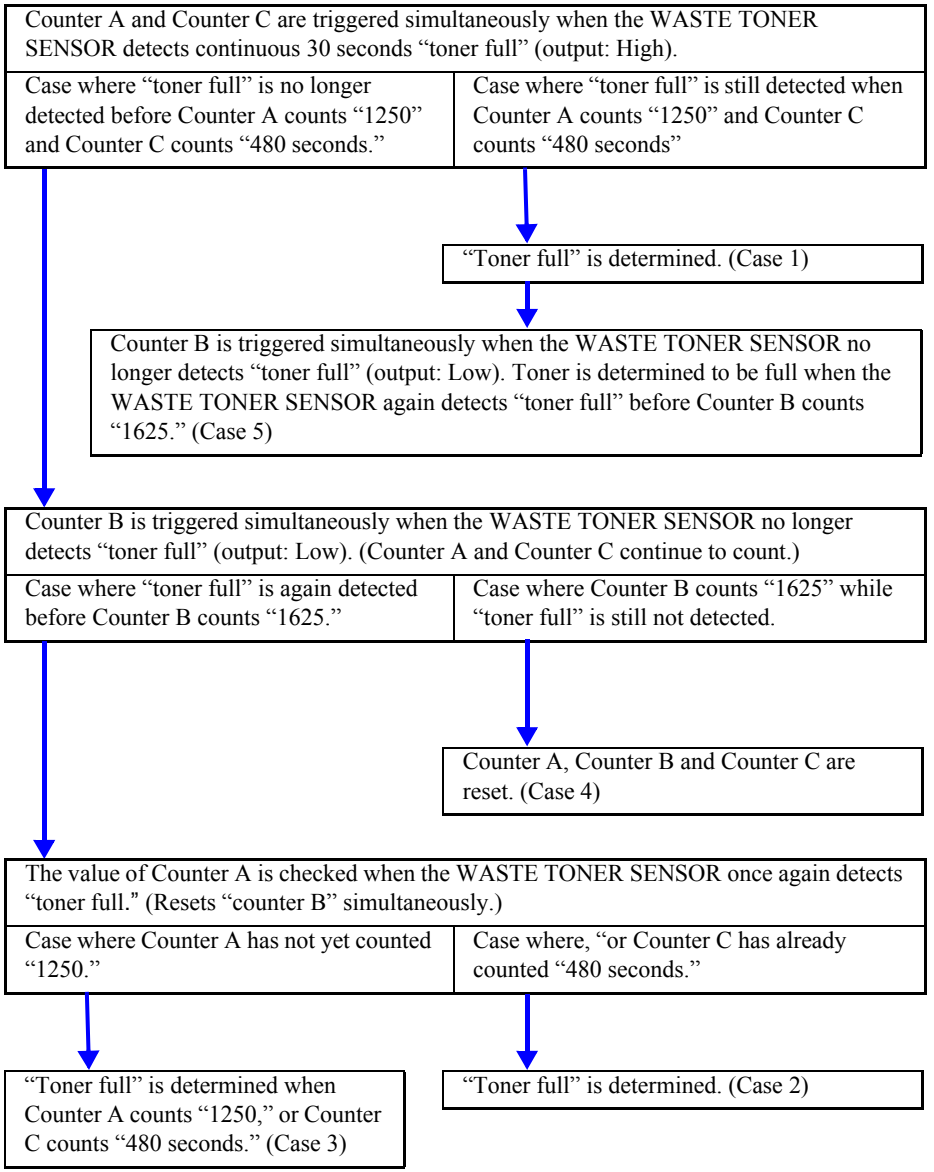
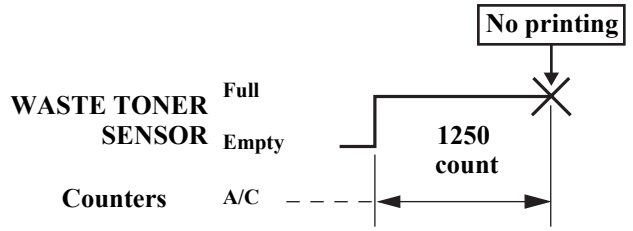


Figure 2-58. Waste Toner Box Full Detection Control

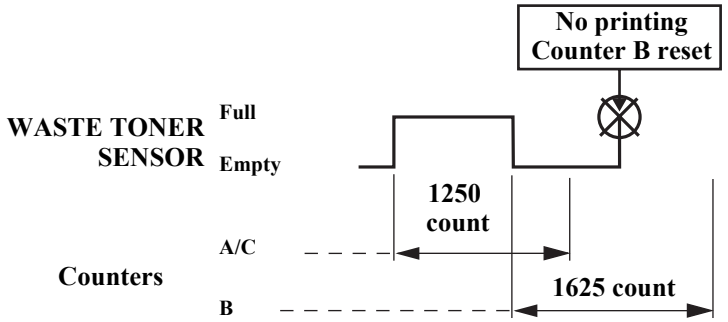
TONER FULL DETERMINATION FLOW

[Case 1]



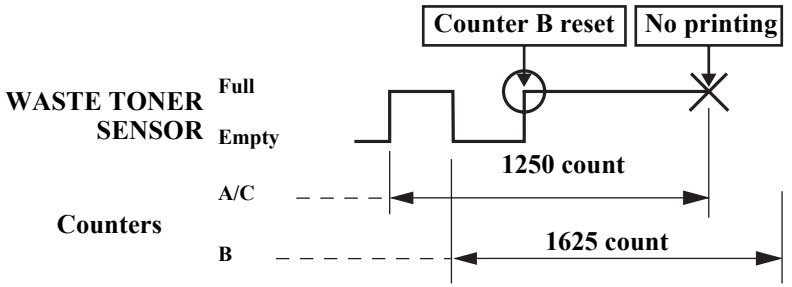
ControlTC1.eps

[Case 2]



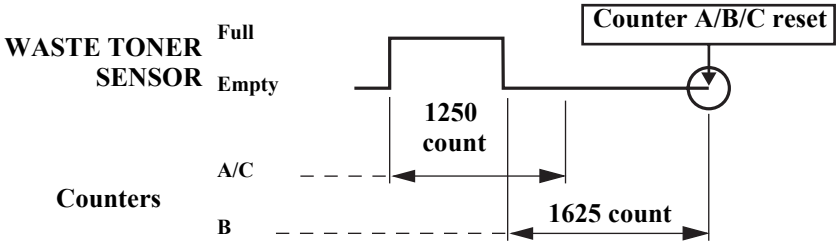
ControlTC2.eps

[Case 3]



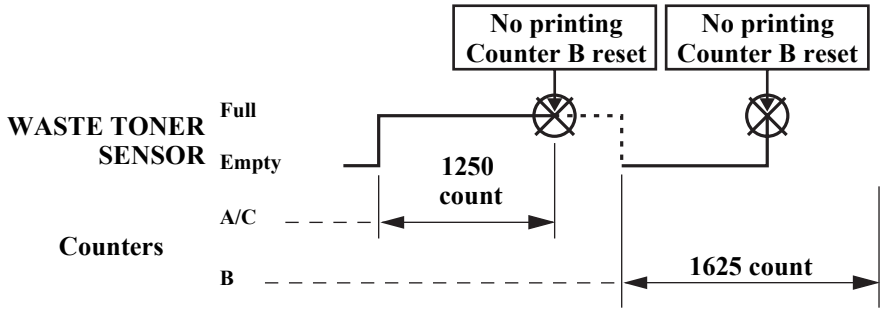
ControlTC3.eps

[Case 4]



ControlTC4.eps

[Case 5]



ControlTC5.eps

2.3.7 DEVE. Control

2.3.7.1 Home Position Detection Operation

The home position is the position which serves as the starting point for DEVE. Control. The following condition is the home position of the ROTARY FRAME ASSY.

Position 30 (from the developing position of the DEVELOPER ASSY in direction opposite rotation direction.

Home position is the position where the ROTARY FRAME ASSY is rotated 136 (from where the ROTARY SENSOR detects the protrusion of the ROTARY FRAME ASSY.

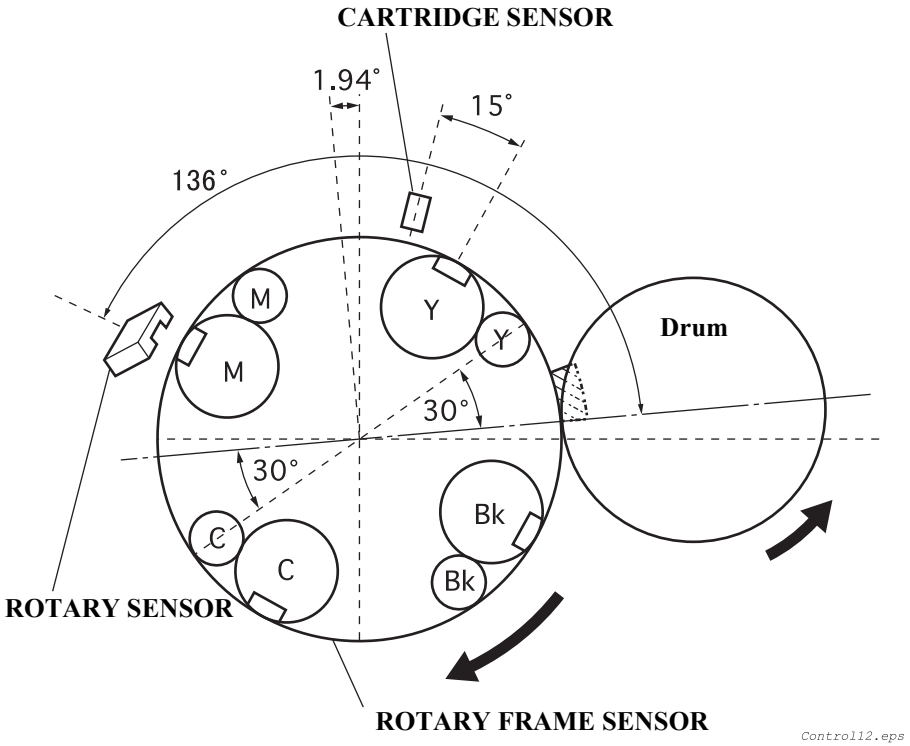


Figure 2-59. Home Position Detection Operation

2.3.7.2 Toner Cartridge Presence Detection Position

The various color Toner Cartridges are transferred to the following detection positions by rotation of the ROTARY FRAME ASSY, where the CARTRIDGE sense detects whether or not the various color Toner Cartridges are mounted

NOTE: *Presence detection is indicated in the turn of Y, M, C, Bk.*

TONER CARTRIDGE Y presence detection position	360 degrees from home position in rotation direction
TONER CARTRIDGE M presence detection position	90 from from home position in rotation direction
TONER CARTRIDGE C presence detection position	180 degrees from home position in rotation direction
TONER CARTRIDGE BK presence detection position	270 degrees from home position in rotation direction

2.3.7.3 Toner Cartridge New/Old Detection Position

The various color Toner Cartridges are transferred to the following detection positions by rotation of the ROTARY FRAME ASSY, where the CARTRIDGE sense detects whether the various color Toner Cartridges are new or old.

TONER CARTRIDGE Y new/old detection position	345 degrees from home position in rotation direction
TONER CARTRIDGE M new/old detection position	75 degrees from home position in rotation direction
TONER CARTRIDGE C new/old detection position	165 degrees from home position in rotation direction
TONER CARTRIDGE BK new/old detection position	255 degrees from home position in rotation direction

2.3.7.4 Developing Position

The various color Developer Assy are transferred to the following developing positions by rotation of the ROTARY FRAME ASSY.

DEVELOPER ASSY Y developing position	30 degrees from home position in rotation direction
DEVELOPER ASSY M developing position	120 degrees from home position in rotation direction
DEVELOPER ASSY C developing position	210 degrees from home position in rotation direction
DEVELOPER ASSY BK developing position	300 degrees from home position in rotation direction

2.3.7.5 Detection Method Accompanying DEVE. Control

TONER CARTRIDGE PRESENCE DETECTION

Whether or not the various color Toner Cartridges are mounted is detected at the Toner Cartridge presence detection position by the CARTRIDGE SENSOR.

The CARTRIDGE SENSOR is a reflection-type photosensor that determines the following by detecting light reflected from the Toner Cartridges.

Table 2-2. Toner Cartridge Presence Detection

Detection	Judgment
Light is reflected	The applicable Toner Cartridge is mounted.
Light is not reflected	The applicable Toner Cartridge is not mounted.

TONER CARTRIDGE NEW/OLD DETECTION

Whether the various color Toner Cartridges are new or old is detected at the Toner Cartridge new/old detection position by the CARTRIDGE SENSOR.

With trickle development, used developer is collected in a separate chamber in the Toner Cartridge. As the reflecting surface of a reflecting seal applied inside the chamber is covered by the collected developer, it gradually becomes unable to reflect.

The CARTRIDGE SENSOR is a photosensor that determines the following by detecting light reflected from the collection chambers of the various Toner Cartridges.

Table 2-3. Toner Cartridge New/Old Detection

Detection		Judgment
Light is reflected	Chamber contains no collected developer	Toner Cartridge is new
Light is not reflected	Chamber contains collected developer	Tone Cartridge is not new

TONER LIFE WARNING / "NO TONER" DETECTION FOR TONER CARTRIDGE

Toner life warning for a Toner Cartridge is detected based on the cumulative dispense time for the color concerned. “No toner” in a Toner Cartridge is detected by process control.

Figure 2-60 to Figure 2-63 show the outline flow for “toner life warning detection”, “no toner detection”, “toner life warning reset” and “no toner reset”.

☐ Toner Life Warning Detection Flow

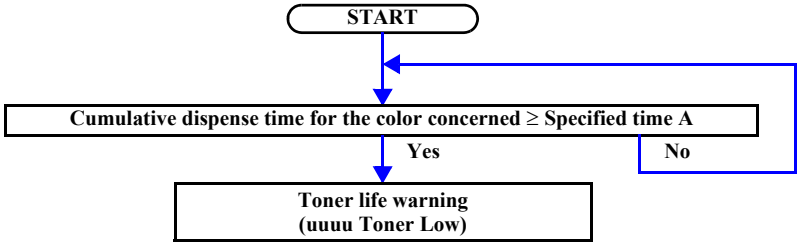


Figure 2-60. Toner Life Warning Detection Flow

☐ No toner detection flow

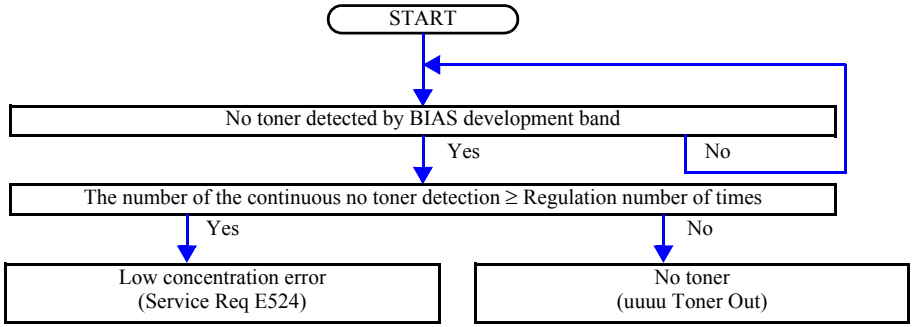


Figure 2-61. No Toner Detection Flow

☐ Toner life warning reset flow

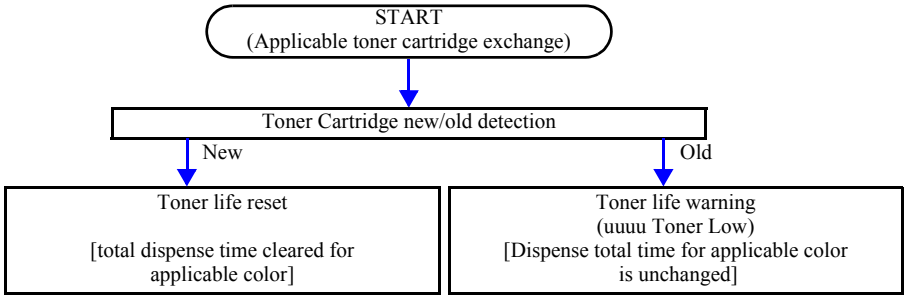


Figure 2-62. Toner Life Warning Reset Flow

☐ No toner reset flow

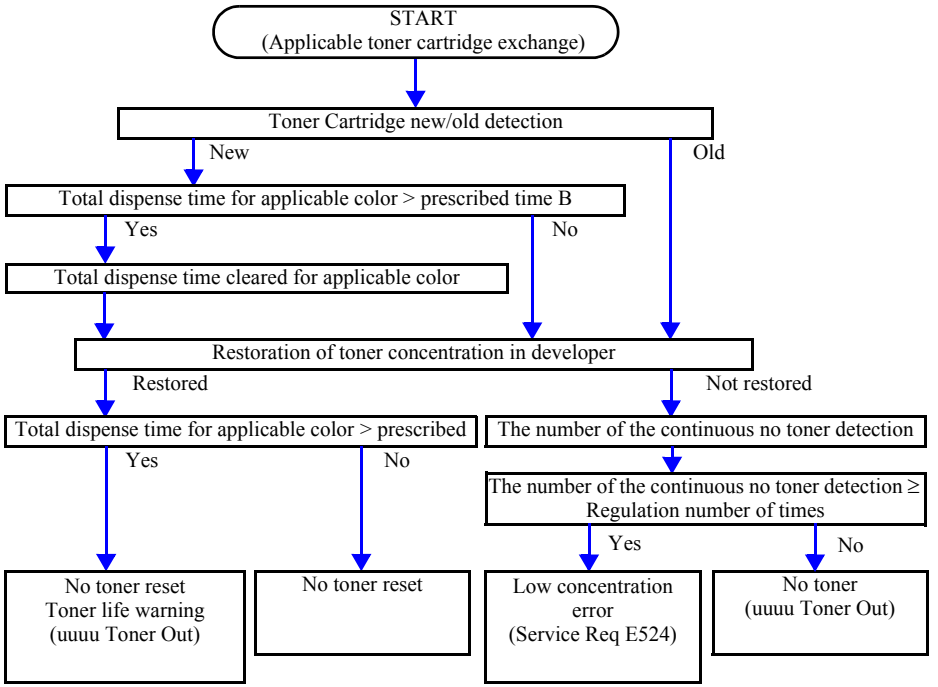


Figure 2-63. No Toner Reset Flow

2.3.7.6 Developer Assy Life Detection Control

☐ Life detection

The printing count (image producing count) has an influence on the life of the Developer Assy for each color.
The life of the Developer Assy is detected based on the cumulative printing count.
The compensation in process control is performed according to the value of this life counter.

The life of each Developer Assy is equivalent to that of the printer body. Therefore, the warning value and limit value are set as follows:

Developer Assy life warning	99,999,999 count (standard value)
Developer Assy life limit	99,999,999 count (standard value)

Note 1: The count indicated above is a cumulative value of the following counts:

- In YMCBK mode: When two prints are created on the Belt surface in 2UP mode, one print is counted one. One print in 1UP mode or one print when only one print is created on the Belt surface in 2UP mode is counted two.
- In B/W mode: After the drum and the Magnet Roll faces each other during printing, each passage of 5 seconds is counted two.

NOTE: *In addition to the life counter, the Developer Assy for each color has the developer drive time counter.*

☐ Action to be taken after replacement

After replacing a Developer Assy with a new one, be sure to execute "counter clear".

"Counter Clear" means clearing the value of the life counter corresponding to each error/status code in the MCU PWB to "0" by sending the command from the print controller or DIAG tool. (For details, see "*5.4 Diagnostics (p.369)*".)

2.3.8 IBT Control

2.3.8.1 Primary Transfer (Drum → Belt)

The act of transferring the toner image formed on the surface of the drum to the Belt is called “primary transfer”.
Primary transfer is carried out by output to 1ST BTR of LV/HV POWER SUPPLY.

PRIMARY TRANSFER CURRENT DETERMINATION FLOW

The resistance of the 1ST BTR changes according to time and environment.
In order to obtain stable transfer characteristics, variation in resistances according to time and environment must be offset by adjusting transfer current.

Figure 2-64 shows the primary transfer current determination flow.
(Primary transfer current determination is executed on completion of Cycle Up Sequence.)

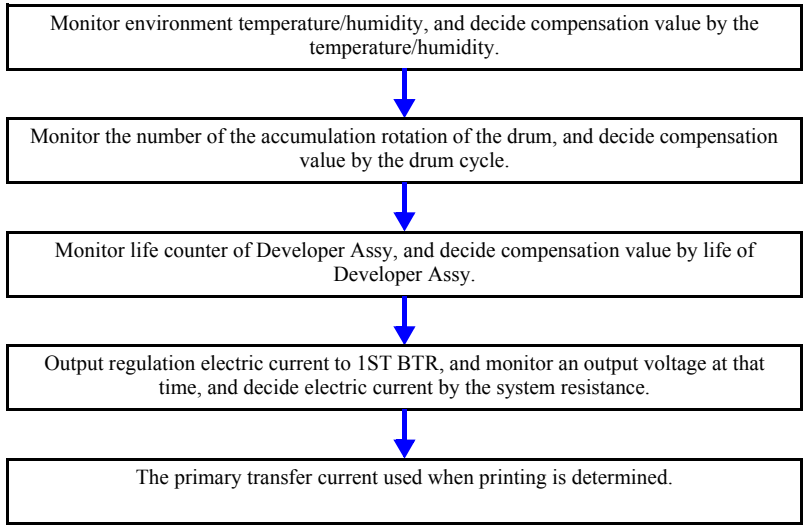


Figure 2-64. Primary Transfer Current Determination Flow

2.3.8.2 Secondary Transfer (Belt → Paper)

The act of transferring the toner image formed on the Belt to paper is called “secondary transfer”.
Secondary transfer is carried out by output to the CONTACT PLATE of the LV/HV POWER SUPPLY.

SECONDARY TRANSFER DETERMINATION FLOW

The resistance of the 2ND BTR changes according to time and environment.
In order to obtain stable transfer characteristics, variation in resistances according to time and environment must be offset by adjusting transfer voltage.

Figure 2-65 shows the secondary transfer current determination flow.
(Secondary transfer current determination is executed on completion of Cycle Up Sequence.)

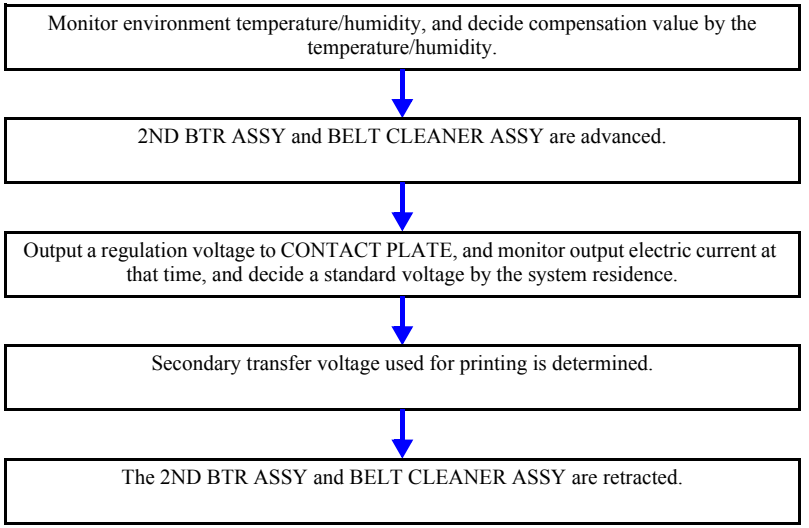


Figure 2-65. Secondary Transfer Determination Flow

NOTE: *2ND BTR error is detected when monitor value of output current for the above and secondary transfer is outside the prescribed range.*

SECONDARY TRANSFER VOLTAGE OFFSET

To absorb the difference in transfer characteristics due to differences between paper types (in quality, water content, etc.), the secondary transfer voltage can be offset from the standard value. It can be offset in seven steps in the positive direction and two steps in the negative direction for each paper type.

CHECK POINT

The secondary transfer voltage offset can be executed by the command from the print controller or the DIAG toll. (For details, see *"5.4 Diagnostics (p.369)"*.)

2ND BTR ADVANCE/RETRACT CONTROL

2ND BTR must be advanced when secondary transfer is output and must be retracted at all other times. This is controlled by the BTR CAM CLUTCH and BTR WHEEL SENSOR.

CHECK POINT

- **To advance the 2ND BTR, the BTR CAM CLUTCH is ON, and turn off BTR CAM CLUTCH after you detect the position of the advance condition with BTR WHEEL SENSOR.**
  To retract the 2ND BTR, the BTR CAM CLUTCH is ON, and turn off BTR CAM CLUTCH after you detect the position of the retract condition with BTR WHEEL SENSOR.
  (Switched by operation of the PRO MOTOR ASSY.)
- **There is very little time between the end of one image and the beginning of the next. If there is not enough time to execute "advance"-"retract"-"advance" (When the space of the paper is under 0.25-second.), it remains the advance condition and output to the CONTACT PLATE of the LV/HV POWER SUPPLY also remains ON.**

2.3.8.3 Belt Cleaning

An image cannot be properly formed if there is excess toner on the surface of the Belt. To remove toner, etc., the BELT CLEANER ASSY advances and cleans the surface of the Belt. Advancement and retraction of the BELT CLEANER ASSY is controlled by the CLEANER CAM SOLENOID.

CHECK POINT

- **To advance the BELT CLEANER ASSY, the CLEANER CAM SOLENOID is ON continuously, and to retract the BELT CLEANER ASSY, the CLEANER CAM SOLENOID is OFF continuously. (The status is switched by operation of the PRO MOTOR ASSY.)**
- **There is very little time between the end of one image and the beginning of the next. If there is not enough time to turn the CLEANER CAM SOLENOID from OFF to ON (for example when printing in the standard speed mode or B/W mode), it remains ON and the BELT CLEANER ASSY remains advanced.**

The following are specific examples of excess toner remaining on the surface of the Belt:

- Toner left over from ordinary printing at time of secondary transfer
- Toner produced by Cin 50% patch or BIAS development band created by process control
- Toner formed on the Belt when paper jam occurs

TYPES OF BELT CLEANING

Belt cleaning is basically classified as the following 3 types:

- Ordinary cleaning
  Cleaning carried out for maximum printable area (18 inches in processing direction) while printing is carried out.
- Special cleaning
  Cleaning is carried out for 1 Belt cycle after Cin 50% patch or BIAS development band is created by process control, and when WARM UP mode begins (except during error recovery after an error occurred during image forming).
- Cleaning when error occurs
  Cleaning is carried out for 1 Belt cycle when WARM UP mode begins during error recovery after an error occurred during image forming (when there is possibility of toner remaining on the Belt).

IBT CLEANER TONER BAND

When the paper of the size of the little width is used by the continuance, toner which hasn't transcribed it into Cleaning Blade of BELT CLEANER ASSY which confronts a non-authority paper part doesn't spread, and give Cleaning Blade damage. Therefore, when the paper of the size of the little width is used, makes toner figure called an IBT Cleaner toner band on Belt, and damage to give to Cleaning Blade by making this toner spread to Cleaning Blade is prevented.

IBT CLEANER TONER BAND IMAGE

The IBT Cleaner toner band is the image which is equal to "Cin 50%", and it is formed by 3 colors (Y, M, C) at the time of the YMCBK mode, and formed by a 1 color (BK) at the time of the B/W mode.

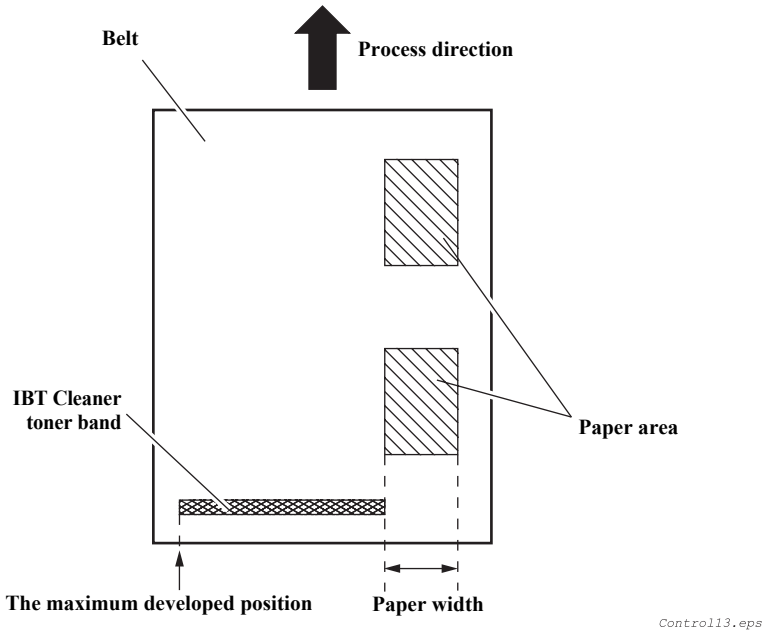


Figure 2-66. IBT Cleaner Toner Band Image

2.3.8.4 IBT-related life detection control

Life detection of the following 3 items is done with IBT.

- TRANSFER ASSY
- 2ND BTR ASSY
- BELT CLEANER ASSY

TRANSFER ASSY LIFE DETECTION CONTROL

☐ Life detection

Life of TRANSFER ASSY takes an influence in the print number of sheets (the primary transfer number of times, the secondary transfer number of times, Belt cleaning number of times). Detect life of TRANSFER ASSY by the count added at the time of the Belt rotation.

Because TRANSFER ASSY is equal to the device life, warning value/limit value is established as the following.

TRANSFER ASSY life warning	99,999,999 count (standard value)
TRANSFER ASSY life limit	99,999,999 count (standard value)

Note 1: The above count is the accumulation value made a "1 count" at a TR0 signal one time (IBT BELT ASSY one turn).

☐ Procedures when replacing

CAUTION

Do the following treatment when exchanging TRANSFER Assy for new one.

- After replacing with a new TRANSFER ASSY, perform "Counter Clear".

CHECK POINT

"Counter Clear" is when a command is sent from the printer controller or diagnostics to reset the life counter corresponding to various error / status code inside the MCU PWB to zero. (For details, see *"5.4 Diagnostics (p.369)"*.)

2ND BTR ASSY LIFE DETECTION CONTROL

☐ Life detection

The printing count (secondary transfer count) has an influence on the life of the 2ND BTR ASSY.
The life of the 2ND BTR ASSY (2ND BTR) is detected based on the cumulative printing count.

Because 2ND BTR ASSY is equal to the device life, warning value/limit value is established as the following.

2ND BTR ASSY life warning	99,999,999 count (standard value)
2ND BTR ASSY life limit	99,999,999 count (standard value)

Note 1: Count is a cumulative total that is incremented by 1 when length of paper in the paper transport direction is 215.9mm (LETTER [LEF]) or less, and incremented by 2 when the size of the paper exceeds 215.9mm (LETTER [LEF]).

☐ Procedures when replacing

CAUTION

Do the following treatment when exchanging 2ND BTR ASSY for new one.

- After replacing with a new 2ND BTR ASSY, perform "Counter Clear".

CHECK POINT

"Counter Clear" is when a command is sent from the printer controller or diagnostics to reset the life counter corresponding to various error / status code inside the MCU PWB to zero. (For details, see *"5.4 Diagnostics (p.369)"*.)

BELT CLEANER ASSY DETECTION CONTROL

☐ Life detection

The printing count (Belt cleaning count) has an influence on the life of the BELT CLEANER ASSY.

The life of the BELT CLEANER ASSY (Cleaning Blade) is detected based on the cumulative Belt operation count.

Because BELT CLEANER ASSY is equal to the device life, warning value/limit value is established as the following.

BELT CLEANER ASSY life warning	99,999,999 count (standard value)
BELT CLEANER ASSY life limit	99,999,999 count (standard value)

Note 1: The value indicated above is counted as follows: When two prints are created on the Belt surface in 2UP mode, one print is counted one. One print in 1UP mode or one print when only one print is created on the Belt surface in 2UP mode is counted two.

☐ Procedures when replacing

CAUTION

Do the following treatment when exchanging BELT CLEANER ASSY for new one.

■ After replacing with a new BELT CLEANER ASSY, perform “Counter Clear”.

CHECK POINT

“Counter Clear” is when a command is sent from the printer controller or diagnostics to reset the life counter corresponding to various error / status code inside the MCU PWB to zero. (For details, see *“5.4 Diagnostics (p.369)”*.)

2.3.9 Transfer Layout Control

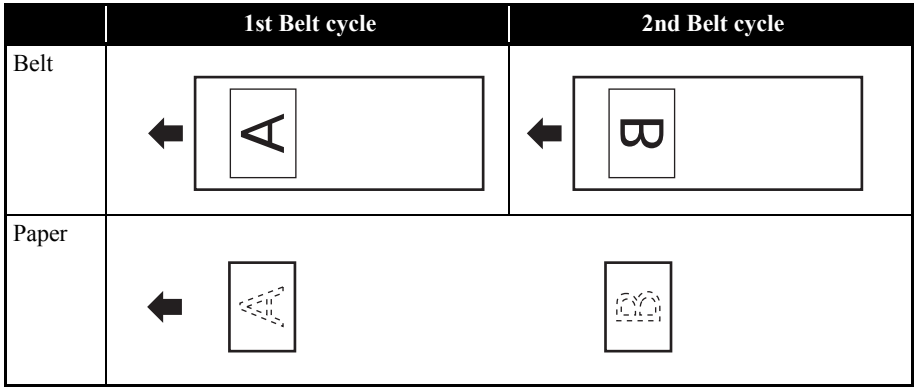
The printing sequence of each transfer layout mode is as follows:

Table 2-4. Transfer Layout Control

Transfer layout mode	Image positioning for Belt 1 cycle	Applicable paper size	Applicable color mode	Applicable speed mode
1UP mode	1 print	All paper sizes	All modes	All modes
2UP mode	2 prints	A4 (LEF) or LETTER (LEF) Following paper sizes	All modes	All modes
TR0-less mode	Not fix (It doesn't depend on a Belt one lap.)	All paper sizes	B/W mode	Standard mode

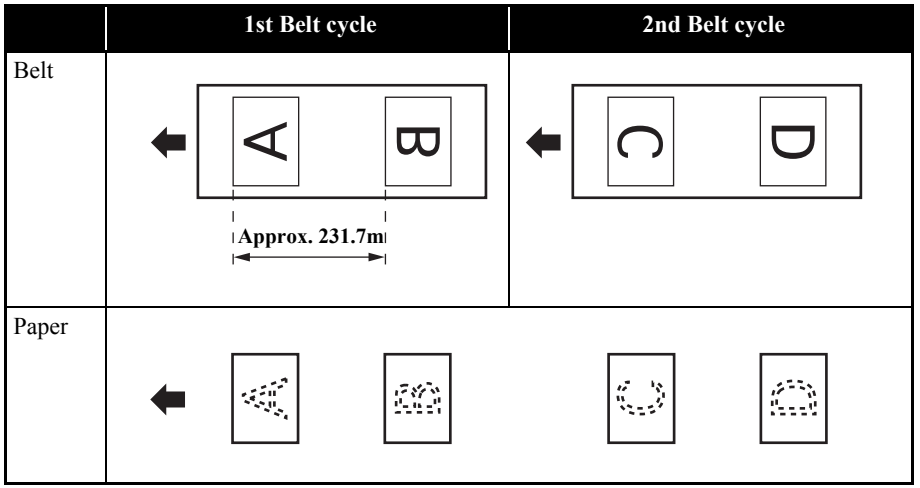
2.3.9.1 1UP Mode

Paper is transferred at a rate of one sheet of paper per Belt cycle. The printed image (complete toner image) is formed on the paper in the order of Yellow, Magenta, Cyan and Black.
(A print image is formed based on the TR0 mark on Belt.)



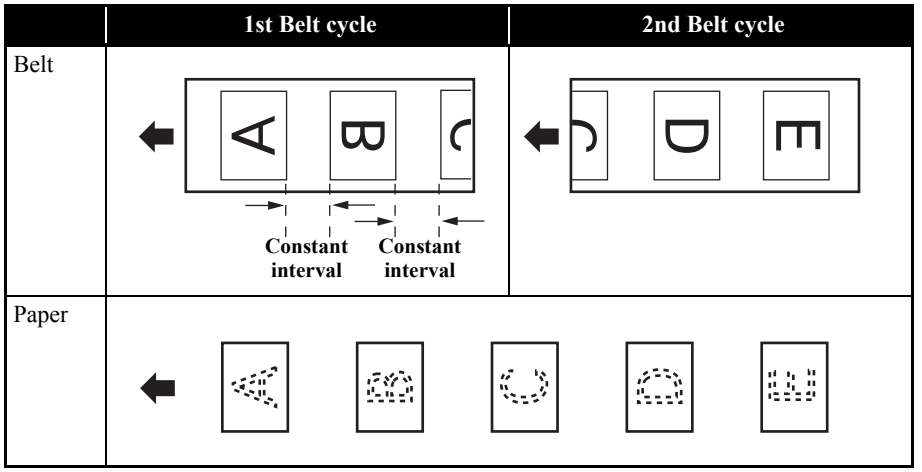
2.3.9.2 2UP Mode

Paper is transferred at a rate of two sheets of paper per Belt cycle. Transfer is carried out in the order of Yellow for 1ST sheet, Yellow for 2nd sheet, Magenta for 1ST sheet, Magenta Cyan for 1ST sheet, Cyan for 2nd sheet, Black for 1ST sheet, and Black for 2nd sheet.
(A print image is formed based on the TR0 mark on Belt.)



2.3.9.3 TR0-less Mode

As for how many sheets, paper carriage is not selected per Belt cycle. It is done to become a fixed paper interval regardless of the paper size when it is printed continuously.
The formation of the print image (Complete toner figure) is done to become a fixed interval for every image when it is printed continuously in the same way as the paper carriage, too.
(As for the TR0 mark, a print image is formed independently.)



2.3.10 FUSER Control

2.3.10.1 Fuser Control Method

FUSER temperature is carried out by controlling ON/OFF of the H/R HEATER and P/R HEATER according to FUSER control temperature.

- If surface temperature of the HEAT ROLL (FUSER temperature: Detected temperature of thermistor of TEMP. SENSOR ASSY) is higher than FUSER control temperature, power to the H/R HEATER and P/R HEATER is turned OFF.
- If surface temperature of the HEAT ROLL (FUSER temperature: Detected temperature of thermistor of TEMP. SENSOR ASSY) is lower than FUSER control temperature, power to the H/R HEATER and P/R HEATER is turned ON.

2.3.10.2 Control for WARM UP Mode

The H/R HEATER and P/R HEATER are turned ON (lamp lights) as soon as the FUSER begins to warm-up (WARM UP mode). FUSER warm-up is complete when FUSER temperature reaches FUSER control temperature.

FUSER control temperature at warm-up varies according to surface temperature of the HEAT ROLL when power is ON as follows:

CHECK POINT

FUSER control temperature at warm-up is corrected by environment temperature (detected by ENVIRONMENT SENSOR).

NOTE: *The Heater is continuously ON after ON/OFF is repeated the prescribed number of times when FUSER warm-up starts.*

2.3.10.3 READY / LIGHT SLEEP / DEEP SLEEP Modes Control

ON/OFF control of the H/R HEATER and P/R HEATER is as follows:

Table 2-5. Ready/Light Sleep/Deep Modes Control

Operation mode	Heater ON/OFF control
READY mode	• Heater ON if FUSER temperature is lower than FUSER control temperature • Heater OFF if FUSER temperature is at least as high as FUSER control temperature.
LIGHT SLEEP mode	• Heater ON if FUSER temperature is lower than FUSER control temperature when in LIGHT SLEEP mode. • Heater ON if FUSER temperature is at least as high as FUSER control temperature when in LIGHT SLEEP mode.
DEEP SLEEP mode	Heater always OFF.

2.3.10.4 Control in RUNNING Mode

FUSER control temperature when in RUNNING mode is established by the setting value according to paper quality (regular / OHP film, etc.), color mode (YMCBk mode / B/W mode), environment temperature (detected by ENVIRONMENT SENSOR), and number of consecutive prints. H/R HEATER and P/R HEATER are turned ON/OFF according to FUSER control temperature.

NOTE: *There are instances when the heater is forcibly turned ON/OFF before and after the RUNNING mode.*

2.3.10.5 FUSER skidding

When the heat distribution of HEAT ROLL and PRESSURE ROLL is not uniform because a problem comes out in the fixation performance, the movement that it is called FUSER skidding occurs.
FUSER skidding turns HEAT ROLL and PRESSURE ROLL by the drive of FUSER MOTOR ASSY.

- WARM UP mode
  FUSER skidding is done from the regulation time before the warm-up completion of FUSER until the regulation time after the completion.
- READY mode
  FUSER skidding is done for about 0.5 seconds in about 1 minute.

2.3.10.6 Prevention of a FUSER NIP scar

When it keeps touching each other in the position where PRESSURE ROLL is the same as HEAT ROLL, the contact part of HEAT ROLL and PRESSURE ROLL is transformed, and it becomes a difference in pressure in the result fixation, and an influence appears in the print image quality.
The following is done to prevent this.

- ☐ Power OFF/DEEP SLEEP mode
  Because there is no swelling of HEAT ROLL and PRESSURE ROLL by the heat of H/R HEATER and P/R HEATER, it is preventing the interval of HEAT ROLL and PRESSURE ROLL from becoming less than a constant distance physically. (On this occasion, pressure between HEAT ROLL and PRESSURE ROLL is hardly added.)
- ☐ READY/LIGHT SLEEP mode
  HEAT ROLL and PRESSURE ROLL expand by the heat of H/R HEATER and P/R HEATER, because it becomes the condition that it gains fixed pressure and the contact position of HEAT ROLL and PRESSURE ROLL is changed by doing FUSER skidding for about 0.5 seconds in about every 1 minute.

2.3.10.7 MAIN FUSER ASSY Life Detection Control

- ☐ Life detection
  The life of the MAIN FUSER ASSY is affected by the number of sheets of the print to be fixed. Detect life of MAIN FUSER ASSY by the count added at the time of printing. Though the life of MAIN FUSER ASSY is “100,000 count”, this is for the value by the regulation condition, warning value/limit value is established as the following.

MAIN FUSER ASSY life warning.	99,999,999 count (standard value)
MAIN FUSER ASSY life limit.	99,999,999 count (standard value)

Note 1: Count is a cumulative total that is incremented by 1 when length of paper in the paper transport direction is 215.9mm (LETTER [LEF]) or less, and incremented by 2 when the size of the paper exceeds 215.9mm (LETTER [LEF]).

- ☐ Procedures when replacing

CAUTION

Do the following treatment when replacing the MAIN FUSER Assy with a new one.
Performing the treatment before replacement could cause various troubles.

- ■ After replacing with a new MAIN FUSER ASSY, perform “Counter Clear”.

CHECK POINT

“Counter Clear” is when a command is sent from the printer controller or diagnostics to reset the life counter corresponding to various error / status code inside the MCU PWB to zero. (For details, see *“5.4 Diagnostics (p.369)”*.)

2.4 Operating Principles of Electric Circuitry

2.4.1 Features (AcuLaser C8600)

AcuLaser C8600 succeeds to major features of AcuLaser C8500, but its performance is improved in the following points:

- Higher-speed CPU (PowerPC 750CX 400MHz employed)
- System clock: 100MHz
- RAM can be expanded to a maximum of 1 GB
- Power consumption reduced by use of devices requiring lower operation voltages
- User interface improved by employing a new type control panel
- USB 1.1 mounted
- Higher-speed engine that supports printing speed of 8 PPM for color/35 PPM for monochrome
- Duplex printing in color supported by hardware
- Compression speed enhanced by CDMC
- DMA transfer of HDD and Network data
- EMI reduced by differentiating video signals
- Cost reduction by making the area of the circuit boards smaller
- On-board option of color photocopier (EPSON Color Copy Station) supported

Compared with AcuLaser C8500, the following functions are disused by AcuLaser C8600:

- RTC
- One slot for optional SDRAM DIMM
- One slot for optional ROM DIMM

NOTE: *For comparison with AcuLaser C7000 and AcuLaser C8500 in specifications, refer to "1.15.2 Differences in Specifications between Models (p.87)".*

CONSTITUTION OF MAIN CONTROL CIRCUIT BOARD

- ☐ Main Board Assy:
  C457 MAIN
- ☐ Memory Board Assy:
  C309 PROG (IPL, Code, Font)

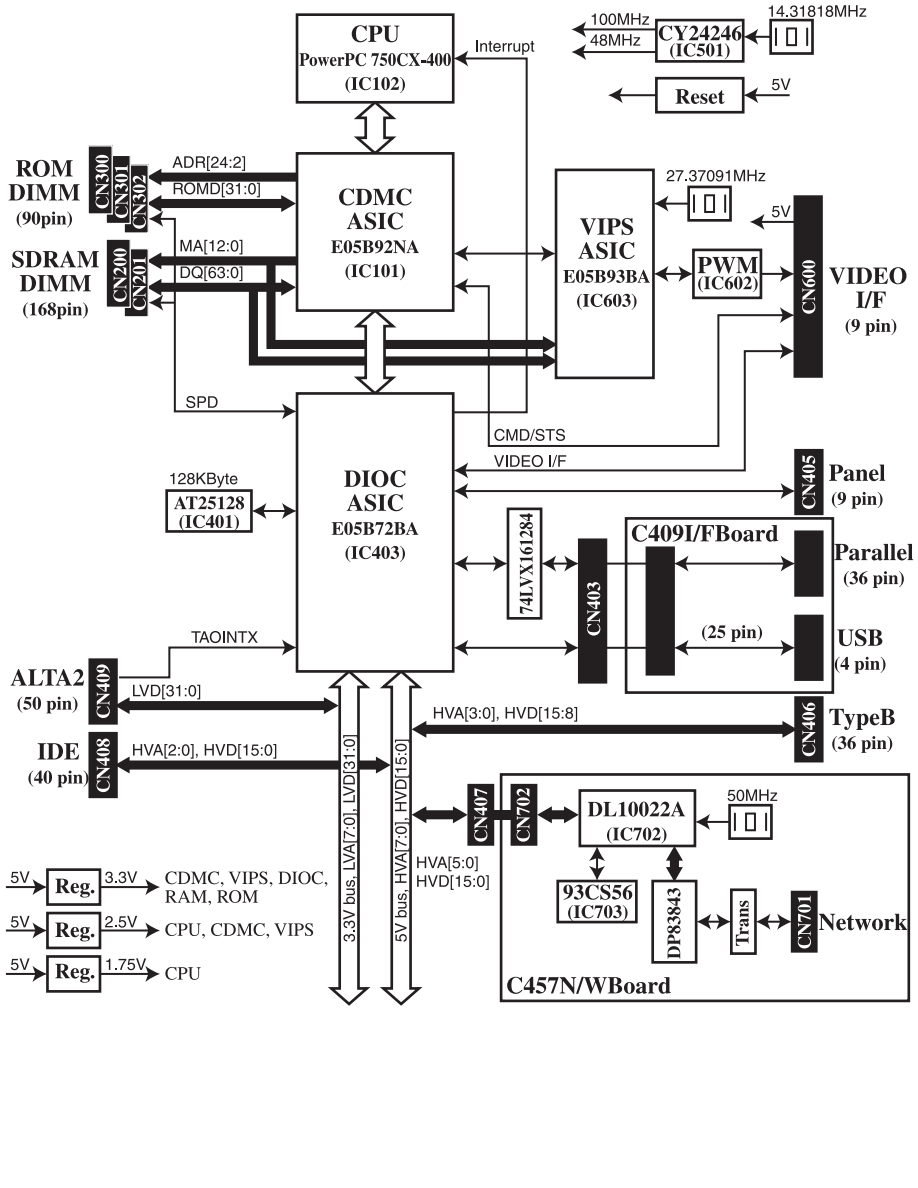
OUTLINE SPECIFICATIONS

Table 2-6. Major Elements (AcuLaser C8600)

Components		Remarks
CPU		Power PC750CX(IBM)
ASIC	CDMC: E05B92NA (Toshiba)	ASIC which is connected to CPU and controls access to memory and peripheral devices
	DIOC: E05B72BA(NEC)	ASIC equipped with the basic interfaces necessary to printer
	VIPS: E05B93BA(NEC)	Video control ASIC which enhances halftoning characteristics of color laser printer
ROM DIMM (90pin)	Standard ROM DIMM	1 slot. IPL/Code/Font
	Optional ROM DIMM	2 slots
SDRAM DIMM (PC-100)	Standard/optional	For standard/optional printer memory (1 slot) 168-pin. 32, 64, 128, 256, 512 MB (Standard: 32MB)
	Optional	For optional printer memory (1 slot) 168-pin. 32, 64, 128, 256, 512 MB (Max. 1GB)
PWM		IC for pulse width modulation for connection to VIPS
LVDS		The image signal output from PWM is output to the VIDEO connector by LVDS
Reset IC		M51953BFP (Mitsubishi), 8-pin, SOP
EEPROM		128 kbits Hardware control

Table 2-6. Major Elements (AcuLaser C8600) (continued)

Components		Remarks
Standard interfaces	Parallel I/F	This controller is equipped with 1 channel of Parallel I/F. Parallel I/F is controlled by DIOC.
	USB I/F	1 slot. USB 1.1
Expansion interfaces	Type-B	1 slot. Connected to the HV bus of DIOC.
	ALTA bus	Connector for ALTA2. Connected to the LV bus of DIOC.
	IDE	For hard disk (option). Connected to the HV bus of DIOC. Compatible with EPL-N2120.
	Network I/F	Connector for Network board. Connected to the HV bus of DIOC.
Control Panel		Connector for the newly employed Control Panel. Controlled by DIOC.
VIDEO I/F		Connected to the video I/F of Tubaki2 (FX).



Block_88C.eps

Figure 2-67. C457 Board Circuit Block Diagram (AcuLaser C8600)

2.4.2 Features (AcuLaser C7000)

AcuLaser C7000 is a newly developed host-based A3 color page printer using the same engine as used for AcuLaser C8600.
The functions of the controller are almost the same as those for AcuLaser C1000.

The major features are as follows:

- Host-based printer controller which uses ESC/PageS-Color Printing System for languages.
- Engine specifications: A3, color 8 ppm/monochrome 35 ppm, 600 dpi.
- Toshiba CPU TMPR4955AF.
- As ASICs, DLC (memory and I/O controller) and VIPS (image processing) are installed.
- Standard 32MB RAM DIMM. A maximum of 256 MB is available by adding optional RAM.

Table 2-7.

	Slot for Standard RAMS0	Slot for Optional RAMS1	Remarks
Standard	32 MB	Open	-
Maximum	128 MB	128 MB	Replace the standard 32MB DIMM with a 128 DIMM. (There is no DIMM exceeding 128 MB.)

- Standard interfaces of IEEE1284 and USB 1.1 (2 channels)
- Optional interface of Type-B slot. (This slot is also used for network connection.)
- Color image processing function (AcuLaser Color Halftoning, CRIT) installed.
- 66.6 MHz bus frequency.

NOTE: *For comparison with AcuLaser C8600 in specifications, refer to "1.15.2 Differences in Specifications between Models (p.87)".*

CONSTITUTION OF MAIN CONTROL CIRCUIT BOARD

- ☐ Main Board Assy:
  C471 MAIN
- ☐ Memory Board Assy:
  C309 PROG (IPL, Code, Font)

NOTE: *The Memory Board Assy (C309 PROG) of AcuLaser C7000 is the same as that of AcuLaser C1000.*

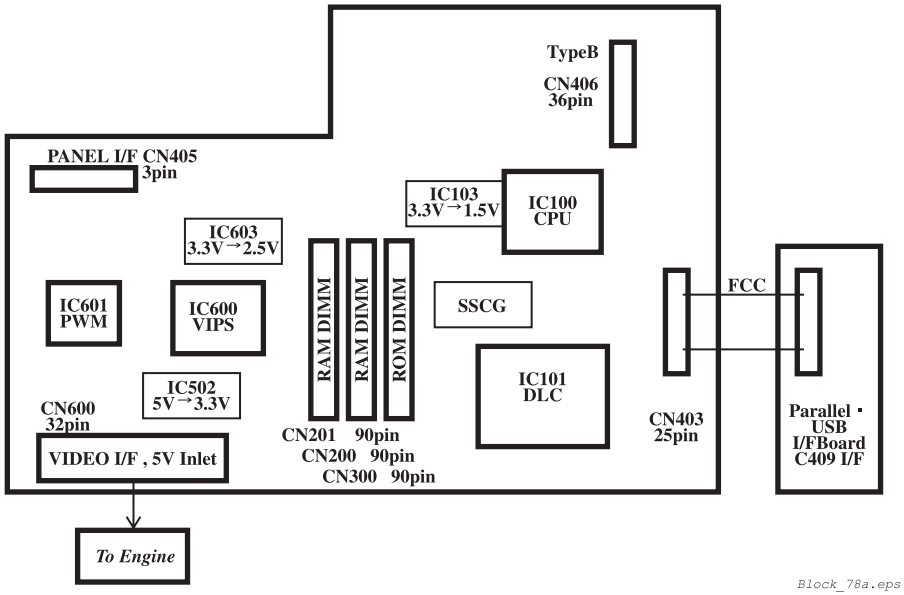


Figure 2-68. C471 Board Circuit Block Diagram (AcuLaser C7000)

OUTLINE SPECIFICATIONS

Table 2-8. Major Elements (AcuLaser C7000)

Components		Location	Remarks
CPU		IC100	TMPR4955AF-200 (Toshiba)
ASIC	DLC: E05B96BA (NEC)	IC101	Memory control and I/O control integrated ASIC
	VIPS: E05B93BA(NEC)	IC600	Video control ASIC
ROM DIMM (90pin)	Standard ROM DIMM	CN300	1 slot. IPL/Code/Font 2MB PROG: C309 PROG 8 Mbit (x16) ×2
SDRAM DIMM (90pin)	Standard/optional	CN201	For standard/expanded printer memory (1 slot) 32, 64, 128 MB (EPSON original spec.) (Standard: 32MB)
	Optional	CN200	For printer memory expansion (1 slot) 32, 64, 128 MB (EPSON original spec.) (Max. 256)
PWM		IC601	IC for pulse width modulation for connection to VIPS
LVDS			The image signal from PWM is output to the VIDEO connector by LVDS
Reset IC			M51953BFP (Mitsubishi), 8-pin, SOP
EEPROM		IC102	2 kbit 8-pin (compatible with EIC2)
Standard interfaces	Parallel I/F	CN403	This controller is equipped with 1 channel of Parallel I/F. Mounted on C409 I/F
	USB I/F		1 slot. USB 1.1 compatible Mounted on C409 I/F
Expansion interface	Type-B	CN406	1 slot. Connected to the HV bus of DIOC.
Control Panel		CN405	Connector for the newly employed Control Panel. Controlled by DIOC.
VIDEO I/F		CN800	Connected to mechanical controller video I/F.

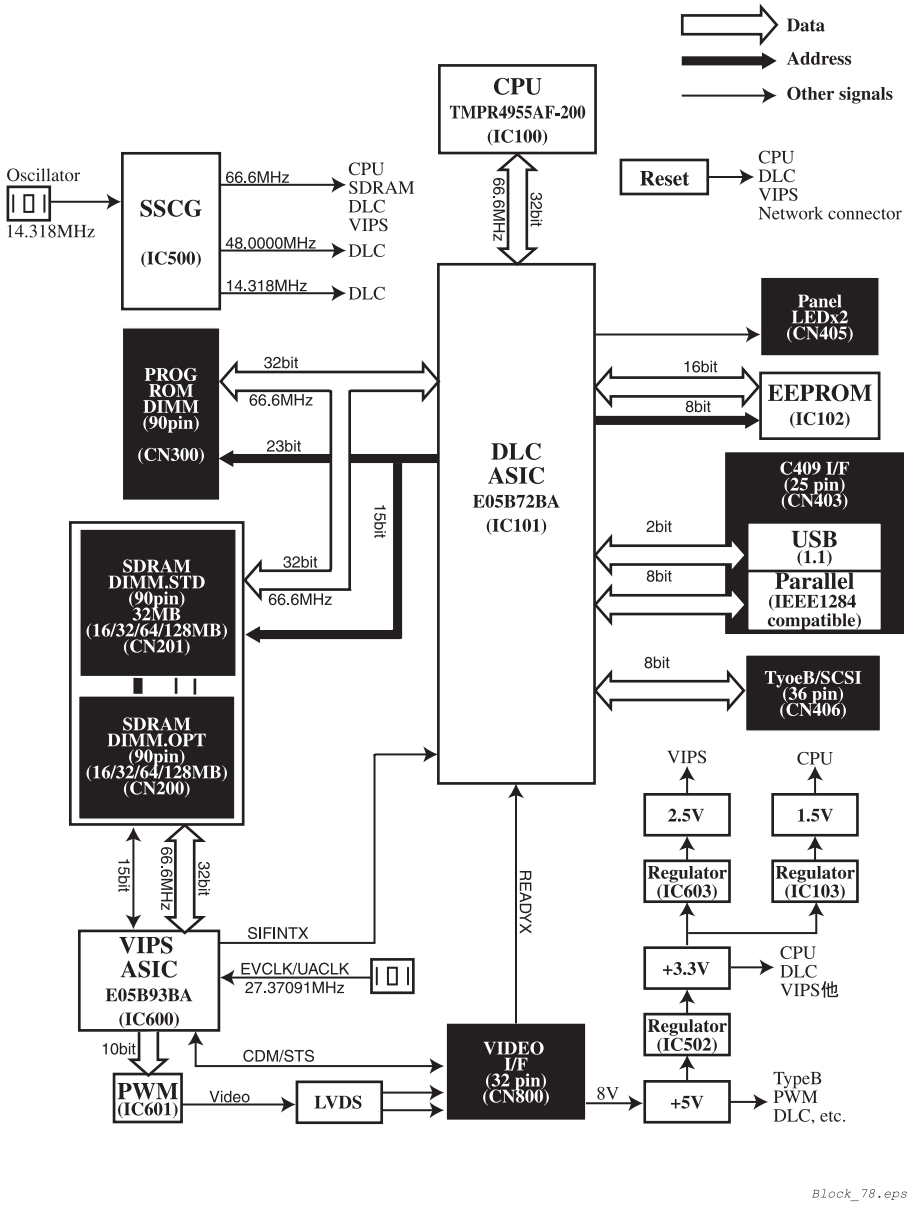


Figure 2-69. C471 Board Circuit Block Diagram (AcuLaser C7000)

CHAPTER

3

TROUBLESHOOTING

3.1 Overview

It is difficult to identify the cause of troubles in page printers, which have complex mechanical structures. This chapter describes the method to identify the cause of the trouble from the LCD message for AcuLaser C8600 or EPSON Status Monitor window message for AcuLaser C7000 and how to solve the problem.

3.1.1 Troubleshooting Procedure

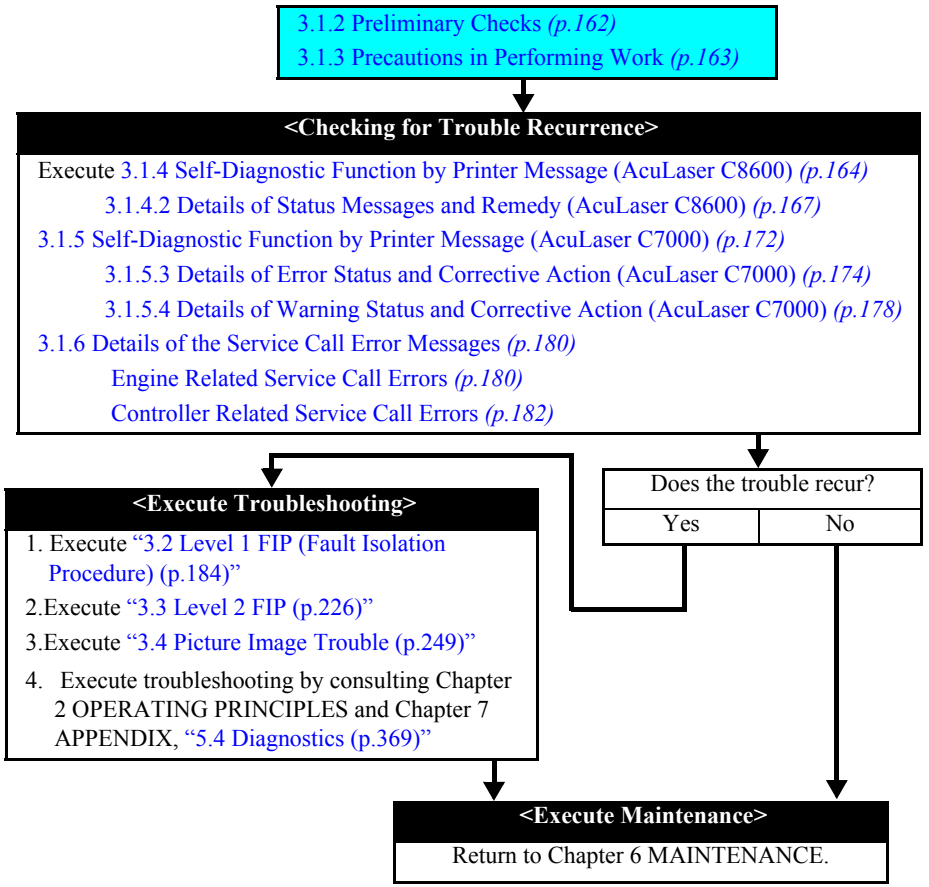


Figure 3-1. Troubleshooting Flowchart

3.1.2 Preliminary Checks

Before starting troubleshooting, be sure to verify 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 breakage, 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 blast 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 rays of the sun.
8. The printer must be located in a well-ventilated place.
9. The printer must be placed on a strong and steady level table.
10. The paper used must conform to the specification. (The standard paper is recommended.)
11. There is no error in handling of the printer.
12. The life of any major after-sale service parts indicated on the Engine Status Sheet must not exceed the specified limit, since these parts affect image quality and reliability.

NOTE: *For engine status sheet of AcuLaser C7000, refer to "How to Print the Engine Status Sheet on AcuLaser C7000" (p.78)*

3.1.3 Precautions in Performing Work

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

Never touch any live parts unnecessarily when power is on.
The power switch/inlet part of the LV/HV POWER SUPPLY 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/J121), except when its connection is required.

If you perform work with the power turned ON, covers removed and the interlock and safety switches turned ON, there is danger of laser radiation being emitted from the ROS ASSY. Be sure to disconnect the ROS ASSY connector (P/J121), except when its connection is required.

3. Before starting work operations with the REAR COVER removed and with power on, be sure to disconnect the connector (P/J42) on the LV/ HV POWER SUPPLY except when its connection is needed.

If you perform work with the power ON and the REAR COVER removed, a high voltage may be output from the LV/ HV POWER SUPPLY. Be sure to disconnect the connector (P/J42) on the LV/ HV POWER SUPPLY.
If FIP requires the connector (P/J42) on the LV/HV POWER SUPPLY to be connected, take great care not to touch the LV/HV POWER SUPPLY or high voltage output parts.

4. When outputting a high voltage using the diagnostics commander, etc., make sure all the covers are mounted unless specifically instructed otherwise.

- **When outputting a high voltage using the diagnostics commander, etc., never touch any of the high voltage output parts.**
- **Be sure to follow the procedure given in this manual when outputting a high voltage using the diagnostics commander, etc.**

5. When operating driving parts using the diagnostics commander, etc., make sure all the covers are mounted unless specifically instructed otherwise.

- **When operating driving parts using the diagnostics commander, etc., never touch any of the driving parts.**
- **Be sure to follow the procedure given in this manual when operating driving parts using the diagnostics commander, etc.**

6. When you touch any surface which can become hot, take care not to suffer a burn.
7. Wear a wrist strap to discharge static electricity from the human body, whenever possible.

3.1.4 Self-Diagnostic Function by Printer Message (AcuLaser C8600)

AcuLaser C8600 is equipped with a self-diagnostic function. If the printer detects an error, it indicates the error information with the LED lamps and the LCD panel on the control panel.

Types of error which can occur to a page printer vary widely, such as poor print quality or abnormal operation, and it makes identification of failed part and component more difficult. For easy and efficient repair, this section describes troubleshooting procedures using LCD messages and typical types of abnormal output.

The following tables list the LCD messages.

Figure 3-2 below shows the locations of the components and covers referred to in the messages.

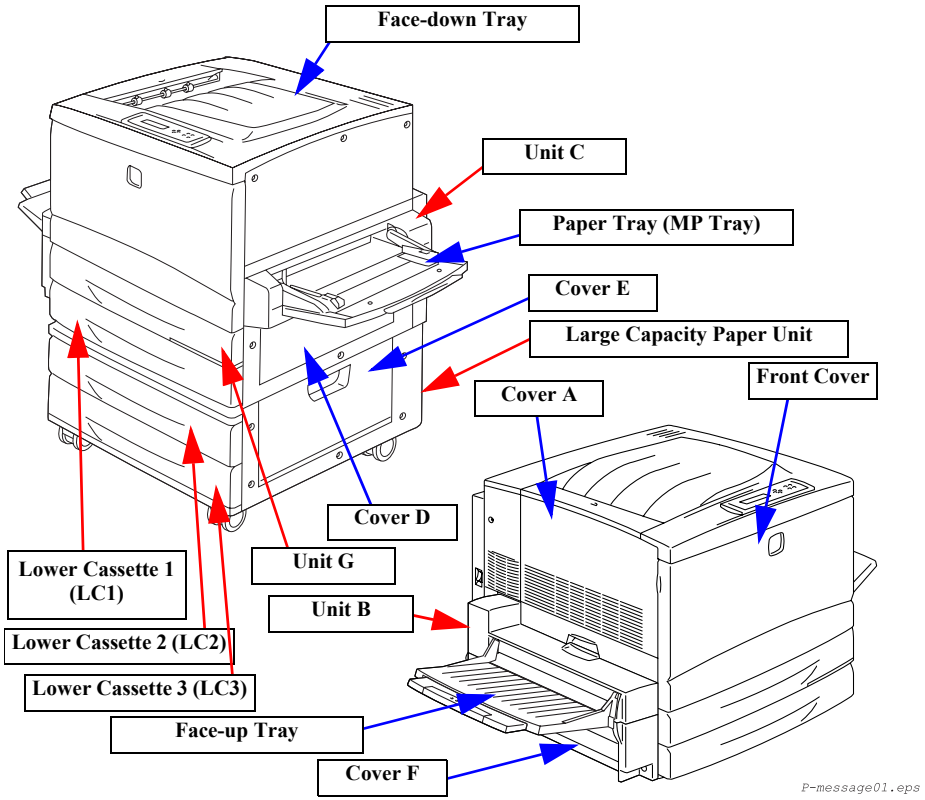


Figure 3-2. Locations of Units/Covers

3.1.4.1 List of Printer Messages (AcuLaser C8600)

The table below shows the list of printer message of AcuLaser C8600. Each message is the one when "Lang = English" is set.

Table 3-1. Printer Messages (AcuLaser C8600)

LED Message	Category	Status code
(Display when Power is Turned On)	status	
Service Req Cffff	Service call error (Cffff: See *6)	6000
Service Req Eggg	Service call error (Eggg: See *7)	6001 ~ 6999
HDD Format ***%	status	-
Optional RAM * Error	Error (* = RAM DIMM number)	-
ROM CHECK	status	-
RAM CHECK	status	-
HDD CHECK	status	-
Self Test	status	-
Reset All	status	1004
Reset	status	1004
Cancel All Print Job	status	1003
Cancel Print Job	status (Job cancel by panel)	1003
Unable Clear Error	status	-
Check Transparency	Error	4021
Jam xxxxxxxxxxxxx	Error	4008, 4009, 4012, 4081, 4082
(xxxxxxxxxxxxx=A,B,C,D,E,F,G, see *1)		
Irregular Density	Error	4031
uuuu Toner Cart Out	Error	
(uuuu = CMYK, only the relevant item is displayed)		4049 ~ 4063
Install Photocondctr	Error	4022
Install Waste T Box	Error	4023
Wrong Photoconductor	Error	4032
Photocondctr Trouble	Error	4033
uuuu Toner Out	Error	
(uuuu = CMYK, only the relevant item is displayed)		4065 ~ 4079
Replace Photocondctr	Error	4028

Table 3-1. Printer Messages (AcuLaser C8600) (continued)

LED Message	Category	Status code
Replace Waste T Box	Error	4029
Front Cover Open	Error	4002
Cover A Open	Error	4035
Unit B Open	Error	4212
Unit C Open	Error	4213
Cover D Open	Error	4038
Cover E Open	Error	4039
Cover F Open	Error	4040
Unit G Open	Error	4217
Turn Paper sss	Error (sss: See *4)	4013
Manual Feed ttt	Error (ttt: See *3)	1013
Can't Print Duplex	Error	3005
Paper Out sss ttt	Error (sss: See *2, ttt: See *5)	4010
Paper Set sss ttt	Error (sss: See *2, ttt: See *5)	3003
Print Overrun	Error	3000
Mem Overflow	Error	3001
Duplex Mem Overflow	Error	3004
Invalid HDD	Error	4202
Invalid PS3	Error	4201
Invalid IDPS	Error	4232
Copy System Error	Error	4227
Invalid AUX I/F Card	Error	4014
Invalid ROM A	Error	4003
Invalid ROM B	Error	4003
Write Error ROM A	Error	4006
Write Error ROM P	Error	4006
Reset to Save	status	-
Writing ROM A	status	1005
Writing ROM P	status	1005
Menus Locked	Warning	1001
(Panel setting display)		
Hard Disk full	Warning	2569

Table 3-1. Printer Messages (AcuLaser C8600) (continued)

LED Message	Category	Status code
Reserve Job Canceled	Warning	2565
PS3 Hard Disk full	Warning	2561
Form Data Canceled	Warning	2570
Collate was disabled	Warning	2013
Check Paper Size	Warning	2004
Time exceeded	Warning	2560
Image Optimum	Warning	2002
Check Paper Type	Warning	2008
Outbin Select Error	Warning	2009
Need Memory	Warning	2003
Format Error ROM A	Warning	2000
Format Error ROM B	Warning	2000
Form Feed	status	1008
(Display in test printing)		1010
Warming Up	status	1006
Calibrating Printer	status	1014
Offline	status	1001
Cancel Print Job	status (Job cancel by host)	1003
uuuu Toner Low	Warning	
(uuuu=CMYK, only the relevant item is displayed)		2017 ~ 2031
Worn Photoconductor	Warning	2010
Waste T Box Nearfull	Warning	2011
Worn Fuser	Warning	2562
Standby	status	1007
Ready	status	1000
(Printing)	status	1009
(Communication to non-active I/F)	status	1012
(executing of Job (possible to print))	status	1002

Note *1: Paper Jam may occur in more than one places, and these jams are indicated simultaneously. In such cases, locations of paper jam occurrence appear with a space between them.

*2: The relevant values among the Values for Paper Source of Printing Menu described in Section 1.6.5 "Panel Setting Item List" appear except for Auto.

*3: The relevant values among the Values for Page Size of Printing Menu described in Section 1.6.5 "Panel Setting Item List" appear.

*4: The relevant values among the Values for Paper Source of Printing Menu described in Section 1.6.5 "Panel Setting Item List" appear except for Auto and MP.

*5: The relevant values among the Values for each Paper Size of Tray Menu described in Section 1.6.5 "Panel Setting Item List" appear.

*6: See controller related errors described in 3.1.6 "Details of the Service Call Error Messages".

*7: See engine related errors described in 3.1.6 "Details of the Service Call Error Messages".

3.1.4.2 Details of Status Messages and Remedy (AcuLaser C8600)

This section describes the status messages specific to AcuLaser C8600.

CALIBRATING PRINTER

☐ Description

This is one of the READY messages. The engine is under adjustment.
The LCD blinks.

HDD FORMAT *%**

☐ Description

Initialization of HDD is in progress. The status appears in 1% increments.

3.1.4.3 Details of Error Messages and Remedy (AcuLaser C8600)

This section describes the status messages specific to AcuLaser C8600.

CHECK TRANSPARENCY

☐ Description

Since OHP sheets were loaded and fed upside down, or OHP sheets that were not specified were fed, a paper jam occurred in the paper feeding area.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

When using the specified type of OHP sheet, load the sheets facing up. When using OHP sheets that are not specified, replace them with the specified ones. Then, open the Unit C to remove jammed sheets and close the Unit C. Always be sure to open the Unit C to check. Unless the Unit C is opened, the printer does not recover from the error. After warming up, the printer resumes printing from the jammed print data.

JAM XXXXXXXXXXXXX

☐ Description

A paper jam has occurred at the indicated location.
When the message shows more than one location, it means that paper jam has occurred near the locations, and the number of indicated locations does not always match the number of paper jams.

xxxxxxxxxxxxx=	A:	Paper jam occurred near the Cover A. 4012
	B:	Paper jam occurred near the Unit B. 4008
	C:	Paper jam occurred near the Unit C. 4009
	D:	Paper jam occurred near the Cover D. 4009
	E:	Paper jam occurred near the Cover E. 4009
	F:	Paper jam occurred near the Cover F. 4082
	G:	Paper jam occurred near the Unit G. 4081

In the case where only one status can be returned such as EJL, the messages appear in the priority order of 4081, 4082, 4009, 4008, and 4012.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

Open the displayed Cover or Unit to remove jammed paper. If the Cover C, D, E appears in the message, check each paper cassette or tray, and if there are any jammed paper, remove it. After that, close the Cover or Unit. The printer resumes printing from the jammed print data.

IRREGULAR DENSITY

☐ Description

Print data had 260% or more of CMYK density in total within the top of a page (about 70 mm) in the paper feed direction, and high-density error of printing occurred. As a result, printing failed and a paper jam occurred near the paper feeding area.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

Open the Unit C to remove the jammed paper, and close it. After canceling (deleting) printing the print data, restart the printer.

UUUU IMAGE CART OUT

☐ Description

A toner cartridge is not installed. The uuuu display corresponds to each C, M, Y, K toner cartridge, and only indicates the cartridge that is not installed.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

Open the Front Cover if it is closed, and install the displayed toner cartridge. After closing the Front Cover, the error is automatically released.

INSTALL PHOTOCONDCTR

☐ Description

The Photoconductor Unit is not installed or is not set correctly.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

Open the Front Cover if it is closed, and install the Photoconductor Unit. After closing the Front Cover, the error is automatically released.

INSTALL WASTE T BOX

☐ Description

The Waste Toner Collector is not installed.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

Open the Front Cover if it is closed, and install the Waste Toner Collector. After closing the Front Cover, the error is automatically released.

WRONG PHOTOCONDUCTOR

☐ Description

The appropriate Photoconductor Unit is not installed.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

Open the Front Cover if it is closed, and install the appropriate Photoconductor Unit. After closing the Front Cover, the error is automatically released.

PHOTOCONDCTR TROUBLE

☐ Description

The Photoconductor Unit has broken down.

☐ LED

The Ready LED is off and the Error LED is on.

☐ Remedy

Open the Front Cover if it is closed, and install the normal Photoconductor Unit. After closing the Front Cover, the error is automatically released.

FRONT COVER OPEN

- Description
  The Front Cover is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Front Cover releases the error automatically.

COVER A OPEN

- Description
  The Cover A is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Cover A releases the error automatically.

UNIT B OPEN

- Description
  The Unit B is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Unit B releases the error automatically.

UNIT C OPEN

- Description
  The Unit C is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Unit C releases the error automatically.

COVER D OPEN

- Description
  The Cover D is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Cover D releases the error automatically.

COVER E OPEN

- Description
  The Cover E is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Cover E releases the error automatically.

COVER F OPEN

- Description
  The Cover F is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Cover F releases the error automatically.

UNIT G OPEN

- Description
  The Unit G is open.
- LED
  The Ready LED is off and the Error LED is on.
- Remedy
  Closing the Unit G releases the error automatically.

UUUU TONER OUT

- Description

  The each color's Toner End sensor of the engine detects that a toner is empty, and printing stops since further printing damages the engine. The error cannot be released even by pressing the Continue button. The uuuu shows CMYK corresponding to each C, M, Y, K toner cartridge, only indicating the toner cartridge detected that it contains no remaining toner.

- LED

  The Ready LED is off and the Error LED is on.

- Remedy

  Open the Front Cover if it is closed, and replace the toner cartridge displayed in the error with a new one. After closing the Front Cover, the error is automatically released.

REPLACE PHOTOCONDCTR

- Description

  The Photoconductor Unit life sensor detects the end of the Photoconductor Unit's lifetime, and printing stops.

- LED

  The Ready LED is off and the Error LED is on.

- Remedy

  Open the Front Cover if it is closed, and replace the Photoconductor Unit displayed in the error with a new one. After closing the Front Cover, the error is automatically released.

REPLACE WASTE T BOX

- Description

  The Waste Toner Full sensor detects that the Waste Toner Collector is full, and printing stops.

- LED

  The Ready LED is off and the Error LED is on.

- Remedy

  Open the Front Cover if it is closed, and replace the Waste Toner Collector with a new one. After closing the Front Cover, the error is automatically released.

COPY SYSTEM ERROR

- Description

  Some of the Units of the Copy System are not installed correctly.

- LED

  The Ready LED is off and the Error LED is on.

- Remedy

  Turn off the printer, check each Unit of the Copy System if it is installed correctly, and install it again if needed, or restart the printer after removing all the Units.

3.1.4.4 Details of Warning Messages and Remedy (AcuLaser C8600)

This section describes the warning messages specific to AcuLaser C8600.

TIME EXCEEDED

☐ Description

The printer pre-fed paper, but forcibly ejected the paper (blank printing) since the print data could not be prepared within the setup time of the engine.

☐ LED

LED is not influenced.

☐ Remedy

After forcibly ejecting the pre-fed paper, retry printing.
If the print data cannot be ready within the setup time of the engine again, forcibly eject the pre-paper, and switch to the next printing.
This message display is released either of the following methods.

- Execute Clear Warning of the Reset Menu.
- Reset.

UUUU TONER LOW

☐ Description

This warning notifies the user that the remaining toner level of each color (C, M, Y, K) is low. The remaining toner value for each color is calculated according to the engine's remaining toner sensor (dispense time in practice), and this message is displayed when the remaining toner is approximately 25%. The uuuu indicates CMYK, which correspond to the C, M, Y and K toner cartridges, and displays only the toner cartridges detected that the remaining toner is low.

☐ LED

LED is not influenced.

☐ Remedy

This warning display is released by performing any one of the following methods.

- Execute Clear Warning of the Reset Menu.
- Reset.
- Replace the toner cartridge displayed in the message with a new one.

WORN PHOTOCONDUCTOR

☐ Description

This warning informs the user that the Photoconductor Unit has reached the end of its life cycle. The Photoconductor Unit life sensor calculates the Photoconductor Unit life, and this message is displayed when the number of copies that can be printed is approximately 1,125 sheets (a 4,5% duty) for color printing, or approximately 4,500 sheets (a 4,5% duty) for monochrome printing.

☐ LED

LED is not influenced.

☐ Remedy

The Photoconductor Unit can be used until the "Replace Photocondctr" error appears, however basically it is desirable to replace it. This warning display is released by performing any one of the following methods.

- Execute Clear Warning of the Reset Menu.
- Reset.
- Replace the Photoconductor Unit with a new one.

WASTE T BOX NEARFULL

☐ Description

This warning informs the user that the Waste Toner Collector is nearly full. The Waste Toner Collector full sensor calculates if the Waste Toner is full up.

☐ LED

LED is not influenced.

☐ Remedy

The Waste Toner Collector can be used until the "Replace Waste T Box" error appears, but basically it is desirable to replace it. This warning display is released by performing any one of the following methods.

- (Execute Clear Warning of the Reset Menu.
- Reset.
- Replace the Waste Toner Collector with a new one.

WORN FUSER

☐ Description

This warning message informs the user that the Fuser Unit has reached the end of its life cycle.
This message appears when the used amount of the Fuser Unit reaches to 100,000 pages.

☐ LED

LED is not influenced.

☐ Remedy

The Fuser Unit can be used until any problems actually occur in printing results, but basically it is desirable to replace it. This warning display is released by performing any one of the following methods.

- Execute Clear Warning of the Reset Menu.
- Reset.
- Replace the Fuser Unit with a new one.

3.1.5 Self-Diagnostic Function by Printer Message (AcuLaser C7000)

NOTE: *For engine status sheet, refer to "Engine Status Sheet" (p.75).*

3.1.5.1 Printer Status List (AcuLaser C7000)

Figure 3-2 below lists the printer status items of AcuLaser C7000.

Table 3-2. Printer Status List (AcuLaser C7000)

Printer Status	Type	Status Code
Controller Error	Service call error	6000 *4
Engine Error	Service call error	6001 ~ 6999 *5
Protocol Error	Protocol error	-
Reset	Status	1004
Check Transparency	Error	4021
Paper Jam W W W W *1 (W=A, B, C, D, E, F, G)	Error	4008, 4009, 4012, 4081, 4082
Irregular Density	Error	4031
uuuu Toner Cart Out (uuuu = CMYK, only unintalled cartridges are displayed)	Error	4049 ~ 4063
Install Photocondctr	Error	4022
Install Waste T Box	Error	4023
Wrong Photoconductor	Error	4032
Photocondctr Trouble	Error	4033
uuuu Toner Out (uuuu = CMYK, only empty cartridges are displayed)	Error	4065 ~ 4079
Replace Photocondctr	Error	4028
Replace Waste T Box	Error	4029
Front Cover Open	Error	4002
Unit G Open	Error	4217
Cover F Open	Error	4040
Cover A Open	Error	4035
Unit B Open	Error	4212

Table 3-2. Printer Status List (AcuLaser C7000) (continued)

Printer Status	Type	Status Code
Unit C Open	Error	4213
Cover D Open	Error	4038
Cover E Open	Error	4039
Turn Paper	Error	4013
Paper Out	Error	4010
Paper Set *2 *3	Error	3003
Invalid Size *2	Error	3002
Print Underrun	Error	3000
Mem Overflow *2	Error	3001
Duplex Mem Overflow *2	Error	3004
Invalid AUX I/F Card	Error	4014
Collate was disabled	Warning	2013
Check Paper Size *3	Warning	2004
Time Exceeded	Warning	2560
Image Optimum	Warning	2002
Can't print duplex	Warning	2005
Print Failure	Warning	2568
Output Bin Error	Warning	2009
Need Memory	Warning	2003
Screen Mismatch	Warning	2567
Warming Up	Status	1006
Calibrating Printer	Status	1014
uuuu Toner Low (uuuu = CMYK, only cartridges near end are displayed)	Status	2017 ~ 2031
Worn Photoconductor	Warning	2010
Waste T Box Nearfull	Warning	2011
Worn Fuser	Warning	2562
Standby	Status	1007
Ready	Status	1000
Printing Job	Status	1002

Table 3-2. Printer Status List (AcuLaser C7000) (continued)

Printer Status	Type	Status Code
Engine Operating	Status	1009
Non-active Interface	Status	1012

Note *1: The relationship between covers or units where a paper jam occurs and status codes is listed below. If two or more paper jams occur, the status code 1) is determined first, then the other status codes are specified in a priority order of 2) ~ 7).

1) 4081: G unit
2) 4082: F cover
3) 4009: C unit
4) 4009: D cover
5) 4009: E cover
6) 4008: B unit
7) 4012: A cover

*2: When "Avoid Error = ON" is set, none of the errors "Paper Set", "Invalid Size", "Mem Overflow" and "Duplex Mem Overflow" occurs.

*3: When "Size Ignore = ON" is set, neither the error "Paper Set" nor the warning "Check Paper Size" occurs.

*4: See Controller Related Service Call Errors (p.182) in 3.1.6 Details of the Service Call Error Messages.

*5: See Engine Related Service Call Errors (p.180) in 3.1.6 Details of the Service Call Error Messages.

3.1.5.2 Details of Status Messages and Remedy (AcuLaser C7000)

RESET

☐ Description
The printer is being reset.
This status occurs as a result of clearing EEPROM, but does not occur due to operations by a user.

WARMING UP

☐ Description
The printer is warming up.

☐ Remedy
The printer recovers automatically within 330 seconds.

CALIBRATING PRINTER

- Description
  The printer engine is being adjusted.

STANDBY

- Description
  The printer is in the standby mode.
- Remedy
  The printer recovers to be ready to print after receiving printing data.

READY

- Description
  The printer is in the normal state.

PRINTING JOB

- Description
- The printer is processing the print job.

ENGINE OPERATING

- Description
  The printer is printing.

NON-ACTIVE INTERFACE

- Description
  Printing is in progress in any other interface.
- Remedy
  The printing starts automatically after finishing the current job.

3.1.5.3 Details of Error Status and Corrective Action (AcuLaser C7000)

CHECK TRANSPARENCY

- Description
  OHP sheets were loaded and fed upside down, or OHP sheets that were not specified were fed, so that a paper jam occurred in the paper feeding area.
  The printer recovers from the error when no more paper jams are detected.
  After error recovery, data for one page retained in the printer memory are recovered if it is possible. However, if the data does not exist, the printer returns a status of resending request. The data can be recovered when the printer does not perform a flying start.
- Corrective Action
  Load the specified OHP sheet in the correct direction, remove the jammed sheet, and then close the cover. Printing resumes from the jammed page. The pop-up display of the EPSON Status Monitor disappears after error recovery.

JAM W W W W (W = A, B, C, D, E, F, G)

- Description
  A paper jam occurrence.
  The error status information can indicate paper jam locations limited to below the cover A (paper ejecting area), below the cover B (inside of the printer), below the unit C or cover D or E (paper feeding area), in the unit G (duplex print unit), and below the cover F (duplex print unit); it cannot indicate multiple locations.
  The printer recovers from the error when no more paper jams are detected.
  After error recovery, data for one page retained in the printer memory are recovered if it is possible. However, if the data does not exist, the printer returns a status of resending request. The data can be recovered when the printer does not perform a flying start.
- Corrective Action
  Remove jammed paper and close the covers and units. Printing resumes from the jammed page. The pop-up display of the EPSON Status Monitor disappears after error recovery.

IRREGULAR DENSITY

- Description
  Print data had 260 % or more of CMYK density in total in the top area of a page (about 70 mm in the paper feed direction), and high-density error of printing occurred. As a result, a paper jam occurred near the paper feeding area.
- Corrective Action
  Select [Cancel Printing] to stop printing, remove the jammed paper, and then restart the printer.

UUUU IMAGE CART OUT

(uuuu = CMYK, only uninstalled cartridges are displayed)

INSTALL PHOTOCONDCTR

INSTALL WASTE T BOX

- Description
  The consumables are not installed, or are not installed correctly.
  When the printer detects that the consumables are set correctly, the printer recovers from the error.
- Corrective Action
  Installing the consumables correctly and closing the opened cover releases the printer from these errors. As a result, the pop-up display of the EPSON Status Monitor disappears.

WRONG PHOTOCONDUCTOR

PHOTOCONDCTR TROUBLE

- Description
  The Photoconductor Unit installed is inappropriate, or has been broken down.
- Corrective Action
  Installing a correct Photoconductor Unit and closing the opened cover releases the printer from these errors. As a result, the pop-up display of the EPSON Status Monitor disappears.

UUUU TONER OUT

(uuuu = CMYK, only empty cartridges are displayed)

REPLACE PHOTOCONDCTR

REPLACE WASTE T BOX

- Description
  The consumables have reached the lifetime.
  When the consumables come to the lifetime during printing, operation stops before printing the next page.
  When the printer detects remaining consumables, the printer recovers from these errors.
- Corrective Action
  Open the Front Cover if it is closed, and replace the consumables with a new one. After closing the Front Cover, the printer is automatically released from the error. As a result, the pop-up display of the EPSON Status Monitor disappears

FRONT COVER OPEN
UNIT G OPEN
COVER F OPEN
COVER A OPEN
UNIT B OPEN
UNIT C OPEN
COVER D OPEN
COVER E OPEN

- Description
  The cover or unit displayed is open.
  When the printer detects that none of covers or units are open, the printer recovers from the error.
- Corrective Action
  Closing the cover or unit releases the printer from these errors, and the pop-up display of the EPSON Status Monitor disappears accordingly.

NOTE: *For the locations of the covers and units as referred to in error messages, see Figure 3-2, "Locations of Units/Covers" (p.164).*

TURN PAPER

- Description
  In the Lower Cassette 1 ~ 3, A4 or LT size paper is loaded in the portrait orientation in the paper feeding direction.
  The error status information cannot indicate which cassette the error has occurred in.
- Corrective Action
  Changing the paper orientation recovers the printer from the error, and the pop-up display of the EPSON Status Monitor disappears accordingly.

PAPER OUT

- Description
  The selected paper source does not load paper during printing, thus operation stops before printing.
  When paper is detected in the selected paper source, the printer recovers from the error and printing starts.
  Even when none of the paper sources have paper, the error does not appear unless printing is performed.
- Corrective Action
  When paper is inserted in the selected paper source, the error display disappears, and the pop-up display of the EPSON Status Monitor disappears accordingly.

PAPER SET

- Description
  The paper size specified by printing data differs from the paper size recognized by the size detecting method of the Paper Source setting, thus operation stops before printing.
  The Continue command of the ESCPAGES-02 protocol releases the printer engine from the error, and the printer recovers from the error accordingly. The ResetPrinter command releases the printer engine from the error, thus resetting the printer to the initial status.
  This error does not occur when the specified paper size is undefined, and when "Size Ignore = ON" and/or "Avoid Error = ON" are selected.
- Corrective Action
  Insert appropriate paper, and select [Continue] in the EPSON Status Monitor.
  To reprint after changing driver settings, select [Cancel Printing] in the EPSON Status Monitor.

INVALID SIZE

- Description
  A paper size larger than A3W is specified, thus operation stops before printing.
  The Continue command of the ESCPAGES-02 protocol releases the printer from the error, and printing resumes from the next page.
  When "Avoid Error = ON" is set, the printer displays the "Print Failure" error status instead of this error, and resumes printing the next page.
- Corrective Action
  To print pages after "Invalid Size", select [Continue] in the EPSON Status Monitor.
  To reprint after changing driver settings, select [Cancel Printing] in the EPSON Status Monitor.
  Since the printer driver clips the data within the maximum paper size, this error does not occur actually.

PRINT UNDERRUN

- Description
  Printing data has been cut off during document processing, and the printer started printing at timeout, but the band data is insufficient.
  Printing was not successful since the data constituting the band to be printed were not completely received at printing by flying-start, or the memory was insufficient for a flying start due to "Near Buffer Full".
  Resetting the printer to the initial status by the ResetPrinter command of the ESCPAGES-02 protocol releases the printer from the error.
- Corrective Action
  If data receiving is not completed, selecting [Reprint] in the EPSON Status Monitor performs printing successfully in some cases, since the driver resends data without a flying start.
  To reprint after changing driver settings, select [Cancel Printing] in the EPSON Status Monitor.

MEM OVERFLOW

- Description
  Data for one page was not saved due to an insufficient memory.
  The Continue command of the ESCPAGES-02 protocol releases the printer from the error, and printing resumes from the next page.
  When "Avoid Error = ON" is set, the printer displays the "Print Failure" error status instead of this error, and resumes printing the next page.
- Corrective Action
  To print pages after the memory error, select [Continue] in the EPSON Status Monitor.
  To reprint after changing driver settings, select [Cancel Printing] in the EPSON Status Monitor.

DUPLEX MEM OVERFLOW

- Description
  Data for the front page (the second page of duplex) was not saved due to an insufficient memory.
  The Continue command of the ESCPAGES-02 protocol releases the printer from the error, and printing resumes from the next pair of front and back pages.
  When "Avoid Error = ON" is set, the printer displays the "Print Failure" error status instead of this error, and resumes printing the next pair of front and back pages.
- Corrective Action
  To print pages after the memory error, select [Continue] in the EPSON Status Monitor.
  To reprint after changing driver settings, select [Cancel Printing] in the EPSON Status Monitor.

INVALID AUX I/F CARD

- Description
  An interface card that cannot be used is installed.
  Since the printer checks an interface card only when it is turned on, the printer is not recovered from this error while the power to the printer is on.
  Only interface cards compatible with expansion of background job commands are supported.
  Since it is only to receive data that the printer does not do, displaying this status in the EPSON Status Monitor or updating the Type-B firmware is possible.
- Corrective Action
  Turn off the printer, remove the invalid interface card, and turn it on again.

3.1.5.4 Details of Warning Status and Corrective Action (AcuLaser C7000)

COLLATE WAS DISABLED

- Description
  Band data of pages for multi-copying were not saved for one page entirely.
  This warning is cleared by the ResetFlag command of the ESCPAGES-02 protocol.
  This warning status occurs before completion of sending data for one page in some cases. Even with this warning displayed, however, continuing to send the data will print only one sheet.
- Corrective Action
  The warning occurs only when a flying start is performed, and since data are resent (number of copies n - 1) times, this warning status is not displayed in the user interface.

CHECK PAPER SIZE

- Description
  The paper size that was actually fed differed from the paper size recognized by the paper size detecting method of the Paper Source setting (or the paper size in the MP tray specified by data).
  This warning is cleared by the ResetFlag command of the ESCPAGES-02 protocol.
  This warning does not occur when the specified paper size is undefined, and when "Size Ignore = ON" is selected.
- Corrective Action
  Clicking the [Close] button closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Check Paper Size" warning.

TIME EXCEEDED

- Description
  The printer performed paper pre-feed, but it ejected paper before printing since the printing data was not ready within the engine pre-feed limit time.
  Normally, the printer prints the data on the next paper. However, if the Time Exceeded occurs again, it prints the data of the next page.
  This warning is cleared by the ResetFlag command of the ESCPAGES-02 protocol.
- Corrective Action
  Clicking the [Close] button closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Time Exceeded" warning.

IMAGE OPTIMUM

- Description
  Due to an insufficient printer memory, printing was performed with non-reversible (lossy) compression. Non-reversible compression is not performed by the printer, but transmitted data are already compressed non-reversible.
  This warning is released by the ResetFlag command of the ESCPAGES-02 protocol.
- Corrective Action
  Clicking the [Close] button closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Image Optimum" warning.

CAN'T PRINT DUPLEX

- Description
  Duplex printing was impossible due to restrictions on duplex printing, so that simplex printing was performed.
  Due to the fact that the printer does not transpose pages of sent data, simplex printing proceeds in the order from the back page to the front page.
  This warning is cleared by the ResetFlag command of the ESCPAGES-02 protocol.

  NOTE: *This status is the "Can't print duplex" error for ESC/Page models. However, since this status probably does not occur in normal operation, it was changed to a warning.*

- Corrective Action
  Clicking [Close] closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Can't print duplex" warning.

PRINT FAILURE

- Description
  Since the "Invalid Size", "Mem Overflow", "Duplex Mem Overflow" error occurred when "Avoid Error = ON" was set, printing continued displaying this warning.

  NOTE: *When enabling the Avoid Error in an ESC/Page printer, the error messages appears for about five seconds. With the host-based printer, however, the Status Monitor cannot monitor these errors completely. Therefore, the specification has been changed to clear these errors immediately and display this warning.*

- Corrective Action
  Clicking the [Close] button closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Print Failure" warning.

OUTPUT BIN ERROR

- Description
  Due to the restrictions on the output tray, the printer ejected paper not into the specified output tray but into the Face-up tray.

- Corrective Action
  Clicking the [Close] button closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Output Bin Error" warning.

NEED MEMORY

- Description
  Printing was performed with a flying start due to the buffer-full status. However, in case of an insufficient memory in printing, the "Print Underrun" error occurs. This status does not occur in printing from the Network where a flying start is not applicable.
  The print result is as good as with sufficient memory.

- Corrective Action
  Clicking the [Close] button closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Need Memory" warning.

SCREEN MISMATCH

- Description
  The result of the color screen adjustment made for printing data does not match the color screen installed in the printer, so that printing continued by displaying this warning.

- Corrective Action
  This warning always occurs when the screen does not match between the driver and the printer.
  Clicking the [Close] button closes the pop-up display of the EPSON Status Monitor. However, if any error of higher priority occurs just after that, the display changes to the error display. From this point, the error processing is applied, and the status never goes back to the "Screen Mismatch" warning.

UUUU TONER LOW

(uuuu = CMYK, only cartridges near end are displayed)

WORN PHOTOCONDUCTOR
WASTE T BOX NEARFULL
WORN FUSER

☐ Description
These warnings indicate that consumables must be replaced soon.
The toner related warnings also indicate which of CMYK toners must be replaced.
The warnings related to consumables are cleared when no more states of end or near end are detected. The ResetFlag command of the ESCPAGES-02 protocol also clears the warnings. However, the function of clearing the warnings for consumables from the EPSON Status Monitor is not supported.
Each consumable can be used until the status changes to a replacement requiring error, but it is desirable to replace it when these warnings appear.

☐ Corrective Action
After printing, the EPSON Status Monitor pop-up appears, and this display disappears when the [Close] button is clicked or consumables are replaced.
These warnings can be selected to "off" in the Monitoring Preferences settings of the EPSON Status Monitor.

3.1.6 Details of the Service Call Error Messages

The detailed service call error messages of AcuLaser C8600/AcuLaser C7000 are listed in the table below.

ENGINE RELATED SERVICE CALL ERRORS

NOTE: *Each error code (ggg) is displayed with a prefix "E" for AcuLaser C8600 or "6" for AcuLaser C7000.*

Table 3-3. Service Call Errors (Engine Related)

Error Code ggg	Explanation	Refer to
113	Fuser Unit error (Fuser Unit is not installed)	FIP-1.2 "MAIN FUSER ASSY Error" (p.187)
510	ROS motor error	FIP-1.20 "ROS ASSY Related Error" (p.201)
511	Motor 1 error	FIP-1.19 "P/R MOT&DRV ASSY Related Error" (p.200)
512	P/H motor 1 error	• FIP-1.15 "P/H MOTOR ASSY Related Error" (p.196) • FIP-1.16 "P/H MOTOR ASSY Related Error" (FUSER MOTOR ASSY) (p.197) • FIP-1.18 "P/H MOTOR ASSY Related Error" (MAG MOTOR ASSY) (p.199) • FIP-1.19 "P/R MOT&DRV ASSY Related Error" (p.200)
513	NVRAM error	FIP-1.14 "MCU PWB ROM-RAM Error" (NVRAM) (p.195)
516	Duplex Unit error (communication), or Duplex Print Unit other than this printer's option is installed	-
517	2/1 Optional Cassette Unit error, or 2/1 Optional Cassette Unit other than this printer's option is installed	-
520	2nd BTR error (Advance)	FIP-1.28 "2ND BTR ADVANCE Error" (p.207)

Table 3-3. Service Call Errors (Engine Related) (continued)

Error Code ggg	Explanation	Refer to
521	2nd BTR error	FIP-1.27 “2ND BTR Error” (p.206)
523	PCDC malfunction	FIP-1.25 “PCDC Error” (p.205)
524	Toner density error (low density)	FIP-1.24 “Low Density Error” (p.204)
525	Toner density error (high density)	FIP-1.23 “High Density Error” (p.203)
526	Soiled ADC sensor	FIP-1.22 “ADC Sensor Soiled” (p.203)
527	Deve home position sensor error	-
530	Environment (humidity) sensor error	FIP-1.31 “Environment (Humidity) Sensor Related Error” (p.210)
531	PR motor error	FIP-1.19 “P/R MOT&DRV ASSY Related Error” (p.200)
532	P/H motor 2 error	• FIP-1.15 “P/H MOTOR ASSY Related Error” (p.196) • FIP-1.16 “P/H MOTOR ASSY Related Error” (FUSER MOTOR ASSY) (p.197) • FIP-1.18 “P/H MOTOR ASSY Related Error” (MAG MOTOR ASSY) (p.199) • FIP-1.19 “P/R MOT&DRV ASSY Related Error” (p.200)
533	Temperature sensor error	FIP-1.29 “FUSER Overheat Error” (p.208)
534	Fuser Unit error (low temperature)	FIP-1.30 “FUSER Warm-up Error” / “Heater Error”/ “FUSER Low Temperature Error” (p.209)
535	Fuser Unit error (Heater lamp)	FIP-1.30 “FUSER Warm-up Error” / “Heater Error”/ “FUSER Low Temperature Error” (p.209)
536	Fuser Unit error (time out)	FIP-1.30 “FUSER Warm-up Error” / “Heater Error”/ “FUSER Low Temperature Error” (p.209)
537	Fuser Unit error (over heat)	FIP-1.29 “FUSER Overheat Error” (p.208)
543	Rear fan error	FIP-1.34 “DEVE. FAN Error” (p.211)

Table 3-3. Service Call Errors (Engine Related) (continued)

Error Code ggg	Explanation	Refer to
544	Fuser Unit fan 2 error	FIP-1.33 “FUSER CHUTE FAN Error” (p.211)
545	Fuser Unit fan 1 error	FIP-1.32 “FUSER FAN-1 Error” (p.210)
546	Duplex Unit motor error	*3
547	2/1 Optional Cassette Unit Feeder Motor error	*3
620	K Development end	FIP-1.35 “Life Error/Over/Warning” (p.212)
621	C Development end	FIP-1.35 “Life Error/Over/Warning” (p.212)
622	M Development end	FIP-1.35 “Life Error/Over/Warning” (p.212)
623	Y Development end	FIP-1.35 “Life Error/Over/Warning” (p.212)
624	IBT end	FIP-1.35 “Life Error/Over/Warning” (p.212)
626	2nd BTR end	FIP-1.35 “Life Error/Over/Warning” (p.212)
627	IBT Cleaner end	FIP-1.35 “Life Error/Over/Warning” (p.212)
830	2 Optional Cassette Unit LC3 error (lift up)	*3
831	1/2 Optional Cassette Unit LC2 error (lift up)	*3
832	MP Tray error (lift down)	FIP-1.44 “MSI Tray Malfunction (Lift Down)” (p.218)
833	MP Tray error (lift up)	FIP-1.43 “MSI Tray Malfunction (Lift Up)” (p.217)
998	Engine communication error	FIP-1.47 Engine Communication Error (p.220)

Note *1: Occurs when the Duplex Unit for AcuLaser C8500 is installed.

*2: Occurs when optional lower cassette unit for AcuLaser C8500 is installed.

*3: Refer to the instruction manual for the relevant optional unit.

CONTROLLER RELATED SERVICE CALL ERRORS

NOTE: *Each error code for AcuLaser C8600 is displayed with a prefix "C".*

Table 3-4. Service Call Errors (Controller Related)

Error Code ffff	Explanation	Refer to
0017	CPU error (Undefined interrupt occurrence)	FIP-1.47 Engine Communication Error (p.220)
0081	CPU error (TLB correction exception) **Only AcuLaser C7000*	
0082	CPU error (TLB miss exception [Load/Fetch]) **Only AcuLaser C7000*	
0083	CPU error (TLB miss exception [Store]) **Only AcuLaser C7000*	
0084	CPU error (Address error exception [Load/Fetch]) **Only AcuLaser C7000*	
0085	CPU error (Address error exception [Store]) **Only AcuLaser C7000*	
0086	CPU error (Bus error exception [Fetch]) **Only AcuLaser C7000*	
0087	CPU error (Bus error exception [Load/Store]) **Only AcuLaser C7000*	
0088	CPU error (SYSCALL exception)	
0089	CPU error (Break exception)	
0090	CPU error (Reserve command exception) **Only AcuLaser C7000*	
0091	CPU error (Unused coprocessor exception)	
0092	CPU error (FPU exception) **Only AcuLaser C7000*	
0093	CPU error (TLB exception) **Only AcuLaser C7000*	
0094	CPU error (XTLB exception) **Only AcuLaser C7000*	

Table 3-4. Service Call Errors (Controller Related) (continued)

Error Code ffff	Explanation	Refer to
0095	CPU error (Cache exception) **Only AcuLaser C7000*	FIP-1.47 Engine Communication Error (p.220)
0096	CPU error (Trap exception) **Only AcuLaser C7000*	
0097	CPU Error (FPU exception) **Only AcuLaser C7000*	
0098	CPU error (Watch exception) **Only AcuLaser C7000*	
0128 ~ 0254	CPU error (Undefined trap) **Only AcuLaser C7000*	
0255	CPU error (NMI exception) **Only AcuLaser C7000*	
0256	CPU error (Divide by 0) **Only AcuLaser C7000*	
0257	CPU error (Computation overflow) **Only AcuLaser C7000*	
0258	CPU error (Break was generated) **Only AcuLaser C7000*	
0300	CPU error (Reserved (undefined) exception) **Only AcuLaser C8600*	
0301	CPU error (Machine check exception) **Only AcuLaser C8600*	
0302	CPU error (Data access exception) **Only AcuLaser C8600*	
0303	CPU error (Instruction access exception) **Only AcuLaser C8600*	
0304	CPU error (Alignment exception) **Only AcuLaser C8600*	
0305	CPU error (Program exception) **Only AcuLaser C8600*	
0306	CPU error (Trace exception) **Only AcuLaser C8600*	

Table 3-4. Service Call Errors (Controller Related) (continued)

Error Code ffff	Explanation	Refer to
0307	CPU error (Performance exception) **Only AcuLaser C8600*	FIP-1.47 Engine Communication Error (p.220)
0308	CPU error (System administration interrupt exception) **Only AcuLaser C8600*	
0309	CPU error (Temperature management interrupt exception) **Only AcuLaser C8600*	
0800	IPL error (Controller defective)	
0998	Engine communication error (Only when powering on)	FIP-1.14 "MCU PWB ROM-RAM Error" (NVRAM) (p.195)
0999	No Engine Flash ROM program data	FIP-1.14 "MCU PWB ROM-RAM Error" (NVRAM) (p.195)
1002	Standard RAM error (When the standard size is not determined, etc.)	FIP-1.49 Error in Standard RAM (Slot 0, 1) (p.221)
1010	Verify error	FIP-1.48Verify (DIMM Slot Related) Error (p.220)
1020	RAM error (Slot 0)	FIP-1.49 Error in Standard RAM (Slot 0, 1) (p.221)
1021	RAM error (Slot 1)	FIP-1.49 Error in Standard RAM (Slot 0, 1) (p.221)
1100	ROM checksum error (bit 0 ~ 15) (Font)	FIP-1.50ROM Checksum Error (MASK ROM for Font) (p.221)
1101	ROM checksum error (bit 16 ~ 31) (Font)	FIP-1.50ROM Checksum Error (MASK ROM for Font) (p.221)
1120	ROM checksum error (bit 0 ~ 7) (Program)	FIP-1.51 ROM Checksum Error (CODE, IPL) (p.222)
1121	ROM checksum error (bit 8 ~ 15) (Program)	FIP-1.51 ROM Checksum Error (CODE, IPL) (p.222)
1122	ROM checksum error (bit 16 ~ 23) (Program)	FIP-1.51 ROM Checksum Error (CODE, IPL) (p.222)
1123	ROM checksum error (bit 24 ~ 31) (Program)	FIP-1.51 ROM Checksum Error (CODE, IPL) (p.222)

Table 3-4. Service Call Errors (Controller Related) (continued)

Error Code ffff	Explanation	Refer to
1170	Optional Font ROM checksum error **Only AcuLaser C8600*	
1180	Optional ROM module A checksum error **Only AcuLaser C8600*	FIP-1.52 ROM Module (DIMM Slot A, B, C Related) Error (p.222)
1181	Optional ROM module B checksum error **Only AcuLaser C8600*	FIP-1.52 ROM Module (DIMM Slot A, B, C Related) Error (p.222)
1185	Unsupported ROM module **Only AcuLaser C8600*	FIP-1.52 ROM Module (DIMM Slot A, B, C Related) Error (p.222)
1200	EEPROM write error	FIP-1.53 EEPROM Writing Error (p.223)
1210	EEPROM write count limit	FIP-1.53 EEPROM Writing Error (p.223)
1400	Engine initialization malfunction	FIP-1.55 Engine Initialization Error (p.224)
1500	CCNV hardware error	FIP-1.54 CCNV Hardware Error (p.223)
1550	Compression SRAM initialization hardware error	FIP-1.56 SRAM (for Compression) Initialization Hardware Error (p.224)
1600	Video related hardware error (including PWM IC calibration error)	FIP-1.57 Video System Hardware Error (including PWM Calibration Error IC) (p.225)
1610	Video series hardware error (VCNV error) **Only AcuLaser C7000*	
1700	Built-in network hardware error **Only AcuLaser C7000*	
1999	Other hardware error	FIP-1.55 Engine Initialization Error (p.224)
2000	Software error	FIP-1.55 Engine Initialization Error (p.224)

3.2 Level 1 FIP (Fault Isolation Procedure)

3.2.1 Precautions in Using FIP (Fault Isolation Procedure)

1. FIPs assume there is no malfunction in the printer controller (CONTROLLER PWB). If you can not fix a problem using the FIPs, you are advised to replace the printer controller with a normal one and then follow FIPs.
   If you can not identify the cause of the trouble even with the printer controller replaced, replace the “major parts to be checked” listed for “Initial Check” with new ones in order one by one and repeat operation checks.
2. FIPs may require some normal components as troubleshooting tools to identify the cause of the trouble. You are advised to have a spare MCU PWB, DRUM CARTRIDGE, and Y/M/C/K ET cartridges,
3. At the “Initial Check” of FIP, perform only checks that can be made easily.
4. At the “Initial checking” of FIP, check not only the “major parts to be checked” but also their components and related parts.
5. Be sure to unplug the OWER CORD before starting troubleshooting work except when turning power ON is needed.
   With the power cord connected, never touch any live parts unnecessarily.
6. Conventions used to represent connectors are as follows:
   - “P/J12” represents the connector (P/J12) with the Plug and Jack connected to each other.
   - “P12” represents the Plug of the connector (P/J12) with the Plug and Jack disconnected from each other. (This does not apply to direct connection to a circuit board)
   - “J12” represents the Jack of the connector (P/J12) with the Plug and Jack disconnected from each other. (This does not apply to direct connection to a circuit board)
7. When “P/J1-2PIN ↔ P/J3-4PIN”, for instance, is referred to in FIPs, make measurement by placing the positive (+) probe of your meter on the pin 2 of P/J1 and the negative (-) probe on the pin 4 of P/J3.
8. When “P/J1 ↔ P/J2”, for instance, is referred to in FIPs, make measurement between every pair of terminals of the P/J1 and P/J2 by consulting “7.1.1 P/J Location Drawings (p.457)”.
9. When “P/J1-2PIN ↔ P/J3-4PIN”, for instance, is referred to in FIPs for voltage measurement, the negative terminal “P/J3-4PIN” is of AG (Analog Ground), SG (Signal Ground) or RTN (Return).
   Therefore, first make certain that actually there is continuity between AGs, between SGs and between RTNs. Then you are allowed to connect the negative (-) probe of your meter not to “P/J3-4PIN” but to another AG, SG or RTN pin.
   However, AG, SG and RTN are not all of the same level, so you must be careful not to confuse them.
10. The terminal surface (every other one toward you / away from you) at the side of the connector must be used when measuring the voltage at P/J16, P/J17, P/J19 and P/J20B. The terminal surface is small. Using a tester with slender probes, be sure to bring the probes into contact with the respective terminal surfaces correctly, especially with the terminal surface away from you.
11. Measure the voltage with the DRUM CARTRIDGE and paper tray mounted, with the FRONT COVER ASSY, TOP COVER ASSY, MAIN P/H ASSY, FUSER ASSY and EXIT UPPER ASSY closed and with the power turned ON, as long as these conditions do not obstruct the measuring work.
12. All voltage values given in the FIPs are approximate values. Actually measured values different somewhat from, but deemed close to, the given values should be accepted.
13. Remember that FIPs do not provide no description on removal of parts which are supposed to be always removed, and work operations which are supposed to be done, to perform servicing work indicated in FIPs.
14. “Replacement” referred to in FIPs lists the parts which can be 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.
15. In FIPs, the paper tray feeder at the bottom of the printer is called “Cassette 1,” the first level of the optional FEEDER UNIT is called “Cassette 2, and the second level is called “Cassette 3".
16. FIPs contain a section that gives different instructions depending on whether the DIAG tool (maintenance tool) is available or not. Be sure to follow such instructions to remedy the problem.
17. FIPs contain a section that distinguishes between certain specifications. Be sure to follow such instructions to remedy the problem.
18. Troubleshooting for options can require the respective manuals for options.
    Keep the option manuals on hand and refer to them when needed.

FIP ENTRY CHART

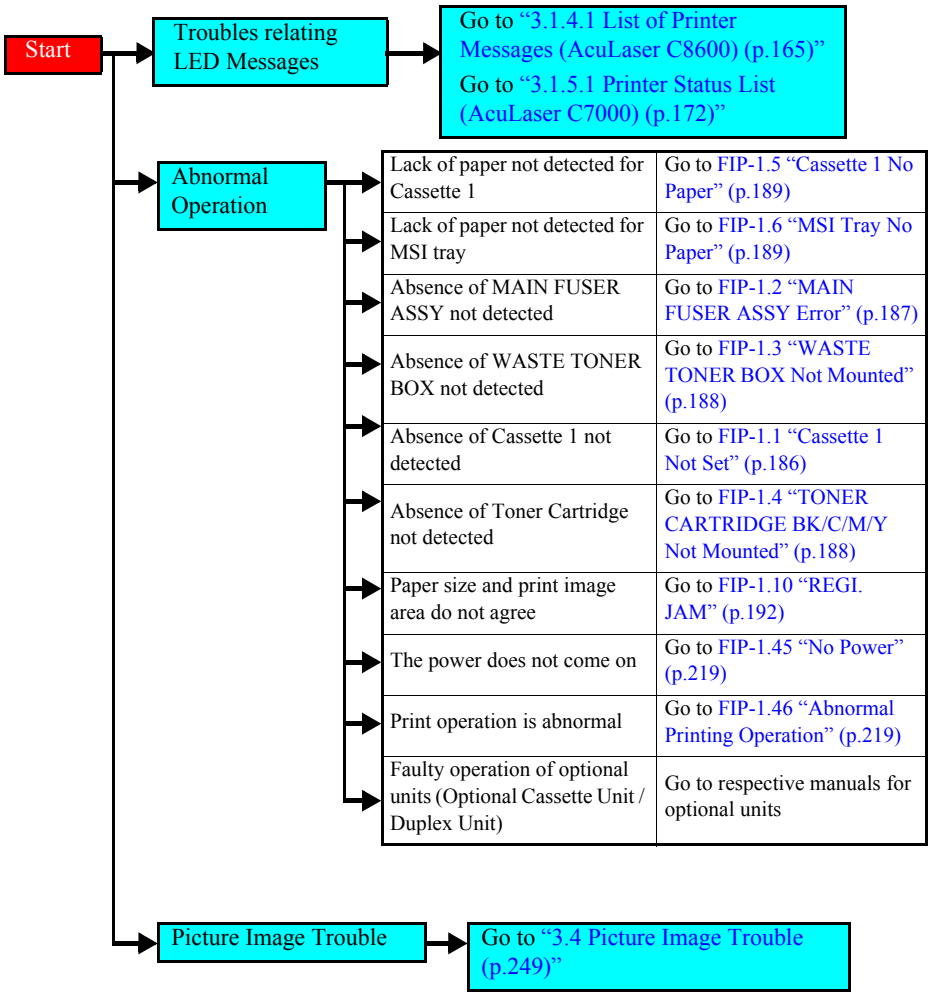


Figure 3-3. FIP Entry Chart

LEVEL 1 FIP LIST

Level 1 FIPs are listed below:

- "FIP-1.1 "Cassette 1 Not Set" (p.186)"
- "FIP-1.2 "MAIN FUSER ASSY Error" (p.187)"
- "FIP-1.3 "WASTE TONER BOX Not Mounted" (p.188)"
- "FIP-1.4 "TONER CARTRIDGE BK/C/M/Y Not Mounted" (p.188)"
- "FIP-1.5 "Cassette 1 No Paper" (p.189)"
- "FIP-1.6 "MSI Tray No Paper" (p.189)"
- "FIP-1.7 "CRUM Error" (p.190)"
- "FIP-1.8 "EXIT JAM" (p.190)"
- "FIP-1.9 "FUSER JAM" (p.191)"
- "FIP-1.10 "REGI. JAM" (p.192)"
- "FIP-1.12 "OHP Film Incorrect Mounting" (p.193)"
- "FIP-1.13 "Size Mismatch" (p.194)"
- "FIP-1.14 "MCU PWB ROM-RAM Error" (NVRAM) (p.195)"
- "FIP-1.15 "P/H MOTOR ASSY Related Error" (p.196)"
- "FIP-1.16 "P/H MOTOR ASSY Related Error" (FUSER MOTOR ASSY) (p.197)"
- "FIP-1.17 "P/H MOTOR ASSY Related Error" (PRO MOTOR ASSY) (p.198)"
- "FIP-1.18 "P/H MOTOR ASSY Related Error" (MAG MOTOR ASSY) (p.199)"
- "FIP-1.19 "P/R MOT&DRV ASSY Related Error" (p.200)"
- "FIP-1.20 "ROS ASSY Related Error" (p.201)"
- "FIP-1.21 "ROTARY MOTOR ASSY Related Error" (p.202)"
- "FIP-1.22 "ADC Sensor Soiled" (p.203)"
- "FIP-1.23 "High Density Error" (p.203)"
- "FIP-1.24 "Low Density Error" (p.204)"
- "FIP-1.25 "PCDC Error" (p.205)"
- "FIP-1.26 "HIGH COVERAGE Error" (p.205)"
- "FIP-1.27 "2ND BTR Error" (p.206)"
- "FIP-1.28 "2ND BTR ADVANCE Error" (p.207)"
- "FIP-1.29 "FUSER Overheat Error" (p.208)"
- "FIP-1.30 "FUSER Warm-up Error" / "Heater Error"/ "FUSER Low Temperature Error" (p.209)"
- "FIP-1.31 "Environment (Humidity) Sensor Related Error" (p.210)"

- ☐ “FIP-1.32 “FUSER FAN-1 Error” (p.210)”
- ☐ “FIP-1.33 “FUSER CHUTE FAN Error” (p.211)”
- ☐ “FIP-1.34 “DEVE. FAN Error” (p.211)”
- ☐ “FIP-1.35 “Life Error/Over/Warning” (p.212)”
- ☐ “FIP-1.36 “WASTE TONER BOX Full” (p.212)”
- ☐ “FIP-1.37 “FRONT COVER ASSY Open” (p.213)”
- ☐ “FIP-1.38 “MSI/REGI HIGH ASSY Open” (p.213)”
- ☐ “FIP-1.39 “FUSER ASSY Open” (p.214)”
- ☐ “FIP-1.40 “EXIT UPPER ASSY Open” (p.215)”
- ☐ “FIP-1.41 “TURN CHUTE COVER Open” (p.216)”
- ☐ “FIP-1.42 “Cassette 1 Paper Remaining Warning” (p.216)”
- ☐ “FIP-1.43 “MSI Tray Malfunction (Lift Up)” (p.217)”
- ☐ “FIP-1.44 “MSI Tray Malfunction (Lift Down)” (p.218)”
- ☐ “FIP-1.45 “No Power” (p.219)”
- ☐ “FIP-1.46 “Abnormal Printing Operation” (p.219)”
- ☐ “FIP-1.47 Engine Communication Error (p.220)”
- ☐ “FIP-1.48Verify (DIMM Slot Related) Error (p.220)”
- ☐ “FIP-1.49 Error in Standard RAM (Slot 0, 1) (p.221)”
- ☐ “FIP-1.50ROM Checksum Error (MASK ROM for Font) (p.221)”
- ☐ “FIP-1.52 ROM Module (DIMM Slot A, B, C Related) Error (p.222)”
- ☐ “FIP-1.53 EEPROM Writing Error (p.223)”
- ☐ “FIP-1.54 CCNV Hardware Error (p.223)”
- ☐ “FIP-1.55 Engine Initialization Error (p.224)”
- ☐ “FIP-1.56 SRAM (for Compression) Initialization Hardware Error (p.224)”
- ☐ “FIP-1.57 Video System Hardware Error (including PWM Calibration Error IC) (p.225)”

3.2.1.1 FIP-1.1 “Cassette 1 Not Set”

Table 3-5. Cassette 1 Not Set

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: UNIVERSAL TRAY, END GUIDE, TRAY SIZE ACTUATOR, SIZE SWITCH ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking for smooth installation of UNIVERSAL CASSETTE: Can the UNIVERSAL CASSETTE be installed smoothly?	• With the tool: Go to step 4 • Without the tool: Go to step 5	Replace the faulty part(s).
4	☐ Checking the SIZE SWITCH ASSY: Does the SIZE SWITCH ASSY function correctly? ♦ By using the diagnostics commander, check by Analog Input Test device code "02".	Go to step 5	Go to FIP-2.5 “Faulty SIZE SWITCH ASSY” (p.230)
5	☐ Checking the TRAY SIZE ACTUATOR: Does the TRAY SIZE ACTUATOR push in the PAPER SIZE SWITCH when the Cassette 1 is installed? (Adjust the END GIDE position to the paper size and check with the naked eye that the projection of the TRAY SIZE ACTUSTOR comes in contact with the Paper Size Switch.)	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Replace the faulty part(s).

3.2.1.2 FIP-1.2 “MAIN FUSER ASSY Error”

Table 3-6. MAIN FUSER ASSY Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER ASSY, MCU PWB, FUSER HARNESS ASSY, FUSER CONNECTOR	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking for proper mounting of FUSER ASSY: Is the FUSER ASSY properly mounted? • Check by removing and reinstalling the FUSER ASSY.	• With the tool: Go to step 4 • Without the tool: Go to step 5	Replace the faulty part(s).
4	☐ Checking the FUSER ASSY detection circuit: Is the FUSER ASSY detection circuit functioning properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "4B".	Go to step 5	Replace the MCU PWB-XL (PL13.2.1) (p.354)
5	☐ Checking the power supply to FUSER ASSY detection circuit: Is the voltage 5 VDC between P19B-5PIN ↔ P19B-6PIN?	Go to step 6	Replace the MCU PWB-XL (PL13.2.1) (p.354)
6	☐ Checking the FUSER ASSY detection signal Is the voltage between P/J19A-8PIN ↔ P/J19A-7PIN 0 VDC with the FUSER ASSY installed and 5 VDC without FUSER ASSY?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 7
7	☐ Checking for continuity of FUSER HARNESS ASSY Is there normal continuity between J71A ↔ J78?	Go to step 8	Replace the FUSER HARNESS ASSY
8	☐ Checking continuity of FUSER CONNECTOR Is there normal continuity between P71 ↔ J19?	Go to step 9	Replace the FUSER CONNECTOR

Table 3-6. MAIN FUSER ASSY Error (continued)

Step	Check	Remedy	
		Yes	No
9	☐ Replacing the FUSER ASSY and Performing Checks Replace the FUSER ASSY. Is the problem solved?	Problem solved	Replace the MCU PWB-XL (PL13.2.1) (p.354)

3.2.1.3 FIP-1.3 "WASTE TONER BOX Not Mounted"

Table 3-7. WASTE TONER BOX Not Mounted

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: WASTE TONER BOX, DRAM CARTRIDGE, TONER BOX SENSOR, TONER BOX HARNESS, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the installation of WASTE TONER BOX: Is the WASTE TONER BOX properly installed?	Go to step 3	Install the WASTE TONER BOX properly.
3	☐ Checking the installation of DRAM CARTRIDGE: Is the DRAM CARTRIDGE properly installed?	Go to step 4	Install the DRAM CARTRIDGE properly.
4	☐ Checking the installation of TONER BOX SENSOR: Is the TONER BOX SENSOR installed properly?	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.14 "Faulty TONER BOX SENSOR" (p.234)	Reinstall the TONER BOX SENSOR (PL6.1.43) (p.303)
5	☐ Checking the TONER BOX SENSOR: Does the TONER BOX SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "51".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.14 "Faulty TONER BOX SENSOR" (p.234)

3.2.1.4 FIP-1.4 "TONER CARTRIDGE BK/C/M/Y Not Mounted"

Table 3-8. TONER CARTRIDGE BK/C/M/Y Not Mounted

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: Toner Cartridge, CARTRIDGE SENSOR, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the sticker of Toner Cartridge: Is the white reflecting seal applied to the concerned the Toner Cartridge?	Go to step 3	Replace the relevant Toner Cartridge (PL7.1.1, PL7.1.2, PL7.1.3, PL7.1.4) (p.305)
3	☐ Checking the installation of CARTRIDGE SENSOR: Is the CARTRIDGE SENSOR installed properly?	Go to step 4	Reinstall the CARTRIDGE SENSOR (PL7.2.32) (p.311)
4	☐ Replacing the Toner Cartridge and Performing Checks Is the status solved when the Toner Cartridge concerned is replaced with a new one?	Problem solved	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.18 "Faulty CARTRIDGE SENSOR" (p.237)
5	☐ Checking the CARTRIDGE SENSOR: Does the CARTRIDGE SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "67".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.18 "Faulty CARTRIDGE SENSOR" (p.237)

3.2.1.5 FIP-1.5 “Cassette 1 No Paper”

Table 3-9. Cassette 1 No Paper

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: TRAY N/P ACTUATOR, TRAY NO PAPER SENSOR, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the BOTTOM PLATE ASSY: Does the BOTTOM PLATE ASSY lift normally when the UNIVERSAL TRAY is pushed in? • Remove the TURN IN CHUTE and check.	Go to step 4	Replace the faulty part(s). (paper cassette, etc.)
4	☐ Checking the TRAY N/P ACTUATOR: Does the TRAY N/P ACTUATOR operate smoothly and leave the detection area of the TRAY NO PAPER SENSOR when there is paper? • Remove the MAIN P/H FRAME ASSY and check with Cassette 1 pushed all the way in.	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.3 “Faulty TRAY NO PAPER SENSOR” (p.229)	Replace the faulty part(s).
5	☐ Checking the TRAY NO PAPER SENSOR: Does the TRAY NO PAPER SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "60".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.3 “Faulty TRAY NO PAPER SENSOR” (p.229)

3.2.1.6 FIP-1.6 “MSI Tray No Paper”

Table 3-10. MSI Tray No Paper

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MCU PWB, MSI N/P ACTUATOR, EMPTY SENSOR	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	Does the status occur at a letter size or smaller?	Go to step 4	Replace the faulty part(s).
4	☐ Checking the MSI N/P ACTUATOR: Does the MSI N/P ACTUATOR leave the detection area of the EMPTY SENSOR when there is paper, and does the MSI N/P ACTUATOR intercept the light to the detection area when there is no paper?	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.7 “Faulty EMPTY SENSOR” (p.231)	Replace the faulty part(s).(MSI N/P ACTUATOR, etc.)
5	☐ Checking the EMPTY SENSOR: Does the EMPTY SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "66".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.7 “Faulty EMPTY SENSOR” (p.231)

3.2.1.7 FIP-1.7 “CRUM Error”

Table 3-11. CRUM Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: DRUM CARTRIDGE, CRUM CONNECTOR ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking for continuity of CRUM CONNECTOR ASSY Is there normal continuity between J13 ↔ P66?	Go to step 3	Replace the CRUM CONNECTOR ASSY
3	☐ Replacing the DRUM CARTRIDGE and Performing Checks: Is there still a problem after replacing with a new DRUM CARTRIDGE of proper specifications?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Problem solved

3.2.1.8 FIP-1.8 “EXIT JAM”

Table 3-12. EXIT JAM

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: REGI. SENSOR, EXIT LOWER ASSY, TOP EXIT SENSOR, EXIT-2 ROLL ASSY, EXIT MOTOR ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	Is curled paper or paper that tends to curl used?	Change the paper.	Go to step 4
4	☐ Checking the EXIT LOWER ASSY: Is there foreign matter in the paper route of the EXIT LOWER ASSY? Is there anything wrong with parts?	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.27 “Faulty TOP EXIT SENSOR” (p.241)	Clean or replace the faulty part(s).
5	☐ Checking the TOP EXIT SENSOR: Does the TOP EXIT SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "E6".	Go to step 6	Go to FIP-2.27 “Faulty TOP EXIT SENSOR” (p.241)
6	☐ Checking the EXIT-2 ROLL ASSY: Is the EXIT-2 ROLL ASSY worn? Is there foreign matter adhering to the EXIT-2 ROLL ASSY?	Replace or clean the EXIT-2 ROLL ASSY (PL10.2.6) (p.341)	Go to step 7
7	☐ Checking the EXIT LOWER ASSY drive route: Is there anything wrong with the drive rout of the EXIT LOWER ASSY? Are the gears faulty or worn?	Replace the faulty part(s).	Go to step 8
8	☐ Checking the EXIT MOTOR ASSY: Is the EXIT MOTOR ASSY improperly mounted? Are the gears faulty?	Replace or reinstall the EXIT MOTOR ASSY (PL 10.2.12) (p.343)	Replace the MCU PWB-XL (PL13.2.1) (p.354)

3.2.1.9 FIP-1.9 “FUSER JAM”

Table 3-13. FUSER JAM

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER EXIT ACTUATOR, FUSER EXIT SENSOR-1, FUSER EXIT SENSOR-2,FUSER IN ACTUATOR, FUSER IN SENSOR, FUSER MOTOR ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	Is curled paper or paper that tends to curl used?	Change the paper.	Go to step 4
4	☐ Checking the FUSER EXIT ACTUATOR: Does the FUSER EXIT ACTUATOR leave the detection area of the FUSER EXIT SENSOR-1/-2 when there is paper, and does the FUSER EXIT ACTUATOR intercept the light to the detection area when there is no paper? Does the FUSER EXIT ACTUATOR operate smoothly?	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.19 “Faulty FUSER EXIT SENSOR-1” (p.237),FIP-2.24 “Faulty FUSER EXIT SENSOR-2” (p.240) If normal operation is not restored, go to FIP-2.23 “Faulty FUSER IN SENSOR” (p.239)	Replace the faulty part(s).
5	☐ Checking the FUSER EXIT SENSOR: Does the FUSER EXIT SENSOR-1/-2 function properly? ☐ By using the diagnostics commander, check by Digital Input Test device code “4B”.	Go to step 6	Go to FIP-2.19 “Faulty FUSER EXIT SENSOR-1” (p.237), FIP-2.24 “Faulty FUSER EXIT SENSOR-2” (p.240)

Table 3-13. FUSER JAM (continued)

Step	Check	Remedy	
		Yes	No
6	☐ Checking the FUSER IN ACTUATOR: Does the FUSER IN ACTUATOR leave the detection area of the FUSER IN SENSOR when there is paper, and does the FUSER IN ACTUATOR intercept the light to the detection area when there is no paper? Does the FUSER IN ACTUATOR operate smoothly?	• With the tool: Go to step 7 • Without the tool: Go to FIP-2.23 “Faulty FUSER IN SENSOR” (p.239)	Replace the faulty part(s).
7	☐ Checking the FUSER IN SENSOR: Does the FUSER IN SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "24".	Go to step 8	Go to FIP-2.23 “Faulty FUSER IN SENSOR” (p.239)
8	☐ Checking the FUSER MOTOR ASSY: Is the FUSER DRIVE ASSY improperly mounted? Are the gears faulty?	Replace or reinstall FUSER MOTOR ASSY (PL 11.1.4) (p.346)	Go to step 9
9	☐ Checking the FUSER ASSY Is the status solved when the FUSER ASSY is replaced?	Problem solved	Replace the MCU PWB-XL (PL13.2.1) (p.354)

3.2.1.10 FIP-1.10 “REGI. JAM”

Table 3-14. REGI. JAM

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: REGI. SENSOR, MAIN P/H FRAME ASSY, TURN ROLL ASSY, FEED ROLL, P/H DRIVE ASSY, FEED SOLENOID, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	Is curled paper or paper that tends to curl used?	Change the paper.	Go to step 4
4	☐ Checking the MAIN P/H FRAME ASSY Is there foreign matter in the paper route of the MAIN P/H FRAME ASSY? Is there anything wrong with parts?	Clean or replace the faulty part(s).	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.10 “Faulty REGI. SENSOR” (p.232)
5	☐ Checking the REGI. SENSOR Does the REGI. SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "29".	Go to step 6	Go to FIP-2.10 “Faulty REGI. SENSOR” (p.232)
6	☐ Checking the drive path of MAIN P/H FRAME ASSY: Is there anything wrong with the drive rout of the MAIN P/H ASSY? Are the gears faulty or worn?	Replace the faulty part(s).	Go to step 7
7	☐ Checking the TURN ROLL ASSY Is the TURN ROLL ASSY worn? Is there foreign matter adhering to the TURN ROLL ASSY?	Replace or clean the TURN ROLL ASSY (PL3.1.23) (p.275)	Go to step 8
8	☐ Checking the FEED ROLL Is the FEED ROLL worn? Is there foreign matter adhering to the FEED ROLL?	Replace or clean the FEED ROLL (PL3.1.31) (p.276)	Go to step 9

Table 3-14. REGI. JAM (continued)

Step	Check	Remedy	
		Yes	No
9	☐ Checking the P/H DRIVE ASSY Is the P/H DRIVE ASSY improperly mounted? Are the gears faulty?	Replace or reinstall the P/H DRIVE ASSY (PL11.1.1) (p.345)	Go to step 10
10	☐ Checking the FEED SOLENOID Does the FEED SOLENOID operate properly?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.6 “Faulty FEED SOLENOID” (p.230)

3.2.1.11 FIP-1.12 “OHP Film Incorrect Mounting”

Table 3-15. OHP Film Incorrect Mounting

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: OHP SENSOR, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking for dirt / foreign matter Is there dirt or any foreign matter on the surface of the FRONT OHP SENSOR or REAR OHP SENSOR?	Remove dirt/foreign matters.	Go to step 4
4	☐ Checking the transport route: Is there dirt or any foreign matter in the OHP film transport route?	Remove dirt/foreign matters.	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.9 “Faulty OHP SENSOR” (p.232)
5	☐ Checking the OHP SENSOR: Does the OHP SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "XX".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.9 “Faulty OHP SENSOR” (p.232)

3.2.1.12 FIP-1.13 “Size Mismatch”

Table 3-16. Size Mismatch

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: SIZE SWITCH ASSY, MAIN P/H FRAME ASSY, REGI. SENSOR, TRAY SIZE ACTUATOR, END GUIDE, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the paper size: Is the paper size that meets the specification used?	Go to step 4	Use paper conforming the specification.
4	Is paper being supplied from the MSI tray?	Go to step 5	Go to step 6
5	☐ Checking the MSI paper size setting: Does the paper size set by the diagnostics commander or controller agree with the paper size set for the MSI tray?	• With the tool: Go to step 8 • Without the tool: Go to FIP-2.10 “Faulty REGI. SENSOR” (p.232)	Alter the setting to agree with the actual paper size.
6	☐ Checking the paper size detecting mechanism: Does the paper size set in the tray concerned agree with the ON/OFF combination of the 4 Paper Size Switches on the SIZE SWITCH ASSY? • Make sure the TRAY SIZE ACTUATOR works coupled with the END GUIDE. Check if the Cassette SIZE ACTUATOR pushes the Paper Size Switch in when the tray is mounted. (The Paper Size Switch is pushed in if the paper has resistance when inserted on the SIZE SWITCH ASSY from the rear.)	• With the tool: Go to step 7 • Without the tool: Go to FIP-2.5 “Faulty SIZE SWITCH ASSY” (p.230) FIP-2.10 “Faulty REGI. SENSOR” (p.232)	Replace the faulty part(s).

Table 3-16. Size Mismatch (continued)

Step	Check	Remedy	
		Yes	No
7	☐ Checking the paper size: *1 Does the size of the paper mounted in the paper cassette concerned agree with the Paper Size Switch data? • By using the diagnostics commander, check by Analog Input Test device code “02, 0A, 0B”.	Go to step 8	Replace the faulty part(s).
8	☐ Checking the REGI. SENSOR: Does the REGI. SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "29".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.10 “Faulty REGI. SENSOR” (p.232)

Note *1: See “2.3.1 Paper Size Control (p.130)” and perform checking by changing the paper size.

3.2.1.13 FIP-1.14 “MCU PWB ROM-RAM Error” (NVRAM)

Table 3-17. MCU PWB ROM-RAM Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: COMMUNICATION PWB,MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	Does the error occur when the power is turned ON?	Go to step 3	Go to the relevant FIP when other errors/status codes occur.
3	Does the error occur when MCU PWB is replaced and the power is turned ON again?	Go to FIP-2.33 “Noise” (p.245)	Problem solved

NOTE: *The problem is probably due to outside noise. Proceed to* FIP-2.33 “Noise” (p.245) *and check.*

CHECK POINT

If the same error still occurs after replacing the MCU PWB with a normal one, go to FIP-2.33 “Noise” (p.245) and check.

3.2.1.14 FIP-1.15 “P/H MOTOR ASSY Related Error”

Table 3-18. P/H MOTOR ASSY Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: P/H MOTOR ASSY, FEED ROLL ASSY, MAIN P/H FRAME ASSY, WASTE TONER BOX, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)	Go to step 3
3	☐ Checking the P/H Motor operation: When the test print is conducted, does the P/H Motor slightly operate and stop?	Go to step 5	Go to step 4
4	☐ Checking the P/H Motor operation: When the test print is conducted, does the P/H Motor remain in stoppage?	Go to FIP-2.29 “Faulty P/H MOTOR ASSY” (p.242)	Go to step 5
5	☐ Checking drive transmission: Does the rotor of the P/H MOTOR ASSY turn smoothly? • Check by turning the rotor of the P/H MOTOR ASSY counterclockwise with your hand.	Go to step 6	Replace the faulty part(s).
6	☐ Checking the MAIN P/H FRAME ASSY: Does the MAIN P/H FRAME ASSY operate smoothly?	Go to step 7	Replace the faulty part(s).
7	☐ Checking the WASTE TONER BOX: Does the rotor of the P/H MOTOR ASSY turn smoothly when the WASTE TONER BOX is removed? • Check by turning the rotor of the P/H MOTOR ASSY counterclockwise with your hand.	Go to step 8	Replace the WASTE TONER BOX (PL6.1.12) (p.299)

Table 3-18. P/H MOTOR ASSY Related Error (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking the FEED ROLL ASSY: Does the FEED ROLL ASSY turn smoothly? • Depress the FEED SOLENOID armature and engage the gears and then check by turning the rotor of the P/H MOTOR ASSY counterclockwise with your hand.	Go to FIP-2.29 “Faulty P/H MOTOR ASSY” (p.242)	Replace the faulty part(s).

3.2.1.15 FIP-1.16 "P/H MOTOR ASSY Related Error" (FUSER MOTOR ASSY)

Table 3-19. P/H MOTOR ASSY Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER MOTOR ASSY, FUSER ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the FUSER MOTOR ASSY: Does the FUSER MOTOR ASSY function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "53, 57, 95".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the Fuser Motor operation: When the test print is conducted, does the Fuser Motor slightly operate and stop?	Go to step 6	Go to step 5
5	☐ Checking the Fuser Motor operation: When the test print is conducted, does the Fuser Motor remain in stoppage?	Go to FIP-2.34 "Faulty FUSER MOTOR ASSY" (p.246)	Go to step 6
6	☐ Checking drive transmission: Does the FUSER MOTOR ASSY operate smoothly? • Operate the FUSER MOTOR ASSY by hand, and check for smooth operation.	Go to step 8	Go to step 7
7	☐ Checking the gears of FUSER ASSY: Does the gear (INPUT GEAR FT1) of the FUSER ASSY turn smoothly?	Go to step 8	Replace the faulty part(s).

Table 3-19. P/H MOTOR ASSY Related Error (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking the installation of FUSER MOTOR ASSY: Has the FUSER MOTOR ASSY been installed properly?	Go to FIP-2.34 "Faulty FUSER MOTOR ASSY" (p.246)	Reinstall the FUSER MOTOR ASSY (PL 11.1.4) (p.346)

3.2.1.16 FIP-1.17 “P/H MOTOR ASSY Related Error” (PRO MOTOR ASSY)

Table 3-20. P/H MOTOR ASSY Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER MOTOR ASSY, PRO DRIVE GEAR ASSY, FUSER ASSY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, Go to step 3	Go to step 3
3	☐ Checking the PRO Motor operation: When the test print is conducted, does the PRO Motor slightly operate and stop?	Go to step 5	Go to step 4
4	☐ Checking the PRO Motor operation: When the test print is conducted, does the PRO Motor remain in stoppage?	Go to FIP-2.35 “Faulty the PRO MOTOR ASSY” (p.247)	Go to step 5
5	☐ Checking drive transmission: Does the PRO MOTOR ASSY operate smoothly? • Operate the PRO MOTOR ASSY by hand, and check for smooth operation.	Go to step 8	Go to step 6
6	☐ Checking the PRO DRIVE GEAR ASSY Does the PRO DRIVE GEAR ASSY operate smoothly?	Go to step 8	Go to step 7
7	☐ Checking the installation of PRO DRIVE GEAR ASSY: Has the PRO DRIVE GEAR ASSY been installed properly?	Replace the PRO DRIVE GEAR ASSY (PL11.1.2) (p.345)	Reinstall the PRO DRIVE GEAR ASSY (PL11.1.2) (p.345)
8	☐ Checking the installation of PRO MOTOR ASSY: Has the PRO MOTOR ASSY been installed properly?	Go to FIP-2.35 “Faulty the PRO MOTOR ASSY” (p.247)	Reinstall the PRO MOTOR ASSY (PL 11.1.6) (p.347)

3.2.1.17 FIP-1.18 “P/H MOTOR ASSY Related Error” (MAG MOTOR ASSY)

Table 3-21. P/H MOTOR ASSY Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MAG MOTOR ASSY, DEVE GEAR CLUTCH ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the MAG MOTOR ASSY: Does the MAG MOTOR ASSY function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "50, 51, 94".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the MAG Motor operation: When the test print is conducted, does the MAG Motor slightly operate and stop?	Go to step 6	Go to step 5
5	☐ Checking the MAG Motor operation: When the test print is conducted, does the MAG Motor remain in stoppage?	Go to FIP-2.36 “Faulty MAG MOTOR ASSY” (p.248)	Go to step 6
6	☐ Checking drive transmission: Does the MAG MOTOR ASSY operate smoothly? • Operate the MAG MOTOR ASSY by hand, and check for smooth operation.	Go to step 9	Go to step 7
7	☐ Checking the DEVE GEAR CLUTCH ASSY: Does the DEVE GEAR CLUTCH ASSY operate smoothly?	Go to step 9	Go to step 8

Table 3-21. P/H MOTOR ASSY Related Error (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking the installation of DEVE GEAR CLUTCH ASSY: Has the DEVE GEAR CLUTCH ASSY been installed properly?	Replace the DEVE. GEAR CLUTCH ASSY (PL11.1.23) (p.350)	Reinstall the DEVE. GEAR CLUTCH ASSY (PL11.1.23) (p.350)
9	☐ Checking the installation of MAG MOTOR ASSY: Has the MAG MOTOR ASSY been installed properly?	Go to FIP-2.36 “Faulty MAG MOTOR ASSY” (p.248)	Reinstall the MAG MOTOR ASSY (PL11.1.7) (p.349)

3.2.1.18 FIP-1.19 “P/R MOT&DRV ASSY Related Error”

Table 3-22. P/R MOT&DRV ASSY Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: P/R MOT&DRV ASSY, TRANSFER HIGH ASSY TR0 SENSOR, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the Process Motor operation: When the test print is conducted, does the Process Motor operate?	Go to step 9	Go to step 4
4	☐ Checking the P/R MOT&DRV ASSY for foreign matters: Is the operation of the PROCESS DRIVE ASSY blocked by foreign matters?	Remove the foreign matters.	• With the tool: Go to step 5 • Without the tool: Go to step 6
5	☐ Checking the P/R MOT&DRV ASSY Does the P/R MOT&DRV ASSY function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "72".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.28 “Faulty P/R MOT & DRV ASSY” (p.242)
6	☐ Checking the installation of P/R MOT&DRV ASSY: Has the P/R MOT&DRV ASSY been installed properly?	Go to step 7	Reinstall the P/R MOT & DRV ASSY (PL11.1.10) (p.347)
7	☐ Checking the installation of TRANSFER HIGH ASSY: Has the TRANSFER HIGH ASSY been installed properly?	Go to step 8	Reinstall the TRANSFER HIGH ASSY (PL8.1.20) (p.313)
8	☐ Checking the P/R MOT&DRV ASSY Does the output shaft of the P/R MOT&DRV ASSY turn smoothly when the rotor of the P/R MOT&DRV ASSY is turned by hand?	Go to step 9	Replace the P/R MOT & DRV ASSY (PL11.1.10) (p.347)

Table 3-22. P/R MOT&DRV ASSY Related Error (continued)

Step	Check	Remedy	
		Yes	No
9	☐ Checking the installation of TR0 SENSOR: Has the TR0 SENSOR been installed properly?	• With the tool: Go to step 8 • Without the tool: Go to FIP-2.21 “Faulty TR0 SENSOR” (p.238)	Reinstall the TR0 SENSOR (PL8.2.24) (p.320)
10	☐ Checking the TR0 SENSOR Does the TR0 SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "42".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.21 “Faulty TR0 SENSOR” (p.238)

3.2.1.19 FIP-1.20 “ROS ASSY Related Error”

Table 3-23. ROS ASSY Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ROS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller.(If an error still occurs after replacing, Go to FIP-2.15 “Faulty ROS ASSY” (p.235))	Go to FIP-2.15 “Faulty ROS ASSY” (p.235)

3.2.1.20 FIP-1.21 “ROTARY MOTOR ASSY Related Error”

Table 3-24. ROTARY MOTOR ASSY Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ROTARY MOTOR ASSY, ROTARY FRAME ASSY ROTARY SENSOR ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 5	• With the tool: Go to step 3 • Without the tool: Go to step 5
3	☐ Checking the ROTRAY MOTOR ASSY: Does the ROTRAY MOTOR ASSY function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "10,11".	Go to step 4	Go to FIP-2.30 “Faulty the ROTARY MOTOR ASSY” (p.243)Ç÷
4	☐ Checking the ROTARY SENSOR ASSY: Does the ROTARY SENSOR ASSY function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "43".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.20 “Faulty ROTARY SENSOR” (p.238)
5	☐ Checking the drive of Rotary Motor: Does the Rotary Motor operate? • Check by conducting test print.	Go to step 8	Go to step 6
6	☐ Checking the installation of ROTARY MOTOR ASSY: Has the ROTARY MOTOR ASSY been installed properly?	Go to step 7	Reinstall the ROTARY MOTOR ASSY (PL11.1.20) (p.348)
7	☐ Checking the ROTARY FRAME ASSY operation: Is the operation of the ROTARY FRAME ASSY blocked by foreign matters?	Remove the foreign matters.	Go to step 8

Table 3-24. ROTARY MOTOR ASSY Related Error (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking the installation of ROTARY SENSOR ASSY: Has the ROTARY SENSOR ASSY been installed properly?	Go to FIP-2.30 “Faulty the ROTARY MOTOR ASSY” (p.243) FIP-2.20 “Faulty ROTARY SENSOR” (p.238)	Reinstall the ROTARY SENSOR ASSY

3.2.1.21 FIP-1.22 “ADC Sensor Soiled”

Table 3-25. ADC Sensor Soiled

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ADC SENSOR ASSY, MAIN HARNESS ASSY MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the ADC Sensor surface: Is there dirt or any foreign matter adhering to the surface of the ADC Sensor?	Remove dirt/foreign matters.	• With the tool: Go to step 4 • Without the tool: Go to step 6
4	☐ Checking the ADC Sensor: Does the ADC Sensor function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "72".	Go to step 5	Go to FIP-2.16 “Faulty ADC Sensor” (p.236)
5	☐ Checking the ADC Solenoid: Does the ADC Solenoid function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "67".	Go to step 7	Go to FIP-2.17 “Faulty ADC Solenoid” (p.236)
6	☐ Checking the installation of ADC SENSOR ASSY: Has the ADC SENSOR ASSY been installed properly?	Go to step 7	Reinstall the ADC SENSOR ASSY (PL6.1.20) (p.301)
7	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB. Is the problem solved?	Problem solved	Go to FIP-2.32 “Faulty LV/HV POWER SUPPLY” (p.244)

3.2.1.22 FIP-1.23 “High Density Error”

Table 3-26. High Density Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: DEVE.CONTACT PLATE ASSY, ADC SENSOR ASSY MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the DEVE. CONTACT PLATE ASSY Is the contact surface of the DEVE. CONTACT ASSY distorted? Or are there foreign matters on the contact surface of the DEVE. CONTACT ASSY?	Replace the DEVE.CONTACT PLATE ASSY	Go to step 4
4	☐ Checking the ADC Sensor surface: Is there dirt or any foreign matter adhering to the surface of the ADC Sensor?	Remove dirt/foreign matters.	• With the tool: Go to step 5 • Without the tool: Go to FIP-2.16 “Faulty ADC Sensor” (p.236) FIP-2.17 “Faulty ADC Solenoid” (p.236)
5	☐ Checking the ADC Sensor: Does the ADC Sensor function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "72".	Go to step 6	Go to FIP-2.16 “Faulty ADC Sensor” (p.236)
6	☐ Checking the ADC Solenoid: Does the ADC Solenoid function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "67".	Go to step 7	Go to FIP-2.17 “Faulty ADC Solenoid” (p.236)
7	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB. Is the problem solved?	Problem solved	Go to FIP-2.32 “Faulty LV/HV POWER SUPPLY” (p.244)

3.2.1.23 FIP-1.24 “Low Density Error”

Table 3-27. Low Density Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: DISPENSE MOTOR ASSY, DEVE. CONTACT PLATE ASSY Developer Assy, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the Drum surface image: Are the various toner images developed properly on the Drum surface? • Turn the power OFF while you think there is an image being transferred in the course of printing, and visually inspect Cin50% patch on the Drum surface.	Go to step 8	Go to step 4
4	☐ Checking the Drum surface picture image: Are all the colors of the various toner images on the Drum surface thin? • Turn the power OFF while you think there is an image being transferred in the course of printing, and visually inspect Cin50% patch on the Drum surface.	Go to step 5	Go to step 11
5	☐ Checking the installation of Dispense Motor: Has the Dispense Motor been installed properly?	• With the tool: Go to step 6 • Without the tool: Go to FIP-2.31 “Faulty the DISPENSE MOTOR ASSY” (p.243) • If problem is not solved, go to step 7	Reinstall the DISPENSE MOTOR ASSY (PL11.1.22) (p.349)

Table 3-27. Low Density Error (continued)

Step	Check	Remedy	
		Yes	No
6	☐ Checking the Dispense Motor: Does the Dispense Motor function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "56".	Go to step 7	Go to FIP-2.31 “Faulty the DISPENSE MOTOR ASSY” (p.243)
7	☐ Checking the DEVE. CONTACT PLATE ASSY: Is the contact surface of the DEVE. CONTACT ASSY distorted? Or are there foreign matters on the contact surface of the DEVE. CONTACT ASSY?	Replace the DEVE. CONTACT ASSY	Go to step 8
8	☐ Checking the ADC Sensor surface: Is there dirt or any foreign matter adhering to the surface of the ADC Sensor?	Remove dirt/ foreign matters.	• With the tool: Go to step 9 • Without the tool: Go to FIP-2.16 “Faulty ADC Sensor” (p.236), FIP-2.17 “Faulty ADC Solenoid” (p.236)
9	☐ Checking the ADC Sensor: Does the ADC Sensor function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "72".	Go to step 11	Go to FIP-2.16 “Faulty ADC Sensor” (p.236)
10	☐ Checking the ADC Solenoid: Does the ADC Solenoid function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "67".	Go to step 11	Go to FIP-2.17 “Faulty ADC Solenoid” (p.236)
11	☐ Replacing the Developer Assy and Performing Checks: Replace the Developer Assy with a new one for the color concerned. Does the problem still occur?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Problem solved

3.2.1.24 FIP-1.25 “PCDC Error”

Table 3-28. PCDC Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB. Is the problem solved?	Problem solved	Go to FIP-2.33 “Noise” (p.245)

3.2.1.25 FIP-1.26 “HIGH COVERAGE Error”

Table 3-29. HIGH COVERAGE Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB. Is the problem solved?	Problem solved	Go to FIP-2.33 “Noise” (p.245)

3.2.1.26 FIP-1.27 “2ND BTR Error”

Table 3-30. 2ND BTR Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: 2ND BTR, BTR CAM CLUTCH, MCU PWB TRANSFER HIGH ASSY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking retraction During the test printing, does the 2ND BTR ASSY retract? • Check the operation of the BTR CAM CLUTCH from the rear side.	Go to step 9	• With the tool: Go to step 4 • Without the tool: Go to step 5
4	☐ Checking the BTR CAM CLUTCH: Does the BTR CAM CLUTCH function correctly? ♦ By using the diagnostics commander, check by Digital Output Test device code "27".	Go to step 9	Go to FIP-2.22 “Faulty BTR CAM CLUTCH” (p.239)
5	☐ Checking the installation of BTR CAM CLUTCH: Has the BTR CAM CLUTCH been installed properly?	Go to step 6	Reinstall the BTR CAM CLUTCH (PL8.3.2) (p.320)
6	☐ Checking the shape of BTR CAM ASSY: Is the BTR CAM ASSY bent or deformed?	Replace the 2ND BTR CAM ASSY (PL8.1.1) (p.316)	Go to step 7
7	☐ Checking the installation of 2ND BTR ASSY: Has the 2ND BTR ASSY been installed properly?	Go to step 8	Reinstall the 2ND BTR ASSY (PL8.1.22) (p.315)
8	☐ Checking the installation of TRANSFER ASSY: Has the TRANFER ASSY been installed properly?	Go to step 9	Reinstall the TRANSFER ASSY
9	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB. Is the problem solved?	Problem solved	Go to FIP-2.32 “Faulty LV/HV POWER SUPPLY” (p.244)

3.2.1.27 FIP-1.28 “2ND BTR ADVANCE Error”

Table 3-31. 2ND BTR ADVANCE Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: BTR CAM CLUTCH, PRO DRIVE GEAR ASSY BTR WHEEL SENSOR, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the PRO Motor: Does the PRO Motor function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "54".	Go to step 5	Go to step 4
4	☐ Checking the installation of PRO DRIVE GEAR ASSY: Has the PRO DRIVE GEAR ASSY been installed properly?	• With the tool: Go to step 5 • Without the tool: Go to step 6	Reinstall the PRO DRIVE GEAR ASSY (PL11.1.2) (p.345)
5	☐ Checking the P/R MOT&DRV ASSY: Does the P/R MOT&DRV ASSY function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "54".	Go to step 8	Go to FIP-2.28 “Faulty P/R MOT & DRV ASSY” (p.242)
6	☐ Checking the installation of 2ND BTR ASSY: Has the 2ND BTR ASSY been installed properly?	Go to step 7	Reinstall the 2ND BTR ASSY (PL8.1.22) (p.315)
7	☐ Checking the installation of BTR WHEEL SENSOR: Has the BTR WHEEL SENSOR been installed properly?	Go to FIP-2.22 “Faulty BTR CAM CLUTCH” (p.239)	Reinstall the BTR WHEEL SENSOR

Table 3-31. 2ND BTR ADVANCE Error (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking the BTR WHEEL SENSOR: Does the BTR WHEEL SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "76".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Replace the BTR WHEEL SENSOR
9	☐ Checking the BTR CAM CLUTCH: Does the BTR CAM CLUTCH function correctly? ♦ By using the diagnostics commander, check by Digital Output Test device code "70".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.22 “Faulty BTR CAM CLUTCH” (p.239)

3.2.1.28 FIP-1.29 “FUSER Overheat Error”

Table 3-32. FUSER Overheat Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER CONNECTOR, TEMP. SENSOR ASSY, H/R HEATER P/R HEATER, FUSER ASSY, MAIN HARNESS ASSY MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ FUSER CONNECTOR Is the FUSER CONNECTOR securely connected when the FUSER ASSY is mounted?	Go to step 4	Check the FUSER CONNECTOR
4	☐ Checking the TEMP. SENSOR ASSY: Does the error occur immediately when the power is turned ON?	Go to FIP-2.25 “Faulty TEMP. SENSOR ASSY” (p.240)	Go to step 5
5	☐ Checking the H/R HEATER and P/R HEATER: Do the H/R HEATER and P/R HEATER light when the FUSER ASSY is cold and the power is turned ON?	Go to step 6	Replace the H/R HEATER (PL9.2.40) (p.324), P/R HEATER (PL9.2.41) (p.325)
6	☐ Does the problem occur during the FUSER warm up?	Go to FIP-2.25 “Faulty TEMP. SENSOR ASSY” (p.240)	Go to step 7
7	☐ Checking the MAIN HARNESS ASSY: Is there normal continuity between J21 ↔ J32?	Go to step 8	Replace the MAIN HARNESS ASSY
8	☐ Checking the LV/HV POWER SUPPLY: Is the voltage 5V DC between P21-1PIN ↔ P21-2PIN?	Go to step 9	Go to FIP-2.32 “Faulty LV/HV POWER SUPPLY” (p.244)
9	☐ Checking the HETER ROD ON signal: Is the voltage between P/J33-1PIN ↔ P/J12-9PIN 0 VDC during the FUSER warm-up and 5.5 VDC when the warm-up is completed?	Go to FIP-2.32 “Faulty LV/HV POWER SUPPLY” (p.244)	Replace the MCU PWB-XL (PL13.2.1) (p.354)

3.2.1.29 FIP-1.30 "FUSER Warm-up Error" / "Heater Error"/ "FUSER Low Temperature Error"

Table 3-33. FUSER Warm-up Error / Heater Error / FUSER Low Temperature Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER ASSY, MCU PWB, FUSER HARNESS ASSY FUSER CONNECTOR, FUSER ASSY, TEMP. SENSOR ASSY H/R HEATER, P/R HEATER, LV/HV POWER SUPPLY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the TEMP. SENSOR ASSY: Does the error occur immediately when the power is turned ON?	Go to FIP-2.25 "Faulty TEMP. SENSOR ASSY" (p.240)	Go to step 4
4	☐ Checking the H/R HEATER and P/R HEATER: Do the H/R HEATER and P/R HEATER light when the FUSER ASSY is cold and the power is turned ON?	Go to step 5	Replace the H/R HEATER (PL9.2.40) (p.324), P/R HEATER (PL9.2.41) (p.325)
5	☐ Does the problem occur during the FUSER warm up?	Go to FIP-2.25 "Faulty TEMP. SENSOR ASSY" (p.240)	Go to step 6
6	☐ Checking the MAIN HARNESS ASSY: Is there normal continuity between J21 ↔ J32?	Go to step 7	Replace the MAIN HARNESS ASSY
7	☐ Checking the LV/HV POWER SUPPLY: Is the voltage 5V DC between P21-1PIN ↔ P21-2PIN?	Go to step 8	Go to FIP-2.32 "Faulty LV/HV POWER SUPPLY" (p.244)

Table 3-33. FUSER Warm-up Error / Heater Error / FUSER Low Temperature Error (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking the ON signal of HEATER ROD: Is the voltage between P/J33-1PIN ↔ P/J12-9PIN 0 VDC during the FUSER warm-up and 5 VDC when the warm-up is completed?	Go to FIP-2.32 "Faulty LV/HV POWER SUPPLY" (p.244)	Replace the MCU PWB-XL (PL13.2.1) (p.354)

3.2.1.30 FIP-1.31 “Environment (Humidity) Sensor Related Error”

Table 3-34. Environment (Humidity) Sensor Related Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ENVIRONMENT SENSOR, P/H HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	• With the tool: Go to step 2 or 3 • Without the tool: Go to step 4 or 5
2	☐ Checking the TEMP SENSOR: Does the TEMP SENSOR function properly? ♦ By using the diagnostics commander, check by Analog Input Test device code "04".	Go to step 6	Replace the ENVIRONMENT SENSOR (PL13.2.5) (p.357)
3	☐ Checking the Humidity SENSOR: Does the Humidity SENSOR function properly? ♦ By using the diagnostics commander, check by Analog Input Test device code "06".	Go to step 6	Replace the ENVIRONMENT SENSOR (PL13.2.5) (p.357)
4	☐ Checking the thermistor resistance of ENVIRONMENT SENSOR: Is the resistance between P/J105-1PIN ↔ P/J105-4PIN approx. 5 kΩ at room temperature (18~20°C)?	Go to step 5	Replace the ENVIRONMENT SENSOR (PL13.2.5) (p.357)
5	☐ Checking the voltage of ENVIRONMENT SENSOR: Is the voltage between P/J23-5PIN ↔ P/J23-4PIN on the MCU PWB in the range of about 0.1-4.0 VDC?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Replace the ENVIRONMENT SENSOR (PL13.2.5) (p.357)
6	☐ Checking for continuity of P/H HARNESS ASSY: Is there normal continuity between J23 ↔ J105?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Replace the P/H HARNESS ASSY

3.2.1.31 FIP-1.32 “FUSER FAN-1 Error”

Table 3-35. FUSER FAN-1 Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER FAN-1, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the FUSER FAN-1: Does the FUSER FAN-1 function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "63".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the installation of FUSER FAN-1: Has the FUSER FAN-1 been installed properly?	Go to step 5	Reinstall the FUSER FAN-1 (PL10.2.22) (p.342)
5	☐ Checking the Main Harness: Is there breakage or faulty contact in the harness between the MCU PWB and the FUSER FAN-1?	Replace the MCU PWB-XL (PL13.2.1) (p.354) or FUSER FAN-1 (PL10.2.22) (p.342)	Replace the FUSER FAN-1 (PL10.2.22) (p.342)

3.2.1.32 FIP-1.33 “FUSER CHUTE FAN Error”

Table 3-36. FUSER CHUTE FAN Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER CHUTE FAN, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the FUSER CHUTE FAN: Does the FUSER CHUTE FAN function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "64".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the installation of FUSER CHUTE FAN: Has the FUSER CHUTE FAN been installed properly?	Go to step 5	Reinstall the FUSER CHUTE FAN (PL9.4.10) (p.337)
5	☐ Checking the Main Harness: Is there breakage or faulty contact in the harness between the MCU PWB and the FUSER CHUTE FAN?	Replace the MCU PWB-XL (PL13.2.1) (p.354) or FUSER CHUTE FAN (PL9.4.10) (p.337)	Replace the FUSER CHUTE FAN (PL9.4.10) (p.337)

3.2.1.33 FIP-1.34 “DEVE. FAN Error”

Table 3-37. DEVE. FAN Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: DEVE. FAN, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the DEVE. FAN: Does the DEVE. FAN function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "60".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the installation of DEVE. FAN: Has the DEVE. FAN been installed properly?	Go to step 5	Reinstall the DEVE. FAN (PL13.1.5) (p.353)
5	☐ Checking the Main Harness: Is there breakage or faulty contact in the harness between the MCU PWB and the DEVE. FAN?	Replace the MCU PWB-XL (PL13.2.1) (p.354) or DEVE. FAN (PL13.1.5) (p.353)	Replace the DEVE. FAN (PL13.1.5) (p.353)

3.2.1.34 FIP-1.35 “Life Error/Over/Warning”

When Error or Warning is displayed for any of the Consumables and Regular Replacement Parts as listed below, replace the relevant component first. If the same display appears even after replacement, follow the FIP below:

- Each toner
- DRUM CARTRIDGE
- BELT CLEANER ASSY
- 2ND BTR ASSY
- IBT

Table 3-38. Life Error/Over/Warning

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Error Reset and checking: Does the problem still occur after “error reset”?	Go to step 3	Problem solved
3	Does the problem occur even after replacing the part(s) concerned?	Go to step 4	Problem solved
4	Does the problem occur when the power is turned ON?	Go to step 7	Go to step 5
5	Does the problem still occur when the power is turned On again?	Go to step 7	Go to step 6
6	Does the problem occur when the power is turned ON and OFF repeatedly?	Go to step 7	Go to FIP-2.33 “Noise” (p.245)
7	☐ Replacing the MCU and Performing Checks: Does the problem still occur after replacing with the normal MCU?	Check the Printer Controller.	Problem solved

3.2.1.35 FIP-1.36 “WASTE TONER BOX Full”

Table 3-39. WASTE TONER BOX Full

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: WASTE TONER SENSOR, WASTE TONER BOX,TONER BOX HARNESS, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the WASTE TONER BOX transmission section: Is there dirt or any foreign matter on the sensor transmission section on top of the WASTE TONER BOX? Is there abnormality such as rising of the screen inside the WASTE TONER BOX?	Replace or clean the WASTE TONER BOX (PL6.1.12) (p.299)	• With the tool: Go to step 3 • Without the tool: Go to FIP-2.13 “Faulty WASTE TONER SENSOR” (p.234)
3	☐ Checking the WASTE TONER SENSOR: Does the WASTE TONER SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "51".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.13 “Faulty WASTE TONER SENSOR” (p.234)

3.2.1.36 FIP-1.37 “FRONT COVER ASSY Open”

Table 3-40. FRONT COVER ASSY Open

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FRONT COVER SWITCH R, FRONT COVER SWITCH L MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the FRONT COVER SWITCH R push-in: Does the actuator of the FRONT COVER ASSY turn on the FRONT COVER SWITCH R when the FRONT COVER ASSY is closed and does it turn off the FRONT COVER SWITCH R when the FRONT COVER ASSY is opened?	• With the tool: Go to step 4 • Without the tool: Go to step 5	Replace the faulty part(s).
4	☐ Checking the FRONT COVER SWITCH R: Does the FRONT COVER SWITCH R function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "XX".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking power supply to the FRONT COVER SWITCH R: Is the voltage 5 VDC between P17-11PIN ↔ P17-12PIN?	Go to step 6	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
6	☐ Checking the FRONT COVER detection signal: Is the voltage between P17-11PIN ↔ P17-12PIN 0 VDC when the FRONT COVER ASSY is open and does the voltage change from 0 VDC to 5 VDC when the FRONT COVER ASSY is closed?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 7
7	☐ Checking for continuity of MSI HARNESS ASSY: Is there normal continuity between J17 ↔ P197?	Replace the FRONT COVER SWITCH R (PL13.2.3) (p.355) or MCU PWB-XL (PL13.2.1) (p.354)	Replace the MAIN HARNESS ASSY

3.2.1.37 FIP-1.38 “MSI/REGI HIGH ASSY Open”

Table 3-41. MSI/REGI HIGH ASSY Open

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MAIN P/H FRAME ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the installation of MAIN P/H FRAME ASSY: Is the MAIN P/H FRAME ASSY pushed in securely?	• With the tool: Go to step 4 • Without the tool: Go to step 5	Replace the faulty part(s).
4	☐ Checking the MAIN P/H FRAME ASSY mounting detection: Does the detection of mounting of the MAIN P/H FRAME ASSY function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "77".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of P/H HARNESS ASSY: Is there normal continuity between J20B ↔ P91B?	Replace the MAIN P/H FRAME ASSY (PL4.1.50) (p.286) or MCU PWB-XL (PL13.2.1) (p.354)	Replace the P/H HARNESS ASSY

3.2.1.38 FIP-1.39 “FUSER ASSY Open”

Table 3-42. FUSER ASSY Open

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the installation of FUSER ASSY: Is the FUSER ASSY pushed in securely?	• With the tool: Go to step 4 • Without the tool: Go to step 5	Replace the faulty part(s).
4	☐ Checking the FUSER ASSY mounting detection: Does the detection of mounting of the FUSER ASSY function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "62".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking power supply to the FUSER ASSY: Is the voltage 5 VDC between P19A-8PIN ↔ P19A-7PIN?	Go to step 6	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
6	☐ Checking the FUSER ASSY mounting signal: Is the voltage between P19A-8PIN ↔ P19A-7PIN 0 VDC with the FUSER ASSY installed and 5 VDC without FUSER ASSY?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 7
7	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J19A ↔ P71A?	Replace the FUSER ASSY (PL9.1.1) (p.321)	Replace the MAIN HARNESS ASSY

3.2.1.39 FIP-1.40 “EXIT UPPER ASSY Open”

Table 3-43. EXIT UPPER ASSY Open

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MAIN P/H FRAME ASSY, MAIN HARNESS ASSY, MCU PWB EXIT HARNESS	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the EXIT CHUTE SWITCH push-in: Does the actuator of the EXIT UPPER ASSY turn on the EXIT CHUTE SWITCH when the EXIT UPPER ASSY is closed and does it turn off the EXIT CHUTE SWITCH when the EXIT UPPER ASSY is opened?	• With the tool: Go to step 4 • Without the tool: Go to step 5	Replace the faulty part(s).
4	☐ Checking the EXIT CHUTE SWITCH: Does the EXIT CHUTE SWITCH function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "74".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking power supply to the EXIT CHUTE SWITCH: Is the voltage 5 VDC between P17A-13PIN ↔ P17A-12PIN?	Go to step 6	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
6	☐ Checking the EXIT CHUTE SWITCH signal: Is the voltage between P17A-13PIN ↔ P17A-12PIN 0 VDC when the EXIT UPPER ASSY is open and 5 VDC when the EXIT UPPER ASSY is closed?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 7
7	☐ Checking for continuity of EXIT HARNESS: Is there normal continuity between J161 ↔ P166?	Go to step 8	Replace the EXIT HARNESS
8	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J17A ↔ P161?	Replace the EXIT CHUTE SWITCH (PL 10.2.26) (p.343) or MCU PWB-XL (PL13.2.1) (p.354)	Replace the MAIN HARNESS ASSY

Table 3-43. EXIT UPPER ASSY Open (continued)

3.2.1.40 FIP-1.41 “TURN CHUTE COVER Open”

Table 3-44. TURN CHUTE COVER Open

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: TURN CHUTE SWITCH, TURN CHUTE HARNESS	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking the TURN CHUTE SWITCH push-in: Does the actuator of the TURN CHUTE COVER turn on the TURN CHUTE SWITCH when the TURN CHUTE COVER is closed and does it turn off the TURN CHUTE SWITCH when the TURN CHUTE COVER is opened?	• With the tool: Go to step 4 • Without the tool: Go to step 5	Replace the faulty part(s).
4	☐ Checking the TURN CHUTE SWITCH: Does the TURN CHUTE SWITCH function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "84".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking power supply to the TURN CHUTE SWITCH: Is the voltage 5 VDC between P17A-2PIN ↔ P17A-1PIN?	Go to step 6	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
6	☐ Checking for continuity of TURN CHUTE HARNESS: Is there normal continuity between J108 ↔ J109?	Go to step 7	Replace the TURN CHUTE HARNESS
7	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J17A ↔ J108?	Replace the TURN CHUTE SWITCH or MCU PWB-XL (PL13.2.1) (p.354)	Replace the MAIN HARNESS ASSY.

3.2.1.41 FIP-1.42 “Cassette 1 Paper Remaining Warning”

Table 3-45. Cassette 1 Paper Remaining Warning

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: UNIVERSAL TRAY, BOTTOM PLATE ASSY LOW PAPER SENSOR, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking for smooth installation of UNIVERSAL CASSETTE: Can the UNIVERSAL CASSETTE be installed smoothly?	Go to step 4	Replace the faulty part(s).
4	☐ Checking the BOTTOM PLATE ASSY: Does the BOTTOM PLATE ASSY lift normally when the UNIVERSAL TRAY is pushed in?	Go to step 5	Replace the faulty part(s).
5	☐ Checking the installation of LOW PAPER SENSOR: Has the LOW PAPER SENSOR been installed properly?	• With the tool: Go to step 6 • Without the tool: Go to FIP-2.4 “Faulty LOW PAPER SENSOR” (p.229)	Reinstall the LOW PAPER SENSOR (PL3.1.18) (p.281)
6	☐ Checking the LOW PAPER SENSOR: Does the LOW PAPER SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "60,61".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to FIP-2.4 “Faulty LOW PAPER SENSOR” (p.229)

3.2.1.42 FIP-1.43 “MSI Tray Malfunction (Lift Up)”

Table 3-46. MSI Tray Malfunction (Lift Up)

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: LIFT MOTOR ASSY, LEVEL SENSOR, MCU PWB P/H HARNESS ASSY, MSI HARNESS ASSY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4]	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the LIFT MOTOR ASSY: Does the LIFT MOTOR ASSY function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "2D, 2E".	Go to step 6	Go to step 4
4	☐ Checking for continuity of REGI HARNESS ASSY: Is there normal continuity between J91B ↔ J208?	Go to step 5	Replace the REGI HARNESS ASSY.
5	☐ Checking for continuity of P/H HARNESS ASSY: Is there normal continuity between J20B ↔ J91B?	• With the tool: Go to step 6 • Without the tool: Go to step 7	Replace the P/H HARNESS ASSY.
6	☐ Checking the LEVEL SENSOR: Does the LEVEL SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "2C".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 7
7	☐ Checking for continuity of MSI HARNESS ASSY: Is there normal continuity between J201 ↔ J209?	Go to step 8	Replace the MSI HARNESS ASSY.

Table 3-46. MSI Tray Malfunction (Lift Up) (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking for continuity of P/H HARNESS ASSY: Is there normal continuity between J20A ↔ J91A?	Replace the MCU PWB-XL (PL13.2.1) (p.354) or LIFT MOTOR ASSY LEVEL SENSOR (PL4.3.23) (p.290)	Replace the P/H HARNESS ASSY.

3.2.1.43 FIP-1.44 “MSI Tray Malfunction (Lift Down)”

Table 3-47. MSI Tray Malfunction (Lift Down)

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: LIFT MOTOR ASSY, LEVEL SENSOR, MCU PWB P/H HARNESS ASSY, MSI HARNESS ASSY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. If an error still occurs after replacing, • With the tool: Go to step 3 • Without the tool: Go to step 4]	• With the tool: Go to step 3 • Without the tool: Go to step 4
3	☐ Checking the LIFT MOTOR ASSY: Does the LIFT MOTOR ASSY function properly? ♦ By using the diagnostics commander, check by Digital Output Test device code "2D, 2E".	Go to step 6	Go to step 4
4	☐ Checking for continuity of REGI HARNESS ASSY: Is there normal continuity between J91B ↔ J208?	Go to step 5	Replace the REGI HARNESS ASSY.
5	☐ Checking for continuity of P/H HARNESS ASSY: Is there normal continuity between J20B ↔ J91B?	• With the tool: Go to step 6 • Without the tool: Go to step 7	Replace the P/H HARNESS ASSY.
6	☐ Checking the LEVEL SENSOR: Does the LEVEL SENSOR function properly? ♦ By using the diagnostics commander, check by Digital Input Test device code "2C".	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 7
7	☐ Checking for continuity of MSI HARNESS ASSY: Is there normal continuity between J201 ↔ J209?	Go to step 8	Replace the MSI HARNESS ASSY.

Table 3-47. MSI Tray Malfunction (Lift Down) (continued)

Step	Check	Remedy	
		Yes	No
8	☐ Checking for continuity of P/H HARNESS ASSY: Is there normal continuity between J20A ↔ J91A?	Replace the MCU PWB-XL (PL13.2.1) (p.354) or LIFT MOTOR ASSY LEVEL SENSOR (PL4.3.23) (p.290)	Replace the P/H HARNESS ASSY.

3.2.1.44 FIP-1.45 “No Power”

Table 3-48. No Power

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: P/H HARNESS ASSY, REGI. HARNESS ASSY MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the printer controller: Disconnect the printer controller, and turn the power ON after waiting 2 - 3 minutes. Is the voltage 5 VDC between the following each pair of pins? P33-1PIN↔P33-4PIN P33-2PIN↔P33-5PIN P33-3PIN↔P33-6PIN • Check if the source voltage of each part is shorted.	Check the Printer Controller. (If an error still occurs after replacing, go to step 3.)]	Go to step 3
3	☐ Checking source voltages for a short circuit: Disconnect one by one the connectors other than J12 and J21 on the MCU PWB. At disconnecting each connector, turn the power ON after waiting 2 - 3 minute. Is the voltage 5 VDC between the following each pair of pins? P33-1PIN↔P33-4PIN P33-2PIN↔P33-5PIN P33-3PIN↔P33-6PIN • Check if the source voltage of each part is shorted.	Replace the part(s) for which source voltage is shorted.	Replace the MCU PWB-XL (PL13.2.1) (p.354)

3.2.1.45 FIP-1.46 “Abnormal Printing Operation”

Table 3-49. Abnormal Printing Operation

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: LV/HV POWER SUPPLY, MUC PWB	Replace or reinstall the relevant part.	Go to step 2
2	The printer does not perform printing at all.	Go to step 3	Go to step 4
3	☐ Checking whether the problem lies in engine or controller: Can a test print (single sheet / consecutive printing, about 10 sheets each) be performed normally with the engine alone?	Check the Printer Controller. (If an error still occurs after replacing, go to step 4)	Go to FIP-2.4 “Faulty LOW PAPER SENSOR” (p.229)
4	Does the “Reset” status occur during printing operation?	Go to FIP-2.33 “Noise” (p.245)	Go to step 5
5	☐ Checking the Interface Cable: Replace the Interface cable with a normal one. Does the problem still occur?	Go to step 6	Problem solved
6	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB with a normal one. Does the problem still occur?	Check the host side.	Problem solved

3.2.1.46 FIP-1.47 Engine Communication Error

Table 3-50. Engine Communication Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB. • Reinsert the DIMM.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Improving the CONTROLLER PWB Environment: • Update the program to the latest one in the DIMM.ÅB	Replace or reinstall the relevant part.	Go to step 3
3	☐ Replacing the CONTROLLER PWB and Performing Checks: Does the problem still occur after replacing the MCU PWB with a normal one?	-	Problem solved

3.2.1.47 FIP-1.48Verify (DIMM Slot Related) Error

Table 3-51. Verify (DIMM Slot Related) Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB. • Reinsert the DIMM.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the DIMM: • After formatting the DIMM, load the control program to the DIMM. • Insert the DIMM in the socket P until it locks securely. ***NOTE:*** *Since the DIMM has the right direction to insert, be sure to insert it in the correct direction.*	Replace or reinstall the relevant part.	Problem solved

3.2.1.48 FIP-1.49 Error in Standard RAM (Slot 0, 1)

Table 3-52. Error in Standard RAM (Slot 0, 1)

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the SD-RAM: • Remove all SD-RAMs from the RAM slots and then reinsert them in the RAM slots. Be sure to insert the SD-RAMs one by one (S0 and S1) in order so that the SD-RAM error can be identified. Every time you insert an SD-RAM, follow the procedures below and repeat it for each one. 1 Turn the power off. 2 Add the SD-RAM 3 Turn the power on. • Insert the SD-RAM in the socket until it is locked securely. ***NOTE:*** *Since the SD-RAM has the right direction to insert, be sure to insert it in the correct direction.*	Replace or reinstall the relevant part.	Problem solved

3.2.1.49 FIP-1.50ROM Checksum Error (MASK ROM for Font)

Table 3-53. ROM Checksum Error (MASK ROM for Font)

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Replace the CODE ROM (C309PROG). • Replace the mounted CODE ROM with another one for checking.	Replace the CONTROLLER PWB.	Go to step 3
3	☐ Replace the IC concerned. • “Error C1100” ...Replace IC1 (M160B76JA) • “Error C1101”..Replace.IC2(M160B77JA)	Replace or reinstall the relevant part.	Problem solved

NOTE: *The MASK ROM for Font “IC1” and “IC2” are the same as those for EPL-N2120.*

3.2.1.50 FIP-1.51 ROM Checksum Error (CODE, IPL)

Table 3-54. ROM Checksum Error (CODE, IPL)

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ CODE ROM(C309PROG)ÇÃåšä² • Replace the mounted CODE ROM with another one for checking.	Replace the CONTROLLER PWB.	Go to step 3
3	☐ Clearing/updating the Program: • Clear the installed DIMM forcibly and update the program to the latest one in the DIMM. • Clear the new DIMM forcibly and update the program in the DIMM.	Replace or reinstall the relevant part.	Problem solved

NOTE: *The locations of FLASH ROM are IC3 and IC 4.*

3.2.1.51 FIP-1.52 ROM Module (DIMM Slot A, B, C Related) Error

Table 3-55. ROM Module (DIMM Slot A, B, C Related) Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the DIMM: • Insert the DIMM in the socket until it is locked securely. ***NOTE:*** *Since the DIMM has the right direction and location for insertion, be sure to insert it in the correct direction and location.* • Check if the DIMM is available for this printer, AcuLaser C8600. In cases other than above, replace the CONTROLLER PWB.	Replace or reinstall the relevant part.	Problem solved

3.2.1.52 FIP-1.53 EEPROM Writing Error

Table 3-56. EEPROM Writing Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the EEPROM: • "Error C1200"... Execute "SelecType Init" in the Panel Setting, or replace EEPROM. • "Error C1210"...Replace EEPROM. In cases other than above, replace the CONTROLLER PWB.	Replace or reinstall the relevant part.	Problem solved

3.2.1.53 FIP-1.54 CCNV Hardware Error

Table 3-57. CCNV Hardware Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Replacing the IC concerned: • Replace IC603 for AcuLaser C8600 or IC600 for AcuLaser C7000 (VIPS: E05B93BA) • Replace IC602 for AcuLaser C8600 or IC601 for AcuLaser C7000 (PWM) In cases other than above, replace the CONTROLLER PWB.	Replace or reinstall the relevant part.	Problem solved

3.2.1.54 FIP-1.55 Engine Initialization Error

Table 3-58. Engine Initialization Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Initializing the MCU PWB: • By using the DIAG command, execute “Slave Initialize”. Turn the power off once and on again. Does the printer operate normally?	Problem solved	Go to step 3
3	☐ Replacing the relevant unit: • Replace the CONTROLLER PWB.	Replace or reinstall the relevant part.	Problem solved

3.2.1.55 FIP-1.56 SRAM (for Compression) Initialization Hardware Error

Table 3-59. SRAM (for Compression) Initialization Hardware Error

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the SD-RAM: • Remove all SD-RAMs from the RAM slots and then reinsert them in the RAM slots. Be sure to insert the SD-RAMs one by one (S0 and S1) in order so that the SD-RAM error can be identified. Every time you insert an SD-RAM, follow the procedures below and repeat it for each one. 1 Turn the power off. 2 Add the SD-RAM. 3 Turn the power on. • Insert the SD-RAM in the socket until it is locked securely. ***NOTE:*** *Since the SD-RAM has the right direction to insert, be sure to insert it in the correct direction.*	Replace or reinstall the relevant part.	Go to step 3
3	☐ Replacing the IC concerned: • Replace IC603 for AcuLaser C8600 or IC600 for AcuLaser C7000 (VIPS: E05B93BA) • Replace IC602 for AcuLaser C8600 or IC601 for AcuLaser C7000 (PWM) In cases other than above, replace the CONTROLLER PWB.	Replace or reinstall the relevant part.	Problem solved

3.2.1.56 FIP-1.57 Video System Hardware Error (including PWM Calibration Error IC)

Table 3-60. Video System Hardware Error (including PWM Calibration Error IC)

Step	Check	Remedy	
		Yes	No
1	☐ Initial setting: • Remove all the optional units and modules related to the electrical system and bring the printer back to the standard status. • Check if all connectors are properly connected to the CONTROLLER PWB.	Replace or reinstall the relevant part.	Go to step 2
2	☐ Replacing the IC concerned: • Replace IC603 for AcuLaser C8600 or IC600 for AcuLaser C7000 (VIPS: E05B93BA) • Replace IC602 for AcuLaser C8600 or IC601 for AcuLaser C7000 (PWM) In cases other than above, replace the CONTROLLER PWB.	Replace or reinstall the relevant part.	Problem solved

3.3 Level 2 FIP

3.3.1 Level 2 FIP List

Level 2 FIPs are listed below:

- “FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)”
- “FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)”
- “FIP-2.3 “Faulty TRAY NO PAPER SENSOR” (p.229)”
- “FIP-2.4 “Faulty LOW PAPER SENSOR” (p.229)”
- “FIP-2.5 “Faulty SIZE SWITCH ASSY” (p.230)”
- “FIP-2.6 “Faulty FEED SOLENOID” (p.230)”
- “FIP-2.7 “Faulty EMPTY SENSOR” (p.231)”
- “FIP-2.9 “Faulty OHP SENSOR” (p.232)”
- “FIP-2.10 “Faulty REGI. SENSOR” (p.232)”
- “FIP-2.11 “Faulty REGI. CLUTCH” (p.233)”
- “FIP-2.12 “Faulty PRE-REGI. CLUTCH” (p.233)”
- “FIP-2.13 “Faulty WASTE TONER SENSOR” (p.234)”
- “FIP-2.14 “Faulty TONER BOX SENSOR” (p.234)”
- “FIP-2.15 “Faulty ROS ASSY” (p.235)”
- “FIP-2.16 “Faulty ADC Sensor” (p.236)”
- “FIP-2.17 “Faulty ADC Solenoid” (p.236)”
- “FIP-2.18 “Faulty CARTRIDGE SENSOR” (p.237)”
- “FIP-2.19 “Faulty FUSER EXIT SENSOR-1” (p.237)”
- “FIP-2.20 “Faulty ROTARY SENSOR” (p.238)”
- “FIP-2.21 “Faulty TR0 SENSOR” (p.238)”
- “FIP-2.22 “Faulty BTR CAM CLUTCH” (p.239)”
- “FIP-2.23 “Faulty FUSER IN SENSOR” (p.239)”
- “FIP-2.24 “Faulty FUSER EXIT SENSOR-2” (p.240)”
- “FIP-2.25 “Faulty TEMP. SENSOR ASSY” (p.240)”
- “FIP-2.26 “Faulty CLEANER CAM SOLENOID” (p.241)”
- “FIP-2.27 “Faulty TOP EXIT SENSOR” (p.241)”
- “FIP-2.28 “Faulty P/R MOT & DRV ASSY” (p.242)”
- “FIP-2.29 “Faulty P/H MOTOR ASSY” (p.242)”
- “FIP-2.30 “Faulty the ROTARY MOTOR ASSY” (p.243)”
- “FIP-2.31 “Faulty the DISPENSE MOTOR ASSY” (p.243)”
- “FIP-2.32 “Faulty LV/HV POWER SUPPLY” (p.244)”
- “FIP-2.33 “Noise” (p.245)”
- “FIP-2.34 “Faulty FUSER MOTOR ASSY” (p.246)”
- “FIP-2.35 “Faulty the PRO MOTOR ASSY” (p.247)”
- “FIP-2.36 “Faulty MAG MOTOR ASSY” (p.248)”

3.3.1.1 FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC"

Table 3-61. Faulty LV/HV POWER SUPPLY 5 VDC

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: LV/HV POWER SUPPLY, MCU PWB, MAIN HARNESS ASSY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the LV/HV POWER SUPPLY: P32-15PIN↔P32-17PIN P33-1PIN↔P33-4PIN P33-2PIN↔P33-5PIN P33-3PIN↔P33-6PIN	Go to step 3	Replace the LV/HV POWER SUPPLY (PL13.1.1) (p.352)
3	☐ Checking for continuity of MAIN HARNESS ASSY: Is there continuity between J33 ↔ J12?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Replace the MAIN HARNESS ASSY.

3.3.1.2 FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC"

Table 3-62. Faulty LV/HV POWER SUPPLY 24 VDC

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: LV/HV POWER SUPPLY, MCU PWB, MAIN HARNESS ASSY, FUSER ASSY MAIN P/H FRAME ASSY, FRONT COVER SWITCH L P/H HARNESS ASSY, FUSER CONNECTOR	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the LV/HV POWER SUPPLY: Is the voltage 24VDC between P32-6PIN ↔ P32-4PIN?	Go to step 5	Go to step 3
3	☐ Checking the interlock route: Is the voltage 5 VDC between J33-9PIN ↔ P32-21PIN? • Check with the FUSER ASSY, MAIN P/H ASSY and FRONT COVER ASSY closed.	Go to step 4	Replace the LV/HV POWER SUPPLY (PL13.1.1) (p.352)
4	☐ Checking the LV/HV POWER SUPPLY Relay Circuit: Is the voltage 5 VDC between P33-9PIN ↔ P32-4PIN? • Check with the FUSER ASSY, MAIN P/H ASSY and FRONT COVER ASSY closed.	Replace the LV/HV POWER SUPPLY (PL13.1.1) (p.352)	Go to step 6
5	☐ Checking for continuity of MAIN HARNESS ASSY: Is there continuity between J32 ↔ J21?	Replace the LV/HV POWER SUPPLY (PL13.1.1) (p.352)	Replace the MAIN HARNESS ASSY.
6	☐ Checking for proper mounting of FUSER ASSY Is the FUSER ASSY properly mounted?	Go to step 7	Replace the faulty part(s).
7	☐ Checking the MAIN P/H FRAME ASSY mounting: Is the MAIN P/H FRAME ASSY mounted securely?	Go to step 8	Replace the faulty part(s).
8	☐ Checking for power supply to the FRONT COVER SWITCH L Is the voltage 5 VDC between P32-18PIN ↔ P32-21PIN? • Check with the FRONT COVER ASSY closed.	Go to step 9	Replace the MAIN HARNESS ASSY.

Table 3-62. Faulty LV/HV POWER SUPPLY 24 VDC (continued)

Step	Check	Remedy	
		Yes	No
9	☐ Checking the FRONT COVER SWITCH R: Is the voltage 5 VDC between P17B-11PIN ↔ P17B-12PIN? • Check with the FRONT COVER ASSY closed.	Go to step 10	Replace the FRONT COVER SWITCH R (PL13.2.3) (p.355)
10	☐ Checking the MAIN HARNESS ASSY: Is the voltage 5 VDC between P97-1PIN ↔ P32-4PIN? • Check with the FRONT COVER ASSY closed.	Go to step 11	Replace the MAIN HARNESS ASSY.
11	☐ Checking the power voltage at the MAIN P/H FRAME ASSY connection: Is the voltage 5 VDC between P91-1PIN ↔ P32-4PIN? • Check with the FUSER ASSY and FRONT COVER ASSY closed.	Go to step 12	Replace the P/H HARNESS ASSY.
12	☐ Checking the power voltage at the FUSER ASSY connection: Is the voltage 5 VDC between P71-3PIN ↔ P32-4PIN? • Check with the MAIN P/H FRAME ASSY and FRONT COVER ASSY closed.	Go to step 13	Go to step 16
13	☐ Checking the MAIN HARNESS ASSY: Is the voltage 5 VDC between J70-2PIN ↔ P32-4PIN? • Check with MAIN P/H ASSY, FUSER ASSY and FRONT COVER ASSY closed.	Go to step 15	Go to step 14
14	☐ Checking the MCU PWB: Is the voltage24VDC between P/J21-1PIN ↔ P/J21-2PIN? • Check with MAIN P/H FRAME ASSY, FUSER ASSY, FRONT COVER ASSY closed.	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Replace the MAIN HARNESS ASSY.
15	☐ Checking the FUSER ASSY Is there normal continuity between J71-3PIN ↔ J71-4PIN?	Go to step 16	Replace the FUSER HARNESS ASSY
16	☐ Checking for continuity of REGI HARNESS ASSY: Is there normal continuity between J91-1PIN ↔ J91-2PIN?	Go to step 17	Replace the REGI HARNESS ASSY.
17	☐ Checking for continuity of P/H HARNESS ASSY: Is there normal continuity between P91-1PIN ↔ J97-2PIN?	Go to step 18	Replace the P/H HARNESS ASSY.

Table 3-62. Faulty LV/HV POWER SUPPLY 24 VDC (continued)

Step	Check	Remedy	
		Yes	No
18	☐ Checking for continuity of FUSER CONNECTOR: Is there normal continuity between J70-1PIN ↔ J97-2PIN?	Replace the MAIN HARNESS ASSY.	Replace the FUSER CONNECTOR

3.3.1.3 FIP-2.3 “Faulty TRAY NO PAPER SENSOR”

Table 3-63. Faulty TRAY NO PAPER SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: TRAY NO PAPER SENSOR, MAIN HARNESS ASSY, TRAY SENSOR HARNESS, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the TRAY NO PAPER SENSOR: Is the voltage 5V DC between P16B-13PIN ↔ P16B-14PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the TRAY NO PAPER detection signal: Is the voltage 5V DC between P16B-14PIN ↔ P16B-15PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the TRAY NO PAPER detection signal: Is the voltage between P16B-14PIN ↔ P16B-15PIN 0 VDC when the signal light is transmitting (there is paper) and 5 VDC when the light is intercepted (no paper)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of TRAY SENSOR HARNESS: Is there normal continuity between J107 ↔ P101?	Go to step 6	Replace the TRAY SENSOR HARNESS.
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J101 ↔ J16B?	Replace the TRAY NO PAPER SENSOR (PL3.1.9) (p.281)	Replace the MAIN HARNESS ASSY.

3.3.1.4 FIP-2.4 “Faulty LOW PAPER SENSOR”

Table 3-64. Faulty LOW PAPER SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: LOW PAPER SENSOR, TRAY SENSOR HARNESS,MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply for the LOW PAPER detection signal: Is the voltage 5 VDC between P16B-16PIN ↔ P16B-17PIN?	Go to step 3	Replace the MCU PWB-XL (PL13.2.1) (p.354)
3	☐ Checking the LOW PAPER detection signal: Is the voltage between P16B-16PIN ↔ P16B-17PIN 0 VDC when approx. 20 sheets of paper are mounted and 5 VDC when approx. 200 sheets of parer are mounted?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the TRAY SENSOR HARNESS ASSY: Is there normal continuity between J106 ↔ P101?	Replace the LOW PAPER SENSOR ASSY	Replace the TRAY SENSOR HARNESS ASSY

3.3.1.5 FIP-2.5 “Faulty SIZE SWITCH ASSY”

Table 3-65. Faulty SIZE SWITCH ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: SIZE SWITCH ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the Size SWITCH ASSY: Is the voltage 5 VDC between P16B-10PIN ↔ P16B-11PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking the REGI. detection signal: Is the voltage proper between P16B-10PIN ↔ P16B-12PIN for each paper size? • See Paper Size Control (p.130) and perform checking by changing the paper size.	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J102 ↔ J16B?	Replace the SIZE SWITCH ASSY (PL3.1.5) (p.279)	Replace the MAIN HARNESS ASSY.

3.3.1.6 FIP-2.6 “Faulty FEED SOLENOID”

Table 3-66. Faulty FEED SOLENOID

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FEED SOLENOID, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the FEED SOLENOID: Is the voltage 24 VDC between P17B-13PIN ↔ P17B-14PIN?	Go to step 3	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
3	☐ Checking the FEED SOLENOID: Is there continuity (approx. 90É¹) between P17B-13PIN ↔ P17B-14PIN?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the MAIN HARNESS ASSY: Is there normal continuity between J17B ↔ J103?	Replace the FEED SOLENOID (PL3.1.35) (p.277)	Replace the MAIN HARNESS ASSY.

3.3.1.7 FIP-2.7 “Faulty EMPTY SENSOR”

Table 3-67. Faulty EMPTY SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: EMPTY SENSOR, MSI HARNESS ASSY REGI. HARNESS ASSY, P/H HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the EMPTY SENSOR: Is the voltage 5 VDC between P20A-3PIN ↔ P20A-4PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the EMPTY detection signal: Is the voltage 5 VDC between P20A-5PIN ↔ P20A-4PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the EMPTY detection signal: Is the voltage between P20A-5PIN ↔ P20A-4PIN 0 VDC when the signal light is reflected (there is paper) and 5 VDC when the light is not reflected (no paper)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking the MSI HARNESS ASSY: Is there normal continuity between J201 ↔ P203?	Go to step 6	Replace the MSI HARNESS ASSY.
6	☐ Checking for continuity of REGI. HARNESS ASSY: Is there normal continuity between J91A ↔ J201?	Go to step 7	Replace the REGI. HARNESS ASSY.
7	☐ Checking the P/H HARNESS ASSY: Is there normal continuity between J20A ↔ J91A?	Replace the EMPTY SENSOR (PL4.3.5) (p.288)	Replace the P/H HARNESS ASSY.

3.3.1.8 (Missing Number)

3.3.1.9 FIP-2.9 “Faulty OHP SENSOR”

Table 3-68. Faulty OHP SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: OHP SENSOR, MSI HARNESS ASSY REGI. HARNESS ASSY, P/H HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the OHP SENSOR: Is the voltage 5 VDC between P20B-1PIN ↔ P20B-3PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the MSI OHP detection signal: Is the voltage 5 VDC between P20B-1PIN ↔ P20B-3PIN?	Go to step 4	Go to MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the MSI OHP detection signal: Is the voltage between P20B-1PIN ↔ P20B-3PIN 0 VDC when the signal light is reflected (there is paper) and 5 VDC when the light is not reflected (no paper)? • Use white paper to check transmission/interception status. OHP film is transparent, thus disturbing correct evaluation.	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of REGI. HARNESS ASSY: Is there normal continuity between J91B ↔ J98?	Go to step 6	Replace the REGI. HARNESS ASSY.
6	☐ Checking the P/H HARNESS ASSY: Is there normal continuity between J20B ↔ J91B?	Replace the OHP SENSOR (PL4.4.25) (p.297)	Replace the P/H HARNESS ASSY.

3.3.1.10 FIP-2.10 “Faulty REGI. SENSOR”

Table 3-69. Faulty REGI. SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: REGI.SENSOR, REGI. HARNESS ASSY P/H HARNESS ASSY, MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking power supply to the REGI. SENSOR: Is the voltage 5 VDC between P20B-4PIN ↔ P20B-6PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the REGI. detection signal: Is the voltage 5 VDC between P20B-4PIN ↔ P20B-5PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the REGI. detection signal: Is the voltage between P20B-4PIN ↔ P20B-5PIN 0 VDC when the signal light is reflected (there is paper) and 5 VDC when the light is not reflected (no paper)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of REGI. HARNESS ASSY: Is there normal continuity between J93 ↔ J91B?	Go to step 6	Replace the REGI. HARNESS ASSY.
6	☐ Checking the P/H HARNESS ASSY: Is there normal continuity between P91B ↔ J20B?	Replace the REGI SENSOR (PL4.4.24) (p.297)	Replace the P/H HARNESS ASSY.

3.3.1.11 FIP-2.11 “Faulty REGI. CLUTCH”

Table 3-70. Faulty REGI. CLUTCH

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: REGI. CLUTCH ASSY, P/H HARNESS ASSY REGI. HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the REGI. CLUTCH: Is the voltage 24 VDC between P/J20B-9PIN ↔ P/J20B-10PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking the REGI. CLUTCH: Is there continuity (approx. 175É¹) between J20B-9PIN ↔ J20B-10PIN?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the P/H HARNESS ASSY: Is there normal continuity between J20B ↔ P91B?	Go to step 5	Replace the P/H HARNESS ASSY.
5	☐ Checking the REGI. HARNESS ASSY: Is there normal continuity between J91B ↔ J94?	Replace the REGI CLUTCH ASSY (PL4.4.5) (p.293)	Replace the REGI. HARNESS ASSY.

3.3.1.12 FIP-2.12 “Faulty PRE-REGI. CLUTCH”

Table 3-71. Faulty PRE-REGI. CLUTCH

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: PRE REGI. CLUTCH ASSY, P/H HARNESS ASSY REGI. HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the PRE REGI. CLUTCH: Is the voltage 24 VDC between P/J20B-11PIN ↔ P/J20B-12PIN?	Go to step 3	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
3	☐ Checking the PRE REGI. CLUTCH: Is there continuity (approx. 174É¹) between J20B-11PIN ↔ J20B-12PIN?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the P/H HARNESS ASSY: Is there normal continuity between J20B ↔ J91B?	Go to step 5	Replace the P/H HARNESS ASSY.
5	☐ Checking the REGI. HARNESS ASSY: Is there normal continuity between J91B ↔ J95?	Replace the PRE REGI. CLUTCH ASSY	Replace the REGI. HARNESS ASSY.

3.3.1.13 FIP-2.13 “Faulty WASTE TONER SENSOR”

Table 3-72. Faulty WASTE TONER SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: WASTE TONER SENSOR, WASTE TONER BOX, TONER BOX HARNESS, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the WASTE TONER SENSOR: Is the voltage 5 VDC between P22A-14PIN ↔ P22A-12PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the WASTE TONER detection signal: Is the voltage 5 VDC between P22A-13PIN ↔ P22A-12PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the WASTE TONER detection signal: Is the voltage between P/J22A-13PIN ↔ P/J22A-12PIN 0 VDC when the signal light is transmitted (WASTE TONER LOW level) and 5 VDC when the light is intercepted (WASTE TONER HIGH level)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of TONER BOX HARNESS: Is there normal continuity between J88 ↔ J116?	Go to step 6	Replace the TONER BOX HARNESS
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J116 ↔ J22A?	Replace the WASTE TONER SENSOR (PL6.1.42) (p.303)	Replace the MAIN HARNESS ASSY.

3.3.1.14 FIP-2.14 “Faulty TONER BOX SENSOR”

Table 3-73. Faulty TONER BOX SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: TONER BOX SENSOR, TONER BOX HARNESS MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the TONER BOX SENSOR: Is the voltage 5 VDC between P22A-15PIN ↔ P22A-16PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the TONER BOX detection signal: Is the voltage 5 VDC between P22A-16PIN ↔ P22A-17PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the TONER BOX detection signal: Is the voltage between P/J22A-16PIN ↔ P/J22A-17PIN 0 VDC when the signal light is transmitted (there is WASTE TONER BOX) and 5 VDC when the light is intercepted (no WASTE TONER BOX)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of TONER BOX HARNESS: Is there normal continuity between J88 ↔ J116?	Go to step 6	Replace the TONER BOX HARNESS.
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J116 ↔ J22A?	Replace the TONER BOX SENSOR (PL6.1.43) (p.303)	Replace the MAIN HARNESS ASSY.

3.3.1.15 FIP-2.15 “Faulty ROS ASSY”

Table 3-74. Faulty ROS ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ROS ASSY, MAIN HARNESS ASSY, EXIT HARNESS, TOP EXIT SENSOR, FRONT COVER SWITCH R, MAIN HARNESS ASSY, ROS HARNESS, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the SOS Sensor: Is the voltage 5 VDC between P14-1PIN ↔ P14-3PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the SOS detection signal: Is the voltage 5 VDC between P14-1PIN ↔ P14-2PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the Scanner Motor operation: Does the Scanner Motor run when turned ON? • Check for operation sound.	Go to step 7	Go to step 5
5	☐ Checking power supply to the Scanner Motor: Is the voltage 24 VDC between P14-12PIN ↔ P14-13PIN?	Go to step 6	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
6	☐ Checking the Scanner Motor ON signal: Does the voltage between P14-10PIN ↔ P14-11PIN change from 24 VDC to 0 VDC when the Scanner Motor is turned ON?	Go to step 7	Go to step 13
7	☐ Checking the power to the LDD: Is the voltage 5 VDC between the voltage of P32-22PIN ↔ P32-21PIN?	Go to step 8	Replace the LV/HV POWER SUPPLY (PL13.1.1) (p.352)
8	☐ Checking for continuity of ROS HARNESS: Does the J32-22PIN ↔ J125-1PIN have continuity? Does the J32-21PIN ↔ J125-2PIN have continuity?	Go to step 9	Replace the ROS HARNESS

Table 3-74. Faulty ROS ASSY (continued)

Step	Check	Remedy	
		Yes	No
9	☐ Checking for continuity of ROS HARNESS: Is there normal continuity between the following each pair of terminals? J14↔J124, J125, J121, J123 J15↔J122	Go to step 10	Replace the ROS HARNESS.
10	☐ Checking for continuity of FRONT COVER SWITCH R: Is there continuity between the terminals of the FRONT COVER SWITCH R when the FRONT COVER is closed and no continuity when it is open?	Go to step 11	Replace the FRONT COVER SWITCH R (PL13.2.3) (p.355)
11	☐ Checking the FRONT COVER ASSY tab: Do the tabs of the FRONT COVER ASSY securely push in the contact of the FRONT COVER SWITCH R when the FRONT COVER ASSY is closed?	Go to step 12	Replace the faulty part(s).
12	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J197-1PIN ↔ J192-1PIN and between J197-2PIN ↔ J192-2PIN?	Go to step 13	Replace the MAIN HARNESS.
13	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB with a normal one. Does the problem still occur?	Replace the ROS ASSY (PL6.1.1) (p.300)	Problem solved

3.3.1.16 FIP-2.16 “Faulty ADC Sensor”

Table 3-75. Faulty ADC Sensor

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ADC SENSOR ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking power supply to the ADC Sensor: Is the voltage 5 VDC between P16B-1PIN ↔ P16B-4PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J16B ↔ J81?	Go to step 4	Replace the MAIN HARNESS ASSY.
4	☐ Replacing the ADC SENSOR ASSY and Performing Checks: Does the same problem occur even after replacing the ADC SENSOR ASSY with a normal one?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Problem solved

3.3.1.17 FIP-2.17 “Faulty ADC Solenoid”

Table 3-76. Faulty ADC Solenoid

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ADC SENSOR ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking power supply to the ADC Solenoid: Is the voltage 24 VDC between P16B-5PIN ↔ P16B-6PIN?	Go to step 3	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
3	☐ Checking the ADC Solenoid: Is there continuity (approx. 36É¹) between J16B-5PIN ↔ P/J16B-6PIN?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the MAIN HARNESS ASSY: Is there normal continuity between J16B ↔ P81?	Replace the ADC SOLENOID.	Replace the P/H HARNESS ASSY.

3.3.1.18 FIP-2.18 “Faulty CARTRIDGE SENSOR”

Table 3-77. Faulty CARTRIDGE SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: CARTRIDGE, FUSER CONNECTOR, MAIN HARNESS ASSY MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking power supply to the CARTRIDGE SENSOR: Is the voltage 5 VDC between P17A-5PIN ↔ P17A-3PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the CARTRIDGE detection signal: Is the voltage 5 VDC between P17A-4PIN ↔ P17A-3PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the CARTRIDGE detection signal: Is the voltage between P/J17A-4PIN ↔ P/J17A-3PIN 0 VDC when the signal light is transmitted (Cartridge is installed) and 5 VDC when the light is intercepted (no Cartridge)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J87 ↔ J17?	Replace the CARTRIDGE SENSOR (PL7.2.32) (p.311)	Replace the MAIN HARNESS ASSY.

3.3.1.19 FIP-2.19 “Faulty FUSER EXIT SENSOR-1”

Table 3-78. Faulty FUSER EXIT SENSOR-1

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER EXIT SENSOR-1, MAIN HARNESS ASSY FUSER HARNESS ASSY, MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking power supply to the FUSER EXIT SENSOR-1: Is the voltage 5 VDC between P19B-5PIN ↔ P19B-6PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the FUSER EXIT detection signal: Is the voltage 5 VDC between P19B-6PIN ↔ P19B-7PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the FUSER EXIT detection signal: Is the voltage between P/J19B-6PIN ↔ P/J19B-7PIN 0 VDC when the signal light is transmitted (there is paper) and 5 VDC when the light is intercepted (no paper)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J19B ↔ J71B?	Go to step 6	Replace the MAIN HARNESS.
6	☐ Checking continuity of the FUSER HARNESS ASSY: Is there normal continuity between J71B ↔ J72?	Replace the FUSER EXIT SENSOR-1 (PL9.2.3) (p.327)	Replace the FUSER HARNESS ASSY.

3.3.1.20 FIP-2.20 “Faulty ROTARY SENSOR”

Table 3-79. Faulty ROTARY SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ROTARY SENSOR, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the ROTARY SENSOR: Is the voltage 5 VDC between P16A-16PIN ↔ P16A-14PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the ROTARY SENSOR detection signal: Is the voltage 5 VDC between P16A-15PIN ↔ P16A-14PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the ROTARY SENSOR detection signal: Is the voltage between P16A-15PIN ↔ P16A-14PIN 0 VDC when the signal light is transmitted (no notch) and 5 VDC when the light is intercepted (notch is detected)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J16A ↔ J58?	Replace the ROTARY SENSOR.	Replace the MAIN HARNESS ASSY.

3.3.1.21 FIP-2.21 “Faulty TR0 SENSOR”

Table 3-80. Faulty TR0 SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: TR0 SENSOR, MAIN HARNESS ASSY, TR0 HARNESS, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the TR0 SENSOR: Is the voltage 5 VDC between P16B-7PIN ↔ P16B-9PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the TR0 detection signal: Is the voltage 5 VDC between P16B-8PIN ↔ P16B-9PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the TR0 detection signal: Is the voltage between P/J16B-8PIN ↔ P/J16B-9PIN 0 VDC when the signal light is transmitted (IBT BELT mark is detected) and 5 VDC when the light is intercepted (no IBT BELT mark is detected).	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of TR0 HARNESS: Is there normal continuity between J57 ↔ J54?	Go to step 6	Replace the TR0 HARNESS.
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J54 ↔ J16B?	Replace the TR0 SENSOR (PL8.2.24) (p.320)	Replace the MAIN HARNESS.

3.3.1.22 FIP-2.22 “Faulty BTR CAM CLUTCH”

Table 3-81. Faulty BTR CAM CLUTCH

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: BTR CAM CLUTCH, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the BTR CAM CLUTCH: Is the voltage 24 VDC between P/J18B-9PIN ↔ P/J18B-10PIN?	Go to step 3	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
3	☐ Checking power supply for the BTR CAM CLUTCH detection signal: Does the P/J18B-9PINPIN ↔ P/J14B-10PIN have continuity?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J18B ↔ J63?	Replace the BTR CAM CLUTCH (PL8.3.2) (p.320)	Replace the MAIN HARNESS ASSY.

3.3.1.23 FIP-2.23 “Faulty FUSER IN SENSOR”

Table 3-82. Faulty FUSER IN SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER IN SENSOR, MAIN HARNESS ASSY FUSER HARNESS ASSY, FUSER IN HARNESS, MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking power supply to the FUSER IN SENSOR: Is the voltage 5 VDC between P19A-4PIN ↔ P19A-5PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the FUSER IN detection signal: Is the voltage 5 VDC between P19A-6PIN ↔ P19A-5PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the FUSER IN detection signal: Is the voltage between P/J19A-6PIN ↔ P/J19A-5PIN 0 VDC when the signal light is transmitted (there is paper) and 5 VDC when the light is intercepted (no paper)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of FUSER IN HARNESS: Is there normal continuity between J117 ↔ P76?	Go to step 6	Replace the FUSER IN HARNESS
6	☐ USER HARNESS ASSY Is there normal continuity between J71A ↔ J76?	Go to step 7	Replace the FUSER HARNESS ASSY.
7	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between P71A ↔ J19A?	Replace the FUSER IN SENSOR (PL9.4.4) (p.336)	Replace the MAIN HARNESS ASSY.

3.3.1.24 FIP-2.24 “Faulty FUSER EXIT SENSOR-2”

Table 3-83. Faulty FUSER EXIT SENSOR-2

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER EXIT SENSOR-2, MAIN HARNESS ASSY FUSER HARNESS ASSY, MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking power supply to the FUSER EXIT SENSOR-2: Is the voltage 5 VDC between P19B-5PIN ↔ P19B-6PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply for the FUSER EXIT detection signal: Is the voltage 5 VDC between P19B-3PIN ↔ P19B-6PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the FUSER EXIT detection signal: Is the voltage between P/J19B-3PIN ↔ P/J19B-6PIN 0 VDC when the signal light is transmitted (there is paper) and 5 VDC when the light is intercepted (no paper)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J19B ↔ J71B?	Go to step 6	Replace the MAIN HARNESS ASSY.
6	☐ Checking continuity of the FUSER HARNESS ASSY: Is there normal continuity between J71B ↔ J72?	Replace FUSER EXIT SENSOR-2(PL9.2.4) (p.327)	Replace the FUSER HARNESS ASSY.

3.3.1.25 FIP-2.25 “Faulty TEMP. SENSOR ASSY”

Table 3-84. Faulty TEMP. SENSOR ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: TEMP. SENSOR ASSY, MAIN HARNESS ASSY FUSER HARNESS ASSY, MCU PWB	Replace or remount the part(s) concerned.	Go to step 2
2	☐ Checking the thermistor of TEMP. SENSOR ASSY: Is there dirt or any foreign matter on the detection surface of the thermistor?	Replace or clean the TEMP. SENSOR ASSY (PL9.2.6) (p.330)	Go to step 3
3	☐ Checking the TEMP. SENSOR ASSY thermistor resistance: Is there 240kΩ between P19B-4PIN ↔ P19B-6PIN at room temperature (18 - 20°C)?	Go to step 4	Replace or clean the TEMP. SENSOR ASSY (PL9.2.6) (p.330)
4	☐ Checking continuity of the FUSER HARNESS ASSY: Is there normal continuity between J71B ↔ J72?	Go to step 5	Replace the FUSER HARNESS ASSY.
5	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between P71B ↔ J19B?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Replace the MAIN HARNESS ASSY.

3.3.1.26 FIP-2.26 “Faulty CLEANER CAM SOLENOID”

Table 3-85. Faulty CLEANER CAM SOLENOID

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: CLEANER CAM SOLENOID, FUSER HARNESS ASSY MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the CLEANER CAM SOLENOID: Is the voltage 24 VDC between P19B-1PIN ↔ P19B-2PIN?	Go to step 3	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
3	☐ Checking the CLEANER CAM SOLENOID: Is there continuity (approx. 220É[1]) between P19B-1PIN ↔ P19B-2PIN?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the FUSER HARNESS ASSY: Is there normal continuity between J62 ↔ J71B?	Go to step 5	Replace the FUSER HARNESS ASSY.
5	☐ Checking the MAIN HARNESS ASSY: Is there normal continuity between P71B ↔ J19B?	Replace the CLEANER CAM SOLENOID (PL9.4.24) (p.333)	Replace the MAIN HARNESS ASSY.

3.3.1.27 FIP-2.27 “Faulty TOP EXIT SENSOR”

Table 3-86. Faulty TOP EXIT SENSOR

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: TOP EXIT SENSOR, MAIN HARNESS ASSY EXIT HARNESS, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the TOP EXIT SENSOR: Is the voltage 5 VDC between P17A-9PIN ↔ P17A-10PIN?	Go to step 3	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
3	☐ Checking power supply to the TOP EXIT: Is the voltage 5 VDC between the voltage of P17A-11PIN ↔ P17A-10PIN?	Go to step 4	Replace the MCU PWB-XL (PL13.2.1) (p.354)
4	☐ Checking the TOP EXIT detection signal: Is the voltage between P/J17A-11PIN ↔ P/J17A-10PIN 0 VDC when the signal light is transmitted (there is paper) and 5 VDC when the light is intercepted (no paper)?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 5
5	☐ Checking for continuity of EXIT HARNESS: Is there normal continuity between J165 ↔ J161?	Go to step 6	Replace the EXIT HARNESS
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J161 ↔ J17A?	Replace the TOP EXIT SENSOR (PL10.2.24) (p.342)	Replace the MAIN HARNESS ASSY.

3.3.1.28 FIP-2.28 “Faulty P/R MOT & DRV ASSY”

Table 3-87. Faulty P/R MOT & DRV ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: P/R MOT & DRV ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the P/R MOT & DRV ASSY: Is the voltage 24 VDC between P/J51-2 ↔ P/J51-1?	Go to step 4	Go to step 3
3	☐ Checking power supply to the LV/HV POWER SUPPLY: Is the voltage 24 VDC between J32-7 ↔ J32-11?	Go to step 4	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
4	☐ Checking the voltage of PROCEESS DRIVE ON signal: Is the voltage 24 VDC between P18B-5 ↔ P18B-2?	Go to step 5	Replace the MCU PWB-XL (PL13.2.1) (p.354)
5	☐ Checking the voltage of PROCEESS DRIVE SPEED signal: Is the voltage 24 VDC between P18B-3 ↔ P18B-2?	Go to step 6	Replace the MCU PWB-XL (PL13.2.1) (p.354)
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J18B ↔ J52 and between J32 ↔ J51?	Replace the P/R MOT & DRV ASSY (PL11.1.10) (p.347)	Replace the MAIN HARNESS ASSY.

3.3.1.29 FIP-2.29 “Faulty P/H MOTOR ASSY”

Table 3-88. Faulty P/H MOTOR ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: P/H MOTOR ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the P/H MOTOR ASSY: Is the voltage 24 VDC between P49-2 ↔ P49-1?	Go to step 4	Go to step 3
3	☐ Checking power supply to the LV/HV POWER SUPPLY: Is the voltage 24 VDC between P32-8 ↔ P32-10?	Go to step 4	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
4	☐ Checking the voltage of P/H MOTOR ON signal: Is the voltage 5 VDC between P18A-11 ↔ P18A-8?	Go to step 5	Replace the MCU PWB-XL (PL13.2.1) (p.354)
5	☐ Checking the voltage of P/H MOTOR SPEED signal: Is the voltage 5 VDC between P18A-10 ↔ P18A-8?	Go to step 6	Replace the MCU PWB-XL (PL13.2.1) (p.354)
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J18A ↔ J50, between J24 ↔ J53 and between J32 ↔ J49?	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)	Replace the MAIN HARNESS ASSY.

3.3.1.30 FIP-2.30 “Faulty the ROTARY MOTOR ASSY”

Table 3-89. Faulty the ROTARY MOTOR ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: ROTARY MOTOR ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the ROTARY MOTOR ASSY: Is the voltage 24 VDC between P/J246-3 ↔ P/J246-1?	Go to step 4	Go to step 3
3	☐ Checking power supply to the LV/HV POWER SUPPLY: Is the voltage 24 VDC between J33-7 ↔ J33-8?	Go to step 4	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
4	☐ Checking power supply to the ROTARY MOTOR DRIVE PWB: Is the voltage 5 VDC between P18A-5 ↔ P18A-4?	Go to step 5	Go to FIP-2.1 “Faulty LV/HV POWER SUPPLY 5 VDC” (p.227)
5	☐ Checking the voltage of ROTARY MOTOR ON signal: Is the voltage 5 VDC between P18A-2 ↔ P18A-4?	Go to step 6	Replace the MCU PWB-XL (PL13.2.1) (p.354)
6	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J18A ↔ J245 and between J33 ↔ J246?	Replace the ROTARY MOTOR ASSY (PL11.1.20) (p.348)	Replace the MAIN HARNESS ASSY.

3.3.1.31 FIP-2.31 “Faulty the DISPENSE MOTOR ASSY”

Table 3-90. Faulty the DISPENSE MOTOR ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: DISPENSE MOTOR ASSY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the DISPENSE MOTOR ASSY: Is the voltage 24 VDC between P18B-7PIN ↔ P18B-8PIN?	Go to step 3	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
3	☐ Checking the DISPENSE CLUTCH ASSY: Is there continuity (approx. 172É[1]) between P18B-7PIN ↔ P18B-8PIN?	Replace the MCU PWB-XL (PL13.2.1) (p.354)	Go to step 4
4	☐ Checking the MAIN HARNESS ASSY: Is there normal continuity between J18B ↔ J55?	Replace the DISPENSE MOTOR ASSY (PL11.1.22) (p.349)	Replace the MAIN HARNESS ASSY.

3.3.1.32 FIP-2.32 “Faulty LV/HV POWER SUPPLY”

Table 3-91. Faulty LV/HV POWER SUPPLY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: BCR WIRE ASSY, DEVE. WIRE, BCR CONNECTOR ASSY, DEVE. CONTACT PLATE ASSY, 2ND BTR ASSY, TRANSFER HIGH ASSY, 2ND BTR CAM ASSY, LV/HV POWER SUPPLY, MAIN HARNESS ASSY, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking the BCR WIRE ASSY: Is there continuity between the terminals of the BCR WIRE?	Go to step 3	Replace the BCR WIRE ASSY.
3	☐ Checking the DEVE. WIRE: Is there continuity between the terminals of the DEVE. WIRE?	Go to step 4	Replace the DEVE. WIRE.
4	☐ Checking the BCR CONNECTOR ASSY: Is the BCR CONNECTOR ASSY distorted, damaged or improperly mounted?	Go to step 5	Reinstall or replace the BCR CONNECTOR ASSY.
5	☐ Checking the DEVE. CONTACT PLATE ASSY: Is the DEVE. CONTACT PLATE ASSY distorted, damaged or improperly mounted?	Go to step 6	Reinstall or replace the DEVE. CONTACT PLATE ASSY.
6	☐ Checking the 2ND BTR ASSY: Is there proper continuity in the high voltage route inside the 2ND BTR ASSY?	Go to step 7	Replace the 2ND BTR ASSY (PL8.1.22) (p.315)
7	☐ Checking the inside of TRANSFER HIGH ASSY: Is there proper continuity in the high voltage route inside the TRANSFER HIGH ASSY? • Check continuity between the terminals of 1ST BTR WIRE and the 1ST BTR, and between the terminals of CONTACT ROLL WIRE and the 1ST BTR.	Go to step 8	Replace the TRANSFER HIGH ASSY (PL8.1.20) (p.313)
8	☐ Checking power supply to the LV/HV POWER SUPPLY: Is the voltage 24 VDC between P21-1 ↔ P21-2?	Go to step 9	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)

Table 3-91. Faulty LV/HV POWER SUPPLY (continued)

Step	Check	Remedy	
		Yes	No
9	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J16A ↔ J42?	Go to step 12	Replace the MAIN HARNESS ASSY.
10	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB with a normal one. Does the problem still occur?	Replace the LV/HV POWER SUPPLY (PL13.1.1) (p.352)	Problem solved

3.3.1.33 FIP-2.33 “Noise”

Table 3-92. Noise

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: LV/HV POWER SUPPLY, BCR CONNECTOR ASSY DEVE. CONTACT PLATE ASSY 2ND BTR ASSY, H/R HEATER, P/R HEATER DRUM CARTRIDGE, MCU PWB	Replace or reinstall the relevant part.	Go to step 2
2	Is the printer grounded properly?	Go to step 3	Ground the printer.
3	Is there any equipment generating noise around the printer?	Change installation site or move the equipment generating noise.	Go to step 4
4	☐ Checking the LV/HV POWER SUPPLY: Is the grounding wire connected to the power switch/inlet of the LV/HV POWER SUPPLY fastened securely?	Go to step 5	Fasten the grounding wire securely.
5	☐ Checking the BCR CONNECTOR ASSY: Is the BCR CONNECTOR ASSY distorted, damaged or improperly mounted?	Go to step 6	Reinstall or replace the BCR CONNECTOR ASSY.
6	☐ Checking the DEVE. CONTACT PLATE ASSY: Is the DEVE. CONTACT PLATE ASSY distorted, damaged or improperly mounted?	Go to step 7	Reinstall or replace the DEVE. CONTACT PLATE ASSY.
7	☐ Checking the 2ND BTR ASSY: Is there proper continuity in the high voltage route inside the 2ND BTR ASSY?	Go to step 8	Replace the 2ND BTR ASSY (PL8.1.22) (p.315)
8	☐ Checking the H/R HEATER and P/R HEATER: Are both ends of the H/R HEATER and P/R HEATER fastened securely?	Go to step 9	Fasten both ends securely.
9	☐ Replacing the DRUM CARTRIDGE and Performing Checks: Does the same problem occur even after replacing the DRUM CARTRIDGE with a normal one?	Go to step 10	Problem solved

Table 3-92. Noise (continued)

Step	Check	Remedy	
		Yes	No
10	☐ Replacing the MCU PWB and Performing Checks: ☐ Replace the MCU PWB with a normal one. Does the problem still occur?	Go to step 11	Problem solved
11	☐ Is there any problem found by rechecking the major parts to be checked by initial checking and their related parts?	Replace or reinstall the relevant part.	Problem solved *1

Note *1: Check the state because it can be considered as a noise coming from outside.

3.3.1.34 FIP-2.34 “Faulty FUSER MOTOR ASSY”

Table 3-93. Faulty FUSER MOTOR ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: FUSER MOTOR ASSY, P/H MOTOR ASSY MAIN HARNESS ASSY, MCU PWB, LV/HV POWER SUPPLY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the FUSER MOTOR ASSY: Is the voltage 24 VDC between P49-2 ↔ P49-1?	Go to step 5	Go to step 3
3	☐ Checking power supply to the LV/HV POWER SUPPLY: Is the voltage 24 VDC between P32-8 ↔ P32-10?	Go to step 4	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
4	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J32 ↔ J59?	Replace the FUSER MOTOR ASSY (PL 11.1.4) (p.346)	Replace the MAIN HARNESS ASSY.
5	☐ Checking the voltage of Fuser Motor ON signal: Is the voltage 5 VDC between P24-7 ↔ P24-6?	Go to step 6	Replace the MCU PWB-XL (PL13.2.1) (p.354)
6	☐ Checking the voltage of Fuser Motor ON signal: Is the voltage 5 VDC between P53-4 ↔ P53-5?	Go to step 8	Go to step 7
7	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J24 ↔ J53?	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)	Replace the MAIN HARNESS ASSY.
8	☐ Checking the voltage of Fuser Motor ON signal: Is the voltage 5 VDC between P43-10 ↔ P43-7?	Go to step 9	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)
9	☐ Checking the voltage of Fuser Motor ON signal: Is the voltage 5 VDC between P44-1 ↔ P44-4?	Replace the FUSER MOTOR ASSY (PL 11.1.4) (p.346)	Go to step 10
10	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J43 ↔ J44?	Replace the FUSER MOTOR ASSY (PL 11.1.4) (p.346)	Replace the MAIN HARNESS ASSY.

3.3.1.35 FIP-2.35 “Faulty the PRO MOTOR ASSY”

Table 3-94. Faulty the PRO MOTOR ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: PRO MOTOR ASSY, P/H MOTOR ASSY MAIN HARNESS ASSY, MCU PWB, LV/HV POWER SUPPLY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the PRO MOTOR ASSY: Is the voltage 24 VDC between P61-2 ↔ P61-1?	Go to step 5	Go to step 3
3	☐ Checking power supply to the LV/HV POWER SUPPLY: Is the voltage 24 VDC between P32-8 ↔ P32-10?	Go to step 4	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
4	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J32 ↔ J61?	Replace the PRO MOTOR ASSY (PL 11.1.6) (p.347)	Replace the MAIN HARNESS ASSY.
5	☐ Checking the voltage of PRO Motor ON signal: Is the voltage 5 VDC between P24-8 ↔ P24-6?	Go to step 6	Replace the MCU PWB-XL (PL13.2.1) (p.354)
6	☐ Checking the voltage of PRO Motor ON signal: Is the voltage 5 VDC between P53-3 ↔ P53-5?	Go to step 8	Go to step 7
7	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J24 ↔ J53?	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)	Replace the MAIN HARNESS ASSY.
8	☐ Checking the voltage of PRO Motor ON signal: Is the voltage 5 VDC between P43-15 ↔ P43-12?	Go to step 9	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)
9	☐ Checking the voltage of PRO Motor ON signal: Is the voltage 5 VDC between P46-1 ↔ P46-4?	Go to step 11	Go to step 10
10	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J43 ↔ J46?	Replace the PRO MOTOR ASSY (PL 11.1.6) (p.347)	Replace the MAIN HARNESS ASSY.
11	☐ Checking the voltage of PRO Motor SPE ED signal: Is the voltage 5 VDC between P24-9 ↔ P24-6?	Go to step 12	Replace the MCU PWB-XL (PL13.2.1) (p.354)

Table 3-94. Faulty the PRO MOTOR ASSY

Step	Check	Remedy	
		Yes	No
12	☐ Checking the voltage of PRO Motor SPEED signal: Is the voltage 5 VDC between P53-2↔P53-5?	Go to step 14	Go to step 13
13	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J24 ↔ J53?	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)	Replace the MAIN HARNESS ASSY.
14	☐ Checking the voltage of PRO Motor SPEED signal: Is the voltage 5 VDC between P43-14 ↔ P43-12?	Go to step 15	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)
15	☐ Checking the voltage of PRO Motor SPEED signal: Is the voltage 5 VDC between P46-2 ↔ P46-4?	Go to step 17	Go to step 16
16	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J43 ↔ J46?	Replace the PRO MOTOR ASSY (PL 11.1.6) (p.347)	Replace the MAIN HARNESS ASSY.
17	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB with a normal one. Does the problem still occur?	Replace the PRO MOTOR ASSY (PL 11.1.6) (p.347) or P/H MOTOR ASSY (PL 11.1.5) (p.346)	Problem solved

3.3.1.36 FIP-2.36 “Faulty MAG MOTOR ASSY”

Table 3-95. Faulty MAG MOTOR ASSY

Step	Check	Remedy	
		Yes	No
1	☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter? • Major parts to be checked: MAG MOTOR ASSY, P/H MOTOR ASSY MAIN HARNESS ASSY, MCU PWB, LV/HV POWER SUPPLY	Replace or reinstall the relevant part.	Go to step 2
2	☐ Checking power supply to the MAG MOTOR ASSY: Is the voltage 24 VDC between P60-2 ↔ P60-1?	Go to step 5	Go to step 3
3	☐ Checking power supply to the LV/HV POWER SUPPLY: Is the voltage 24 VDC between P32-8 ↔ P32-10?	Go to step 4	Go to FIP-2.2 “Faulty LV/HV POWER SUPPLY 24 VDC” (p.227)
4	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J32 ↔ J60?	Replace the MAG MOTOR ASSY (PL11.1.7) (p.349)	Replace the MAIN HARNESS ASSY.
5	☐ Checking the voltage of MAG Motor ON signal: Is the voltage 5 VDC between P24-8 ↔ P24-6?	Go to step 6	Replace the MCU PWB-XL (PL13.2.1) (p.354)
6	☐ Checking the voltage of MAG Motor ON signal: Is the voltage 5 VDC between P53-3 ↔ P53-5?	Go to step 8	Go to step 7
7	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J24 ↔ J53?	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)	Replace the MAIN HARNESS ASSY.
8	☐ Checking the voltage of MAG Motor ON signal: Is the voltage 5 VDC between P43-5 ↔ P43-2?	Go to step 9	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)
9	☐ Checking the voltage of MAG Motor ON signal: Is the voltage 5 VDC between P45-1 ↔ P45-4?	Go to step 11	Go to step 10
10	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J43 ↔ J45?	Replace the MAG MOTOR ASSY (PL11.1.7) (p.349)	Replace the MAIN HARNESS ASSY.
11	☐ Checking the voltage of MAG Motor SPEED signal: Is the voltage 5 VDC between P24-10 ↔ P24-6?	Go to step 12	Replace the MCU PWB-XL (PL13.2.1) (p.354)

Table 3-95. Faulty MAG MOTOR ASSY

Step	Check	Remedy	
		Yes	No
12	☐ Checking the voltage of MAG Motor SPEED signal: Is the voltage 5 VDC between P53-1 ↔ P53-5?	Go to step 14	Go to step 13
13	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J24 ↔ J53?	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)	Replace the MAIN HARNESS ASSY.
14	☐ Checking the voltage of MAG Motor SPEED signal: Is the voltage 5 VDC between P43-4 ↔ P43-2?	Go to step 15	Replace the P/H MOTOR ASSY (PL 11.1.5) (p.346)
15	☐ Checking the voltage of MAG Motor SPEED signal: Is the voltage 5 VDC between P45-2 ↔ P45-4?	Go to step 17	Go to step 16
16	☐ Checking for continuity of MAIN HARNESS ASSY: Is there normal continuity between J43 ↔ J45?	Replace the MAG MOTOR ASSY (PL11.1.7) (p.349)	Replace the MAIN HARNESS ASSY.
17	☐ Replacing the MCU PWB and Performing Checks: Replace the MCU PWB with a normal one. Does the problem still occur?	Replace the MAG MOTOR ASSY (PL11.1.7) (p.349) or P/H MOTOR ASSY (PL 11.1.5) (p.346)	Problem solved

3.4 Picture Image Trouble

3.4.1 Picture Image Troubleshooting Entry Chart

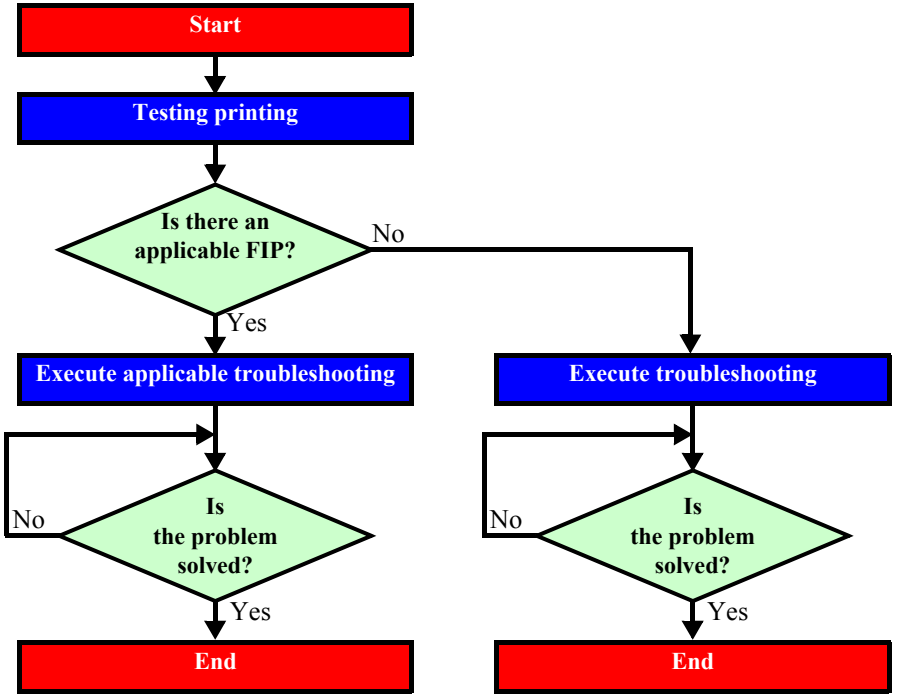


Figure 3-4. Picture Image Troubleshooting Entry Chart

3.4.2 Picture Quality FIP

CHECK POINT

The following explanation assumes the printer controller functions properly. You can however easily determine whether the problem lies in the printer controller or engine by conducting a test print with the engine alone, except for problems that cannot be recognized through a test print.

- **If the test print by the engine alone is good, the problem is caused by the printer controller.**
- **If there is something wrong with the test print by the engine alone, the problem is caused by the engine.**

If there may be something wrong with the printer controller, replace the printer controller and interface cable with properly functioning ones and see if that works.

If the problem continues to occur, check the host side and perform troubleshooting efficiently using the following picture quality FIP according to a description of the problem.

If a problem involving printing quality occurs, first find out exactly what the problem is, make a test print on A3 or A4 paper, and then troubleshoot effectively by using the corresponding picture quality FIP chart.

If the problem cannot be resolved by picture quality FIP, recheck with picture quality FIP, and replace “Major parts to be checked” of “Initial checking” in the order in which they are given and see if that works. Perform troubleshooting using “1.2 Basic Specifications (p.9)”.

Picture quality FIP covers the following typical problems involving picture quality:

- "FIP-1.P1 "Too Light" (p.251)"
- "FIP-1.P2 "All White" (p.251)"
- "FIP-1.P3 "All Black" (p.252)"
- "FIP-1.P4 "White or Too Light in Paper Transport Direction" (p.252)"
- "FIP-1.P5 "White or Too Light in Paper Transport and Vertical Directions" (p.253)"
- "FIP-1.P6 "Black Dots" (p.253)"
- "FIP-1.P7 "Fogging" (p.254)"
- "FIP-1.P8 "Paper Skew" (p.254)"
- "FIP-1.P9 "Wrinkles" (p.255)"
- "FIP-1.P10 "Unsatisfactory Fixing" (p.255)"
- "FIP-1.P11 Interval Print Quality Defect (p.256)"

3.4.2.1 Rolls and Print Quality Defect Intervals

The Rolls and print intervals that affect picture quality are as follows

Table 3-96. Rolls and Print Intervals

Roll	Cycle
Magnet Roll	28 mm
Drum	264 mm
BCR	44 mm
1ST BTR	59 mm
BACK UP ROLL	88 mm
2ND BTR	88 mm
HEAT ROLL	140 mm
PRESSURE ROLL	135 mm
FEED ROLL	90 mm

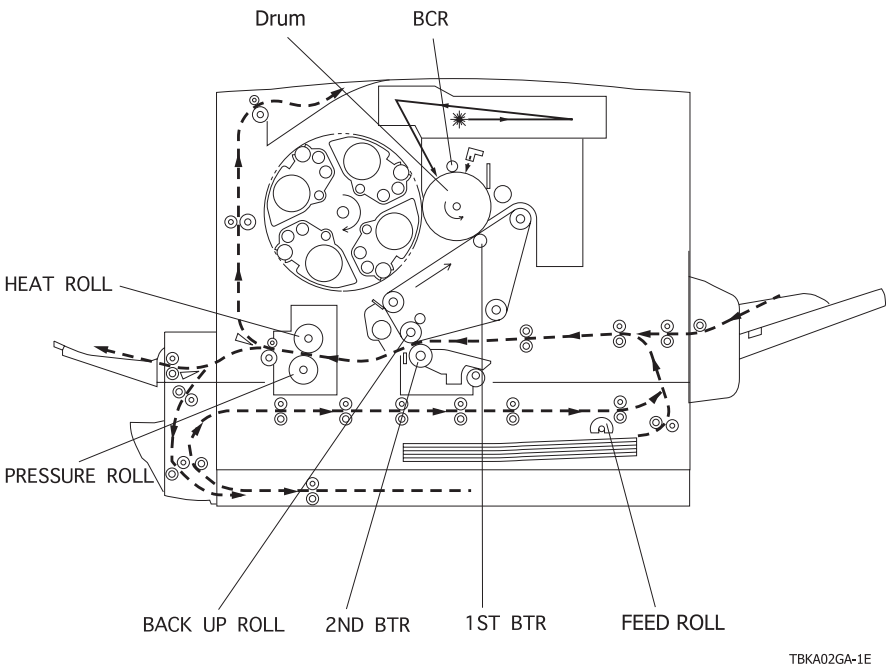


Figure 3-5. Location of Rolls

3.4.2.2 FIP-1.P1 “Too Light”

Table 3-97. Too Light

Description / Checking
Print is partially missing in white: The picture image has a white streak in the paper transport direction or is too light.
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?
• Major parts to be checked: DRUM CARTRIDGE, LV/HV POWER SUPPLY, ROS ASSY, MCU PWB, HEAT ROLL, PRESSURE ROLL, MAIN FUSER ASSY

Item	Check	Remedy (when required to solve the problem)
1	☐ Faulty charging: Does the problem no longer occur when DRUM CARTRIDGE is replaced?	Replace the DRUM CARTRIDGE (PL6.1.10) (p.298)
2	☐ Faulty ROS ASSY: Does the problem still occur when laser radiation exit from the ROS ASSY is half covered with paper?	Check “Faulty ROS ASSY”
3	☐ Faulty HEAT ROLL / PRESSURE ROLL: Is the HEAT ROLL/PRESSURE ROLL damaged? Is there dirt or foreign matter adhering to the HEAT ROLL/ PRESSURE ROLL?	Replace or clean the HEAT ROLL (PL9.2.25) (p.328) or PRESSURE ROLL (PL9.2.10) (p.329)
4	☐ Faulty Developer Assy: Is the trimmer cap of the Developer Assy for the color concerned clogged?	Replace the Developer Assy (PL7.1.10, PL7.1.20, PL7.1.30, PL7.1.40) (p.306) for the color concerned

3.4.2.3 FIP-1.P2 “All White”

Table 3-98. All White

Description / Checking
Completely white print (blank paper): Nothing is printed, thus entire surface of the paper is completely white.
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?
• Major parts to be checked: DRUM CARTRIDGE, LV/HV POWER SUPPLY, ROS ASSY, MCU PWB

Item	Check	Remedy (when required to solve the problem)
1	☐ Empty Toner Cartridge: Is there enough toner in the Toner Cartridge?	Replace the Toner Cartridge (PL7.1.1, PL7.1.2, PL7.1.3, PL7.1.4) (p.305)
2	☐ Laser route blocked off: Is there any foreign matter or dirt in the path of the laser beam from the ROS ASSY to the drum?	Remove foreign matter or dirt in the path of the laser beam from the ROS ASSY to the drum.
3	☐ Faulty charging/developing: Is the toner image on the drum properly developed? • If you suspect that primary transfer is in progress while printing, turn the power OFF and visually inspect the drum (position prior to transfer).	Check “Faulty LV/HV POWER SUPPLY”
4	☐ Faulty primary transfer: Is the toner image on the drum properly transferred to the IBT BELT ASSY? • When, you suspect, primary transfer is in progress in the course of printing, turn the power OFF and visually inspect the IBT BELT ASSY.	Check “Faulty LV/HV POWER SUPPLY”
5	☐ Faulty secondary transfer: Is the toner image on the IBT BELT ASSY properly transferred to paper? • When, you suspect, primary transfer is in progress in the course of printing, turn the power OFF and visually inspect the paper.	Check “Faulty LV/HV POWER SUPPLY”
6	☐ Faulty DRUM CARTRIDGE: Does the problem no longer occur when the DRUM CARTRIDGE is replaced with a new one?	Replace the DRUM CARTRIDGE (PL6.1.10) (p.298)

3.4.2.4 FIP-1.P3 “All Black”

Table 3-99. All Black

Description / Checking		
Completely black print: Printed page is completely black.		
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?		
• Major parts to be checked: DRUM CARTRIDGE, LV/HV POWER SUPPLY, ROS ASSY, MCU PWB		
Item	**Check**	**Remedy (when required to solve the problem)**
1	☐ Faulty charging: Does the problem still occur when laser radiation exit from the ROS ASSY is covered with paper?	Check “Faulty LV/HV POWER SUPPLY”
2	☐ Faulty ROS ASSY Does the problem still occur when laser radiation exit from the ROS ASSY is half covered with paper?	Check “Faulty ROS ASSY”
3	☐ Faulty DRUM CARTRIDGE: Does the problem no longer occur when the DRUM CARTRIDGE is replaced with a new one?	Replace the DRUM CARTRIDGE (PL6.1.10) (p.298)

3.4.2.5 FIP-1.P4 “White or Too Light in Paper Transport Direction”

Table 3-100. White or Too Light in Paper Transport Direction

Description / Checking		
Print is partially missing in white The picture image has a white streak in the paper transport direction or is too light.		
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?		
• Major parts to be checked: DRUM CARTRIDGE, LV/HV POWER SUPPLY, ROS ASSY, MCU PWB, HEAT ROLL, PRESSURE ROLL, MAIN FUSER ASSY		
Item	**Check**	**Remedy (when required to solve the problem)**
1	☐ Faulty charging: Does the problem no longer occur when DRUM CARTRIDGE is replaced?	Replace the DRUM CARTRIDGE (PL6.1.10) (p.298)
2	☐ Faulty ROS ASSY Does the problem still occur when laser radiation exit from the ROS ASSY is half covered with paper?	Check “Faulty ROS ASSY”
3	☐ Faulty HEAT ROLL / PRESSURE ROLL Is the HEAT ROLL/PRESSURE ROLL damaged? Is there dirt or foreign matter adhering to the HEAT ROLL/ PRESSURE ROLL?	Replace or clean the HEAT ROLL (PL9.2.25) (p.328) or PRESSURE ROLL (PL9.2.10) (p.329)
4	☐ Faulty Developer Assy Is the trimmer cap of the Developer Assy for the color concerned clogged?	Replace the Developer Assy (PL7.1.10, PL7.1.20, PL7.1.30, PL7.1.40) (p.306) for the color concerned.

3.4.2.6 FIP-1.P5 “White or Too Light in Paper Transport and Vertical Directions”

Table 3-101.

Description / Checking
Print is partially missing in white The picture image has a white streak in the paper transport and vertical directions or is too light.
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?
• Major parts to be checked: Developer Assy, DRUM CARTRIDGE, 2ND BTR, HEAT ROLL, PRESSURE ROLL, FEED ROLL ASSY

Item	Check	Remedy (when required to solve the problem)
1	☐ Checking for cyclicity: Does the problem occur cyclically?	Replace the part(s) concerned. • Determine the part(s) from the interval that appears on print.
2	☐ Faulty print controller: Does the problem no longer occur when print controller is replaced?	Replace the print controller.

3.4.2.7 FIP-1.P6 “Black Dots”

Table 3-102. Black Dots

Description / Checking
Black Dots: Black dots appear on print.
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?
• Major parts to be checked: DRUM CARTRIDGE, LV/HV POWER SUPPLY, 2ND BTR ASSY, MAIN FUSER ASSY, HEAT ROLL, PRESSURE ROLL

Item	Check	Remedy (when required to solve the problem)
1	☐ Damp paper: Does the problem no longer occur when the paper is replaced with new one?	Replace the paper. (Ask the user to keep paper in a place where there is not much humidity.)
2	☐ Faulty charging/developing: Is the toner image on the drum properly developed? • When, you suspect, primary transfer is in progress in the course of printing, turn the power OFF and visually inspect the drum (position prior to transfer).	Check “Faulty LV/HV POWER SUPPLY”
3	☐ Faulty primary transfer: Is the toner image on the drum properly transferred to the IBT BELT ASSY? • When, you suspect, primary transfer is in progress in the course of printing, turn the power OFF and visually inspect the IBT BELT ASSY.	Check “Faulty LV/HV POWER SUPPLY”
4	☐ Faulty HEAT ROLL / PRESSURE ROLL: Is the HEAT ROLL/PRESSURE ROLL damaged? Is there dirt or foreign matter adhering to the HEAT ROLL/ PRESSURE ROLL?	Clean or replace the HEAT ROLL (PL9.2.25) (p.328) or PRESSURE ROLL (PL9.2.10) (p.329)
5	☐ Faulty DRUM CARTRIDGE: Does the problem no longer occur when the DRUM CARTRIDGE is replaced with a new one?	Replace the DRUM CARTRIDGE (PL6.1.10) (p.298)

3.4.2.8 FIP-1.P7 “Fogging”

Table 3-103. Fogging

Description / Checking		
Fogging: Toner adheres to margins of the print.		
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?		
• Major parts to be checked: DRUM CARTRIDGE, LV/HV POWER SUPPLY, Developer Assy, DEVE. CONTACT PLATE ASSY		
Item	**Check**	**Remedy (when required to solve the problem)**
1	☐ Deterioration of developer: Does the problem no longer occur when Developer Assy for the color concerned is replaced?	Replace the Developer Assy (PL7.1.10, PL7.1.20, PL7.1.30, PL7.1.40) (p.306)
2	☐ Checking the installation of DEVE. CONTACT PLA TE ASSY: Has the DEVE. CONTACT PLATE ASSY been installed properly?	Reinstall the DEVE. CONTACT PLATE ASSY properly.
3	☐ Faulty LV/HV POWER SUPPLY: Does the problem no longer occur when the LV/HV POWER SUPPLY is replaced?	Replace the LV/HV POWER SUPPLY (PL13.1.1) (p.352)
4	☐ Faulty Drum: Does the problem no longer occur when the DRUM CARTRIDGE is replaced?	Replace the DRUM CARTRIDGE (PL6.1.10) (p.298)

3.4.2.9 FIP-1.P8 “Paper Skew”

Table 3-104. Paper Skew

Description / Checking		
Skew: Picture image printing is skewed.		
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?		
• Major parts to be checked: MAIN FUSER ASSY, MSI FEED ASSY, FEED ROLL ASSY, TURN ROLL ASSY,MAIN P/H FRAME ASSY		
Item	**Check**	**Remedy (when required to solve the problem)**
1	☐ Faulty paper mounting: Has the paper or paper cassette been mounted properly?	Mount the paper or paper cassette properly. (Ask the user to mount paper and the paper cassette properly.)
2	☐ Paper transport route problem: Are there burrs, foreign matter or dirt in the paper transport route?	Clean or replace the part(s) concerned.
3	☐ Feed roll problem: Do the feed rolls feed paper properly?	Clean or replace the part(s) concerned.
4	☐ Paper roll problem: Is there any foreign matter or dirt on the paper transport rolls? Are they distorted or not functioning properly?	Clean or replace the part(s) concerned.
5	☐ Checking the installation of ROS ASSY: Is the ROS ASSY mounted improperly?	Reinstall the ROS ASSY (PL6.1.1) (p.300)
6	☐ Faulty DRUM CARTRIDGE: Does the problem no longer occur when the DRUM CARTRIDGE is replaced with a new one?	Replace the DRUM CARTRIDGE (PL6.1.10) (p.298)

3.4.2.10 FIP-1.P9 “Wrinkles”

Table 3-105. Wrinkles

Description / Checking		
Wrinkles: Paper becomes wrinkled during printing.		
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?		
• Major parts to be checked: MAIN FUSER ASSY, HEAT ROLL, PRESSURE ROLL, MCU PWB,DRUM CARTRIDGE, TURN ROLL ASSY, FEED ROLL ASSY, Paper cassette		
Item	**Check**	**Remedy (when required to solve the problem)**
1	☐ Damp paper: Does the problem no longer occur when the paper is replaced with new one?	Replace the paper. (Ask the user to keep paper in a place where there is not much humidity.)
2	☐ Faulty HEAT ROLL / PRESSURE ROLL: Is the HEAT ROLL/PRESSURE ROLL damaged? Is there dirt or foreign matter adhering to the HEAT ROLL/ PRESSURE ROLL?	Clean or replace the HEAT ROLL (PL9.2.25) (p.328) or PRESSURE ROLL (PL9.2.10) (p.329)
3	☐ Skew: Is paper being fed at an angle?	Check FIP-1.P8 “Paper Skew”
4	☐ Paper transport route problem: Are there burrs, foreign matter or dirt in the paper transport route?	Clean or replace the part(s) concerned.
5	☐ Paper roll problem: Is there any foreign matter or dirt on the paper transport rolls? Are they distorted or not functioning properly?	Clean or replace the part(s) concerned.

3.4.2.11 FIP-1.P10 “Unsatisfactory Fixing”

Table 3-106. Unsatisfactory Fixing

Description / Checking		
Unsatisfactory Fixing: The image can be easily rubbed off with your hand.		
☐ Initial checking: Is there any parts of wrong specifications used, improper mounting, damage, distortion, dirt, or adherence of foreign matter?		
• Major parts to be checked: TEMP. SENSOR ASSY, MAIN FUSER ASSY, HEAT ROLL, PRESSURE ROLL, MCU PWB		
Item	**Check**	**Remedy (when required to solve the problem)**
1	☐ Damp paper: Does the problem no longer occur when the paper is replaced with new one?	Replace the paper. (Ask the user to keep paper in a place where there is not much humidity.)
2	☐ Dirty TEMP. SENSOR ASSY: Is the surface of the TEMP. SENSOR ASSY dirty?	Clean or replace the TEMP. SENSOR ASSY (PL9.2.6) (p.330)
3	☐ Faulty HEAT ROLL / PRESSURE ROLL: Is the HEAT ROLL/PRESSURE ROLL damaged? Is there dirt or foreign matter adhering to the HEAT ROLL/ PRESSURE ROLL?	Clean or replace the HEAT ROLL (PL9.2.25) (p.328) or PRESSURE ROLL (PL9.2.10) (p.329)
4	☐ Faulty MAIN FUSER ASSY: Is pressure reliably applied between the HEAT ROLL and PRESSURE ROLL?	• Perform Adjustment 1.1. • Replace the MAIN FUSER ASSY (PL9.1.2) (p.321)

3.4.2.12 FIP-1.P11 Interval Print Quality Defect

Table 3-107. Interval Print Quality Defect

Description / Checking		
Picture quality defect appeared at fixed interval. (Either on the printed face or the back face of paper, print quality defect appeared along the paper feeding direction. (black dot, white line across to a drum axis, white spot and so on)		
☐ Initial checking: Measure the defect pitch with ruler.		
• Major parts to be checked: Magnet Roll, Drum, BCR, 1st BTR, Backup Roll, 2nd BTR, Heat Roll, Pressure Roll, Feed Roll		
Item	**Check**	**Remedy (when required to solve the problem)**
1	☐ Pitch = 28mm Check any foreign objects or scratch on Magnet Roll surface corresponding to a print quality defect position.	Clean the Magnet Roll with soft/clean cloth, or replace the Magnet Roll.
2	☐ Pitch = 264mm Check any foreign objects or scratch on the Drum surface corresponding to a print quality defect position.	Clean the Drum with soft/clean cloth, or replace the Drum cartridge.
3	☐ Pitch = 44mm Remove the BCR (with holder) and check any foreign objects or scratch on the BCR surface corresponding to a print quality defect position.	Clean the BCR (whole parts) with soft/clean cloth, or replace the Drum cartridge.
4	☐ Pitch = 59mm Remove the IBT Belt Assy and check any foreign objects or scratch on the 1st BTR surface corresponding to a print quality defect position.	Clean the 1st BTR with soft/clean cloth, or replace the TRANSFER HIGH ASSY.
5	☐ Pitch = 88mm Remove the IBT Belt Assy and check any foreign objects or scratch on the Backup Roll surface corresponding to a print quality defect position.	Clean the Backup Roll with soft/clean cloth, or replace the TRANSFER HIGH ASSY.
6	☐ Pitch = 88mm Check any foreign objects or scratch on the 2nd BTR surface corresponding to a print quality defect position.	Clean the 2nd BTR with soft/clean cloth, or replace the 2ND BTR ASSY.
7	☐ Pitch = 140mm Check any foreign objects or scratch on the Heat Roll surface corresponding to a print quality defect position.	Clean the Heat Roll with soft/clean cloth, or replace the MAIN FUSER ASSY.
8	☐ Pitch = 135mm Check any foreign objects or scratch on the Pressure Roll surface corresponding to a print quality defect position.	Clean the Pressure Roll with soft/clean cloth, or replace the MAIN FUSER ASSY.
9	☐ Pitch = 90mm Check any foreign objects or scratch on the Feed Roll surface corresponding to a print quality defect position.	Clean the Feed Roll with soft/clean cloth, or replace the FEED ROLL.

When handling “HEAR ROLL” or “PRESSURE ROLL”, be sure to leave it for certain period of time until it gets cool down.

CHAPTER

4

DISASSEMBLY AND ASSEMBLY

4.1 Overview

This section describes procedures for disassembling the main components of the product. For installation and removal of optional units, refer to the operator's manual for AcuLaser C8600. Refer to Chapter 5 for updating the program.

Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

Things, if not strictly observed, that could result in injury or loss of life are described under the heading “Warning”.

Chips for disassembling procedures are described under the heading “CHECK POINT”.

If the assembling procedure is different from the reversed procedure of the disassembling, the procedure is described under the heading “REASSEMBLY”.

Any adjustments required after disassembling the units 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“*7.5 Exploded Diagrams (p.503)*” in the appendix.

Read precautions described in the next section before starting.

4.1.1 Precautions

See the precautions given under the heading “WARNING” and “CAUTION” in the following column when disassembling or assembling the product.

- **Before servicing, be sure to turn the printer off and unplug the power code from the wall outlet to prevent injury, burn, and electric shocks. If you must keep the power supplied to measure voltage, be aware of the potential for electrical shock and do all tasks with the most care.**
- **Never inspect any motor, sprocket, and gear while the printer is operating.**
- **Weight**
  This printer weighs quite heavily (about 70Kg). Be sure to carry it by 4 people or more and take a good posture keeping your back low.
- **Safety Components**
  Make sure the safety components function properly. The safety devices include fuses, interlock switches and others such as panels and covers for protecting users.
- **Do not touch the FUSER ASSEMBLY (Fusing unit) while it is still very hot shortly after operation.**
- **After servicing, note the following points when turning on the printer for operation.**
  - **Do not catch your hands and clothes in the rotating parts such as rollers and fans.**
  - **Keep your hands off the electrical terminals and high voltage components such as HVPS and LVPS.**
- **This printer has many metal parts. Take care not to suffer injury from frame edges and be sure to wear gloves when you perform maintenance or service of the printer.**
- **To avoid dust explosion or ignition, never bring any consumables close to flame or throw them into fire.**
- **Do not expose yourself to the laser beam to prevent injury (blindness).**

- When you perform maintenance or service of the laser printer, never open any cover on which a warning label about laser beam has been affixed.
- Understand how the laser beam functions and take maximum precautions not to injure yourself or anyone around you.
- When working on the FUSER ASSY or nearby parts, be sure to wait until the temperature of the parts cool down to a safe level.
- This printer emits a laser beam when all the following conditions are met:
  - The power switch of the printer is ON and the printer is in "Ready" status.
  - The interlock switch is OFF (TOP COVER and FRONT COVER are closed).

- Avant de commencer, assurez vous que l'imprimante soit eteinte et que le cordon d'alimentation soit debranche.
- Lorsque vous changez la pile au lithium, assurez vous que la nouvelle respecte bien les caracteristiques requises.
- Lorque que vous installez la pile au lithium, faites attention a l'inserer dans le bon sens en respectant la polarite.
- Veillez a jeter les piles usagees selon le reglement local.
- Ne rechargez pas les piles au lithium.

Risque d'explosion si la pile est remplacée incorrectment. Ne remplacer que par une pile du même type ou d'un type équivalent recommandé par le fabricant. Eliminer les piles déchargées selon les lois et les règles de sécurité en vigueur.

- Do not disassembly the TONER CARTRIDGE.
- Do not leave the DRUM CARTRIDGE in direct sun light.
- Do not disassembly the ROS ASSEMBLY.
- Avoid touching IC and other electrical element with your bare hands to protect them from static electricity. (Be sure to wear the earth band, whenever necessary.)
- Use specified tools to ensure safety and efficient work.
- Do not turn off the power until all motors stop.
- Use the dedicated packing materials and pallet, if the printer is to be transported.
- Do not use alcohol, paint thinner, or other such solvents.
- Make the specified adjustments when you disassemble the printer. (See Chapter 5 for details.)
- Take care not to confuse the locations of the screws. Confusing screw locations can damage the screw hole or cause some other trouble.

4.1.2 Tools

The tools to be used in disassembly and reassembly of AcuLaser C8600/AcuLaser C7000 are as listed below:

Table 4-1. Tools

Name	Commercial Availability	Tool Code
Phillips screw driver (#1)	Available	B743800100
Phillips screw driver (#2)	Available	B743800500
Slotted screwdriver	Available	B743000100
Tweezers	Available	
Pliers	Available	B740400100
Soldering iron	Available	
E-RING holder	Available	

4.1.3 Items to Check after Assembly

Performs the items described below when completing assembly after repairing the printer or replace any parts.

- ☐ Clean the housings and the interior of the engine. See "*6.2.2 Description of the On-site Service (p.451)*".
- ☐ After assembling or adjust the printer, print an engine status sheet to check the counters for the consumables and other parts which need replacing. If any of them is close to its life, replace it with a new one.

- ■ **After replacing the FUSER UNIT, one of the major after service parts, perform the Fuser Counter Clear in the Maintenance mode. See "*6.3.1 Entry to the Maintenance Menu (AcuLaser C8600) (p.453)*".**
- ■ **When replacing the MAIN FUSER ASSY, replace the FILTER ASSY as well.**

- ☐ Check the program ROM version, and update it if necessary.
- ☐ Print several status sheets and check print quality of AcuLaser C8600/AcuLaser C7000.
- ☐ Send a few pages of data from the host computer connected to AcuLaser C8600/AcuLaser C7000 and check for proper functions of AcuLaser C8600/AcuLaser C7000.

4.2 Disassembly and Reassembly Procedure

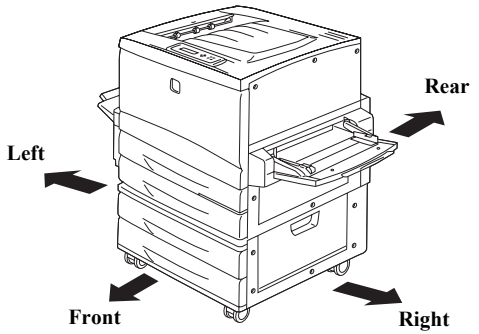
This section describes procedures for disassembling/assembling the printer. Unless otherwise specified, assembly can be performed by reversing the disassembly procedure. In principle, you are to remove all options before servicing. However, you can leave them if possible.

CAUTION

Some parts are listed as spare parts but not mentioned in disassembly/assembly procedure. Therefore, look carefully how they are installed before you removing them.

Refer to the followings which explain descriptions used in this chapter.

- "(PL X.Y.Z) " as shown next to each name of part in the procedure means that the part corresponds to the plate (PL) "X.Y" and item "Z" in the parts list. Accordingly, you can know of the shape and the mounting position of the part by referring to *"7.7 ASP List (Parts List) (p.554)"*.
- Directions are described as mentioned below.
  - Front: Front side viewing the printer toward its front side (Control Panel side)
  - Back: Rear side viewing the printer toward its front side (Interface Connector side)
  - Left: Left hand side viewing the printer toward its front side (Face-up Tray side)
  - Right: Right hand side viewing the printer toward its front side (Standard Paper Tray side)



Direction01.eps

Figure 4-1. Directions

- Screws are mentioned with descriptions including "(mounting location, color, feature, thread part length, and so on)".
- The number in drawing corresponds to the step number in the section.
- Fasten the screws in the drawings using a Phillips screw driver if no instruction is given.
- If black arrows are shown with numbers, they show the order to act for the step.
- White arrows (FRONT) in the drawings show the front side of the printer.
- For the location of the connector (P/J), refer to *"7.1.1 P/J Location Drawings (p.457)"*.
- The generic term "Developer Assembly" is used for "DEVELOPER ASSY Y", "DEVELOPER ASSY M", "DEVELOPER ASSY C", AND "DEVELOPER ASSY Bk".
- The generic term "TONER CARTRIDGE" is used for "TONER CARTRIDGE Y", "TONER CARTRIDGE M", "TONER CARTRIDGE C", and "TONER CARTRIDGE Bk".

4.2.1 Cover

4.2.1.1 FRONT COVER ASSY (PL1.1.1)

CAUTION

Some parts are listed as spare parts but not mentioned in disassembly/assembly procedure. Therefore, look carefully how they are installed before you removing them.

1. Remove the UNIVERSAL TRAY.
2. Open the FRONT COVER ASSY.
3. Remove 2 screws (gold, with a washer, 8mm) securing the right and left COVER SUPPORTs.
4. Remove 2 screws (black, tapped, 10mm) securing the FRONT COVER ASSY and right and left HINGE PLATES. Then remove the FRONT COVER ASSY and right and left HINGE PLATES.

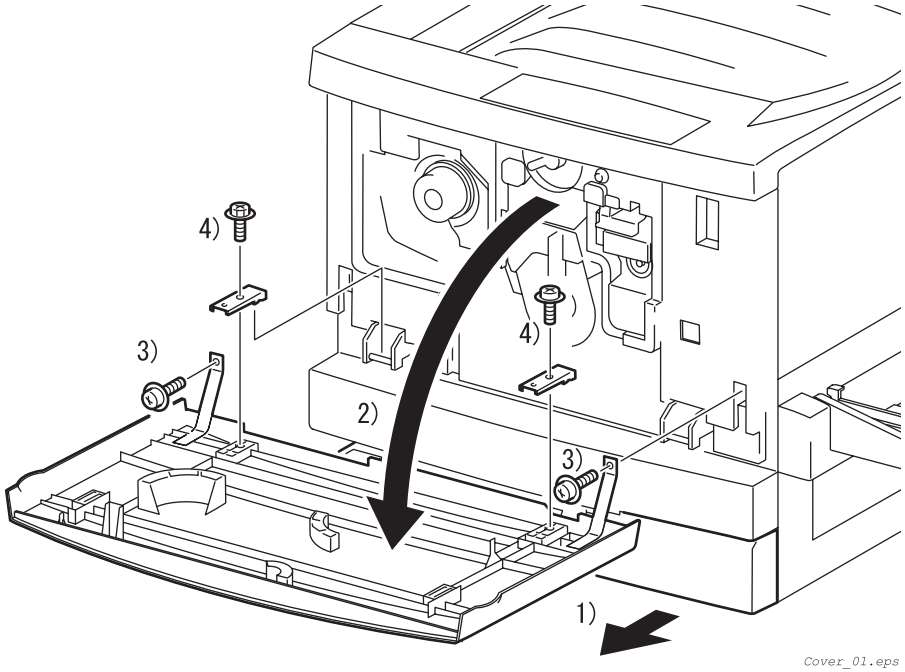


Figure 4-2. Front Cover Assy Removal

4.2.1.2 FRONT MID COVER (PL1.1.6)

1. Remove the UNIVERSAL TRAY
2. Remove 2 screws (silver, cup head, 8 mm) securing the FONT MID COVER and remove the FRONT MID COVER.

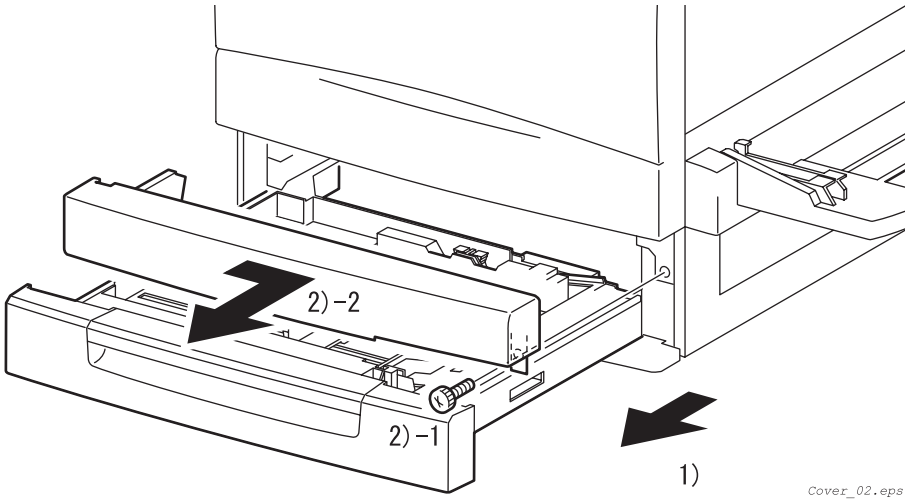


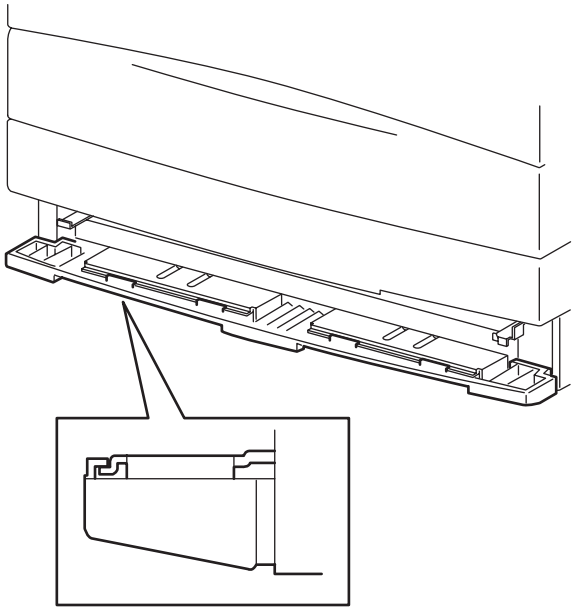
Figure 4-3. FRONT MID COVER Removal

4.2.1.3 FRONT LOWER COVER (PL1.1.5)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. Remove 2 screws (silver, cup head, 8mm) securing the FRONT LOWER COVER, and remove the FRONT LOWER COVER.

REASSEMBLY

When installing the FRONT LOWER COVER, fit the front edge to 4 hooks in the frame to set the cover to the correct position.



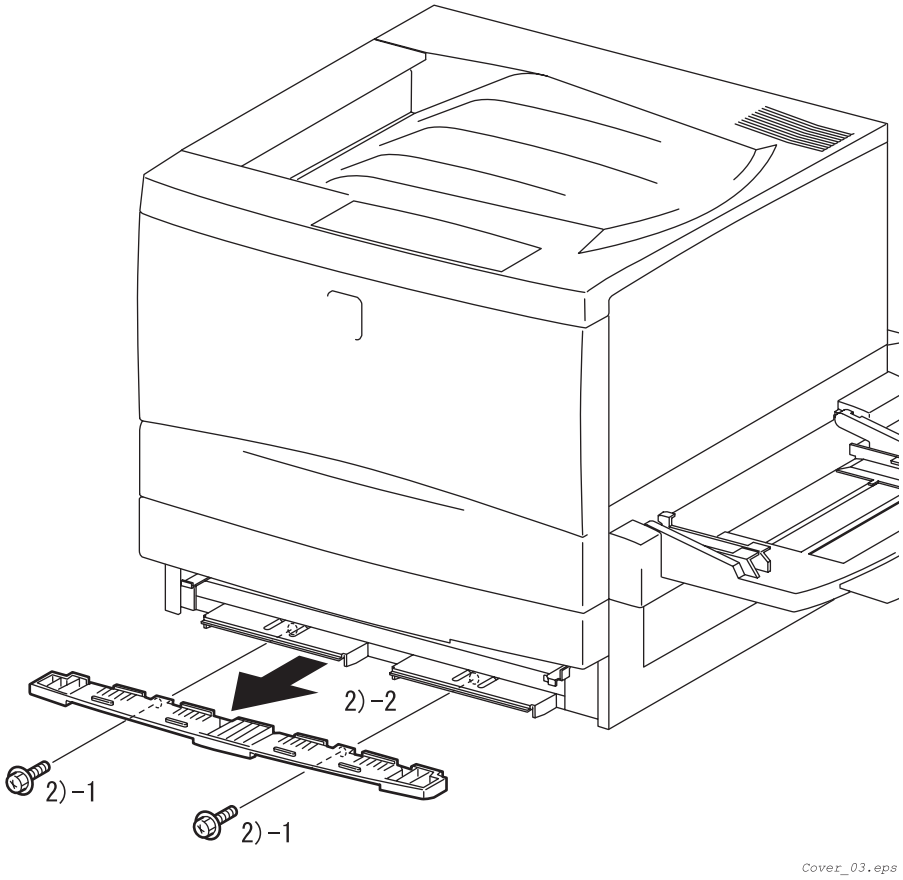


Figure 4-4. FRONT LOWER COVER Removal

4.2.1.4 TOP COVER ASSY (PL1.1.20)

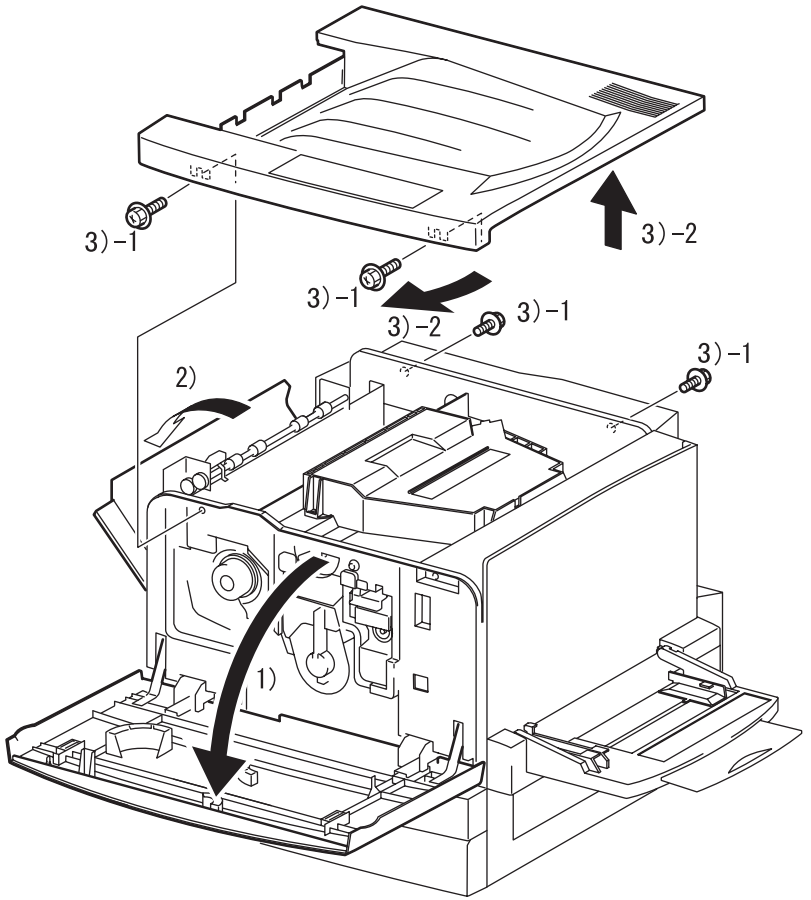
1. Open the FRONT COVER ASSY.
2. Open the EXIT UPPER ASSY.

NOTE: *In the following step, the TOP COVER ASSY is kept connected to the printer body with a harness. Therefore, do not move the TOP COVER ASSY too far from the printer.*

3. Remove 4 screws (silver, cup head, 8mm) securing the TOP COVER ASSY. Then, lift up the rear end of the TOP COVER ASSY, bring the assembly to the front rotating it clockwise while supporting it by its front left part, and separate the assembly from the printer body.
4. Remove the OPERATION PANEL from the TOP COVER ASSY.*(See p.269)*

REASSEMBLY

When installing the TOP COVER ASSY, be sure to fasten the 2 screws at the back to secure TOP COVER ASSY and REAR COVER ASSY together. Pay a special attention to the left screw. Fasten it while pressing down the TOP COVER ASSY securely so that the rib in the TOP COVER presses the TOP COVER SWITCH without fail.



Cover_04.eps

Figure 4-5. TOP COVER ASSY Removal

4.2.1.5 L/H INNER COVER ASSY (PL1.1.10)

CAUTION

Be sure to perform Step 1 to support the FRONT COVER ASSY.

1. Open the FRONT COVER ASSY.
2. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
3. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
4. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
5. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*

CAUTION

As a result of the next step, the FRONT COVER ASSY will be supported by the left hinge and left COVER SUPPORT only. Therefore, be careful not to add excess force to the FRONT COVER ASSY.

6. Remove 1 screw (gold, with a washer, 8mm) fixing the COVER SUPPORT in the FRONT COVER ASSY to the left part of the printer body.
7. Remove the three screws (black, w/collar, 6 mm) securing the L/H INNER COVER, and tilt the L/H INNER COVER ASSY toward the front and remove it upward.

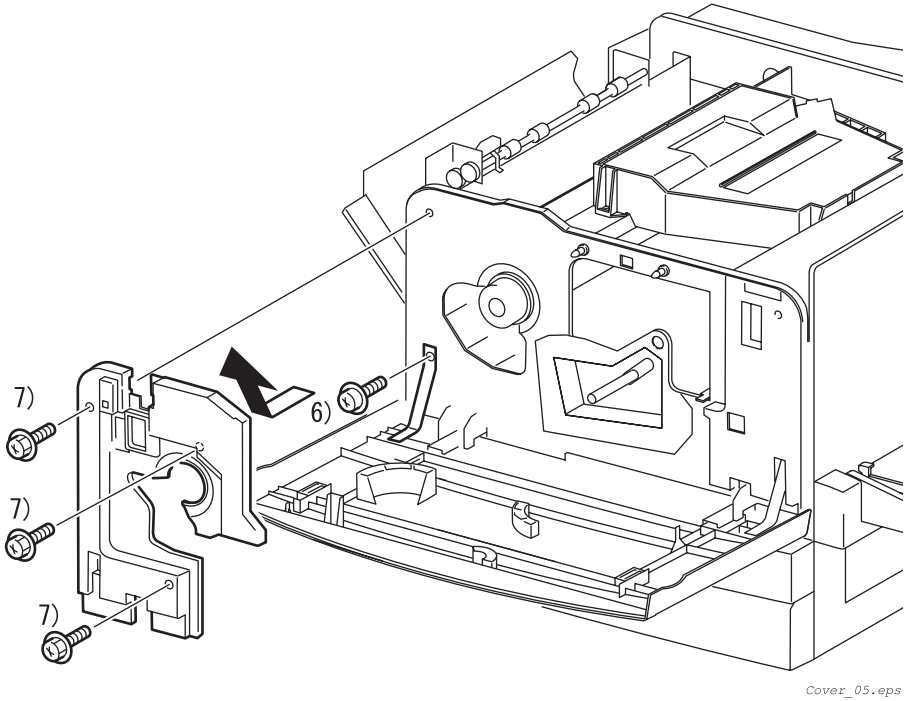


Figure 4-6. L/H INNER COVER ASSY Removal

4.2.1.6 IBT INNER COVER ASSY (PL1.1.14)

1. Open the FRONT COVER ASSY.
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
4. Remove 2 screws (black, cup head, 8 mm) securing the IBT INNER COVER ASSY. Then, remove the IBT INNER COVER ASSY by lifting it up.

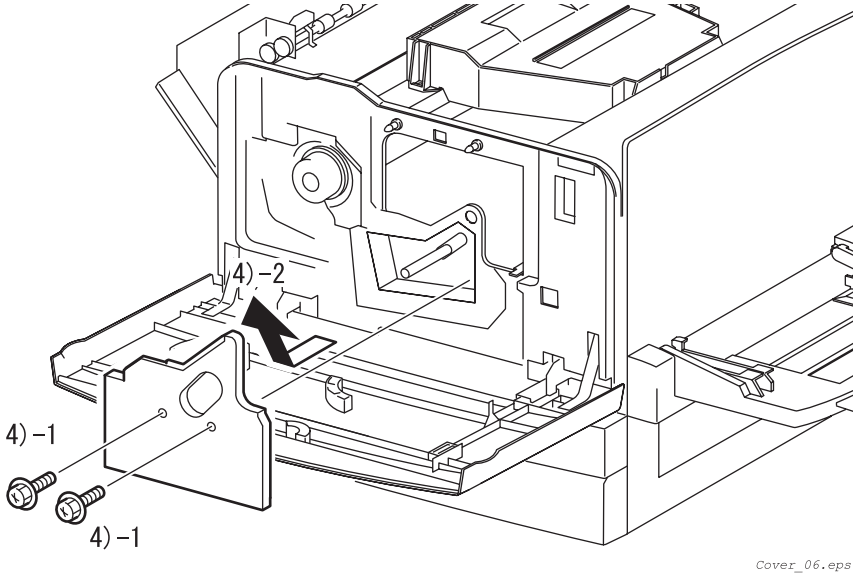


Figure 4-7. IBT INNER COVER ASSY Removal

4.2.1.7 R/H INNER COVER ASSY (PL1.1.15)

1. Open the FRONT COVER ASSY.
2. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
3. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
4. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
5. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*

CAUTION

As a result of the next step, the FRONT COVER ASSY will be supported by the left hinge and left COVER SUPPORT only. Therefore, be careful not to add excess force to the FRONT COVER ASSY.

6. Remove 1 screw (gold, with a washer, 8mm) fixing the COVER SUPPORT in the FRONT COVER ASSY to the right part of the printer body.
7. Remove 2 screws (silver, cup head, 8mm) securing the R/H INNER COVER ASSY. Then tilt the R/H INNER COVER ASSY forward and lift it up to remove.

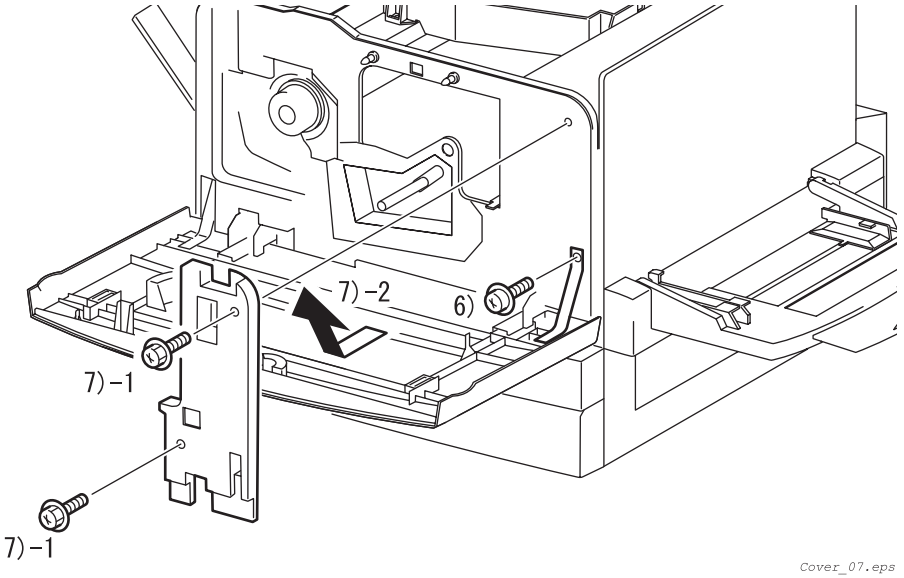


Figure 4-8. R/H INNER COVER ASSY Removal

4.2.1.8 REAR COVER ASSY (PL1.1.30)

1. Pull down the O/H COVER while pressing its top in and unhook it from the REAR COVER ASSY. Then remove the O/H COVER rearward.
2. Remove 6 screws (silver, cup head, 8mm) securing the REAR COVER ASSY and remove the REAR COVER ASSY.

REASSEMBLY

- **Note that the upper two screws are used to secure not only the REAR COVER ASSY but also the TOP COVER ASSY.**
- **Take care not to catch harness.**

4.2.1.9 FILTER ASSY (PL1.1.32)

1. Holding the tab of the FILTER ASSY, unhook the FILTER ASSY and remove it by pulling it upward.

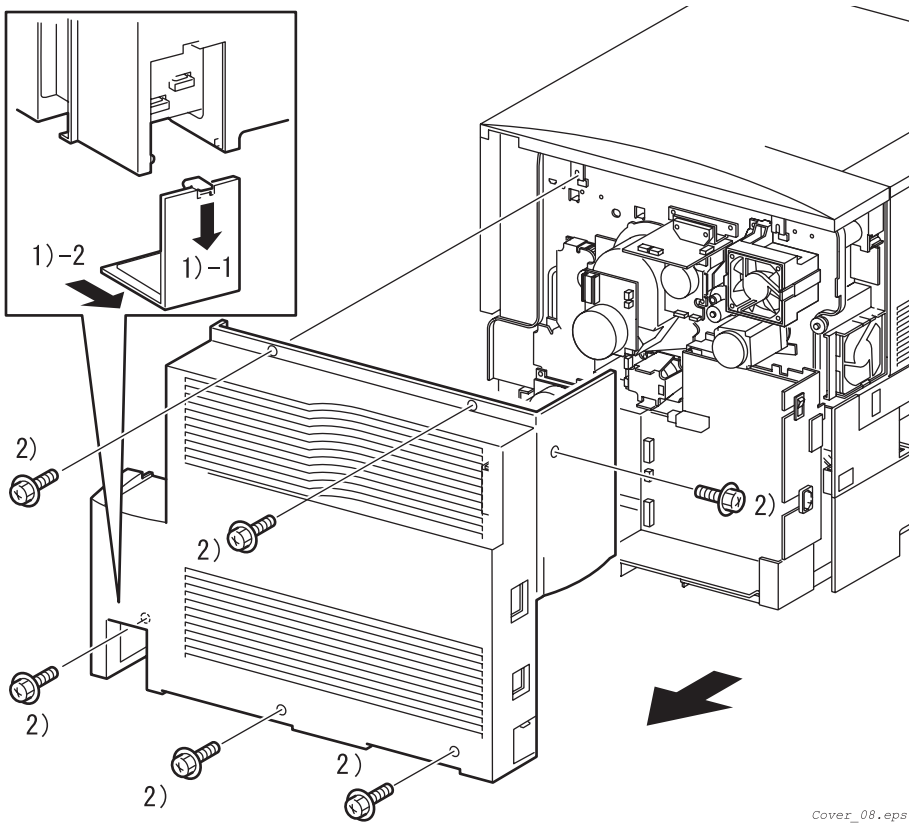


Figure 4-9. REAR COVER ASSY Removal

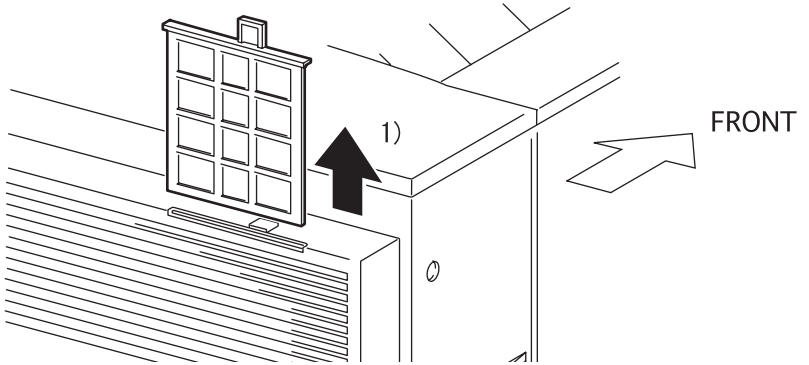


Figure 4-10. FILTER ASSY Removal

4.2.1.10 LEFT LOWER COVER (PL1.1.40)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. *Remove the FRONT LOWER COVER (PL1.1.5) (p.263)*
3. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
4. Remove 2 screws (silver, knurled, 8mm) securing the LEFT LOWER COVER. Then, shift the LEFT LOWER COVER forward to remove it.

4.2.1.11 RIGHT COVER ASSY (PL1.1.51)

1. Remove 3 screws (silver, knurled, 14mm) securing the RIGHT COVER ASSY and open the front side of the cover. Then shift the cover to the rear and remove it.

REASSEMBLY

Engage the hooks of the RIGHT COVER ASSY with the rearward holes in the printer body.

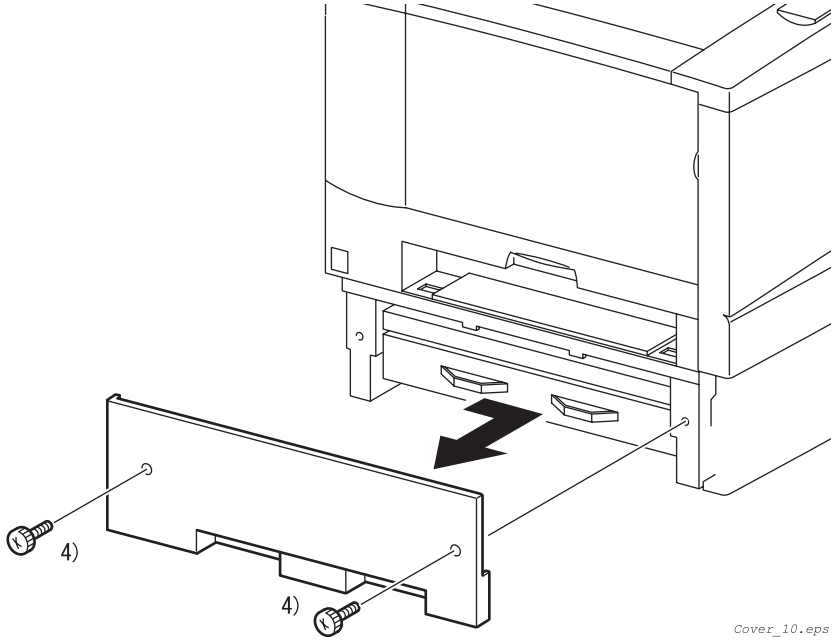


Figure 4-11. LEFT LOWER COVER Removal

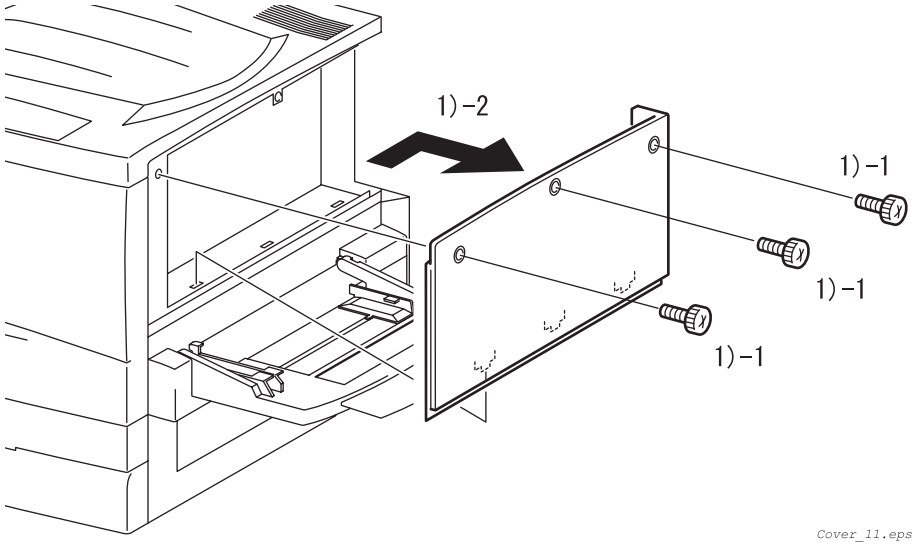


Figure 4-12. RIGHT COVER ASSY Removal

4.2.1.12 OPERATION PANEL (PL1.1.60)

CAUTION

- **Do not place the TOP COVER too far away from the printer body, since they are connected with the harness.**
- **In the following step, be careful not to break the hooks in the OPERATION PANEL.**

1. Remove the TOP COVER along with the OPERATION PANEL. *(See p.264)*
2. Using the 4 hooks in the OPERATION PANEL and remove the panel from the TOP COVER ASSY by pulling it upward.
3. Disconnect the connector for the OPERATION PANEL (P/J317).

4.2.1.13 RIGHT LOWER COVER (PL1.1.50)

1. Remove the three screws (silver, w/collar, 6 mm) securing the RIGHT LOWER COVER, and shift the RIGHT LOWER COVER toward upward for its removal.

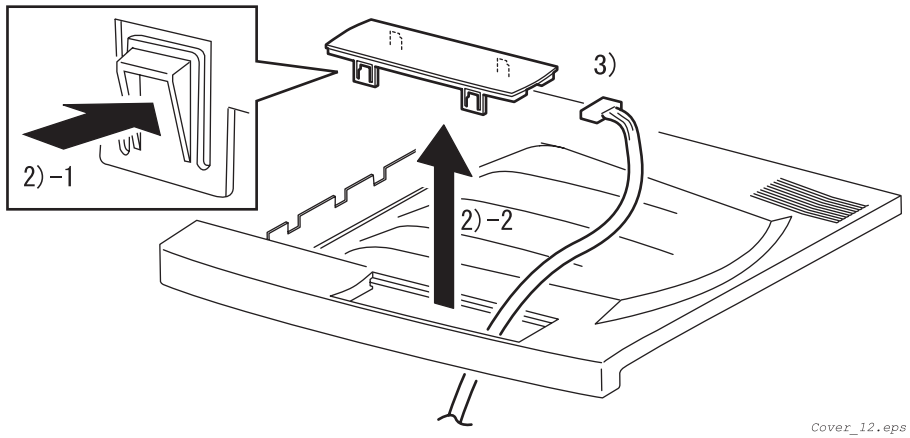


Figure 4-13. OPERATION PANEL Removal

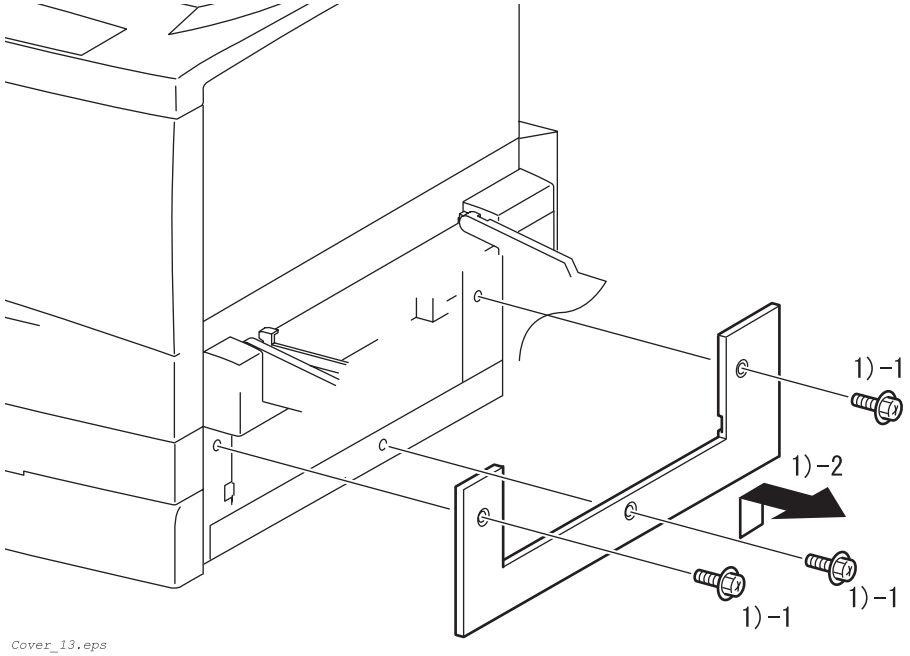


Figure 4-14. RIGHT LOWER COVER Removal

4.2.2 Paper Tray

4.2.2.1 UNIVERSAL TRAY (PL2.1.1)

CAUTION

In the following step, be sure to handle the UNIVERSAL TRAY with the both hands so you do not drop the UNIVERSAL TRAY.

1. Draw out the UNIVERSAL TRAY, lift its front and continue drawing it out for its removal.

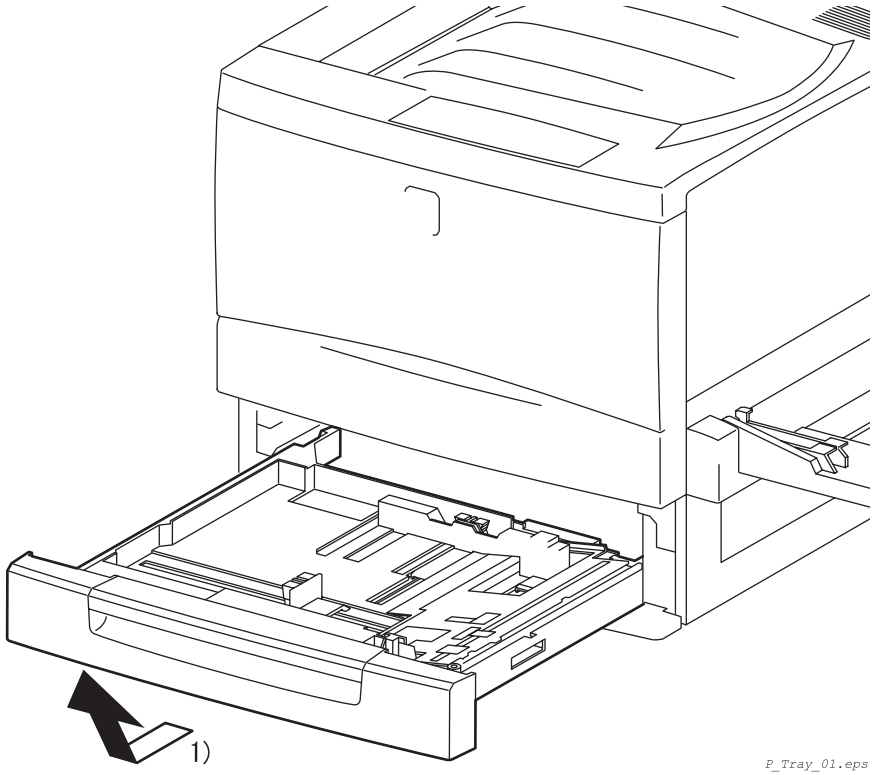


Figure 4-15. UNIVERSAL TRAY Removal

4.2.2.2 FRONT SNUBBER (PL2.1.9)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*

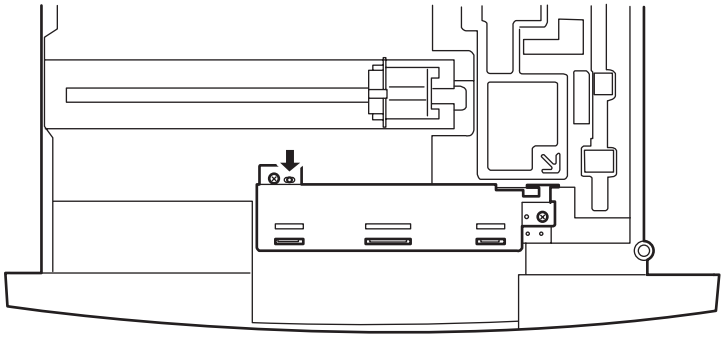
CAUTION

In the following steps, be careful not to bend the edge of the FRONT SNUBBER where paper is placed.

2. Remove 2 screws (black, tapped, 8mm) securing the FRONT GUIDE ASSY and remove the FRONT GUIDE ASSY.
3. Disengage the hook of the SNUBBER STOPPER fastening the FRONT SNUBBER by pinching the hook with pliers and remove the SNUBBER STOPPER. Then remove the FRONT SNUBBER.

REASSEMBLY

Be sure to adjust the position of the FRONT GUIDE ASSY to the rear positioner. (Never align it with the front one.)



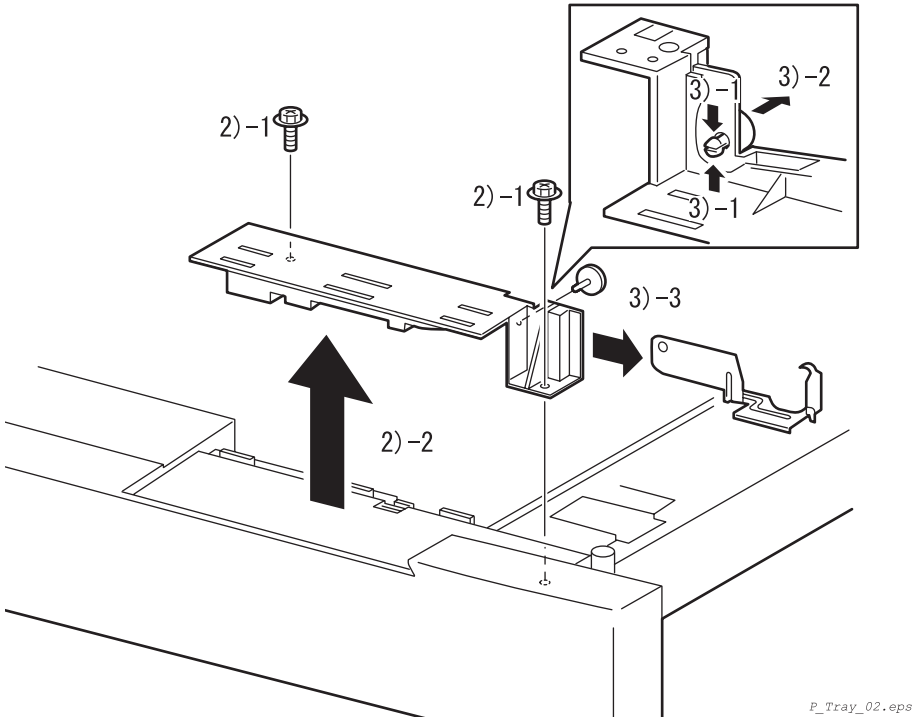


Figure 4-16. FRONT SNUBBER Removal

4.2.2.3 END GUIDE (PL2.1.17), SECTOR GEAR (PL2.1.19)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. Move the END GUIDE to the right end (= minimum paper size fits).
3. Remove 2 screws (black, tapped, 8mm) securing the FRONT GUIDE ASSY and remove the FRONT GUIDE ASSY. *(See p.271)*
4. Push down the BOTTOM PLATE ASSY to lock it at the bottom.
5. Turn the UNIVERSAL TRAY over and remove 5 screws (gold, tapped, 8mm) securing the TRAY BOTTOM COVER. Then remove the TRAY BOTTOM COVER. *(See Figure 4-17)*
6. Remove the SECTOR GEAR SPRING from the TRAY HOUSING and SECTOR GEAR. *(See Figure 4-18)*
7. Disengage the SECTOR GEAR from the boss on the TRAY HOUSING, shift the SECTOR GEAR along the groove, align the boss on the END GUIDE with the hole in the SECTOR GEAR, and remove the SECTOR GEAR. *(See Figure 4-18)*

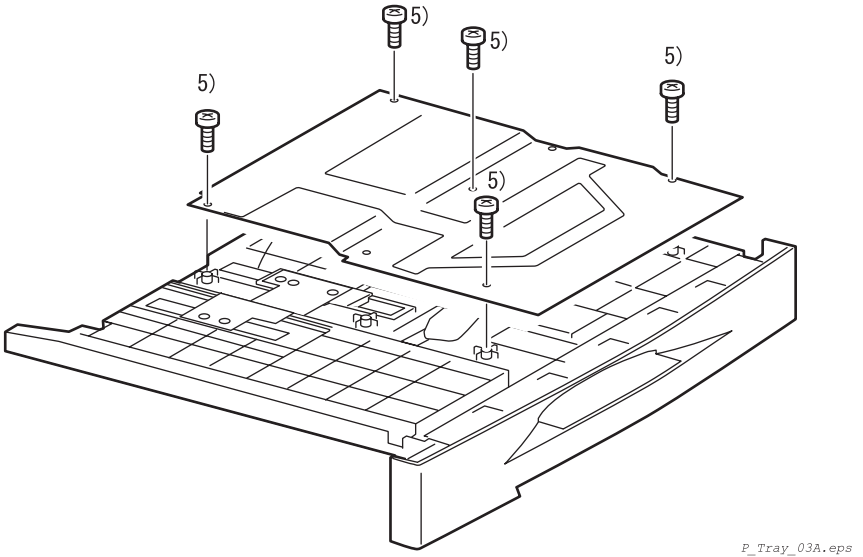


Figure 4-17. END GUIDE, SECTOR GEAR Removal (1)

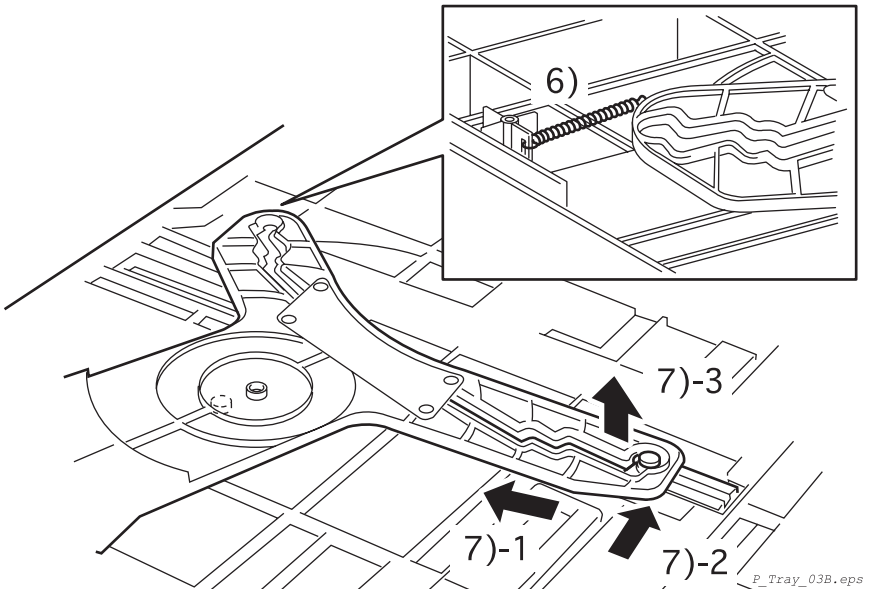


Figure 4-18. END GUIDE, SECTOR GEAR Removal (2)

8. Remove 2 screws (black, cup head, 8mm) securing the LOCK PLATE by the right edge.
9. Remove 2 screws (black, cup head, 10 mm) securing the LOCK PLATE by the left edge, and remove the LOCK PLATE.

NOTE: *In the following step, hold the REAR GUIDE while removing the REAR GUIDE PLATE L. so that the REAR GUIDE will not drop.*

10. Remove 2 screws (gold, tapped, 6 mm) securing the REAR GUIDE PLATE L.
11. Remove the screw (gold, tapping, 6 mm) securing the REAR GUIDE PLATE R, and remove the REAR GUIDE PLATE R from the REAR GUIDE ASSY.

NOTE: *In the following step, TRAY N/F SPRING will spring out. Therefore, be careful not to lose them.*

12. By operating the PLATE LINK, unlock the BOTTOM PLATE ASSY and open it. Then while holding the lever of the END GUIDE ASSY, move the END GUIDE ASSY to the right for its removal.

REASSEMBLY

When installing the SECTOR GEAR, make sure that the triangle marks on the SECTOR GEAR and TRAY SIZE ACTUATOR are aligned. Maker sure the END GUIDE is set to the minimum paper size position. ***(See Figure 4-20)***

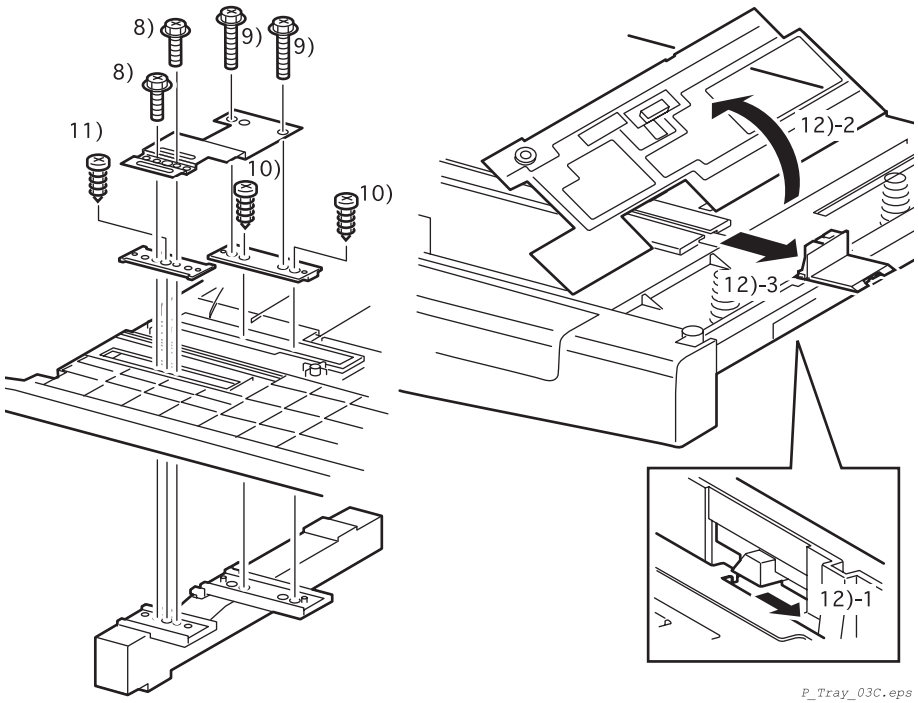


Figure 4-19. END GUIDE, SECTOR GEAR Removal (3)

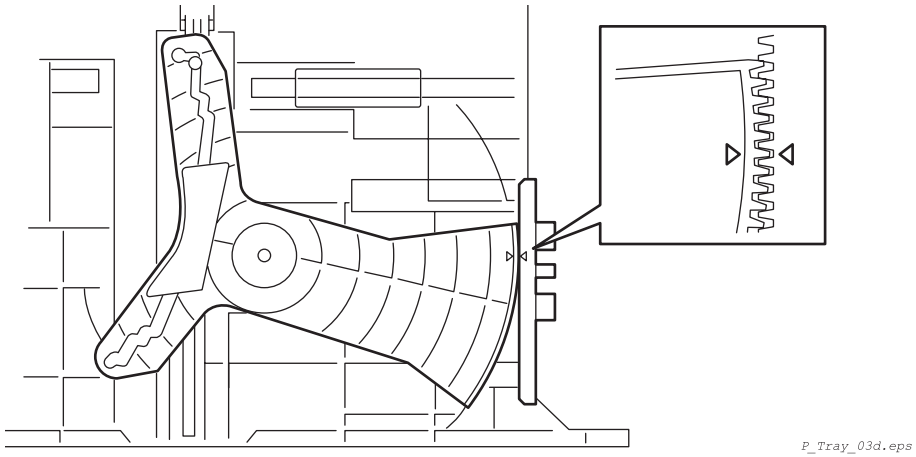


Figure 4-20. SECTOR GEAR Installation

4.2.3 Paper Feeder

4.2.3.1 TURN IN CHUTE (PL3.1.21)

1. *Remove the RIGHT LOWER COVER (PL1.1.50) (p.269)*
2. Open the TURN CHUTE COVER.
3. Pushing the peg at the front edge of the TURN CHUTE UP ASSY with a tool like a screw driver, turn the TURN CHUTE UP ASSY to the right to release its rear peg and remove the TURN CHUTE UP ASSY. *(See Figure 4-21)*
4. Remove the two screws (black, w/collar, 8 mm) securing the R/H LOWER BRACKET, and remove the R/H LOWER BRACKET.*(See Figure 4-22)*

CAUTION

In the next step, be careful not to damage the hinge part of the TURN IN CHUTE.

5. Press the hinge at the rear part of the TURN IN CHUTE to release the peg and swivel the TURN IN CHUTE right around the front side as the supporting point.

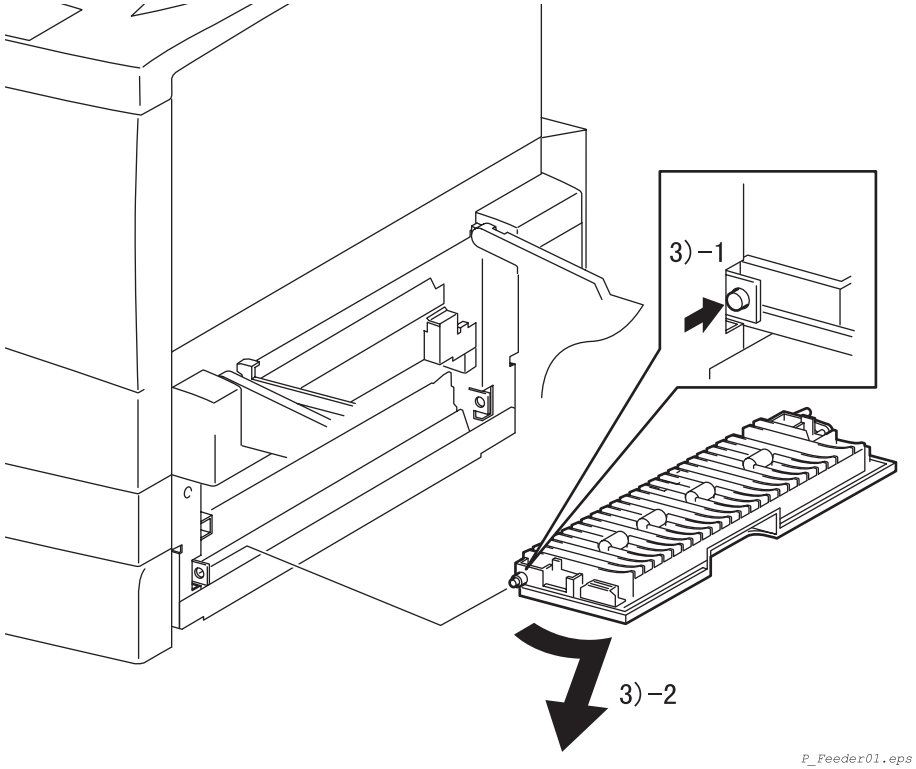


Figure 4-21. TURN IN CHUTE Removal (1)

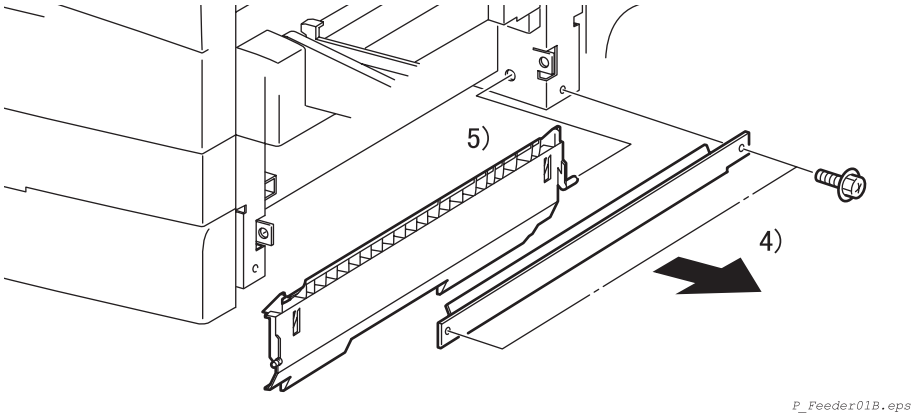


Figure 4-22. TURN IN CHUTE Removal (2)

4.2.3.2 TURN ROLL ASSY (PL3.1.23)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. *Remove the FRONT MID COVER (PL1.1.6) (p.262)*
3. Remove 1 screw (silver, 8 mm) securing the FEED SHAFT GUIDE and remove it.
4. Remove 2 screw (gold, with a washer, 8 mm) securing the TRAY STOPPER and remove it.
5. Open the TURN CHUTE COVER (TURN CHUTE UP ASSY).
6. Remove 2 screws (silver, cup head, 6 mm) securing the TURN CHUTE ASSY and remove it by lifting up its lower part.
7. Remove the E-ring fixing the TURN ROLL ASSY.
8. Shift the TURN FRONT BEARING to the rear to release it from the frame.

NOTE: *At the next step, note that the TURN CLUTCH remains being connected with harness.*

9. Shift the TURN ROLL ASSY to the front to disengage its rear from the TURN CLUTCH and then shift the TURN ROLL ASSY rearward for its removal.

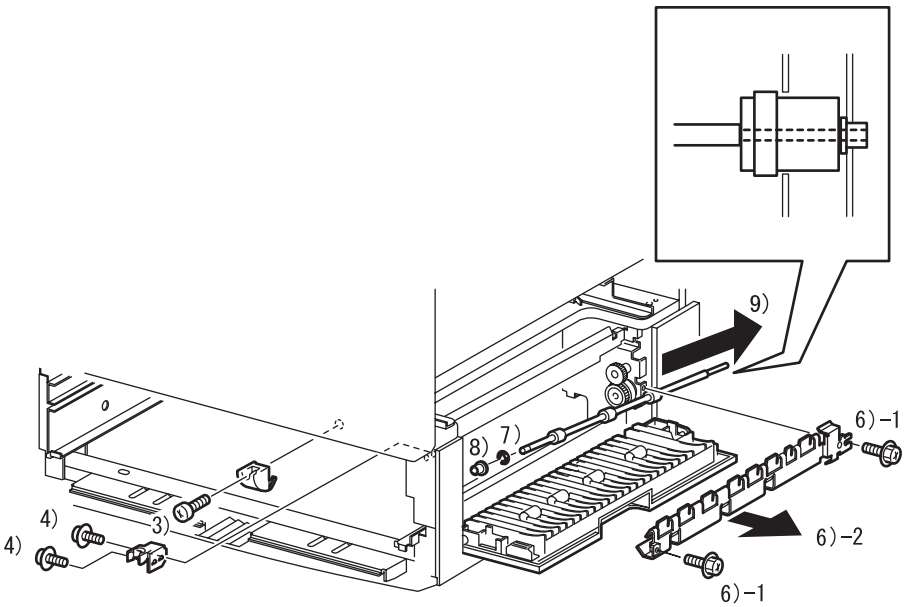


Figure 4-23. TURN ROLL ASSY Removal

REASSEMBLY

- **When inserting the TURN ROLL ASSY in the TURN CLUTCH, position the notch of the TURN CLUTCH properly.**
- **When installing the TRAY STOPPER, install and remove the paper cassette repeatedly to find the optimum position of the TRAY STOPPER where the paper cassette is held securely, and fix the TRAY STOPPER there.**

4.2.3.3 FEED ROLL (PL3.1.31)

CAUTION

- **When removing the SENSOR BRACKET, note that the harness of the TRAY SENSOR remains being connected to the printer body.**
- **Take great care not to suffer injury by touching any sharp edge of metal plate.**

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. *Remove the FRONT MID COVER (PL1.1.6) (p.262)*
3. Remove the screw (silver, w/collar, 6 mm) securing the SENSOR BRACKET to release it from its securing. Keep it in a released state.
4. By inserting your hand through the installation opening for the UNIVERSAL TRAY, unhook the FEED ROLL and remove it upward.

REASSEMBLY

When installing the FEED ROLL, make sure the arrow marked on the side of the roll is facing to the rotating direction.

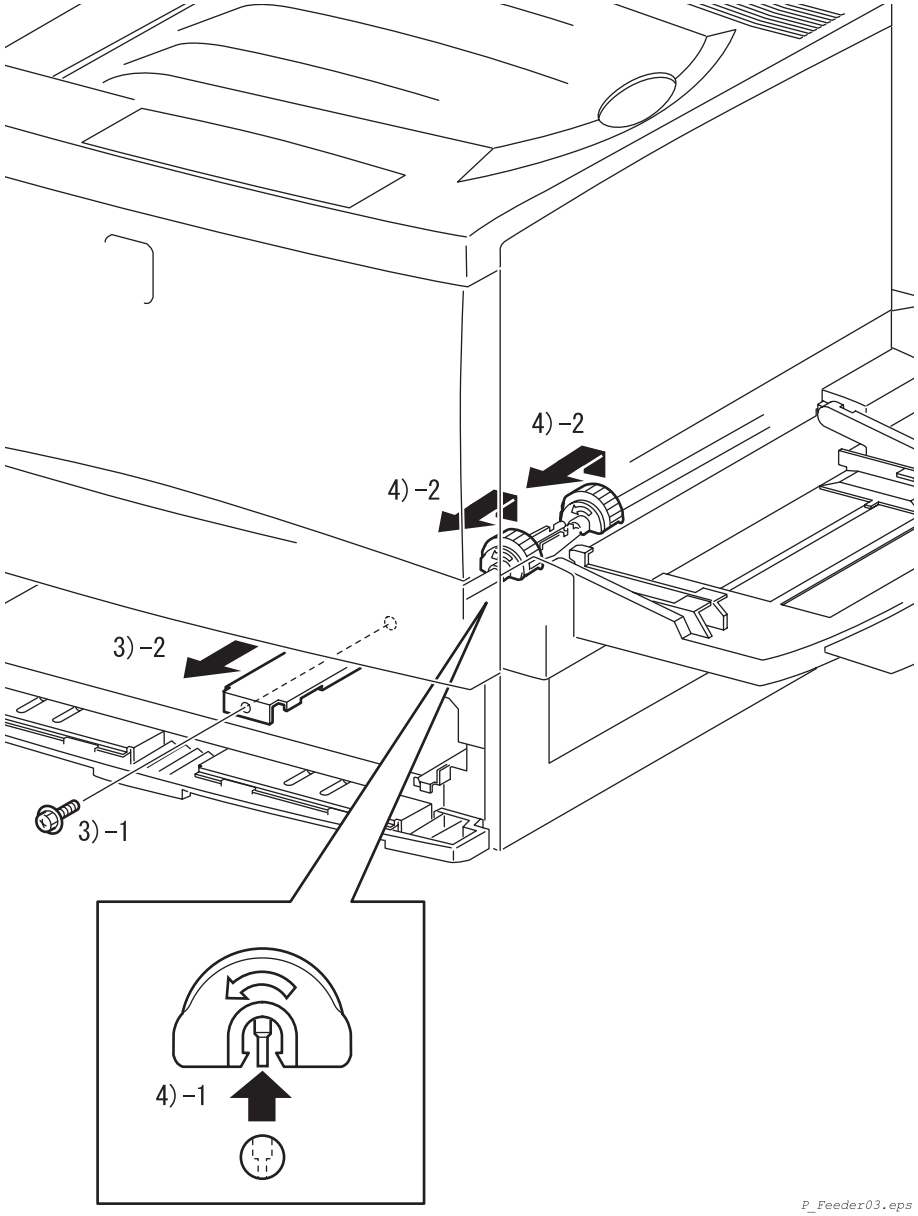


Figure 4-24. FEED ROLL Removal

4.2.3.4 FEED SOLENOID (PL3.1.35)

CAUTION

- **Do not place the OP BRACKET ASSY too far away from the printer body, since they are connected with the harness.**
- **Take great care not to suffer injury by touching any sharp edge at the end of the OP BRACKET ASSY. (Remove the OP BRACKET ASSY, as required.)**

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Disconnect the four connectors (P/J43, P/J49, P/J50 and P/J53) of the P/H MOTOR ASSY, and remove the P/H DRIVE ASSY together with the P/H MOTOR ASSY.*(See p.345)*
3. Remove 2 screws (silver, cup head, 6mm) securing the OP BRACKET ASSY and separate the OP BRACKET ASSY from the printer body. *(See Figure 4-25)*
4. Unclamp the harness of the FEED SOLENOID and disconnect the connector (P/J103). *(See Figure 4-26)*
5. Remove the screw (silver, 6 mm) securing the FEED SOLENOID and remove the FEED SOLENOID.

REASSEMBLY

- **Make sure the protrusion on the FEED GEAR ASSY and the arm of the FEED SOLENOID are securely engaged.**
- **After installing the solenoid, check that the notch of the FEED GEAR ASSY rests on the arm of the solenoid. (The FEED ROLL comes to the top.)**

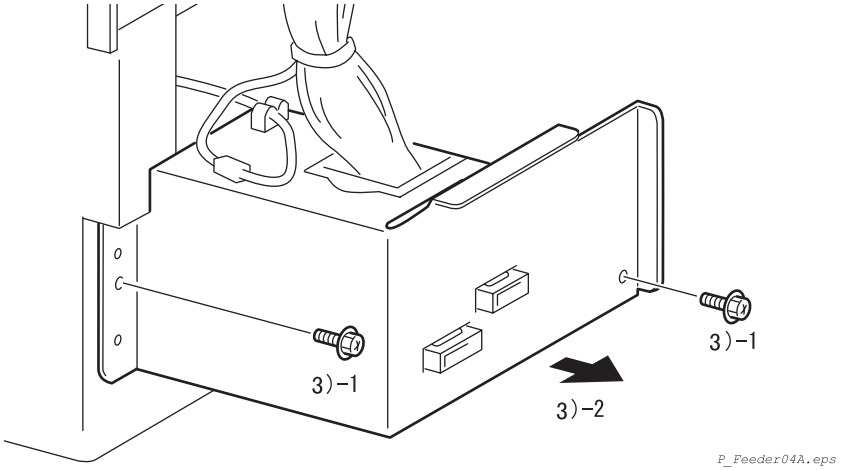


Figure 4-25. OP BRACKET ASSY Removal

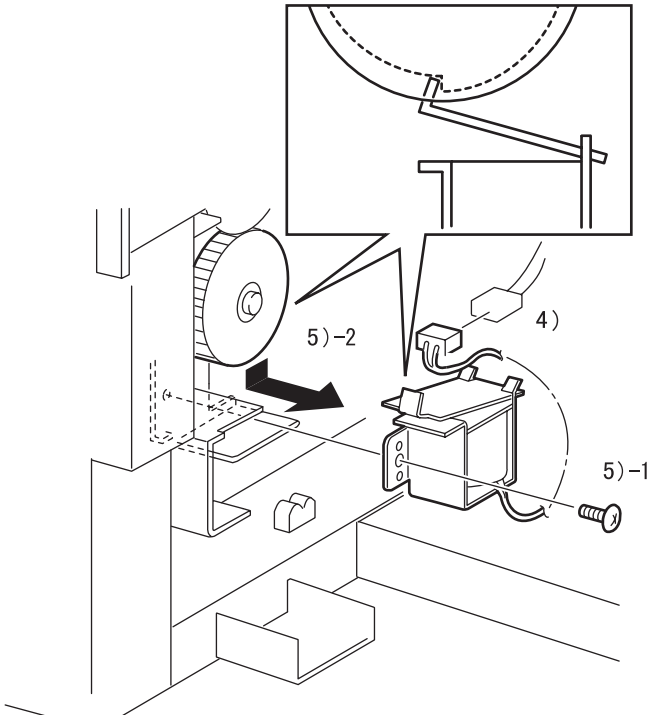


Figure 4-26. FEED SOLENOID Removal

4.2.3.5 FEED ROLL ASSY (PL3.1.29)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
3. *Remove the FRONT MID COVER (PL1.1.6) (p.262)*
4. Disconnect the four connectors (P/J43, P/J49, P/J50 and P/J53) of the P/H MOTOR ASSY, and remove the P/H DRIVE ASSY together with the P/H MOTOR ASSY. *(See p.345)*
5. Remove the FEED SPRING from the FEED GEAR ASSY and the frame.
6. Remove the E-ring fixing the FEED GEAR ASSY and remove the FEED GEAR ASSY.
7. Remove the screw (silver, 8 mm) securing the FEED SHAFT GUIDE, and remove the FEED SHAFT GUIDE and FEED BEARING.
8. Remove 1 screw (silver, cup head, 6 mm) securing the SENSOR BRACKET and remove the SENSOR BRACKET. *(See p.278)*
9. With the FEED ROLL down, shift the FEED ROLL ASSY to the front, lower the rear side, and remove the FEED ROLL ASSY rearward together with the FEED BEARING.
10. Remove the FEED BEARING and E-ring from the FEED ROLL ASSY.

After installing the solenoid, check that the notch of the FEED GEAR ASSY rests on the arm of the solenoid. (The FEED ROLL comes to the top.)

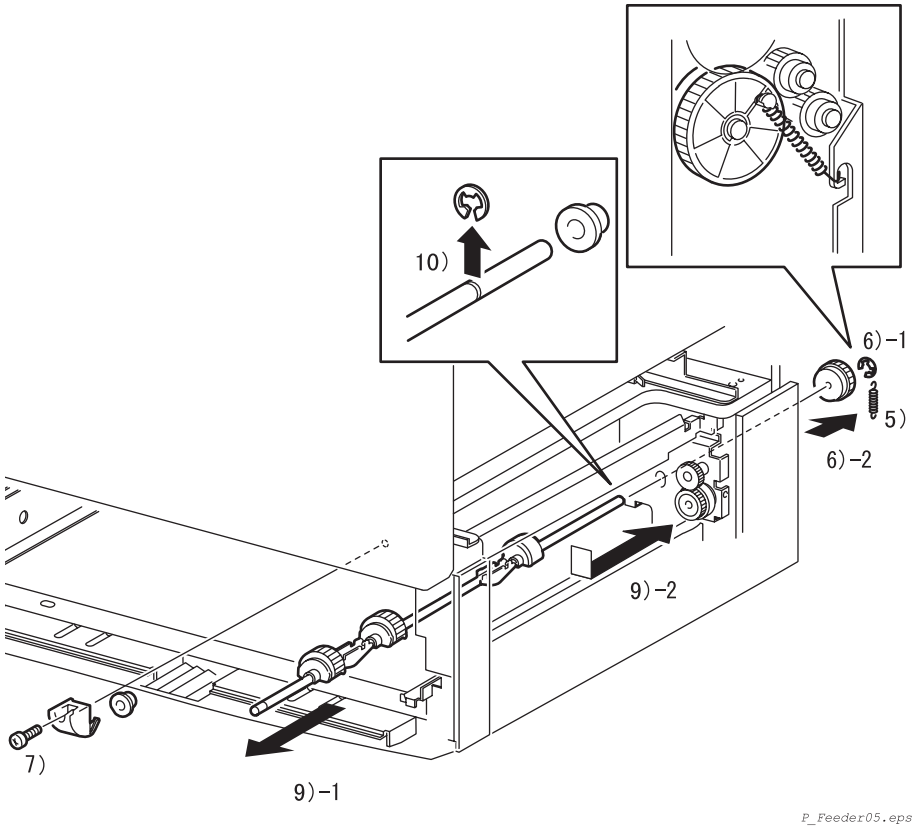


Figure 4-27. FEED ROLL ASSY Removal

4.2.3.6 SIZE SWITCH ASSY (PL3.1.5)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the LV/HV POWER SUPPLY (PL13.1.1) (p.352)*

NOTE: *In the following step, the OPTION BRACKET is kept connected to the printer body with a harness. Therefore, do not move the SIZE BRACKET ASSY away from the printer.*

3. Unclamp the harness.
4. Remove 2 screws (silver, cup head, 6 mm) securing the SIZE BRACKET ASSY and separate the SIZE BRACKET ASSY from the printer body.
5. Disconnect the connector (CN102) of the SIZE SWITCH ASSY.
6. Remove 1 screw (black, cup head, 12 mm) securing the SIZE SWITCH ASSY and remove the SIZE SWITCH ASSY from the SIZE SWITCH BRACKET.

CHECK POINT

To do the above-mentioned work easily, you are advised to draw out the UNIVERSAL TRAY beforehand.

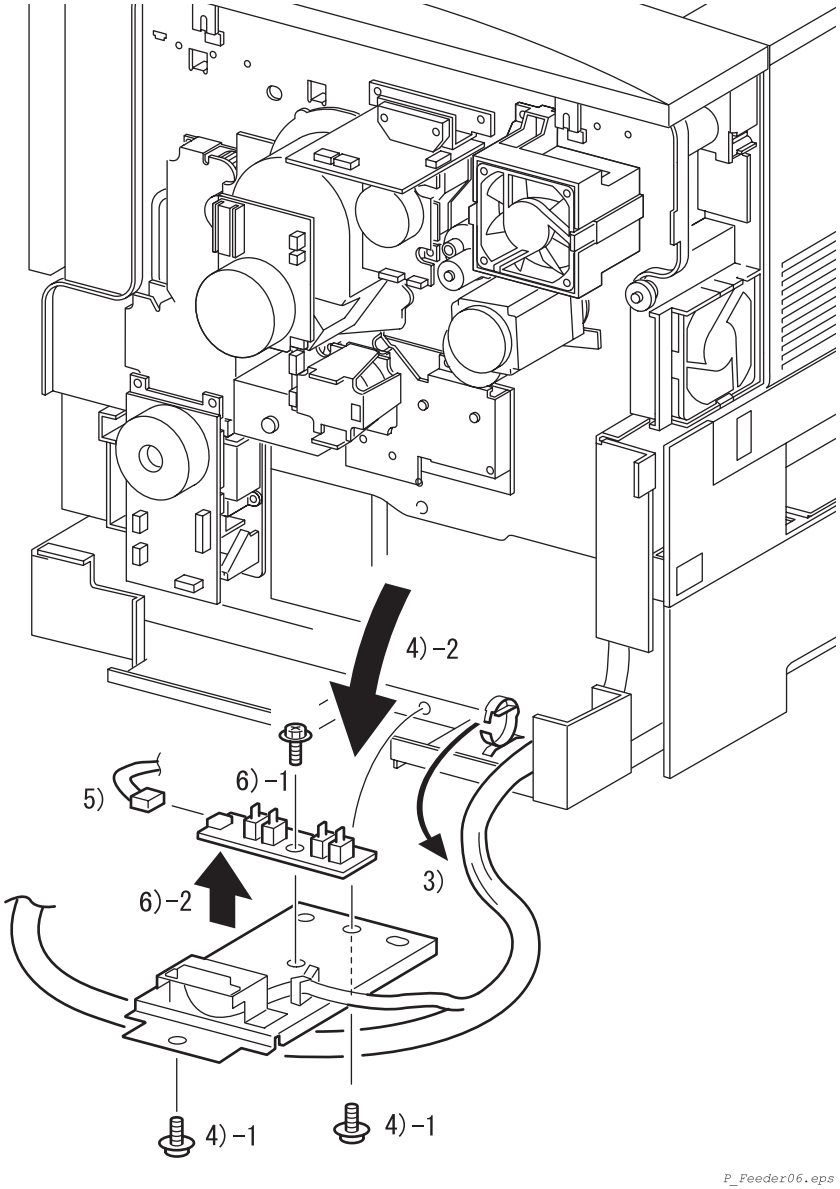


Figure 4-28. SIZE SWITCH ASSY Removal

4.2.3.7 TRAY N/P SENSOR ASSY (PL3.1.7)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. *Remove the FRONT MID COVER (PL1.1.6) (p.262)*
3. Disconnect the connector (P/J107). *(See Figure 4-29)*
4. Remove 1 screw (silver, cup head, 6 mm) securing the SENSOR BRACKET and remove the SENSOR BRACKET.
5. *Remove the LOW PAPER SENSOR (PL3.1.18) (p.281)*
6. Unclamp the TRAY N/P SNR HARNESS. *(See Figure 4-78)*
7. Release the hook on the TRAY N/P SENSOR from the SENSOR BRACKET and remove the TRAY N/P SENSOR.

When installing the CASSETTE N/P SENSOR ASSY, route the harness carefully so it doesn't float.

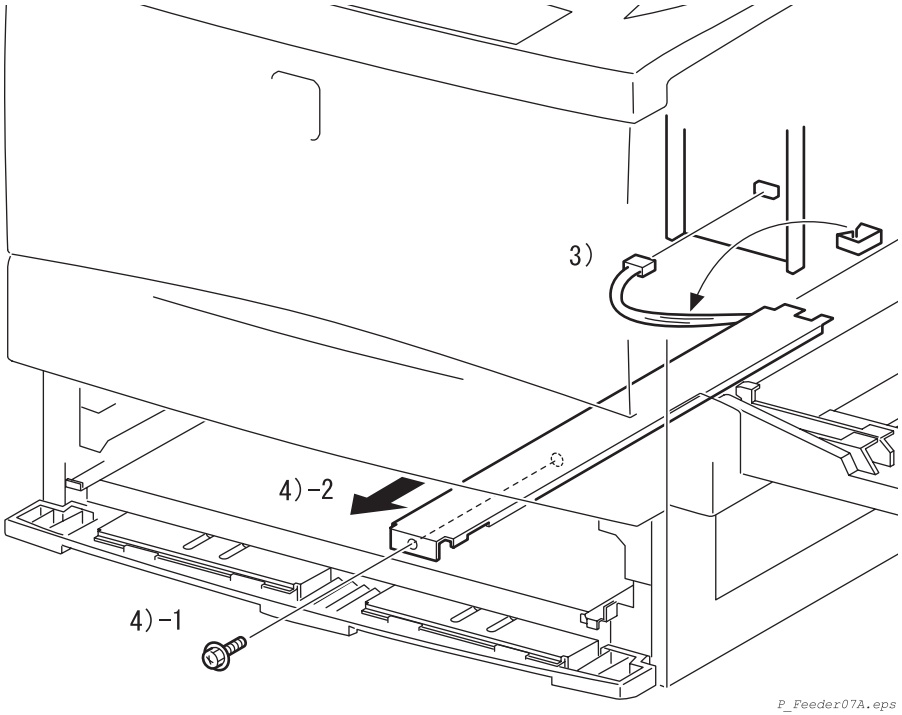


Figure 4-29. SENSOR BRACKET Removal

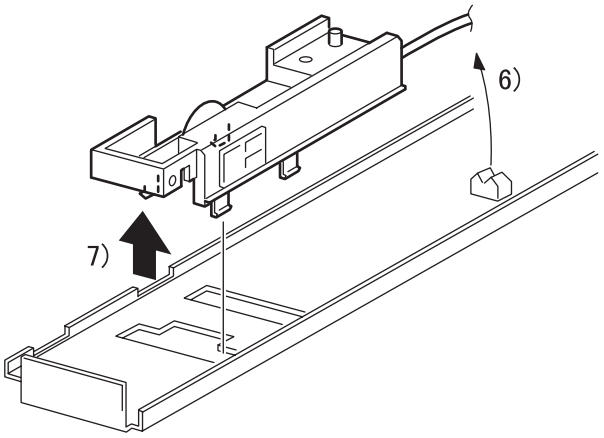


Figure 4-30. TRAY N/P SENSOR ASSY Removal

4.2.3.8 LOW PAPER SENSOR (PL3.1.18)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. *Remove the FRONT MID COVER (PL1.1.6) (p.262)*
3. Remove 1 screw (silver, cup head, 6 mm) securing the SENSOR BRACKET and remove the SENSOR BRACKE. *(See p.281)*
4. Disconnect the connector (P/J106)
5. Remove 1 screw (gold, tapped, 8 mm) securing the LOW PAPER SENSOR and remove the LOW PAPER SENSOR.

REASSEMBLY

When installing the LOW PAPER SENSOR, be sure to fit the peg on the TRAY N/P SENSOR with the location hole in the LOW PAPER SENSOR.

4.2.3.9 TRAY NO PAPER SENSOR (PL3.1.9)

1. *Remove the UNIVERSAL TRAY (PL2.1.1) (p.270)*
2. *Remove the FRONT MID COVER (PL1.1.6) (p.262)*
3. *Remove the TRAY N/P SENSOR ASSY (PL3.1.7) (p.280)*
4. Disconnect the connector (P/J107) for the TRAY NO PAPER SENSOR and remove the harness for the TRAY NO PAPER SENSOR.
5. Release the hooks securing the TRAY NO PAPER SENSOR from the TRAY N/P BRACKET and remove the TRAY NO PAPER SENSOR.

REASSEMBLY

When installing the TRAY NO PAPER SENSOR, make sure the TRAY N/P ACTUATOR stays above the TRAY NO PAPER SENSOR.

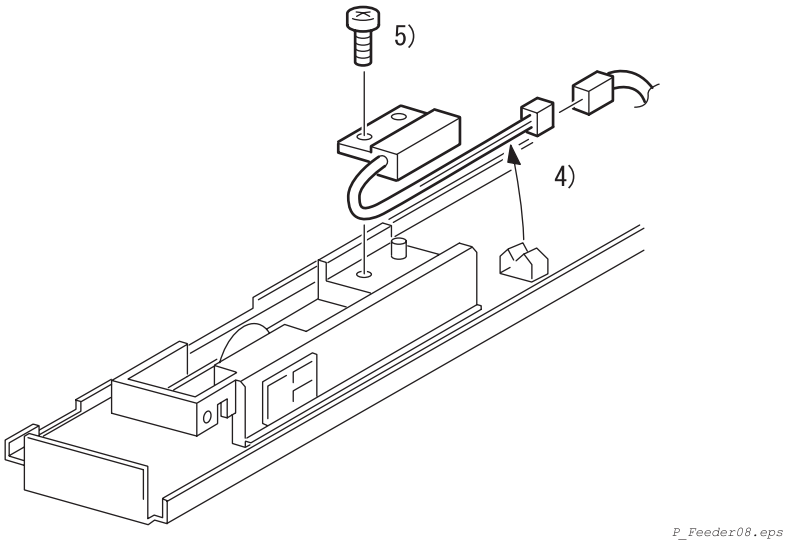


Figure 4-31. LOW PAPER SENSOR Removal

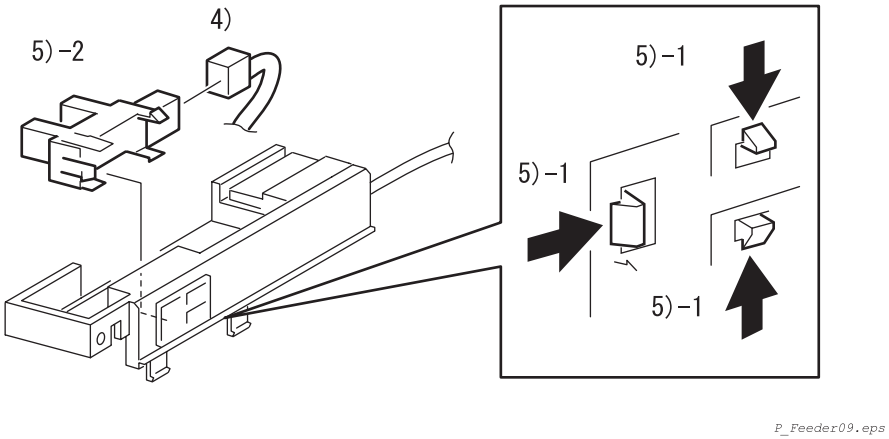


Figure 4-32. TRAY NO PAPER SENSOR Removal

4.2.4 MSI/Paper Transportation

4.2.4.1 MSI/REGI HIGH ASSY (PL4.1.5)

1. Draw out the MSI/REGI HIGH ASSY.
2. Loosen 2 screws (black, cup head, 8 mm) that are on the P/H FRONT RAIL-L and P/H REAR RAIL-L to prevent the MSI REGI HIGH ASSY from dropping.
3. Remove the MSI/REGI HIGH ASSY by sliding it horizontally.

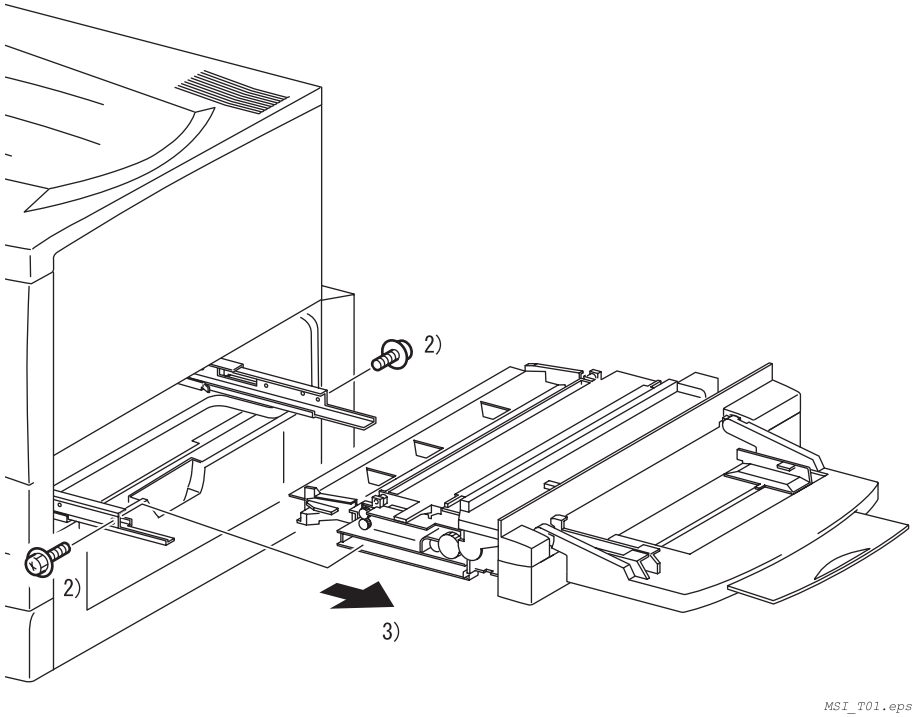


Figure 4-33. MSI/REGI HIGH ASSY Removal

4.2.4.2 MSI GUIDE SWITCH (PL4.1.19)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Remove the six screws (gold, tapping, 8 mm) securing the MSI FEED ASSY. *(See p.284)*
3. Disconnect the connector (P/J205). *(See Figure 4-34)*
4. Loosen the two screws (black, w/collar, 10 mm) securing the PLATE MSI TRAY, remove the KL clip at the rear arm of the MSI TRAY HOUSING, pull out the SHAFT MSI TRAY, and remove the PAD MSI TRAY and PLATE MSI TRAY.
5. Lift the rear arm area of the MSI TRAY HOUSING, shift the MSI TRAY ASSY rearward and remove it.
6. Draw out the EXTENSION TRAY fully, insert a slotted screwdriver into the two holes at the back of the MSI BOTTOM TRAY, and remove the EXTENSION TRAY while disengaging the hooks with the slotted screwdriver.
7. Remove the two screws (gold, tapping, 8 mm) at the back of the MSI TRAY HOUSING, disengage the four hooks, and remove the MSI BOTTOM TRAY and MSI TRAY HOUSING. *(See Figure 4-35)*
8. Remove the MSI GUIDE SPRING, and detach the MSI REGI GUIDE from the MSI TRAY HOUSING.
9. Disconnect the connector (PJ206), disengage the two hooks and remove the MSI GUIDE SWITCH from the MSI TRAY HOUSING.

CHECK POINT

In removal of the MSI BOTTOM TRAY, if the two bosses on the MSI TRAY HOUSING are fitted in the respective holes of the MSI BOTTOM TRAY, you can not disengage easily the hook found between the two bosses. Pull out the two bosses vertically first and then disengage the hooks.

REASSEMBLY

Take care not to catch harness.

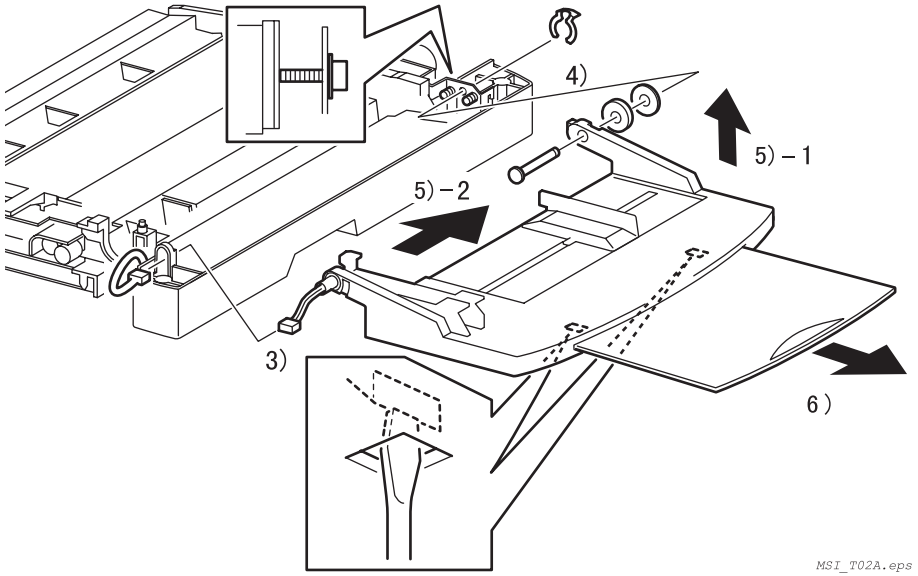


Figure 4-34. MSI GUIDE SWITCH Removal (1)

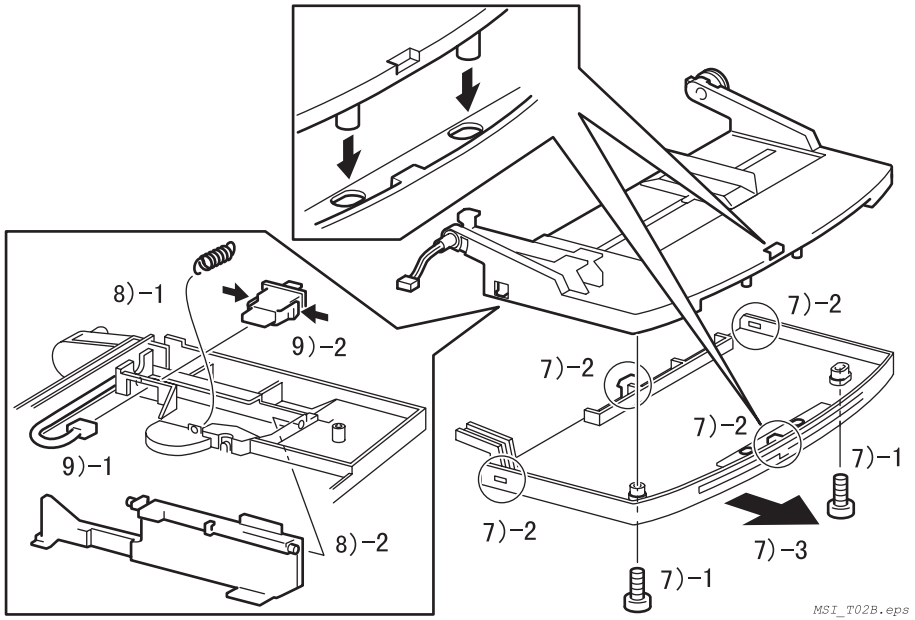


Figure 4-35. MSI GUIDE SWITCH Removal (2)

4.2.4.3 MSI ASSY (PL4.1.6)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Disconnect 3 connectors (P/J201, P/J202, P/J208) that connect the MSI ASSY and MAIN P/H FRAME ASSY.
3. Remove 2 screws (gold, tapped, 8 mm) securing the MSI ASSY.
4. Remove the two screws (gold, tapping, 10 mm) securing the MSI BASE ASSY to the MAIN P/H FRAME ASSY, and remove the MSI ASSY upward in an oblique direction.

REASSEMBLY

- **Make sure that the GEAR-16 of the MSI ASSY and the MSI-2 GEAR of the MAIN P/H FRAME ASSY are engaged with each other properly.**
- **When installing the MSI BASE ASSY on the MAIN P/H FRAME ASSY, tighten it together with the earth plate of the MAIN P/H FRAME ASSY.**

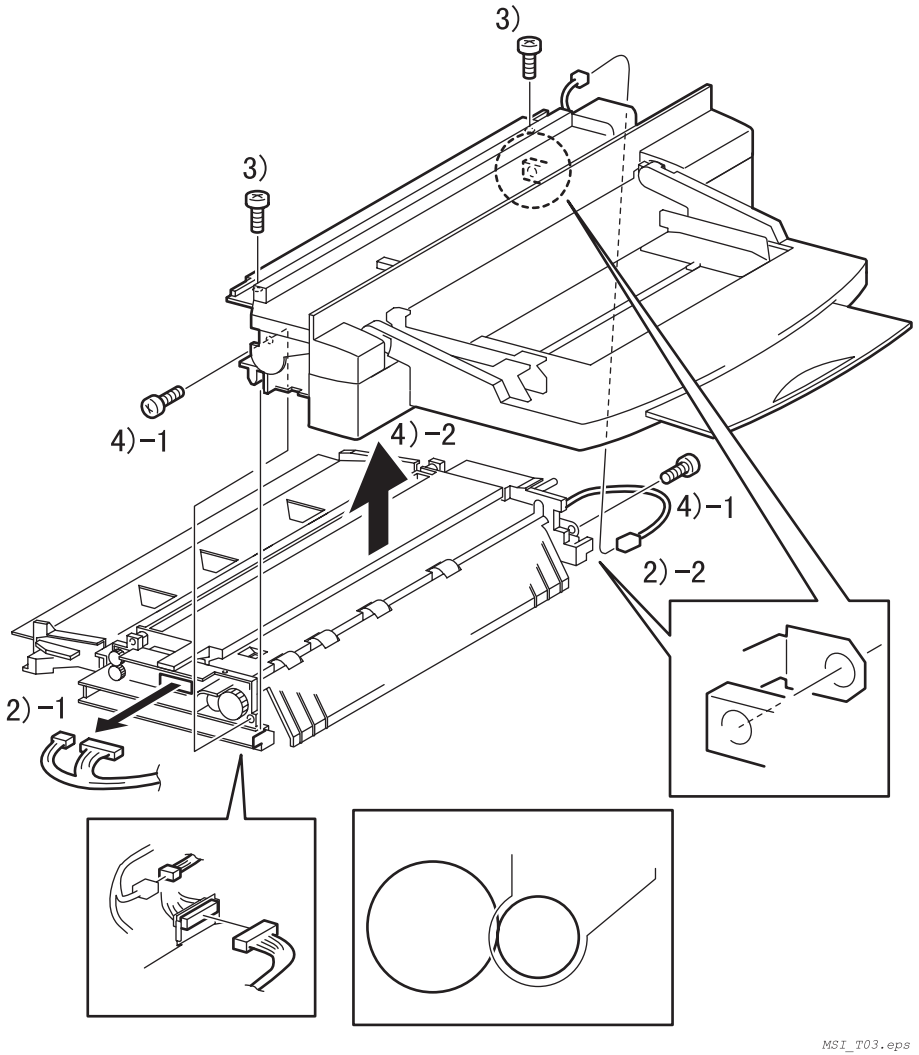


Figure 4-36. MSI ASSY Removal

4.2.4.4 MSI BASE ASSY (PL4.1.30)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MSI ASSY (PL4.1.6) (p.284)*

NOTE: *At the following steps, note that the MSI FEED ASSY and the MSI BASE ASSY are connected to each other with harness.*

3. Remove the four screws (gold, tapping, 8 mm) securing the MSI FEED ASSY, and remove the MSI FEED ASSY.
4. Remove the MSI TRAY ASSY. *(See p.283)*
5. Remove the BOTTOM PLATE.
6. Disconnect the connector (P/J210) of the BOTTOM PLATE SENSOR, and separate the MSI FEED ASSY and the MSI BASE ASSY from each other.

4.2.4.5 MSI FEED ASSY (PL4.1.40)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Remove 6 screws (gold, tapped, 8 mm) securing the MSI FEED ASSY.
3. Remove the MSI TRAY ASSY. *(See p.283)*
4. Disconnect 2 connectors (P/J201 and P/J202) connecting the MSI FEED ASSY and MAIN P/H FRAME ASSY.
5. Remove the BOTTOM PLATE, disconnect the connector (P/J210) of the BOTTOM PLATE SENSOR, and remove the MSI FEED ASSY.

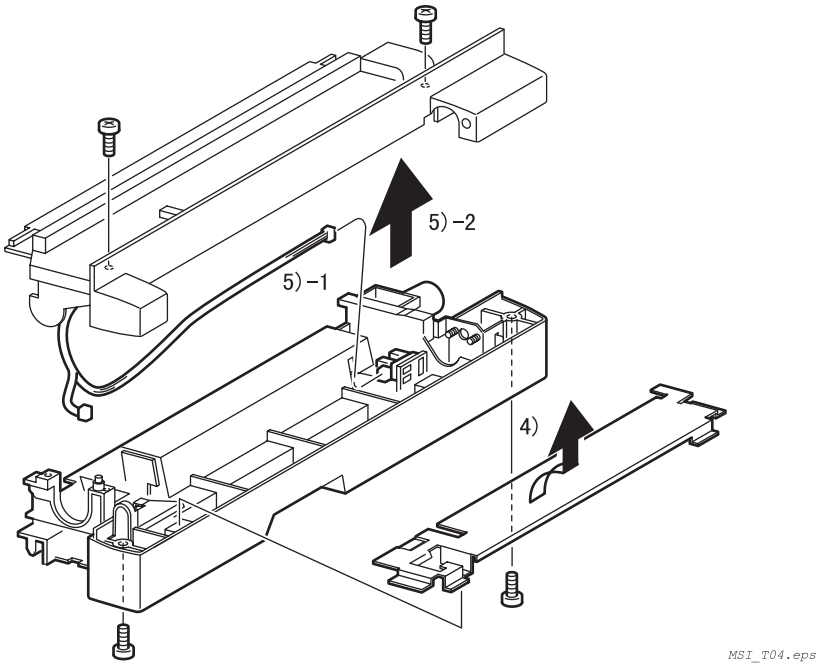


Figure 4-37. MSI BASE ASSY Removal

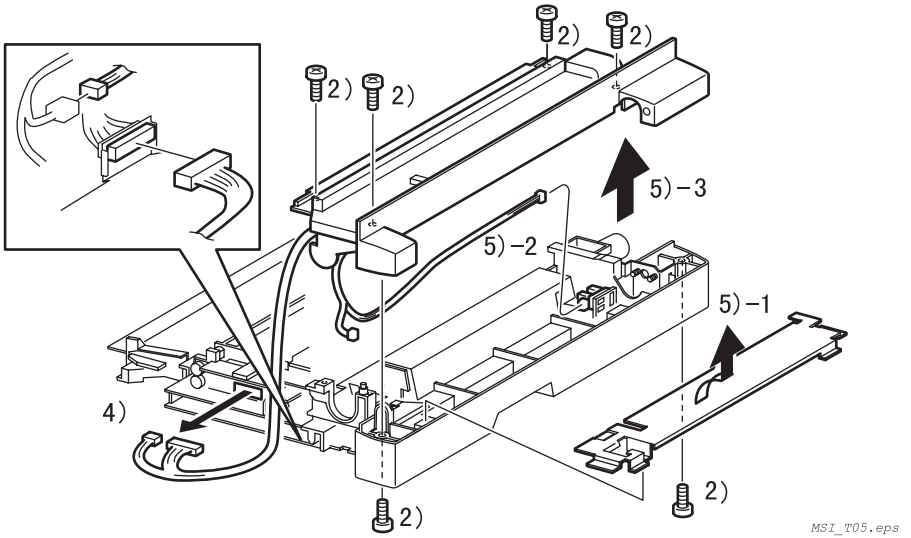


Figure 4-38. MSI FEED ASSY Removal

4.2.4.6 MAIN P/H FRAME ASSY (PL4.1.50)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Disconnect the three connectors (P/J201, P/J202, P/J208) connecting the MSI ASSY and the MAIN P/H FRAME ASSY to each other.
3. Remove 2 screws (gold, tapped, 8 mm) securing the MSI ASSY.
4. Remove the two screws (gold, tapping, 10 mm) securing the MSI BASE ASSY to the MAIN P/H FRAME ASSY, and remove the MAIN P/H FRAME ASSY.

REASSEMBLY

Make sure that the GEAR-16 of the MSI ASSY and the MSI-2 GEAR of the MAIN P/H FRAME ASSY are engaged with each other properly.

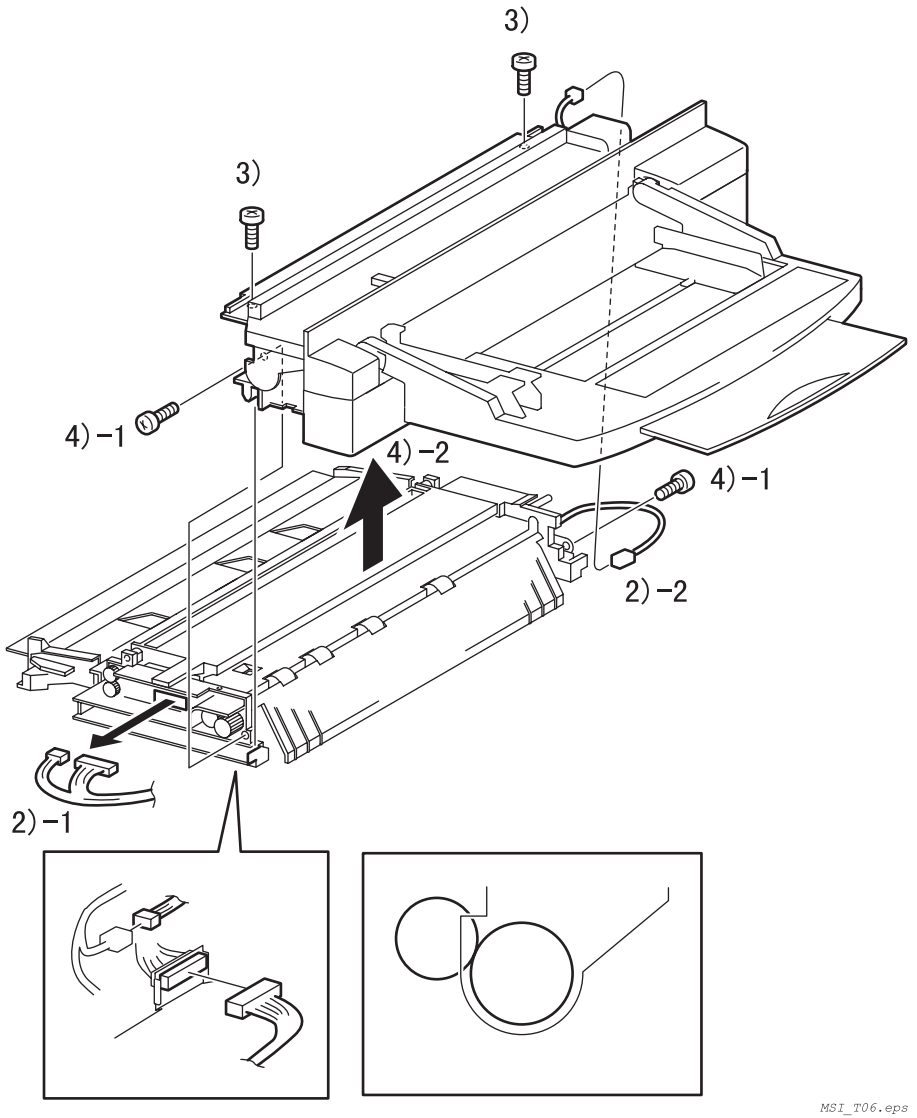


Figure 4-39. MAIN P/H FRAME ASSY Removal

4.2.4.7 BOTTOM PLATE SENSOR (PL4.2.10)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Remove 6 screws (gold, tapped, 8 mm) securing the MSI FEED ASSY. *(See p.285)*
3. Remove the MSI TRAY ASSY. *(See p.285)*
4. *Remove the LIFT UP FRAME ASSY (PL4.2.20) (p.287)*
5. Remove the BOTTOM PLATE by opening it to the right.
6. Lift up the LIFT DOWN ACTUATOR and hold it there.
7. Disconnect the connector (P/J210).
8. Release the hooks securing the BOTTOM PLATE SENSOR to the MSI BASE FRAME, and remove the BOTTOM PLATE SENSOR.

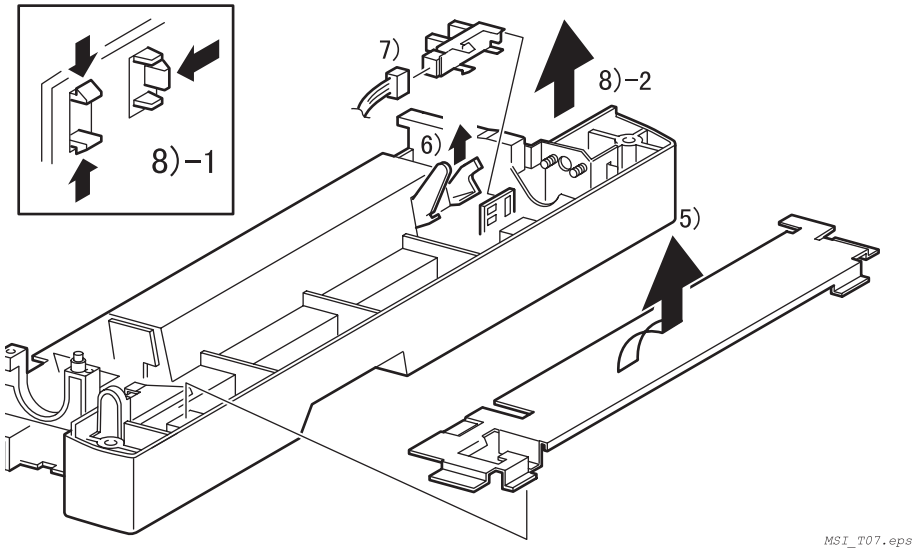


Figure 4-40. BOTTOM PLATE SENSOR Removal

4.2.4.8 LIFT UP FRAME ASSY (PL4.2.20)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Disconnect the connector (P/J208) for the motor harness.
3. Remove 3 screws (gold, tapped, 8 mm) securing the LIFT UP FRAME ASSY and remove the LIFT UP FRAME ASSY.

REASSEMBLY

When installing the LIFT UP FRAME ASSY, be sure to align the protrusion on the MSI BASE FRAME and the hole in the LIFT UP FRAME ASSY.

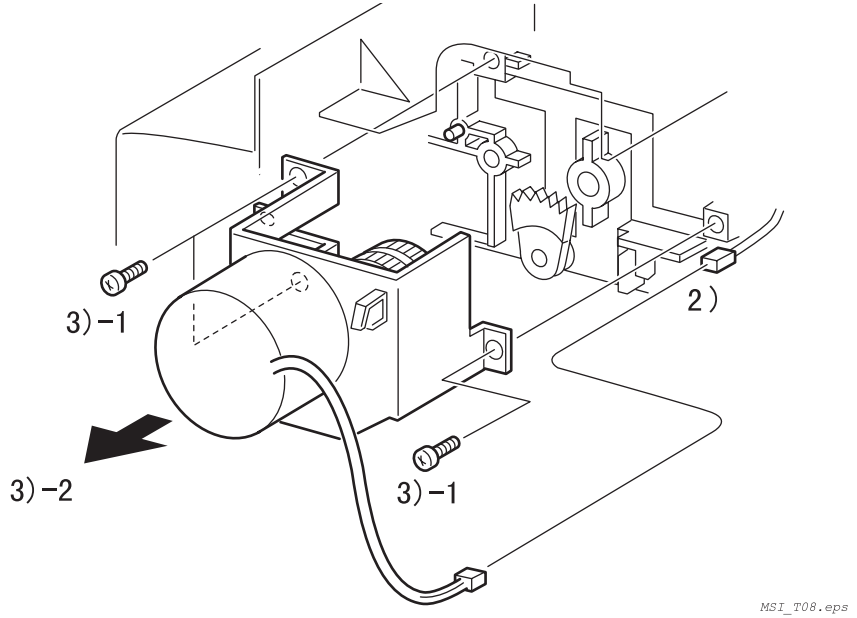


Figure 4-41. LIFT UP FRAME ASSY Removal

4.2.4.9 EMPTY SENSOR (PL4.3.5)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MSI FEED ASSY (PL4.1.40) (p.285)*
3. Release the hooks for the EMPTY SENSOR from the PRE REGI CHUTE and remove the EMPTY SENSOR.
4. Disconnect the connector (P/J203).

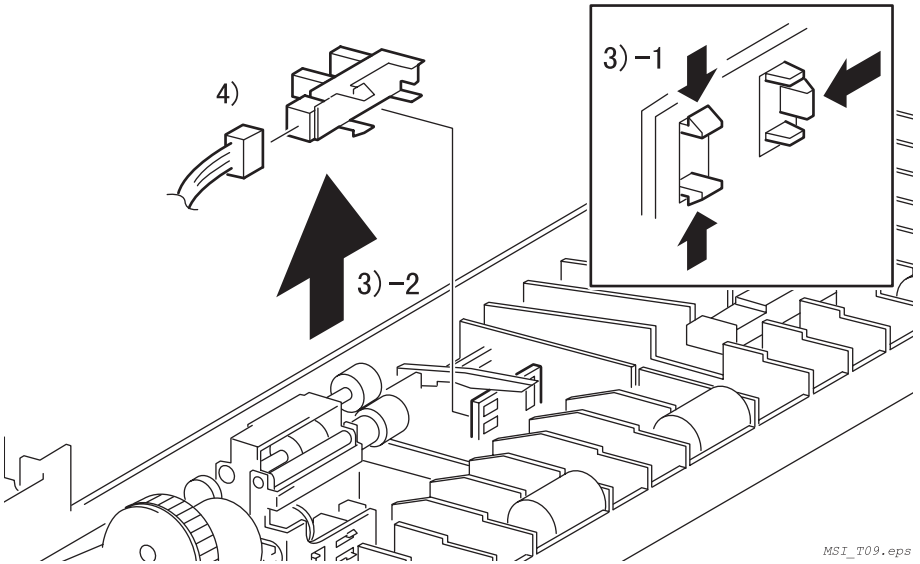


Figure 4-42. EMPTY SENSOR Removal

4.2.4.10 PITCH SENSOR (PL4.3.6)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MSI FEED ASSY (PL4.1.40) (p.285)*
3. Remove 1 screw (gold, tapped, 8 mm) securing the PITCH SENSOR and remove the PITCH SENSOR.

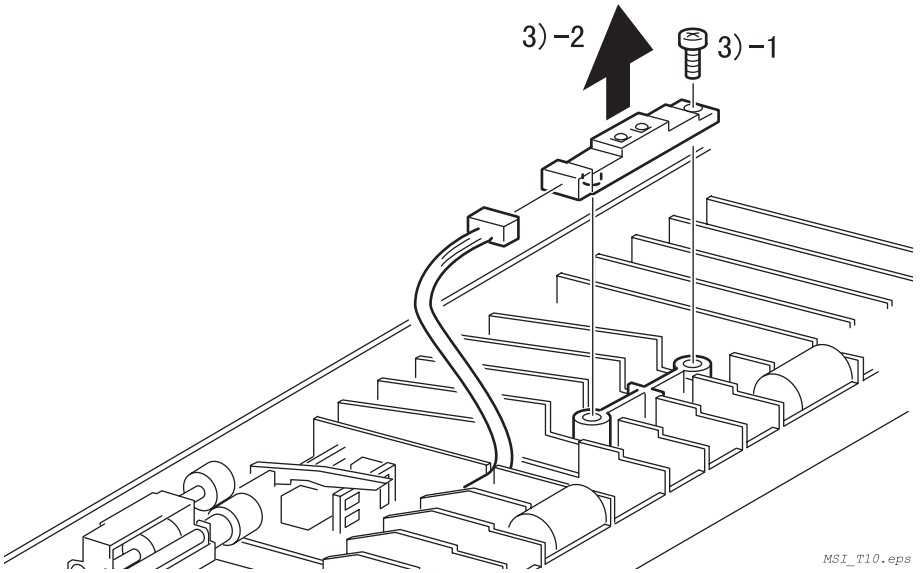


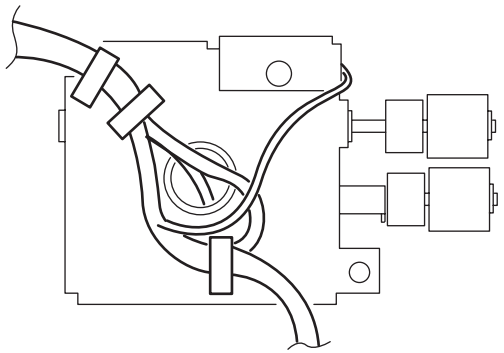
Figure 4-43. PITCH SENSOR Removal

4.2.4.11 MSI FEED FRAME ASSY (PL4.3.20)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MSI FEED ASSY (PL4.1.40) (p.285)*
3. Disconnect the connector (P/J209).
4. Remove 3 screw (gold, tapped, 8 mm) securing the MSI FEED FRAME ASSY and remove the MSI FEED FRAME ASSY.
5. Release the harness from the three clamps of the MSI FEED FRAME ASSY.

REASSEMBLY

Clamp the harness securely.



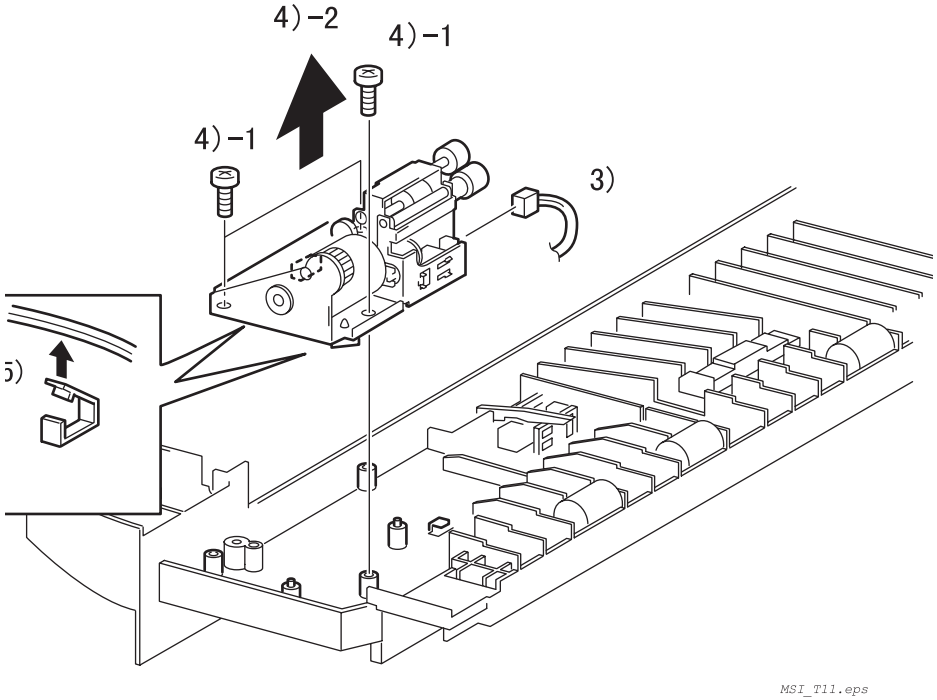


Figure 4-44. MSI FEED FRAME ASSY Removal

4.2.4.12 LEVEL SENSOR (PL4.3.23)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MSI FEED ASSY (PL4.1.40) (p.285)*
3. *Remove the MSI FEED FRAME ASSY (PL4.3.20) (p.289)*
4. Remove the RTD SPRING from the MSI FEED TOP FRAME and RTD SUPPORT.
5. Remove 1 screw (silver, 6 mm) securing the LEVEL SENSOR BRACKET.
6. Release the hooks for the LEVEL SENSOR from the LEVEL SENSOR BRACKET and remove the LEVEL SENSOR.

REASSEMBLY

- **When installing the SENSOR BRACKET, align the protrusion on the MSI FEED TOP FRAME and the positioning hole in the LEVEL SENSOR BRACKET.**
- **Be sure to fit the projection of the MSI FEED TOP FRAME in the indent of the PICK UP CLUTCH.**

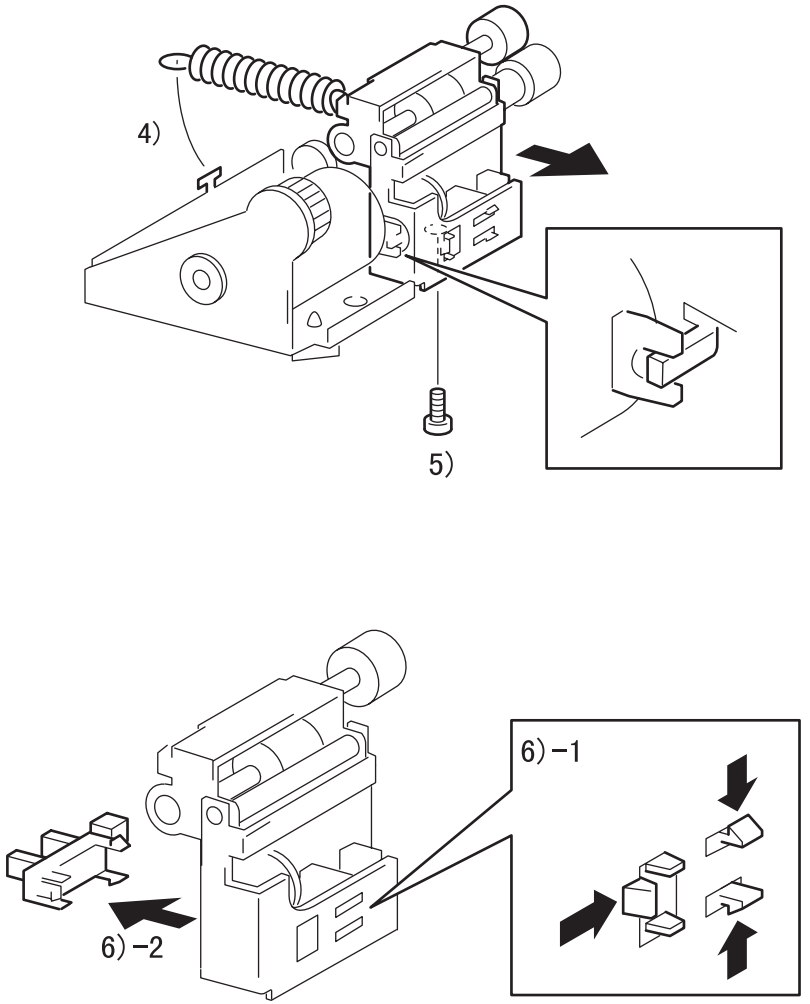


Figure 4-45. LEVEL SENSOR Removal

4.2.4.13 P/REGI ROLL ASSY (PL4.4.3)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MAIN P/H FRAME ASSY (PL4.1.50) (p.286)*
3. *Remove the PRE REGI CLUTCH ASSY (PL4.4.4) (p.292)*
4. Remove the BEARING 8.
5. Remove the E-ring, and remove the MSI-2 GEAR.
6. Remove the E-ring fixing the MSI-1 GEAR and remove the MSI-1 GEAR, KL clip, and BEARING 8.
7. Lifting up the front part of the P/REGI ROLL ASSY, slide the P/REGI ROLL ASSY forward to release the rear end, and remove the P/REGI ROLL ASSY by pulling it out to the upper rear.

REASSEMBLY

When installing the MSI-1 GEAR and MSI-2 GEAR, apply the dedicated grease to the teeth of the gears.

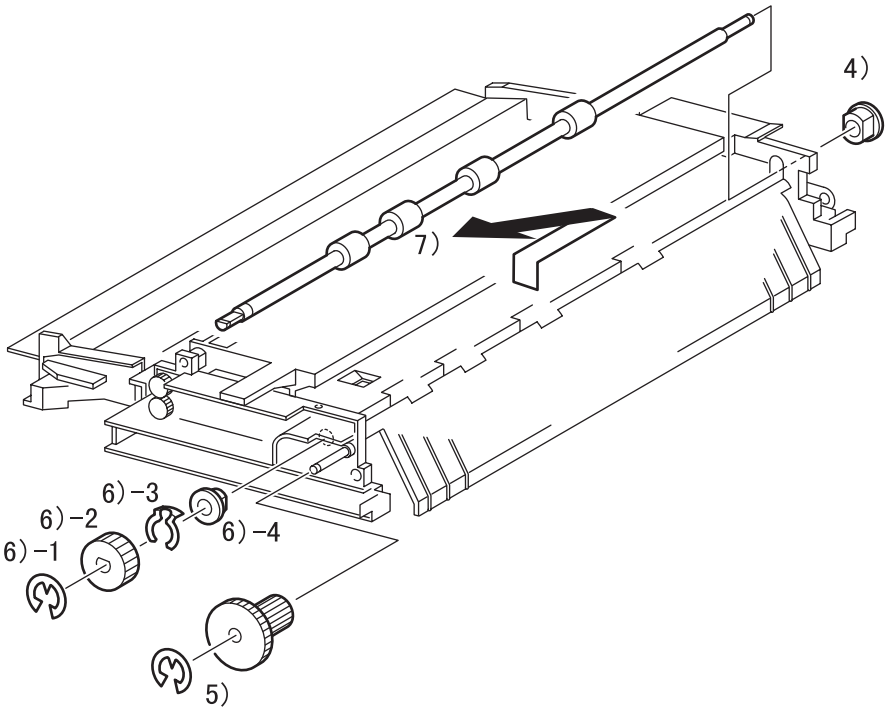


Figure 4-46. P/REGI ROLL ASSY Removal

4.2.4.14 PRE REGI CLUTCH ASSY (PL4.4.4)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MAIN P/H FRAME ASSY (PL4.1.50) (p.286)*
3. Disconnect the connector (P/J95).

NOTE: *At the next step, the GEAR16 is not fixed. Take care not to drop or lose it.*

4. Remove the E-ring securing the PRE REGI CLUTCH ASSY and remove the PRE REGI CLUTCH ASSY.

REASSEMBLY

- **When installing the PRE REGI CLUTCH ASSY, apply the dedicated grease to the teeth of the gears.**
- **If the BEARING 8 has come off, install it in such a way that the earth plate is positioned under the BEARING 8.**

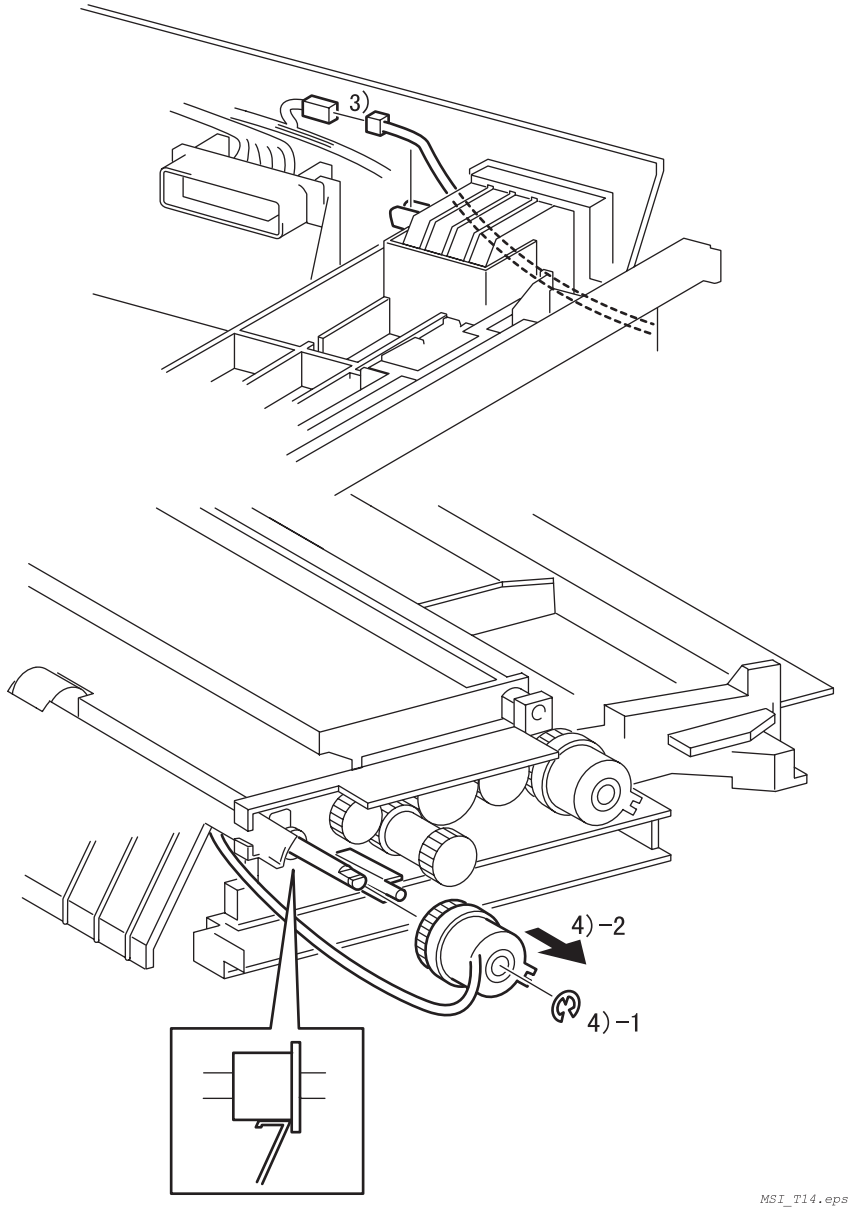


Figure 4-47. PRE REGI CLUTCH ASSY Removal

4.2.4.15 REGI CLUTCH ASSY (PL4.4.5)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MAIN P/H FRAME ASSY (PL4.1.50) (p.286)*
3. Disconnect the connector (P/J94).
4. Remove the E-ring securing the REGI CLUTCH ASSY and remove the REGI CLUTCH ASSY.

REASSEMBLY

When installing the REGI CLUTCH ASSY, apply the dedicated grease to the teeth of the gears.

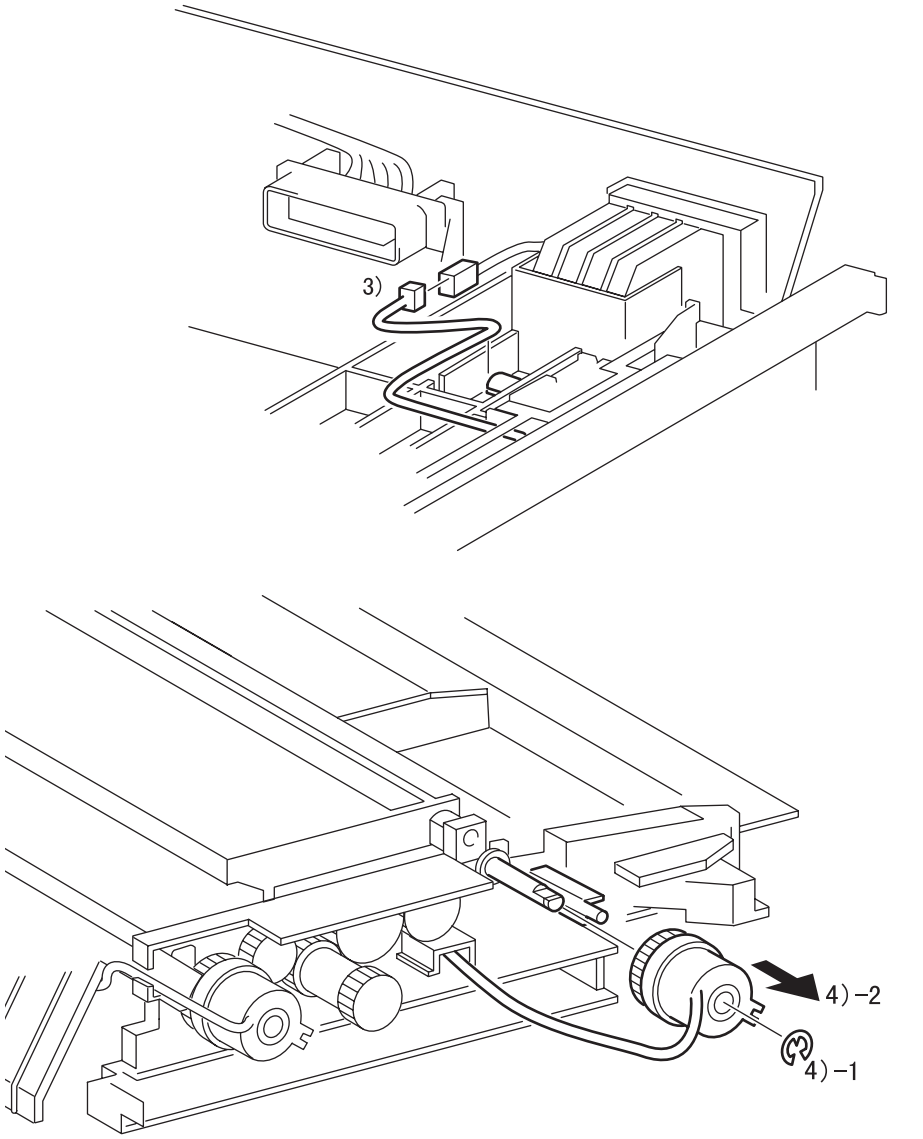


Figure 4-48. REGI CLUTCH ASSY Removal

4.2.4.16 REGI RUBBER ROLL ASSY (PL4.4.7)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MAIN P/H FRAME ASSY (PL4.1.50) (p.286)*
3. *Remove the REGI CLUTCH ASSY (PL4.4.5) (p.293)*
4. Remove the REGI RUBBER ROLL BEARING.
5. Remove the E-ring securing the REGI GEAR and remove the REGI GEAR.
6. Pull the REGI RUBBER ROLL ASSY all the way forward, then lift the rear and remove by pulling out diagonally to the rear.

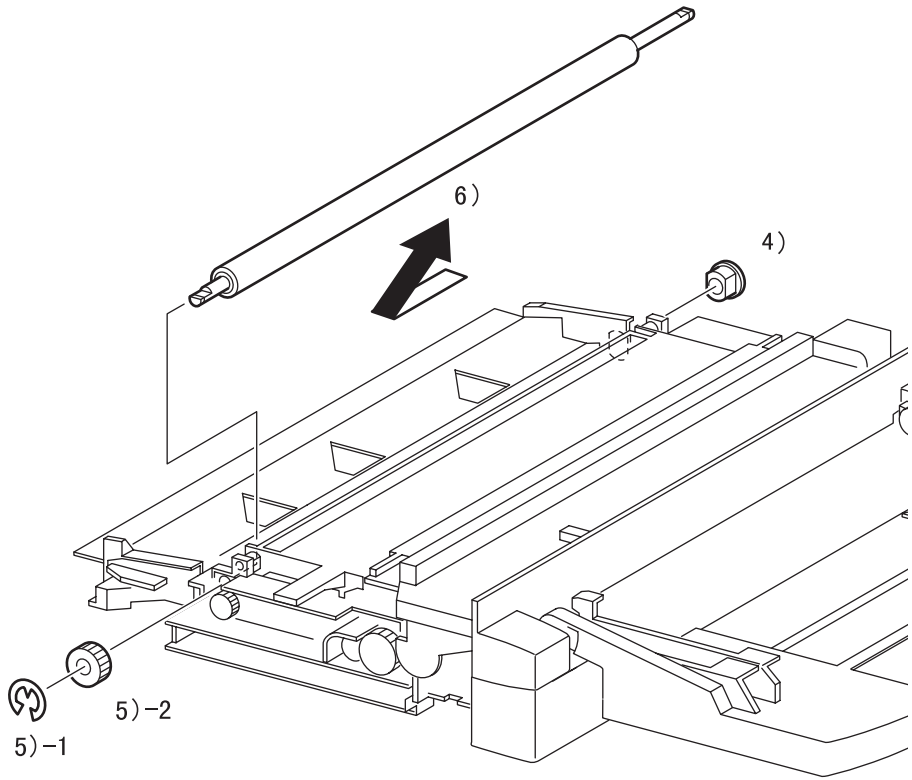


Figure 4-49. REGI RUBBER ROLL ASSY Removal

4.2.4.17 REGI METAL ROLL (PL4.4.8)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. *Remove the MAIN P/H FRAME ASSY (PL4.1.50) (p.286)*
3. *Remove the REGI CLUTCH ASSY (PL4.4.5) (p.293)*
4. *Remove the REGI RUBBER ROLL ASSY (PL4.4.7) (p.294)*

NOTE: *Be careful not to drop or lose the FRONT REGI SPRING or REAR REGI SPRING while performing the following steps.*

5. Remove the E-ring retaining the REGI GEAR, and remove the REGI GEAR, REGI METAL ROLL BEARING and FRONT REGI SPRING.
6. Remove the E-ring retaining the REGI METAL ROLL BEARING, and remove the REGI METAL ROLL BEARING and REAR REGI SPRING.
7. Lift the rear of the REGI METAL ROLL and remove by pulling it out diagonally to the rear.

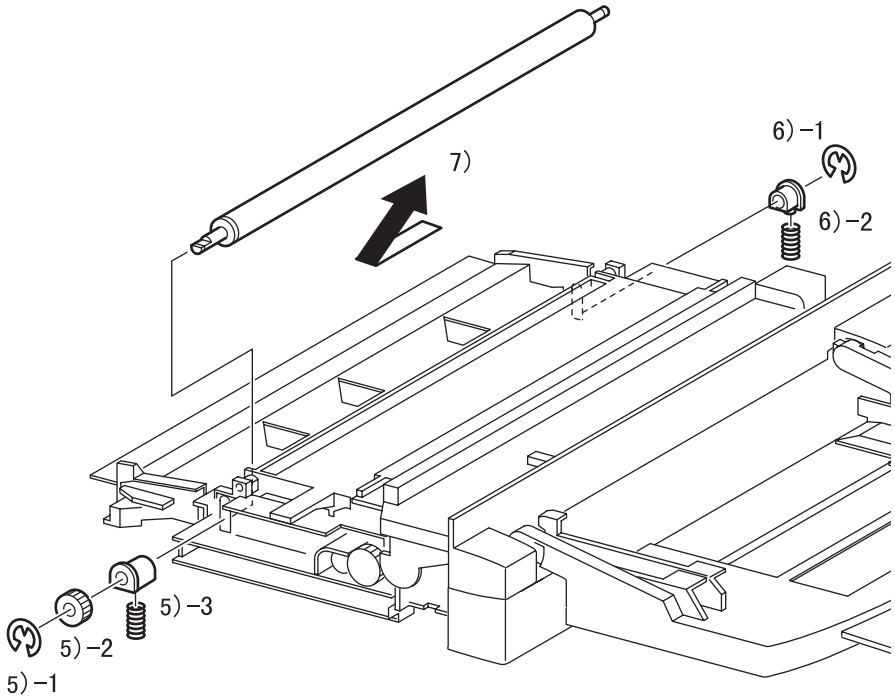


Figure 4-50. REGI METAL ROLL Removal

4.2.4.18 IBT REGI CHUTE (PL4.4.14)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Remove the 2 screws (gold, tapping, 6mm) securing the IBT REGI CHUTE, and remove the IBT REGI CHUTE.

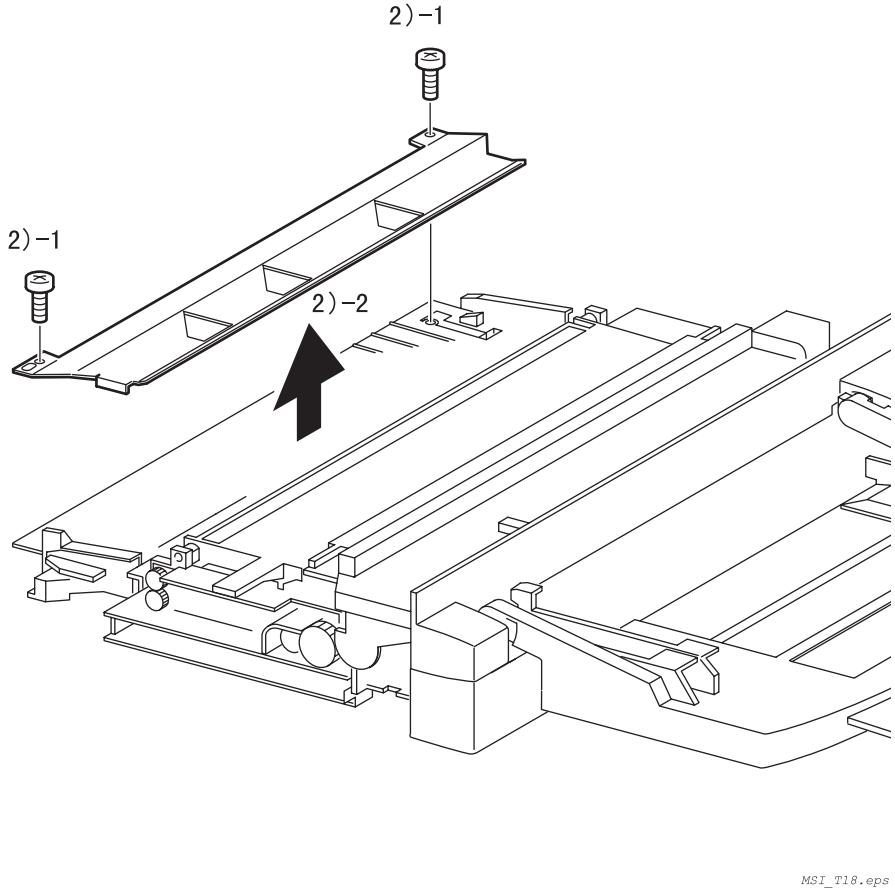


Figure 4-51. IBT REGI CHUTE Removal

4.2.4.19 REGI SENSOR (PL4.4.24)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Remove the screw (gold, tapping, 8mm) securing the P/H SENSOR ASSY, and remove the P/H SENSOR ASSY.
3. Disconnect the REGI SENSOR connector (P/J93).
4. Remove the screw (silver, 6mm) securing the REGI SENSOR and remove the REGI SENSOR.

4.2.4.20 OHP SENSOR (PL4.4.25)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Remove the screw (gold, tapping, 8mm) securing the P/H SENSOR ASSY, and remove the P/H SENSOR ASSY.
3. Disconnect OHP SENSOR connector (P/J98).
4. Remove the screw (silver, 6mm) securing the OHP SENSOR and remove the OHP SENSOR.

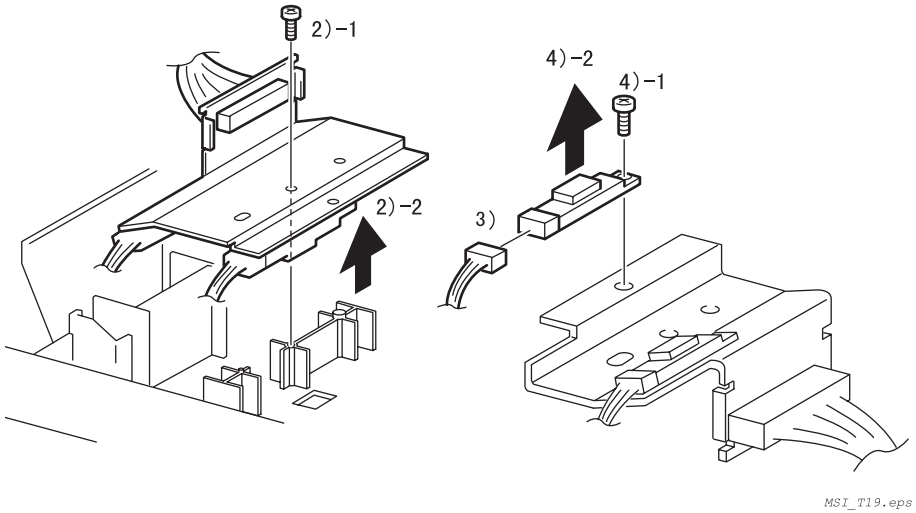


Figure 4-52. REGI SENSOR Removal

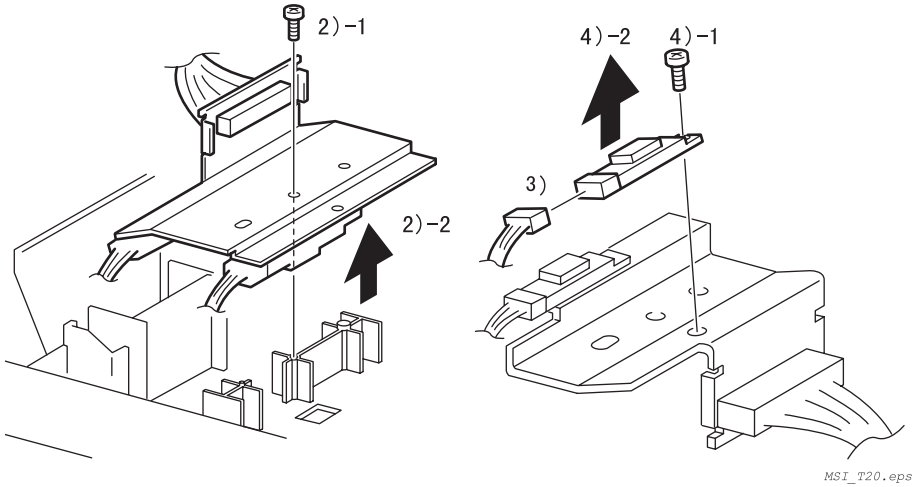


Figure 4-53. OHP SENSOR Removal

4.2.5 (Missing number)

4.2.6 Xerographics

4.2.6.1 DRUM CARTRIDGE (PL6.1.10)

1. Open the FRONT COVER ASSY.
2. Turn the TENSION LEVER to the release position and separate the IBT BELT ASSY and DRUM CARTRIDGE.

CAUTION

- **Be careful not to touch the surface of the drum when performing the following.**
- **After removing, be sure to lay the DRUM CARTRIDGE in its horizontal position in a safe place not exposed to light.**

3. Turn the DRUM CARTRIDGE lock lever to the release position. Pull out the DRUM CARTRIDGE, pull the upper belt straight out, and remove the DRUM CARTRIDGE.

REASSEMBLY

Accurately align the XL RAIL ASSY and DRUM CARTRIDGE with the positioning marks.

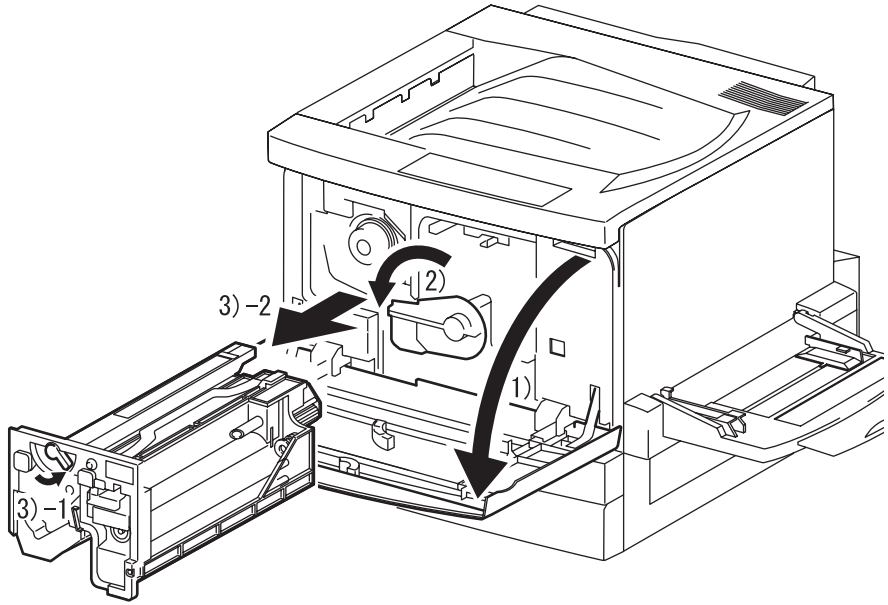


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Figure 4-54. DRUM CARTRIDGE Removal

4.2.6.2 WASTE TONER BOX (PL6.1.12)

CAUTION

After removing, be sure to lay the WASTE TONER BOX in its horizontal position in a safe place.

1. Open the FRONT COVER ASSY.
2. Lift the waste tone box hook lever and remove the WASTE TONER BOX by pulling straight out.

REASSEMBLY

After mounting, make sure the WASTE TONE BOX is securely hooked in place.

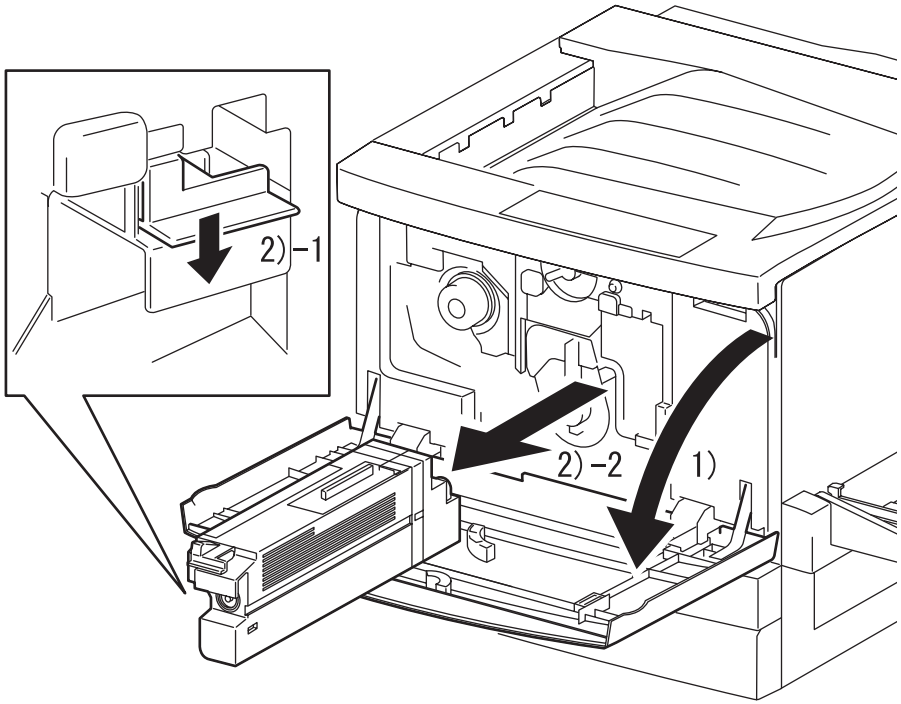

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Figure 4-55. WASTE TONER BOX Removal

4.2.6.3 ROS ASSY (PL6.1.1)

CAUTION

Be careful not to touch the window of the ROS ASSY (window from which laser beam is emitted) or working parts such as the motor shaft when performing the following steps.

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. Remove the 8 screws (silver, w/collar, 6mm) securing the ROS COVER, and remove the ROS COVER.
3. Disconnect the 5 connectors (P/J121, P/J122, P/J123, P/J124, P/J125) for the ROS ASSY.
4. Remove the 4 screws (black, w/collar, 12mm) securing the ROS ASSY, and carefully remove the ROS ASSY from the printer.

REASSEMBLY

Be sure that the harness does not touch the Scanner Assy motor shaft in the ROS ASSY or get pinched between the ROS ASSY and the frame.

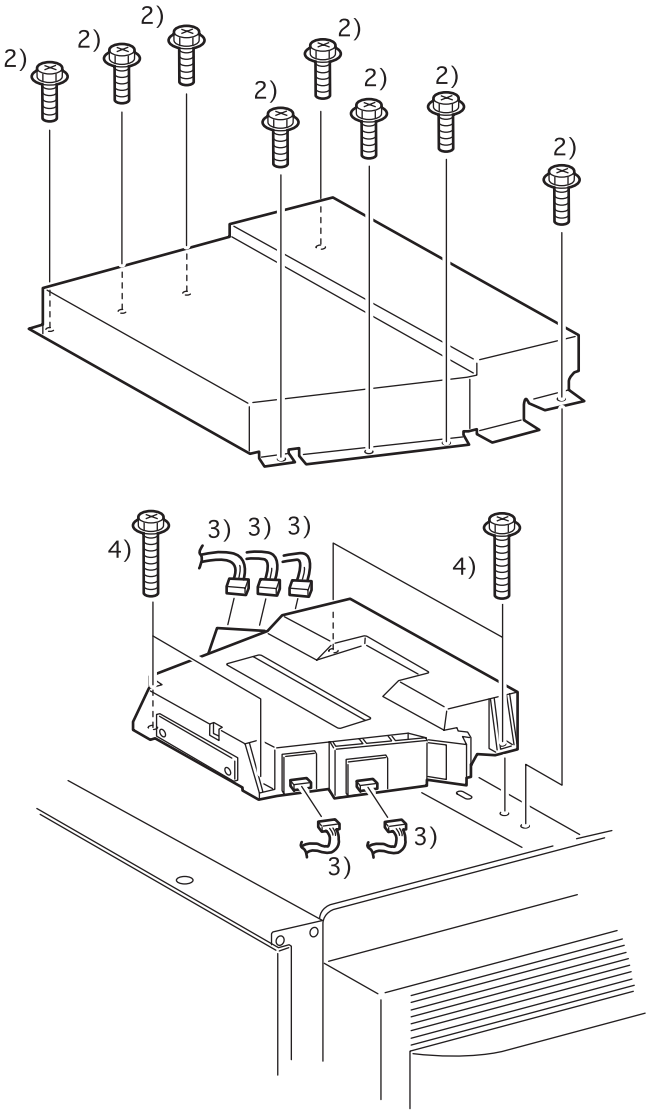

Figure 4-56. ROS ASSY Removal

4.2.6.4 ADC SENSOR ASSY (PL6.1.20)

CAUTION

Be careful not to touch the IBT BELT ASSY or Magnet Roll of the Developer Assy when performing the following.

1. Open the FRONT COVER ASSY.
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
4. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
5. Disconnect the ADC SENSOR ASSY connector (P/J81), remove the harness from the clamp, and pull out the connector (J81) from the hole through which the harness runs.
6. Remove the E-ring securing the ADC SENSOR ASSY.
7. Slide the ADC sensor to the rear and remove the front of the shaft from the frame. Then remove the rear end of the shaft from the frame and remove the ADC SENSOR ASSY from the front.

REASSEMBLY

Securely mount the shaft of the ADC SENSOR ASSY on the frame to the front and rear of the printer.

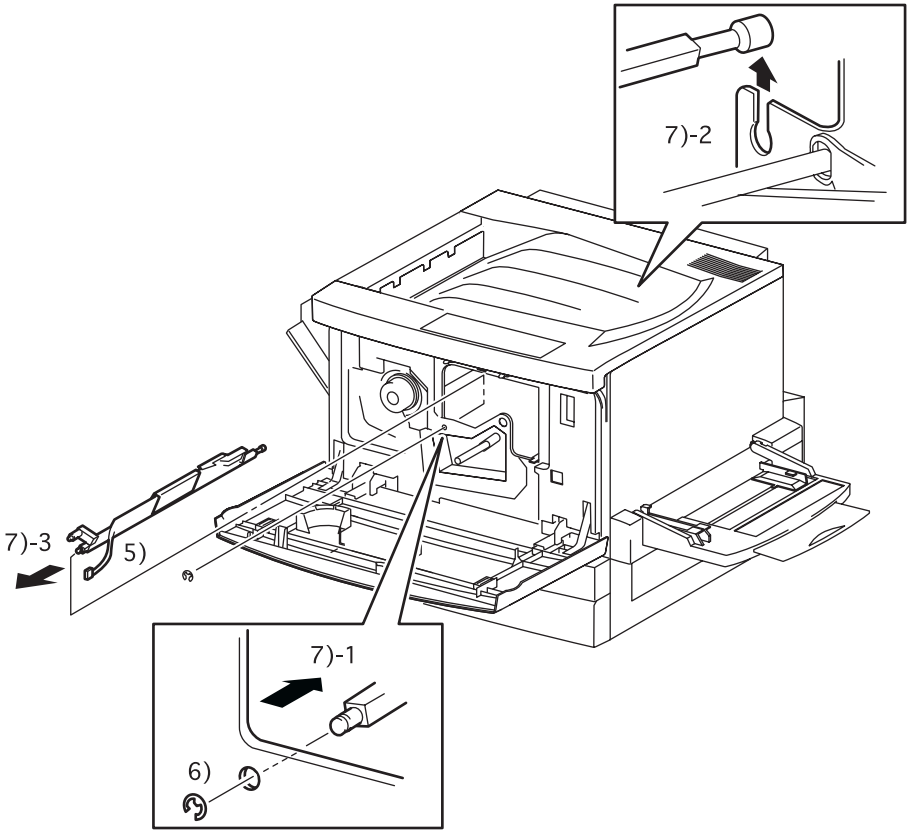

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Figure 4-57. ADC SENSOR ASSY Removal

4.2.6.5 XL RAIL ASSY (PL6.1.40)

CAUTION

- **Be careful not to damage the IBT BELT ASSY, harnesses, XL RAIL ASSY, and the Magnet Roll of the Developer Assy while mounting.**
- **Be careful not to touch the IBT BELT ASSY of Magnet Roll surface while mounting.**

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the ROS ASSY (PL6.1.1) (p.300)*
4. Disconnect the ERASE LAMP ASSY connector (P/J86) and TONER BOX HARNESS connector (P/J116).
5. Free the harnesses of the ERASE LAMP harness, ROS HARNESS and VIDEO HARNESS by removing them from the clamp.
6. Remove the 3 screws (silver, w/collar, 8mm) securing XL RAIL ASSY and remove the XL RAIL ASSY.

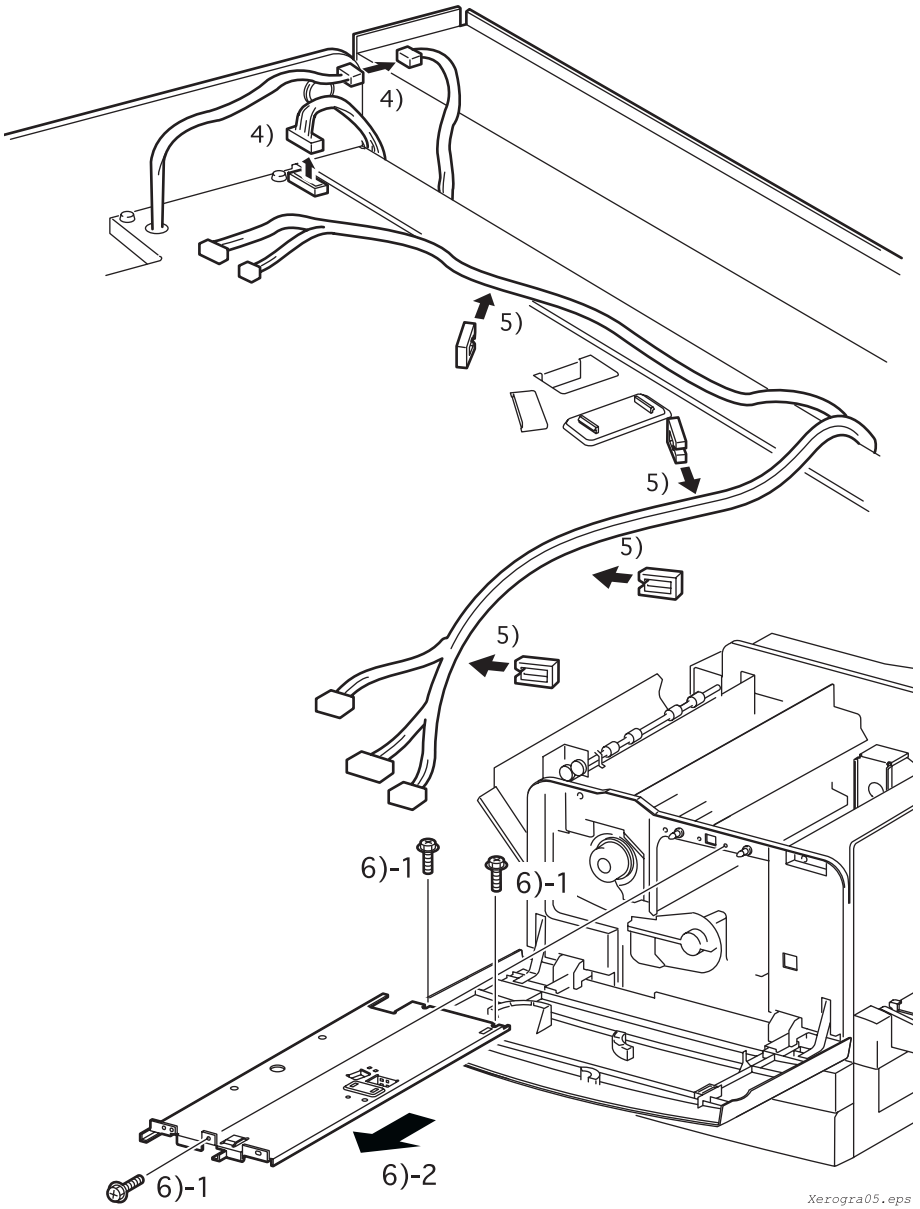

Figure 4-58. XL RAIL ASSY Removal

4.2.6.6 WASTE TONER SENSOR (PL6.1.42)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the ROS ASSY (PL6.1.1) (p.300)*
4. *Remove the XL RAIL ASSY (PL6.1.40) (p.302)*
5. Release the harness of the WASTE TONER SENSOR from the hooks and clamps on the XL RAIL ASSY.
6. Disconnect the WASTE TONER SENSOR connector (P/J88).
7. Unhook the WASTE TONER SENSOR from the XL RAIL and remove the WASTE TONER SENSOR.

REASSEMBLY

Be careful not to allow slack in the harness when mounting.

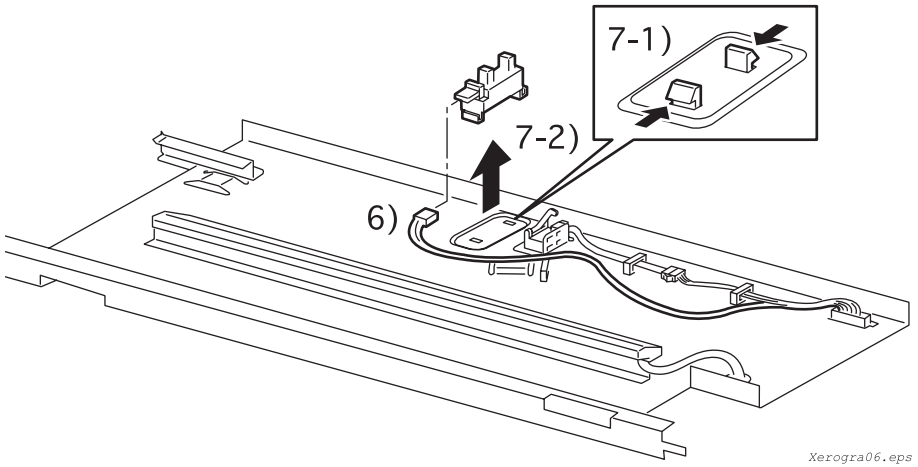

Figure 4-59. WASTE TONER SENSOR Removal

4.2.6.7 TONER BOX SENSOR (PL6.1.43)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the ROS ASSY (PL6.1.1) (p.300)*
4. *Remove the XL RAIL ASSY (PL6.1.40) (p.302)*
5. Free the TONER BOX SENSOR harness by removing it from the clamp.
6. Disconnect the TONER BOX SENSOR connector (P/J83).
7. Unhook the TONER BOX SENSOR from the XL RAIL and remove the TONER BOX SENSOR.

REASSEMBLY

Be careful not to allow slack in the harness when mounting.

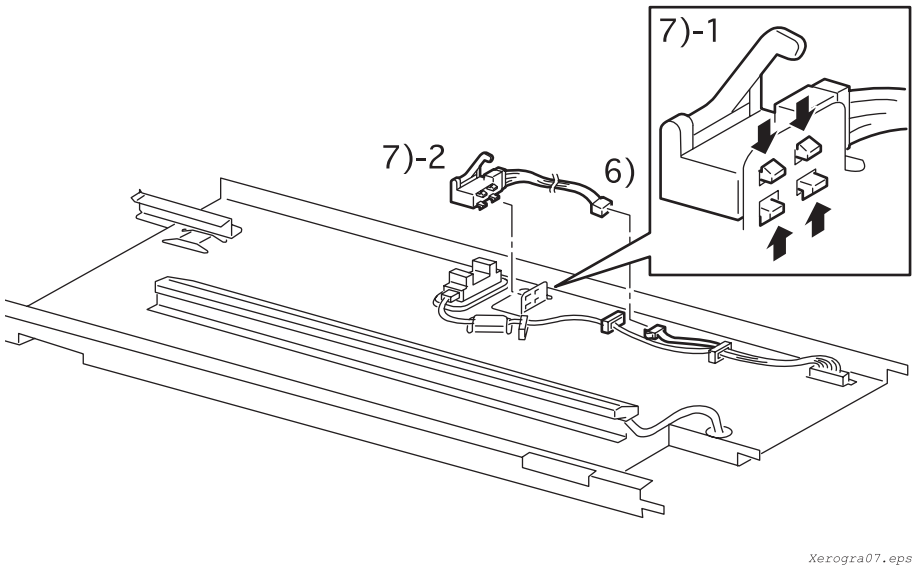

Figure 4-60. TONER BOX SENSOR Removal

4.2.6.8 ERASE LAMP ASSY (PL6.1.30)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the ROS ASSY (PL6.1.1) (p.300)*
4. *Remove the XL RAIL ASSY (PL6.1.40) (p.302)*
5. Free the ERASE LAMP ASSY by pulling its harness through the hole.
6. Using a slotted screwdriver or the like, disengage the three hooks of the ERASE LAMP ASSY from the XL RAIL and remove the ERASE LAMP ASSY.

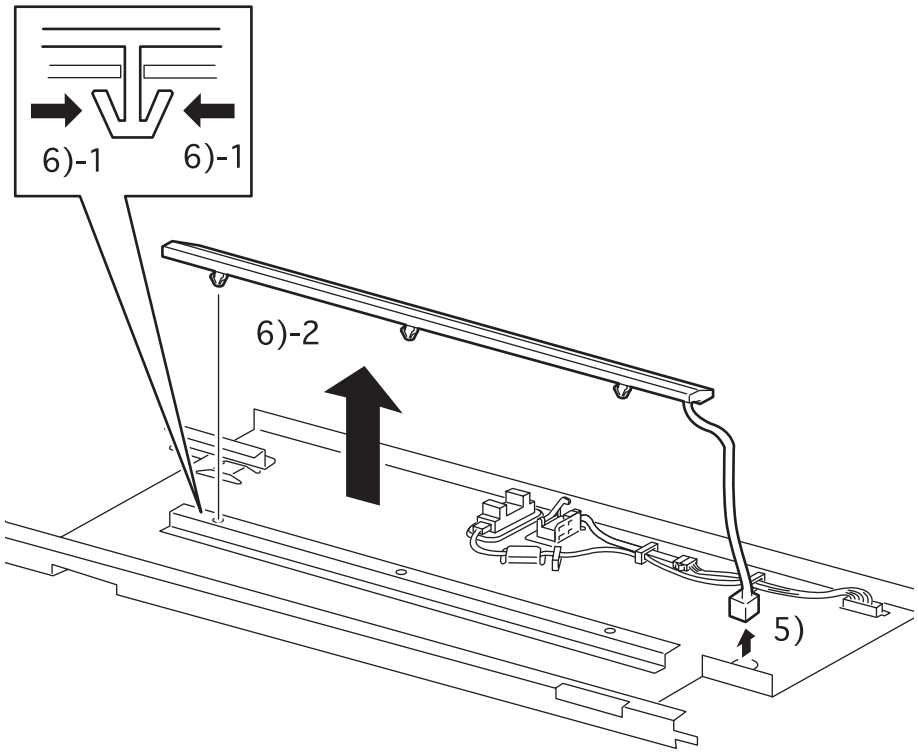

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Figure 4-61. ERASE LAMP ASSY Removal

4.2.7 Development

4.2.7.1 Toner Cartridge (PL7.1.1, PL7.1.2, PL7.1.3, PL7.1.4)

CAUTION

After removing, be sure to lay the Toner Cartridge in its horizontal position in a safe place.

NOTE: *TONER CARTRIDGE Y, TONER CARTRIDGE M, TONER CARTRIDGE C and TONER CARTRIDGE BK are hereinafter referred to by the generic term "Toner Cartridge."*

1. Open the FRONT COVER ASSY.
2. Lift the ROTARY LATCH LEVER, turn the ROTARY KNOB ASSY, and move the Toner Cartridge to the replacement position.
3. Turn the Toner Cartridge to the replacement position, and remove the Toner Cartridge.

REASSEMBLY

Make sure the arrow on the end of the Toner Cartridge is at the top when inserting.

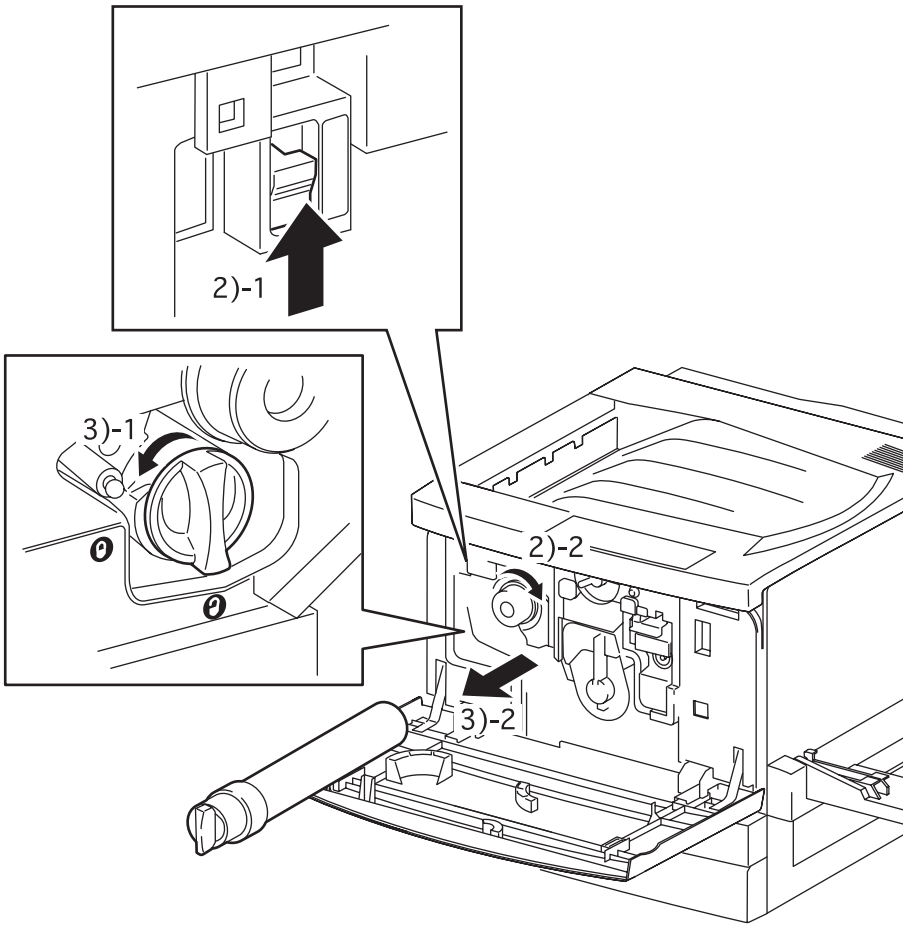


Figure 4-62. Toner Cartridge Removal

4.2.7.2 Developer Assy (PL7.1.10, PL7.1.20, PL7.1.30, PL7.1.40)

CAUTION

- **Be careful not to touch the Magnet Roll, etc., of the Developer Assy while performing the following.**
- **After removing, be sure to lay the Developer Assy in its horizontal position in a safe place.**

NOTE: *DEVELOPER ASSY Y, DEVELOPER ASSY M, DEVELOPER ASSY C, and DEVELOPER ASSY BK are hereinafter referred to by the generic term "Developer Assy."*

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
4. Remove the following two types of INNER COVER ASSY:
   - *Remove the L/H INNER COVER ASSY (PL1.1.10) (p.265)*
   - *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
5. *Remove the Toner Cartridge (PL7.1.1, PL7.1.2, PL7.1.3, PL7.1.4) (p.305)* mounted on the Developer Assy to be removed.
6. Free the harness by unhooking from the ROTARY LATCH ASSY.
7. Remove the screw (silver, w/collar, 8mm) securing the ROTARY LATCH ASSY. Slide the rotary latch to the right, unhook and remove.

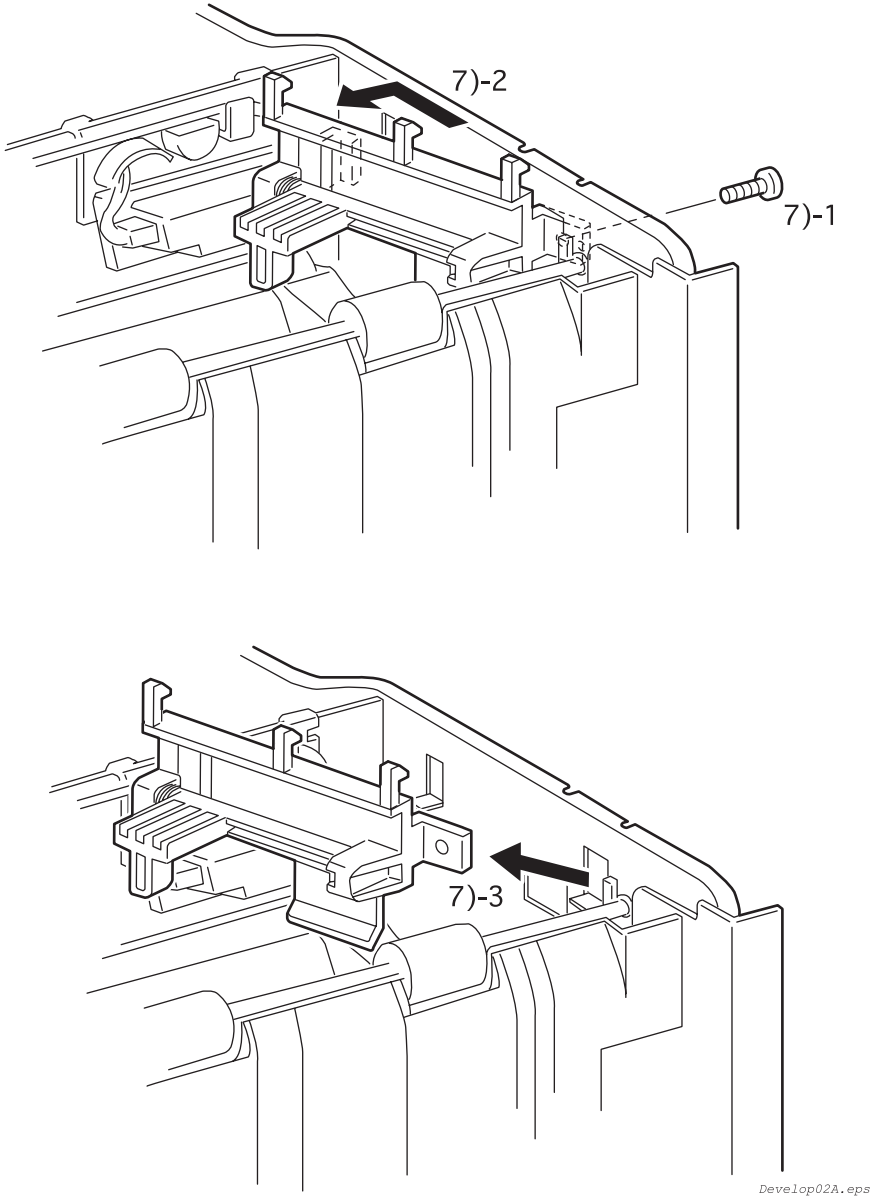


Figure 4-63. Developer Assy Removal (1)

NOTE: *Be careful not to drop the screws when performing the following.*

8. Turn the ROTARY FRAME ASSY and remove the screw (black, M4, 6mm) securing the Developer Assy. Align with the hole in the front of the frame, insert a screwdriver into the hole, and remove the screw.

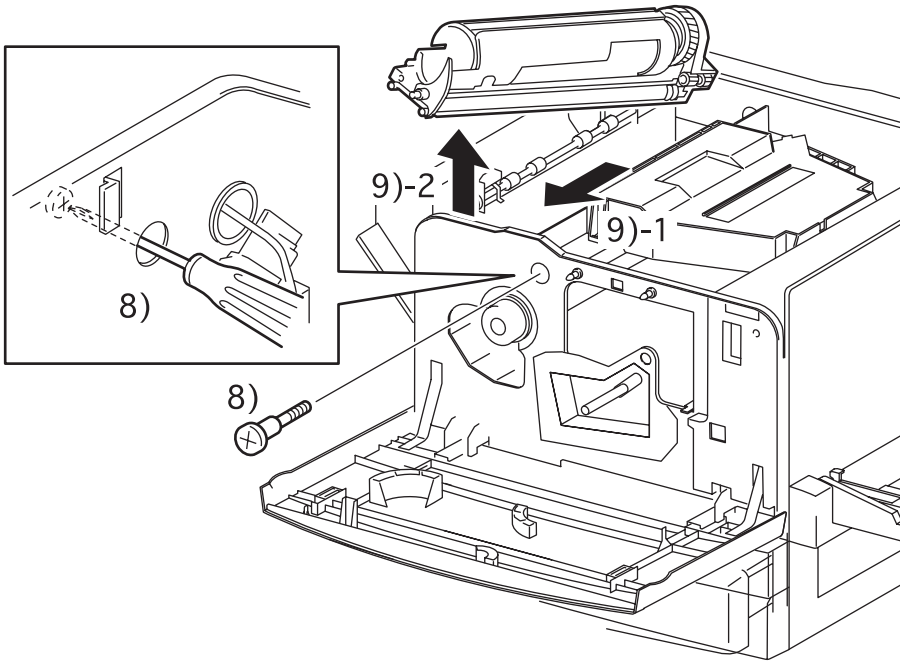
CAUTION

At this point the ROTARY LATCH ASSY has been dismounted. Be aware that the ROTARY FRAME ASSY can turn when the following step of the procedure.

9. Slide the Developer Assy forward, lift from the front and remove the Developer Assy.

REASSEMBLY

Reset the NVM values of the "drive time counter" and "life counter" of the newly installed Developer Assy.



Develop02B.eps

Figure 4-64. Developer Assy Removal (2)

4.2.7.3 ROTARY (H/P) SENSOR (PL7.2.22)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Free the harness by unhooking from the FAN DUCT.
3. Disconnect the DEVE. FAN connector (P/J82).
4. Remove the screw (silver, w/collar, 6mm) securing the FAN DUCT. Slide the FAN DUCT up, unhook from the frame, and remove the FAN DUCT together with the DEVE. FAN.
5. Disconnect the ROTARY (H/P) SENSOR connector (P/J58).
6. Remove the screw (silver, w/collar, 6mm) securing the ROTARY (H/P) SENSOR ASSY, and remove the ROTARY (H/P) SENSOR ASSY.
7. Unhook the ROTARY (H/P) SENSOR from the ROTARY (H/P) SENSOR PLATE and remove the ROTARY SENSOR.

Run the harness so that it does not touch the gears, etc.

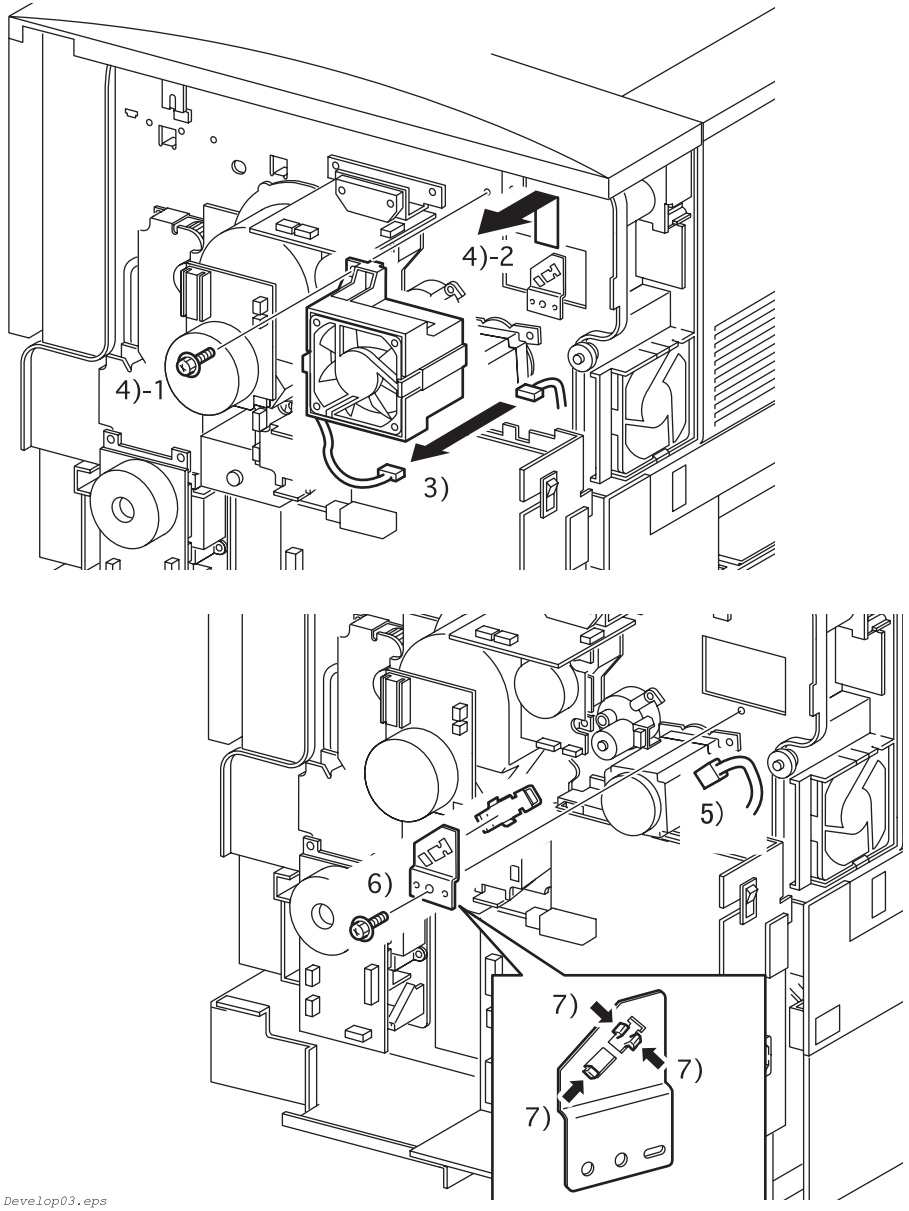
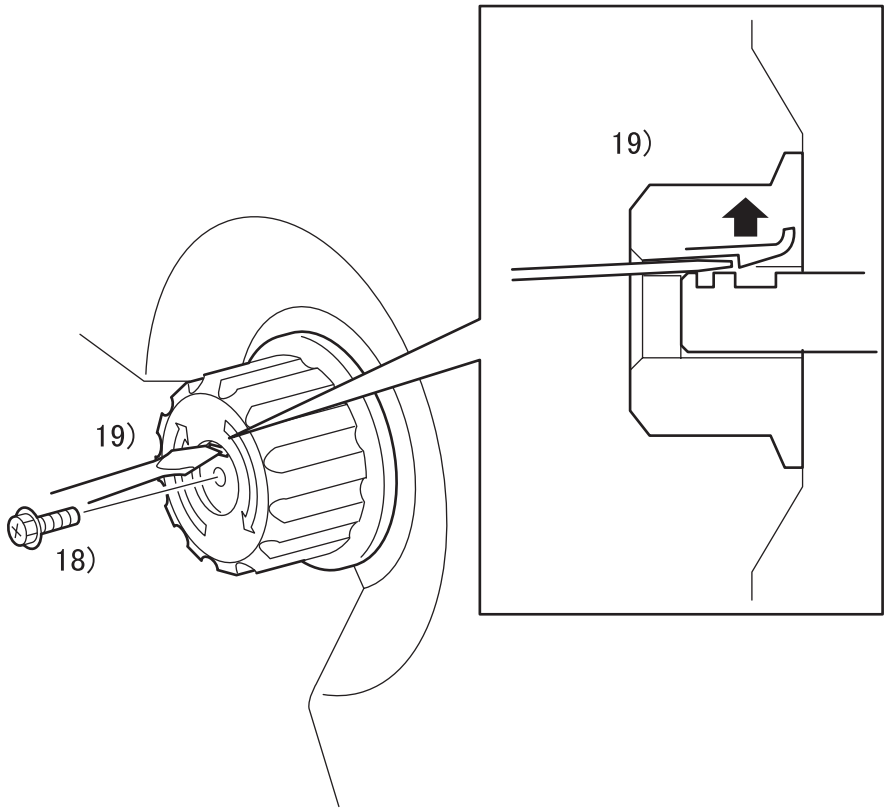


Figure 4-65. ROTARY (H/P) SENSOR Removal

4.2.7.4 ROTARY FRAME ASSY (PL7.2.2)

1. *Remove the FRONT COVER ASSY (PL1.1.1) (p.262)*
2. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
3. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
4. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
5. Remove the following types of INNER COVER ASSY:
   - *Remove the L/H INNER COVER ASSY (PL1.1.10) (p.265)*
   - *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
   - *Remove the R/H INNER COVER ASSY (PL1.1.15) (p.266)*
6. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
7. *Remove the Toner Cartridge (PL7.1.1, PL7.1.2, PL7.1.3, PL7.1.4) (p.305)*
8. *Remove the Developer Assy (PL7.1.10, PL7.1.20, PL7.1.30, PL7.1.40) (p.306)*
9. *Remove the ROTARY (H/P) SENSOR (PL7.2.22) (p.308)*
10. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
11. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
12. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*
13. *Remove the ROTARY MOTOR ASSY (PL11.1.20) (p.348)*
14. *Remove the MAG MOTOR ASSY (PL11.1.7) (p.349)*
15. *Remove the DEVE. GEAR CLUTCH ASSY (PL11.1.23) (p.350)*
16. *Remove the DISPENSE MOTOR ASSY (PL11.1.22) (p.349)*
17. *Remove the DEVE. TIE PLATE (PL12.1.3) (p.351)*
18. Remove the screw (black, w/collar, 8mm) securing the ROTARY KNOB ASSY.
19. Remove the ROTARY KNOB ASSY with a screwdriver, etc.



Develop04A.eps

Figure 4-66. ROTARY FRAME ASSY Removal (1)

CAUTION

The ROTARY FRAME ASSY is very heavy. Be careful not to drop or touch other parts with the ROTARY FRAME ASSY while performing the following.

20. Remove the ROTARY SPACER by opening it.
21. Remove the E-ring securing the rear of the ROTARY FRAME ASSY and remove the ROTARY REAR BEARING.

NOTE: *Keep the front shaft of the ROTARY FRAME ASSY from falling from the printer frame while performing the following step by leaving the front of the ROTARY FRAME ASSY supported.*

22. Remove the front ROTARY FRONT BEARING of the ROTARY FRAME ASSY.

CAUTION

At the next step, take care that the ROTARY FRAME ASSY does not interfere with and damage the ROTARY (H/P) SENSOR.

23. After removing the front shaft of the ROTARY FRAME ASSY from the slot of the printer frame, slide the ROTARY FRAME ASSY forward, remove the rear shaft from the printer frame, lift the ROTARY FRAME ASSY from the rear and remove.

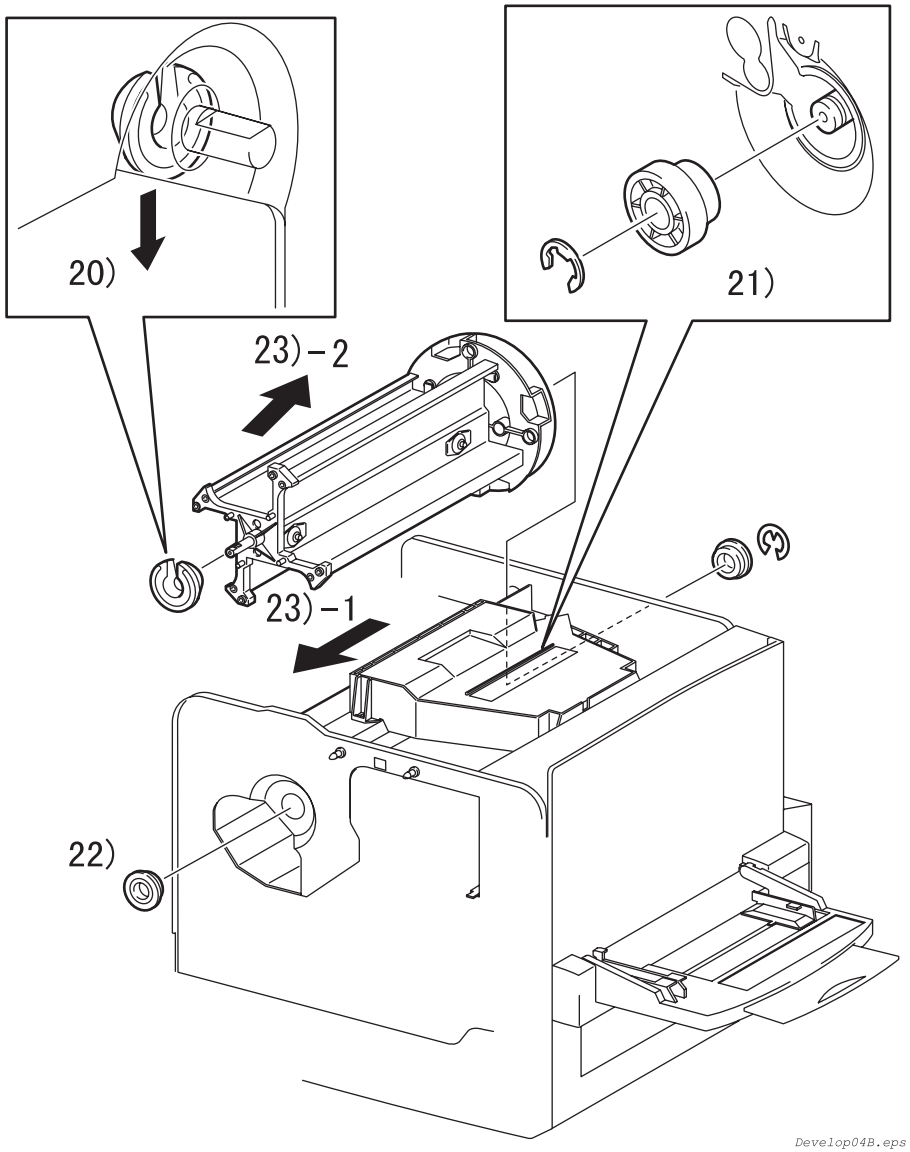


Figure 4-67. ROTARY FRAME ASSY Removal (2)

4.2.7.5 CARTRIDGE SENSOR (PL7.2.32)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. Disconnect the connector (P/J87) of the CARTRIDGE SENSOR and the two connectors (P/J198 and P/J199) of the FRONT COVER SWITCH L and release the harness from the CART.SENSOR PLATE.
3. Remove the screw (gold, tapping, 8mm) securing the CART. SENSOR ASSY and remove the CART. SENSOR ASSY.
4. Remove the screw (gold, tapping, 8mm) securing the CARTRIDGE SENSOR and remove the CARTRIDGE SENSOR.

REASSEMBLY

Securely hook the harness in the hooks of the CART. SENSOR PLATE and ROTARY LATCH ASSY so there is no slack in the harness.

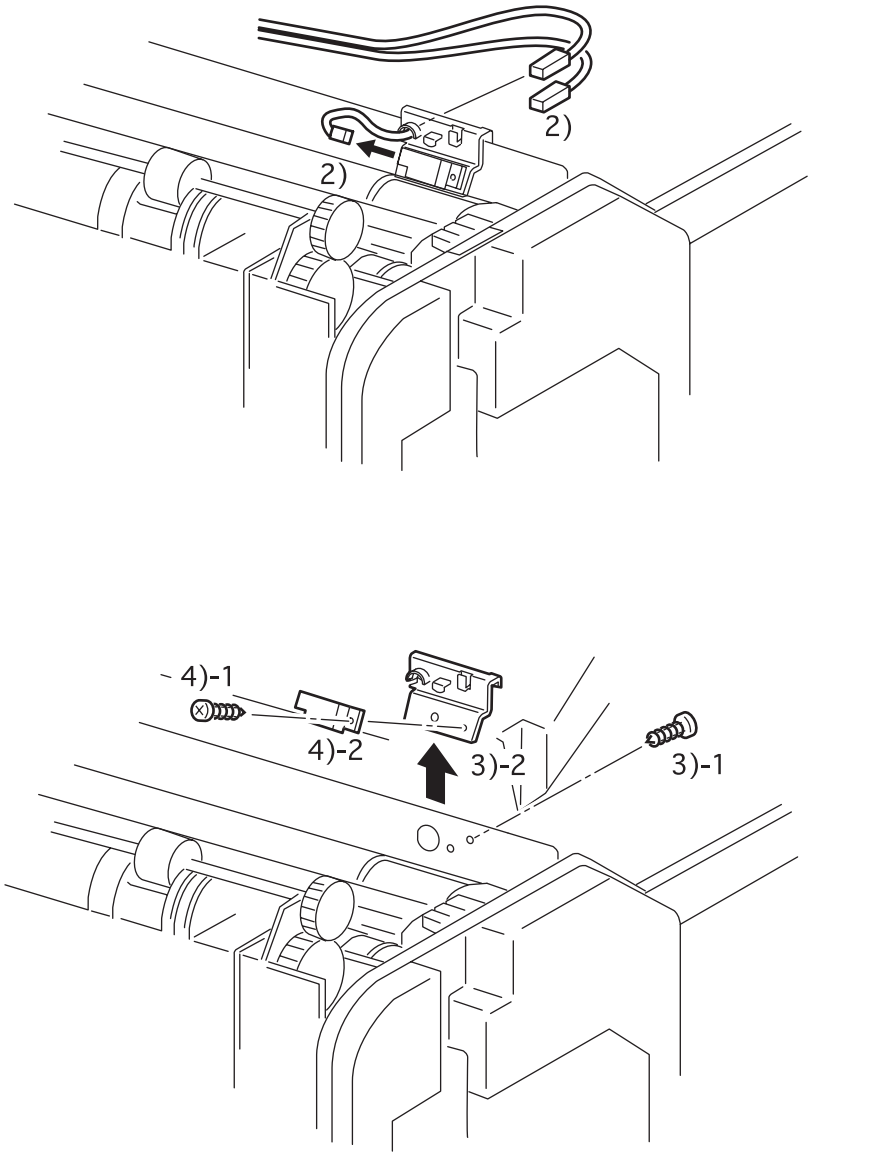


Figure 4-68. CARTRIDGE SENSOR Removal

4.2.8 IBT

4.2.8.1 TENSION LEVER (PL8.1.21)

1. Open the FRONT COVER ASSY.
2. Turn the lever to the tension release position. Remove the screw (Black, w/collar, 12mm) securing the TENSION LEVER.
3. Pull out the TENSION LEVER and remove.

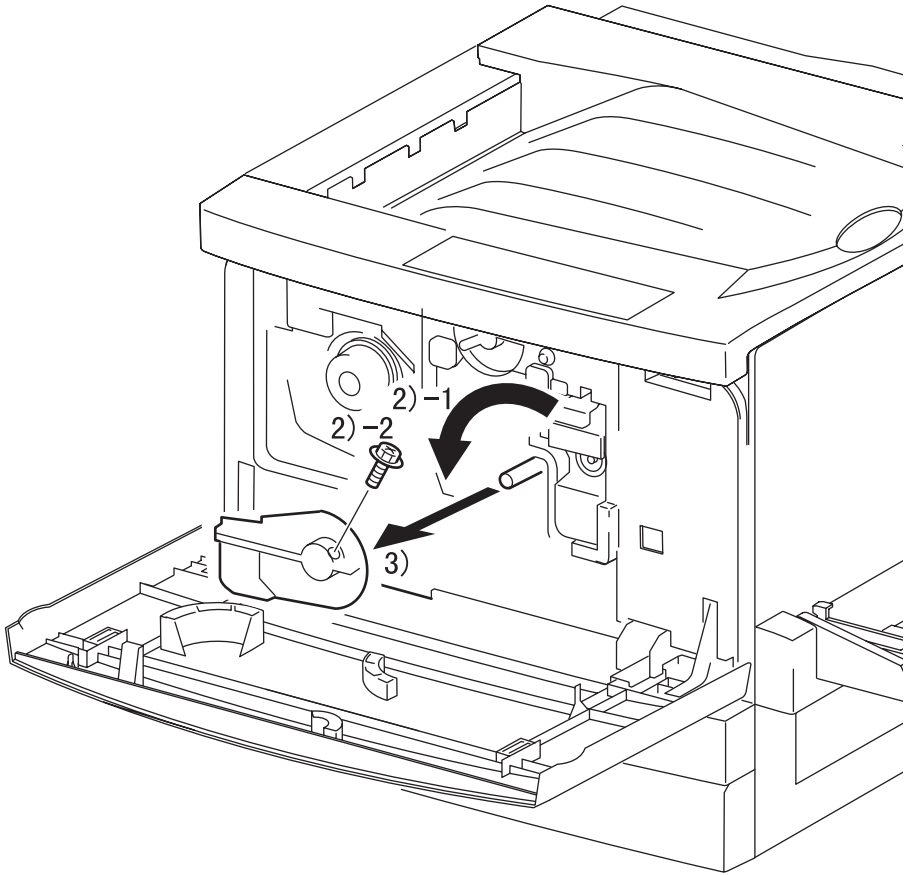


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Figure 4-69. TENSION LEVER Removal

4.2.8.2 TRANSFER HIGH ASSY (PL8.1.20)

CAUTION

Make sure the IBT BELT ASSY does not touch any other part while performing the following. Never tough the surface of the IBT BELT with your hands. (You may hold the assembly by the ribs on either side.)

1. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
2. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
3. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
4. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
5. *Remove the BELT CLEANER ASSY (PL8.1.23) (p.314)*
6. *Remove the 2ND BTR ASSY (PL8.1.22) (p.315)*
7. Pull out the MSI/REGI HIGH ASSY.
8. Disconnect the ADC SENSOR ASSY connector (P/J81) and connector (P/J54) from the TR0 SENSOR. Then, remove the harness from clamps.
9. Remove the 4 screws (silver, w/collar, 8mm) securing the PANEL HIGH ASSY, and remove the PANEL HIGH ASSY.

NOTE: *At the next step, take care not to lose any of the springs and bearings.*

10. Lift the TRANSFER HIGH ASSY slightly and remove it by pulling forward.

REASSEMBLY

When installing the PANEL HIGH ASSY, tighten the screws while pressing the PANEL HIGH ASSY against the BASE FRAME ASSY in such a direction that they are in parallel with each other.

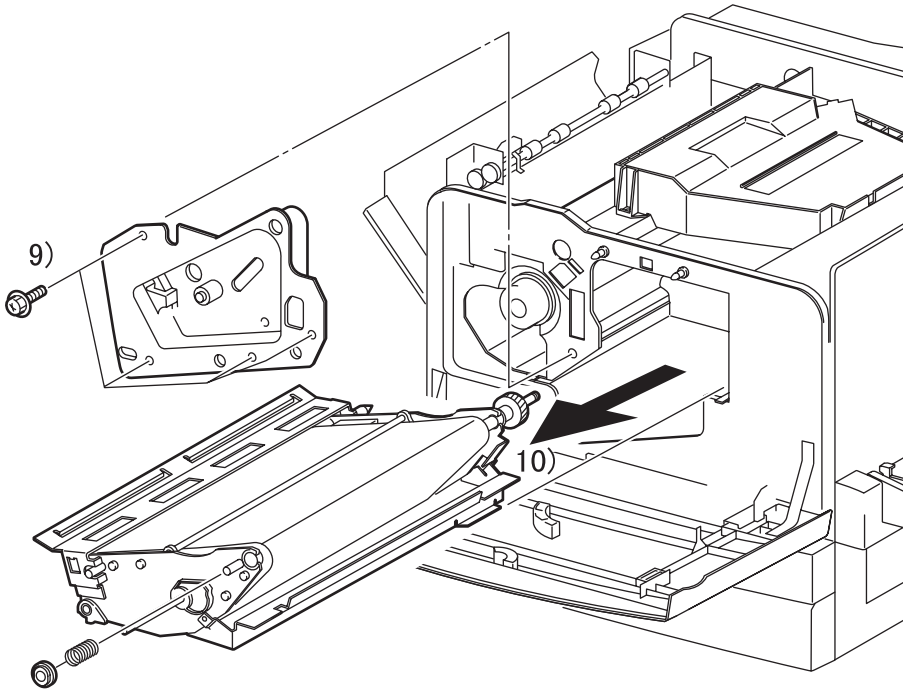

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Figure 4-70. TRANSFER HIGH ASSY Removal

4.2.8.3 BELT CLEANER ASSY (PL8.1.23)

CAUTION

Be careful not to touch the IBT BELT ASSY or cleaning blade of the BELT CLEANER ASSY. Do not allow the Cleaning Blade to come in contact with any other parts.

1. *Remove the FUSER ASSY (PL9.1.1) (p.321)*

NOTE 1: *Toner may spill from the BELT CLEANER ASSY while performing the following. You should therefore spread paper on the frame below the BELT CLEANER ASSY, and be careful not to spill toner while performing the work.*

2: *After removing the BELT CLEANER ASSY in the following procedure, place it on paper in case toner is spilled.*

2. Pull the shaft underneath the BELT CLEANER ASSY toward the rear, undo the lock, and remove the BELT CLEANER ASSY by sliding the front to the left.

REASSEMBLY

- **Once the BELT CLEANER ASSY has been replaced with a new one, be sure to execute "counter clear". (For details, refer to *"5.4 Diagnostics (p.369)"*.)**
- **Accurately align the toner port of the AUGER HIGH ASSY and toner discharge port of the BELT CLEANER ASSY when mounting.**

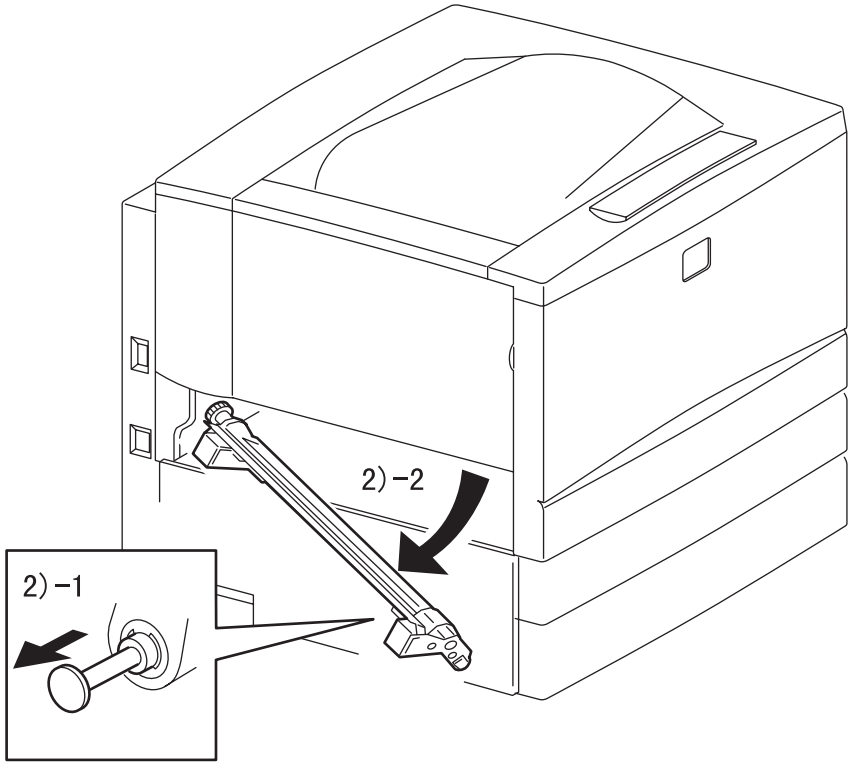

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Figure 4-71. BELT CLEANER ASSY Removal

4.2.8.4 2ND BTR ASSY (PL8.1.22)

CAUTION

Take care never to bring the IBT BELT ASSY or IBT BELT ASSY into contact with any other parts.

1. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
2. *Remove the BELT CLEANER ASSY (PL8.1.23) (p.314)*
3. Pull out and remove the 2ND BTR ASSY from the left side of the printer.

REASSEMBLY

- **Once the 2ND BTR ASSY has been replaced with a new one, be sure to execute "counter clear". (For details, refer to "*5.4 Diagnostics (p.369)*".)**
- **When mounting, be sure to push the 2ND BTR ASSY firmly in place.**

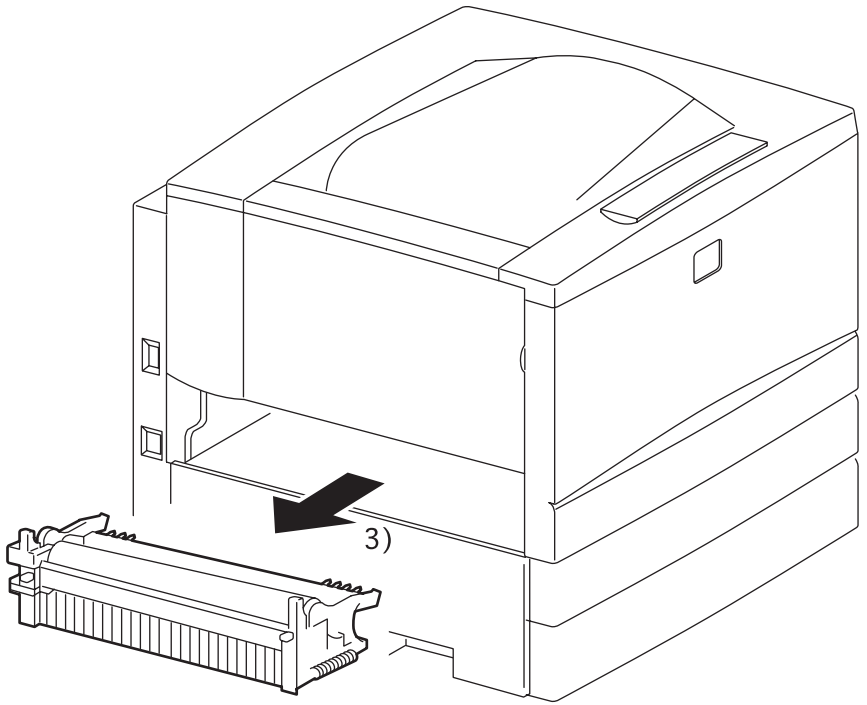

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Figure 4-72. 2ND BTR ASSY Removal

4.2.8.5 2ND BTR CAM ASSY (PL8.1.1)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
4. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
5. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
6. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
7. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
8. *Remove the BELT CLEANER ASSY (PL8.1.23) (p.314)*
9. *Remove the 2ND BTR ASSY (PL8.1.22) (p.315)*
10. *Remove the BTR CAM CLUTCH (PL8.3.2) (p.320)*
11. *Remove the TRANSFER HIGH ASSY (PL8.1.20) (p.313)*
12. Remove the 2 screws (black, w/collar, tapping, 8mm) securing the IBT FRONT BRACKET ASSY, and remove the IBT FRONT BRACKET ASSY.
13. Disconnect the BTR WHEEL SENSOR connector (P/J100).
14. Remove the three screws (black, w/collar, 4 mm) securing the 2ND BTR CAM ASSY, and remove it upward.

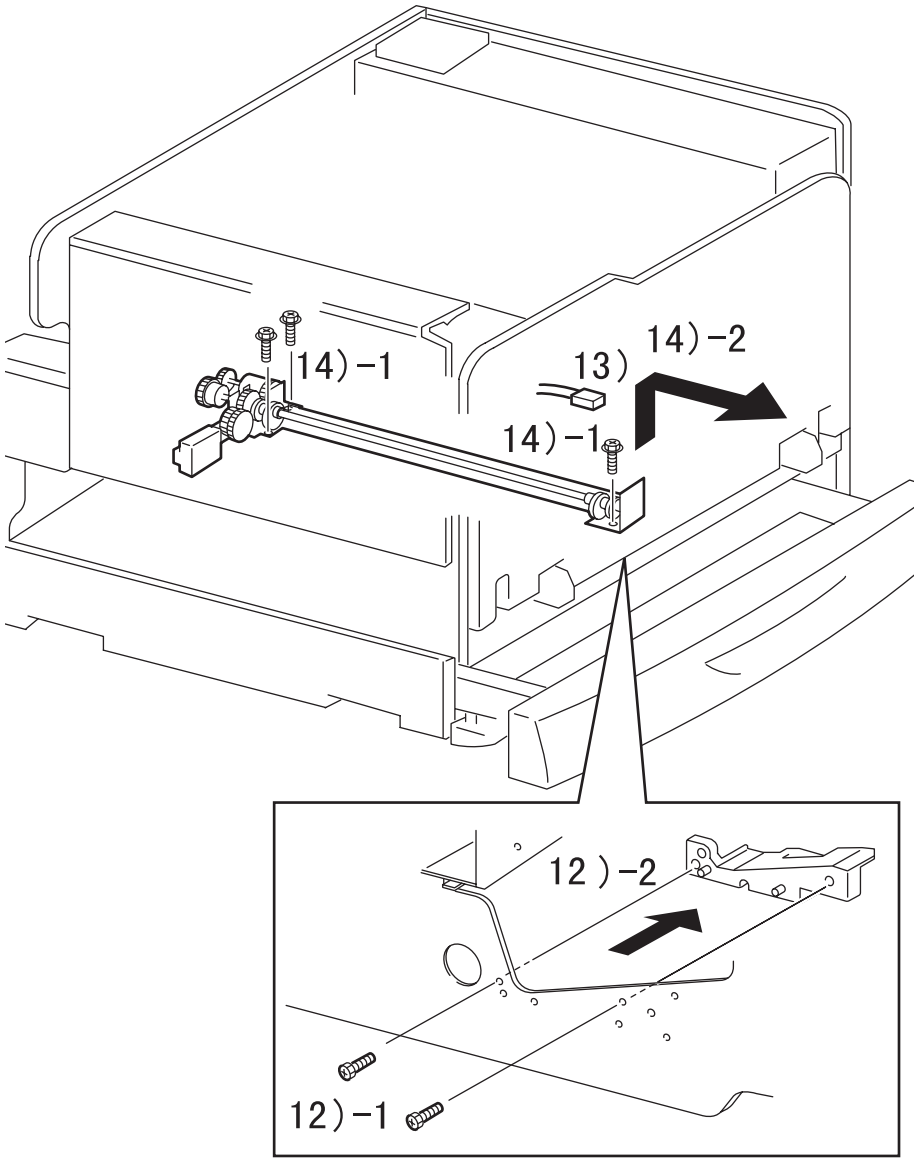


Figure 4-73. 2ND BTR CAM ASSY Removal

4.2.8.6 AUGER HIGH ASSY (PL8.1.6)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
4. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
5. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
6. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
7. *Remove the ROS ASSY (PL6.1.1) (p.300)*
8. *Remove the XL RAIL ASSY (PL6.1.40) (p.302)*
9. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
10. *Remove the BELT CLEANER ASSY (PL8.1.23) (p.314)*
11. *Remove the 2ND BTR ASSY (PL8.1.22) (p.315)*
12. *Remove the BTR CAM CLUTCH (PL8.3.2) (p.320)*
13. *Remove the TRANSFER HIGH ASSY (PL8.1.20) (p.313)*
14. *Remove the 2ND BTR CAM ASSY (PL8.1.1) (p.316)*
15. *Remove the RIGHT COVER ASSY (PL1.1.51) (p.268)*
16. *Remove the CONTROLLER PWB (PL14.1.10) (p.358)*
17. *Remove the CONT. CHASSIS ASSY (PL14.1.1) (p.359)*
18. Disconnect the CRUM CONNECTOR ASSY connector (P/J84).
19. Remove the screw (silver, w/collar, 6mm) securing the CRUM CONNECTOR ASSY, and remove the CRUM CONNECTOR ASSY from inside the printer.
20. *Remove the LV/HV POWER SUPPLY (PL13.1.1) (p.352)*
21. *Remove the PRO DRIVE GEAR ASSY (PL11.1.2) (p.345)*
22. Remove the screw (silver, w/collar, 6mm) securing the AUGER HIGH ASSY at the rear of the printer.
23. Remove the screw (silver, w/collar, 6mm) securing the AUGER HIGH ASSY inside the printer (lower side).
24. Remove the screw (silver, w/collar, 8mm) securing the AUGER HIGH ASSY inside the printer (upper side).
25. Remove the 3 screws (black, tapping, 10mm) securing the IBT REAR BRACKET ASSY, and remove the IBT REAR BRACKET ASSY.

NOTE 1: *Toner may spill from the AUGER HIGH ASSY while performing the following. You should therefore spread paper on the frame below the AUGER HIGH ASSY, and be careful not to spill toner while performing the work.*

2: *After removing the AUGER HIGH ASSY in the following procedure, place it on paper in case toner is spilled.*

26. Remove the AUGER HIGH ASSY from the top.

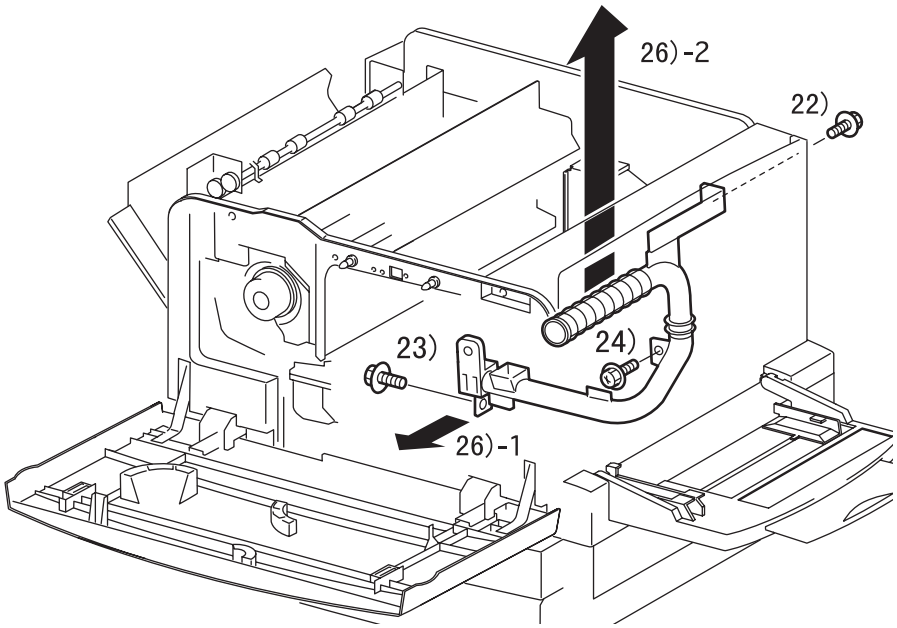


Figure 4-74. AUGER HIGH ASSY Removal

4.2.8.7 IBT BELT ASSY (PL8.2.2)

CAUTION

Never touch the surface of the IBT BELT (except the ribs at both ends) with your hand.
In addition, take care not to scratch or soil the IBT BELT ASSY.

1. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
2. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
3. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
4. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
5. *Remove the BELT CLEANER ASSY (PL8.1.23) (p.314)*
6. *Remove the 2ND BTR ASSY (PL8.1.22) (p.315)*
7. Remove the MSI/REGI HIGH ASSY. *(See p.282)*

NOTE: *Spread paper on the frame below the IBT BELT ASSY without getting dirty while performing the work.*

8. *Remove the TRANSFER HIGH ASSY (PL8.1.20) (p.313)*

NOTE: *At the following steps, perform the work with the TRANSFER HIGH ASSY standing. In doing so, be sure to always hold the TRANSFER HIGH ASSY with your hand.*

9. Mount the TENSION LEVER, and lift the PUSH IN LEVER while turning.
10. Spread the arms securing the PUSH IN SHAFT of the TRANSFER HIGH ASSY to the left/right, and remove the PUSH IN SHAFT. *(See Figure 4-75)*
11. Turn the TENSION LEVER, lift the arm to which the PUSH IN SHAFT is attached, and remove the TENSION LEVER.
12. Disconnect the TR0 SENSOR connector (P/J57).

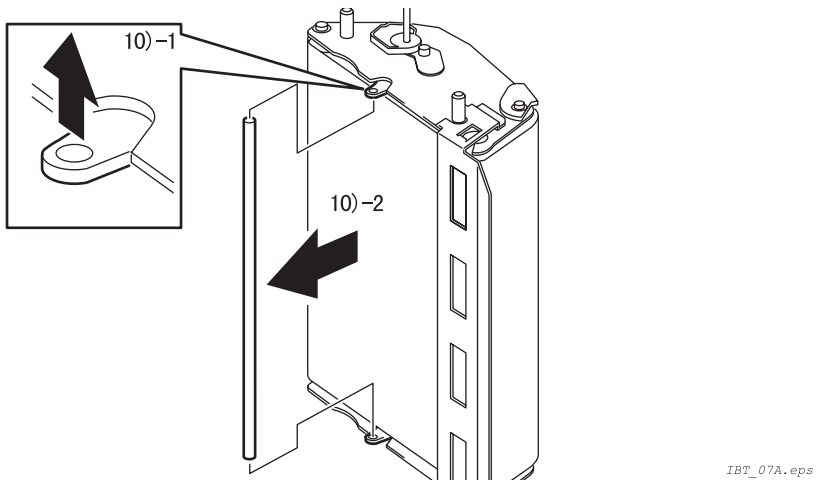


Figure 4-75. IBT BELT ASSY Removal (1)

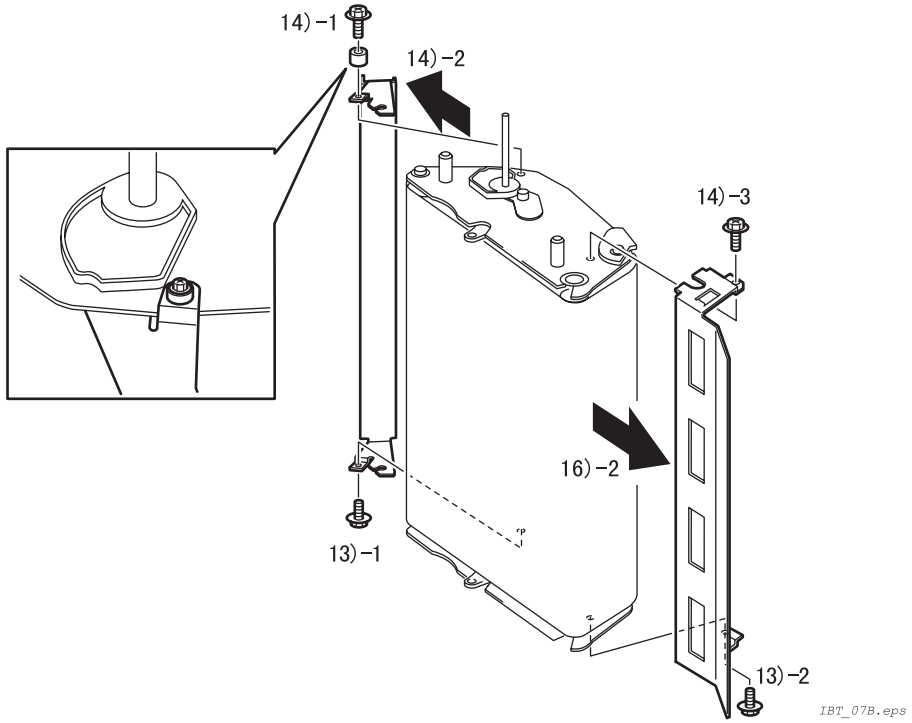


Figure 4-76. IBT BELT ASSY Removal (2)

13. Remove the 2 screws (rear) (black, w/collar, 12mm) securing the IBT R/H RAIL and IBT L/H RAIL ASSY. *(See Figure 4-76)*
14. Remove the 2 screws (front) (black, w/collar, 10mm) securing the IBT R/H RAIL and IBT L/H RAIL ASSY, and remove the IBT R/H RAIL, the IBT L/H RAIL ASSY and COLLAR.
15. Push in the metal cams on rear side of the TRANSFER HIGH ASSY, and insert one of the 4 screws securing the RAIL into the hole on the side, and lock the metal cam.
16. Push in the metal cams on front side of the TRANSFER HIGH ASSY, and insert one of the other screws securing the RAIL into the hole on the side, and lock the metal cam. *(See Figure 4-77)*
17. Remove the LIB at the bottom of the IBT BELT ASSY from the TRANSFER HIGH ASSY, and remove the IBT BELT ASSY to the forward. *(See Figure 4-78)*

REASSEMBLY

- **Be sure to clean the PUSH IN SHAFT of all foreign matter or lubrication prior to.**
- **Mounting down the silver mark (TR0) of the IBT BELT.**

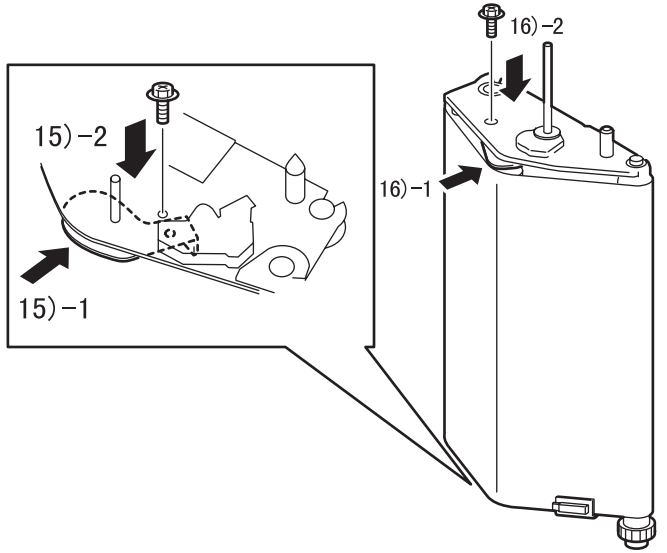


Figure 4-77. IBT BELT ASSY Removal (3)

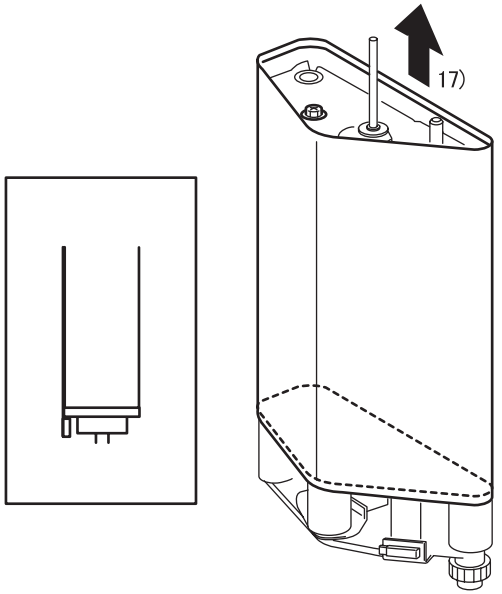


Figure 4-78. IBT BELT ASSY Removal (4)

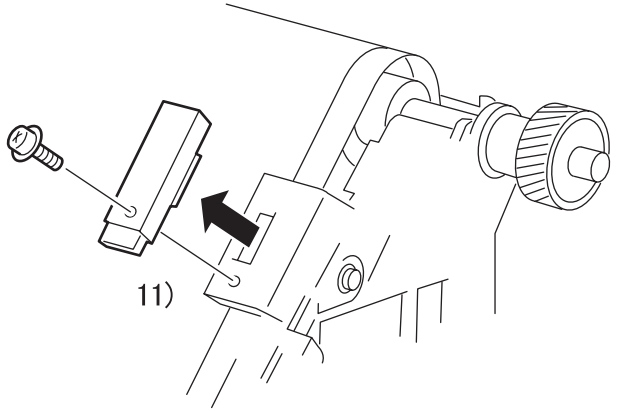
4.2.8.8 TR0 SENSOR (PL8.2.24)

1. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
2. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
3. *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
4. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
5. *Remove the BELT CLEANER ASSY (PL8.1.23) (p.314)*
6. *Remove the 2ND BTR ASSY (PL8.1.22) (p.315)*
7. Pull out the MSI/REGI HIGH ASSY. *(See p.282)*
8. *Remove the TRANSFER HIGH ASSY (PL8.1.20) (p.313)*
9. Remove the 2 screws (black, w/collar, 10mm) securing the IBT R/H RAIL, remove the COLLAR, and get down the IBT R/H RAIL.
10. Disconnect the TR0 SENSOR connector (P/J57).
11. Remove the screw (black/w/collar, 10mm) securing the TR0 SENSOR, and remove the TR0 SENSOR.

4.2.8.9 BTR CAM CLUTCH (PL8.3.2)

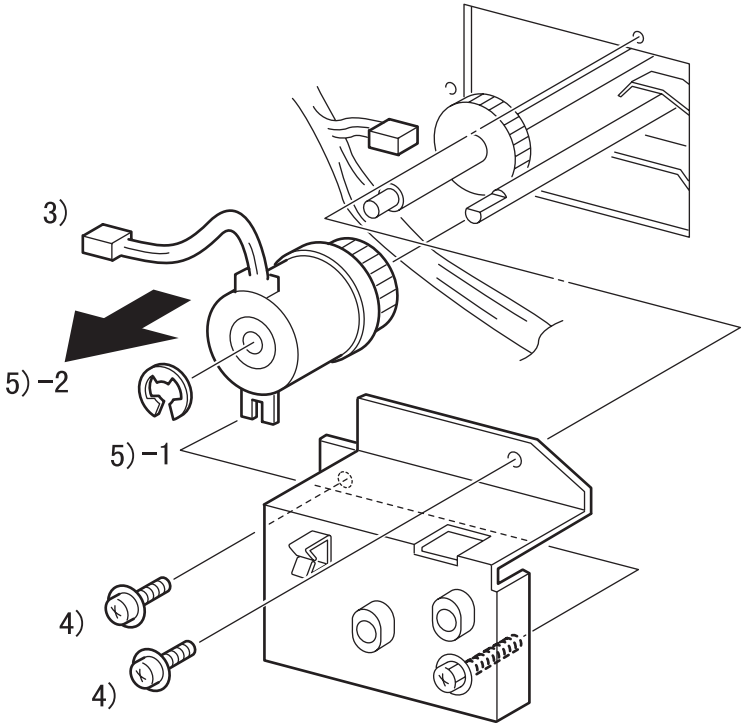
1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the PRO MOTOR ASSY (PL 11.1.6) (p.347)*
3. Disconnect the BTR CAM CLUTCH connector (P/J63).
4. Remove the 2 screws (silver, w/collar, 6mm) securing the BTR REAR BRACKET, and remove the BTR REAR BRACKET.
5. Remove the E-ring securing the BTR CAM CLUTCH, and remove the BTR CAM CLUTCH.

Position the notch of the BTR CAM CLUTCH properly at the screw (black, w/collar, 16 mm).



IBT_08.eps

Figure 4-79. TR0 SENSOR Removal



IBT_09.eps

Figure 4-80. BTR CAM CLUTCH Removal

4.2.9 Fusing

4.2.9.1 FUSER ASSY (PL9.1.1)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Remove the FRONT MID COVER, let loose fully the drop preventing screw. *(See p.262)*
3. Pull out the FUSER ASSY, and remove by lifting diagonally.

4.2.9.2 MAIN FUSER ASSY (PL9.1.2)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY.
3. Disconnect the 2 connectors (P/J72, P/J79) of the MAIN FUSER ASSY.
4. Remove the 3 screws (gold, w/washer, 8mm) securing the MAIN FUSER ASSY, Remove the MAIN FUSER ASSY.

REASSEMBLY

- **Take care not to catch harness.**
- **After replacing the MAIN FUSER ASSY with a new part, enter the maintenance mode to reset the counter (Counter Clear). (For details, see "*5.4 Diagnostics (p.369)*".)**

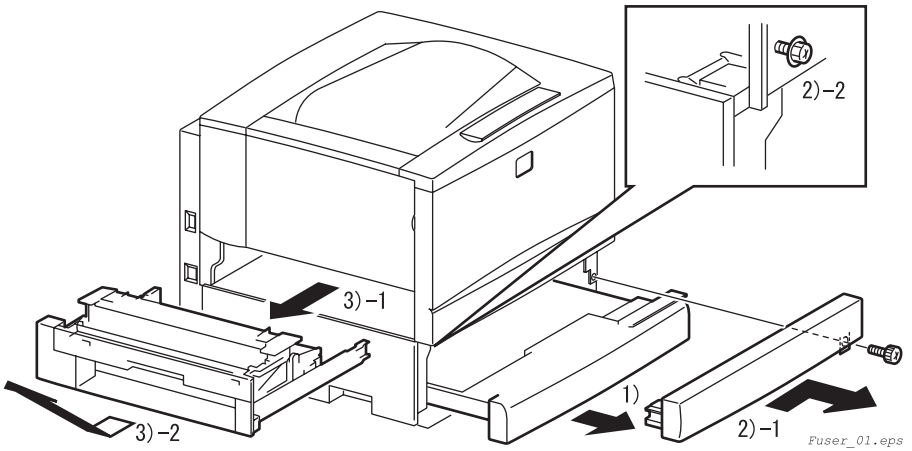


Figure 4-81. FUSER ASSY Removal

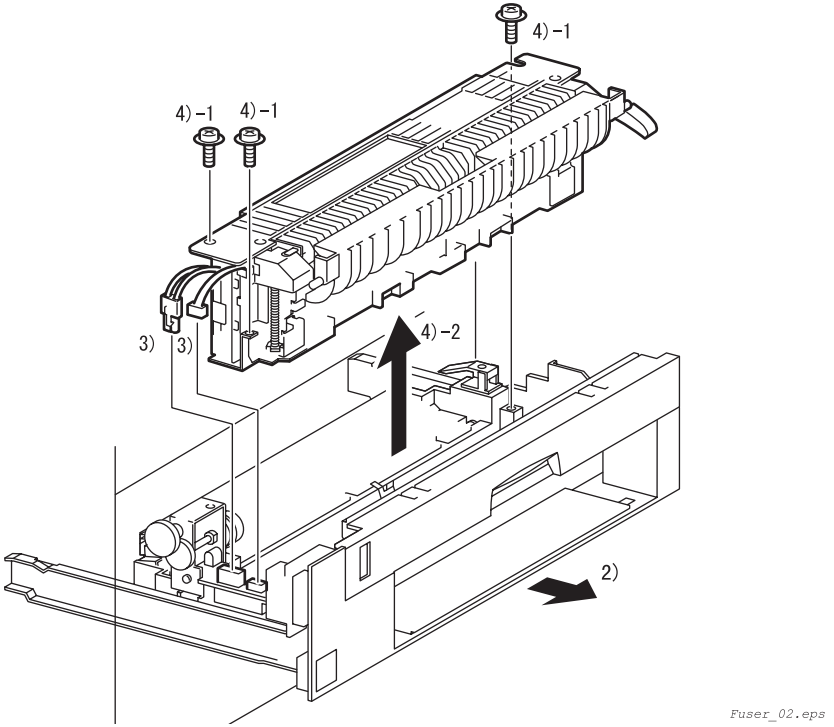
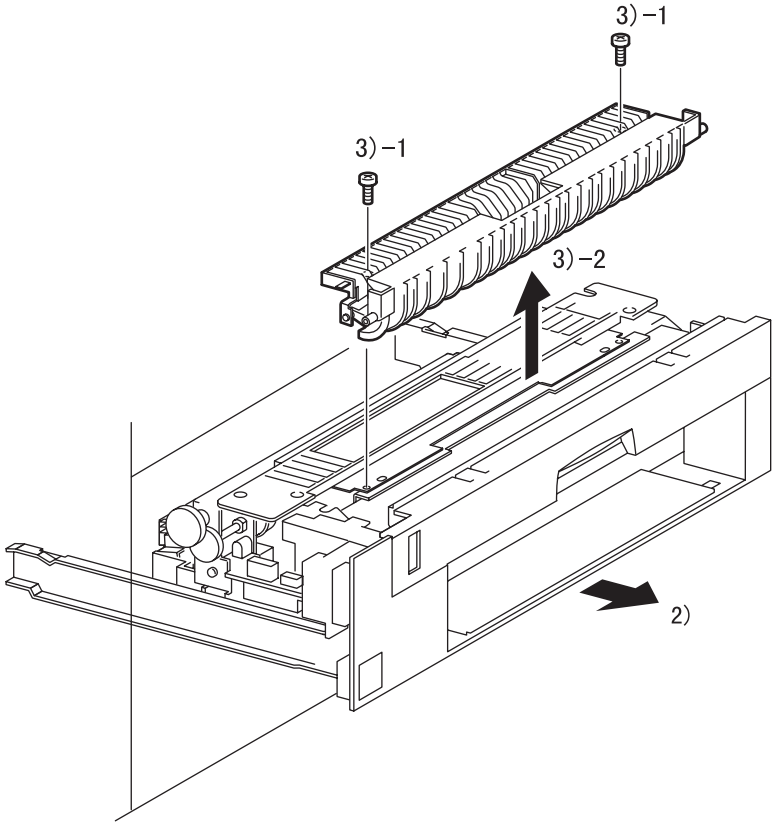


Figure 4-82. MAIN FUSER ASSY Removal

4.2.9.3 UPPER GUIDE ASSY (PL9.2.20)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. Remove the 2 screws (silver, 6mm) securing the UPPER GUIDE ASSY, and remove the UPPER GUIDE ASSY.



Fuser_03.eps

Figure 4-83. UPPER GUIDE ASSY Removal

4.2.9.4 FUSER UPPER ASSY (PL9.2.30)

CAUTION

Take care not to damage the surface of the HEAT ROLL.

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. Peel off the Q/L SEAL and release the harness of the TEMP. SENSOR ASSY from the hook of the FUSER UPPER ASSY.
6. Disconnect the fastening terminal in the front of the H/R HEATER.

NOTE: *When the FUSER UPPER ASSY is removed in the following, the FUSER FRONT COVER and FUSER REAR COVER will no longer be secured. Be careful not to allow the covers to fall.*

7. Remove the 2 screws (silver, 6mm) securing the FUSER UPPER ASSY, and remove the FUSER UPPER ASSY.
8. Remove the screw (silver, tapping, 14mm) securing the TEMP. SENSOR ASSY, and remove the TEMP. SENSOR ASSY from the FUSER UPPER ASSY.
9. Peel off the FUSE SEAL, Remove the screw (gold, with washer, 8 mm) securing the round terminal of the HEATER WIRE, and detach the HEATER WIRE from the FUSER UPPER ASSY.

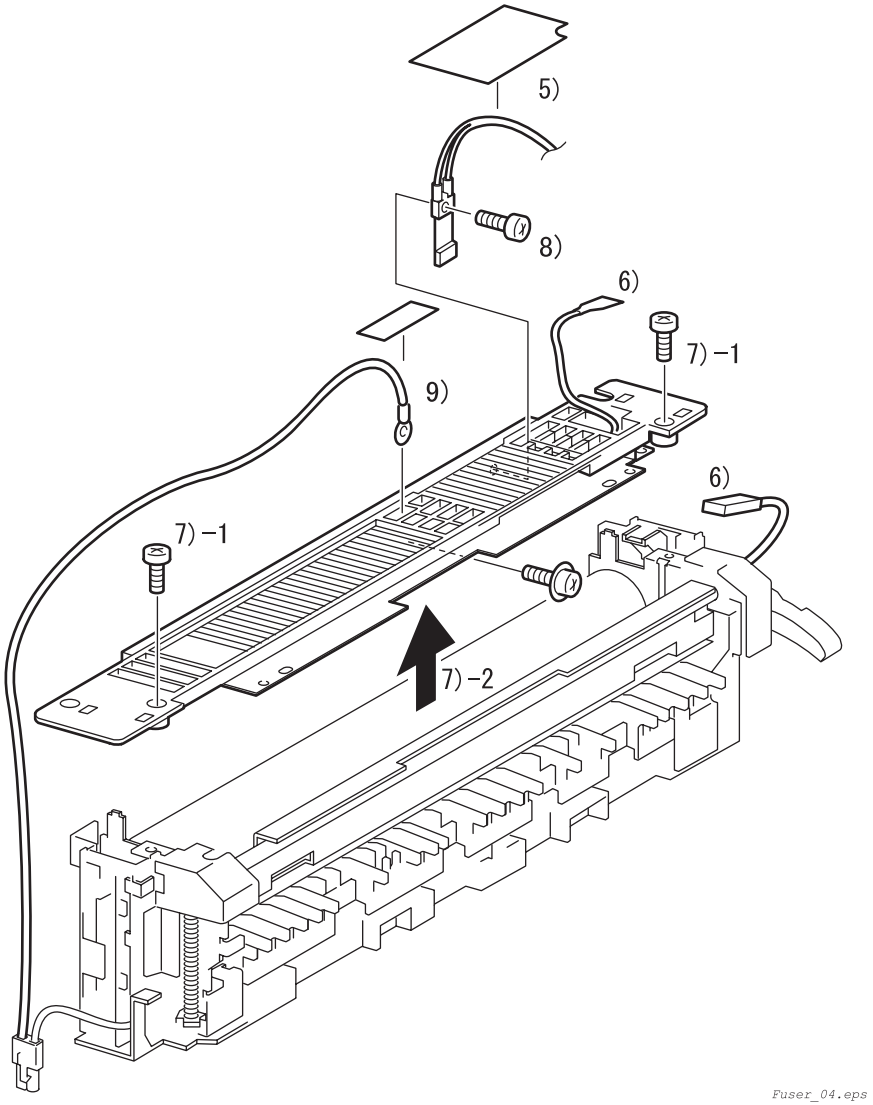


Figure 4-84. FUSER UPPER ASSY Removal

4.2.9.5 H/R HEATER (PL9.2.40)

CAUTION

- **The fastening terminal between the H/R HEATER and the P/R HEATER is connected very securely. When disconnecting it, take care not to damage the H/R HEATER or P/R HEATER.**
- **Take care not to touch the surface of the H/R HEATER.**

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. Release the wires and harness from the hook of the FUSER REAR COVER and disconnect the fastening terminals of the P/R HEATER and H/R HEATER.
6. *Remove the FUSER UPPER ASSY (PL9.2.30) (p.323)*
7. Remove the screw (black, w/collar, 8mm) securing the FUSER NIP HANDLE, and remove the FUSER NIP HANDLE.
8. Disconnect the front-side fastening terminal of the P/R HEATER and pass the front-side fastening terminals of the H/R HEATER and P/R HEATER through the hole in the FUSER FRONT COVER, and remove the FUSER FRONT COVER.

NOTE: *The gear is no longer secured when the FUSER REAR COVER is removed. Be careful not to allow the gear to fall out while performing the following.*

9. Pass the rear-side fastening terminals of the H/R HEATER and P/R HEATER through the hole in the FUSER REAR COVER, and remove the FUSER REAR COVER.
10. Remove the H/R HEATER by pulling straight out from the rear.

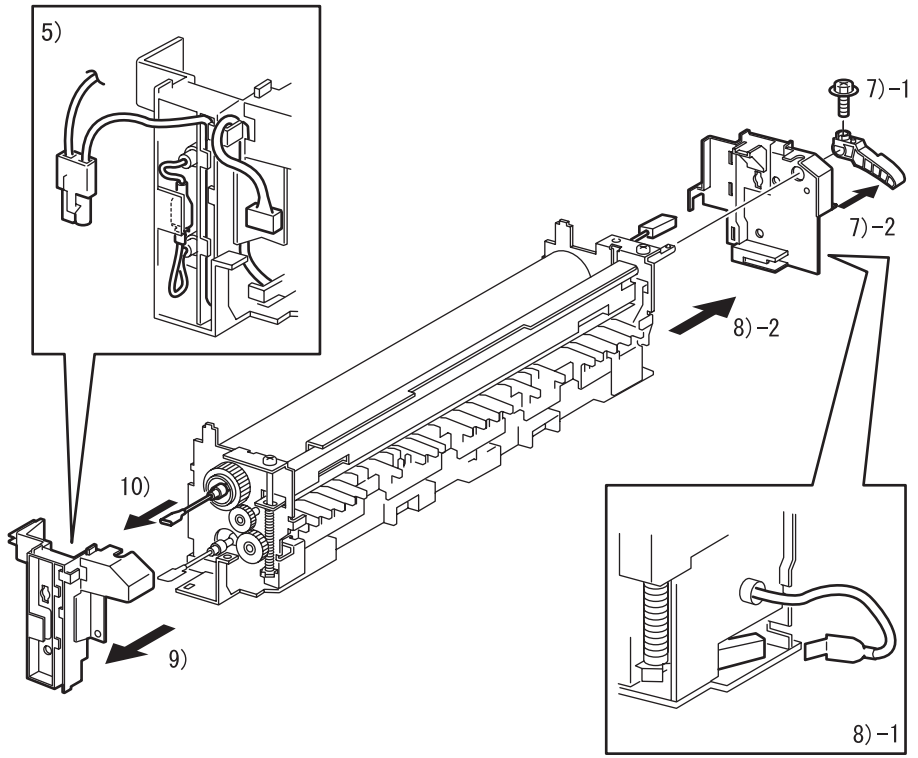


Figure 4-85. H/R HEATER Removal

4.2.9.6 P/R HEATER (PL9.2.41)

CAUTION

Take care not to touch the surface of the H/R HEATER.

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. Release the wires and harness from the hook of the FUSER REAR COVER and disconnect the fastening terminals of the P/R HEATER and H/R HEATER.
6. *Remove the FUSER UPPER ASSY (PL9.2.30) (p.323)*
7. Remove the screw (black, w/collar, 8mm) securing the FUSER NIP HANDLE, and remove the FUSER NIP HANDLE.
8. Disconnect the front-side fastening terminal of the P/R HEATER and pass the front-side fastening terminals of the H/R HEATER and P/R HEATER through the hole in the FUSER FRONT COVER, and remove the FUSER FRONT COVER.

NOTE: *The gear is no longer secured when the FUSER REAR COVER is removed. Be careful not to allow the gear to fall out while performing the following.*

9. Pass the rear-side fastening terminals of the H/R HEATER and P/R HEATER through the hole in the FUSER REAR COVER, and remove the FUSER REAR COVER.
10. Remove the P/R HEATER by pulling straight out from the rear.

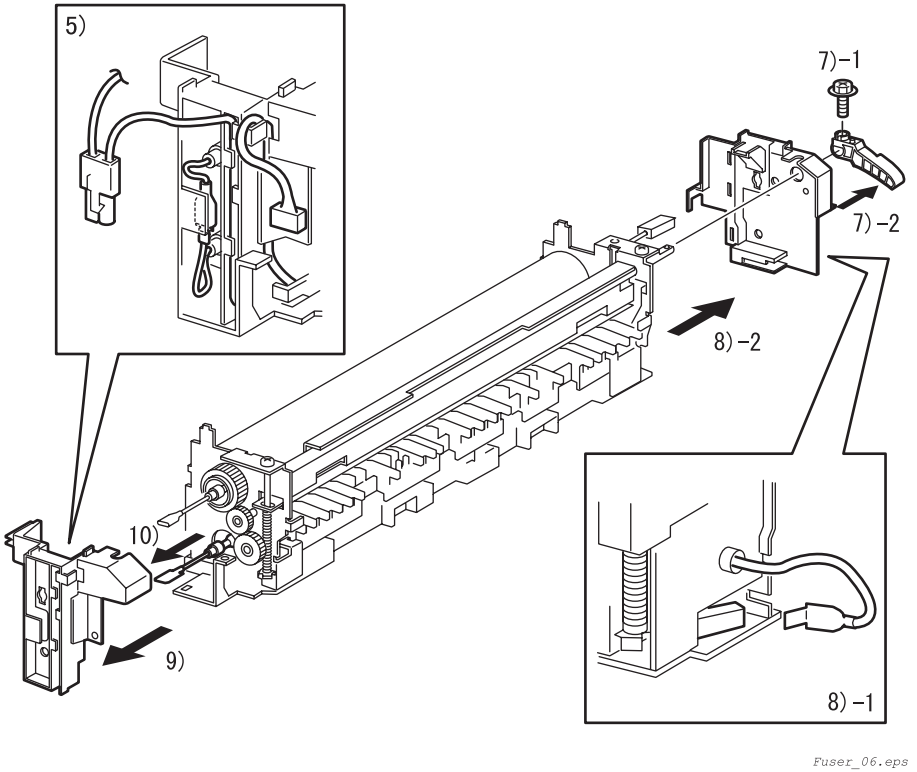


Figure 4-86. P/R HEATER Removal

4.2.9.7 LOWER GUIDE ASSY (PL9.2.13)

CAUTION

- **Be careful not to damage the surface of the PRESSURE ROLL with the P/R FINGER while removing the LOWER GUIDE ASSY.**
- **Make sure the FUSER EXIT ACTUATOR does not interfere with the FUSER EXIT SENSOR and fall out while mounting the LOWER GUIDE ASSY.**

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. Remove the screw (silver, 6mm) securing the LOWER GUIDE ASSY and the ELIMINATOR EARTH WASHER, peel off the frame-side adhesive area of the REAR ELIMINATOR which is attached over the LOWER GUIDE ASSY and FUSER REAR FRAME, and remove the LOWER GUIDE ASSY by shifting it to the front.

REASSEMBLY

Replace the REAR ELIMINATOR with the new one supplied together with the LOWER GUIDE ASSY.

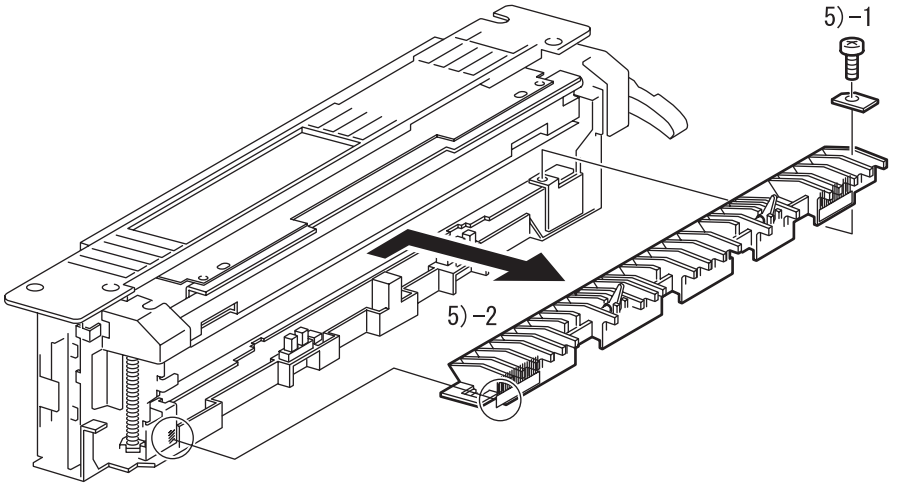


Figure 4-87. LOWER GUIDE ASSY Removal

4.2.9.8 FUSER EXIT SENSOR-1 (PL9.2.3)

NOTE: *In this work, the LOWER GUIDE ASSY is removed at step 5). Do not forget to have a new REAR ELIMINATOR (PL9.2.54) at hand beforehand.*

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. *Remove the LOWER GUIDE ASSY (PL9.2.13) (p.326)*
6. Disconnect the FUSER EXIT SENSOR-1 connector (P/J 721).
7. Unhook FUSER EXIT SENSOR-1 from the FUSER BOTTOM PLATE and remove.

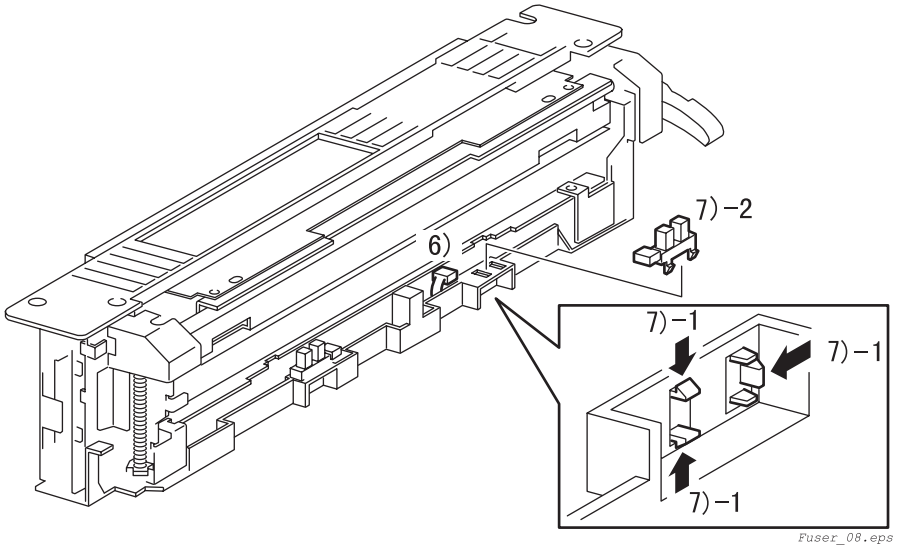


Figure 4-88. FUSER EXIT SENSOR-1 Removal

4.2.9.9 FUSER EXIT SENSOR-2(PL9.2.4)

NOTE: *In this work, the LOWER GUIDE ASSY is removed at step 5). Do not forget to have a new REAR ELIMINATOR (PL9.2.54) at hand beforehand.*

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. *Remove the LOWER GUIDE ASSY (PL9.2.13) (p.326)*
6. Disconnect the FUSER EXIT SENSOR-2 connector (P/J 722).
7. Unhook FUSER EXIT SENSOR-2 from the FUSER BOTTOM PLATE and remove.

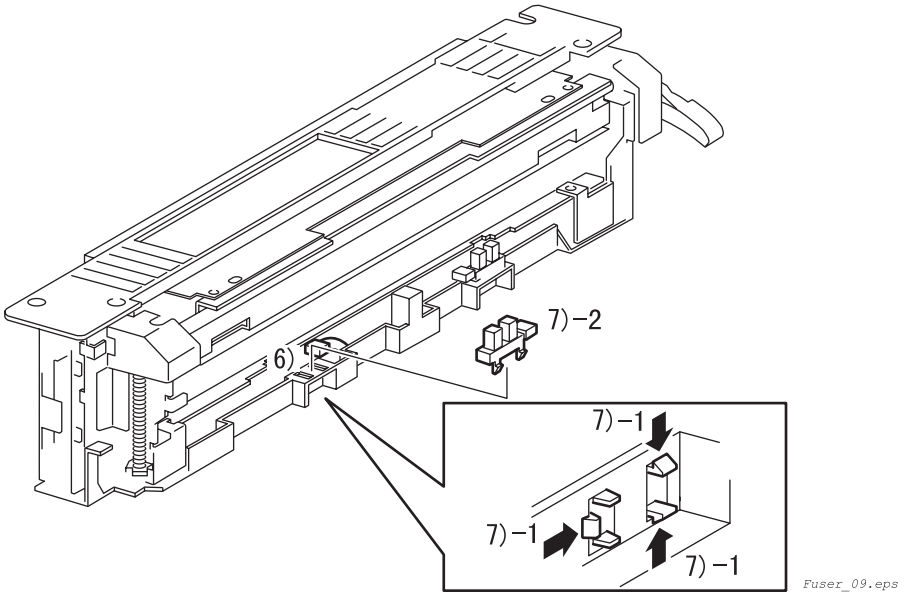


Figure 4-89. FUSER EXIT SENSOR-2 Removal

4.2.9.10 HEAT ROLL (PL9.2.25)

CAUTION

Be careful not to damage the surface of the HEAT ROLL while performing the following.

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. *Remove the FUSER UPPER ASSY (PL9.2.30) (p.323)*
6. *Remove the H/R HEATER (PL9.2.40) (p.324)*
7. Loosen the 2 screws for adjusting the front/rear NIP width.
8. Remove the H/R RING securing the rear H/R GEAR. Remove the H/R GEAR and rear H/R BEARING.
9. Remove the front H/R RING and remove the front H/R BEARING.
10. Slide the HEAT ROLL to the rear and remove the front from the frame. After doing so, slide the HEAT ROLL forward and remove.

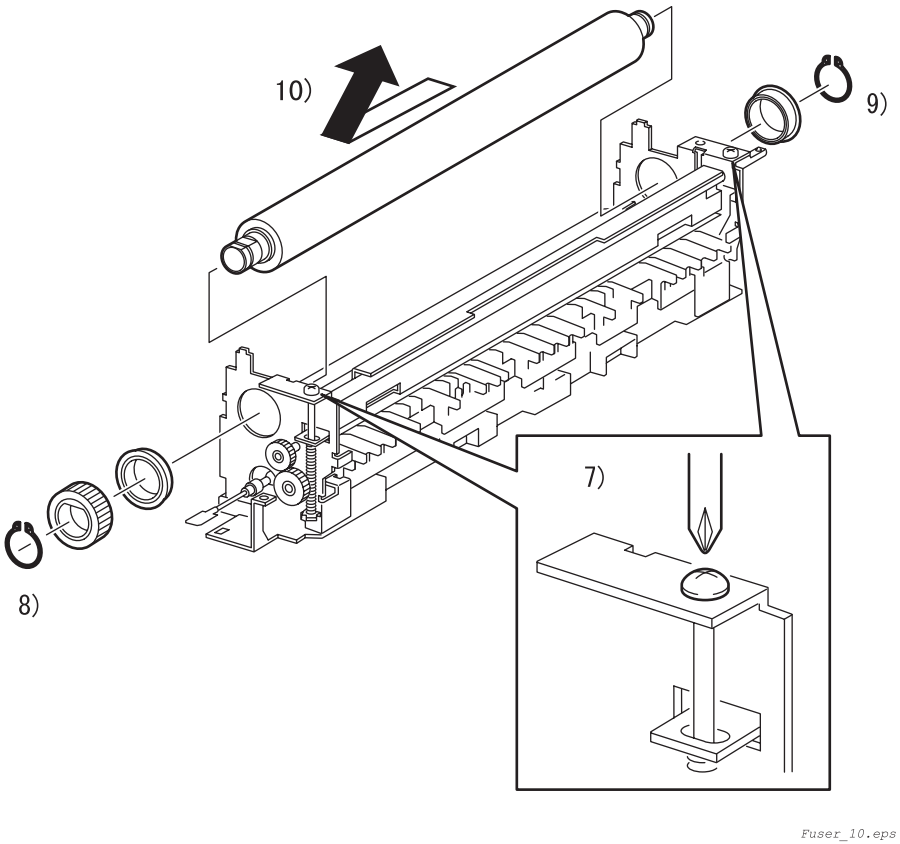


Figure 4-90. HEAT ROLL Removal

4.2.9.11 PRESSURE ROLL (PL9.2.10)

CAUTION

Be sure not to damage the surface of the PRESSURE ROLL while performing the following.

NOTE: *In this work, the LOWER GUIDE ASSY is removed at step 8). Do not forget to have a new REAR ELIMINATOR (PL9.2.54) at hand beforehand.*

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. *Remove the FUSER UPPER ASSY (PL9.2.30) (p.323)*
6. *Remove the H/R HEATER (PL9.2.40) (p.324)*
7. *Remove the P/R HEATER (PL9.2.41) (p.325)*
8. *Remove the LOWER GUIDE ASSY (PL9.2.13) (p.326)*
9. *Remove the HEAT ROLL (PL9.2.25) (p.328)*
10. *Remove the FUSER BAFFLE ASSY (PL9.2.44) (p.338)*
11. Remove the screw (silver, 6mm) securing the FUSER INLET PLATE, and remove the FUSER INLET PLATE.
12. Lift the PRESSURE ROLL and remove together with the 2 front/rear P/R BEARINGS. After doing so, remove the P/R BEARINGS from the PRESSURE ROLL.

REASSEMBLY

Be careful to mount the FUSER BAFFLE ASSY.

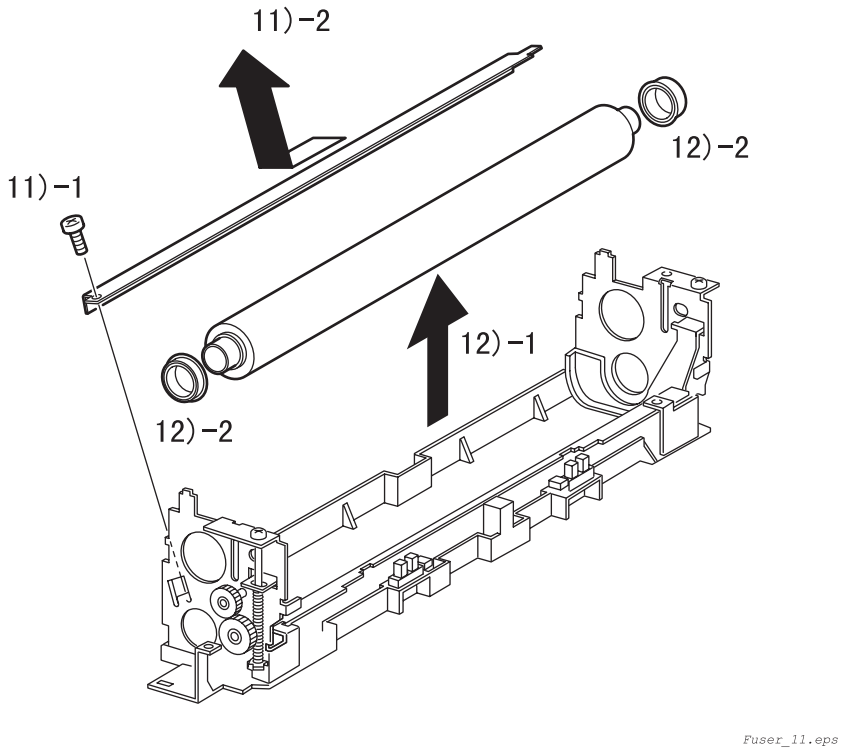


Figure 4-91. PRESSURE ROLL Removal

4.2.9.12 TEMP. SENSOR ASSY (PL9.2.6)

NOTE: *In this work, the LOWER GUIDE ASSY is removed at step 8). Do not forget to have a new REAR ELIMINATOR (PL9.2.54) at hand beforehand.*

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. *Remove the FUSER UPPER ASSY (PL9.2.30) (p.323)*
6. *Remove the H/R HEATER (PL9.2.40) (p.324)*
7. *Remove the P/R HEATER (PL9.2.41) (p.325)*
8. *Remove the LOWER GUIDE ASSY (PL9.2.13) (p.326)*
9. Remove the 2 screws (black, w/collar, 8mm) securing the FUSER BOTTOM PLATE, remove the FUSER BOTTOM PLATE.
10. Disconnect the connector (P/J721,P/J722) from the FUSER EXIT SENSOR-1/-2, unhook the harness from the FUSER BOTTOM PLATE, and remove the TEMP. SENSOR ASSY.

When mounting, hook the harness on the FUSER BOTTOM PLATE hook so there is no slack in the harness.

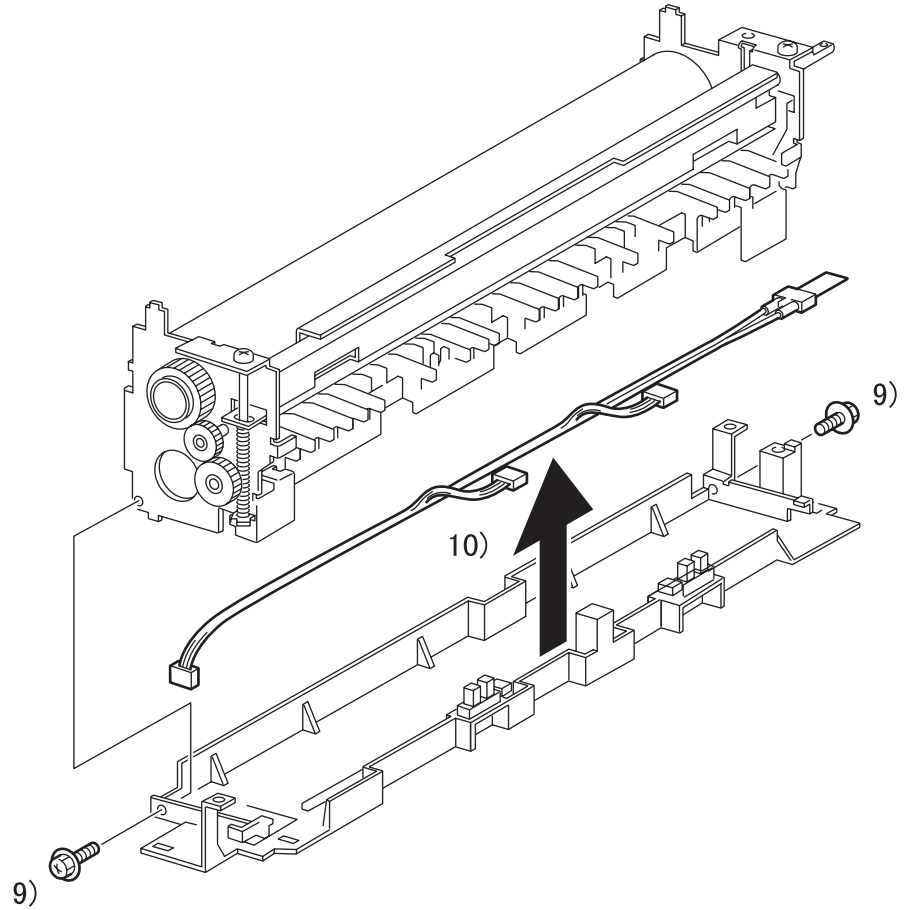


Figure 4-92. TEMP. SENSOR ASSY Removal

4.2.9.13 EXCHANGE CHUTE (PL9.3.17)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. Remove the 2 screws (gold, tapping, 10mm) securing the FUSER FRONT RAIL, and remove the FUSER FRONT RAIL.
5. Remove the screw (gold, tapping, 10mm) securing EXCHANGE STOPPER-F, and remove EXCHANGE STOPPER-F.
6. Remove the screw (gold, tapping, 10mm) securing EXCHANGE STOPPER-R, and remove EXCHANGE STOPPER-R.

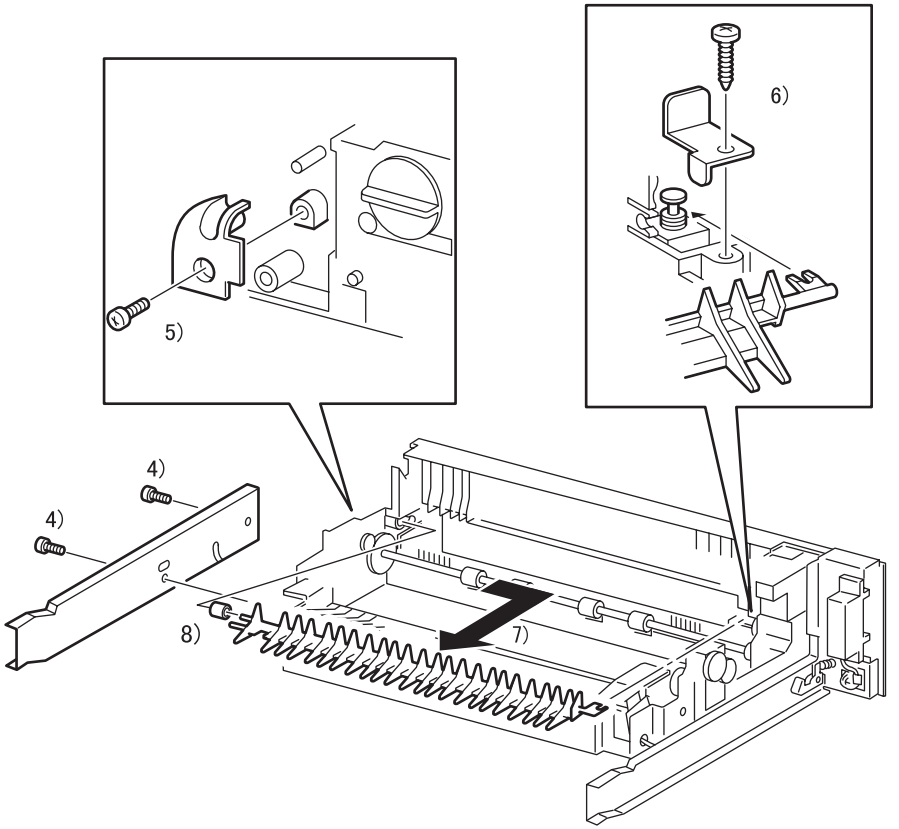
CAUTION

Be careful not to damage the front/rear hinges of the exchange cute while performing the following.

7. Remove the EXCHANGE CHUTE by pulling it in the horizontal direction.
8. Remove the DAMPER carefully from the removed EXCHANGE CHUTE.

REASSEMBLY

- **Insert the U-shaped parts on the front and rear of the EXCHANGE CHUTE securely into the plunger when mounting the EXCHANGE CHUTE.**
- **Never forget to install the DAMPER.**



Fuser_13.eps

Figure 4-93. EXCHANGE CHUTE Removal

4.2.9.14 EXCHANGE SOLENOID (PL9.3.22)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the EXCHANGE CHUTE (PL9.3.17) (p.331)*

NOTE: *The FUSER REAR RAIL and FUSER TRAY ASSY are connected by a harness. Be careful not to pull too far apart while performing the following.*

5. Remove the 2 screws (gold, tapping, 10mm) securing the FUSER REAR RAIL. Separate the FUSER TRAY ASSY and FUSER REAR RAIL together with the FUSER GEAR COVER.
6. Disconnect the EXCHANGE SOLENOID connector (P/J74).

NOTE: *The gear is no longer secured when the EXCHANGE BRACKET is removed. Be careful not to allow the gear to fall out while performing the following.*

7. Remove the 2 screws (gold, tapping, 10mm) securing the SOLENOID ASSY, and remove the SOLENOID ASSY together with FUSER EARTH-B.
8. Remove the 2 screws (silver, 3mm) securing the EXCHANGE SOLENOID to the EXCHANGE BRACKET, and remove the EXCHANGE SOLENOID.

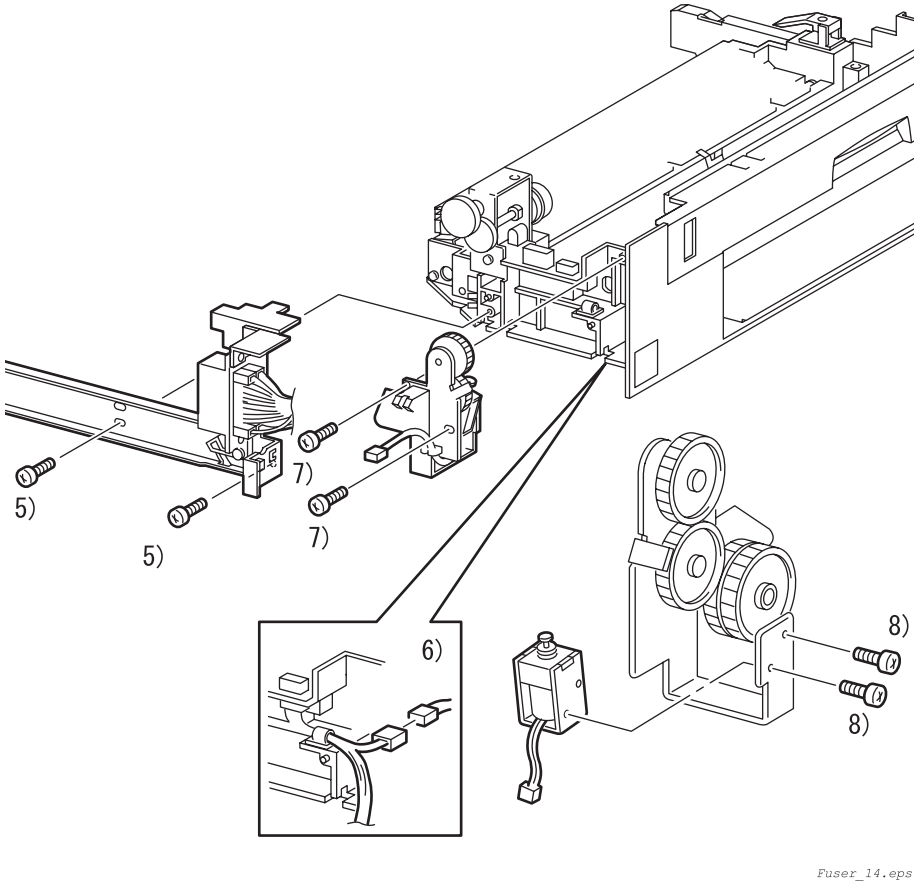


Figure 4-94. EXCHANGE SOLENOID Removal

4.2.9.15 CLEANER CAM SOLENOID (PL9.4.24)

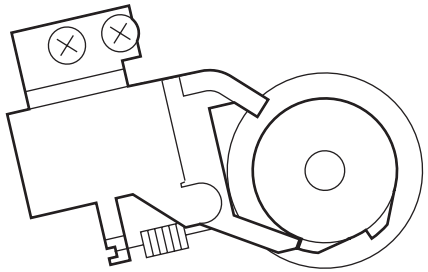
1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*

NOTE: *The FUSER REAR RAIL and FUSER TRAY ASSY are connected by a harness. Be careful not to pull too far apart while performing the following.*

4. Remove the 2 screws (gold, tapping, 10mm) securing the FUSER REAR RAIL. Separate the FUSER TRAY ASSY and FUSER REAR RAIL together with the FUSER GEAR COVER.
5. Disconnect the CLEANER CAM SOLENOID connector (P/J62), and free the harness by removing from the clamp.
6. Remove the 3 screws (gold, tapping, 10mm) securing INPUT BRACKET FT, and remove INPUT BRACKET FT together with FUSER EARTH-A, etc.
7. Remove the 2 screws (gold, tapping, 10mm) securing the CLEANER CAM SOLENOID, and remove the CLEANER CAM SOLENOID.

REASSEMBLY

When mounting the CLEANER CAM SOLENOID, secure it at the position where bottom end of the CLEANER CAM SOLENOID armature touches the Spring Clutch when the armature is at the vacuum position.



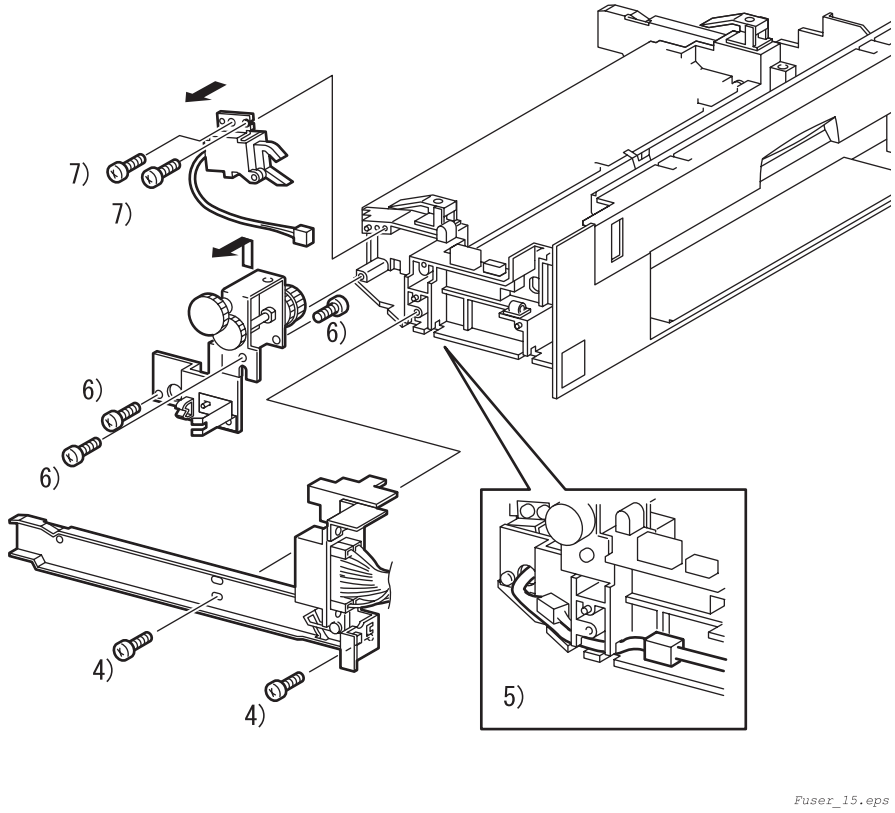


Figure 4-95. CLEANER CAM SOLENOID Removal

4.2.9.16 CLEANER CAM ASSY (PL9.4.25)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the CLEANER CAM SOLENOID (PL9.4.24) (p.333)*
5. Remove the 2 screws (gold, tapping, 10mm) securing the FUSER FRONT RAIL, and remove the FUSER FRONT RAIL.

NOTE: *Be sure not to drop and lose the CLEANER CAM PIN when removing the CLEANER CAM in the following step of the procedure.*

6. Remove the E-ring securing the CLEANER CAM. Remove the CLEANER CAM, CLEANER CAM PIN, and CLN CAM BEARING-F.
7. Remove the CLEANER CAM ASSY together with CLN CAM BEARING-F by pulling straight out from the rear.
8. Remove CLN CAM BEARING-F from the CLEANER CAM ASSY.

The right/left direction of the cam must be adjusted after mounting it.

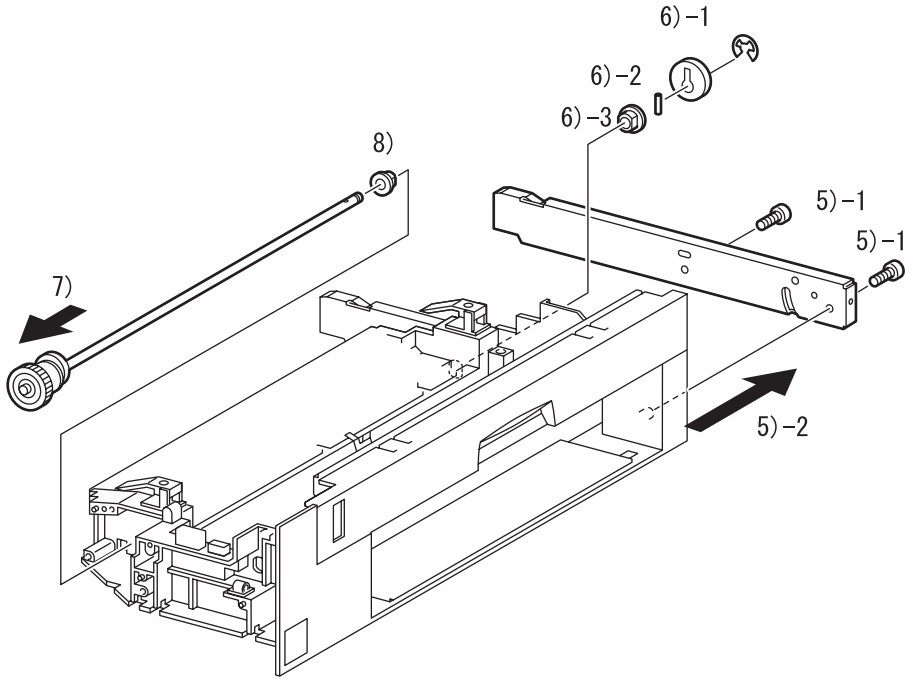


Figure 4-96. CLEANER CAM ASSY Removal

4.2.9.17 EXIT-1 ROLL ASSY (PL9.3.14)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. Remove the E-ring securing the FUSER KNOB and FUSER KNOB GEAR. Remove the FUSER KNOB, FUSER KNOB BEARING, FUSER KNOB GEAR and FUSER KNOB WASHER.
5. Remove the E-ring securing the EXIT KNOB GEAR.
6. Slide the EXIT KNOB GEAR to the rear and remove the EXIT ROLL PIN.
7. Slide the front EXIT-1 BEARING to the rear, and slide the front of the EXIT-1 ROLL ASSY to the right.

NOTE: *The rear EXIT-1 BEARING of the EXIT-1 ROLL ASSY remains but is not secured to the FUSER TRAY when the following step of the procedure is performed. Be careful not to lose the EXIT-1 BEARING.*

8. Slide the EXIT-1 ROLL ASSY forward and dismount the rear of the EXIT-1 ROLL ASSY. Remove to the rear the EXIT-1 ROLL ASSY together with the EXIT 1 GEAR and EXIT-1 BEARING.
9. Remove the EXIT-1 BEARING and the EXIT 1 GEAR from the EXIT-1 ROLL ASSY.

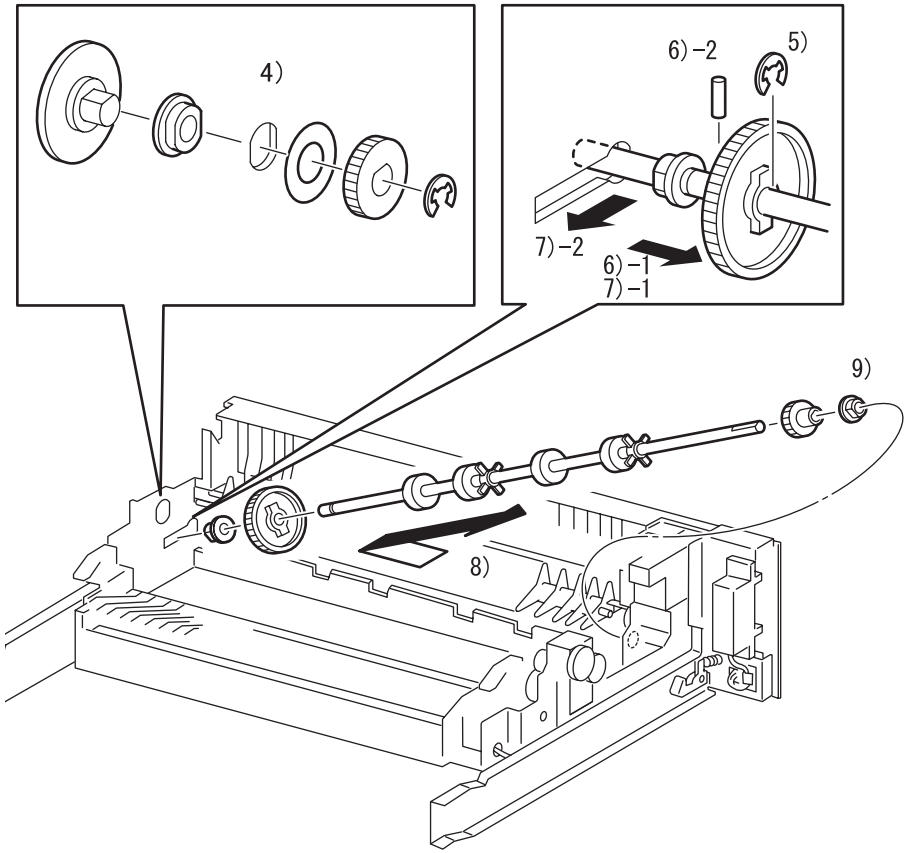


Figure 4-97. EXIT-1 ROLL ASSY Removal

4.2.9.18 FUSER IN SENSOR (PL9.4.4)

1. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
2. Remove the 2 screws securing the HORIZONTAL CHUTE (gold, tapping, 10mm). Lift and remove the HORIZONTAL CHUTE together with the FUSER PAPER GUIDE.
3. Remove the 2 screws (gold, tapping, 10mm) securing the FUSER BOTTOM COVER. Slide the FUSER BOTTOM COVER to the rear and remove.
4. Unhook the FUSER IN HOLDER from the FUSER TRAY and remove.
5. Unhook the FUSER IN SENSOR from the FUSER TRAY and remove.
6. Disconnect the FUSER IN SENSOR connector (P/J117).

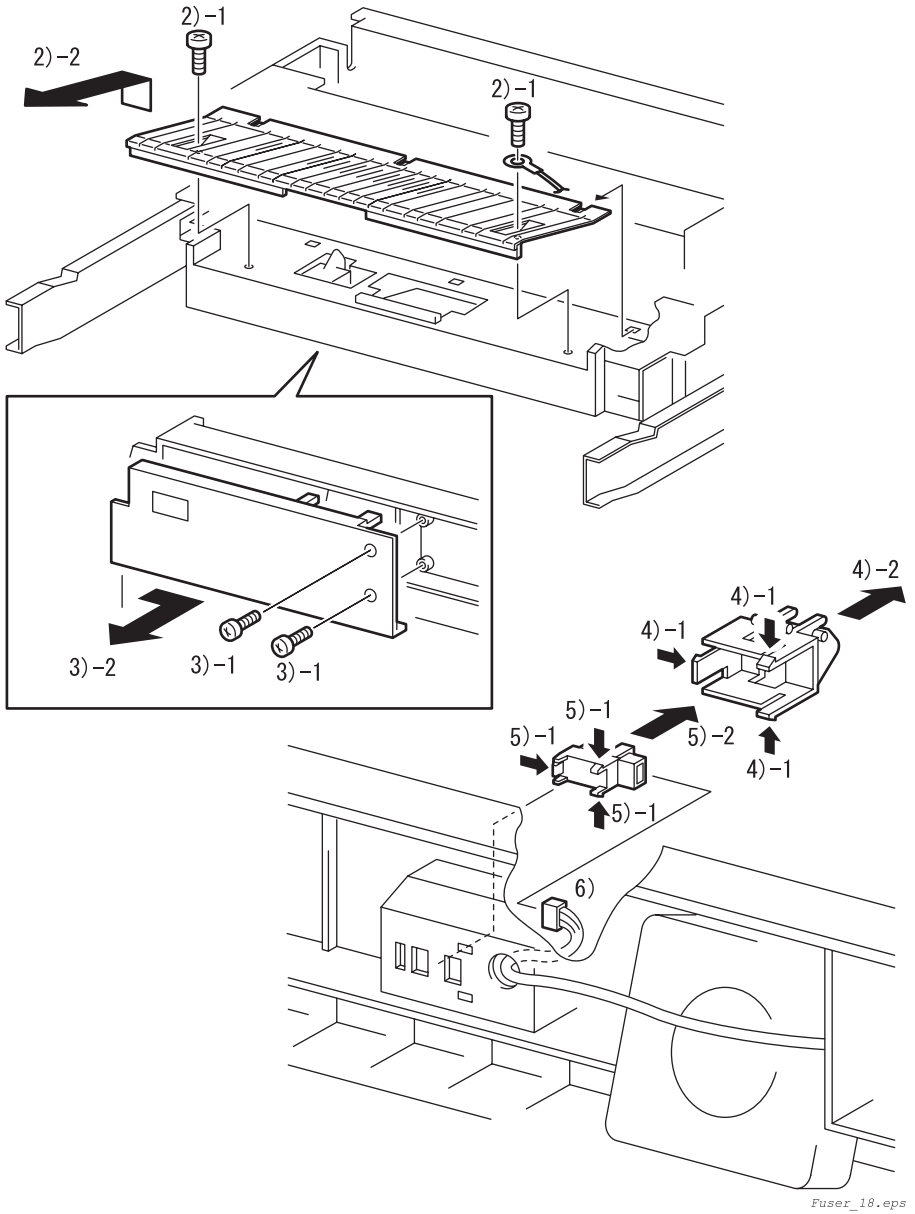


Figure 4-98. FUSER IN SENSOR Removal

4.2.9.19 FUSER CHUTE FAN (PL9.4.10)

1. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
2. Remove the 2 screws securing the HORIZONTAL CHUTE (gold, tapping, 10mm). Lift and remove the HORIZONTAL CHUTE together with the FUSER PAPER ASSY.
3. Remove the 2 screws (gold, tapping, 10mm) securing the FUSER BOTTOM COVER. Slide the FUSER BOTTOM COVER to the rear and remove.
4. Remove the FUSER CHUTE FAN from the FUSER TRAY.
5. Disconnect the FUSER CHUTE FAN connector (P/J80).

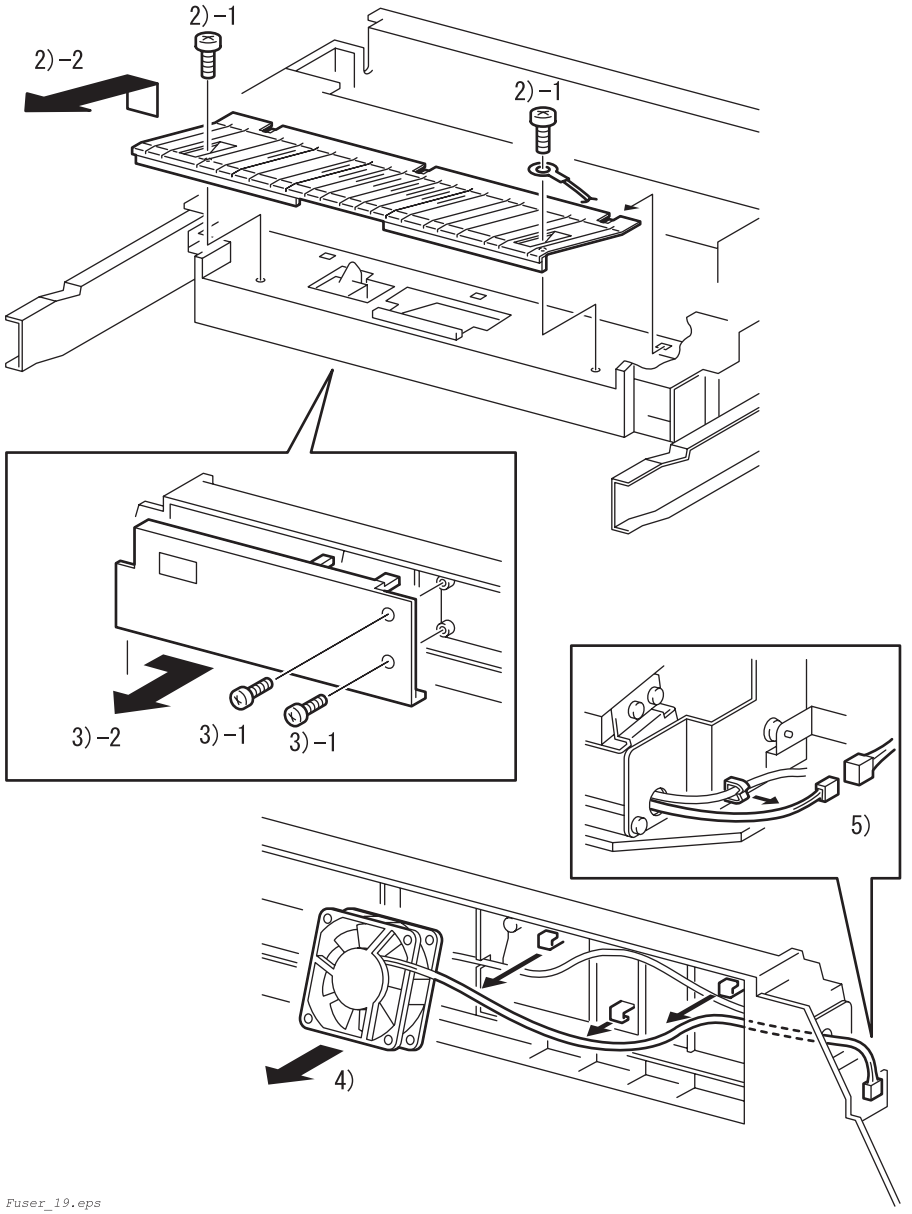


Figure 4-99. FUSER CHUTE FAN Removal

4.2.9.20 FUSER BAFFLE ASSY (PL9.2.44)

1. *Remove the EXIT TRAY ASSY (PL10.1.10) (p.339)*
2. Pull out the FUSER ASSY. *(See p.321)*
3. *Remove the MAIN FUSER ASSY (PL9.1.2) (p.321)*
4. *Remove the UPPER GUIDE ASSY (PL9.2.20) (p.322)*
5. *Remove the FUSER UPPER ASSY (PL9.2.30) (p.323)*
6. *Remove the H/R HEATER (PL9.2.40) (p.324)*
7. *Remove the HEAT ROLL (PL9.2.25) (p.328)*
8. Remove the 2 screws (black, w/collar, w/washer, 8mm) securing the NIP FRONT CAM and NIP REAR CAM to FUSER NIP SHAFT.
9. Pull out the FUSER NIP SHAFT to the front, remove the NIP REAR CAM, NIP FRONT CAM and the front/rear FUSER NIP BEARING, and remove the FUSER NIP SHAFT.
10. Let loose fully the NIP adjustment screw.
11. Remove the 2 screws (black, w/collar, 8mm) securing the FUSER BAFFLE ASSY, and remove the FUSER BAFFLE ASSY to the up.

REASSEMBLY

Be careful to mount the FUSER BAFFLE ASSY.

CAUTION

Install the FUSER BAFFLE ASSY by pressing gently the frame (circled portion) at each side in the just below direction against the H/ROLL bearing. (If the FUSER BAFFLE ASSY is floating, the HEAT ROLL would be scratched.)

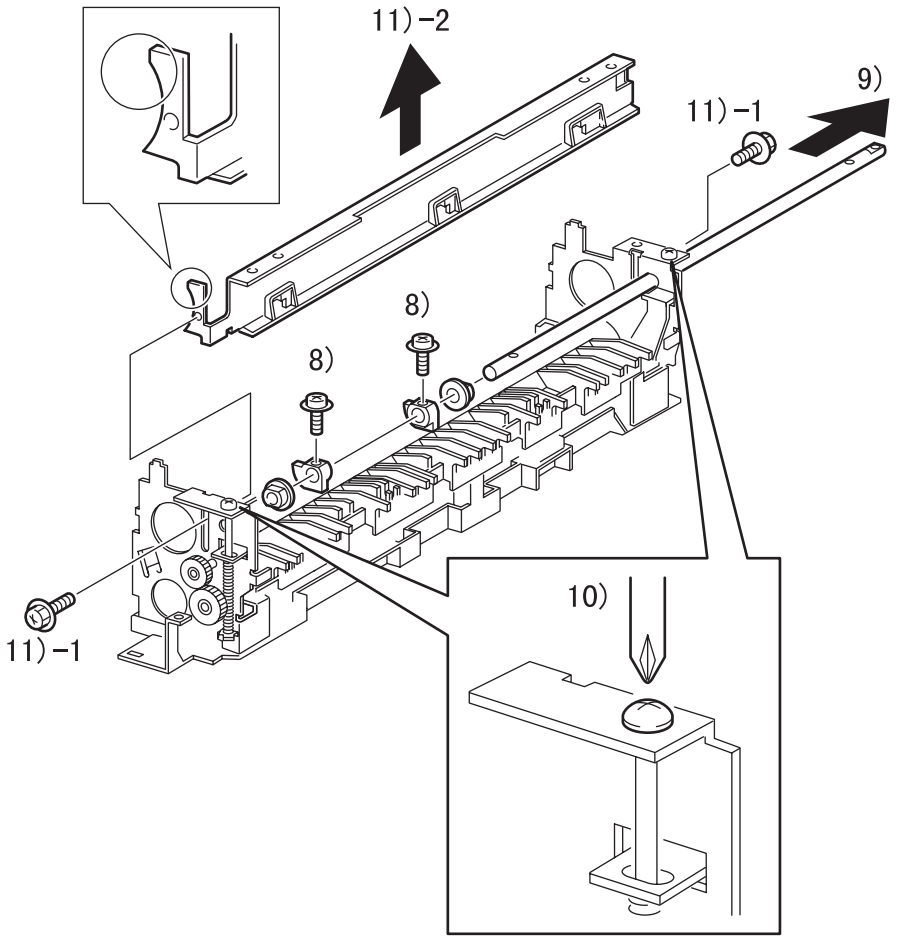


Figure 4-100. FUSER BAFFLE ASSY Removal

4.2.10 Paper Exit

4.2.10.1 EXIT TRAY ASSY (PL10.1.10)

1. Bend the rear hinge of the EXIT TRAY ASSY inward, remove the boss from the FUSER TRAY, remove the front hinge, and remove the EXIT TRAY ASSY.

Mount the EXIT TRAY ASSY so that the spring of the front hinge touches the outside of the FUSER TRAY ASSY.

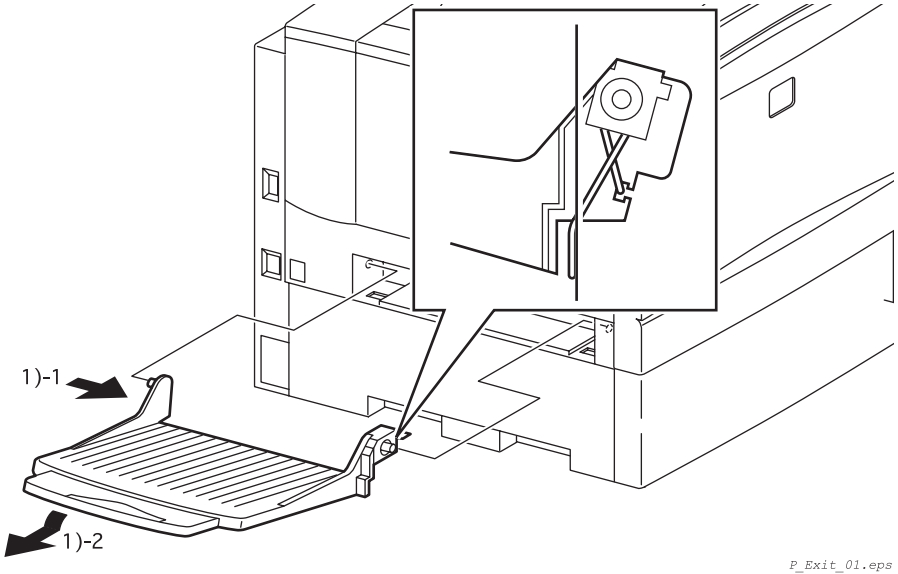


Figure 4-101. EXIT TRAY ASSY Removal

4.2.10.2 EXIT UPPER ASSY (PL10.1.2)

1. Open the EXIT UPPER ASSY.

NOTE: *Be careful not to damage the hinges of the EXIT UPPER ASSY when performing the following.*

2. Bend the front hinges of the EXIT UPPER ASSY inward, remove the boss from the front of the EXIT LOWER ASSY, and remove the hinge of the EXIT UPPER ASSY. Then remove the rear hinge and remove the EXIT UPPER ASSY.

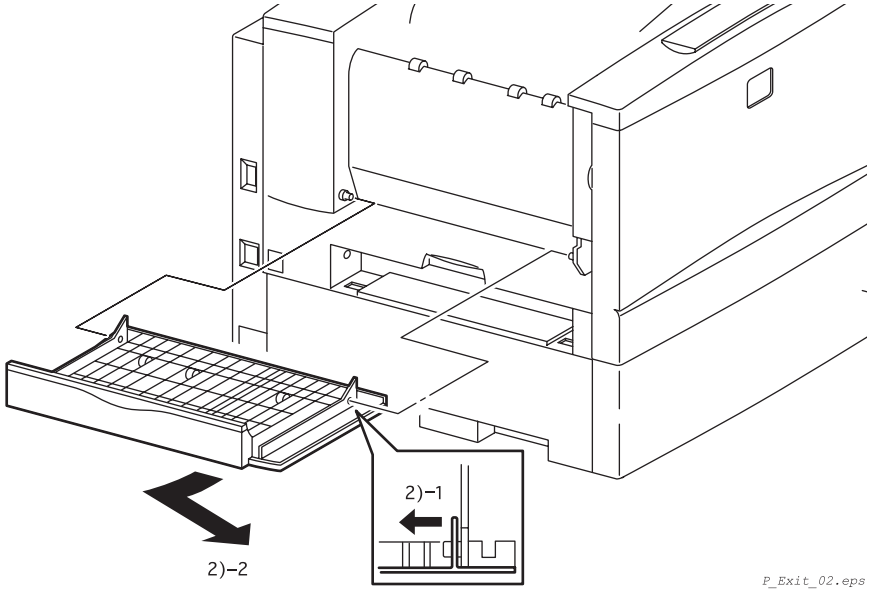


Figure 4-102. EXIT UPPER ASSY Removal

4.2.10.3 EXIT LOWER ASSY (PL 10.1.1)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
4. Remove the 3 connectors (P/J111,P/J161,P/JXXX) of the EXIT LOWER ASSY.
5. Remove the 4 screws (black, w/collar, 8mm) securing the EXIT LOWER ASSY. Lift and remove the EXIT LOWER ASSY.

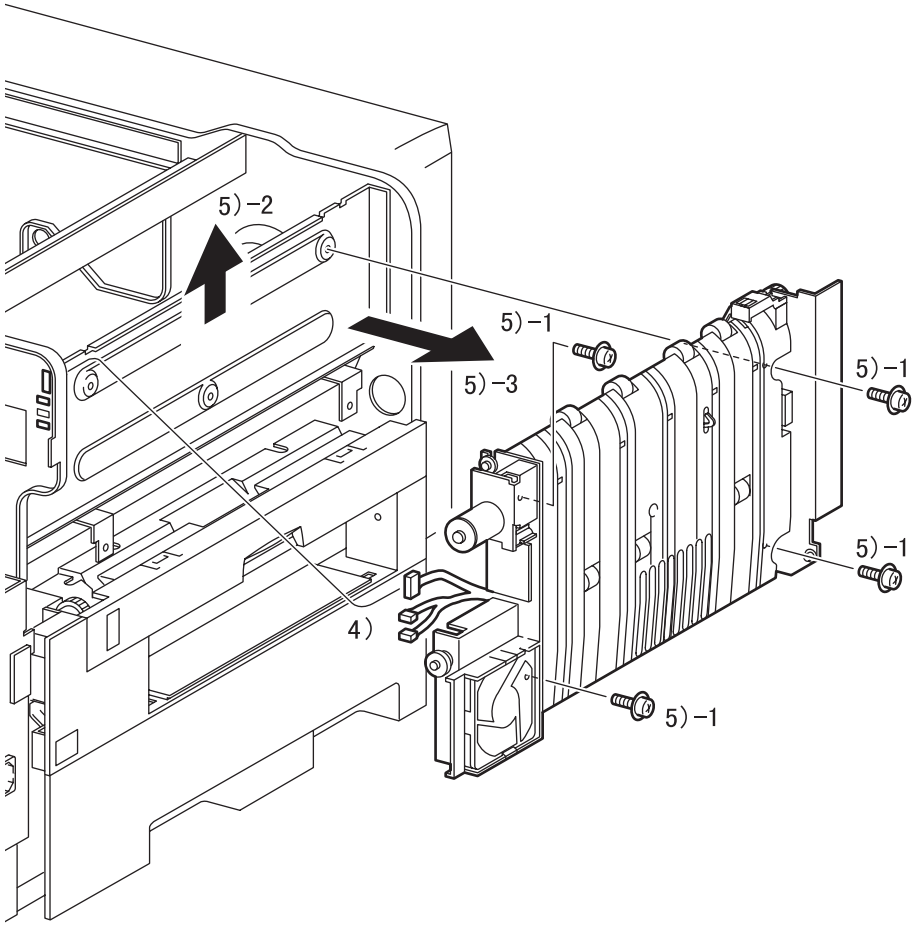


Figure 4-103. EXIT LOWER ASSY Removal

4.2.10.4 EXIT-2 ROLL ASSY (PL10.2.6)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
4. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*
5. Remove the two E-rings retaining the EXIT-2 ROLL ASSY and remove the BELT PULLY, EXIT BELT, BELT FLANGE and EXIT REAR BEARING.
6. Remove the E-ring, and remove the EXIT FRONT BEARING.
7. Remove the EXIT-2 ROLL ASSY.

REASSEMBLY

For any parts in the drive system whose replacement can cause a change in load, replace such parts in units of ASSY.

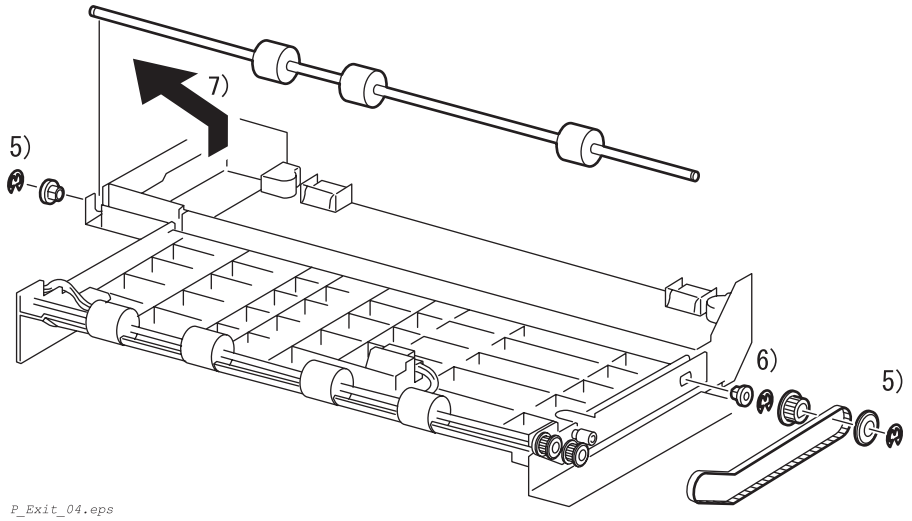


Figure 4-104. EXIT-2 ROLL ASSY Removal

4.2.10.5 EXIT-3 ROLL ASSY (PL10.2.5)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. Remove the two E-rings retaining the EXIT-3 ROLL ASSY and remove the BELT PULLY, BELT FLANGE, EXIT REAR BEARING, EXIT GEAR D and EXIT EARTH PLATE.
3. Remove the E-ring, and remove the EXIT FRONT BEARING.
4. Remove the EXIT-3 ROLL ASSY.

REASSEMBLY

For any parts in the drive system whose replacement can cause a change in load, replace such parts in units of ASSY.

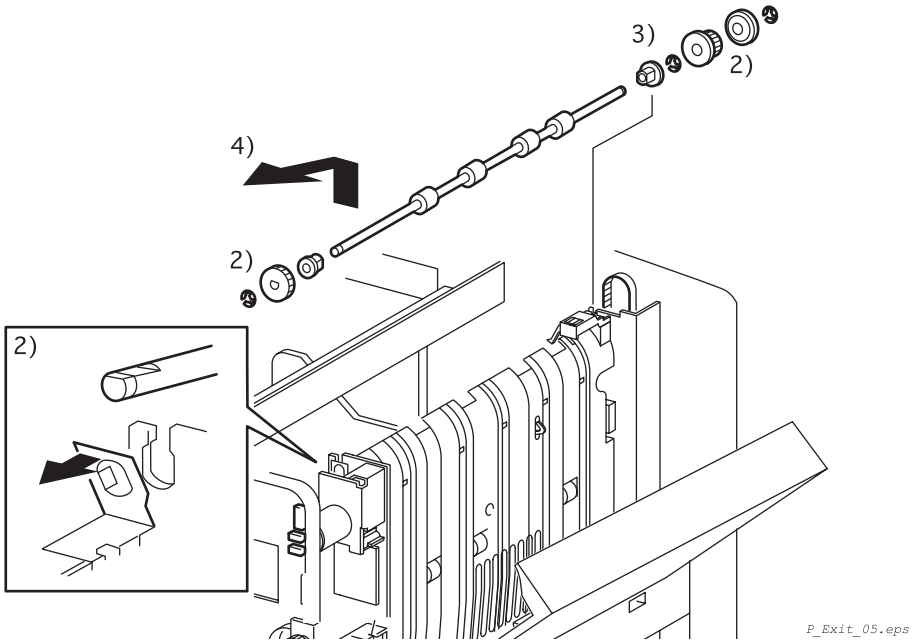
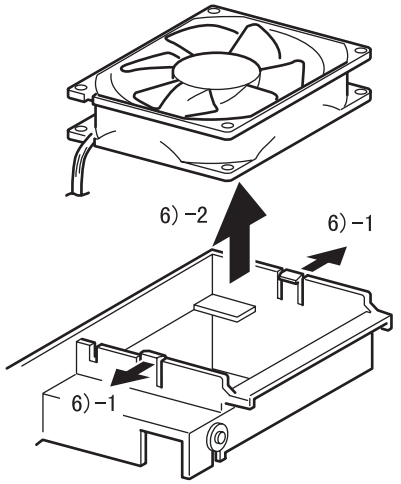


Figure 4-105. EXIT-3 ROLL ASSY Removal

4.2.10.6 FUSER FAN-1 (PL10.2.22)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
4. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*
5. Disconnect the connector (P/J111) of the FUSER FAN-1 and unbind the harness.
6. Spread the hook on the frame that secures FUSER FAN-1, and remove FUSER FAN-1.

Mount so that the manufacturer's label on the surface of the FUSER FAN faces outside.

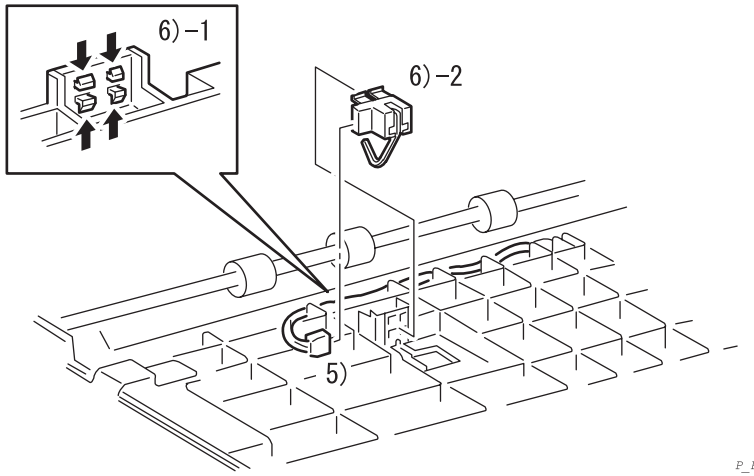


P_Exit_06.eps

Figure 4-106. FUSER FAN-1 Removal

4.2.10.7 TOP EXIT SENSOR (PL10.2.24)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
4. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*
5. Disconnect the TOP EXIT SENSOR connector (P/J165).
6. Unhook the TOP EXIT SENSOR and remove.



P_Exit_07.eps

Figure 4-107. TOP EXIT SENSOR Removal

4.2.10.8 EXIT CHUTE SWITCH (PL 10.2.26)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
4. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*
5. Disconnect the EXIT CHUTE SWITCH connector (P/J166).
6. Unhook the EXIT CHUTE SWITCH and remove.

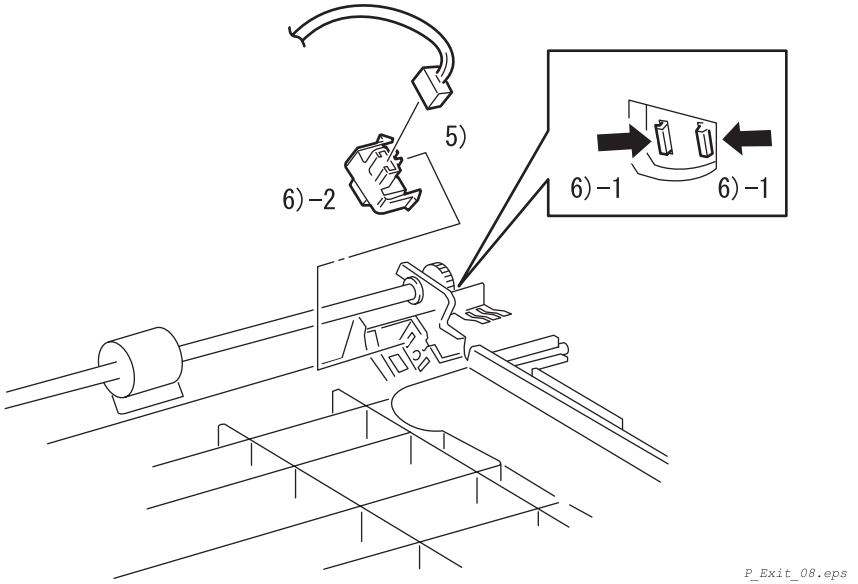


Figure 4-108. EXIT CHUTE SWITCH Removal

4.2.10.9 EXIT MOTOR ASSY (PL 10.2.12)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
4. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*
5. Disconnect the EXIT MOTOR ASSY connector (CN1).
6. Remove the three screws (black, w/collar, tapping, 8 mm), and remove the EXIT MOTOR BRACKET.
7. Remove the EXIT GEAR B and EXIT GEAR C.
8. Remove the two screws (black, 4 mm) securing the EXIT MOTOR ASSY, and remove the EXIT MOTOR ASSY.

For any parts in the drive system whose replacement can cause a change in load, replace such parts in units of ASSY.

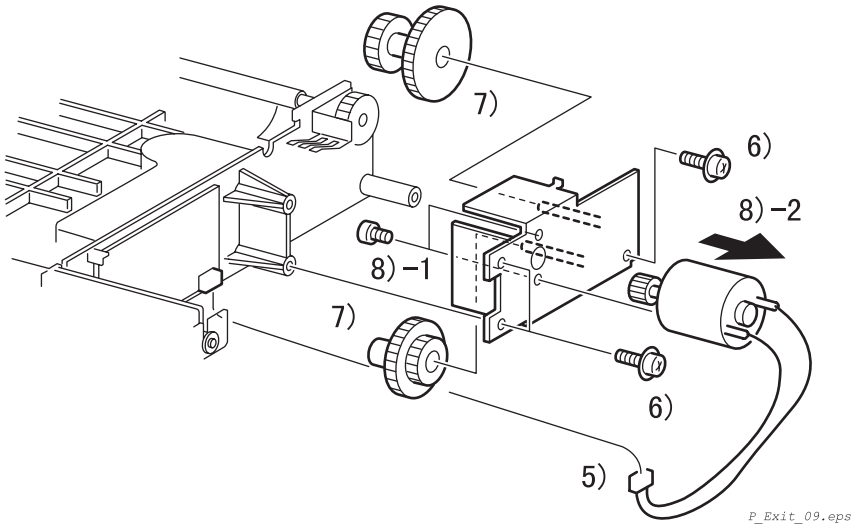


Figure 4-109. EXIT MOTOR ASSY Removal

4.2.10.10 EXIT PWB ASSY (PL 10.2.20)

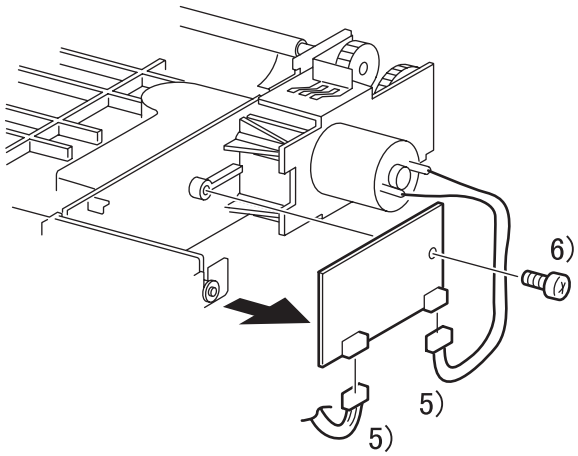
CAUTION

Never operate the control on the EXIT PWB ASSY.

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
4. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*
5. Disconnect the two connectors (P/J162 and CN1) of the EXIT PWB ASSY.
6. Remove the screw (black, tapping, 6 mm), and remove the EXIT PWB ASSY.

REASSEMBLY

For any parts in the drive system whose replacement can cause a change in load, replace such parts in units of ASSY.



P_Exit_10.eps

Figure 4-110. EXIT PWB ASSY Removal

4.2.11 Drive

4.2.11.1 P/H DRIVE ASSY (PL11.1.1)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the P/H MOTOR ASSY (PL 11.1.5) (p.346)*
3. Remove the five screws (silver, w/collar, 6 mm) securing the P/H DRIVE ASSY, and remove the P/H DRIVE ASSY together with the MOTOR PWB BRACKET.
4. Detach the MOTOR PWB BRACKET from the P/H DRIVE ASSY.

4.2.11.2 PRO DRIVE GEAR ASSY (PL11.1.2)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the FUSER ASSY (PL9.1.1) (p.321)*
3. *Remove the LV/HV POWER SUPPLY (PL13.1.1) (p.352)*
4. Remove the E-ring securing the AUGER HIGH ASSY inside the printer.
5. *Remove the PRO MOTOR ASSY (PL 11.1.6) (p.347)*

CHECK POINT

At the next step, the shaft of the PRO DRIVE GEAR ASSY can not be pulled easily off the AUGER HIGH ASSY. Hold the AUGER HIGH ASSY inside the frame when you remove the PRO DRIVE GEAR ASSY.

6. Remove the three screws (silver, w/collar, 6 mm) securing the PRO DRIVE GEAR ASSY, and remove the PRO DRIVE GEAR ASSY.

REASSEMBLY

Be careful not to pinch the harness when mounting.

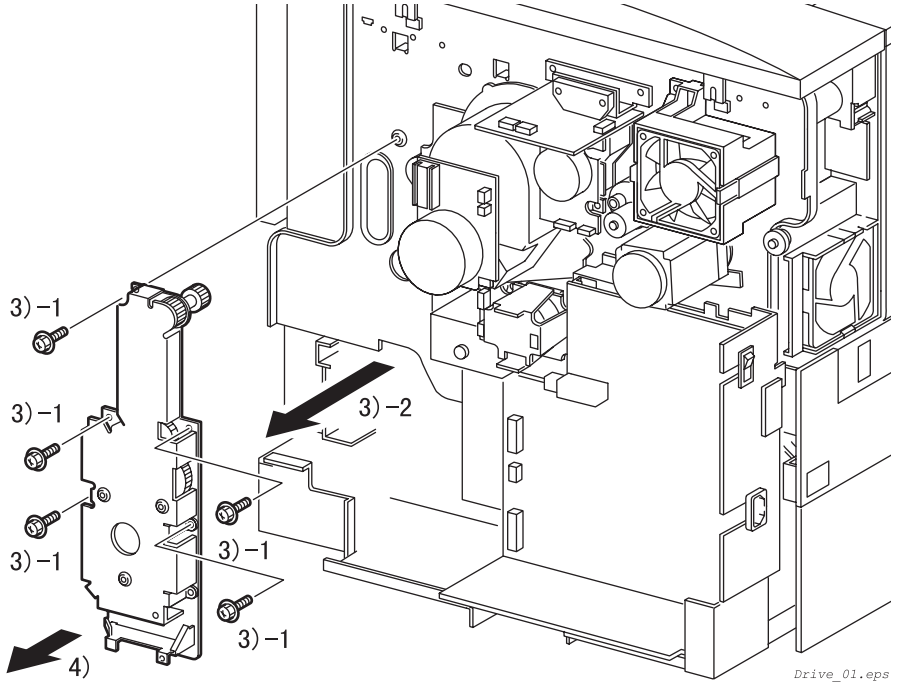


Figure 4-111. P/H DRIVE ASSY Removal

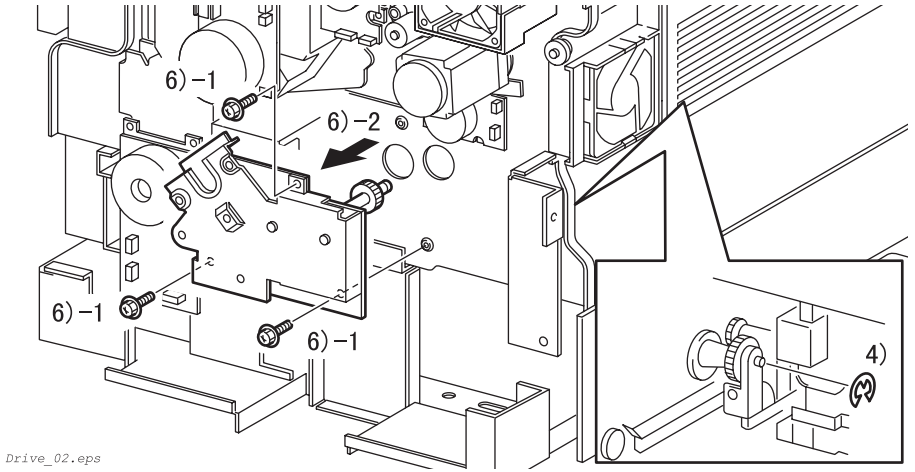


Figure 4-112. PRO DRIVE GEAR ASSY Removal

4.2.11.3 FUSER MOTOR ASSY (PL 11.1.4)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the LV/HV POWER SUPPLY (PL13.1.1) (p.352)*
3. Disconnect the two connectors (P/J44 and P/J59) of the FUSER MOTOR ASSY.
4. Remove the 3 screws (black, w/collar, 4mm) securing the FUSER MOTOR ASSY, and remove the FUSER MOTOR ASSY.

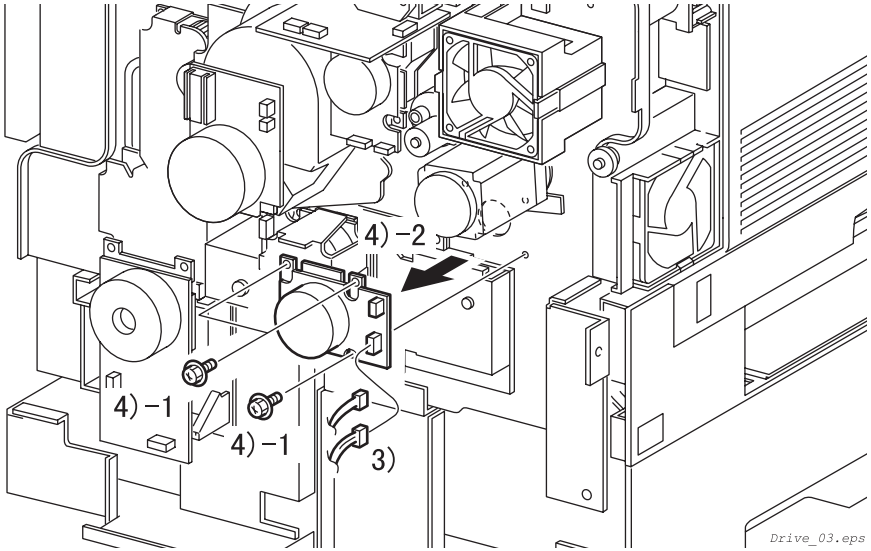


Figure 4-113. FUSER MOTOR ASSY Removal

4.2.11.4 P/H MOTOR ASSY (PL 11.1.5)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Disconnect the four connectors (P/J43, P/J49, P/J50 and P/J53).
3. Remove the 3 screws (black, w/collar, 4mm) securing the P/H MOTOR ASSY, and remove the P/H MOTOR ASSY.

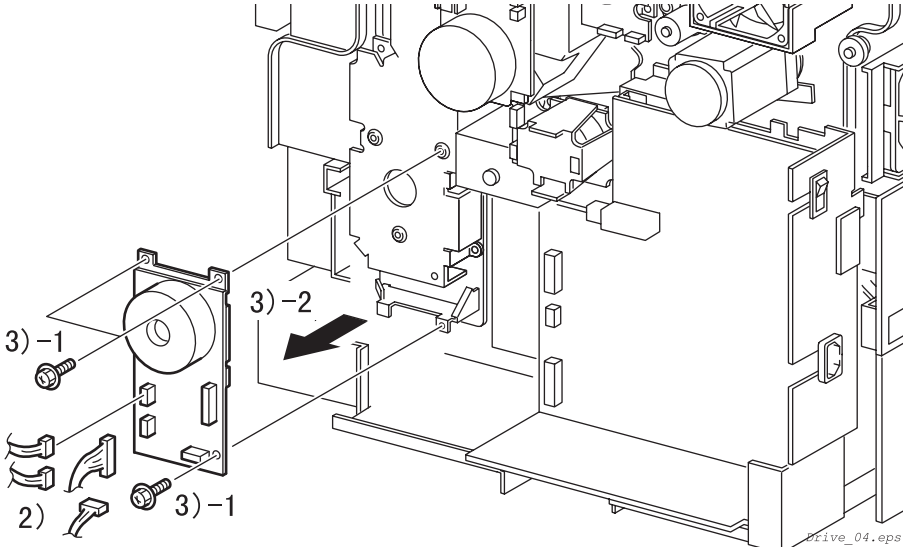


Figure 4-114. P/H MOTOR ASSY Removal

4.2.11.5 PRO MOTOR ASSY (PL 11.1.6)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Disconnect the two harnesses from the MOTOR COVER and detach the MOTOR COVER from the PRO MOTOR ASSY.
3. Disconnect the two connectors (P/J46 and P/J61).
4. Remove the three screws (black, w/collar, 4 mm) securing the PRO MOTOR ASSY, and detach the PRO MOTOR ASSY from the PRO DRIVE GEAR ASSY.

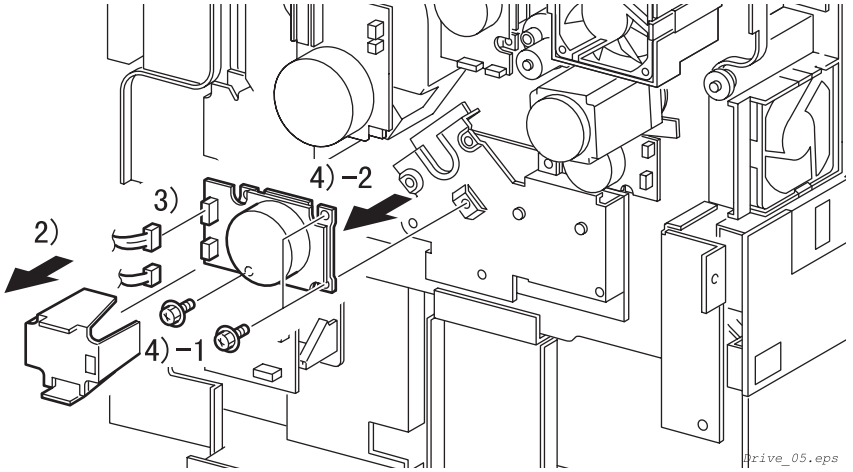


Figure 4-115. PRO MOTOR ASSY Removal

4.2.11.6 P/R MOT & DRV ASSY (PL11.1.10)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the TRANSFER HIGH ASSY (PL8.1.20) (p.313)*
3. Disconnect the two connectors (P/J51 and P/J52) of the P/R MOT & DRV ASSY, and release all the harness from the clamp.
4. Remove the 6 screws (black, w/collar, 12mm) securing the P/R MOT & DRV ASSY, and remove the P/R MOT & DRV ASSY.

Align the positioning boss of the printer frame with the positioning hole of the P/R MOT & DRV ASSY when mounting.

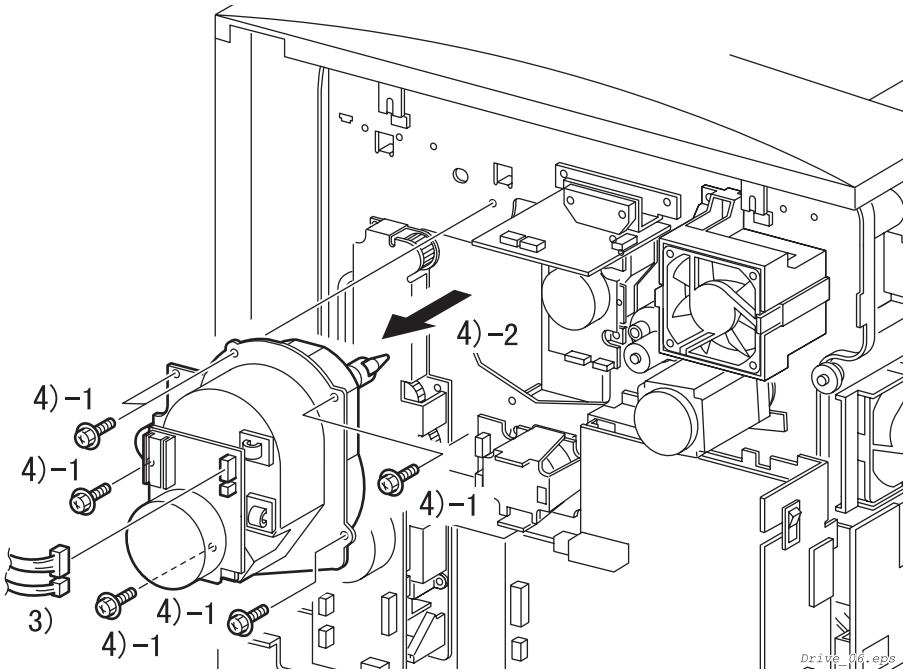


Figure 4-116. P/R MOT & DRV ASSY Removal

4.2.11.7 ROTARY MOTOR ASSY (PL11.1.20)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Disconnect the connector (P/J247) of the ROTARY MOTOR ASSY.
3. Remove the 3 screws (gold, 6mm) securing the ROTARY MOTOR ASSY, and remove the ROTARY MOTOR ASSY.

REASSEMBLY

Be careful not to pinch the harness when mounting.

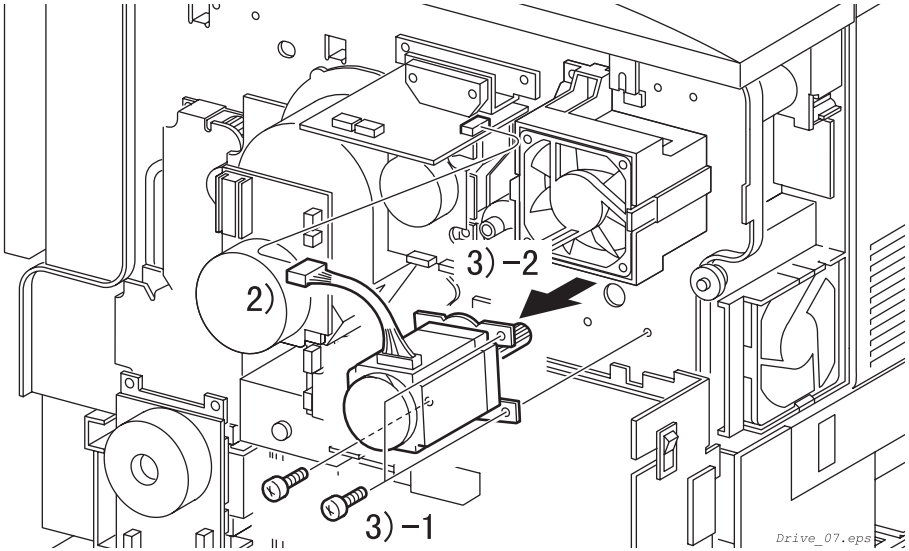


Figure 4-117. ROTARY MOTOR ASSY Removal

4.2.11.8 ROTARY MOTOR DRIVE PWB (PL11.1.21)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Disconnect the three connectors (P/J245, P/J246 and P/J247) of the ROTARY MOTOR DRIVE PWB.
3. Remove the 2 screws (silver, w/collar, 6mm) securing the ROTARY MOTOR DRIVE PWB, and remove the ROTARY MOTOR DRIVE PWB.

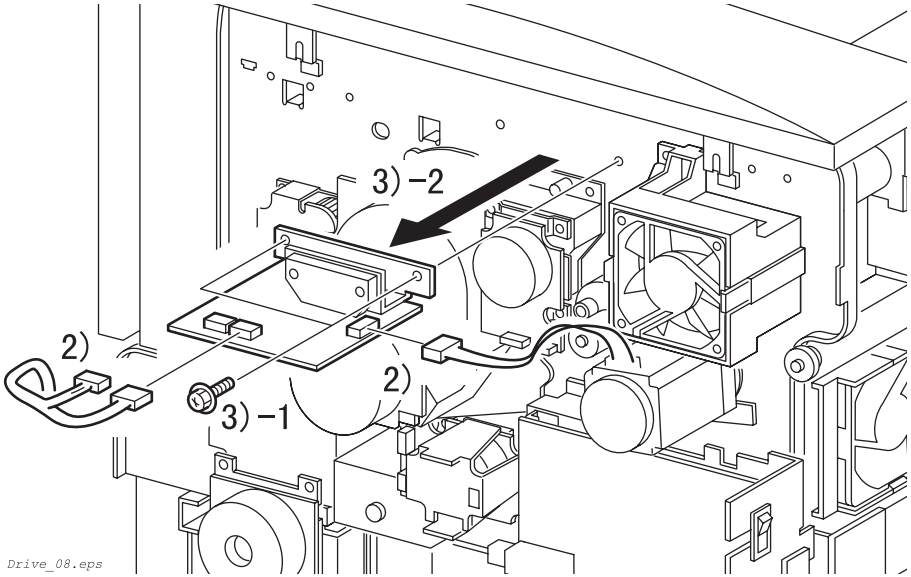


Figure 4-118. ROTARY MOTOR DRIVE PWB Removal

4.2.11.9 DISPENSE MOTOR ASSY (PL11.1.22)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the MAG MOTOR ASSY (PL11.1.7) (p.349)*
3. Disconnect the connector (P/J55) of the DISPENSE MOTOR ASSY.
4. Remove the 2 screws (black, w/collar, 8mm) securing the DISPENSE MOTOR ASSY, slide the gear of the DISPENSE MOTOR ASSY to the notch in the printer frame hole, and remove the DISPENSE MOTOR ASSY.

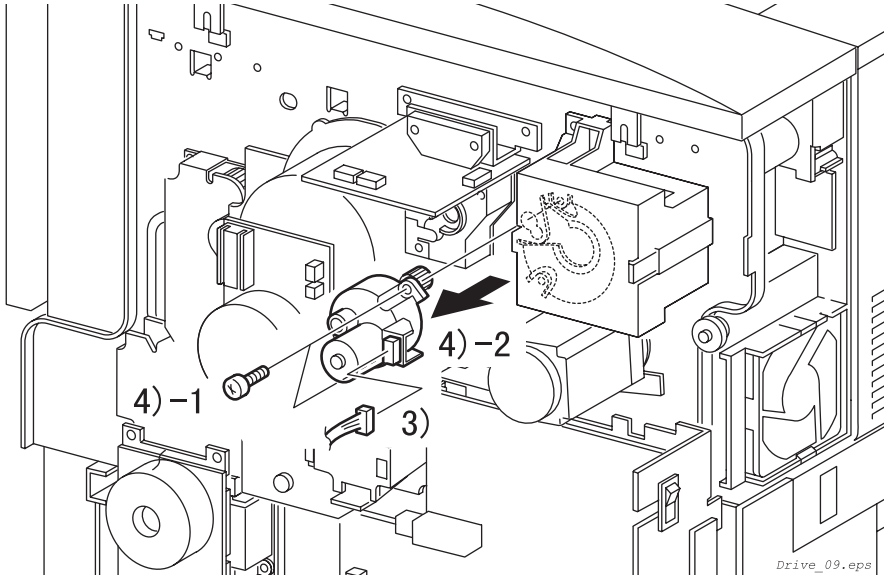


Figure 4-119. DISPENSE MOTOR ASSY Removal

4.2.11.10 MAG MOTOR ASSY (PL11.1.7)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Disconnect the two connectors (P/J45 and P/J60).
3. Remove the 3 screws (black, w/collar, 10mm) securing the MAG MOTOR ASSY, and remove the MAG MOTOR ASSY.

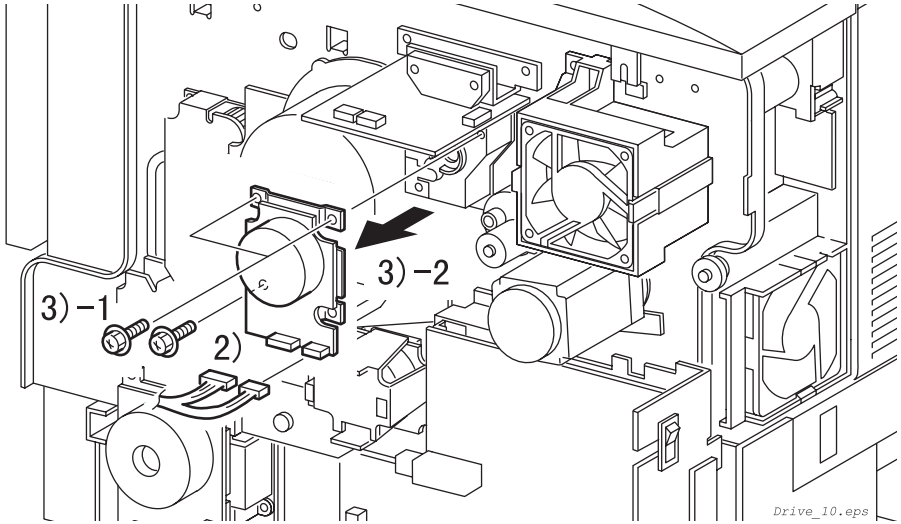


Figure 4-120. MAG MOTOR ASSY Removal

4.2.11.11 DEVE. GEAR CLUTCH ASSY (PL11.1.23)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. *Remove the MAG MOTOR ASSY (PL11.1.7) (p.349)*
3. Remove the 4 screws (silver, w/collar, 10mm) securing the DEVE. GEAR CLUTCH ASSY, and remove the DEVE. GEAR CLUTCH ASSY.

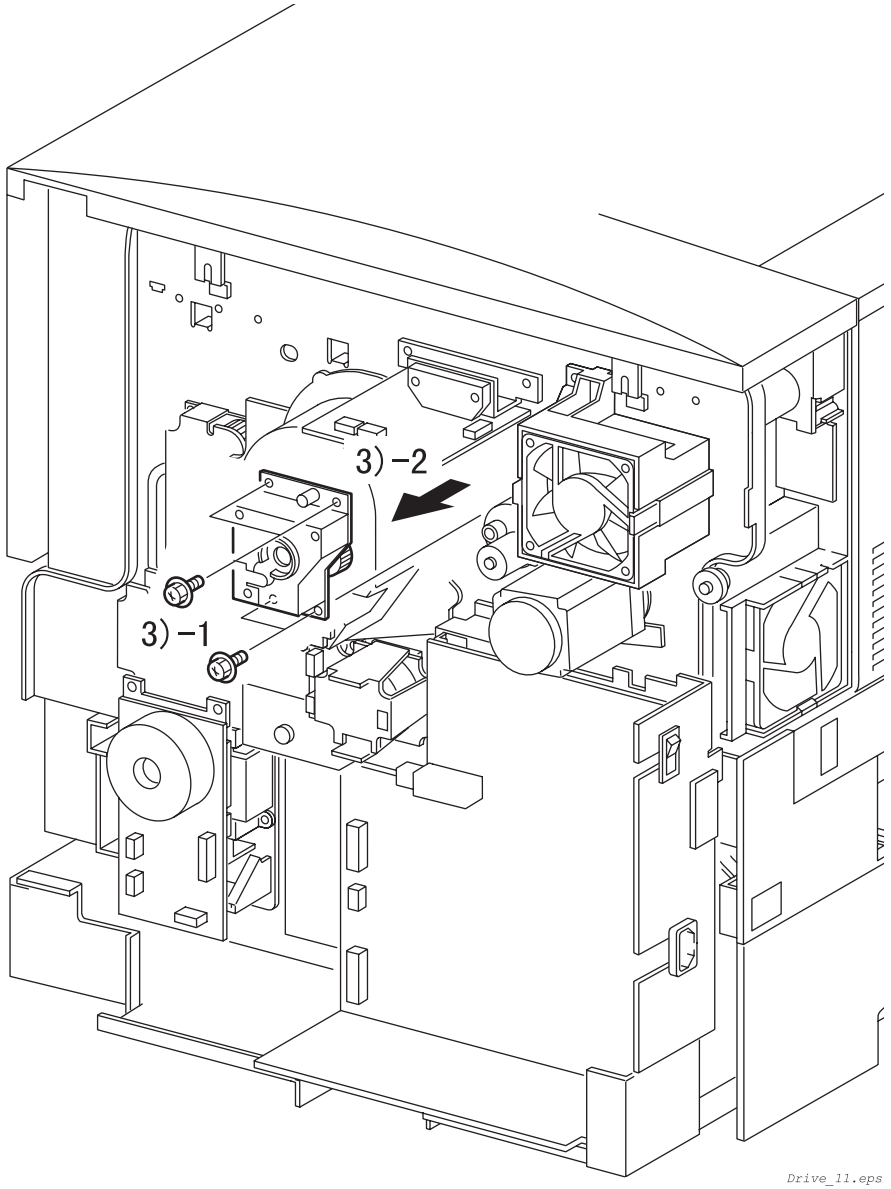


Figure 4-121. DEVE. GEAR CLUTCH ASSY Removal

4.2.12 Frame

4.2.12.1 DEVE. TIE PLATE (PL12.1.3)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
3. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
4. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
5. Remove the following types of INNER COVER ASSY:
   - *Remove the L/H INNER COVER ASSY (PL1.1.10) (p.265)*
   - *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
6. *Remove the EXIT UPPER ASSY (PL10.1.2) (p.339)*
7. *Remove the EXIT LOWER ASSY (PL 10.1.1) (p.340)*

NOTE: *Be careful not to damage the DEVE. TIE PLATE by getting it caught on the connector attached to the rear frame of the printer while performing the following.*

8. Remove the 4 screws (black, w/collar, 8mm) securing the DEVE. TIE PLATE, lift the DEVE. TIE PLATE, and remove.

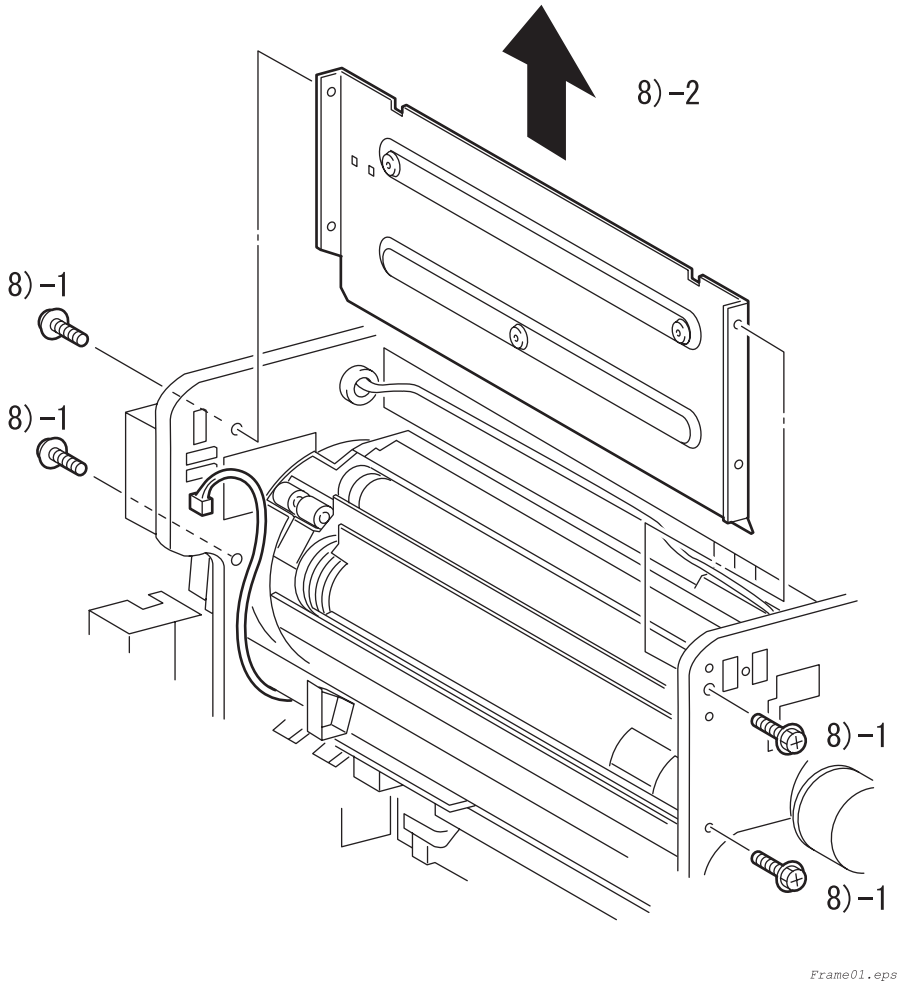


Figure 4-122. DEVE. TIE PLATE Removal

4.2.13 Electrical

4.2.13.1 LV/HV POWER SUPPLY (PL13.1.1)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Disconnect the four connectors (P/J32, P/J33, P/J34 and P/J42) of the LV/HV POWER SUPPLY and the four fastening terminals (A, C, D and F), and release each harness from the saddle edge and clamp.
3. Remove 1 of the 4 screws (silver, w/collar, 6 mm) securing the POWER SUPPLY BRACKET, and loosen the remaining 3 screws (silver, w/collar, 6mm).
4. Lift the POWER SUPPLY BRACKET and remove it together with the LV/HV POWER SUPPLY.
5. Remove the eight screws (silver, w/collar, 6 mm), and detach the LV/HV POWER SUPPLY from the POWER SUPPLY BRACKET.

REASSEMBLY

- **Be careful not to get the harness caught in the gears or on sheet metal when mounting.**
- **Be sure to hook the left hook securely on the frame when mounting.**

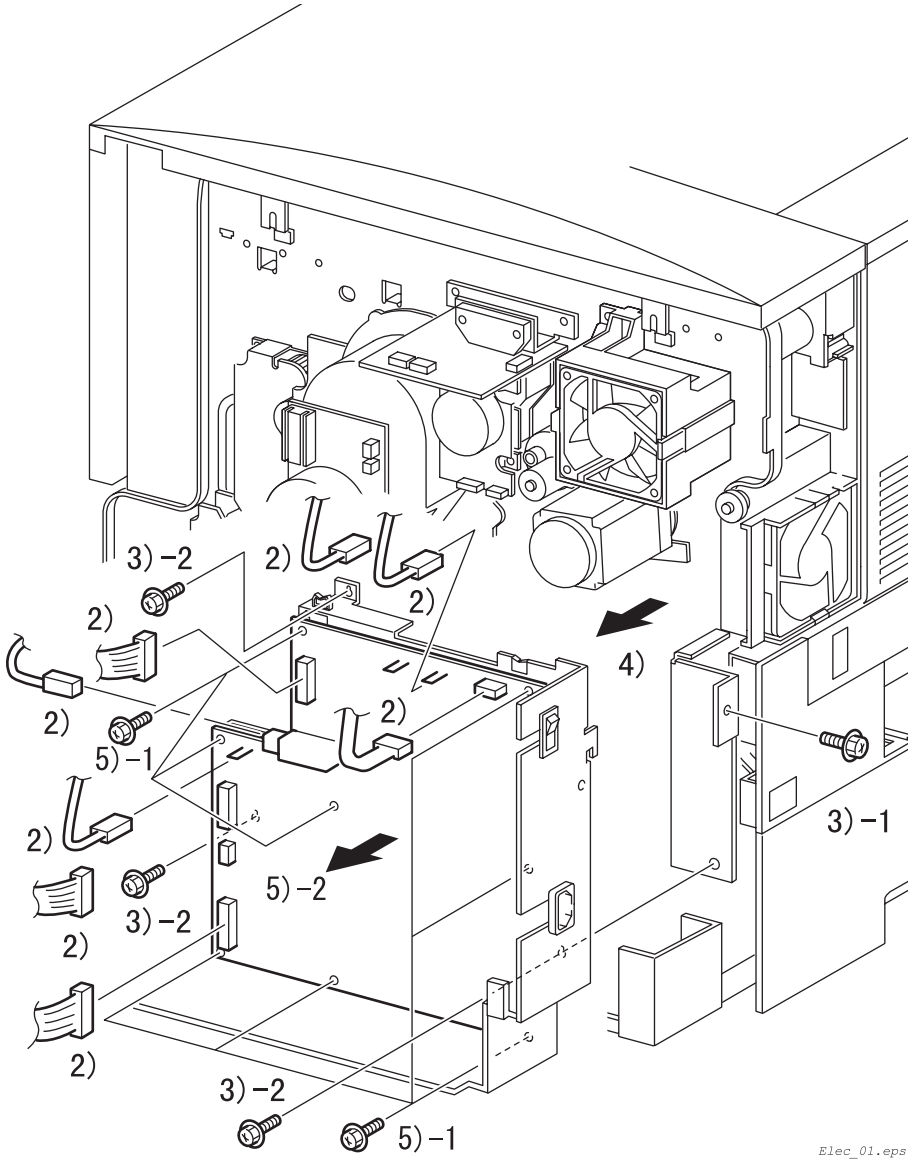


Figure 4-123. LV/HV POWER SUPPLY Removal

4.2.13.2 DEVE. FAN (PL13.1.5)

1. *Remove the REAR COVER ASSY (PL1.1.30) (p.267)*
2. Remove the DEVE. FAN connector (P/J82), and free the harness by removing from the FAN DUCT.
3. Spread the FAN DUCT hook securing the DEVE. FAN, and remove the DEVE. FAN.

REASSEMBLY

- **Mount so that the manufacturer's label on the surface of the DEVE. FAN faces outside.**
- **Attach the harness securely when mounting.**

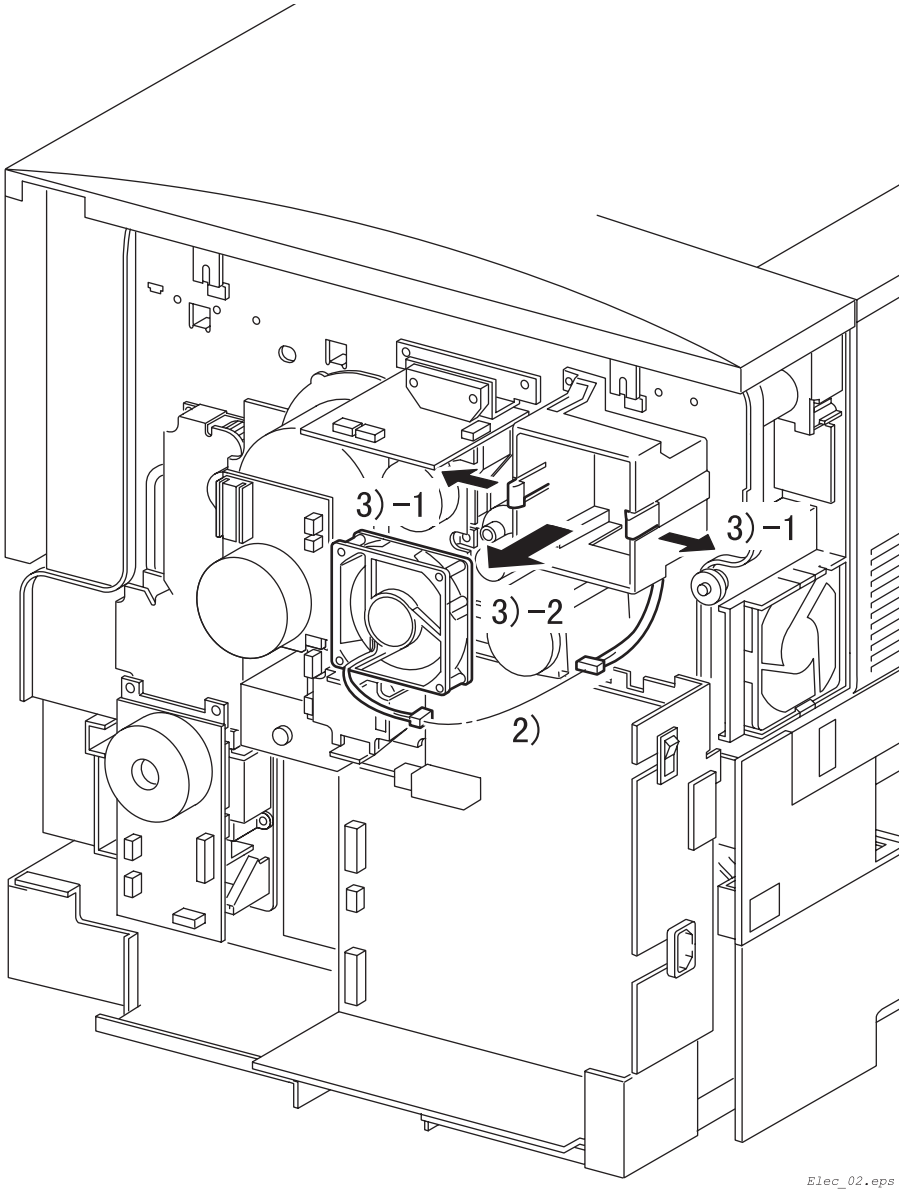


Figure 4-124. DEVE. FAN Removal

4.2.13.3 MCU PWB-XL (PL13.2.1)

CHECK POINT

When replacing the MCU PWB-XL, remove the EEPROM (U2) storing the NVM data from the old MCU PWB-XL and install it on the new MCU PWB-XL.

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the RIGHT COVER ASSY (PL1.1.51) (p.268)*
3. *Remove the CONTROLLER PWB (PL14.1.10) (p.358)*
4. *Remove the CONT. CHASSIS ASSY (PL14.1.1) (p.359)*
5. Remove the 13 connectors (P/J12, P/J13, P/J14, P/J15, P/J16, P/J17, P/J18, P/J19, P/J20, P/J21, P/J22, P/J23, P/J24) of the MCU PWB-XL.
6. Remove the 4 screws (silver, w/collar, 6 mm) securing the MCU PWB-XL, and remove the MCU PWB-XL.

REASSEMBLY

Connect the earth wire to the bottom screw of the screws securing the MCU PWB-XL.

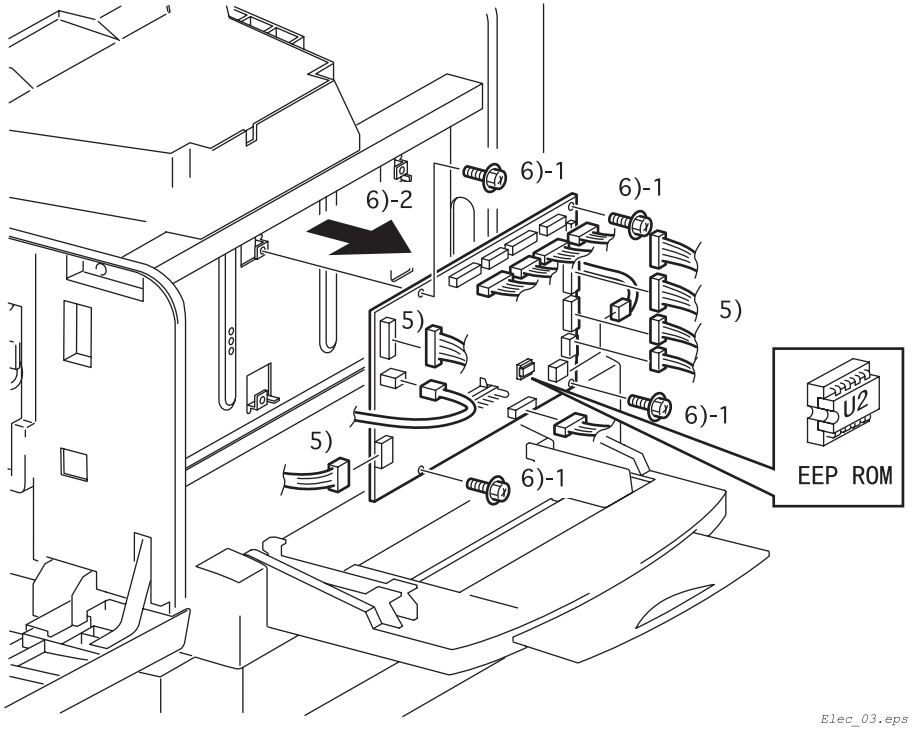


Figure 4-125. MCU PWB-XL Removal

4.2.13.4 FRONT COVER SWITCH R (PL13.2.3)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the RIGHT COVER ASSY (PL1.1.51) (p.268)*
3. *Remove the CONTROLLER PWB (PL14.1.10) (p.358)*
4. *Remove the CONT. CHASSIS ASSY (PL14.1.1) (p.359)*
5. Disconnect the 2 connectors (P/J191, P/J192) of FRONT COVER SWITCH R.
6. Unhook FRONT COVER SWITCH R from the frame, push forward, and remove.

REASSEMBLY

Mount the FRONT COVER SWITCH R securely.

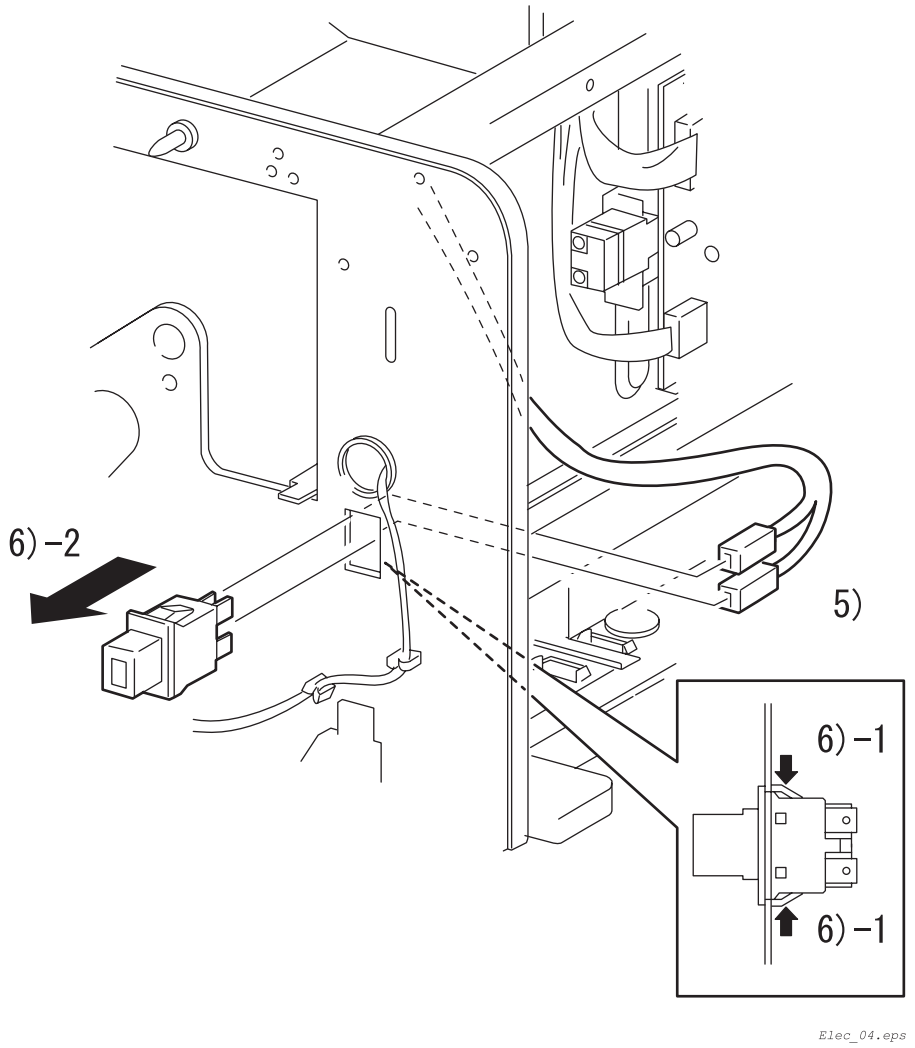


Figure 4-126. FRONT COVER SWITCH R Removal

4.2.13.5 FRONT COVER SWITCH L (PL13.2.4)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the DRUM CARTRIDGE (PL6.1.10) (p.298)*
3. *Remove the TENSION LEVER (PL8.1.21) (p.312)*
4. Remove the following types of INNER COVER ASSY:
   - *Remove the L/H INNER COVER ASSY (PL1.1.10) (p.265)*
   - *Remove the IBT INNER COVER ASSY (PL1.1.14) (p.266)*
5. Unhook the harness and disconnect the two connectors (P/J198 and P/J199) of the FRONT COVER SWITCH L.
6. Remove the screw (silver, w/collar, 6mm) securing the FRONT COVER SWITCH L, and remove the FRONT COVER SWITCH L.

Run the harness correctly when mounting FRONT COVER SWITCH L.

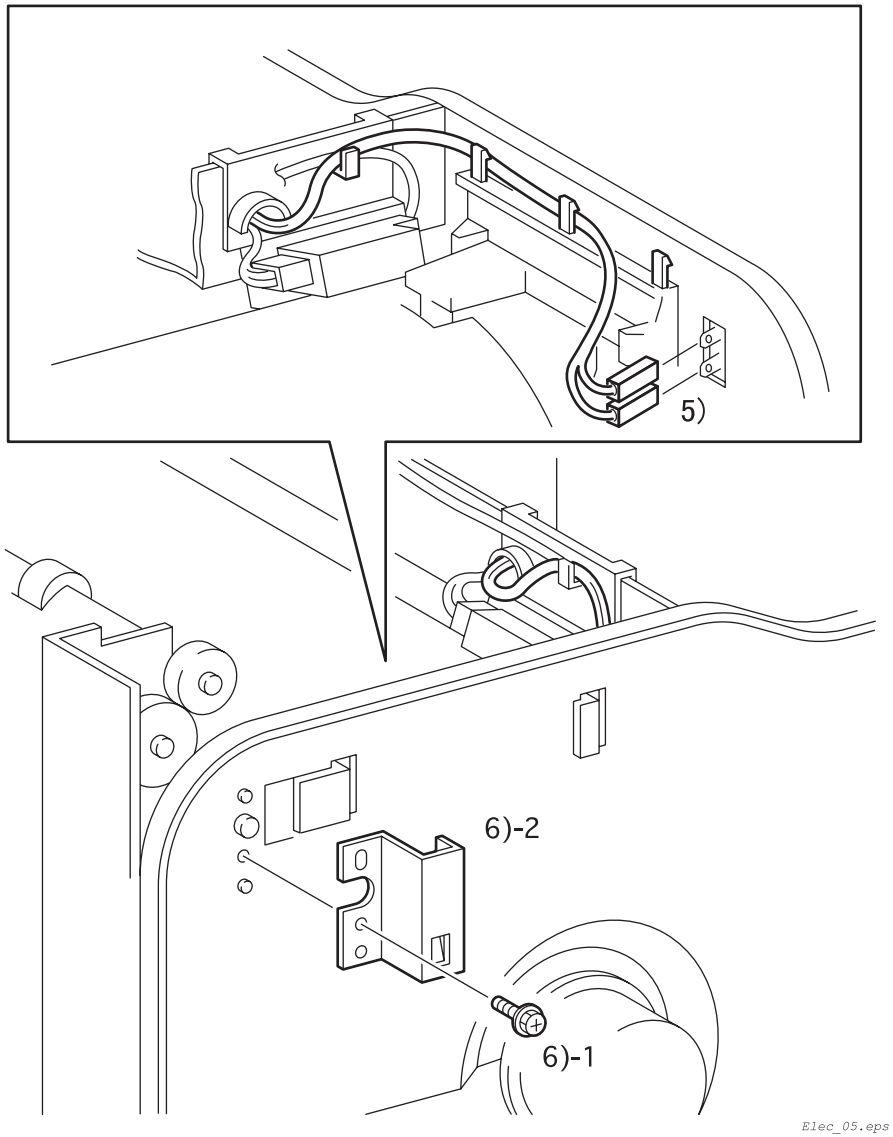


Figure 4-127. FRONT COVER SWITCH L Removal

4.2.13.6 ENVIRONMENT SENSOR (PL13.2.5)

1. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
2. Disconnect the ENVIRONMENT SENSOR connector (P/J105), and free the harness by removing it from the clamp.

NOTE: *At the next step, you are advised to remove the IBT BELT ASSY for easy work.*

3. Remove the ENVIRONMENT SENSOR from the 2 PWB SUPPORT securing the ENVIRONMENT SENSOR.

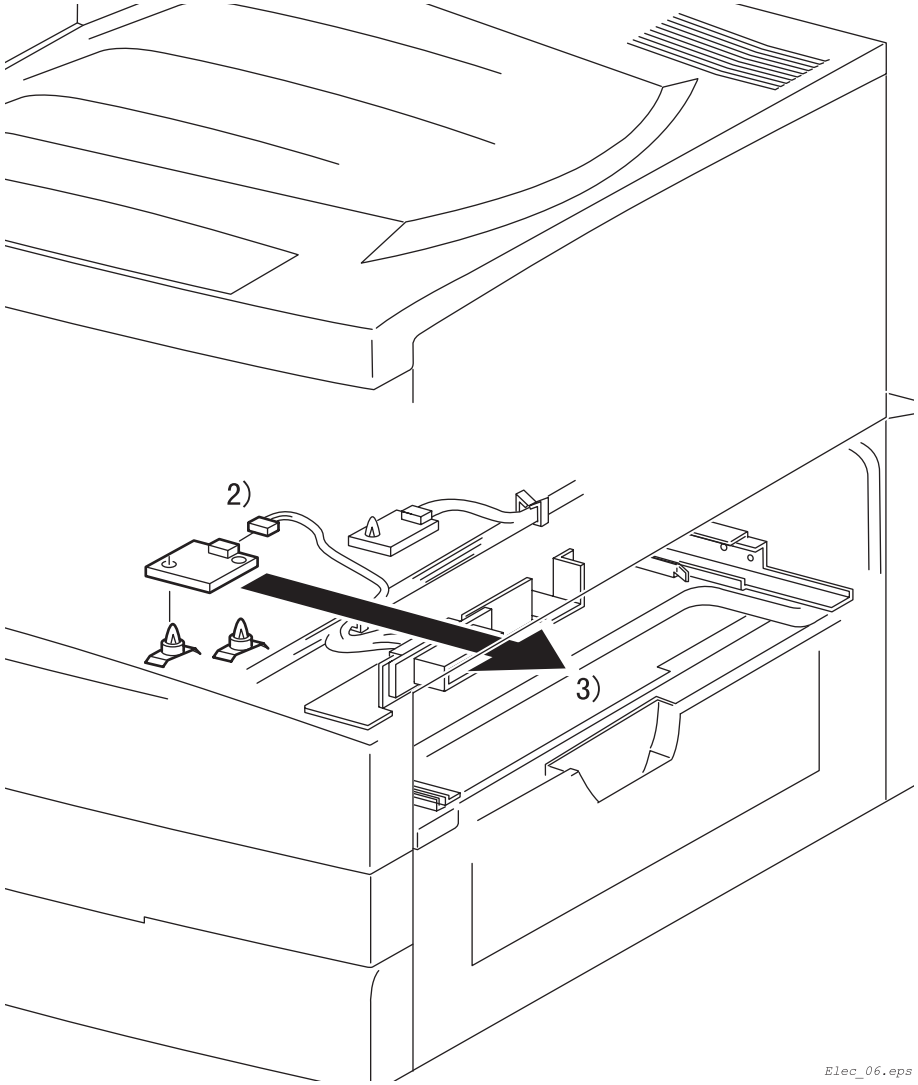


Figure 4-128. ENVIRONMENT SENSOR Removal

4.2.14 Controller

4.2.14.1 CONTROLLER PWB (PL14.1.10)

1. *Remove the RIGHT COVER ASSY (PL1.1.51) (p.268)*
2. Remove the two screws (silver, 8 mm), and remove the OPTION SHIELD-SEC.
3. Disengage the four hooks and remove the GUIDE-B.
4. Disconnect the 2 connectors (CN403, CN405) of the CONTROLLER PWB.
5. Remove the five screws (silver, w/collar, 8 mm) and the two hexagon studs, and remove the CONTROLLER PWB.

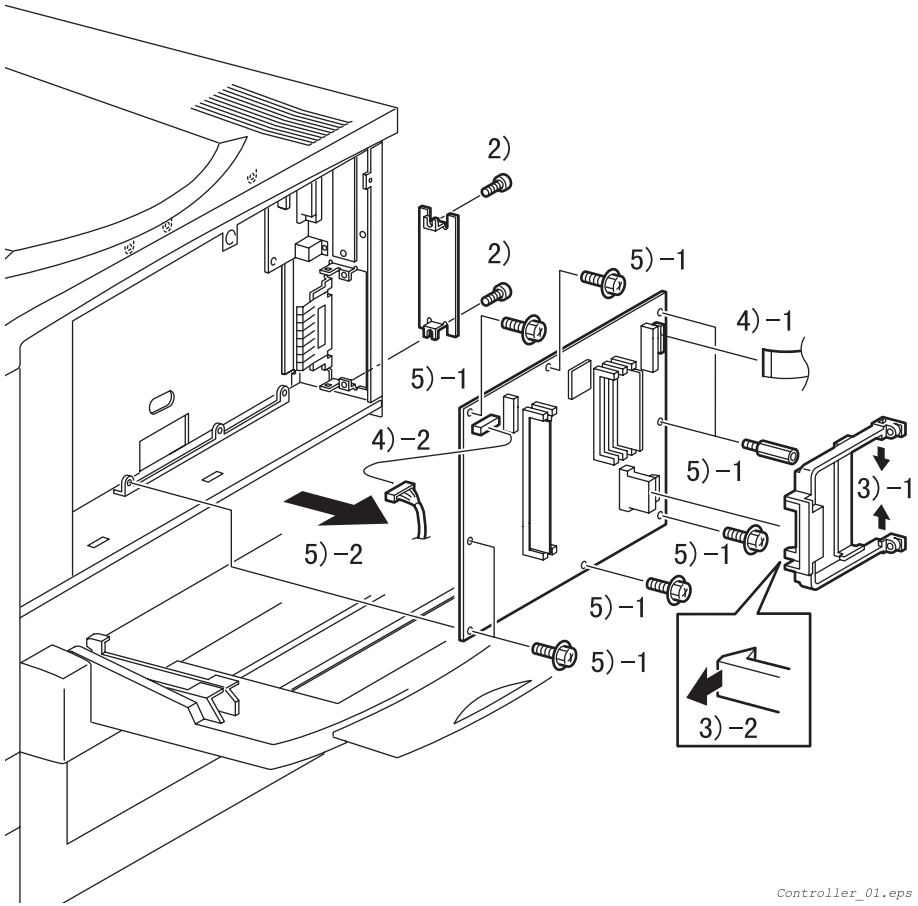


Figure 4-129. CONTROLLER PWB Removal

4.2.14.2 CONT. CHASSIS ASSY (PL14.1.1)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. *Remove the RIGHT COVER ASSY (PL1.1.51) (p.268)*
3. *Remove the MSI/REGI HIGH ASSY (PL4.1.5) (p.282)*
4. *Remove the CONTROLLER PWB (PL14.1.10) (p.358)*
5. Remove the 9 screws (silver, w/collar, 6mm) securing the CONT. CHASSIS ASSY, and remove the CONT. CHASSIS ASSY.

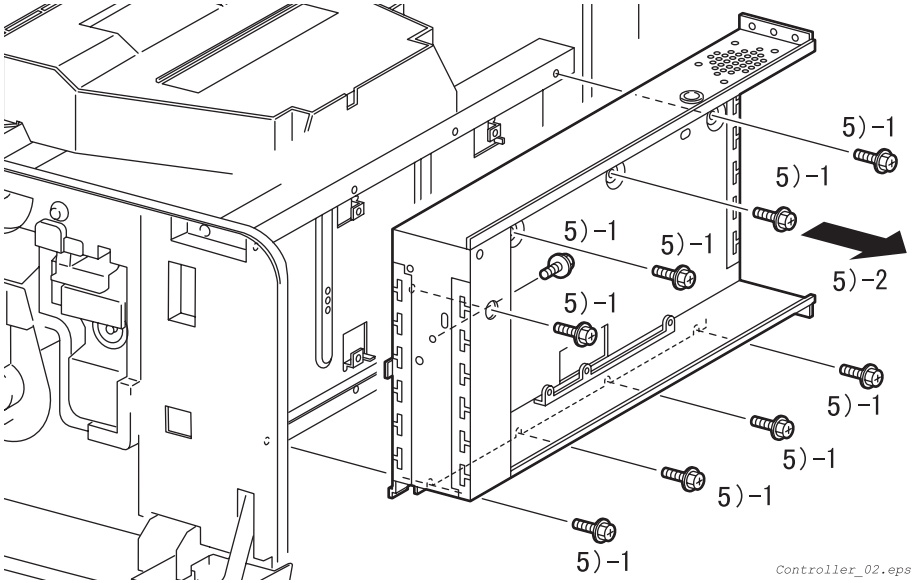


Figure 4-130. CONT. CHASSIS ASSY Removal

4.2.14.3 I/F PWB-B (PL14.1.11)

1. *Remove the TOP COVER ASSY (PL1.1.20) (p.264)*
2. Disconnect the connector (CN3) on the I/F PWB-B.
3. Remove the three screws (silver, 6 mm), and remove the I/F PWB-B.

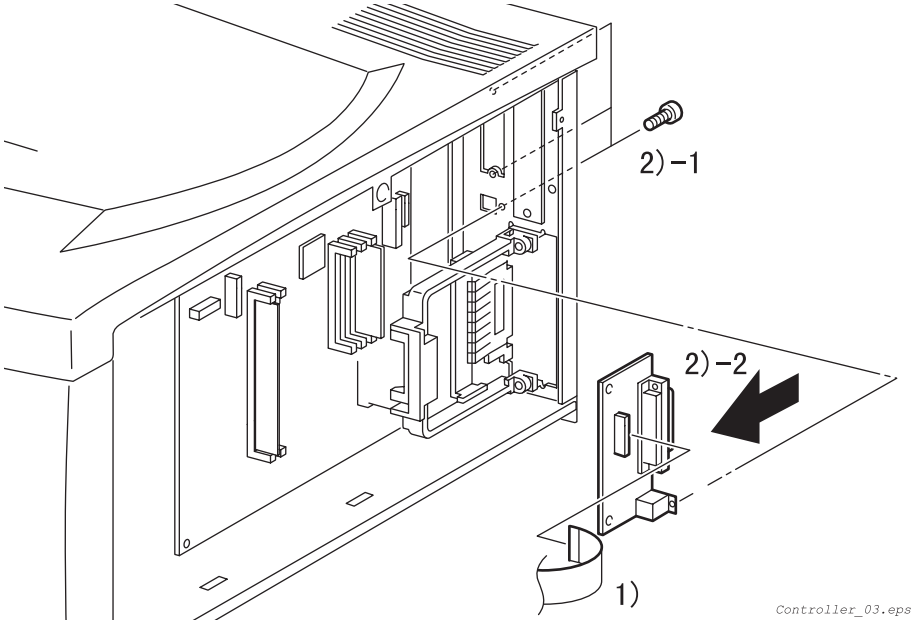


Figure 4-131. I/F PWB-B Removal

CHAPTER

5

ADJUSTMENT

5.1 Overview

This section describes the adjustments required according to service components once they have been replaced and also describes procedures for such adjustments.

5.1.1 Specified Tools

AcuLaser C8600 does not require any special tools for adjustments.
Adjustments for AcuLaser C7000 are described on the assumption that the DIAG commander is used.

For the DIAG tool, refer to "*5.4 Diagnostics (p.369)*".

5.2 USB ID Input

AcuLaser C8600/AcuLaser C7000 comes with the USB interface as standard, and the PC connected to the AcuLaser C8600 via the USB interface identifies the printer by referring to the USB ID information unique to each printer.

Since this USB ID information is stored on EEPROM on the MAIN Board of the printer, you have to re-define the ID information by the procedure described below when you have replaced the MAIN Board for repair.

CAUTION

When you repair the printer and re-define the USB ID information, you have to tell the user to uninstall the previously installed printer driver as it refers to the old USB ID information.

The program for USB ID input and the supported operating environment are as follows:

- Program
  USBID_EJL.exe
- Operating environment
  - OS: Windows95 OSR2.0 or later or Windows98
  - Port used: LPT1 ~ LPT3 (Windows95/98)

5.2.1 Installation Procedure for Program

Copy the adjustment program file (USBID_EJL.exe) onto the desktop or into a folder.

5.2.2 Procedure for Program Operation

CAUTION

- **Do not start the adjustment program before connecting the parallel cable to the printer.**
- **This program can not be executed together with EPW (Epson Printer Window) on Windows 95/98. Be sure to terminate the EPW before starting the adjustment program.**
- **If the power to the printer is turned off or the parallel cable is disconnected during running of the adjustment program, be sure to restart the program.**
- **On the "Details of Display" tab of "Property of Screen", do not change "font size."**

1. When you execute the program "USBID_EJL.exe", the menu window shown below will appear.
2. Select the model name "AcuLaser C8600", then click the OK button.
3. When the window as shown below is displayed, check "USB ID input" and click the OK button.
4. When the window as shown below appears, input the serial number (10 digits) of the printer and click "Ok" button to store the USB ID information (18 digits in total) in EEPROM on the main board of the printer.

5.2.3 USB ID Confirmation

CAUTION

Once you have input a new USB ID, never forget to confirm it on the status sheet.

1. Execute the program “USBID_EJL.exe” which was used to write the USB ID, and select the model name.
2. When the window as shown below appears, check “Verify USB ID” and click the OK button.
3. The window as shown below will appear and a status sheet will be printed automatically.
4. Check that the USB ID printed on the status sheet is identical with that shown on the window.
   After completion of confirmation, press the Return button.

5.3 Service Utility (for AcuLaser C7000)

5.3.1 Overview

This service utility, designed for exclusive use with AcuLaser C7000, must be used to execute any of the following operations for maintenance and checks of AcuLaser C7000:

- ☐ Printing the engine status sheet
- ☐ Initializing the relevant counter when you have replaced any of the Regularly Replaced Part and Major After-Sales Service Parts specified on page 367.
- ☐ Registering USB ID

5.3.1.1 Operating Environment

You can use this service utility under the following conditions:

- ☐ OS
  - ■ Windows 95/98
  - ■ Windows Me
  - ■ Windows NT4.0
  - ■ Windows 2000
  - ■ Windows XP
- ☐ Interface
  - ■ Parallel interface
    Can be used only in a mode where bidirectional communication is permitted.
  - ■ USB
  - ■ Network interface
    Only TCP/IP by Type-B connection is supported.

5.3.1.2 Conditions for Use

This service utility does not require any special installation procedure. It can be copied on the personal computer or can be executed directly from the CD-ROM or floppy disk, but only under the following conditions:

- ☐ PC
  The printer driver for AcuLaser C7000 has been installed and is ready for use.

Once you execute printing the engine status sheet by "Engine Status Sheet" *(p.366)* with network connected, communication with the printer will be disabled. In such a case, turn off the power to the printer once and then turn it on again.

5.3.2 How to Use the Service Utility

This section describes how to use this service utility.

5.3.2.1 Starting the Service Utility

1. Double click the icon for this service utility (STA3HBC.exe) to start it.

Figure 5-1. Icon for Service Utility

2. The PC where the service utility is started will display the printer select window based on the printer driver information installed on the PC. Select “AcuLaser C7000” and click the [OK] button.

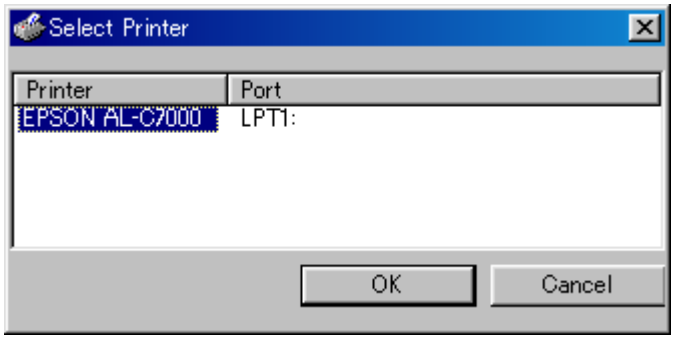


Figure 5-2. Printer Select Window

After the [OK] button is clicked, the PC checks for connection to the selected printer. If the PC has failed in connection to the selected printer, the screen will display the error message as shown below. Then click the [OK] button, and the service utility will be terminated.

Figure 5-3. If Failed in Connection

Possible causes of this error are as listed below. Make certain that the PC and the printer are connected properly, and then start the service utility again.

- The power to the printer is not turned on.
- The cable is not connected properly.
- The printer you have selected is not AcuLaser C7000.

3. Upon confirming the connection to the selected printer, the PC will display the menu screen as shown below and the service utility will be ready for execution of each function. To terminate the service utility, click the [Close] button.

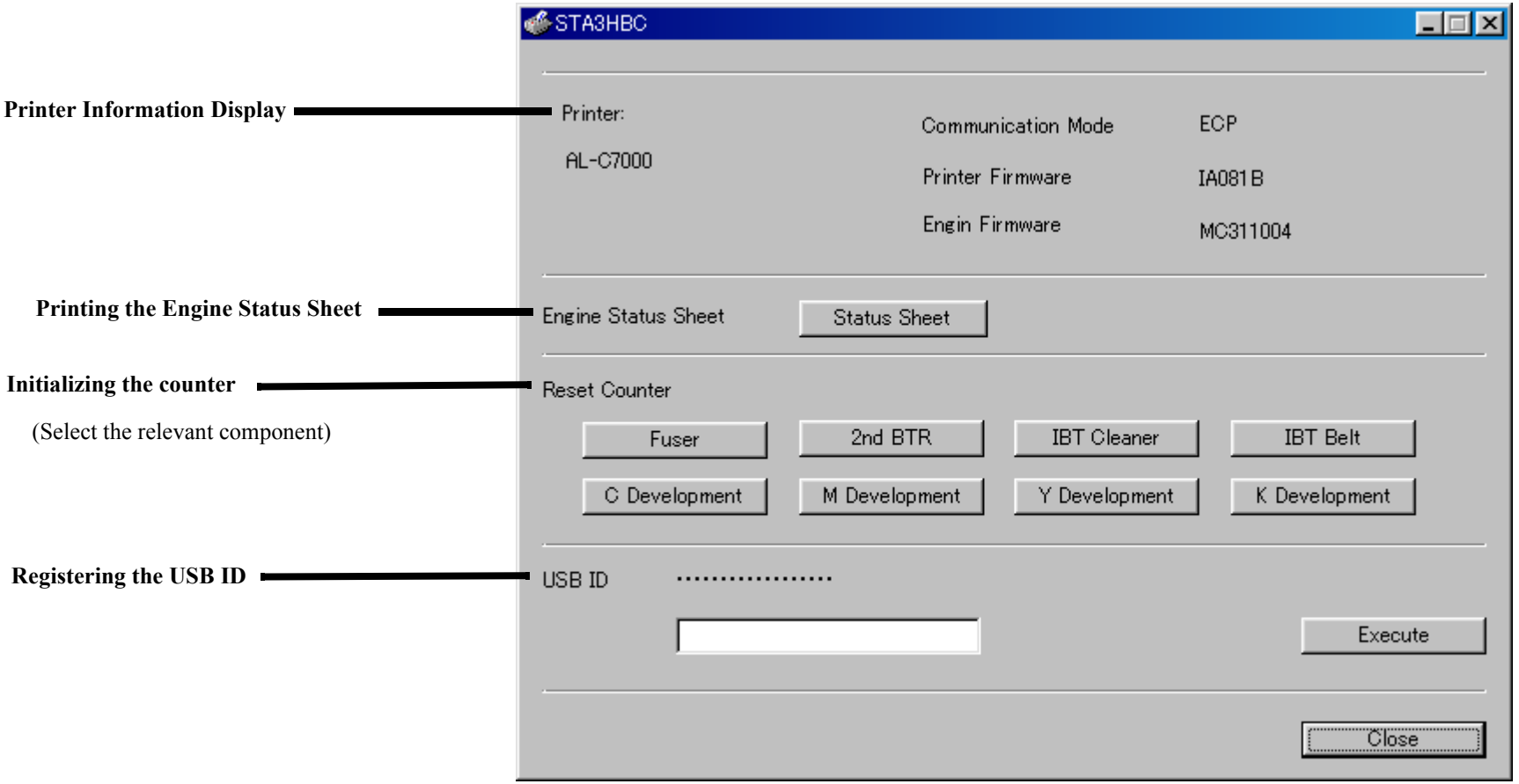


Figure 5-4. Menu Screen of Service Utility

5.3.2.2 Functions

This service utility can execute the following functions:

- ☐ "Printer" information
  - ■ Name of the printer connected ("AcuLaser C7000")
  - ■ "Communication Mode" information
    Displays the interface connected
    - Nibble (parallel interface)
    - ECP (parallel interface)
    - USB
    - I/F Card (Type-B / Network I/F)
  - ■ "Printer Firmware" information
    Firmware version currently installed
  - ■ "Engine Firmware" information
    Mechanical controller firmware version currently installed
- ☐ "Engine Status Sheet"
  Prints the engine status sheet.
- ☐ "Reset Counter"
  Initializes the counters for the Regularly Replaced Part and After-Sales Service Parts whose lives are controlled by the printer. The parts for which the counter must be initialized are as follows:
  - ■ "Fuser" (Main Fuser Assembly: Regularly Replaced Part)
  - ■ "2nd BTR" (After-Sales Service Part)
  - ■ "IBT Cleaner" (After-Sales Service Part)
  - ■ "IBT Belt" (After-Sales Service Part)
  - ■ "C/MY/K Development" (Development unit for each color: After-Sales Service Part)
- ☐ "USB ID"
  Registers the ID number for the USB interface in EEPROM on the Main Board.

5.3.3 Operation

5.3.3.1 Engine Status Sheet

Click the [Status Sheet] button to print the engine status sheet.

CHECK POINT

Since the paper size supported is only A4, set A4 size paper in the printer.

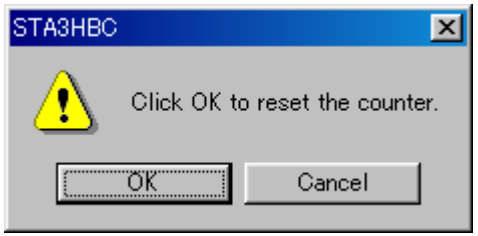
The information given in the engine status sheet is the same as that with AcuLaser C8600. When the engine status sheet is being printed, the process control (Cycle Up / Cycle Down process control) of the engine will be forcedly carried out.

5.3.3.2 Reset Counter

When you have replaced any of the Regularly Replaced Part and After-Sales Service Parts specified above, be sure to reset the relevant counter.

CHECK POINT

Once you have executed resetting, you can never undo the resetting. To warn you not to execute resetting carelessly, the confirmation screen as shown below will be displayed when the [Execute] button for Reset Counter has been clicked. Click [OK] to execute initializing the counter or click [Cancel] to terminate the service utility without executing resetting.



5.3.3.3 USB ID

When the Main Board has been replaced, register the ID number assigned to the USB interface.

Input the assigned ID number in the ID input box and click the [execute] button. Then the input ID number will be stored in EEPROM on the Main Board. The USB ID value displayed above the input box is the initial value displayed at the utility start. The newly registered value is not displayed immediately only by clicking the [Execute] button. If it is necessary to display the registered value soon, terminate the service utility once and then start it again.

CHECK POINT

- **This function can not be used with network connection.**
- **For replacing the Main Board, note down the USB ID value of the old Main Board and input the same value into the newly installed Main Board. (The USB ID value will not be generated automatically by the service utility.)**
- **Since the ID value can be registered only in the specified format, the following checks will be performed.**
  - **More than 18 digits can be input in the input box. However, the digits exceeding 18 digits are ignored, while "0" is set at each blank position if you input less than 18 digits.**
  - **The value to be input must contain the alphanumeric characters specified below at the specified positions, respectively. Any value which does not contain these characters at the correct positions will be invalid and will not be written.**

    1st/2nd position: "13"
    3rd position: "P"
    18th position: "0"

5.4 Diagnostics

5.4.1 Diagnostics by Operating the Printer Body Only

Overview

This printer, AcuLaser C8600, can perform test printing by operating the printer body only to check its operation.
In test printing, the printer prints continuously its internal test print pattern at a continuous printing speed.

Method of Printing Test Prints

1. Remove the RIGHT COVER ASSY. *"4.2.1.11 RIGHT COVER ASSY (PL1.1.51) (p.268)"*
2. Remove the CONTROLLER PWB. *"4.2.14.1 CONTROLLER PWB (PL14.1.10) (p.358)"*

WARNING

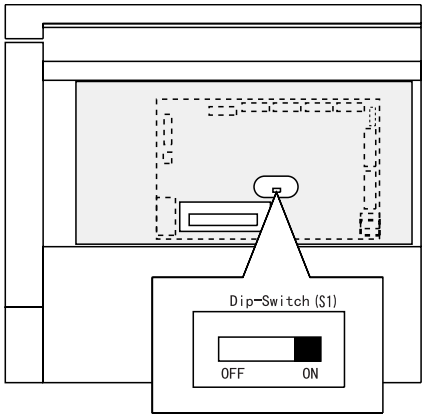
Do not touch conductive parts and during FIRMWARE parts in the following procedures.

3. Set paper and turn the power ON.

CHECK POINT

- **When a tool, such as a mini minus screwdriver, is used, the rest of the changing Dip-Switch process can be done easily.**
- **As for entering the READY mode, confirm that continuous lighting of H/R HEATER and P/R HEATER became space fault fire with the next process from the gap in the print outlet of FUSER ASSY.**

4. Turn on Dip-Switch (S1: It is at the back of the working hole of CONT.CHASSIS ASSY.) for the test print on MCU PWB in the top of the interface connector (P11) of MCUPWB after entering the READY mode



Dip-S1.eps

Figure 5-5. Method of Printing Test Prints

5. Start a print movement by turning on Dip-Switch (S1). (continuous print is done.)
6. To stop printing, turn off the Dip-Switch(S1) on the MCU PWB if it is present. (A device stops after a print during the treatment is discharged.)

CAUTION

- **Make sure that your hand does not touch the other elements when changing the Dip-Switch.**
- **The paper feed unit is in a position selected in *"2.3.2 Paper Supply Unit Selection Control (p.131)"*.**
- **The paper size is set in accordance with the [USIZESET] command. *"See 5.4.2 Diagnostics Commander (p.371)".***

NOTE 1: *When the printer is in an error status, printing operation cannot be started.*

2: *For information about the READY mode, refer to "2.1.5 Operation Mode (p.102)".*

Test Print Patterns

The test print is done in the following patterns that each color appears in each quarter area of the paper.

- In a straight line extending in the laser beam scanning direction, a one dot line is printed at intervals of every 128 dots. On the back edge of each color, the 128 dot interval may vary.
- In a straight line extending in the paper transport direction, an approximately 6 dot line is printed at every [approx. 6 dots x 128]. On the left and right edges of each color, the [approx. 6 dots x 128]. interval may vary.

CAUTION

- **Depending on the specifications, the image may protrude beyond the paper leading edge, leaving no margin.**
- **If the MCU PWB EEPROM (NVM) [Image Area Selection] is set to [Wide], the image is recorded onto paper without right and left margins.**
- **A straight line extending in the paper transport direction, a clock used for MCU PWB increases jitter, making an evaluation of the quality of the image impossible.**

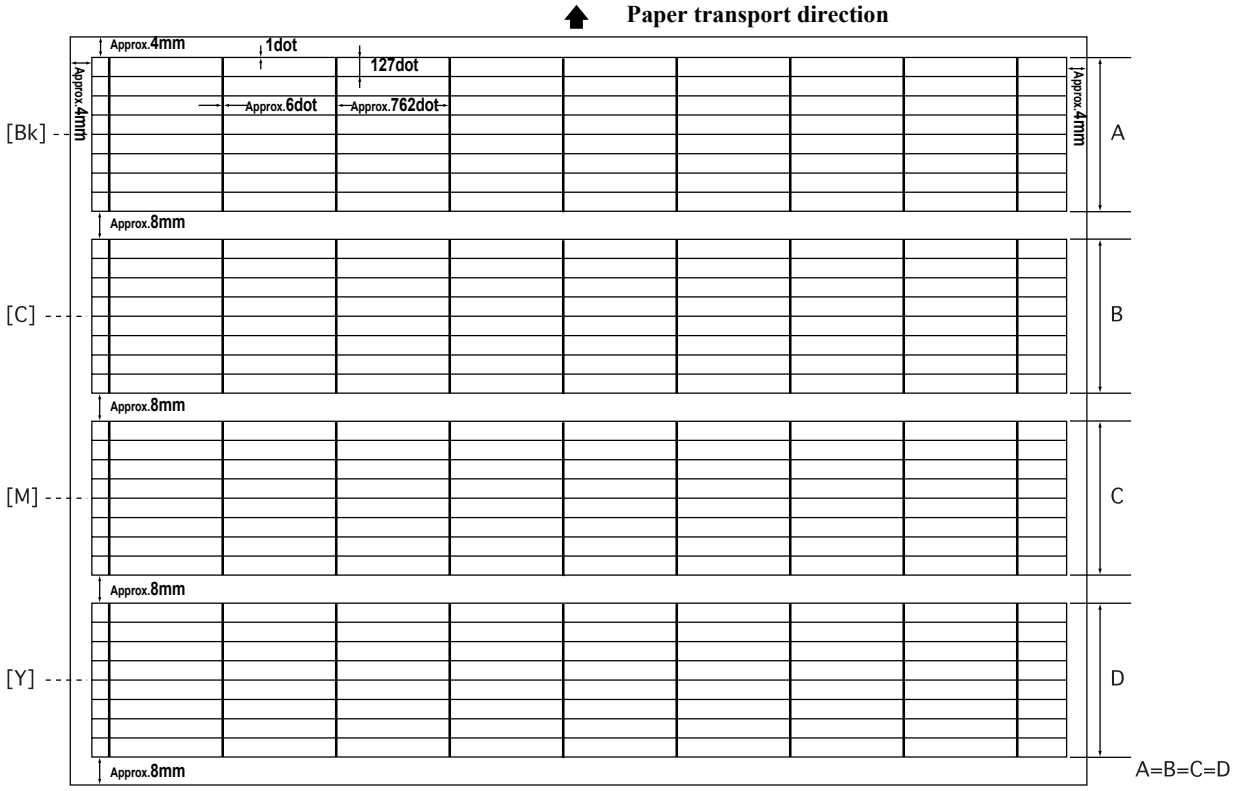


Figure 5-6. Test Print Patterns

5.4.2 Diagnostics Commander

CAUTION

- **The diagnostics commander which can be used for AcuLaser C8600 and AcuLaser C7000 is almost the same as that for AcuLaser C8500, but that for AcuLaser C8600/AcuLaser C7000 must be used by incorporating the patch file.**
- **In principle, the contents of the diagnostics commander are to be supported by the printer controller, so the description of the use of the diagnostics commander given here is simply for information.**

5.4.2.1 Overview

CHECK POINT

- **The combination of DIAG. PWB, DIAG HARNESS, RS-232C cable, personal computer, and diagnostics commander is called the diagnostics tool (Maintenance tool.)**
- **The diagnostics tool supplied by SEIKO EPSON consists of the following particulars:**
  - **DIAG. TOOL-1: DIAG. PWB (circuit board), DIAG. HARNESS (intermediate harness) and diagnostics commander (2 floppy disks)**
  - **DIAG. TOOL-2: Data for diagnostics commander (1 floppy disk)**
  - **MCU FIRM WARE: Program data for engine control [Firmware of MCU PWB] (Only one set will be supplied when the data is changed.)**
  - **Patch files (for AcuLaser C8600/AcuLaser C7000)**

Configuration

This printer can execute, set diagnostics and various settings and do the renewal (renewal) of FIRMWARE of MCU PWB using diagnostics tools (maintenance tool.)

When configured as shown in the figure below, the printer operates the diagnostics commander (an application software) on a personal computer to send commands from the DIAG. PWB to the MCU PWB and down load the FIRMWARE for execution.

☐ **MCU PWB Direct Connection**

NOTE: *"P/J11" is the interface connector of the MCU PWB.*

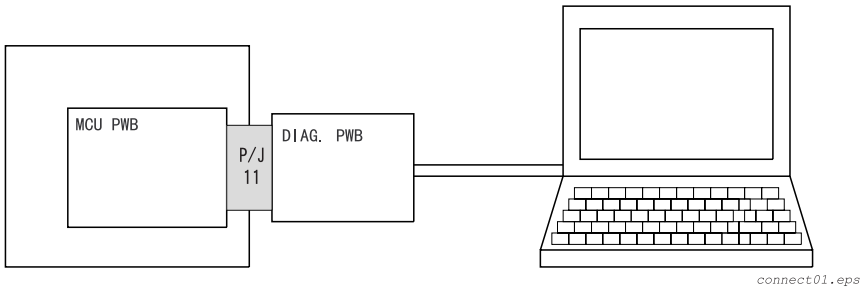


Figure 5-7. DIAG Tool configuration (direct connection)

☐ **Option Connector Connection**

Only down load of FIRMWARE can do it by this composition.

NOTE: *"P/J132" and "P/J211" are the connectors for connecting the printer body and the Option Feeder.*

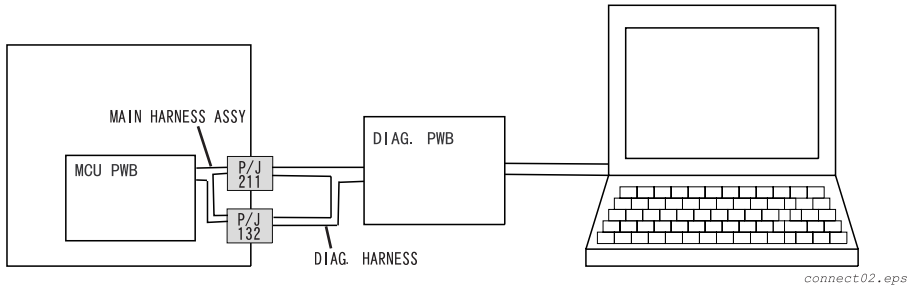


Figure 5-8. DIAG Tool configuration (connection with optional connectors)

5.4.2.2 Overview of the Diagnostic Commander

The diagnostic commander has mainly diagnostics function and FIRMWARE download function.

The diagnostic function is a tool which controls the printer by communicating the data (commands and statuses) with the MCU PWB instead of the printer controller (CONTROLLER PWB.)

During the execution of diagnostics, commands related to the diagnostics are sent. The diagnostics commander also supports commands besides diagnostics and statuses and can perform communications.

The FIRMWARE download function is a tool which downloads a new FIRMWARE to up date the engine control program housing to flash ROM on MCU PWB.

5.4.2.3 Overview of the DIAG. PWB

This circuit board is equipped with a connector with the MCU PWB, a connector with DIAG HARNESS, a connector with RS-232C cable (D-Sub 25 pin female and 2 D-Sub 9 pin females, 4 dip switches).

☐ **Dip Switch Functions**

Table 5-1. Dip Switches

Dip-Sw	Initial Setting	Description
1	ON	For switching the type of RS-232C cable (ON: All strikes rate line cable, OFF: Straight CTC/RTS cable without internal folding)*1
2	OFF	Switching by the difference in the connection composition (ON: At the time of the option connector connection, OFF: At the time of direct connection with MCU PWB)
3	OFF	For the test print of the device simple substance. (It can be used in the same way as Dip-Switch on MCU PWB.) (ON: Test print start, OFF: Test print stop)
4	OFF	Switching by the difference in the connection composition (ON: At the time of the option connector connection, OFF: At the time of direct connection with MCU PWB)

Note "*1": Do not use any cable with a D-Sub 9 pin connector where the pin 7 and the pin 8 are shorted to each other.

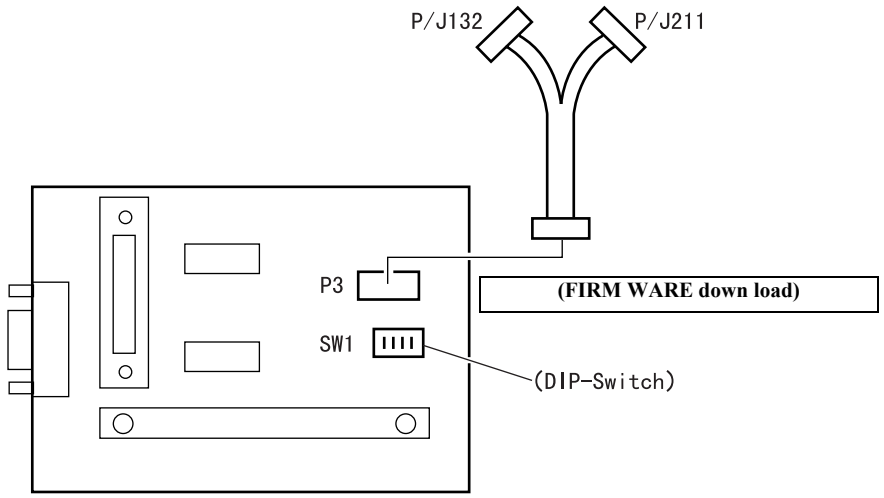


Figure 5-9. Overview of the DIAG. PWB

5.4.2.4 Preparation

Personal Computer

Prepare a personal computer which supports the execution of the diagnostics commander. Set the communications port (RS-232C.)

☐ **Specifications of the personal computer**

Table 5-2.

Item	Function
Type	IBM PC compatible
CPU	Pentium 133 [MHz] or greater
Memory	At least 16 [Mbyte]
Display	At least 640 x 480
OS	Windows95(Beyond 4.00.950a)
Recommendation	IBM Think Pad 535

NOTE: *Only IBM Think Pad 535E operation has been verified. IBM compatibles will run the program but have not been verified.*

☐ **Communication Port**

Table 5-3.

Item	Format
Port No.	1 (variable)
Transfer rate	9600bps
Start bit	1
Length of data	8Bits
Parity	Odd number
Stop bit	1
Transfer control	Total 2
Flow control	Enabled (RTS / CTS)

Installation of the Diagnostics Commander

[Procedure]

1. Launch Windows 95, select "Set" from "Start menu," and then "Control Panels" from "Set."
2. Double click on the "Addition and deletion of applications" icon in the "Control Panel" window.
3. Set Disk 1of the installation disk (DIAG. TOOL-1) of the diagnostics commander into the floppy disk drive.
4. Click on the "Setup (I)" button in the "Addition and deletion of the applications property" window.
5. Complete installation according to the subsequently displayed instructions. [Execute "SETUP.exe"]
6. Execute [Program (P)]-[Tsubaki Service Commander V*.**]-[Registry Entry] from the "Start menu."
7. Write all the patch files (4 files) over [Tsubaki]-[Tsubaki Service Commander V*.**]-[cmd] found on the drive where the diagnostic commander has been installed.
8. Copy files "xxx. DAT" into the "DAT" folder in the folder in which the diagnostics commander has been installed from the data disk (DIAG. TOOL-2.)

Uninstalling the Diagnostics Commander

[Procedure]

1. Launch Windows 95, select "Set" from "Start menu," and then "Control Panels" from "Set."
2. Double click on the "Addition and deletion of applications" icon in the "Control Panel" window.
3. Select the [Tsubaki Service Commander V*.**] and click on the "Add and Delete (R)" button in the "Addition and deletion of the applications property" window.
4. Hereafter complete uninstalling according to the subsequently displayed instructions.

CONNECTION OF THE DIAGNOSTICS TOOLS (MCU PWB)

[Procedure]

1. Remove a RIGHT COVER ASSY *"4.2.1.11 RIGHT COVER ASSY (PL1.1.51) (p.268)"*
2. Remove the CONTROLLER PWB *"4.2.14.1 CONTROLLER PWB (PL14.1.10) (p.358)"*
3. Remove the CONT. CHASSIS ASSY
4. *"4.2.14.2 CONT. CHASSIS ASSY (PL14.1.1) (p.359)"*
5. Connect the DIAG. PWB with the interface connector of MCU PWB so that the Dip-Switch of the DIAG. PWB can be seen from the outside.
6. Connect the DIAG. PWB with the personal computer with a RS-232C cable.

- **The RS-232C must match the settings of the Dip-Switch of the DIAG. PWB and the connector, be completely shielded, and have the length of 2m or less.**
- **Make Dip-Switch of DIAG. PWB the establishment which was suitable for the used connection condition, and use it (Establishment in direct connection with MCU PWB: 2=OFF, 4= OFF).**

Connection of the diagnostics tools (Option Connector)

CHECK POINT

Be careful with this connection because only FIRMWARE download of MCU PWB is executed.

[Procedure]

1. Remove all the connectors which connect those option units and a device itself electrically when an optional loading paper unit and a Duplex unit are increased. (Option Feeder unit: P/J132, P/J211 / Option Duplex unit: P/J134, P/J75)
2. Remove the O/H COVER. *"4.2.1.8 REAR COVER ASSY (PL1.1.30) (p.267)"*

CAUTION

In the following procedure, make sure that DIAG. PWB never touches body.

3. Connect DIAG. PWB and DIAG. HARNES, a connector (P132, P211) for the option loading paper unit of DIAG. HARNES and the printer.
4. Connect the DIAG. PWB with the personal computer with a RS-232C cable.

CHECK POINT

- **The RS-232C must match the settings of the Dip-Switch of the DIAG. PWB and the connector, be completely shielded, and have the length of 2 m or less.**
- **Make Dip-Switch of DIAG. PWB the establishment which was suitable for the used connection condition, and use it. (Establishment in the option connector connection: 2=ON, 4= OFF)**

5.4.2.5 Commands / Statuses

Overview of Commands and Statuses

Commands and statuses are data that are used for communications between the printer controller and MCU PWB.

The printer controller uses these communication to control the printer.

CHECK POINT

The communications directions of Commands / Status are defined as follows. (These definitions apply to the entire chapter.)

- **Command: Printer controller (Diagnostics tool) to MCU PWB**
- **Status: MCU PWB to printer controller (diagnostics tool)**

Data Format

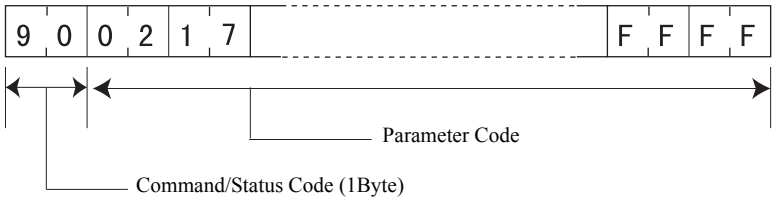


Figure 5-10. Data Format Diagram

The data format is defined such that the first byte is assigned to a command or status code and the following bytes to commands and parameter codes attached to the statuses.

The number of the bytes for the parameters is variable, and there are cases when there is no parameter code.

Each code is indicated in hex.

- Example: Diagnostics (REGIST_CL) execution command.

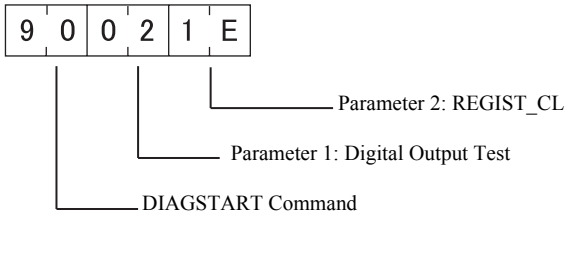


Figure 5-11. Diagnostics Execution Command

Categories of Commands / Statuses

Each command and status are categorized into the following four groups according to the type of printer control.

- Paper, Media, and Output
  Paper feed method (location), type of paper, paper size setting /confirmation, paper output method (location)
- Printing / Status Control
  Printing control, setting an operation mode, error / status codes (the status of the printer) confirmation.
- Parameter Control
  Life times, counter settings and confirmation.
- Diagnostics Control
  Diagnostics execution/quit, EEPROM read and write, setting the FIRMWARE for MCU PWB.

5.4.2.6 Menu Tree of Diagnostics Commander

Figure below shows a simple menu tree of diagnostics commander:

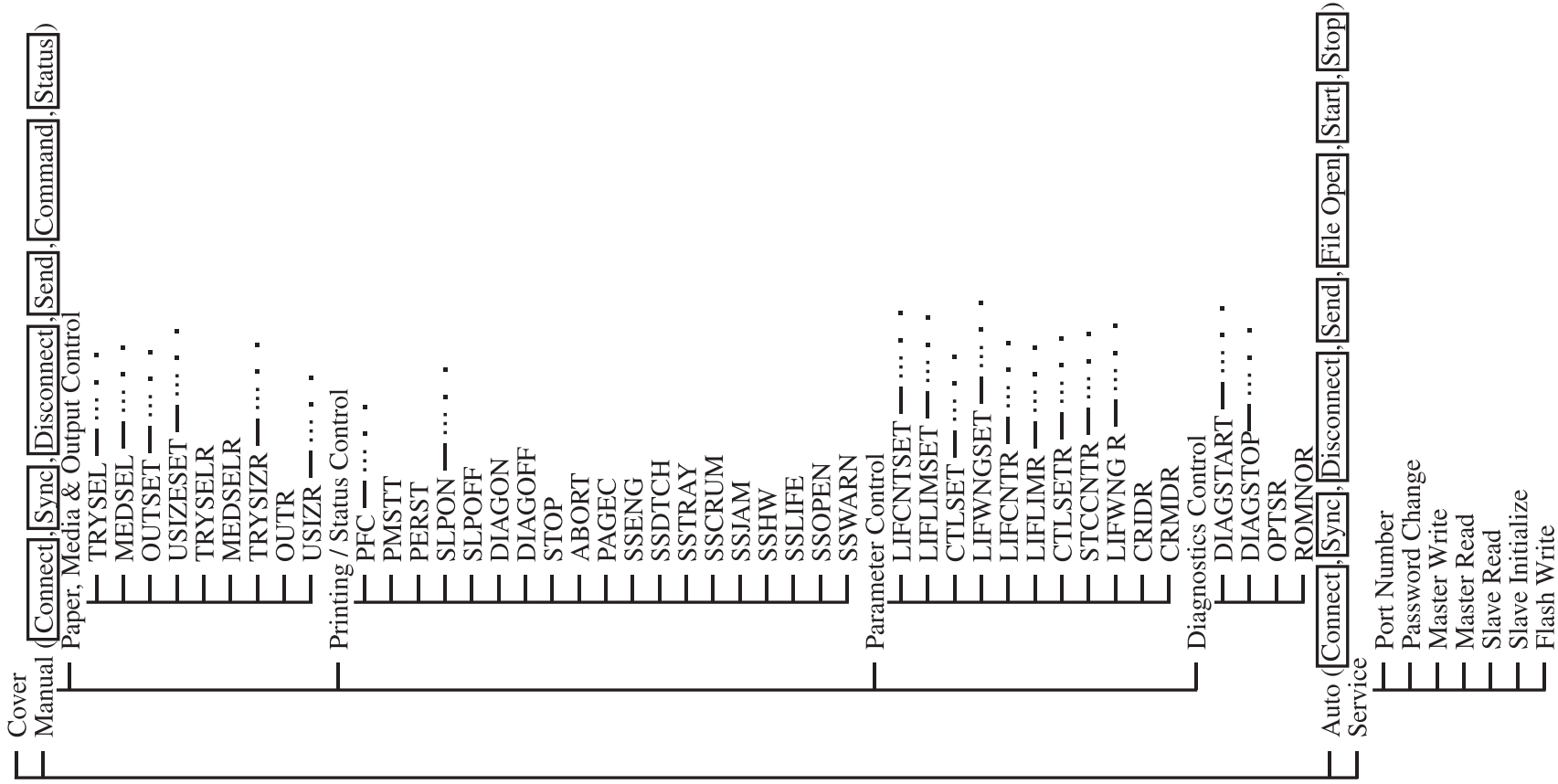


Figure 5-12. Menu Tree of Diagnostics Commander

5.4.2.7 Operating the Diagnostics Commander

Starting Up the Diagnostics Commander

[Procedure]

1. Connect the DIAG TOOL to the printer.
2. Turn ON the power supply of the printer.
3. Launch Windows 95, and select [Program (P)]-[Tsubaki Service Commander V*.**]-[TSCV*] from the "Start menu."
4. To quit the diagnostics commander, click on the [Close] button.

Communications Connection

[Procedure]

1. Click on the [Manual] tab or [Auto] tab according to what you want to send.
2. Click on the [Connect] button to connect the communications port.
3. Click on the [Sync] button to establish communications.

CHECK POINT

- **Clicking on the [Service] tab establishes communications.**
- **When exiting the [Manual] tab, or [Auto] tab, disconnect communications by clicking on the [Disconnect] button.**

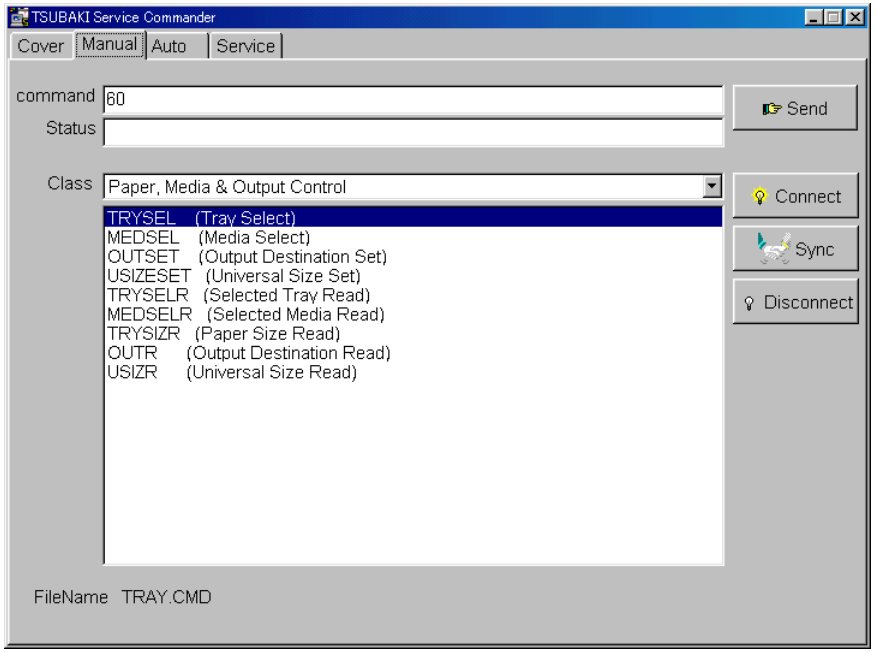


Figure 5-13. Window when the [Manual] tab is selected.

Log Display

You can display the communications process between the Dialog Commander and MCU PWB in the [Log Window].

NOTE: *When using the Diag function, always display [Log Window] and save the log.*

[Displaying The Log Window]

1. Move the cursor to the plain area in the [Tsubaki Service Commander] main window and right-click to display the [Log Window Open] button.
2. Click the [Log Window Open] button to display the [Log Window].
3. The commands and status sent and received are displayed in Hex code in the [Log Window].
4. In addition, self-issued statuses (not displayed in the [Status] column) which do not require commands from the printer are also displayed.

NOTE: *Statuses which are not displayed in the [Status] column but are displayed in the [Log Window] are as follows.*

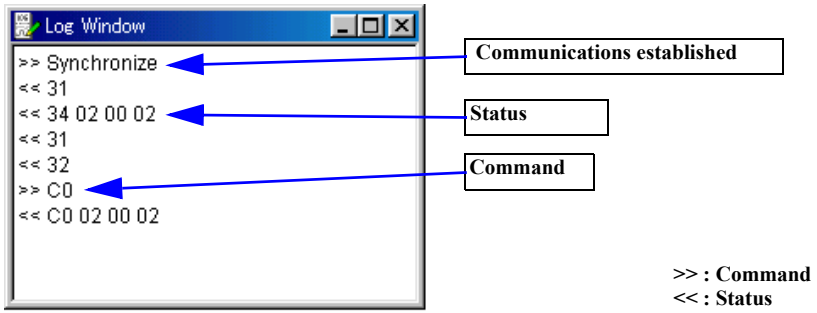


Figure 5-14. LOG WINDOW

IGNORED	[41 XX(CMD) XX(REASON)]
PFA	[30 XX(AMODE) XX(SHEET1) XX(SHEET2)]
ENGERR	[31]
ERRRV	[32]
ENGWRN	[33]
SCH	[34 XX(STSMODE) XX(STSMODE2) XX(STSCALL)]
PFA2	[35 XX(SHEET)]
COLOR	[36 XX(PLANE)]
PPOUT	[20 XX(DEST) XX(DOPT) XX(SHEET)]
PCH	[21 XX(TRAY) XX(SIZE) XX(MEDIA)]
PPOUT2	[22 XX(DEST) XX(DOPT) XX(SHEET)]
DCH	[23 XX(DEST) XX(INFO_D)]

[Log Window Procedures]

Moving the cursor to inside the [Log Window] and right-clicking displays the [Log Clear], [Log Save], and [Log Window Close] buttons.

By licking these buttons you can do the following:

- [Log Clear]
  Log Clear is executed, deleting the contents of the Log Window.
- [Log Save]
  Saves the contents of the log. In the [Log Save] window, specify a filename and click [Save]. If you do not specify a file extension, “LOG” is automatically attached.
- [.Log Window Close]
  Closes the Log Window.

CHECK POINT

You can display the saved log file using an editor such as Memo Pad.

[Manual] Tab Operation

With [Manual] tab, you can send commands and receive statuses.

CHECK POINT

- **Send commands only after communications are established.**
- **For the details of the commands and statuses,** *"5.4.2.10 Command/Status List (p.436)"*

☐ SELECTION FROM A PULL-DOWN MENU

CHECK POINT

- **There are command codes and parameter codes in the pull-down menu that cannot be selected.**
- **Be careful with the thing as well which hasn't been used for pull down menu because they are indicated.**
- **Don't transmit the command which is not in** *"5.4.2.10 Command/Status List (p.436)"* **even if it is indicated again by the pull-down menu.**

[Procedure]

1. Connect DIAG TOOL with the printer, launch the diagnostics commander.
2. Click on the [Manual] tab to display the Manual screen.
3. Establish communications. (*"Communications Connection (p.378)"*)
4. Click on the [Class] column and select the class with the command code to be sent from four classes described in *"Categories of Commands / Statuses (p.376)"*
5. Select the command code to be sent from the command codes displayed.
6. The command code selected is displayed in the [Command] column.

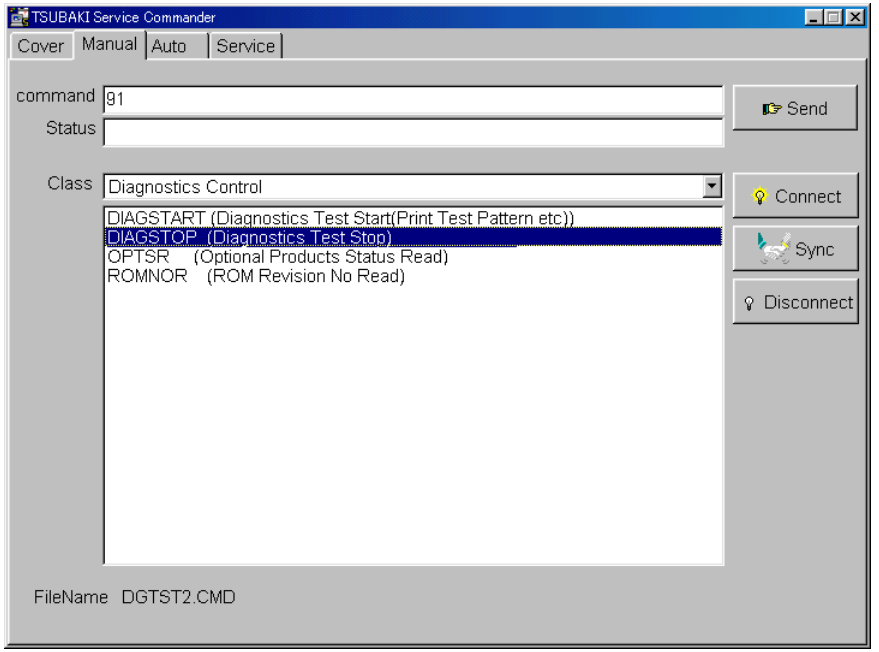


Figure 5-15. SELECTION FROM A PULL-DOWN MENU (1)

NOTE: *Clicking once only displays the command code in the [Command] column.*

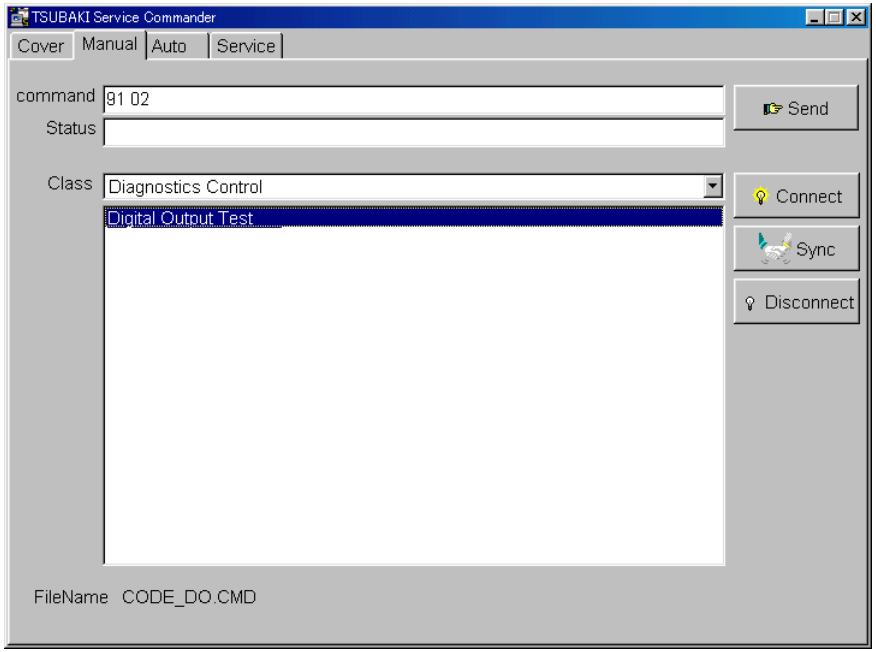


Figure 5-16. SELECTION FROM A PULL-DOWN MENU (2)

NOTE: *Double clicking displays the command code in the [Command] column, and also the parameter codes of the selected command code if it has any having parameter codes.*

7. As above, selecting a parameter code displays the parameter code in the [Command] column.
   Double clicking when there are no parameters causes an [Error] window to be displayed.

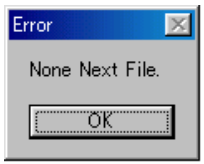


Figure 5-17. SELECTION FROM A PULL-DOWN MENU(3)

8. After completing command selection, click on the [Send] button to send the command to be sent.

CHECK POINT

To select the other commands without sending them, move the cursor into the window for selecting parameters, click the right button, and click on the [Go Back] button. This returns you to the previous parameter.

9. For commands having a corresponding status, the status will be displayed in the [Status] column in hex code.

CHECK POINT

Before changing to another menu ([Auto] or [Service]), click on the [Disconnect] button to disconnect communications.

☐ DIRECT ENTRY FROM THE COMMAND COLUMN

[Procedure]

1. Connect DIAG TOOL with the printer, launch the diagnostics commander.
2. Click on the [Manual] tab to display the Manual window.
3. Establish communications by connecting ("*Communications Connection (p.378)*").
4. Enter the command codes and the parameter codes in hex code with a one-byte space between them in the [Command] column.

CHECK POINT

Use regular ASCII characters for input.

5. After entering the command to be sent, click on the [Send] button to send the command.
6. For a command with a corresponding status, the status is displayed in the [Status] column in the hex codes.

CHECK POINT

Before changing to another menu ([Auto] or [Service]), click on the [Disconnect] button to disconnect communications.

[Auto] Tab Procedures

Auto Run File allows you to transmit consecutively 2 or more commands.

CHECK POINT

- **Use Auto Run File only after communications are established.**
- **It is necessary to separately create an file for Auto Run File with recorded commands.**

[Procedure]

1. Connect DIAG TOOL with the printer, launch the diagnostics commander.
2. Click the [Auto] tab to go to the Auto window
3. Communications connection is established ("*Communications Connection (p.378)*").
4. Click the [File Open] button to display the [Auto Run File Open] window.
5. Specify the Auto Run File name and click [Open].
6. The display parts of the Auto Run file are displayed on the screen.
7. Click the [Start] button to start sequential execution of the commands recorded in the Auto Run file.

CHECK POINT

- **To stop execution of Auto Run File, click the [Stop] button.**
- **For other menus ([Manual]) and [Service]), click the [Disconnect] button to cut off communications, then execute.**

[CREATING AN AUTO RUN FILE]

CHECK POINT

- **You can make a file using an editor such as Memo Pad.**
- **Input all letters in ASCII.**

As shown in the figure, the file is written in hex code 1 command per line, with words separated by 1 byte.

The file name must be regular alphabetical characters with ".AT" as the file extension. Save in the [Auto] folder in the folder in which the diagnostics commander is installed.

Lines headed by "#" are displayed in the Auto window.

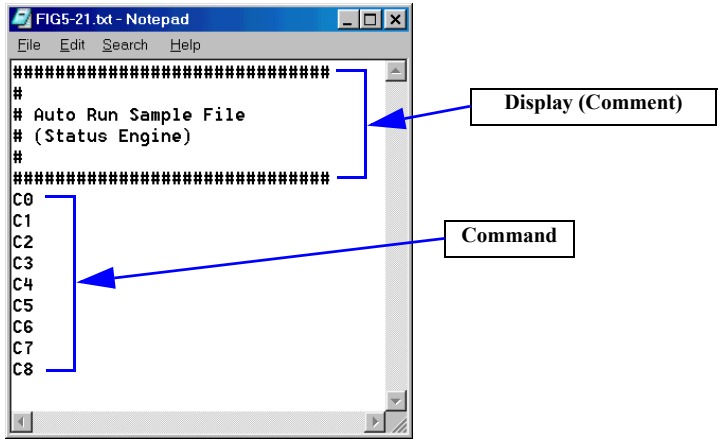


Figure 5-18. Creating an Auto Run File

[SAMPLE AUTO RUN FILE] AUTO RUN FILE]

An Auto Run file (filename Test. AT) that sends the above commands is installed as a sample.

[SERVICE] TAB PROCEDURES

With the [Service] tab lets you write specifications to the MCU PWB EEPROM(NVM), set the password, read the Master, and read/initialize the Slave, and execute the FIRMWARE download function.

CHECK POINT

- **The [Master] is the COMMUNICATION ASSY.**
- **The [Slave] is the MCU PWB NVM.**

The following screen is indicated by the direct connection with MCU PWB or the option connector connection when it clicks on Service tab after DIAG. tool was connected and DIAG. commander was started.

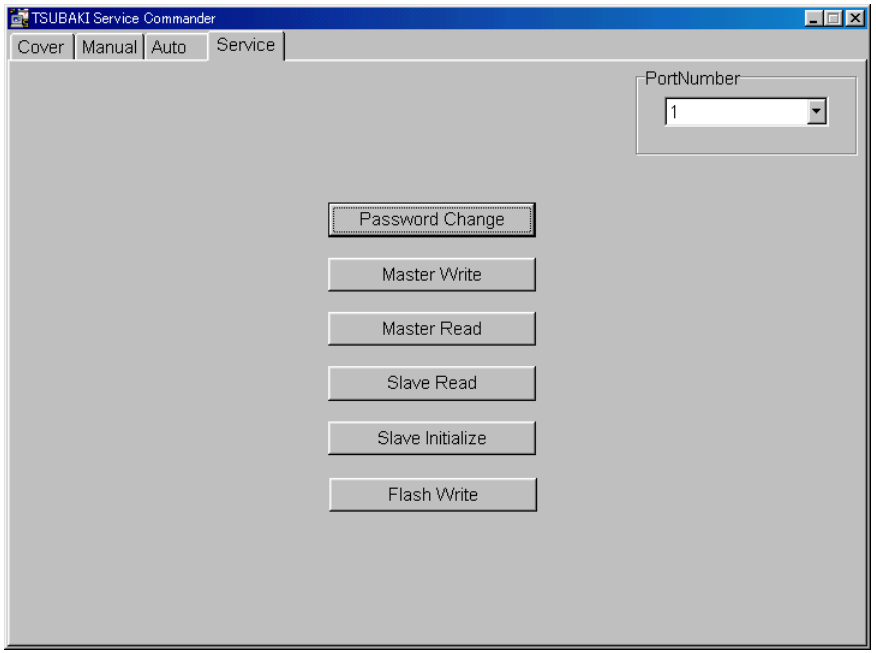


Figure 5-19. DIAG. Commander [Service] Screen

CHECK POINT

- **Connect DIAG. tool by direct connection with MCU PWB when using [Password Change], [Master Write], [Master Read], [Slave Read], [Slave Initialize] surely.When [Port Number], [Flash Write] are used, even which of the direct connection with MCU PWB or the option connector connection is good.**
- **The connection establishment of the communication is done by clicking on either menu button.**

☐ Port Number

At [Port Number], you can select a port number of the personal computer. (The changed setting will be stored.)
Select a port number as required.

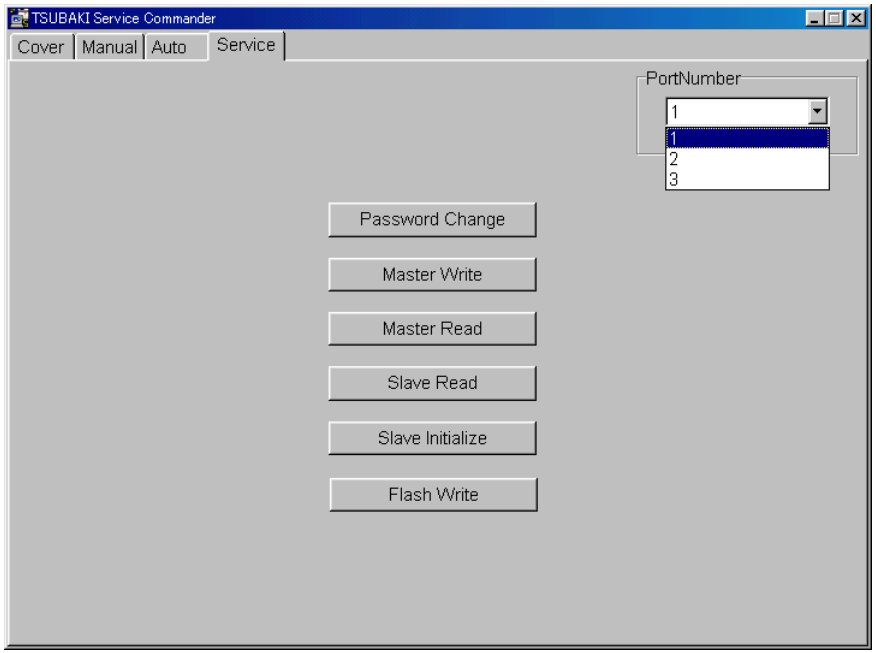


Figure 5-20. Port Select Screen

☐ Password Change

With [Password Change], you can change your password for [Master Write].

CHECK POINT

The password is disclosed only when a contract is made for disclosure. Remember that the password is not disclosed in this manual.

1. Click the [Password Change] button.
2. The display changes to the password input screen.

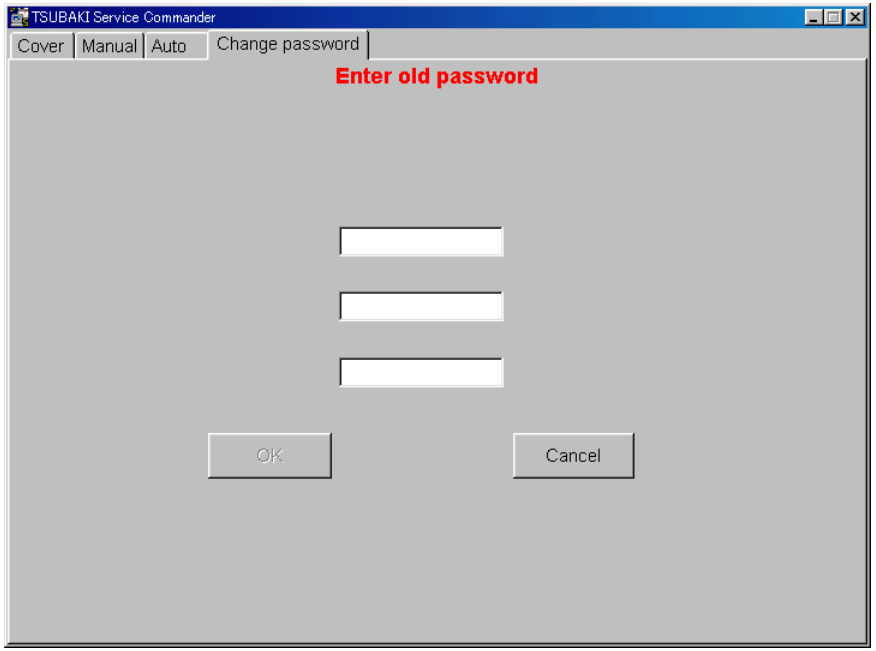


Figure 5-21. Password Input Screen

3. Input the current password, and press the [Enter] key.

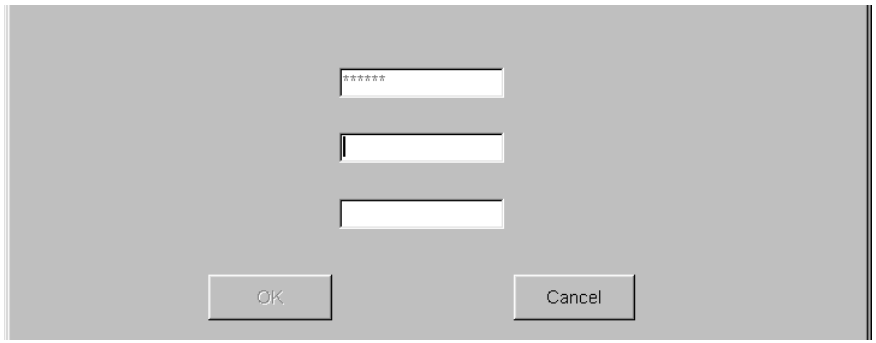


Figure 5-22. Password Screen (Input the current password)

4. Input the new password, and press the [Enter] key.
5. Input the same new password once again, and press the [Enter] key.
6. Click the [OK] button to complete password setting.

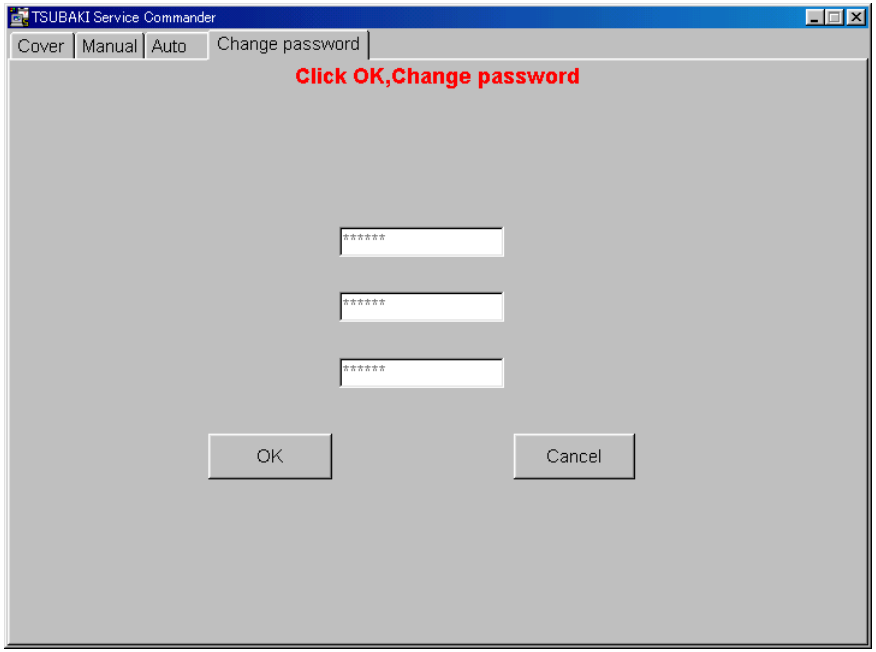


Figure 5-23. Password Screen (Input the new password)

☐ Master Write

With [Master Write], you can write in the Master.

CAUTION

Never execute [Master Write], except where instructed in this manual.

CHECK POINT

- **The password is disclosed only when a contract is made for disclosure. Remember that the password is not disclosed in this manual.**
- **Master Write is permitted only when the Master is new and Slave Initialize has been performed. Remember that an error will be displayed if these conditions are not met.**

1. Click the [Master Write] button.
2. The display changes to the Master writing screen.

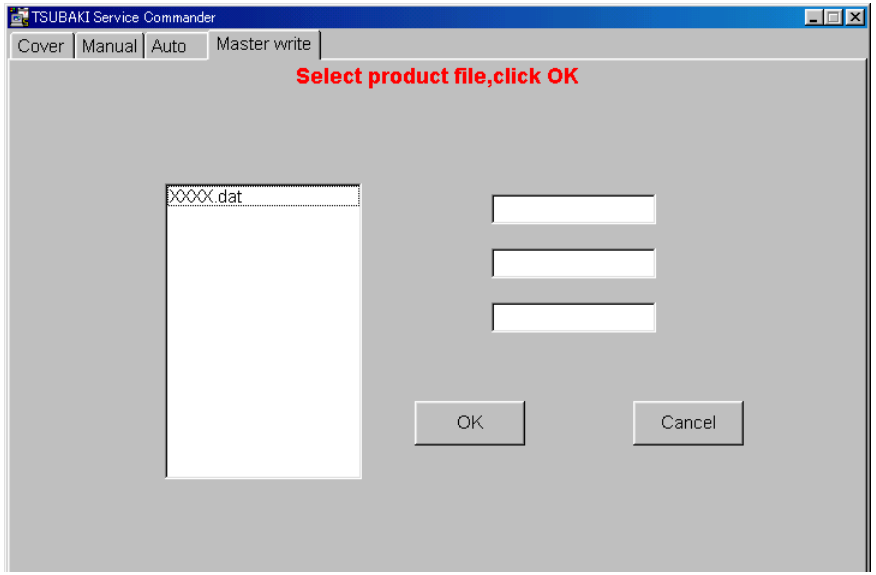


Figure 5-24. [Master] Writing Screen

3. Click the data file (XXXX.dat) meeting the specifications for the printer and click the [OK] button.
4. Input the password, and press the [Enter] key.

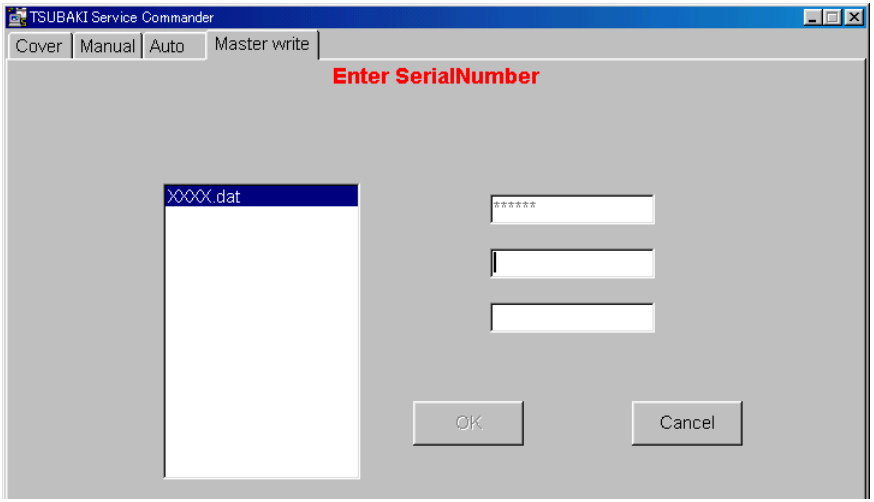


Figure 5-25. [Master] Writing Screen (password input 1)

5. Input the 6-digit serial number of the printer and press the [Enter] key.
6. Input the serial number of the printer once again and press the [Enter] key.
7. Click the [OK] button to complete [Master Write].

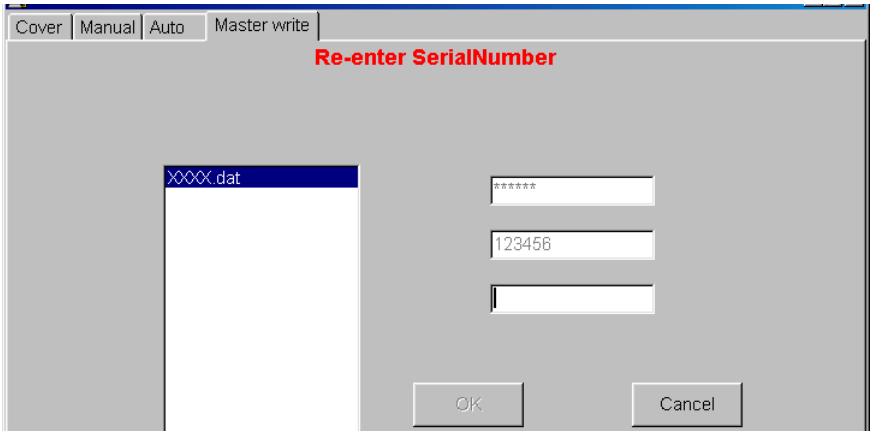


Figure 5-26. [Master] Writing Screen (password input 2)

☐ Master Read

[Master Read] lets you read the contents of the [Master].

CHECK POINT

If [Master Read] is executed when communications are not established, the Diagnostics Commander will hang. Always use another tab to make sure that communications are connected and established before using [Master Read].

1. Click the [Master Read] button.
2. The contents read from [Master] are displayed.

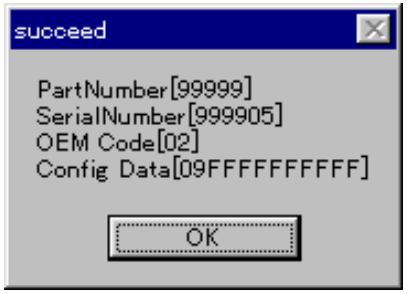


Figure 5-27. Master Read

☐ Slave Read

[Slave Read] lets you read the contents of the [Slave].

CHECK POINT

If [Slave Read] is executed when communications are not established, the Diagnostics Commander will hang. Always use another tab to make sure that communications are connected and established before using [Master Read].

1. Click the [Slave Read] button.
2. The contents read from [Slave] are displayed.

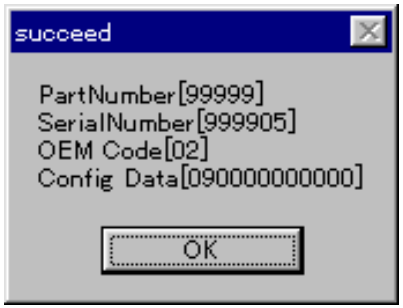


Figure 5-28. Slave Read Closing Window

☐ Slave Initialize

[Slave Initialize] lets you initialize the contents of the [Slave] (delete the contents.)

CAUTION

Never execute [Slave Initialize] unless instructed to by this manual.

CHECK POINT

- **If [Slave Initialize] is executed when communications are not established, the Diagnostics Commander will hang up. Always use another tab to make sure that communications are connected and established before using [Master Read].**
- **After initializing the [Slave], turning the power OFF/ON starts automatic writing to the [Slave].**
- **Because, in some cases, there are procedures that must be completed before turning the power OFF/ON after initializing the [Slave], always follow the procedures in this manual.**

1. Click the [Slave Initialize] button.
2. When a message window is displayed, click on the [OK] button.

Figure 5-29. Slave Initialize Confirmation Message

3. Initialization of the [Slave] starts.

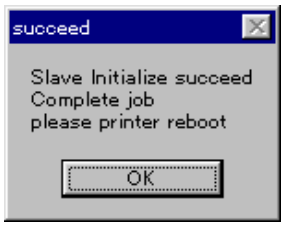


Figure 5-30. Slave Initialize Completing Window

☐ Flash Write

A program (FIRMWARE) for the engine control that it is stored in Flash ROM on MCU PWB can be renewed with Flash Write by download by the FIRMWARE down function.

CAUTION

- **Use only the download file provided formally.**
- **While downloading, never turn off the power supply of the device and the personal computer.**
- **Remove all the connectors which surely connect an Optional Feeder unit and a Duplex unit and a device itself electrically when using Flash Write. (Option Feeder unit: P/J132, P/J211 Option Duplex unit: P/J134, P/J75)**
- **Do the establishment of Dip-Switch of DIAG. PWB in accordance with the way of connecting it though how to connect DIAG. tool is two kinds surely.**
- **Never use this for the one for the development though there is "MOT Convert button" of "TSUBAKI Flash Writer II".**

CHECK POINT

Before "TSUBAKI Flash Writer II" starts, the ROM version of MCU PWB is checked, and it is judged to be Flash ROM or Mask ROM. If it is Mask ROM, the display shows "MCU ROM is not Flash type" and "TSUBAKI Flash Writer II" will not start.

1. As a preparation in advance, prepare for a file (***.mot) for download, and copy the file in optional folder of the personal computer.
2. Click the [Flash Write] button.
3. When a message window is displayed, click on the [OK] button. (Download program [f_w2_113.exe:TSUBAKI Flash Writer II] starts.)

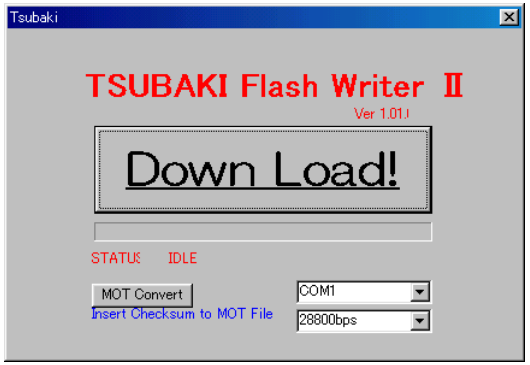


Figure 5-31. Firmware Starting Screen

4. Set up a port to use, and a communication speed.
5. Click the [Down Load!] button.
6. Choose a file (***.mot) for download prepared in advance, and click the [Open] button.

7. Download is started.
   (Progress conditions are indicated under the [Down Load!] button.)

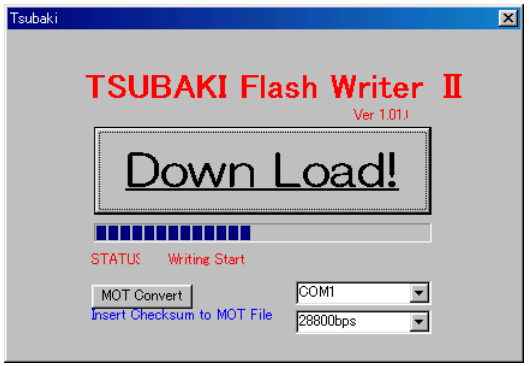


Figure 5-32. Download Screen

8. When download is completed, a "Successful" message comes out, click the [OK] button, and click the [Close] button of TSUBAKI Flash Writer II.
9. Download work is completed in OFF/ on of the power supply (device).

CHECK POINT

Carry it out again from the beginning after you confirm connection condition and so on if a [Error] message is indicated. Exchange MCU PWB, and confirm it when even the practice of the re-occasion becomes a "Error" message.

- **Communication Error**
- **Verify Error**

NOTE: *Confirm the version of FIRMWARE in front of download after/because the version of FIRMWARE can be confirmed by transmitting a command "E2" with Manual tab.*

Command: [E2]

Status: [E2 XX XX XX] ("XXXXXX" is the version of FIRMWARE.)

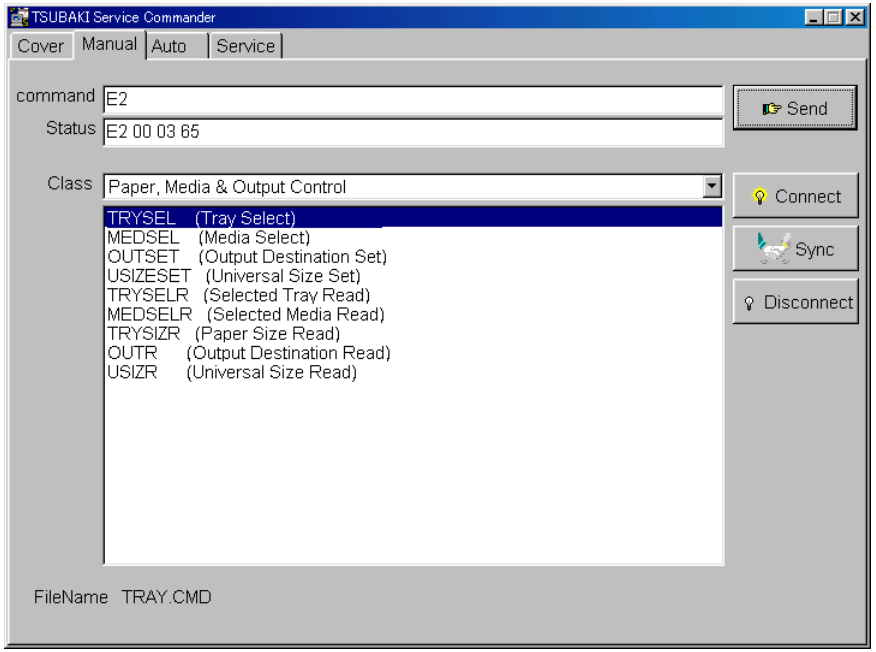


Figure 5-33. Firmware Version Check

5.4.2.8 Diagnostics Execution

Diagnostics Execution Procedures

The diagnostics commander command transmission function lets you send the following commands to execute diagnostics.

- The DIAGON command sends [75h] to enter the DIAG TEST mode for executing diagnostics.
  (The DIAGON command is in [Command Class: Printing/Status Control].)
- The DIAGSTART command sets the parameter to [90h] and sends it to start diagnostics.
  (The DIAGSTART command is in [Command Class: Diagnostics Control].)
  Setting the diagnostics code as a parameter allows execution of various diagnostics procedures.
- The DIAGSTOP command sets the parameter to [91h] and sends it to stop diagnostics.
  (The DIAGSTOP command is in [Command Class: Diagnostics Control].)
- The DIAGOFF command sends [76h] to leave the DIAG TEST mode for executing diagnostics.
  (The DIAGON command is in [Command Class: Printing/Status Control].)

Diagnostics Types

Diagnostics is a function that lets you diagnose problems. Including All Test Stop, there are 9 types of diagnostics as shown below.

Table 5-4. Diagnostics Types

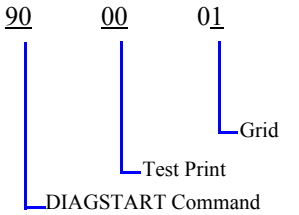
Parameter (Hex)	Diagnostics Type	Description
00	Test Print	Sets the printer internal test print parameter.
01	Digital Input Test	Executes input testing of sensors and switches that have digital signals.
02	Digital Output Test	Executes output testing of functional parts operated by digital signals (motors and solenoids, etc.).
03	Analog Input Test	Executes input testing of sensors and output monitors that have analog signals.
04	Analog Output Test	Executes output testing of functional parts operated by analog signals (LV/HV POWER SUPPLY output, etc.).
05	EEPROM Read	Executes reading of all data types from the MCU PWB EEPROM(NVM).
06	EEPROM Write	Executes writing of all data types from the MCU PWB EEPROM(NVM).
07	EEPROM Initialize	Executes initialization of all data in the MCU PWB EEPROM(NVM).
FF	All Tests Stop	Stops all diagnostics.

TEST PRINT

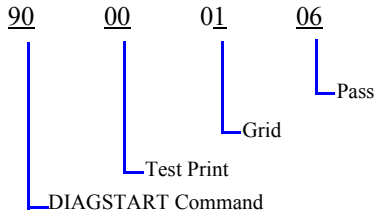
This lets you set the parameter for the printer's internal test print.

DIAGON Command: [75]		DIAGOFF Command: [76]
DIAGSTART Command (Test Print): [90 00 XX]		
DIAGSTOP Command (Test Print): Unnecessary		
Parameter	**Function**	**Data (hex)**
1	Diagnostics Type	00: Test Print
2	Image	01: Grid
3	DGST	[For status] 06: Pass, 07:Fail
Status present ([90 00 XX])		

■ EX) [Command]



EX) [Status]



CHECK POINT

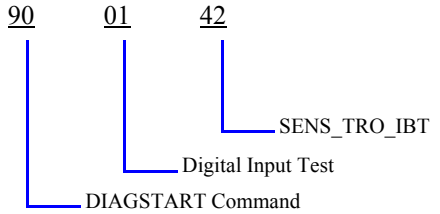
- **After setting the test print described above, sending [PFC command (70 00 F0 01)] executes test print.**
- **"Grid" in the above table is the same as "*Test Print Patterns (p.370)*".**

DIGITAL INPUT TEST

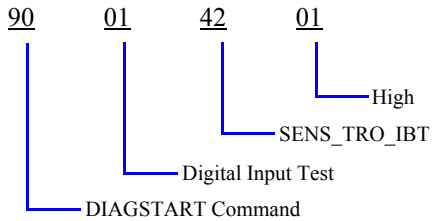
This lets you detect the High/Low level of switches and sensors that have digital signals.

DIAGON Command: [75]		DIAGOFF Command: [76]
DIAGSTART Command (Digital Input Test): [90 01 XX]		
DIAGSTOP Command (Digital Input Test): Unnecessary		
Parameter	**Function**	**Data (hex)**
1	Diagnostics Type	01: Digital Input Test
2	Code_DI	*"DIGITAL INPUT TEST DEVICE CODE (p.392)"*
3	Data	[Status only] 00: low, 01: High or XX (data)
Status present ([90 01 XX XX])		

■ EX) [Command]



■ EX) [Status]



DIGITAL INPUT TEST DEVICE CODE

Table 5-5. Digital Input Test Device Code

Digital Input Test [DIAGSTART :[90 01 XX], DIAGSTOP :Unnecessary]			
Name	Code (Hex)	Function Item: When status data is [High]	Check Method
TOP_TRAY_FULL_SNR	15	FULL STACK SENSOR FULL STACK SENSE Signal: FHigh	Check by using the Actuator to switch between light passed and light blocked states at the Sensor.
EXIT_TOP_SNR	16	TOP EXIT SENSOR TOP EXIT PAPER SENSE Signal: FHigh	Check by using the Actuator to switch between light passed and light blocked states at the Sensor.
2BTR_PHT_SNR	21	BTR WHEEL SENSOR BTR WHEEL SENSED Signal: FHigh	Check by using the Actuator to switch between light passed and light blocked states at the Sensor.
FUSER_ENT_SNR	24	FUSER IN SENSOR FUSER IN PAPER SENSE Signal: FHigh	Check by using the FUSER IN ACTUATOR to switch between light passed and light blocked states at the Sensor.
FUSER_EXIT_SNR	25	FUSER EXIT SENSOR-1 FUSER EXIT-1 PAPER SENSE Signal: FHigh	Check by using the FUSER EXIT ACTUATOR-1 to switch between light passed and light blocked states at the Sensor.
SENS_REGIST	29	REGIST_SNR REGI. PAPER SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.
SENS_BOTTOM_DOWN	2A	BOTTOM_DOWN_SNR BOTTOM PLATE SENSE Signal: High	Check by using the BOTTOM PLATE to switch between light passed and light blocked states at the Sensor.
SENS_MSI_PITCH	2B	MSI_PITCH_SNR MSI PITCH PAPER SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.

Table 5-5. Digital Input Test Device Code (continued)

Digital Input Test [DIAGSTART :[90 01 XX], DIAGSTOP :Unnecessary]			
Name	Code (Hex)	Function Item: When status data is [High]	Check Method
SENS_BOTTOM_UP	2C	BOTTOM_UP_SNR MSI LEVEL SENSE Signal: High	Check by using the NUDGER SUPPORT ASSY to switch between light passed and light blocked states at the Sensor.
NSRDY	35	NSRDY /SRDY Signal: High	-
NPAGE	3B	NPAGE /PAGE Signal: High	-
SENS_TR0_IBT	42	TR0 SENSOR TR0-M SENSE Signal: High	Check by using TR0 mark of IBT BELT ASSY to switch between light present and light absent states at the Sensor.
SENS_HOME	43	ROTARY_HOME_SNR ROTARY SENSE Signal: High	Check by using the ROTARY FRAME ASSY to switch between light passed and light blocked states at the Sensor.
SENS_OHP	44	OHP_SNRO OHP WHITE SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.
FUSER_EXIT_SNR2	4B	FUSER EXIT SENSOR-2 FUSER EXIT-2 PAPER SENSE Signal: High	Check by using the FUSER EXIT ACTUATOR-2 to switch between light passed and light blocked states at the Sensor.
NSOS	50	ROS ASSY nSOS Signal: High	-
TONER_FULL_SNR	51	WASTE TONAER SENSOR WASTE TONAER SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.
WASTE_TONER_BOXW	52	TONER BOX SENSOR TONER BOX SENSE Signal: High	Check by using the Actuator to switch between light passed and light blocked states at the Sensor.
MCU_CHECK	53	Not used	-

Table 5-5. Digital Input Test Device Code (continued)

Digital Input Test [DIAGSTART :[90 01 XX], DIAGSTOP :Unnecessary]			
Name	Code (Hex)	Function Item: When status data is [High]	Check Method
TEST_PIN	54	Dip-Switch(S1) of MCU PWB TONER BOX SENSE Signal: High	Checking by switching between ON/OFF at the MCU PWB Dip-Switch.
PAP_EMPTY_SNR_1	60	TRAY N/P SENSOR ASSY (Lower Cassette 1) [1]TRAY PAPER SENSE Signal: High	Check by using the Actuator to switch between light passed and light blocked states at the Sensor.
NEAR_EMPTY_SW	61	LOW PAPER SENSOR (Lower Cassette 1) [1]LOW PAPER SENSE Signal: High	Check by increasing and decreasing the amount of paper in the Lower Cassette 1 to produce the detection and non-detection states for the sensor.
FUSER_UNIT_SW	62	FUSER ASSY FUSER ASSY SENSE Signal: High	Checking by opening and closing the FUSER ASSY
MSI_PAP_SNR	66	EMPTY SENSOR MSI PAPER SENSE Signal: High	Check by using the MSI N/P ACTUATOR to switch between light passed and light blocked states at the Sensor.
TONER_EMPTY_SNR	67	CARTRIDGE SENSOR CARTRIDGE SENSE Signal: High	After turning ON [LOW] the SENSOR ON signal at Digital Output Test [75], check by using paper to switch between light present and light absent states at the Sensor.
PH_MOT_FAIL	70	FUSER MOTOR ASSY FAIL F Signal: High	After checking by switching between connected and disconnected states at the DRIVE MOTOR PWB connector (P/J49), check by turning ON[LOW] the FUSER-P/H MOTOR ON signal at Digital Output Test[53].

Table 5-5. Digital Input Test Device Code (continued)

Digital Input Test [DIAGSTART :[90 01 XX], DIAGSTOP :Unnecessary]			
Name	Code (Hex)	Function Item: When status data is [High]	Check Method
PH2_MOT_FAIL	71	P/H MOTOR ASSY FAIL P Signal: High	After checking by switching between connected and disconnected states at the DRIVE MOTOR PWB connector (P/J49), check by turning ON[LOW] the FUSER-P/H MOTOR ON signal at Digital Output Test[53].
PR_MOT_FAIL	72	P/R MOT & DRV ASSY FAIL Signal: High	While switching between connected and disconnected states at the connector (P/J51) on the P/R MOT & DRV ASSY, check by turning ON [LOW] the PROCESS MOTOR ON signal at Digital Output Test [54].
FRONT_DOOR_SW	73	FRONT COVER SWITCH R FRONT COVER SWITCH ON Signal: High	Checking by opening and closing the FRONT COVER ASSY.
EXIT_DOOR_SW	74	EXIT CHUTE SWITCH EXIT CHUTE SWITCH ON Signal: High	Checking by opening and closing the EXIT UPPER ASSY.
MSI_SIDE_GUIDE_SW	75	MSI GUDE SWITCH MSI GUDE SWITCH ON Signal: High	Checking by opening and closing the MSI REGI.GUIDE.
REGI_UNIT_SNR	77	REGI/MSI INTL SW REGI/MSI INTL SWITCH ON Signal: High	Checking by opening and closing the MSI/REGI HAIGH ASSY.
INTLK24	82	24VDC to MCU PWB 24VDC (between LV/HV POWER SUPPLY and MCU PWB): High	Checking by opening and closing the FRONT COVER ASSY. (Even MSI/REGI HIGH ASSY or FUSER ASSY is acceptable.)

Table 5-5. Digital Input Test Device Code (continued)

Digital Input Test [DIAGSTART :[90 01 XX], DIAGSTOP :Unnecessary]			
Name	Code (Hex)	Function Item: When status data is [High]	Check Method
OPT_DUP_READY	83	Option Duplex / DUPLEX READY Signal: High	Check by switching between connected and disconnected states at the connector (P/J134) of Option Duplex unit and the printer.
RH_DOOR_SW	84	TURN CHUTE SWITCH / TURN CHUTE SWITCH ON Signal: High	Checking by opening and closing the TURN CHUTE UP ASSY.
FAN_FUSER1_ALARM	85	FUSER FAN-1 / ALARM Signal: High	Check by using FUSER FAN-1 to switch between bound and unbound states.
FAN_FUSER3_ALARM	86	EXIT CHUTE FAN / ALARM Signal: High	Check by using EXIT CHUTE FAN to switch between bound and unbound states.
FAN_REAR_ALARM	87	DEVE. FAN / ALARM Signal: High	Check by using DEVE. FAN to switch between bound and unbound states.
OPT_DUP_INVERT_IN_SNR	A0	INVERTER SENSOR / INVERT PAPER SENSE Signal: High	Check by using the Actuator to switch between light passed and light blocked states at the Sensor.
OPT_DUP_ALN_SNR	A1	ALIGNER SENSOR / ALIGNER IN PAPER SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.
OPT_DUP_OUT_SNR	A2	ALIGNER OUT SENSOR / ALIGNER OUT PAPER SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.
OPT_DUP_DOOR_SW	A3	CAB SWITCH-I/L / INVERTER CHUTE SWITCH ON Signal: High	Checking by opening and closing the INVERTER CHUTE.
OPT_DUP_TRAY_SW	A4	ALIGNER ASSY / ALIGNER SENSE Signal: High	Checking by opening and closing the ALIGNER ASSY.

Table 5-5. Digital Input Test Device Code (continued)

Digital Input Test [DIAGSTART :[90 01 XX], DIAGSTOP :Unnecessary]			
Name	Code (Hex)	Function Item: When status data is [High]	Check Method
OPT_DUP_24V	A5	24V to Option Duplex / 24VDC (between LV/HV POWER SUPPLY and Option Duplex): High	Checking by opening and closing the FRONT COVER ASSY. (Even MSI/REGI HIGH ASSY or FUSER ASSY is acceptable.)
OPT_DUP_MOT_FAIL	A6	INV MOTOR / INVERTER MOTOR FAIL Signal: High	After checking by switching between connected and disconnected states at the INVERTER MOTOR connector (P/J147), check by turning ON[LOW] the INVERTER MOTOR ON signal at Digital Output Test[A0].
OPT_FEEDER1_EMPTY_SNR	B0	NO PAPER SENSOR (Lower Cassette 2) / [2]TRAY PAPER SENSE Signal: High	Check by using the NO PAPER SENSOR ACTUATOR to switch between light passed and light blocked states at the Sensor.
OPT_FEEDER1_LEVEL_UP_SNR	B1	NUDGER SENSOR (Lower Cassette 2) / [2]TRAY LEVEL SENSE Signal: High	Check by using the NUD/FEED BRACKET ASSY to switch between light passed and light blocked states at the Sensor.
OPT_FEEDER1_PASS_SNR	B2	FEED OUT SENSOR (Lower Cassette 2) / [2]FEED OUT PAPER SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.
OPT_FEEDER1_NEAR_END_SW	B4	LOW PAPER SENSOR-2T SENSOR (Lower Cassette 2) / [2]LOW PAPER SENSE Signal: High	Check by increasing and decreasing the amount of paper in the Lower Cassette 2 to produce the detection and non-detection states for the sensor.
OPT_FEEDER2_EMPTY_SNR	C0	NO PAPER SENSOR (Lower Cassette 3) / [3]TRAY PAPER SENSE Signal: High	Check by using the NO PAPER SENSOR ACTUATOR to switch between light passed and light blocked states at the Sensor.

Table 5-5. Digital Input Test Device Code (continued)

Digital Input Test [DIAGSTART :[90 01 XX], DIAGSTOP :Unnecessary]			
Name	Code (Hex)	Function Item: When status data is [High]	Check Method
OPT_FEEDER2_LEVEL_UP_SNR	C1	NUDGER SENSOR (Lower Cassette 3) [3]TRAY LEVEL SENSE Signal: High	Check by using the NUD/FEED BRACKET ASSY to switch between light passed and light blocked states at the Sensor.
OPT_FEEDER2_PASS_SNR	C2	FEED OUT SENSOR (Lower Cassette 3) [3]FEED OUT PAPER SENSE Signal: High	Check by using paper to switch between light present and light absent states at the Sensor.
OPT_FEEDER2_NEAR_END_SW	C4	LOW PAPER SENSOR-2T SENSOR (Lower Cassette 3) [3]LOW PAPER SENSE Signal: High	Check by increasing and decreasing the amount of paper in the Lower Cassette 3 to produce the detection/non-detection states for the sensor.
OPT_FEEDER_DOOR_SW	D0	FEEDER RIGHT COVER SWITCH FEEDER RIGHT COVER SWITCH ON Signal: High	Checking by opening and closing the FEEDER CHUTE ASSY.
OPT_FEEDER_DOOR2_SW	D1	FEEDER RIGHT COVER SWITCH FEEDER RIGHT COVER SWITCH ON Signal: High	Checking by opening and closing the FEEDER CHUTE ASSY.
OPT_FEEDER_24V	D2	24V to Option Feeder 24VDC (between LV/HV POWER SUPPLY and Option Feeder): High	Checking by opening and closing the FRONT COVER ASSY. (Even MSI/REGI HIGH ASSY or FUSER ASSY is acceptable.)
OPT_FEEDER_MOTOR_FAIL	D3	FEEDER MOTOR ASSY OPT. FEEDER MOTOR FAIL Signal: High	After checking by switching between connected and disconnected states at the FEEDER MOTOR ASSY connector (P/J239), check by turning ON[LOW] the OPT. FEEDER MOTOR ON signal at Digital Output Test[B8].

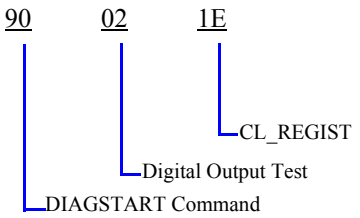
DIGITAL OUTPUT TEST

This lets you turn ON/OFF each component that is operated by a digital signal.

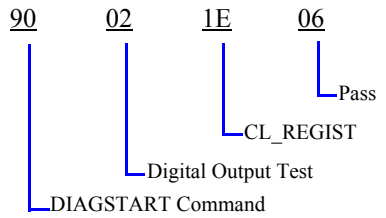
DIAGON Command: [75]	DIAGOFF Command: [76]
DIAGSTART Command (Digital Input Test): [90 02 XX]	
DIAGSTOP Command (Digital Input Test):[91 02 XX]	

Parameter	Function	Data (Hex)
1	Diagnostics Type	01: Digital Input Test
2	Code_DO	*"Digital Output Test Device Code (p.397)"*
3	DGST	[Status only] 06: Pass, 07: Fail
Status present ([90 02 XX], [91 02 XX XX])		

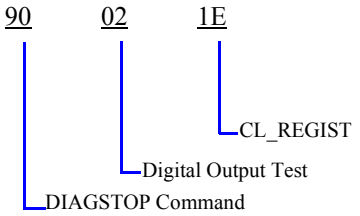
■ EX) [Command]



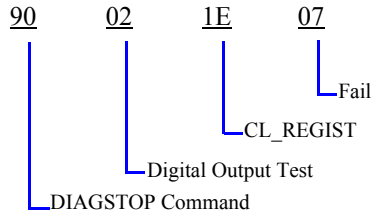
EX) [Status]



■ EX) [Command]



EX) [Status]



WARNING

- During high voltage output, never touch parts with high voltage output or energized with high voltage.
- When the laser is operating, never touch the drive section.
- During laser beam output, all the covers must be installed.

CAUTION

- To prevent electrification fatigue, never turn [BCR] ON, [ERASE LAMP ASSY] ON or [ROS ASSY LD] ON when [P/R MOT & DRV ASSY] is OFF.
- To prevent the CLEANING BLADE from reversing, never set the [P/R MOT & DRV ASSY] to ON immediately after replacing the DRUM CARTRIDGE with a new one.
- With [P/R MOT & DRV ASSY] ON, [FUSER-P/H MOTOR] ON, [DEVE. CLUTCH ASSY] ON, and at each color development position, never turn only [DB output (AC component)] ON or turn both [DB output (AC component)] and [DB output (DC component)] ON; otherwise, toner would fall.
- Never turn ON for 10 seconds or more the [DISPENSE MOTOR ASSY] with [FUSER-P/H MOTOR] ON at each color's development position. Otherwise a toner jam or gear damage may occur.
- Never set the 2ND GTR to [Advance] with [P/R MOT & DRV ASSY] OFF and [FUSER-P/H MOTOR] ON. Otherwise the IBT BELT ASSY may be scratched.
- Never set the 2ND GTR to [Advance] with [P/R MOT & DRV ASSY] ON and [FUSER-P/H MOTOR] ON to run at different speeds. Otherwise the IBT BELT ASSY may be scratched.

CAUTION

- Never turn ON the [P/R MOT & DRV ASSY] with the 2ND GTR set to [Advance]. Otherwise the IBT BELT ASSY may be scratched.
- Never turn ON the 1ST BTR with the [P/R MOT & DRV ASSY] OFF. Otherwise the IBT BELT ASSY may be damaged.
- Never turn ON the 2ND BTR with the [P/R MOT & DRV ASSY] OFF and the [FUSER-P/H MOTOR] OFF. Otherwise the IBT BELT ASSY may be damaged.
- Never turn ON the [FUSER-P/H MOTOR] without the DRUM CARTRIGDE or the WASTE TONER BOX; otherwise, toner would fall.
- To prevent dirt from getting into the printer and damage to the gears caused by improper meshing, never execute [FUSER-P/H MOTOR] ON or [DEVE. CLUTCH ASSY] ON when slightly shifted from development position for each color.
- Never turn ON for long time. Otherwise the device may be damaged.
- Do not repeat “lift up/down” operation by the MSI or Option Feeder; otherwise, such operation would damage the mechanism. (Especially, never perform “lift up” operation at the upper limit position or “lift down” operation at the lower limit.

DIGITAL OUTPUT TEST DEVICE CODE

WARNING

For check methods with <WARNING> <CAUTION> indicated, check thoroughly the WARNINGs and CAUTIONs so as to execute without causing any problems.

Table 5-6. Digital Output Test Device Code

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** **Function**	**Check Method**
MAIN_MOT_SPEED0	00	P/R MOT & DRV ASSY Set the WDD SPEED0 signal to High with DIAGSTOP. (It doesn't function with DIAGSTART.)	**<WARNING> <CAUTION>** Check by the change in operational sound or visually that the motor rotation goes to medium speed (one half speed). (During executing with code [54], executing DIAGSTOP changes the PROCESS DRIVE ASSY to one half speed.)
MAIN_MOT_SPEED1	06	P/R MOT & DRV ASSY Set the WDD SPEED1 signal to High with DIAGSTOP. (It doesn't function with DIAGSTART.)	**<WARNING> <CAUTION>** Check by the change in operational sound or visually that the motor rotation goes to low speed (1/3 speed). (During executing with code [54], executing with [01] and DIAGSTOP changes the PROCESS DRIVE ASSY to one half speed.)
OPT_FLAG	07	Option Feeder Set the FEEDER FLAG to Low.	Check the signal. (Not operating)
FEED_START	08	Option Feeder Set the FEEDER START to Low.	Check the signal. (Not operating)

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** **Function**	**Check Method**
DUP_START	09	Option Duplex Set the DUPLEX START to Low.	Check the signal. (Not operating)
BTR_2ND	0A	LV/HV POWER SUPPLY Set 2BTR ON signal to Low.	**<WARNING> <CAUTION>** Do not check the 2ND BTR output. Check the signal. (Check during execution of code [54]. LV/HV POWER SUPPLY will not output normally unless Analog Output Test [01] is executed.)
BTR_1ST	0B	LV/HV POWER SUPPLY Set 1BTR ON signal to Low.	**<WARNING> <CAUTION>** Do not check the 1ST BTR output. Check the signal. (Check during execution of code [54]. LV/HV POWER SUPPLY will not output normally unless Analog Output Test 00 is executed.)
DEVE_DC	0C	LV/HV POWER SUPPLY Set DB DC ON signal to Low.	**<WARNING> <CAUTION>** Do not check the DB output. Check the signal. (Check during execution of code [54].LV/HV POWER SUPPLY will not output normally unless Analog Output Test [03] is executed.)

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
DEVE_AC	0D	LV/HV POWER SUPPLY / Set DB AC ON signal to Low.	**<WARNING> <CAUTION>** Do not check the DB output. Check the signal. (Check during execution of code [54]. LV/HV POWER SUPPLY will not output normally unless Analog Output Test [06] is executed.)
BCR_DC	0E	LV/HV POWER SUPPLY / Set BCR ON signal to Low.	**<WARNING> <CAUTION>** Do not check the BCR output. Check the signal. (Check during execution of code [54]. The BCR DC component of LV/HV POWER SUPPLY will not output normally unless Analog Output Test [02] is executed.)
ROTARY_MOT_POWER	10	ROTARY MOTOR ASSY / Set ROARY MOTOR HOLD signal to Low.	Check the signal.(Not operating) [Turn it off automatically in 10msec rest.]
ROTARY_MOT	11	ROTARY MOTOR ASSY / Turn the ROTARY MOTOR ON signal “Low”.	Check the signal.(Not operating) [Turn it off automatically in 10msec rest.]
PATH_SOL_PUSH	17	EXCHANGE SOLENOID / Set EXCHANGE SOLENOID PUSH ON signal to Low.	Check by operational sound that the Solenoid is operating and visually that the EXCHANGE CHUTE is operating. (Though ON/ OFF is repeated with 0.12sec/1sec, only the first time of the beginnings can be checked.)

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
PATH_SOL_PULL	18	EXCHANGE SOLENOID / Set EXCHANGE SOLENOID PULL ON signal to Low.	Check by operational sound that the Solenoid is operating and visually that the EXCHANGE CHUTE is operating. (Though ON/ OFF is repeated with 0.12sec/1sec, only the first time of the beginnings can be checked.)
OPT_DUP_PATH_SOL_PUSH	19	DUP GATE SOLENOID / Set DUP GATE SOLENOID PUSH ON signal to Low.	Check by operational sound that the Solenoid is operating and visually that the GATE-DUPLEX is operating. (Though ON/ OFF is repeated with 0.12sec/1sec, only the first time of the beginnings can be checked.)
OPT_DUP_PATH_SOL_PULL	1A	DUP GATE SOLENOID / Set DUP GATE SOLENOID PULL ON signal to Low.	Check by operational sound that the Solenoid is operating and visually that the GATE-DUPLEX is operating. (Though ON/ OFF is repeated with 0.12sec/1sec, only the first time of the beginnings can be checked.)
CST1_FEED_SOL	1B	FEED SOLENOID / Set FEED SOLENOID ON signal to Low.	Check by operational sound that the Solenoid is operating and visually that the amateur is operating. (ON/ OFF is repeated with 0.12sec/1sec.)
TURNROLL_CL	1C	TURN CLUTCH / Set [1]TURN CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
REGIST_CL	1E	REGI. CLUTCH / Set REGI. CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
PRE-REG_CL	1F	PRE-REGI. CLUTCH / Set PRE-REGI. CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
MSI_FEED_CL	20	PICK UP CLUTCH / Set PICK UP CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
RTS_CLR	22	MCU PWB / Set /CRDY signal to Low.	-
MSI_MOT	23	LIFT MOTOR ASSY / Set MCU PWB signal to Low.	**<CAUTION>** -[Turn it off automatically in 0.12msec rest.]
BTR_2ND_CL	27	BTR CAM CLUTCH / Turn the BTR CAM CLUTCH ON signal "Low".	**<CAUTION>** Check by operational sound that the solenoid is operating.
MSI_MOT_0	2D	LIFT MOTOR ASSY / Set LIFT MOTOR UP ON signal to High.	**<CAUTION>** Check visually that the BOTTOM PLATE is operating in the lift up direction. (During executing with this code, LIFT MOTOR ASSY turns in the lift up direction by executing with code [23].)

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
MSI_MOT_1	2E	LIFT MOTOR ASSY / Set LIFT MOTOR DOWN ON signal to High.	**<CAUTION>** Check visually that the BOTTOM PLATE is operating in the lift down direction. (During executing with this code, LIFT MOTOR ASSY turns in the lift down direction by executing with code [23].)
NREADY	3A	MCU PWB / Set /READY signal to Low	-
NVSYNC	3C	MCU PWB / Set /VSYNC signal to Low.	-
THSEL	46	MCU PWB / Set MCU PWB inside signal (thermistor breakage detection signal) to Low.	-
HR_LAMP_SSR	47	H/R HEATER, P/R HEATER / Set HEATER ON signal to Low.	Check the H/R HEATER and P/R HEATER light up. [Turn it off automatically in 0.12msec rest.]
CNTR_RST	4C	MCU PWB / Set MCU PWB inside signal (Watch dog timer cancel signal) to Low.	-
MAG_MOT_SPEEDA	50	MAG MOTOR ASSY / Turn the SPEED Mag A signal "Low".	**<WARNING> <CAUTION>** Check for running of the motor. (During execution of code [94], execute this code and check for a change in the revolving speed.)

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
MAG_MOT_SPEEDB	51	MAG MOTOR ASSY Turn the SPEED Mag B signal "Low".	**<WARNING> <CAUTION>** Check for running of the motor. (During execution of code [94], execute this code and check for a change in the revolving speed.)
PH_MOT	53	FUSER MOTOR ASSY, P/H MOTOR ASSY Set FUSER-P/H MOTOR ON signal to Low.	**<WARNING> <CAUTION>** Check the rotation of two motors. (It rotates in standard speed unless a code [57], [62] are executed.)
MAIN_MOT	54	P/R MOT & DRV ASSY Set PROCESS MOTOR ON signal to Low.	**<WARNING> <CAUTION>** Check for running of the motor. (It rotates in standard speed unless DIAGSTOP is executed with the code [00], [06].)
DISPENCE_MOT	56	DISPNESE MOTOR ASSY Turn the DISPNESE MOTOR ON signal "Low".	**<CAUTION>** Check for running of the motor by its running sound.
PH_MOT_SPEED0	57	FUSER MOTOR ASSY, P/H MOTOR ASSY Set FUSER-P/H MOTOR SPEED0 signal to Low.	**<WARNING> <CAUTION>** Check by the change in operational sound or visually that the rotation of two motors goes to medium speed (one half speed). (During executing with code [53], executing this code changes the FUSER MOTOR ASSY and the P/H MOTOR ASSY to one half speed.)

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
REAR_FAN_SPEED	60	DEVE. FAN Set DEVE. FAN SLOW-SPEED signal to Low.	**<WARNING>** Check visually that the rotation of the DEVE. FAN goes to high speed. (During executing with code [61], executing this code changes the DEVE. FAN to high speed.)
REAR_FAN	61	DEVE. FAN Set DEVE. FAN ON signal to Low.	**<WARNING>** Check visually the rotation of the DEVE. FAN.
PH_MOT_SPEED1	62	FUSER MOTOR ASSY, P/H MOTOR ASSY Set FUSER-P/H MOTOR SPEED signal to Low.	**<WARNING> <CAUTION>** Check by the change in operational sound or visually that the rotation of two motors goes to low speed (1/3 speed). (During executing with code [53] and [57], executing this code changes the FUSER MOTOR ASSY and the P/H MOTOR ASSY to 1/3 speed.)
FUSER_FAN_1	63	FUSER FAN-1 Set FUSER FAN-1 ON signal to Low.	**<WARNING>** Check visually the rotation (low speed) of the FUSER FAN-1.
FUSER_FAN_2	64	FUSER CHUTE FAN Set FUSER CHUTE FAN ON signal to Low.	**<WARNING>** Check visually the rotation of the FUSER CHUTE FAN.

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
FUSER_FAN_SPEED	65	FUSER FAN-1 Set FUSER FAN-1 SLOW-SPEED signal to Low.	**<WARNING>** Check visually that the rotation of the FUSER FAN-1 goes to high speed. (During executing with code [63], executing this code changes the FUSER FAN-1 to high speed.)
IBT_CLEANER_SOL	66	CLEANER CAM SOLENOID Set CLEANER CAM SOLENOID ON signal to Low.	**<CAUTION>** Check by operational sound that the solenoid is operating.
ADC_CLEAN_SOL	67	ADC SENSOR ASSY Set ADC SOLENOID ON signal to Low.	Check by operational sound that the solenoid is operating. (Repeat ON/OFF with 0.12sec/1sec.)
MOT_EXIT_START	70	EXIT MOTOR ASSY Turn the EXIT MOT ON signal "Low".	**<CAUTION>** Check the rotation of the motor by operational sound.
ERASE_LAMP	71	ERASE LAMP ASSY Set ERASE LAMP ON signal to Low.	Check LED light up. (Do it while executing a code [54].)
ADC_LED	72	ADC SENSOR ASSY Set ADC LED ON signal to Low.	Check the signal. (LED of the ADC Sensor is turned on.)
ROS_MOT	74	ROS ASSY Set SCANNER MOTOR ON signal to Low.	**<CAUTION>** Check the rotation of the motor by operational sound.
CART_PHOTO_LED	75	CARTRIDGE SENSOR Set SENSOR LED ON signal to Low.	Check the signal. (LED of the CARTRIDGE SENSOR is turned on.)

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
OPT_SORTER_START	77	Option Sorter Set SORTER START signal to Low.	Check the signal.(Not operating)
IBT_CL	82	Not used.	-
ENERGY_STAR	84	LV/HV POWER SUPPLY Set ENERGY STAR signal to Low.	Check the INTLK signal of LV/HV POWER SUPPLY. (The INTLK signal becomes Low at the ENERGYSTAR signal Low.)
FUSER_FAN_3	85	EXIT CHUTE FAN Set EXIT CHUTE FAN ON signal to Low.	**<WARNING>** Check the rotation of the EXIT CHUTE FAN by operational sound.
MAG_MOT	94	MAG MOTOR ASSY Set START MAGsignal to Low.	**<CAUTION>** Check the rotation of the motor by operational sound.
FUSER_MOT	95	FUSER MOTOR ASSY Set START FUSER signal to Low.	**<CAUTION>** Check the rotation of the motor by operational sound.
OPT_DUP_MOT	A0	INV MOTOR Set INVERTER MOTOR ON signal to Low.	**<WARNING><CAUTION>** Check the rotation of the motor.
OPT_DUP_INV_CL	A1	ENTER CLUTCH Set ENTER CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
OPT_DUP_ALN_CL	A2	ALGNER DRIVE CLUTCH Set ALGNER DRIVE CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
OPT_DUP_INV_FORWARD_CL	A3	FROWARD CLUTCH Set FROWARD CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
OPT_DUP_INV_REVERSE_CL	A4	REVERSE CLUTCH Set REVERSE CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
OPT_DUP_INV_ROLL_PUSH_SOL	A5	LOWER INV SOLENOID Set LOWER INV SOLENOID PUSH ON signal to Low.	**<CAUTION>** Check by operational sound that the solenoid is operating. (Repeat ON/OFF with 0.1sec/ 0.9sec.)
OPT_DUP_INV_ROLL_PULL_SOL	A6	LOWER INV SOLENOID Set LOWER INV SOLENOID PULL ON signal to Low.	**<CAUTION>** Check by operational sound that the solenoid is operating. (Repeat ON/OFF with 0.1sec/ 0.9sec.)
OPT_FEEDER1_FEED_CL	B0	FEED CLUTCH (Lower Cassette 2) [TA CLUTCH ASSY] Set [2]FEED CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
OPT_FEEDER2_FEED_CL	B1	FEED CLUTCH (Lower Cassette 3) [TA CLUTCH ASSY] Set [3]FEED CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
OPT_FEEDER1_LIFTUP_CL	B2	LIFT UP CLUTCH (Lower Cassette 2) Set [2]FEEDER LIFT CLUTCH ON signal to Low. * A function only becomes effective with this code, it functions by this code's becoming effective while a code [B6] is executed.	**<WARNING><CAUTION>** Check by operational sound that the clutch is operating. (Execute this code during execution of the codes [B8] and [B6] in the order named, and the lift up operation of the Lower Cassette 2 will be performed.) [WARNING! Stop at the order of the code [B6], [B2], [B8] at the time of the stop.]

Table 5-6. Digital Output Test Device Code (continued)

Digital Output Test [DIAGSTART: [90 02 XX], DIAGSTOP: [91 02 XX]]			
Name	**Code (Hex)**	**Function Item** / **Function**	**Check Method**
OPT_FEEDER2_LIFTUP_CL	B3	LIFT UP CLUTCH (Lower Cassette 3) Set [3]FEEDER LIFT CLUTCH ON signal to Low. * A function only becomes effective with this code, it functions by this code's becoming effective while a code [B7] is executed.	**<WARNING><CAUTION>** Check by operational sound that the clutch is operating. (Execute this code during execution of the codes [B8] and [B7] in the order named, and the lift up operation of the Lower Cassette 3 will be performed.) [WARNING! Stop at the order of the code [B7], [B3], [B8] at the time of the stop.]
OPT_FEEDER1_TURN_ROLL_CL	B4	TURN CLUTCH ASSY (Lower Cassette 2) Set [2]TURN CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
OPT_FEEDER2_TURN_ROLL_CL	B5	TURN CLUTCH ASSY (Lower Cassette 3) Set [3]TURN CLUTCH ON signal to Low.	Check by operational sound that the clutch is operating.
OPT_FEEDER1_NUDGER_ROLL_SOL	B6	NUD SOLENOID ASSY (Lower Cassette 2) Set [3]TURN CLUTCH ON signal to Low.	**<CAUTION>** Check by operational sound that the solenoid is operating.
OPT_FEEDER2_NUDGER_ROLL_SOL	B7	NUD SOLENOID ASSY (Lower Cassette 3) Set [3]NUD SOLENOID ON signal to Low.	**<CAUTION>** Check by operational sound that the solenoid is operating.
OPT_FEEDER_MOT	B8	FEEDER MOTOR ASSY Set FEEDER MOTOR ON signal to Low.	**<WARNING><CAUTION>** Check the rotation of the motor.
OPT_FEEDER_READY_SIGNAL	B9	Not used.	-

ANALOG INPUT TEST

This lets you detect the signal level of sensors and output monitors that have analog signals.

CAUTION

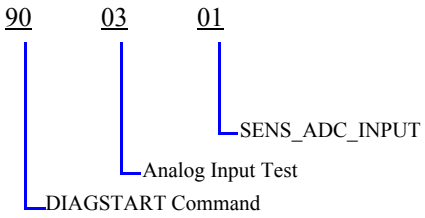
Do use this without this manual or the wise instructed.

DIAGON command: [75]	DIAGOFF command: [76]
DIAGSTART command (Analog Input Test): [90 03 XX]	
DIAGSTOP command (Analog Input Test): Unnecessary	

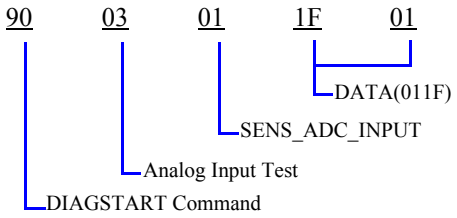
Parameter	Function	Data (hex)
1	Diagnostics Type	03: Analog Input Test
2	Code_AI	*"Analog Input Test Device Code (p.403)"*
3	Data	[Status only] data
4	Data	[Status only] data
Status present ([90 03 XX XX XX])		

NOTE: *Status data is displayed in 2 bytes in order from the least significant.*

■ EX) [Command]



EX) [Status]



ANALOG INPUT TEST DEVICE CODE

WARNING

For items with <WARNING> <CAUTION> indicated, check thoroughly the WARNINGs and CAUTIONs for the output test so as to execute without causing any problems.

Table 5-7. Analog Input Test Device Codes

Analog Input Test [DIAGSTAR: [90 03 XX], DIAGSTOP: Unnecessary]			
Name	Code (Hex)	Functional Item / Check Signal / Data Range	Check Method
BTR_2ND_IN	00	LV/HV POWER SUPPLY (Secondary transfer electric current monitor) 2BTR I MONI Signal 0000～03FFh (0～4.1[V])	<WARNING> <CAUTION> Conduct 2ND BTR output with Digital Output Test [54] and [A0] and Analog Output Test [01], and check the data with this diagnostic.
ADC_SNR	01	ADC Sensor (ADC SENSOR ASSY) ADC SIG Signal 0000～03FFh(0～4.1[VDC])	Check by this DIAG while executing Digital Output Test with the code [72].
PAP_SIZE_SW_1	02	SIZE SWITCH ASSY (Lower Cassette 1) [1] SIZE SWITCH Signal 0000～00FFh(0～4.1[V]) [See *"2.3.1 Paper Size Control (p.130)"*]	Turn ON and OFF each of the four Paper Size Switches in the SIZE SWITCH ASSY of the Lower Cassette 1 and check the data by this diagnosis.
HR_THERMISTER	03	TEMP. SENSOR ASSY FUSER TEMP.Signal 0000～00FFh (0～4.1[VDC])	Check data. [Note: When Digital Output Test [46] is executed, it becomes the thermistor breakage detection mode, and becomes the [00EAh] above in the case of the breakage.]

Table 5-7. Analog Input Test Device Codes (continued)

Analog Input Test [DIAGSTAR: [90 03 XX], DIAGSTOP: Unnecessary]			
Name	Code (Hex)	Functional Item Check Signal Data Range	Check Method
ENV_THERM	04	ENVIRONMENT SENSOR (Temperature) ENVIRONMENT TEMP.Signal 0000～00FFh (0～4.1[VDC])	Check data.
ENV_HUMIDITY	06	ENVIRONMENT SENSOR (Humidity) HUMIDITY SENSOR signal. 0000～00FFh (0～4.1[VDC])	Check data.
BTR_1ST_IN	07	LV/HV POWER SUPPLY (First transfer electric current monitor) 1BTR I MONI Signal 0000～03FFh (0～4.1[V])	**<WARNING> <CAUTION>** Conduct 1ST BTR output with Digital Output Test [54] and Analog Output Test [00], and check the data with this diagnostic.
OPT_FEEDER_PAP_SIZE_SW_1	0A	SIZE SWITCH ASSY (Lower Cassette 2) [2] PAPER SIZE Signal 0000～00FFh(0～4.1[V]) [See *"2.3.1 Paper Size Control (p.130)"*]	Turn ON and OFF each of the four Paper Size Switches in the SIZE SWITCH ASSY of the Lower Cassette 2 and check the data by this diagnosis.
OPT_FEEDER_PAP_SIZE_SW_2	0B	SIZE SWITCH ASSY (Lower Cassette 3) [3] PAPER SIZE Signal 0000～00FFh(0～4.1[V]) [See *"2.3.1 Paper Size Control (p.130)"*]	Turn ON and OFF each of the four Paper Size Switches in the SIZE SWITCH ASSY of the Lower Cassette 3 and check the data by this diagnosis.

ANALOG OUTPUT TEST

This lets you turn ON/OFF with specified data components operated by analog signals.

CAUTION

Do use this without this manual or otherwise instructed.

DIAGON command: [75]	DIAGOFF command: [76]
DIAGSTART command (Analog Output Test): [90 04 XX XX]	
DIAGSTOP command (Analog Output Test): [91 04 XX XX]	

Parameter	Function	Data (Hex)
1	Diagnostics Type	04:Analog Output Test
2	Code_AO	*"Analog Output Test Device Code (p.405)"*
3	Data	[For command] data: (output level)
	DGST	[For command] 06: Pass, 07: Fail
Status present ([90 04 XX XX], [91 04 XX XX])		

NOTE: *Do use this without this manual or otherwise instructed.*

■ EX) [Command]

90 04 02 01
- 90: DIAGSTART Command
- 04: Analog Output Test
- 02: BCR_DC_CONT
- 01: DATA

EX) [Status]

90 04 02 06
- 90: DIAGSTART Command
- 04: Analog Output Test
- 02: BCR_DC_CONT
- 06: Pass

WARNING

- During high voltage output, never touch parts with high voltage output or energized with high voltage.
- When the laser is operating, always keep all covers in place.
- Never touch an operating drive section.

CAUTION

- To prevent electrification fatigue, never turn [BCR] ON, [ERASE LAMP ASSY] ON or [ROS ASSY LD] ON when [P/R MOT & DRV ASSY] is OFF.
- With [P/R MOT & DRV ASSY] ON, [FUSER-P/H MOTOR] ON, [DEVE. CLUTCH ASSY] ON, and at each color development position, never turn only [DB output (AC component)] ON or turn both [DB output (AC component)] and [DB output (DC component)] ON; otherwise, toner would fall.
- Never turn ON the 1ST BTR with the [P/R MOT & DRV ASSY] OFF. Otherwise the IBT BELT ASSY may be damaged.
- Never turn ON the 2ND BTR with the [P/R MOT & DRV ASSY] OFF and the [FUSER-P/H MOTOR] OFF. Otherwise the IBT BELT ASSY may be damaged.
- To prevent dirt from getting into the printer and damage to the gears caused by improper meshing, never execute [FUSER-P/H MOTOR] ON or [DEVE. CLUTCH ASSY] ON when slightly shifted from development position for each color.
- Do not keep ON state for an extended period; otherwise, the mechanism would be damaged. (Turn OFF after a few seconds of ON.)

ANALOG OUTPUT TEST DEVICE CODE

WARNING

For check methods with <WARNING> <CAUTION> indicated, check thoroughly the WARNINGs and CAUTIONs in the "Digital Output Test" so as to execute without causing any problems.

Table 5-8. Analog Output Test Device Code

Analog Output Test [DIAGSTART: "90 04 XX XX", DIAGSTOP: "91 04 XX XX"]			
Name	Code (Hex)	Functional Item Check Signal Data Range	Check Method
BTR_1ST_OUT	00	LV/HV POWER SUPPLY Output the 1BTR CONT signal with a value based on data. 00～FFh (0～4.1[VDC])	<WARNING> <CAUTION> Check with the 1BTR CONT signal. (Do 1ST BTR output when you execute this DIAG at the same time with Digital Output Test [54] and [0B].)
BTR_2ND_OUT	01	LV/HV POWER SUPPLY Output the 2BTR CONT signal with a value based on data. 00～FFh (0～4.1[VDC])	<WARNING> <CAUTION> Check with the 2BTR CONT signal. (Do 2ND BTR output when you execute this DIAG at the same time with Digital Output Test [54] and [0A].)
BCR_DC_OUT	02	LV/HV POWER SUPPLY Output the BCR DC CONT signal with a value based on data. 00～FFh (0～4.1[VDC])	<WARNING> <CAUTION> Check with the BCR DC CONT signal. (Do BCR output when you execute this DIAG at the same time with Digital Output Test [54] and [0E].)

Table 5-8. Analog Output Test Device Code (continued)

Analog Output Test [DIAGSTART: "90 04 XX XX", DIAGSTOP: "91 04 XX XX"]			
Name	**Code (Hex)**	**Functional Item / Check Signal / Data Range**	**Check Method**
DEVE_DC_OUT	03	LV/HV POWER SUPPLY Output the DB DC CONT signal with a value based on data. 00～FFh (0～4.1[VDC])	**<WARNING> <CAUTION>** Check with the DB DC CONT signal. (Do DB output when you execute this DIAG at the same time with Digital Output Test [54] and [0C].)
LD_POWER	05	ROS ASSY Output the VREF signal with a value based on data. 00～FFh (0～4.1[VDC])	**<WARNING> <CAUTION>** Check with the VREF signal. (Laser rays can't output it.)
Deve Rotary _Motor	0A	ROTARY MOTOR ASSY Output the ROTARY MOTOR CLOCK signal with a value based on data. 00h: Home Position 01: From the incumbent position, +15deg 02: From the incumbent position, +30deg 03: From the incumbent position, +45deg 04: From the incumbent position, +60deg 05: From the incumbent position, +90deg 06: From the incumbent position, +180deg 07: From the incumbent position, +270deg 08: From the incumbent position, +300deg	**<WARNING> <CAUTION>** Check visually that the ROTARY MOTOR ASSY is rotating at the specified angle. (A ROTARY MOTOR ON signal functions too, and ROTARY MOTOR ASSY turns it in the designated angle.)

EEPROM READ

This lets you read and check the data stored in the MCU PWB EEPROM(NVM).

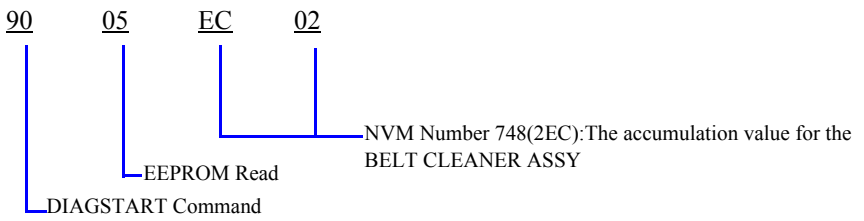
DIAGON command: [75]	DIAGOFF command: [76]
DIAG Command (EEPROM Read): [90 05 XX XX]	
DIAG Command (EEPROM Read): Unnecessary	

Parameter	Function	Data (hex)
1	Diagnostics Type	05:EEPROM Read
2	Code_EP	NVM number (see" NVM List (p.411)")
3	Code_EP	NVM number (see" NVM List (p.411)")
4	Data	[Status only] data
5	Data	[Status only] data
6	Data	[Status only] data
7	Data	[Status only] data
Status present ([90 05 XX XX XX XX XX XX])		

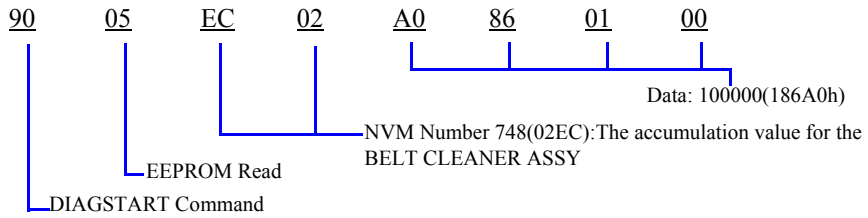
CHECK POINT

- **Code_EP (NVM number) must be entered in 2 bytes in order from the least significant.**
- **Status data is displayed in 4 bytes in order from the least significant.**
- **There are three kinds of data of 1Byte, 2Byte and 4Byte in Code_EP (NVM number). But, be careful with the status because it becomes the indication of 4Byte completely.**
  - **1Byte of the lowest rank in 4Byte becomes Data of the appropriateness NVM number by the thing of 1Byte, and other 3Bytes data indicates data of other NVM numbers.**
  - **2Byte of the lowest rank in 4Byte becomes Data of the appropriateness NVM number by the thing of 2Byte, and other 2Bytes data indicates data of other NVM numbers.**
- **When data is a negative value, values decrease from [FFh]: [-1] = [FFh], [-2] = [FFh], etc.**

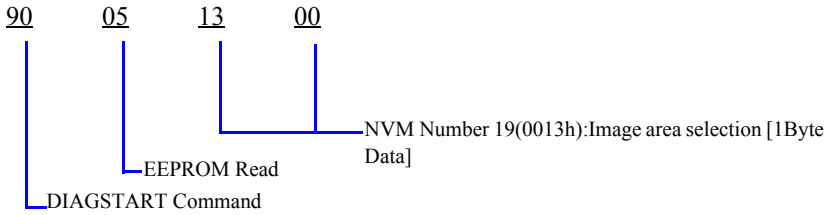
■ EX) [Command]



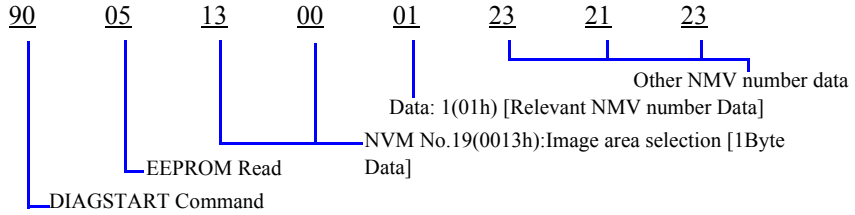
■ EX) [Status]



■ EX) [Command]



■ EX) [Status]



CAUTION

When MCU PWB is exchanged, though it is being made a principle that exchange of EEPROM (NVM: U2) is done, begin to read the following NVM number from MCU PWB before the exchange surely, and do [EEPROMRead], and write down value when exchange of EEPROM isn't made. (Do Log Save.) And, recommend it when you do Read Out of the following NVM number and write down value to grasp use conditions if necessary when others maintain it.

- [720(02D0h)] : Counter C for the WASTE TONER BOX FULL
- [724(02D4h)] : The whole image count accumulation value of the device.
- [612(02D8h)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY BK.
- [728(02DAh)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY Y.
- [732(02DCh)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY M.
- [734(02DEh)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY C.
- [736(02E0h)] : Dispense accumulation time for the TONER CARTRIDGE BK Life detection.
- [738(02E2h)] : Dispense accumulation time for the TONER CARTRIDGE Y Life detection.
- [740(02E4h)] : Dispense accumulation time for the TONER CARTRIDGE M Life detection.
- [742(02E6h)] : Dispense accumulation time for the TONER CARTRIDGE C Life detection.
- [744(02E8h)] : Seat count accumulation value for the MAIN FUSER ASSY Life check.
- [748(02ECh)] : The count accumulation value of BELT CLEANER ASSY.
- [752(02F0h)] : The whole seat count accumulation value of the device.
- [760(02F8h)] : The count accumulation value of TRANSFER ASSY.
- [764(02FCh)] : Count accumulation value for the DRUM CARTRIDGE Life detection.

NOTE: *With the type provided with the CRUM function, never perform any operation other than read.*

- [768(0300h)] : The count accumulation value of 2ND BTR ASSY.
- [772(0304h)] : Counter A for the WASTE TONER BOX Full detection.
- [774(0306h)] : Counter B for the WASTE TONER BOX Full detection.
- [776(0308h)] : The whole Yellow image count accumulation value of the device.
- [780(030Ch)] : The whole Black image count accumulation value of the device.
- [788(0314h)] : The image count accumulation value of DEVELOPER ASSY BK.
- [792(0318h)] : The image count accumulation value of DEVELOPER ASSY Y.
- [796(031Ch)] : The image count accumulation value of DEVELOPER ASSY M.
- [800(0320h)] : The image count accumulation value of DEVELOPER ASSY C.
- [966(03C6h)] : The total dispense accumulation time of TONER CARTRIDGE BK.
- [968(03C8h)] : The total dispense accumulation time of TONER CARTRIDGE Y.
- [972(03CCh)] : The total dispense accumulation time of TONER CARTRIDGE C.
- [974(03CEh)] : The total dispense accumulation time of TONER CARTRIDGE BK.
- [976(03D0h)] : The total dispense accumulation time of TONER CARTRIDGE Y.
- [978(03D2h)] : The total dispense accumulation time of TONER CARTRIDGE M.
- [980(03D4h)] : The total dispense accumulation time of TONER CARTRIDGE C.

CHECK POINT

The partly same contents can be done by the *"5.4.2.9 Count Accumulation Value Read/Write (p.434)"* as well.

EEPROM WRITE

This lets you write and change data stored in the MCU PWB EEPROM(NVM).

CAUTION

NVM numbers besides those specified in this manual are important system values. Never write to these values.

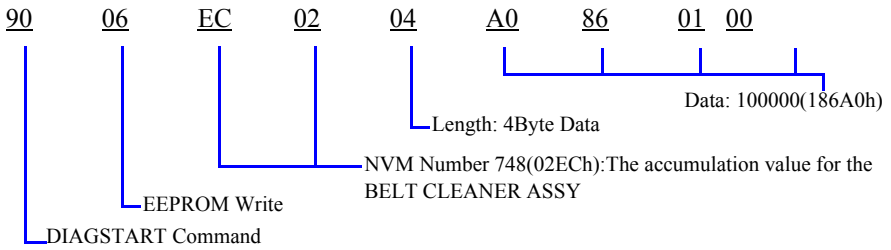
DIAGON command: [75]	DIAGOFF command: [76]
DIAGSTART Command (EEPROM Write): [90 06 XX X YY XX XX XX]	
DIAGSTOP Command (EEPROM Write): Unnecessary	

Parameter	Function	Data (Hex)
1	Diagnostics Type	06:EEPROM Write
2	Code_EP	NVM number (see " NVM List (p.411)")
3	Code_EP	NVM number (see " NVM List (p.411)")
4	Length	[For command] Data length (number of bytes for data) [1～4] (See " NVM List (p.411)")
	DGST	[For status] 06: Pass, 07: Fail
5	Data	[For command] data
6	Data	[For command] data
7	Data	[For command] data
8	Data	[For command] data
Status present ([90 06 XX XX XX])		

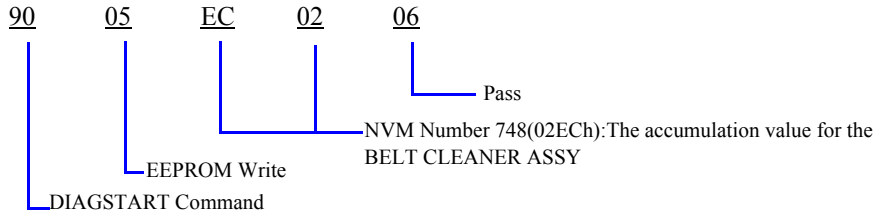
CHECK POINT

- **After writing data, you must send the DIAGOFF command to write to the EERPROM.**
- **Code_EP (NVM number) must be entered in 2 bytes in order from the least significant.**
- **For Length of command, input a value (number of bytes) meeting the NVM number. Never forget to input the value for Length; otherwise, recovery will be impossible.**
- **The Data of command must be of bytes meeting the Length and must be input in order from the least significant.**
- **When data is a negative value, values decrease from [FFh]: [-1] = [FFh], [-2] = [FEh], etc.**

■ EX) [Command]



■ EX) [Status]



CAUTION

When MCU PWB is exchanged, though it is being made a principle that exchange of EEPROM (NVM: U2) is done, begin to read the following NVM number from MCU PWB before the exchange surely, and do [EEPROMRead], and write down value when exchange of EEPROM isn't made. (Do Log Save.)
And write the value estimated more than the use conditions when it isn't made that if it begins to read it, exchange of EEPROM in either.

- [720(02D0h)] : Counter C for the WASTE TONER BOX FULL detection.
- [724(02D4h)] : The whole image count accumulation value of the device.
- [612(02D8h)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY BK.
- [728(02DAh)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY Y.
- [732(02DCh)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY M.
- [734(02DEh)] : The Magnet Roll drive accumulation time of DEVELOPER ASSY C.
- [736(02E0h)] : Dispense accumulation time for the TONER CARTRIDGE BK Life detection.
- [738(02E2h)] : Dispense accumulation time for the TONER CARTRIDGE Y Life detection.
- [740(02E4h)] : Dispense accumulation time for the TONER CARTRIDGE M Life detection.
- [742(02E6h)] : Dispense accumulation time for the TONER CARTRIDGE C Life detection.
- [744(02E8h)] : Seat count accumulation value for the MAIN FUSER ASSY Life check.
- [748(02ECh)] : The count accumulation value of BELT CLEANER ASSY.
- [752(02F0h)] : The whole seat count accumulation value of the device.
- [760(02F8h)] : he count accumulation value of TRANSFER ASSY.
- [764(02FCh)] : Count accumulation value for the DRUM CARTRIDGE Life detection.

NOTE: *With the type provided with the CRUM function, never perform write.*

- [768(0300h)] : The count accumulation value of 2ND BTR ASSY.
- [772(0304h)] : Counter A for the WASTE TONER BOX Full detection.
- [774(0306h)] : Counter B for the WASTE TONER BOX Full detection.
- [776(0308h)] : The whole Yellow image count accumulation value of the device.
- [780(030Ch)] : The whole Black image count accumulation value of the device.
- [788(0314h)] : The image count accumulation value of DEVELOPER ASSY BK.
- [792(0318h)] : The image count accumulation value of DEVELOPER ASSY Y.
- [796(031Ch)] : The image count accumulation value of DEVELOPER ASSY M.
- [800(0320h)] : The image count accumulation value of DEVELOPER ASSY C.
- [966(03C6h)] : The total dispense accumulation time of TONER CARTRIDGE BK.
- [968(03C8h)] : The total dispense accumulation time of TONER CARTRIDGE Y.
- [970(03CAh)] : The total dispense accumulation time of TONER CARTRIDGE M.
- [972(03CCh)] : The total dispense accumulation time of TONER CARTRIDGE C.
- [974(03CEh)] : The total dispense accumulation time of TONER CARTRIDGE BK.
- [976(03D0h)] : The total dispense accumulation time of TONER CARTRIDGE Y.
- [978(03D2h)] : The total dispense accumulation time of TONER CARTRIDGE M.
- [980(03D4h)] : The total dispense accumulation time of TONER CARTRIDGE C.

Once the MAIN FUSER ASSY, which is a Regularly Replaced Part, or the no-CRUM function type DRUM CARTRIDGE has been replaced with a new one, write [0] to the applicable VNM number data below.
(Setting a life counter value to "0" is referred to as "Counter Clear".)
And as for each part of 2ND BTR ASSY, BELT CLEANER ASSY, DEVELOPER ASSY Y, DEVELOPER ASSY M, DEVELOPER ASSY C, DEVELOPER ASSY BK as well, after periodic replacement of them with a new one, write [0] to the following applicable VNM number data below.

- When replacing MAIN FUSER ASSY with new one: [744(02E8h)]
- When replacing the no-CRUM function type DRUM CARTRIDGE with new one: [764(02FCh)]

  NOTE: *With the type provided with the CRUM function, never perform write.*
- When replacing TRANSFER ASSYwith new one: [760(02F8h)]
- When replacing 2ND BTR ASSYwith new one: [768(0300h)]
- When replacing BELT CLEANER ASSYwith new one: [748(02ECh)]
- When replacing DEVELOPER ASSY Ywith new one: [728(02DAh)], [792(0318h)]
- When replacing DEVELOPER ASSY Mwith new one: [732(02DCh)], [796(031Ch)]
- When replacing DEVELOPER ASSY Cwith new one: [734(02DEh)], [800(0320h)]
- When replacing DEVELOPER ASSY BKwith new one: [612(02D8h)], [788(0314h)]

The partly same contents can be done by the *"5.4.2.9 Count Accumulation Value Read/Write (p.434)"* as well.

EEPROM INITIALIZE

The lets you initialize the MCU PWB EEPROM(NVM:U2).

CAUTION

Never initialize values not specified in this manual.
If values not specified in this manual are accidentally initialized, conduct NV number read in the [CAUTION!] in [EEPROM Read]. Next conduct [NVM Write] in the [Service] tab. Then write the value read in advance in [EEPROM Write]. (Or conduct [NVM Write] in the [Service] tab.)

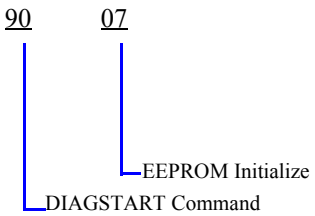
CHECK POINT

After sending a command, you must send the DIAGOFF command to complete EEPROM initialization.

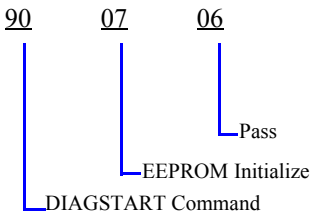
DIAGON command: [75]	DIAGOFF command: [76]
DIAGSTART Command: (EEPROM Initialize): [90 07]	
DIAGSTOP Command: (EEPROM Initialize): Unnecessary	

Parameter	Function	Data (Hex)
1	Diagnostics Type	07:EEPROM Initialize
2	DGST	[Status only] 06: Pass, 07: Fail
Status present ([90 70 XX])		

■ EX) [Command]



EX) [Status]



NVM LIST

CAUTION

- **Never write to NVM numbers not listed in the following table as they are system area values.**
- **Never write to items with an "x" unless otherwise specified as they are system settings.**
- **Before replacing the MCU PWB, always conduct read of the items below with a ★ record them, and, then, after replacement is complete, conduct a write of these values. And write the value estimated more than the use conditions when it isn't made that if it begins to read it, exchange of EEPROM in either. Because default (initial) values vary depending on the specifications, the values below are for reference only. Description of Data**

Table 5-9. NVM LIST

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	1 (0001)	1	Tip Registration adjustment (except for MSI loading paper/normal paper, OHP, label)	-	-43 (D5)
			An image is moved by data small in the tip direction.	0.9562msec	
	2 (0002)	1	Tip Registration adjustment (MSI loading paper/ postcard)	-	-40 (D8)
			An image is moved by data small in the tip direction.	0.9562msec	
	3 (0003)	1	Tip Registration adjustment (MSI loading paper/ normal paper, OHP, label)	-	-36 (DC)
			An image is moved by data small in the tip direction.	0.9562msec	
	4 (0004)	1	Tip Registration adjustment (MSI loading paper/ cardboard)	-	-41 (D7)
			An image is moved by data small in the tip direction.	0.9562msec	
X	5 (0005)	1	TOP EXIT SENSOR On Jam time adjustment	-	0 (00)
			Detection timing becomes early by data small.	8.3333msec	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
X	6 (0006)	1	TOP EXIT SENSOR Off Jam time adjustment	-	0 (00)
			Detection timing becomes early by data small.	8.3333msec	
X	7 (0007)	1	FUSER EXIT SENSOR Off Jam time adjustment	-	10 (0A)
			Detection timing becomes early by data small.	8.3333msec	
X	8 (0008)	1	MSI Clutch On Timing (MSI)	-	-40 (D8)
			Changes the MSI Clutch On Timing from the standard.	0.9562msec	
X	9 (0009)	1	REGI. SENSOR On Jam time adjustment (MSI)	-	0 (00)
			Changes the timing for Regi SNS ON Jam.	8.3333msec	
X	10 (000A)	1	REGI. SENSOR On Jam time adjustment (Duplex)	-	0 (00)
			Changes the timing for Regi SNS ON counted from Regi SNS ON Jam and ALR Out Roll On.	8.3333msec	
X	11 (000B)	1	2UP Paper Pitch time adjustment (Lower Cassette 1)	-	0 (00)
			The space of the form of 2UP becomes small by data small.	0.9562msec	
X	12 (000C)	1	REGI. SENSOR Jam time adjustment (Feeder)	-	0 (00)
			Changes the timing for Regi SNS ON counted from the time of take-in of an additional Feeder Unit.	8.3333msec	
X	13 (000D)	1	PITCH SENSOR Check time adjustment (MSI)	-	0 (00)
			Check time becomes early by data small.	8.3333msec	
X	14 (000E)	1	Re-Feed Timing adjustment	-	0 (00)
			Change the timing for reactivation of the clutch to absorb the variation at feed out.	8.3333msec	
X	15 (000F)	1	FUSER EXIT SENSOR wind Jam time adjustment	-	0 (00)
			Detection timing becomes early by data small.	8.3333msec	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
X	16 (0010)	1	OHP detection excuse switch	0, 1, 2	0 (00)
			0:ON(standard) 1:OFF 2:ON(unique)	-	
X	18 (0012)	1	A code by the country	0, 1	0 (00)
			0:Japan		
	20 (0014)	1	Side Registration adjustment (Lower Cassette 1)	0～64 (00～40)	33 (21)
			An image is moved by data small in the left end direction.	0.17mm	
	21 (0015)	1	Side Registration adjustment (Lower Cassette 2)	0～64 (00～40)	35 (23)
			An image is moved by data small in the left end direction.	0.17mm	
	22 (0016)	1	Side Registration adjustment (Lower Cassette 3)	0～64 (00～40)	36 (24)
			An image is moved by data small in the left end direction.	0.17mm	
	23 (0017)	1	Side Registration adjustment (MSI)	0～64 (00～40)	31 (1F)
			An image is moved by data small in the left end direction.	0.17mm	
	24 (0018)	1	Side Registration adjustment (Duplex)	0～64 (00～40)	17 (11)
			An image is moved by data small in the left end direction.	0.17mm	
	25 (0019)	1	The number of times OHP sheet white frame leading edge is detected	1～10	3 (03)
			Changes the number of times the white frame leading edge is detected.	1.42mm	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	26 (001A)	1	2-page coupling transfer section inter-image adjustment	-	0 (00)
			The transfer section inter-image length is changed and accordingly the RegiOn interval between the tail end of the 1st-page sheet and the front end of the 2nd-page sheet is also changed.	0.9562msec	
X	27 (001B)	1	Paper Jam detection excuse switching	0, 1	0 (00)
			0: Detection of JAM and size mismatch ON 1: No JAM detection	-	
X	29 (001D)	1	FUSER EXIT SENSOR On Jam time adjustment	-	0 (00)
			Detection timing becomes early by data small.	8.3333msec	
X	37 (0025)	1	Form size detection adjustment (size mismatch detection margin)	-	0 (00)
			A detection margin becomes small by data small.	8.3333msec	
	38 (0026)	1	Regi Roll Off timing	-	0 (00)
			Adjusts the Regi Roll Off timing after passage of paper.	8.3333msec	
	39 (0027)	1	Adjustment of 500 Feeder paper waiting position	-	0 (00)
			Changes the waiting position (where to receive the take-in signal from the printer body) of the paper fed.	1.42mm	
X	40 (0028)	1	The first sheet loading paper of 1UP/2UP timing compensation (Lower Cassette 1)	-	124 (7C)
			Loading paper timing becomes early by data small.	20msec	
X	41 (0029)	1	The first sheet loading paper of 1UP/2UP timing compensation (Lower Cassette 2)	-	130 (82)
			Loading paper timing becomes early by data small.	20msec	
X	42 (002A)	1	The first sheet loading paper of 1UP/2UP timing compensation (Lower Cassette 3)	-	130 (82)
			Loading paper timing becomes early by data small.	20msec	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
X	43 (002B)	1	The first sheet loading paper of 1UP/2UP timing compensation (MSI)	-	173 (AD)
			Loading paper timing becomes early by data small.	20msec	
X	44 (002C)	1	The first sheet loading paper of 1UP/2UP timing compensation (Duplex)	-	141 (8D)
			Adjust the first sheet of body intake timing of 1UP and 2UP.	20msec	
	47 (0031)	1	Inversion timing adjustment	-	60 (3C)
			Changes the timing for turning the Invert Roll Clutch counterclockwise after turning off of the Invert In SNS by the paper.	1.42mm	
	49 (0031)	1	Tip Registration adjustment (MSI loading paper/ envelope)	-	-40 (D8)
			An image is moved by data small in the tip direction.	0.9562msec	
	50 (0032)	1	Tip Registration adjustment (MSI loading paper [Dummyless]/normal paper, OHP, label)	-	57 (39)
			An image is moved by data small in the tip direction.	0.9562msec	
	51 (0033)	1	Tip Registration adjustment (MSI loading paper [Dummyless] /cardboard)	-	28 (1C)
			An image is moved by data small in the tip direction.	0.9562msec	
	52 (0034)	1	Tip Registration adjustment (MSI loading paper [Dummyless] /envelope)	-	31 (1F)
			An image is moved by data small in the tip direction.	0.9562msec	
X	53 (0035)	1	Regi loop quantity adjustment (except for MSI loading paper)	-	-46 (D2)
			The amount of loop becomes small by data small.	0.9562msec	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	55 (0037)	1	Tip Registration adjustment (MSI loading paper [Dummyless] /postcard)	-	38 (26)
			An image is moved by data small in the tip direction.	0.9562msec	
X	56 (0038)	1	Regi loop quantity adjustment (MSI loading paper/ normal paper, OHP, label)	-	-6 (FA)
			The amount of loop becomes small by data small.	0.9562msec	
X	57 (0039)	1	Regi loop quantity adjustment (MSI loading paper/ cardboard)	-	-41 (D7)
			The amount of loop becomes small by data small.	0.9562msec	
X	68 (0044)	1	Regi loop quantity adjustment (MSI loading paper/ postcard)	-	-51 (CD)
			The amount of loop becomes small by data small.	0.9562msec	
X	69 (0045)	1	FUSER STANDBY Temperature	-	115 (73)
			Temperature rises by data small.	1 (A/D value)	
X	70 (0046)	1	FUSER RUN-012 Temperature (normal paper, B/W, 1～X)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	71 (0047)	1	FUSER RUN-011 Temperature (normal paper, YMCBk, 1～X)	-	107 (6B)
			Temperature rises by data small.	1 (A/D value)	
X	72 (0048)	1	FUSER RUN-041 Temperature (cardboard/ envelope, YMCBk)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	73 (0049)	1	FUSER RUN-021 Temperature (Overseas label paper, YMCBk)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
X	74 (004A)	1	FUSER RUN-031 Temperature (Domestic label paper, YMCBk)	-	118 (76)
			Temperature rises by data small.	1 (A/D value)	
X	75 (004B)	1	FUSER RUN-051 Temperature (OHP, YMCBk)	-	118 (76)
			Temperature rises by data small.	1 (A/D value)	
X	76 (004C)	1	FUSER RUN-014 Temperature (normal paper, B/W, X～oo)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	77 (004D)	1	FUSER RUN-013 Temperature (normal paper, YMCBk, X～oo)	-	107 (6B)
			Temperature rises by data small.	1 (A/D value)	
X	78 (004E)	1	FUSER RUN-061 Temperature (Coat paper, YMCBk)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	80 (0050)	1	FUSER RUN-052 Temperature (OHP, B/W, 1～X)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	81 (0051)	1	FUSER RUN-053 Temperature (OHP, B/W, X～oo)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	82 (0052)	1	FUSER RUN-042 Temperature (cardboard/ envelope, B/W)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
X	83 (0053)	1	FUSER RUN-022 Temperature (Overseas label paper, B/W)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	84 (0054)	1	FUSER RUN-032 Temperature (Domestic label paper, B/W)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	85 (0055)	1	FUSER RUN-061 Temperature (Coat paper, B/W)	-	112 (70)
			Temperature rises by data small.	1 (A/D value)	
X	103 (0067)	1	Regi loop quantity adjustment (MSI loading paper/ envelope)	-	-35 (DD)
			The amount of loop becomes small by data small.	0.9562msec	
X	104 (0068)	1	Regi loop quantity adjustment ([Dummyless]/ normal paper, OHP, label, Coat paper)	-	-16 (F0)
			The amount of loop becomes small by data small.	0.9562msec	
X	105 (0069)	1	Regi loop quantity adjustment ([Dummyless]/ cardboard)	-	-25 (E7)
			The amount of loop becomes small by data small.	0.9562msec	
X	106 (006A)	1	Regi loop quantity adjustment ([Dummyless]/ envelope)	-	-57 (C7)
			The amount of loop becomes small by data small.	0.9562msec	
	107 (006B)	1	The number of times OHP sheet white frame tail edge is detected	1～10	2 (02)
			Changes the number of times the white frame tail edge is detected.	1.42mm	
X	108 (006C)	1	Regi loop quantity adjustment ([Dummyless]/ postcard)	-	-25 (E7)
			The amount of loop becomes small by data small.	0.9562msec	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	110 (006E)	1	VBCR0(K)	0～255 (0～FF)	180 (B4)
			Initial value of voltage applied to BCR (K) VH=-650V	1.6V	
	111 (006F)	1	VBCR0(YMC)	0～255 (0～FF)	180 (B4)
			Initial value of voltage applied to BCR (YMC) VH=-650V	1.6V	
	112 (0070)	2	VBCRTC_DRUM_CYCLE_ADJUST	0～65535 (0～FFFF)	2,000 (7D0)
			Cycle threshold value of voltage applied to BCR for TC Patch	Drum Cycle	
	114 (0072)	1	Bk Toner Concentration (Black toner concentration)	1,2,3,4,5	3 (03)
			Change a concentration goal value by offset value 4. (Thicken a goal for concentration by data small.)	-	
	115 (0073)	1	Y Toner Concentration (Yellow toner concentration)	1,2,3,4,5	3 (03)
			Change a concentration goal value by offset value 3. (Thicken a goal for concentration by data small.)	-	
	116 (0074)	1	M Toner Concentration (Magenta toner concentration)	1,2,3,4,5	3 (03)
			Change a concentration goal value by offset value 3. (Thicken a goal for concentration by data small.)	-	
	117 (0075)	1	C Toner Concentration (Cyan toner concentration)	1,2,3,4,5	3 (03)
			Change a concentration goal value by offset value 3. (Thicken a goal for concentration by data small.)	-	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	121 (0072)	1	Bk Toner Concentration (Black toner concentration)	0～255 (0～FF)	208 (D0)
			Change a concentration goal value by offset value 4. (Thicken a goal for concentration by data small.)	1.6V	
	122 (0073)	1	Y Toner Concentration (Yellow toner concentration)	0～255 (0～FF)	20 (14)
			Change a concentration goal value by offset value 3. (Thicken a goal for concentration by data small.)	1.6V	
	123 (0072)	1	Bk Toner Concentration (Black toner concentration)	0～255 (0～FF)	198 (C6)
			Change a concentration goal value by offset value 4. (Thicken a goal for concentration by data small.)	-	
	124 (0073)	1	Y Toner Concentration (Yellow toner concentration)	0～255 (0～FF)	49 (31)
			Change a concentration goal value by offset value 3. (Thicken a goal for concentration by data small.)	-	
	322 (0142)	1	Ambient temperature	0～255 (0～FF)	85 (55)
			Temperature monitor average value	-	
	323 (0143)	1	Ambient humidity	0～255 (0～FF)	59 (3B)
			Humidity monitor average value	-	
	344 (0158)	1	EMP_RST_K	0～255 (0～FF)	14 (0E)
			Empty cancel threshold value (K)	-	
	345 (0159)	1	EMP_RST_Y	0～255 (0～FF)	10 (0A)
			Empty cancel threshold value (Y)	-	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	346 (015A)	1	EMP_RST_M	0～255 (0～FF)	10 (0A)
			Empty cancel threshold value (M)	-	
	347 (015B)	1	EMP_RST_C	0～255 (0～FF)	10 (0A)
			Empty cancel threshold value (C)	-	
	348 (015C)	1	ADDMIX count	0～255 (0～FF)	13 (0D)
			Empty cancel threshold value (M)	Count	
	349 (015D)	1	Disp time at ADDMIX (sec)	0～255 (0～FF)	6 (06)
			Empty cancel threshold value (C)	1sec	
	352 (0160)	1	2ND BTR offset level (normal paper)	1～10 (01～0A)	3 (03)
			Change 2ND BTR output by offset value. (Make output absolute value small by data small.)	200VDC	
	353 (0161)	1	2ND BTR offset level (Coat paper)	1～10 (01～0A)	3 (03)
			Change 2ND BTR output by offset value. (Make output absolute value small by data small.)	200VDC	
	354 (0162)	1	2ND BTR offset level (cardboard)	1～10 (01～0A)	3 (03)
			Change 2ND BTR output by offset value. (Make output absolute value small by data small.)	200VDC	
	355 (0163)	1	2ND BTR offset level (envelope)	1～10 (01～0A)	3 (03)
			Change 2ND BTR output by offset value. (Make output absolute value small by data small.)	200VDC	
	356 (0164)	1	2ND BTR offset level (Label)	1～10 (01～0A)	3 (03)
			Change 2ND BTR output by offset value. (Make output absolute value small by data small.)	-	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	357 (0165)	1	2ND BTR offset level (postcard)	1～10 (01～0A)	3 (03)
			Change 2ND BTR output by offset value. (Make output absolute value small by data small.)	-	
	358 (0166)	1	2ND BTR offset level (OHP)	1～10 (01～0A)	3 (03)
			Change 2ND BTR output by offset value. (Make output absolute value small by data small.)	-	
X	359 (0167)	1	1STEP offset value with 2ND BTR offset level [3～10].(normal paper)	0～30 (00～1E)	15 (0F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	360 (0168)	1	1STEP offset value with 2ND BTR offset level [3～10]. (Coat paper)	0～30 (00～1E)	15 (0F)
			Offset value (voltage) becomes small by data small.	13VDC	
	361 (0169)	1	Procon S/W	0, 1	1 (01)
			0: Disable; 1: Enable	-	
	363 (016B)	1	Rotary changeover timing		-3 (FD)
			Rotary running timing for paper longer than 431.8 mm	10msec	
	364 (016C)	1	SA_Int_Adjust_Nega	0～255 (0～FF)	5 (05)
			Compensation value at ΔSA Nega by InterImageProCon	-	
	365 (016D)	1	DEVE BIAS AC changeover	0, 1	1 (01)
			Use/no use of DeveBiasAC at TC Patch generation 0:Use AC; 1:No AC	-	
	366 (016E)	1	VBCRI(K)	0～255 (0～FF)	180 (B4)
			Current value of the voltage applied to BCR (K)	1.6V	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	367 (016F)	1	VBCRI(YMC)	0～255 (0～FF)	180 (B4)
			Current value of the voltage applied to BCR (YMC)	1.6V	
	368 (0170)	1	2READ_TRC_K	0～255 (0～FF)	71 (47)
			Reflected light quantity of Solid Area Patch image after TRC (K)	-	
	369 (0171)	1	READ_TRC_Y	0～255 (0～FF)	103 (67)
			Reflected light quantity of Solid Area Patch image after TRC (Y)	-	
	370 (0172)	1	READ_TRC_M	0～255 (0～FF)	103 (67)
			Reflected light quantity of Solid Area Patch image after TRC (M)	-	
	371 (0173)	1	READ_TRC_C	0～255 (0～FF)	103 (67)
			Reflected light quantity of Solid Area Patch image after TRC (C)	-	
	374 (0176)	1	SWEEP(K)	0～255 (0～FF)	18 (12)
			Sweep OUT execution threshold value (K)	-	
	375 (0177)	1	SWEEP(Y)	0～255 (0～FF)	29 (1D)
			Sweep OUT execution threshold value (Y)	-	
	376 (0178)	1	SWEEP(M)	0～255 (0～FF)	29 (1D)
			Sweep OUT execution threshold value (M)	-	
	377 (0179)	1	SWEEP(C)	0～255 (0～FF)	29 (1D)
			Sweep OUT execution threshold value (C)	-	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	378 (017A)	1	N_SWEEP	0～255 (0～FF)	2 (02)
			Toner dispense judgment count	-	
	379 (017B)	1	TIME_SWEEP1	MAX 5sec	7 (07)
			Dispense time from TONER SWEEP OUT1	0.5sec	
	380 (017C)	1	TIME_SWEEP2	MAX 5sec	7 (07)
			Dispense time from TONER SWEEP OUT1	0.5sec	
X	381 (017D)	1	1STEP offset value with 2ND BTR offset level [3 ~ 10]. (cardboard)	0～30 (00～1E)	15 (0F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	382 (017E)	1	1STEP offset value with 2ND BTR offset level [3～10]. (envelope)	0～30 (00～1E)	15 (0F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	383 (017F)	1	STEP offset value with 2ND BTR offset level [3 ~ 10]. (Label)	0～30 (00～1E)	15 (0F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	384 (0180)	1	STEP offset value with 2ND BTR offset level [3 ~ 10]. (postcard)	0～30 (00～1E)	15 (0F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	385 (0181)	1	STEP offset value with 2ND BTR offset level [3 ~ 10]. (OHP)	0～30 (00～1E)	15 (0F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	386 (0182)	1	1STEP offset value with 2ND BTR offset level [1 ~ 3]. (normal paper)	0～23 (00～17)	31 (1F)
			Offset value (voltage) becomes small by data small.	13VDC	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
X	387 (0183)	1	1STEP offset value with 2ND BTR offset level [1 ~ 3]. (Coat paper)	0～23 (00～17)	31 (1F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	388 (0184)	1	1STEP offset value with 2ND BTR offset level [1 ~ 3]. (cardboard)	0～23 (00～17)	31 (1F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	389 (0185)	1	1STEP offset value with 2ND BTR offset level [1 ~ 3]. (envelope)	0～23 (00～17)	31 (1F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	390 (0186)	1	1STEP offset value with 2ND BTR offset level [1 ~ 3]. (Label)	0～23 (00～17)	31 (1F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	391 (0187)	1	1STEP offset value with 2ND BTR offset level [1 ~ 3]. (postcard)	0～23 (00～17)	31 (1F)
			Offset value (voltage) becomes small by data small.	13VDC	
X	392 (0188)	1	1STEP offset value with 2ND BTR offset level [1 ~ 3]. (OHP)	0～23 (00～17)	31 (1F)
			Offset value (voltage) becomes small by data small.	13VDC	
	393 (0189)	1	Rotary operation timing change 2		-4 (FC)
			Rotary running timing for paper not longer than 431.8 mm		
	399 (018F)	1	ADDMIX2 idling SW	0, 1	1 (01)
			1: This sequence is applied to all colors; 0: Conventional high image density sequence		
	401 (0191)	1	ADDMIX2 idling count		2 (02)
			Idling count at too high density		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function	Set Range (Hex)	Default (Hex)
			Description of Data	Units	
	410 (019A)	1	VBCR_highET_ADJUST(K)	-127～128	4 (04)
			High-temperature side compensation coefficient of voltage applied to BCR (K)		
	411 (019B)	1	VBCR_highET_ADJUST(YMC)	-127～128	4 (04)
			High-temperature side compensation coefficient of voltage applied to BCR (YMC)		
	412 (019C)	1	VBCR_lowET_ADJUST(K)	-127～128	5 (05)
			Low-temperature side compensation coefficient of voltage applied to BCR (K)		
	413 (019D)	1	VBCR_lowET_ADJUST(YMC)	-127～128	5 (05)
			Low-temperature side compensation coefficient of voltage applied to BCR (YMC)		
	414 (019E)	1	VBIASI_K	0～255 (0～FF)	154 (9A)
			Development BIAS initial value (K) -560V	1.6V	
	415 (019F)	1	VBIASI_Y	0～255 (0～FF)	154 (9A)
			Development BIAS initial value (Y) -560V	1.6V	
	416 (01A0)	1	VBIASI_M	0～255 (0～FF)	154 (9A)
			Development BIAS initial value (M) -560V	1.6V	
	417 (01A1)	1	VBIASI_C	0～255 (0～FF)	154 (9A)
			Development BIAS initial value (C) -560V	1.6V	
	418 (01A2)	1	VBCR_highET_UPR(K)	-127～128	13 (0D)
			Upper limit of high-temperature compensation of voltage applied to BCR (K)		
	419 (01A3)	1	VBCR_highET_UPR(YMC)	-127～128	13 (0D)
			Upper limit of high-temperature compensation of voltage applied to BCR (YMC)		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function	Set Range (Hex)	Default (Hex)
			Description of Data	Units	
	420 (01A4)	1	SA_Int_Adjust_Posi	0～255 (0～FF)	5 (05)
			Compensation value at ΔSA Pos by InterImageProCon		
	432 (01B0)	1	Toner Cartridge presence detection	0, 1	0 (00)
			0: Present; 1: Absent		
	433 (01B1)	1	Toner Cartridge new/old detection	0, 1	0 (00)
			0: Present; 1: Absent		
	436 (01B4)	1	ERROR_SA(K)		60 (3C)
			Low density threshold value (K)		
	437 (01B5)	1	ERROR_SA(YMC)		40 (28)
			Low density threshold value (YMC)		
	438 (01B6)	1	HICOV_K1		24 (18)
			High-density image check value 1(K)		
	439 (01B7)	1	HICOV_K2		18 (12)
			High-density image check value 2(K)		
	440 (01B8)	1	HICOV_K3		15 (0F)
			High-density image check value 3(K)		
	441 (01B9)	1	DISPENSE_SW	0, 1	0 (00)
			0: Execute; 1: Not execute		
	442 (01BA)	1	ERROR_DETECT_SWITCH	0, 1	0 (00)
			0: Detect ProCon error; 1: Do not detect		
	443 (01BB)	1	POTENTIALCONT_SWITCH	0, 1	0 (00)
			0: Execute; 1: Not execute		
	444 (01BC)	1	TRC_SWITCH	0, 1	1 (01)
			0: Execute; 1: Not execute		
	445 (01BD)	1	EMPTY_SWITCH	0, 1	0 (00)
			0: Execute; 1: Not execute		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	446 (01BE)	1	INTV_PTLPATCH	0～255 (0～FF)	20 (14)
			Patch generation interval for potential control		
	447 (01BF)	1	INTV_PTLPATCHINH	0～255 (0～FF)	20 (14)
			Patch generation interval during printing		
	448 (01C0)	1	RADCPTLSA_SET_K	-	43 (2B)
			RADC target value for potential control SA (K)	-	
	449 (01C1)	1	RADCPTLSA_SET_Y	-	87 (57)
			RADC target value for potential control SA (Y)	-	
	450 (01C2)	1	RADCPTLSA_SET_M	-	82 (52)
			RADC target value for potential control SA (M)	-	
	451 (01C3)	1	RADCPTLSA_SET_C	-	87 (57)
			RADC target value for potential control SA (C)	-	
	452 (01C4)	1	HICOV1(YMC)		24 (18)
			High-density image check value 1(YMC)		
	453 (01C5)	1	HICOV2(YMC)		18 (12)
			High-density image check value 2(YMC)		
	454 (01C6)	1	HICOV3(YMC)		12 (0C)
			High-density image check value 3(YMC)		
	455 (01C7)	1	RADCTC_SET_K	0～200 (0～C8)	48 (30)
			Low density threshold value (YMC)	1	
	456 (01C8)	1	RADCTC_SET_Y	0～200 (0～C8)	100 (64)
			High-density image check value 1(K)	1	
	457 (01C9)	1	RADCTC_SET_M	0～200 (0～C8)	100 (64)
			High-density image check value 2(K)	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	458 (01CA)	1	RADCTC_SET_C	0～200 (0～C8)	109 (6D)
			High-density image check value 3(K)	1	
	459 (01CB)	1	KPCDC_K		15 (0F)
			PCDC Toner refilling quantity calculation coefficient (positive) (K)		
	460 (01CC)	1	KPCDC_Y		10 (0A)
			PCDC Toner refilling quantity calculation coefficient (positive) (Y)		
	461 (01CD)	1	KPCDC_M		10 (0A)
			PCDC Toner refilling quantity calculation coefficient (positive) (M)		
	462 (01CE)	1	KPCDC_C		10 (0A)
			PCDC Toner refilling quantity calculation coefficient (positive) (C)		
	463 (01CF)	1	KTC_POSI_K		63 (3F)
			ADCTC refilling quantity calculation coefficient (positive) (K)(160ms)	20msec	
	464 (01D0)	1	KTC_POSI_Y		79 (4F)
			ADCTC refilling quantity calculation coefficient (positive) (Y)(160ms)	20msec	
	465 (01D1)	1	KTC_POSI_M	0～255 (0～FF)	79 (4F)
			ADCTC refilling quantity calculation coefficient (positive) (M)(160ms)	20msec	
	466 (01D2)	1	KTC_POSI_C	0～255 (0～FF)	79 (4F)
			ADCTC refilling quantity calculation coefficient (positive) (C)(160ms)	20msec	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	467 (01D3)	1	KTC_NEGA_K	0～255 (0～FF)	76 (4C)
			ADCTC refilling quantity calculation coefficient (negative) (K)(300ms)	20msec	
	468 (01D4)	1	KTC_NEGA_Y	0～255 (0～FF)	99 (63)
			ADCTC refilling quantity calculation coefficient (negative) (Y)(300ms)	20msec	
	469 (01D5)	1	KTC_NEGA_M	0～255 (0～FF)	99 (63)
			ADCTC refilling quantity calculation coefficient (negative) (M)(300ms)	20msec	
	470 (01D6)	2	KTC_NEGA_C	0～255 (0～FF)	99 (63)
			ADCTC refilling quantity calculation coefficient (negative) (C)(300ms)	20msec	
	471 (01D7)	1	CHKPLN1(K)	0～255 (0～FF)	2 (02)
			Check plane count 1(K)		
	472 (01D8)	1	CHKPLN2(K)	0～255 (0～FF)	10 (0A)
			Check plane count 2(K)		
	473 (01D9)	1	HKPLN3(K)	0～255 (0～FF)	48 (30)
			Check plane count 3(K)		
	474 (01DA)	1	EMP_FLT_K	0～255 (0～FF)	42 (2A)
			Empty threshold value (K)	1	
	475 (01DB)	1	EMP_FLT_Y	0～255 (0～FF)	33 (21)
			Empty threshold value (Y)	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	476 (01DC)	1	EMP_FLT_M	0～255 (0～FF)	33 (21)
			Empty threshold value (M)	1	
	477 (01DD)	1	EMP_FLT_C	0～255 (0～FF)	33 (21)
			Empty threshold value (C)	1	
	478 (01DE)	1	CYCLE_ADJUST_K	0～255 (0～FF)	5 (05)
			Value for RADC target value adjustment value for TC control (K)	1K cycle	
	479 (01DF)	1	CYCLE_ADJUST_YMC	0～255 (0～FF)	5 (05)
			Value for RADC target value adjustment value for TC control (YMC)	1K cycle	
	480 (01E0)	1	ADDMIX(K)	0～200 (0～C8)	33 (21)
			ADDMIX execution threshold value (density) (K)	1	
	481 (01E1)	1	ADDMIX(Y)	0～200 (0～C8)	19 (13)
			ADDMIX execution threshold value (density) (Y)	1	
	482 (01E2)	1	ADDMIX(M)	0～200 (0～C8)	19 (13)
			ADDMIX execution threshold value (density) (M)	1	
	483 (01E3)	1	ADDMIX(C)	0～200	19 (13)
			ADDMIX execution threshold value (density) (C)	1	
	486 (01E6)	1	VBIAS_TC_K	0～255 (0～FF)	157 (9D)
			VBIAS DC for TC PATCH (K) -565V	1.6V	
	487 (01E7)	1	VBIAS_TC_Y	0～255 (0～FF)	157 (9D)
			VBIAS DC for TC PATCH (Y) -565V	1.6V	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	488 (01E8)	1	VBIAS_TC_M	0～255 (0～FF)	157 (9D)
			VBIAS DC for TC PATCH (M) -565V	1.6V	
	489 (01E9)	1	VBIAS_TC_C	0～255 (0～FF)	157 (9D)
			VBIAS DC for TC PATCH (C) -565V	1.6V	
	490 (01EA)	2	Toner Cartridge new/old detection Counter Reset	-	2,500 (9C4)
			Guard value recognizing the new/old detection	100msec	
	500 (01F4)	2	Toner collection bottle Life Counter C (MAX)	-	480 (1E0)
			Limit value by dispense time	sec	
X	502 (01F6)	2	TONER CARTRIDGE BK Life warning value	-	8,700 (21FC)
			Dispense time	100msec	
X	504 (01F8)	2	TONER CARTRIDGE Y Life warning value	-	7,900 (1EDC)
			Dispense time	100msec	
X	506 (01FA)	2	TONER CARTRIDGE M Life warning value	-	7,200 (1C20)
			Dispense time	100msec	
X	508 (01FC)	2	TONER CARTRIDGE C Life warning value	-	8,200 (2008)
			Dispense time	100msec	
	515 (0203)	1	MAG Roll Clutch Timing		2 (02)
			MAG Roll Clutch Timing		
	516 (0204)	1	Toner cartridge stirring switch	0, 1	0 (00)
			0: None 1: Execute		
	517 (0205)	1	Toner cartridge CL ON time		20 (14)
			Stirring sequence CL ON time	10msec	
	518 (0206)	1	Empty Reset		40 (28)
			AddmixMax count at EmptyReset		
	540 (021C)	4	Xero CRU Warning (Low)		90,000 (15F90)
			Condition for Xero CRU Life warning	Drum Cycle	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	544 (0220)	4	Xero CRU Error (Low)		110,000 (1ADB0)
			Condition for Xero CRU Life disabling	Drum Cycle	
	564 (0234)	1	VBCR_lowET_UPR(K)	-127～128	13 (0D)
			Upper limit of low-temperature compensation of voltage applied to BCR (K)		
	565 (0235)	1	VBCR_lowET_UPR(YMC)	-127～128	13 (0D)
			Upper limit of low-temperature compensation of voltage applied to BCR (YMC)		
	566 (0236)	1	VBCR_DRUM_ADJUST(K)	-127～128	16 (10)
			Cycle compensation coefficient of voltage applied to BCR (K)		
	567 (0237)	1	VBCR_DRUM_ADJUST(YMC)	-127～128	16 (10)
			Cycle compensation coefficient of voltage applied to BCR (YMC)		
	568 (0238)	1	DISP1_K		31 (1F)
			Threshold value 1 for K color Dispense time		
	569 (0239)	1	DISP2_K		24 (18)
			Threshold value 2 for K color Dispense time		
	570 (023A)	1	DISP3_K		21 (15)
			Threshold value 3 for K color Dispense time		
	571 (023B)	1	DISP1_YMC		25 (19)
			Threshold value 1 for YMC color Dispense time		
	572 (023C)	1	DISP2_YMC		20 (14)
			Threshold value 2 for YMC color Dispense time		
	573 (023D)	1	DISP3_YMC		14 (0E)
			Threshold value 3 for YMC color Dispense time		
	574 (023E)	1	CASE	0, 1	0 (00)
			High image density sequence changeover switch 0: Conventional sequence; 1: Avoidance sequence		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	575 (023F)	1	FCOT SW	0～3	3 (03)
			FCOT corrective sequence execution SW 0: Conventional specification; 3: Corrective specification 1:INTV_PTLCONT disabled		
	580 (0244)	1	RADCTC_SET_ADJUST_K	0～200 (0～C8)	68 (44)
			RADC target value for TC control (K)	1	
	581 (0245)	1	RADCTC_SET_ADJUST_Y	0～200 (0～C8)	107 (6B)
			RADC target value for TC control (Y)	1	
	582 (0246)	1	RADCTC_SET_ADJUST_M	0～200 (0～C8)	103 (67)
			RADC target value for TC control (M)	1	
	583 (0247)	1	RADCTC_SET_ADJUST_C	0～200 (0～C8)	111 (6F)
			RADC target value for TC control (C)	1	
	584 (0248)	1	INTV_TCPATCH	0～255 (0～FF)	20 (14)
			Patch generation interval for TC control		
	587 (024B)	1	INTV_PRINT_A	0～255 (0～FF)	50 (32)
			Continuous printing interval		
	588 (024C)	1	LD0(K)	0～255 (0～FF)	71 (47)
			Initial value for LD light quantity (K)		
	589 (024D)	1	LD0(YMC)	0～255 (0～FF)	71 (47)
			Initial value for LD light quantity (YMC)		
	590 (024E)	1	RADC_TC_NEAR_EMP_K		22 (16)
			Threshold value for transition to Addmix operation after toner cartridge Warning (K)		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	591 (024C)	1	RADC_TC_NEAR_EMP_Y		13 (0D)
			Threshold value for transition to Addmix operation after toner cartridge Warning (Y)		
	592 (024D)	1	RADC_TC_NEAR_EMP_M		13 (0D)
			Threshold value for transition to Addmix operation after toner cartridge Warning (M)		
	593 (024E)	1	RADC_TC_NEAR_EMP_C		13 (0D)
			Threshold value for transition to Addmix operation after toner cartridge Warning (C)		
	594 (0252)	1	ADDMIX_UPPER		10 (0A)
			Threshold value at judging whether or not to display Toner Empty 2 of TONER ADDMIX2		
	595 (0253)	1	LDI(K)	0～255 (0～FF)	71 (47)
			LD light quantity for SA patch (K)		
	596 (0254)	1	LDI(YMC)	0～255 (0～FF)	71 (47)
			LD light quantity for SA patch (YMC)		
	612 (0264)	2	N(K)		385 (181)
			Rotary running counter (K)		
	614 (0266)	2	K_ROT	0～200 (0～C8)	35 (23)
			Rotary running sequence coefficient (K)	1	
	615 (0267)	1	LD_EH_UPR(K)	0～200 (0～C8)	-18 (FE)
			Compensation value for LD light quantity high humidity side (K)	1	
	616 (0268)	1	LD_EH_UPR(YMC)	-127～128	-11 (F5)
			Compensation value for LD light quantity high humidity side (YMC)		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	617 (0269)	1	LD_EH_LWR(K)	-127～128	14 (0E)
			Compensation value for LD light quantity low humidity side (K)		
	618 (026A)	1	LD_EH_LWR(YMC)	-127～128	22 (16)
			Compensation value for LD light quantity low humidity side (YMC)		
	619 (026B)		Idling addition count after ADDMIX		0 (00)
			Idling addition count after ADDMIX		
	624 (0270)	1	LD_highET_ADJUST(K)	-127～128	20 (14)
			Compensation coefficient for LD light quantity high temperature side (K)		
	625 (0271)	1	LD_highET_ADJUST(YMC)	-127～128	20 (14)
			Compensation coefficient for LD light quantity high temperature side (YMC)		
	626 (0272)	1	LD_lowET_ADJUST(K)	-127～128	15 (0F)
			Compensation coefficient for LD light quantity low temperature side (K)		
	627 (0273)	1	LD_lowET_ADJUST(YMC)	-127～128	-9 (F7)
			Compensation coefficient for LD light quantity low temperature side (YMC)		
	628 (0274)	1	EMPTY_SELECT		0 (00)
			Near EMPTY FLG		
	629 (0275)	1	CTR_SWEEP(K)		0 (00)
			SWEEP detection count (K)		
	630 (0276)	1	CTR_SWEEP(Y)		0 (00)
			SWEEP detection count (Y)		
	631 (0277)	1	CTR_SWEEP(M)		0 (00)
			SWEEP detection count (M)		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	632 (0278)	1	CTR_SWEEP(C)		0 (00)
			SWEEP detection count (C)		
	634 (027A)	2	PCDC_CAL (LOW)		1,000 (3E8)
			PCDC calibration coefficient		
	636 (027C)	2	K Dispense Total Time		0 (00)
			PCDC time conversion value (K)	msec	
	638 (027E)	2	Y Dispense Total Time		0 (00)
			PCDC time conversion value (Y)	msec	
	640 (0280)	2	M Dispense Total Time		0 (00)
			PCDC time conversion value (M)	msec	
	642 (0282)	2	C Dispense Total Time		0 (00)
			PCDC time conversion value (C)	msec	
X	644 (0284)	2	Printed sheets counter	0～1000 (0000～03E8)	0 (0000)
			For ADC Cleaning	1	
X	646 (0286)	2	ADC_VCLEAN	0～1024 (0000～0400)	768 (0300)
			Clean surface measurement average value (except inter image)	1	
	648 (0288)	2	SUM_K	0～25500 (0000～639C)	0 (00)
			Quantity of toner refilling from ADC_TC_CONTROL (plus or minus) K	10msec	
	650 (028A)	2	SUM_Y	0～25500 (0000～639C)	0 (00)
			Quantity of toner refilling from ADC_TC_CONTROL (plus or minus) Y	10msec	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	652 (028C)	2	SUM_M	0～25500 (0000～639C)	0 (00)
			Quantity of toner refilling from ADC_TC_CONTROL (plus or minus) M	10msec	
	654 (028E)	2	SUM_C	0～25500 (0000～639C)	0 (00)
			Quantity of toner refilling from ADC_TC_CONTROL (plus or minus) C	10msec	
X	656 (0290)	1	Toner Empty Flag (Black)	0, 1	0 (00)
			0:Empty condition detection 1:Empty condition un-detection	-	
X	657 (0291)	1	Toner Empty Flag (Yellow)	0, 1	0 (00)
			0:Empty condition detection 1:Empty condition un-detection	-	
X	658 (0292)	1	Toner Empty Flag (Magenta)	0, 1	0 (00)
			0:Empty condition detection 1:Empty condition un-detection	-	
X	659 (0293)	1	Toner Empty Flag (Cyan)	0, 1	0 (00)
			0:Empty condition detection 1:Empty condition un-detection	-	
	660 (0294)	1	PV_K	0～255 (0～FF)	0 (00)
			PV cumulative value K	1	
	661 (0295)	1	PV_Y	0～255 (0～FF)	0 (00)
			PV cumulative value Y	1	
	662 (0296)	1	PV_M	0～255 (0～FF)	0 (00)
			PV cumulative value M	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	663 (0297)	1	PV_C	0～255 (0～FF)	0 (00)
			PV cumulative value C	1	
	664 (0298)	1	LD_DRUM_ADJUST(K)	-127～128	12 (0C)
			Compensation coefficient for LD light quantity cycle (K)	1	
	665 (0299)	1	LD_DRUM_ADJUST(YMC)	-127～128	13 (0D)
			Compensation coefficient for LD light quantity cycle (YMC)	1	
	668 (029C)	1	LDS_K	0～255 (0～FF)	67 (43)
			Current value for LD light quantity (K)		
	669 (029D)	1	LDS_Y	0～255 (0～FF)	66 (42)
			Current value for LD light quantity (Y)		
	670 (029E)	1	LDS_M	0～255 (0～FF)	66 (42)
			Current value for LD light quantity (M)		
	671 (029F)	1	LDS_C	0～255 (0～FF)	66 (42)
			Current value for LD light quantity (C)		
	672 (02A0)	1	CTL_TCPATCH_K	0～255 (0～FF)	20 (14)
			Counter for TC control (K)	1	
	673 (02A1)	1	CTL_TCPATCH_YMC	0～255 (0～FF)	20 (14)
			Counter for TC control (YMC)	1	
	674 (02A2)	1	RADC_SA_K	0～200 (0～C8)	0 (00)
			Reflected light quantity of Solid Area Toner image (K)	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	675 (02A3)	1	RADC_SA_Y	0～200 (0～C8)	0 (00)
			Reflected light quantity of Solid Area Toner image (Y)	1	
	676 (02A4)	1	RADC_SA_M	0～200 (0～C8)	0 (00)
			Reflected light quantity of Solid Area Toner image (M)	1	
	677 (02A5)	1	RADC_SA_C	0～200 (0～C8)	0 (00)
			Reflected light quantity of Solid Area Toner image (C)	1	
	678 (02A6)	1	RADC_HL_KYMC	0～200 (0～C8)	0 (00)
			Reflected light quantity of Highlight Area Toner image	1	
	679 (02A7)	1	RADC_TC_K	0～200 (0～C8)	0 (00)
			PATCH relative density for TC control (K)	1	
	680 (02A8)	1	RADC_TC_Y	0～200 (0～C8)	0 (00)
			PATCH relative density for TC control (Y)	1	
	681 (02A9)	1	RADC_TC_M	0～200 (0～C8)	0 (00)
			PATCH relative density for TC control (M)	1	
	682 (02AA)	1	RADC_TC_C	0～200 (0～C8)	0 (00)
			PATCH relative density for TC control (C)	1	
	683 (02AB)	1	RADC_TC_BEFORE_K	0～200 (0～C8)	0 (00)
			PATCH previous relative density for TC control (K)	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	684 (02AC)	1	RADC_TC_BEFORE_Y	0～200 (0～C8)	0 (00)
			PATCH previous relative density for TC control (Y)	1	
	685 (02AD)	1	RADC_TC_BEFORE_M	0～255 (0～FF)	0 (00)
			PATCH previous relative density for TC control (M)	1	
	686 (02AE)	1	RADC_TC_BEFORE_C	0～200 (0～C8)	0 (00)
			PATCH previous relative density for TC control (C)	1	
	687 (02AF)	1	CTR_PTLPATCH_K	0～255 (0～FF)	20 (14)
			Counter for potential control (K)	1	
	688 (02B0)	1	CTR_PTLPATCH_YMC	0～255 (0～FF)	20 (14)
			Counter for potential control (YMC)	1	
	689 (02B1)	1	CTR_PTLPATCHINT_K	0～255 (0～FF)	0 (00)
			Counter for InterImage potential control (K)	1	
	690 (02B2)	1	CTR_PTLPATCHINT_YMC	0～255 (0～FF)	0 (00)
			Counter for InterImage potential control (YMC)	1	
	692 (02B4)	1	CHKPLN1(YMC)		2 (02)
			Check plane count 1(YMC)		
	693 (02B5)	1	CHKPLN2(YMC)		10 (0A)
			Check plane count 2(YMC)		
	694 (02B6)	1	CHKPLN3(YMC)		48 (30)
			Check plane count 3(YMC)		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	695 (02B7)	1	DISP_CNT_K	0～255 (0～FF)	0 (00)
			Counter to judge Empty (K)	1	
	696 (02B8)	1	DISP_CNT_Y	0～255 (0～FF)	0 (00)
			Counter to judge Empty (Y)	1	
	697 (02B9)	1	DISP_CNT_M	0～255 (0～FF)	0 (00)
			Counter to judge Empty (M)	1	
	698 (02BA)	1	DISP_CNT_C	0～255 (0～FF)	0 (00)
			Counter to judge Empty (C)	1	
	699 (02BB)	1	DISPENSE_COUNTER_K	0～255 (0～FF)	0 (00)
			Dispense counter from TC (K)		
	700 (02BC)	1	DISPENSE_COUNTER_Y	0～255 (0～FF)	0 (00)
			Dispense counter from TC (Y)		
	701 (02BD)	1	DISPENSE_COUNTER_M	0～255 (0～FF)	0 (00)
			Dispense counter from TC (M)		
	702 (02BE)	1	DISPENSE_COUNTER_C	0～255 (0～FF)	0 (00)
			Dispense counter from TC (C)		
	703 (02BF)	1	MRS_highEH	0～3	0 (00)
			High humidity side Mag Roll Speed 0:2.00 1:2.15 3:2.30 4:2.45		
	704 (02C0)	1	MRS_midEH	0～3	0 (00)
			Middle humidity side Mag Roll Speed 0:2.00 1:2.15 3:2.30 4:2.45		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	705 (02C1)	1	MRS_highEH	0～3	1 (01)
			Low-humidity middle-temperature side Mag Roll Speed 0:2.00 1:2.15 3:2.30 4:2.45		
	706 (02C2)	1	MRS_midEH	0～3	2 (02)
			Low-humidity low-temperature side Mag Roll Speed 0:2.00 1:2.15 3:2.30 4:2.45		
	707 (02C3)	1	VBCRTC_EH_UPR(K)	-127～128	20 (14)
			Humidity compensation upper limit value of voltage applied to BCR for TC patch (K)		
	708 (02C4)	1	VBCRTC_EH_UPR(YMC)	-127～128	10 (0A)
			Humidity compensation upper limit value of voltage applied to BCR for TC patch (YMC)		
★	720 (02D0)	2	WASTE TONER BOX Life counter (Counter C)	-	0 (0000)
			All the color dispense time accumulation value.	1sec	
★	724 (02D4)	4	Printer image counter	-	0 (0000 0000)
			All the color image count accumulation value. (Form length in the carriage direction is less than 219mm, in 1 color 1 count and more than 219mm, 1 color 2 count.)	-	
	728 (02D8)	2	N(Y)		385 (0181)
			Rotary running counter (Y)		
	730 (02DA)	2	Developer drive time of Y development device		0 (0000)
			Clutch On time of Y development device	1min	
	732 (02DC)	2	N(M)		385 (0181)
			Rotary running counter (M)		
	734 (02DE)	2	N(C)		385 (0181)
			Rotary running counter (C)		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
★	736 (02E0)	2	TONER CARTRIDGE BK Life counter	-	0 (0000)
			Dispense accumulation time.	100msec	
★	738 (02E2)	2	TONER CARTRIDGE Y Life counter	-	0 (0000)
			Dispense accumulation time.	100msec	
★	740 (02E4)	2	TONER CARTRIDGE M Life counter	-	0 (0000)
			Dispense accumulation time.	100msec	
★	742 (02E6)	2	TONER CARTRIDGE C Life counter	-	0 (0000)
			Dispense accumulation time.	100msec	
★	744 (02E8)	4	MAIN FUSER ASSY Life counter	-	0 (0000 0000)
			Count accumulation value. (Form length in the carriage direction is less than 219mm, in 1 color 1 count and more than 219mm, 1 color 2 count.)	-	
★	748 (02EC)	4	BELT CLEANER ASSY Life counter	-	0 (0000 0000)
			Count accumulation value. (Count 1 print as 1 count in the case of 2 print on a Belt one page with 2UP, count 1 print as 2 count in the case of 1 print on a Belt one page with 1UP and 2UP.)	-	
★	752 (02F0)	4	Printer Life counter	-	0 (0000 0000)
			Count accumulation value. (Form length in the carriage direction is less than 219mm, in 1 color 1 count and more than 219mm, 1 color 2 count.)	-	
★	760 (02F8)	4	TRANSFER ASSY Life counter	-	0 (0000 0000)
			Count accumulation value. (At a TR0 signal one time [IBT BELT ASSY one turn], 1 count.)	-	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
Type with CRUM function X	764 (02FC)	4	Xero CRU Counter	-	0 (0000 0000)
Type without CRUM function ★			Xero CRU Life Counter (one revolution of P/R Drum is counted 1) * With the type provided with the CRUM function, actually the CRUM value of the DRUM CARTRIDGE is used. Therefore, never execute EEPRROM Write.	-	
★	768 (0300)	4	2ND BTR ASSY Life counter	-	0 (0000 0000)
			Count accumulation value. (One print is counted 1 for the paper not longer than 219 mm or counted 2 for the paper longer than 219 mm.)	-	
★	772 (0304)	2	WASTE TONER BOX Life counter (Counter A)	-	0 (0000)
			All the color image count accumulation value. (Form length in the carriage direction is less than 215.9mm, in 1 color 1 count and more than 215.9mm, 1 color 2 count.)	Plane	
★	774 (0306)	2	WASTE TONER BOX Life counter (Counter B)	-	0 (0000)
			All the color image count accumulation value. (Form length in the carriage direction is less than 215.9mm, in 1 color 1 count and more than 215.9mm, 1 color 2 count.)	Sheet	
★	776 (0308)	4	Printer Yellow image counter (Statistical Counter Y)	-	0 (0000 0000)
			Yellow image count accumulation value. (Form length in the carriage direction is less than 219mm, in 1 count and more than 219mm, 2 count.)	-	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
★	780 (030C)	4	Printer Black image counter (Statistical Counter BK)	-	0 (0000 0000)
			Black image count accumulation value .(Form length in the carriage direction is less than 219mm, in 1 count and more than 219mm, 2 count.)	-	
	784 (02C3)	1	VBCRTC_EH_LWR(K)	-127～128	-25 (E7)
			Humidity compensation lower limit value of voltage applied to BCR for TC patch (K)	1	
	785 (02C4)	1	VBCRTC_EH_LWR(YMC)	-127～128	-25 (E7)
			Humidity compensation lower limit value of voltage applied to BCR for TC patch (YMC)	1	
★	788 (0314)	4	DEVELOPER ASSY BK Life counter	-	0 (0000 0000)
			Black image count accumulation value (A4LEF or the equivalent) (In the case of 1up/2up mode, count 1 print as 1 count in the case of 2 print on a Belt one page with 2UP, count 1 print as 2 count in the case of 1 print on a Belt one page with 1UP and 2UP.) (In the case of TR0-Less mode, from the confrontation of the drum during the print and MagnetRoll, in every 5sec, 2 count.	-	
★	792 (0318)	4	DEVELOPER ASSY Y Life counter	-	0 (0000 0000)
			YellowCount accumulation value. (A4LEF or the equivalent) (Count 1 print as 1 count in the case of 2 print on a Belt one page with 2UP, count 1 print as 2 count in the case of 1 print on a Belt one page with 1UP and 2UP.)	-	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
★	796 (031C)	4	DEVELOPER ASSY M Life counter	-	0 (0000 0000)
			MagentaCount accumulation value. (A4LEF or the equivalent) (Count 1 print as 1 count in the case of 2 print on a Belt one page with 2UP, count 1 print as 2 count in the case of 1 print on a Belt one page with 1UP and 2UP.)	-	
★	800 (0320)	4	DEVELOPER ASSY C Life counter	-	0 (0000 0000)
			CyanCount accumulation value. (A4LEF or the equivalent) (Count 1 print as 1 count in the case of 2 print on a Belt one page with 2UP, count 1 print as 2 count in the case of 1 print on a Belt one page with 1UP and 2UP.)	-	
	804 (0324)	1	VBCR_TCI(K)	0～255 (0～FF)	64 (40)
			VBCRDC initial value for TC patch (K)	1	
	805 (0325)	1	VBCR_TCI(Y)	0～255 (0～FF)	66 (42)
			VBCRDC initial value for TC patch (Y)	1	
	806 (0326)	1	VBCR_TCI(M)	0～255 (0～FF)	66 (42)
			VBCRDC initial value for TC patch (M)	1	
	807 (0327)	1	VBCR_TCI(C)	0～255 (0～FF)	66 (42)
			VBCRDC initial value for TC patch (C)	1	
	808 (0328)	1	VBCR_TCS(K)	0～255 (0～FF)	72 (48)
			Current value of voltage applied to BCR for TC patch (K)	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	809 (0329)	1	VBCR_TCS(Y)	0～255 (0～FF)	72 (48)
			Current value of voltage applied to BCR for TC patch (Y)	1	
	810 (032A)	1	VBCR_TCS(M)	0～255 (0～FF)	72 (48)
			Current value of voltage applied to BCR for TC patch (M)	1	
	811 (032B)	1	VBCR_TCS(C)	0～255 (0～FF)	72 (48)
			Current value of voltage applied to BCR for TC patch (C)	1	
	812 (032C)	1	VBCRTC_highEH_ADJUST(K)	-127～128	4 (04)
			High-humidity side compensation coefficient of voltage applied to BCR for TC patch (K)	1	
	813 (032D)	1	VBCRTC_highEH_ADJUST(Y)	-127～128	12 (0C)
			High-humidity side compensation coefficient of voltage applied to BCR for TC patch (Y)	1	
	814 (032E)	1	VBCRTC_highEH_ADJUST(M)	-127～128	12 (0C)
			High-humidity side compensation coefficient of voltage applied to BCR for TC patch (M)	1	
	815 (032F)	1	VBCRTC_highEH_ADJUST(C)	-127～128	12 (0C)
			High-humidity side compensation coefficient of voltage applied to BCR for TC patch (C)	1	
	816 (0330)	1	VBCRTC_lowEH_ADJUST(K)	-127～128	4 (04)
			Low-humidity side compensation coefficient of voltage applied to BCR for TC patch (K)	1	
	817 (0331)	1	VBCRTC_lowEH_ADJUST(Y)	-127～128	4 (04)
			Low-humidity side compensation coefficient of voltage applied to BCR for TC patch (Y)	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	818 (0332)	1	VBCRTC_lowEH_ADJUST(M)	-127～128	4 (04)
			Low-humidity side compensation coefficient of voltage applied to BCR for TC patch (M)	1	
	819 (0333)	1	VBCRTC_lowEH_ADJUST(C)	-127～128	4 (04)
			Low-humidity side compensation coefficient of voltage applied to BCR for TC patch (C)	1	
	820 (0334)	1	VBCRTC_highET_ADJUST(K)	-127～128	-4 (FC)
			High-temperature side compensation coefficient of voltage applied to BCR for TC patch (K)	1	
	821 (0335)	1	VBCRTC_highET_ADJUST(Y)	-127～128	-4 (FC)
			High-temperature side compensation coefficient of voltage applied to BCR for TC patch (Y)	1	
	822 (0336)	1	VBCRTC_highET_ADJUST(M)	-127～128	-4 (FC)
			High-temperature side compensation coefficient of voltage applied to BCR for TC patch (M)	1	
	823 (0337)	1	VBCRTC_highET_ADJUST(C)	-127～128	-4 (FC)
			High-temperature side compensation coefficient of voltage applied to BCR for TC patch (C)	1	
	824 (0338)	1	VBCRTC_lowET_ADJUST(K)	-127～128	8 (08)
			Low-temperature side compensation coefficient of voltage applied to BCR for TC patch (K)	1	
	825 (0339)	1	VBCRTC_lowET_ADJUST(Y)	-127～128	28 (1C)
			Low-temperature side compensation coefficient of voltage applied to BCR for TC patch (Y)	1	
	826 (033A)	1	VBCRTC_lowET_ADJUST(M)	-127～128	28 (1C)
			Low-temperature side compensation coefficient of voltage applied to BCR for TC patch (M)	1	
	827 (033B)	1	VBCRTC_lowET_ADJUST(C)	-127～128	28 (1C)
			Low-temperature side compensation coefficient of voltage applied to BCR for TC patch (C)	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	828 (033C)	1	VBCRTC_DRUM_ALPHA(K)	-127～128	13 (0D)
			Compensation coefficient at not many cycles of voltage applied to BCR for TC patch (K)	1	
	829 (033D)	1	VBCRTC_DRUM_ALPHA(Y)	-127～128	13 (0D)
			Compensation coefficient at not many cycles of voltage applied to BCR for TC patch (Y)	1	
	830 (033E)	1	VBCRTC_DRUM_ALPHA(M)	-127～128	-9 (F7)
			Compensation coefficient at not many cycles of voltage applied to BCR for TC patch (M)	1	
	831 (033F)	1	VBCRTC_DRUM_ALPHA(C)	-127～128	0 (00)
			Compensation coefficient at not many cycles of voltage applied to BCR for TC patch (C)	1	
	856 (0358)	1	EmptyReset first time Addmix count		13 (0D)
			EmptyReset first time Addmix count		
	857 (0359)	1	LOW_EH		39 (27)
			Threshold value for LD light quantity low humidity		
	858 (035A)	1	HIGH_EH		73 (49)
			Threshold value for LD light quantity high humidity		
	865 (0361)	1	VPP_K		245 (F6)
			VPP_duty value		
	866 (0362)	1	VPP_YMC		245 (F6)
			VPP_duty value		
	868 (0364)	2	DEVE_UNIT_LIFE_ADJUST_K		12,000 (2EE0)
			Operation time threshold value of DEVE UNIT for TC target value adjustment (K)		
	870 (0366)	2	DEVE_UNIT_LIFE_ADJUST_Y		8,000 (1F40)
			Operation time threshold value of DEVE UNIT for TC target value adjustment (Y)		

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	872 (0368)	2	DEVE_UNIT_LIFE_ADJUST_M		8,000 (1F40)
			Operation time threshold value of DEVE UNIT for TC target value adjustment (M)		
	874 (036A)	2	DEVE_UNIT_LIFE_ADJUST_C		8,000 (1F40)
			Operation time threshold value of DEVE UNIT for TC target value adjustment (C)		
	915 (0393)		Rotary idling count		6 (06)
			Rotary idling count		
	924 (039C)		ROT_MAX		10 (0A)
			Maximum idling count at Cycle Down (common to KYMC)		
	926 (039E)	1	RADC_CMP_ADJ(K)		10 (0A)
			Density judgment adjusting value (K)		
	927 (039F)	1	RADC_CMP_ADJ(Y)		7 (07)
			Density judgment adjusting value (Y)		
	928 (03A0)	1	RADC_CMP_ADJ(M)		7 (07)
			Density judgment adjusting value (M)		
	929 (03A1)	1	RADC_CMP_ADJ(C)		7 (07)
			Density judgment adjusting value (C)		
	930 (03A2)	1	TNR_SLOPE(0)		2 (02)
			Coefficient for counting up DISP_CNT 0		
	931 (03A3)	1	TNR_SLOPE(1)		3 (03)
			Coefficient for counting up DISP_CNT 1		
	932 (03A4)	1	TNR_SLOPE(2)		5 (05)
			Coefficient for counting up DISP_CNT 2		
	933 (03A5)	1	TNR_SLOPE(3)		6 (06)
			Coefficient for counting up DISP_CNT 3	1	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function Description of Data	Set Range (Hex) Units	Default (Hex)
	934 (03A6)	1	DISP_CNT_ALPHA(0) Coefficient for adding to idling detection cumulative counter 0		1 (01)
	935 (03A7)	1	DISP_CNT_ALPHA(1) Coefficient for adding to idling detection cumulative counter 1		2 (02)
	936 (03A8)	1	DISP_CNT_ALPHA(2) Coefficient for adding to idling detection cumulative counter 2		4 (04)
	937 (03A9)	1	DISP_CNT_ALPHA(3) Coefficient for adding to idling detection cumulative counter 3		8 (08)
	938 (03AA)	1	DISP_CNT_ALPHA(4) Coefficient for adding to idling detection cumulative counter 4		13 (0D)
	939 (03AB)	2	DISP_CNT_ALPHA(5) Coefficient for adding to idling detection cumulative counter 5		16 (10)
	940 (03AC)	2	DISP_CNT_ALPHA(6) Coefficient for adding to idling detection cumulative counter 6		1 (01)
	941 (03AD)	2	DISP_CNT_ALPHA(7) Coefficient for adding to idling detection cumulative counter 7		2 (02)
	942 (03AE)	2	DISP_CNT_ALPHA(8) Coefficient for adding to idling detection cumulative counter 8		4 (04)
	943 (03AF)		DISP_CNT_ALPHA(9) Coefficient for adding to idling detection cumulative counter 9		6 (06)

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function Description of Data	Set Range (Hex) Units	Default (Hex)
	944 (03B0)		DISP_CNT_ALPHA(10) Coefficient for adding to idling detection cumulative counter 10		6 (06)
	945 (03B1)	1	DEVE_ADJUST_SW_K Condition for TC target value compensation execution by DeveUnit operation time (K) 0: Not execute; 1: Execute	0, 1	1 (01)
	946 (03B2)	1	DEVE_ADJUST_SW_Y Condition for TC target value compensation execution by DeveUnit operation time (Y) 0: Not execute; 1: Execute	0, 1	1 (01)
	947 (03B3)	1	DEVE_ADJUST_SW_M Condition for TC target value compensation execution by DeveUnit operation time (M) 0: Not execute; 1: Execute	0, 1	1 (01)
	948 (03B4)	1	DEVE_ADJUST_SW_C Condition for TC target value compensation execution by DeveUnit operation time (C) 0: Not execute; 1: Execute	0, 1	1 (01)
	949 (03B5)	1	DEVE_ADJUST(1)_K Value (1) for TC target value adjustment by DeveUnit operation time Y		192 (C0)
	950 (03B6)	1	DEVE_ADJUST(1)_Y Value (1) for TC target value adjustment by DeveUnit operation time M		152 (98)
	951 (03B7)	1	DEVE_ADJUST(1)_M Value (1) for TC target value adjustment by DeveUnit operation time C		119 (77)
	952 (03B8)	1	DEVE_ADJUST(1)_C Value (1) for TC target value adjustment by DeveUnit operation time K	1	208 (D0)

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
	953 (03B9)	1	Y_ROT		0 (00)
			Rotary running sequence coefficient (Y)		
	954 (03BA)	1	M_ROT		0 (00)
			Rotary running sequence coefficient (M)		
	955 (03BB)	1	C_ROT		0 (00)
			Rotary running sequence coefficient (C)		
	962 (03C2)	1	VBCRTC_DRUM_ADJUST(2)(K)	-127～128	11 (0B)
			Compensation value at many cycles of voltage applied to BCR for TC patch (K)	1	
	963 (03C3)	1	VBCRTC_DRUM_ADJUST(2)(Y)	-127～128	110 (6E)
			Compensation value at many cycles of voltage applied to BCR for TC patch (Y)	1	
	964 (03C4)	1	VBCRTC_DRUM_ADJUST(2)(M)	-127～128	110 (6E)
			Compensation value at many cycles of voltage applied to BCR for TC patch (M)	1	
	965 (03C5)	1	VBCRTC_DRUM_ADJUST(2)(C)	-127～128	110 (6E)
			Compensation value at many cycles of voltage applied to BCR for TC patch (C)	1	
★	966 (03C6)	2	K_TONER_LIFE_TOTAL_CTR(min)L	-	0 (0000)
			Cumulative time of K cartridge DISP (TONER LIFE CTR)	1min	
★	968 (03C8)	2	Y_TONER_LIFE_TOTAL_CTR(min)L	-	0 (0000)
			Cumulative time of Y cartridge DISP (TONER LIFE CTR)	1min	
★	970 (03CA)	2	M_TONER_LIFE_TOTAL_CTR(min)L	-	0 (0000)
			Cumulative time of M cartridge DISP (TONER LIFE CTR)	1min	
★	972 (03CC)	2	C_TONER_LIFE_TOTAL_CTR(min)L	-	0 (0000)
			Cumulative time of C cartridge DISP (TONER LIFE CTR)	1min	

Table 5-9. NVM LIST (continued)

EEPROM Read([90 05 XX XX]), EEPROM Write([90 06 XX XX YY XX (XX XXXX)])					
Can/ Cannot Use	NVM No. (Hex)	Data Byte	Function / Description of Data	Set Range (Hex) / Units	Default (Hex)
★	974 (03CE)	2	K_TONER_LIFE_TOTAL_CTR(sec)L	-	0 (0000)
			Cumulative time of K cartridge DISP (TONER LIFE CTR)	1sec	
★	976 (03D0)	2	Y_TONER_LIFE_TOTAL_CTR(sec)L	-	0 (0000)
			Cumulative time of Y cartridge DISP (TONER LIFE CTR)	1sec	
★	978 (03D2)	2	M_TONER_LIFE_TOTAL_CTR(sec)L	-	0 (0000)
			Cumulative time of M cartridge DISP (TONER LIFE CTR)	1sec	
★	980 (03D4)	2	C_TONER_LIFE_TOTAL_CTR(sec)L	-	0 (0000)
			Cumulative time of C cartridge DISP (TONER LIFE CTR)	1sec	

5.4.2.9 Count Accumulation Value Read/Write

Reading from EEPROM (NVM) of MCU PWB and writing to EEPROM (NVM) can be done in the same way as [EEPROM Read/Write] of the "Diagnostics Execution" by the command/status of [Parameter Control] by the various accumulation value of the count.

CAUTION

Once the MCU PWB has been replaced or any of the MAIN FUSER ASSY, no-CRUM function type DRUM CARTRIDGE, 2ND BTR ASSY, BELT CLEANER ASSY, DEVELOPER ASSY Y, DEVELOPER ASSY M, DEVELOPER ASSY C and DEVELOPER ASSY BK, which are parts to be replaced regularly, has been replaced with a new one pay attention to "CAUTION" in EEPROM Read/Write given in *"5.4.2.8 Diagnostics Execution (p.390)"*.

CHECK POINT

The same contents can be done with [EEPROM Read/Write] of the *"5.4.2.8 Diagnostics Execution (p.390)"* as well, When EEPROM Read/Write is done, it doesn't need to do reading/writing with [Parameter Control].

NOTE: *It can do reading/writing establishment value such as registration too except for counter accumulation value with the command/status of [Parameter Control].*

READ

Table 5-10. READ

Item	Command	Note
DRUM CARTRIDGE	[D0 00]	In the same way as the NVM number 764(02FC)
TONER CARTRIDGE Y	[D0 01]	In the same way as the NVM number 738(02E2)
TONER CARTRIDGE M	[D0 02]	In the same way as the NVM number 740(02E4)

Table 5-10. READ (continued)

Item	Command	Note
TONER CARTRIDGE C	[D0 03]	In the same way as the NVM number 742(02E6)
TONER CARTRIDGE BK	[D0 04]	In the same way as the NVM number 736(02E0)
WASTE TONER BOX (Counter A)	[D0 11]	In the same way as the NVM number 772(0304)
WASTE TONER BOX (Counter B)	[D0 12]	In the same way as the NVM number 774(0306)
WASTE TONER BOX (Counter C)	[D0 13]	In the same way as the NVM number 720(02D0)
MAIN FUSER ASSY	[D0 0C]	In the same way as the NVM number 744(02E8)
2ND BTR ASSY	[D0 09]	In the same way as the NVM number 768(0300)
BELT CLEANER ASSY	[D0 0A]	In the same way as the NVM number 748(02EC)
DEVELOPER ASSY Y	[D0 0D]	In the same way as the NVM number 792(0318)
DEVELOPER ASSY M	[D0 0E]	In the same way as the NVM number 796(031C)
DEVELOPER ASSY C	[D0 0F]	In the same way as the NVM number 800(0320)
DEVELOPER ASSY BK	[D0 10]	In the same way as the NVM number 788(0314)
TRANSFER ASSY	[D0 14]	In the same way as the NVM number 760(02F8)
The whole of the device (Sheet count)	[D0 05]	In the same way as the NVM number 752(02F0)
The whole of the device (Image count)	[D0 07]	In the same way as the NVM number 724(02D4)

NOTE: *A status becomes 4Byte like the following ex) toward the above command.*

- ex) Command [D0 09]
  Status [D0 09 V1 V2 V3 V4][V1 ~ V4]
  is still the numerical value of 10, and shows count accumulation value more than the high rank in order.
  It becomes [00 12 34 56] in the case of [123,456].

WRITE

Table 5-11. WRITE

Item	Command	Note
DRUM CARTRIDGE	[80 00 V1 V2 V3 V4]	☐ For the type provided with the CRU function, never transmit this command. ☐ For the type without the CRU function, be sure to perform "Counter Clear" when the DRUM CARTRIDGE has been replaced with a new one.
TONER CARTRIDGE Y	[80 01 V1 V2 V3 V4]	
TONER CARTRIDGE M	[80 02 V1 V2 V3 V4]	
TONER CARTRIDGE C	[80 03 V1 V2 V3 V4]	
TONER CARTRIDGE BK	[80 04 V1 V2 V3 V4]	
WASTE TONER BOX (Counter A)	[80 11 V1 V2 V3 V4]	
WASTE TONER BOX (Counter B)	[80 12 V1 V2 V3 V4]	
WASTE TONER BOX (Counter C)	[80 13 V1 V2 V3 V4]	
MAIN FUSER ASSY	[80 0C V1 V2 V3 V4]	☐ When replacing with new MAIN FUSER ASSY, do counter clear.
2ND BTR ASSY	[80 09 V1 V2 V3 V4]	☐ When replacing with new 2ND BTR ASSY, do counter clear.
BELT CLEANER ASSY	[80 0A V1 V2 V3 V4]	☐ When replacing with new BELT CLEANER ASSY, do counter clear.
DEVELOPER ASSY Y	[80 0D V1 V2 V3 V4]	☐ When replacing with new DEVELOPER ASSY Y, do counter clear.
DEVELOPER ASSY M	[80 0E V1 V2 V3 V4]	☐ When replacing with new DEVELOPER ASSY M, do counter clear.
DEVELOPER ASSY C	[80 0F V1 V2 V3 V4]	☐ When replacing with new DEVELOPER ASSY C, do counter clear.

Table 5-11. WRITE (continued)

Item	Command	Note
DEVELOPER ASSY BK	[80 10 V1 V2 V3 V4]	☐ When replacing with new DEVELOPER ASSY BK, do counter clear.
TRANSFER ASSY	[80 14 V1 V2 V3 V4]	☐ When replacing with new TRANSFER ASSY, do counter clear.
The whole of the device (Sheet count)	[80 05 V1 V2 V3 V4]	
The whole of the device (Image count)	[80 07 V1 V2 V3 V4]	

CAUTION

As for the above [V1~ V4], write the value which it read with *"Read (p.434)"* of the former clause. When the reading value is bigger than Life limit value (limit value), replace the parts to apply in principle, write the value of [00 00 00 00] (Life counter).

5.4.2.10 Command/Status List

PAPER, MEDIA & OUTPUT CONTROL

[Command/Status]

With distinction column [C/S] of the following command/status, make a command [C] and a status [S], show [command/status code] + [parameter code] in the command/status column and a command/status code of that will be shown soon in 16.1

Table 5-12. Command/Status for Paper, Media & Output Control

Name	C/S	Command/Status	Explanation
PPOUT	C	None	-
	S	20, DEST, DOPT, SHEET	Paper discharge information
PPOUT2	C	None	-
	S	22, DEST, DOPT, SHEET	Paper discharge information
PCH	C	None	-
	S	21, TRAY, SIZE, INFO_T	Paper feed unit, Paper size information
DCH	C	None	-
	S	23, DEST, INFO_D	Paper discharge part condition information
TRYSEL	C	60, TRAY	Paper feed unit selection
	S	None	-
MEDSEL	C	61, MEDIA	Paper quality (paper type) selection
	S	None	-
OUTSET	C	63, DEST, DOPT	Discharge location selection
	S	None	-
USIZESET	C	64, TRAY, SIZE, FSIZEU, FSIZEL, SSIZEU, SSIZEL	Setting of undefined paper size
	S	None	-
TRYSELR	C	B0	Information on the currently selected paper feed unit
	S	B0, TRAY	
MEDSELR	C	B1	Information on the currently selected paper quality
	S	B1, MEDIA	

Table 5-12. Command/Status for Paper, Media & Output Control (continued)

Name	C/S	Command/Status	Explanation
TRYSIZR	C	B2, TRAY	Information on paper size in a specified paper feed unit
	S	B2, TRAY, SIZE, INFO_T	
USIZR	C	B4, TRAY	Information on undefined paper size in a specified paper feed unit
	S	B4, TRAY, SIZE, FSIZEU, FSIZEL, SSIZEU, SSIZEL	
OUTR	C	B3	Discharge location information
	S	B3, DEST, DOPT	

[Parameter Code Explanation]

NOTE: *Only a main parameter code is explained here. Refer to [Interface spec.] for the parameter code which mention is not in, and the detailed contents.*

☐ **SHEET/FSIZEU/FSIZEL/SSIZEU/SSIZEL Parameter**

Table 5-13. SHEET/FSIZEU/FSIZEL/SSIZEU/SSIZEL Parameters

Parameter Code	Description of Setting Data
SHEET	Paper discharge number of sheets: 1Byte (Hex)
FSIZEU	Laser beam scanning direction size: Most significant 1Byte (Hex) [Set in 0.1mm units]
FSIZEL	Laser beam scanning direction size: Least significant 1Byte (Hex) [Set in 0.1mm units]
SSIZEU	Paper feed direction size: Most significant 1Byte (Hex) [Set in 0.1mm units]
SSIZEL	Paper feed direction size: Least significant 1Byte (Hex) [Set in 0.1mm units]

☐ TRAY/SIZE/MEDIA/DEST/DOPT Parameter

Table 5-14. TRAY/SIZE/MEDIA/DEST/DOPT Parameter

Data (Hex)	TRAY		SIZE		MEDIA	DEST	DOPT
	Feeder Unit	Paper Size Setting Enable (O)/ Disable (X)	Paper Size	Detection by Paper Cassette Enable (O)/ Disable (X)	Paper Quality	Discharge Location	Sorter
00	-	-	No Paper Cassette	O	Not specified	FACE DOWN	BIN #0
01	Paper Cassette 1	X	MONARCH (LEF)	X	Regular paper	FACE UP (Include Duplex)	BIN #1
02	Paper Cassette 2	X	Official government postcard (SEF)	X	OHP film	-	BIN #2
03	Paper Cassette 3	X	COM-10(LEF)	X	Label paper (Overseas)	Sorter	BIN #3
04	MSI	O	DL(LEF)	X	Thick paper	-	BIN #4
05	-	-	STATEMENT (LEF)	X	Label paper (Domestic)	-	BIN #5
06	-	-	A5(LEF)	X	-	-	BIN #6
07	-	-	C5(SEF)	X	Coat paper	-	BIN #7
08	-	-	B5(LEF)	O	-	-	BIN #8
09	-	-	EXECUTIVE (LEF)	O	-	-	BIN #9
0A	-	-	8"X10”(LEF)	X	Thick paper (HiGloss)	-	HI-STACK BIN
0B	-	-	A4(LEF)	O	Coat paper (HiGloss)	-	-
0C	-	-	LETTER(LEF)	O	Regular paper (HiGloss)	-	-
0D	-	-	LETTER(SEF)	O	Postcard (HiGloss)	-	-
0E	-	-	LETTER Tab (LEF)	X	Postcard	-	-
0F	-	-	A4(SEF)	O	Envelope	-	-
10	-	-	A4 Tab (LEF)	X	-	-	-

Table 5-14. TRAY/SIZE/MEDIA/DEST/DOPT Parameter (continued)

Data (Hex)	TRAY		SIZE		MEDIA	DEST	DOPT
	Feeder Unit	Paper Size Setting Enable (O)/ Disable (X)	Paper Size	Detection by Paper Cassette Enable (O)/ Disable (X)	Paper Quality	Discharge Location	Sorter
11	-	-	Sp. Folio (SEF)	X	-	-	-
12	-	-	Folio (SEF)	O	-	-	-
13	-	-	LEGAL14" (SEF)	O	-	-	-
14	-	-	B4(SEF)	O	-	-	-
15	-	-	A3(SEF)	O	-	-	-
16	-	-	LEDGER(SEF)	O	-	-	-
17	-	-	312.5mmX440mm (SEF)	X	-	-	-
18	-	-	12"X18"(SEF)	X	-	-	-
19	-	-	12.5"X18" (SEF)	X	-	-	-
1A	-	-	13"X18"(SEF)	X	-	-	-
1B	-	-	Undefined (regular paper)	O (Lower Cassette 1 only)	-	-	-
1C	-	-	Undefined (envelope)	X	-	-	-

☐ INFO_T/INFO_D Parameter

NOTE: *As for the following parameter, contents are prescribed in the Bit unit.*

Table 5-15. INFO_T/INFO_D Parameters

Data (Bit)	INFO_T	INFO_D
7	-	-
6	-	-
5	-	-
4	-	-
3	-	-
2	MSI REGI. GUIDE (Down Position)	-
1	OHP/LABEL TRAY (Use)	-
0	No Paper	Full Stack

PRINTING/STATUS CONTROL

[Command/Status]

With distinction column [C/S] of the following command/status, make a command [C] and a status [S], show [command/status code] + [parameter code] in the command/status column and a command/status code of that will be shown soon in 16.

Table 5-16. Command/Status for Printing/Status Control

Name	C/S	Command/Status	Explanation
PFA	C	None	-
	S	30, AMODE, SHEET1, SHEET2	Feeder permission information
ENGERR	C	None	-
	S	31	Device error
ERRRV	C	None	-
	S	32	Device error release
ENGWRN	C	None	-
	S	33	Device warning
SCH	C	None	-
	S	34, STSMODE, STSMODE2, STSCALL	Error information on status of printer
PFA2	C	None	-
	S	35, SHEET	Feeder permission information
COLOR	C	None	-
	S	36, PLANE	Color information
PFCRDY	C	None	-
	S	37	Preparation for [PFC] reception
WRNOFF	C	None	-
	S	38	Device warning stop
PFC	C	70, PMODE, CMODE, SHEET, BIN	Feeder request information
	S	None	-
PMSTT	C	71	Scanner Motor rotation start request
	S	None	-

Table 5-16. Command/Status for Printing/Status Control (continued)

Name	C/S	Command/Status	Explanation
PERST	C	72	Error reset request
	S	None	-
SLPON	C	73, SLEEPMODE	Enter applicable SLEEP mode request
	S	None	-
SLPOFF	C	74	Leave applicable SLEEP mode request
	S	None	-
DIAGON	C	75	Enter DIAG TEST mode request
	S	None	-
DIAGOFF	C	76	Leave DIAG TEST mode request
	S	None	-
STOP	C	77	Print movement stop request
	S	None	-
ABORT	C	78	Discharge of fed paper and operation stop request
	S	None	-
PAGEC	C	7A	[/VSYNC] signal request
	S	None	-
SSENG	C	C0	Error information on status of printer
	S	C0, STSMODE, STSMODE2, STSCALL	
SSDTCH	C	C1	Presence detection information about consumables, paper cassettes, etc.
	S	C1, STSDTCH1, STSDTCH2	
SSTRAY	C	C2	Error information about paper cassettes
	S	C2, STSTRAY	
SSCRUM	C	C3	Error information on CRUM function of the DRUM CARTRIDGE
	S	C3, STSCRUM	
SSJAM	C	C4	Error information on paper jam
	S	C4, STSJAM1, STSJAM2	
SSHW	C	C5	Error information on hardware
	S	C5, STSHW1, STSHW2, STSHW3, STSHW4	

Table 5-16. Command/Status for Printing/Status Control (continued)

Name	C/S	Command/Status	Explanation
SSLIFE	C	C6	Error information on life
	S	C6, STSLIFE1, STSLIFE2	
SSOPEN	C	C7	Error information on cover, etc. open
	S	C7, STSOPEN1, STSOPEN2	
SSWARN	C	C8	Error information on warning
	S	C8, STSWARN1, STSWARN2, STSWARN3	

[Parameter Code Explanation]

NOTE: *Only the main parameter code is explained here.*

☐ SLPON Command Parameter

Table 5-17. SLPON Command Parameters

SLPON Command Code: [73]	
Data (Hex)	**SLEEPMODE**
00	LIGHT SLEEP Mode
01	DEEP SLEEP Mode

☐ **SSENG Status Parameter**

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-18. SSENG Status Parameters

SSENG Status Code: [C0]			
Data (Bit)	**STSMODE**	**STSMODE2**	**STSCALL**
7	-	LIGHT SLEEP Mode	Consumable parts error (SSDTCH command:[C1])
6	DIAG TEST Mode	DEEP SLEEP Mode	No paper (SSTRAY command:[C2])
5	WARM UP Mode	-	CRUM error (SSCRUM command:[C3])
4	Acknowledge Print Quality Mode	-	Paper jam (SSJAM command:[C4])
3	READY Mode	-	Hardware error (SSHW command:[C5])
2	PRINTING Mode	-	Life over (SSLIFE command:[C6])
1	ERROR Mode	-	Cover open (SSOPEN command:[C7])
0	-	-	Warming (SSWARN command:[C8])

☐ **SSDTCH Status Parameter**

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-19. SSDTCH Status Parameters

SSDTCH Status Code: [C1]		
Data (Bit)	**STSDTCH1**	**STSDTCH2**
7	Lower Cassette 1 None	TONER CARTRIDGE Y None
6	Lower Cassette 2 None	TONER CARTRIDGE M None
5	Lower Cassette 3 None	TONER CARTRIDGE C None
4	-	TONER CARTRIDGE BK None
3	MAIN FUSER ASSY None	-
2	WASTE TONER BOX None	-
1	-	-
0	-	-

☐ **SSTRAY/SSCRUM Status Parameter**

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-20. SSTRAY/SSCRUM Status Parameters

	SSTRAY Status Code: [C2]	SSCRUM Status Code: [C3]
Data (Bit)	**SSTRAY**	**SSCRUM**
7	No paper of the Lower Cassette 1	Communication error
6	No paper of the MSI	Verify error
5	No paper of the Lower Cassette 2	Used DRUMCARTRIDGE installation
4	No paper of the Lower Cassette 3	ID error
3	-	Count error
2	-	Imitation error 1
1	-	Imitation error 2
0	-	-

☐ SSJAM Status Parameter

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-21. SSJAM Status Parameters

SSJAM Status Code: [C4]		
Data (Bit)	**STSJAM1**	**STSJAM2**
7	Paper jam in EXIT UPPER ASSY/ EXIT LOWER ASSY (Exit Jam)	Paper remaining in the INVERTER ASSY (Duplex In Jam)
6	Paper jam in FUSER ASSY (Fuser Jam)	Paper remaining in the INVERTER ASSY/ALIGNER ASSY (Duplex Mid Jam)
5	Paper jam in MAIN P/H FRAME ASSY (Regi. Jam)	Paper remaining in the ALIGNER ASSY (Duplex Out Jam)
4	Paper jam in Option Feeder (Option Feeder Jam)	Paper remaining in the MAIN P/H FRAME ASSY (Duplex Regi. Jam)
3	-	Paper remaining in the Option Sorter (Option Sorter Jam)
2	OHP set error (End side)	-
1	Size mismatch	-
0	OHP set error (Tip side)	-

☐ SSHW Status Parameter

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-22. SSHW Status Parameters

SSHW Status Code: [C5]		
Data (Bit)	**STSHW1**	**STSHW2**
7	Option Feeder communication error	ROTARY SENSOR error
6	Option Duplex communication error	ADC Sensor error
5	Option Sorter communication error	High concentration error
4	MCU PWB(ROM/RAM) error	Low concentration error
3	MCU PWB(NVM) error	PCDC error
2	FUSER MOTOR ASSY error	High density error
1	TR0 SENSOR error	2ND BTR error
0	ROS ASSY error	BTR WHEEL SENSOR error
Data (Bit)	**STSHW3**	**STSHW4**
7	FUSER overcoat heat error	FEEDER MOTOR ASSY error
6	FUSER warm-up error	INVERTER MOTOR error
5	FUSER Heater error	FUSER FAN-1 error
4	FUSER low temperature error	EXIT CHUTE FAN error
3	FUSER thermistor breakage error	DEVE. FAN error
2	P/H MOTOR ASSY error	-
1	PROCESS DRIVE ASSY error	-
0	ENVIRONMENT SENSOR error	Sorter Motor error

☐ SSLIFE Status Parameter

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-23. SSLIFE Status Parameters

SSLIFE Status Code: [C6]		
Data (Bit)	**STSLIFE1**	**STSLIFE2**
7	Yellow TONER None	BELT CLEANER ASSY Life over
6	Magenta TONER None	2ND BTR ASSY Life over
5	Cyan TONER None	-
4	Black TONER None	TRANSFER ASSY Life over
3	-	DEVELOPER ASSY Y Life over
2	WASTE TONER BOX Full	DEVELOPER ASSY M Life over
1	DRUM CARTRIDGE Life over	DEVELOPER ASSY C Life over
0	-	DEVELOPER ASSY BK Life over

☐ SSOPEN Status Parameter

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-24. SSOPEN Status Parameters

SSOPEN Status Code: [C7]		
Data (Bit)	**STSOPEN1**	**STSOPEN2**
7	FRONT COVER ASSY open	SORTER UPPER COVER open
6	MSI/REGI. HIGH ASSY open	-
5	FUSER ASSY open	-
4	EXIT UPPER ASSY open	-
3	FEEDER CHUTE ASSY open	-
2	INVERTER CHUTE open	-
1	ALIGNER ASSY None	-
0	TURN CHUTE COVER open	-

☐ SSWARN Status Parameter

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-25. SSWARN Status Parameters

SSWARN Status Code: [C8]			
Data (Bit)	**STSWARN1**	**STSWARN2**	**STSWARN3**
7	Yellow toner life warning	BELT CLEANER ASSY life warning	Lower Cassette 1 remaining paper amount warning
6	Magenta toner life warning	2ND BTR ASSY life warning	Lower Cassette 2 remaining paper amount warning
5	Cyan toner life warning	Full Stack warning (Option Sorter)	Lower Cassette 3 remaining paper amount warning
4	Black toner life warning	Printer life warning	Full Stack warning (TOP COVER ASSY)
3	BIN error	DEVELOPER ASSY YK life warning	MSI lift up error
2	WASTE TONER BOXFull warning	DEVELOPER ASSY M life warning	MSI lift down error
1	DRUM CARTRIDGE life warning	DEVELOPER ASSY C life warning	Feeder lift up error
0	TRANSFER ASSY life warning	DEVELOPER ASSY BK life warning	Feeder lift down error

PARAMETER CONTROL

CAUTION

Don't use without indicate in this manual except for [LIFCNTSET (80)], [CTLSET (85)], [LIFCNTR (D0)], [LIFLIMR (D1)], [CTLSETR (D7)] and [LIFWNGR (F0)] command.

[Command/Status]

With distinction column [C/S] of the following command/status, make a command [C] and a status [S], show [command/status code] + [parameter code] in the command/status column and a command/status code of that will be shown soon in 16.

CHECK POINT

[V1~V4] is still the numerical value of 10, and shows count accumulation value more than the high rank in order.

Table 5-26. Command/Status for Parameter Control

Name	C/S	Command/Status	Explanation
LIFCNTSET	C	None	-
	S	80, LIFE, V1, V2, V3, V4	Write data to life counter
LIFLIMSET	C	None	-
	S	81, LIFE, V1, V2, V3, V4	<Do not use unless instructed to> Change life limit value
CTLSET	C	None	-
	S	85, CTL, V1, V2, V3	<Do not use unless instructed to> Change control value
LIFWNGSET	C	None	-
	S	88, LIFE, V1, V2, V3, V4	<Do not use unless instructed to> Change life warning value
LIFCNTR	C	D0, LIFE	Read data of life counter
	S	D0, LIFE, V1, V2, V3, V4	

Table 5-26. Command/Status for Parameter Control (continued)

Name	C/S	Command/Status	Explanation
LIFLIMR	C	D1, LIFE	Read life limit value
	S	D1, LIFE, V1, V2, V3, V4, V5, V6, V7, V8	
CTLSETR	C	D7, CTL	Read control value
	S	D7, CTL, V1, V2, V3	
STCCNR	C	DB, STC	Read statistical counter value
	S	DB, STC, V1, V2, V3	
LIFWNGR	C	F0, LIFE	Read life warning value
	S	F0, LIFE, V1, V2, V3, V4	
CRIDR	C	F2	Read CRUM ID
	S	F2, ID	
CRMDR	C	F3	Read CRUM data
	S	F3, V1, V2, V3, V4, V5, V6, V7	

[Parameter Code Explanation]

NOTE: *Only a main parameter code is explained here.*
Refer to [Interface spec.] for the parameter code which mention is not in, and the detailed contents.

☐ **IFE/CTL/STC Parameter Code**

Table 5-27. IFE/CTL/STC Parameter Codes

Data (Hex)	LIFE (Life Counters)	CTL (Control Value / Set Point)	STC (Statistical Counters)
00	DRUM CARTRIDGE	-	-
01	TONER CARTRIDGE Y	Cycle Down Wait Timer	Statistical Counter Y
02	TONER CARTRIDGE M	Hold Wait Timer	-
03	TONER CARTRIDGE C	Duplex Mode	-
04	TONER CARTRIDGE BK	-	Statistical Counter Bk
05	Device	-	-
07	Device (Image count)	-	-
08	-	Y Toner Concentration (Yellow toner concentration)	-
09	2ND BTR ASSY	M Toner Concentration (Magenta toner concentration)	-
0A	BELT CLEANER ASSY	C Toner Concentration (Cyan toner concentration)	-
0B	-	Bk Toner Concentration (Black toner concentration)	-
0C	MAIN FUSER ASSY	-	-
0D	DEVELOPER ASSY Y	-	-
0E	DEVELOPER ASSY M	-	-
0F	DEVELOPER ASSY C	-	-
10	DEVELOPER ASSY BK	-	-
11	WASTE TONER BOX (Counter A)	Tip registration adjustment (All the Feeder Unit commonness: about 0.1mm unit)	-
12	WASTE TONER BOX (Counter B)	-	-
13	WASTE TONER BOX (Counter C)	-	-

Table 5-27. IFE/CTL/STC Parameter Codes (continued)

Data (Hex)	LIFE (Life Counters)	CTL (Control Value / Set Point)	STC (Statistical Counters)
14	TRANSFER ASSY	-	-
16	-	Side registration adjustment (Lower Cassette 1: about 0.1mm unit)	-
17	-	Side registration adjustment (Lower Cassette 2: about 0.1mm unit)	-
18	-	Side registration adjustment (Lower Cassette 3: about 0.1mm unit)	-
19	-	Side registration adjustment (MSI: about 0.1mm unit)	-
1A	-	Side registration adjustment (Duplex: about 0.1mm unit)	-
1B	-	Enable (O)/Disable (X) of size mismatch	-
1F	-	2ND BTR offset level (Regular paper)	-
20	-	2ND BTR offset level (OHP)	-
22	-	2ND BTR offset level (Thick paper)	-
25	-	2ND BTR offset level (Coat paper)	-
2A	-	2ND BTR offset level (Label paper)	-
2B	-	2ND BTR offset level (Postcard)	-
2C	-	2ND BTR offset level (Envelope)	-
2D	-	A code by the country	-
FF	All Life Counters	-	-

CAUTION

Though the above [FF] in the data can be used only when all value is initialized, never use it when there are directions in this manual.

DIAGNOSTICS CONTROL

[Command/Status]

With distinction column [C/S] of the following command/status, make a command [C] and a status [S], show [command/status code] + [parameter code] in the command/status column and a command/status code of that will be shown soon in 16.

CHECK POINT

[V1~V4] is still the numerical value of 10, and shows count accumulation value more than the high rank in order.

Table 5-28. Command/Status for Diagnostics Control

Name	C/S	Command/Status	Explanation
IGNORED	C	None	-
	S	41, CMD, REASON	Reject command reception (Displays command code applicable to CMD.)
OPTSR	C	E1	Option status
	S	E1, OPTION	
ROMNOR	C	E2	MCU PWB firmware version
	S	E2, V1, V2, V3	
DIAGSTART	C	90, •••••	Refer to *"5.4.2.8 Diagnostics Execution (p.390)"*
	S	90, •••••	
DIAGSTOP	C	91, •••••	Refer to *"5.4.2.8 Diagnostics Execution (p.390)"*
	S	91, •••••	

[Parameter Code Explanation]

☐ **REASON/OPTION Parameter Code**

NOTE: *The parameters below are stipulated in Bit units.*

Table 5-29. REASON/OPTION Parameter Codes

Data (Bit)	REASON (Reason Ignored)	OPTION (Option Status)[0=Off, 1=Installed]
7	Purge	-
6	No Configuration	-
5	Full Stack, Lift up/down error	-
4	-	Option Sorter
3	Life over	-
2	Size mismatch	Option Feeder (Lower Cassette 2&3)
1	No paper	Option Feeder (Lower Cassette 2)
0	Unknown command	Option Duplex

5.4.2.11 Error / Status Code

The statuses [SSENG], [SSDTCH], [SSTRAY], [SSJAM], [SSHW], [SSLIFE], [SSOPEN], [SSWARN] in the Command/Status category [Printing/Status Control] let you find out the error/status codes of the printer. A detection error in Bit units is set for each status parameter. (For a description of each parameter, see *"5.4.2.10 Command/ Status List (p.436)"*). "Chapter 3 Troubleshooting" contains error codes as the same code as these statuses.

In Chapter 3 "Troubleshooting", "-" is used instead of each space between the bytes.

- EX) In the case of the signal error

C1-00-80

80h(Bit7 ON): No TONER CARTRIDGE Y

SSDTCH Status

- EX) In the case of the compound error

C5-01-00-00-30

30h(Bit4,5 ON):FUSER FAN-1 error, EXIT CHUTE FAN error

01h(Bit0 ON):ROS ASSY error

SSHW Status

CHAPTER

6

MAINTENANCE

6.1 Overview

This section gives information necessary for maintaining AcuLaser C8600/AcuLaser C7000 in its optimum condition.
In maintenance and checks, never fail to observe the following precautions.

WARNING

- **Before servicing, be sure to turn the printer off and unplug the power code from the wall outlet before to prevent injury, burnt, and electrification. If you must keep the power applied to measure voltage, be aware of the potential for electrical shock and do all tasks with the most care.**
- **Never inspect any motor, sprocket, and gear while the printer is operating.**
- **Weight**
  This printer weighs quite heavily (about 71.2Kg). Be sure to carry it by 4 people or more and take a good posture keeping your back low.
- **Safety Components**
  Make sure the safety components function properly. The safety devices include fuses, interlock switches and others such as panels and covers for protecting users.
- **Do not touch the FUSER ASSEMBLY (Fusing unit) while it is still very hot shortly after operation.**
- **After servicing, note the following points when turning on the printer for operation.**
  (Continues to the next page.)
  - **Do not catch your hands and clothes in the rotating parts such as rollers and fans.**
  - **Keep your hands off the electrical terminals and high voltage components such as HVPS and LVPS.**
- **To avoid dust explosion or ignition, never bring any consumables close to flame or throw them into fire.**
- **Do not expose yourself to the laser beam to prevent injury (blindness).**

WARNING

- **When you perform maintenance or service of the laser printer, never open any cover on which a warning label about laser beam has been affixed.**
- **Understand how the laser beam functions and take maximum precautions not to injure yourself or anyone around you.**
- **When working on the FUSER ASSY or nearby parts, be sure to wait until the temperature of the parts cool down to a safe level.**
- **Be aware that this printer emits laser beam when the printer is under the both of the following conditions.**
  - **The printer power switch is on and the printer is in “Ready” status.**
  - **Interlock switches are off (The TOP COVER and the FRONT COVER are closed.)**

CAUTION

- **This printer has many metal parts. Take care not to suffer injury from frame edges and be sure to wear gloves when you perform maintenance or service of the printer.**
- **Do not disassembly the TONER CARTRIDGE.**
- **Do not leave the DRUM CARTRIDGE in direct sun light.**
- **Do not disassembly the ROS ASSEMBLY.**
- **Avoid touching IC and other electrical element with your bare hands to protect them from static electricity.**
- **Use specified tools to ensure safety and efficient work.**
- **Do not turn off the power until all motors stop.**
- **In case you need to transport the printer:**
  1. Remove the DRUM CARTRIDGE from the printer.
  2. Pack the printer using the exclusive packing materials and on a pallet.
- **Do not use alcohol, paint thinner, or other such solvents.**

6.1.1 Regularly Replaced Parts Replacement

The Regularly Replaced parts for AcuLaser C8500/AcuLaser C7000 are as described below. For replacement, refer to "4.2.9.2 MAIN FUSER ASSY (PL9.1.2) *(p.321)*"

- ☐ MAIN FUSER ASSY:: 100,000 pages
- ☐ Exhaust Filter: 100,000 pages

After replacing the MAIN FUSER ASSY, be sure to reset the relevant counter in the "6.3 Maintenance Menu (AcuLaser C8600) *(p.453)*".

6.1.2 Main After-Sales Parts Replacement

The Main After-Sales parts are as follows:

1) 2ND BTR
2) IBT CLEANER
3) IBT BELT
4) DEVELOPPER C
5) DEVELOPPER M
6) DEVELOPPER Y
7) DEVELOPPER Bk

When you replace the parts above, refer to the relevant section in Chapter 4.

After replacing any of these parts, be sure to reset the relevant counter in the "6.3 Maintenance Menu (AcuLaser C8600) *(p.453)*".

When you have replaced any of After-Sales Parts of AcuLaser C7000, clear the relevant counter by using the Service Utility.

6.1.3 Consumable Replacement

This printer allows the users to replace the consumables. The consumables includes the following 3 items shown in Figure 6-4 on the right.

The life information on the consumables is as follows:

Step 1: Warning indication "NEAR END" on the LCD

Step 2: Life "END" indication on the LCD

As for the toner level, the users can check by printing a status sheet or panel operation, or "EPSON printer window 3."

The service men, on the other hand, can access to detailed information, including the life end warning, by using the "6.3 Maintenance Menu (AcuLaser C8600) *(p.453)*" Referring to the statistics, replacement timing for each item is assumed. The following sections show the replacement procedures for each consumable item.

When you have replaced any of After-Sales Parts of AcuLaser C7000, clear the relevant counter by using the Service Utility.

6.2 About On-Site Servicing

This section contains information you need when visiting your customer for on-site servicing including preventive maintenance required to prevent any potential printer malfunction as well as normal maintenance. To prevent accident during servicing, observe the “WARNING” and “CAUTION” carefully and avoid servicing in a dangerous situation.

CAUTION

- **In case you need to transport the printer:**
  1. Remove the DRUM CARTRIDGE from the printer.
  2. Pack the printer using the exclusive packing materials and on a pallet.
- **Do not dispose of any replaced parts and cousumabels at your customer’s place.**
- **Once color toner gets on a floor, it is hardly cleaned out. Therefore, be sure to place a sheet or cloth inside the printer so that the floor is protected.**

6.2.1 On-site Service Flow

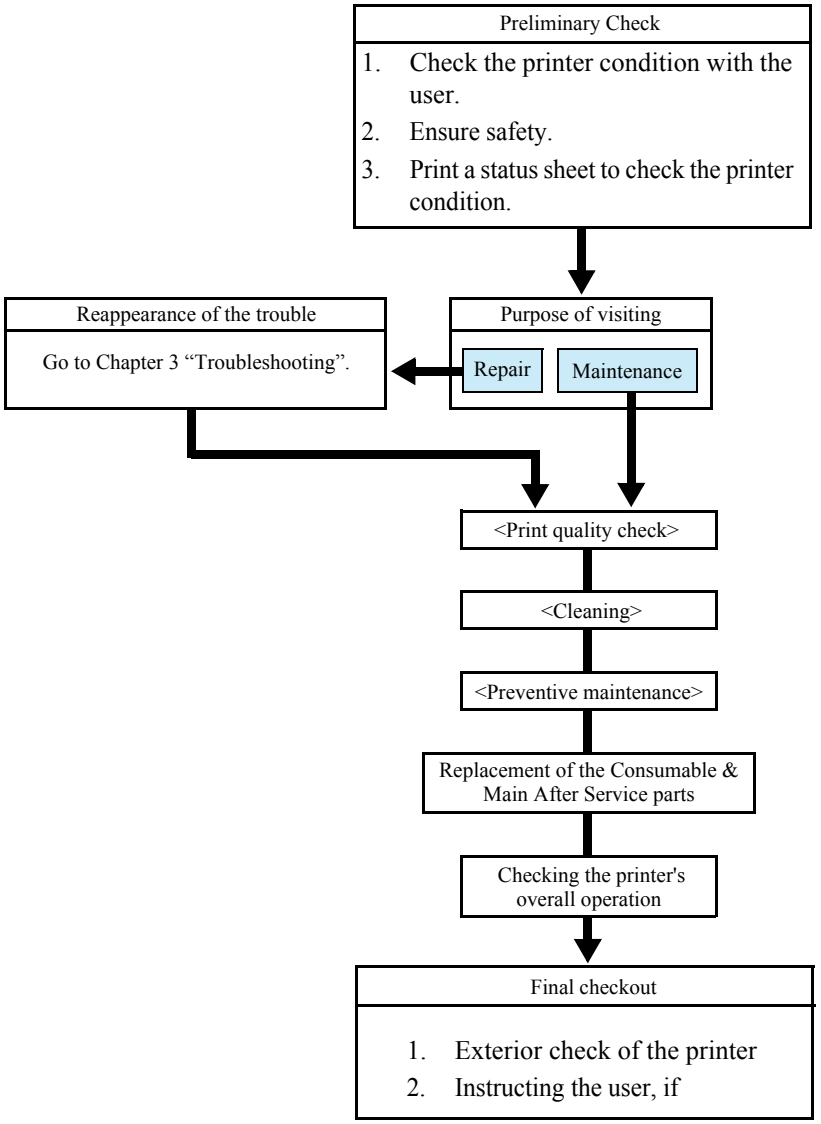


Figure 6-1. On-site Service Flowchart

6.2.2 Description of the On-site Service

This section gives instruction on the on-site service in detail.

PRELIMINARY CHECK

1. Ask the users the following:
   - How often paper feed malfunction occurs.
   - How the printer is used. (paper, volume, environment, etc.)
   - Output quality (each side: front/back separately)
2. Check safety matters: the condition of plug connections, the damage for plugs and codes.
3. Print a status sheet to check the printer condition.
4. Print an engine status sheet. Check the life of the Consumables, Regularly Replaced Parts, and Main After Sales Parts, and the printer's condition.

REAPPEARANCE OF THE TROUBLE

Perform troubleshooting described in Chapter 3.

1. Referring to Section "3.1.4 Self-Diagnostic Function by Printer Message (AcuLaser C8600) *(p.164)*" or "3.1.5 Self-Diagnostic Function by Printer Message (AcuLaser C7000) *(p.172)*", identify the trouble and perform necessary troubleshooting.
2. If necessary, proceed to "Level 1 FIP" and "Level 2 FIP".
3. If a print quality problem (completely blank/black page), a fatal problem, due to an engine malfunction is identified, go to "3.4 Picture Image Trouble *(p.249)*"

PRINT QUALITY CHECK

1. Print several pages of monochrome and color status sheet to check print quality.

   <Points to check>

   - Color balance
   - Improper color position
   - Too dark/light printing
   - Abnormal reappearance at low density
   - Others
2. If any abnormality is found in the listed check points:
   - Check the life counters of the consumables and regularly replaced parts. "6.3 Maintenance Menu (AcuLaser C8600) *(p.453)*"
   - Perform the adjustment. (See Chapter 5)

CLEANING

1. Remove any foreign matter lodged in the 2ND BTR ASSEMBLY, MAIN P/H ASSEMBLY, FUSER ASSEMBLY, and rollers in the paper paths and so on. Then clean the dirt using a brush or dry soft cloth.

NOTE: *To remove severe dirt, remove it with a moistened cloth then wipe with a dry cloth. Be sure not to mar the dirty part during cleaning.*

2. Using a soft cloth, clean out the spilled toner in the following parts: DEVELOPER, TONER CARTRIDGE (including their installing positions), inside of the FRONT COVER, WASTE TONER BOX installation point and its adjacent parts, BELT CLEANER ASSEMBLY and its adjacent parts.
3. Clean the fan ducts. Remove the REAR COVER and remove the dust adhered to the DEVE. FAN, FUSER FAN, and REAR COVER with a brush. Also, remove the dust accumulated on the CONTROLLER FAN and the TOP COVER by removing the TOP COVER.

Clogged dust around the fan ducts and fans can heat up the air inside of the printer, which may cause a printer malfunction.

PREVENTIVE MAINTENANCE (CHECKING THE CONSUMABLES AND REGULARLY REPLACED PARTS)

In addition to repair and maintenance of the printer, preventive maintenance is required to maintain the printer's good operation and to prevent any potential problem in other parts that the serviced parts.

1. After repairing or maintenance, output several status sheets and check that the printer operates normally.
2. After repairing or maintenance, output an engine status sheet.

NOTE: *Referring to the total number of the printed pages, determine if any regularly replaced part needs replacing, and replace it if necessary.*

REPLACING THE CONSUMABLES AND REGULARLY REPLACED PARTS

Replace any regularly replaced part if necessary. "6.1.3 Consumable Replacement *(p.449)"*, "6.1.1 Regularly Replaced Parts Replacement *(p.449)"*, "6.1.2 Main After-Sales Parts Replacement *(p.449)"*

CHECKING OVERALL PRINTER OPERATION

After servicing, give an overall checking to the printer. Print some status sheets and a test prints, both single and double side print with the Option Duplex installed, with the data transportation from the host computer. Check the following:

1. Print quality:Check that print quality is good.
2. Operation: Check that paper is fed properly and there is no abnormal noise.

FINAL CHECKOUT

1. Check exterior view of the printer.
2. If necessary, give an instruction to the users.
   - How to clear the paper jam error
   - How to replace the consumables
   - What kind of paper can be used for the printer.

6.3 Maintenance Menu (AcuLaser C8600)

CAUTION

This setting menu is intended for maintenance use by service personnel. This menu must not be disclosed to users.

CHECK POINT

When you have replaced any of After-Sales Parts of AcuLaser C7000, clear the relevant counter by using the Service Utility.

The Maintenance Menu contains the following functions:

1. Shows life counter values for:
   - the Consumable/Regularly Replaced parts (*See page 449.*)
   - the Main After-Sales parts
   - the total number of printed pages and color print pages.
2. Resets the counter values for the Regularly Replaced parts and the Main After-Sales parts.
3. Resets the counter values for total printed page number and total color print pages.

The Regularly Replaced parts refer to MAIN FUSER ASSY. The Main After-Sales parts refer to 2nd BTR, IBT CLEANER, IBT BELT, and C/M/Y/K DEVELOPER.

After replacing the parts mentioned above, return to the Maintenance Menu and reset the concerned counter values. After resetting the counter values, be sure to open and close the FRONT COVER.

NOTE 1: *Be sure to remove all interface cables.*

2: *Make sure the "Service call error" is occurred.*

3: *In order to end the Maintenance Menu, make sure the engine is not alive, and then, turn the power off.*

6.3.1 Entry to the Maintenance Menu (AcuLaser C8600)

1. Turn the printer on while pressing the "Back", "Up", "Down" and "Enter" buttons at the same time. All the LEDs and the LCD come on first and then the following message appears on the LCD. (Keep the buttons down until "MAINTENANCE MODE" is displayed.)

RAM CHECK **.*MB

NOTE: ***.* represents numeric which counts up.*

NOTE: *Do not release the buttons until the next message appears.*

MAINTENANCE

This display is followed by the next message "Ready" the same way as in the normal mode.

Ready

2. Referring to Figure 6-2 *(p.455)*, activate the desirable function by panel operation.

CAUTION

If you reset the counter using the Maintenance Mode, open the cover once. Make certain that the Cover Open Error is shown, then close the cover. If this operation is not properly done, the counter cannot be reset (due to the engine function).

6.3.2 Maintenance Menu Items (AcuLaser C8600)

This setting menu is displayed and can be selected only when the Maintenance Mode has been activated by hidden operation at power-on. Then restarting the printer deletes the Maintenance Menu from the Menu (the Maintenance Mode is deleted = the printer switches to the normal mode). Basically, this setting is for maintenance by service personnel. This printer forcibly adjusts density (Cycle Up, Cycle Down) before and after the first printing when the Maintenance Menu is selected. Therefore, subsequent printing can obtain printing results where print density adjustment is controlled.

- Engine Status Sheet
  Pressing the Enter button starts printing the Engine Status Sheet. If data remains in the mode, paper is output. Make sure to switch to the Maintenance Mode after confirming that there are no engine related service call error in the normal mode (a mode that is not the Maintenance Mode), then execute. The RITech, Toner Save and Resolution values are printed with the value in operation, while the other values are printed with the factory default settings. Even after printing, the User Default environment (setting) is not changed. The LCD display blinks during printing. The contents of the Engine Status Sheet are output with the counted value of each unit of the engine.
  Also, the Engine Status Sheet is always printed as Lang = English regardless of the Lang setting of the Setup Menu

  NOTE: *Refer to "1.9.6 Engine Status Sheet" on page 75.*

- Reset 2ndBTRCounter
  This function resets the counter for used amount of the 2nd BTR. This must be always performed after replacing the 2nd BTR with a new one (maintenance). Executing the setting performs reboot.
  After that, make sure to open the printer cover once, and then close it.
- Reset IBTCleaner Ct
  This function resets the counter for used amount of the IBT Cleaner. This must be always performed after replacing the IBT Cleaner with a new one (maintenance). Executing the setting performs reboot.
  After that, make sure to open the printer cover once, and then close it.
- Reset IBTBelt Count
  This function resets the counter for used amount of the IBT Belt. This must be always performed after replacing the IBT Belt with a new one (maintenance). Executing the setting performs reboot.
  After that, make sure to open the printer cover once, and then close it.
- Reset C DvlpCounter
  This function resets the counter for used amount of the C Development. This must be always performed after replacing the C Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.
- Reset M DvlpCounter
  This function resets the counter for used amount of the M Development. This must be always performed after replacing the M Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.
- Reset Y DvlpCounter
  This function resets the counter for used amount of the Y Development. This must be always performed after replacing the Y Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.
- Reset K DvlpCounter
  This function resets the counter for used amount of the K Development. This must be always performed after replacing the K Development with a new one (maintenance). Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.
- Reset Fuser Counter
  This function resets the counter for used amount of the Fuser Unit. This must be always performed after replacing the Fuser Unit with a new one (maintenance). Executing the setting performs reboot.
  After that, make sure to open the printer cover once, and then close it.
- Reset Total Counter
  This function clears the Total Pages (to count 0). (It resets the Total Pages (A4) and Total Planes counter of the engine, and Total Pages and Total Colors counter of the controller.) Executing the setting performs reboot. After that, make sure to open the printer cover once, and then close it.
- Clear Error Log
  This function clears the Error Log List stored to display on the Engine Status Sheet. The 20 latest Error Logs are memorized. Executing the setting performs reboot.

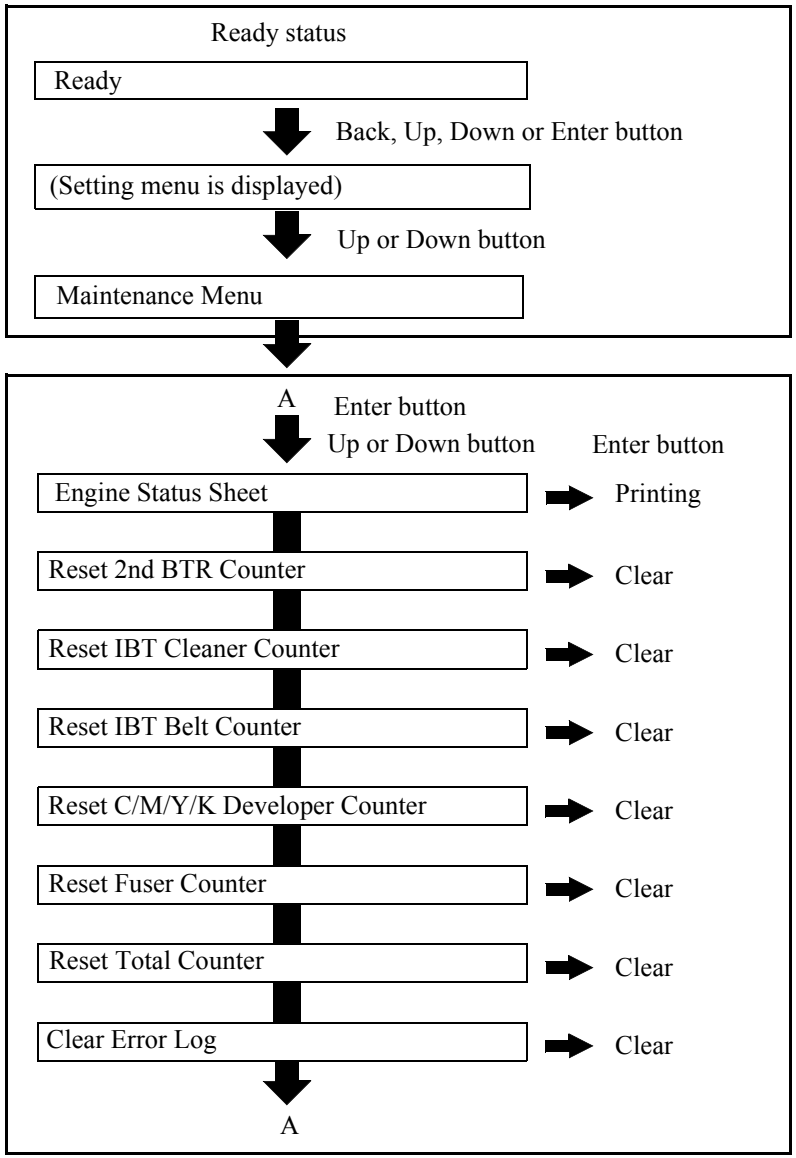


Figure 6-2. Maintenance Menu Process Chart

CHAPTER

7

APPENDIX

7.1 Connectors

7.1.1 P/J Location Drawings

This section shows the connector locations of AcuLaser C8600/AcuLaser C7000. [P] and [J] represent “plug” and “jack”, respectively.

Table 7-1. P/J List (1)

P/J	Description
81	Connects ADC SENSOR ASSY and MAIN HARNESS ASSY
83	Connects TONER BOX SENSOR and TONER BOX HARNESS
84	Connects CRUM CONNECTOR ASSY and MAIN HARNESS ASSY
85	Connector inside CRUM CONNECTOR ASSY
86	Connects ERASE LAMP ASSY and MAIN HARNESS ASSY
88	Connects WASTE TONER SENSOR and TONER BOX HARNESS
116	Connects MAIN HARNESS ASSY and TONER BOX HARNESS
116A	Connector inside MAIN HARNESS ASSY
191	Connects FRONT COVER SWITCH R and MAIN HARNESS ASSY
192	Connects FRONT COVER SWITCH R and MAIN HARNESS ASSY
F187-2	Connects DEVE. CONTACT PLATE ASSY and DEVE. WIRE

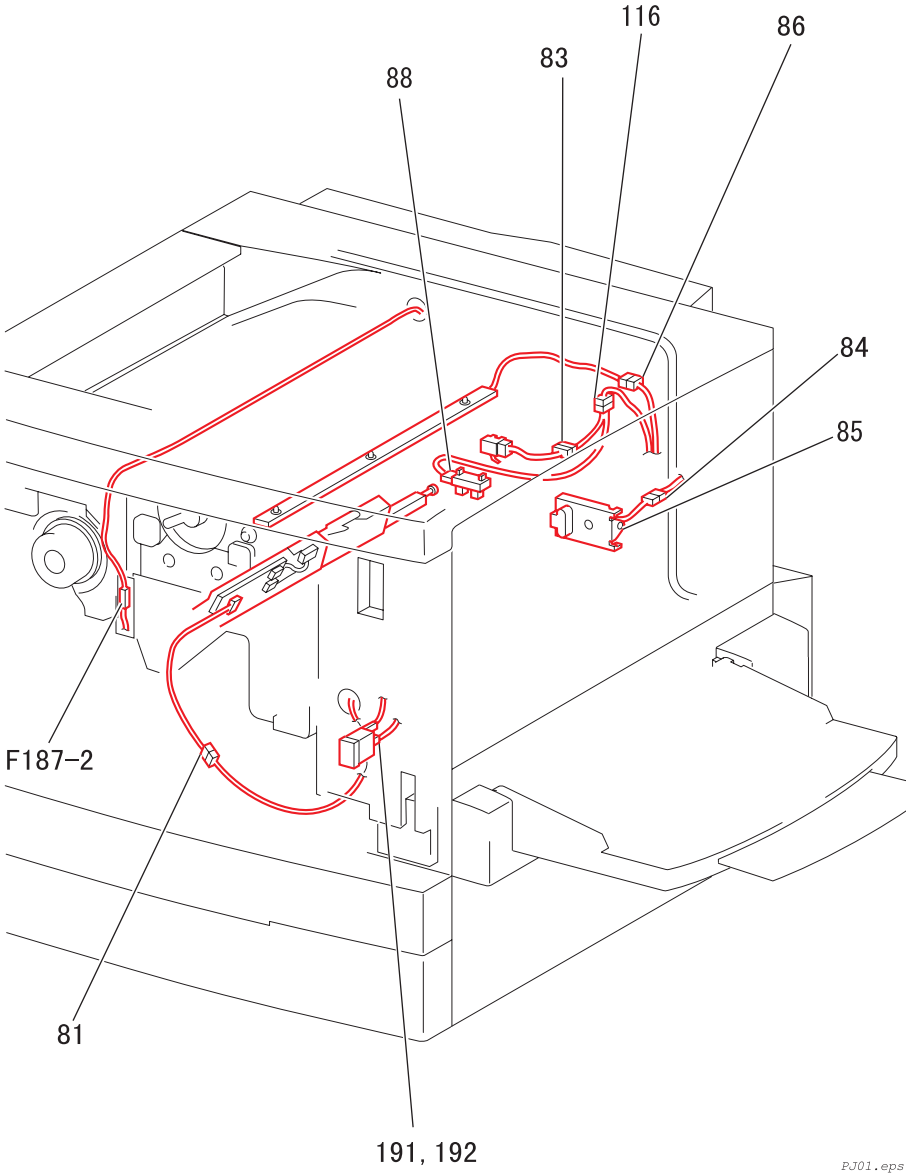


Figure 7-1. P/J Locations (1)

Table 7-2. P/J List (2)

P/J	Description
10	Not used
12	Connects MCU PWB and MAIN HARNESS ASSY
13	Connects MCU PWB and P/H HARNESS ASSY
14	Connects MCU PWB and ROS HARNESS
15	Connects MCU PWB and ROS HARNESS
16	Connects MCU PWB and MAIN HARNESS ASSY
17	Connects MCU PWB and MAIN HARNESS ASSY
18	Connects MCU PWB and MAIN HARNESS ASSY
19	Connects MCU PWB and MAIN HARNESS ASSY
20	Connects MCU PWB and P/H HARNESS ASSY
21	Connects MCU PWB and MAIN HARNESS ASSY
22	Connects MCU PWB and MAIN HARNESS ASSY
23	Connects MCU PWB and P/H HARNESS ASSY
24	Connects MCU PWB and MAIN HARNESS ASSY
63	Connects BTR CAM CLUTCH and MAIN HARNESS ASSY "P/J List (7) (p.463)"
91	Connects P/H HARNESS ASSY and REGI HARNESS ASSY
91A	Connects P/H HARNESS ASSY and REGI HARNESS ASSY
91B	Connects P/H HARNESS ASSY and REGI HARNESS ASSY
97	Connects MAIN HARNESS ASSY and P/H HARNESS ASSY
100	Connects BTR WHEEL SENSOR and P/H HARNESS ASSY
101	Connects MAIN HARNESS ASSY and TRAY N/P SENSOR HARNESS "P/J List (7) (p.463)"
103	Connects FEED SOLENOID and MAIN HARNESS ASSY
105	Connects ENVIRONMENT SENSOR and P/H HARNESS ASSY
106	Connects LOW PAPER SENSOR and TRAY N/P SENSOR HARNESS
107	Connects TRAY NO PAPER SENSOR and TRAY N/P SENSOR HARNESS
109	Connects TURN CHUTE SWITCH and TURN CHUTE HARNESS
144	Connects COMMUNICATION PWB and MAIN HARNESS ASSY
207	Connects REGI/MSI INTL SW and P/H HARNESS ASSY

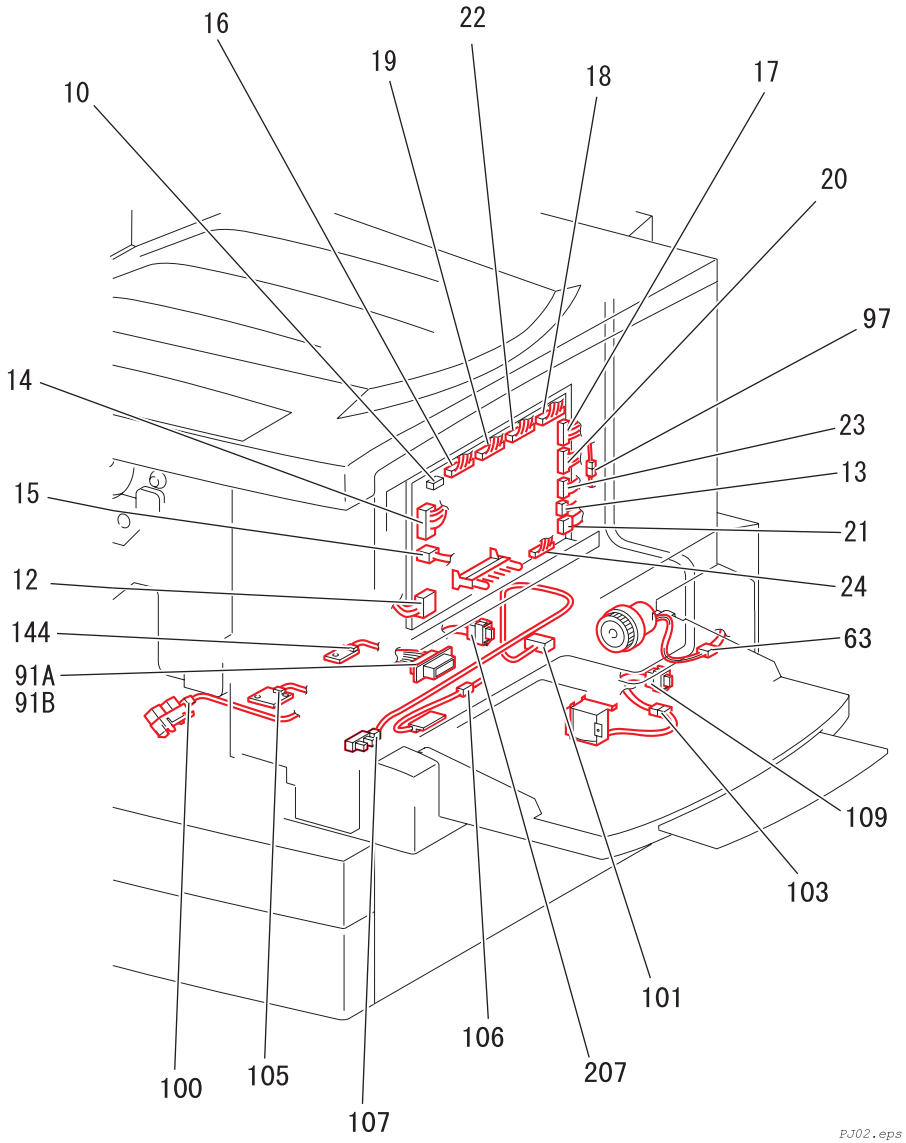
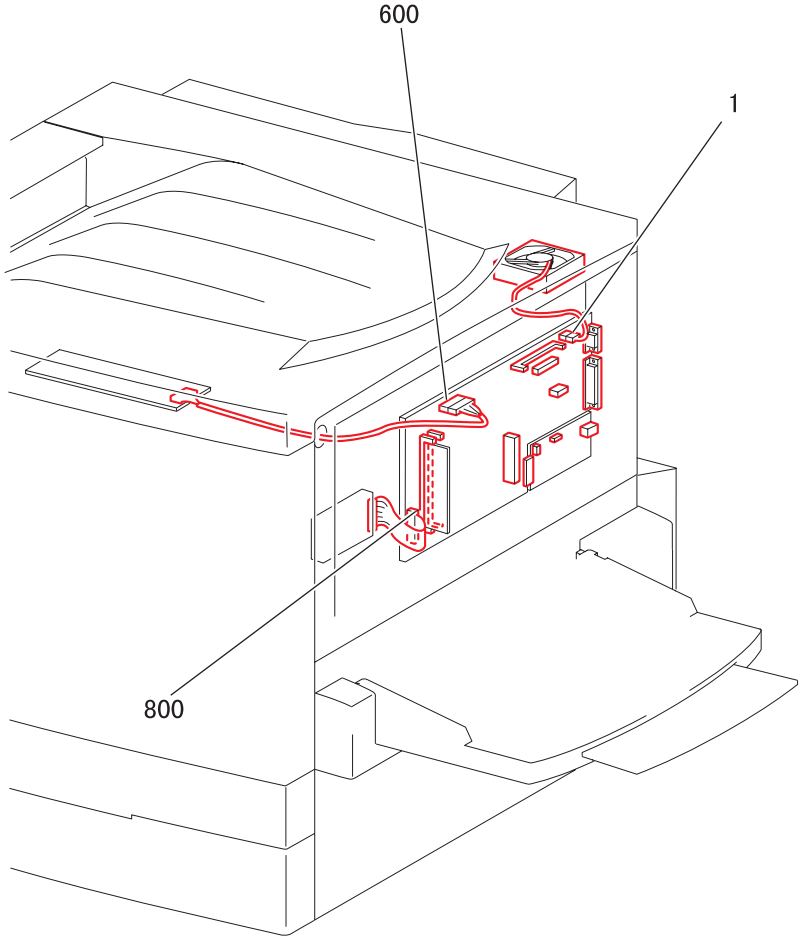


Figure 7-2. P/J Locations (2)

Table 7-3. P/J List (3)

P/J	Description
1	Exhaust Fan
600	Control Panel
800	HDD (Option: only for AcuLaser C8600)



PJ03.eps

Figure 7-3. P/J Locations (3)

Table 7-4. P/J List (4)

P/J	Description
93	Connects REGI. SENSOR and REGI HARNESS ASSY
94	Connects REGI. CLUTCH and REGI HARNESS ASSY
95	Connects PRE-REGI. CLUTCH and REGI HARNESS ASSY
98	Connects OHP SENSOR and REGI HARNESS ASSY
203	Connects EMPTY SENSOR and MSI HARNESS ASSY
204	Connects PITCH SENSOR and MSI HARNESS ASSY
205	Connects MSI HARNESS ASSY and MSI TRAY HARNESS
206	Connects MSI GUIDE SWITCH and MSI TRAY HARNESS
208	Connects LIFT MOTOR ASSY and REGI HARNESS ASSY
209	Connects LEVEL SENSOR and MSI HARNESS ASSY
210	Connects BOTTOM PLATE SENSOR and MSI HARNESS ASSY

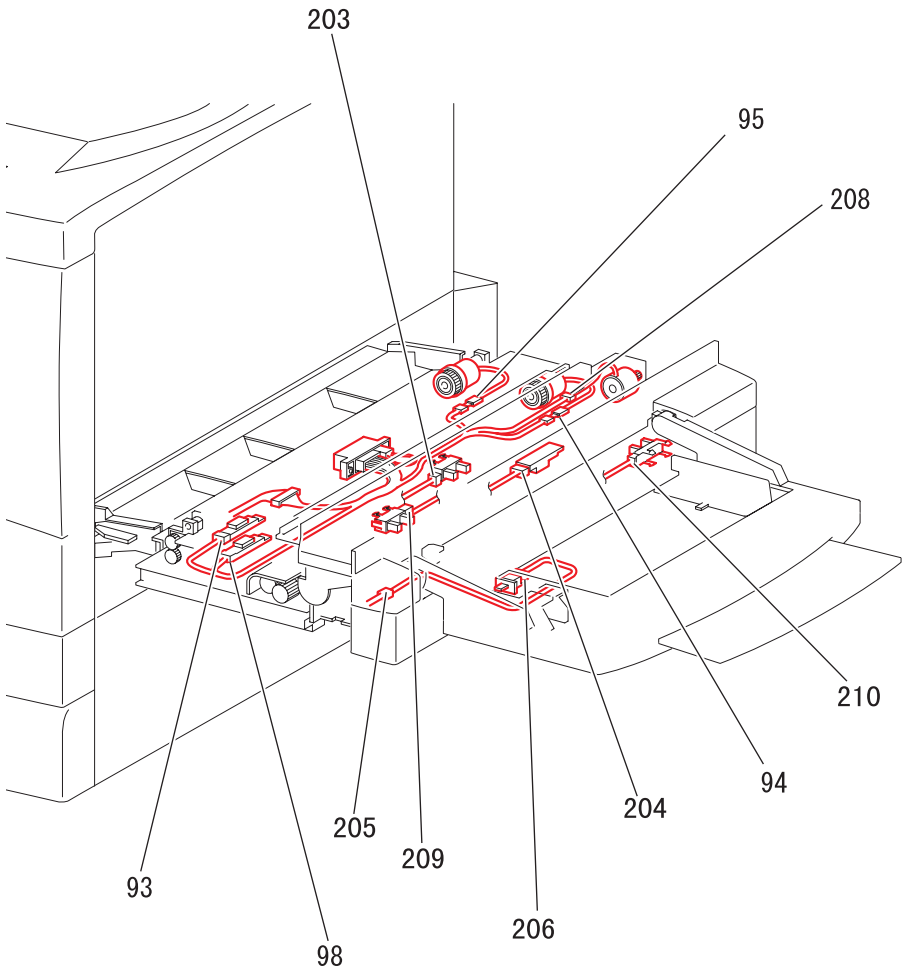


Figure 7-4. P/J Locations (4)

Table 7-5. P/J List (5)

P/J	Description
57	Connects TR0 SENSOR and TR0 HARNESS
87	Connects CARTRIDGE SENSOR and MAIN HARNESS ASSY
121	Connects LDD PWB and ROS HARNESS
122	Connects LDD PWB and MAIN HARNESS ASSY
123	Connects Motor Polygon and ROS HARNESS
124	Connects SOS PWB and ROS HARNESS
125	Connects LDD PWB and ROS HARNESS
198	Connects FRONT COVER SWITCH L and MAIN HARNESS ASSY
199	Connects FRONT COVER SWITCH L and MAIN HARNESS ASSY
F187-1	Connects BCR CONNECTOR ASSY and BCR WIRE
T3	Connects IBT REAR BRACKET and 1ST BTR PLATE WIRE
T4	Connects IBT REAR BRACKET and CONTACT PLATE

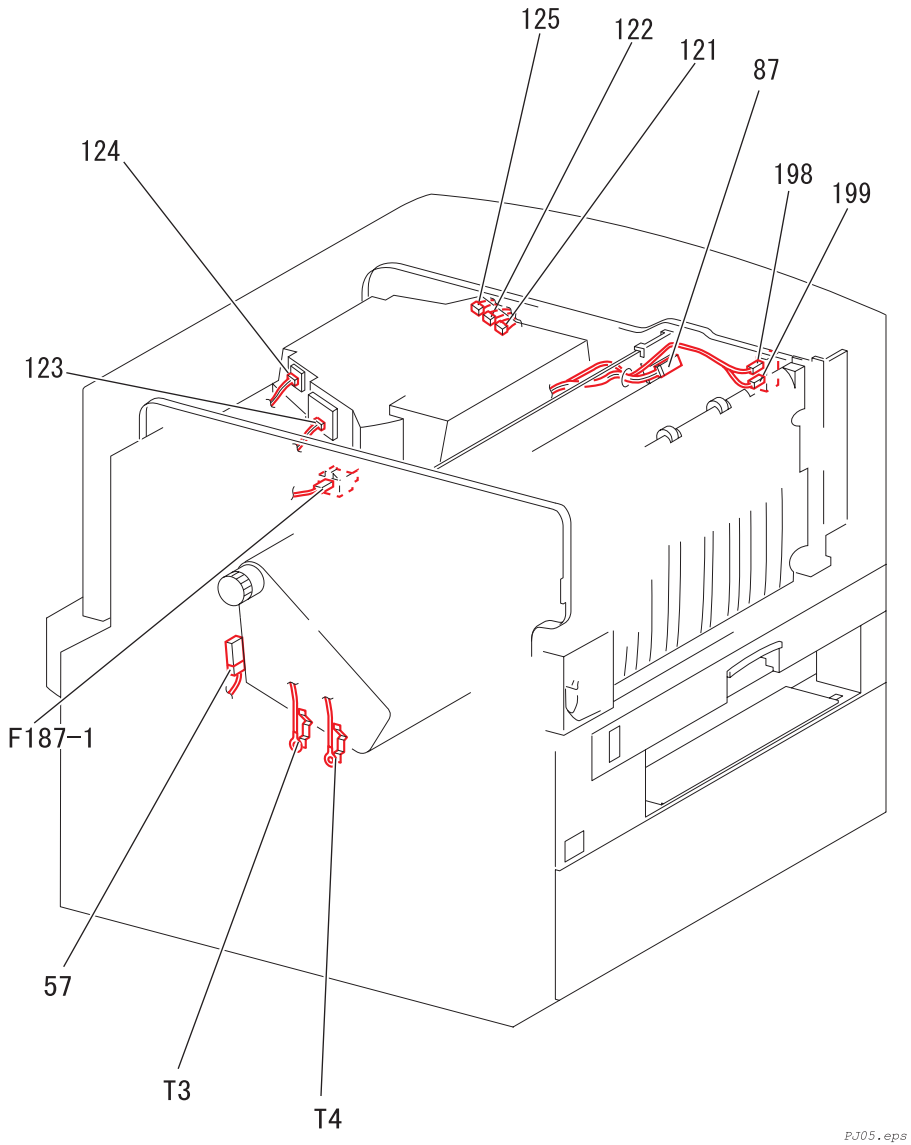


Figure 7-5. P/J Locations (5)

Table 7-6. P/J List (6)

P/J	Description
31	Connects LV/HV POWER SUPLLY and AC SW HARNESS ASSY
32	Connects LV/HV POWER SUPLLY and MAIN HARNESS ASSY
33	Connects LV/HV POWER SUPLLY and MAIN HARNESS ASSY
34	Connects LV/HV POWER SUPLLY and FUSER CONNECTOR
35	Not used
42	Connects LV/HV POWER SUPLLY and MAIN HARNESS ASSY
43	Connects P/H MOTOR ASSY and MAIN HARNESS ASSY
45	Connects MAG MOTOR ASSY and MAIN HARNESS ASSY
49	Connects P/H MOTOR ASSY and MAIN HARNESS ASSY
50	Connects P/H MOTOR ASSY and MAIN HARNESS ASSY
51	Connects P/R MOT&DRV ASSY and MAIN HARNESS ASSY
52	Connects P/R MOT&DRV ASSY and MAIN HARNESS ASSY
53	Connects P/H MOTOR ASSY and MAIN HARNESS ASSY
60	Connects MAG MOTOR ASSY and MAIN HARNESS ASSY
82	Connects DEVE. FAN and MAIN HARNESS ASSY
132	Connects MAIN HARNESS ASSY and Option Feeder
211	Connects MSI HARNESS ASSY and FEEDER HARNESS
245	Connects ROTARY MOTOR DRIVE PWB and MSI HARNESS ASSY
246	Connects ROTARY MOTOR DRIVE PWB and MSI HARNESS ASSY
247	Connects ROTARY MOTOR DRIVE PWB and ROTARY MOTOR ASSY
A	Connects LV/HV POWER SUPLLY and BCR WIRE
C	Connects LV/HV POWER SUPLLY and DEVE. WIRE
D	Connects LV/HV POWER SUPLLY and 1ST BTR WIRE
F	Connects LV/HV POWER SUPLLY and CONTACT ROLL WIRE

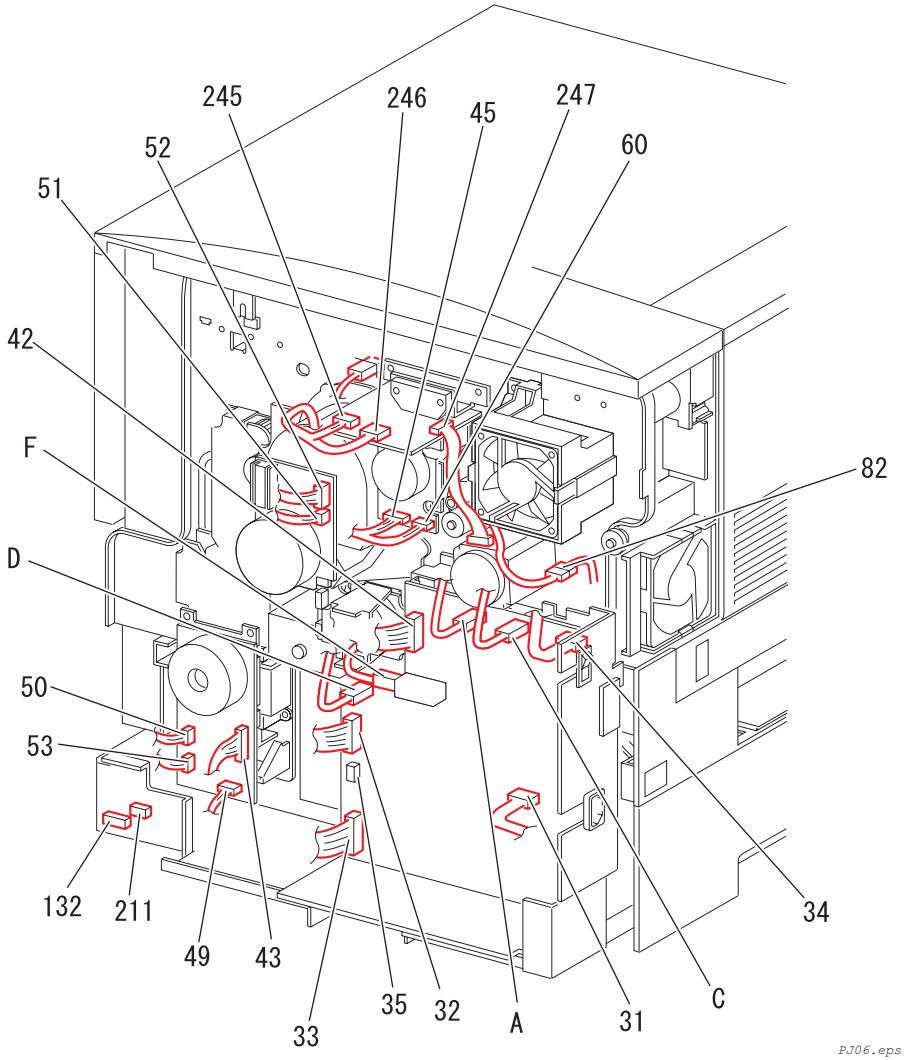


Figure 7-6. P/J Locations (6)

Table 7-7. P/J List (7)

P/J	Description
44	Connects FUSER MOTOR ASSY and MAIN HARNESS ASSY
46	Connects PRO MOTOR ASSY and MAIN HARNESS ASSY
55	Connects DISPENSE MOTOR ASSY and MAIN HARNESS ASSY
58	Connects ROTARY SENSOR and MAIN HARNESS ASSY
59	Connects FUSER MOTOR ASSY and MAIN HARNESS ASSY
61	Connects PRO MOTOR ASSY and MAIN HARNESS ASSY
63	Connects BTR CAM CLUTCH and MAIN HARNESS ASSY "P/J List (2) (p.458)"
70	Connects FUSER CONNECTOR and MAIN HARNESS ASSY
101	Connects MAIN HARNESS ASSY and TRAY N/P SENSOR HARNESS "P/J List (2) (p.458)"
102	Connects SIZE SWITCH ASSY and MAIN HARNESS ASSY
148	Connects MAIN HARNESS ASSY and LOWER INV SOLENOID
134A	Connects MAIN HARNESS ASSY and Option Duplex
134B	Connects MAIN HARNESS ASSY and Option Duplex

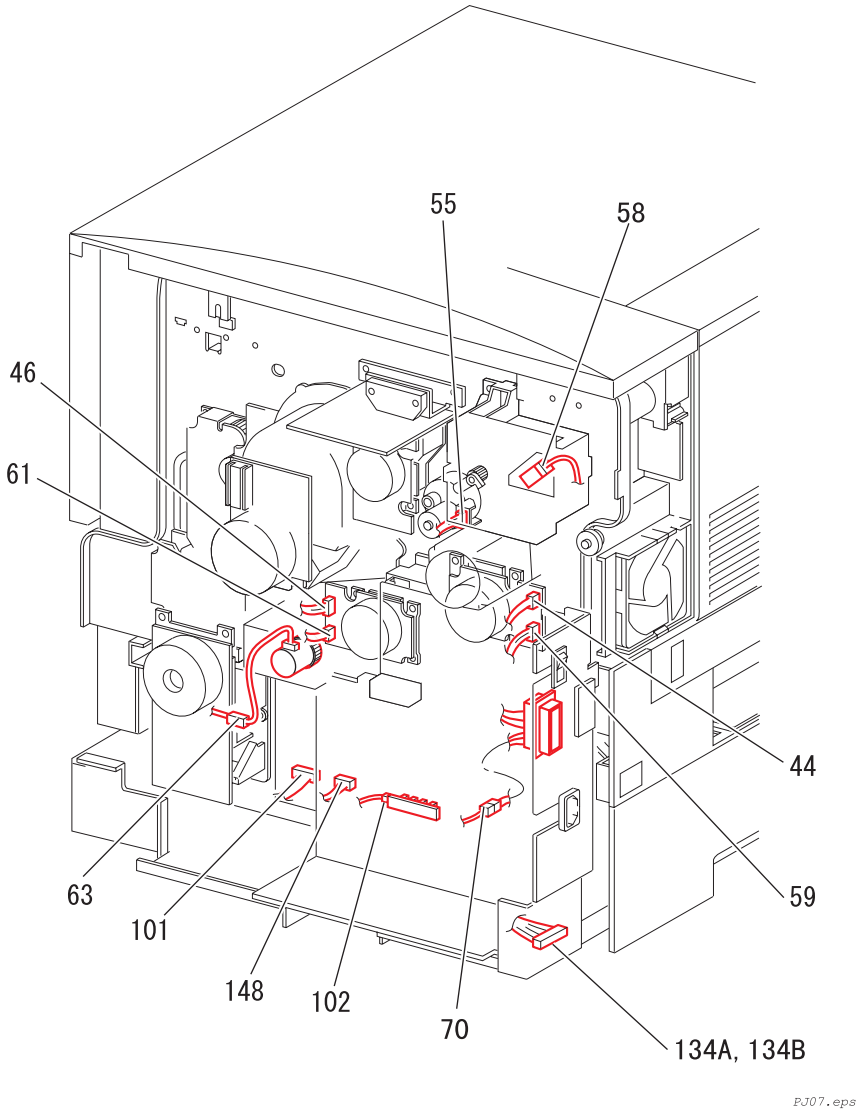


Figure 7-7. P/J Locations (7)

Table 7-8. P/J List (8)

P/J	Description
62	Connects CLEANER CAM SOLENOID and FUSER HARNESS ASSY
62A	Connector inside FUSER HARNESS ASSY
71	Connects FUSER CONNECTOR and FUSER HARNESS ASSY
71A	Connects MAIN HARNESS ASSY and FUSER HARNESS ASSY
71B	Connects MAIN HARNESS ASSY and FUSER HARNESS ASSY
72	"Connects FUSER EXIT SENSOR-1,FUSER EXIT SENSOR-2, TEMP. SENSOR ASSY and FUSER HARNESS ASSY"
74	Connects EXCHANGE SOLENOID and FUSER HARNESS ASSY
75	Connects MAIN HARNESS ASSY and Option Duplex
76	Connects FUSER HARNESS ASSY and FUSER IN HARNESS
76A	Connector inside FUSER HARNESS ASSY
79	Connects FUSER HARNESS ASSY and HEATER WIRE
80	Connects FUSER CHUTE FAN and FUSER HARNESS ASSY
111	Connects FUSER FAN-1 and MAIN HARNESS ASSY
111A	Connector inside MAIN HARNESS ASSY
112	Connects EXIT CHUTE FAN and EXIT HARNESS
112A	Connector inside EXIT HARNESS
117	Connects FUSER IN SENSOR and FUSER IN HARNESS
161	Connects MAIN HARNESS ASSY and EXIT HARNESS
162	Connects EXIT PWB ASSY and MAIN HARNESS ASSY
CN1	Connects EXIT PWB ASSY and EXIT MOTOR ASSY
F250	Connects P/R HEATER and H/R HEATER
T1	Connects H/R HEATER and HEATER WIRE
T2	Connects P/R HEATER and HEATER WIRE

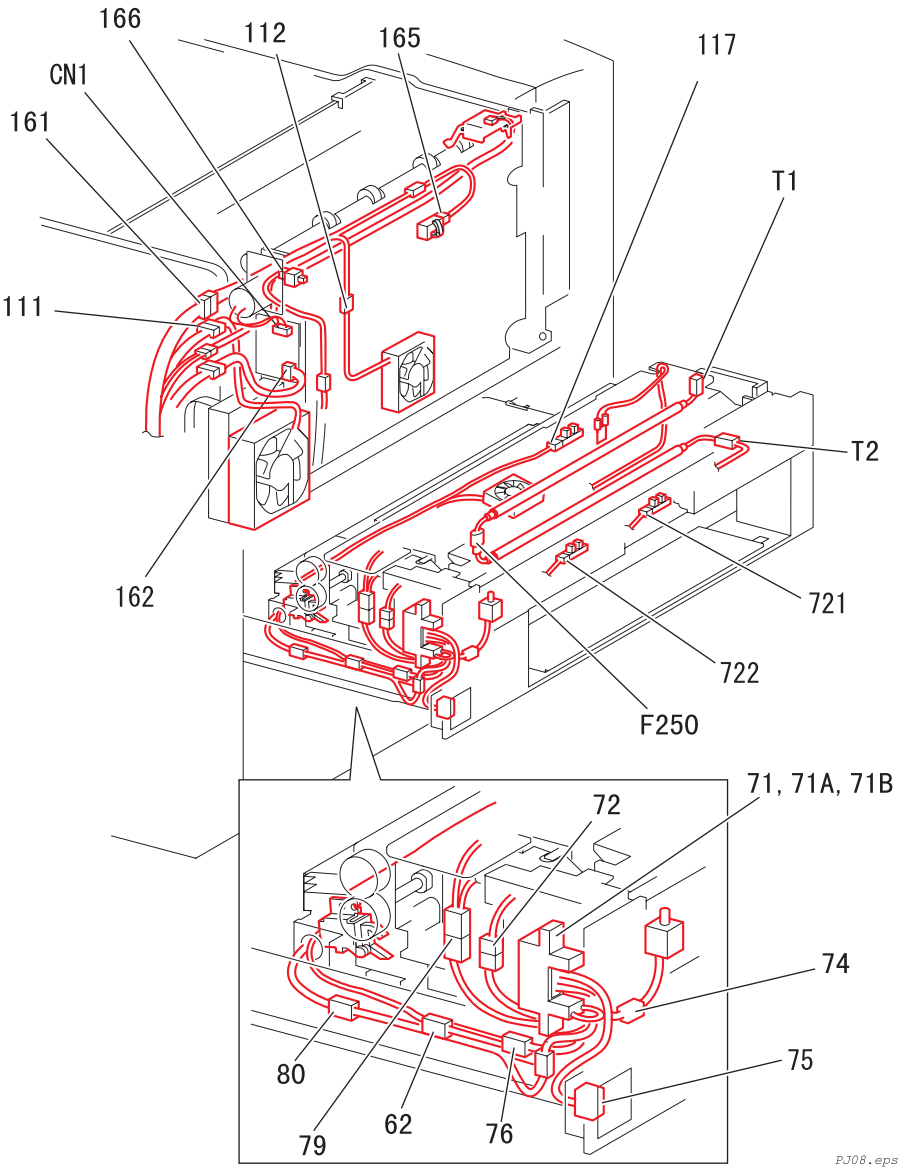
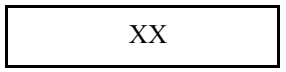
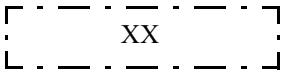
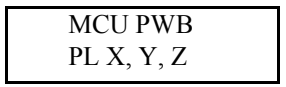
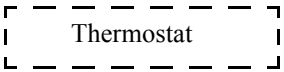
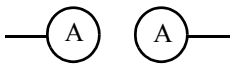
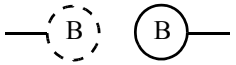


Figure 7-8. P/J Locations (8)

7.2 Wiring Diagrams and Signal Information

7.2.1 Overall Wiring Connection Diagram

Table 7-9. Symbols Used in the Overall Wiring Connection Diagrams

Symbols	Description
	Indicates connection of parts by HARNESS, wire, etc.
	Indicates connection of parts by a conductor such as leaf spring.
	A box with no part name inside indicates a path by a connector (P/J) or screw. A number inside the box indicates connector number.
	Indicates a connector (P/J) written across several locations. The number inside the box indicates connector number.
	Boxes with part names inside indicate those parts. The part name shown here indicates item Z of plate (PL) XY in "7.7 ASP List (Parts List)" (*p.554*).
	Indicates functional element inside part.
	Indicates a section in "7.1.1 P/J Location Drawings" (*p.457*). The number inside indicates the section number.
	Indicates that "A" and "A" are connected within the same section.
	Indicates that "B" and "B" are connected in different sections. Indicates that information concerning the connections is given in the section with the solid line circle in "7.1.1 P/J Location Drawings" (*p.457*).

NOTE: *DEVELOPER ASSY Y, DEVELOPER ASSY M, DEVELOPER ASSY C, and DEVELOPER ASSY BK are hereinafter referred to by the generic term "DEVELOPER ASSY".*

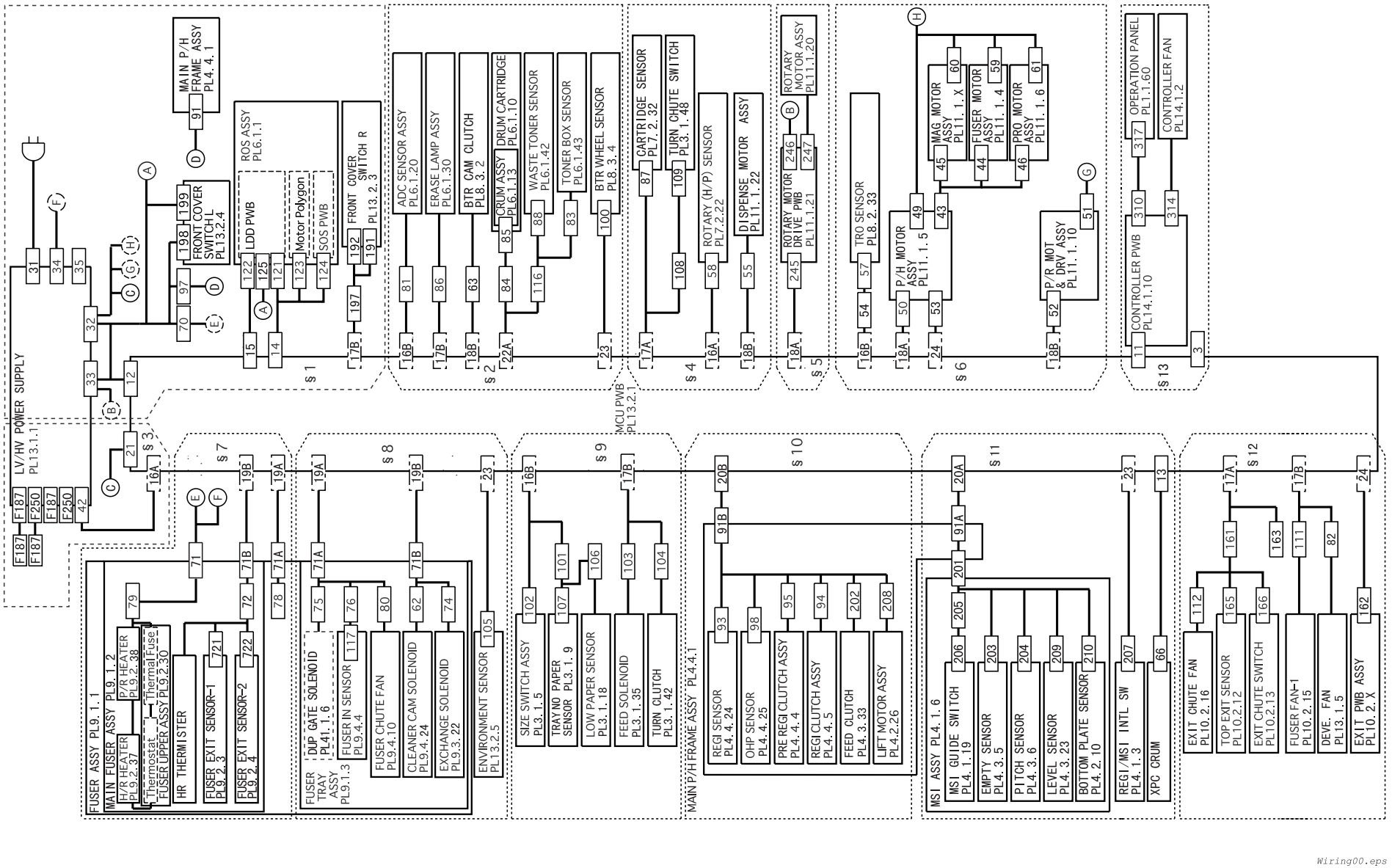


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Figure 7-9. Overall Wiring Connection Diagram

7.2.2 Wiring and Signal Descriptions between Components

7.2.2.1 Configuration

Wiring connection diagrams are divided into 12 sections and provide details concerning connections between parts.

§1. MCU PWB, LV/HV POWER SUPPLY, ROS ASSY, FUSER ASSY, MAIN P/H FRAME ASSY, FRONT COVER SWITCH L, FRONT COVER SWITCH R (p. 470)

- Connects MCU PWB and LV/HV POWER SUPPLY
- Connects MCU PWB and ROS ASSY
- Connects MCU PWB and FRONT COVER SWITCH R
- Connects LV/HV POWER SUPPLY and FUSER ASSY
- Connects LV/HV POWER SUPPLY and MAIN P/H ASSY
- Connects LV/HV POWER SUPPLY and FRONT COVER SWITCH L
- Connects LV/HV POWER SUPPLY and FRONT COVER SWITCH R
- Connects LV/HV POWER SUPPLY and ROS ASSY

§2. MCU PWB, ADC SENSOR ASSY, ERASE LAMP ASSY,BTR CAM CLUTCH,CRUM ASSY, WASTE TONER SENSOR,TONER BOX SENSOR, BTR WHEEL SENSOR (p. 472)

- Connects MCU PWB and ADC SENSOR ASSY
- Connects MCU PWB and ERASE LAMP ASSY
- Connects MCU PWB and BTR CAM CLUTCH
- Connects MCU PWB and CRUM ASSY
- Connects MCU PWB and WASTE TONER SENSOR
- Connects MCU PWB and TONER BOX SENSOR
- Connects MCU PWB and BTR WHEEL SENSOR

§3. MCU PWB, LV/HV POWER SUPPLY (p. 474)

- Connects MCU PWB and LV/HV POWER SUPPLY

§4. MCU PWB, TURN CHUTE SWITCH, CARTRIDGE SENSOR, ROTARY SENSOR, DESPENSE MOTOR ASSY (p. 475)

- Connects MCU PWB and TURN CHUTE SWITCH
- Connects MCU PWB and CARTRIDGE SENSOR
- Connects MCU PWB and ROTARY SENSOR
- Connects MCU PWB and DISPENSE MOTOR ASSY

§5. MCU PWB, LV/HV POWER SUPPLY, ROTARY MOTOR DRIVE PWB, ROTARY MOTOR ASSY (p. 476)

- Connects MCU PWB and ROTARY MOTOR DRIVE PWB
- Connects LV/HV POWER SUPPLY and ROTARY MOTOR DRIVE PWB
- Connects ROTARY MOTOR DRIVE PWB and ROTARY MOTOR ASSY

§6. MCU PWB, LV/HV POWER SUPPLY, TR0 SENSOR, DRIVE MOTOR PWB, P/R MOT & DRV ASSY, FUSER MOTOR ASSY, P/H MOTOR ASSY, MAG MOTOR ASSY, PRO MOTOR ASSY (p. 477)

- Connects MCU PWB and TR0 SENSOR
- Connects MCU PWB and DRIVE MOTOR PWB
- Connects MCU PWB and PROCESS DRIVE ASSY
- Connects LV/HV POWER SUPPLY and FUSER MOTOR PWB
- Connects LV/HV POWER SUPPLY and P/H MOTOR ASSY
- Connects LV/HV POWER SUPPLY and MAG MOTOR ASSY
- Connects LV/HV POWER SUPPLY and PRO MOTOR ASSY
- Connects DRIVE MOTOR PWB and FUSER MOTOR ASSY
- Connects DRIVE MOTOR PWB and P/H MOTOR ASSY
- Connects DRIVE MOTOR PWB and MAG MOTOR ASSY
- Connects DRIVE MOTOR PWB and PRO MOTOR ASSY

§7. MCU PWB, LV/HV POWER SUPPLY, MAIN FUSER ASSY (p. 479)

- Connects LV/HV POWER SUPPLY and MAIN FUSER ASSY
- Connects MCU PWB and MAIN FUSER ASSY

§8. MCU PWB, FUSER TRAY ASSY, ENVIRONMENT SENSOR (p. 481)

- Connects MCU PWB and FUSER TRAY ASSY
- Connects MCU PWB and ENVIRONMENT SENSOR

§9. MCU PWB, SIZE SWITCH ASSY,TRAY N/P SENSOR, LOW PAPER SENSOR, FEED SOLENOID, TURN CLUTCH (p. 483)

- Connects MCU PWB and SIZE SWITCH ASSY
- Connects MCU PWB and TRAY NO PAPER SENSOR
- Connects MCU PWB and LOW PAPER SENSOR
- Connects MCU PWB and FEED SOLENOID
- Connects MCU PWB and TURN CLUTCH

§10. MCU PWB, MAIN P/H FRAME ASSY (p. 485)

- Connects MCU PWB and MAIN P/H FRAME ASSY

§11. MCU PWB, MAIN P/H FRAME ASSY, MSI ASSY, REGI/MSI INTL SW, XPC CRUM (p. 486)

- Connects MCU PWB and MAIN P/H FRAME ASSY
- Connects MAIN P/H FRAME ASSY and MSI ASSY
- Connects MCU PWB and REGI./MSI INTL SW
- Connects MCU PWB and XPC CRUM

§12. MCU PWB, FULL STACK SENSOR, TOP EXIT SENSOR, EXIT CHUTE SWITCH, EXIT CHUTE FAN, FUSER FAN-1, DEVE. FAN, EXIT PWB ASSY (p. 487)

- Connects MCU PWB and TOP EXIT SENSOR
- Connects MCU PWB and FULL STACK SENSOR
- Connects MCU PWB and EXIT CHUTE SWITCH
- Connects MCU PWB and EXIT CHUTE FAN
- Connects MCU PWB and FUSER FAN-1
- Connects MCU PWB and DEVE. FAN
- Connects MCU PWB and EXIT PWB ASSY

§13. MCU PWB, CONTROLLER PWB, OPERATION PANEL, CONTROLLER FAN (p. 488)

- Connects MCU PWB and CONTROLLER PWB
- Connects CONTROLLER PWB and OPERATION PANEL
- Connects CONTROLLER PWB and CONTROLLER FAN

7.2.2.2 Notation on the Diagrams for the Wiring and Signal Descriptions between Components

The symbols used in the wiring connection diagrams for parts on the following pages are as follows. (Explanations of commonly used symbols are omitted.)

Table 7-10. Symbols Used in the Wiring Connection Diagrams

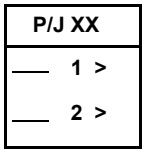
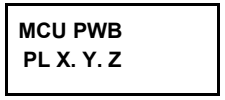
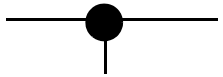
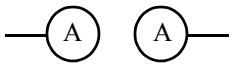
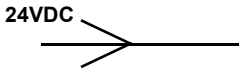
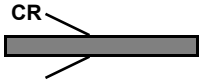
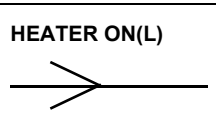
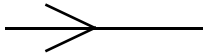
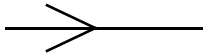
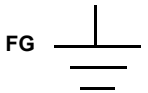
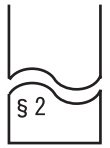
Symbol	Description
	Indicates connector. Connector number is given above and pin number is given below. Indicates plug side of connector. Indicates jack side of connector.
	Boxes with part names inside indicate those parts. The part name shown here indicates item Z of plate (PL) XY in "7.7 ASP List (Parts List)" (*p.554*)
	Represents a functional part of a component, with its name shown inside.
	Represents connection between wires.
	Indicates screw connection. Terminal (connector) number is given in parentheses.
	Indicates that "A" and "A" are connected.
	Indicates part connected by harness, wire, etc. Also indicates signal wire name and details. Arrows on the line indicate signal direction.
	Indicates connection between parts by conductor such as leaf spring. Also indicates signal wire name and details. Arrows on the line indicate signal direction.
	Indicates function and signal theoretical value (Low: L, High: H) when operating. Also indicates voltage when signal is "High."

Table 7-10. Symbols Used in the Wiring Connection Diagrams (continued)

Symbol	Description
	Indicates function and signal theoretical value (Low: L, High: H) when function is detected. Also indicates voltage when signal is "High".
	Indicates function and signal theoretical value (Low: L, High: H) when switch is on. Also indicates voltage when signal is "High".
24VDC	Indicates voltage measurement when the negative side of the DC power is connected to the corresponding ground (SG, AG or RTN).
SG	Indicates signal ground.
AG	Indicates analog ground.
	Indicates frame ground.
RTN	Indicates return.
	Indicates a single connector drawing divided into a different section or the same section. The other section is indicated at the bottom.
□	Indicates reference concerning that section.

7.2.2.3 §1. MCU PWB, LV/HV POWER SUPPLY, ROS ASSY, FUSER ASSY, MAIN P/H FRAME ASSY, FRONT COVER SWITCH L, FRONT COVER SWITCH R

Table 7-11. §Signal Description - 1

Signal line	Description
HEATER ON(L) 5VDC	Control signal for P/R HEATER and H/R HEATER on/off.
24VDC-I/L	Detection of interlock connector, interlock switches, and the LV/HV POWER SUPPLY relay control signal.
5VDC-LD	Supply voltage of the LD ASSY of the ROS ASSY.
SOS	Scanning start reference signal based on input of light to SOS SENSOR of laser beam SOS PWB.
VREF	Reference voltage for target value for laser power.
LD ENB	Control signal for LD on-enable / force off. (High: Force off, Low: On enable)
SCANNER MOTOR ON(L) 5VDC	On/off control signal for scanner motor of ROS ASSY.
PCONT	Mode control signal for LD power control (APC). (Low: Sample mode, High: Hold mode)
VDATA	Pixel data signal that effects LD emission. (High: LD on, Low: LD off)
FRONT COVER SWITCH ON(L) 5VDC	FRONT COVER open (off) / closed (on) detection signal by FRONT COVER SWITCH L.

- LV/HV POWER SUPPLY excess current protection circuit
  All output is shut off when 24VDC/5VDC supply voltage is shorted. After restoring the short, reset the printer by turning the power off and then, after waiting 5 minutes, back on.
- LV/HV POWER SUPPLY excess voltage protection circuit
  All output is shut off when 24VDC/5VDC supply voltage is shorted. The operation point at this time is 7VDC or less for 5VDC, and 27 - 36VDC for 24VDC (reference). Reset the printer by turning the power off and then, after waiting 5 minutes, back on.
- Output interruption by FRONT COVER SWITCH R
  When FRONT COVER SWITCH R trips, the “24VDC-I/L” circuit is interrupted, shutting off 24VDC power supply to the MCU PWB and 5VDC-LD power supply to the ROS ASSY (LD ASSY).
  When FRONT COVER SWITCH R is on, 24VDC-I/L is supplied to the LV/HV POWER SUPPLY relay circuit, and 24VDC and 5VDC-LD is output by the LV/HV POWER SUPPLY. FRONT COVER SWITCH R is also the interlock SWITCH for the 5VDC-LD circuit.

- **FRONT COVER SWITCH R are interlock switches for laser radiation. To avoid exposure to laser radiation, never turn on both of these two interlock switches simultaneously (except during regular operations) or short the circuit to effect laser emission. Exposure to laser radiation could result in blindness.**
- **Be sure to follow the procedures described in this Service Manual for tasks requiring the printer operation during servicing.**

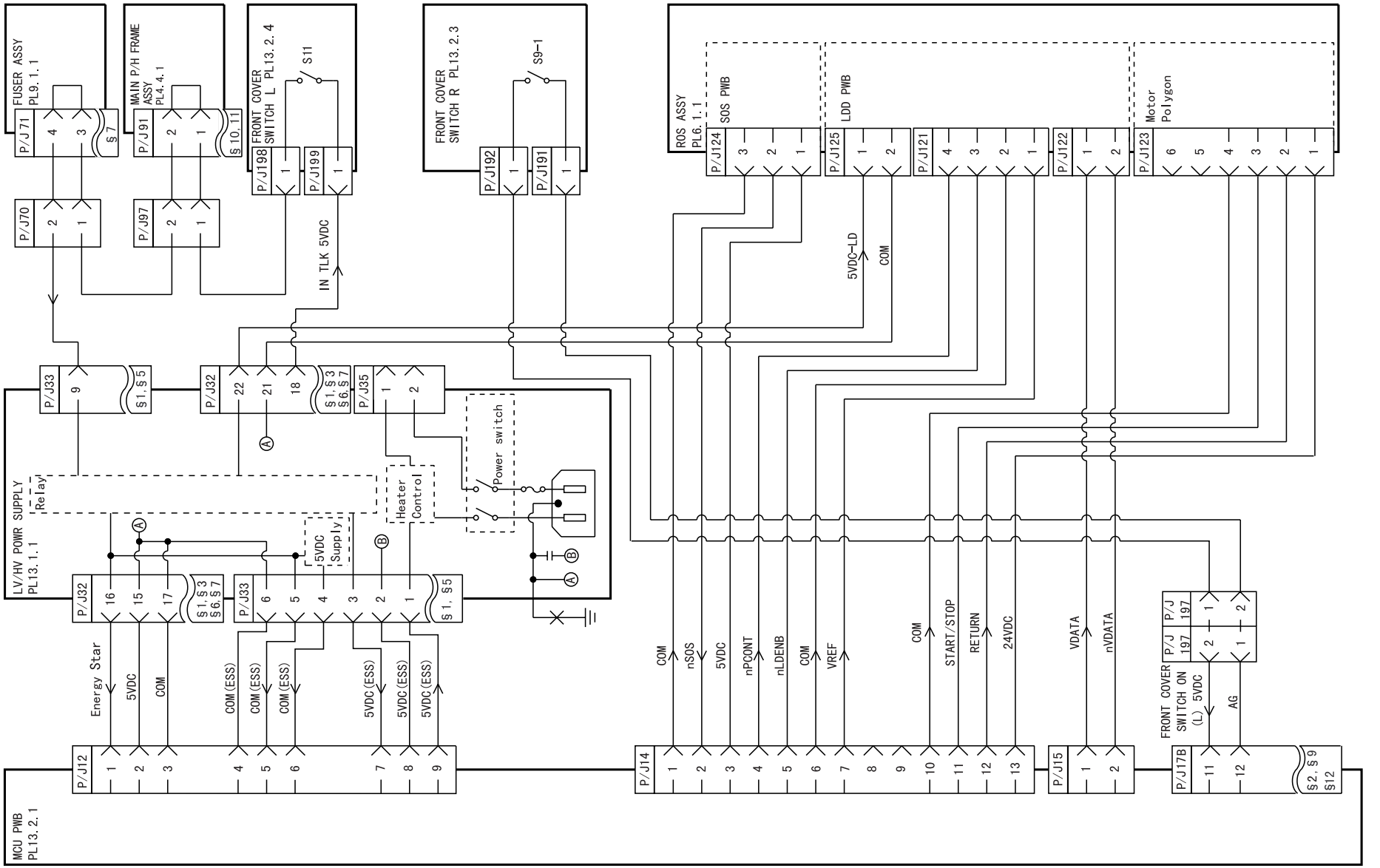


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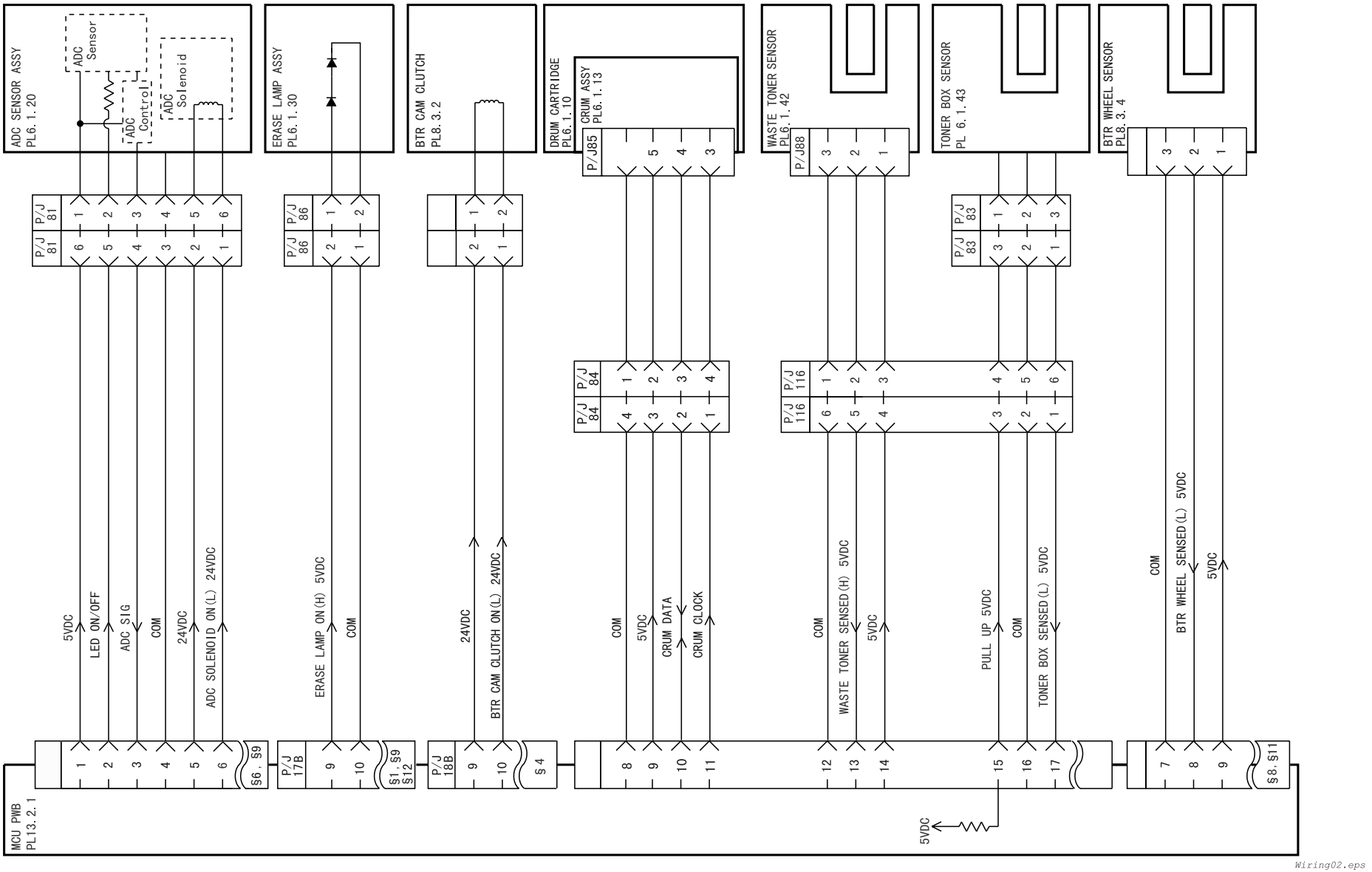
Figure 7-10. § Connection Diagram - 1

7.2.2.4 §2. MCU PWB, ADC SENSOR ASSY, ERASE LAMP ASSY,BTR CAM CLUTCH,CRUM ASSY, WASTE TONER SENSOR,TONER BOX SENSOR, BTR WHEEL SENSOR

Table 7-12. §Signal Description - 2

Signal line	Description
LED ON(L) 5VDC	Control signal for LED on/off in ADC SENSOR of ADC SENSOR ASSY.
ADC SIG	Measurement signal issued by the ADC SENSOR of ADC SENSOR ASSY. (Analog value)
ADC SOLENOID ON(L) 24VDC	On/off control signal for ADC solenoid of ADC SENSOR ASSY.
ERASE LAMP ON(H) 5VDC	Control signal for LED on/off in ERASE LAMP ASSY.
BTR CAM CLUTCH ON(L) 24VDC	On/off control signal for BTR CAM CLUTCH
WASTE TONER SENSED(H) 5VDC	WASTE TONER BOX full detection signal issued by the WASTE TONER SENSOR.
TONER BOX SENSED(L) 5VDC	Waste toner box present (Low) / not present (High) detection signal issued by the TONER BOX SENSOR.
CRUM DATA	Write and read data for CRUM ASSY of DRUM CARTRIDGE.
CRUM CLOCK	Clock signal for CRUM ASSY of DRUM CARTRIDGE.

- ADC SIG signal
  Measurement value for normal drum surface with no toner image should be approximately 3.5 ± 0.1VDC.
- ADC solenoid coil resistance: 36Ω ±10% (20°C)



Wiring02.eps

Figure 7-11. § Connection Diagram - 2

7.2.2.5 §3. MCU PWB, LV/HV POWER SUPPLY

Table 7-13. §Signal Description - 3

Signal line	Description
DTS ON(L) 24VDC	On/off control signal for DTS output.
2BTR I MONI	Current monitor signal for 2ND BTR output. (Analog value)
2BTR CONT	Output control signal for 2ND BTR output. (Analog value)
2BTR ON(L) 24VDC	On/off control signal for 2ND BTR output.
1BTR I MONI	Voltage monitor signal for 1ST BTR output. (Analog value)
1BTR CONT	Output control signal for 1ST BTR output. (Analog value)
1BTR ON(L) 24VDC	On/off control signal for 1ST BTR output.
DB DC CONT	Output control signal for DB output (DC element). (Analog value)
DB AC ON(L) 24VDC	On/off control signal for DB output (AC element).
DB DC ON(L) 24VDC	On/off control signal for DB output (DC element).
BCR DC CONT	Output control signal for BCR output (DC element). (Analog value)
BCR ON(L) 24VDC	On/off control signal for BCR output.

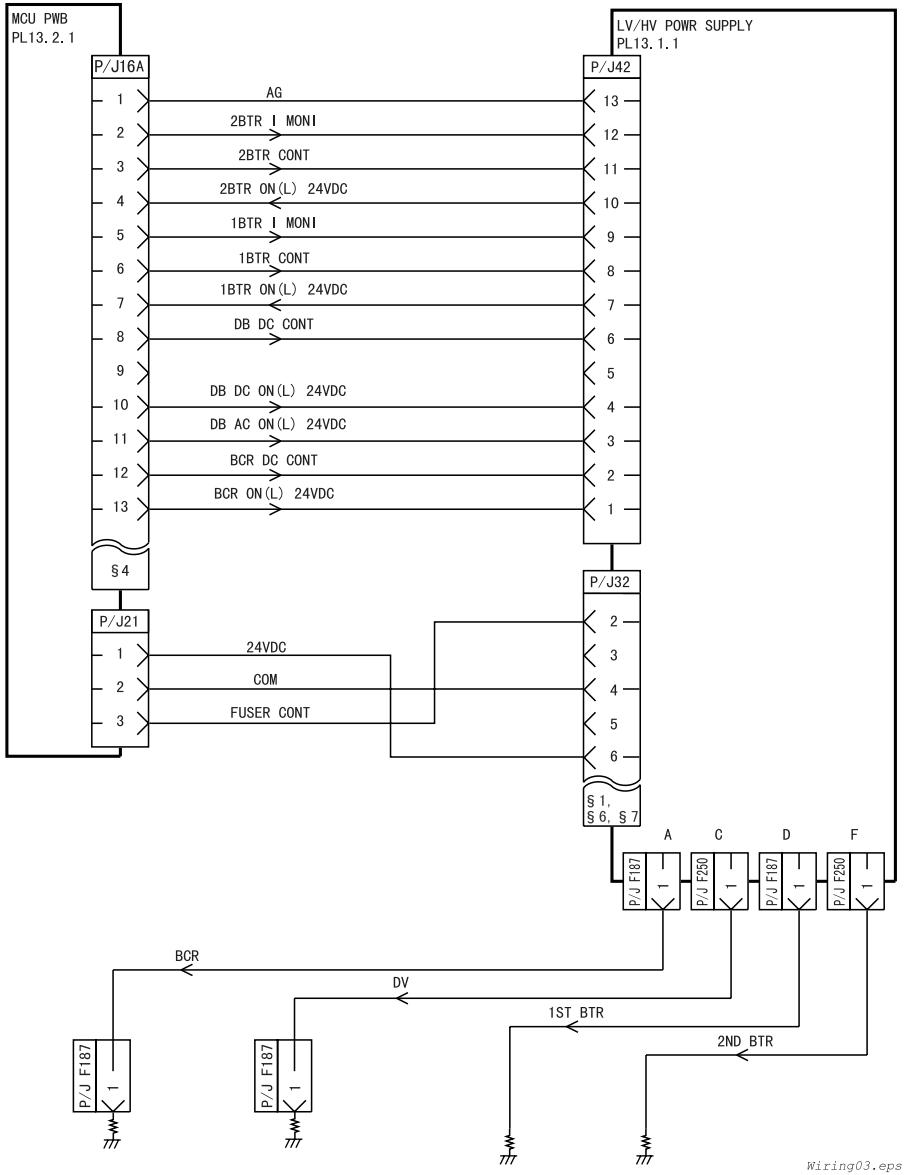


Figure 7-12. § Connection Diagram - 3

7.2.2.6 §4. MCU PWB, TURN CHUTE SWITCH, CARTRIDGE SENSOR, ROTARY SENSOR, DESPENSE MOTOR ASSY

Table 7-14. §Signal Description - 4

Signal line	Description
SENSOR ON(H) 5VDC	Sensor power ON (High) / OFF (Low) signal for USED CART. SENSOR and CARTRIDGE SENSOR.
CARTRIDGE SENSED(L) 5VDC	Toner cartridge present (Low) / not present (High) detection signal issued by the CARTRIDGE SENSOR.
ROTARY SENSED(H) 5VDC	ROTARY FRAME ASSY protrusion detection signal issued by the ROTARY SENSOR.
DISPENSE MOT ON(L) 24VDC	On/off control signal for DISPENSE MOTOR ASSY.

☐ DISPENSE MOTOR coil resistance:172Ω ± 10% (20°C)

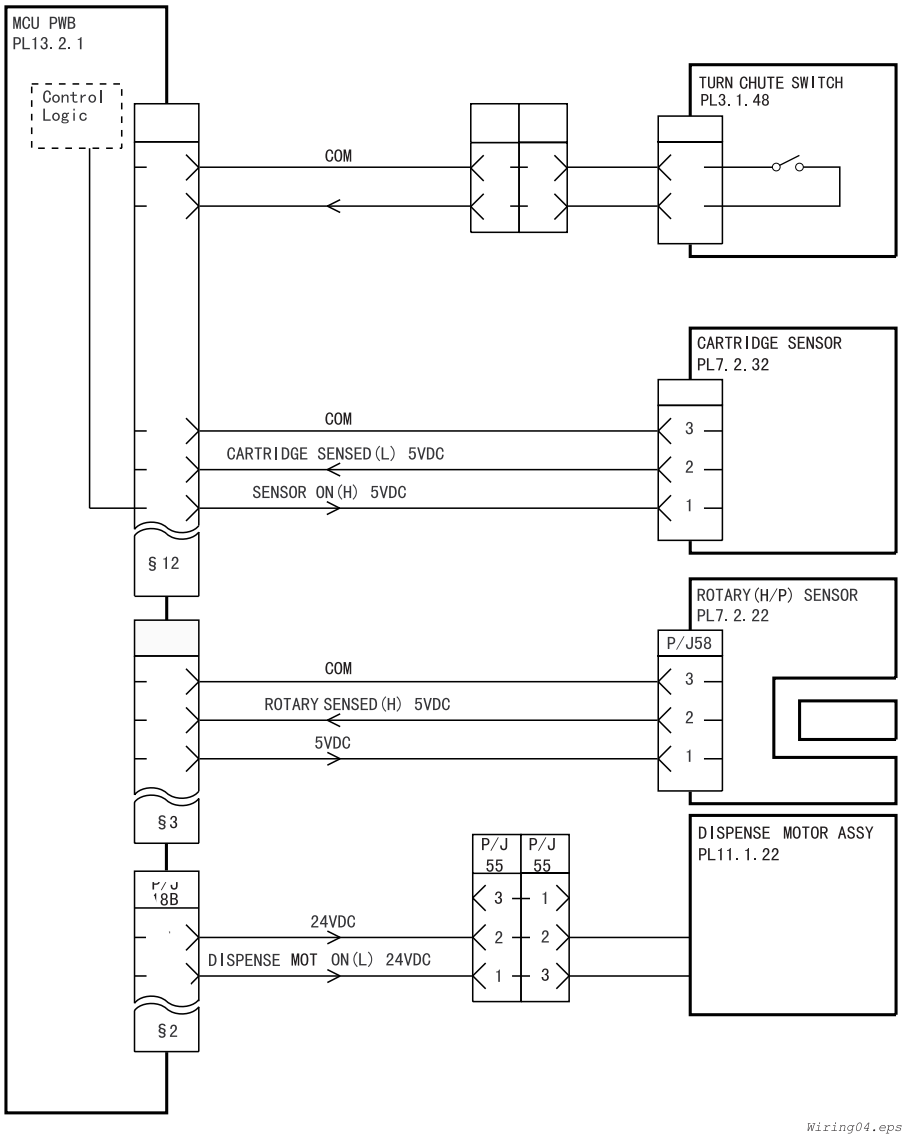


Figure 7-13. § Connection Diagram - 4

7.2.2.7 §5. MCU PWB, LV/HV POWER SUPPLY, ROTARY MOTOR DRIVE PWB, ROTARY MOTOR ASSY

Table 7-15. §Signal Description - 5

Signal line	Description
ROTARY MOTOR HOLD(L) 5VDC	Hold current control signal of ROTARY MOTOR ASSY.
ROTARY MOTOR ON(L) 5VDC	Drive power on/off signal for ROTARY MOTOR ASSY.
ROTARY MOTOR CLOCK	Clock signal for ROTARY MOTOR ASSY.
A, /A, B, /B	Excitation signal for ROTARY MOTOR ASSY.

☐ ROTARY MOTOR ASSY description.

- Motor type: Hybrid stepping motor
- Direction of rotation: Clockwise direction (as viewed from rear of printer)
- Step angle: 1.8° ± 0.18°
- Winding resistance: 0.9 ± 10% (25°C)
- Excitation sequence: (*: Excitation)

Phase	Steps (2-phase excitation)							
	1	2	3	4	5	6	7	8
B	*			*	*			*
/B		*	*			*	*	
A	*	*			*	*		
/A			*	*			*	*

- Rotation/hold according to signal

ROTARY MOTOR ON(L) 5VDC	ROTARY MOTOR HOLD(L) 5VDC	Status
Low	High	ROTARY MOTOR ASSY ready for rotation. (Actual rotation is in accordance with ROTARY MOTOR CLOCK.)
Low	Low	ROTARY MOTOR ASSY on hold.
High	Low or High	ROTARY MOTOR ASSY neither turns nor on hold.

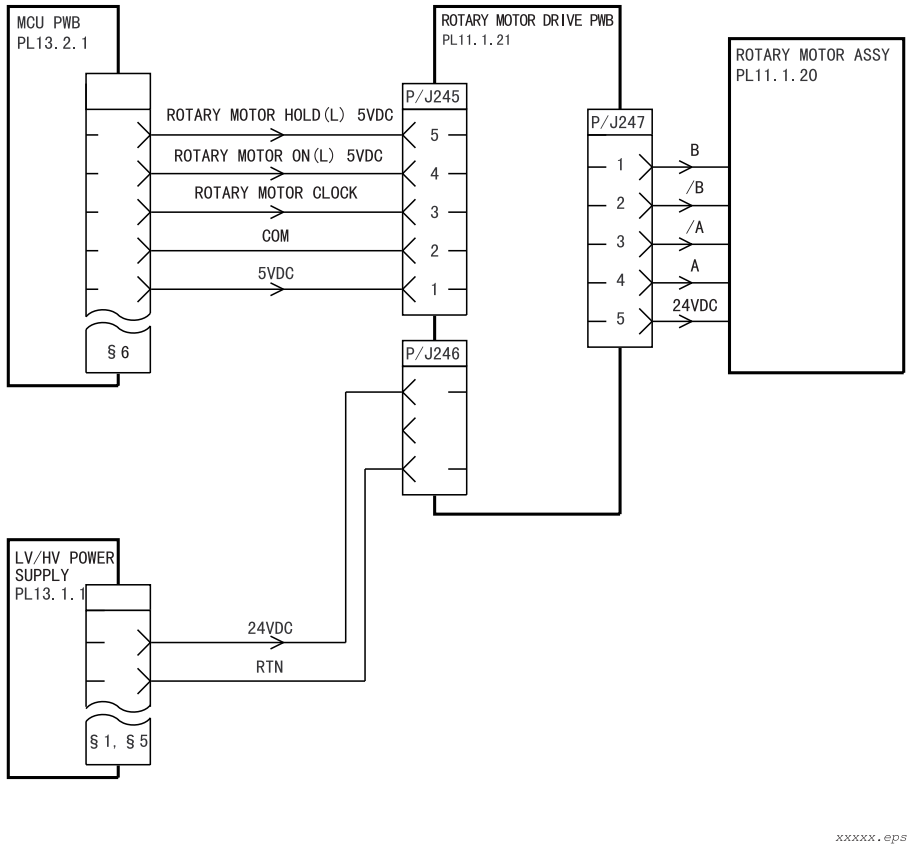


Figure 7-14. § Connection Diagram - 5

7.2.2.8 §6. MCU PWB, LV/HV POWER SUPPLY, TR0 SENSOR, DRIVE MOTOR PWB, P/R MOT & DRV ASSY, FUSER MOTOR ASSY, P/H MOTOR ASSY, MAG MOTOR ASSY, PRO MOTOR ASSY

Table 7-16. §Signal Description - 6

Signal line	Description
TR0-M SENSED(L) 5VDC	TR mark detection signal for IBT belt ASSY issued by the TR0 SENSOR.
P/H MOT FAIL(H) 5VDC	FAIL detection signal for P/H MOTOR ASSY. (High: Abnormal, Low: Normal)
FUSER FAIL(H) 5VDC	FAIL detection signal for FUSER MOTOR ASSY. (High: Abnormal, Low: Normal)
MOT ON(L) 24VDC	On/off control signal for P/H MOTOR ASSY and FUSER MOTOR ASSY.
MOT CLOCK	CLOCK output signal for P/H MOTOR ASSY and FUSER MOTOR ASSY.
PROCESS MOT CLOCK	CLOCK output signal for Process Motor.
START	ON/OFF control signal for Process Motor.
PR MOT FAIL(H) 5VDC	FAIL detection signal for Process Motor.

- PROCESS MOTOR ASSY description.
  - Motor type: Permanent magnet magnetic field DC servomotor
  - Number of poles: 3-phase, 8-poles
  - Motor control speed: 1799.616 rpm ± 0.5% (standard speed), 899.808 rpm ± 0.5% (half speed), 599.872 rpm ± 0.5% (1/3 speed)
  - Direction of rotation: Counterclockwise direction (as viewed from rear of printer)
  - Rotation fault detection: Detects abnormality when a variation in control speed of 6.25% or greater occurs. (Process Motor FAIL signal is “High”.)
- P/H MOTOR ASSY description.
  - Motor type: Permanent magnet magnetic field DC servomotor
  - Number of poles: 3-phase, 12- poles
  - Motor control speed: 1600 rpm ± 0.5% (standard speed), 800 rpm ± 0.5% (half speed), 533.33 rpm ± 0.5% (1/3 speed)
  - Direction of rotation: Counterclockwise direction (as viewed from rear of printer)
  - Rotation fault detection: Detects abnormality when a variation in control speed of 6.25% or greater occurs. (P/H MOT FAIL signal is “High”.)
- FUSER MOTOR ASSY description.
  - Motor type: Permanent magnet magnetic field DC servomotor
  - Motor control speed: 1600 rpm ± 0.5% (standard speed), 800 rpm ± 0.5% (
  - half speed), 533.33 rpm ± 0.5% (1/3 speed)
  - Direction of rotation: Clockwise direction (as viewed from rear of printer)
  - Rotation fault detection: Detects abnormality when a variation in control speed of 6.25% or greater occurs. (FUSER FAIL signal is “High”.)
- BTR CAM CLUTCH coil resistance: 120.7Ω ± 10% (20°C)
- MAG MOTOR ASSY description.
  - Motor type: Permanent magnet magnetic field DC servomotor
  - Motor control speed: 1390.85 rpm ± 0.5% (Speed 1), 1485.42 rpm ± 0.5% (Speed 2), 1600 rpm ± 0.5% (Speed 3), 1704.8 rpm ± 0.5%(Speed 4)
  - Direction of rotation: Clockwise direction (as viewed from rear of printer)
  - Rotation fault detection: Detects abnormality when a variation in control speed of 6.25% or greater occurs.

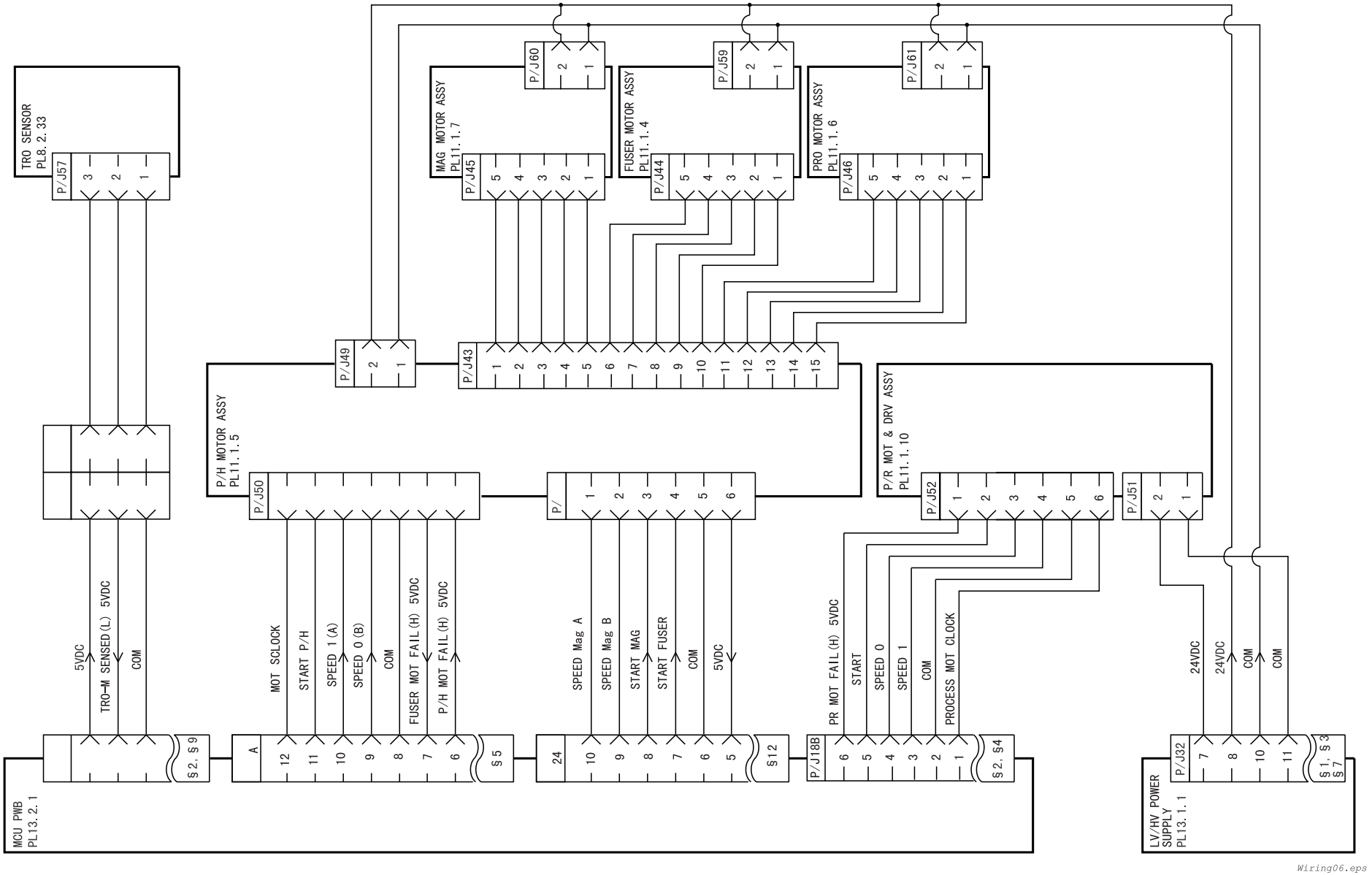


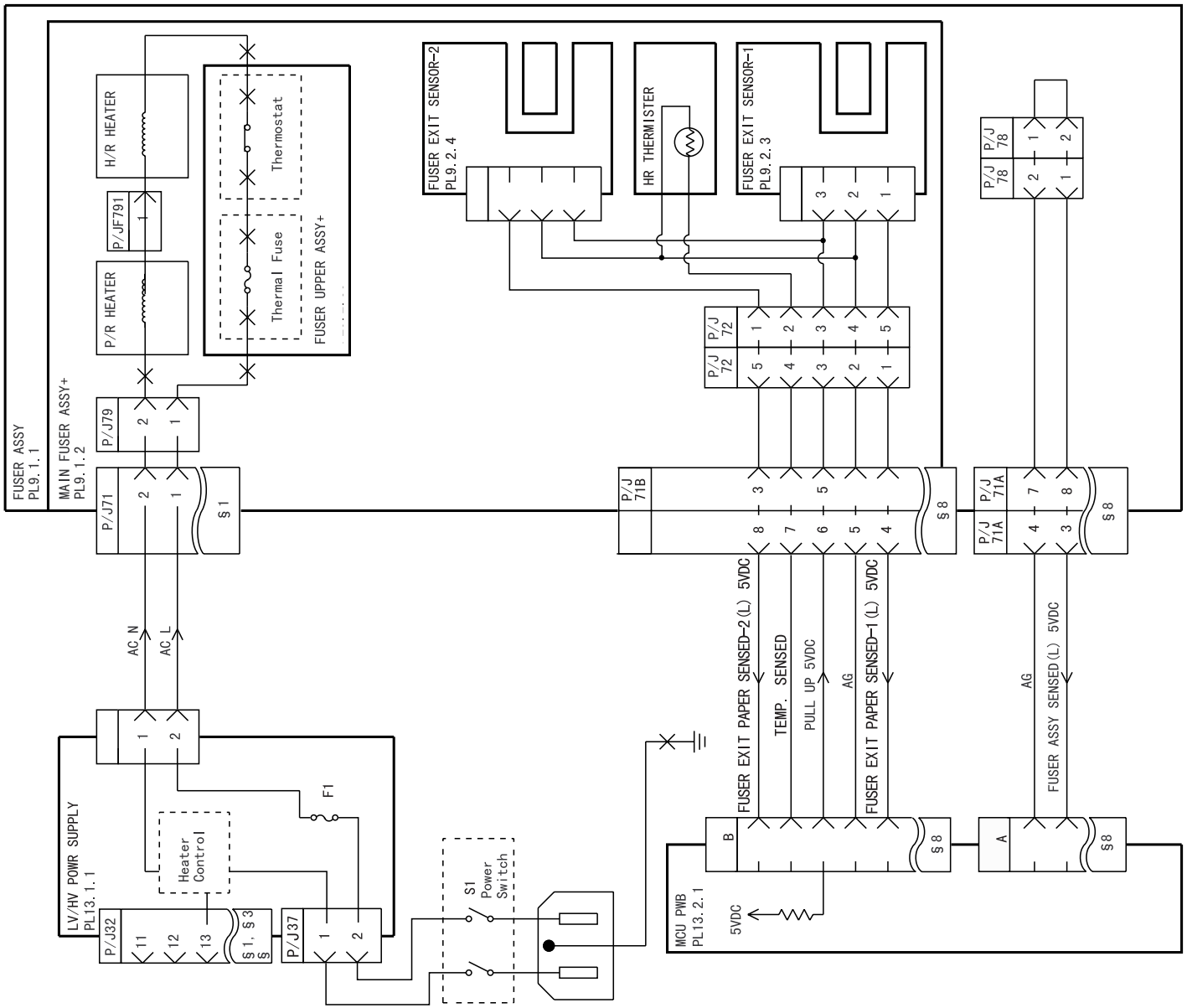
Figure 7-15. § Connection Diagram - 6

7.2.2.9 §7. MCU PWB, LV/HV POWER SUPPLY, MAIN FUSER ASSY

Table 7-17. §Signal Description - 7

Signal line	Description
TEMP. SENSED	Surface temperature data of heat roll measured by the thermistor of TEMP. SENSOR ASSY to determine the FUSER control temperature. (Analog value)
FUSER EXIT PAPER SENSED(L) 5VDC	Paper detection signal for fuser issued by the FUSER EXIT SENSOR.
FUSER ASSY SENSED(L) 5VDC	Connection detection signal for FUSER ASSY.

- Thermal Fuse melting temperature: 169 °C (+0 °C/-6 °C)
- Thermostat
- contact open temperature: 175 °C ± 6 °C
- Heater rated power
  P/R HEATER:341 ± 17.05W (38V), H/R HEATER:556 ± 27.8W (62V)



Wiring07.eps

Figure 7-16. § Connection Diagram - 7

7.2.2.10 §8. MCU PWB, FUSER TRAY ASSY, ENVIRONMENT SENSOR

Table 7-18. §Signal Description - 8

Signal line	Description
EXCHANGE SOLENOID PUSH ON(L) 24VDC	On/off control signal for EXCHANGE SOLENOID in push direction (FACE-UP discharge).
EXCHANGE SOLENOID PULL ON(L) 24VDC	On/off control signal for EXCHANGE SOLENOID in pull direction (FACE-DOWN discharge).
CLEANER CAM SOLENOID ON(L) 24VDC	On/off control signal for CLEANER CAM SOLENOID.
FUSER CHUTE FAN ON(H) 24VDC	On/off control signal for FUSER CHUTE FAN.
FUSER IN PAPER SENSED(L) 5VDC	Paper detection signal for FUSER unit issued by the FUSER IN SENSOR.
ENVIRONMENT TEMP.	Printer environment temperature data measured by ENVIRONMENT SENSOR thermistor. (Analog value)
ENVIRONMENT HUMI.	Printer environment humidity data measured by ENVIRONMENT SENSOR humidity. (Analog value)

- EXCHANGE SOLENOID coil resistance:45Ω ± 10% (20°C)
  [24VDC-between signals]
- CLEANER CAM SOLENOID coil resistance:220Ω ± 10% (20°C)
- FUSER CHUTE FAN description.
  - Number of poles: 4
  - Rotation speed: 5000 ± 1000 rpm

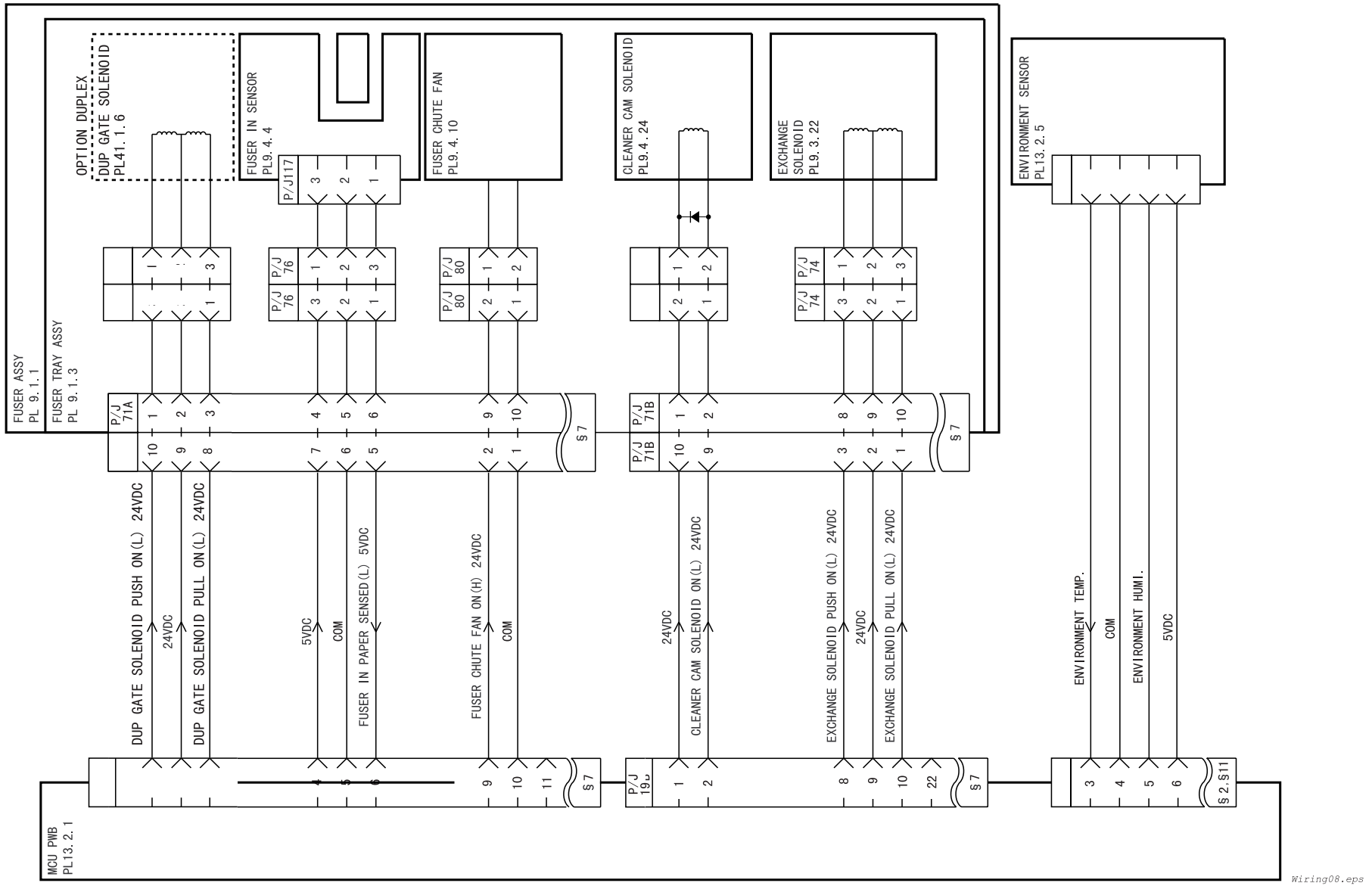


Figure 7-17. § Connection Diagram - 8

7.2.2.11 §9. MCU PWB, SIZE SWITCH ASSY,TRAY N/P SENSOR, LOW PAPER SENSOR, FEED SOLENOID, TURN CLUTCH

CHECK POINT

- **The numbers (1, 2, 3, 4) preceding the signal line name indicate the cassette number.**
- **Cassette 1 is the paper feed unit consisting of a paper cassette beneath the printer, cassette 2 is the top cassette of the optional feeder unit, and cassette 3 is the second.**

Table 7-19. §Signal Description - 9

Signal line	Description
[1] SIZE SWITCH	Detection signal for size of paper in cassette 1. (Analog value)
[1] FEED SOLENOID ON(L) 24VDC	On/off control signal for cassette 1 FEED SOLENOID.
[1] TRAY PAPER SENSED(L) 5VDC	Signal for detecting presence of paper in the paper cassette issued by the TRAY N/P SENSOR. (High Paper not detected, Low: Paper detected)
[1] LOW PAPER SENSED(L) 5VDC	Signal for detecting when paper in the paper cassette is low issued by the TRAY 1 LOW PAPER SENSOR. (High: Enough, Low: Low)

- ☐ FEED SOLENOID coil resistance:90Ω ± 10%(20°C)
- ☐ TURN CLUTCH coil resistance:175Ω ± 10%(20°C)
- ☐ Feed SIZE SWITCH description.
  Size of paper in the paper cassette is determined by the on/off status of the Paper Size Switches of the SIZE SWITCH ASSY. Paper Size Switch on/off status and SIZE SWITCH voltage for each paper size are shown in the following table.

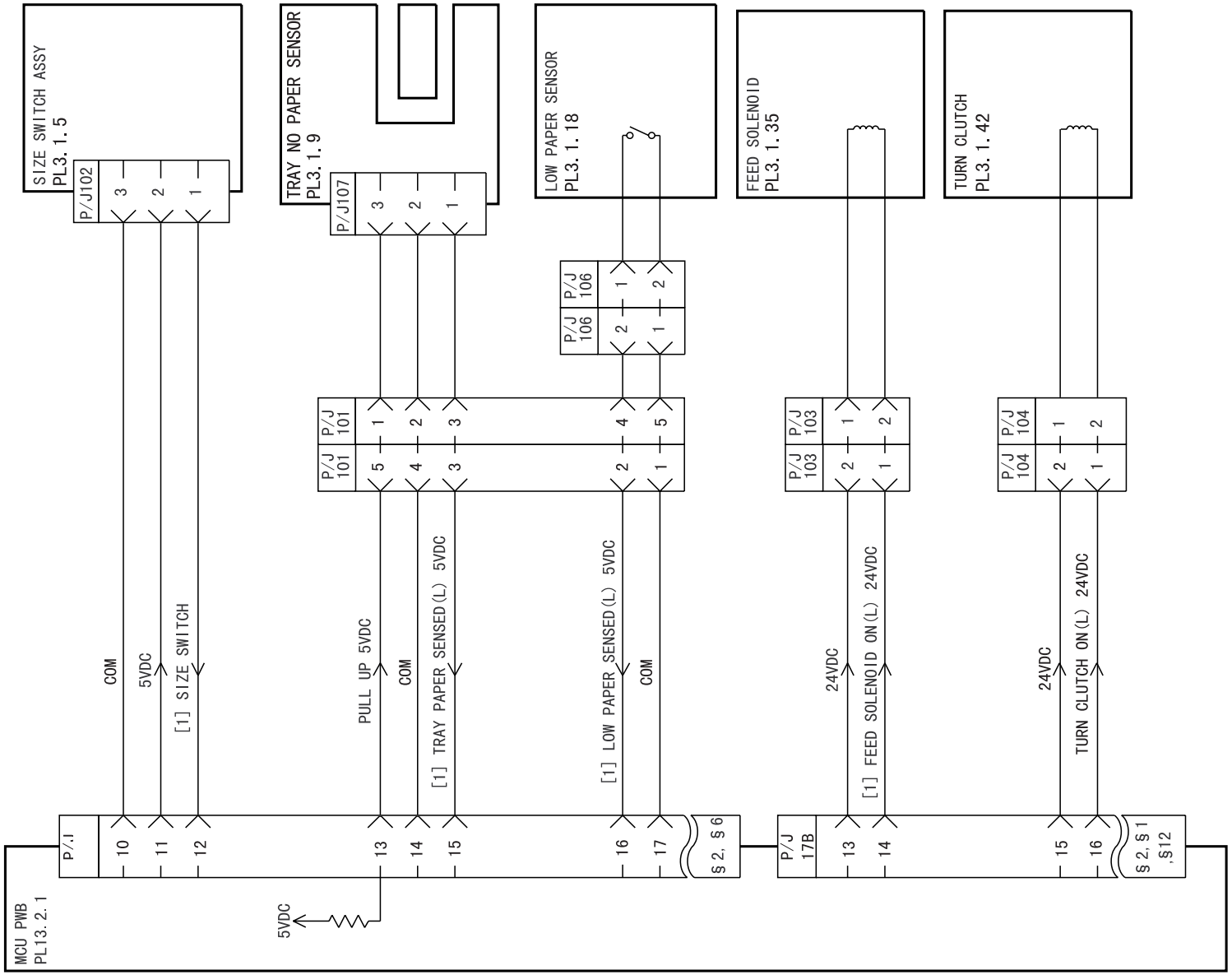
CHECK POINT

The Paper Size Switches when viewing the printer from the front are from left to right: SW1, SW2, SW3, and SW4. "On" is "1" and "off" is "0".

Table 7-20. Size Switch Signals

Paper size	Paper Size Switch				Voltage (Unit: V DC)
	SW1	SW2	SW3	SW4	SW4
No paper cassette	0	0	0	0	0.275 ~ 0.293
B5(LEF) *1	1	1	0	0	3.671 ~ 3.715
EXECUTIVE(LEF) *2					
A4(LEF)	0	1	0	0	1.396 ~ 1.445
LETTER(LEF)	1	0	1	0	3.098 ~ 3.152
A4(SEF) *1	0	1	1	1	2.248 ~ 2.298
LETTER(SEF) *2					
LEGAL14"(SEF)	1	1	1	0	4.247 ~ 4.276
B4(SEF)	0	1	0	1	1.680 ~ 1.730
A3(SEF)	0	0	1	0	0.834 ~ 0.871
LEDGER(SEF)	0	0	1	1	1.116 ~ 1.157
12"x8"(SEF)	0	0	0	1	0.554 ~ 0.583
Nonstandard	1	1	1	1	4.537 ~ 4.554
Not used	1	0	0	0	-
Not used	1	0	0	1	-
Not used	0	1	1	0	-
Not used	1	0	1	1	-
Not used	1	1	0	1	-

Note "*": When the paper size switch on/off status is same, one of the two shown below is selected according to specifications.
*1: Millimeter unit spec., *2: Inch unit spec.)



Wiring09.eps

Figure 7-18. § Connection Diagram - 9

7.2.2.12 §10. MCU PWB, MAIN P/H FRAME ASSY

Table 7-21. §Signal Description - 10

Signal line	Description
REGI. PAPER SENSED(L) 5VDC	Paper detection signal for MAIN P/H ASSY issued by the REGI. SENSOR.
FRONT OHP WHITE SENSED(L) 5VDC	White strip detection signal for OHP film (for color) by FRONT OHP SENSOR. ☐ For more information concerning front/back detection for OHP film, see "2.3.3 OHP Front/Back Detection Control" (p.131).
REAR OHP WHITE SENSED(L) 5VDC	White strip detection signal for OHP film (for color) by REAR OHP SENSOR. ☐ For more information concerning front/back detection for OHP film, see "2.3.3 OHP Front/Back Detection Control" (p.131).
PRE-REGI. CLUTCH ON(L) 24VDC	On/off control signal for PRE-REGI. CLUTCH.
REGI. CLUTCH ON(L) 24VDC	On/off control signal for REGI. CLUTCH.
FEED CLUTCH ON(L) 24VDC	On/off control signal for FEED CLUTCH.
MAIN P/H ASSY SENSED(L) 5VDC	Connection detection signal for MAIN P/H FRAME ASSY.

- ☐ PRE-REGI. CLUTCH coil resistance:175Ω ± 10% (20°C)
- ☐ REGI. CLUTCH coil resistance:175Ω ± 10% (20°C)

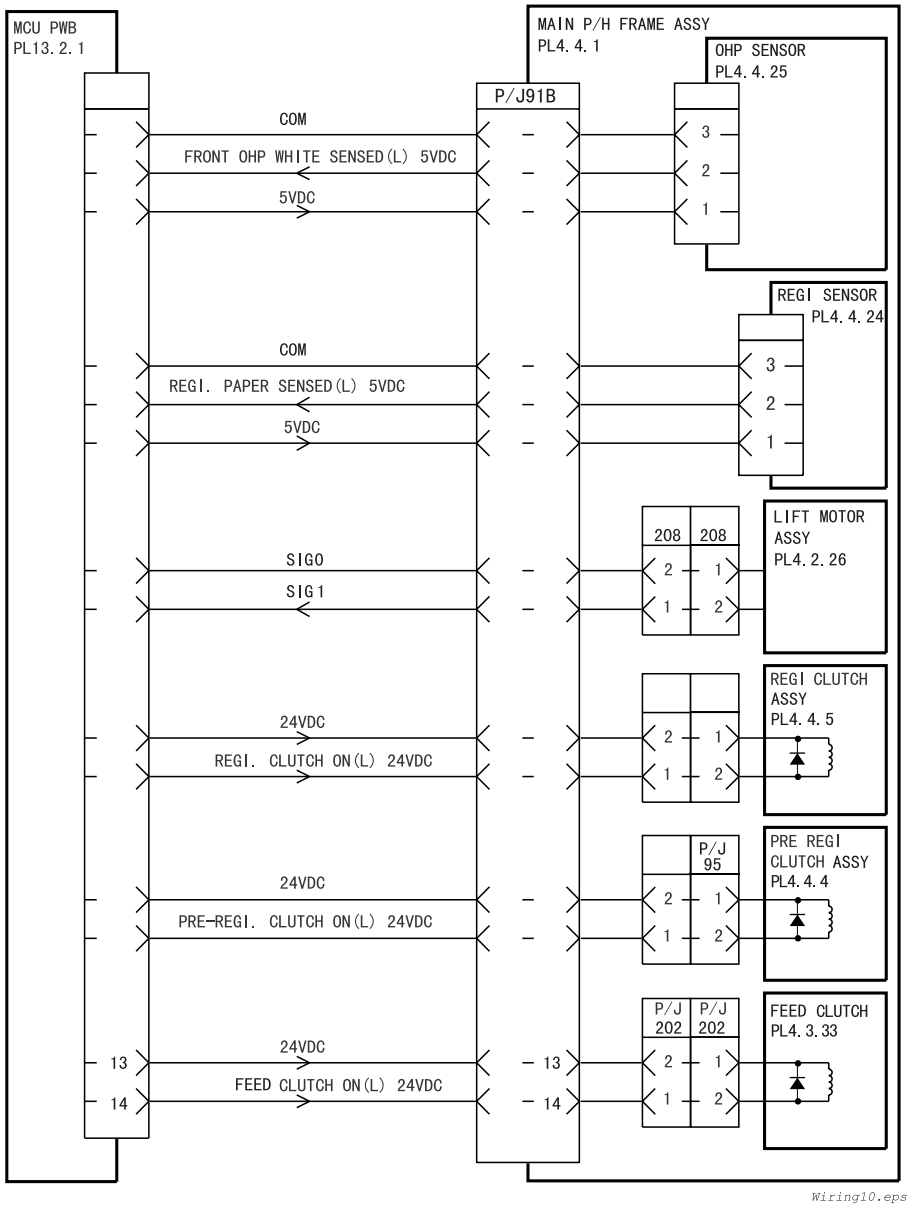


Figure 7-19. § Connection Diagram - 10

7.2.2.13 §11. MCU PWB, MAIN P/H FRAME ASSY, MSI ASSY, REGI/MSI INTL SW, XPC CRUM

Table 7-22. §Signal Description - 11

Signal line	Description
EMPTY SENSED (L) 5VDC	Signal of detection by EMPTY SENSOR of paper presence (Low)/absence (High) in MSI ASSY.
PITCH SENSED (L) 5VDC	Signal of detection by PITCH SENSOR of paper interval by MSI ASSY.
LEVEL SENSED (L) 5VDC	Signal of detection by LEVEL SENSOR of paper feed position (height) by MSI ASSY.
BOTTOM PLETE SENSED (L) 5VDC	Signal of detection by BOTTOM SENSOR of paper send out angle by MSI ASSY.

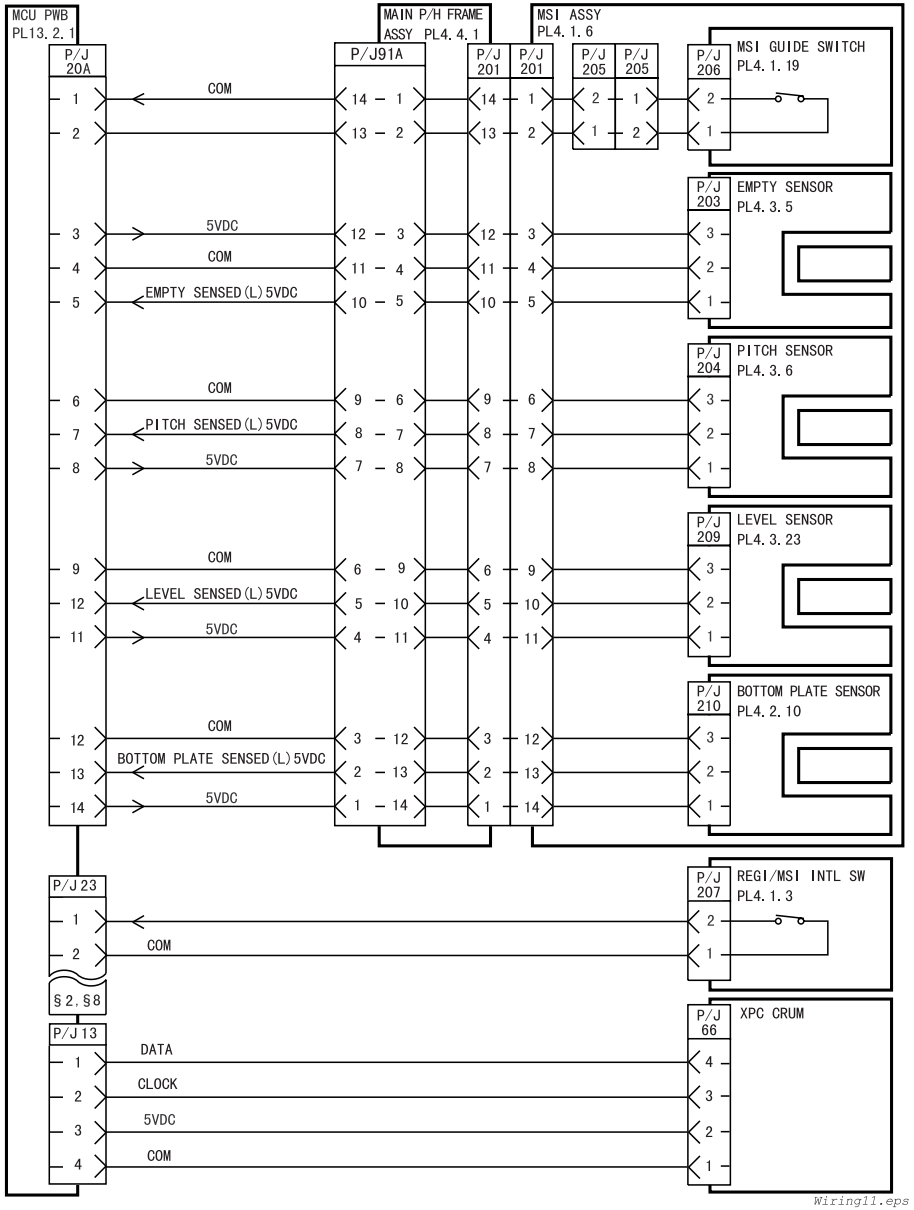


Figure 7-20. § Connection Diagram - 11

7.2.2.14 §12. MCU PWB, FULL STACK SENSOR, TOP EXIT SENSOR, EXIT CHUTE SWITCH, EXIT CHUTE FAN, FUSER FAN-1, DEVE. FAN, EXIT PWB ASSY

Table 7-23. §Signal Description- 12

Signal line	Description
TOP EXIT PAPER SENSED(L) 5VDC	Paper detection signal for EXIT LOWER ASSY issued by the TOP EXIT SENSOR.
EXIT CHUTE SWITCH ON(L) 5VDC	Signal for detecting whether exit upper ASSY is open (off) or closed (on) issued by the EXIT CHUTE SWITCH.
FULL STACK SENSED(L) 5VDC	Signal for detecting full stack status of TOP COVER paper issued by the FULL STACK SENSOR. (High: Not Full Stack, Low: Full Stack)
FUSER FAN HALF-SPEED(H) 24VDC	FUSER FAN high speed (Low) / low speed (High) rotation control signal.
FUSER FAN ON(H) 24VDC	On/off control signal for FUSER FAN.
DEVE. FAN HALF-SPEED(H) 24VDC	DEVE. FAN high speed (Low) / low speed (High) rotation control signal.
DEVE. FAN ON(H) 24VDC	On/off control signal for DEVE. FAN.

- FUSER FAN description
  - Number of poles: 4
  - Rotation speed: 3400 ± 200 rpm (high speed), 1900 ± 250 rpm (low speed)
- DEVE. FAN description
  - Number of poles:4
  - Rotation speed:3400 ± 200 rpm (high speed), 2250 ± 250 rpm (low speed)

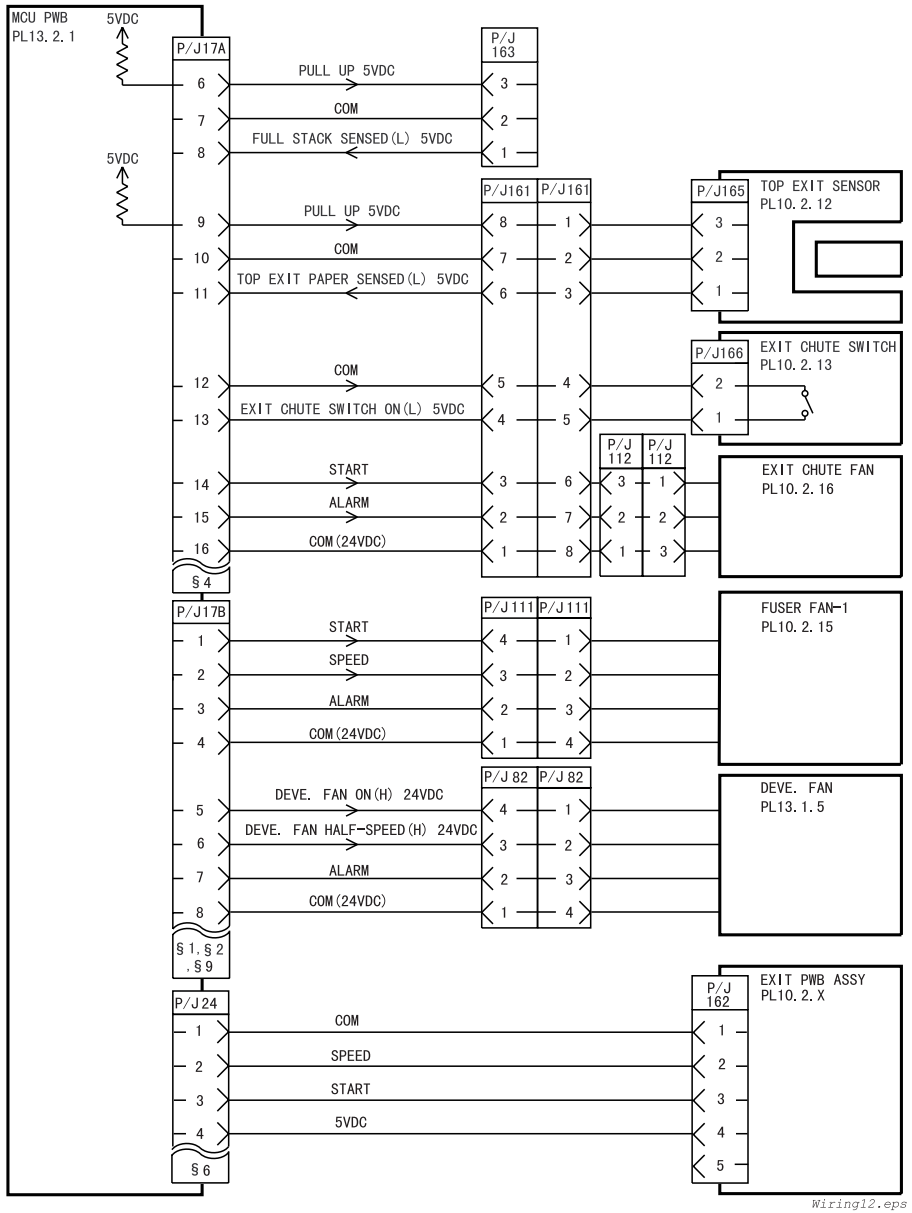


Figure 7-21. § Connection Diagram - 12

7.2.2.15 §13. MCU PWB, CONTROLLER PWB, OPERATION PANEL, CONTROLLER FAN

Table 7-24. §Signal Description - 13

Signal line	Description
TEST PRINT ON(L) 5VDC	Setting to low level (connecting to SG) enables internal test print.

- ☐ CONTROLLER FAN description
  - ■ Number of poles:4
  - ■ Rotation speed:2000 ± 400 rpm

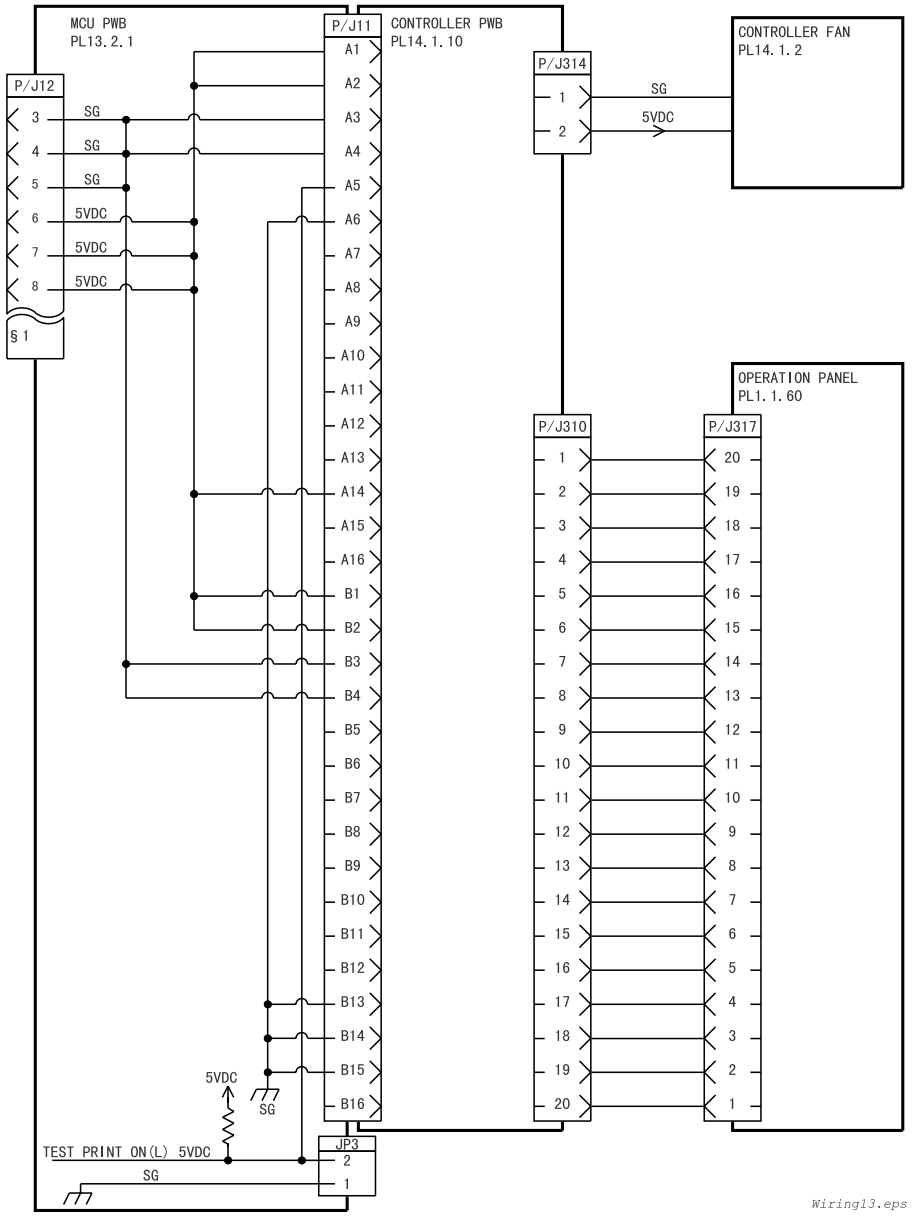


Figure 7-22. § Connection Diagram - 13

7.3 Component Layout

Shown below is the component layout drawing for C457MAIN Board (AcuLaser C8600).

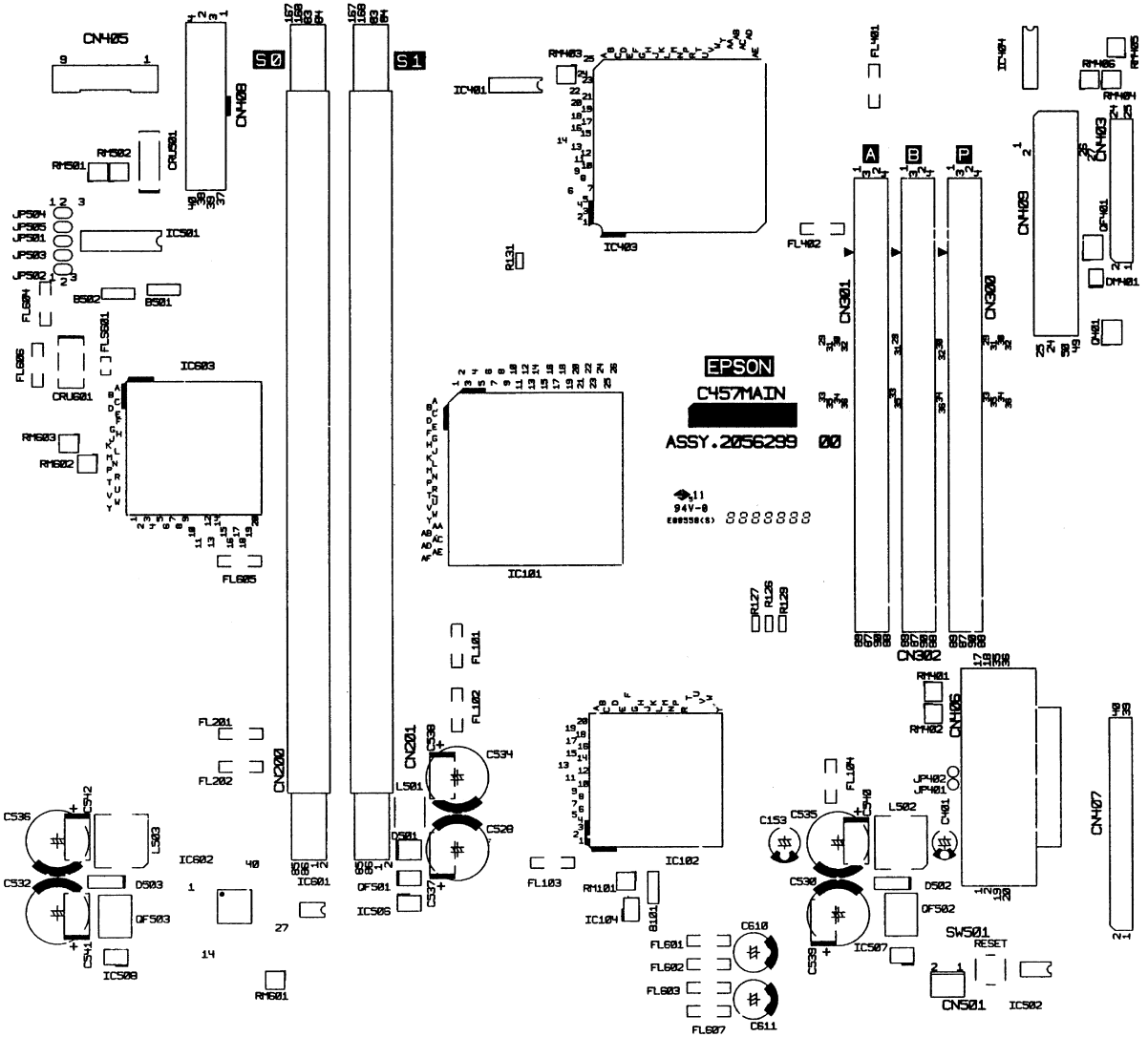


Figure 7-23. Component Layout on C457 MAIN Board (AcuLaser C8600)

Shown below is the component layout drawing for C471MAIN Board (AcuLaser C7000).

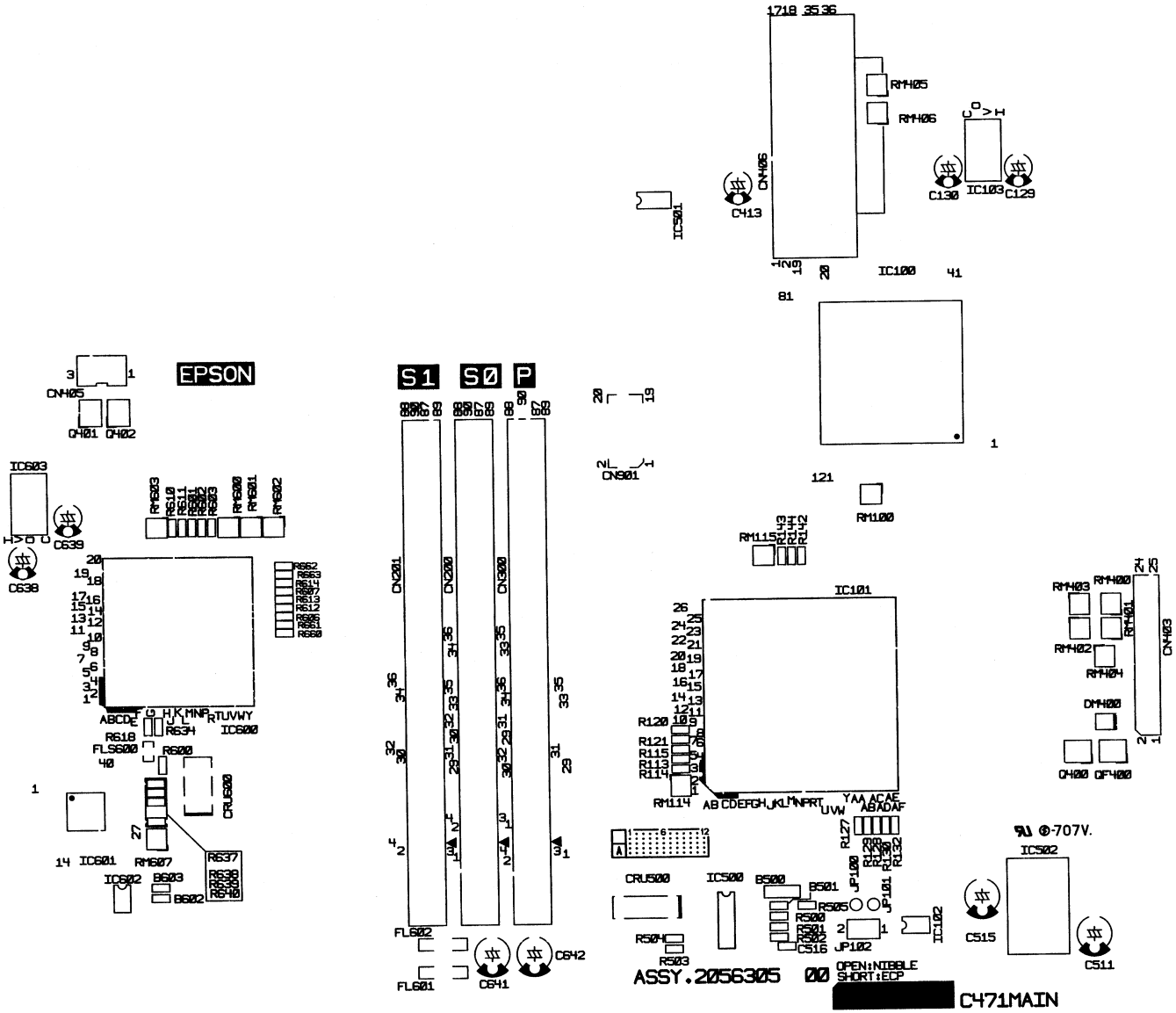
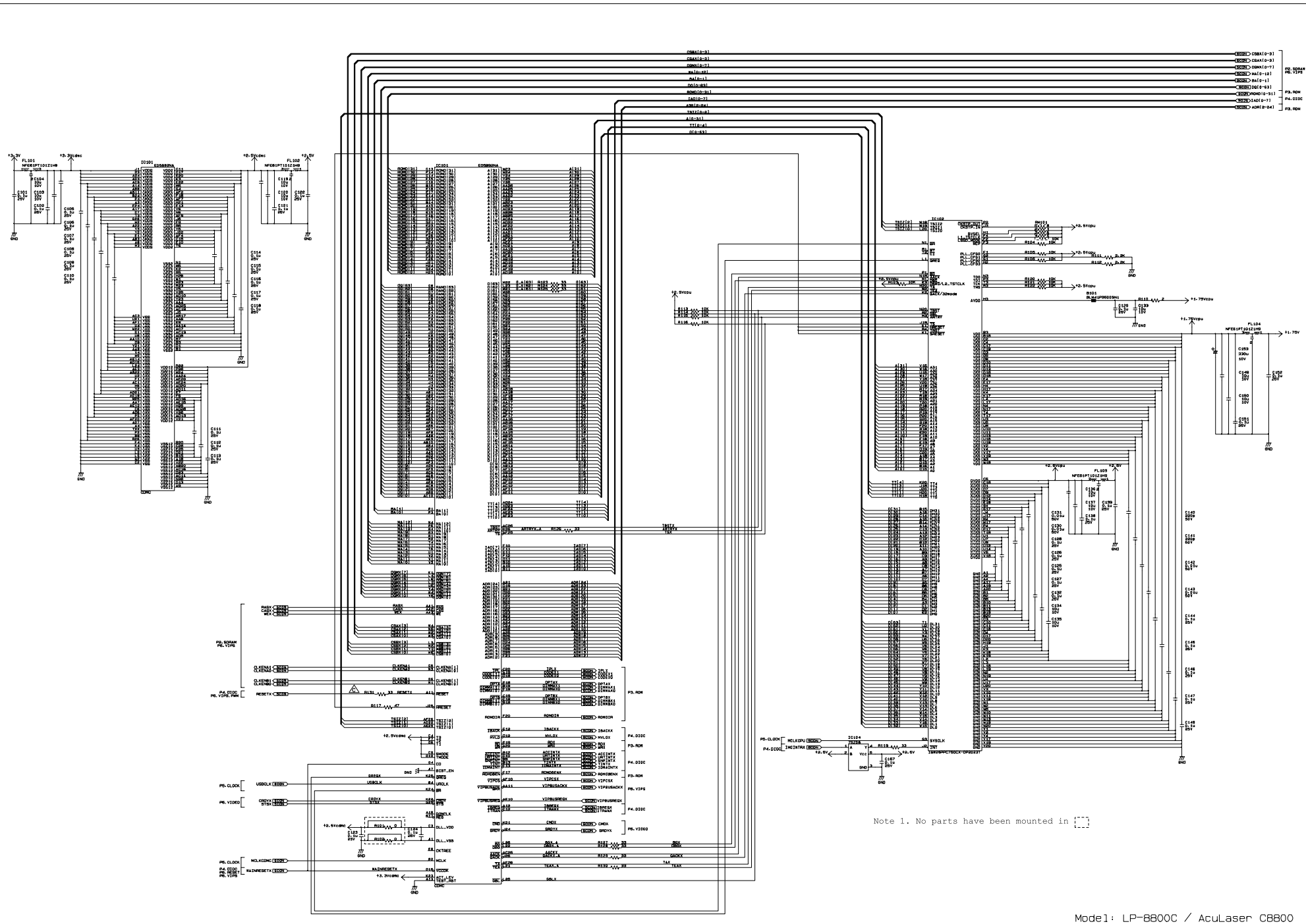


Figure 7-24. Component Layout on C471 MAIN Board (AcuLaser C7000)

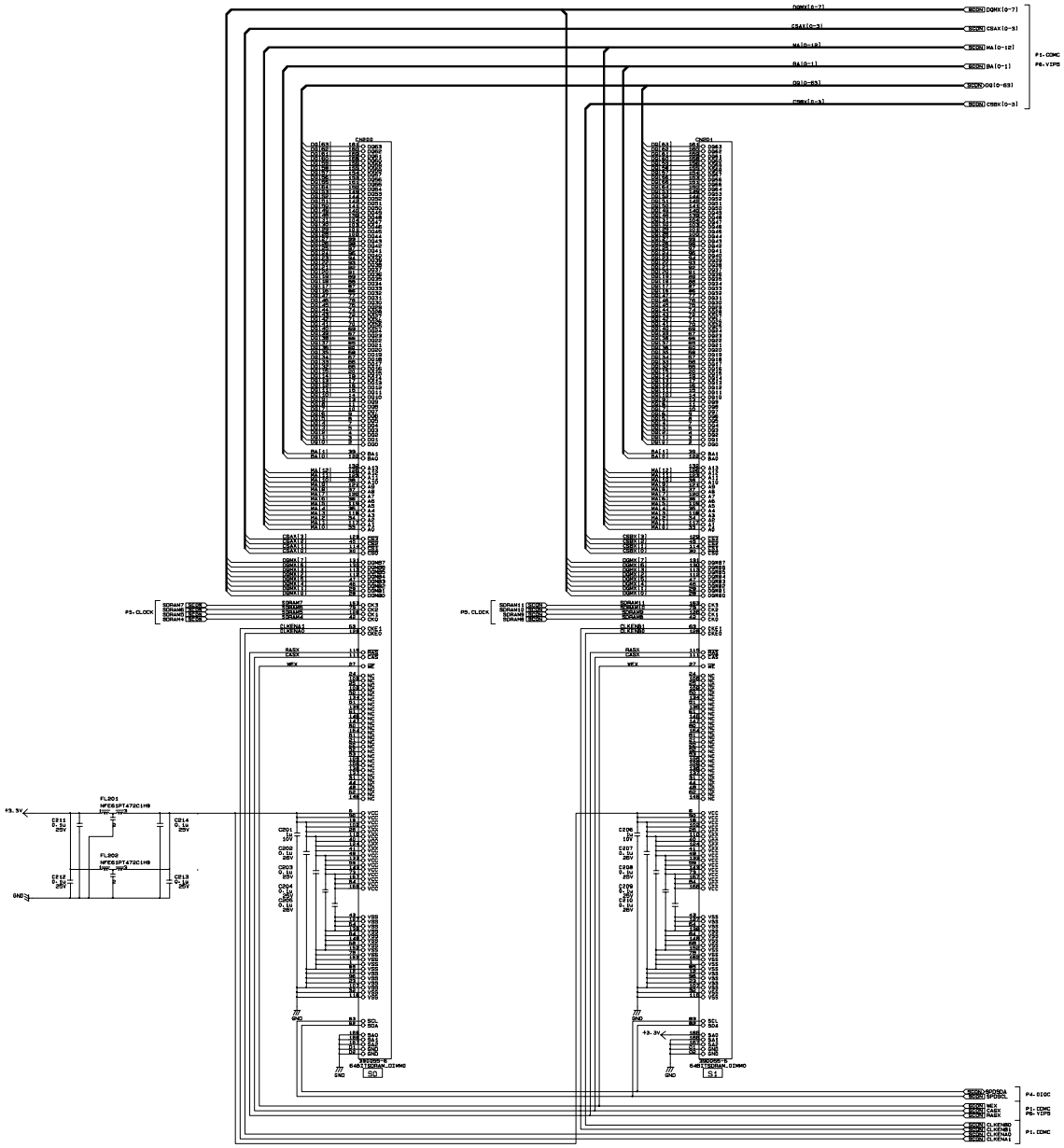
7.4 Circuit Diagrams

This section shows electric control circuit diagrams of AcuLaser C8600 and AcuLaser C7000.



Note 1. No parts have been mounted in [ ]

Model: LP-8800C / AcuLaser C8800
Board: C457MAIN BOARD
Sheet: 1 of 6
Rev. : C



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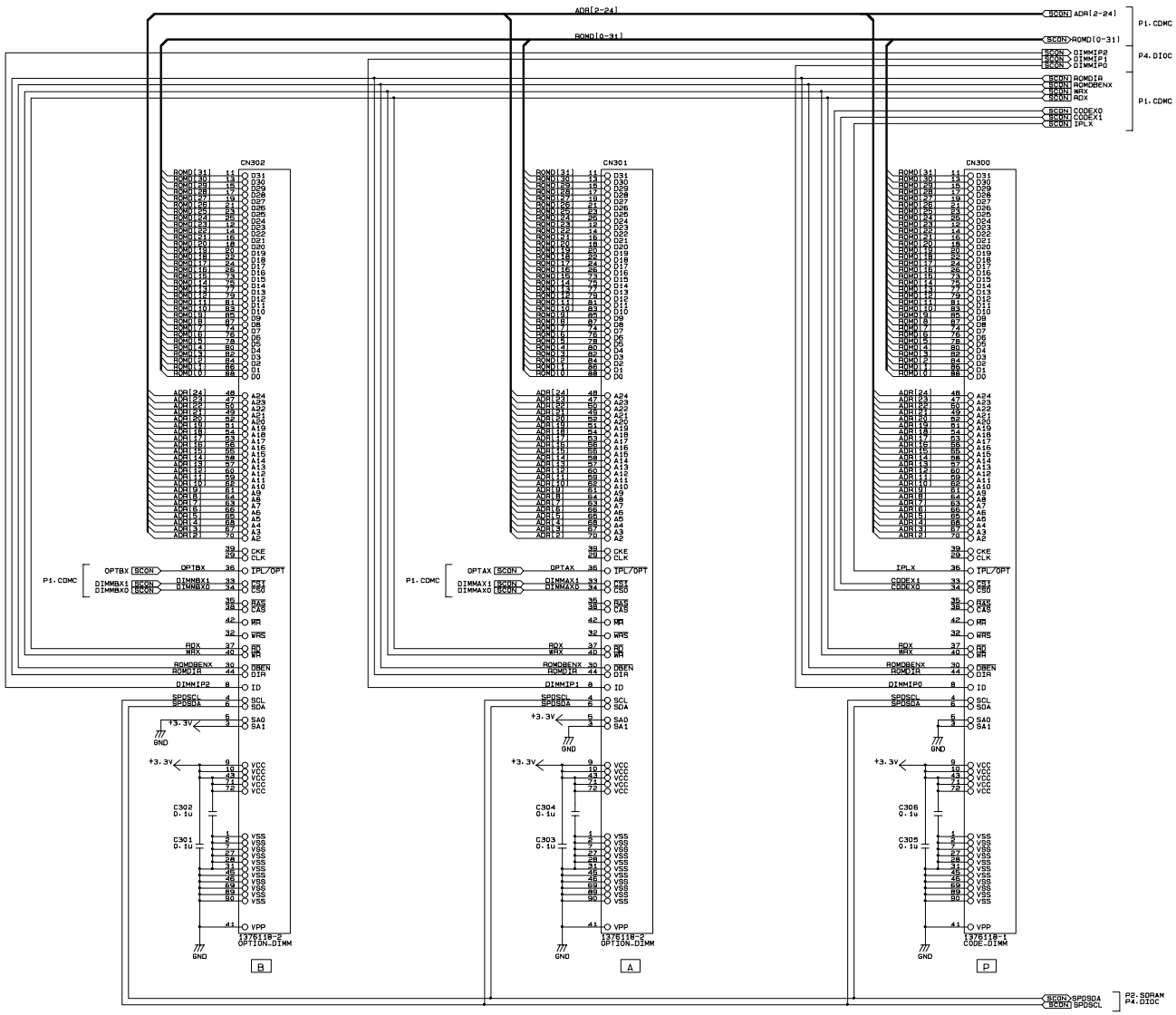
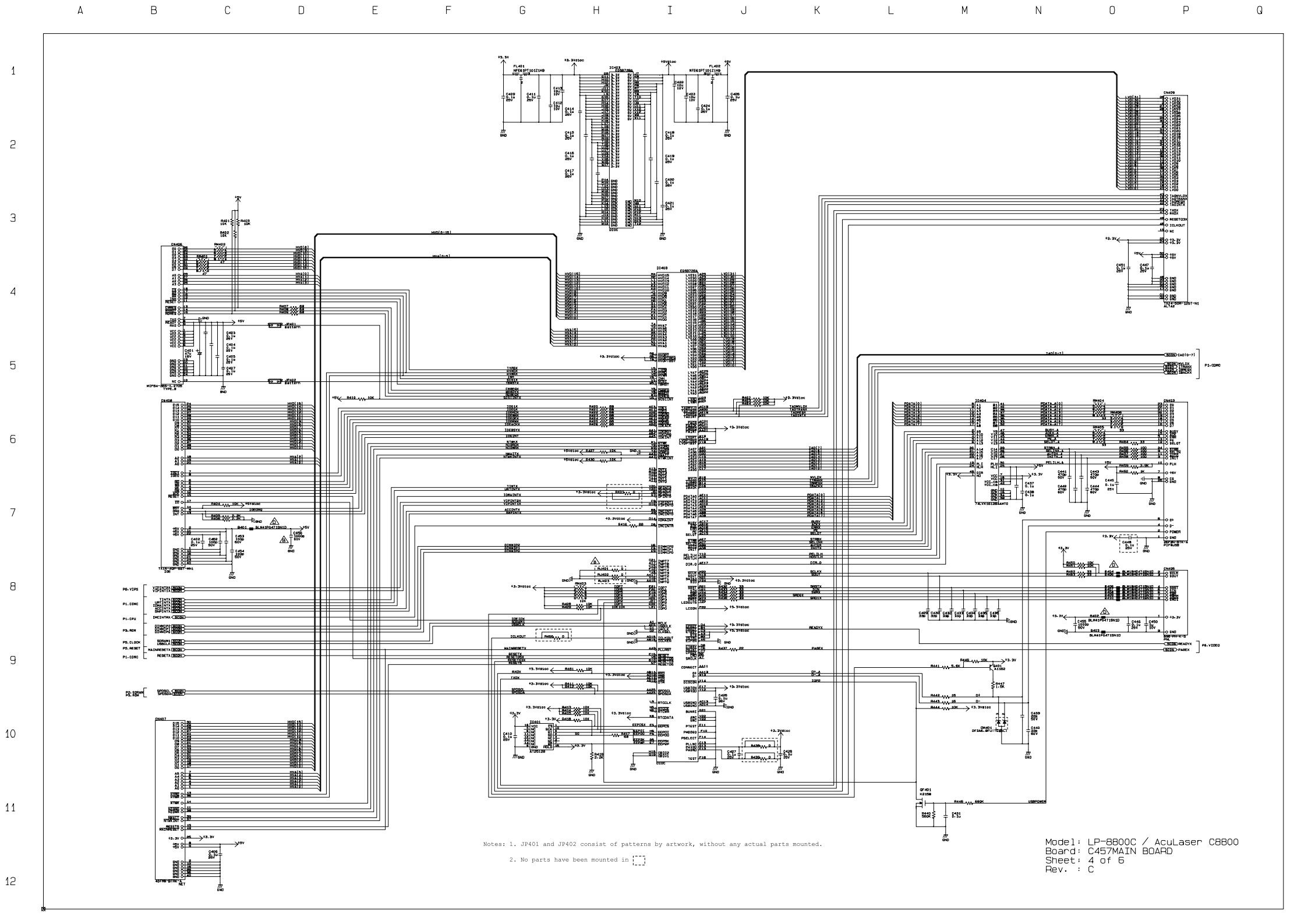
Board: C457MAIN BOARD
Sheet: 2 of 6
Rev. : C



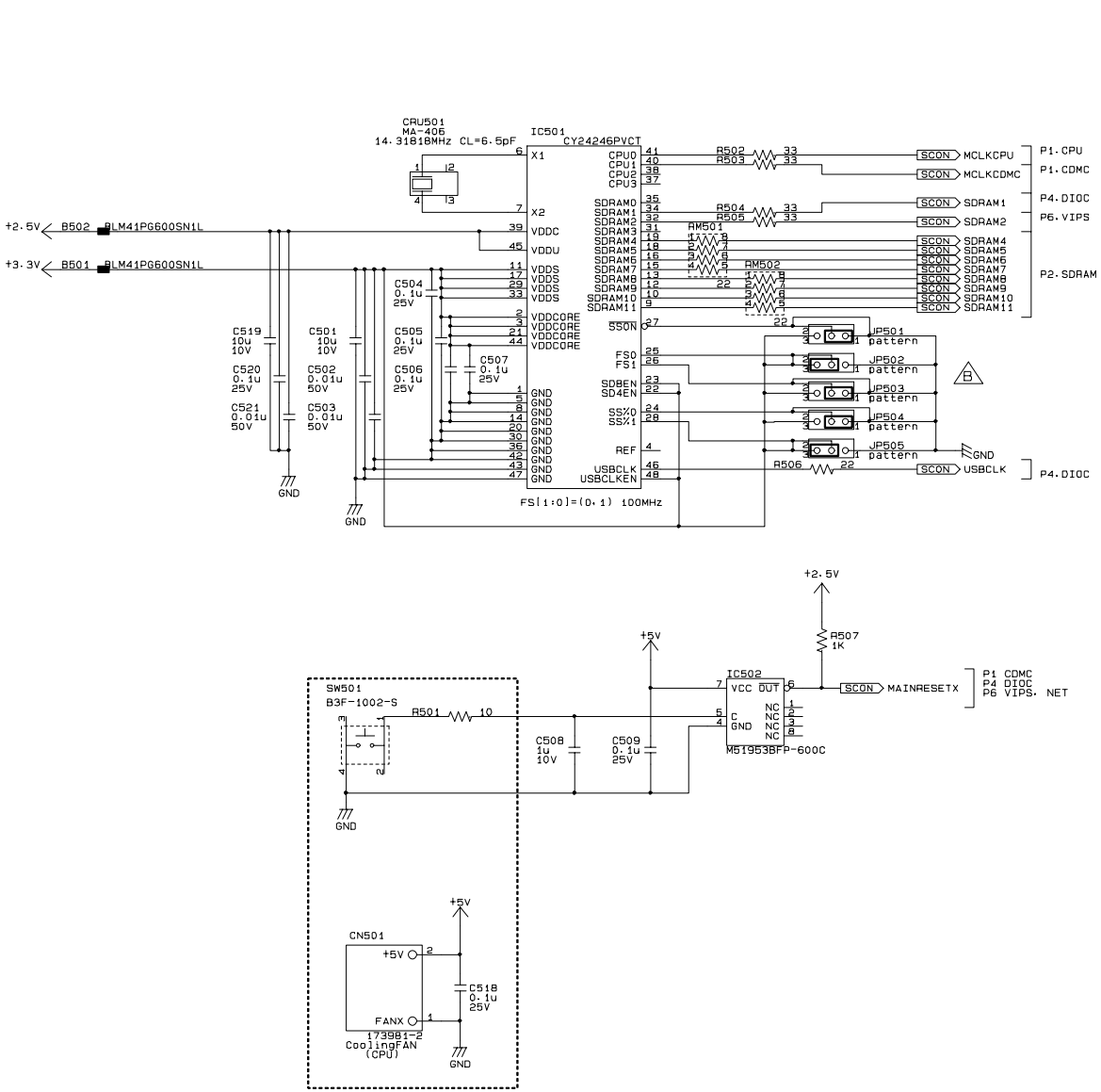
Model: LP-8800C / AcuLaser C8800
Board: C457MAIN BOARD
Sheet: 3 of 6
Rev. : C

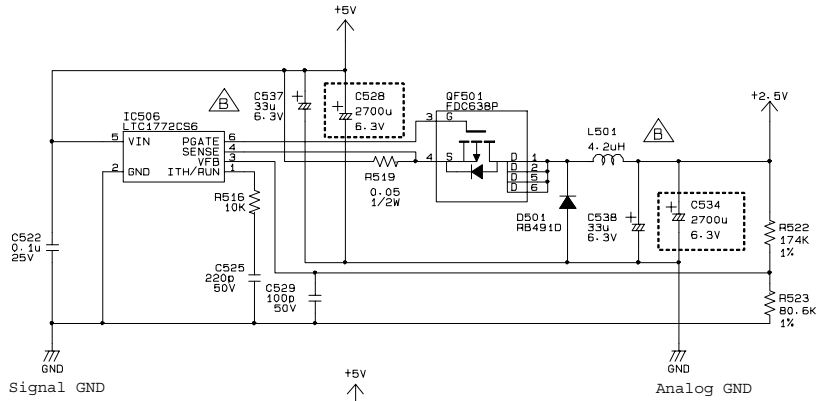


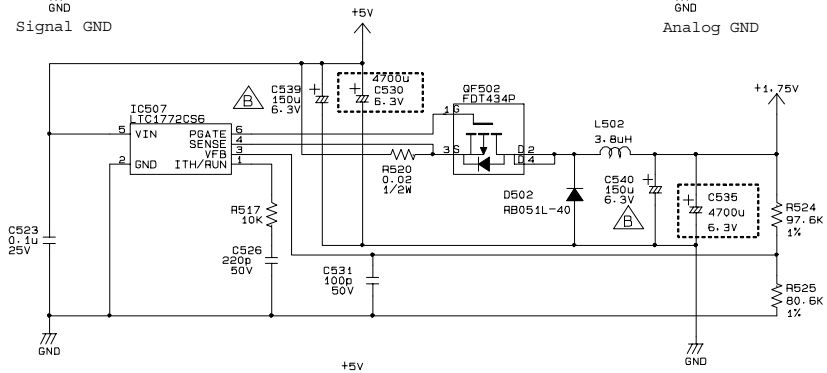
Notes: 1. JP401 and JP402 consist of patterns by artwork, without any actual parts mounted.

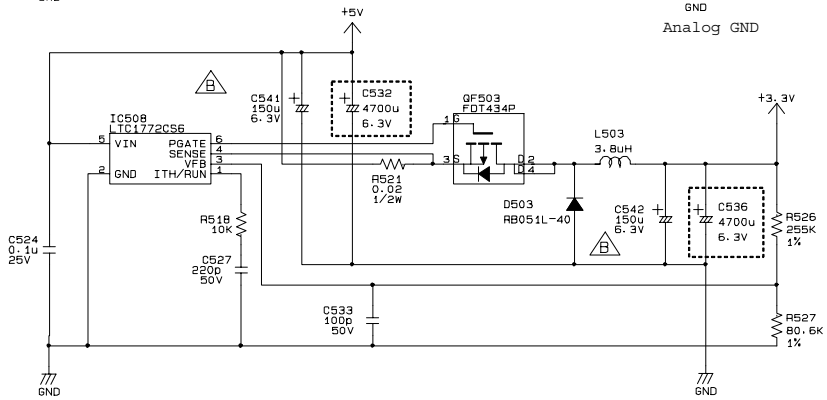
2. No parts have been mounted in [ ]

Model: LP-8800C / AcuLaser C8800
Board: C457MAIN BOARD
Sheet: 4 of 6
Rev. : C





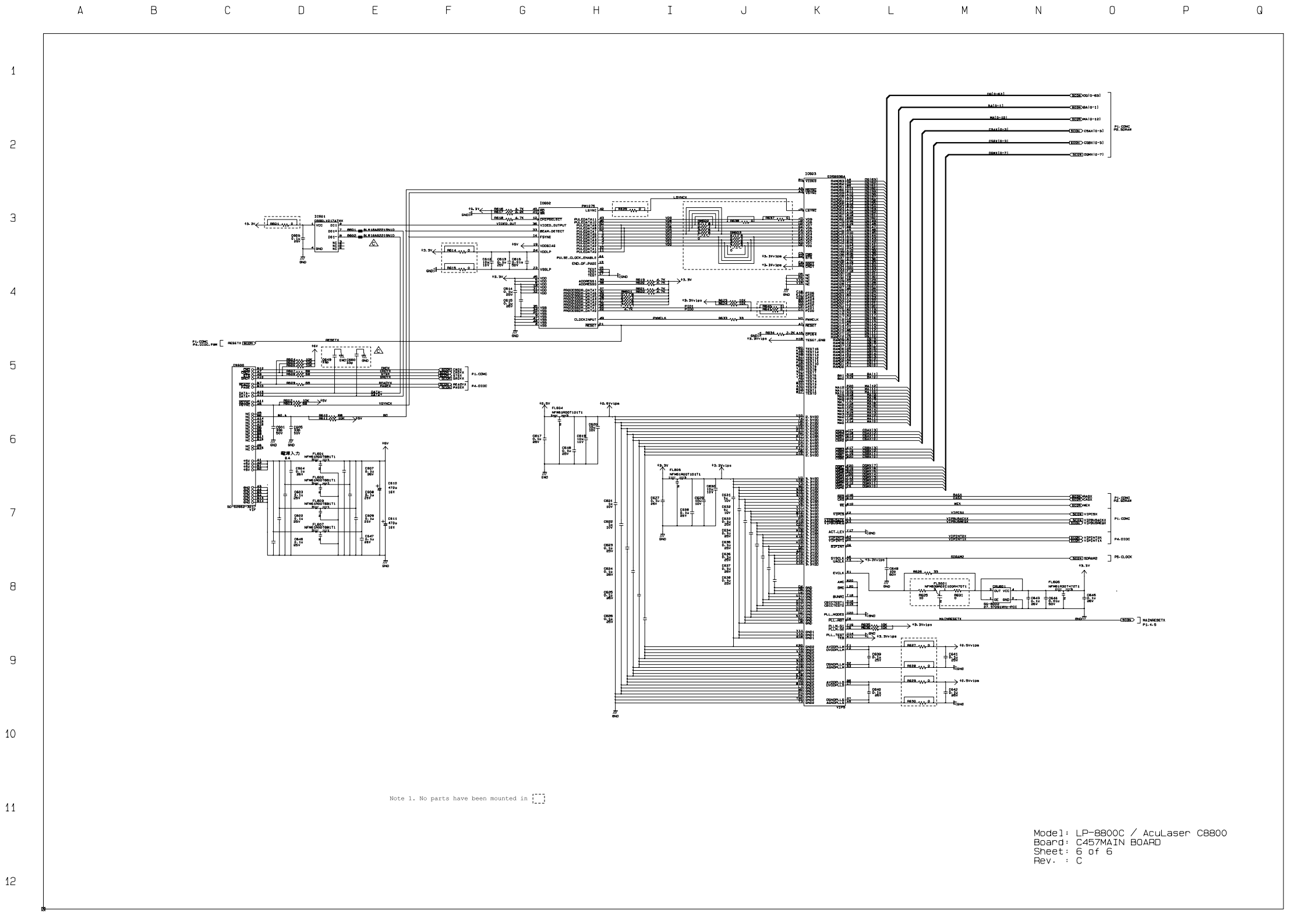




Notes: 1. JP* consists of patterns by artwork, without any actual parts mounted.

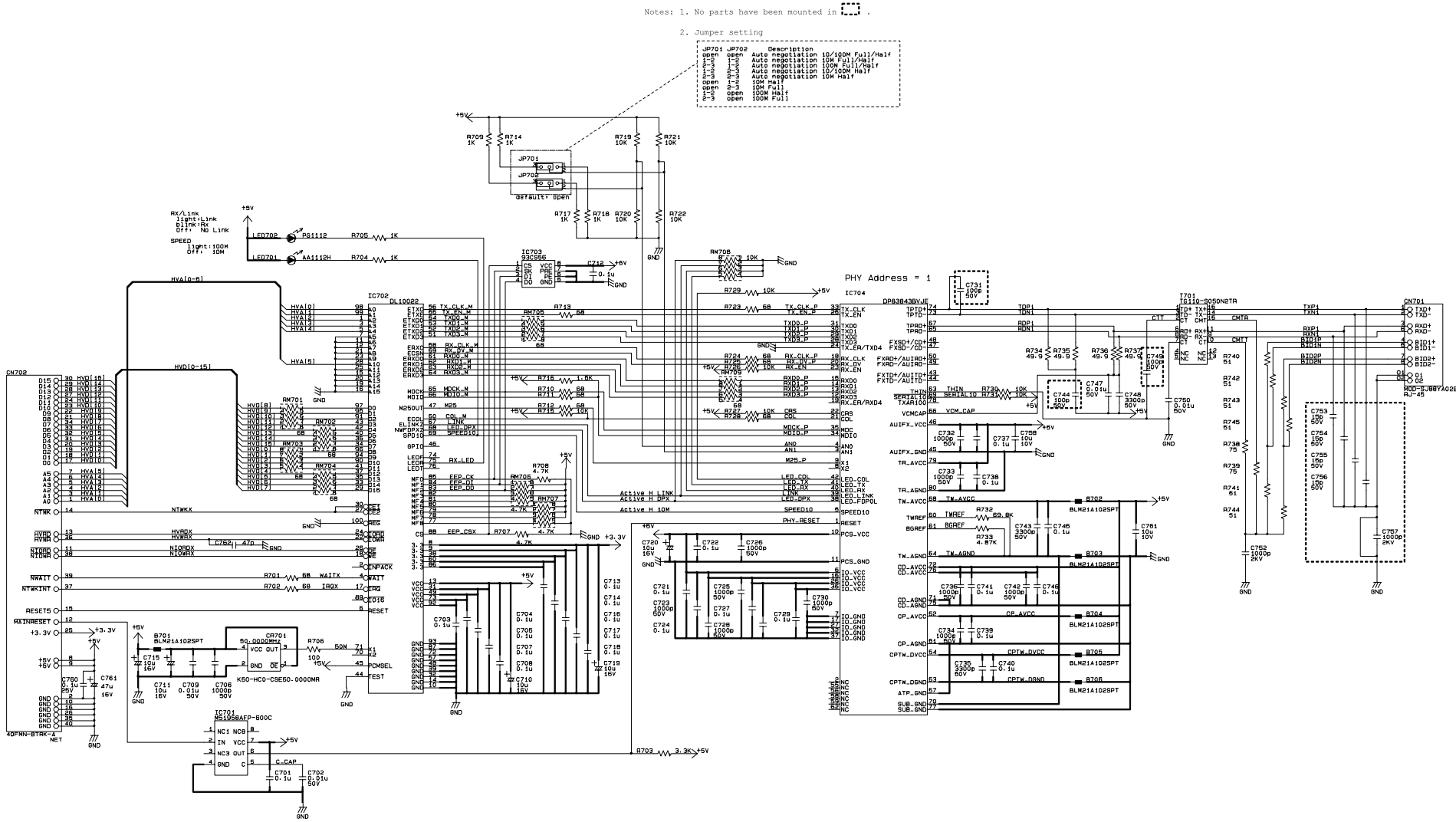
2. No parts have been mounted in ▭

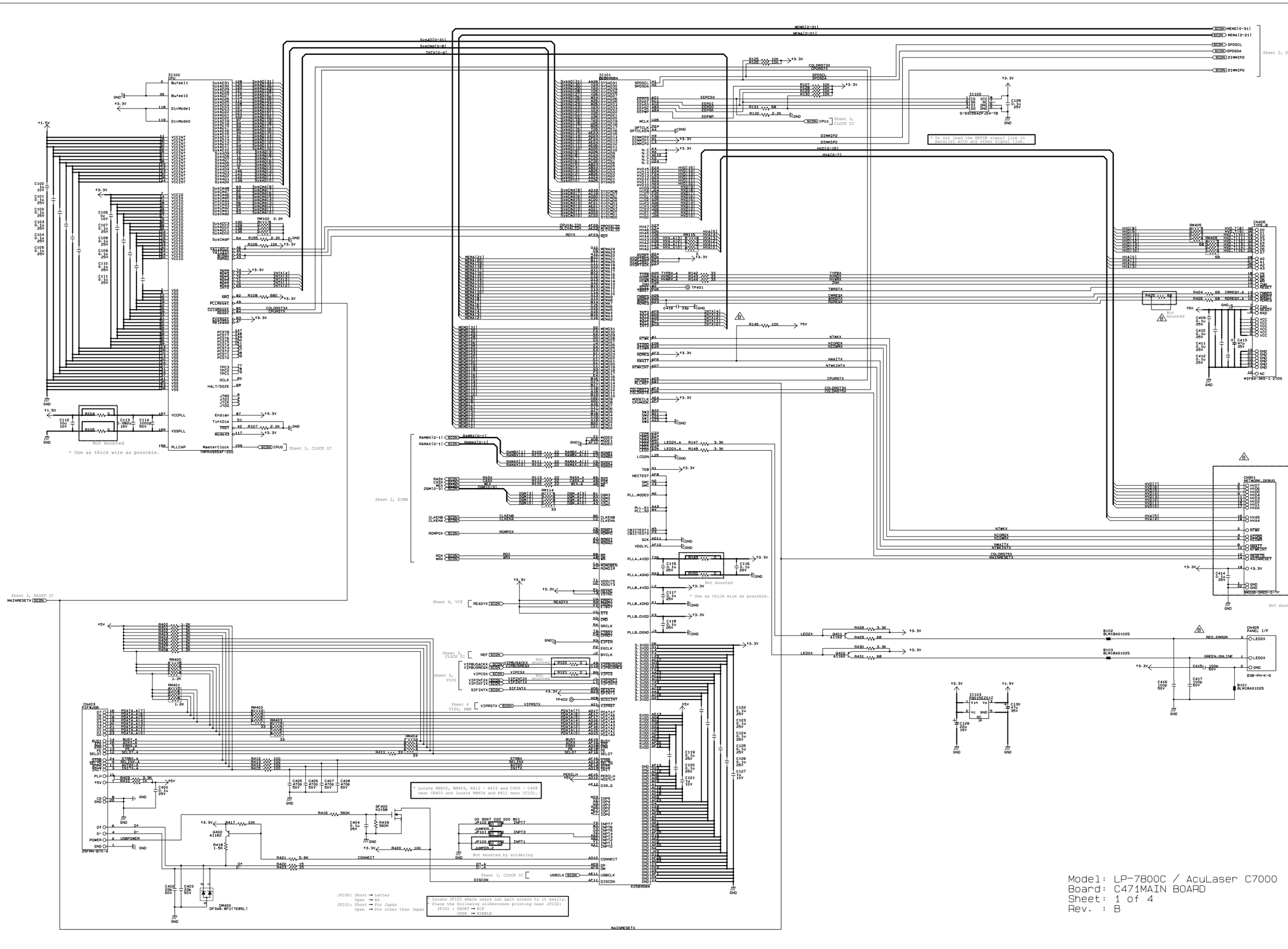
Model: LP-8800C / AcuLaser C8800
Board: C457MAIN BOARD
Sheet: 5 of 6
Rev. : C

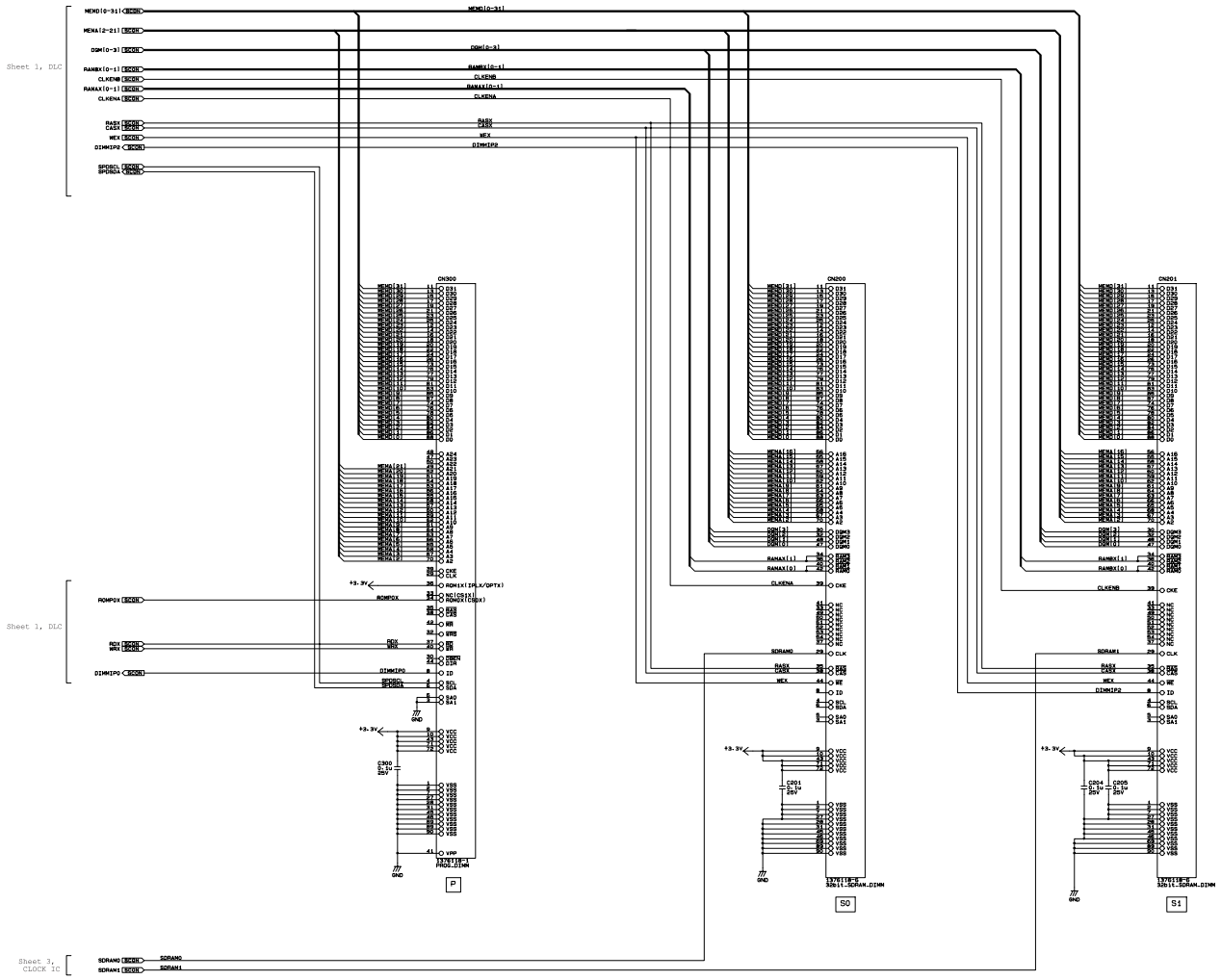


Note 1. No parts have been mounted in [ ].

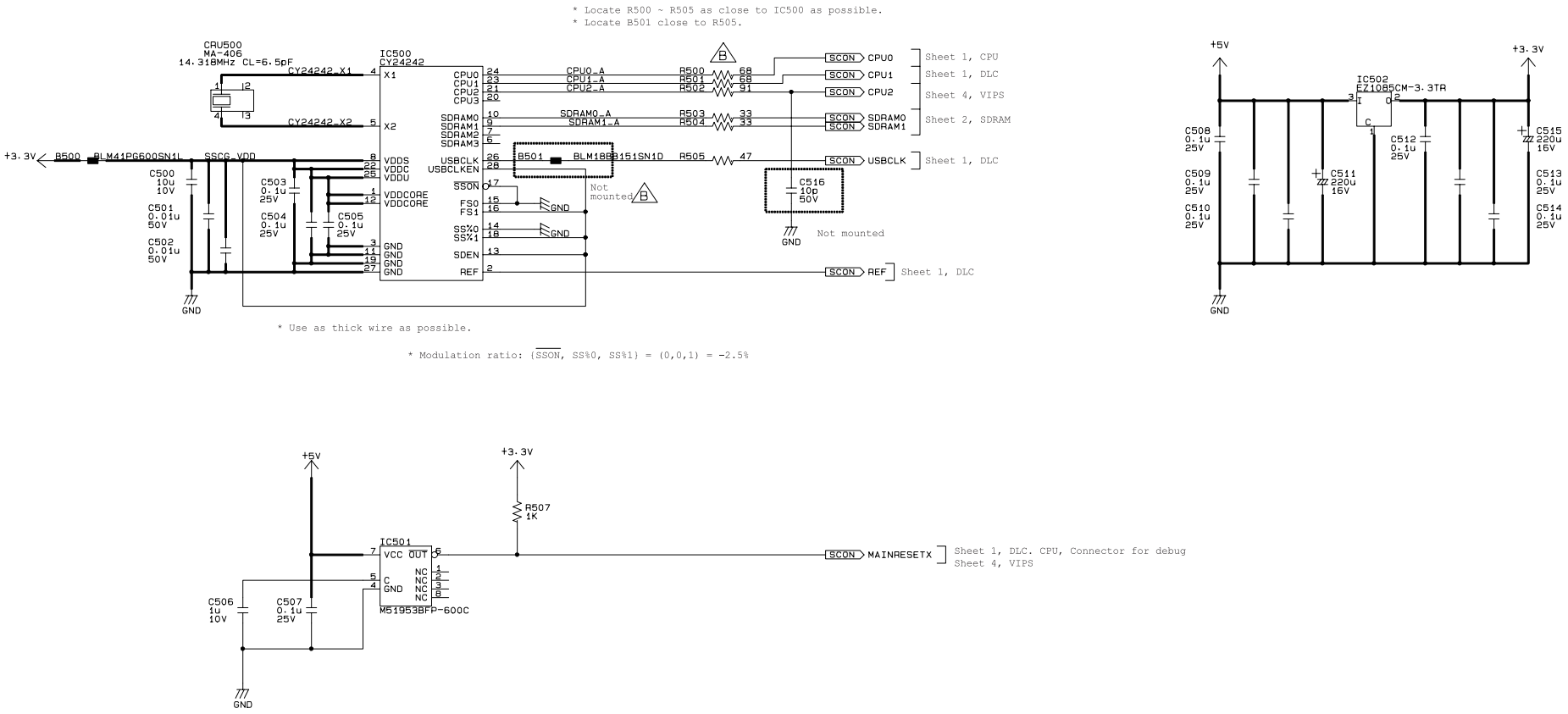
Model: LP-8800C / AcuLaser C8800
Board: C457MAIN BOARD
Sheet: 6 of 6
Rev. : C


Notes: 1. No parts have been mounted in [ ] .
2. Jumper setting
JP701 JP702 Description
open open Auto negotiation 10/100M Full/Half
1-2 1-2 Auto negotiation 10M Full/Half
2-3 2-3 Auto negotiation 100M Full/Half
1-2 2-3 Auto negotiation 10/100M Half
open 1-2 10M Half
open 2-3 10M Full
1-2 open 100M Half
2-3 open 100M Full
default open
PHY Address = 1
IC702 DL10022
IC703 93C56
IC704 DP83843BVJE
IC701 NS1956AFP-500C
CN702
CN701
Y701 T6110-S050N2TR
CA701 50.0000MHz K50-HC0-CSE50.0000MR
Model: LP-8800C / AcuLaser C8800
Board: C457N/W BOARD
Sheet: 1 of 1
Rev. : A

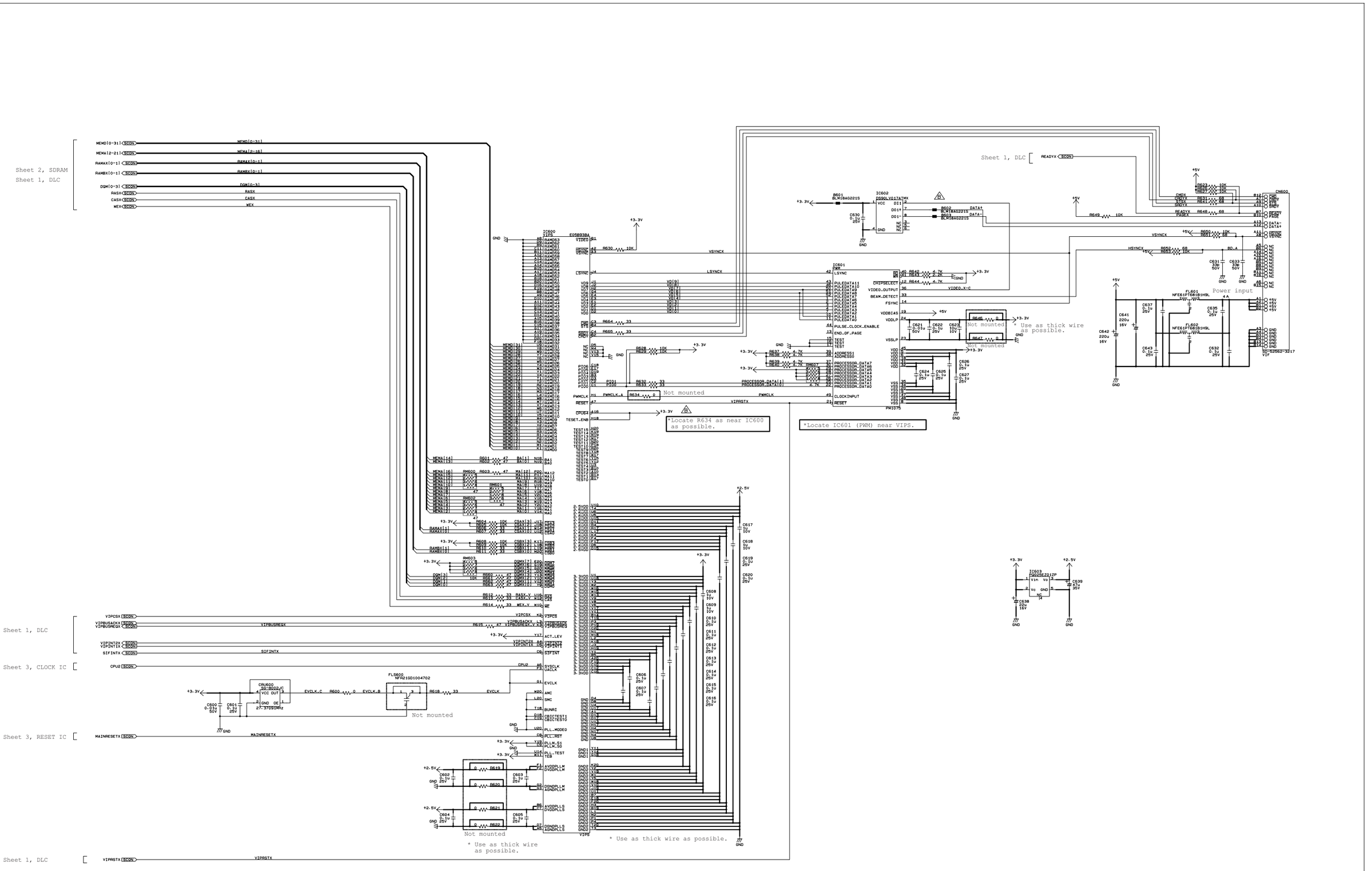

IC100 CPU
TMP44955AF-200
IC101 E05B96BA
IC102 S-93C56ADFJ04-TB
IC103 PQ012EZ01Z
CN403 IEEE1284
CN405 PANEL I/F
CN406 TYPE_B
CN901 NETWORK_DEBUG
CN402 USB
Sheet 2, DIMM
Sheet 3, CLOCK IC
Sheet 3, RESET IC
Sheet 4, VIF
Sheet 4, VIPS
Sheet 4, VIPS, PWM
* Use as thick wire as possible.
* Do not lead the EEPSK signal line in parallel with any other signal line.
* Locate RM402, RM403, R412 ~ R415 and C405 ~ C408 near CN403 and locate RM404 and R411 near IC101.
* Locate JP102 where users can gain access to it easily.
* Place the following silk-screen printing near JP102:
JP102 : SHORT → ECP
OPEN → NIBBLE
JP100: Short → Letter
Open → A4
JP101: Short → For Japan
Open → For other than Japan
Not mounted
Not mounted by soldering
Model: LP-7800C / AcuLaser C7000
Board: C471MAIN BOARD
Sheet: 1 of 4
Rev. : B



Model: LP-7800C / AcuLaser C7000
Board: C471MAIN BOARD
Sheet: 2 of 4
Rev. : B



Model: LP-7800C / AcuLaser C7000
Board: C471MAIN BOARD
Sheet: 3 of 4
Rev. : B

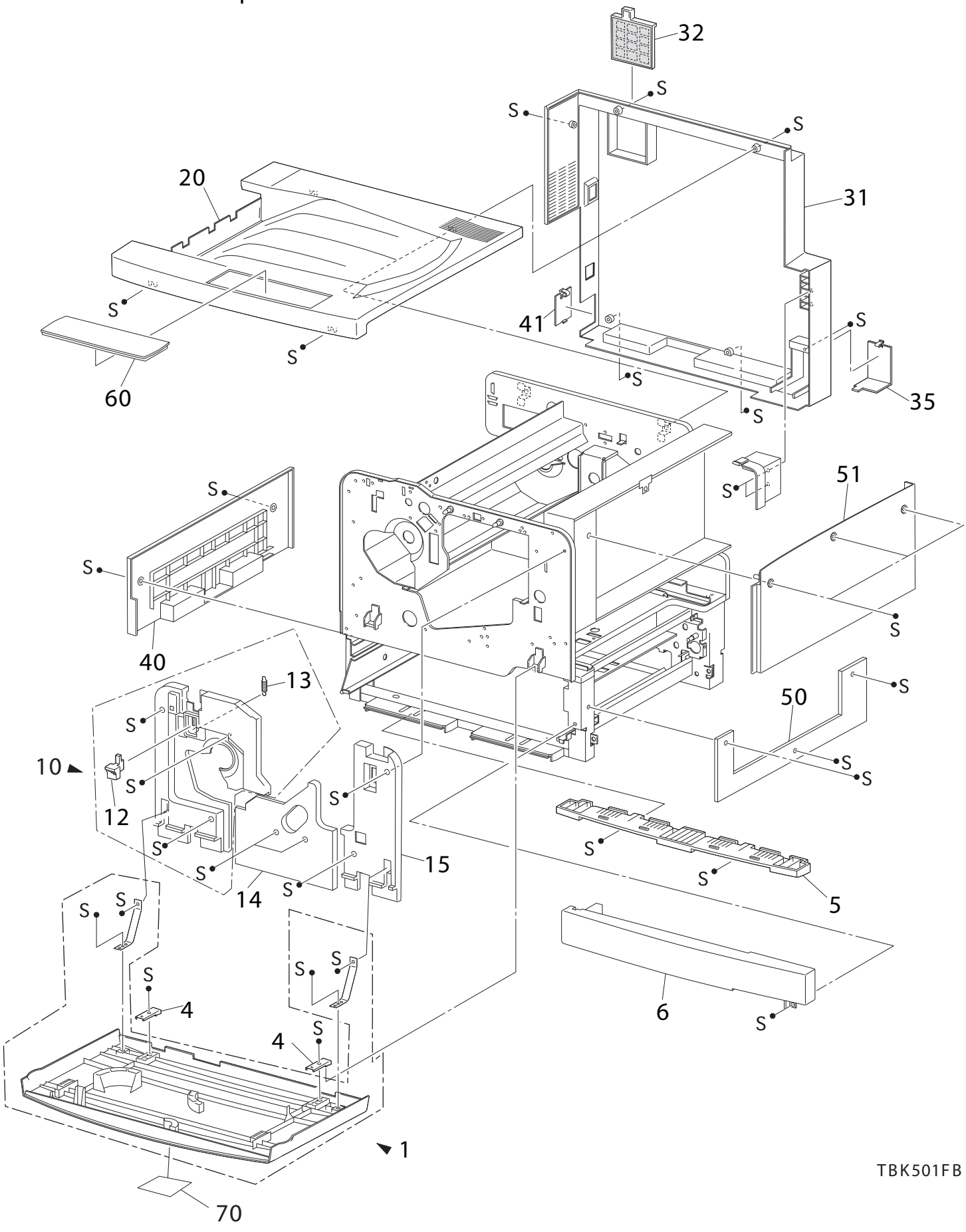

Sheet 2, SDRAM
Sheet 1, DLC
MEMD[0-31]
MEMA[2-16]
RAMAX[0-1]
RAMBX[0-1]
DQM[0-3]
RASX
CASX
WEX
IC600
PIPS
E05B93BA
VIDEO
HSYNC
VSYNC
LSYNC
VD[0-9]
PWMCLK
RESET
CPU64
TESET_ENB
TEST[15-0]
PIO[6-0]
PIO[4-0]
PIO[3-0]
PIO[2-0]
PIO[1-0]
PIO0
PWMCLK_A
R634
0
Not mounted
*Locate R634 as near IC600 as possible.
VIPRSTX
IC601
PWM
CRTPSELECT
VIDEO_OUTPUT
BEAM_DETECT
FSYNC
VDDBIAS
VDDLP
VSSLP
PULEDATA[11-0]
PULSE_CLOCK_ENABLE
END_OF_PAGE
TEST
ADDRESS[1-0]
PROCESSOR_DATA[7-0]
CLOCKINPUT
RESET
PM1075
*Locate IC601 (PWM) near VIPS.
Sheet 1, DLC
READYX
IC602
DS90LV017ATMX
BLM18AG221S
DATA+
DATA-
VIDEO_X-C
Not mounted
* Use as thick wire as possible.
CN600
CMDX
CSYX
SIAX
SMAYX
READYX
PAGEX
DATA-
DATA+
HSYNCX
VSYNCX
RD_A
FL601
NFE61PT681B1H9L
FL602
Power input
SD-52562-3217
VIF
Sheet 1, DLC
VIPCSX
VIPBUSACKX
VIPBUSREQX
VIPINT2X
VIPINT1X
SIFINTX
VIPCSX
VIPBUSACKX
VIPBUSREQ
ACT_LEV
VIPINT2
VIPINT1
SIFINT
Sheet 3, CLOCK IC
CPU2
SYSCLK
UACLK
EVCLK
AMC
SMC
BUNRI
CBICTEST1
CBICTEST0
PLL_MODE0
PLL_RST
PLLM_S1
PLLM_S0
PLL_TEST
TEB
CRU600
SG-8002JC
27.37051MHz
FL5600
NFRG1GD1004702
EVCLK_C
EVCLK_B
R600
0
R618
33
Not mounted
Sheet 3, RESET IC
MAINRESETX
PLL_RST
Sheet 1, DLC
VIPRSTX
AVDDPLLM
DVDDPLLM
DGNDPLLM
AGNDPLLM
AVDDPLLS
DVDDPLLS
DGNDPLLS
AGNDPLLS
Not mounted
* Use as thick wire as possible.
* Use as thick wire as possible.
+2.5V
IC603
PQ025EZ01ZP
C639
47u
35V
C638
68u
10V
Model: LP-7800C / AcuLaser C7000
Board: C471MAIN BOARD
Sheet: 4 of 4
Rev. : B

7.5 Exploded Diagrams

This section shows exploded diagrams of AcuLaser C8600 and AcuLaser C7000.

- AcuLaser C8600 : page 504
- AcuLaser C7000 : page 527

The parts to which no reference number is assigned will not be available as after-sale service parts.



TBK501FB

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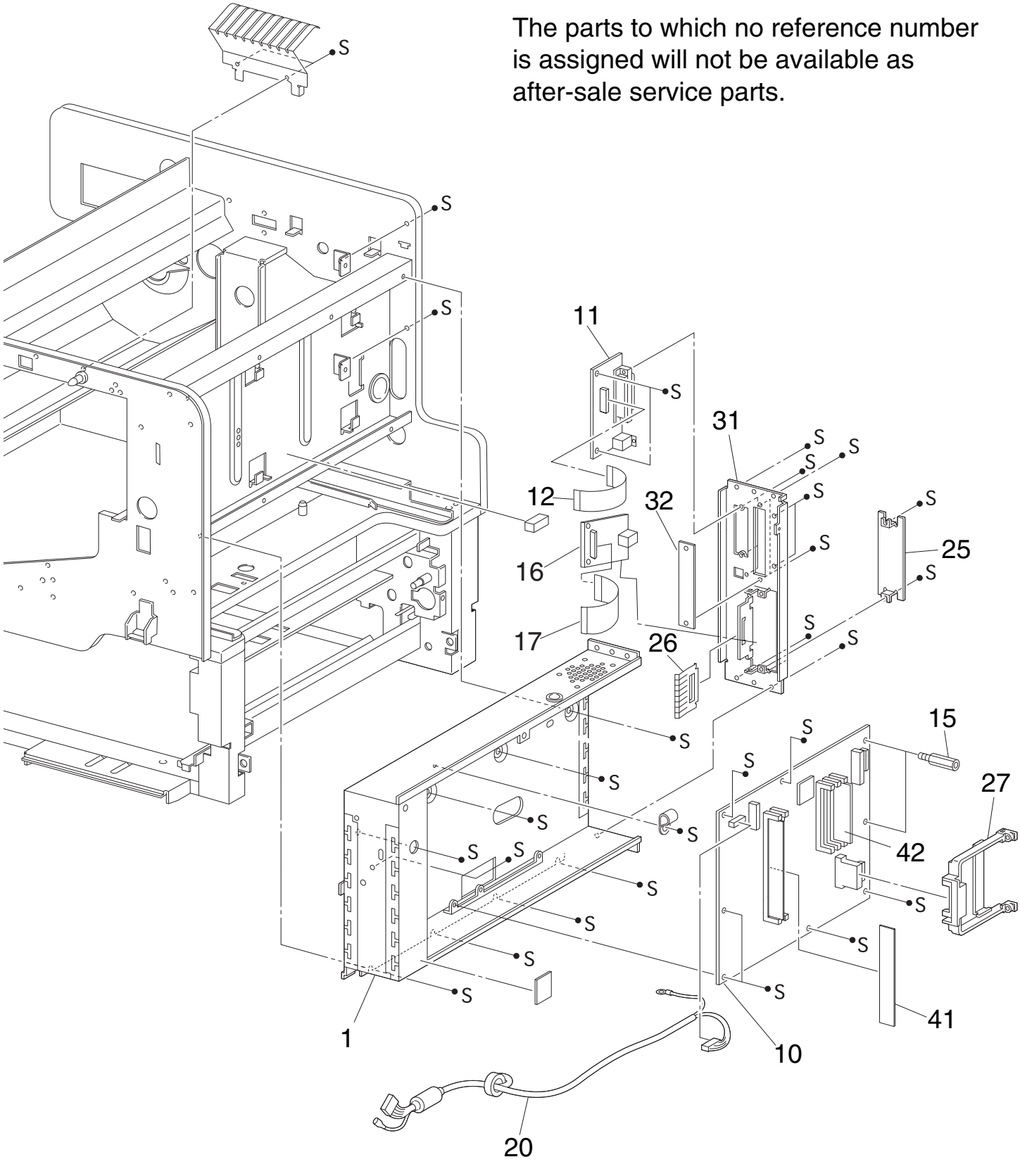

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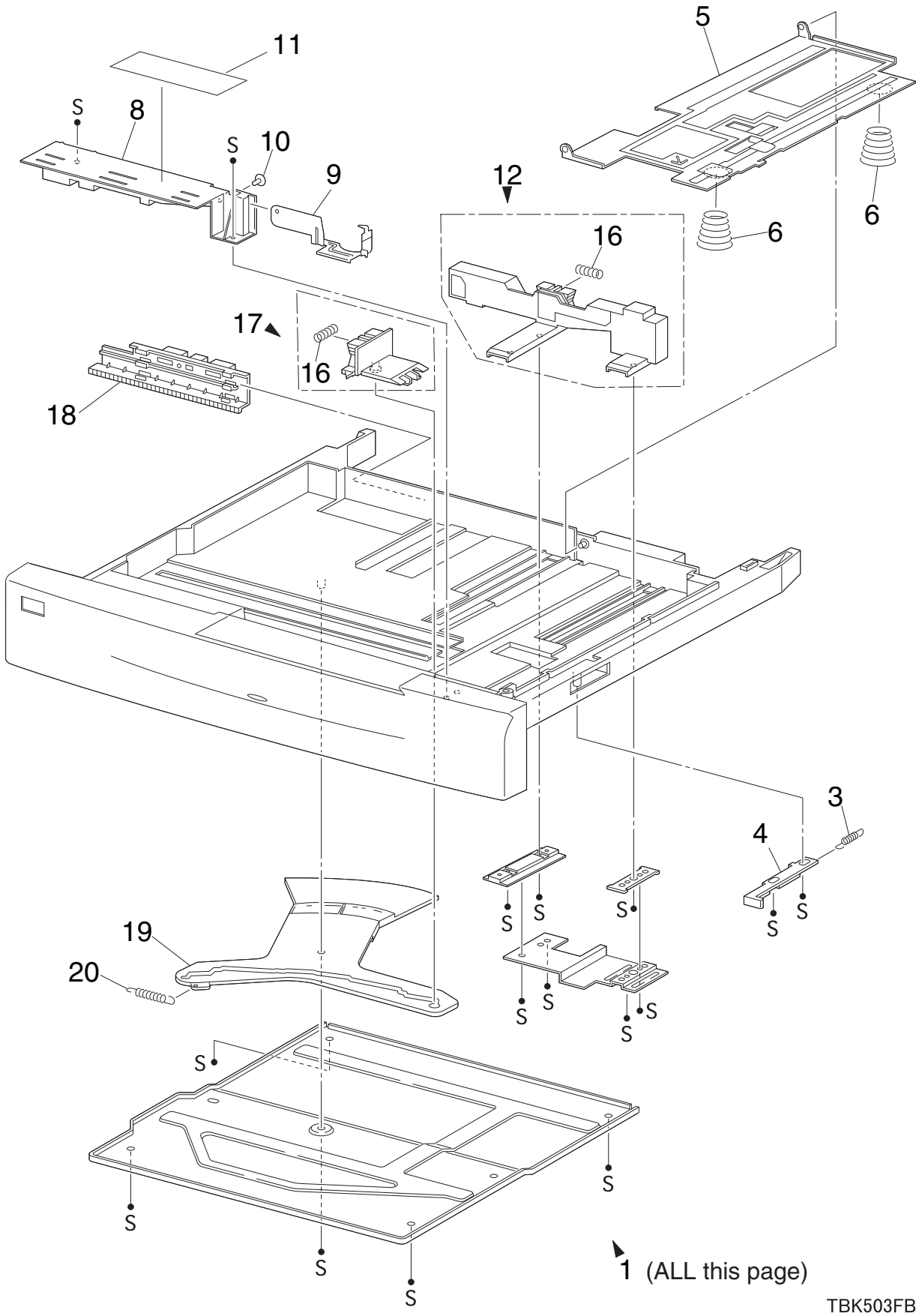

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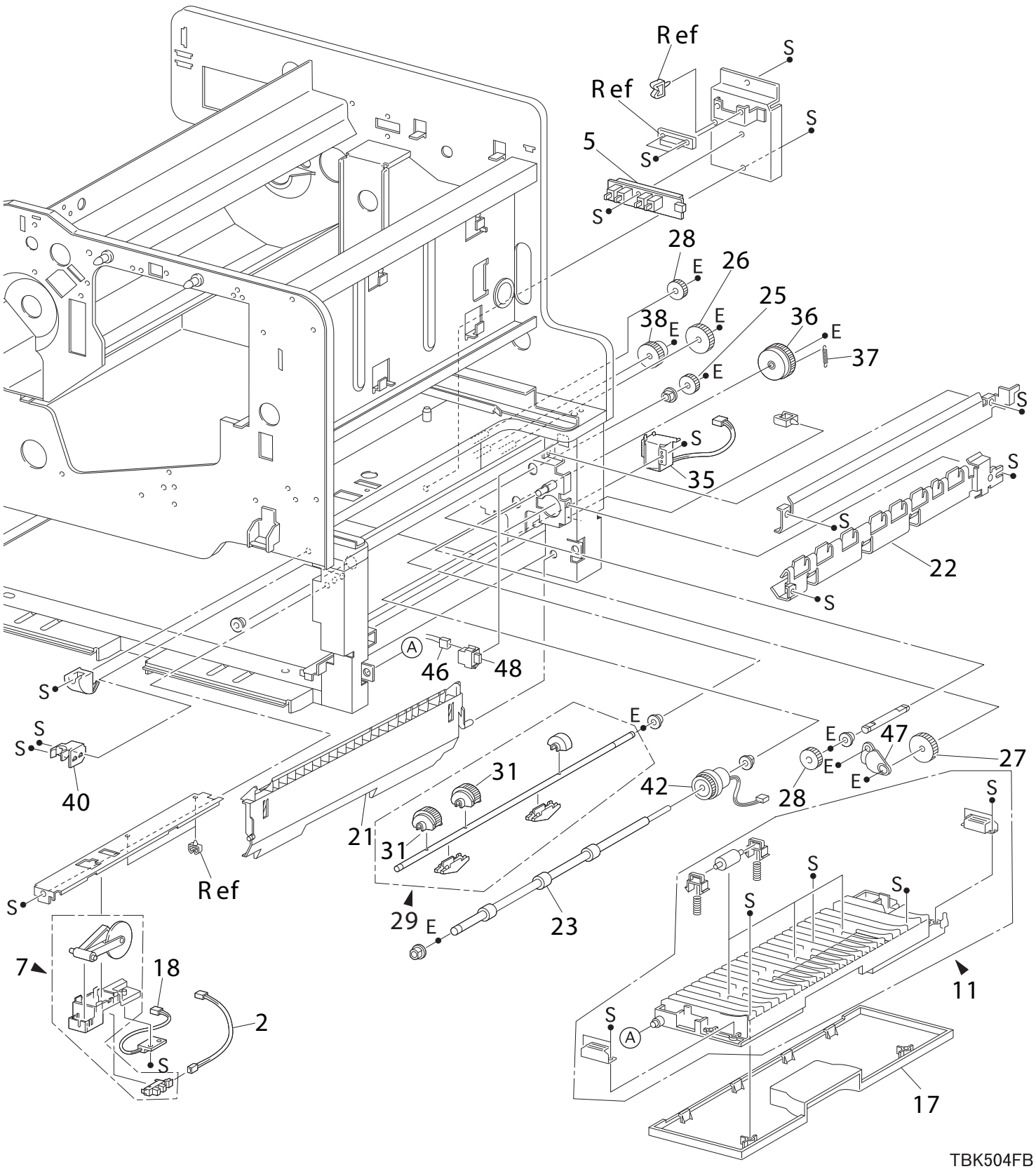

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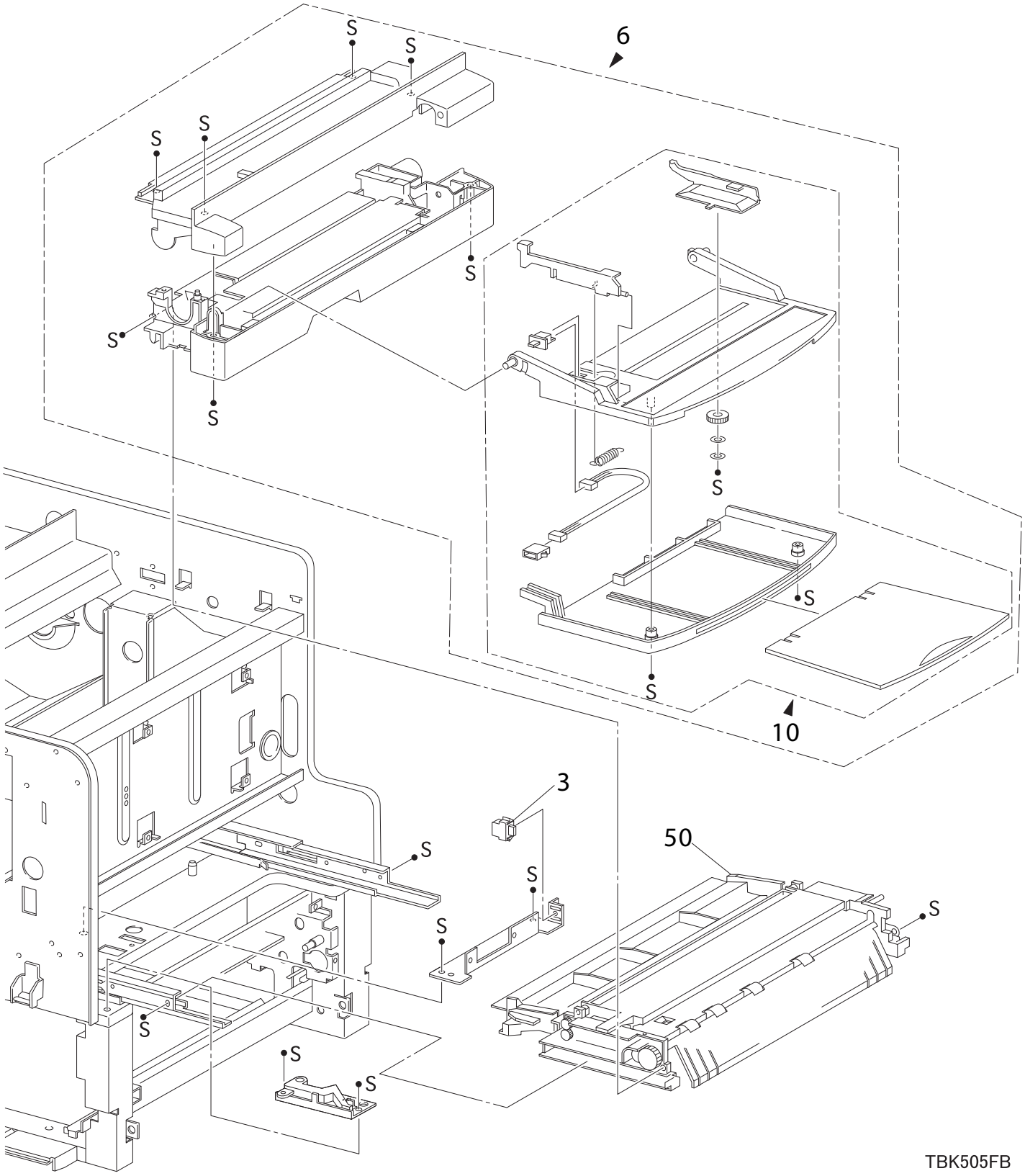

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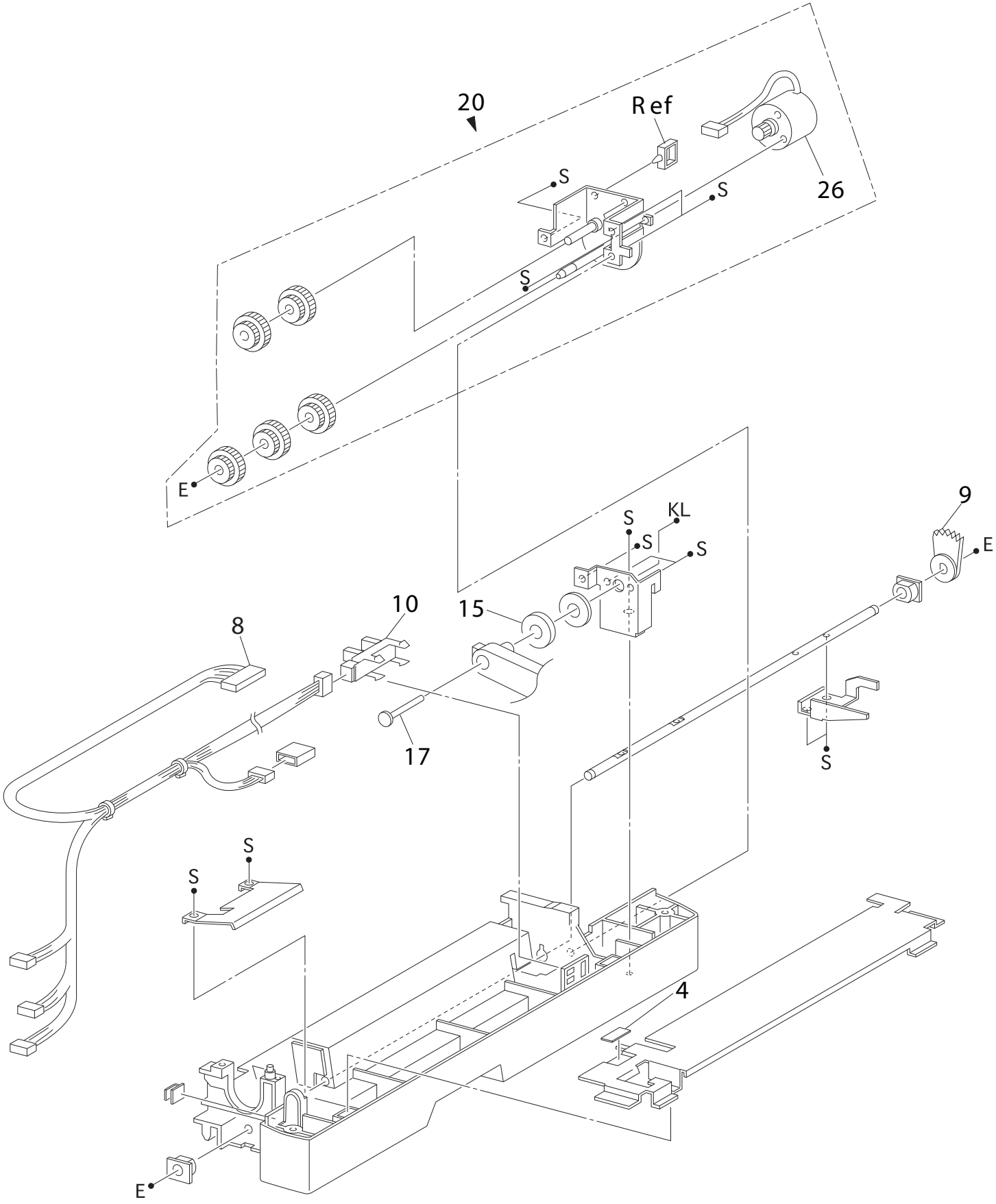

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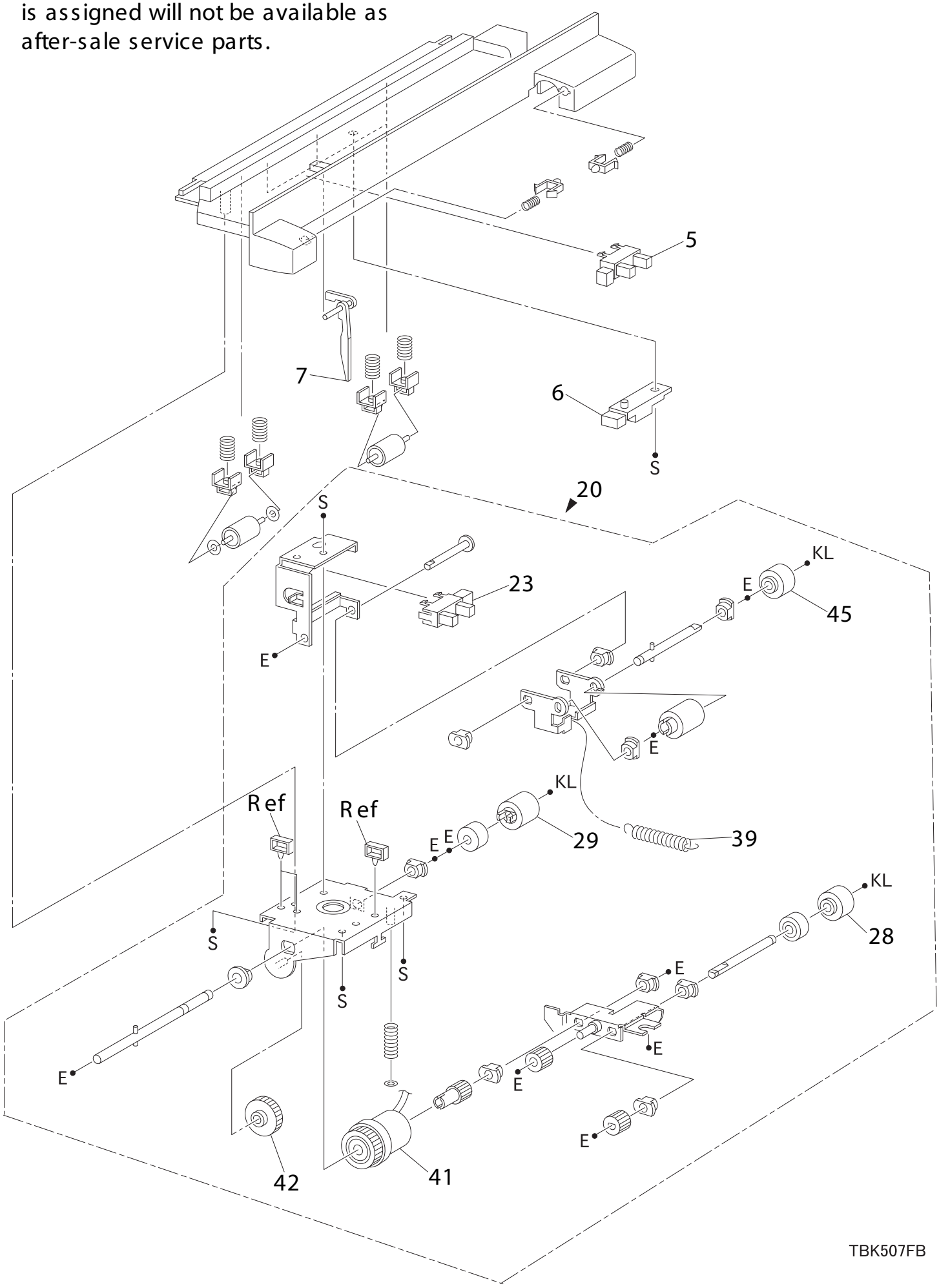

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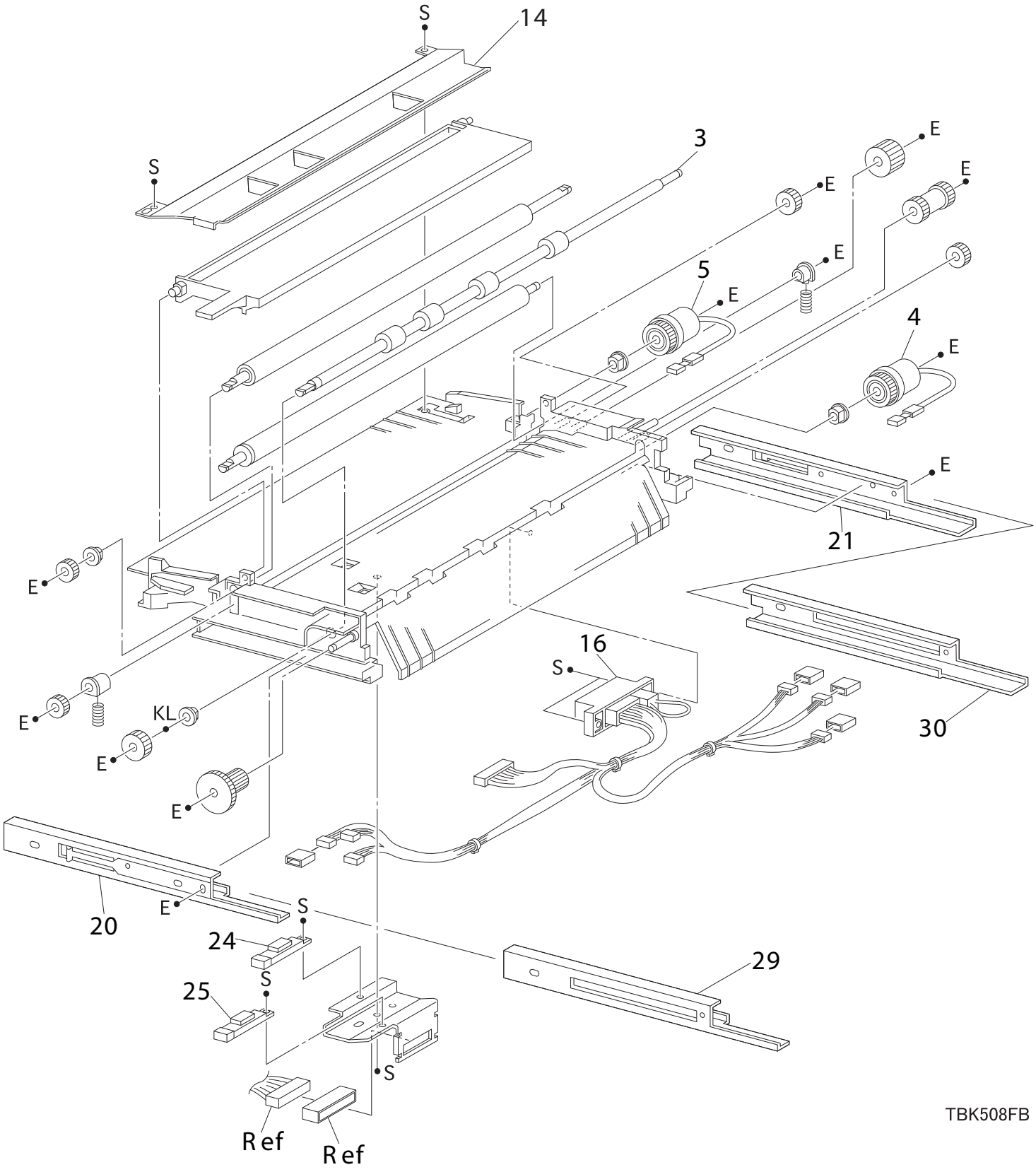

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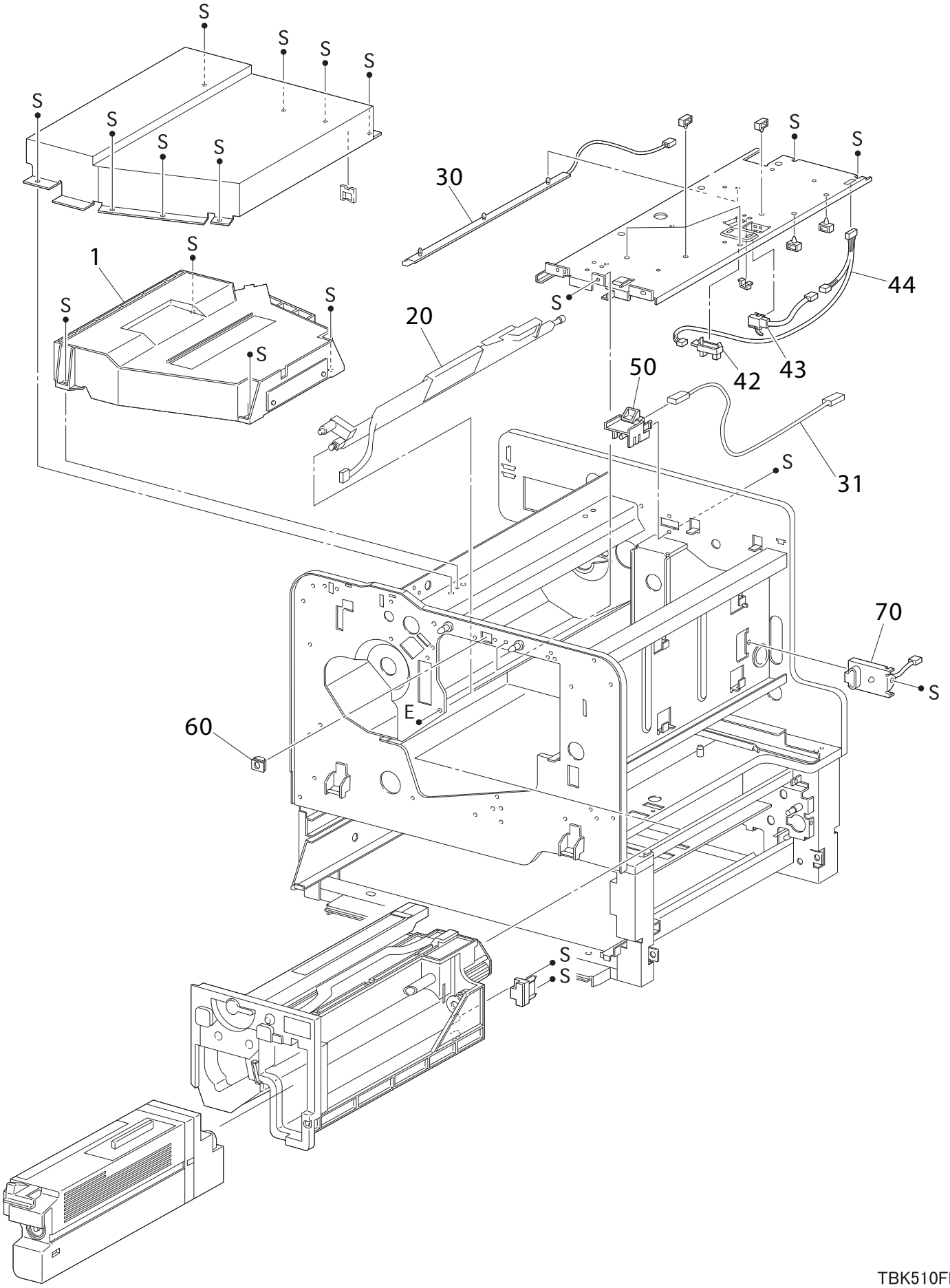

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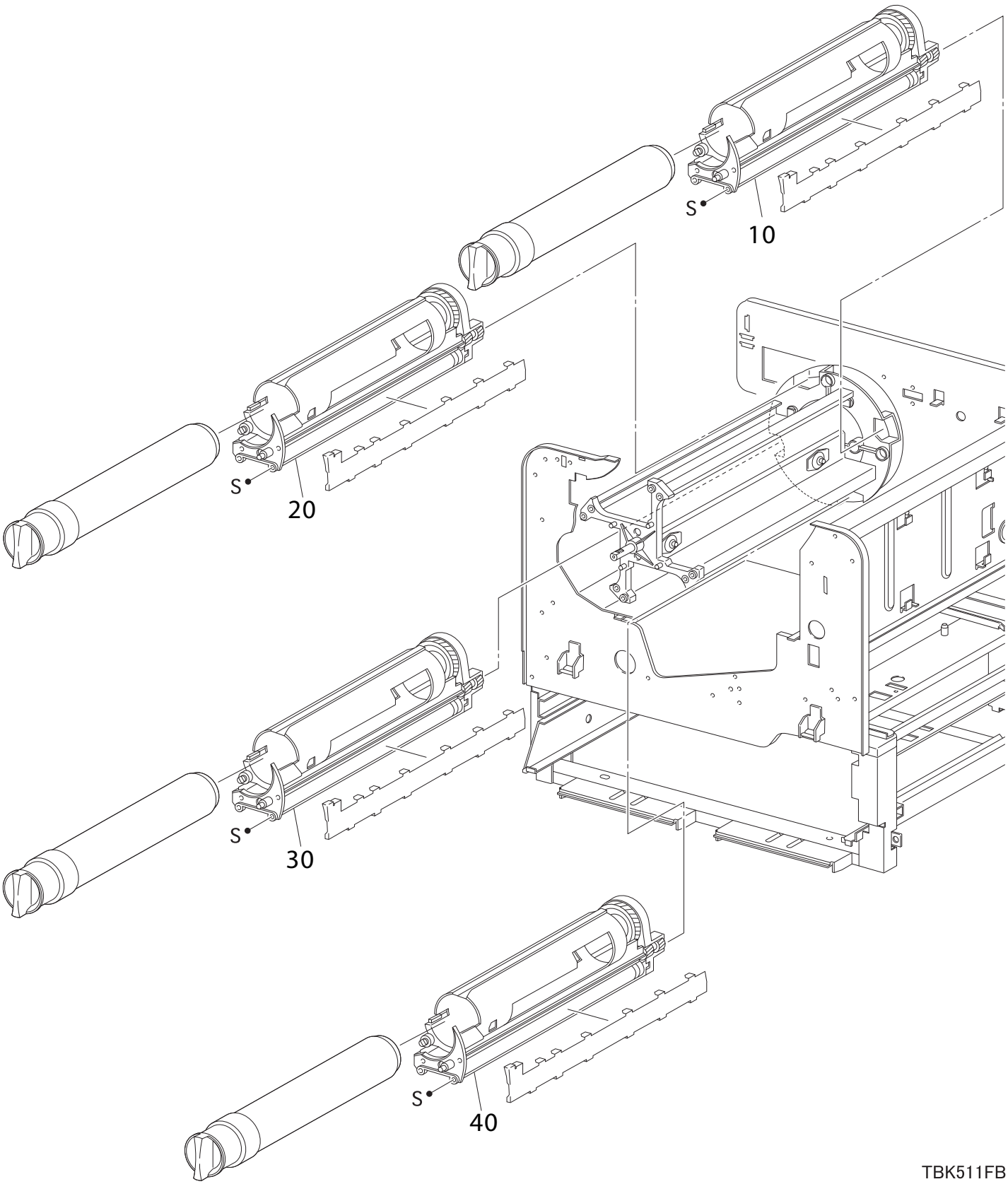

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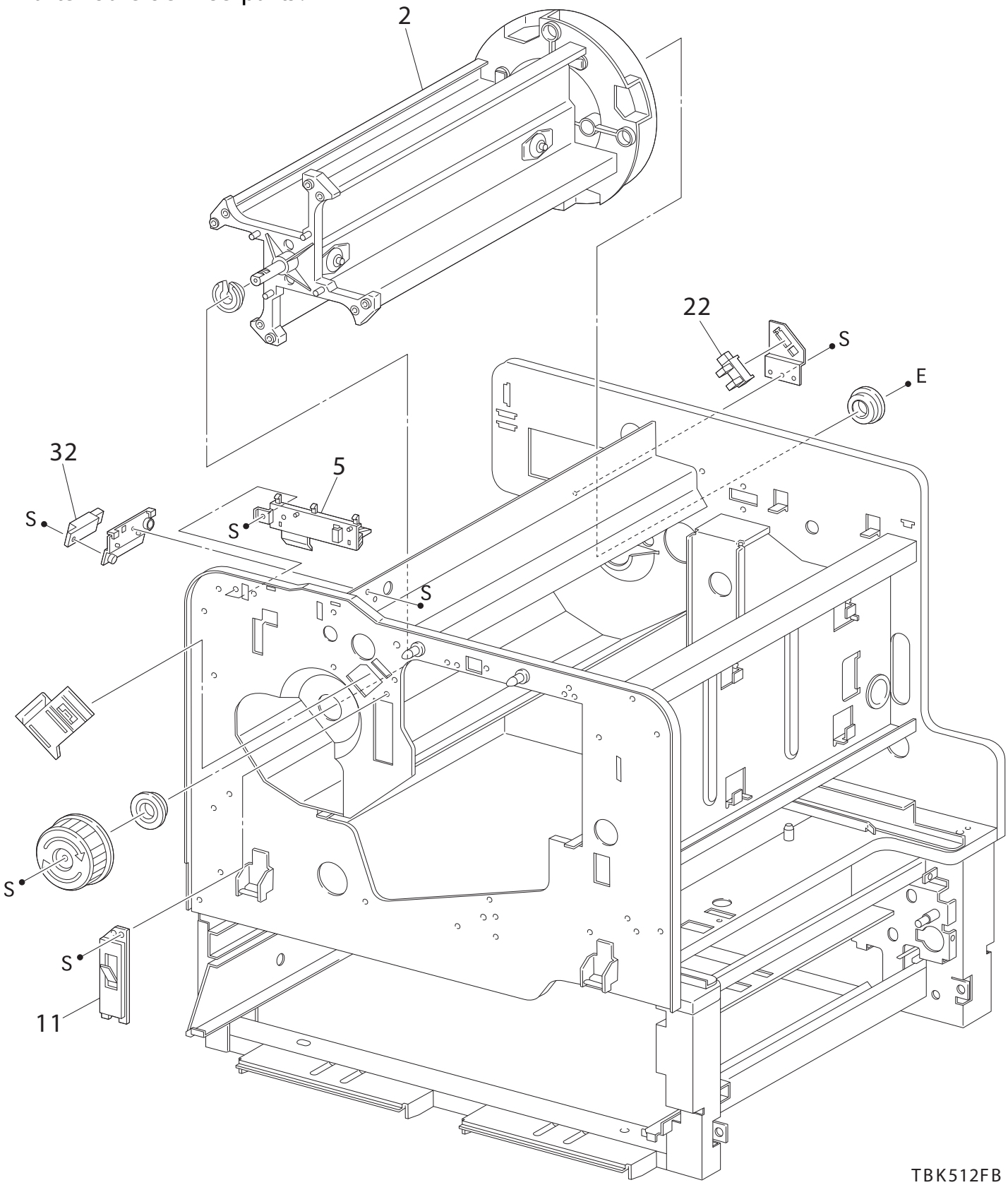

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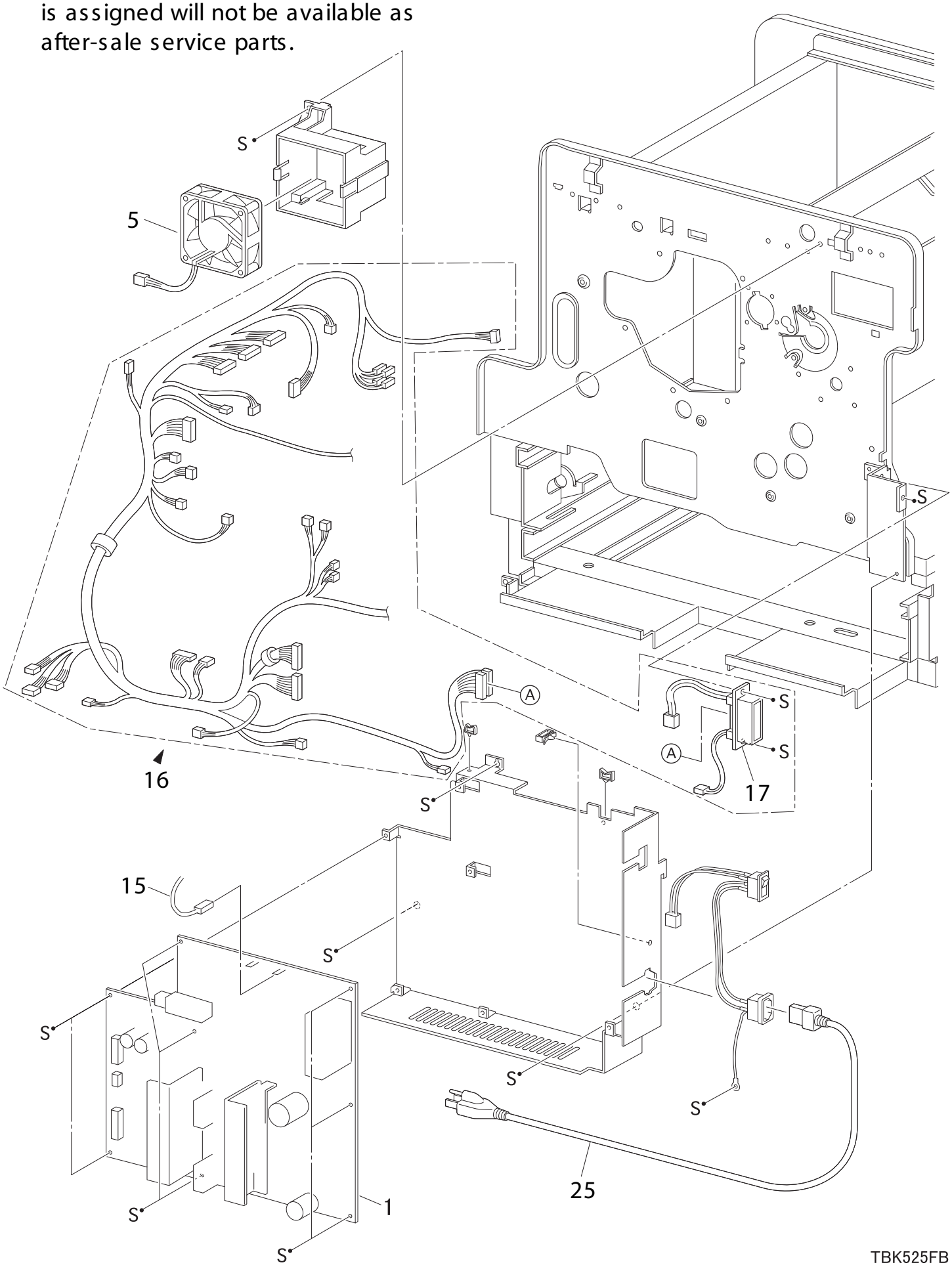

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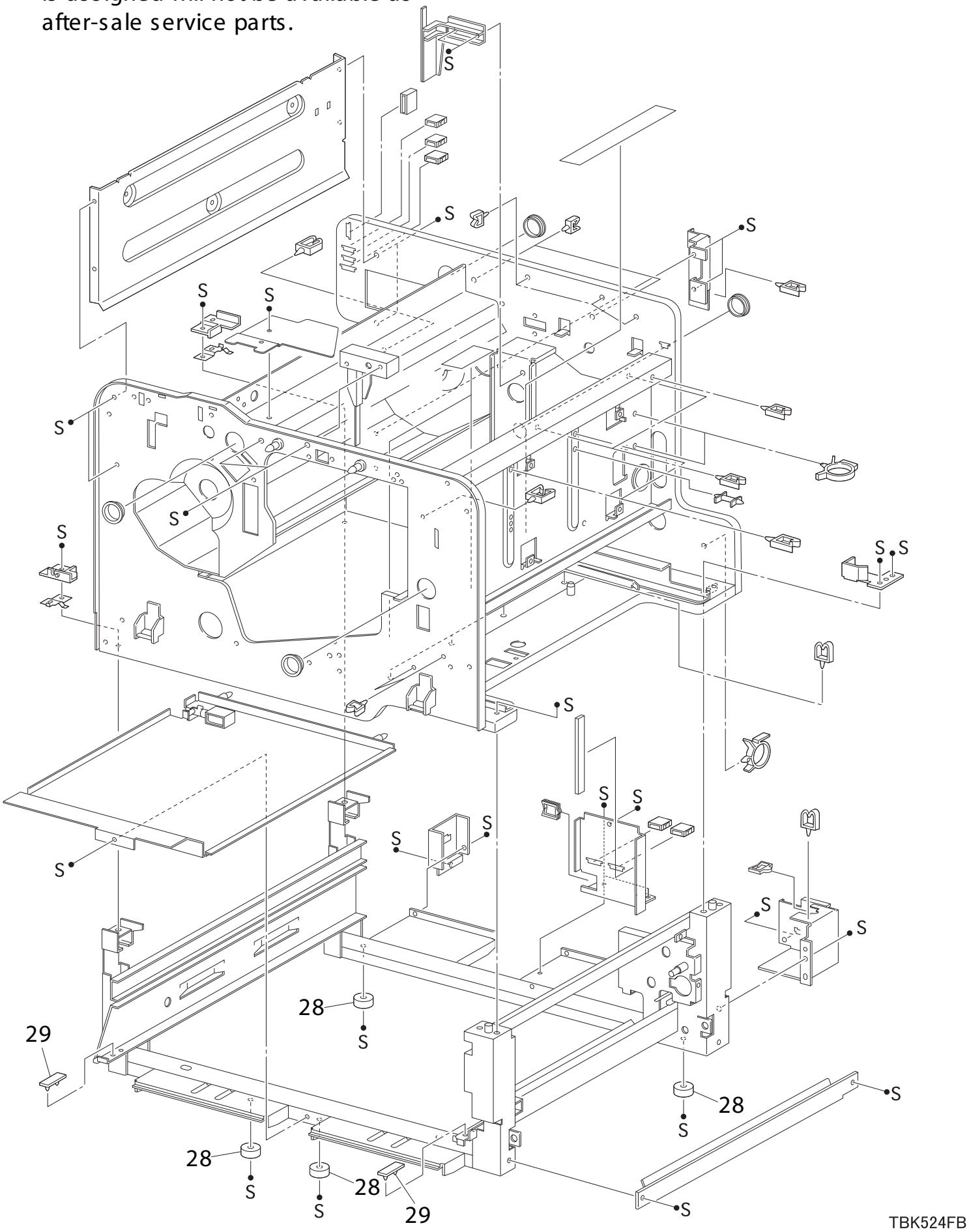

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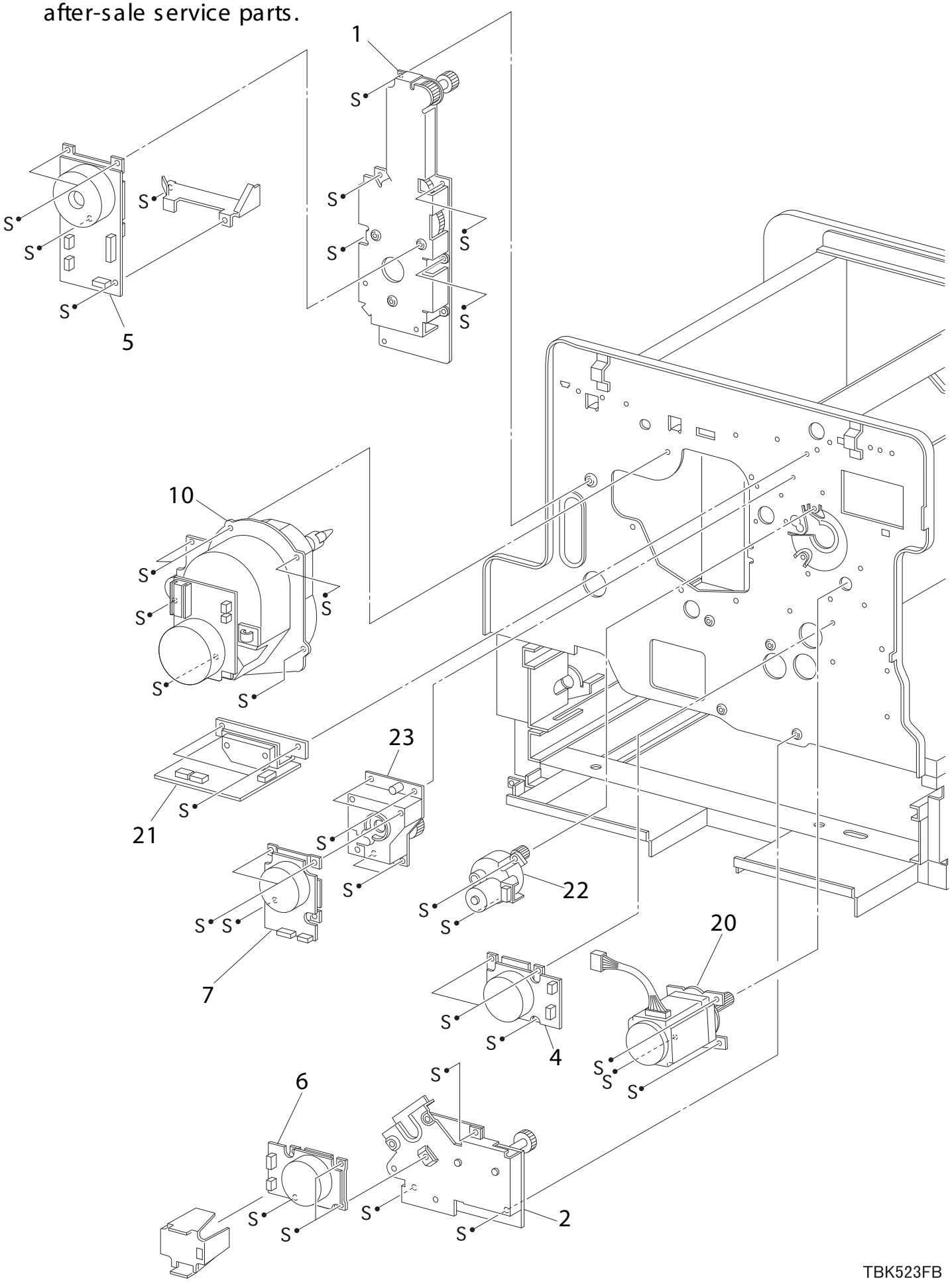

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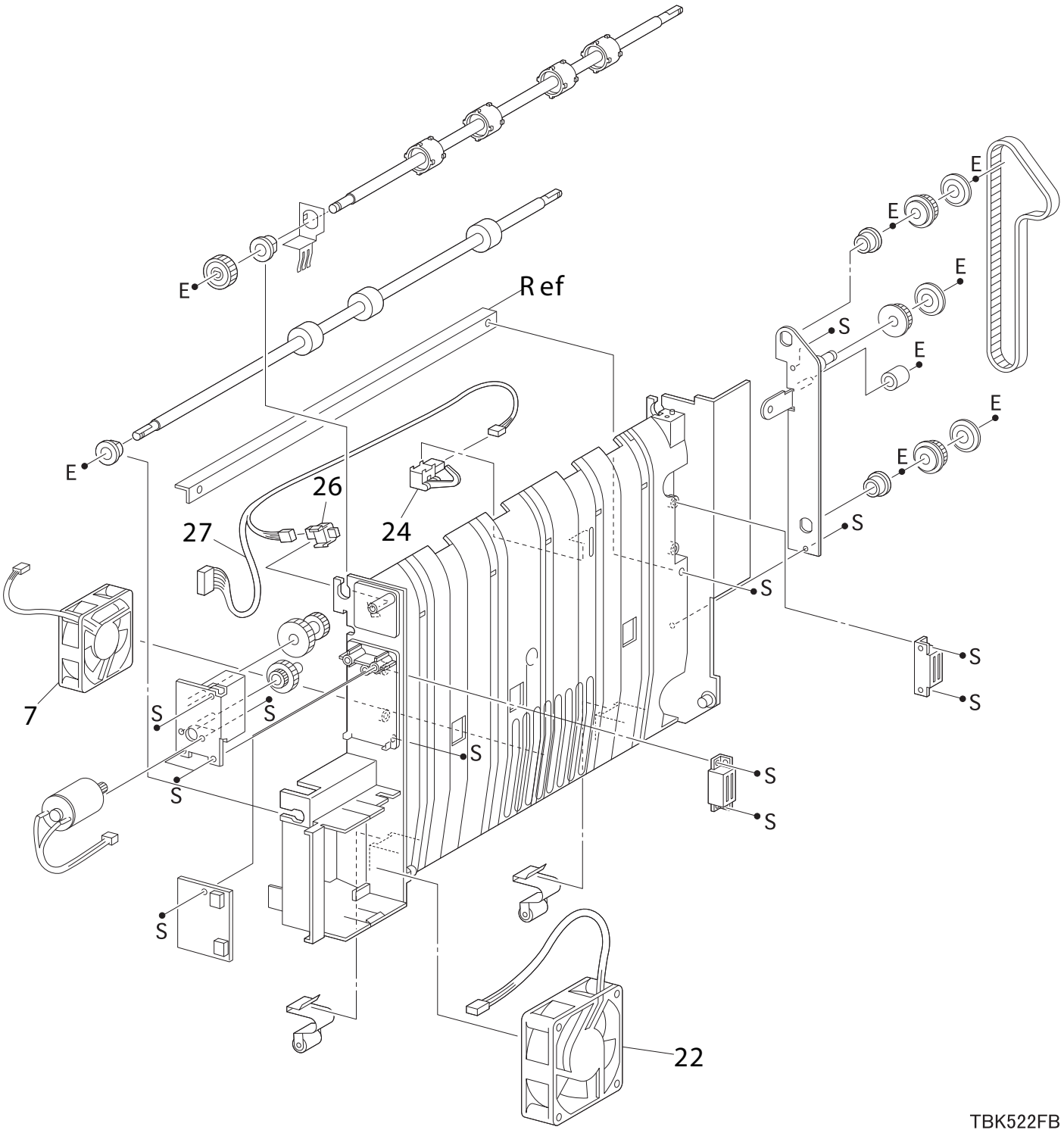

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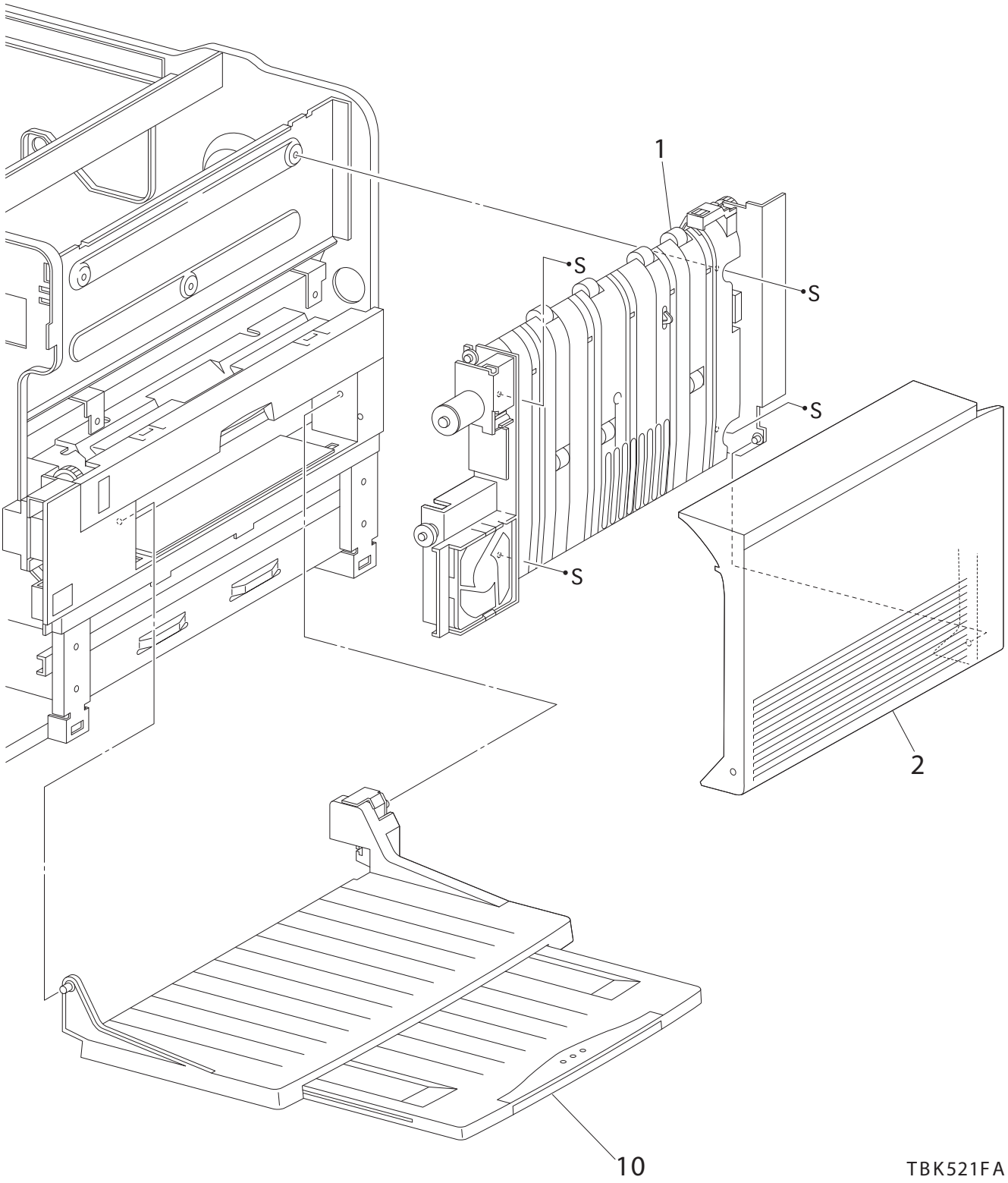

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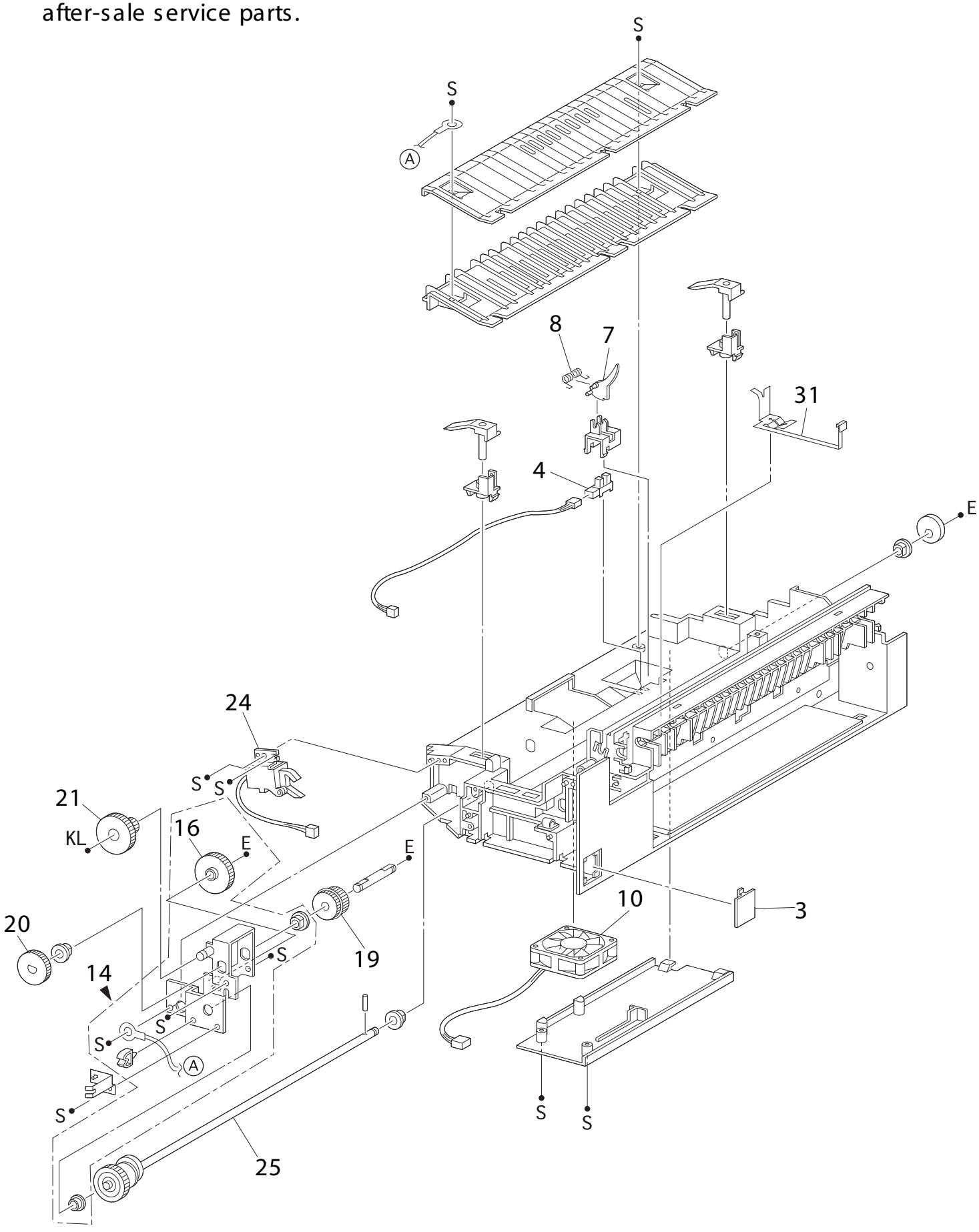

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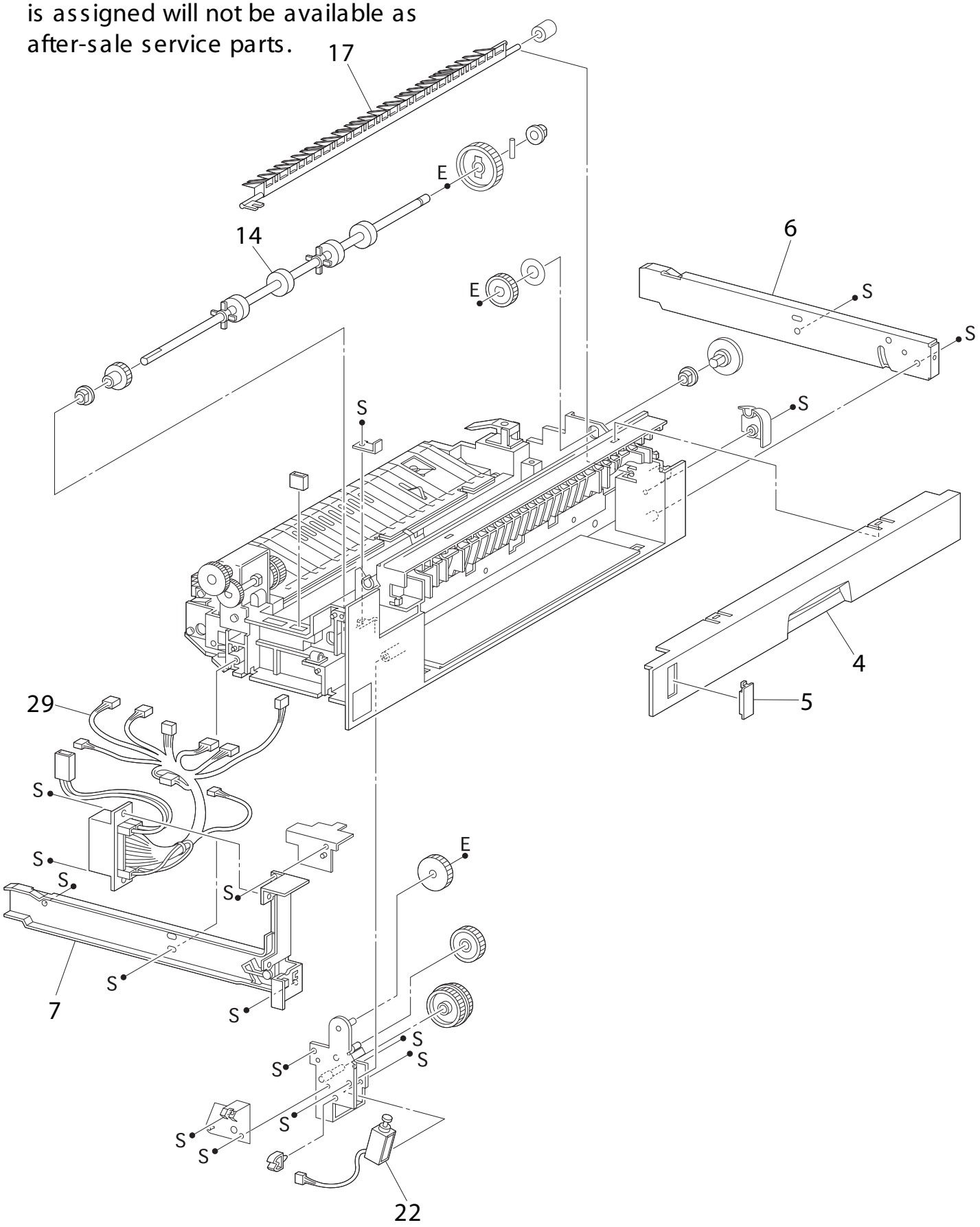

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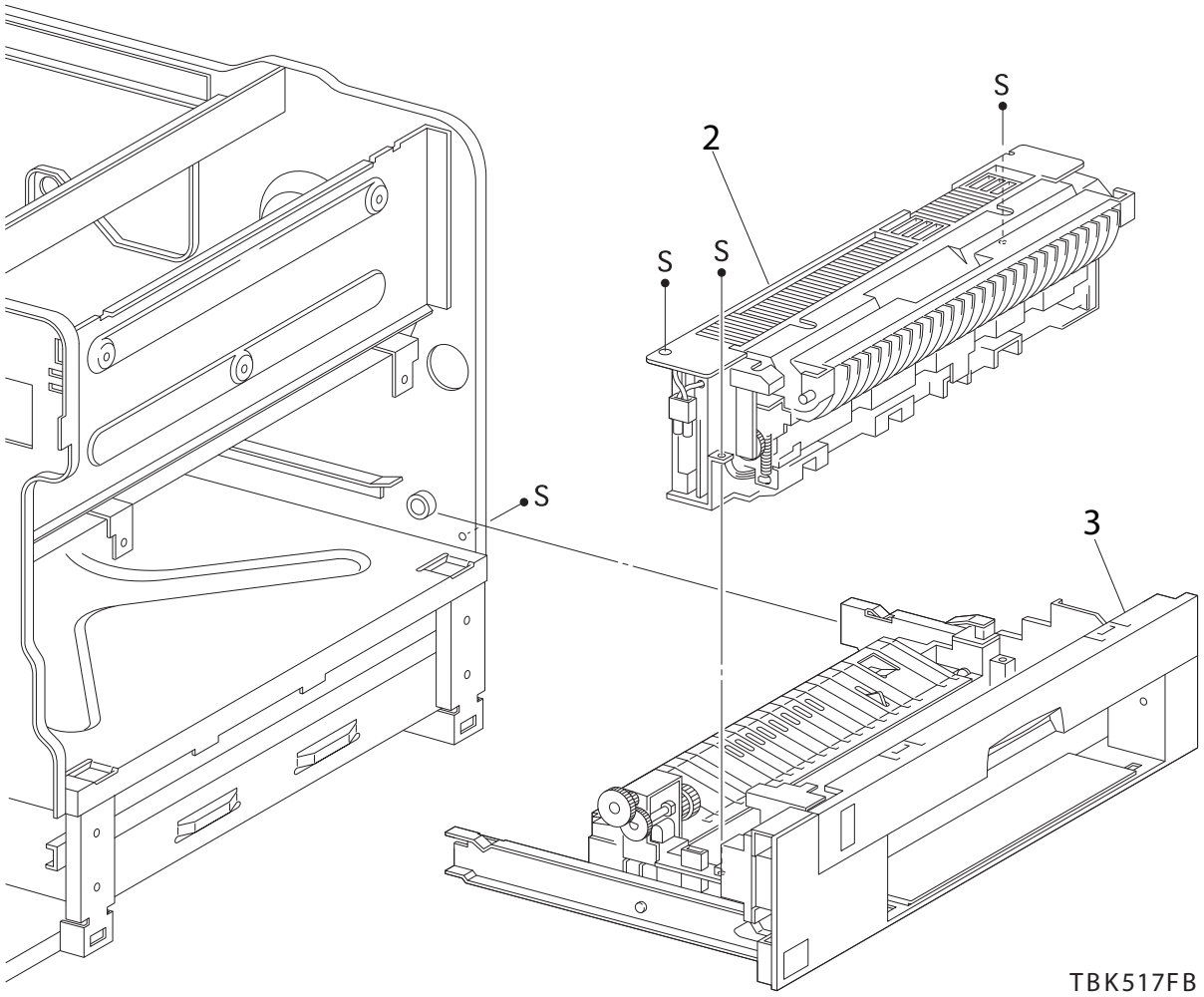

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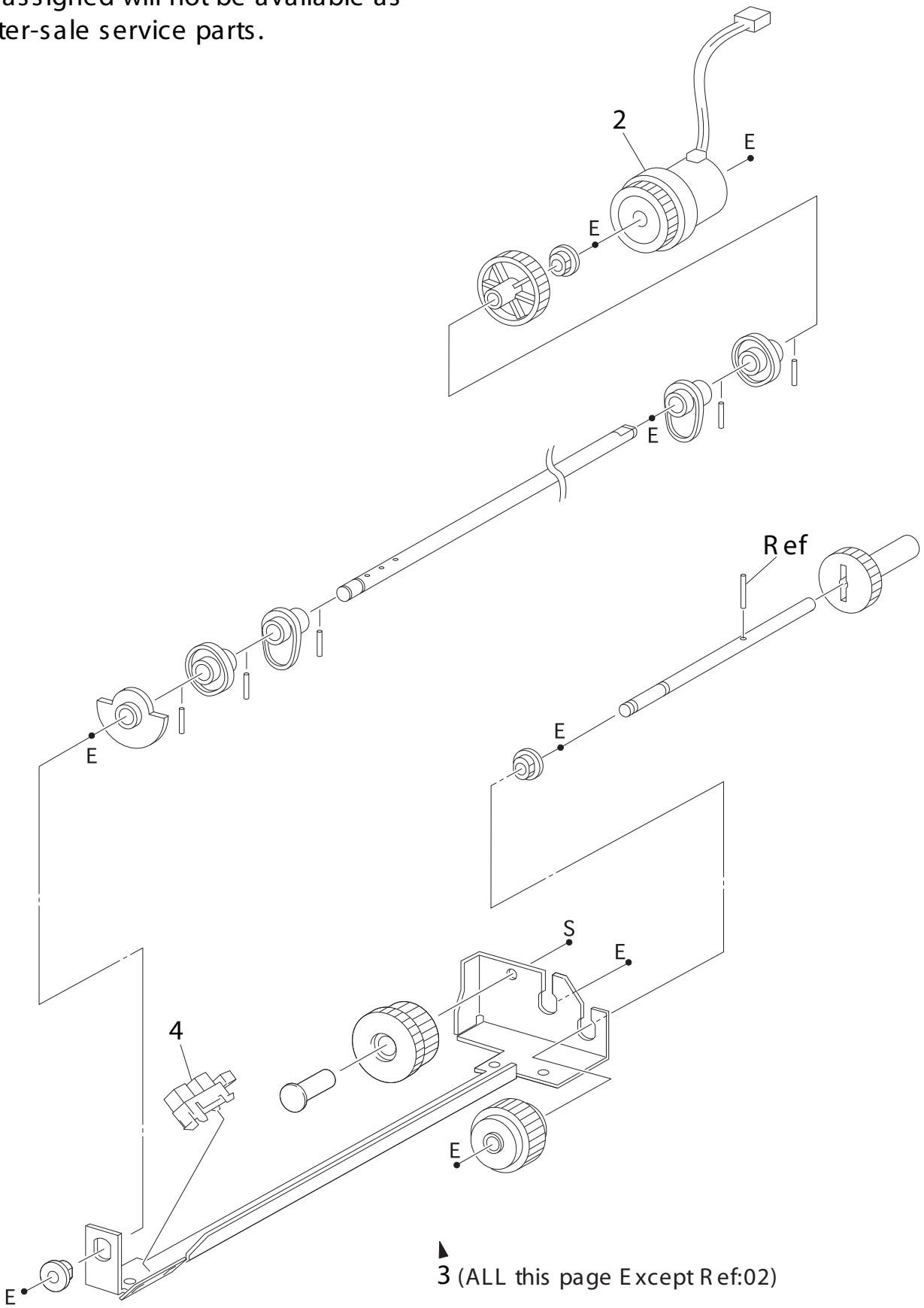

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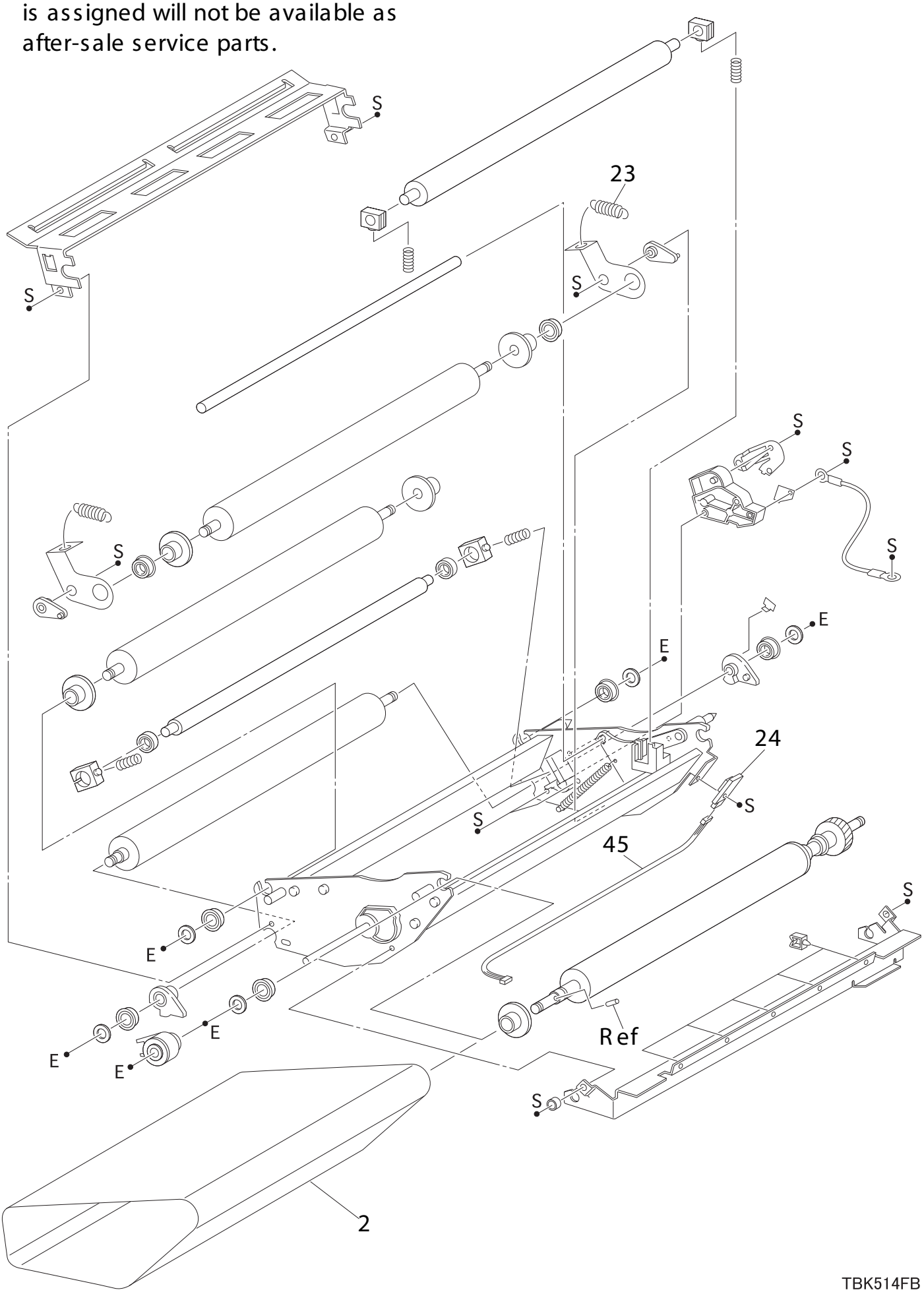

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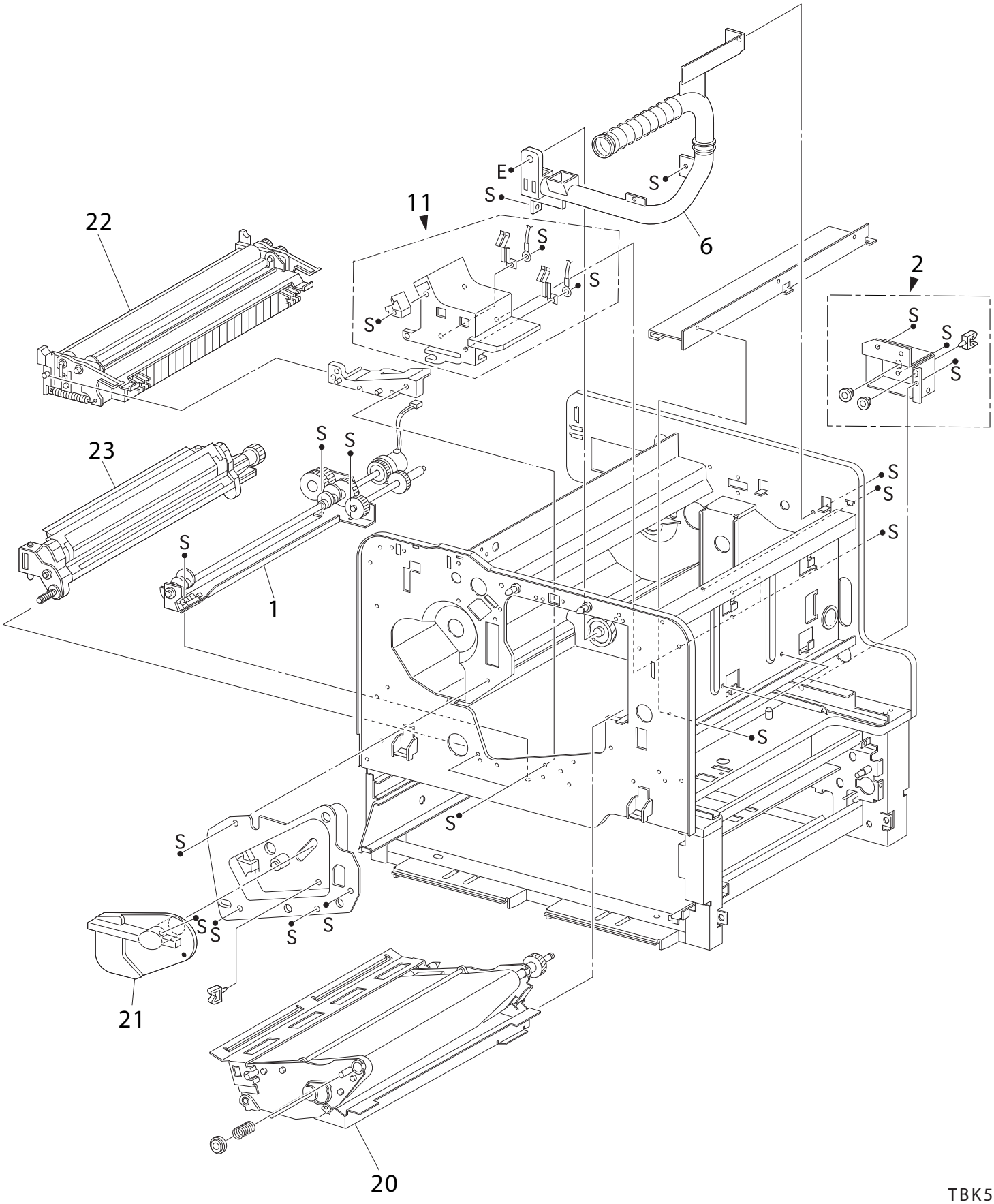

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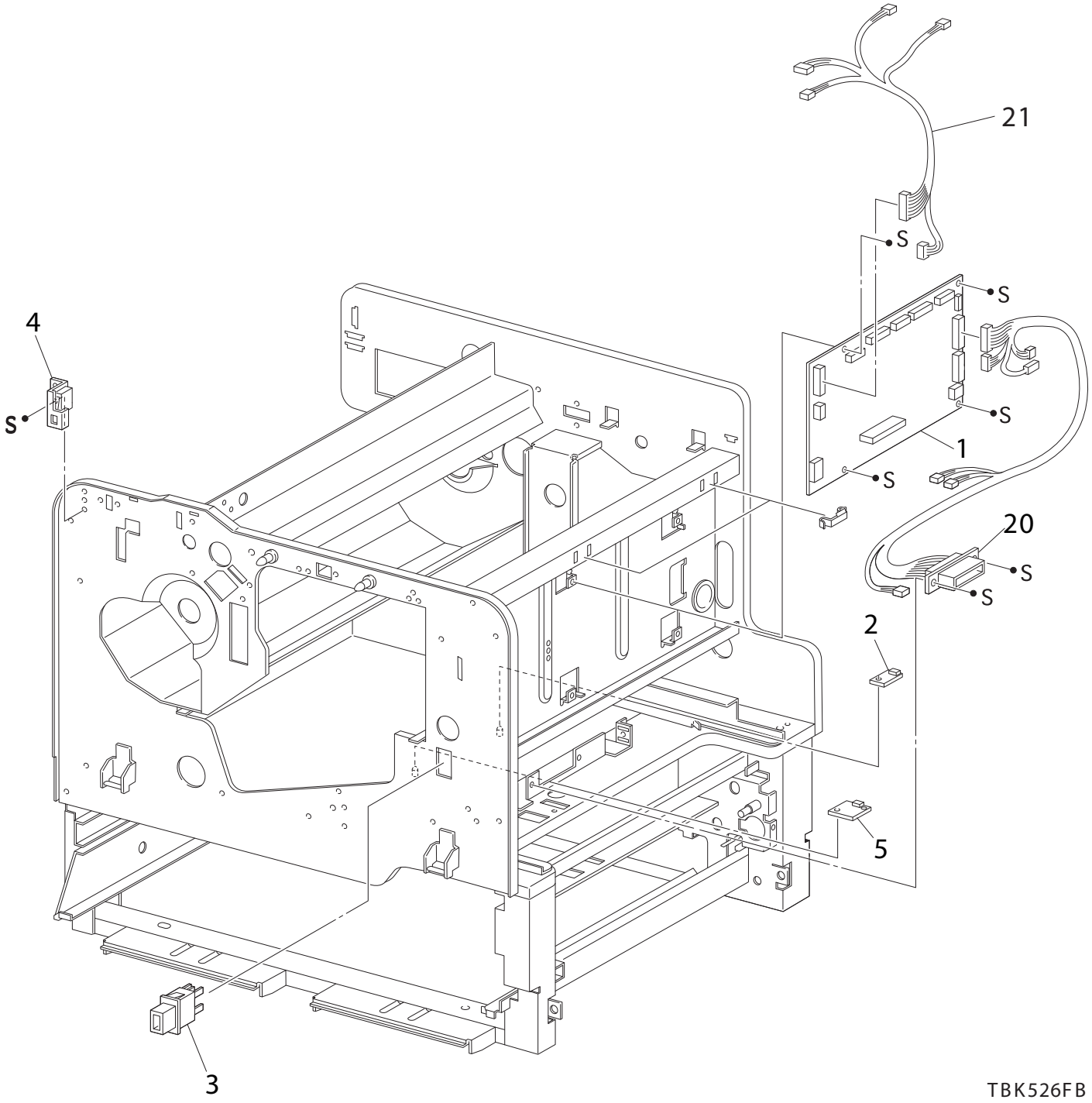

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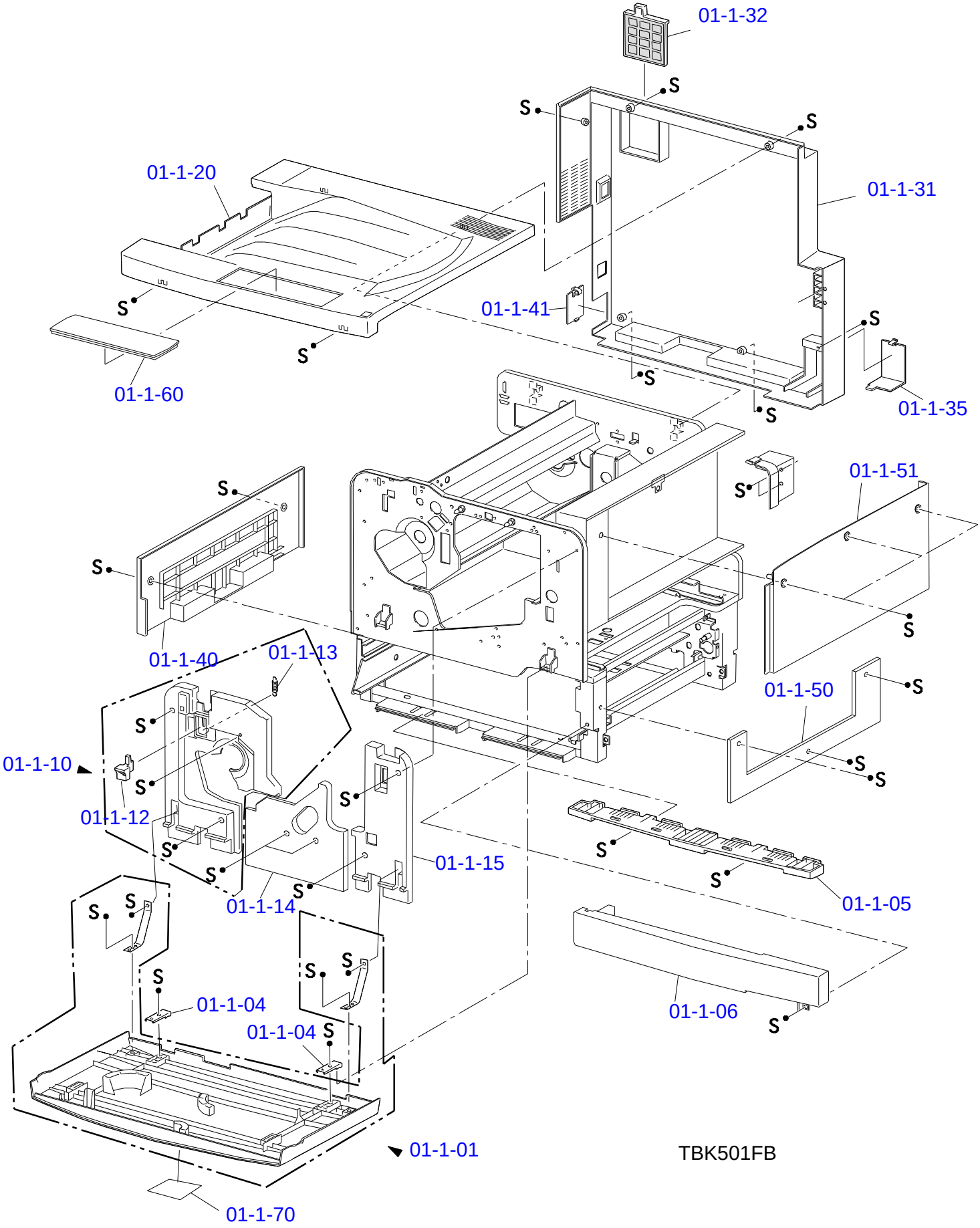

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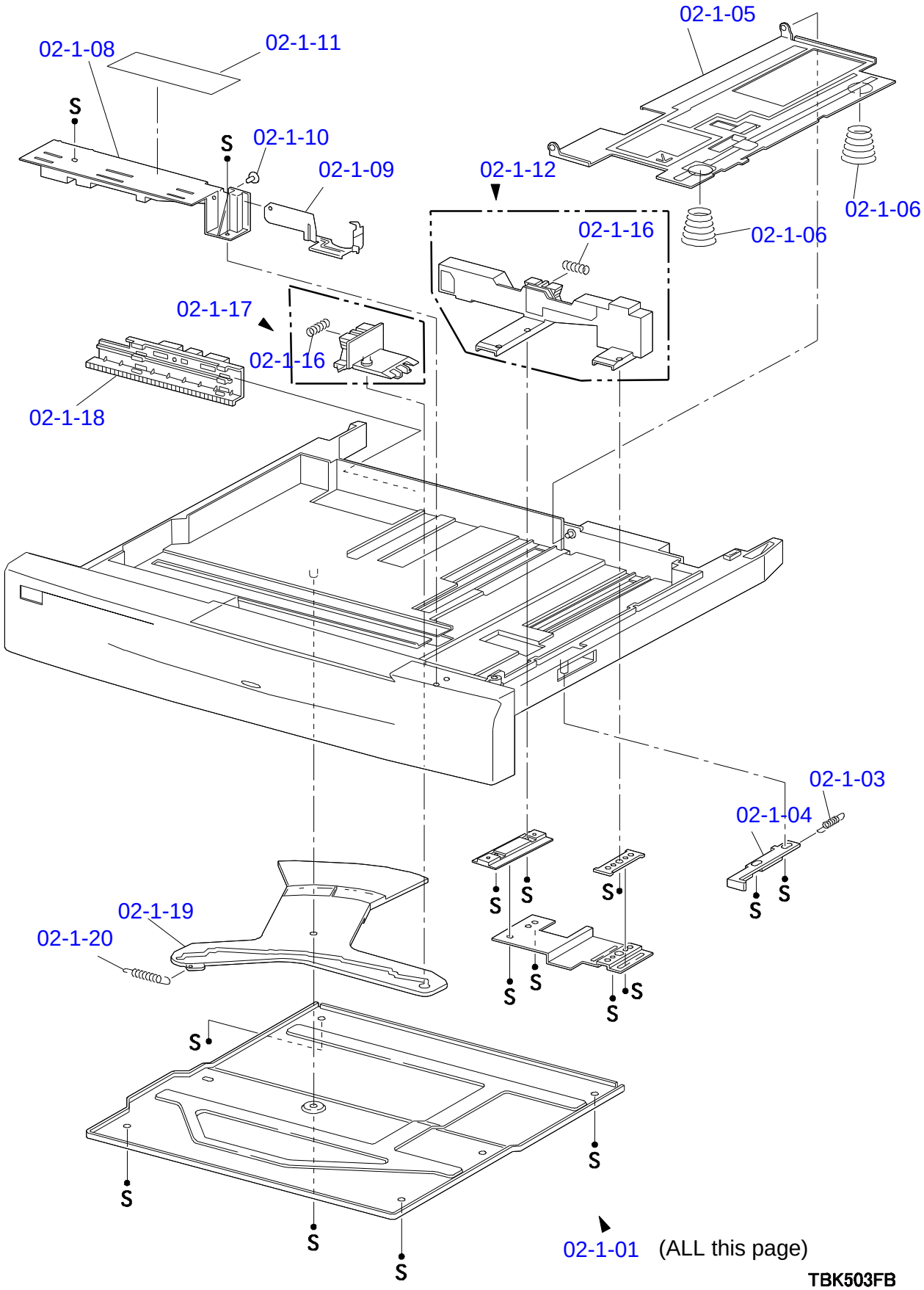

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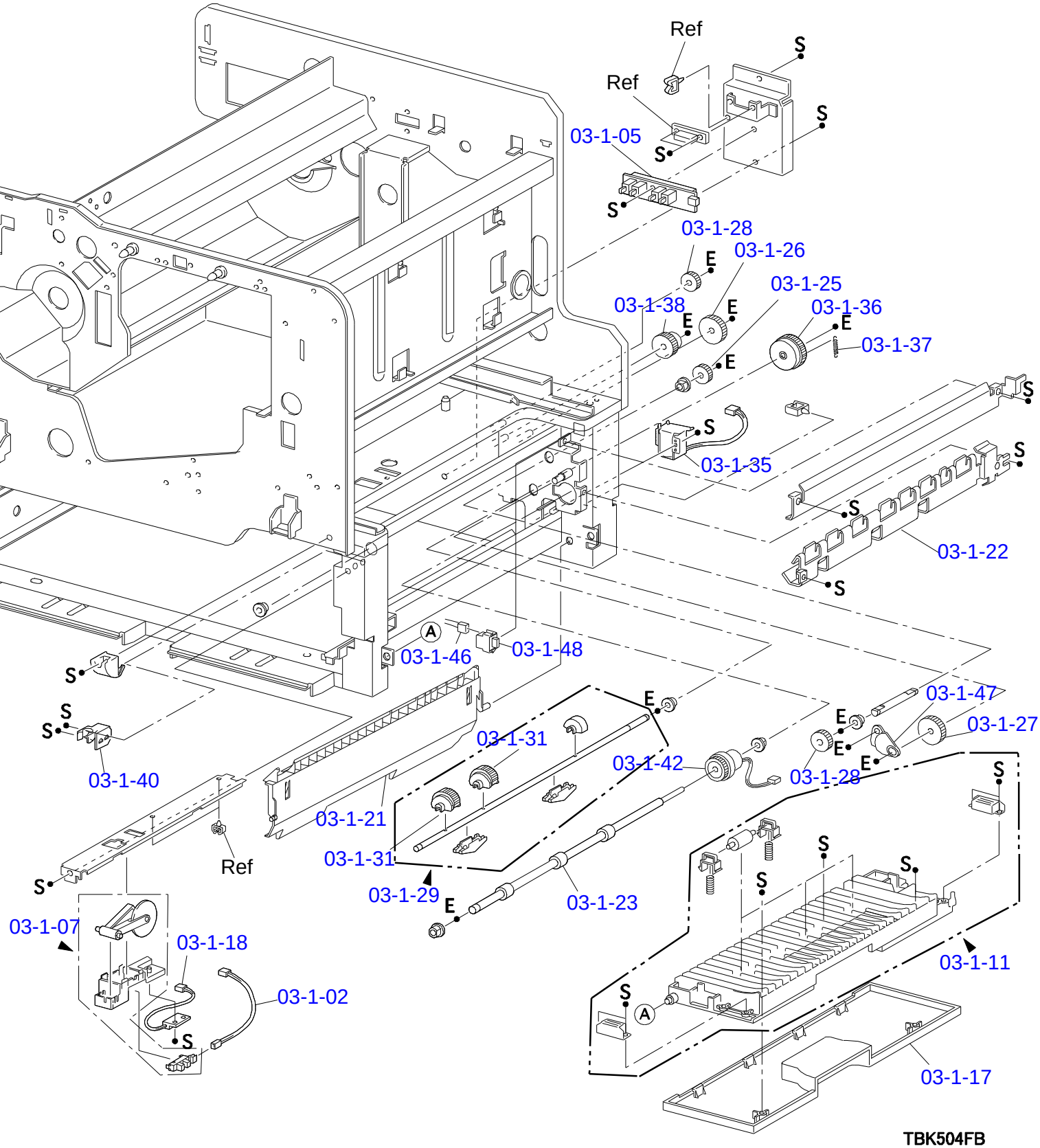

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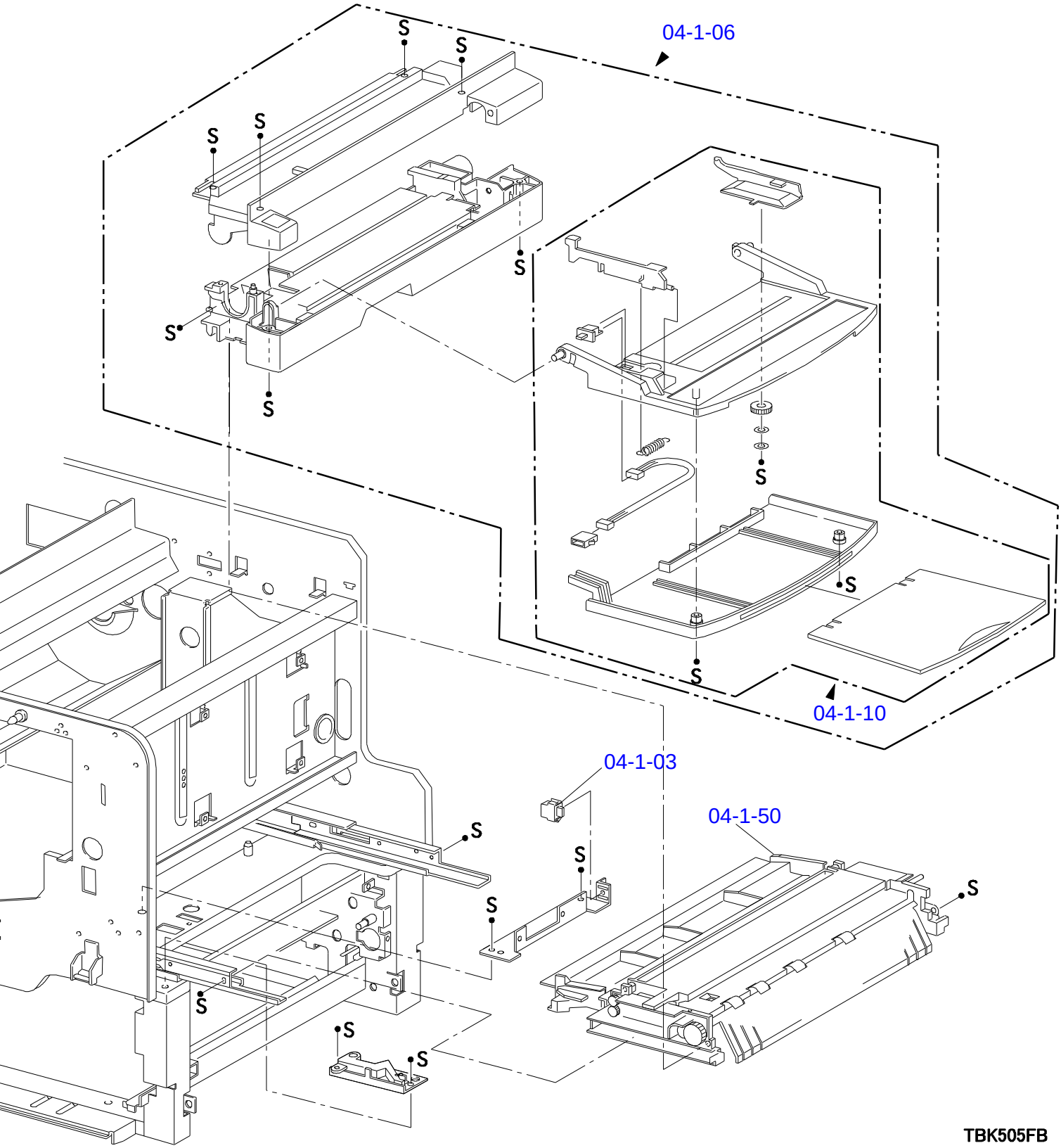

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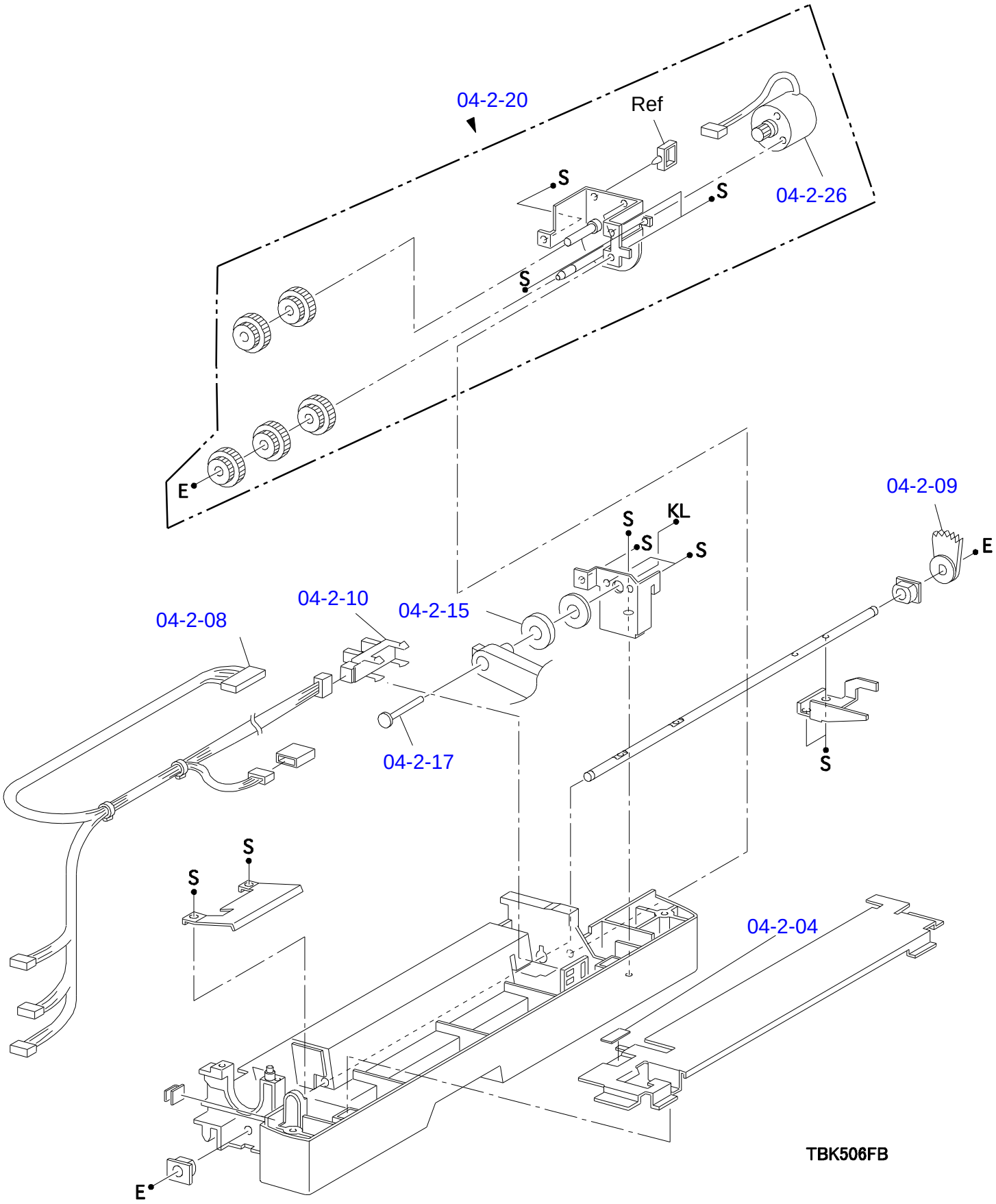

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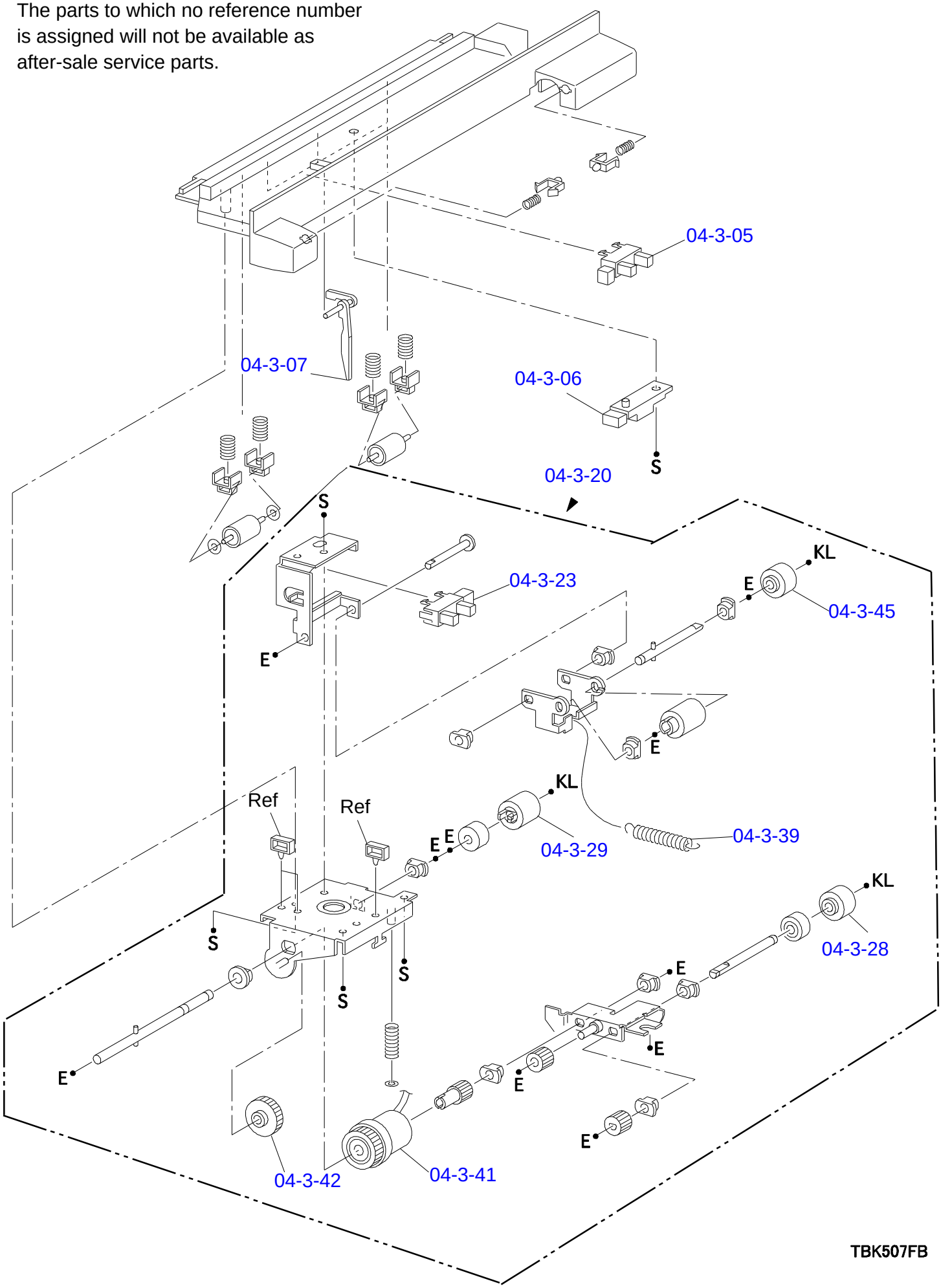

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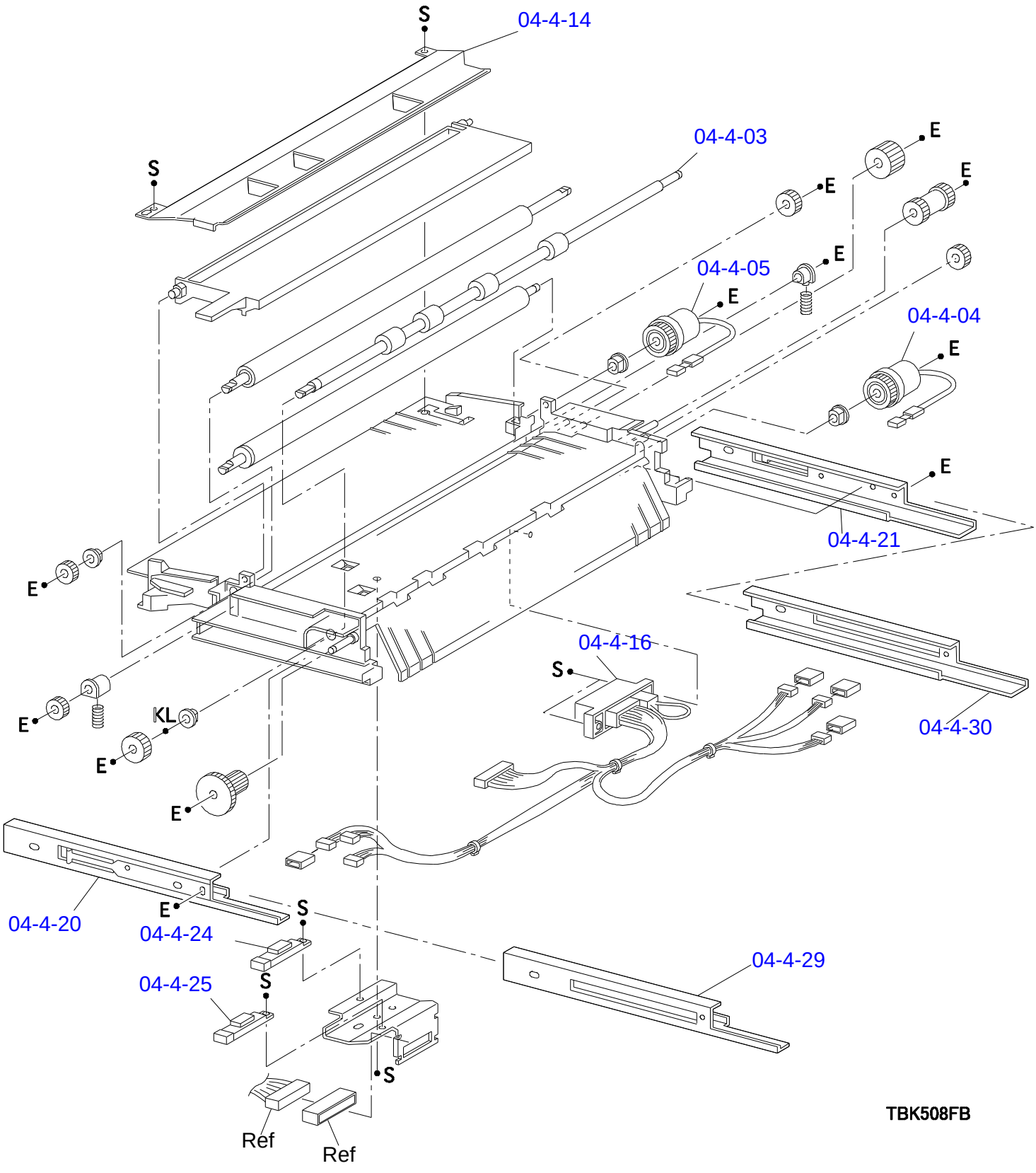

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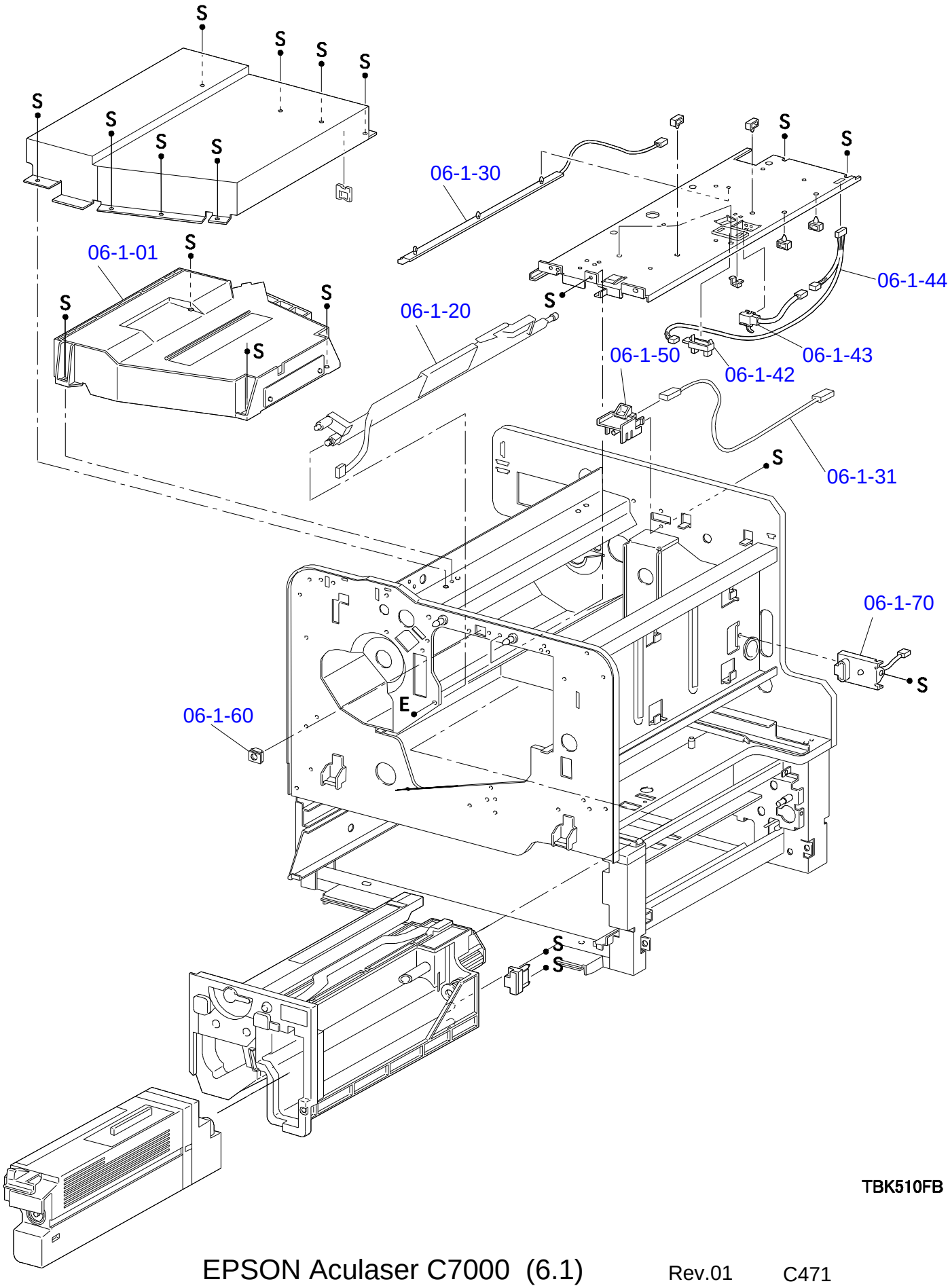

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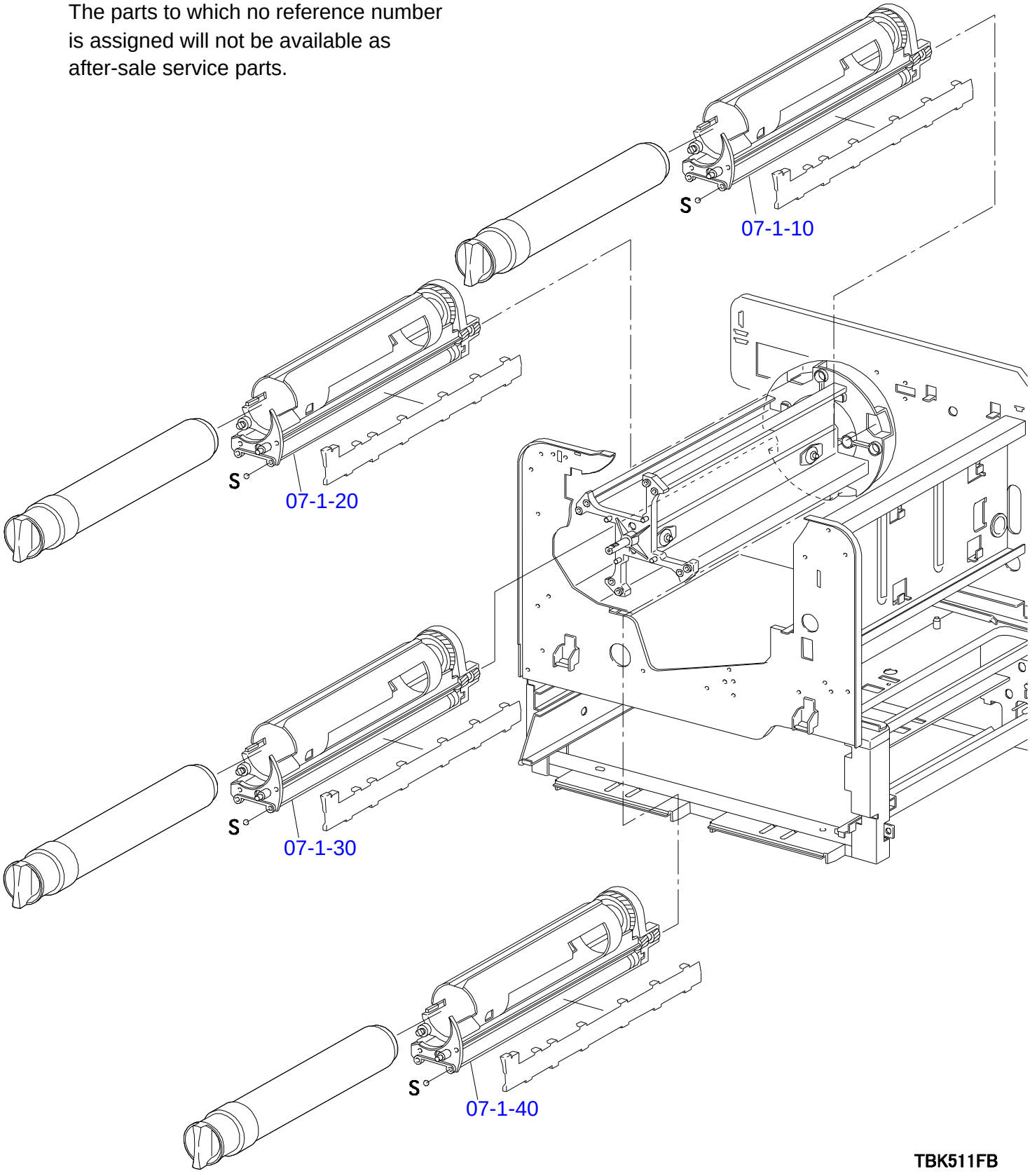

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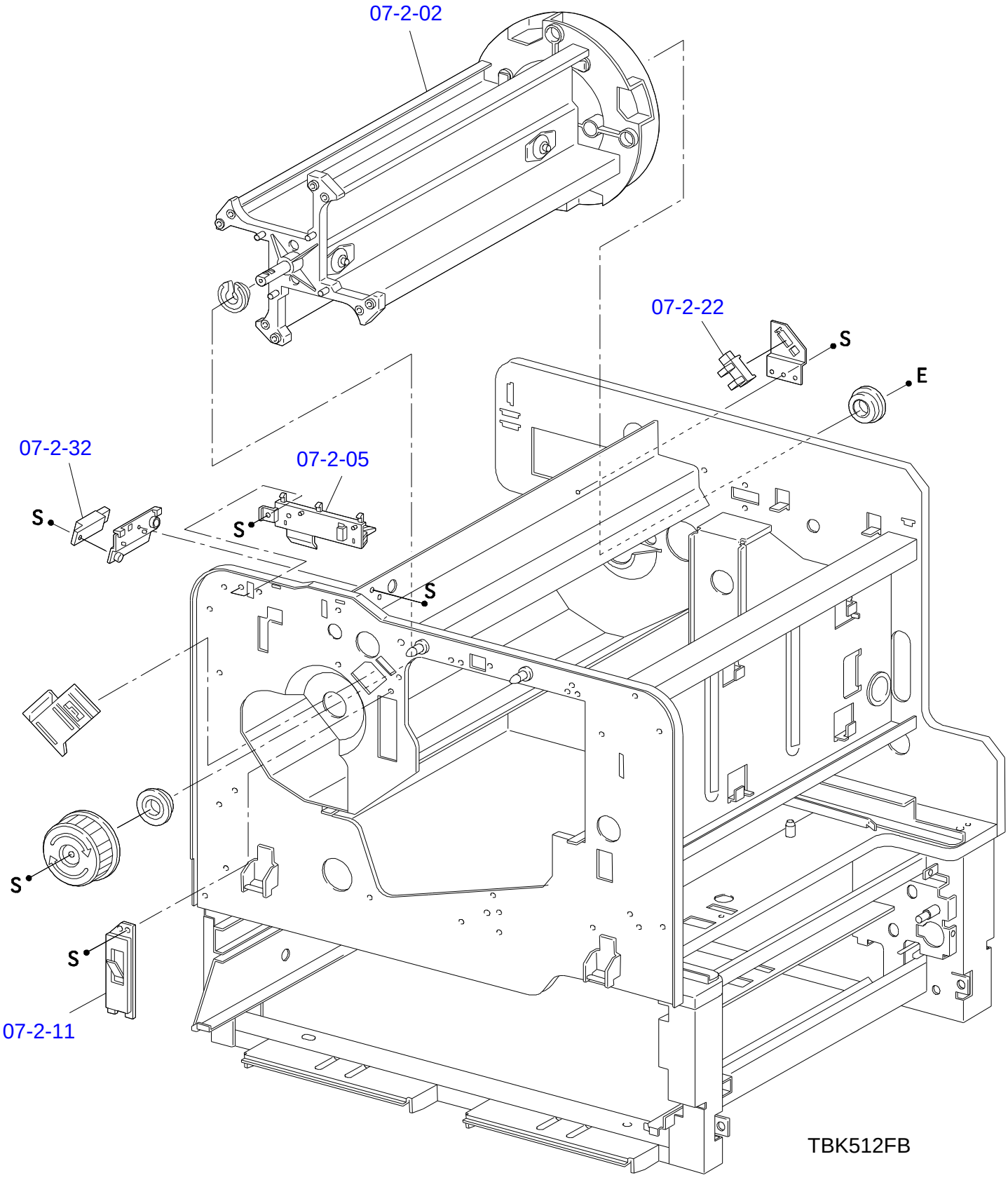

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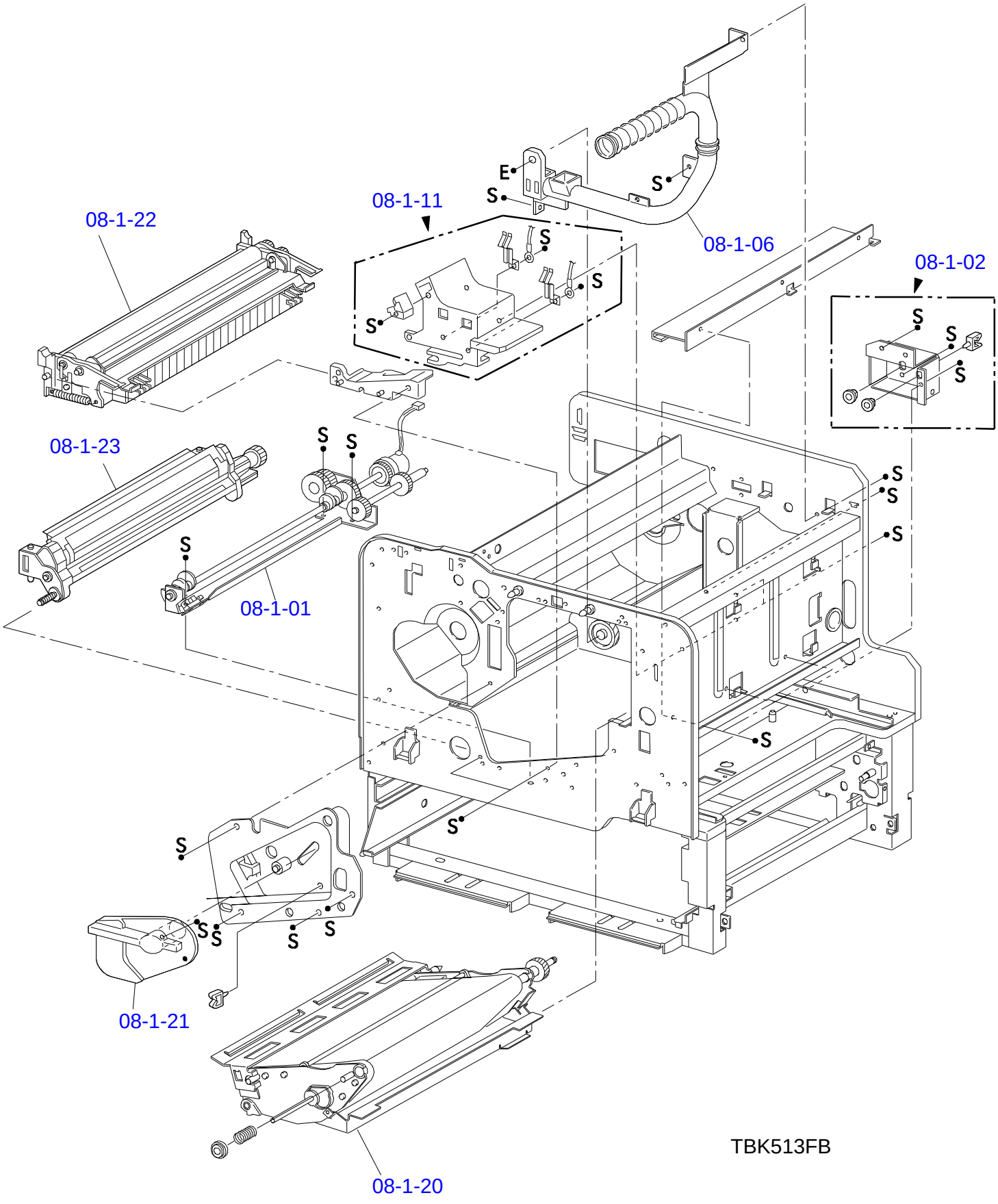

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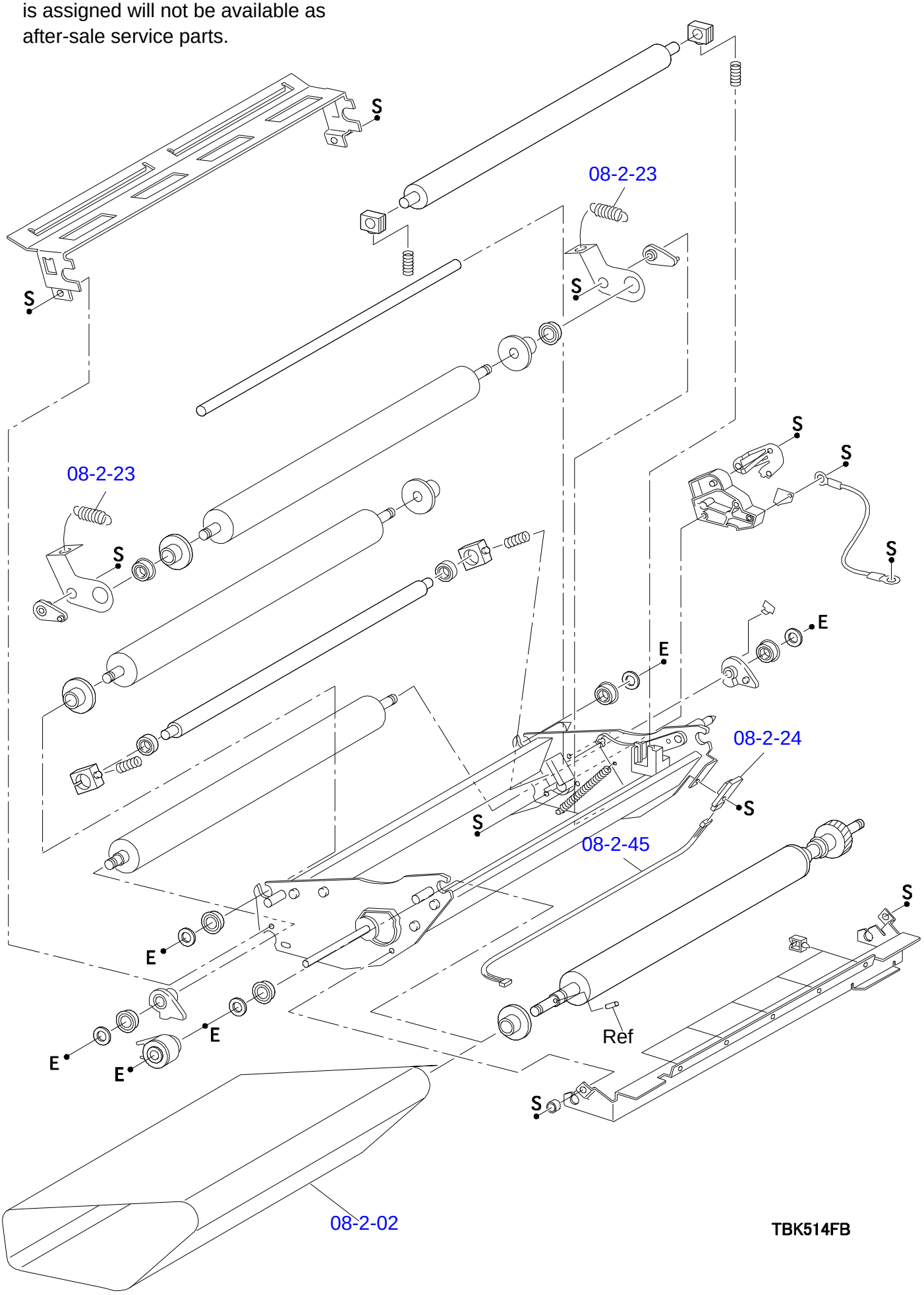

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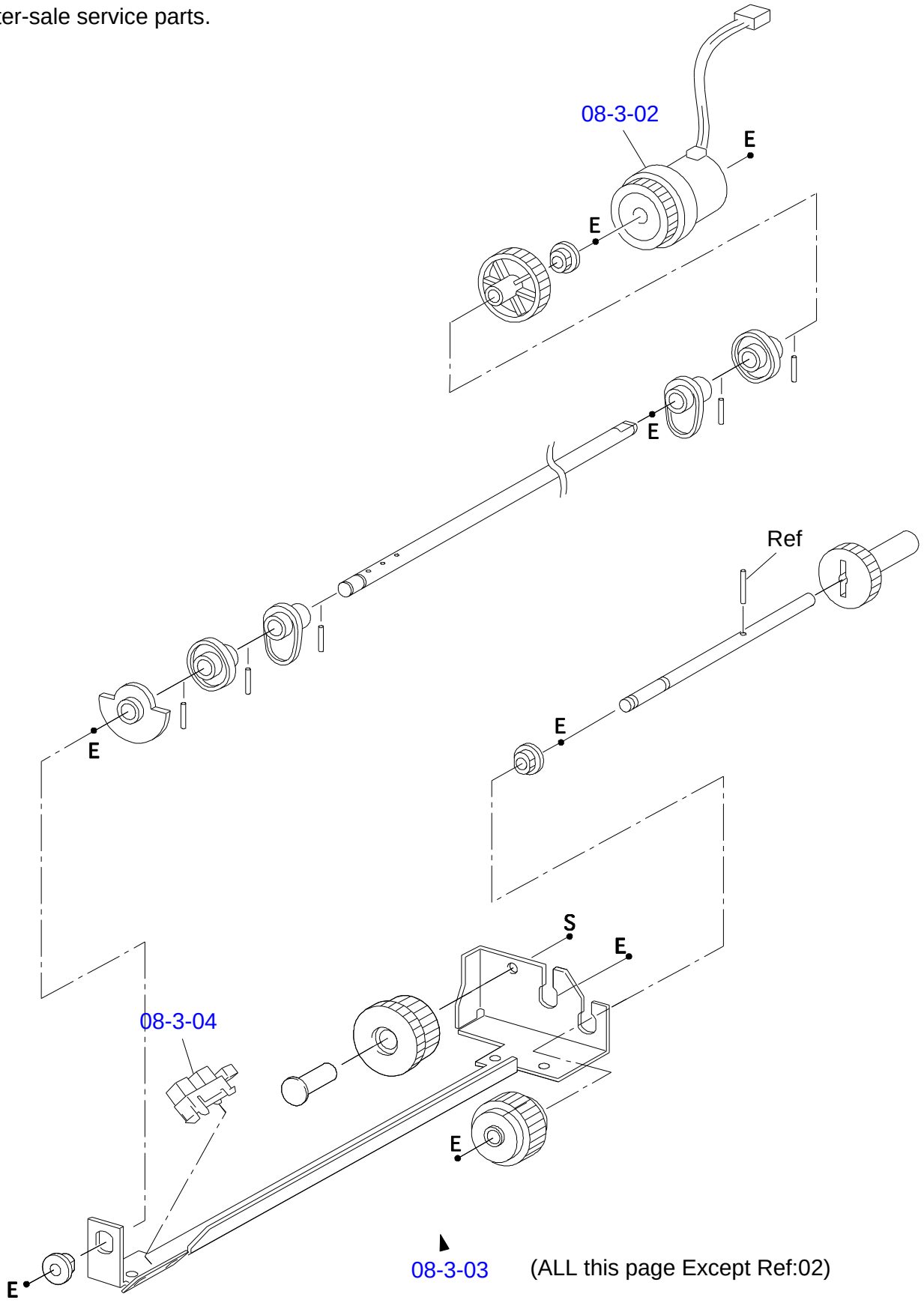

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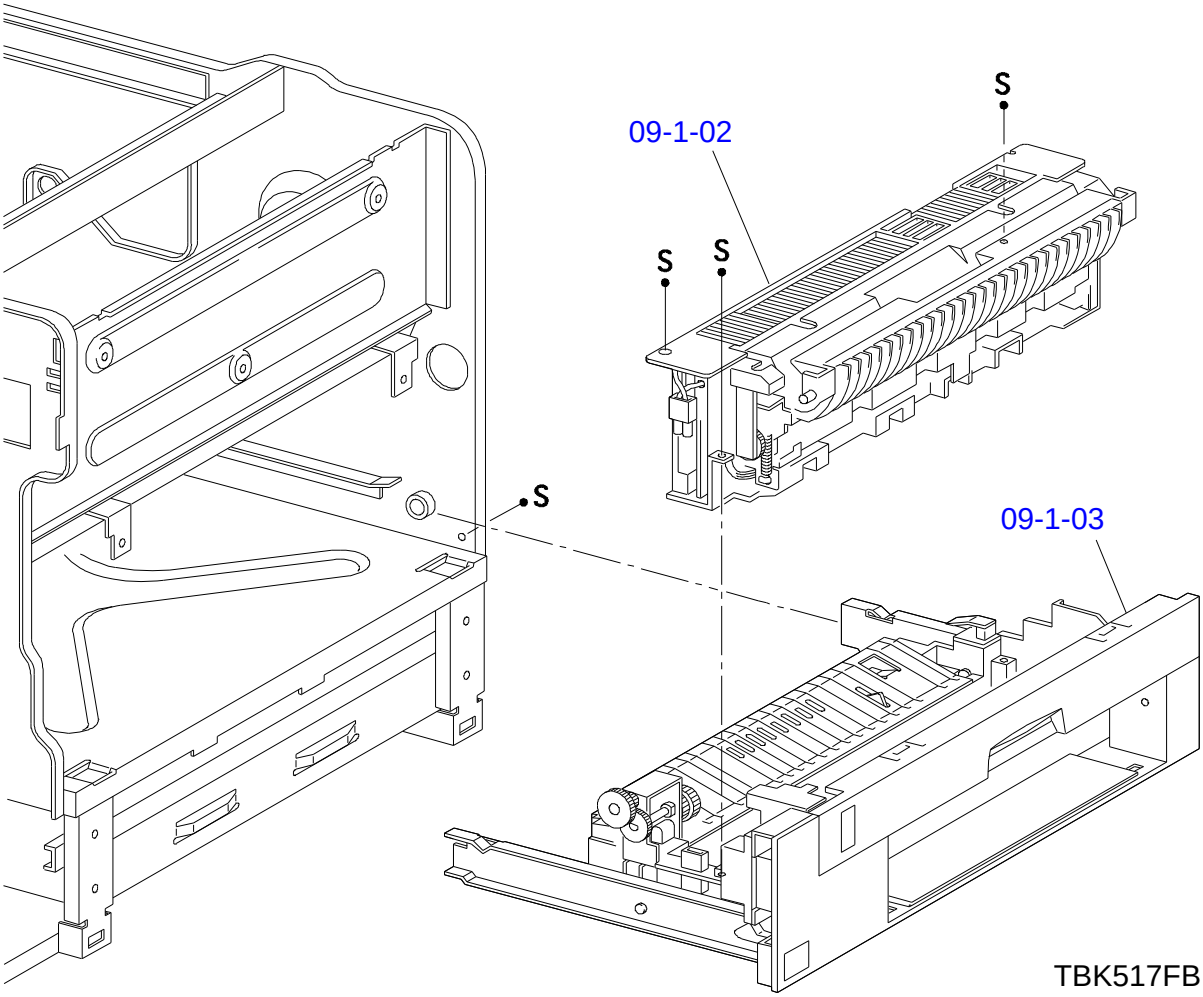

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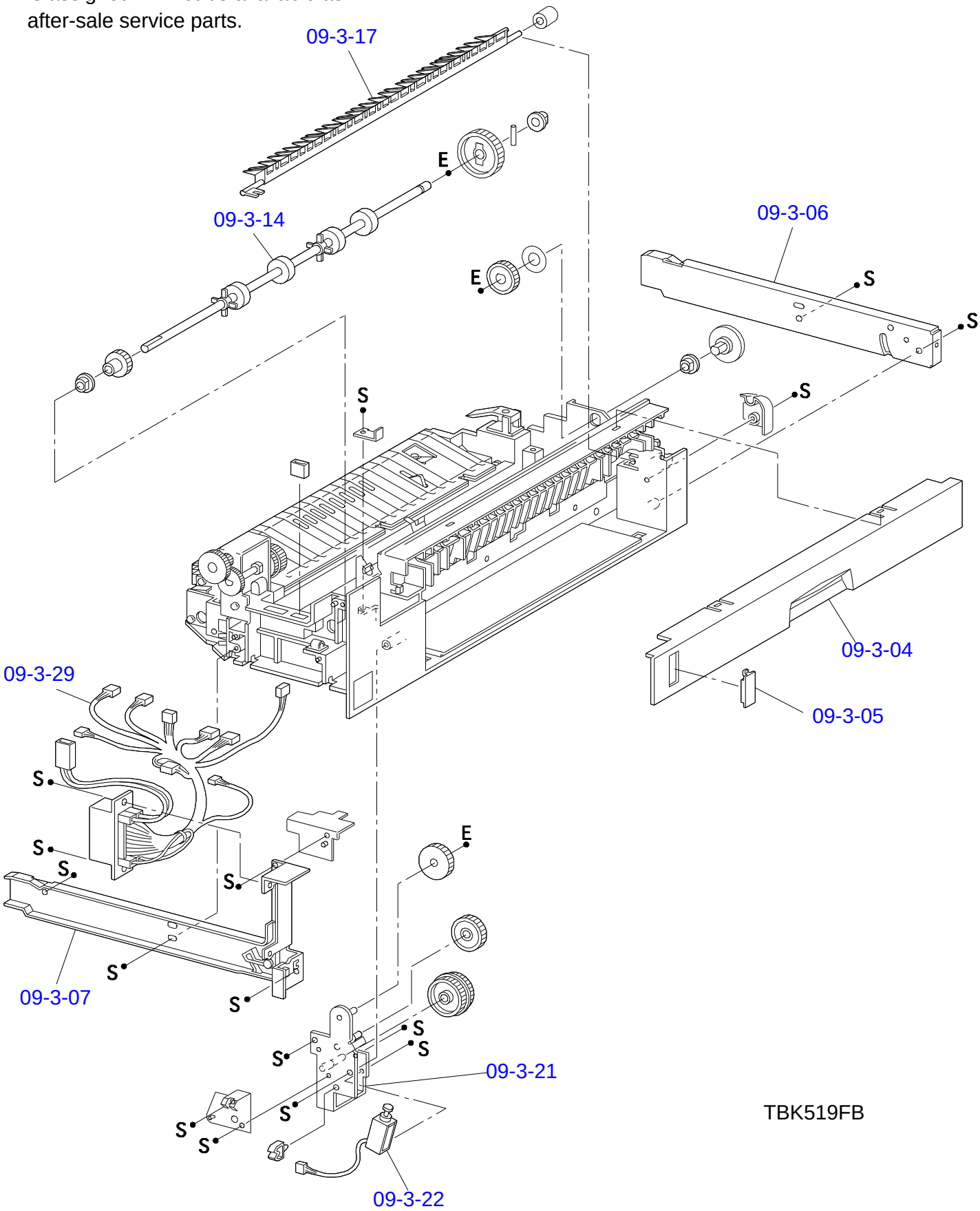

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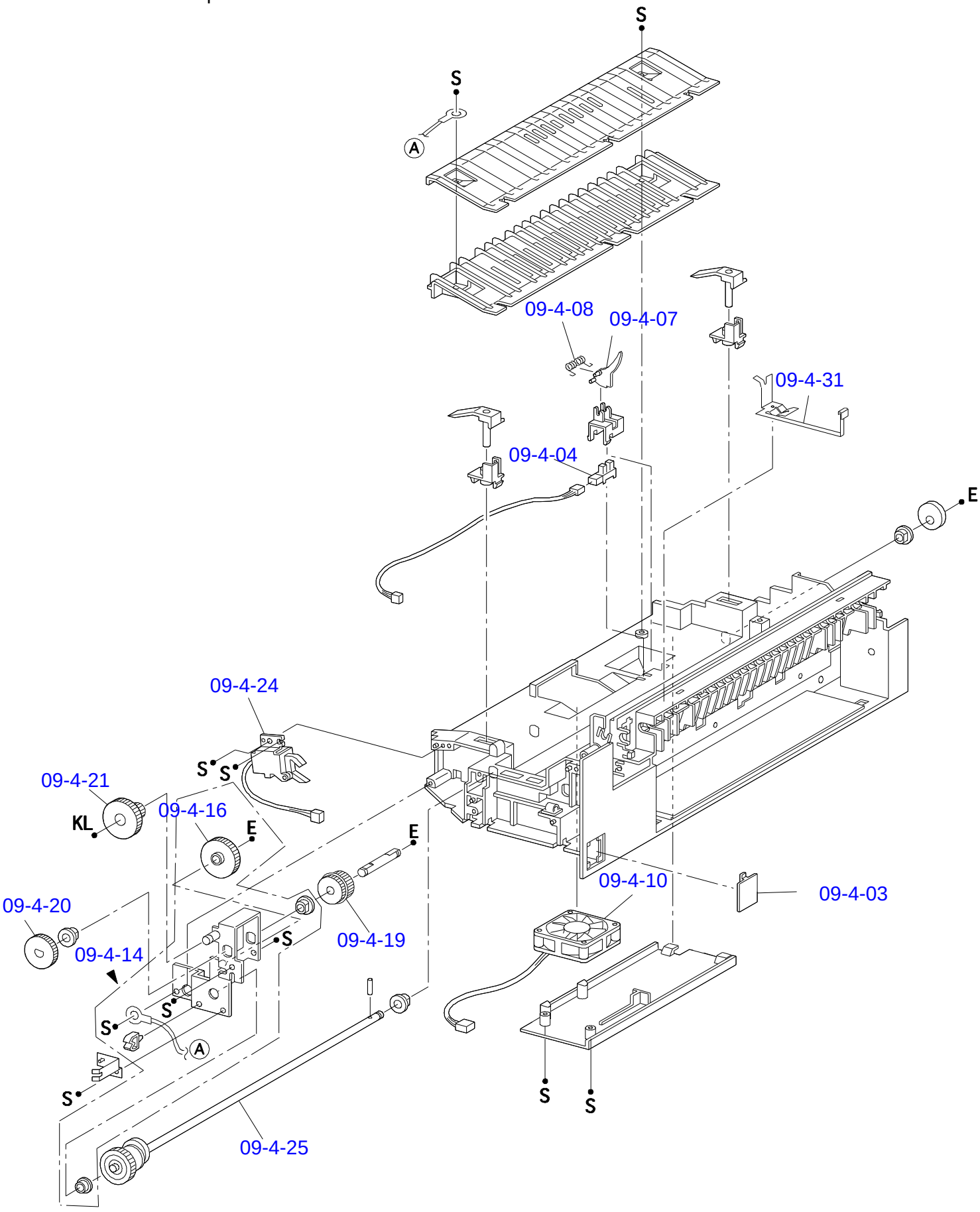

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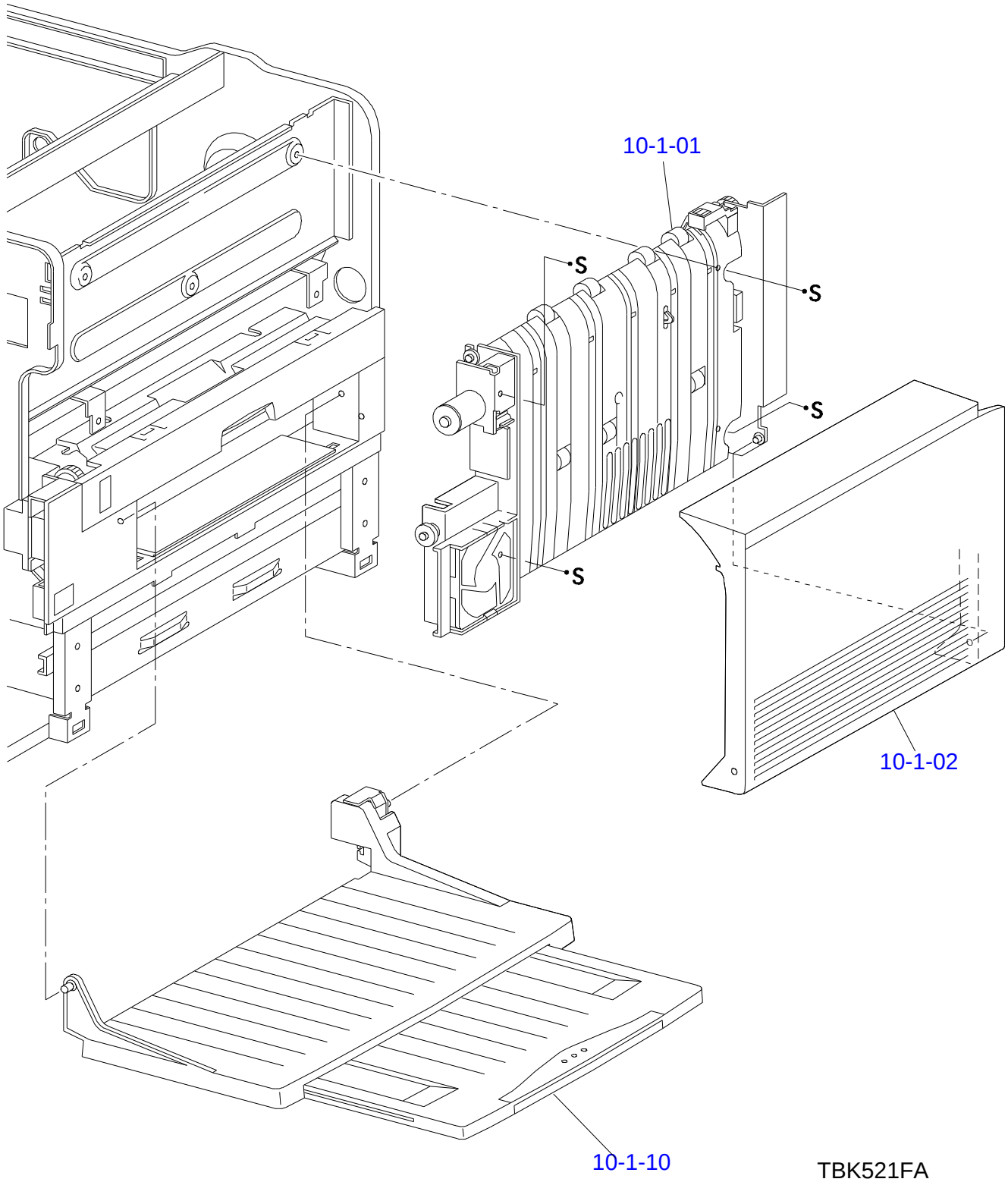

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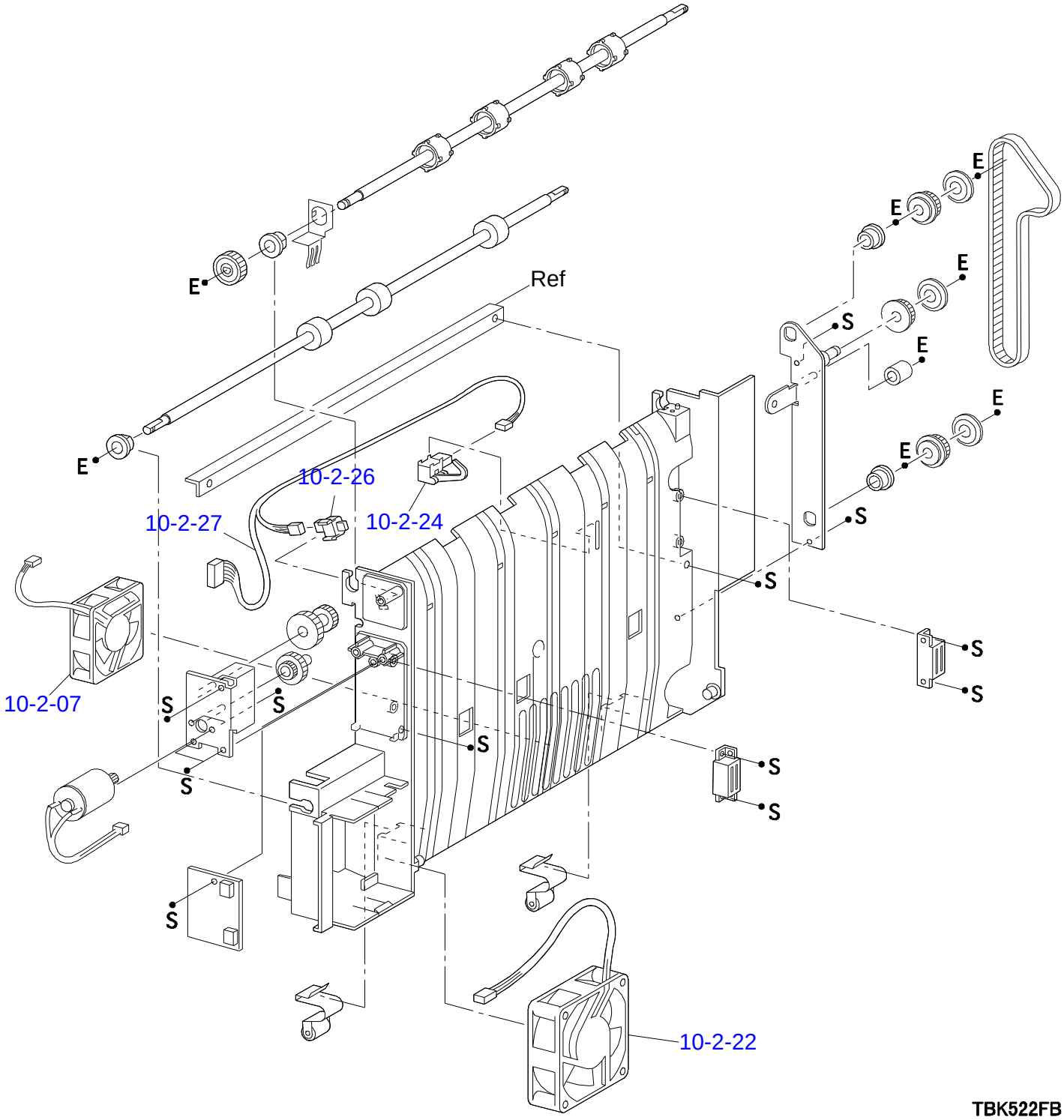

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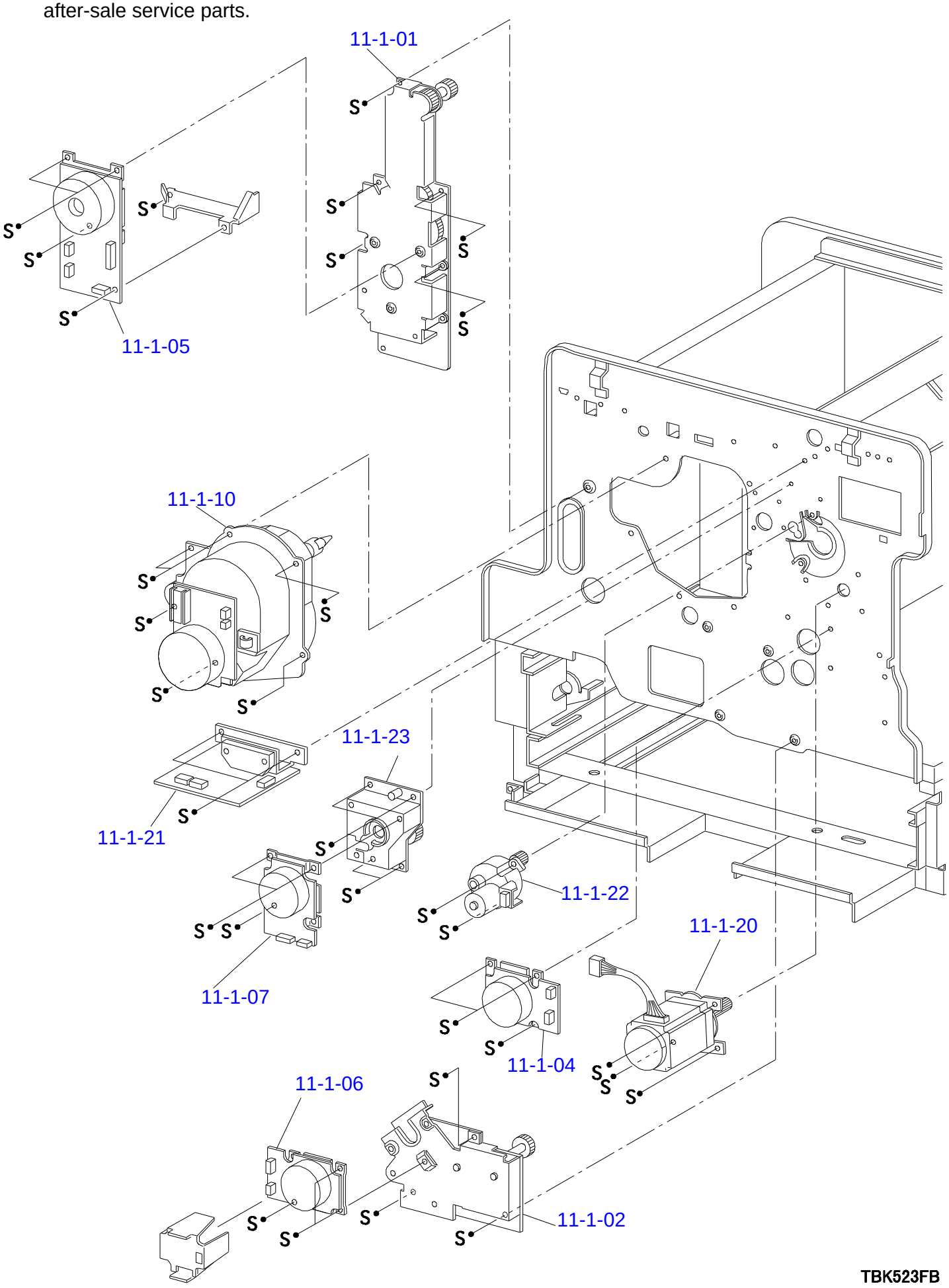

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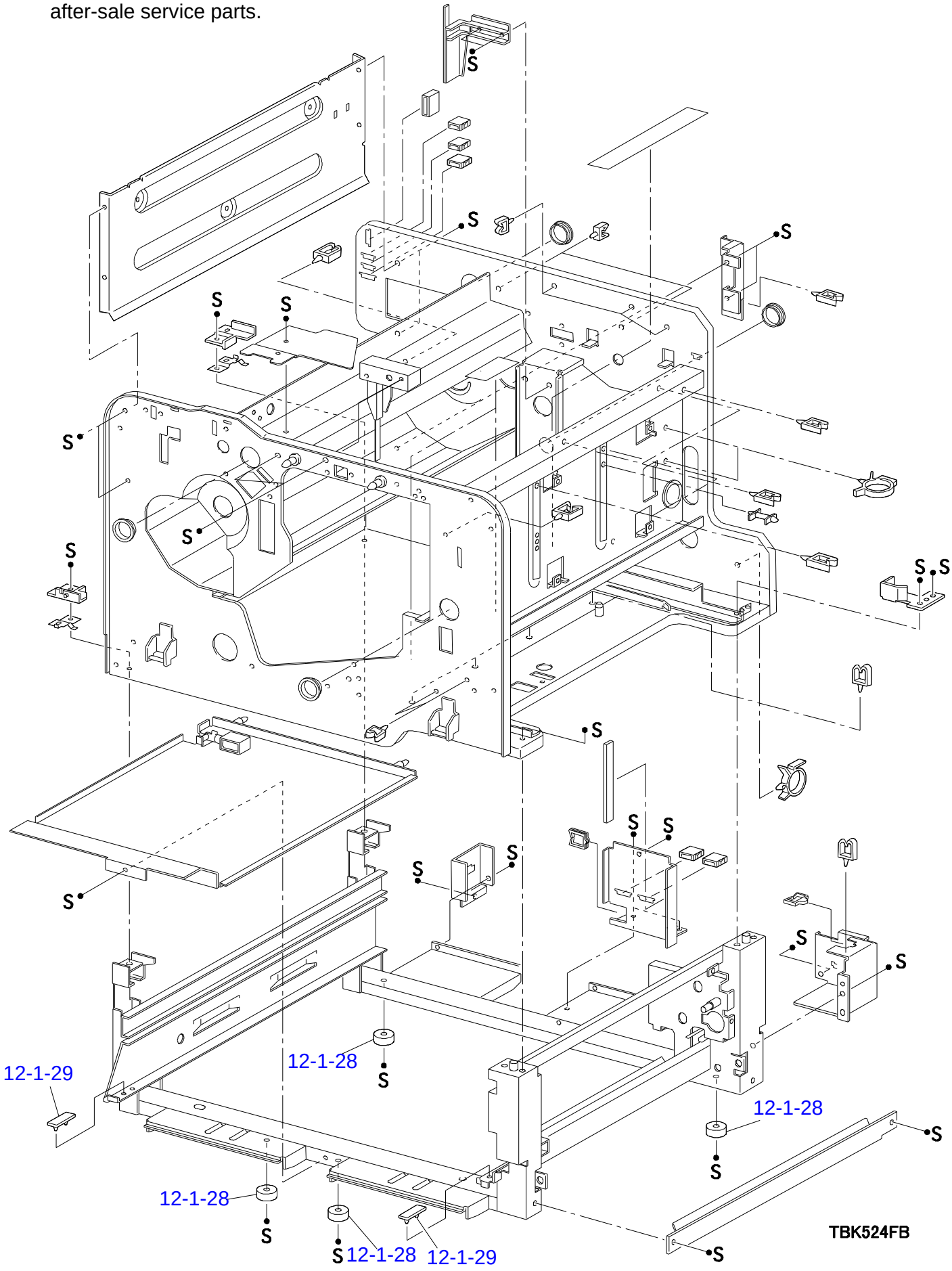

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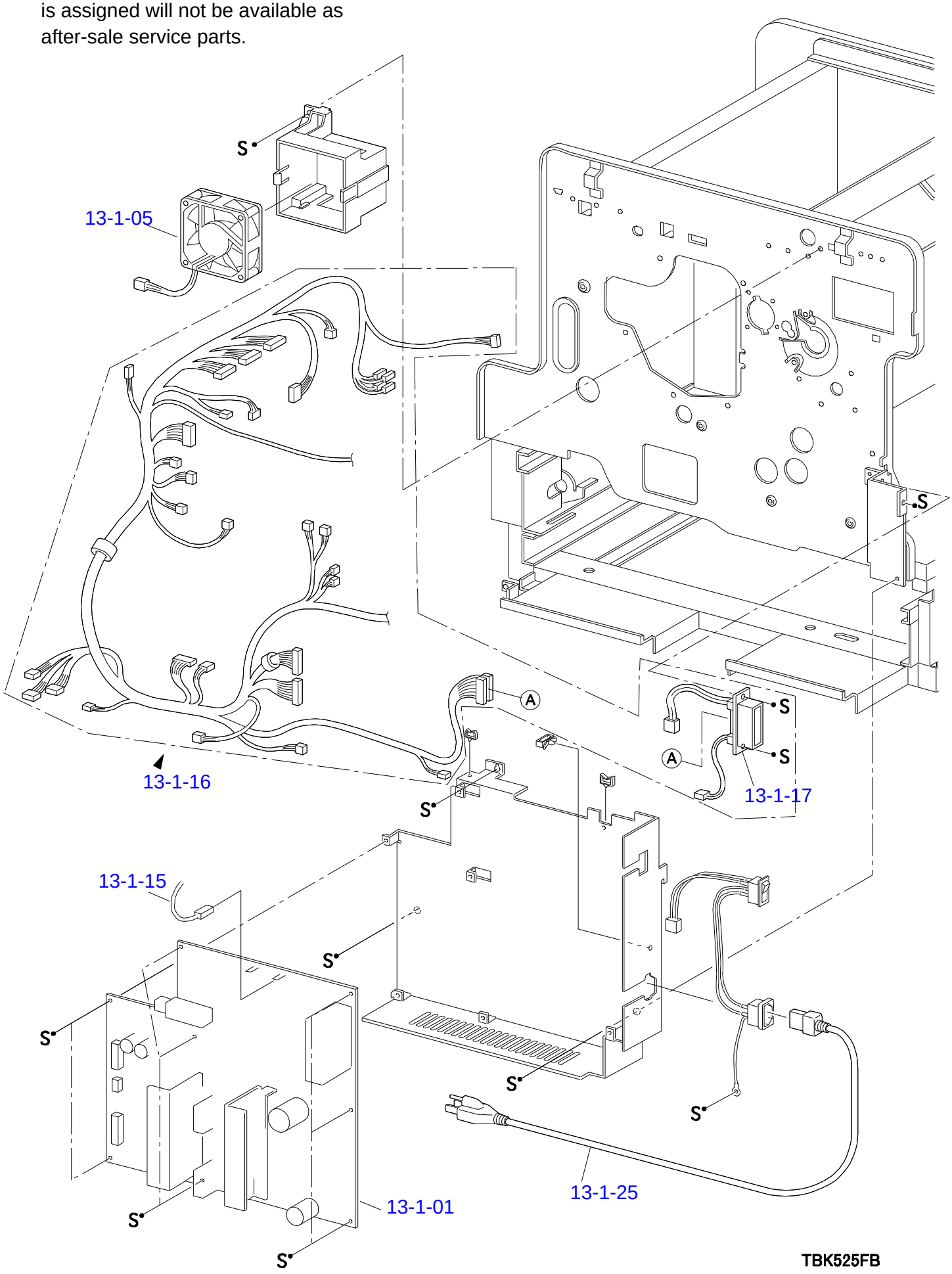

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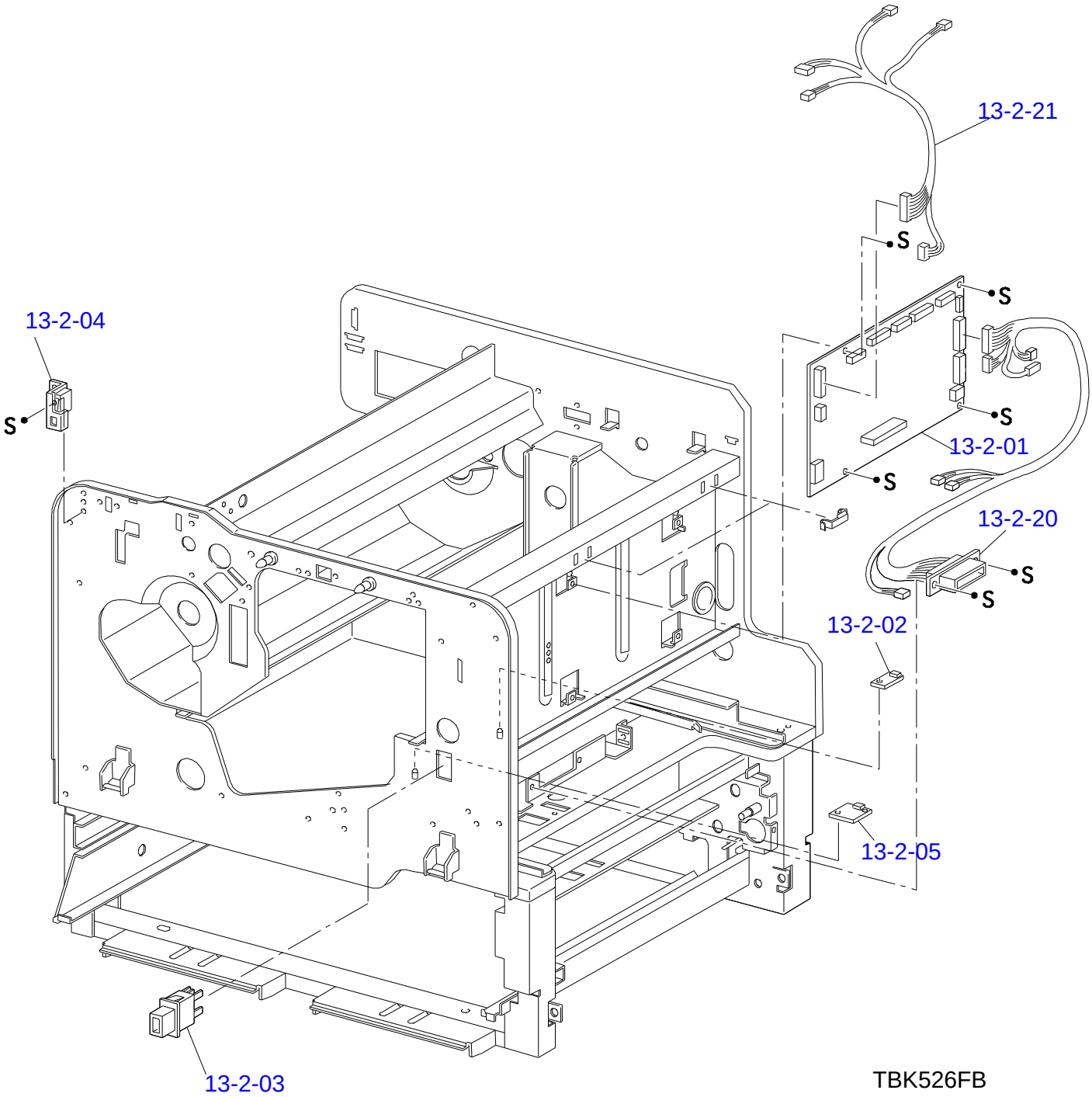

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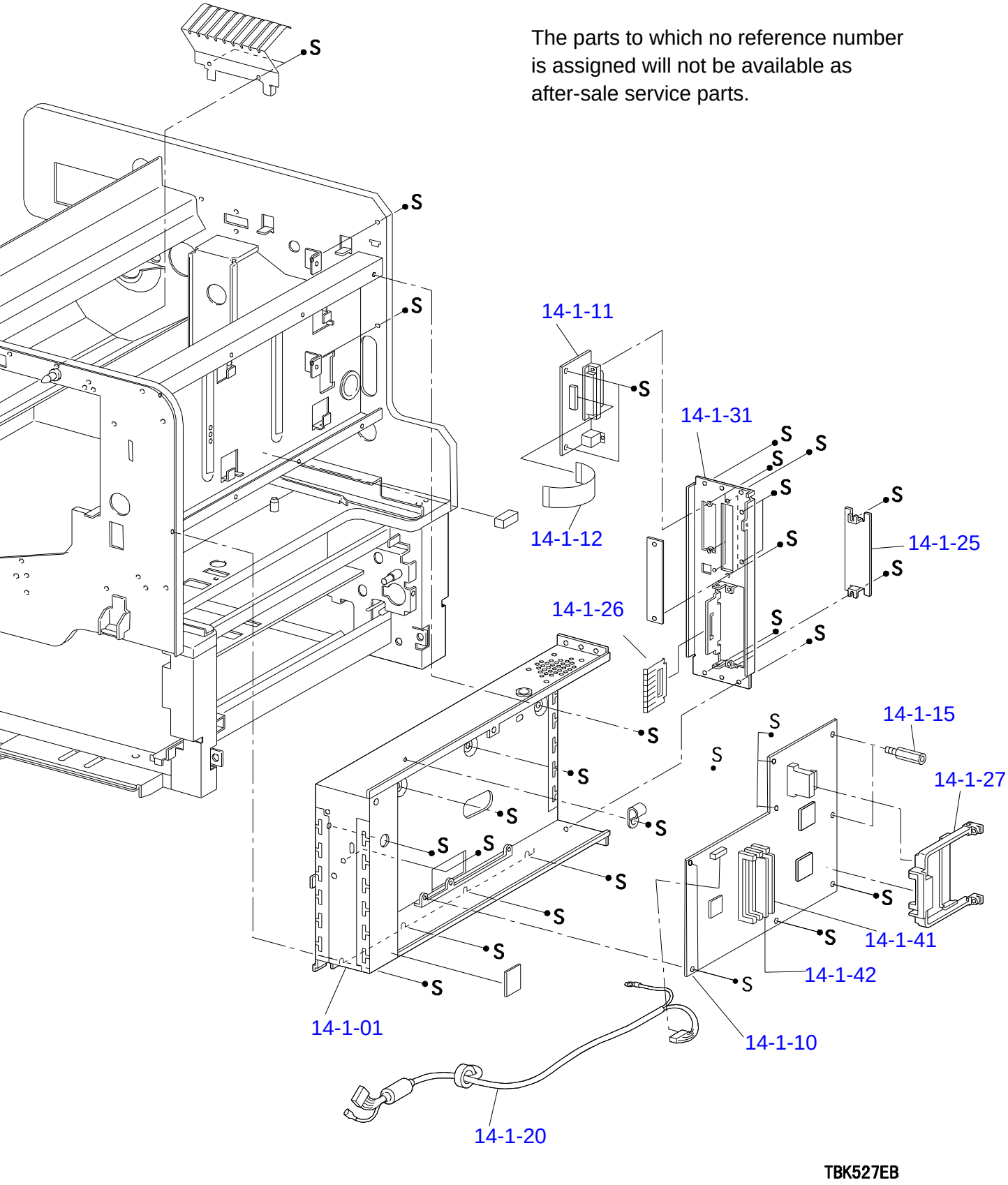

7.6 Index for Parts

[Numeric]
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ROS COVER ..... PL 6.1.3
ROS HARNESS-SEC ..... PL 13.2.21
ROTARY FRAME ASSY ..... PL 7.2.2
ROTARY FRONT BEARING ..... PL 7.2.3
ROTARY KNOB ASSY ..... PL 7.2.1
ROTARY LATCH ASSY ..... PL 7.2.5
ROTARY LATCH LEVER ..... PL 1.1.12
ROTARY LATCH SPRING ..... PL 1.1.13
ROTARY MOTOR ASSY ..... PL 11.1.20
ROTARY MOTOR DRIVE PWB ..... PL 11.1.21
ROTARY REAR BEARING ..... PL 7.2.4
ROTARY SPACER ..... PL 7.2.6
ROTARY(H/P) SENSOR ..... PL 7.2.22
ROTARY(H/P) SENSOR ASSY ..... PL 7.2.20
ROTARY(H/P) SENSOR PLATE ..... PL 7.2.21
R-RH COVER(SEC) ..... PL 1.1.33
RTD SHAFT ASSY ..... PL 4.3.37
RTD SPRING ..... PL 4.3.39
RTD SUPPORT ..... PL 4.3.36

[S]
SADDLE BUSH(OPTION) ..... PL 6.1.4
SADDLE EDGE ..... PL 13.1.21
SADLE ..... PL 12.1.36
SECTOR GEAR SPRING ..... PL 2.1.20
SECTOR GEAR(SEC) ..... PL 2.1.19
SEET CLAMP ..... PL 12.1.29
SENSOR BRACKET ..... PL 3.1.6
SHAFT MSI TRAY ..... PL 4.2.17
SIZE BRACKET ASSY ..... PL 3.1.3
SIZE SWITCH ASSY ..... PL 3.1.5
SIZE SWITCH BRACKET ..... PL 3.1.4
SLEEVE BEARING ..... PL 4.2.5
SNUBBER LABEL ..... PL 2.1.11
SNUBBER LABEL ..... PL 20.2.11
SNUBBER STOPPER ..... PL 2.1.10
SNUBBER STOPPER ..... PL 20.2.10
SOLENOID ASSY ..... PL 9.3.20
SPACER 20-SEC ..... PL 14.1.15
SPACER SEC ..... PL 14.1.4
SPRING 5 ..... PL 14.1.3
SPRING WASHER ..... PL 4.1.18
SUPPORT BEARING ..... PL 8.4.10
SUPPORT PLATE ..... PL 8.4.9
SUPPORT SHAFT ..... PL 4.3.38

[T]
T/R PLATE ASSY FRONT ..... PL 12.1.40
T/R PLATE ASSY REAR ..... PL 12.1.41
TEMP. SENSOR ASSY ..... PL 9.2.6
TENSION LEVER ..... PL 8.1.21
TENSION ROLL BEARING ..... PL 8.2.10
TENSION ROLL FLANGE ..... PL 8.2.21
TENSION SHAFT SPRING ..... PL 8.2.23
TONER BOX HARNESS ..... PL 6.1.44
TONER BOX SENSOR ..... PL 6.1.43
TONER CARTRIDGE BK(SEC) ..... PL 7.1.4
TONER CARTRIDGE C(SEC) ..... PL 7.1.3
TONER CARTRIDGE M(SEC) ..... PL 7.1.2
TONER CARTRIDGE Y(SEC) ..... PL 7.1.1
TOP COVER ASSY(SEC) ..... PL 1.1.20
TOP EXIT SENSOR ..... PL 10.2.24
TORQUE GEAR ..... PL 8.3.19
TORQUE GEAR ASSY ..... PL 8.3.17
TORQUE GEAR SHAFT ..... PL 8.3.18
TR0 HARNESS ..... PL 8.2.45
TR0 SENSOR ..... PL 8.2.24
TRANSFER HIGH ASSY ..... PL 8.2.1
TRANSFER HIGH ASSY ..... PL 8.1.20
TRANSFER MECH. ASSY ..... PL 8.2.3
TRANSFER SPRING ..... PL 7.2.8
TRAY BOTTOM COVER ..... PL 2.1.21
TRAY BOTTOM COVER ..... PL 20.2.20
TRAY BRACKET CLAMP ..... PL 3.1.43
TRAY BRACKET R ..... PL 4.2.12
TRAY HOUSING ..... PL 2.1.2
TRAY N/F SPRING ..... PL 2.1.6
TRAY N/F SPRING ..... PL 20.2.6
TRAY N/P ACTUATOR ..... PL 3.1.10
TRAY N/P BRACKET ..... PL 3.1.8
TRAY N/P SENSOR ASSY ..... PL 3.1.7
TRAY N/P SENSOR HARNESS ..... PL 3.1.2
TRAY NO PAPER SENSOR ..... PL 3.1.9
TRAY SIZE ACTUATOR ..... PL 2.1.18
TRAY STOPPER ..... PL 3.1.40
TRUQUE LIMITER ..... PL 8.2.5
TUEN GEAR SHAFT ..... PL 3.1.44
TURN CHUTE ASSY ..... PL 3.1.22
TURN CHUTE COVER(SEC) ..... PL 3.1.17
TURN CHUTE HARNESS ..... PL 3.1.46
TURN CHUTE SWITCH ..... PL 3.1.48
TURN CHUTE UP ASSY ..... PL 3.1.11
TURN CLUTCH ..... PL 3.1.42
TURN FRONT BEARING ..... PL 3.1.24
TURN GEAR 16 ..... PL 3.1.25
TURN GEAR 19D ..... PL 3.1.28
TURN GEAR 24 ..... PL 3.1.27
TURN GEAR 30 ..... PL 3.1.26
TURN GEAR COVER ..... PL 3.1.47
TURN IN CHUTE ..... PL 3.1.21
TURN REAR BEARING ..... PL 3.1.45
TURN ROLL ASSY ..... PL 3.1.23
TURN UPPER CHUTE ..... PL 3.1.41

[U]
UNIVERSAL TRAY(SEC) ..... PL 2.1.1
UPPER BAFFLE ..... PL 9.2.46
UPPER GUIDE ASSY(SEC) ..... PL 9.2.20
UPPER GUIDE SUB ASSY ..... PL 9.2.21
UPPER PLATE ASSY ..... PL 9.2.31
UPPER TURN CHUTE ..... PL 3.1.12

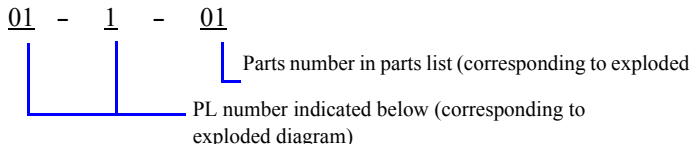
[W]
WASHER ..... PL 4.3.15
WASTE TONER BOX(SEC) ..... PL 6.1.12
WASTE TONER SENSOR ..... PL 6.1.42
WIPER BLADE ASSY ..... PL 8.4.7

[X]
XERO. CARTRIDGE(SEC) ..... PL 6.1.11
XL RAIL ..... PL 6.1.41
XL RAIL ASSY ..... PL 6.1.40

7.7 ASP List (Parts List)

This section indicates service parts of AcuLaser C8600.

Based on the constitution of the printer, the service parts are grouped into 13 major plates, each of which are further grouped into minor plates. Consequently, the service parts are grouped into 25 plates (PLs), with the names of parts indicated in the parts list corresponding to the parts numbers shown in the exploded diagrams.



- PL1.1 Cover
- PL2.1 Paper Tray
- PL3.1 Paper Feeder
- PL4.1 MSI/Paper Transportation I
- PL4.2 MSI/Paper Transportation II
- PL4.3 MSI/Paper Transportation III
- PL4.4 MSI/Paper Transportation IV
- PL6.1 Xerographics
- PL7.1 Development I
- PL7.2 Development II
- PL8.1 IBT I
- PL8.2 IBT II
- PL8.3 IBT III
- PL8.4 IBT IV
- PL9.1 Fusing I
- PL9.2 Fusing II
- PL9.3 Fusing III
- PL9.4 FusingIV
- PL10.1 Paper Exit I
- PL10.2 Paper Exit II
- PL11.1 Drive
- PL12.1 Frame
- PL13.1 Electrical I
- PL13.2 Electrical II
- PL14.1 Controller
- PL20.1 Option Tray I
- PL20.2 Option Tray II
- PL21.1 Option Tray III

NOTES ON USE OF PARTS LIST

- The number indicating a part in exploded diagrams is identical with the Item No. in the parts list which is assigned to the corresponding parts name. Each number followed by ": Ref" represents a virtual assembly part, which is shown only for information to facilitate disassembly and reassembly. That is, the parts represented by such numbers are unreal.
- The indication "PLX.Y.Z" represents the part which is item "Z" of plate (PL) "XY".
- The capital letters shown in the illustrations stand for the following:
  S: screw
  E: E ring
  KL: KL clip
  C: C ring
  N: nut
- Each item which is an assembly part is enclosed with a chain line in exploded diagrams.
- Each alphabet circled in exploded diagrams represents a connecting point in a connection line. That is, illustrations are connected with the characters of the same alphabet.
- An indication "(with 2-5)", for instance, found with an assembly part in exploded diagrams and parts list means that the assembly part consists of the items 2, 3, 4 and 5 of the relevant plate. An indication "(with 2-5,PL6.1.1)" means that the assembly part consists of the items 2, 3, 4 and 5 of the relevant plate and the item 1 of the plate "6.1".
- The indication "[Same PLX.Y.Z]"found with a part in exploded diagrams and parts list means that the part is the same as the item "Z" of the plate "X.Y".
- The items marked with "★" in the parts list are "recommended parts", which can be supplied as spare parts, as a rule. (Availability of any other part will be discussed separately.)
- For each item marked with "*" in the parts list, "Note" or "Reference" concerning the part is described on the same page.
- The "HIGH ASSY" found in parts list is the assembly which contains the relevant part.

CHECK POINT

For harness and wire connectors (P/J), see "7.1.1 P/J Location Drawings (p. 457)".

7.7.1 ASP List for AcuLaser C8600

Table 7-25. ASP List for AcuLaser C8600

Ref. No.	Part Name
01-1-01	FRONT COVER ASSY
01-1-04	HINGE PLATE
01-1-05	FRONT LOWER COVER
01-1-06	FRONT MID COVER
01-1-10	L/H INNER COVER ASSY
01-1-12	ROTARY LATCH LEVER
01-1-13	ROTARY LATCH SPRING
01-1-14	IBT INNER COVER ASSY
01-1-15	R/H INNER COVER ASSY
01-1-20	TOP COVER ASSY
01-1-31	REAR COVER ASSY
01-1-32	FILTER ASSY
01-1-35	REAR O/H COVER
01-1-40	LEFT LOWER COVER
01-1-41	LEFT O/H COVER
01-1-50	RIGHT LOWER COVER
01-1-51	RIGHT COVER ASSY
01-1-60	PANEL
01-1-70	LOGO PLATE
14-1-01	CONT.CHASSIS ASSY
14-1-10	BOARD ASSY. MAIN (C457MAIN)
14-1-11	BOARD ASSY. I/F (C409I/F)
14-1-12	HARNESS
14-1-15	SPACER 20
14-1-16	BOARD ASSY. NETWORK (C457N/W)
14-1-17	HARNESS
14-1-20	HARNESS
14-1-25	SHIELD CONT OPTION
14-1-26	GROUNDING SPRING TYPE-B
14-1-27	GUIDE RAIL

Table 7-25. ASP List for AcuLaser C8600 (continued)

Ref. No.	Part Name
14-1-31	CONT.PLATE
14-1-32	PLATE COVER
14-1-41	RAM DIMM
14-1-42	BOARD ASSY. MEMORY (C309PROG)
02-1-01	UNIVERSAL TRAY
02-1-03	PLATE LINK SPRING
02-1-04	PLATE LINK
02-1-05	BOTTOM PLATE ASSY
02-1-06	TRAY N/F SPRING
02-1-08	FRONT GUIDE
02-1-09	FRONT SNUBBER
02-1-10	SNUBBER STOPPER
02-1-11	SNUBBER LABEL
02-1-12	REAR GUIDE ASSY
02-1-16	REAR GUIDE SPRING
02-1-17	END GUIDE
02-1-18	TRAY SIZE ACUTUATOR
02-1-19	CESTOR GEAR
02-1-20	SPRING
03-1-02	TRAY SENSOR HARNESS
03-1-05	SIZE SWITCH ASSY
03-1-07	TRAY N/P SENSOR ASSY
03-1-11	TURN CHUTE UP ASSY
03-1-17	TURN CHUTE COVER
03-1-18	LOW PAPER SENSOR
03-1-21	TURN IN CHUTE
03-1-22	TURN CHUTE ASSY
03-1-23	TURN ROLL ASSY
03-1-25	TURN GEAR 16
03-1-26	TURN GEAR 30
03-1-27	TURN GEAR M
03-1-28	TURN GEAR 19D

Table 7-25. ASP List for AcuLaser C8600 (continued)

Ref. No.	Part Name
03-1-29	FEED ROLL ASSY
03-1-31	FEED ROLL
03-1-35	FEED SOLENOID
03-1-36	FEED GEAR ASSY
03-1-37	FEED SPRING
03-1-38	FED IDLER GEAR
03-1-40	TRAY STOPPER
03-1-42	TURN CLUTCH
03-1-46	TURN CHUTE HARNESS
03-1-47	TURN GEAR COVER
03-1-48	EXIT CHUTE SWITCH
04-1-03	EXIT CHUTE SWITCH
04-1-06	MSI ASSY
04-1-10	MSI TRAY ASSY
04-1-50	MAIN P/H FRAME ASSY
04-2-04	P/B PAD
04-2-08	MSI HARNESS ASSY
04-2-09	GEAR 28
04-2-10	BOTTOM PLATE SENSOR
04-2-15	PAD MSI TRAY
04-2-17	SHAFT MSI TRAY
04-2-20	LIFT UP FRAME ASSY
04-2-26	LIFT MOTOR ASSY
04-3-05	E.R.M. SENSOR
04-3-06	SENSOR
04-3-07	MSI N/P ACTUATOR
04-3-20	MSI FEED FRAME ASSY
04-3-23	BOTTOM PLATE SENSOR
04-3-28	ROLL
04-3-29	FEED ROLL
04-3-39	RTD SPRING
04-3-41	PICK UP CLUTCH

Table 7-25. ASP List for AcuLaser C8600 (continued)

Ref. No.	Part Name
04-3-42	GEAR-16
04-3-45	RETARD ROLL
04-4-03	P/REGI ROLL ASSY
04-4-04	PRE REGI CLUTCH ASSY
04-4-05	PRE REGI CLUTCH ASSY
04-4-14	IBT REGI CHUTE
04-4-16	REGI HARNESS ASSY
04-4-20	P/H FRONT RAIL-L
04-4-21	P/H REAR RAIL-L
04-4-24	SENSOR
04-4-25	SENSOR
04-4-29	P/H FRONT RAIL-S
04-4-30	P/H REAR RAIL-R
06-1-01	ROS ASSY
06-1-20	ADC SENSOR ASSY
06-1-30	ERASE LAMP ASSY
06-1-31	BCR WIRE ASSY
06-1-42	WASTE TONER SENSOR
06-1-43	TONER BOX SENSOR
06-1-44	TONER BOX HARNESS
06-1-50	BCR CONNECTOR ASSY
06-1-60	RECEPTACLE ASSY
06-1-70	CRUM CONNECTOR ASSY
07-1-10	DEVELOPER ASSY Y
07-1-20	DEVELOPER ASSY M
07-1-30	DEVELOPER ASSY C
07-1-40	DEVELOPER ASSY BK
07-2-02	ROTARY FRAME ASSY
07-2-05	ROTARY LATCH ASSY
07-2-11	DEVE.CONTACT PLATE ASSY
07-2-22	ROTARY SENSOR
07-2-32	USED CRT.SENSOR

Table 7-25. ASP List for AcuLaser C8600 (continued)

Ref. No.	Part Name
08-1-01	2ND BTR CAM ASSY
08-1-02	BTR REAR BRACKET ASSY
08-1-06	AUGER HIGH ASSY
08-1-11	IBT REAR BRACKET ASSY
08-1-20	TRANSFER HIGH ASSY
08-1-21	TENSION LEVER
08-1-22	2ND BTR ASSY
08-1-23	BELT CLEANER ASSY
08-2-02	IBT BELT ASSY
08-2-23	TENSION SHAFT SPRINF
08-2-24	TRO SENSOR
08-2-45	TRO HARNESS
08-3-02	BTR CAM CLTCH
08-3-03	CAM ASSY-M
08-3-04	BOTTOM PLATE SENSOR
09-1-02	MAIN FUSER ASSY+
09-1-03	FUSER TRAY ASSY
09-3-04	FUSER TRAY LEVER
09-3-05	FUSER TRAY CAP-B
09-3-06	FUSER FRONT RAIL
09-3-07	FUSER REAR RAIL
09-3-14	EXIT-1 ROLL ASSY
09-3-17	EXCHANGE CHUTE
09-3-22	EXCHANGE SOLENOID
09-3-29	FUSER HARNESS ASSY
09-4-03	FUSER TRAY CAP-A
09-4-04	FUSER IN SENSOR
09-4-07	FUSER IN ACTUATOR
09-4-08	FUSER IN SPRING
09-4-10	FUSER CHUTE FAN
09-4-14	INPUT BRACKET ASSY
09-4-16	CLEANER CAM GEAR

Table 7-25. ASP List for AcuLaser C8600 (continued)

Ref. No.	Part Name
09-4-19	INPUT GEAR FT-3
09-4-20	INPUT GEAR FT-2
09-4-21	INPUT GEAR FT-1
09-4-24	CLEANER CAM SOLENOID
09-4-25	CLEANER CAM ASSY
09-4-31	FUSER EARTH-C
10-1-01	EXIT LOWER ASSY
10-1-02	EXIT UPPER ASSY
10-1-10	EXIT TRAY ASSY
10-2-07	EXIT CHUTE FAN
10-2-22	FUSER FAN-1
10-2-24	TOP EXIT SENSOR
10-2-26	EXIT CHUTE SWITCH
10-2-27	EXIT HARNESS
11-1-01	P/H DRIVE ASSY
11-1-02	PRO DRIVE GEAR ASSY
11-1-04	FUSER MOTOR ASSY
11-1-05	P/H MOTOR ASSY
11-1-06	PRO MOTOR ASSY
11-1-07	PRO MOTOR ASSY
11-1-10	P/R MOT&DRV ASSY
11-1-20	ROTARY MOTOR ASSY
11-1-21	ROTARY MOTOR DRIVE PWB
11-1-22	DISPENSE MOTOR ASSY
11-1-23	DEVE.GEAR CLUTCH ASSY
12-1-28	FRAME FOOT
12-1-29	SHEET CLAMP
13-1-01	LV/HV POWER SUPPLY(230V)
13-1-05	DEVE.FAN
13-1-15	DEVE.WIRE
13-1-16	MAIN HARNESS ASSY
13-1-17	FUSER CONNECTOR

Table 7-25. ASP List for AcuLaser C8600 (continued)

Ref. No.	Part Name
13-1-25	POWER CABLE
13-1-25	POWER CABLE
13-1-25	POWER CABLE
13-1-25	POWER CABLE
13-2-01	MCU PWB-XL
13-2-02	COMMUNICATION PWB
13-2-03	FRONT COVER SWITCH R
13-2-04	FRONT COVER SWITCH L
13-2-05	ENVIRONMENT SENSOR
13-2-20	P/H HARNESS ASSY
13-2-21	ROS HARNESS

7.7.2 ASP List for AcuLaser C7000

Table 7-26. ASP List for AcuLaser C7000

RefNo.	Part Name
01-1-01	FRONT COVER ASSY
01-1-04	HINGE PLATE
01-1-05	FRONT LOWER COVER
01-1-06	FRONT MID COVER
01-1-10	L/H INNER COVER ASSY
01-1-12	ROTARY LATCH LEVER
01-1-13	ROTARY LATCH SPRING
01-1-14	IBT INNER COVER ASSY
01-1-15	R/H INNER COVER ASSY
01-1-20	TOP COVER ASSY
01-1-31	REAR COVER ASSY
01-1-32	FILTER ASSY
01-1-35	REAR O/H COVER
01-1-40	LEFT LOWER COVER
01-1-41	LEFT O/H COVER
01-1-50	RIGHT LOWER COVER
01-1-51	RIGHT COVER ASSY
01-1-60	PANEL
01-1-70	LOGO PLATE,13*54;B
14-1-01	CONT. CHASSIS ASSY
14-1-10	BOARD ASSY.,MAIN
14-1-11	BOARD ASSY.,I/F
14-1-12	WIRE HARNESS
14-1-20	HARNESS
14-1-25	SHIELD CONT OPTION
14-1-26	GROUNDING SPRING,TYPE-B
14-1-27	GUIDE RAIL
14-1-31	CONT. PLATE
14-1-41	SDRAMDIMM
14-1-42	BOARD ASSY.,MEMORY

Table 7-26. ASP List for AcuLaser C7000 (continued)

RefNo.	Part Name
02-1-01	UNIVERSAL TRAY
02-1-03	PLATE LINK SPRING
02-1-04	PLATE LINK
02-1-05	BOTTOM PLATE ASSY
02-1-06	TRAY N/F SPRING
02-1-08	FRONT GUIDE
02-1-09	FRONT SNUBBER
02-1-10	SNUBBER STOPPER
02-1-11	SNUBBER LABEL
02-1-12	REAR GUIDE ASSY
02-1-16	REAR GUIDE SPRING
02-1-17	END GUIDE
02-1-18	TRAY SIZE ACUTUATOR
02-1-19	CESTOR GEAR
02-1-20	SPRING
03-1-02	TRAY SENSOR HARNESS
03-1-05	SIZE SWITCH ASSY
03-1-07	TRAY N/P SENSOR ASSY
03-1-11	TURN CHUTE UP ASSY
03-1-17	TURN CHUTE COVER
03-1-18	LOW PAPER SENSOR
03-1-21	TURN IN CHUTE
03-1-22	TURN CHUTE ASSY
03-1-23	TURN ROLL ASSY
03-1-25	TURN GEAR 16
03-1-26	TURN GEAR 30
03-1-27	TURN GEAR M
03-1-28	TURN GEAR 19D
03-1-29	FEED ROLL ASSY
03-1-31	FEED ROLL
03-1-35	FEED SOLENOID
03-1-36	FEED GEAR ASSY

Table 7-26. ASP List for AcuLaser C7000 (continued)

RefNo.	Part Name
03-1-37	FEED SPRING
03-1-38	FED IDLER GEAR
03-1-40	TRAY STOPPER
03-1-42	TURN CLUTCH
03-1-46	TURN CHUTE HARNESS
03-1-47	TURN GEAR COVER
03-1-48	EXIT CHUTE SWITCH
04-1-03	EXIT CHUTE SWITCH
04-1-06	MSI ASSY
04-1-10	MSI TRAY ASSY
04-1-50	MAIN P/H FRAME ASSY
04-2-04	P/B PAD
04-2-08	MSI HARNESS ASSY
04-2-09	GEAR 28
04-2-10	BOTTOM PLATE SENSOR
04-2-15	PAD MSI TRAY
04-2-17	SHAFT MSI TRAY
04-2-20	LIFT UP FRAME ASSY
04-2-26	LIFT MOTOR ASSY
04-3-05	E.R.M. SENSOR
04-3-06	SENSOR
04-3-07	MSI N/P ACTUATOR
04-3-20	MSI FEED FRAME ASSY
04-3-23	BOTTOM PLATE SENSOR
04-3-28	ROLL
04-3-29	FEED ROLL
04-3-39	RTD SPRING
04-3-41	PICK UP CLUTCH
04-3-42	GEAR-16
04-3-45	RETARD ROLL
04-4-03	P/REGI ROLL ASSY
04-4-04	PRE REGI CLUTCH ASSY

Table 7-26. ASP List for AcuLaser C7000 (continued)

RefNo.	Part Name
04-4-05	PRE REGI CLUTCH ASSY
04-4-14	IBT REGI CHUTE
04-4-16	REGI HARNESS ASSY
04-4-20	P/H FRONT RAIL-L
04-4-21	P/H REAR RAIL-L
04-4-24	SENSOR
04-4-25	SENSOR
04-4-29	P/H FRONT RAIL-S
04-4-30	P/H REAR RAIL-R
06-1-01	ROS ASSY
06-1-20	ADC SENSOR ASSY
06-1-30	ERASE LAMP ASSY
06-1-31	BCR WIRE ASSY
06-1-42	WASTE TONER SENSOR
06-1-43	TONER BOX SENSOR
06-1-44	TONER BOX HARNESS
06-1-50	BCR CONNECTOR ASSY
06-1-60	RECEPTACLE ASSY
06-1-70	CRUM CONNECTOR ASSY
07-1-10	DEVELOPER ASSY Y
07-1-20	DEVELOPER ASSY M
07-1-30	DEVELOPER ASSY C
07-1-40	DEVELOPER ASSY BK
07-2-02	ROTARY FRAME ASSY
07-2-05	ROTARY LATCH ASSY
07-2-11	DEVE.CONTACT PLATE ASSY
07-2-22	ROTARY SENSOR
07-2-32	USED CRT.SENSOR
08-1-01	2ND BTR CAM ASSY
08-1-02	BTR REAR BRACKET ASSY
08-1-06	AUGER HIGH ASSY
08-1-11	IBT REAR BRACKET ASSY

Table 7-26. ASP List for AcuLaser C7000 (continued)

RefNo.	Part Name
08-1-20	TRANSFER HIGH ASSY
08-1-21	TENSION LEVER
08-1-22	2ND BTR ASSY
08-1-23	BELT CLEANER ASSY
08-2-02	IBT BELT ASSY
08-2-23	TENSION SHAFT SPRINF
08-2-24	TRO SENSOR
08-2-45	TRO HARNESS
08-3-02	BTR CAM CLTCH
08-3-03	CAM ASSY-M
08-3-04	BOTTOM PLATE SENSOR
09-1-02	MAIN FUSER ASSY+
09-1-03	FUSER TRAY ASSY
09-3-04	FUSER TRAY LEVER
09-3-05	FUSER TRAY CAP-B
09-3-06	FUSER FRONT RAIL
09-3-07	FUSER REAR RAIL
09-3-14	EXIT-1 ROLL ASSY
09-3-17	EXCHANGE CHUTE
09-3-21	EXCHANGE BRACKET
09-3-22	EXCHANGE SOLENOID
09-3-29	FUSER HARNESS ASSY
09-4-03	FUSER TRAY CAP-A
09-4-04	FUSER IN SENSOR
09-4-07	FUSER IN ACTUATOR
09-4-08	FUSER IN SPRING
09-4-10	FUSER CHUTE FAN
09-4-14	INPUT BRACKET ASSY
09-4-16	CLEANER CAM GEAR
09-4-20	INPUT GEAR FT-2
09-4-21	INPUT GEAR FT-1
09-4-24	CLEANER CAM SOLENOID

Table 7-26. ASP List for AcuLaser C7000 (continued)

RefNo.	Part Name
09-4-25	CLEANER CAM ASSY
09-4-31	FUSER EARTH-C
10-1-01	EXIT LOWER ASSY
10-1-02	EXIT UPPER ASSY
10-1-10	EXIT TRAY ASSY
10-2-07	EXIT CHUTE FAN
10-2-22	FUSER FAN-1
10-2-24	TOP EXIT SENSOR
10-2-26	EXIT CHUTE SWITCH
10-2-27	EXIT HARNESS
11-1-01	P/H DRIVE ASSY
11-1-02	PRO DRIVE GEAR ASSY
11-1-04	FUSER MOTOR ASSY
11-1-05	P/H MOTOR ASSY
11-1-06	PRO MOTOR ASSY
11-1-07	PRO MOTOR ASSY
11-1-10	P/R MOT&DRV ASSY
11-1-20	ROTARY MOTOR ASSY
11-1-21	ROTARY MOTOR DRIVE PWB
11-1-22	DISPENSE MOTOR ASSY
11-1-23	DEVE.GEAR CLUTCH ASSY
12-1-28	FRAME FOOT
12-1-29	SHEET CLAMP
13-1-01	LV/HV POWER SUPPLY(230V)
13-1-05	DEVE.FAN
13-1-15	DEVE.WIRE
13-1-16	MAIN HARNESS ASSY
13-1-17	FUSER CONNECTOR
13-1-25	POWER CORD
13-2-01	MCU PWB-XL
13-2-02	COMMUNICATION PWB
13-2-03	FRONT COVER SWITCH R

Table 7-26. ASP List for AcuLaser C7000 (continued)

RefNo.	Part Name
13-2-04	FRONT COVER SWITCH L
13-2-05	ENVIRONMENT SENSOR
13-2-20	P/H HARNESS ASSY
13-2-21	ROS HARNESS

7.8 Optional Units

This section describes the optional units for AcuLaser C8600/C7000.

WARNING

To ensure safe work, be sure to read and understand thoroughly the instructions given in "Safety Information" (*p.6*).

☐ Constitution

The description of the optional units is composed as follows:

7.8.1 Duplex Unit (*p.563*)
- 7.8.1.1 Product outline of Duplex Unit (*p.563*)
- 7.8.1.2 Operating principles of Duplex Unit (*p.564*)
- 7.8.1.3 Troubleshooting for Duplex Unit (*p.565*)
- 7.8.1.4 Disassembly and assembly of Duplex Unit (*p.584*)
- 7.8.1.5 Duplex Unit supplement (*p.603*)

7.8.2 500-Sheet Paper Cassette Unit (*p.609*)
- 7.8.2.1 Product outline of 500-Sheet Paper Cassette Unit (*p.609*)
- 7.8.2.2 Operating principles of 500-Sheet Paper Cassette Unit (*p.610*)
- 7.8.2.3 Troubleshooting for 500-Sheet Paper Cassette Unit (*p.614*)
- 7.8.2.4 Disassembly and assembly of 500-Sheet Paper Cassette Unit (*p.634*)
- 7.8.2.5 500-Sheet Paper Cassette Unit supplement (*p.651*)

7.8.3 Large Capacity Paper Unit (*p.659*)
- 7.8.3.1 Product outline of Large Capacity Paper Unit (*p.659*)
- 7.8.3.2 Operating principles of Large Capacity Paper Unit (*p.660*)
- 7.8.3.3 Troubleshooting for Large Capacity Paper Unit (*p.664*)
- 7.8.3.4 Disassembly and assembly of Large Capacity Paper Unit (*p.688*)
- 7.8.3.5 Large Capacity Paper Unit supplement (*p.708*)

7.8.4 ASP Information (*p.716*)
- 7.8.4.1 Exploded diagrams of optional units (*p.716*)
- 7.8.4.2 ASP lists for optional units (*p.731*)

☐ Safety Devices

With the protective devices for accident prevention, such as interlock switches, fuses and thermostats, and the safety devices that the user operates, such as covers and the Control Panel, handle and operate the printer so that all their safety functions work normally.

- CAB SWITCH-I/L (Duplex Unit)
  This is a safety switch in the control circuit which is turned off to stop all operations when the left side cover (INVERTER CHUTE ASSY) is opened.
- FEEDER RIGHT COVER SWITCH (500-Sheet Paper Cassette Unit/Large Capacity Paper Unit)
  This is a safety switch in the control circuit which is turned off to stop all operations when the right side cover (FEEDER CHUTE ASSY) is opened.

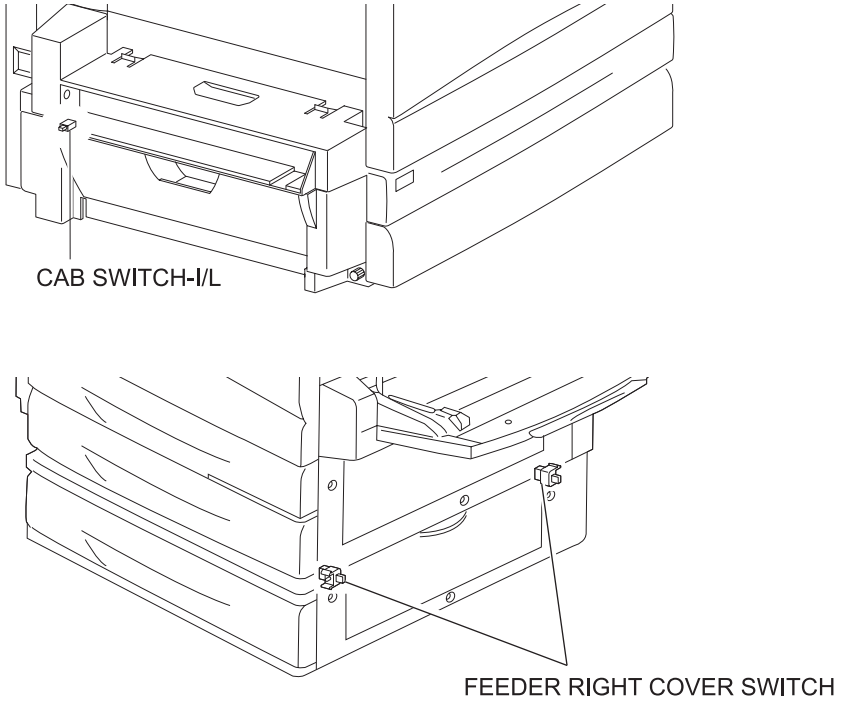


Figure 7-25. Safety Devices

7.8.1 Duplex Unit

7.8.1.1 Product outline of Duplex Unit

The basic structure of the Duplex Unit consists of the DUP transport assembly, an inverter, and an aligner assembly.

The electrical connection is established with the connector attached to the printer. The power to the Duplex Unit is supplied when the power switch on the printer is turned on and the printer is able to detect the status of the unit. In other words, the power is supplied to the Duplex unit from the printer. The basic specifications for the Duplex Unit are listed below.

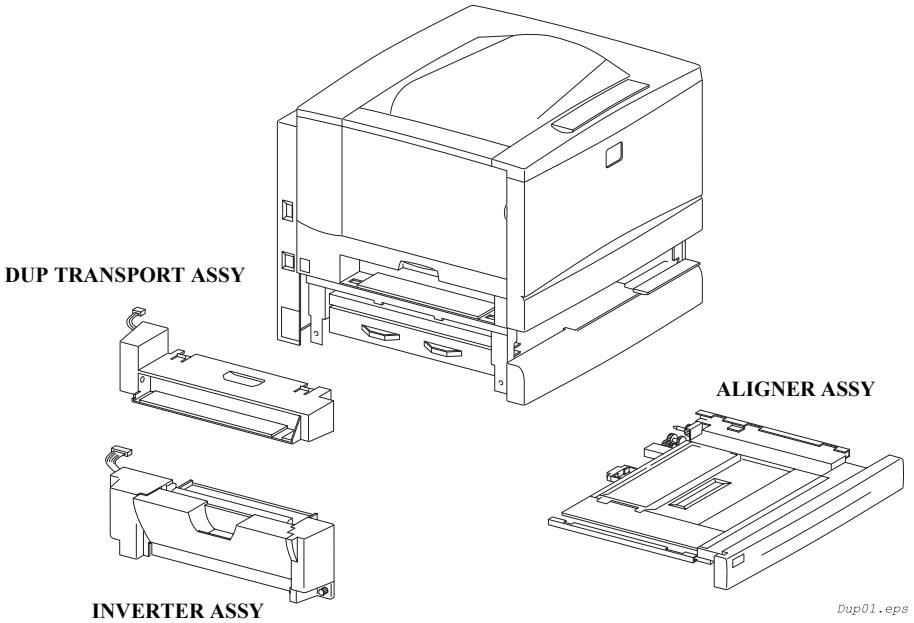


Figure 7-26. Basic structure of the Duplex Unit

7.8.1.1.1 Basic specifications

- ☐ Installation method: Installed into the printer's internal slot and left-hand side.
- ☐ Drive method: Internal drive motor
- ☐ Interface: The Duplex Unit's existence and other information, such as paper jams, are transmitted by signal to the printer. The signal for commencing paper feeding is received from the printer.
- ☐ Printing speed: Refer to "Printing Speed *3" (*p.9)* in Chapter 1.
- ☐ Paper feed specifications: Refer to "Paper feed" (*p.10)* in Chapter 1.
- ☐ Power supply: DC24V and DC5V power supplied from the printer
- ☐ Size / Weight: Refer to "Dimensions and Weight" (*p.13)* in Chapter 1.
- ☐ Life: Refer to "Product Life" (*p.14)* in Chapter 1.
- ☐ Noise: Refer to "Noise" (*p.14)* in Chapter 1.

7.8.1.1.2 Paper specifications

Refer to 1.2.2 Paper Specifications (*p.15)*

7.8.1.1.3 Reliability and endurance specifications (when connected to printer)

Refer to 1.2.3 Reliability, Durability and Maintainability (*p.20)* for reliability and endurance specifications for the Duplex Unit connected to the printer (MPBF, paper feed reliability, life, printing start position accuracy and skew).

7.8.1.1.4 Environment specifications

- ☐ Conditions for use:
  Refer to 1.2.4 Operating Conditions (Including Consumables) (*p.21)*
- ☐ Environmental conditions for storage and transportation:
  Refer to 1.2.5 Storage and Transport of the Printer Body and Optional Products (Consumables Packaged) (*p.22)*

7.8.1.1.5 Electrical characteristics (when connected to printer)

Same as those of the printer body. "1.2.6 Electrical Features" (*p.23)*.

7.8.1.1.6 Compliance with standards and regulations (when connected to printer)

Same as those of the printer body. Refer to "1.2.8 Compliance with Standards and Regulations" (*p.24)*.

7.8.1.2 Operating principles of Duplex Unit

Operating principles of the Duplex Unit are described in Chapter 2 together with those of the printer body. Refer to the following sections for operating principles of the Duplex Unit:

- 2.2 Mechanism Operating Principles (*p.103)*
  - 2.2.1 Drive Transmission Route (*p.103)*:
    P/H MOTOR ASSY *(p.104)*, INV MOT-ASSY (Option Duplex) *(p.105)*
  - 2.2.2 Gear Layout (*p.106)*:
    Option Duplex *(p.127)*
  - 2.2.3 Paper Feed (*p.108)*:
    2.2.3.2 Paper Feed Path (Option Duplex) (*p.108)*
  - 2.2.4 Function of Main Working Parts (*p.110)*:
    2.2.4.15 Option Duplex (*p.127)*

7.8.1.3 Troubleshooting for Duplex Unit

This section describes troubleshooting for the case where the Duplex Unit has been installed on AcuLaser C8600 / AcuLaser C7000.

CHECK POINT

- **This section describes troubleshooting for AcuLaser C8600/ C7000 in standard specifications and for the case where the printer controller works normally.**
- **The description in this section is given on the assumption that troubleshooting is started as described in Chapter 3 "Troubleshooting" (*p.161*).**

7.8.1.3.1 Performing troubleshooting tasks

Refer to 3.1.1 Troubleshooting Procedure (*p.162*).

7.8.1.3.2 Initial checking:

Refer to 3.1.2 Preliminary Checks (*p.162*).

7.8.1.3.3 Precautions in performing work

Refer to 3.1.3 Precautions in Performing Work (*p.163*).

7.8.1.3.4 Identifying problems with the LCD messages

AcuLaser C8600/C7000 is equipped with a self-diagnostic function to check each function of the printer and optional units. If any error in the printer or any optional unit has been detected, the appropriate error information is indicated by LEDs and the LCD panel on the control panel or by messages on the "EPSON Printer Window!3".

The messages to be displayed are classified into the four groups, namely, "status messages" indicating the printer status, "error messages" indicating the occurrence of any error, "warning messages" indicating the occurrence of warning, and "service call error messages" indicating the occurrence of any fatal error.

Refer to the following sections for details of the messages:

- 3.1.4 Self-Diagnostic Function by Printer Message (AcuLaser C8600) (*p.164*)
- 3.1.5 Self-Diagnostic Function by Printer Message (AcuLaser C7000) (*p.172*)

7.8.1.3.5 Service Call Error Messages

This section describes the details of service call error messages which can be displayed with the Duplex Unit installed. For engine-related service call errors other than described here, refer to 3.1.6 Details of the Service Call Error Messages (*p.180*).

ENGINE-RELATED SERVICE CALL ERRORS

NOTE: *Each error code (fff) is displayed with a prefix "E" for AcuLaser C8600 or "6" for AcuLaser C7000.*

Table 7-27. Service Call Errors (Engine Related)

Error code fff	Description	Refer to
516	Duplex Unit error (communication), or Duplex Print Unit other than this printer's option is installed *1	-
546	Duplex motor error	*2

Note "*1": Occurs when the Duplex Unit for AcuLaser C8500 is installed.

"*2": Refer to the instruction manual for the optional unit.

CONTROLLER-RELATED SERVICE CALL ERRORS

Refer to "Controller Related Service Call Errors" (*p.182*) for details on controller-related service call errors.

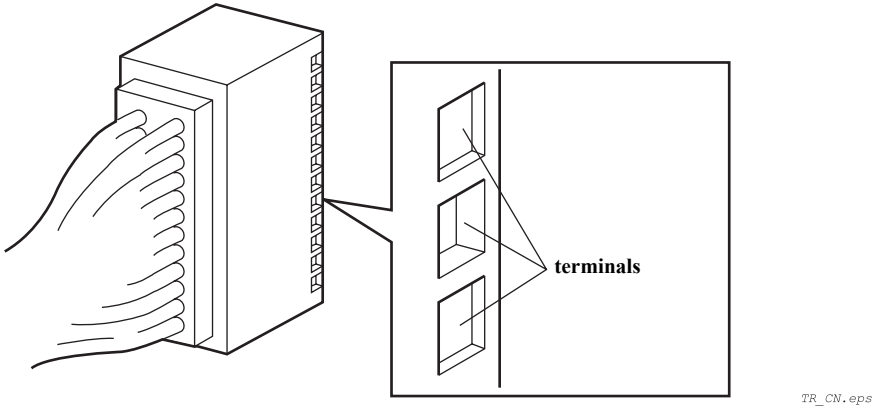
7.8.1.3.6 Level 1 FIP

PRECAUTIONS WHEN USING FIP

CHECK POINT

In order to differentiate when using FIP during the attachment of the Duplex Unit, level 1 FIP is designated as FIP-1.D.

1. As it is assumed that the printer controller (CONTROLLER PWB) is functioning normally with FIP, it is necessary to confirm that the printer controller has been replaced with a normally-functioning unit if fault repairs are not carried out after troubleshooting. It is also necessary to confirm that the [Initial checking]'s [Main Parts to be Confirmed] and all other related parts have been replaced accordingly if fault repairs are not to be performed.
2. FIPs may require some normal components as troubleshooting tools to identify the cause of the trouble. You are advised to have a spare MCU PWB, DRUM CARTRIDGE, and Y/M/C/K ET cartridges.
3. Ensure that the easiest level has been verified with the [Initial checking] in FIP.
4. In addition to checking the [Major parts to be checked] in the FIT's [Initial checking], ensure that all other major structural parts and related parts are confirmed.
5. Ensure that the power cord has been unplugged if not required before commencing work. Also, unless absolutely necessary, never touch electrified parts if work is to be carried out with the power being supplied.
6. Details for the connectors are provided below.
   - [P/J12]: With the connector (P/J12) connected
   - [P12]: The plug with the connector (P/J12) disconnected (with the exception of direct connections to the circuit board)
   - [J12]: The jack with the connector (P/J12) disconnected (with the exception of direct connections to the circuit board)
7. [P/J1-2PIN ↔ P/J3-4PIN] inside the FIP means to connect the plus pole on the gauge to the [P/J1]'s [2PIN] and the minus pole to the [P/J3]'s [4PIN] for measurement purposes.
8. When [P/J1 ↔ P/J2], for instance, is referred to in FIPs, make measurement between every pair of terminals of the P/J1 and P/J2 by consulting "Figure 7-57 P/J Locations of Duplex Unit" (*p.604*) to "Figure 7-61 §42 Connection wiring diagram" (*p.608*) in "7.8.1.5 Duplex Unit supplement" (*p.603*).
9. When measuring the voltage inside the FIP, the rear minus pole [P/J3-4PIN] with [P/J1-2PIN ↔ P/J3-4PIN] is always the AG [Analog Ground], the SG {Signal Ground} or the RTN [Return]. Owing to this, confirm that continuity clearly exists with the [AG]s, the [SG]s and the [RTN]s to enable the other [AG], [SG] and [RTN] pins to be connected to the rear minus pole instead of the [P/J3-4PIN]. However, make sure no mistakes are made here as the [AG], [SG] and [RTN] are not the same level.
10. The terminals on the surface of the connector (one in from the front/back) are used when measuring the voltage of P/J16, P/J17, P/J019 and P/J020. As these terminals are small, use a fine-headed tester pin and ensure that it comes into contact with the back terminal especially.



11. When measuring the voltage, set the DRUM CARTRIDGE and paper tray in place if they are not required, and close the FRONT COVER ASSY, TOP COVER ASSY, MSI/REGI HIGH ASSY, FUSER ASSY, and the EXIT UPPER ASSY before switching the power on for measurement purposes.
12. The values inside the FIP only represent a yardstick, and nearby numbers may be assumed to be the same.

13. Special guidance is not always provided for removing parts and performing relevant tasks in order to carry out the checks instructed inside the FIP, so caution must be exercised.
14. The [Replace] instruction issued during recovery inside the FIP indicate the parts that are assumed to be responsible for the problem and represent the instruction to replace and confirm the relevant parts and related assembly parts (HIGH ASSY).
15. Paper feeding is mentioned in the FIP under [Cassette 1] for paper cassettes below the printer, under [Cassette 2] for the first stage of optional feeder units, and under [Cassette 3] for the second stage.
16. The FIP is equipped with an area to distinguish between the availability and non-availability of the diagnosis tool, and all fault repairs must be carried out in accordance with these instructions.

    NOTE: *Refer to "5.4 Diagnostics" (p.369) for detailed operation of the DIAG tool.*
17. The FIP is equipped with an area for making distinctions in accordance with the specifications, and all fault repairs must be carried out in accordance with these instructions.

Table 7-28. FIP-1 List

Item (page)	Conditions for Detection
FIP-1.D1 Paper jammed in the DUP TRANSPORT ASSY *(p.568)*	EXIT SENSOR does not turn on within the specified time after turning on of REGI. SENSOR.
FIP-1.D2 Paper jammed in the INVERTER ASSY *(p.569)*	ALIGNER SENSOR does not turn on within the specified time after turning off of EXIT SENSOR.
FIP-1.D3 Paper jammed in the ALIGNER ASSY *(p.570)* (REGI. JAM)	ALIGNER OUT SENSOR does not turn on within the specified time after turning on of ALIGNER SENSOR.
FIP-1.D4 Paper jammed in the MAIN P/H FRAME ASSY *(p.571)* (REGI JAM 2)	In the process of take-in from aligner to MSI P/H FRAME ASSY, REGI. SENSOR does not turn to the paper detection state within the specified time after arrival at the take-in start position.
FIP-1.D5 Communication error *(p.572)*	Communication between printer body and DUPLEX FINAL ASSY is not possible.

Table 7-28. FIP-1 List (continued)

Item (page)	Conditions for Detection
FIP-1.D6 ERRORS RELATED TO THE INV MOT-ASSY *(p.573)*	The lock signal of INV MOT-ASSY has been detected.
FIP-1.D7 INV CHUTE ASSY open *(p.574)*	☐ INV CHUTE-ASSY is open. ☐ CAB SWITCH-I/L is OFF with INV CHUTE-ASSY closed.
FIP-1.D8 ALIGNER ASSY open *(p.575)*	ALIGNER ASSY has been drawn out.

FIP-1.D1 Paper jammed in the DUP TRANSPORT ASSY

Table 7-29.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: INVERTER MOTOR ASSY, DUP GATE SOLENOID,INVERTER SENSOR, DUP CONTROLLER PWB,MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ INVERTER Motor operation check Check to ascertain that the INVERTER Motor is operating during the test print.	Proceed to step [5]	Proceed to step [4]
4	☐ INVEART mechanism rotation check Withdraw the INVERTER ASSY and rotate the INVEART mechanism roller manually to confirm that it operates correctly. Does it rotate smoothly?	• With tool - Proceed to step [6] • Without tool - Proceed to step [8]	Replace the concerned part(s) which causes the problem.
5	☐ DUP TRANSPORT ASSY attachment check Check to ascertain that the TRANSPORT ASSY is firmly attached.	Proceed to step [6]	Reattach the DUP TRANSPORT ASSY
6	☐ DUP GATE SOLENOID check Check to ascertain that the DUP GAIT SOLENOID is functioning normally. ♦ By using the DIAG tool, check by Digital Output Test device code "1A".	Proceed to step [7]	Proceed to FIP-2.D2 Faulty DUP GATE SOLENOID (*p.577*)
7	☐ INVERTER SENSOR check Check to ascertain that the INVERTER SENSOR is functioning normally. ♦ By using the DIAG tool, check by Digital Input Test device code "A0".	Replace the MCU PWB	Proceed to FIP-2.D5 Faulty INVERTER SENSOR (*p.580*)

Table 7-29.

Step	Check	Recovery	
		Yes	No
8	☐ INVERTER SENSOR attachment check Check to ascertain that the INVERTER SENSOR is attached firmly.	Proceed to step [9]	Reattach the INVERTER SENSOR (PL43.1.32) (*p.600*)
9	☐ DUP harness check Check to ascertain that the harness between the INVERTER SENSOR and the DUP CONTROLLER PWB is not severed or has a faulty contact.	Proceed to step [10]	Replace the HARNESS ASSY, SNR DUP or HARNESS ASSY DUP
10	☐ Main unit harness check Check to ascertain that the harness between the main unit and the DUP CONTROLLER PWB is not severed or has a faulty contact.	Proceed to FIP-2.D2 Faulty DUP GATE SOLENOID (*p.577*), FIP-2.D5 Faulty INVERTER SENSOR (*p.580*)	Replace the main unit harness

FIP-1.D2 Paper jammed in the INVERTER ASSY

Table 7-30.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: INVERTER ASSY, ALIGNER ASSY, INV ROLLER-ASSY, TRI ROLLER-ASSY, INV2 ROLLER-ASSY, FORWARD CLUTCH, REVERSE CLUTCH, LOWER INV SOLENOID, ALIGNER SENSOR, DUP CONTROLLER PWB, P/H DRIVE ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ INVERT mechanism rotation check Pull out INVERTER ASSY. Rotate the roller of INVERT mechanism manually and check the rotation. Does the roller rotate smoothly?	Proceed to step [4]	Replace the concerned part(s) which causes the problem.
4	☐ DUPLEX FEED mechanism rotation check Pull out Aligner Assy. Rotate the roller of Duplex feed mechanism manually and check the rotation. Does the roller rotate smoothly?	• With tool - Proceed to step [5] • Without tool - Follow steps [10] and [11] first and then proceed to FIP-2.D3, D6, D7 and D8	Replace the concerned part(s) which causes the problem.
5	☐ ROLLER-ASSY-PINCH operation check Check if ROLLER- ASSY- PINCH operates normally. ♦ By using the diagnostics tool, check by Digital Output Test device code "A5, A6".	Proceed to step [7]	Proceed to step [6]

Table 7-30.

Step	Check	Recovery	
		Yes	No
6	☐ LOWER INV SOLENOID check Check if LOWER INV SOLENOID itself operates normally. ♦ By using the diagnostics tool, check by Digital Output Test device code "A5, A6".	Replace the obstacle part(s) which disturbs ROLLER-ASSY-PINCH operation.	Proceed to FIP-2.D8 Faulty LOWER INV SOLENOID (*p.583*)
7	☐ FORWORD CLUTCH check Check if FORWORD CLUTCH operates normally. ♦ By Using the diagnostics tool, check by Digital Output Test device code "A3".	Proceed to step [8]	Proceed to FIP-2.D6 Faulty FORWARD CLUTCH (*p.581*)
8	☐ REVERSE CLUTCH check Check if REVERSE CLUTCH operates normally. ♦ By using the diagnostics tool, check by Digital Output Test device code "A4".	Proceed to step [9]	Proceed to FIP-2.D7 Faulty REVERSE CLUTCH (*p.582*)
9	☐ ALIGNER SENSOR check Check if ALIGNER SENSOR operates normally. ♦ By using the diagnostics tool, check by Digital Input Test device code "A1".	Proceed to step [10]	Proceed to FIP-2.D3 Faulty ALIGNER SENSOR (*p.578*)
10	☐ P/H DRIVE ASSY check Is the connected part of P/H DRIVE ASSY which drives ALIGNER ASSY normal?	Proceed to step [11]	Replace the P/H DRIVE ASSY
11	☐ ALIGNER ASSY check Replace ALIGNER ASSY with a new one. Does the problem still occur?	Replace the INVERTER ASSY (PL40.1.4) (*p.585*)	Problem solved.

FIP-1.D3 Paper jammed in the ALIGNER ASSY

Table 7-31.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: CHUTE-SUPPORT, REGI CHUTE-ASSY, BELT, ALIGNER OUT SENSOR, DUP CONTROLLER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ DUPLEX FEED mechanism rotation check Pull out ALIGNER ASSY. Rotate the roller of DUPLEX FEED mechanism manually and check the rotation. Does the roller rotate smoothly?	Proceed to step [4]	Replace the concerned part(s) which causes the problem.
4	☐ ALIGNER ASSY attachment check Check to ascertain that the ALIGNER ASSY is firmly attached.	Proceed to step [5]	Reattach the ALIGNER ASSY (PL40.1.3) *(p.585)*
5	☐ ALIGNER OUT SENSOR attachment check Check to ascertain that the ALIGNER OUT SENSOR is firmly attached.	• With tool - Proceed to step [6] • Without tool - Proceed to FIP-2.D4 Faulty ALIGNER OUT SENSOR *(p.579)*	Reattach the ALIGNER OUT SENSOR (PL42.1.9) *(p.590)*
6	☐ ALIGNER OUT SENSOR check Check to ascertain that the ALIGNER OUT SENSOR is functioning normally. ♦ By using the diagnostics tool, check by Digital Input Test device code "A2".	Proceed to step [7]	Proceed to FIP-2.D4 Faulty ALIGNER OUT SENSOR *(p.579)*

Table 7-31.

Step	Check	Recovery	
		Yes	No
7	☐ DUP harness check Check to ascertain that the harness between the ALIGNER OUT SENSOR and the DUP CONTROLLER PWB is not severed or has a faulty contact.	Proceed to step [8]	Replace SNS1 HARNESS-ASSY or ALIGNER HARNESS-ASSY, DUP MAIN HARNESS-ASSY.
8	☐ Main unit harness check Check to ascertain that the harness between the main unit and the DUP CONTROLLER PWB is not severed or has a faulty contact.	Replace the MCU PWB	Replace the main unit harness

FIP-1.D4 Paper jammed in the MAIN P/H FRAME ASSY

Table 7-32.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: MAIN P/H FRAME ASSY, REGI. SENSOR, CHUTE-SUPPORT, REGI CHUTE-ASSY, BELT, ALIGNER OUT SENSOR, DUP CONTROLLER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ MAIN P/H FRAME ASSY check Is there foreign matter in the paper route of the MAIN P/H FRAME ASSY? Is there anything wrong with parts?	• With tool - Proceed to step [4] • Without tool - Proceed to FIP-2.10 "Faulty REGI. SENSOR" *(p.232)*	Clean or replace the faulty part(s).
4	☐ REGI. SENSOR check Check to ascertain that the REGI. SENSOR is functioning normally. ♦ By using the diagnostics tool, check by Digital Input Test device code "29".	Proceed to step [5]	Proceed to FIP-2.10 "Faulty REGI. SENSOR" *(p.232)*
5	☐ DUPLEX FEED mechanism rotation check Pull out ALIGNER ASSY. Rotate the roller of DUPLEX FEED mechanism manually and check the rotation. Does the roller rotate smoothly?	Proceed to step [6]	Replace the concerned part(s) which causes the problem.
6	☐ ALIGNER ASSY attachment check Check to ascertain that the ALIGNER ASSY is firmly attached.	Proceed to step [7]	Reattach the ALIGNER ASSY (PL40.1.3) *(p.585)*

Table 7-32.

Step	Check	Recovery	
		Yes	No
7	☐ ALIGNER OUT SENSOR attachment check Check to ascertain that the ALIGNER OUT SENSOR is firmly attached.	• With tool - Proceed to step [8] • Without tool - Proceed to FIP-2.D4 Faulty ALIGNER OUT SENSOR *(p.579)*	Reattach the ALIGNER OUT SENSOR (PL42.1.9) *(p.590)*
8	☐ ALIGNER OUT SENSOR check Check to ascertain that the ALIGNER OUT SENSOR is functioning normally. ♦ Confirm this with device code [A2] of the digital input test.	Proceed to step [9]	Proceed to FIP-2.D4 Faulty ALIGNER OUT SENSOR *(p.579)*
9	☐ DUP harness check Check to ascertain that the harness between the ALIGNER OUT SENSOR and the DUP CONTROLLER PWB is not severed or has a faulty contact.	Proceed to step [10]	Replace SNS1 HARNESS-ASSY or ALIGNER HARNESS-ASSY, DUP MAIN HARNESS-ASSY.
10	☐ Main unit harness check Check to ascertain that the harness between the main unit and the DUP CONTROLLER PWB is not severed or has a faulty contact.	Replace the MCU PWB	Replace the main unit harness

FIP-1.D5 Communication error

Table 7-33.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: DUP MAIN HARNESS ASSY, MAIN HARNESS ASSY, DUP CONTROLLER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [4]	Replace the DUP MAIN HARNESS ASSY
4	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [5]	Replace the MAIN HARNESS ASSY
5	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-1.D6 ERRORS RELATED TO THE INV MOT-ASSY

Table 7-34.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: INVERTER MOTOR ASSY, DUP TRANSPORT ASSY, INVERTER ASSY, ALIGNER ASSY, DUP CONTROLLER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ INVERTER Motor operation check Check to ascertain that the INVERTER Motor is operating during the test print.	Proceed to step [4]	Replace the concerned part(s) which causes the problem.
4	☐ DUP TRANSPORT ASSY attachment check Check to ascertain that the DUP TRANSPORT ASSY is firmly attached.	Proceed to step [5]	Reattach the DUP TRANSPORT ASSY (PL40.1.2) *(p.584)*
5	☐ INVERTER ASSY attachment check Check to ascertain that the INVERTER ASSY is firmly attached.	Proceed to step [6]	Reattach the INVERTER ASSY (PL40.1.4) *(p.585)*
6	☐ ALIGNER ASSY attachment check Check to ascertain that the ALIGNER ASSY is firmly attached.	Proceed to step [7]	Reattach the ALIGNER ASSY (PL40.1.3) *(p.585)*
7	☐ INVERTER MOTOR ASSY abnormality check Check to ascertain that there are no foreign objects preventing the INVERTER MOTOR ASSY from operating.	Remove the obstruction	• With tool - Proceed to step [8] • Without tool - Proceed to step [9]

Table 7-34.

Step	Check	Recovery	
		Yes	No
8	☐ INVERTER MOTOR ASSY check Check to ascertain that the INVERTER MOTOR ASSY is functioning normally. ♦ Confirm this with device code [A0] of the digital output test.	Replace the MCU PWB	Proceed to step [9]
9	☐ HARNESS-ASSY-DUP conductivity check Is the conductivity between the following normal? J139 ↔ J147	Proceed to step [10]	Replace the HARNESS-ASSY-DUP
10	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [11]	Replace the DUP MAIN HARNESS ASSY
11	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [12]	Replace the MAIN HARNESS ASSY
12	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-1.D7 INV CHUTE ASSY open

Table 7-35.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: CAB SWITCH-I/L, INVERTER CHUTE, DUP CONTROLLER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ CAB SWITCH-I/L attachment check Has the CAB SWITCH-I/L been attached correctly?	Proceed to step [4]	Reattach the CAB SWITCH-I/L (PL43.1.4) *(p.594)*
4	☐ INVERTER CHUTE check Does the feeder chute open and close smoothly under the following conditions? Press the CAB SWITCH-I/L when the INVERTER CHUTE is closed. Release the CAB SWITCH-I/L when the inverter chute is open.	• With tool - Proceed to step [5] • Without tool - Proceed to FIP-2.D1 Faulty CAB SWITCH-I/L *(p.576)* If an error still occurs after taking action above, proceed to step [6]	Replace the concerned part(s) which causes the problem.
5	☐ CAB SWITCH-I/L check Check to ascertain that the CAB SWITCH-I/L is functioning normally. ♦ By using the diagnostics tool, check by Digital Input Test device code "A3".	Proceed to step [6]	Proceed to FIP-2.D1 Faulty CAB SWITCH-I/L *(p.576)*

Table 7-35.

Step	Check	Recovery	
		Yes	No
6	☐ HARNESS-ASSY-DUP conductivity check Is the conductivity between the following normal? J139 ↔ J153	Proceed to step [7]	Replace the HARNESS-ASSY-DUP
7	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [8]	Replace the DUP MAIN HARNESS ASSY
8	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [9]	Replace the MAIN HARNESS ASSY
9	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-1.D8 ALIGNER ASSY open

Table 7-36.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: ALIGNER ASSY, ALIGNER CHUTE-ASSY	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check if the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. If the same problem occurs after replacement/ remounting, Proceed to step [3]	Proceed to step [3]
3	☐ ALIGNER ASSY mounting check Has the ALIGNER ASSY been mounted correctly?	Replace the MCU PWB	Remount the ALIGNER ASSY (PL40.1.3) (*p.585*)

7.8.1.3.7 Level 2 FIP

FIP-2.D1 Faulty CAB SWITCH-I/L

Table 7-37.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: CAB SWITCH-I/L, HARNESS-ASSY-DUP, DUP CONTROLLER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ CAB SWITCH-I/L ON signal power supply check Is the following electrical voltage 5VDC? P139-4PIN ↔ P139-5PIN	Proceed to step [3]	Proceed to step [5]
3	☐ CAB SWITCH-I/L ON signal check Is the electrical voltage between P139-4PIN ↔ P139-5PIN as follows? 0VDC when the INVERTER CHUTE is closed. 5VDC when the INVERTER CHUTE is open.	Proceed to step [9]	Proceed to step [4]
4	☐ HARNESS-ASSY-DUP check Is the conductivity between the following normal? J139 ↔ J153	Proceed to step [9]	Replace the HARNESS-ASSY-DUP
5	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J142-9PIN ↔ J142-7PIN P/J142-10PIN ↔ J142-8PIN	Replace the DUP CONTROLLER PWB (PL43.1.11) *(p.594)*	Proceed to step [6]
6	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J022B-9PIN ↔ J022B-11PIN P/J022B-8PIN ↔ J022B-10PIN	Proceed to step [7]	Replace the MCU PWB

Table 7-37.

Step	Check	Recovery	
		Yes	No
7	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [8]	Replace the DUP MAIN HARNESS ASSY
8	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [9]	Replace the MAIN HARNESS ASSY
9	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-2.D2 Faulty DUP GATE SOLENOID

Table 7-38.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: DUP GATE SOLENOID, MAIN HARNESS ASSY, FUSER HARNESS ASSY, DUP CONTROLLER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ DUP GATE SOLENOID power supply check Is the electrical voltage 24VDC for the following? P19A-2PIN ↔ P19A-1PIN P19A-2PIN ↔ P19A-3PIN	Proceed to step [3]	Replace the MCU PWB
3	☐ FUSER HARNESS ASSY conductivity check Is the conductivity between the following normal? J71A ↔ J75	Proceed to step [4]	Replace the FUSER HARNESS ASSY
4	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J19A ↔ J71A	Proceed to step [5]	Replace the FUSER HARNESS ASSY
5	☐ DUP GATE SOLENOID check Is the conductivity for the following normal (approximately 90Ω)? J75-2PIN ↔ J75-1PIN J75-2PIN ↔ J75-3PIN	Proceed to step [6]	Replace the DUP GATE SOLENOID (PL41.1.6) *(p.586)*
9	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-2.D3 Faulty ALIGNER SENSOR

Table 7-39.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: ALIGNER SENSOR, DUP CONTROLLER PWB, SNS2 HARNESS-ASSY, ALIGNER HARNESS-ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ ALIGNER SENSOR power supply check Is the following electrical voltage 5VDC? P141-4PIN ↔ P141-6PIN	Proceed to step [3]	Proceed to step [8]
3	☐ ALIGNER SENSE detection signal power supply check Is the following electrical voltage 5VDC? P141-5PIN ↔ P141-6PIN	Proceed to step [4]	Proceed to step [8]
4	☐ SNS2 HARNESS-ASSY conductivity check Is the conductivity between the following normal? J159 ↔ J145	Proceed to step [5]	Replace the SNS2 HARNESS-ASSY
5	☐ ALIGNER HARNESS-ASSY conductivity check Is the conductivity between the following normal? J155 ↔ J159	Proceed to step [6]	Replace the ALIGNER HARNESS-ASSY
6	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134B ↔ J155	Proceed to step [7]	Replace the MAIN HARNESS ASSY
7	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J141 ↔ J134B	Proceed to step [12]	Replace the DUP MAIN HARNESS ASSY

Table 7-39.

Step	Check	Recovery	
		Yes	No
8	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J142-9PIN ↔ J142-7PIN P/J142-10PIN ↔ J142-8PIN	Replace the DUP CONTROLLER PWB (PL43.1.11) *(p.594)*	Proceed to step [9]
9	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J022B-9PIN ↔ J022B-11PIN P/J022B-8PIN ↔ J022B-10PIN	Proceed to step [10]	Replace the MCU PWB
10	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [11]	Replace the DUP MAIN HARNESS ASSY
11	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [13]	Replace the MAIN HARNESS ASSY
12	☐ ALIGNER SENSE signal check Is the electrical voltage as follows? 0VDC with paper, 5VDC without paper P/J141-5 ↔ P/J141-6	Proceed to step [13]	Replace the ALIGNER SENSOR (PL42.1.12) *(p.591)*
13	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-2.D4 Faulty ALIGNER OUT SENSOR

Table 7-40.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: ALIGNER OUT SENSOR, DUP CONTROLLER PWB, SNS1 HARNESS-ASSY, ALIGNER HARNESS-ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ ALIGNER OUT SENSOR power supply check Is the following electrical voltage 5VDC? P141-1PIN ↔ P141-3PIN	Proceed to step [3]	Proceed to step [8]
3	☐ ALIGNER OUT SENSE detection signal power supply check Is the following electrical voltage 5VDC? P141-2PIN ↔ P141-3PIN	Proceed to step [4]	Proceed to step [8]
4	☐ SNS1 HARNESS-ASSY conductivity check Is the conductivity between the following normal? J160 ↔ J146	Proceed to step [5]	Replace the SNS2 HARNESS-ASSY
5	☐ ALIGNER HARNESS-ASSY conductivity check Is the conductivity between the following normal? J155 ↔ J160	Proceed to step [6]	Replace the ALIGNER HARNESS-ASSY
6	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134B ↔ J155	Proceed to step [7]	Replace the MAIN HARNESS ASSY
7	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J141 ↔ J134B	Proceed to step [12]	Replace the DUP MAIN HARNESS ASSY

Table 7-40.

Step	Check	Recovery	
		Yes	No
8	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J142-9PIN ↔ J142-7PIN P/J142-10PIN ↔ J142-8PIN	Replace the DUP CONTROLLER PWB (PL43.1.11) *(p.594)*	Proceed to step [9]
9	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J022B-9PIN ↔ J022B-11PIN P/J022B-8PIN ↔ J022B-10PIN	Proceed to step [10]	Replace the MCU PWB
10	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [11]	Replace the DUP MAIN HARNESS ASSY
11	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [13]	Replace the MAIN HARNESS ASSY
12	☐ ALIGNER OUT SENSE signal check Is the electrical voltage as follows? 0VDC with paper, 5VDC without paper P/J141-2 ↔ P/J141-3	Proceed to step [13]	Replace the ALIGNER SENSOR (PL42.1.12) *(p.591)*
13	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-2.D5 Faulty INVERTER SENSOR

Table 7-41.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: INVERTER SENSOR, DUP CONTROLLER PWB, SNR DUP HARNESS-ASSY, HARNESS-ASSY-DUP, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ INVERTER SENSOR power supply check Is the following electrical voltage 5VDC? P139-1PIN ↔ P139-2PIN	Proceed to step [3]	Proceed to step [6]
3	☐ INVERTER SENSE detection signal power supply check Is the following electrical voltage 5VDC? P139-3PIN ↔ P139-2PIN	Proceed to step [4]	Proceed to step [6]
4	☐ SNR DUP HARNESS-ASSY conductivity check Is the conductivity between the following normal? J158 ↔ J144	Proceed to step [5]	Replace the SNR DUP HARNESS-ASSY
5	☐ HARNESS-ASSY-DUP conductivity check Is the conductivity between the following normal? J144 ↔ J139	Proceed to step [10]	Replace the HARNESS-ASSY-DUP
6	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J142-9PIN ↔ J142-7PIN P/J142-10PIN ↔ J142-8PIN	Replace the DUP CONTROLLER PWB (PL43.1.11) *(p.594)*	Proceed to step [7]
7	☐ 5VDC power supply check Is the voltage of each of the followings 5VDC? P/J022B-9PIN ↔ J022B-11PIN P/J022B-8PIN ↔ J022B-10PIN	Proceed to step [8]	Replace the MCU PWB

Table 7-41.

Step	Check	Recovery	
		Yes	No
8	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [9]	Replace the DUP MAIN HARNESS ASSY
9	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ INVERTER SENSE signal check Is the electrical voltage as follows? 0VDC with paper, 5VDC without paper P/J139-3 ↔ P/J139-1	Proceed to step [11]	Replace the INVERTER SENSOR (PL43.1.32) *(p.600)*
11	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-2.D6 Faulty FORWARD CLUTCH

Table 7-42.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FORWARD CLUTCH, DUP CONTROLLER PWB, HARNESS-ASSY-DUP, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ FORWARD CLUTCH power supply check Is the electrical voltage 24VDC for the following? P139-10PIN ↔ P139-11PIN	Proceed to step [3]	Proceed to step [5]
3	☐ HARNESS-ASSY-DUP conductivity check Is the conductivity between the following normal? J139 ↔ J150	Proceed to step [4]	Replace the HARNESS-ASSY-DUP
4	☐ FORWARD CLUTCH check Is the conductivity for the following normal (approximately 172Ω)? J150-1PIN ↔ J150-2PIN	Proceed to step [9]	Replace the FORWARD CLUTCH (PL43.1.17) *(p.596)*
5	☐ 24VDC power supply check Is the voltage of each of the followings 24VDC? P/J142-14PIN ↔ J142-11PIN P/J142-15PIN ↔ J142-12PIN P/J142-16PIN ↔ J142-13PIN	Replace the DUP CONTROLLER PWB (PL43.1.11) *(p.594)*	Proceed to step [6]
6	☐ 24VDC power supply check Is the voltage of each of the followings 24VDC? P/J022B-2PIN ↔ J022B-5PIN P/J022B-3PIN ↔ J022B-6PIN P/J022B-4PIN ↔ J022B-7PIN	Proceed to step [7]	Replace the MCU PWB
7	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [8]	Replace the DUP MAIN HARNESS ASSY
8	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [9]	Replace the MAIN HARNESS ASSY
9	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-2.D7 Faulty REVERSE CLUTCH

Table 7-43.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: REVERSE CLUTCH, DUP CONTROLLER PWB, HARNESS-ASSY-DUP, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ REVERSE CLUTCH power supply check Is the electrical voltage 24VDC for the following? P139-12PIN ↔ P139-13PIN	Proceed to step [3]	Proceed to step [5]
3	☐ HARNESS-ASSY-DUP conductivity check Is the conductivity between the following normal? J139 ↔ J151	Proceed to step [4]	Replace the HARNESS-ASSY-DUP
4	☐ REVERSE CLUTCH check Is the conductivity for the following normal (approximately 172Ω)? J151-1PIN ↔ J151-2PIN	Proceed to step [9]	Replace the REVERSE CLUTCH (PL43.1.18) *(p.597)*
5	☐ 24VDC power supply check Is the voltage of each of the followings 24VDC? P/J142-14PIN ↔ J142-11PIN P/J142-15PIN ↔ J142-12PIN P/J142-16PIN ↔ J142-13PIN	Replace the DUP CONTROLLER PWB (PL43.1.11) *(p.594)*	Proceed to step [6]
6	☐ 24VDC power supply check Is the voltage of each of the followings 24VDC? P/J022B-2PIN ↔ J022B-5PIN P/J022B-3PIN ↔ J022B-6PIN P/J022B-4PIN ↔ J022B-7PIN	Proceed to step [7]	Replace the MCU PWB
7	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [8]	Replace the DUP MAIN HARNESS ASSY
8	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [9]	Replace the MAIN HARNESS ASSY
9	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

FIP-2.D8 Faulty LOWER INV SOLENOID

Table 7-44.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: LOWER INV SOLENOID, LOWER INV SOL SPRING, LOWER INVERTER ASSY, DUP MAIN HARNESS ASSY, MAIN HARNESS ASSY, DUP CONTROLLER PWB, MCU PWB, INVERTER ASSY	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ LOWER INV SOLENOID power supply check Is the electrical voltage 24VDC for the following? P141-12PIN ↔ P141-11PIN	Proceed to step [3]	Proceed to step [6]
3	☐ LOWER INV SOLENOID check Is the conductivity for the following normal (approximately 45Ω)? J148-2PIN ↔ J148-1PIN J148-2PIN ↔ J148-3PIN	Proceed to step [4]	Replace the LOWER INV SOLENOID (PL40.1.7) *(p.602)*
4	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J141 ↔ J134B	Proceed to step [5]	Replace the DUP MAIN HARNESS ASSY
5	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134B↔ J148	Proceed to step [10]	Replace the MAIN HARNESS ASSY
6	☐ 24VDC power supply check Is the voltage of each of the followings 24VDC? P/J142-14PIN ↔ J142-11PIN P/J142-15PIN ↔ J142-12PIN P/J142-16PIN ↔ J142-13PIN	Replace the DUP CONTROLLER PWB (PL43.1.11) *(p.594)*	Proceed to step [7]

Table 7-44.

Step	Check	Recovery	
		Yes	No
7	☐ 24VDC power supply check Is the voltage of each of the followings 24VDC? P/J022B-2PIN ↔ J022B-5PIN P/J022B-3PIN ↔ J022B-6PIN P/J022B-4PIN ↔ J022B-7PIN	Proceed to step [8]	Replace the MCU PWB
8	☐ DUP MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J134A ↔ J142	Proceed to step [9]	Replace the DUP MAIN HARNESS ASSY
9	☐ MAIN HARNESS ASSY conductivity check Is the conductivity between the following normal? J022B ↔ J134A	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ DUP CONTROLLER PWB check Does the same problem occur after the DUP CONTROLLER PWB has been replaced with a normal one?	Replace the MCU PWB	Problem solved.

7.8.1.4 Disassembly and assembly of Duplex Unit

This section explains the procedures for removing and attaching the main parts on the Duplex Unit.
For carrying out disassembly and assembly work, be sure to read "4.1 Overview" (*p.258)* and "4.2 Disassembly and Reassembly Procedure" (*p.261)* carefully.

CHECK POINT

- **For parts which are available as spare parts but the procedure for their disassembly and assembly is not described here, never forget to observe their installation carefully before starting disassembly.**
- **Work should be carried out with the FEEDER UNIT left installed, unless its removal is necessary.**

7.8.1.4.1 DUP TRANSPORT ASSY (PL40.1.2)

1. Remove the EXIT TRAY ASSY (PL10.1.10). (*p.339)*
2. Disconnect the DUP GATE SOLENOID connector (P/J75) connected to the printer.
3. Press down on the two hooks on the DUP TRANSPORT ASSY and pull the DUP TRANSPORT ASSY out horizontally to remove it.

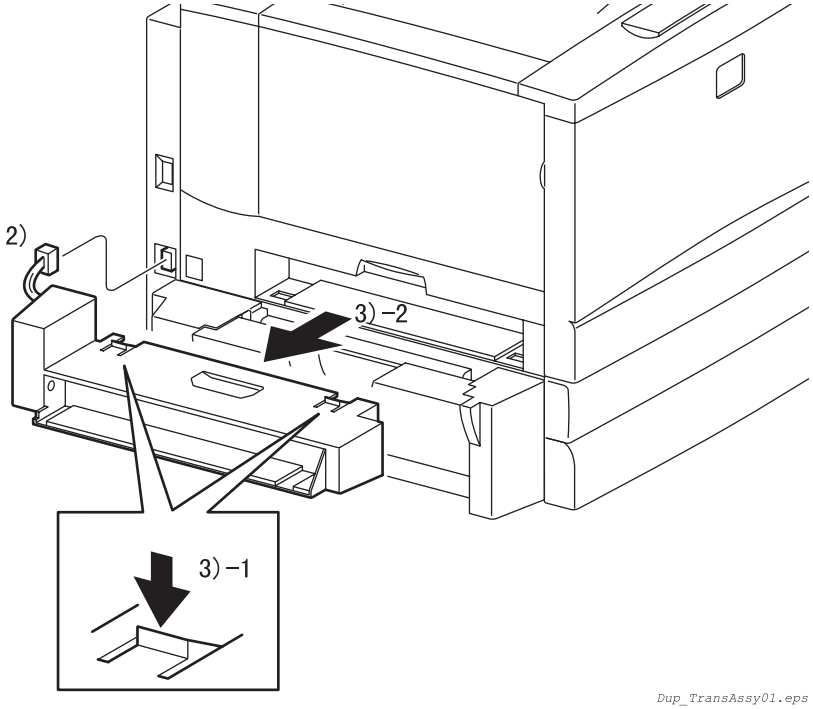


Figure 7-27. Removing the DUP TRANSPORT ASSY

7.8.1.4.2 ALIGNER ASSY (PL40.1.3)

1. Pull out the ALIGNER ASSY.
2. Pull off the ALIGNER ASSY while pushing the right and left hooks (two hooks).

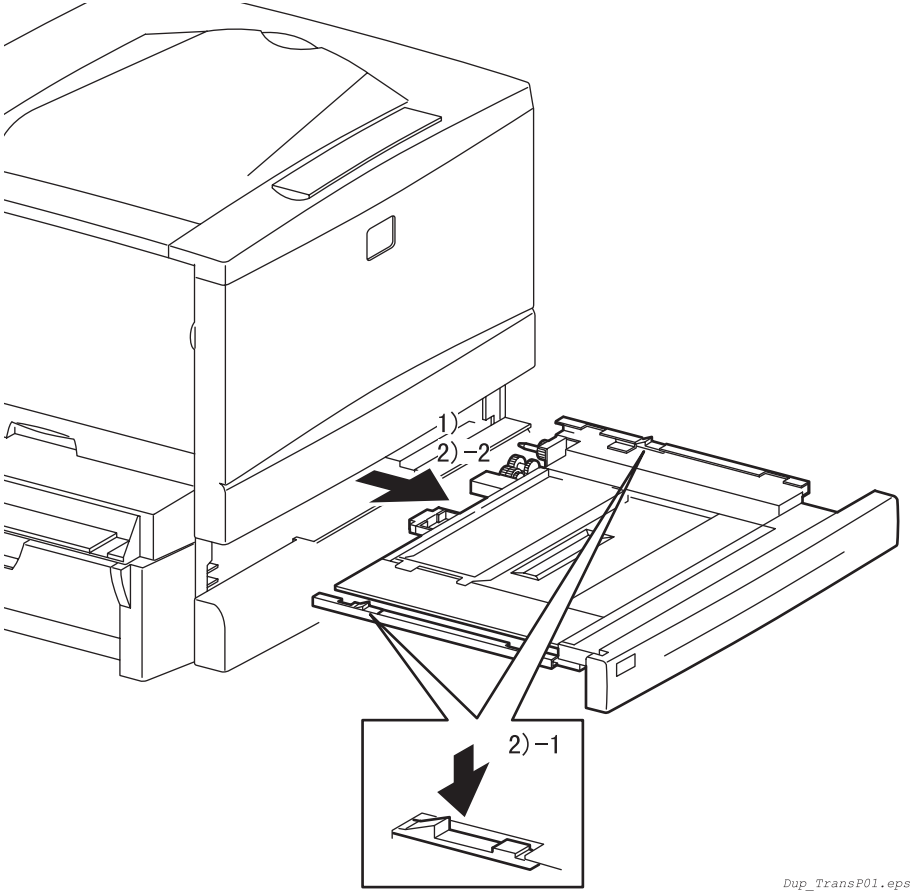


Figure 7-28. Removing the DUP TRANSPORT ASSY

7.8.1.4.3 INVERTER ASSY (PL40.1.4)

1. Disconnect the connector (P/J134A) connecting the INVERTER ASSY and the printer body.
2. Loosen the two screws (knurled) securing the INVERTER ASSY, and pull off the INVERTER ASSY horizontally.

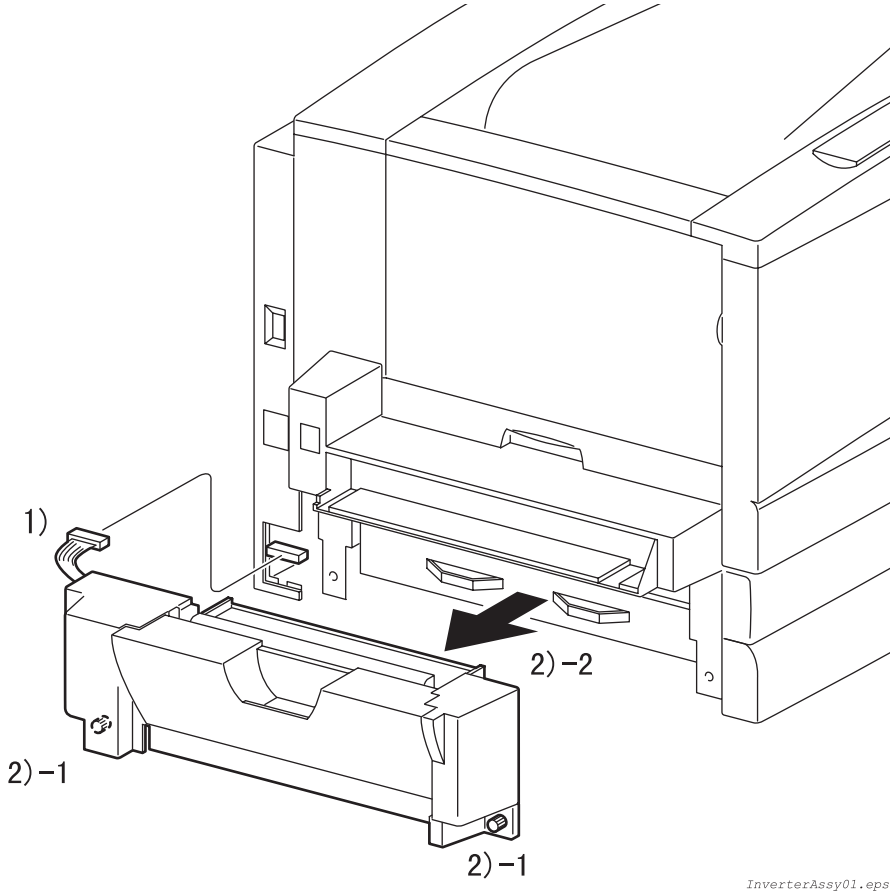


Figure 7-29. Removing the INVERTER ASSY

7.8.1.4.4 DUP GATE SOLENOID (PL41.1.6)

1. Remove the DUP TRANSPORT ASSY (PL40.1.2). (*p.584*)
2. Remove the COVER-EXIT(PL41.1.10). (*p.586*)
3. Remove the harness from the hook to free it.
4. Remove the screws holding the DUP GATE SOLENOID in place (gold, 4mm) and remove the DUP GATE SOLENOID.

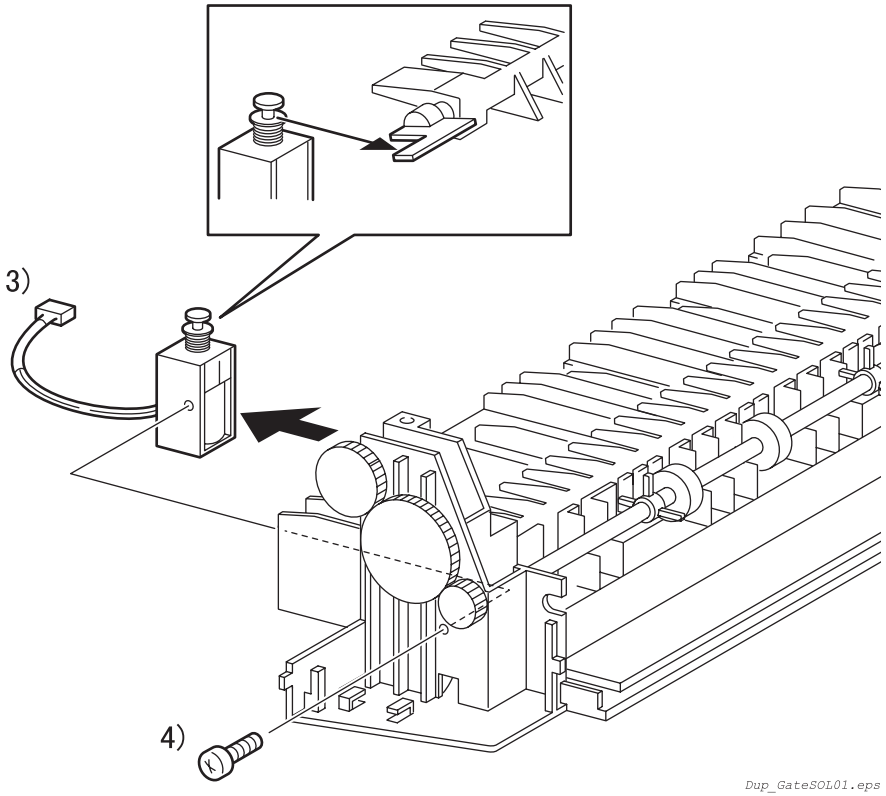


Figure 7-30. Removing the DUP GATE SOLENOID

7.8.1.4.5 COVER-EXIT(PL41.1.10)

1. Remove the DUP TRANSPORT ASSY (PL40.1.2). (*p.584*)
2. Remove the two screws holding the COVER-EXIT in place (Front: black guarded, tapped, 8mm. Rear: gold, tapped, 8mm)
3. Remove the two bosses from the CHUTE-EXIT ASSY and the hook from the cover exit with the use of a "-" type screwdriver, and then remove the COVER-EXIT.
4. Remove the four pinch roll assemblies from the hooks on the COVER-EXIT with the use of a "-" type screwdriver.

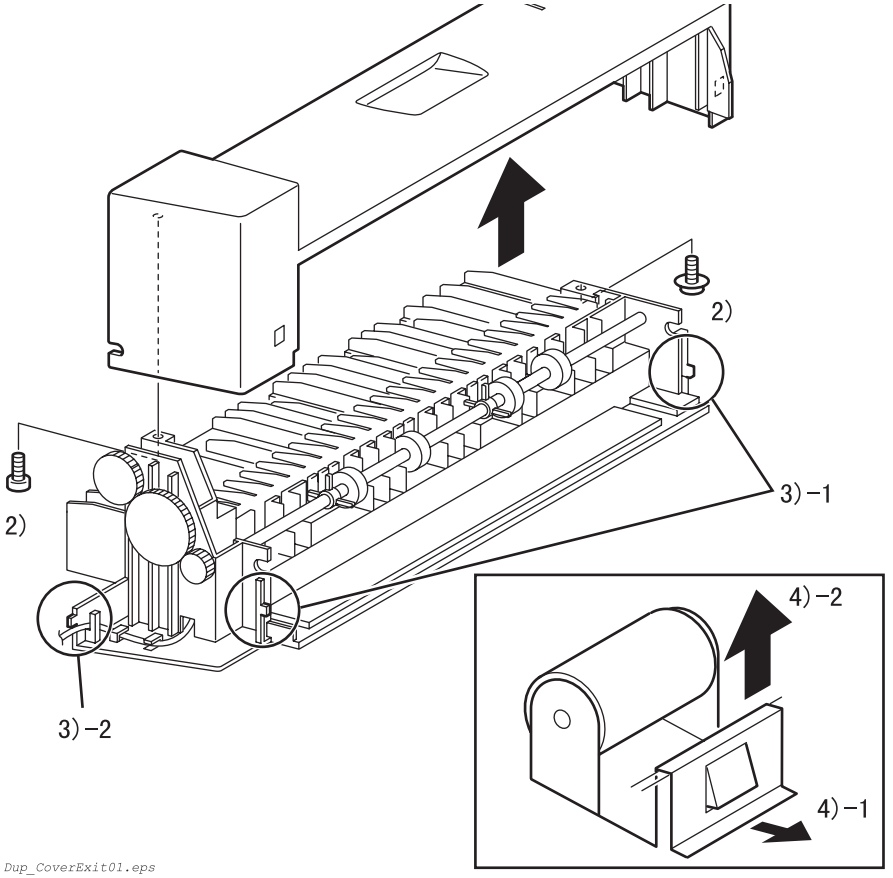


Figure 7-31. Removing the COVER-EXIT

7.8.1.4.6 EXIT ROLLER-ASSY (PL41.1.16)

1. Remove the DUP TRANSPORT ASSY (PL40.1.2). (*p.584*)
2. Remove the COVER-EXIT(PL41.1.10). (*p.586*)
3. Remove the two E-rings holding the EXIT ROLLER-ASSY in place, and then remove the rear gear-SUPR and the two bearings 6.
4. Shift the EXIT ROLLER-ASSY towards the rear, disconnect it from the front, and then remove it from the front.

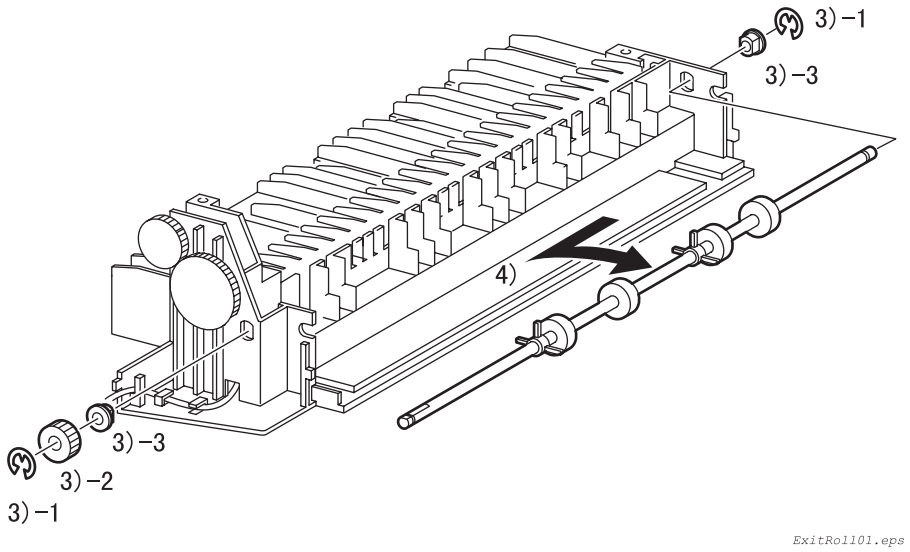


Figure 7-32. Removing the EXIT ROLLER-ASSY

7.8.1.4.7 IN ROLLER-ASSY (PL42.1.3)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585*)
2. Remove the ALIGNER COVER-FR (PL42.1.14). (*p.592*)
3. Remove the front E-ring holding the IN ROLLER-ASSY in place, and then remove the PULLEY 20T, the BELT 383, and the BEARING-EXIT.
4. Remove the rear E-ring holding the IN ROLLER-ASSY in place, and then remove the PULLEY 16T, the BELT 346, and the BEARING-EXIT.
5. Shift the IN ROLLER-ASSY towards the rear, disconnect it from the front, and then remove it from the front.

Remove the COLLAR-IDLER if necessary when removing BELT 383 and BELT 346.

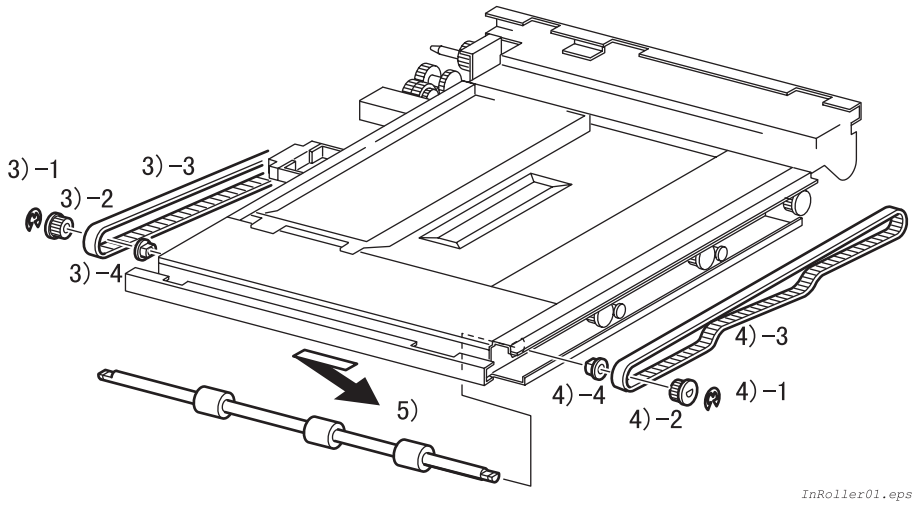


Figure 7-33. Removing the IN ROLLER-ASSY

7.8.1.4.8 OUT ROLLER-ASSY (PL42.1.4)

1. Remove the ALIGNER ASSY (PL40.1.3). *(p.585)*
2. Remove the two E-rings holding the OUT ROLLER-ASSY in place, and then remove the two bearing exits and rear GEAR 14Z.
3. Shift the OUT ROLLER-ASSY towards the rear, disconnect it from the front, and then remove it from the front.

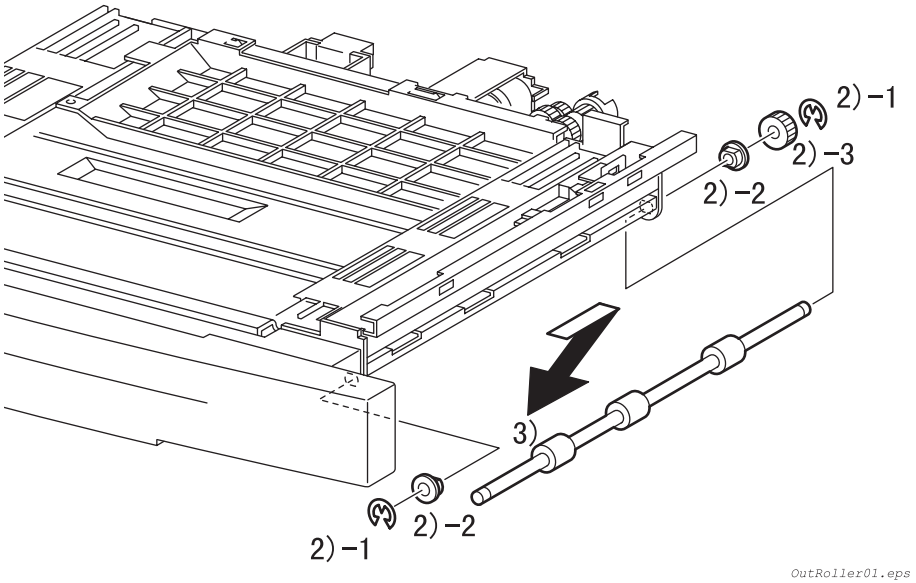


Figure 7-34. Removing the OUT ROLLER-ASSY

7.8.1.4.9 IN CHUTE-ASSY (PL42.1.6)

1. Remove the ALIGNER ASSY (PL40.1.3). *(p.585)*
2. Remove the left-hand screw holding the REGI CHUTE-ASSY in place (black, guarded, tapped, 8mm.)
3. Remove the CHUTE-SUPPORT (PL42.1.13). *(p.591)*
4. Remove the two screws holding the IN CHUTE-ASSY in place (silver, guarded, 6mm), raise the REGI CHUTE-ASSY to the left slightly, and then remove it.

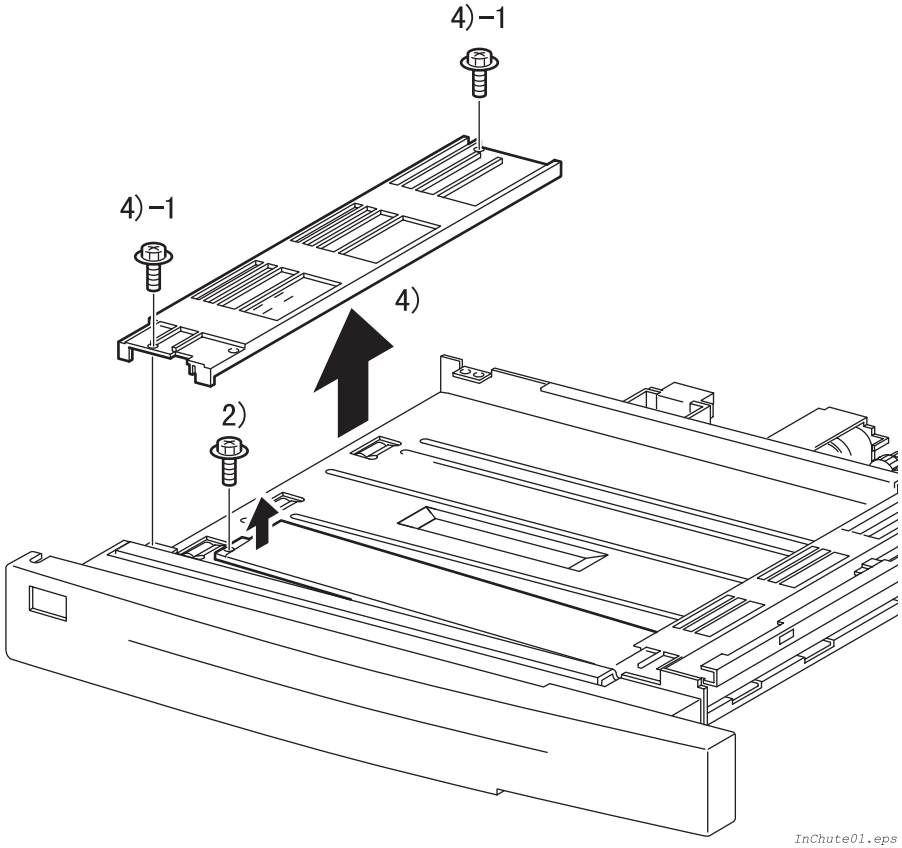


Figure 7-35. Removing the IN CHUTE-ASSY

7.8.1.4.10 OUT CHUTE-ASSY (PL42.1.7)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585)*
2. Remove the CHUTE-SUPPORT (PL42.1.13). (*p.591)*
3. Remove the ALIGNER COVER-FR (PL42.1.14). (*p.592)*
4. Remove the R/H RAIL-ASSY (PL42.1.15). (*p.592)*
5. Disconnect the ALIGNER HARNESS-ASSY connector (P/J159A) and the SNS 1 HAENESS-ASSY connector (P/J160)
6. Remove the right-hand screw holding the REGI CHUTE-ASSY in place. (black, guarded, tapped, 8mm.)
7. Remove the two screws holding the OUT CHUTE-ASSY in place (silver, guarded, 6mm), raise the REGI CHUTE-ASSY to the right slightly, and then remove it.

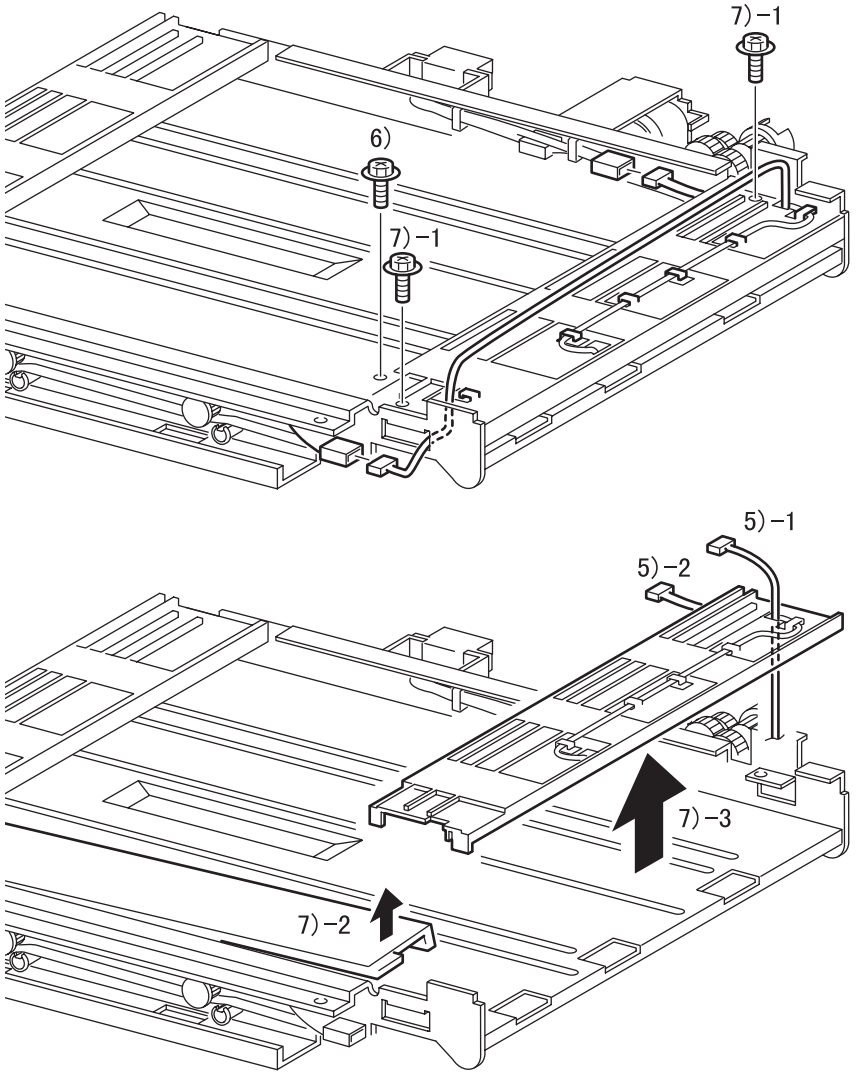


Figure 7-36. Removing the OUT CHUTE-ASSY

7.8.1.4.11 ALIGNER OUT SENSOR (PL42.1.9)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585*)
2. Remove the CHUTE-SUPPORT (PL42.1.13). (*p.591*)
3. Remove the ALIGNER COVER-FR (PL42.1.14). (*p.592*)
4. Remove the R/H RAIL-ASSY (PL42.1.15). (*p.592*)
5. Remove the OUT CHUTE-ASSY (PL42.1.7). (*p.589*)
6. Disconnect the ALIGNER OUT SENSOR connector. (P/J146)
7. Remove the OUT CHUTE-ASSY hooks fixing the ALIGNER OUT SENSOR in place, and then remove the ALIGNER OUT SENSOR.

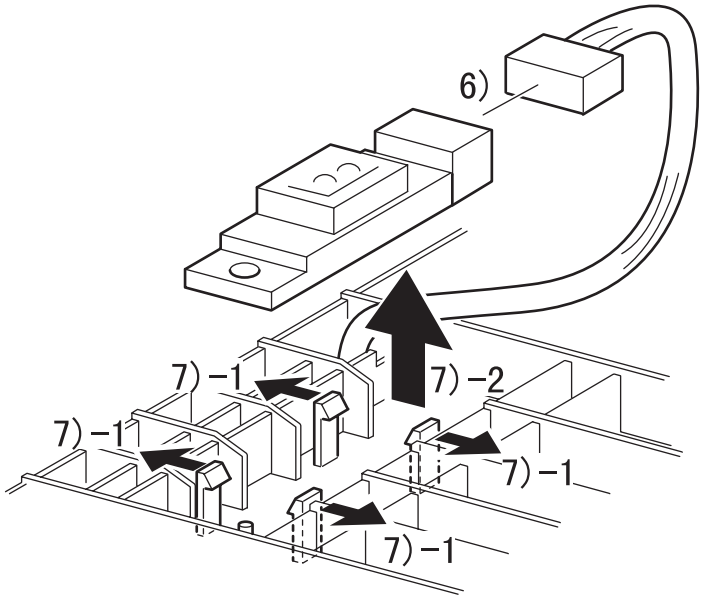


Figure 7-37. Removing the ALIGNER OUT SENSOR

7.8.1.4.12 REGI CHUTE-ASSY (PL42.1.10)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585*)
2. Disconnect the SENS 2 HARNESS-ASSY connector (P/J159), and then release the harness assembly from the crank to free it.
3. Remove the two screws holding the REGI CHUTE-ASSY in place (black, guarded, tapped, 8mm) and then remove the REGI CHUTE-ASSY.

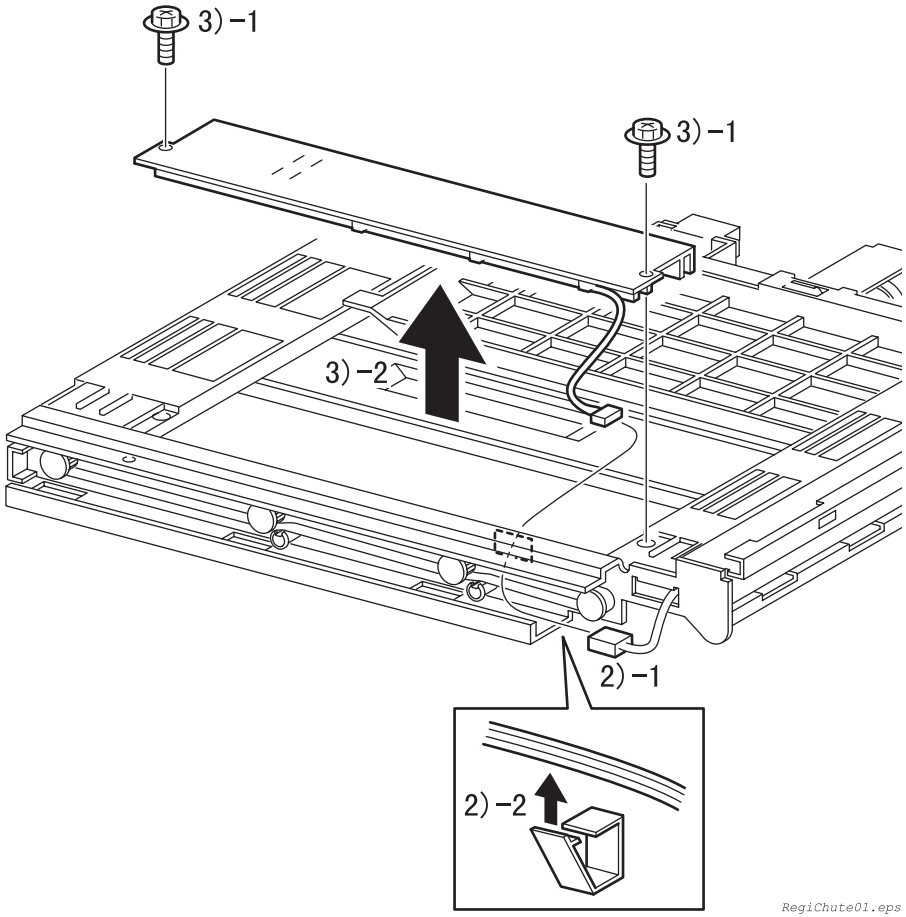


Figure 7-38. Removing the REGI CHUTE-ASSY

7.8.1.4.13 ALIGNER SENSOR (PL42.1.12)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585)*
2. Remove the REGI CHUTE-ASSY (PL42.1.10). (*p.590)*
3. Remove the REGI CHUTE-ASSY hooks fixing the ALIGNER SENSOR in place, and then remove the ALIGNER SENSOR.
4. Disconnect the ALIGNER SENSOR connector. (P/J145)

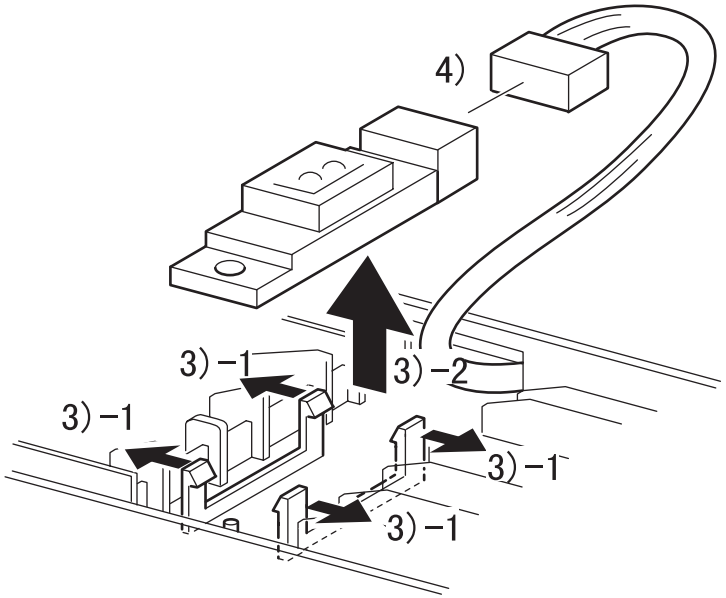


Figure 7-39. Removing the ALIGNER SENSOR

7.8.1.4.14 CHUTE-SUPPORT (PL42.1.13)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585)*
2. Press down on the CHUTE-SUPPORT lock lever and move it to the left, and then remove the CHUTE-SUPPORT from the top.

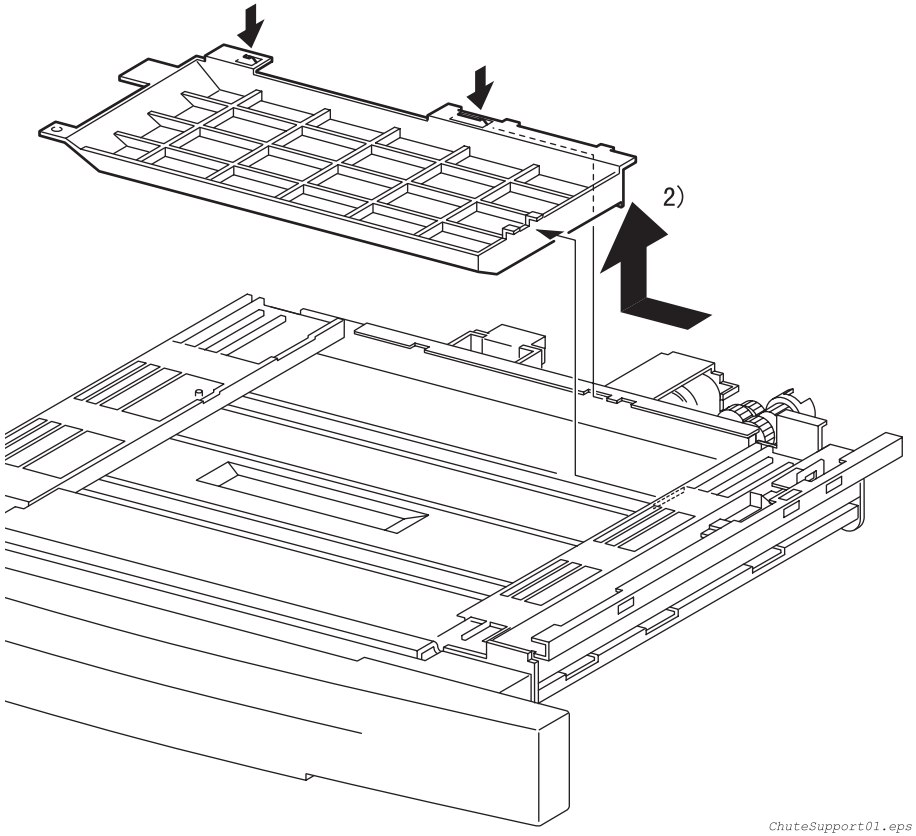


Figure 7-40. Removing the CHUTE-SUPPORT

7.8.1.4.15 ALIGNER COVER-FR (PL42.1.14)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585*)
2. Remove the two screws holding the ALIGNER COVER-FR in place (silver, guarded, 8mm) and then remove the ALIGNER COVER-FR from the top.

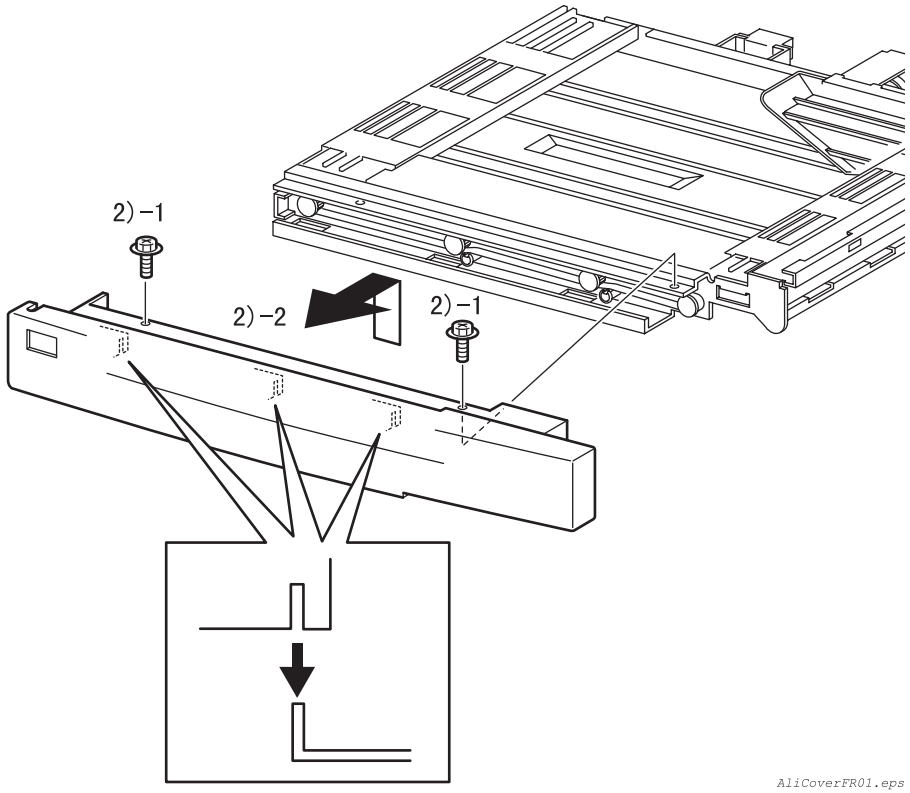


Figure 7-41. Removing the ALIGNER COVER-FR

7.8.1.4.16 R/H RAIL-ASSY (PL42.1.15)

1. Remove the ALIGNER ASSY (PL40.1.3). (*p.585*)
2. Remove the ALIGNER COVER-FR (PL42.1.14). (*p.592*)
3. Remove the two screws holding the R/H RAIL-ASSY in place (silver, guarded, 6mm) and then remove the R/H RAIL-ASSY.

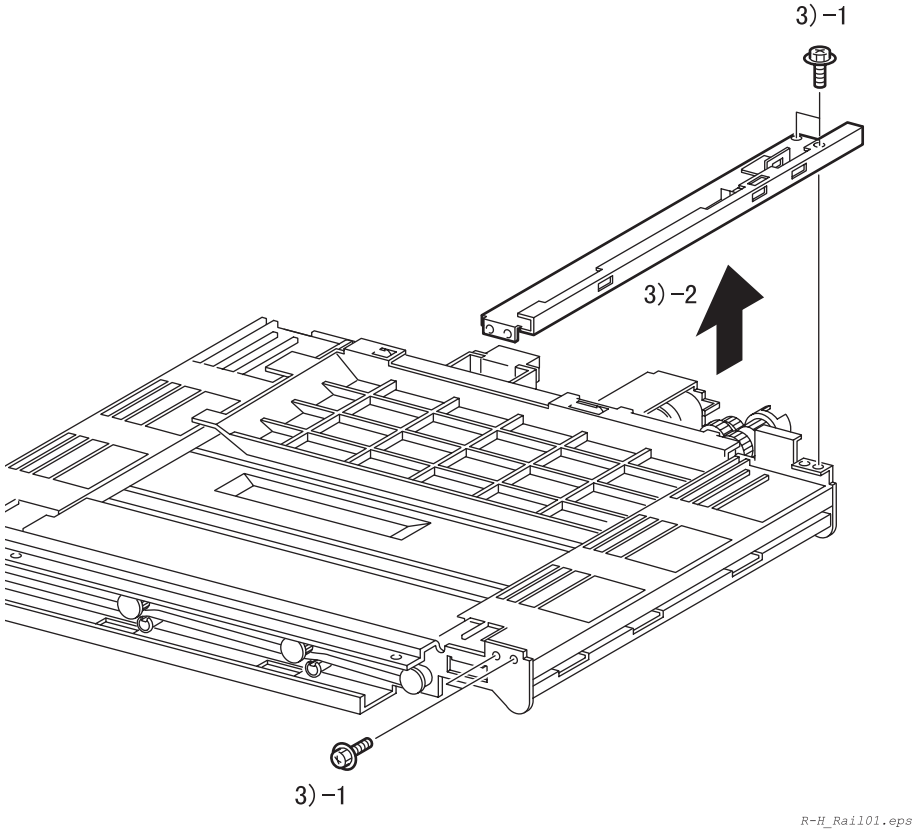


Figure 7-42. Removing the R/H RAIL-ASSY

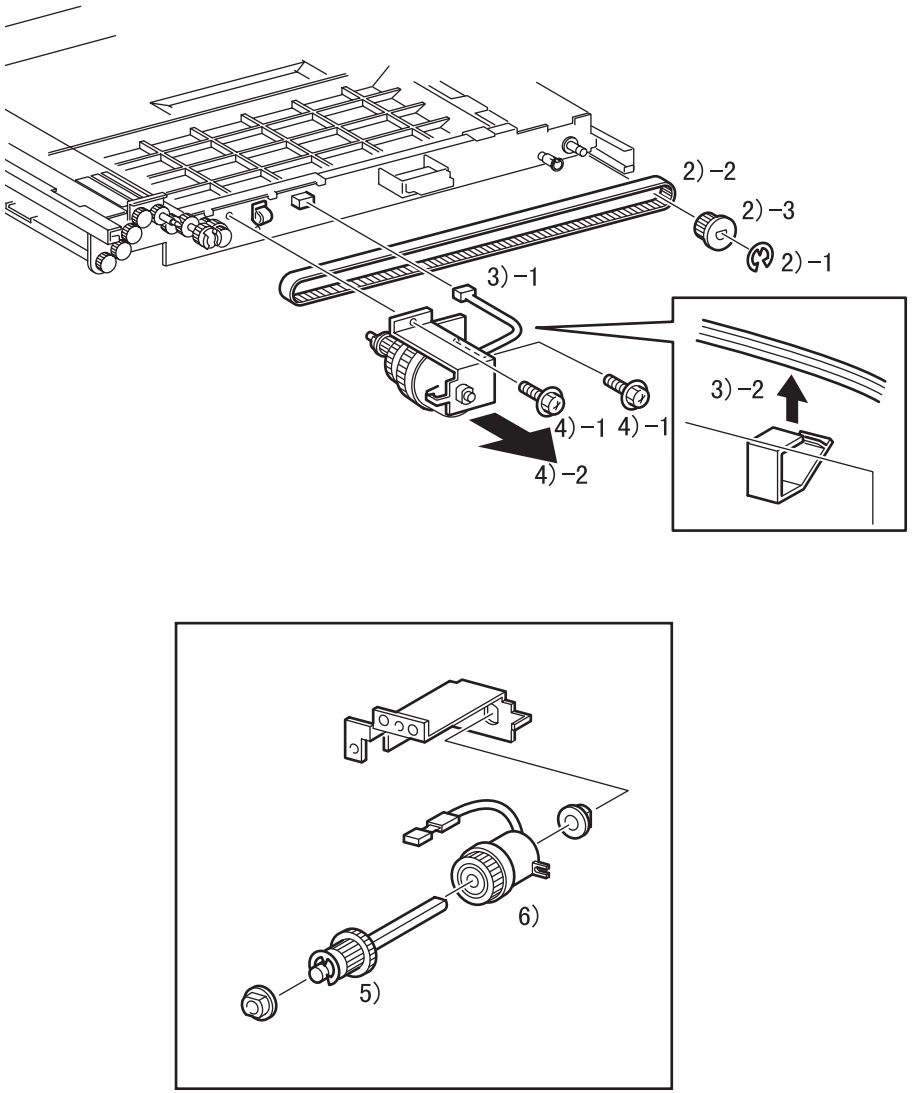
7.8.1.4.17 ALIGNER DRIVE CLUTCH (PL42.1.23)

1. Remove the ALIGNER ASSY (PL40.1.3). *(p.585)*
2. Remove the rear E-ring holding the IN ROLLER-ASSY in place, and then remove the BELT 346 and the PULLEY 16T.
3. Disconnect the ALIGNER DRIVE CLUTCH connector (P/H149), and then release the harness from the clamp to free it.

CAUTION

As the BEARING-EXIT, the ALIGNER DRIVE CLUTCH, GEAR (21Z/18T), the SHAFT-CLUTCH and BELT 346 will be freed once the BRACKET-CLUTCH has been removed in accordance with the following procedure, beware of items falling or being lost.

4. Remove the two screws holding the BRACKET-CLUTCH in place (silver, guarded, 6mm) and then remove the BRACKET-CLUTCH.
5. Remove the two BEARING-EXIT, the ALIGNER DRIVE CLUTCH, the GEAR (21Z/18T), the E-ring and the SHAFT-CLUTCH.
6. Remove the rear BEARING-EXIT and the ALIGNER DRIVE CLUTCH from the SHAFT-CLUTCH.



AliDrvClutch01.eps

Figure 7-43. Removing the ALIGNER DRIVE CLUTCH

7.8.1.4.18 CAB SWITCH-I/L (PL43.1.4)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585)*
2. Open the INVERTER CHUTE.
3. Remove the R COVER-INVERTER (PL43.1.42). (*p.601)*
4. Disconnect the CAB SWITCH-I/L connector (P/L153.)
5. Release the CAB SWITCH-I/L hook and then remove the CAB SWITCH-I/L from the FRAME HIGH ASSY.

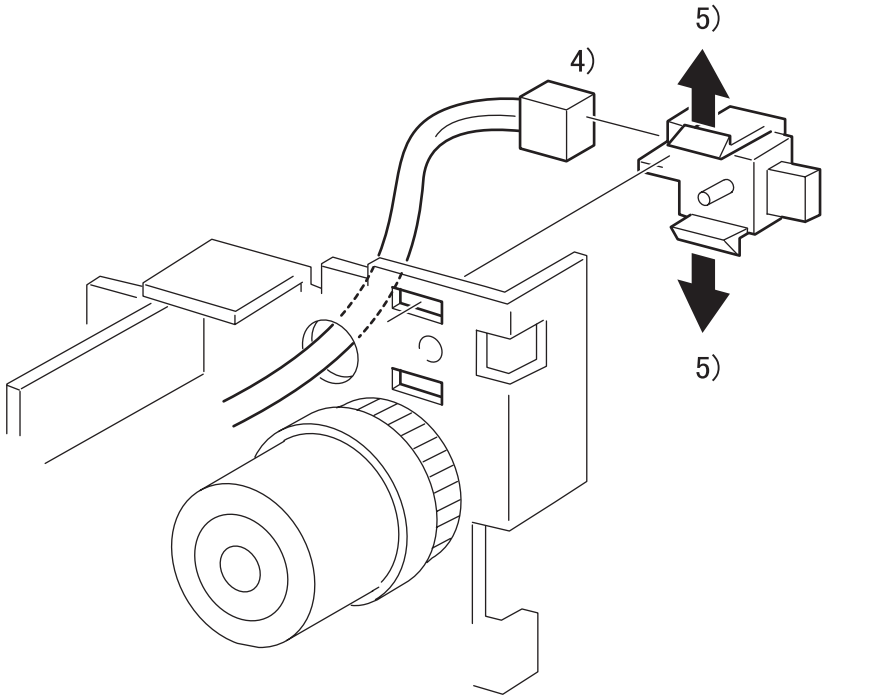


Figure 7-44. Removing the CAB SWITCH-I/L

7.8.1.4.19 DUP CONTROLLER PWB (PL43.1.11)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585)*
2. Remove the INVERTER MOTOR ASSY.
   See "ENTER CLUTCH (PL43.1.16)". (*p.595)*
3. Disconnect the four DUP CONTROLLER PWB connectors. (P/J139, P/J140, P/J141, P/J142.)
4. Remove the four screws holding the DUP CONTROLLER PWB in place (silver, 6mm) and then remove the DUP CONTROLLER PWB.

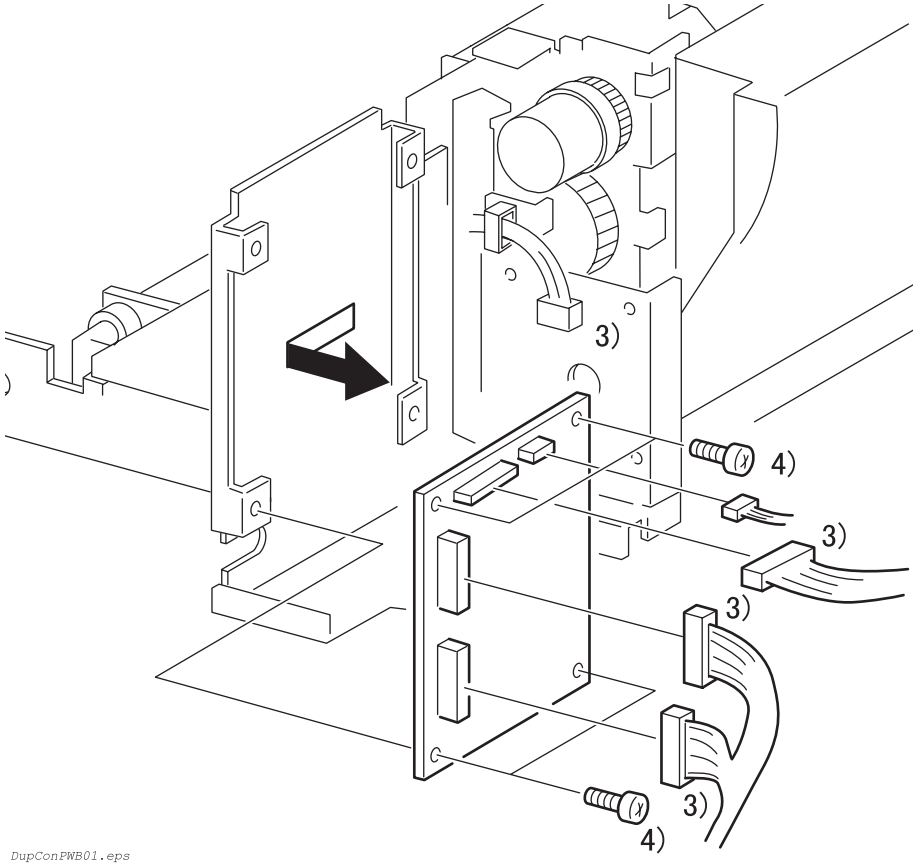


Figure 7-45. Removing the DUP CONTROLLER PWB

7.8.1.4.20 ENTER CLUTCH (PL43.1.16)

1. Remove the INVERTER ASSY (PL40.1.4). *(p.585)*
2. Release the ENTER CLUTCH harness from the clamp and then remove the ENTER CLUTCH connector. (P/J152.)

CAUTION

The harness will remain connected in the following procedure, so take care not to pull it too far.

3. Remove the two screws (silver, w/collar, 6 mm) securing the BRACKET-MOT, and remove the INVERTER MOTOR ASSY together with the INV MOTOR.
4. Remove the E-ring holding the ENTER CLUTCH in place and then remove the ENTER CLUTCH.

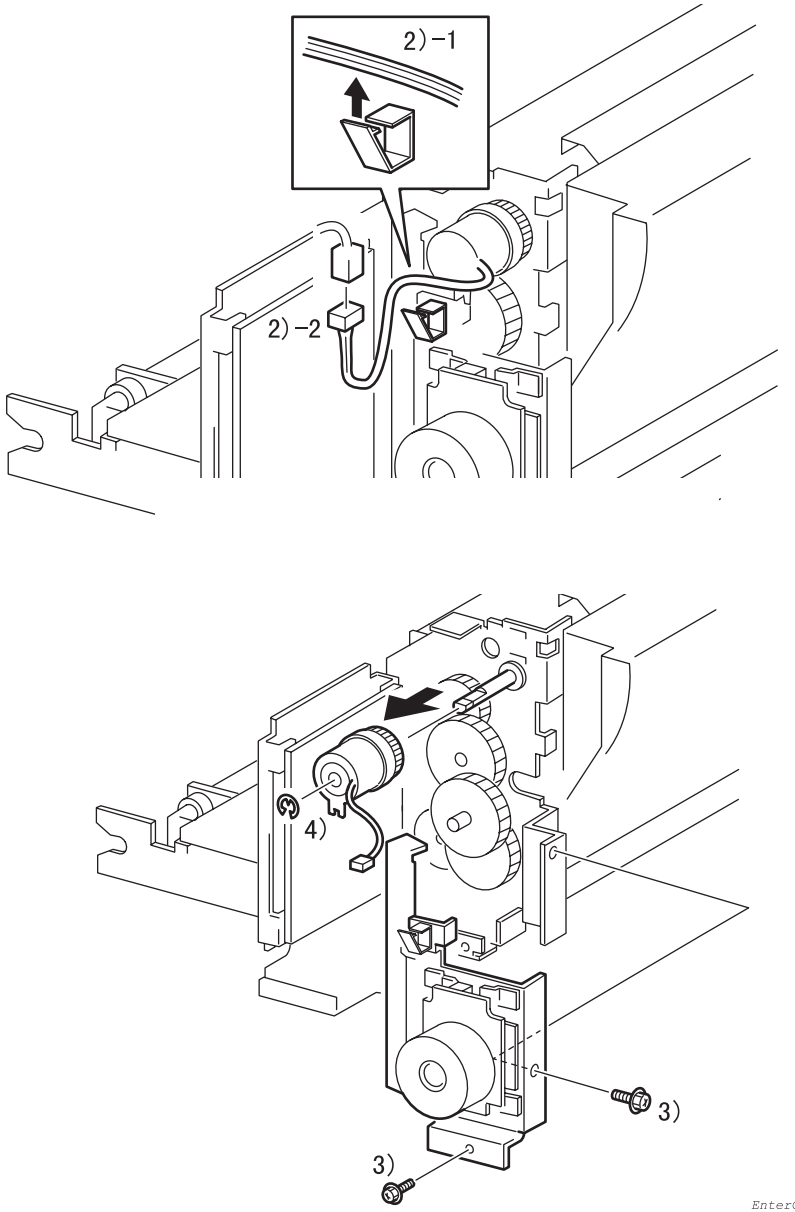


Figure 7-46. Removing the ENTER CLUTCH

7.8.1.4.21 FORWARD CLUTCH (PL43.1.17)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585)*
2. Remove the R COVER-INVERTER (PL43.1.42). (*p.601)*
3. Remove the INVERTER MOTOR ASSY.
   See "ENTER CLUTCH (PL43.1.16)". (*p.595)*
4. Release the harness from the clamp to free it.
5. Disconnect the FORWARD CLUTCH connector. (P/J150.)
6. Remove the screw holding the CLUTCH COVER in place (silver, guarded, 6mm) and then remove the CLUTCH COVER.
7. Remove the E-ring holding the SHAFT-CLUTCH in place, disconnect the BEARING (ϕ6) and SHAFT-CLUTCH, and then remove the GEAR 30Z and FORWARD CLUTCH.

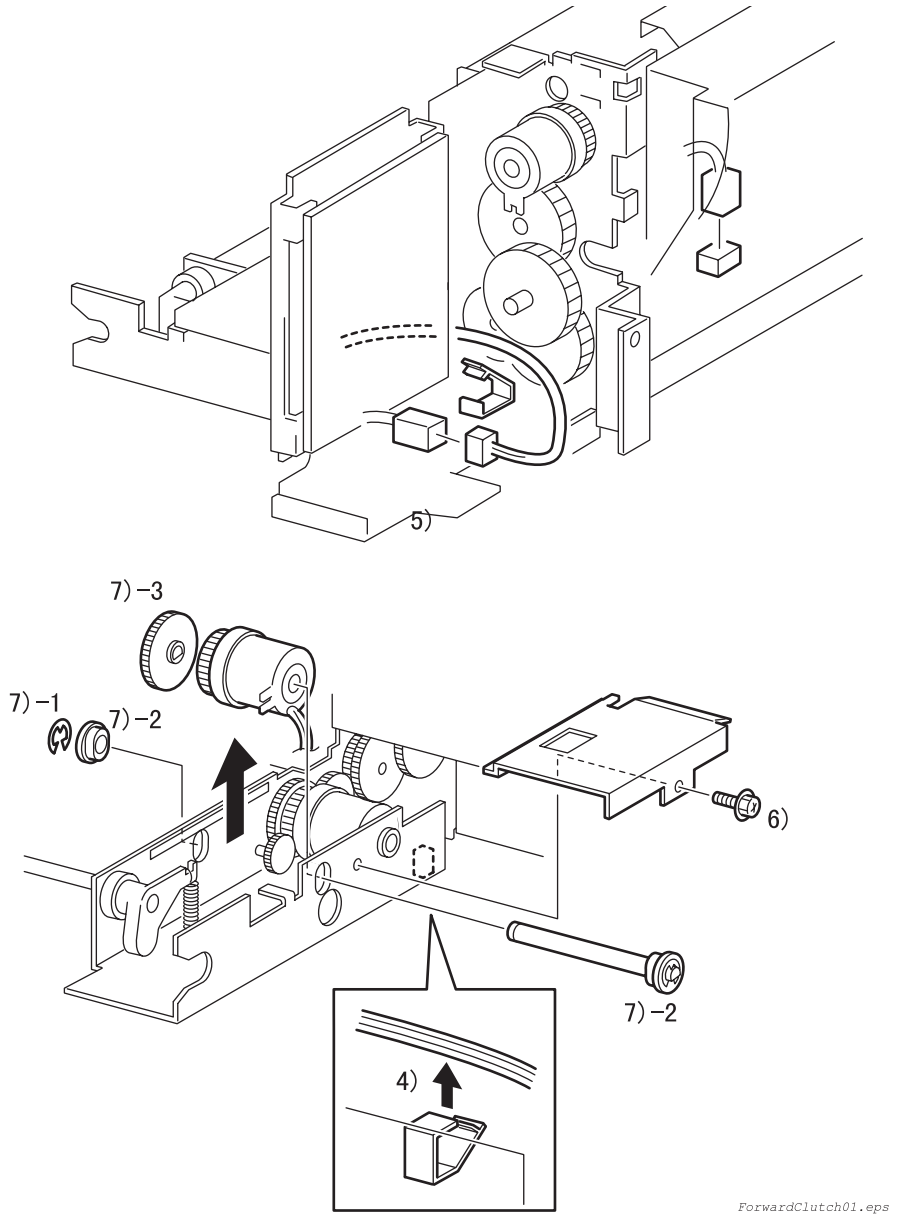


Figure 7-47. Removing the FORWARD CLUTCH

7.8.1.4.22 REVERSE CLUTCH (PL43.1.18)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585)*
2. Remove the R COVER-INVERTER (PL43.1.42). (*p.601)*
3. Remove the INVERTER MOTOR ASSY.
   See "ENTER CLUTCH (PL43.1.16)". (*p.595)*
4. Release the harness from the clamp to free it.
5. Disconnect the REVERSE CLUTCH connector. (P/J151.)
6. Remove the screw holding the CLUTCH COVER in place (silver, guarded, 6mm) and then remove the CLUTCH COVER.
7. Remove the E-ring holding the SHAFT-CLUTCH in place, disconnect the BEARING (ϕ6) and SHAFT-CLUTCH, and then remove the GEAR 30Z and REVERSE CLUTCH.

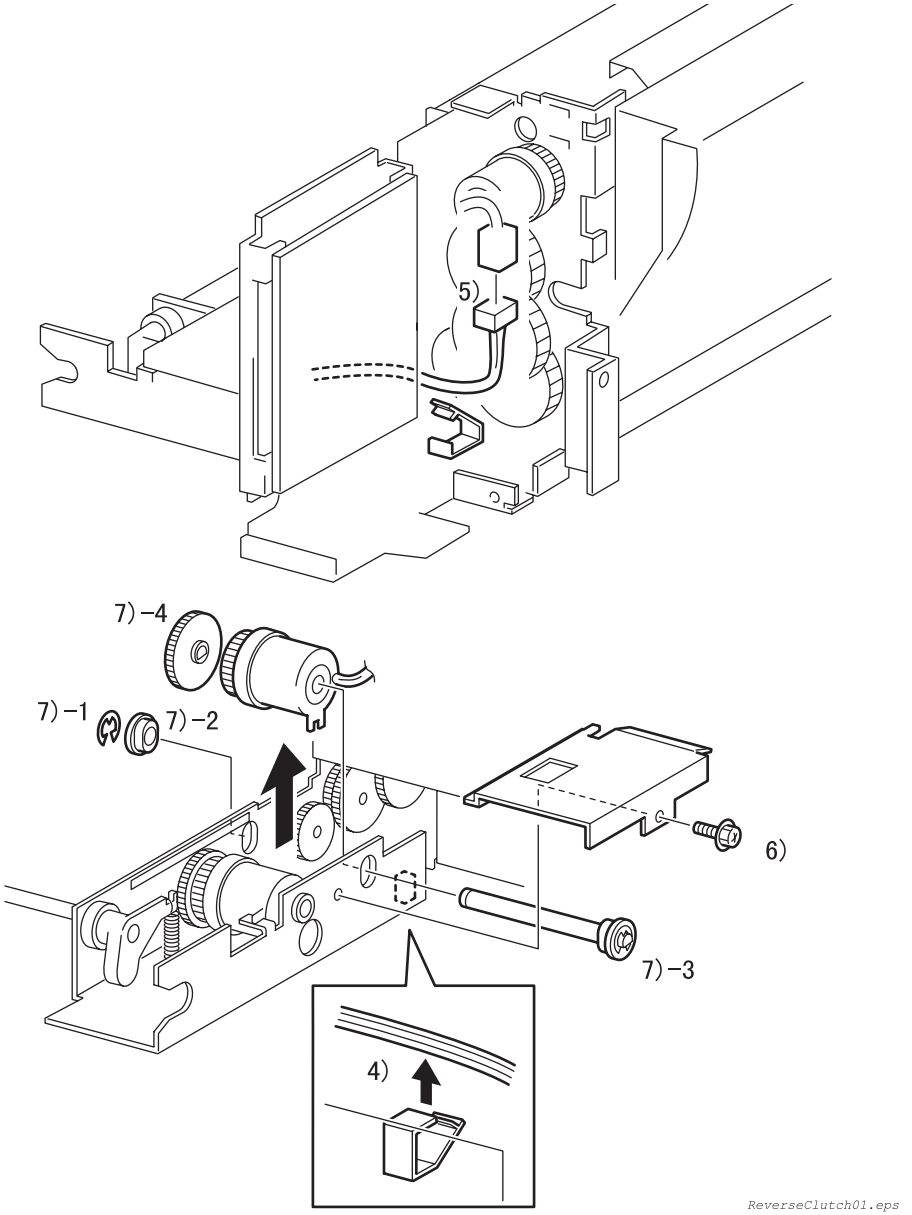


Figure 7-48. Removing the REVERSE CLUTCH

7.8.1.4.23 TRI ROLLER-ASSY (PL43.1.34)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585*)
2. Open the INVERTER CHUTE.
3. Remove the R COVER-INVERTER (PL43.1.42). (*p.601*)
4. Remove the ENTER CLUTCH (PL43.1.16). (*p.595*)
5. Remove the F COVER-INVERTER (PL43.1.41). (*p.601*)
6. Remove the two E-rings holding the TRI ROLLER-ASSY in place, and then remove the BEARING (ϕ6) and GEAR 24Z.
7. Shift the TRI ROLLER ASSY towards the rear, disconnect the front from the FRAME HIGH ASSY, and then remove it from the front.

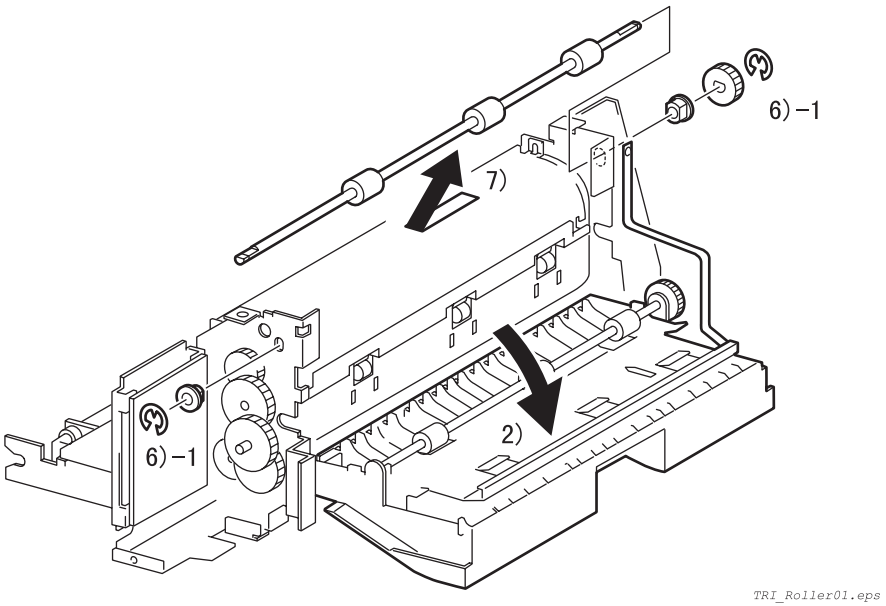


Figure 7-49. Removing the TRI ROLLER-ASSY

7.8.1.4.24 INV MOTOR (PL43.1.26)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585*)
2. Remove the R COVER-INVERTER (PL43.1.42). (*p.601*)
3. Disconnect the INV MOTOR connector. (P/J147.)
4. Remove the two screws holding the INV MOTOR in place (silver, 6mm) and then remove the INV MOTOR.

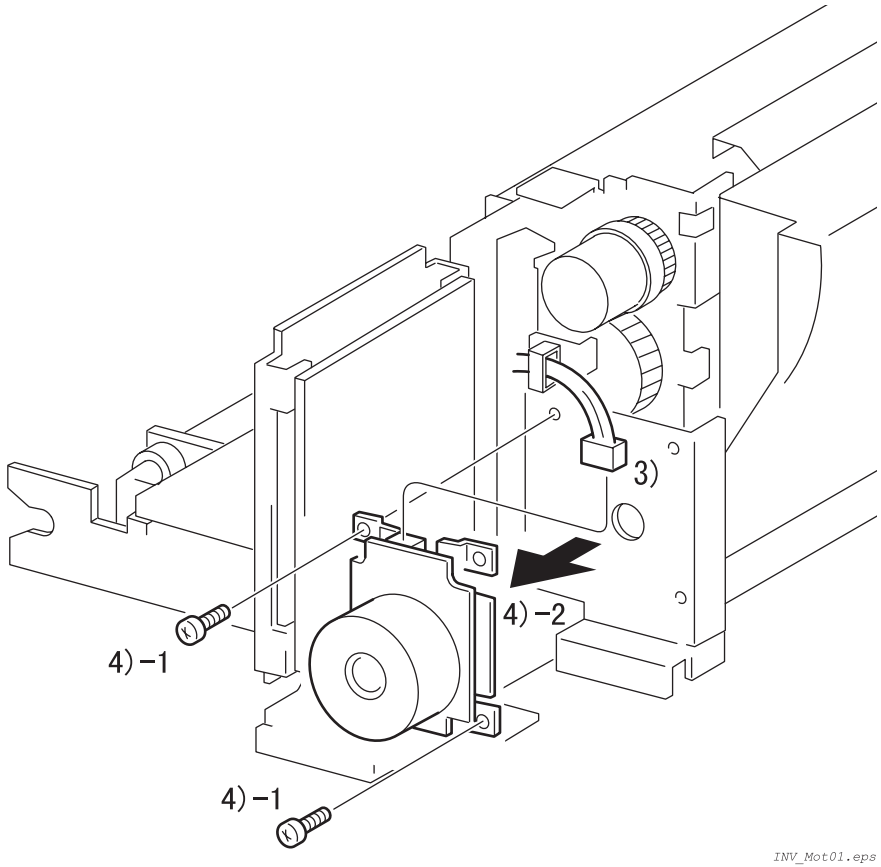


Figure 7-50. Removing the INV MOTOR

7.8.1.4.25 INVERTER CHUTE (PL43.1.30)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585)*
2. Open the INVERTER CHUTE.
3. Remove the R COVER-INVERTER (PL43.1.42). (*p.601)*
4. Release the SNR DUP HARNESS-ASSY from the clamp to free it.
5. Disconnect the SNR DUP HARNESS-ASSY connector. (P/J144)
6. Remove the screw fixing the COVER SUPPORT-L/H to the INVERTER CHUTE (black, guarded, tapped, 8mm) and remove the COVER SUPPORT-L/H from the INVERTER CHUTE.
7. Gently twist the hinge on the front of the INVERTER CHUTE inwards, remove the boss from the FRAME HIGH ASSY, remove the rear hinge and then remove the INVERTER CHUTE.

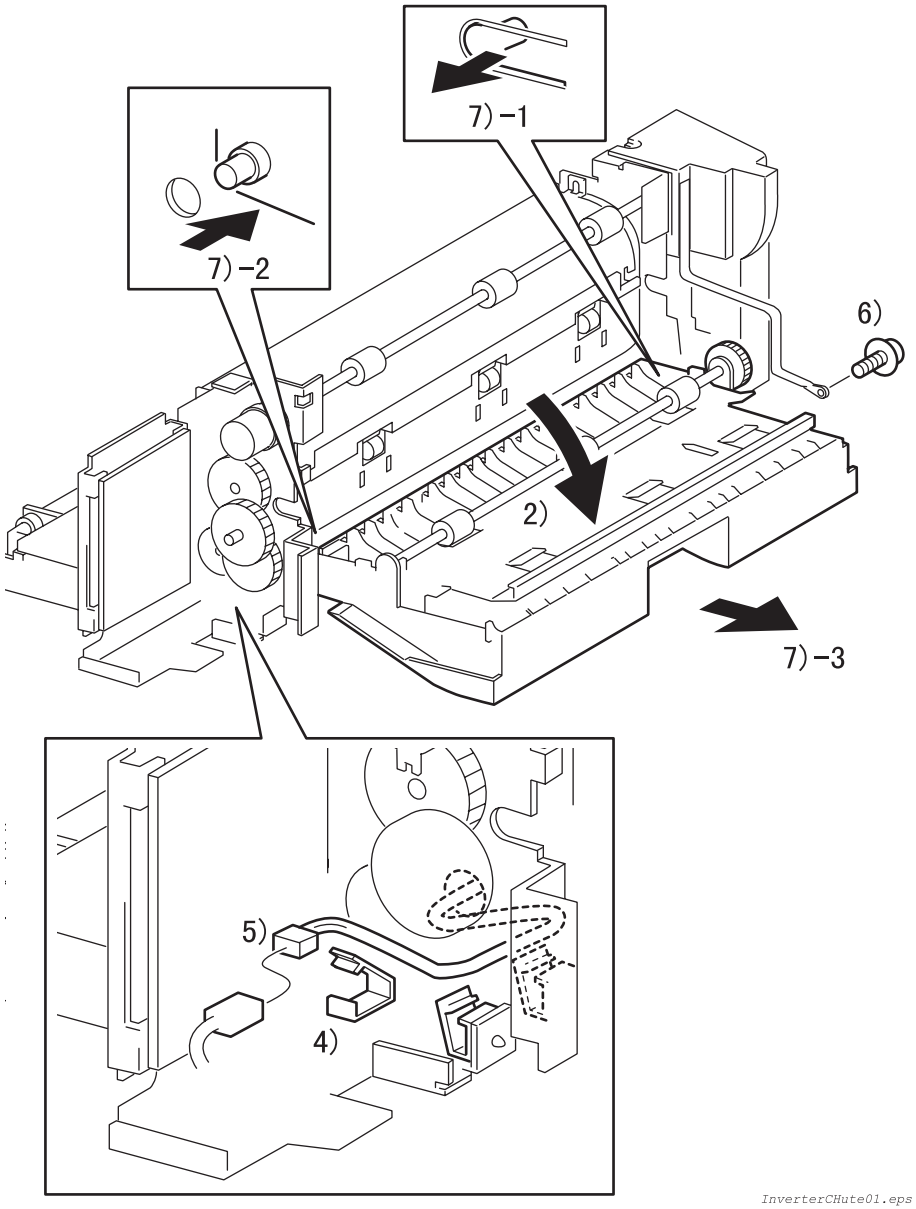


Figure 7-51. Removing the INVERTER CHUTE

7.8.1.4.26 INVERTER SENSOR (PL43.1.32)

1. Open the INVERTER CHUTE.
2. Remove the INV ROLLER-ASSY (PL43.1.23). (*p.600)*
3. Remove the rear screw holding the SPRING PLATE and CHUTE-1 in place (silver, 8mm) and then remove the SPRING PLATE.
4. Remove the front screw holding the CHUTE-1 in place (silver, 8mm) and then remove the CHUTE-1 upwards.
5. Disconnect the INVERTER SENSOR connector (P/J158)
6. Release the INVERTER SENSOR hook and then remove the INVERTER SENSOR from the INVERTER CHUTE.

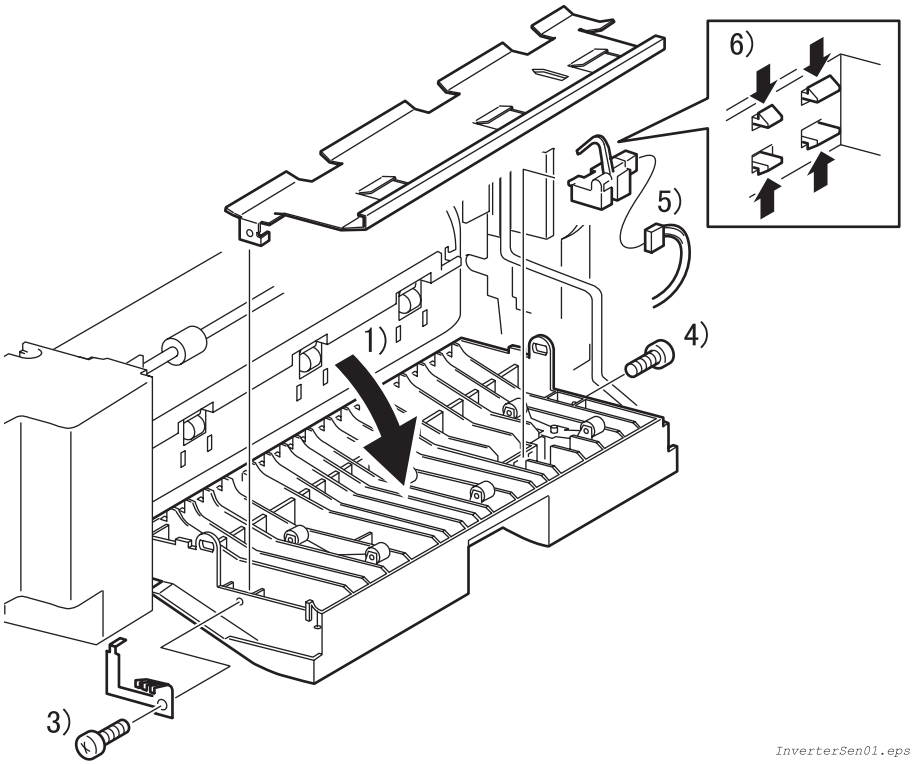


Figure 7-52. Removing the INVERTER SENSOR

7.8.1.4.27 INV ROLLER-ASSY (PL43.1.23)

1. Open the INVERTER CHUTE.
2. Remove the E-ring holding the GEAR 24Z in place and then remove the GEAR 24Z.
3. Remove the two E-rings holding the INV ROLLER-ASSY in place, and then remove the front and rear bearings.
4. Shift the INV ROLLER-ASSY to the front, disconnect the rear of the INV ROLLER-ASSY, and then remove it from the rear.

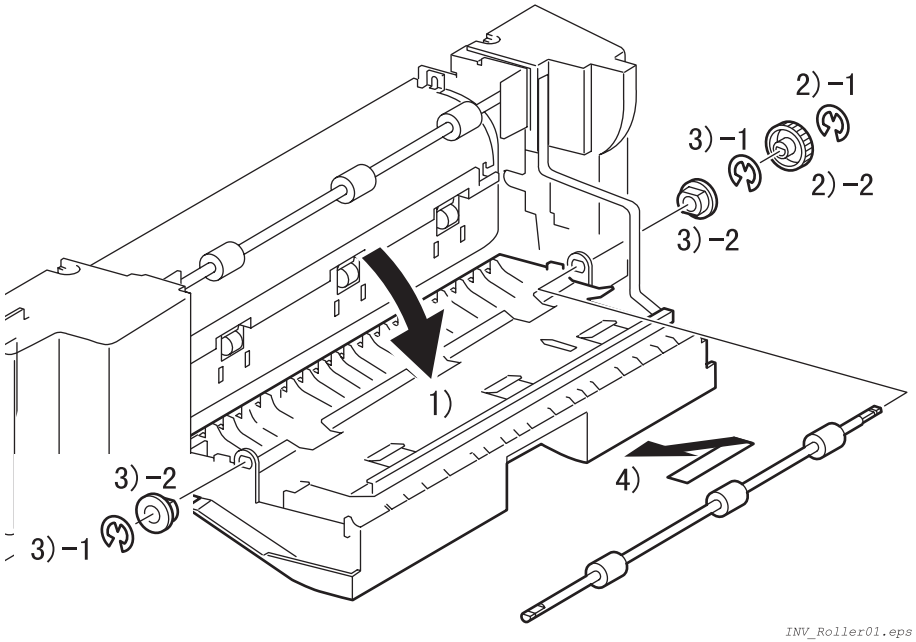


Figure 7-53. Removing the INV ROLLER-ASSY

7.8.1.4.28 F COVER-INVERTER (PL43.1.41)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585)*
2. Open the INVERTER CHUTE.
3. Remove the screw fixing the COVER SUPPORT-L/H to the F COVER-INVERTER (black, guarded, 8mm) and then remove the COVER SUPPORT-L/H.
4. Remove the screw holding the F COVER-INVERTER in place (silver, guarded, 8mm) and then remove the F COVER-INVERTER.

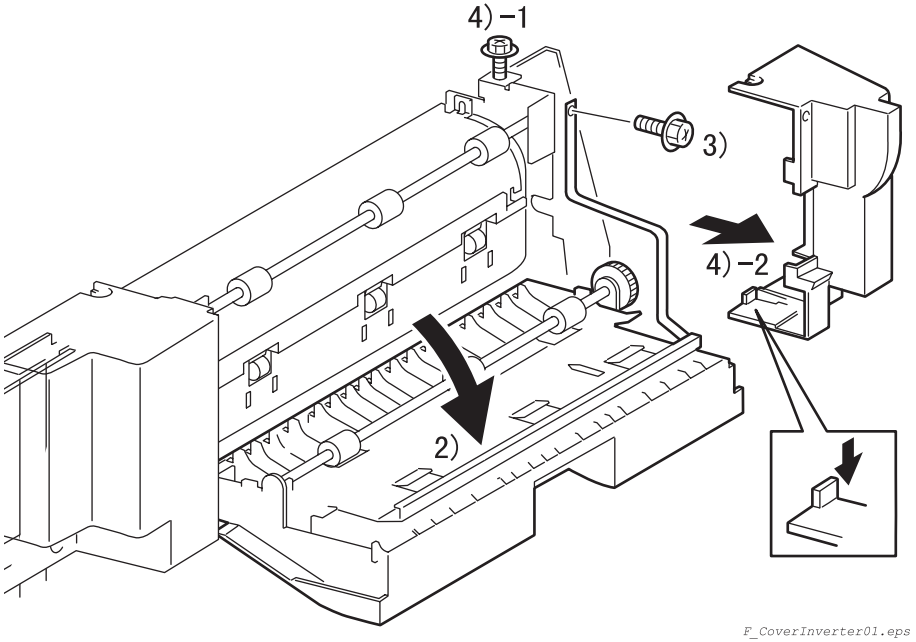


Figure 7-54. Removing the F COVER-INVERTER

7.8.1.4.29 R COVER-INVERTER (PL43.1.42)

1. Remove the INVERTER ASSY (PL40.1.4). (*p.585)*
2. Open the INVERTER CHUTE.
3. Remove the two screws holding the R COVER-INVERTER in place (silver, guarded, 6mm) and then remove the R COVER-INVERTER.

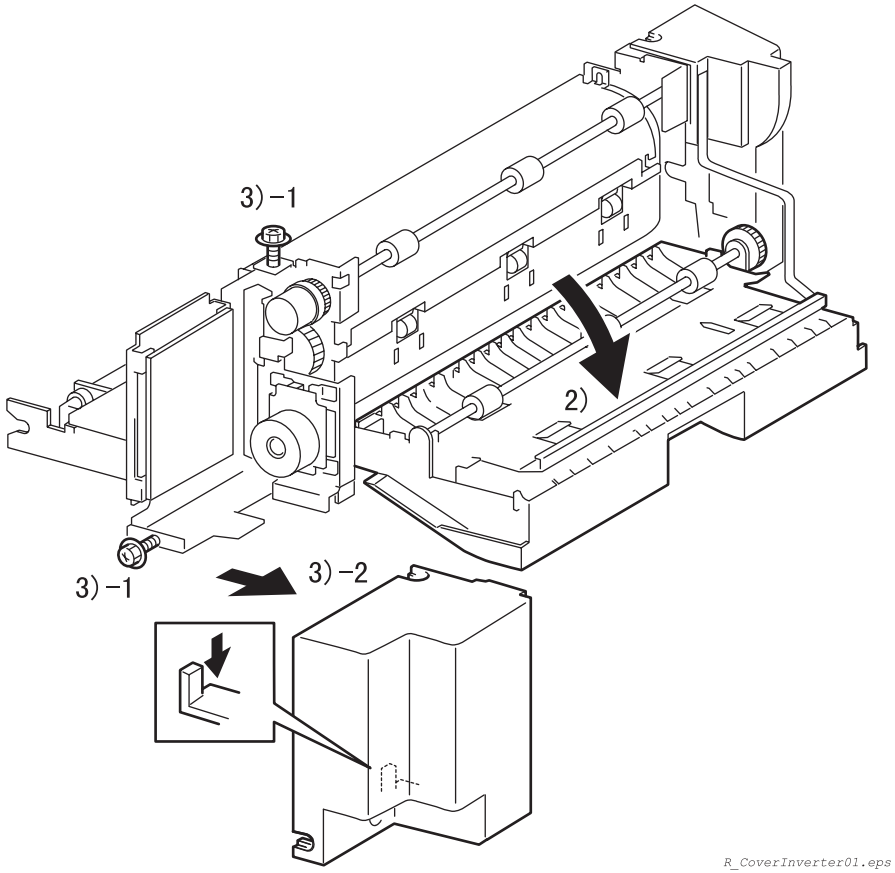


Figure 7-55. Removing the R COVER-INVERTER

7.8.1.4.30 LOWER INV SOLENOID (PL40.1.7)

1. Remove the EXIT TRAY ASSY (PL10.1.10). (*p.339*)
2. Remove the UNIVERSAL TRAY (PL2.1.1). (*p.270*)
3. Remove the ALIGNER ASSY (PL40.1.3). (*p.585*)
4. Remove the INVERTER ASSY (PL40.1.4). (*p.585*)
5. Disconnect the connector (P/J148) of the LOWER INV SOLENOID, and release the harness from the clamp on the FEEDER FRAME ASSY.
6. Remove 1 screw (black, guarded, 8mm) fixing LOWER INVERTER ASSY.
7. Lift the rear part of LOWER INVERTER ASSY, and then pull out the LOWER INVERTER ASSY.
8. Remove a spring, LOWER INV SOL SPRING, from LOWER CHUTE ASSY and LOWER INV SOLENOID.
9. Remove the harness of LOWER INV SOLENOID from 2 clamps.
10. Remove the E-ring holding fixing the plunger part of LOWER INV SOLENOID, and remove the plunger from a stud.
11. Remove the four screws holding the LOWER INV SOLENOID in place (silver, guarded, 6mm) and then remove the LOWER INV SOLENOID.

REASSEMBLY

- **Shift the LOWER INV SOLENOID to the right-hand side/ rear side, and secure it carefully so that the rear side of the retaining the shield of the LOWER INV SOLENOID and the rear end of the LOWER CHUTE ASSY are positioned in parallel with each other.**
  (Note that there are two types; one for which you must put the raised portion of the LOWER CHUTE ASSY into the hole in the LOWER INV SOLENOID and the other for which you must place the LOWER INV SOLENOID between the two projections of the LOWER CHUTE ASSY.)
- **When installing LOWER CHUTE ASSY in FEEDER FRAME ASSY, make sure to match 2 pins of LOWER CHUTE ASSY and holes of FEEDER FRAME ASSY and place them securely.**

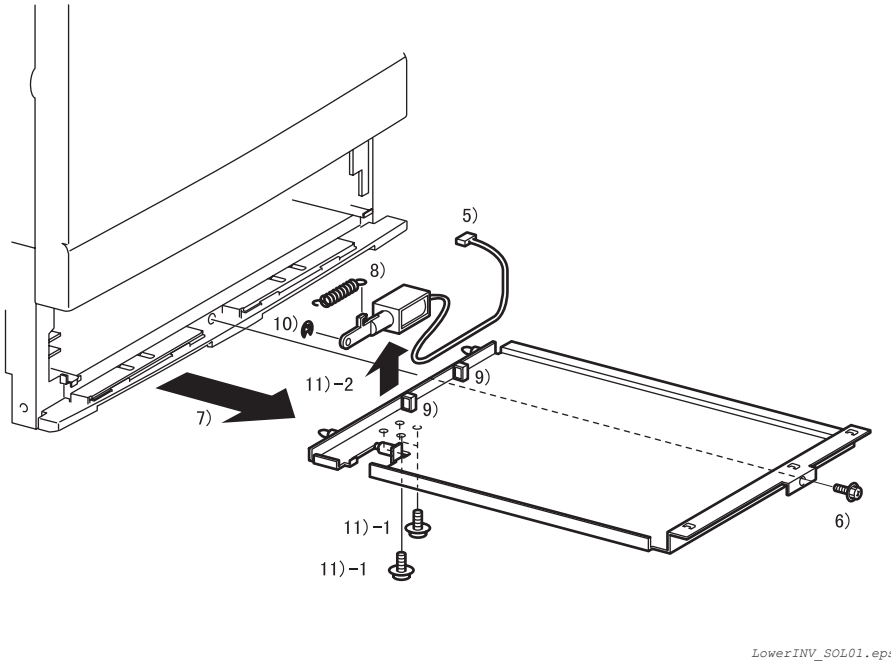


Figure 7-56. Removing the LOWER INV SOLENOID

7.8.1.5 Duplex Unit supplement

This section describes the connector locations and connection diagrams of the Duplex Unit. Refer to the appropriate pages for exploded diagrams and ASP lists:

- See *page 717* for Exploded Diagrams of Duplex Unit.
- See "ASP list for Duplex Unit" (*p.734)*

7.8.1.5.1 Connectors

Shown here are connector [P (plug) / J (jack)] locations of the Duplex Unit.

Table 7-45. P/J list

P/J	Remarks
75	Connection of FUSER HARNESS ASSY and DUP GATE SOLENOID
134A	Connection of DUP MAIN HARNESS ASSY and FUSER HARNESS ASSY
134B	Connection of DUP MAIN HARNESS ASSY and MAIN HARNESS ASSY
139	Connection of DUP CONTROLLER PWB and HARNESS-ASSY-DUP
140	Connection of DUP CONTROLLER PWB and HARNESS-ASSY-DUP
141	Connection of DUP CONTROLLER PWB and DUP MAIN HARNESS ASSY
142	Connection of DUP CONTROLLER PWB and DUP MAIN HARNESS ASSY
144	Connection of HARNESS-ASSY-DUP and HARNESS ASSY, SNR DUP
145	Connection of ALIGNER SENSOR and SNS2 HARNESS-ASSY
146	Connection of ALIGNER OUT SENSOR and SNS1 HARNESS-ASSY
147	Connection of INVERTER MOTOR ASSY and HARNESS-ASSY-DUP
148	Connection of LOWER INV SOLENOID and MAIN HARNESS ASSY
149	Connection of ALIGNER DRIVE CLUTCH and HARNESS-ASSY
150	Connection of FORWARD CLUTCH and HARNESS-ASSY-DUP
151	Connection of REVERSE CLUTCH and HARNESS-ASSY-DUP
152	Connection of ENTER CLUTCH and HARNESS-ASSY-DUP
153	Connection of CAB SWITCH-I/L and HARNESS-ASSY-DUP
155	Connection of ALIGNER HARNESS-ASSY and MAIN HARNESS ASSY
158	Connection of INVERTER SENSOR and HARNESS ASSY, SNR DUP
159	Connection of HARNESS-ASSY and SENS 2 HARNESS-ASSY
160	Connection of HARNESS-ASSY and SENS 1 HARNESS-ASSY
244	Connector inside the HARNESS ASSY VPP

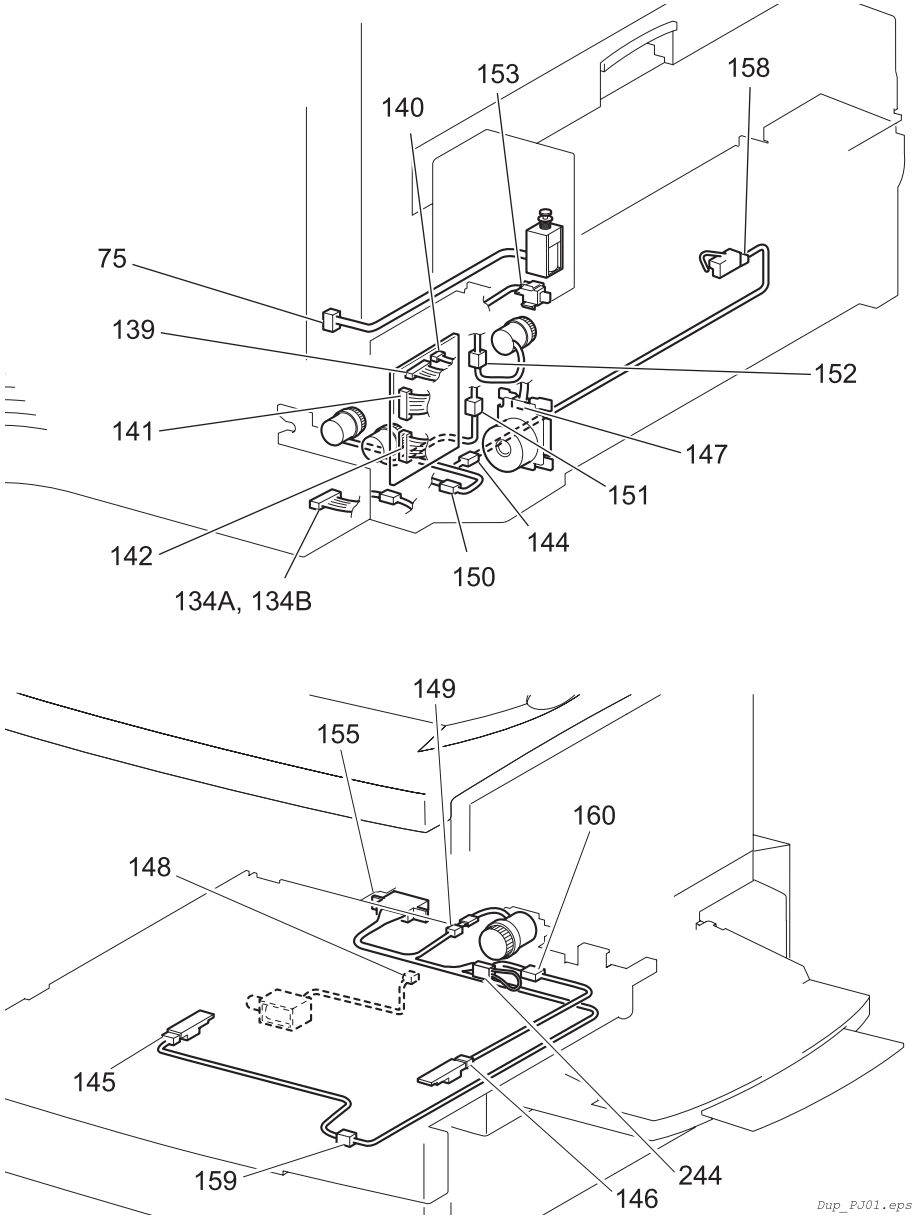


Figure 7-57. P/J Locations of Duplex Unit

7.8.1.5.2 Connection wiring diagrams

OVERALL CONNECTION WIRING DIAGRAM

Shown at right is the overall connection wiring diagram. For meanings of symbols used in the diagram, see "Figure 7-9 Symbols Used in the Overall Wiring Connection Diagrams" (*p.465)*.

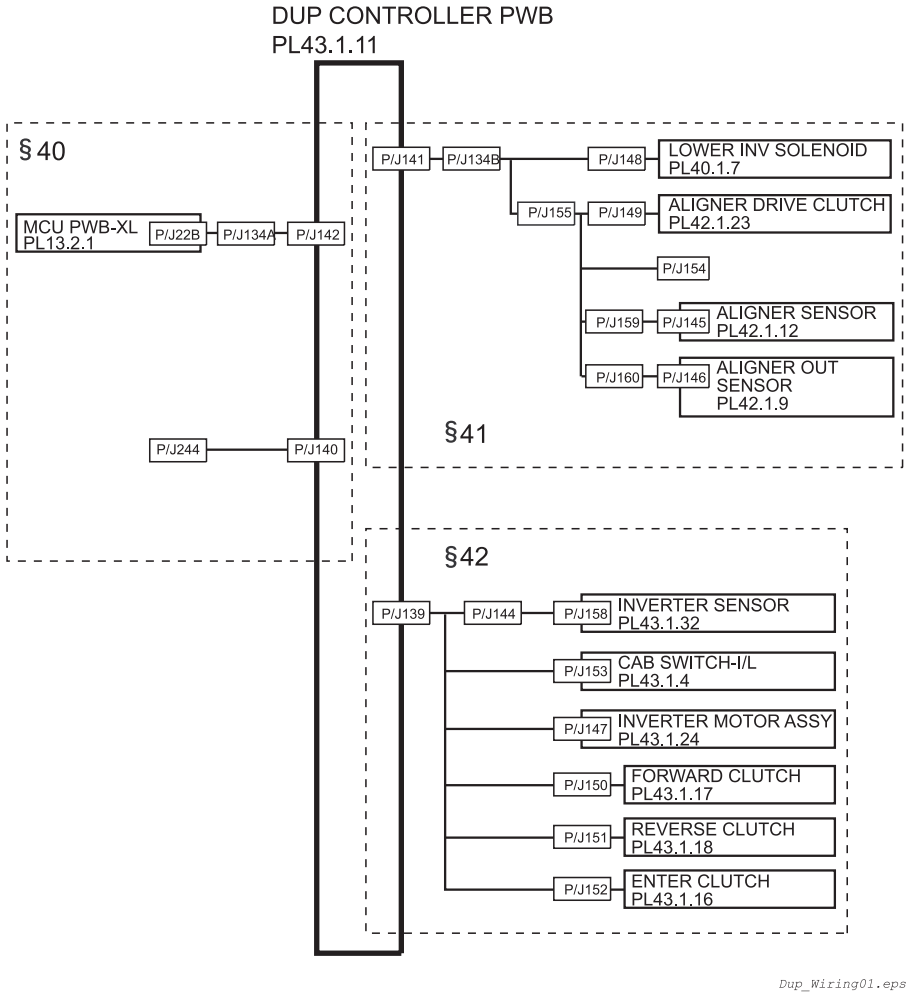


Figure 7-58. Overall Connection Wiring Diagram of Duplex Unit

CONNECTION WIRING DIAGRAMS BETWEEN PARTS

Shown here are the wiring diagrams for connection between parts. For meanings of symbols used in the diagrams, see "Figure 7-10 Symbols Used in the Wiring Connection Diagrams" (*p.469*).

☐ Constitution:
The connection wiring diagrams are divided into three sections that provide details on the connections between parts.

- ■ §40.MCU PWB, DUP CONTROLLER PWB
  - Connection of MCU PWB and DUP CONTROLLER PWB
- ■ §41.DUP CONTROLLER PWB, ALIGNER SENSOR, ALIGNER OUT SENSOR, ALIGNER DRIVE CLUTCH, DUP GATE SOLENOID
  - Connection of DUP CONTROLLER PWB and ALIGNER SENSOR
  - Connection of DUP CONTROLLER PWB and ALIGNER OUT SENSOR
  - Connection of DUP CONTROLLER PWB and ALIGNER DRIVE CLUTCH
  - Connection of DUP CONTROLLER PWB and DUP GATE SOLENOID
- ■ §42.DUP CONTROLLER PWB, INVERTER SENSOR, CAB SWITCH-I/L, INVERTER MOTOR ASSY, FORWARD CLUTCH, REVERSE CLUTCH, ENTER CLUTCH
  - Connection of DUP CONTROLLER PWB and INVERTER SENSOR
  - Connection of DUP CONTROLLER PWB and CAB SWITCH-I/L
  - Connection of DUP CONTROLLER PWB and INVERTER MOTOR ASSY
  - Connection of DUP CONTROLLER PWB and FORWARD CLUTCH
  - Connection of DUP CONTROLLER PWB and REVERSE CLUTCH
  - Connection of DUP CONTROLLER PWB and ENTER CLUTCH

§40.MCU PWB, DUP CONTROLLER PWB

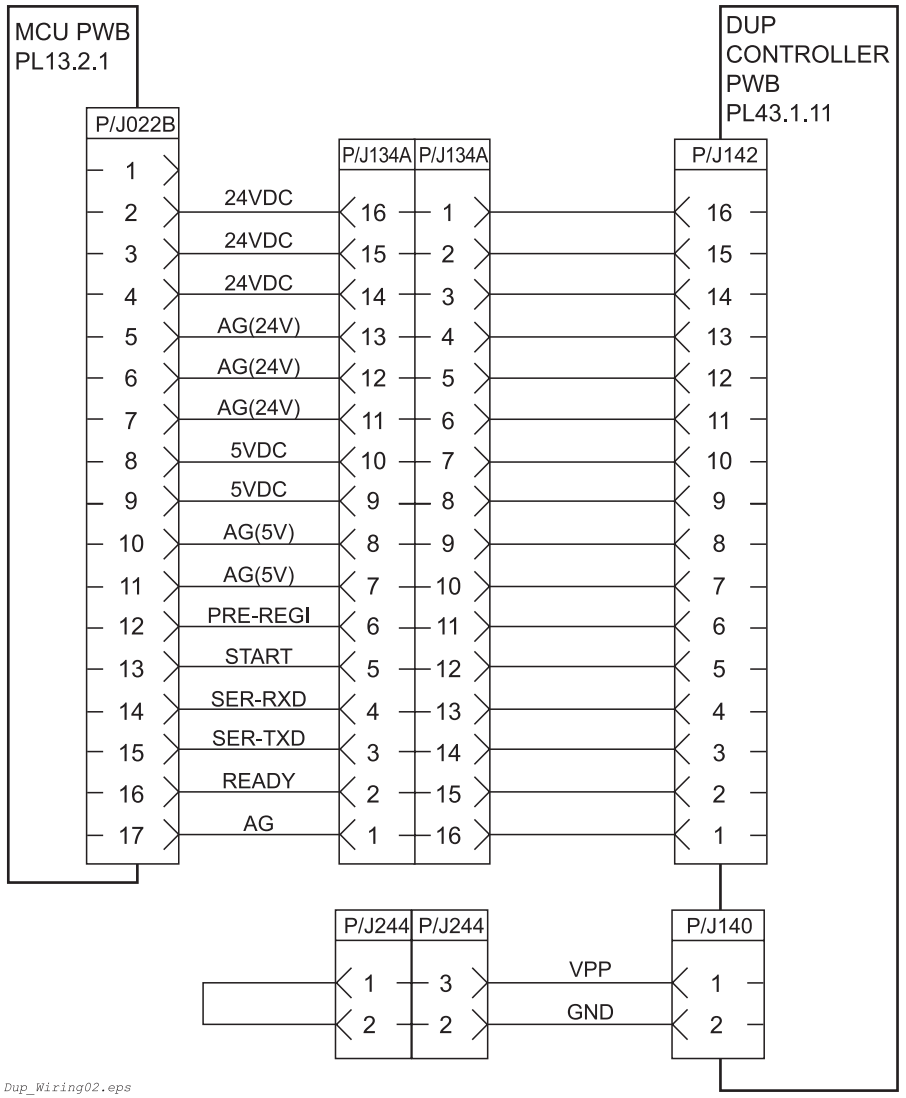


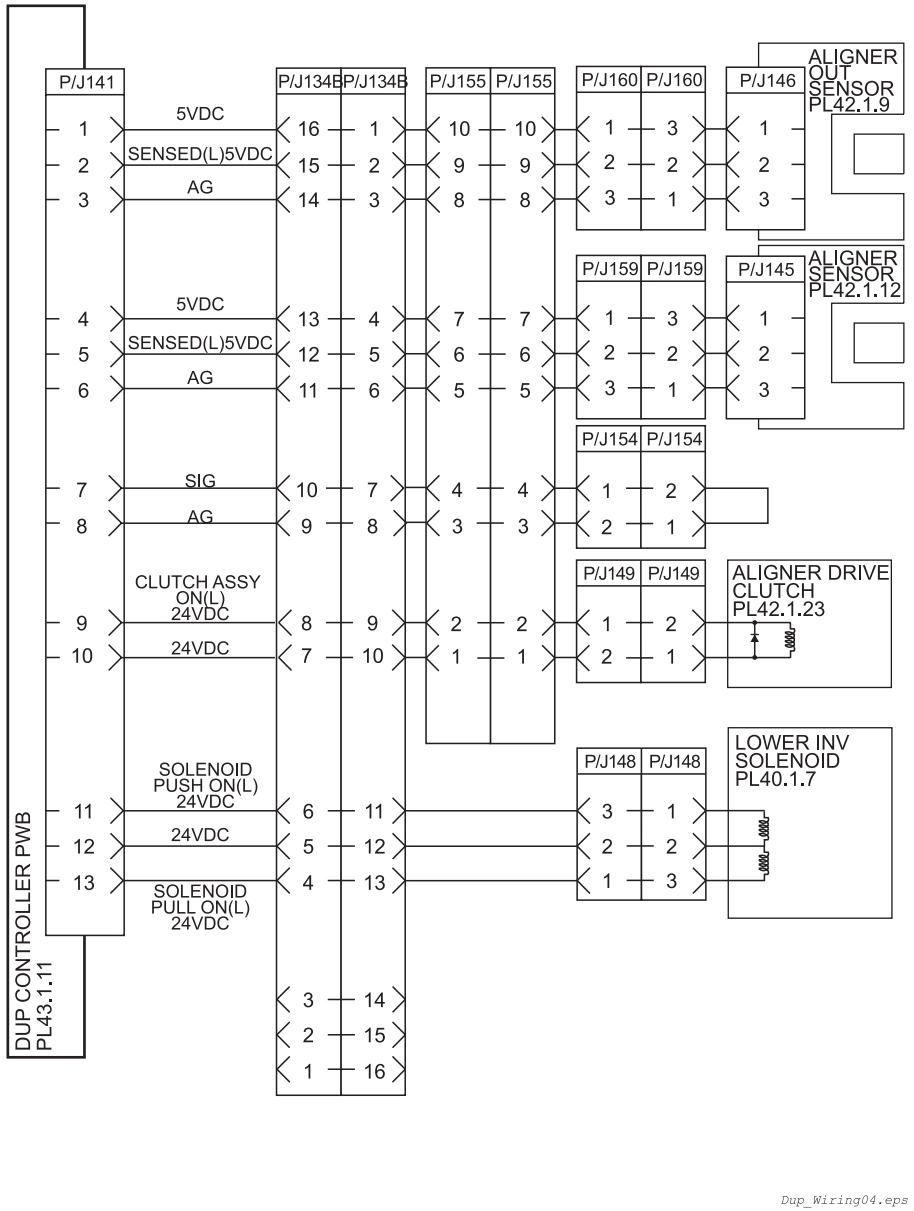
Figure 7-59. §40 Connection wiring diagram

§41.DUP CONTROLLER PWB, ALIGNER SENSOR, ALIGNER OUT SENSOR, ALIGNER DRIVE CLUTCH, DUP GATE SOLENOID

Table 7-46.

Signal line name	Remarks
SOLENOID PUSH ON (L) 24VDC	The ON/OFF control signal for the DUP gate solenoid in the push direction
SOLENOID PULL ON (L) 24VDC	The ON/OFF control signal for the DUP gate solenoid in the pull direction
ALIGNER OUT SENSED(L)5VDC	The aligner's timing #1 detection signal issued by the aligner out sensor
ALIGNER SENSED(L)5VDC	The aligner's timing #2 detection signal issued by the aligner sensor

☐ LOWER INV SOLENOID coil resistance: 45Ω ± 10% (20°C)



Dup_Wiring04.eps

Figure 7-60. §41 Connection wiring diagram

§42.DUP CONTROLLER PWB, INVERTER SENSOR, CAB SWITCH-I/L, INVERTER MOTOR ASSY, FORWARD CLUTCH, REVERSE CLUTCH, ENTER CLUTCH

Table 7-47.

Signal line name	Remarks
INVERTER SENSED (L) 5VDC	The reverse timing detection signal issued by the inverter sensor
CAB SWITCH-I/L ON (L) 5VDC	The signal for detecting the inverter chute open (OFF) and close (ON) status issued by the cab switch I/L.
INVERTER MOTOR FAIL (H) 24VDC	The inverter motor assembly's fail; detection signal (High: Error, Low: Normal)
INVERTER MOTOR ON (L) 24VDC	The inverter motor assembly's ON/OFF control signal (High: OFF, Low: ON)
FORWARD CLUTCH ON (L) 24VDC	The forward clutch's ON/OFF control signal
REVERSE CLUTCH ON (L) 24VDC	The reverse clutch's ON/OFF control signal
ENTER CLUTCH ON (L) 24VDC	The enter clutch's ON/OFF control signal

- ☐ Outline of the inverter motor assembly
  - ■ Number of poles: 3-phase 16 poles
  - ■ Revolutions: 1254.638rpm ±3%
- ☐ FORWARD CLUTCH coil resistance: 172Ω ±10% (20°C)
- ☐ REVERSE CLUTCH coil resistance: 172Ω ±10% (20°C)
- ☐ ENTER CLUTCH coil resistance: 172Ω ±10% (20°C)

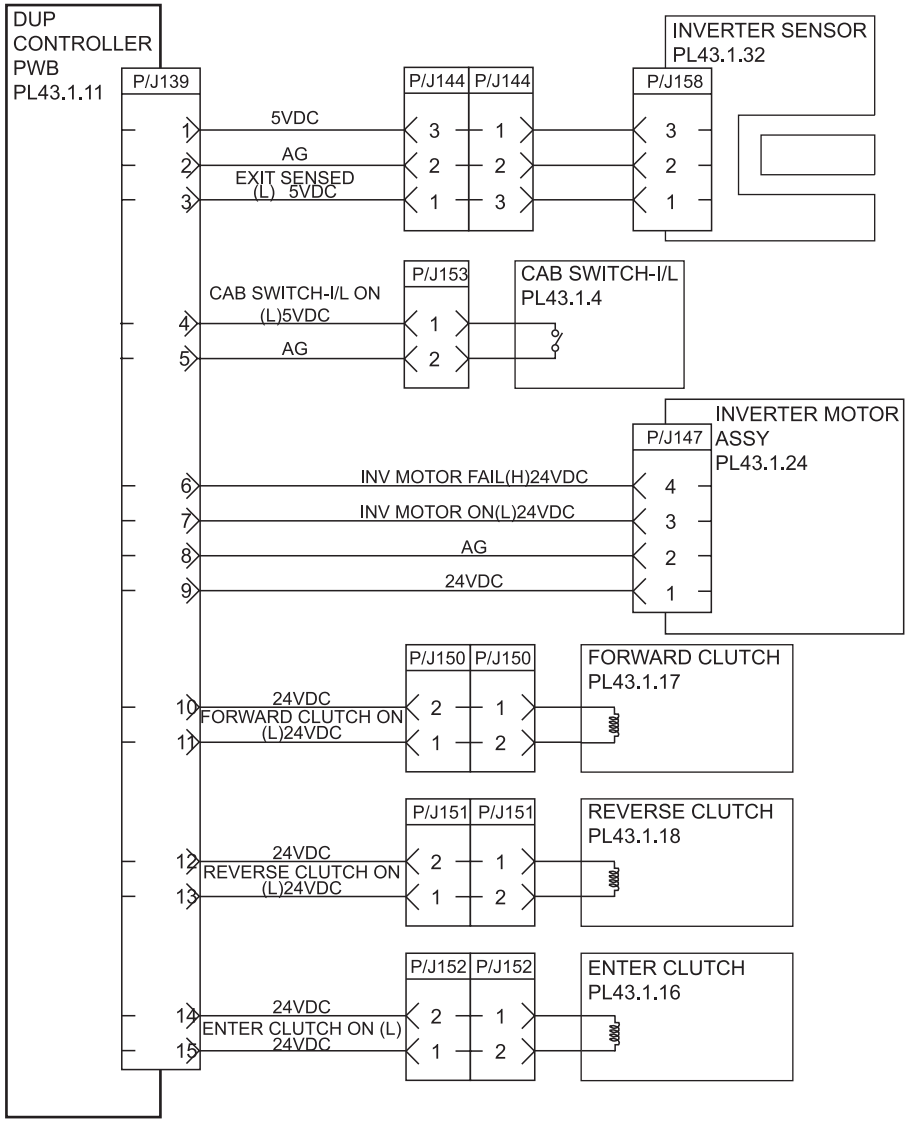


Figure 7-61. §42 Connection wiring diagram

7.8.2 500-Sheet Paper Cassette Unit

7.8.2.1 Product outline of 500-Sheet Paper Cassette Unit

The 500-sheet Paper Cassette Unit is installed beneath the printer and consists of a single stage paper feeder to feed 500 pieces of paper and a standard universal cassette (paper cassette.) Once this unit has been installed onto the printer, connected up and the switch on the printer turned on to establish a power supply, the paper size and availability of paper is automatically detected. The power is supplied from the printer. The basic specifications of this unit are listed below.

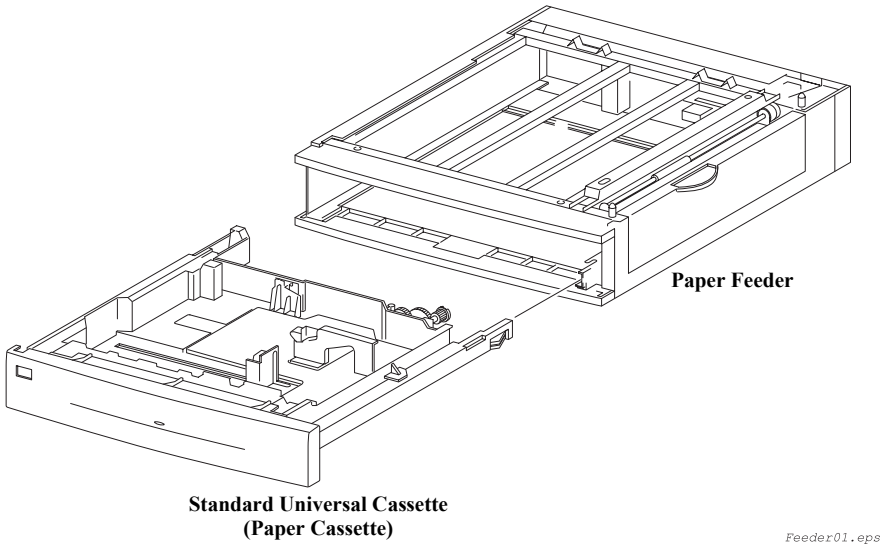


Figure 7-62. Basic Constitution of 500-Sheet Paper Cassette Unit

7.8.2.1.1 Basic specifications

- ☐ Paper feed method: Single clip division roller, automatic paper feed
- ☐ Installation method: Installed beneath the printer
- ☐ Drive method: Internal drive motor
- ☐ Interface: The Additional Cassette Unit, the existence of paper, the paper's near and, the paper size and other signals are transmitted to the printer. The signal for commencing paper feeding is received from the printer.
- ☐ Printing speed: Refer to "Printing Speed *3" (*p.9*) in Chapter 1.
- ☐ Paper feed specifications: Refer to "Paper feed" (*p.10*) in Chapter 1.
- ☐ Power supply: DC24V and DC5V power supplied from the printer
- ☐ Size / Weight: Refer to "Dimensions and Weight" (*p.13*) in Chapter 1.
- ☐ Life: Refer to "Product Life" (*p.14*) in Chapter 1.
- ☐ Noise: Refer to "Noise" (*p.14*) in Chapter 1.

7.8.2.1.2 Paper specifications

Refer to 1.2.2 Paper Specifications (*p.15*)

7.8.2.1.3 Reliability and endurance specifications (when connected to printer)

Refer to 1.2.3 Reliability, Durability and Maintainability (*p.20*) for reliability and endurance specifications for the Duplex Unit connected to the printer (MPBF, paper feed reliability, life, printing start position accuracy and skew).

7.8.2.1.4 Environment specifications

- ☐ Conditions for use:
  Refer to 1.2.4 Operating Conditions (Including Consumables) (*p.21*)
- ☐ Environmental conditions for storage and transportation:
  Refer to 1.2.5 Storage and Transport of the Printer Body and Optional Products (Consumables Packaged) (*p.22*)

7.8.2.1.5 Electrical characteristics (when connected to printer)

Same as those of the printer body. "1.2.6 Electrical Features" (*p.23*).

7.8.2.1.6 Compliance with standards and regulations (when connected to printer)

Same as those of the printer body. Refer to "1.2.8 Compliance with Standards and Regulations" (*p.24*).

7.8.2.2 Operating principles of 500-Sheet Paper Cassette Unit

7.8.2.2.1 Drive transmission route

FEEDER MOTOR ASSY

The feeder high assembly drive power for each cassette transmits the feeder motor assembly's revolutionary power via the feeder drive assembly gears to provide the driving power for conveying the paper.
The driving force is transmitted in the flow as shown in the chart below.

CHECK POINT

On the following pages, the paper cassette at the bottom of the printer body is called "Cassette 1" and the 500-Sheet Paper Cassette Unit, which is an optional unit, is called "Cassette 2".

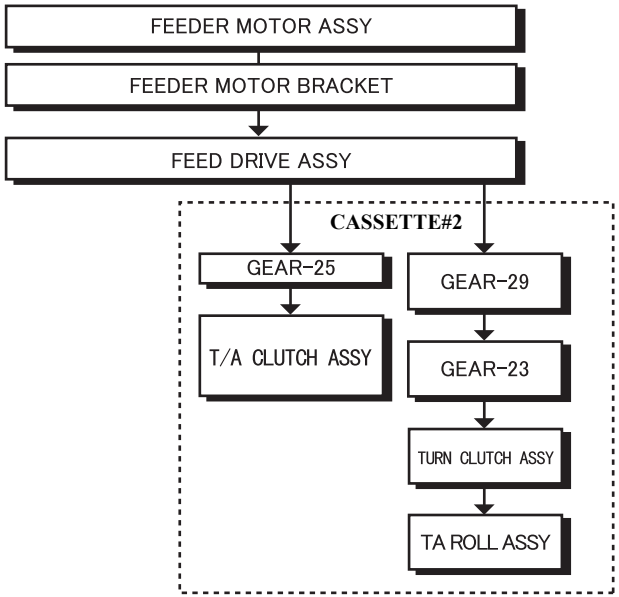


Figure 7-63. FUSER MOTOR ASSY drive transmission

The gear layout for the FEEDER MOTOR ASSY is shown below.

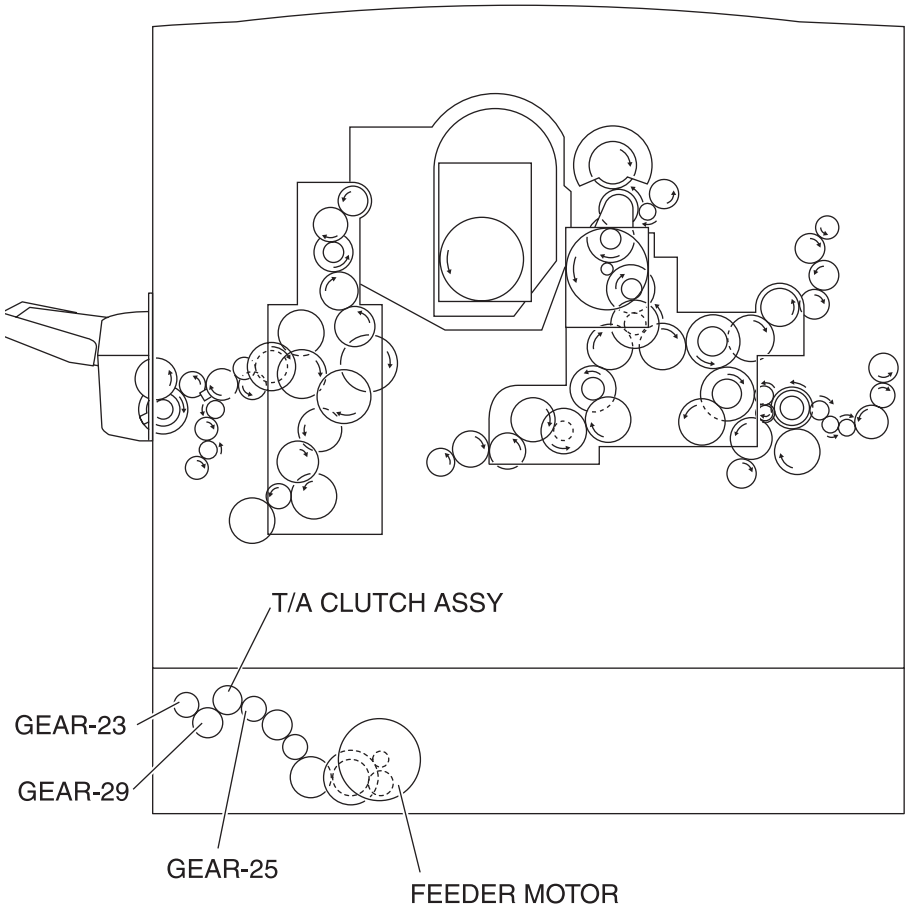


Figure 7-64. Gear layout for the FEED MOTOR ASSY

7.8.2.2.2 Paper conveyance

PAPER CONVEYANCE ROUTE

The figure below shows the paper transport path when the 500-Sheet Paper Cassette Unit has been installed.

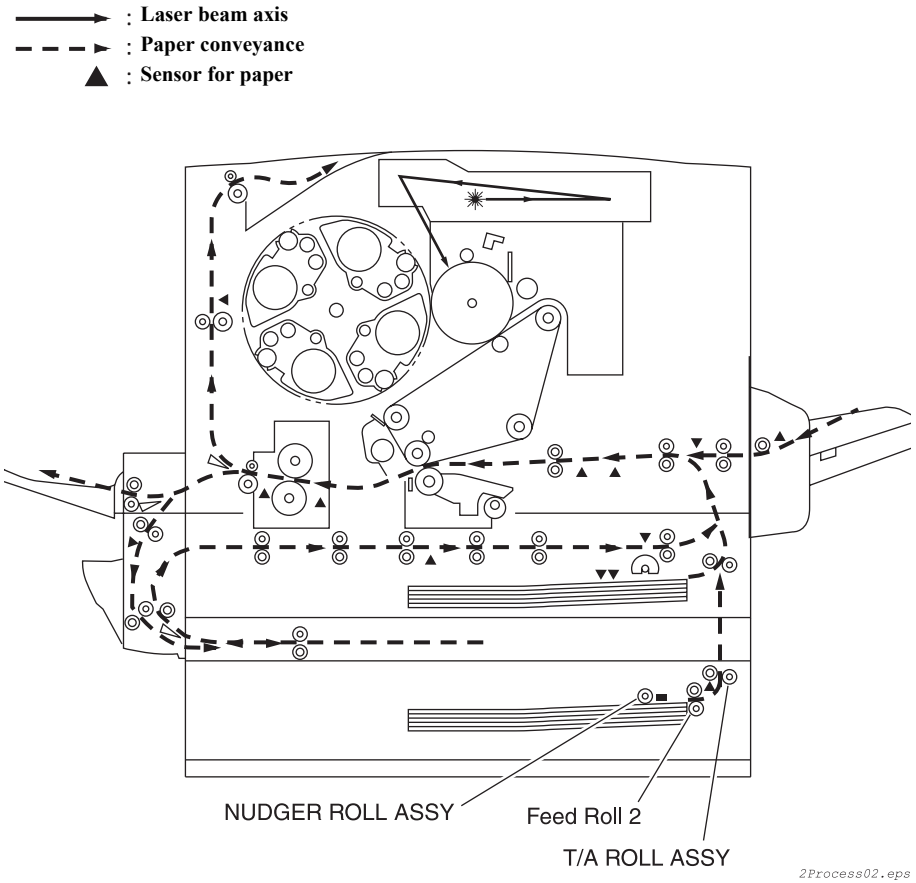


Figure 7-65. Paper Transport Route

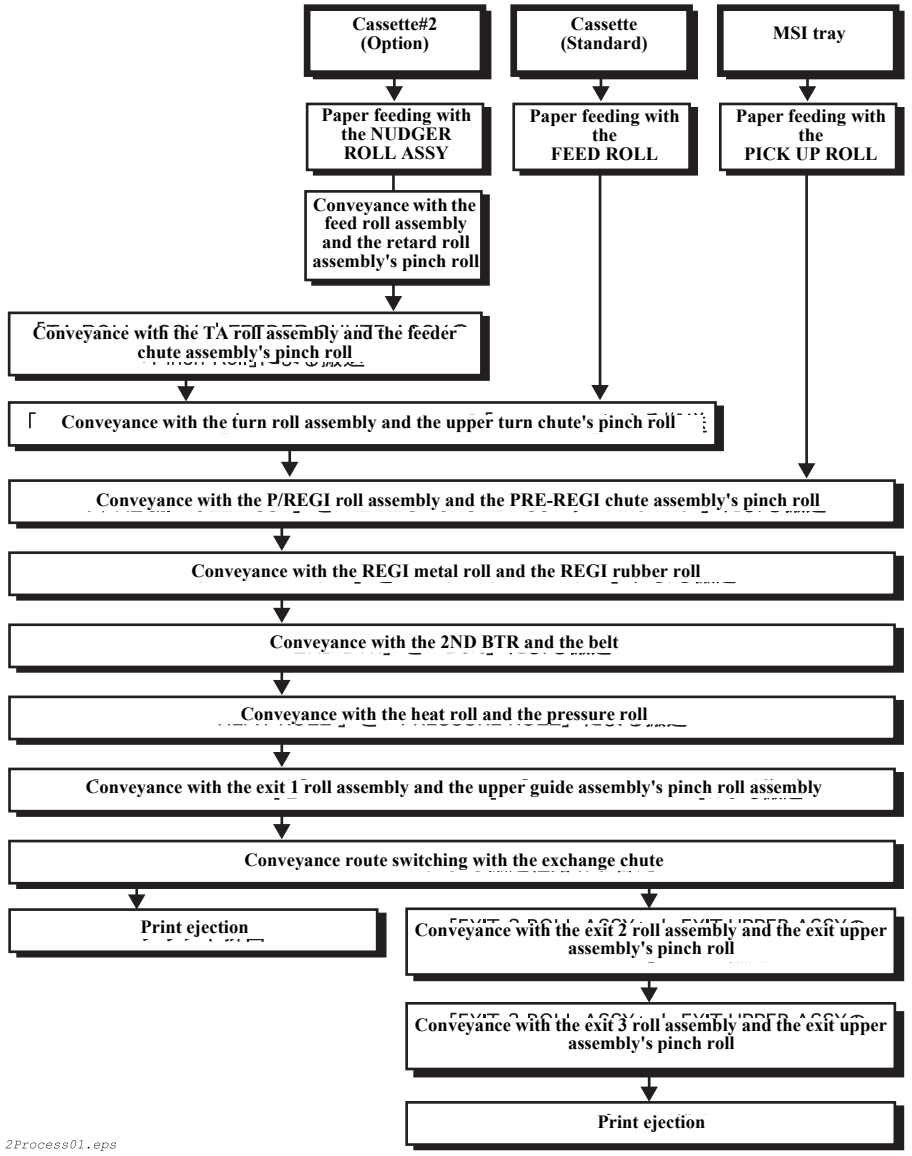


Figure 7-66. Paper conveyance route flow

7.8.2.2.3 Major functional parts and their operations

This section explains the main function parts that make up the Additional cassette Unit with the use of illustrations.
The structure of the unit is divided into the following blocks.

- Paper Tray
- Paper Feeder I
- Paper Feeder II

PAPER TRAY

The paper cassette of the optional 500-Sheet Paper Cassette Unit has the same function as the standard paper cassette (500 TRAY ASSY) incorporated in the printer body.
Refer to "2.2.4.1 Paper Tray" (*p.111)*, as required.

PAPER FEEDER I

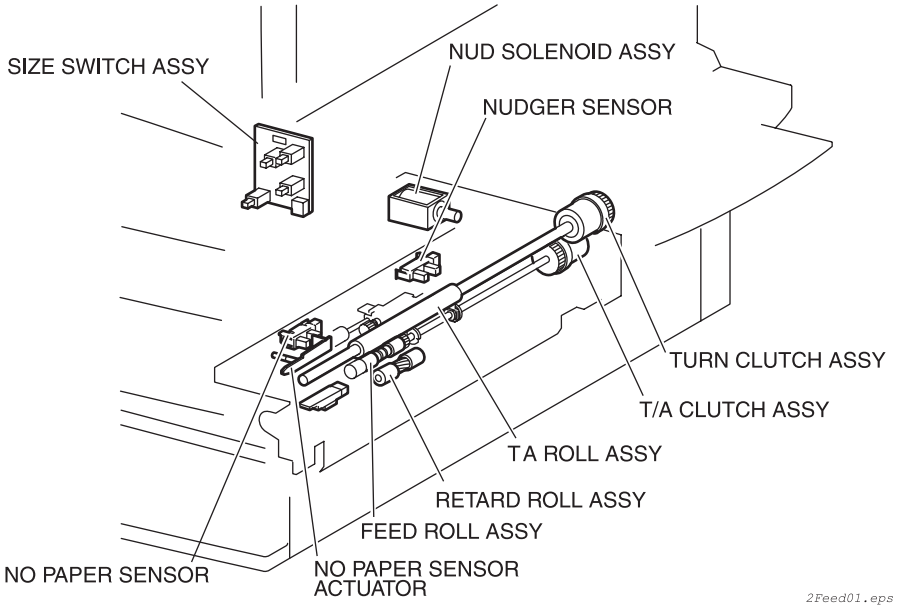


Figure 7-67. Paper Feeder 1

- SIZE SWITCH ASSY
  The size switch assembly is equipped with four direct paper size switches on the circuit board, and depending on the combination of the ON/OFF status of these switches in accordance with changes in the position of the tray size actuator, the paper size and existence of paper in the paper cassette is detected.
- NO PAPER SENSOR
  The existence of paper in the paper cassette is detected in accordance with changes in the position of the no paper sensor actuator.
- NUD SOLENOID ASSY
  Operations for the T/A clutch assembly (operating/halted) are controlled through the control of the gear-25 revolutions.
- TURN CLUTCH ASSY
  The driving power of the feed driver assembly is transmitted to the TA roll assembly in order to control TA roll assembly operations (operating/halted.)
- NUDGER ROLL ASSY
  Gear 25 and gear 29 mesh together when the NUD solenoid assembly is operated, and the roll assembly receives the drive power from the feed drive assembly and starts operations so that the nudger roll assembly can feed paper from the paper cassette.
  Gear 25 and gear 29, after a single revolution, are disengaged at the cut portion of gear 25, and this halts the transmission of drive power and stops the nudger roll assembly. This enables only one piece of paper to be fed each time.
- TA ROLL ASSY
  The drive power of the feed drive assembly is transmitted to the TA roll assembly via gear 1.3. when the turn clutch assembly is operated. The TA roll assembly begins operating once this drive power is received, and the paper fed by the TA roll assembly is then conveyed.
- T/A CLUTCH ASSY
  The drive power of the feed drive assembly is transmitted to control the feed roll assembly and retard roll assembly.
- NUDGER SENSOR
  The existence of paper in the paper cassette is detected, and the lift-up procedure is performed by the transmission of the nudger sensed signal if the amount of paper is getting low.

- FEED ROLL ASSY, RETARD ROLL ASSY
  The paper fed by the nudger roll assembly is gripped between the feed roll assembly and the retard roll assembly and conveyed to the TA roll assembly. If several pieces of paper are conveyed by the nudger roll assembly, more than one piece of paper is prevented from passing through the feed roll assembly and retard roll assembly, and they are separated into individual pages.

PAPER FEEDER II

- FEEDER MOTOR ASSY
  Drive power is supplied to the feeder high assembly in each cassette via the feeder drive assembly.
- FEEDER DRIVE ASSY
  The drive power of the feeder motor assembly is transmitted to the feeder high assembly in each cassette.
- FEEDER PWB
  The paper feeding operations for each cassette's feeder high assembly are control in accordance with communications with the MCU PWB and the information received from the sensors and switches.
  This mechanism is equipped with the following major functions.
  - Communications with the MCU PWB
  - Receives information from the sensors and switches
  - Controls the feeder motor assembly, the solenoids and the clutches
  - Controls the paper feeding operations
  - Distributes the low-voltage DC power supplied from the printer to the various components
- FEEDER RIGHT COVER SWITCH
  The feeder right cover switch is a safety switch that detects the open/close status of the feeder chute assembly and halts all operations if it is open.
- LOW PAPER SENSOR-1T
  Detects when the amount of paper set inside the paper cassettes is running low.

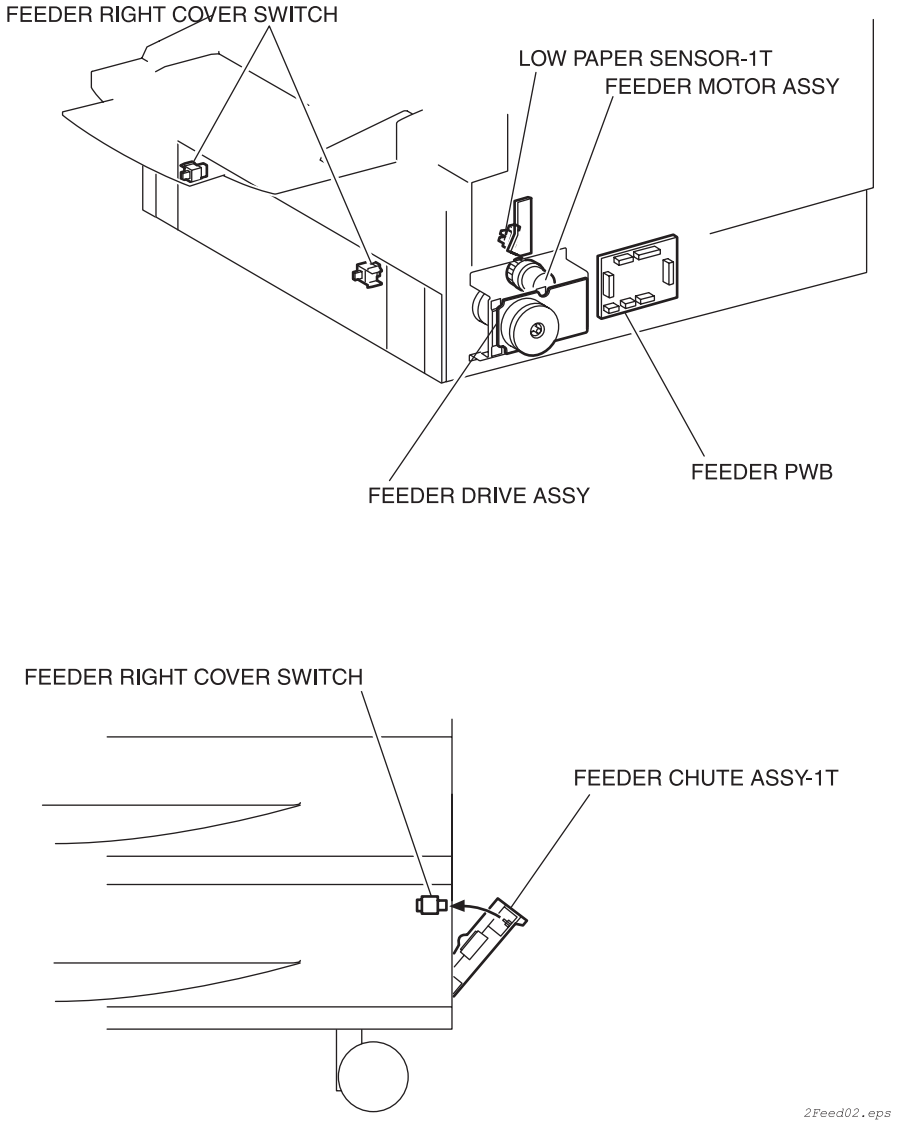


Figure 7-68. Paper Feeder2

7.8.2.3 Troubleshooting for 500-Sheet Paper Cassette Unit

This section describes troubleshooting for the case where the 500-Sheet Paper Cassette Unit has been installed on AcuLaser C8600 / AcuLaser C7000.

CHECK POINT

- **This section describes troubleshooting for AcuLaser C8600/ C7000 in standard specifications and for the case where the printer controller works normally.**
- **The description in this section is given on the assumption that troubleshooting is started as described in Chapter 3 "Troubleshooting" (*p.161*).**

7.8.2.3.1 Performing troubleshooting tasks

Refer to 3.1.1 Troubleshooting Procedure (*p.162*)

7.8.2.3.2 Preliminary checks

Refer to 3.1.2 Preliminary Checks (*p.162*)

7.8.2.3.3 Precautions in performing work

Refer to 3.1.3 Precautions in Performing Work (*p.163*)

7.8.2.3.4 Identifying problems with the LCD messages

AcuLaser C8600/C7000 is equipped with a self-diagnostic function to check each function of the printer and optional units. If any error in the printer or any optional unit has been detected, the appropriate error information is indicated by LEDs and the LCD panel on the control panel or by messages on the "EPSON Printer Window!3".

The messages to be displayed are classified into the four groups, namely, "status messages" indicating the printer status, "error messages" indicating the occurrence of any error, "warning messages" indicating the occurrence of warning, and "service call error messages" indicating the occurrence of any fatal error.
Refer to the following sections for details of the messages:

- 3.1.4 Self-Diagnostic Function by Printer Message (AcuLaser C8600) (*p.164*)
- 3.1.5 Self-Diagnostic Function by Printer Message (AcuLaser C7000) (*p.172*)

7.8.2.3.5 Service Call Error Messages

This section describes the details of service call error messages which can be displayed with the 500-Sheet Paper Cassette Unit installed. For engine-related service call errors other than described here, refer to 3.1.6 Details of the Service Call Error Messages (*p.180*).

ENGINE-RELATED SERVICE CALL ERRORS

NOTE: *Each error code (fff) is displayed with a prefix "E" for AcuLaser C8600 or "6" for AcuLaser C7000.*

Table 7-48. Service Call Errors (Engine Related)

Error code fff	Description	Refer to
517	Optional Cassette Unit error (communication error), or Optional Cassette Unit other than this printer's option is installed *1	-
547	Optional Cassette Unit Feeder Motor error	*2

Note "*1": Occurs when the 500-Sheet Paper Cassette Unit/Large Capacity Paper Unit for AcuLaser C8500 is installed.

"*2": Refer to the instruction manual for the optional unit.

CONTROLLER-RELATED SERVICE CALL ERRORS

Refer to "Controller Related Service Call Errors" (*p.182*) for details on controller-related service call errors.

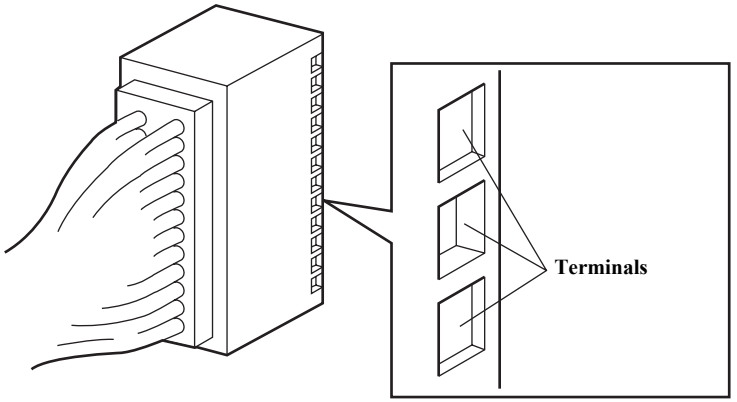
7.8.2.3.6 Level 1 FIP

PRECAUTIONS WHEN USING FIP

CHECK POINT

Level 1 FIP to be used for the printer on which the 500-Sheet Paper Cassette Unit or Large Capacity Paper Unit has been installed is handled as "FIP-1.F" for distinguishing it from the Level 1 FIP for the printers without 500-Sheet Paper Cassette Unit or Large Capacity Paper Unit.

1. As it is assumed that the printer controller (CONTROLLER PWB) is functioning normally with FIP, it is necessary to confirm that the printer controller has been replaced with a normally-functioning unit if fault repairs are not carried out after troubleshooting. It is also necessary to confirm that the [Initial checking]'s [Main Parts to be Confirmed] and all other related parts have been replaced accordingly if fault repairs are not to be performed.
2. FIPs may require some normal components as troubleshooting tools to identify the cause of the trouble. You are advised to have a spare MCU PWB, DRUM CARTRIDGE, and Y/M/C/K ET cartridges.
3. Ensure that the easiest level has been verified with the [Initial checking] in FIP.
4. In addition to checking the [Major parts to be checked] in the FIT's [Initial checking], ensure that all other major structural parts and related parts are confirmed.
5. Ensure that the power cord has been unplugged if not required before commencing work. Also, unless absolutely necessary, never touch electrified parts if work is to be carried out with the power being supplied.
6. Details for the connectors are provided below:
   - [P/J12]: With the connector (P/J12) connected
   - [P12]: The plug with the connector (P/J12) disconnected (with the exception of direct connections to the circuit board)
   - [J12]: The jack with the connector (P/J12) disconnected (with the exception of direct connections to the circuit board)
7. [P/J1-2PIN ↔ P/J3-4PIN] inside the FIP means to connect the plus pole on the gauge to the [P/J1]'s [2PIN] and the minus pole to the [P/J3]'s [4PIN] for measurement purposes.
8. When [P/J1 ↔ P/J2], for instance, is referred to in FIPs, make measurement between every pair of terminals of the P/J1 and P/J2 by consulting "Figure 7-91 P/J Locations of 500-Sheet Paper Cassette Unit" (*p.653)* to "Figure 7-95 §52 Connection wiring diagram" (*p.658)* in "7.8.2.5 500-Sheet Paper Cassette Unit supplement" (*p.651)*.
9. When measuring the voltage inside the FIP, the rear minus pole [P/J3-4PIN] with [P/J1-2PIN ↔ P/J3-4PIN] is always the AG [Analog Ground], the SG [Signal Ground] or the RTN [Return]. Owing to this, confirm that continuity clearly exists with the [AG]s, the [SG]s and the [RTN]s to enable the other [AG], [SG] and [RTN] pins to be connected to the rear minus pole instead of the [P/J3-4PIN]. However, make sure no mistakes are made here as the [AG], [SG] and [RTN] are not the same level.
10. The terminals on the surface of the connector (one in from the front/back) are used when measuring the voltage of P/J16, P/J17, P/J19 and P/J20. As these terminals are small, use a fine-headed tester pin and ensure that it comes into contact with the back terminal especially.



11. When measuring the voltage, set the drum cartridge and paper cassette in place if they are not required, and close the front cover assembly, the top cover assembly, the MSI/REGI HIGH assembly, the fuser assembly, and the exit upper assembly before switching the power on for measurement purposes.
12. The values inside the FIP only represent a yardstick, and nearby numbers may be assumed to be the same.

13. Special guidance is not always provided for removing parts and performing relevant tasks in order to carry out the checks instructed inside the FIP, so caution must be exercised.
14. The [Replace] instruction issued during recovery inside the FIP indicate the parts that are assumed to be responsible for the problem and represent the instruction to replace and confirm the relevant parts and related assembly parts (high assembly).
15. Paper feeding is mentioned in the FIP under [Cassette 1] for paper cassettes below the printer, under [Cassette 2] for the first stage of optional 500-sheet Paper Cassette Unit, and under [Cassette 3] for the second stage.
16. The FIP is equipped with an area to distinguish between the availability and non-availability of the diagnosis tool, and all fault repairs must be carried out in accordance with these instructions.

    NOTE: *Refer to "5.4 Diagnostics" (p.369) for detailed operation of the DIAG tool.*
17. The FIP is equipped with an area for making distinctions in accordance with the specifications, and all fault repairs must be carried out in accordance with these instructions.

Table 7-49. FIP-1 List

Item (page)	Conditions for Detection
FIP-1.F1 Cassette 2 paper cassette not set in place *(p.617)*	All the four Paper Size Switches on SIZE SWITCH ASSY of Cassettes 2 have turned OFF. For details, refer to "2.3.1 Paper Size Control" *(p.130)*
FIP-1.F2 No paper in Cassette 2 *(p.618)*	There is no paper in Cassette 2. (NO PAPER SENSOR of Cassette 2 has detected Paper Out.)
FIP-1.F3 Paper jammed in the MSI/ REGI HIGH ASSY (option feeder jam) *(p.619)*	REGI. SENSOR does not turn to the paper detection state within the specified time after turning on of PICK UP CLUTCH.
FIP-1.F4 OPTION FEEDER communication errors *(p.620)*	• FEEDER UNIT which has not been installed has been selected. • Communication between the printer body and FEEDER UNIT is not allowed. • Trouble has occurred in the FEEDER UNIT.
FIP-1.F5 Errors related to the FEEDER MOTOR ASSY *(p.621)*	The lock signal of FEEDER MOTOR ASSY has been detected.
FIP-1.F6 FEEDER CHUTE ASSY-1T open *(p.622)*	FEEDER RIGHT COVER SWITCH is OFF.
FIP-1.F7 Low paper warning for Cassette 2 *(p.622)*	There is little amount of paper in Cassette 2. (NUDGER SENSOR of Cassette 2 has detected little amount of paper.)
FIP-1.F8 Faulty lift up of Cassette 2 *(p.623)*	Lift up failure of Cassette 2 has been detected.

FIP-1.F1 Cassette 2 paper cassette not set in place

Table 7-50.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), END GUIDE ACTUATOR, SIZE SWITCH ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checkchecking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant part
4	☐ END GUIDE ACTUATOR check Confirm that the end guide actuator pushes the paper size switch when the paper cassette is mounted.(Insert the paper onto the size switch assembly from the rear, and then pull the paper after the paper cassette has been mounted, If the paper resists being pulled out, it means the paper size switch has been pressed.)	• With tool - Proceed to step [5] • Without tool - Proceed to FIP-2.F2 Faulty SIZE SWITCH ASSY (p.625)	Replace the relevant part
5	☐ Paper size check ♦ Confirm this with device code [0A] of the analog input test with the use of the diagnosis tool.	Proceed to step [6]	Proceed to FIP-2.F2 Faulty SIZE SWITCH ASSY (p.625)
6	☐ FEEDER PWB replacement check Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F2 No paper in Cassette 2

Table 7-51.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), BOTTOM PLATE ASSY, NO PAPER SENSOR ACTUATOR, NO PAPER SENSOR, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checkchecking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant part
4	☐ BOTTOM PLATE ASSY check: Does the BOTTOM PLATE ASSY lift normally when the paper cassette (500 TRAY ASSY) is pushed in?	Proceed to step [5]	Replace the relevant part (paper cassette, etc.)
5	☐ NO PAPER SENSOR ACTUATOR check Does the no paper sensor actuator operate smoothly under the following conditions? When separated from the no paper sensor's detection area with paper set in place. When shielded from the no paper sensor's detection area with no paper set in place. ♦ Open the feeder chute assembly and confirm that the paper cassette has been pushed completely into place.	• With tool - Proceed to step [6] • Without tool - Proceed to FIP-2.F4 Faulty NO PAPER SENSOR (*p.627*)	Replace the relevant part

Table 7-51.

Step	Check	Recovery	
		Yes	No
6	☐ NO PAPER SENSOR check: Does the no paper sensor function normally? ♦ Confirm this with device code [B0] of the digital input test with the use of the diagnosis tool.	Proceed to step [7]	Proceed to FIP-2.F4 Faulty NO PAPER SENSOR (*p.627*)
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F3 Paper jammed in the MSI/REGI HIGH ASSY (option feeder jam)

Table 7-52.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER CHUTE ASSY, FEEDER MOTOR ASSY, FEEDER DRIVE ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checkchecking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	Has curled paper or paper that easily curls been used?	Change the paper	Proceed to step [4]
4	☐ Cassette 1 check: Is paper being fed from Cassette 1 normally?	Proceed to step [5]	FIP-1.8 "EXIT JAM" (*p.190*)
5	☐ Conveyor check: Do foreign objects or abnormal parts exist in the feeder chute assembly's paper conveyor?	Clean the assembly or replace the relevant part	Proceed to step [6]
6	☐ FEEDER MOTOR ASSY check: Does the feeder motor assembly operate during paper feeding? ♦ Remove the feeder rear cover to confirm this.	Proceed to step [7]	Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY (*p.626*)
7	☐ FEEDER DRIVE ASSY check: Do the feeder drive assembly gears operate normally? ♦ Remove the feeder drive assembly, rotate the feeder motor assembly by hand, and then visually confirm the status of the feeder drive assembly's gears.	Proceed to step [8]	Replace the FEEDER DRIVE ASSY (PL52.1.4) (*p.640*)

Table 7-52.

Step	Check	Recovery	
		Yes	No
8	☐ Paper feeding check: Is the edge of the paper being fed out of the relevant paper feeding tray when a status error occurs?	Proceed to step [9]	Proceed to FIP-2.F6 Faulty NUD SOLENOID ASSY (*p.629*)
9	☐ Paper conveyance check: Has the paper front end arrived at TA ROLL ASSY in the relevant paper transport route at the occurrence of error/status?	Proceed to step [10]	Proceed to FIP-2.F7 Faulty TURN CLUTCH ASSY (*p.630*)
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F4 OPTION FEEDER communication errors

Table 7-53.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER HARNESS ASSY-1T, MAIN HARNESS ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ FEEDER HARNESS ASSY-1T conductivity check Check the following for normal conductivity. J212 ↔ J132 J213 ↔ J211	Proceed to step [4]	Replace the FEEDER HARNESS ASSY-1T
4	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J132 ↔ J22 J211 ↔ J32	Proceed to step [5]	Replace the MAIN HARNESS ASSY
5	☐ FEEDER PWB power supply check: Is the electrical voltage between J211-2PIN ↔ J211-1PIN 5VDC?	Proceed to step [6]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227*)
6	☐ FEEDER PWB power supply check: Is the electrical voltage between J211-4PIN ↔ J211-3PIN 24VDC?	Proceed to step [7]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" (*p.227*)
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F5 Errors related to the FEEDER MOTOR ASSY

Table 7-54.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER MOTOR ASSY, FEEDER HARNESS ASSY-1T, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ FEEDER HARNESS ASSY-1T attachment check: Has the feeder harness assy-1T attached correctly?	Proceed to step [4]	Reattach the feeder right cover switch.
4	☐ Main unit harness check: Is the harness between the MCU PWB and the feeder PWB free from broken wire or faulty contact?	Proceed to step [5]	Replace the harness.
5	☐ FEEDER Motor operation check: Check to ascertain that the feeder motor is operating during the test print.	• With tool - Proceed to step [7] • Without tool - Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY *(p.626)*	Proceed to step [6]

Table 7-54.

Step	Check	Recovery	
		Yes	No
6	☐ FEEDER MOTOR ASSY abnormality check: Check to ascertain that there are no foreign objects preventing the feeder motor assembly from operating.	Remove the obstruction.	• With tool - Proceed to step [7] • Without tool - Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY *(p.626)*
7	☐ FEEDER MOTOR ASSY check: Does the feeder motor assembly function normally? ♦ Confirm this with device code [B8] of the digital output test with the use of the diagnosis tool.	Proceed to step [8]	Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY *(p.626)*
8	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F6 FEEDER CHUTE ASSY-1T open

Table 7-55.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER RIGHT COVER SWITCH, FEEDER CHUTE ASSY-1T, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ FEEDER RIGHT COVER SWITCH attachment check: Has the feeder right cover switch attached correctly?	Proceed to step [4]	Reattach the FEEDER RIGHT COVER SWITCH (PL51.1.21) *(p.643)*
4	☐ FEEDER CHUTE ASSY-1T check: Does the feeder chute assembly-1T open and close smoothly under the following conditions? Press the two feeder right cover switches when the feeder chute assembly is closed. Release the two feeder right cover switches when the feeder chute assembly is open.	• With tool - Proceed to step [5] • Without tool - Proceed to FIP-2.F1 Faulty FEEDER RIGHT COVER SWITCH *(p.624)*	Replace the relevant part
5	☐ FEEDER RIGHT COVER SWITCH check: Does the feeder right cover switch function normally? ♦ Confirm this with device code [D0,D1] of the digital input test with the use of the diagnosis tool.	Proceed to step [6]	Proceed to FIP-2.F1 Faulty FEEDER RIGHT COVER SWITCH *(p.624)*
6	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F7 Low paper warning for Cassette 2

Table 7-56.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), BOTTOM PLATE ASSY, NUDGER SENSOR, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant part
4	☐ BOTTOM PLATE ASSY check: Does the BOTTOM PLATE ASSY lift normally when the paper cassette (500 TRAY ASSY) is pushed in?	Proceed to step [5]	Replace the relevant part
5	☐ NUDGER SENSOR attachment check: Has the nudger sensor attached correctly?	• With tool - Proceed to step [6] • Without tool - Proceed to FIP-2.F5 Faulty NUDGER SENSOR *(p.628)*	Reattach the NUDGER SENSOR (PL52.2.33) *(p.645)*
6	☐ NUDGER SENSOR check: Does the nudger sensor function normally? ♦ Confirm this with device code [B1] of the digital input test with the use of the diagnosis tool.	Proceed to step [7]	Proceed to FIP-2.F5 Faulty NUDGER SENSOR *(p.628)*
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F8 Faulty lift up of Cassette 2

Table 7-57.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: LIFT UP CLUTCH(FEEDER DRIVE ASSY), FEEDER HARNESS ASSY-1T, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ FEEDER HARNESS ASSY-1T attachment check: Has the feeder harness assy-1T attached correctly?	Proceed to step [4]	Reattach the feeder right cover switch.
4	☐ Main unit harness check: Is the harness between the MCU PWB and the feeder PWB free from broken wire or faulty contact?	Proceed to step [5]	Replace the harness.
5	☐ LIFT UP CLUTCH(FEEDER DRIVE ASSY) attachment check: Has the lift up clutch attached correctly?	Proceed to step [6]	Reattach the LIFT UP CLUTCH. "See FEEDER DRIVE ASSY (PL52.1.4) *(p.640)*"
6	☐ LIFT UP CLUTCH(FEEDER DRIVE ASSY) check: Does the lift up clutch function normally? ♦ Confirm this with device code [B2] of the digital output test with the use of the diagnosis tool.	Proceed to step [7]	Replace the FEEDER DRIVE ASSY (PL52.1.4) *(p.640)*
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

7.8.2.3.7 Level 2 FIP

FIP-2.F1 Faulty FEEDER RIGHT COVER SWITCH

Table 7-58.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER RIGHT COVER SWITCH, COVER SWITCH HARNESS, FEEDER HARNESS ASSY-1T, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ FEEDER RIGHT COVER SWITCH ON signal power supply check Is the electrical voltage for the following between 5VDC? P217-7PIN ↔ P217-8PIN P217-9PIN ↔ P217-10PIN	Proceed to step [3]	Replace the FEEDER PWB (PL52.1.9) (*p.641*)
3	☐ FEEDER RIGHT COVER SWITCH ON signal check: Is the electrical voltage between P/J217-7PIN ↔ P/J217-8PIN P/J217-9PIN ↔ P/J217-10PIN as follows? 0VDC when the feeder chute assembly is closed. 5VDC when the feeder chute assembly is open.	Proceed to step [6]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY-1T check: Check the following fo normal conductivity. J217 ↔ J240	Proceed to step [5]	Replace the FEEDER HARNESS ASSY-1T
5	☐ COVER SWITCH HARNESS check: Check the following fo normal conductivity. J240 ↔ J237 J240 ↔ J238	Replace the FEEDER RIGHT COVER SWITCH (PL51.1.21) (*p.643*)	Replace the COVER SWITCH HARNESS
6	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F2 Faulty SIZE SWITCH ASSY

Table 7-59.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: SIZE SWITCH ASSY, FEEDER HARNESS ASSY-1T, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ SIZE SWITCH ASSY power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P217-3PIN ↔ P217-1PIN	Proceed to step [3]	Proceed to step [5]
3	☐ SIZE SWITCH signal check: Are the following electrical voltages suitable for each paper size? Cassette 2:P217-2PIN ↔ P217-1PIN Refer to "2.3.1 Paper Size Control" (*p.130)* to change and confirm the paper sizes.	Proceed to step [9]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. Cassette 2:J217 ↔ J235	Replace the SIZE SWITCH ASSY (PL52.1.7) (*p.642)*	Replace the FEEDER HARNESS ASSY-1T
5	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL52.1.9) (*p.641)*	Proceed to step [6]
6	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [7]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227)*
7	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [8]	Replace the FEEDER HARNESS ASSY-1T

Table 7-59.

Step	Check	Recovery	
		Yes	No
8	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [9]	Replace the MAIN HARNESS ASSY
9	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F3 Faulty FEEDER MOTOR ASSY

Table 7-60.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER MOTOR ASSY, FEEDER DRIVE ASSY, FEEDER HARNESS ASSY-1T, FEEDER PWB, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ FEEDER DRIVE ASSY check: Do the feeder drive assembly's gears operate smoothly? ♦ Confirm this by removing the feeder drive assembly and rotating the feeder motor assembly by hand to free it.	Proceed to step [3]	Replace the FEEDER DRIVE ASSY (PL52.1.4) *(p.640)*
3	☐ FEEDER MOTOR ASSY power supply check: Is the electrical voltage between P217-14PIN ↔ P217-13PIN 24VDC?	Proceed to step [4]	Proceed to step [6]
4	☐ FEEDER MOTOR ON signal check: Is the electrical voltage between P/J239-3PIN ↔ P/J239-4PIN as follows? 0VDC when the feeder motor assembly is operating. 5VDC when the feeder motor assembly is not operating.	Proceed to step [10]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity between the following normal? J217↔J239	Replace the FEEDER MOTOR ASSY (PL52.1.3) *(p.639)*	Replace the FEEDER HARNESS ASSY-1T
6	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL52.1.9) *(p.641)*	Proceed to step [7]

Table 7-60.

Step	Check	Recovery	
		Yes	No
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [8]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" *(p.227)*
8	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS ASSY-1T
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F4 Faulty NO PAPER SENSOR

Table 7-61.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: NO PAPER SENSOR, FEEDER PWB, FEEDER HARNESS ASSY-1T, FEEDER HARNESS ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ NO PAPER SENSOR power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-3PIN ↔ P214-1PIN	Proceed to step [3]	Proceed to step [7]
3	☐ NO PAPER SENSE signal power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-2PIN ↔ P214-1PIN	Proceed to step [4]	Proceed to step [7]
4	☐ NO PAPER SENSE signal check: Is the electrical voltage as follows? 0VDC during penetration (with paper) 5VDC when shielded (no paper) Cassette 2:P/J214-2PIN ↔ P/J214-1PIN	Proceed to step [11]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J219	Proceed to step [6]	Replace the FEEDER HARNESS ASSY
6	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the NO PAPER SENSOR (PL52.2.45) *(p.647)*	Replace the FEEDER HARNESS ASSY-1T
7	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL52.1.9) *(p.641)*	Proceed to step [8]

Table 7-61.

Step	Check	Recovery	
		Yes	No
8	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [9]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" *(p.227)*
9	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [10]	Replace the FEEDER HARNESS ASSY-1T
10	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [11]	Replace the MAIN HARNESS ASSY
11	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F5 Faulty NUDGER SENSOR

Table 7-62.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: NUDGER SENSOR, FEEDER PWB, FEEDER HARNESS ASSY-1T, FEEDER HARNESS ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ NUDGER SENSOR power supply check: Is the electrical voltage for the following between 5VDC? Cassette 2:P214-6PIN ↔ P214-4PIN	Proceed to step [3]	Proceed to step [7]
3	☐ NUDGER SENSE detection signal power supply check: Is the electrical voltage for the following between 5VDC? Cassette 2:P214-5PIN ↔ P214-4PIN	Proceed to step [4]	Proceed to step [7]
4	☐ NUDGER SENSE signal check: Is the electrical voltage as follows? 0 VDC when there is paper and 5 VDC when there is no paper? Cassette 2:P/J214-5 ↔ P/J214-4	Proceed to step [11]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J221	Proceed to step [6]	Replace the FEEDER HARNESS ASSY
6	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the NUDGER SENSOR (PL52.2.33) (*p.645*)	Replace the FEEDER HARNESS ASSY-1T
7	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL52.1.9) (*p.641*)	Proceed to step [8]

Table 7-62.

Step	Check	Recovery	
		Yes	No
8	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [9]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227*)
9	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [10]	Replace the FEEDER HARNESS ASSY-1T
10	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [11]	Replace the MAIN HARNESS ASSY
11	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F6 Faulty NUD SOLENOID ASSY

Table 7-63.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: NUDÅ@SOLENOID ASSY, FEEDER PWB, FEEDER HARNESS ASSY-1T, FEEDER HARNESS ASSY, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ NUD SOLENOID ASSY power supply check: Is the electrical voltage 24VDC for the following? Cassette 2:P214-10 ↔ P214-11	Proceed to step [3]	Proceed to step [6]
3	☐ NUDGER SOLENOID ASSY check: Is the conductivity for the following normal (approximately 90 Ω)? Cassette 2:J225-1 ↔ J225-2	Proceed to step [10]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J225	Proceed to step [5]	Replace the FEEDER HARNESS ASSY
5	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the NUD SOLENOID ASSY (PL52.2.51) (*p.649*)	Replace the FEEDER HARNESS ASSY-1T
6	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL52.1.9) (*p.641*)	Proceed to step [7]
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [8]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" (*p.227*)

Table 7-63.

Step	Check	Recovery	
		Yes	No
8	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS ASSY-1T
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F7 Faulty TURN CLUTCH ASSY

Table 7-64.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: TURN CLUTCH ASSY, FEEDER PWB, FEEDER HARNESS ASSY-1T, FEEDER HARNESS ASSY, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ TURN CLUTCH ASSY power supply check: Is the electrical voltage 24VDC for the following? Cassette 2:P214-14PIN ↔ P214-15PIN	Proceed to step [3]	Proceed to step [6]
3	☐ TURN CLUTCH ASSY check: Is the conductivity for the following normal (approximately 172 Ω)? Cassette 2:J229-1PIN ↔ J229-2PIN	Proceed to step [10]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J229	Proceed to step [5]	Replace the FEEDER HARNESS ASSY
5	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the TURN CLUTCH ASSY (PL52.2.56) (*p.650*)	Replace the FEEDER HARNESS ASSY-1T
6	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL52.1.9) (*p.641*)	Proceed to step [7]
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [8]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" (*p.227*)

Table 7-64.

Step	Check	Recovery	
		Yes	No
8	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS ASSY-1T
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F8 Faulty T/A CLUTCH ASSY

Table 7-65.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: T/A CLUTCH ASSY, FEEDER PWB, FEEDER HARNESS ASSY-1T, FEEDER HARNESS ASSY, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ T/A CLUTCH ASSY power supply check: Is the electrical voltage 24VDC for the following? Cassette 2:P214-12PIN ↔ P214-13PIN	Proceed to step [3]	Proceed to step [6]
3	☐ T/A CLUTCH ASSY check: Is the conductivity for the following normal (approximately 172 Ω)? Cassette 2:J227-1PIN ↔ J227-2PIN	Proceed to step [10]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J227	Proceed to step [5]	Replace the FEEDER HARNESS ASSY
5	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the T/A CLUTCH ASSY (PL52.2.29) *(p.644)*	Replace the FEEDER HARNESS ASSY-1T
6	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL52.1.9) *(p.641)*	Proceed to step [7]
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [8]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" *(p.227)*

Table 7-65.

Step	Check	Recovery	
		Yes	No
8	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS ASSY-1T
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F9 Faulty FEED OUT SENSOR

Table 7-66.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEED OUT SENSOR, FEEDER PWB, FEEDER HARNESS ASSY-1T, FEEDER HARNESS ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ FEED OUT SENSOR power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-9PIN ↔ P214-7PIN	Proceed to step [3]	Proceed to step [7]
3	☐ FEED OUT SENSE signal power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-8PIN ↔ P214-7PIN	Proceed to step [4]	Proceed to step [7]
4	☐ FEED OUT SENSE signal check: Is the electrical voltage as follows? 0 VDC when there is paper and 5 VDC when there is no paper? Cassette 2:P/J214-8PIN ↔ P/J214-7PIN	Proceed to step [11]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J223	Proceed to step [6]	Replace the FEEDER HARNESS ASSY
6	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the FEED OUT SENSOR (PL52.2.36) *(p.646)*	Replace the FEEDER HARNESS ASSY-1T
7	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL52.1.9) *(p.641)*	Proceed to step [8]

Table 7-66.

Step	Check	Recovery	
		Yes	No
8	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [9]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" *(p.227)*
9	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [10]	Replace the FEEDER HARNESS ASSY-1T
10	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [11]	Replace the MAIN HARNESS ASSY
11	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-2.F10 Faulty LOW PAPER SENSOR-1T

Table 7-67.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: LOW PAPER SENSOR-1T, FEEDER PWB, FEEDER HARNESS ASSY-1T, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ LOW PAPER SENSOR-1T power supply check Is the electrical voltage between P216-1PIN ↔ P216-2PIN 5VDC?	Proceed to step [3]	Proceed to step [6]
3	☐ LOW PAPER SENSE-1T signal power supply check: Is the electrical voltage between P216-3PIN ↔ P216-2PIN 5VDC?	Proceed to step [4]	Proceed to step [6]
4	☐ LOW PAPER SENSOR-1T signal check: Is the electrical voltage between P/J216-3PIN ↔ P/J216-2PIN as follows? 0 VDC when there is paper and 5 VDC when there is no paper?	Proceed to step [10]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity between the following normal? J216 ↔ J231	Replace the LOW PAPER SENSOR-1T (PL52.1.30) *(p.643)*	Replace the FEEDER HARNESS ASSY-1T
6	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL52.1.9) *(p.641)*	Proceed to step [7]
7	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [8]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" *(p.227)*

Table 7-67.

Step	Check	Recovery	
		Yes	No
8	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS ASSY-1T
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

7.8.2.4 Disassembly and assembly of 500-Sheet Paper Cassette Unit

This section describes the removal and reinstallation procedure for major parts of the 500-Sheet Paper Cassette Unit.
For carrying out disassembly and assembly work, be sure to read "4.1 Overview" (*p.258)* and "4.2 Disassembly and Reassembly Procedure" (*p.261)* carefully.

CHECK POINT

- **Although spare parts are kept in stock, ensure that a complete visual inspection of all attachments is made prior to starting work as there are certain procedures that are not covered here.**
- **Work should be carried out with the FEEDER UNIT left installed, unless its removal is necessary.**

7.8.2.4.1 1T FEEDER UNIT (PL50.1.1)

1. Remove the rear O/H cover and then open the feeder rear harness cover. *(See p.267)*
2. Disconnect the two connectors (P/J132, P/J211) on the main unit and feeder harness assembly.

CAUTION

- **At step 3, work with both hands and take care not to drop the paper cassette (500 TRAY ASSY).**
- **When carrying the printer body, which is about 70 kg, make sure that four people hold and carry it with care not to suffer injury.**
- **Ensure that both hands are firmly gripping the handles when lifting the printer. Gripping the printer by other areas during lifting may result in the unit being dropped or damaged.**
- **Bend the knees when lifting the printer to avoid injuring your back.**

3. Draw out the paper cassette (500 TRAY ASSY) and lift its front end, and draw it out further for its removal.
4. Loosen enough the two screws (knurled) securing the printer body and the 1T FEEDER UNIT.
5. Lift up the main unit and place it on a flat and stable place.

REASSEMBLY

Put the 1T FEEDER UNIT on the printer body gently so that the front corners are in alignment.

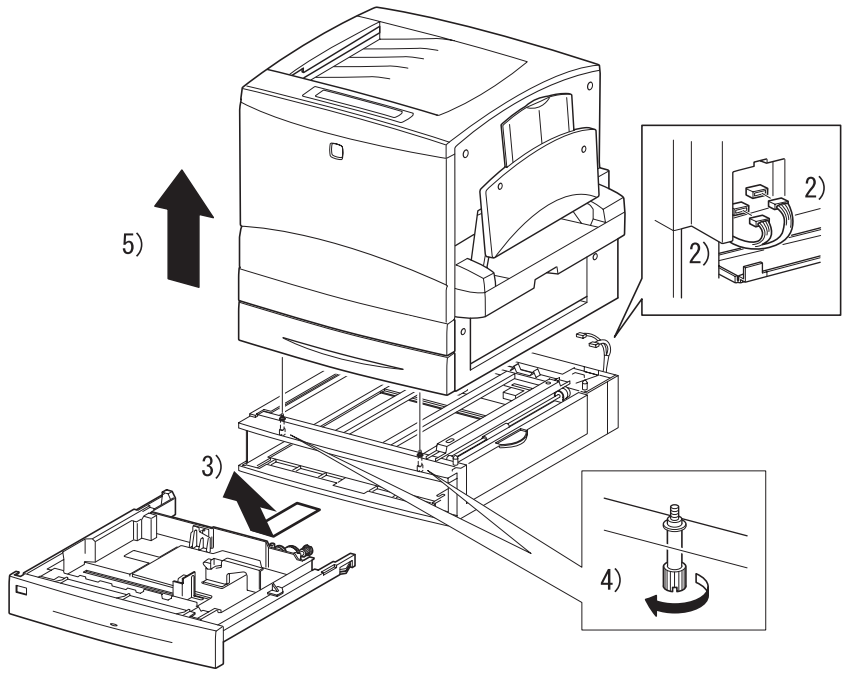


Figure 7-69. 500-Sheet Paper Cassette Unit Removal

7.8.2.4.2 FEEDER FRONT COVER (PL51.1.1)

1. Remove the FEEDER LEFT COVER (PL51.1.10). *(p.637)*
2. Remove the FEEDER RIGHT COVER (PL51.1.20). *(p.637)*

CHECK POINT

The illustration for the next procedure shows the feeder front cover (upper), but the lower stage of the feeder front cover is removed in the same way.

3. Remove the two screws (silver, guarded, 6mm) holding the feeder front cover in place, and then remove the feeder front cover.

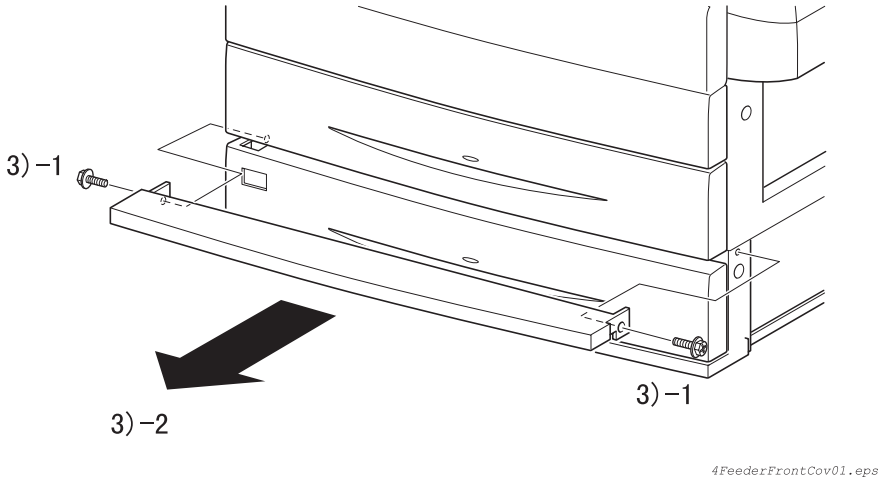


Figure 7-70. Removing the FEEDER FRONT COVER

7.8.2.4.3 FEEDER REAR COVER (PL51.1.2)

1. Remove the rear O/H cover. *(See p.267)*
2. Disconnect the connector. (P/J22)

CAUTION

As the harness is fixed to the rear clamp on the feeder rear cover, do not move it too far away when performing the following procedure.

3. Remove the five screws (silver, guarded, 6mm) holding the feeder rear cover in place, and then remove the feeder rear cover.
4. Release the harness from the clamp.

REASSEMBLY

Ensure that the feeder left cover and the feeder right cover mesh together when attaching the feeder rear cover.

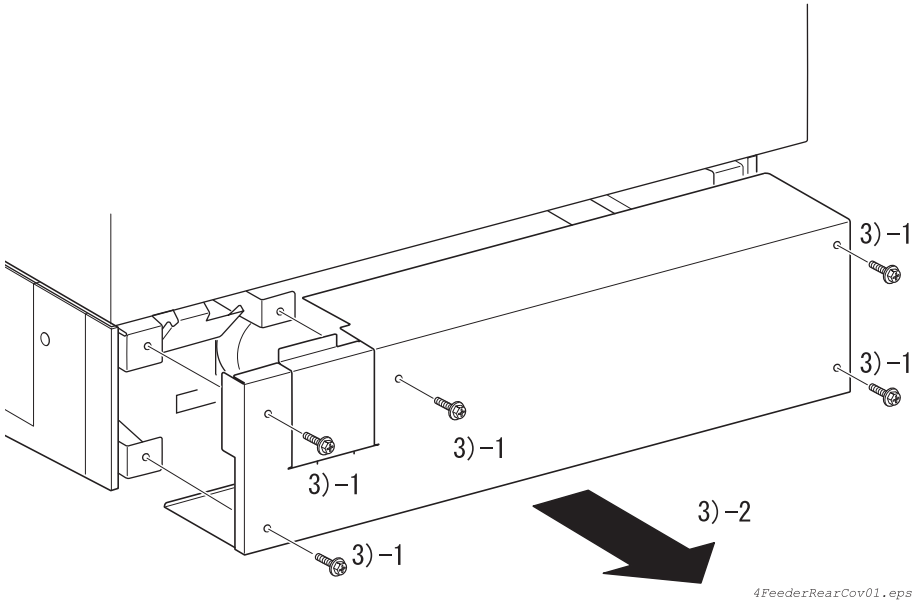


Figure 7-71. Removing the FEEDER REAR COVER

7.8.2.4.4 FEEDER LEFT COVER (PL51.1.10)

1. Remove the two screws (silver, guarded, 8mm) holding the feeder left cover in place, lift the feeder left cover and release the two hooks, and then open the front of the feeder left cover to the left and pull it forward to remove it.

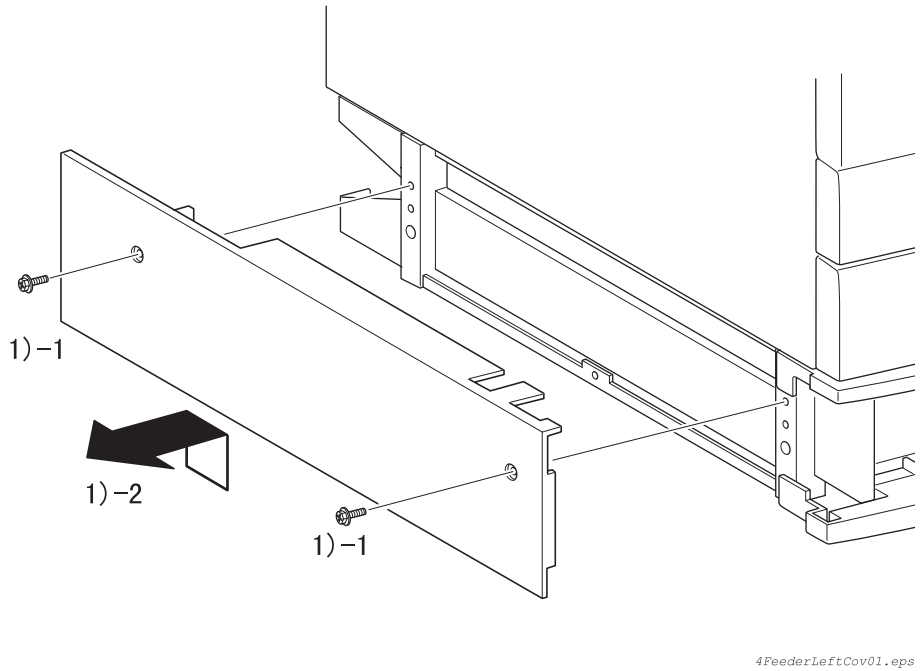


Figure 7-72. Removing the FEEDER LEFT COVER

7.8.2.4.5 FEEDER RIGHT COVER (PL51.1.20)

1. Remove the FEEDER REAR COVER (PL51.1.2). *(p.636)*
2. Disconnect the connector (P/J240A) connecting the feeder right cover switch to the feeder PWB.
3. Remove the three screws (silver, guarded, 8mm) holding the feeder right cover in place.
4. Open the feeder chute assembly, lift the feeder right cover and release the hook, and then pull the feeder right cover upwards to remove it.
5. Remove the FEEDER RIGHT COVER SWITCH (PL51.1.21). *(p.643)*

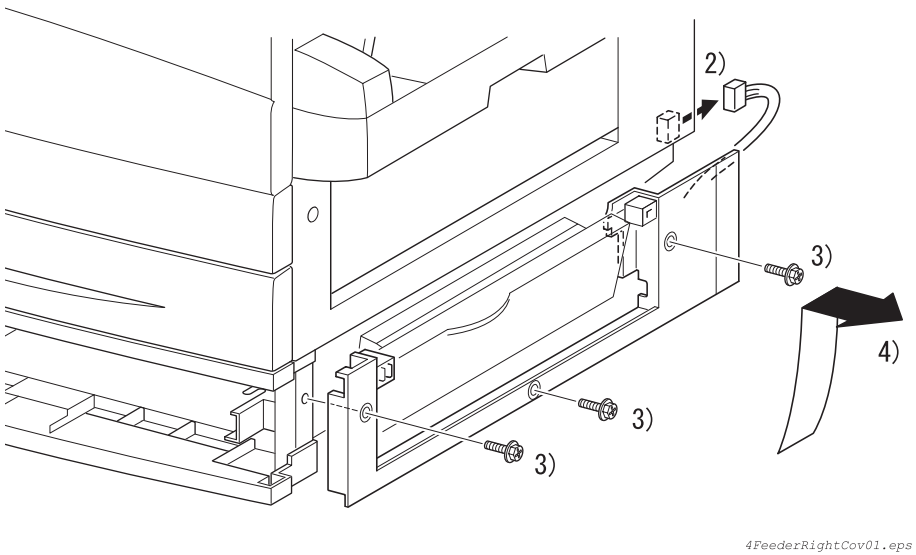


Figure 7-73. Removing the FEEDER RIGHT COVER

7.8.2.4.6 FEEDER CHUTE ASSY-1T (PL51.1.30)

1. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
2. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
3. Open the hinge at the rear of the feeder chute assembly-1T to release the boss, rotate the fulcrum at the front towards the right, remove the front boss and then remove the feeder chute assembly.

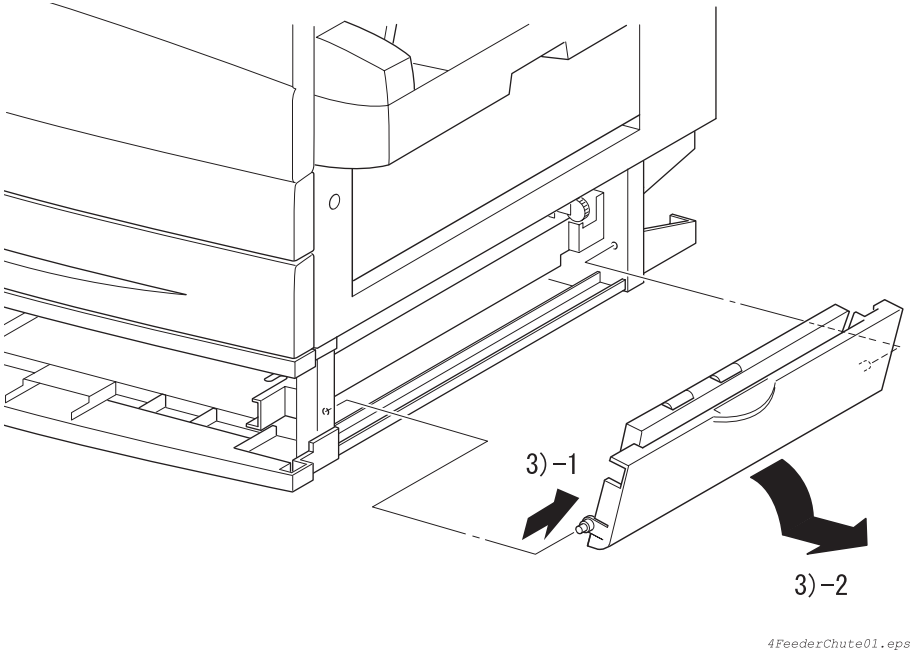


Figure 7-74. Removing the FEEDER CHUTE ASSY-1T

7.8.2.4.7 FEEDER HIGH ASSY (PL52.1.1)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Disconnect the connector (P/J241) from the feeder high assembly, and the release the harness from the clamp to free it.
7. Remove the two screws (silver, guarded, 6mm) holding the feeder high assembly in place, and then remove the feeder high assembly.

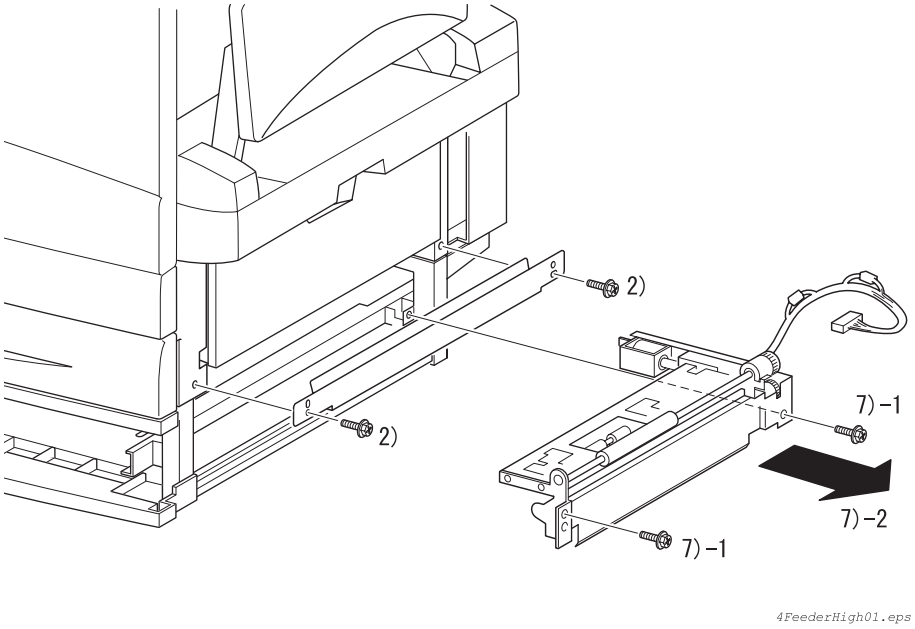
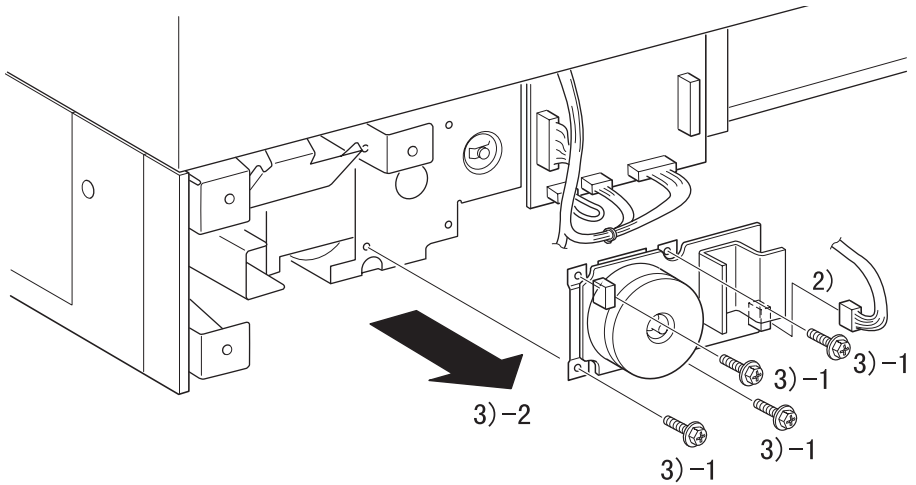


Figure 7-75. Removing the FEEDER HIGH ASSY

7.8.2.4.8 FEEDER MOTOR ASSY (PL52.1.3)

1. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
2. Remove the feeder motor assembly's connector (P/J239.)
3. Remove the four screws (silver, guarded, 6mm) holding the feeder motor assembly in place, and then remove the feeder motor assembly.



4FeedMot01.eps

Figure 7-76. Removing the FEEDER MOTOR ASSY

7.8.2.4.9 FEEDER DRIVE ASSY (PL52.1.4)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Remove the FEEDER MOTOR ASSY (PL52.1.3). (*p.639*)
8. Remove the FEEDER PWB (PL52.1.9). (*p.641*)
9. Remove the COVER BRACKET (PL52.1.10). (*p.641*)
10. Remove the COVER JOINT BRACKET (PL52.1.12). (*p.642*)
11. Draw out the paper cassette (500 TRAY ASSY).
12. Remove the six screws (silver, guarded, 6mm) holding the feeder drive assembly in place, and then remove the feeder drive assembly.
13. Remove the LOW PAPER SENSOR-1T (PL52.1.30). (*p.643*)

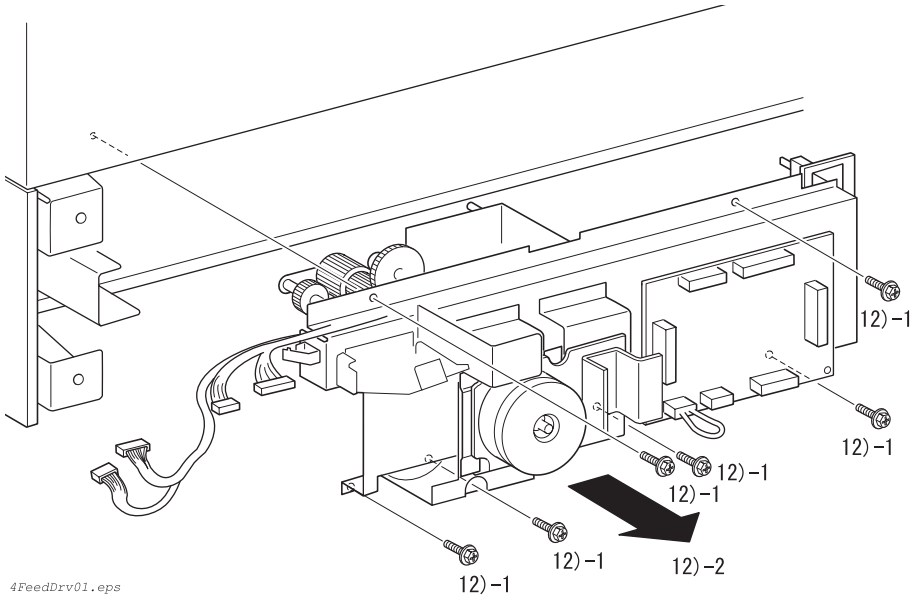


Figure 7-77. Removing the FEEDER DRIVE ASSY

7.8.2.4.10 FEEDER PWB (PL52.1.9)

1. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
2. Disconnect the five connectors (P/J212, P/J213, P/J214, P/J216, P/J217) on the feeder PWB.
3. Remove the four screws (silver, guarded, 6mm) holding the feeder PWB in place, and then remove the feeder PWB.

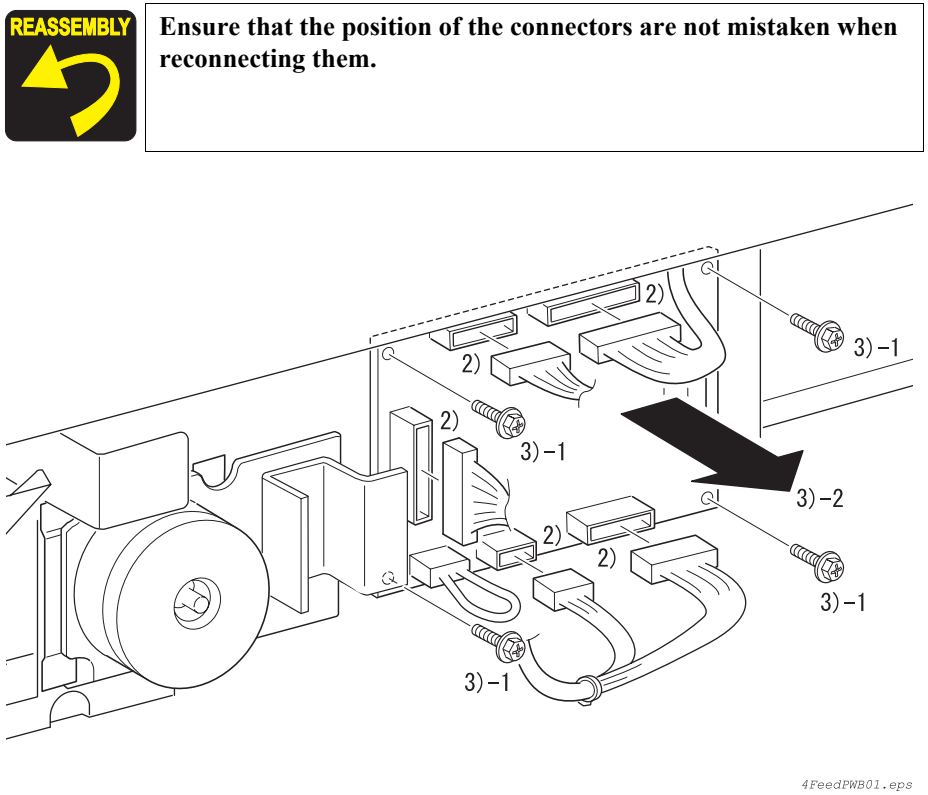


Figure 7-78. Removing the FEEDER PWB

7.8.2.4.11 COVER BRACKET (PL52.1.10)

1. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
2. Remove the two E-rings holding the cover bracket shaft in place, and then remove the cover bracket shaft and the cover bracket.

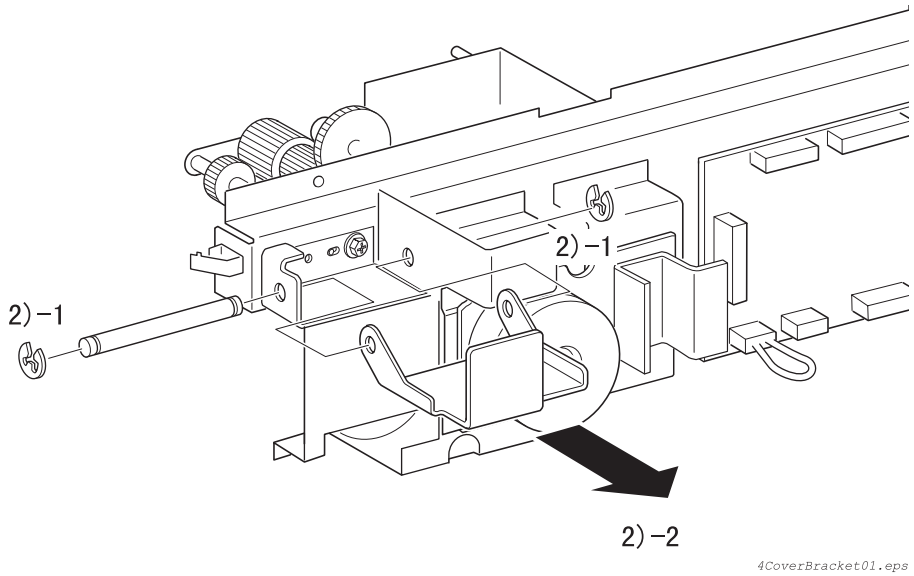


Figure 7-79. Removing the COVER BRACKET

7.8.2.4.12 COVER JOINT BRACKET (PL52.1.12)

1. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
2. Remove the COVER BRACKET (PL52.1.10). (*p.641*)
3. Remove the two screws (silver, guarded, 6mm) holding the cover joint bracket in place, and then remove the cover joint bracket.

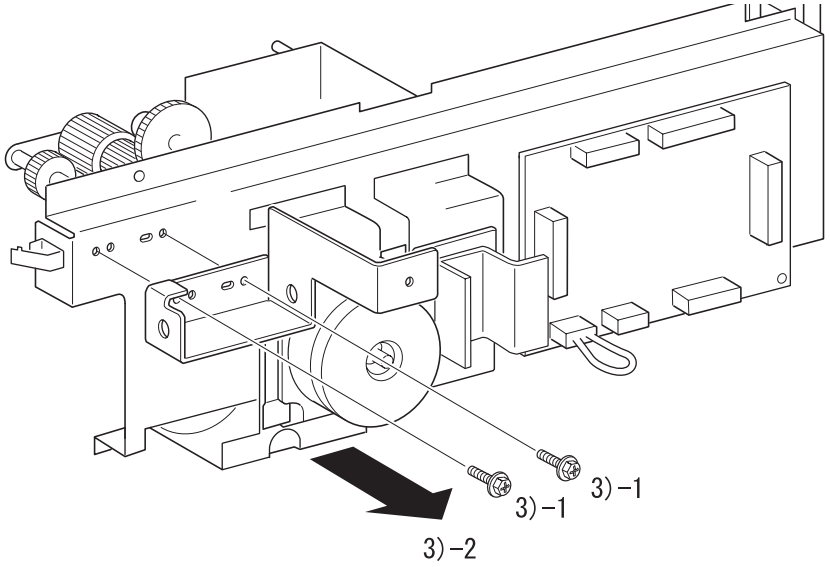


Figure 7-80. Removing the COVER JOINT BRACKET

7.8.2.4.13 SIZE SWITCH ASSY (PL52.1.7)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Draw out the paper cassette (500 TRAY ASSY).
8. Remove the feeder drive assembly together with the feeder motor assembly, the feeder PWB, the cover bracket and the cover joint bracket. (*See p.640*)
9. Disconnect the feeder harness assembly-1T connector (P/J235.)
10. Remove the screw (silver, guarded, 6mm) holding the size switch assembly in place, and then remove the size switch assembly.

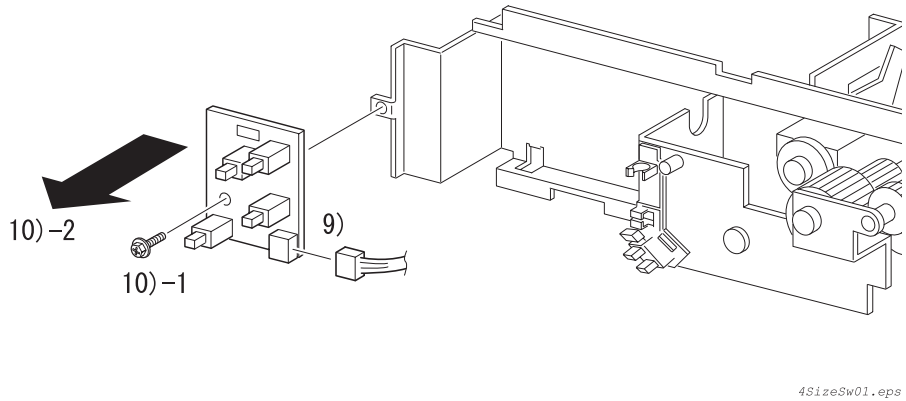


Figure 7-81. Removing the SIZE SWITCH ASSY

7.8.2.4.14 FEEDER RIGHT COVER SWITCH (PL51.1.21)

1. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
2. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)

CHECK POINT

The illustration for the next procedure shows the front feeder right cover switch, but the rear feeder right cover switch is removed in the same way.

3. Disconnect the feeder right cover switch's connector (P/J237.)
4. Remove the feeder right cover switch's hook from the feeder right cover, and then remove the feeder right cover switch.

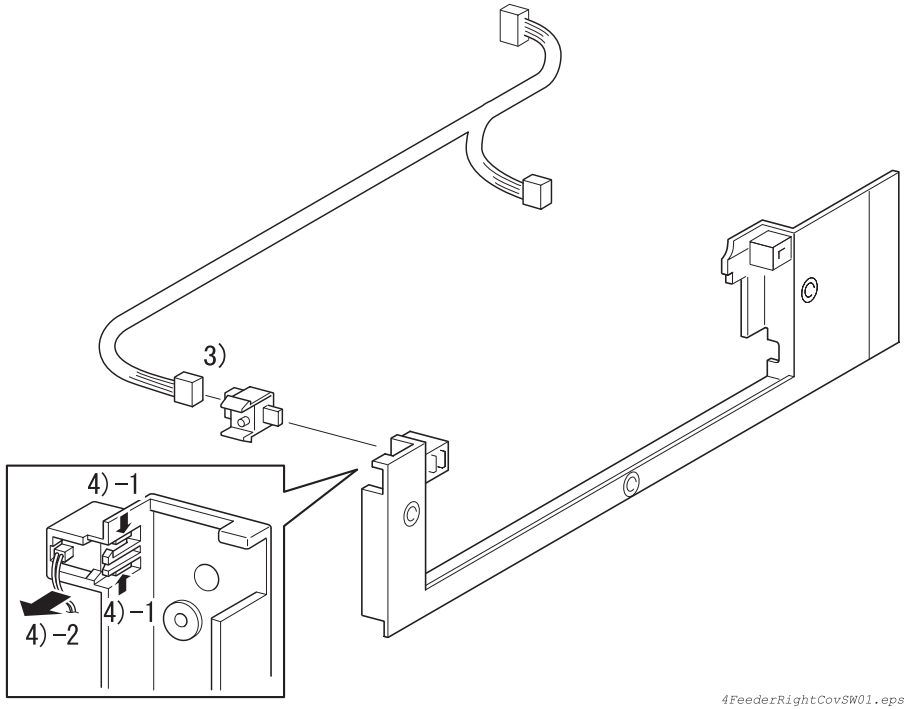


Figure 7-82. Removing the FEEDER RIGHT COVER SWITCH

7.8.2.4.15 LOW PAPER SENSOR-1T (PL52.1.30)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Draw out the paper cassette (500 TRAY ASSY).
8. Remove the feeder drive assembly together with the feeder motor assembly, the feeder PWB, the cover bracket and the cover joint bracket.(*See p.640*)
9. Disconnect the low paper sensor-1T connector (P/J231.)
10. Remove the two screws (silver, guarded, 6mm) holding the tray stopper-1T in place, and then remove the tray stopper-1T.
11. Release the hook on the low paper sensor-1T and then remove the low paper sensor-1T from the tray stopper-1T.

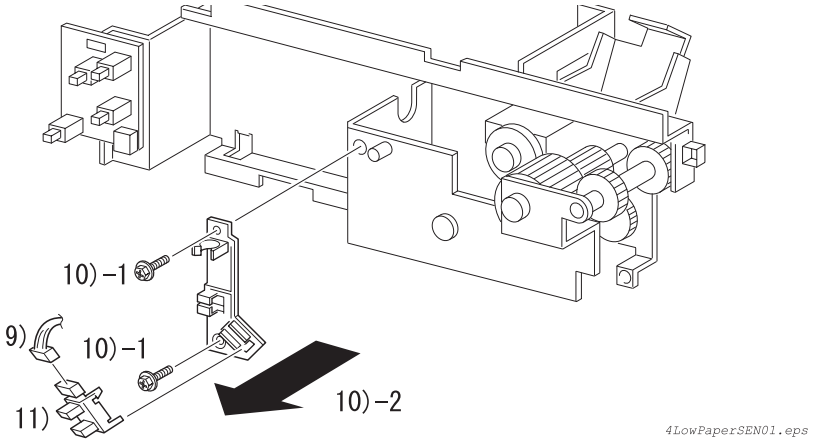


Figure 7-83. Removing the LOW PAPER SENSOR-1T

7.8.2.4.16 T/A CLUTCH ASSY (PL52.2.29)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Remove the NUD SOLENOID ASSY (PL52.2.51). (*p.649*)
8. Remove the extension springs from the feed bracket and nudger SOL link.
9. Remove both the saddle brush and the harness.

CHECK POINT

At the next step, note that the connector number varies with the cassette type.

10. Disconnect the T/A clutch assembly connector (P/J227) and remove the harness from the saddle brush.
11. Release the locking clamp mini from the harness to free it.

CHECK POINT

Be careful not to lose gear-23 once it has been freed in the following procedure.

12. Remove the two screws (silver, 6mm) holding the feed bracket assembly in place, and then remove the feed bracket assembly from gear-23.
13. Remove the E-ring holding the T/A clutch assembly in place, and then remove the T/A clutch assembly.

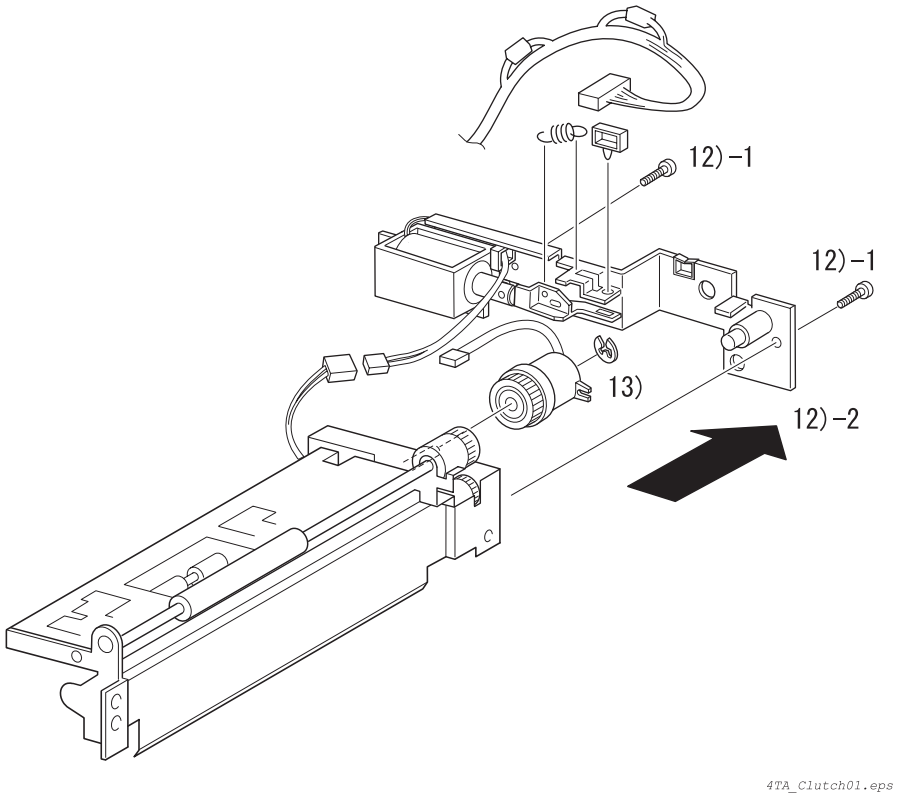


Figure 7-84. Removing the T/A CLUTCH ASSY

7.8.2.4.17 NUDGER SENSOR (PL52.2.33)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Disconnect the nudger sensor connector (P/J221).
8. Release the nudger sensor hook from the upper frame assembly's frame, and then remove the nudger sensor.

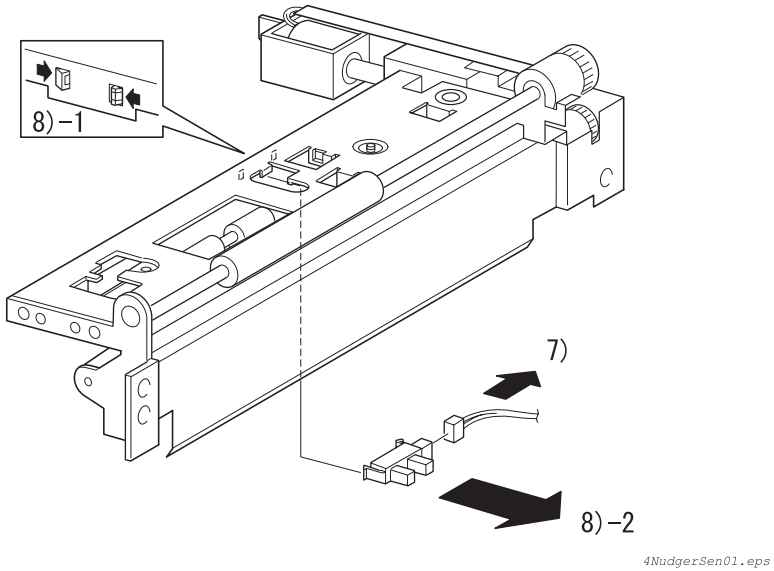


Figure 7-85. Removing the NUDGER SENSOR

7.8.2.4.18 FEED OUT SENSOR (PL52.2.36)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Remove the screw (silver, 6mm) holding the front upper chute in place, shift the front upper chute forward, and then remove it diagonally to the left.
8. Release the front upper chute's hook holding the feed out sensor in place, and then remove the feed out sensor.
9. Disconnect the feed out sensor connector (P/J223.)

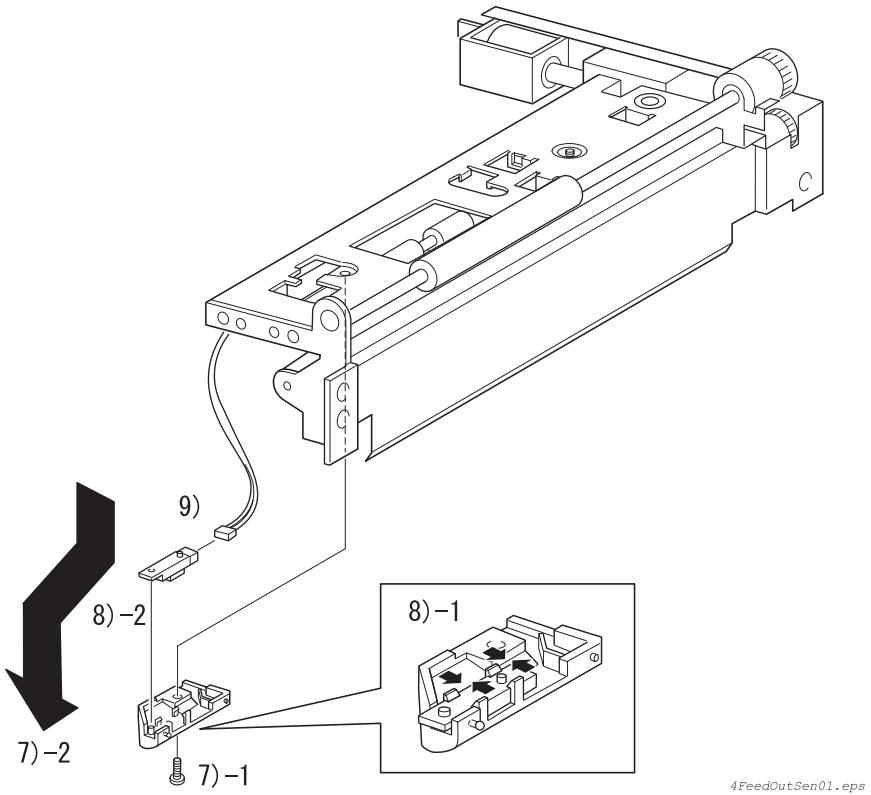


Figure 7-86. Removing the FEED OUT SENSOR

7.8.2.4.19 NO PAPER SENSOR (PL52.2.45)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Disconnect the no paper sensor connector (P/J219.)
8. Release the no paper sensor hook from the upper frame assembly, and then remove the no paper sensor.

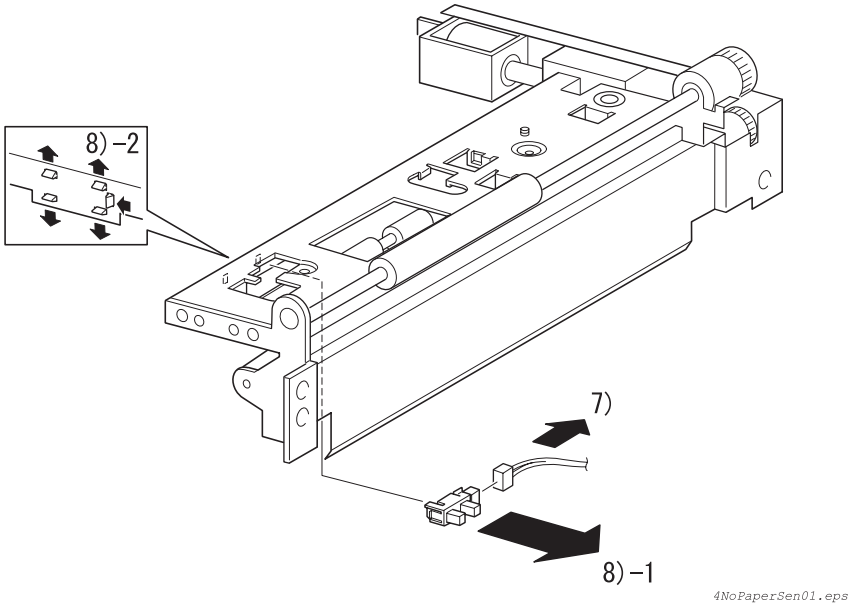


Figure 7-87. Removing the NO PAPER SENSOR

7.8.2.4.20 TA ROLL ASSY (PL52.2.50)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Remove the E-ring holding the turn clutch assembly in place.
8. Remove the two E-rings holding the TA roll assembly in place, shift the rear bearing forward and remove it from the feed bracket assembly.
9. Shift the front bearing backward and remove it from the feeder front frame.
10. Shift the TA roll assembly forward, and then remove the TA roll assembly from the turn clutch assembly and the feed bracket assembly.
11. Shift the TA roll assembly backward, and the remove it together with the bearing.
12. Remove the bearing-8 from the TA roll assembly.

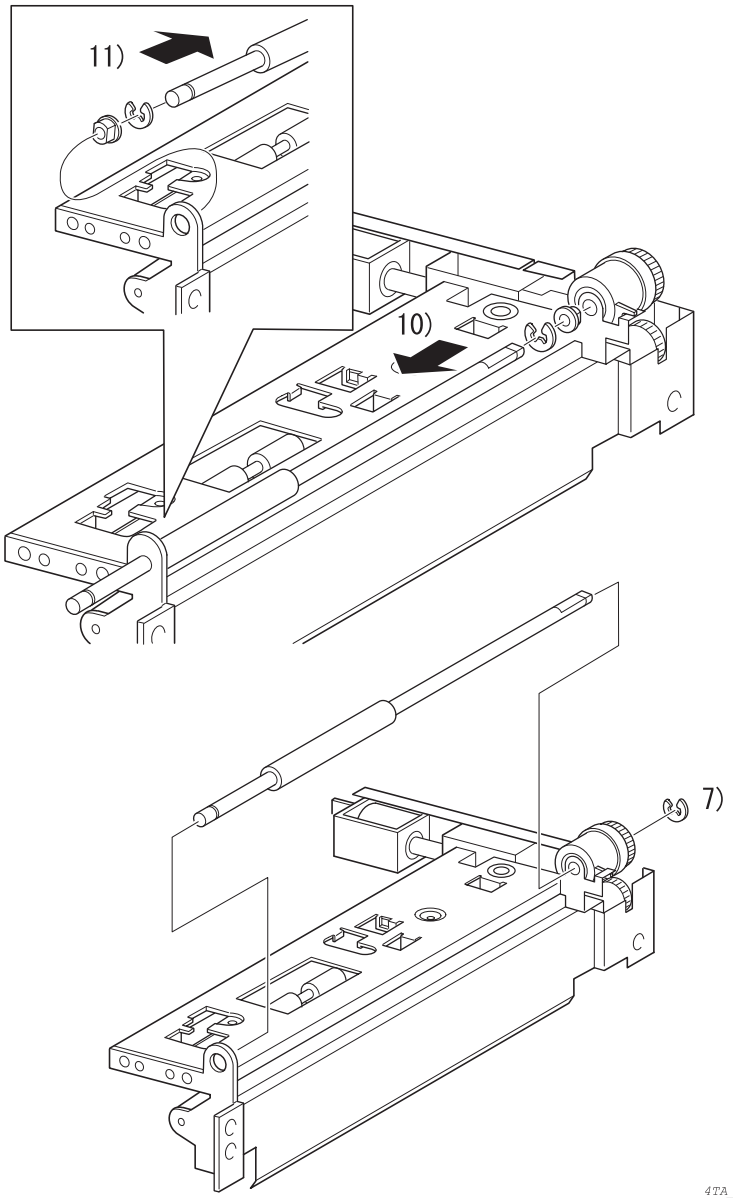


Figure 7-88. Removing the TA ROLL ASSY

7.8.2.4.21 NUD SOLENOID ASSY (PL52.2.51)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)
7. Disconnect the NUD solenoid assembly connector (P/J225.)
8. Remove the screw (silver, 6 mm) securing the NUD SOLENOID ASSY and pull out the SOLENOID LINK from the SPRING PIN. Then remove the SPRING PIN from the NUD SOL LINK upward.

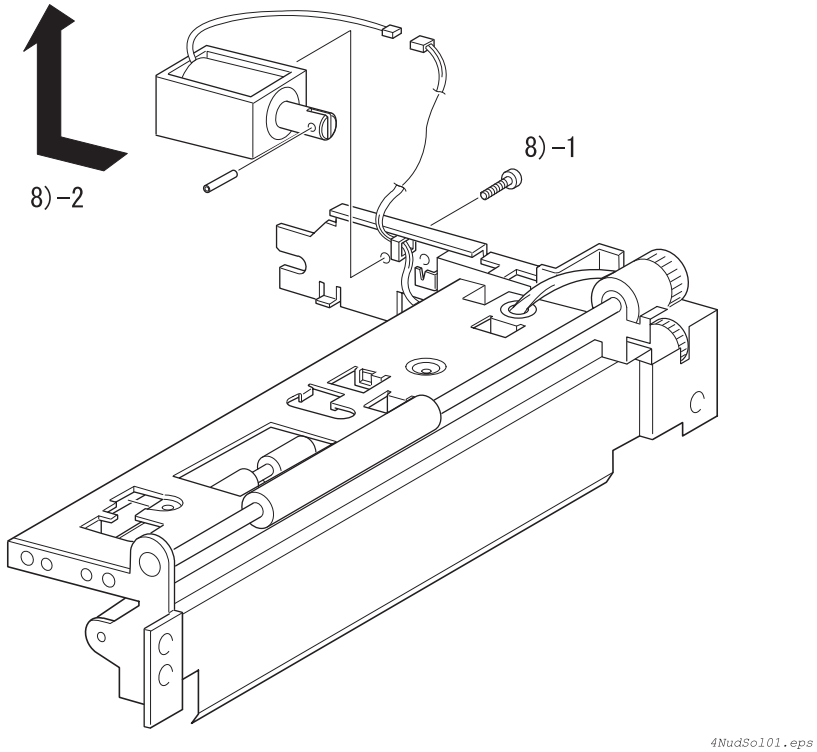


Figure 7-89. Removing the NUD SOLENOID ASSY

7.8.2.4.22 TURN CLUTCH ASSY (PL52.2.56)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Remove the FEEDER REAR COVER (PL51.1.2). (*p.636*)
4. Remove the FEEDER RIGHT COVER (PL51.1.20). (*p.637*)
5. Remove the FEEDER CHUTE ASSY-1T (PL51.1.30). (*p.638*)
6. Remove the FEEDER HIGH ASSY (PL52.1.1). (*p.638*)

CHECK POINT

At the next step, note that the connector number varies with the cassette type.

7. Disconnect the turn clutch assembly connector (P/J229), and then release the saddle bush, the locking clamp mini and the sheet clamp from the harness to free them.
8. Remove the E-ring holding the turn clutch assembly in place.
9. Remove the front E-ring holding the TA roll assembly in place.
10. Shift the TA roll assembly forward, remove the turn clutch assembly and feed bracket assembly together with the front bearing-8, and then remove the turn clutch assembly.

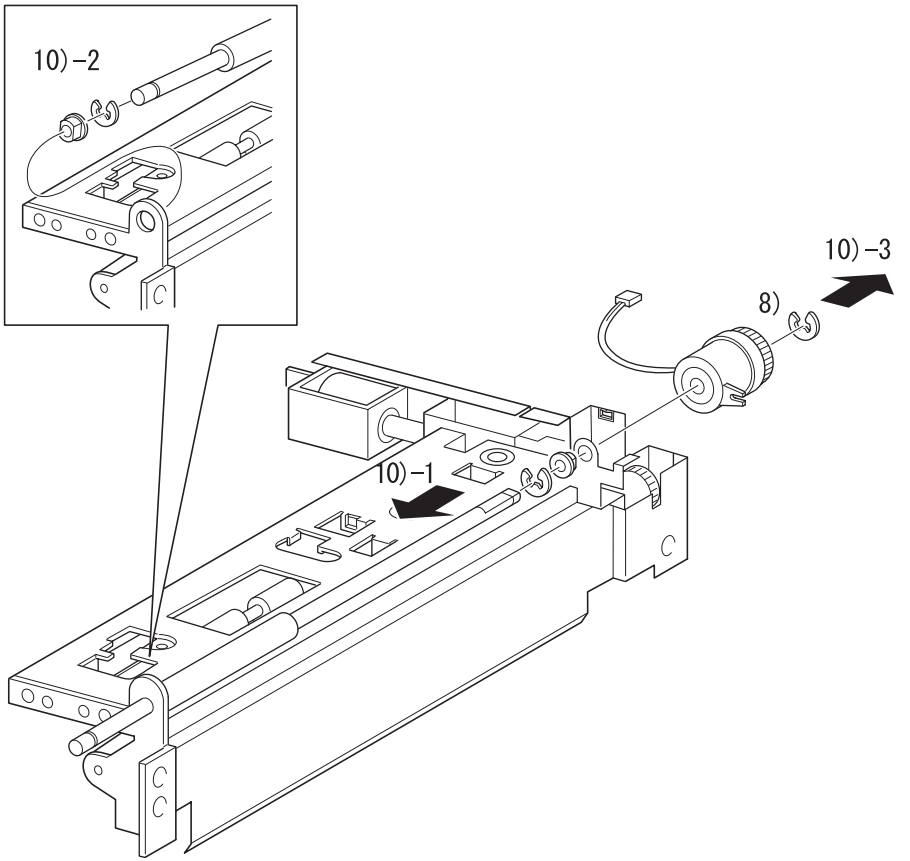


Figure 7-90. Removing the TURN CLUTCH ASSY

7.8.2.5 500-Sheet Paper Cassette Unit supplement

This section describes the connector locations and connection diagrams of the 500-Sheet Paper Cassette Unit. Refer to the appropriate pages for exploded diagrams and ASP lists:

- See *page 721* for Exploded Diagrams of 500-Sheet Paper Cassette Unit.
- See "ASP list for 500-Sheet Paper Cassette Unit" (*p.735)*.

7.8.2.5.1 Connectors

Shown here are connector [P (plug) / J (jack)] locations of the 500-Sheet Paper Cassette Unit.

Table 7-68. P/J List

P/J	Remarks
132	Connection of FEEDER HARNESS ASSY-1T and MAIN HARNESS ASSY
211	Connection of FEEDER HARNESS ASSY-1T and MAIN HARNESS ASSY
212	Connection of FEEDER PWB and FEEDER HARNESS ASSY-1T
213	Connection of FEEDER PWB and FEEDER HARNESS
214	Connection of FEEDER PWB and FEEDER HARNESS ASSY-1T
215	Not used
216	Connection of FEEDER PWB and FEEDER HARNESS ASSY-1T
217	Connection of FEEDER PWB and FEEDER HARNESS ASSY-1T
218	Connection inside the feeder PWB
219	Connection of NO PAPER SENSOR (Cassette 2) and FEEDER HARNESS ASSY
221	Connection of NUDGER SENSOR (Cassette 2) and FEEDER HARNESS ASSY
223	Connection of FEED OUT SENSOR (Cassette 2) and FEEDER HARNESS ASSY
225	Connection of NUDGER SOLENOID ASSY (Cassette 2) and FEEDER HARNESS ASSY
227	Connection of T/A CLUTCH ASSY (Cassette 2) and FEEDER HARNESS ASSY
229	Connection of TURN CLUTCH ASSY (Cassette 2) and FEEDER HARNESS ASSY
231	Connection of LOW PAPER SENSOR-1T (Cassette 2) and FEEDER HARNESS ASSY-1T
233	Connection of LIFT UP CLUTCH (Cassette 2) and FEEDER HARNESS ASSY-1T
235	Connection of SIZE SWITCH ASSY (Cassette 2) and FEEDER HARNESS ASSY-1T
237	Connection of FEEDER RIGHT COVER SWITCH and COVER SWITCH HARNESS
238	Connection of FEEDER RIGHT COVER SWITCH and COVER SWITCH HARNESS
239	Connection of FEEDER MOTOR ASSY and FEEDER HARNESS ASSY-1T

Table 7-68. P/J List

P/J	Remarks
240	Connection of COVER SWITCH HARNESS and FEEDER HARNESS ASSY-1T
241	Connection of FEEDER HARNESS ASSY (Cassette 2) and FEEDER HARNESS ASSY-1T

Note: The paper cassette at the bottom of the printer body is called “Cassette 1" and the 500-Sheet Paper Cassette Unit, which is an optional unit, is called “Cassette 2".

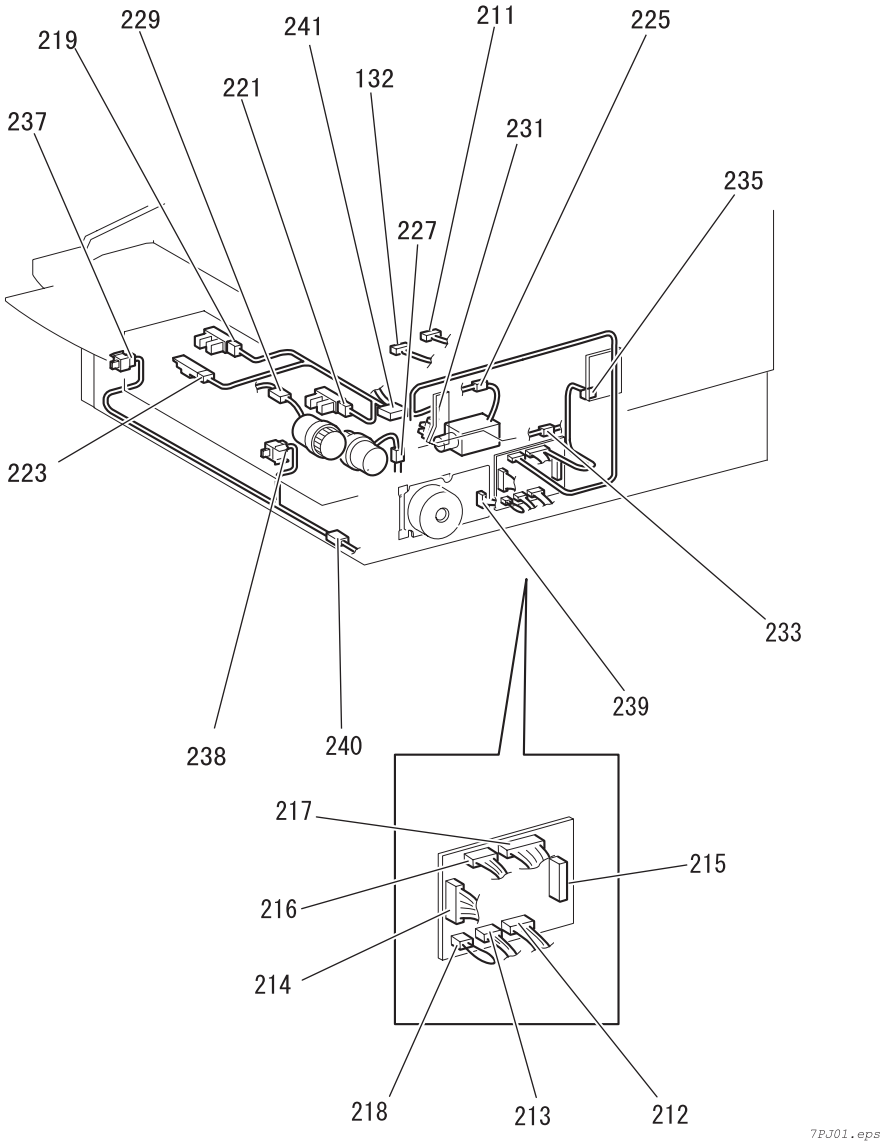


Figure 7-91. P/J Locations of 500-Sheet Paper Cassette Unit

7.8.2.5.2 Connection wiring diagram

OVERALL CONNECTION WIRING DIAGRAM

Shown at right is the overall connection wiring diagram of 500-Sheet Paper Cassette Unit. For meanings of symbols used in the diagram, see "Figure 7-9 Symbols Used in the Overall Wiring Connection Diagrams" (*p.465)*.

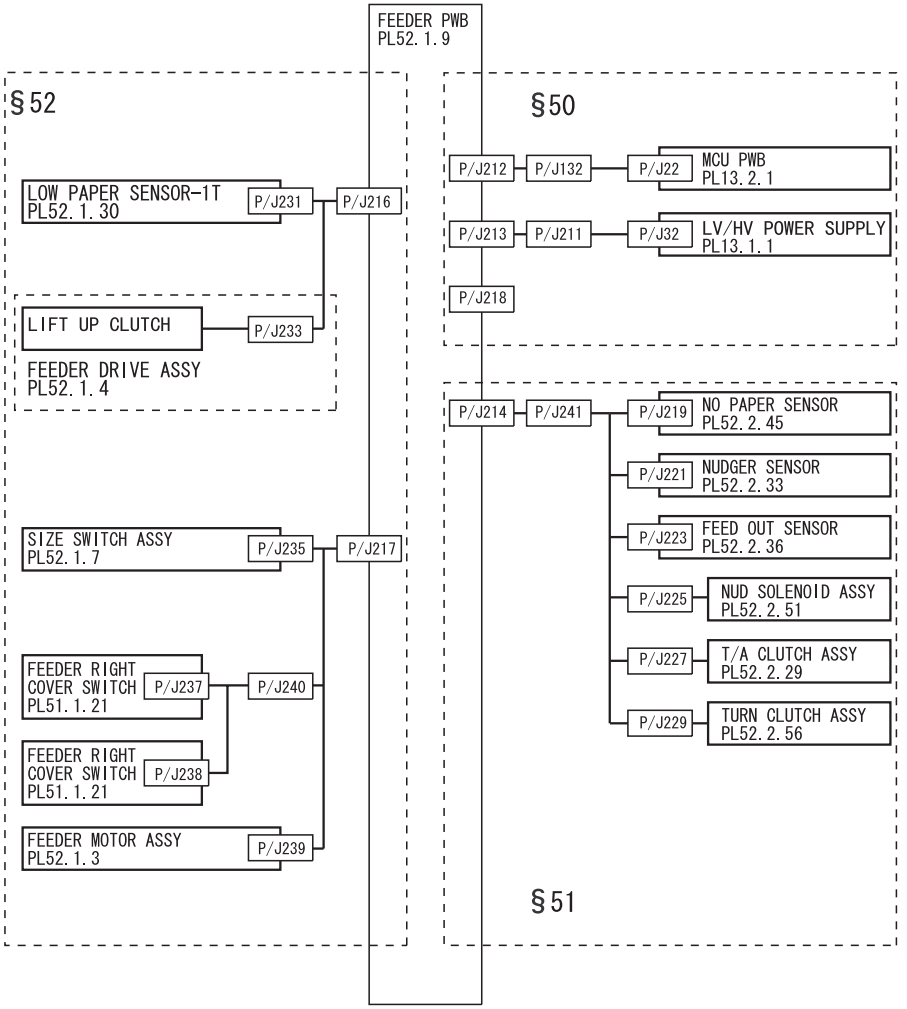


Figure 7-92. Overall Connection Wiring Diagram of 500-Sheet Paper Cassette Unit

CONNECTION WIRING DIAGRAMS BETWEEN PARTS

Shown here are the wiring diagrams for connection between parts of 500-Sheet Paper Cassette Unit. For meanings of symbols used in the diagrams, see "Figure 7-10 Symbols Used in the Wiring Connection Diagrams" (*p.469*).

☐ Constitution:
The connection wiring diagrams are divided into three sections that provide details on the connections between parts.

- ■ §50.MCU PWB, LV/HV POWER SUPPLY, FEEDER PWB
  - Connection of MCU PWB and FEEDER PWB
  - Connection of LV/HV POWER SUPPLY and FEEDER PWB
- ■ §51.FEEDER PWB, NO PAPER SENSOR,NUDGER SENSOR,FEED OUT SENSOR,NUD SOLENOID ASSY, T/A CLUTCH ASSY,TURN CLUTCH ASSY
  - Connection of FEEDER PWB and NO PAPER SENSOR
  - Connection of FEEDER PWB and NUDGER SENSOR
  - Connection of FEEDER PWB and FEED OUT SENSOR
  - Connection of FEEDER PWB and NUDGER SOLENOID ASSY
  - Connection of FEEDER PWB and T/A CLUTCH ASSY
  - Connection of FEEDER PWB and TURN CLUTCH ASSY
- ■ §52.FEEDER PWB, LOW PAPER SENSOR-1T,FEEDER DRIVE ASSY(LIFT UP CLUTCH), SIZE SWITCH ASSY,FEEDER RIGHT COVER SWITCH,FEEDER MOTOR ASSY
  - Connection of FEEDER PWB and LOW PAPER SENSOR-1T
  - Connection of FEEDER PWB and FEEDER DRIVE ASSY
  - Connection of FEEDER PWB and SIZE SWITCH ASSY
  - Connection of FEEDER PWB and FEEDER RIGHT COVER SWITCH
  - Connection of FEEDER PWB and FEEDER MOTOR ASSY

§50. MCU PWB, LV/HV POWER SUPPLY, FEEDER PWB

Table 7-69.

Signal line name	Remarks
PRE REGI	Command signal from the MCU PWB to the feeder unit
START	The signal to indicate the start of paper feeding from the FEEDER UNIT.
SER-TXD	Command signal from the MCU PWB to the feeder unit
SER-RXD	Status signal from the feeder unit to the MCU PWB
READY	The signal to notify the user that paper feeding is possible from feeder unit
FLAG	Status signal from the feeder unit to the MCU PWB

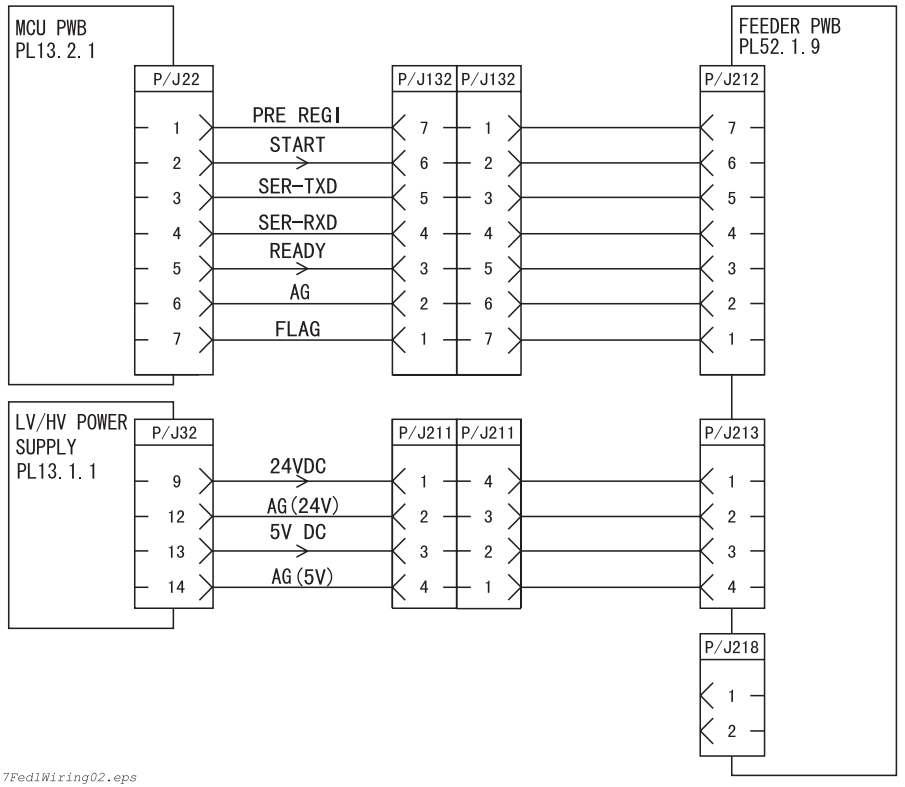


Figure 7-93. §50 Connection wiring diagram

§51.FEEDER PWB, NO PAPER SENSOR,NUDGER SENSOR,FEED OUT SENSOR,NUD SOLENOID ASSY, T/A CLUTCH ASSY,TURN CLUTCH ASSY

CHECK POINT

The [2] attached to the beginning of the signal wire names indicate that the signal is related to Cassette 2.
The paper cassette at the bottom of the printer body is called "Cassette 1" and the 500-Sheet Paper Cassette Unit, which is an optional unit, is called "Cassette 2".

Table 7-70.

Signal line name	Remarks
[2]NO PAPER SENSED(L)5VDC	The signal for detecting the existence of paper in the paper cassette with the Cassette 2 no paper sensor (High: No paper. Low: Paper exists)
[2]NUDGER SENSED(L)5VDC	The signal for detecting the nearly empty status with the Cassette 2 nudger sensor
[2]FEED OUT SENSED(L)5VDC	The signal for detecting the existence of paper on the paper path with the Cassette 2 feed out sensor (High: No paper. Low: Paper exists)
[2]NUD SOLENOID ON(L)24VDC	The Cassette 2 NUD solenoid ON/OFF control signal (ON: Raised. OFF: Lowered)
[2]T/A CLUTCH ON(L)24VDC	The Cassette 2 T/A clutch ON/OFF control signal.
[2]TURN CLUTCH ON(L)24VDC	The Cassette 2 turn clutch ON/OFF control signal.

- ☐ NUD SOLENOID ASSY coil resistance: 34Ω ± 10% (20°C)
- ☐ T/A CLUTCH ASSY coil resistance: 172Ω ± 10% (20°C)
- ☐ TURN CLUTCH ASSY coil resistance: 150Ω ± 10% (20°C)

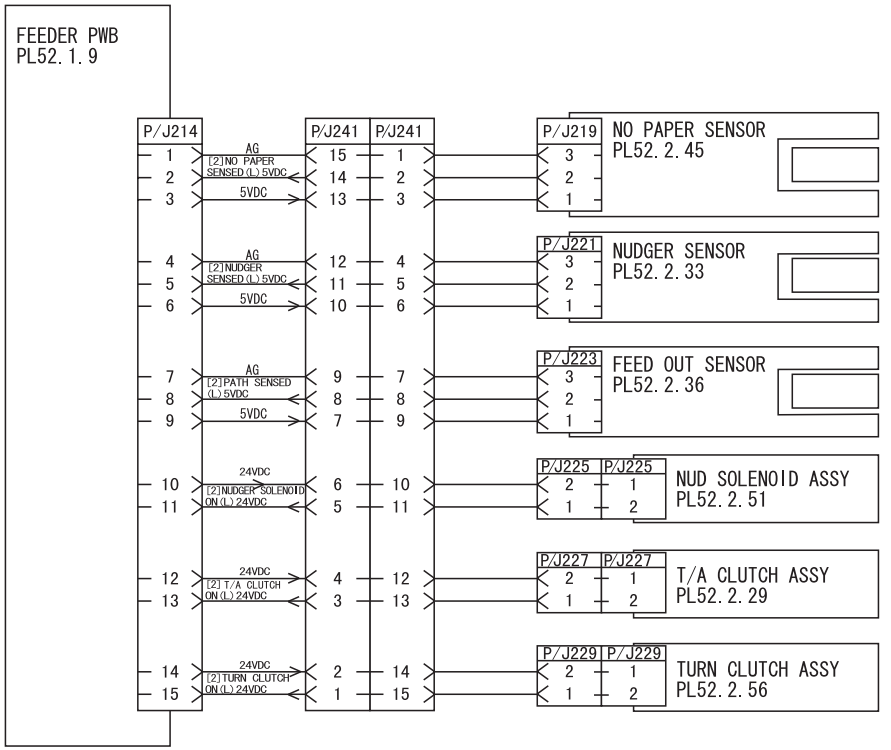


Figure 7-94. §51 Connection wiring diagram

§52.FEEDER PWB, LOW PAPER SENSOR-1T,FEEDER DRIVE ASSY(LIFT UP CLUTCH), SIZE SWITCH ASSY,FEEDER RIGHT COVER SWITCH,FEEDER MOTOR ASSY

CHECK POINT

The [2] attached to the beginning of the signal wire names indicate that the signal is related to Cassette 2.
The paper cassette at the bottom of the printer body is called "Cassette 1" and the 500-Sheet Paper Cassette Unit, which is an optional unit, is called "Cassette 2".

Table 7-71.

Signal line name	Remarks
[2]LOW PAPER SENSED	The Cassette 2 height detection signal
[2]LIFT UP CLUTCH(FEEDER DRIVE ASSY) ON(L)24VDC	The Cassette 2 lift up clutch ON/OFF control signal.
[2]SIZE SWITCH	The signal for detecting the size of the paper in the Cassette 2 paper cassette
FEEDER RIGHT COVER SWITCH ON	The signal for detecting if the feeder chute assembly is open (OFF) or closed (ON) with the feeder right cover switch

☐ Outline of the feeder motor

- Motor type: Permanent magnetic field DC servo motor
- Number of poles: 3-phase 8-poles
- Motor control revolutions: 1803.58rpm ± 0.5%
- Rotation direction: Counter-clockwise when seen from the rear of the unit

☐ Outline of the size switch signal
The size of the paper in the paper cassette is determined with the On/OFF operations of the paper size switch on the size switch assembly. The paper size switch's ON/OFF status and the voltage of the size switch for each relevant paper size are listed below.

CHECK POINT

The paper size switch moves sequentially through [SW1], [SW2],[SW3] and [SW4] when seen from the front of the unit to represent [ON], [1], [OFF] and [0] respectively.

Table 7-72.

Paper size	Paper Size Sensor			
	S1	S2	S3	S4
No paper cassette	0	0	0	0
B5 (LEF)	0	1	0	1
EXECUTIVE (LEF)				
A4 (LEF)	1	0	1	1
LETTER (LEF)	0	1	1	1
A4 (SEF)	0	0	1	1
LEGAL (14") (SEF)	0	0	1	0
B4 (SEF)	0	1	1	0
A3 (SEF)	1	0	1	0
LEDGER (SEF)	0	1	0	0

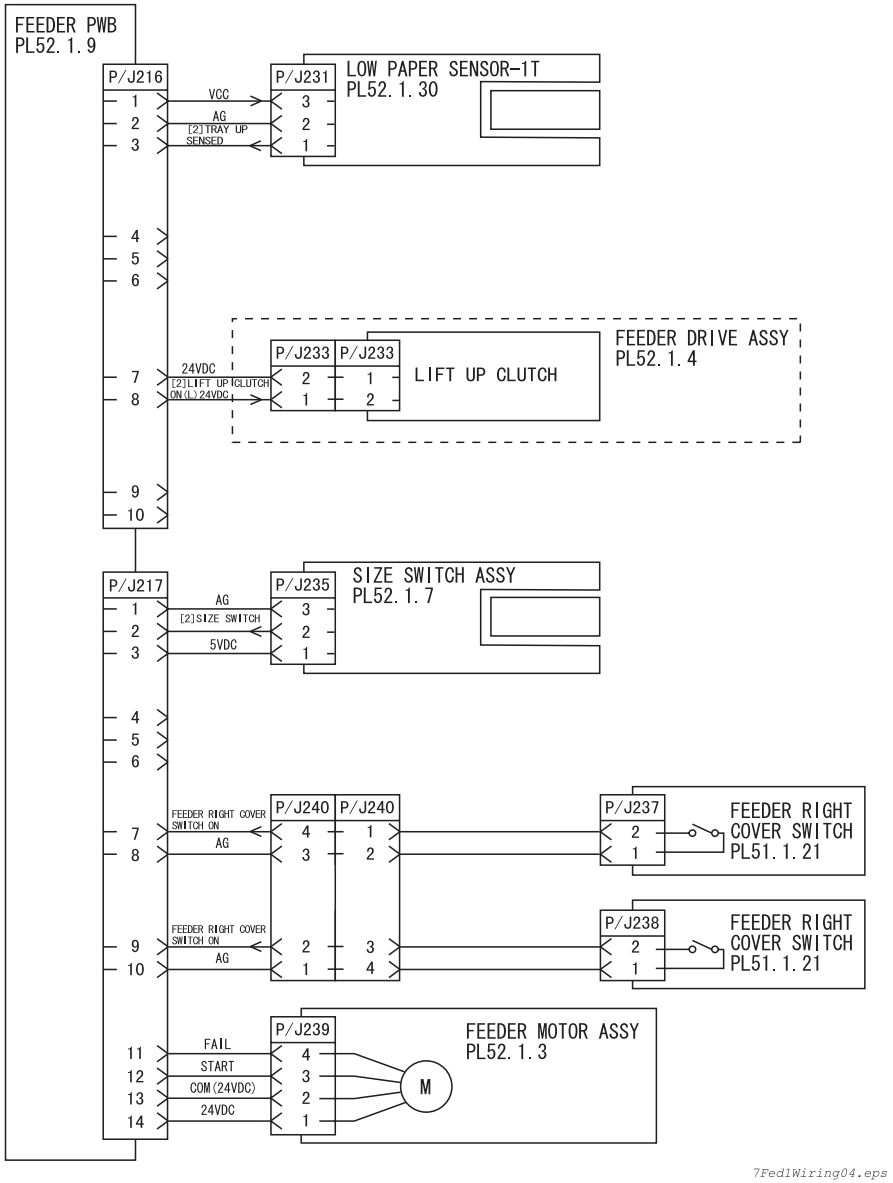


Figure 7-95. §52 Connection wiring diagram

7.8.3 Large Capacity Paper Unit

7.8.3.1 Product outline of Large Capacity Paper Unit

The Large Capacity Paper Unit is installed beneath the printer and consists of a two-stage paper feeder to feed 500 pieces of paper and a standard universal cassette (paper cassette.) Once this unit has been installed onto the printer, connected up and the switch on the printer turned on to establish a power supply, the paper size and availability of paper is automatically detected. The power is supplied from the printer.

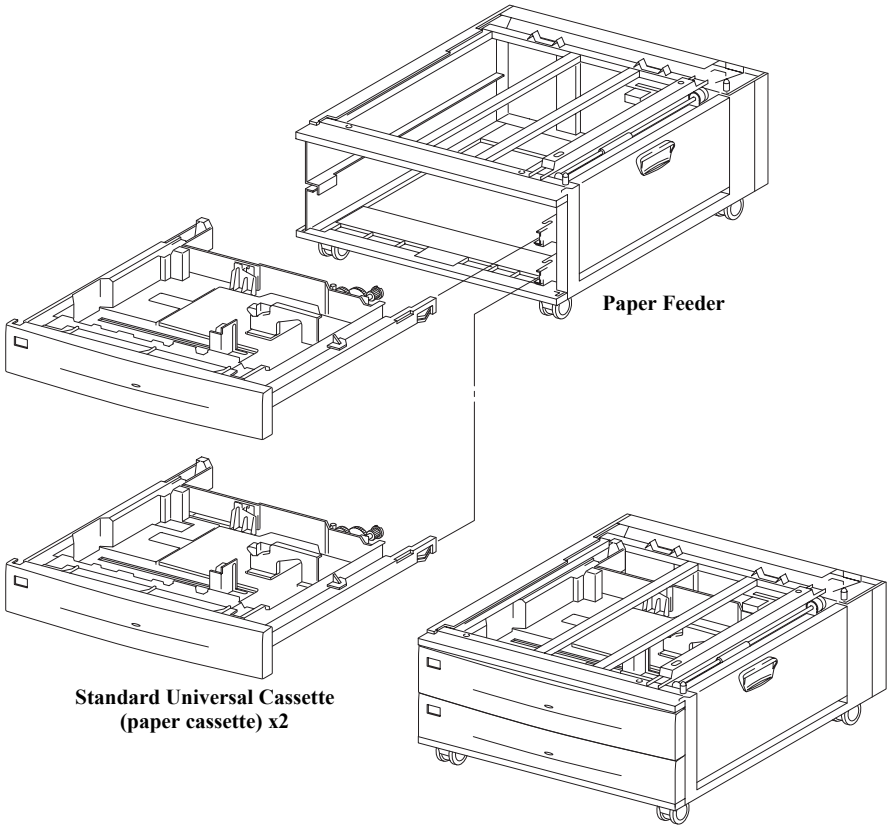


Figure 7-96. Basic Constitution of Large Capacity Paper Unit

7.8.3.1.1 Basic specifications

- ☐ Paper feed method: Single clip division roller, automatic paper feed
- ☐ Installation method: Installed beneath the printer
- ☐ Drive method: Internal drive motor
- ☐ Interface: The Additional Cassette Unit, the existence of paper, the paper's near and, the paper size and other signals are transmitted to the printer. The signal for commencing paper feeding is received from the printer.
- ☐ Printing speed: Refer to "Printing Speed *3" (*p.9*) in Chapter 1.
- ☐ Paper feed specifications: Refer to "Paper feed" (*p.10*) in Chapter 1.
- ☐ Power supply: DC24V and DC5V power supplied from the printer
- ☐ Size / Weight: Refer to "Dimensions and Weight" (*p.13*) in Chapter 1.
- ☐ Life: Refer to "Product Life" (*p.14*) in Chapter 1.
- ☐ Noise:Refer to "Noise" (*p.14*) in Chapter 1.

7.8.3.1.2 Paper specifications

Refer to 1.2.2 Paper Specifications (*p.15*)

7.8.3.1.3 Reliability and endurance specifications (when connected to printer)

Refer to 1.2.3 Reliability, Durability and Maintainability (*p.20*) for reliability and endurance specifications for the Duplex Unit connected to the printer (MPBF, paper feed reliability, life, printing start position accuracy and skew).

7.8.3.1.4 Environment specifications

- ☐ Conditions for use:
  Refer to 1.2.4 Operating Conditions (Including Consumables) (*p.21*)
- ☐ Environmental conditions for storage and transportation:
  Refer to 1.2.5 Storage and Transport of the Printer Body and Optional Products (Consumables Packaged) (*p.22*)

7.8.3.1.5 Electrical characteristics (when connected to printer)

Same as those of the printer body. "1.2.6 Electrical Features" (*p.23*).

7.8.3.1.6 Compliance with standards and regulations (when connected to printer)

Same as those of the printer body. Refer to "1.2.8 Compliance with Standards and Regulations" (*p.24*).

7.8.3.2 Operating principles of Large Capacity Paper Unit

7.8.3.2.1 Drive transmission route

FEEDER MOTOR ASSY

The feeder high assembly drive power for each cassette transmits the feeder motor assembly's revolutionary power via the feeder drive assembly gears to provide the driving power for conveying the paper.
The driving force is transmitted in the flow as shown in the chart below.

CHECK POINT

In the description below, the paper cassette at the bottom of the printer body is called "Cassette 1" and the upper cassette and lower cassette of the Large Capacity Paper Unit, which is an optional unit, are called "Cassette 2" and "Cassette 3", respectively.

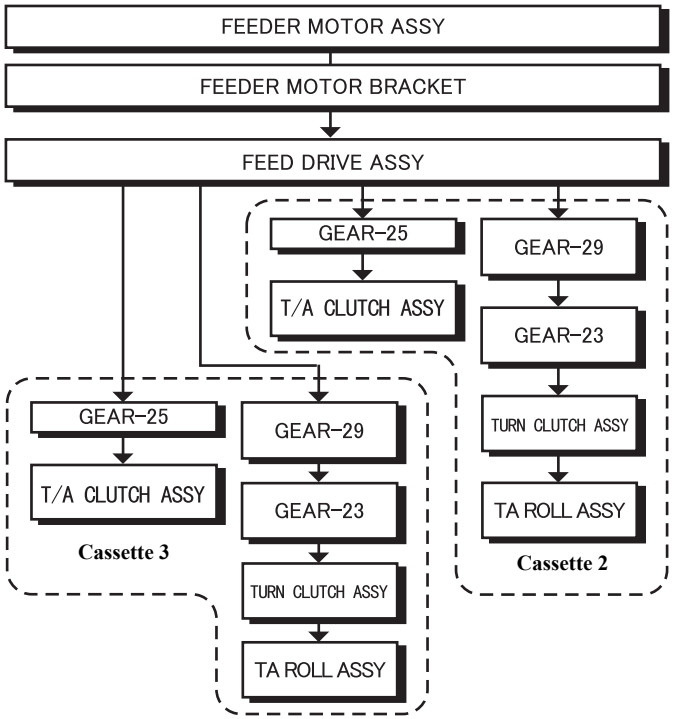


Figure 7-97. Drive transmission route

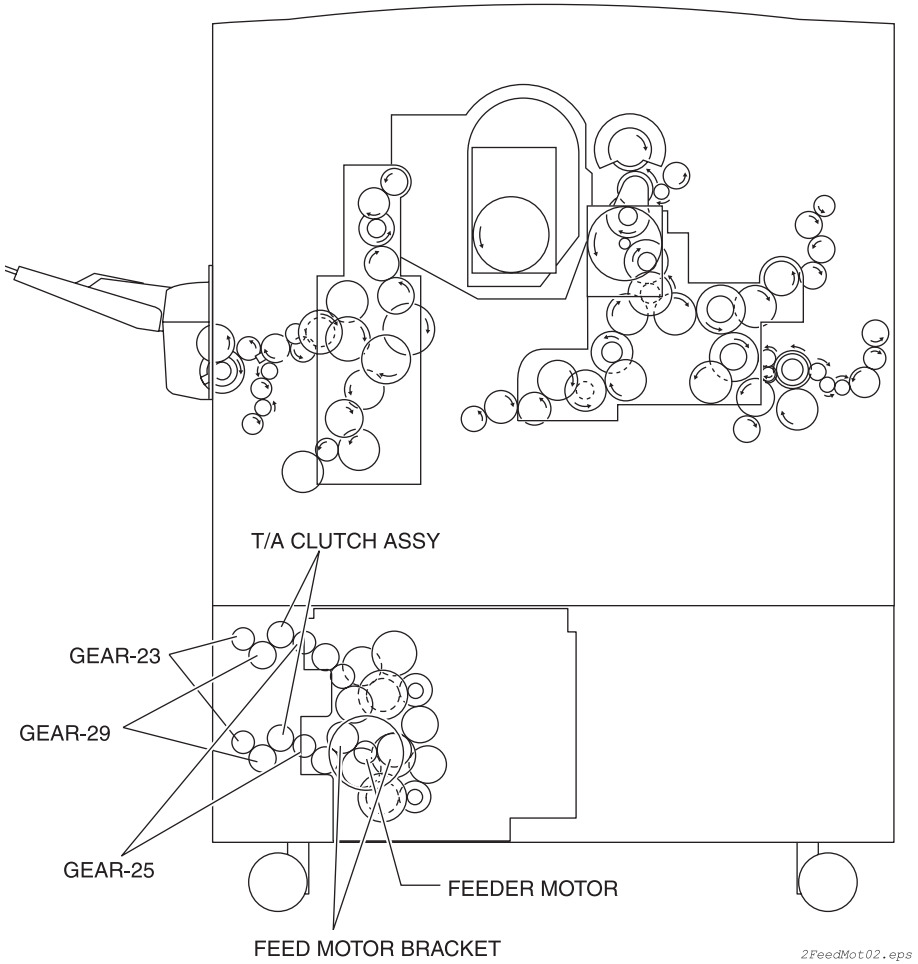


Figure 7-98. FEEDER MOTOR ASSY gear layout

7.8.3.2.2 Paper conveyance

PAPER CONVEYANCE ROUTE

The figure below shows the paper transport path when the Large Capacity Paper Unit has been installed.

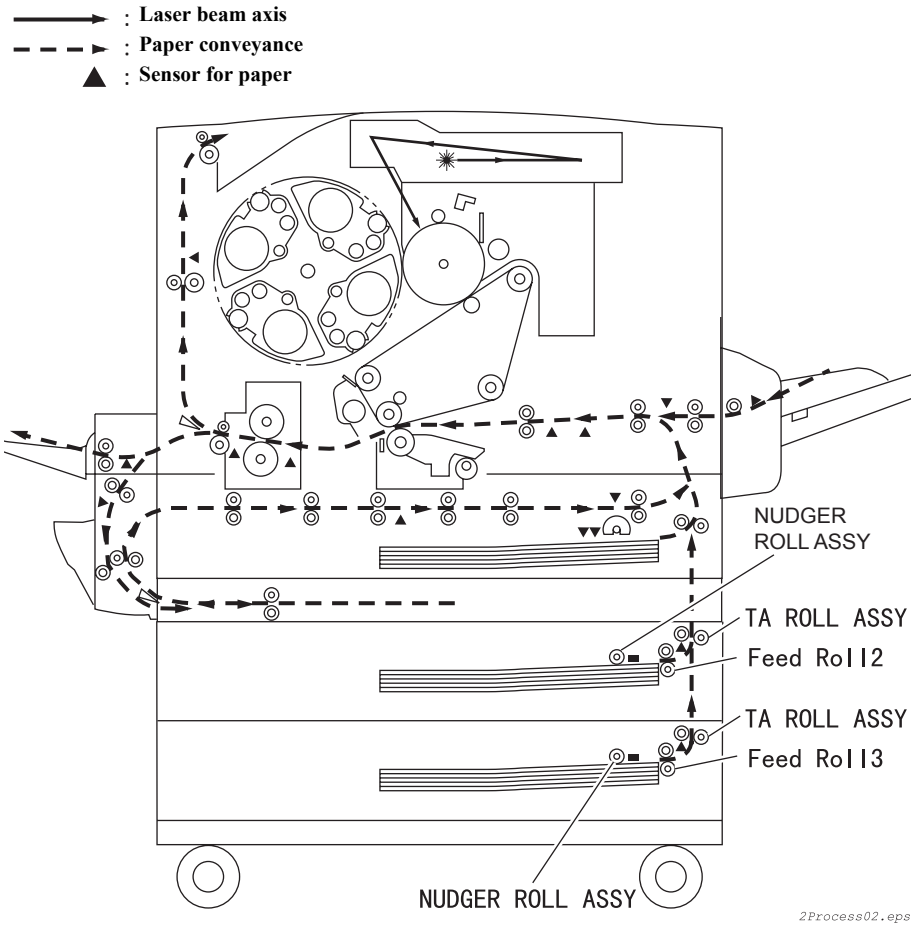


Figure 7-99. Paper conveyance route

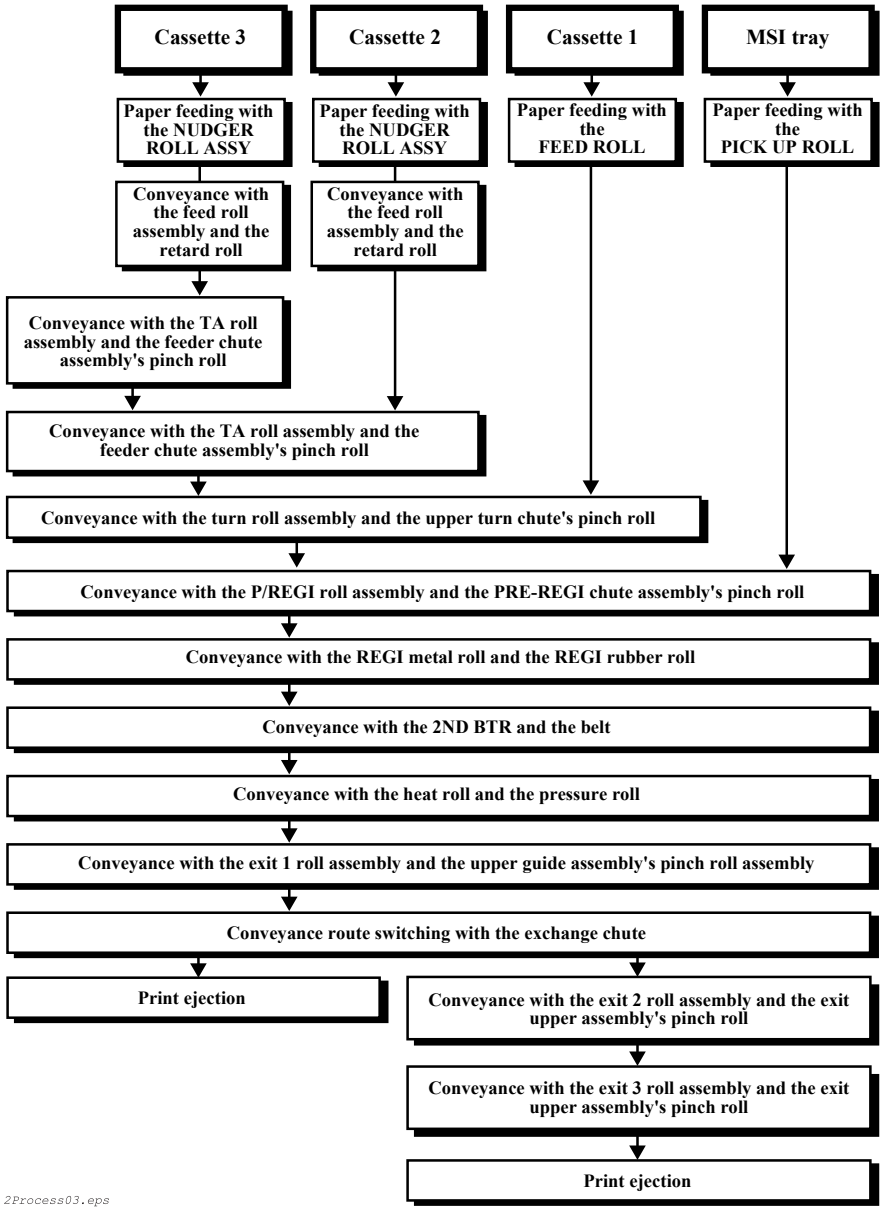


Figure 7-100. Paper conveyance route flow

7.8.3.2.3 Major functional parts and their operations

This section explains the main function parts that make up the Additional cassette Unit with the use of illustrations.
The structure of the unit is divided into the following blocks.

- Paper Tray
- Paper Feeder I
- Paper Feeder II

PAPER TRAY

Each paper cassette of the optional Large Capacity Paper Unit has the same function as the standard paper cassette (500 TRAY ASSY) incorporated in the printer body.
Refer to "2.2.4.1 Paper Tray" (*p.111)*, as required.

PAPER FEEDER I

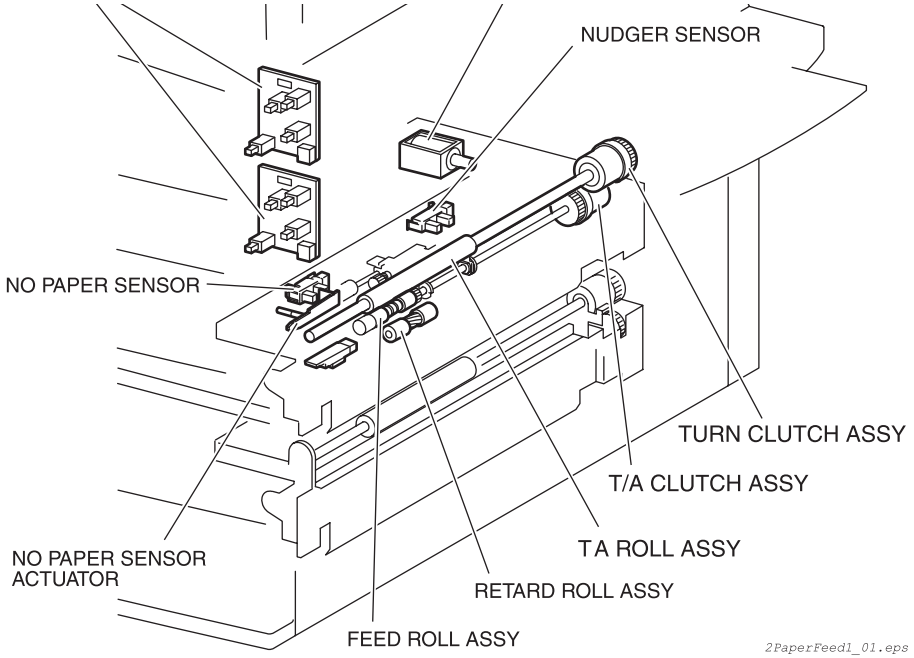


Figure 7-101. Paper Feeder1

- SIZE SWITCH ASSY
  The size switch assembly is equipped with four direct paper size switches on the circuit board, and depending on the combination of the ON/OFF status of these switches in accordance with changes in the position of the tray size actuator, the paper size and existence of paper in the paper cassette is detected.
- NO PAPER SENSOR
  The existence of paper in the paper cassette is detected in accordance with changes in the position of the no paper sensor actuator.
- NUD SOLENOID ASSY
  Operations for the T/A clutch assembly (operating/halted) are controlled through the control of the gear-25 revolutions.
- TURN CLUTCH ASSY
  The driving power of the feed driver assembly is transmitted to the TA roll assembly in order to control TA roll assembly operations (operating/halted.)
- NUDGER ROLL ASSY
  Gear 25 and gear 29 mesh together when the NUD solenoid assembly is operated, and the roll assembly receives the drive power from the feed drive assembly and starts operations so that the nudger roll assembly can feed paper from the paper cassette.
  Gear 25 and gear 29, after a single revolution, are disengaged at the cut portion of gear 25, and this halts the transmission of drive power and stops the nudger roll assembly. This enables only one piece of paper to be fed each time.
- TA ROLL ASSY
  The drive power of the feed drive assembly is transmitted to the TA roll assembly via gear 1.3. when the turn clutch assembly is operated. The TA roll assembly begins operating once this drive power is received, and the paper fed by the TA roll assembly is then conveyed.
- T/A CLUTCH ASSY
  The drive power of the feed drive assembly is transmitted to control the feed roll assembly and retard roll assembly.
- NUDGER SENSOR
  The existence of paper in the paper cassette is detected, and the lift-up procedure is performed by the transmission of the nudger sensed signal if the amount of paper is getting low.

☐ FEED ROLL ASSY, RETARD ROLL ASSY
The paper fed by the nudger roll assembly is gripped between the feed roll assembly and the retard roll assembly and conveyed to the TA roll assembly. If several pieces of paper are conveyed by the nudger roll assembly, more than one piece of paper is prevented from passing through the feed roll assembly and retard roll assembly, and they are separated into individual pages.

CHECK POINT

As the operations for [Cassette 2] and [Cassette 3] are exactly the same, the operations for [Cassette 2] have been included here.

PAPER FEEDER II

☐ FEEDER MOTOR ASSY
Drive power is supplied to the feeder high assembly in each cassette via the feeder drive assembly.

☐ FEED DRIVE ASSY
The drive power of the feeder motor assembly is transmitted to the feeder high assembly in each cassette.

☐ FEEDER PWB
The paper feeding operations for each cassette's feeder high assembly are control in accordance with communications with the MCU PWB and the information received from the sensors and switches.
This mechanism is equipped with the following major functions.

- Communications with the MCU PWB
- Receives information from the sensors and switches
- Controls the feeder motor assembly, the solenoids and the clutches
- Controls the paper feeding operations
- Distributes the low-voltage DC power supplied from the printer to the various components

☐ FEEDER RIGHT COVER SWITCH
The feeder right cover switch is a safety switch that detects the open/close status of the feeder chute assembly and halts all operations if it is open.

☐ LOW PAPER SENSOR-2T, LOW PAPER SENSOR-3T
Detects when the amount of paper set inside the paper cassettes is running low.

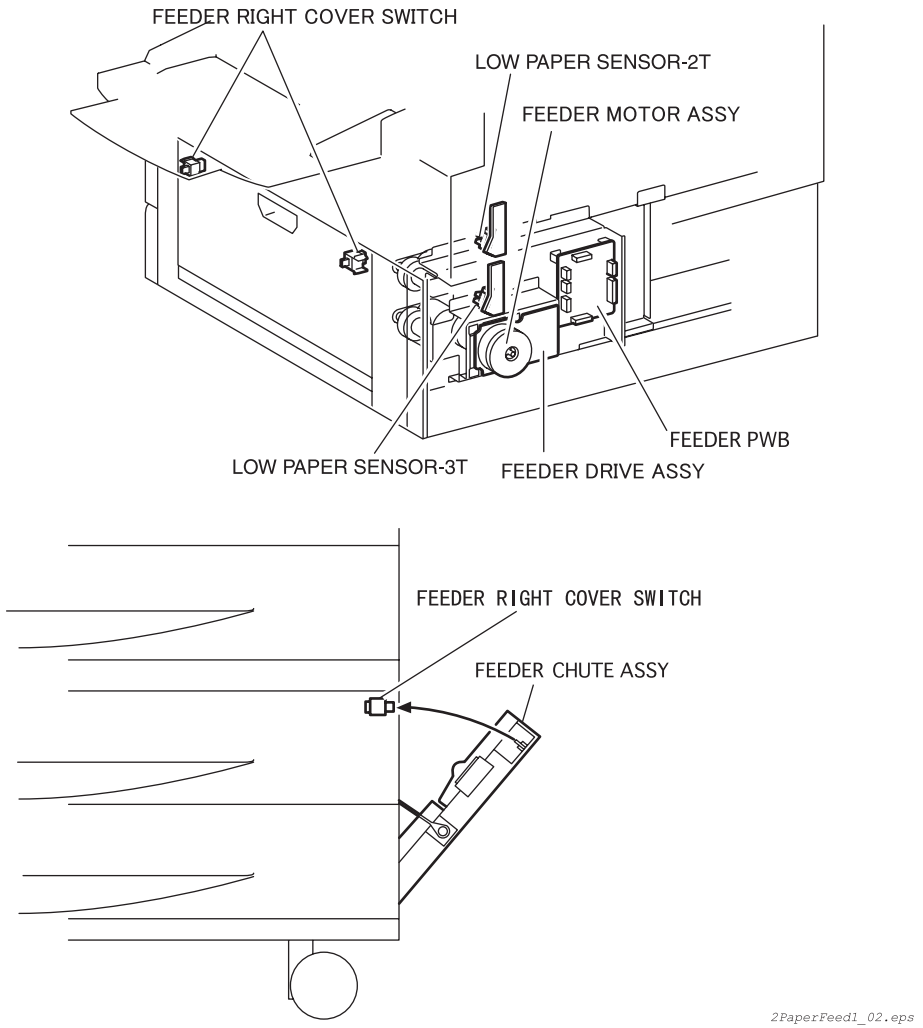


Figure 7-102. Paper Feeder2

7.8.3.3 Troubleshooting for Large Capacity Paper Unit

This section describes troubleshooting for the case where the Large Capacity Paper Unit has been installed on AcuLaser C8600 / AcuLaser C7000.

CHECK POINT

- **This section describes troubleshooting for AcuLaser C8600/ C7000 in standard specifications and for the case where the printer controller works normally.**
- **The description in this section is given on the assumption that troubleshooting is started as described in Chapter 3 "Troubleshooting" (*p.161*).**

7.8.3.3.1 Performing troubleshooting tasks

Refer to 3.1.1 Troubleshooting Procedure (*p.162*).

7.8.3.3.2 Preliminary checks

Refer to 3.1.2 Preliminary Checks (*p.162*)

7.8.3.3.3 Precautions in performing work

Refer to 3.1.3 Precautions in Performing Work (*p.163*).

7.8.3.3.4 Identifying problems with the LCD messages

AcuLaser C8600/C7000 is equipped with a self-diagnostic function to check each function of the printer and optional units. If any error in the printer or any optional unit has been detected, the appropriate error information is indicated by LEDs and the LCD panel on the control panel or by messages on the "EPSON Printer Window!3".

The messages to be displayed are classified into the four groups, namely, "status messages" indicating the printer status, "error messages" indicating the occurrence of any error, "warning messages" indicating the occurrence of warning, and "service call error messages" indicating the occurrence of any fatal error.

Refer to the following sections for details of the messages:

- 3.1.4 Self-Diagnostic Function by Printer Message (AcuLaser C8600) (*p.164*)
- 3.1.5 Self-Diagnostic Function by Printer Message (AcuLaser C7000) (*p.172*)

7.8.3.3.5 Service Call Error Messages

This section describes the details of service call error messages which can be displayed with the Large Capacity Paper Unit installed. For engine-related service call errors other than described here, refer to 3.1.6 Details of the Service Call Error Messages (*p.180*).

ENGINE-RELATED SERVICE CALL ERRORS

NOTE: *Each error code (fff) is displayed with a prefix "E" for AcuLaser C8600 or "6" for AcuLaser C7000.*

Table 7-73. Service Call Errors (Engine Related)

Error code fff	Description	Refer to
517	Optional Cassette Unit error (communication error), or Optional Cassette Unit other than this printer's option is installed *1	-
547	Optional Cassette Unit Feeder Motor error	*2

Note "*1": Occurs when the Large Capacity Paper Unit/500-Sheet Paper Cassette Unit for AcuLaser C8500 is installed.

"*2": Refer to the instruction manual for the optional unit.

CONTROLLER-RELATED SERVICE CALL ERRORS

Refer to "Controller Related Service Call Errors" (*p.182*) for details on controller-related service call errors.

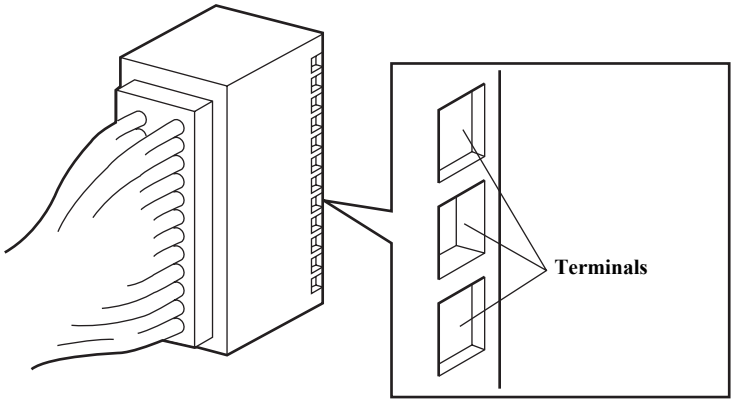
7.8.3.3.6 Level 1 FIP

PRECAUTIONS WHEN USING FIP

CHECK POINT

Level 1 FIP to be used for the printer on which the 500-Sheet Paper Cassette Unit or Large Capacity Paper Unit has been installed is handled as "FIP-1.F" for distinguishing it from the Level 1 FIP for the printers without 500-Sheet Paper Cassette Unit or Large Capacity Paper Unit.

1. As it is assumed that the printer controller (CONTROLLER PWB) is functioning normally with FIP, it is necessary to confirm that the printer controller has been replaced with a normally-functioning unit if fault repairs are not carried out after troubleshooting. It is also necessary to confirm that the [Initial checking]'s [Main Parts to be Confirmed] and all other related parts have been replaced accordingly if fault repairs are not to be performed.
2. FIPs may require some normal components as troubleshooting tools to identify the cause of the trouble. You are advised to have a spare MCU PWB, DRUM CARTRIDGE, and Y/M/C/K ET cartridges.
3. Ensure that the easiest level has been verified with the [Initial checking] in FIP.
4. In addition to checking the [Major parts to be checked] in the FIT's [Initial checking], ensure that all other major structural parts and related parts are confirmed.
5. Ensure that the power cord has been unplugged if not required before commencing work. Also, unless absolutely necessary, never touch electrified parts if work is to be carried out with the power being supplied.
6. Details for the connectors are provided below:
   - [P/J12]: With the connector (P/J12) connected
   - [P12]: The plug with the connector (P/J12) disconnected (with the exception of direct connections to the circuit board)
   - [J12]: The jack with the connector (P/J12) disconnected (with the exception of direct connections to the circuit board)
7. [P/J1-2PIN ↔ P/J3-4PIN] inside the FIP means to connect the plus pole on the gauge to the [P/J1]'s [2PIN] and the minus pole to the [P/J3]'s [4PIN] for measurement purposes.
8. When [P/J1 ↔ P/J2], for instance, is referred to in FIPs, make measurement between every pair of terminals of the P/J1 and P/J2 by consulting "Figure 7-126 P/J Locations of Large Capacity Paper Unit" (*p.709)* to "Figure 7-130 §32 Connection wiring diagram" (*p.715)* in "7.8.3.5 Large Capacity Paper Unit supplement" (*p.708)*.
9. When measuring the voltage inside the FIP, the rear minus pole [P/J3-4PIN] with [P/J1-2PIN ↔ P/J3-4PIN] is always the AG [Analog Ground], the SG [Signal Ground] or the RTN [Return]. Owing to this, confirm that continuity clearly exists with the [AG]s, the [SG]s and the [RTN]s to enable the other [AG], [SG] and [RTN] pins to be connected to the rear minus pole instead of the [P/J3-4PIN]. However, make sure no mistakes are made here as the [AG], [SG] and [RTN] are not the same level.
10. The terminals on the surface of the connector (one in from the front/back) are used when measuring the voltage of P/J16, P/J17, P/J19 and P/J20. As these terminals are small, use a fine-headed tester pin and ensure that it comes into contact with the back terminal especially.



11. When measuring the voltage, set the drum cartridge and paper cassette in place if they are not required, and close the front cover assembly, the top cover assembly, the MSI/REGI HIGH assembly, the fuser assembly, and the exit upper assembly before switching the power on for measurement purposes.
12. The values inside the FIP only represent a yardstick, and nearby numbers may be assumed to be the same.

13. Special guidance is not always provided for removing parts and performing relevant tasks in order to carry out the checks instructed inside the FIP, so caution must be exercised.
14. The [Replace] instruction issued during recovery inside the FIP indicate the parts that are assumed to be responsible for the problem and represent the instruction to replace and confirm the relevant parts and related assembly parts (high assembly).
15. Paper feeding is mentioned in the FIP under [Cassette 1] for paper cassettes below the printer, under [Cassette 2] for the first stage of optional 500-sheet Paper Cassette Unit, and under [Cassette 3] for the second stage.
16. The FIP is equipped with an area to distinguish between the availability and non-availability of the diagnosis tool, and all fault repairs must be carried out in accordance with these instructions.

    NOTE: *Refer to "5.4 Diagnostics" (p.369) for detailed operation of the DIAG tool.*
17. The FIP is equipped with an area for making distinctions in accordance with the specifications, and all fault repairs must be carried out in accordance with these instructions.

Table 7-74. FIP-1 List

Item (page)	Conditions for Detection
FIP-1.F1 Cassette 2 not set in place *(p.667)*	All the four Paper Size Switches on SIZE SWITCH ASSY of Cassettes 2 have turned OFF. For details, refer to "2.3.1 Paper Size Control" *(p.130)*
FIP-1.F2 Cassette 3 not set in place *(p.667)*	All the four Paper Size Switches on SIZE SWITCH ASSY of Cassettes 3 have turned OFF. For details, refer to "2.3.1 Paper Size Control" *(p.130)*
FIP-1.F3 NO Cassette 2 *(p.668)*	There is no paper in Cassette 2. (NO PAPER SENSOR of Cassette 2 has detected Paper Out.)
FIP-1.F4 NO Cassette 3 *(p.669)*	There is no paper in Cassette 3. (NO PAPER SENSOR of Cassette 3 has detected Paper Out.)
FIP-1.F5 Paper jammed in the MSI/REGI HIGH ASSY (option feeder JAM) *(p.670)*	REGI. SENSOR does not turn to the paper detection state within the specified time after turning on of PICK UP CLUTCH.
FIP-1.F6 Option feeder communication error *(p.671)*	• FEEDER UNIT which has not been installed has been selected. • Communication between the printer body and FEEDER UNIT is not allowed. • Trouble has occurred in the FEEDER UNIT.
FIP-1.F7 Errors related to the FEEDER MOTOR ASSY *(p.672)*	The lock signal of FEEDER MOTOR ASSY has been detected.
FIP-1.F8 FEEDER CHUTE ASSY open *(p.673)*	FEEDER RIGHT COVER SWITCH is OFF.
FIP-1.F9 Low paper warning for Cassette 2 *(p.674)*	There is little amount of paper in Cassette 2. (NUDGER SENSOR of Cassette 2 has detected little amount of paper.)
FIP-1.F10 Low paper warning for Cassette 3 *(p.675)*	There is little amount of paper in Cassette 3. (NUDGER SENSOR of Cassette 3 has detected little amount of paper.)
FIP-1.F11 Faulty lift-up of Cassette 2 *(p.676)*	Lift up failure of Cassette 2 has been detected.
FIP-1.F12 Faulty lift-up of Cassette 3 *(p.676)*	Lift up failure of Cassette 3 has been detected.

FIP-1.F1 Cassette 2 not set in place

Table 7-75.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), END GUIDE ACTUATOR, SIZE SWITCH ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant part
4	☐ END GUIDE ACTUATOR check: Confirm that the end guide actuator pushes the paper size switch when the paper cassette is mounted.(Insert the paper onto the size switch assembly from the rear, and then pull the paper after the paper cassette has been mounted, If the paper resists being pulled out, it means the paper size switch has been pressed.)	• With tool - Proceed to step [5] • Without tool - Proceed to FIP-2.F2 Faulty SIZE SWITCH ASSY *(p.678)*	Replace the relevant part
5	☐ Paper size check: ♦ Confirm this with device code [0A] of the analog input test with the use of the diagnosis tool.	Proceed to step [6]	Proceed to FIP-2.F2 Faulty SIZE SWITCH ASSY *(p.678)*
6	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F2 Cassette 3 not set in place

Table 7-76.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), TRAY SIZE ACTUATOR, SIZE SWITCH ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant part
4	☐ END GUIDE ACTUATOR check: Confirm that the end guide actuator pushes the paper size switch when the paper cassette is mounted.(Insert the paper onto the size switch assembly from the rear, and then pull the paper after the paper cassette has been mounted, If the paper resists being pulled out, it means the paper size switch has been pressed.)	• With tool - Proceed to step [5] • Without tool - Proceed to FIP-2.F2 Faulty SIZE SWITCH ASSY *(p.678)*	Replace the relevant part
5	☐ Paper size check: ♦ Confirm this with device code [0B] of the analog input test with the use of the diagnosis tool.	Proceed to step [6]	Proceed to FIP-2.F2 Faulty SIZE SWITCH ASSY *(p.678)*
6	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F3 NO Cassette 2

Table 7-77.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), BOTTOM PLATE ASSY, NO PAPER SENSOR ACTUATOR, NO PAPER SENSOR, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant part
4	☐ BOTTOM PLATE ASSY check: Does the BOTTOM PLATE ASSY lift normally when the paper cassette (500 TRAY ASSY) is pushed in?	Proceed to step [5]	Replace the relevant part (paper cassette, etc.)
5	☐ NO PAPER SENSOR ACTUATOR check: Does the no paper sensor actuator operate smoothly under the following conditions? When separated from the no paper sensor's detection area with paper set in place. When shielded from the no paper sensor's detection area with no paper set in place. ♦ Open the feeder chute assembly and confirm that the paper cassette has been pushed completely into place.	• With tool - Proceed to step [6] • Without tool - Proceed to FIP-2.F4 Faulty NO PAPER SENSOR (*p.680)*	Replace the relevant part

Table 7-77.

Step	Check	Recovery	
		Yes	No
6	☐ NO PAPER SENSOR check: Does the no paper sensor function normally? ♦ Confirm this with device code [B0] of the digital input test with the use of the diagnosis tool.	Proceed to step [7]	Proceed to FIP-2.F4 Faulty NO PAPER SENSOR (*p.680)*
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F4 NO Cassette 3

Table 7-78.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), BOTTOM PLATE ASSY, NO PAPER SENSOR ACTUATOR, NO PAPER SENSOR, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant part
4	☐ BOTTOM PLATE ASSY check: Does the BOTTOM PLATE ASSY lift normally when the paper cassette (500 TRAY ASSY) is pushed in?	Proceed to step [5]	Replace the relevant part (paper cassette, etc.)
5	☐ NO PAPER SENSOR ACTUATOR check: Does the no paper sensor actuator operate smoothly under the following conditions? When separated from the no paper sensor's detection area with paper set in place. When shielded from the no paper sensor's detection area with no paper set in place. ♦ Open the feeder chute assembly and confirm that the paper cassette has been pushed completely into place.	• With tool - Proceed to step [6] • Without tool - Proceed to FIP-2.F4 Faulty NO PAPER SENSOR (*p.680)*	Replace the relevant part

Table 7-78.

Step	Check	Recovery	
		Yes	No
6	☐ NO PAPER SENSOR check: Does the no paper sensor function normally? ♦ Confirm this with device code [C0] of the digital input test with the use of the diagnosis tool.	Proceed to step [7]	Proceed to FIP-2.F4 Faulty NO PAPER SENSOR (*p.680)*
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F5 Paper jammed in the MSI/REGI HIGH ASSY (option feeder JAM)

Table 7-79.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER CHUTE ASSY, FEEDER MOTOR ASSY, FEEDER DRIVE ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	Has curled paper or paper that easily curls been used?	Change the paper	Proceed to step [4]
4	☐ Cassette 1 check: Is paper being fed from Cassette 1 normally?	Proceed to step [5]	FIP-1.8 “EXIT JAM” (*p.190*)
5	☐ Conveyor check: Do foreign objects or abnormal parts exist in the feeder chute assembly's paper conveyor?	Clean the assembly or replace the relevant part	Proceed to step [6]
6	☐ FEEDER MOTOR ASSY check: Does the feeder motor assembly operate during paper feeding? ♦ Remove the feeder rear cover to confirm this.	Proceed to step [7]	Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY (*p.679*)
7	☐ FEEDER DRIVE ASSY check: Do the feeder drive assembly gears operate normally? ♦ Remove the feeder drive assembly, rotate the feeder motor assembly by hand, and then visually confirm the status of the feeder drive assembly's gears.	Proceed to step [8]	Replace the FEEDER DRIVE ASSY (PL32.1.4) (*p.695*)
8	☐ Paper feeding check: Is the edge of the paper being fed out of the relevant paper feeding tray when a status error occurs?	Proceed to step [9]	Proceed to FIP-2.F6 Faulty NUD SOLENOID ASSY (*p.682*)

Table 7-79.

Step	Check	Recovery	
		Yes	No
9	☐ Paper conveyance check: Has the paper front end arrived at TA ROLL ASSY in the relevant paper transport route at the occurrence of error/status?	Proceed to step [10]	Proceed to FIP-2.F7 Faulty TURN CLUTCH ASSY (*p.683*)
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F6 Option feeder communication error

Table 7-80.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER HARNESS, MAIN HARNESS ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J212 ↔ J132 J213 ↔ J211	Proceed to step [4]	Replace the FEEDER HARNESS
4	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J132 ↔ J22 J211 ↔ J32	Proceed to step [5]	Replace the MAIN HARNESS ASSY
5	☐ FEEDER PWB power supply check: Is the electrical voltage between J211-2PIN ↔ J211-1PIN 5VDC?	Proceed to step [6]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227*)
6	☐ FEEDER PWB power supply check: Is the electrical voltage between J211-4PIN ↔ J211-3PIN 24VDC?	Proceed to step [7]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" (*p.227*)
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F7 Errors related to the FEEDER MOTOR ASSY

Table 7-81.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER MOTOR ASSY, SIZE HARNESS, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Size harness attachment check Has the size harness attached correctly?	Proceed to step [4]	Reattach the feeder right cover switch.
4	☐ Main unit harness check: Is the harness between the MCU PWB and the feeder PWB free from broken wire or faulty contact?	Proceed to step [5]	Replace the harness.
5	☐ FEEDER Motor operation check: Check to ascertain that the feeder motor is operating during the test print.	• With tool - Proceed to step [7] • Without tool - Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY *(p.626)*	Proceed to step [6]
6	☐ FEEDER MOTOR ASSY abnormality check: Check to ascertain that there are no foreign objects preventing the feeder motor assembly from operating.	Remove the obstruction.	• With tool - Proceed to step [7] • Without tool - Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY *(p.626)*
7	☐ FEEDER MOTOR ASSY check: Does the feeder motor assembly function normally? ♦ Check this with device code [B8] of the digital output test with the use of the diagnosis tool.	Proceed to step [8]	Proceed to FIP-2.F3 Faulty FEEDER MOTOR ASSY *(p.626)*
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB	End recovery

FIP-1.F8 FEEDER CHUTE ASSY open

Table 7-82.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER RIGHT COVER SWITCH, FEEDER CHUTE ASSY, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Checking whether the problem lies in engine or controller: Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Check the printer controller. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ FEEDER RIGHT COVER SWITCH attachment check: Has the feeder right cover switch attached correctly?	Proceed to step [4]	Reattach the FEEDER RIGHT COVER SWITCH (PL31.1.21) (*p.699*)
4	☐ FEEDER CHUTE ASSY check: Does the feeder chute assembly open and close smoothly under the following conditions? Press the two feeder right cover switches when the feeder chute assembly is closed. Release the two feeder right cover switches when the feeder chute assembly is open.	• With tool - Proceed to step [5] • Without tool - Proceed to FIP-2.F1 Faulty FEEDER RIGHT COVER SWITCH (*p.677*)	Replace the relevant damage part.
5	☐ FEEDER RIGHT COVER SWITCH check: Does the feeder right cover switch function normally? ♦ Confirm this with device code [D0,D1] of the digital input test with the use of the diagnosis tool.	Proceed to step [6]	Proceed to FIP-2.F1 Faulty FEEDER RIGHT COVER SWITCH (*p.677*)
6	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-1.F9 Low paper warning for Cassette 2

Table 7-83.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), BOTTOM PLATE ASSY, NUDGER SENSOR, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Engine and control identification check Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Printer controller check. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant damage part.
4	☐ BOTTOM PLATE ASSY check: Does the BOTTOM PLATE ASSY lift normally when the paper cassette (500 TRAY ASSY) is pushed in?	Proceed to step [5]	Replace the relevant damage part.
5	☐ NUDGER SENSOR attachment check: Has the nudger sensor attached correctly?	• With tool - Proceed to step [6] • Without tool - Proceed to FIP-2.F5 Faulty NUDGER SENSOR (*p.681*)	Reattach the NUDGER SENSOR (PL32.2.33) (*p.702*)

Table 7-83.

Step	Check	Recovery	
		Yes	No
6	☐ NUDGER SENSOR check: Does the nudger sensor function normally? ♦ Confirm this with device code [C0] of the digital input test with the use of the diagnosis tool.	Proceed to step [7]	Proceed to FIP-2.F5 Faulty NUDGER SENSOR (*p.681*)
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-1.F10 Low paper warning for Cassette 3

Table 7-84.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: Paper cassette (500 TRAY ASSY), BOTTOM PLATE ASSY, NUDGER SENSOR, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Engine and control identification check Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Printer controller check. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ Checking the paper cassette (500 TRAY ASSY): Can the paper cassette (500 TRAY ASSY) be set smoothly?	Proceed to step [4]	Replace the relevant damage part.
4	☐ BOTTOM PLATE ASSY check: Does the BOTTOM PLATE ASSY lift normally when the paper cassette (500 TRAY ASSY) is pushed in?	Proceed to step [5]	Replace the relevant damage part.
5	☐ NUDGER SENSOR attachment check: Has the nudger sensor attached correctly?	• With tool - Proceed to step [6] • Without tool - Proceed to FIP-2.F5 Faulty NUDGER SENSOR (*p.681*)	Reattach the NUDGER SENSOR (PL32.2.33) (*p.702*)

Table 7-84.

Step	Check	Recovery	
		Yes	No
6	☐ NUDGER SENSOR check: Does the nudger sensor function normally? ♦ Confirm this with device code [C1] of the digital input test with the use of the diagnosis tool.	Proceed to step [7]	Proceed to FIP-2.F5 Faulty NUDGER SENSOR (*p.681*)
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-1.F11 Faulty lift-up of Cassette 2

Table 7-85.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: LIFT UP CLUTCH(FEEDER DRIVE ASSY), TRAY UP SENSOR HARNESS, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Engine and control identification check Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Printer controller check. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ TRAY UP SENSOR HARNESS attachment check: Has the tray up sensor harness attached correctly?	Proceed to step [4]	Reconnect the connector
4	☐ Main unit harness check: Is the harness between the MCU PWB and the feeder PWB free from broken wire or faulty contact?	Proceed to step [5]	Replace the harness.
5	☐ LIFT UP CLUTCH(FEEDER DRIVE ASSY) attachment check: Has the lift up clutch attached correctly?	Proceed to step [6]	Reattach the LIFT UP CLUTCH. "See FEEDER DRIVE ASSY (PL52.1.4) *(p.640)*"
6	☐ LIFT UP CLUTCH(FEEDER DRIVE ASSY) check: Does the lift up clutch function normally? ♦ Confirm this with device code [B2] of the digital output test with the use of the diagnosis tool.	Proceed to step [7]	Replace the FEEDER DRIVE ASSY (PL32.1.4) *(p.695)* Proceed to step [7] if the same problem occurs after replacement.
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-1.F12 Faulty lift-up of Cassette 3

Table 7-86.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: LIFT UP CLUTCH(FEEDER DRIVE ASSY), TRAY UP SENSOR HARNESS, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ Engine and control identification check Run a test print on the engine itself and check to ascertain that the test print runs normally (with approximately ten pages individually and ten pages consecutively.)	Printer controller check. Proceed to step [3] if the same problem occurs after replacement.	Proceed to step [3]
3	☐ TRAY UP SENSOR HARNESS attachment check: Has the tray up sensor harness attached correctly?	Proceed to step [4]	Reconnect the connector
4	☐ Main unit harness check: Is the harness between the MCU PWB and the feeder PWB free from broken wire or faulty contact?	Proceed to step [5]	Replace the harness.
5	☐ LIFT UP CLUTCH(FEEDER DRIVE ASSY) attachment check: Has the lift up clutch attached correctly?	Proceed to step [6]	Reattach the LIFT UP CLUTCH. "See FEEDER DRIVE ASSY (PL52.1.4) *(p.640)*"
6	☐ LIFT UP CLUTCH(FEEDER DRIVE ASSY) check: Does the lift up clutch function normally? ♦ Confirm this with device code [B2] of the digital output test with the use of the diagnosis tool.	Proceed to step [7]	Replace the FEEDER DRIVE ASSY (PL32.1.4) *(p.695)* Proceed to step [7] if the same problem occurs after replacement.
7	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

7.8.3.3.7 Level 2 FIP

FIP-2.F1 Faulty FEEDER RIGHT COVER SWITCH

Table 7-87.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER RIGHT COVER SWITCH, COVER SWITCH HARNESS, SIZE HARNESS, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ FEEDER RIGHT COVER SWITCH ON signal power supply check: Is the electrical voltage for the following between 5VDC? P217-7PIN ↔ P217-8PIN P217-9PIN ↔ P217-10PIN	Proceed to step [3]	Replace the FEEDER PWB (PL32.1.9) (*p.696*)
3	☐ FEEDER RIGHT COVER SWITCH ON signal check: Is the electrical voltage between P/J217-7PIN ↔ P/J217-8PIN P/J217-9PIN ↔ P/J217-10PIN as follows? 0VDC when the feeder chute assembly is closed. 5VDC when the feeder chute assembly is open.	Proceed to step [6]	Proceed to step [4]
4	☐ SIZE HARNESS check: Check the following fo normal conductivity. J217 ↔ J240	Proceed to step [5]	Replace the SIZE HARNESS
5	☐ COVER SWITCH HARNESS check: Check the following fo normal conductivity. J240 ↔ J237 J240 ↔ J238	Replace the FEEDER RIGHT COVER SWITCH (PL31.1.21) (*p.699*)	Replace the COVER SWITCH HARNESS
6	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F2 Faulty SIZE SWITCH ASSY

Table 7-88.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: SIZE SWITCH ASSY, SIZE HARNESS, FEEDER PWB, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ SIZE SWITCH ASSY power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P217-3PIN ↔ P217-1PIN Cassette 3:P217-6PIN ↔ P217-4PIN	Proceed to step [3]	Proceed to step [5]
3	☐ SIZE SWITCH signal check: Are the following electrical voltages suitable for each paper size? Cassette 2:P217-2PIN ↔ P217-1PIN Cassette 3:P217-5PIN ↔ P217-4PIN Refer to "2.3.1 Paper Size Control" (*p.130)* to change and confirm the paper sizes.	Proceed to step [9]	Proceed to step [4]
4	☐ SIZE HARNESS conductivity check: Check the following for normal conductivity. Cassette 2:J217 ↔ J235 Cassette 3:J217 ↔ J236	Replace the SIZE SWITCH ASSY (PL32.1.17) (*p.698)*	Replace the SIZE HARNESS
5	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL32.1.9) (*p.696)*	Proceed to step [6]
6	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [7]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" *(p.227)*
7	☐ FEEDER HARNESS conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [8]	Replace the FEEDER HARNESS

Table 7-88.

Step	Check	Recovery	
		Yes	No
8	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [9]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F3 Faulty FEEDER MOTOR ASSY

Table 7-89.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEEDER MOTOR ASSY, FEEDER DRIVE ASSY, SIZE HARNESS, FEEDER PWB, FEEDER HARNESS, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ FEEDER DRIVE ASSY check: Do the feeder drive assembly's gears operate smoothly? ♦ Confirm this by removing the feeder drive assembly and rotating the feeder motor assembly by hand to free it.	Proceed to step [3]	Replace the FEEDER DRIVE ASSY (PL32.1.4) *(p.695)*
3	☐ FEEDER MOTOR ASSY power supply check: Is the electrical voltage between P217-14PIN ↔ P217-13PIN 24VDC?	Proceed to step [4]	Proceed to step [6]
4	☐ FEEDER MOTOR ON signal check: Is the electrical voltage between P/J239-3PIN ↔ P/J239-4PIN as follows? 0VDC when the feeder motor assembly is operating. 5VDC when the feeder motor assembly is not operating.	Proceed to step [10]	Proceed to step [5]
5	☐ SIZE HARNESS conductivity check: Is the conductivity between the following normal? J217↔J239	Replace the FEEDER MOTOR ASSY (PL32.1.3) *(p.694)*	Replace the SIZE HARNESS
6	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL32.1.9) *(p.696)*	Proceed to step [7]

Table 7-89.

Step	Check	Recovery	
		Yes	No
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [8]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" *(p.227)*
8	☐ FEEDER HARNESS conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F4 Faulty NO PAPER SENSOR

Table 7-90.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: NO PAPER SENSOR, FEEDER PWB, FEEDER UPPER HARNESS ASSY, FEEDER LOWER HARNESS ASSY, FEEDER HARNESS ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ NO PAPER SENSOR power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-3PIN ↔ P214-1PIN Cassette 3:P215-3PIN ↔ P214-1PIN	Proceed to step [3]	Proceed to step [8]
3	☐ NO PAPER SENSE signal power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-2PIN ↔ P214-1PIN Cassette 3:P215-2PIN ↔ P215-1PIN	Proceed to step [4]	Proceed to step [8]
4	☐ NO PAPER SENSE signal check: Is the electrical voltage as follows? 0VDC during penetration (with paper) 5VDC when shielded (no paper) Cassette 2:P/J214-2PIN ↔ P/J214-1PIN Cassette 3:P/J215-2PIN ↔ P/J215-1PIN	Proceed to step [12]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J219 Cassette 3:J242 ↔ J220	Proceed to step [6] and [7]	Replace the FEEDER HARNESS ASSY
6	☐ FEEDER UPPER HARNESS ASSY conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the NO PAPER SENSOR (PL32.2.45) *(p.704)*	Replace the FEEDER UPPER HARNESS

Table 7-90.

Step	Check	Recovery	
		Yes	No
7	☐ FEEDER LOWER HARNESS ASSY conductivity check: Is the conductivity for the following normal? Cassette 2:J215 ↔ J242	Replace the NO PAPER SENSOR	Replace the FEEDER LOWER HARNESS
8	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL32.1.9) *(p.696)*	Proceed to step [9]
9	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [10]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" *(p.227)*
10	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [11]	Replace the FEEDER HARNESS
11	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [12]	Replace the MAIN HARNESS ASSY
12	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F5 Faulty NUDGER SENSOR

Table 7-91.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: NUDGER SENSOR, FEEDER PWB, FEEDER HARNESS ASSY-1T, FEEDER HARNESS ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ NUDGER SENSOR power supply check: Is the electrical voltage for the following between 5VDC? Cassette 2:P214-6PIN ↔ P214-4PIN	Proceed to step [3]	Proceed to step [7]
3	☐ NUDGER SENSE detection signal power supply check: Is the electrical voltage for the following between 5VDC? Cassette 2:P214-5PIN ↔ P214-4PIN	Proceed to step [4]	Proceed to step [7]
4	☐ NUDGER SENSE signal check: Is the electrical voltage as follows? 0 VDC when there is paper and 5 VDC when there is no paper? Cassette 2:P/J214-5 ↔ P/J214-4	Proceed to step [11]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J221	Proceed to step [6]	Replace the FEEDER HARNESS ASSY
6	☐ FEEDER HARNESS ASSY-1T conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the NUDGER SENSOR (PL32.2.33) (*p.702*)	Replace the FEEDER HARNESS ASSY-1T
7	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL32.1.9) (*p.696*)	Proceed to step [8]
8	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [9]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227*)

Table 7-91.

Step	Check	Recovery	
		Yes	No
9	☐ FEEDER HARNESS ASSY-1T conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [10]	Replace the FEEDER HARNESS ASSY-1T
10	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [11]	Replace the MAIN HARNESS ASSY
11	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F6 Faulty NUD SOLENOID ASSY

Table 7-92.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: NUDÅ@SOLENOID ASSY, FEEDER PWB, FEEDER UPPER HARNESS ASSY, FEEDER LOWER HARNESS ASSY, FEEDER HARNESS ASSY, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ NUD SOLENOID ASSY power supply check: Is the electrical voltage 24VDC for the following? Cassette 2:P214-10 ↔ P214-11 Cassette 3:P215-10 ↔ P215-11	Proceed to step [3]	Proceed to step [7]
3	☐ NUDGER SOLENOID ASSY check: Is the conductivity for the following normal (approximately 90 Ω)? Cassette 2:J225-1 ↔ J225-2 Cassette 3:J226-1 ↔ J226-2	Proceed to step [11]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J225 Cassette 3:J242 ↔ J226	Proceed to step [5] and [6]	Replace the FEEDER HARNESS ASSY
5	☐ FEEDER UPPER HARNESS ASSY conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the NUD SOLENOID ASSY (PL32.2.51) *(p.706)*	Replace the FEEDER UPPER HARNESS
6	☐ FEEDER LOWER HARNESS ASSY conductivity check: Is the conductivity for the following normal? Cassette 3:J215 ↔ J242	Replace the NUD SOLENOID ASSY	Replace the FEEDER LOWER HARNESS
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL32.1.9) *(p.696)*	Proceed to step [8]

Table 7-92.

Step	Check	Recovery	
		Yes	No
8	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [9]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" *(p.227)*
9	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [10]	Replace the FEEDER HARNESS
10	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [11]	Replace the MAIN HARNESS ASSY
11	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F7 Faulty TURN CLUTCH ASSY

Table 7-93.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: TURN CLUTCH ASSY, FEEDER PWB, FEEDER UPPER HARNESS ASSY, FEEDER LOWER HARNESS ASSY, FEEDER HARNESS ASSY, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ TURN CLUTCH ASSY power supply check: Is the electrical voltage 24VDC for the following? Cassette 2:P214-14PIN ↔ P214-15PIN Cassette 3:P215-14PIN ↔ P215-15PIN	Proceed to step [3]	Proceed to step [7]
3	☐ TURN CLUTCH ASSY check: Is the conductivity for the following normal (approximately 172 Ω)? Cassette 2:J229-1PIN ↔ J229-2PIN Cassette 3:J230-1PIN ↔ J230-2PIN	Proceed to step [11]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J229 Cassette 3:J242 ↔ J230	Proceed to step [5] and [6]	Replace the FEEDER HARNESS ASSY
5	☐ FEEDER UPPER HARNESS ASSY conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the TURN CLUTCH ASSY (PL32.2.56) (*p.707*)	Replace the FEEDER UPPER HARNESS
6	☐ FEEDER LOWER HARNESS ASSYconductivity check: Is the conductivity for the following normal? Cassette 3:J215 ↔ J242	Replace the TURN CLUTCH ASSY	Replace the FEEDER LOWER HARNESS
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL32.1.9) (*p.696*)	Proceed to step [8]

Table 7-93.

Step	Check	Recovery	
		Yes	No
8	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [9]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" (*p.227*)
9	☐ FEEDER HARNESS conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [10]	Replace the FEEDER HARNESS
10	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [11]	Replace the MAIN HARNESS ASSY
11	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F8 Faulty T/A CLUTCH ASSY

Table 7-94.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: T/A CLUTCH ASSY, FEEDER PWB, FEEDER UPPER HARNESS ASSY, FEEDER LOWER HARNESS ASSY, FEEDER HARNESS ASSY, MAIN HARNESS ASSY, LV/HV POWER SUPPLY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ T/A CLUTCH ASSY power supply check: Is the electrical voltage 24VDC for the following? Cassette 2:P214-12PIN ↔ P214-13PIN Cassette 3:P215-12PIN ↔ P215-13PIN	Proceed to step [3]	Proceed to step [7]
3	☐ T/A CLUTCH ASSY check: Is the conductivity for the following normal (approximately 172 Ω)? Cassette 2:J227-1PIN ↔ J227-2PIN Cassette 3:J228-1PIN ↔ J228-2PIN	Proceed to step [11]	Proceed to step [4]
4	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J227 Cassette 3:J242 ↔ J228	Proceed to step [5] and [6]	Replace the FEEDER HARNESS ASSY
5	☐ FEEDER UPPER HARNESS ASSY conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the T/A CLUTCH ASSY (PL32.2.29) (*p.701*)	Replace the FEEDER UPPER HARNESS
6	☐ FEEDER LOWER HARNESS ASSYconductivity check: Is the conductivity for the following normal? Cassette 3:J215 ↔ J242	Replace the T/A CLUTCH ASSY (PL32.2.29) (*p.701*)	Replace the FEEDER LOWER HARNESS
7	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J213-1PIN ↔ J213-2PIN	Replace the FEEDER PWB (PL32.1.9) (*p.696*)	Proceed to step [8]

Table 7-94.

Step	Check	Recovery	
		Yes	No
8	☐ 24VDC power supply check: Is the voltage of each of the followings 24VDC? P/J32-9PIN ↔ J32-12PIN	Proceed to step [9]	Proceed to FIP-2.2 "Faulty LV/HV POWER SUPPLY 24 VDC" (*p.227*)
9	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [10]	Replace the FEEDER HARNESS
10	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [11]	Replace the MAIN HARNESS ASSY
11	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F9 Faulty FEED OUT SENSOR

Table 7-95.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: FEED OUT SENSOR, FEEDER PWB, FEEDER UPPER HARNESS ASSY, FEEDER LOWER HARNESS ASSY, FEEDER HARNESS ASSY, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ FEED OUT SENSOR power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-9PIN ↔ P214-7PIN Cassette 3:P215-9PIN ↔ P215-7PIN	Proceed to step [3]	Proceed to step [8]
3	☐ FEED OUT SENSE signal power supply check: Is the electrical voltage for the following 5VDC? Cassette 2:P214-8PIN ↔ P214-7PIN Cassette 3:P215-8PIN ↔ P215-7PIN	Proceed to step [4]	Proceed to step [8]
4	☐ FEED OUT SENSE signal check: Is the electrical voltage as follows? 0 VDC when there is paper and 5 VDC when there is no paper? Cassette 2:P/J214-8PIN ↔ P/J214-7PIN Cassette 3:P/J215-8PIN ↔ P/J215-7PIN	Proceed to step [12]	Proceed to step [5]
5	☐ FEEDER HARNESS ASSY conductivity check: Check the following for normal conductivity. Cassette 2:J241 ↔ J223 Cassette 3:J242 ↔ J224	Proceed to step [6] and [7]	Replace the FEEDER HARNESS ASSY
6	☐ FEEDER UPPER HARNESS ASSY conductivity check: Is the conductivity for the following normal? Cassette 2:J214 ↔ J241	Replace the FEED OUT SENSOR (PL32.2.36) (*p.703*)	Replace the FEEDER UPPER HARNESS

Table 7-95.

Step	Check	Recovery	
		Yes	No
7	☐ FEEDER LOWER HARNESS ASSYconductivity check: Is the conductivity for the following normal? Cassette 3:J215 ↔ J242	Replace the FEED OUT SENSOR (PL32.2.36) (*p.703*)	Replace the FEEDER LOWER HARNESS
8	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL32.1.9) (*p.696*)	Proceed to step [9]
9	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [10]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227*)
10	☐ FEEDER HARNESS conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [11]	Replace the FEEDER HARNESS
11	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [12]	Replace the MAIN HARNESS ASSY
12	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F10 Faulty LOW PAPER SENSOR-2T

Table 7-96.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: LOW PAPER SENSOR-2T, FEEDER PWB, TRAY UP SENSOR HARNESS, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ LOW PAPER SENSOR-2T power supply check: Is the electrical voltage between P216-1PIN ↔ P216-2PIN 5VDC?	Proceed to step [3]	Proceed to step [6]
3	☐ LOW PAPER SENSE-2T signal power supply check: Is the electrical voltage between P216-3PIN ↔ P216-2PIN 5VDC?	Proceed to step [4]	Proceed to step [6]
4	☐ LOW PAPER SENSOR-2T signal check: Is the electrical voltage between P/J216-3PIN ↔ P/J216-2PIN as follows? 0 VDC when there is paper and 5 VDC when there is no paper?	Proceed to step [10]	Proceed to step [5]
5	☐ TRAY UP SENSOR HARNESS conductivity check: Is the conductivity between the following normal? J216 ↔ J231	Replace the LOW PAPER SENSOR-2T (PL32.1.30) (*p.699*)	Replace the TRAY UP SENSOR HARNESS
6	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL32.1.9) (*p.696*)	Proceed to step [7]
7	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [8]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227*)
8	☐ FEEDER HARNESS conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS

Table 7-96.

Step	Check	Recovery	
		Yes	No
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

FIP-2.F11 Faulty LOW PAPER SENSOR-3T

Table 7-97.

Step	Check	Recovery	
		Yes	No
1	☐ Initial checking: Check for abnormalities, such as the use of any parts other than those approved by EPSON, faulty attachments, damage, malformation and foreign objects. • Major parts to be checked: LOW PAPER SENSOR-3T, FEEDER PWB, TRAY UP SENSOR HARNESS, MCU PWB	Replace or reattach the relevant parts	Proceed to step [2]
2	☐ LOW PAPER SENSOR-3T power supply check Is the electrical voltage between P216-4PIN ↔ P216-5PIN 5VDC?	Proceed to step [3]	Proceed to step [6]
3	☐ LOW PAPER SENSE-3T signal power supply check: Is the electrical voltage between P216-6PIN ↔ P216-5PIN 5VDC?	Proceed to step [4]	Proceed to step [6]
4	☐ LOW PAPER SENSOR-3T signal check: Is the electrical voltage between P/J216-6PIN ↔ P/J216-5PIN as follows? 0 VDC when there is paper and 5 VDC when there is no paper?	Proceed to step [10]	Proceed to step [5]
5	☐ TRAY UP SENSOR HARNESS conductivity check: Is the conductivity between the following normal? J216 ↔ J232	Replace the LOW PAPER SENSOR-3T (PL32.1.31) (*p.700*)	Replace the TRAY UP SENSOR HARNESS
6	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J213-3PIN ↔ J213-4PIN	Replace the FEEDER PWB (PL32.1.9) (*p.696*)	Proceed to step [7]
7	☐ 5VDC power supply check: Is the voltage of each of the followings 5VDC? P/J32-13PIN ↔ J32-14PIN	Proceed to step [8]	Proceed to FIP-2.1 "Faulty LV/HV POWER SUPPLY 5 VDC" (*p.227*)
8	☐ FEEDER HARNESS conductivity check: Check the following for normal conductivity. J211 ↔ J213	Proceed to step [9]	Replace the FEEDER HARNESS

Table 7-97.

Step	Check	Recovery	
		Yes	No
9	☐ MAIN HARNESS ASSY conductivity check: Check the following for normal conductivity. J32 ↔ J211	Proceed to step [10]	Replace the MAIN HARNESS ASSY
10	☐ FEEDER PWB replacement check: Does the same problem occur after the feeder PWB has been replaced with a normal one?	Replace the MCU PWB.	End recovery

7.8.3.4 Disassembly and assembly of Large Capacity Paper Unit

This section describes the removal and reinstallation procedure for major parts of the Large Capacity Paper Unit.
For carrying out disassembly and assembly work, be sure to read "4.1 Overview" (*p.258)* and "4.2 Disassembly and Reassembly Procedure" (*p.261)* carefully.

CHECK POINT

- **Although spare parts are kept in stock, ensure that a complete visual inspection of all attachments is made prior to starting work as there are certain procedures that are not covered here.**
- **Work should be carried out with the FEEDER UNIT left installed, unless its removal is necessary.**

7.8.3.4.1 Large Capacity Paper Unit (PL30.1.1)

1. Remove the rear O/H cover and then open the feeder rear harness cover.*(See p.267)*
2. Disconnect the two connectors (P/J132, P/J211) on the main unit and feeder harness assembly.
3. Draw out the paper cassette (500 TRAY ASSY) at the upper position (Cassette 2) of the Large Capacity Paper Unit.
4. Loosen enough the two screws (knurled) securing the printer body and the Large Capacity Paper Unit.
5. Push in and close the paper cassette (500 TRAY ASSY) drawn out.

CAUTION

- **The printer weighs approximately 70kg, so ensure that all lifting explained in the following procedures is performed with at least four people to avoid accidents.**
- **Ensure that both hands are firmly gripping the handles when lifting the printer. Gripping the printer by other areas during lifting may result in the unit being dropped or damaged.**
- **Bend the knees when lifting the printer to avoid injuring your back.**

6. Lift up the main unit and place it on a flat and stable place.

REASSEMBLY

Put the Large Capacity Paper Unit on the printer body gently so that the front corners are in alignment.

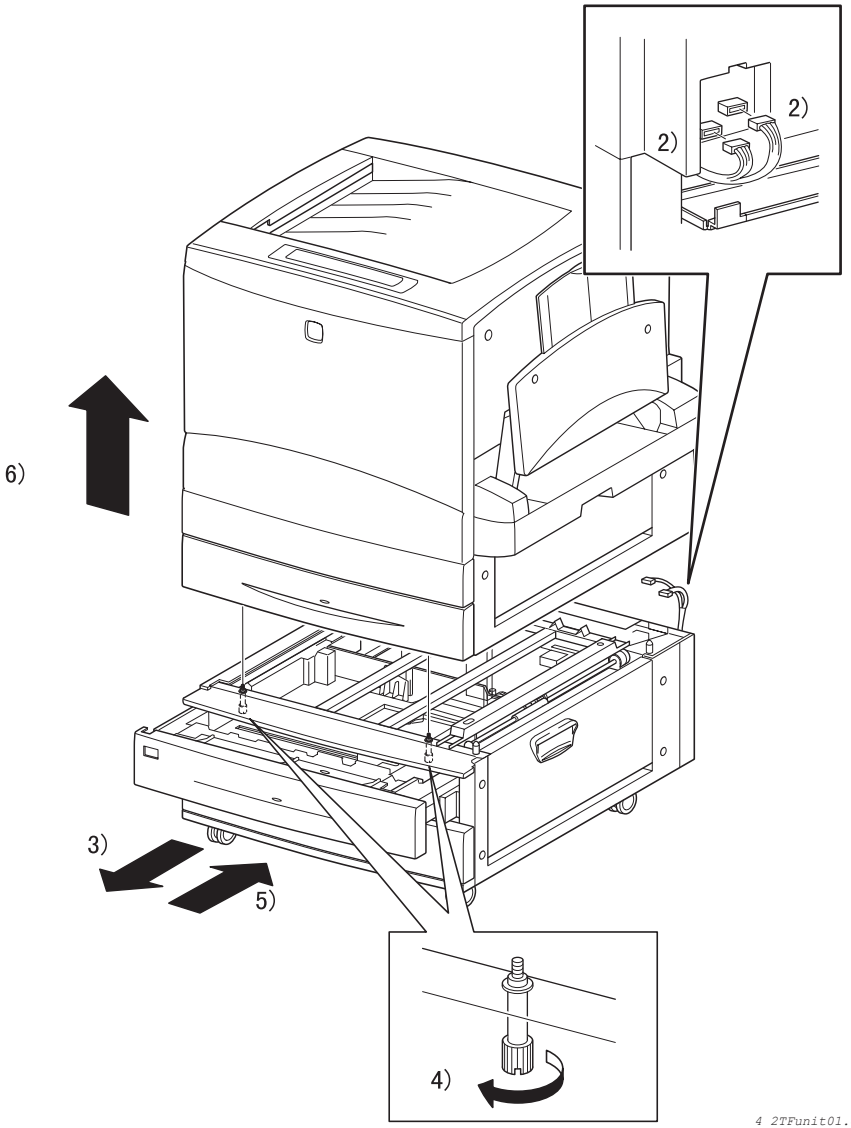


Figure 7-103. Large Capacity Paper Unit Removal

7.8.3.4.2 FEEDER FRONT COVER (PL31.1.1)

1. Remove the FEEDER LEFT COVER (PL31.1.10). (*p.691*)
2. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)

CHECK POINT

The illustration for the next procedure shows the feeder front cover (upper), but the lower stage of the feeder front cover is removed in the same way.

3. Remove the two screws (silver, guarded, 6mm) holding the feeder front cover in place, and then remove the feeder front cover.

REASSEMBLY

Align the positioning boss with the holes when attaching the feeder front cover.

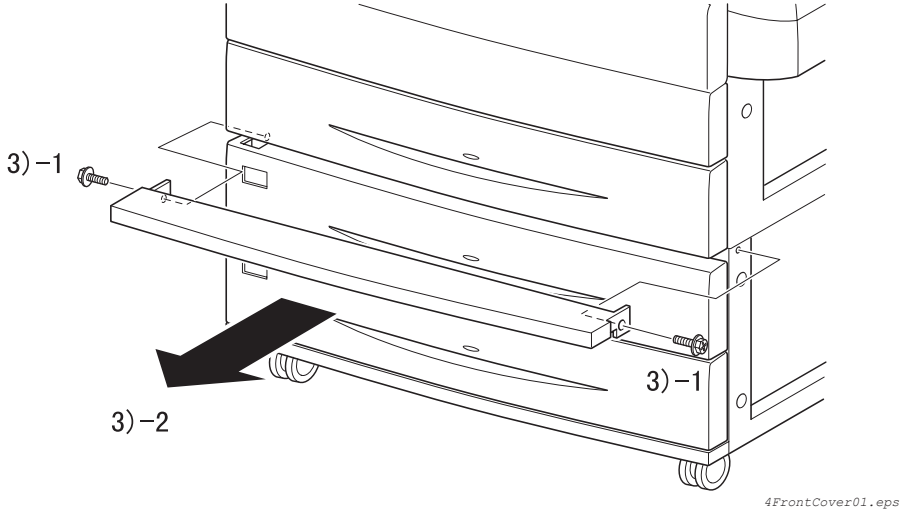


Figure 7-104. Removing the FEEDER FRONT COVER

7.8.3.4.3 FEEDER REAR COVER (PL31.1.2)

1. Remove the six screws (silver, guarded, 6mm) holding the feeder rear cover in place, and then remove the feeder rear cover.

REASSEMBLY

Ensure that the feeder left cover and the feeder right cover mesh together when attaching the feeder rear cover.

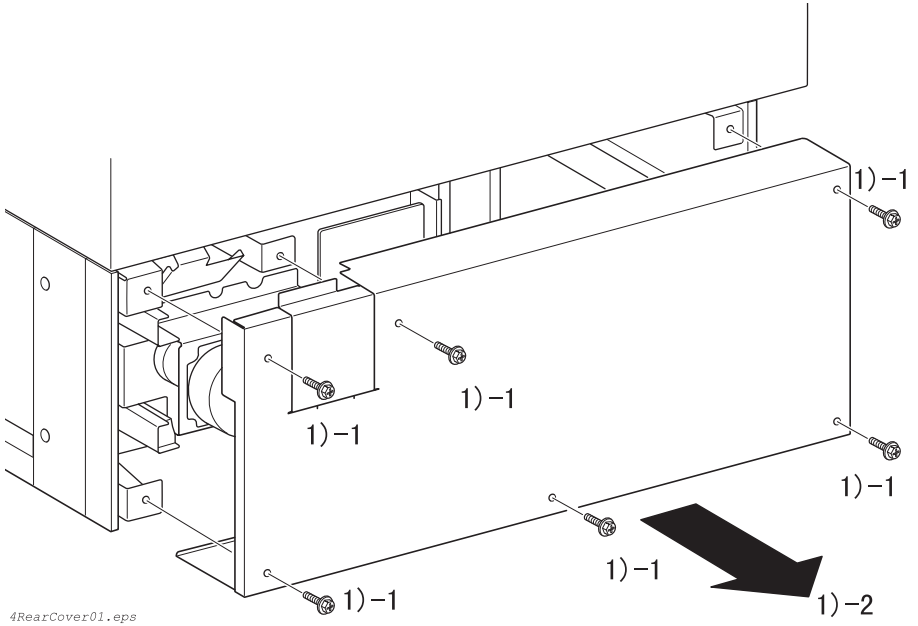


Figure 7-105. Removing the FEEDER REAR COVER

7.8.3.4.4 FEEDER LEFT COVER (PL31.1.10)

1. Remove the four screws (silver, guarded, 8mm) holding the feeder left cover in place, and then open the front of the feeder left cover to the left and pull it forward to remove it.

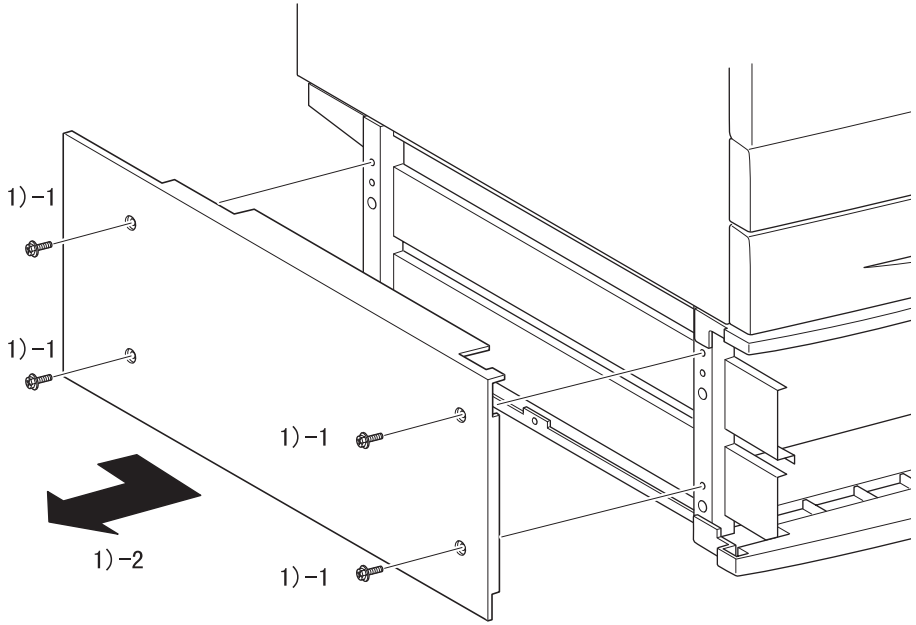


Figure 7-106. Removing the FEEDER LEFT COVER

7.8.3.4.5 FEEDER RIGHT COVER (PL31.1.20)

1. Remove the FEEDER REAR COVER (PL31.1.2). *(p.690)*
2. Disconnect the connector (P/J240) connecting the feeder right cover switch to the feeder PWB.
3. Remove the five screws (silver, guarded, 8mm) holding the feeder right cover in place.
4. Open the feeder chute assembly and then pull the feeder right cover upwards to remove it.

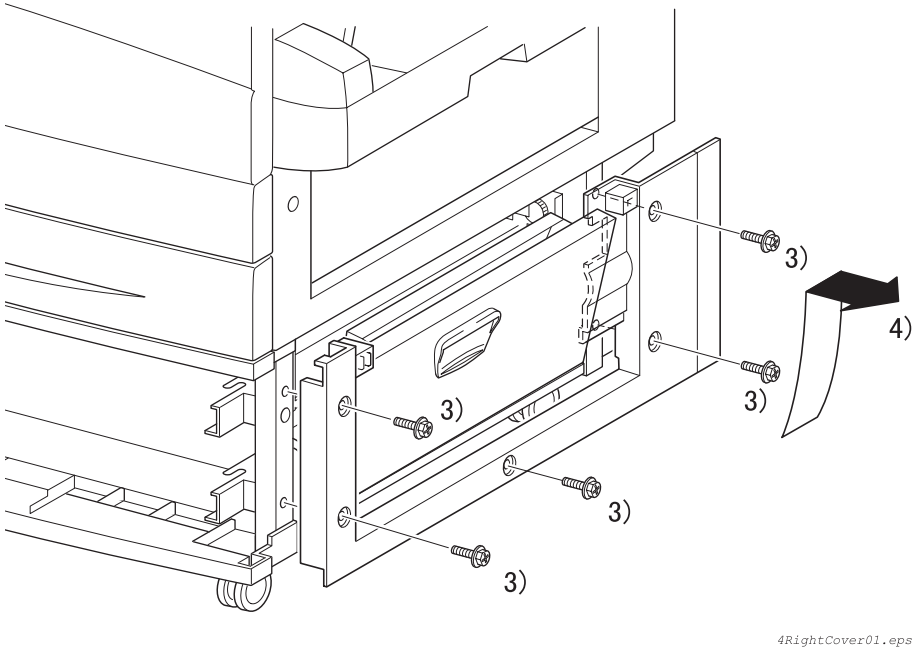


Figure 7-107. Removing the FEEDER RIGHT COVER

7.8.3.4.6 FEEDER CHUTE ASSY (PL31.1.30)

1. Remove the rear O/H cover.
   Refer to "REAR COVER ASSY (PL1.1.30)" (*p.267*)
2. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
3. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
4. Open the hinge at the rear of the feeder chute assembly to release the boss, rotate the fulcrum at the front towards the right, remove the front boss and then remove the feeder chute assembly.

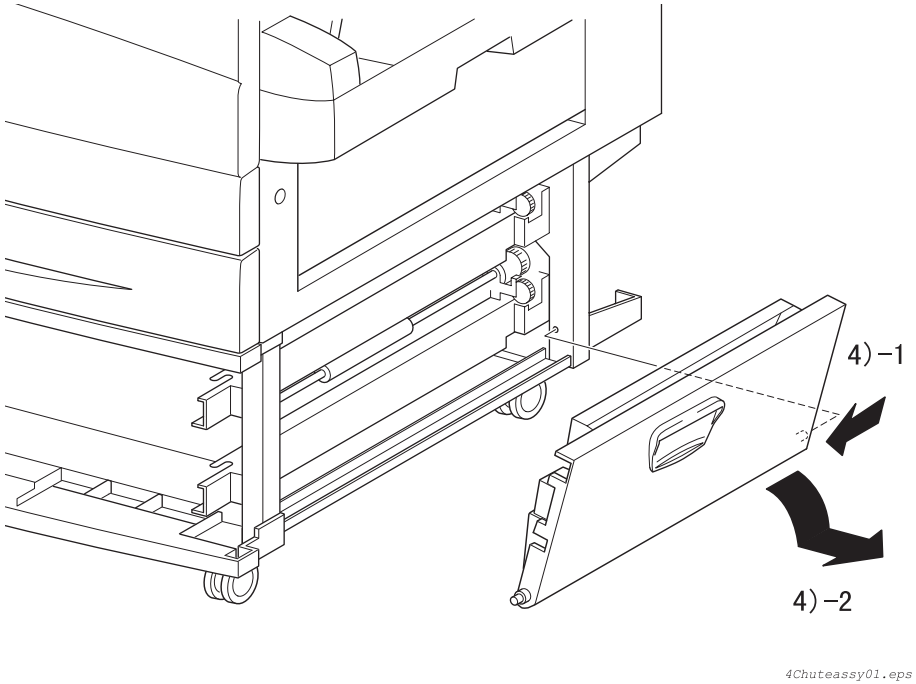


Figure 7-108. Removing the FEEDER CHUTE ASSY

7.8.3.4.7 FEEDER HIGH ASSY (PL32.1.1)

CHECK POINT

The procedures explained in steps [1] and [2] below are for removing the upper unit (Cassette 2) and not for the lower unit (cassette 3).

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)

CHECK POINT

- **The illustration for the next procedure (Cassette 2) shows the upper feeder high assembly, but the lower stage (Cassette 3) of the feeder high assembly is removed in the same way.**
- **Note that the two connector numbers explained in the following procedure are different depending on the relevant cassette.**

7. Disconnect the connector (P/J241 or P/J242) from the feeder high assembly.
8. Remove the two screws (silver, guarded, 6mm) holding the feeder high assembly in place, and then remove the feeder high assembly.

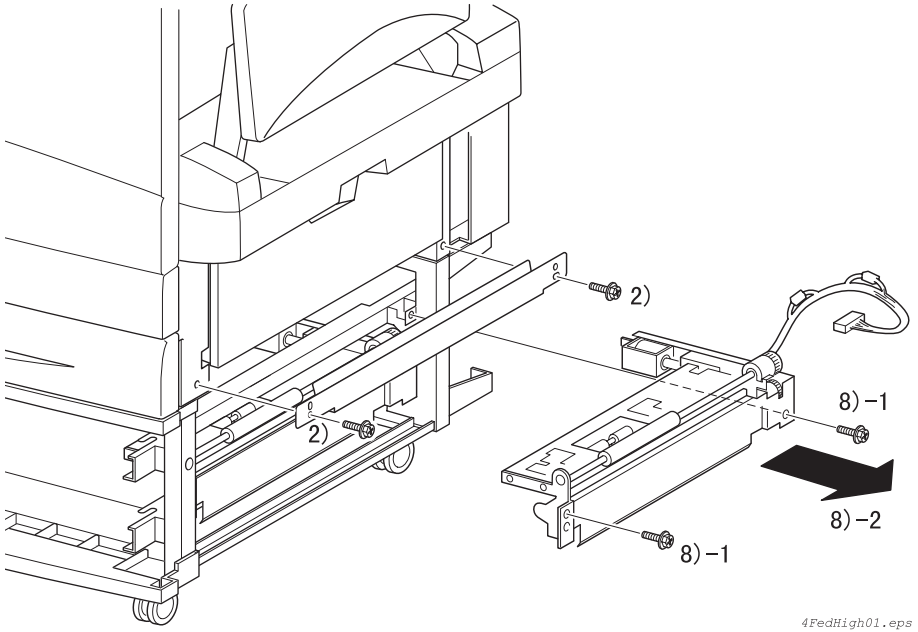


Figure 7-109. Removing the FEEDER HIGH ASSY

7.8.3.4.8 FEEDER MOTOR ASSY (PL32.1.3)

1. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690)*
2. Remove the feeder motor assembly's connector (P/J239.)
3. Remove the four screws (silver, guarded, 6mm) holding the feeder motor assembly in place, and then remove the feeder motor assembly.

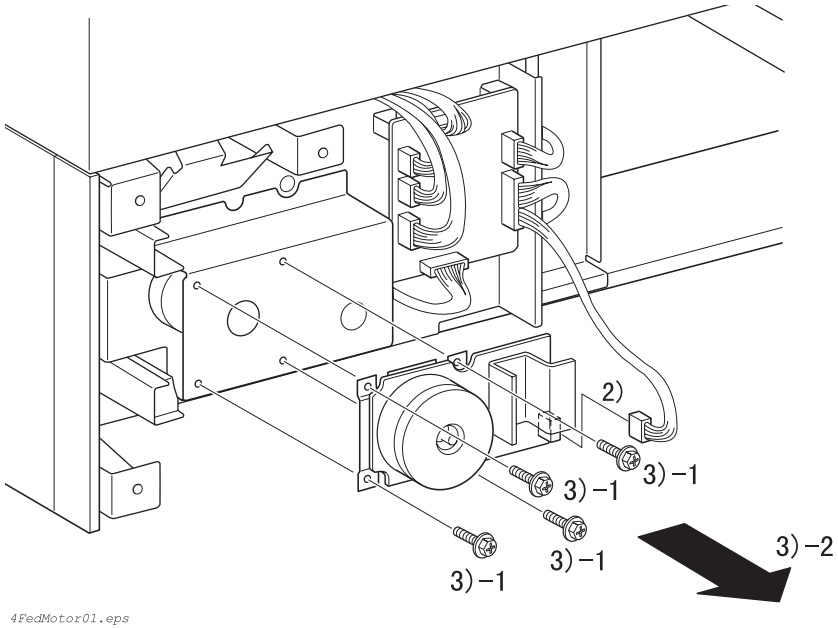


Figure 7-110. Removing the FEEDER MOTOR ASSY

7.8.3.4.9 FEEDER DRIVE ASSY (PL32.1.4)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the two FEEDER HIGH ASSY (PL32.1.1) (*p.693*)
8. Remove the FEEDER MOTOR ASSY (PL32.1.3). (*p.694*)
9. Remove the FEEDER PWB (PL32.1.9). (*p.696*)
10. Remove the COVER BRACKET (PL32.1.10). (*p.696*)
11. Remove the COVER JOINT BRACKET (PL32.1.12). (*p.697*)
12. Disconnect the two connectors (P/J132, P/J211) on the main unit and feeder harness assembly.
13. Remove the four screws (silver, guarded, 6mm) holding the feeder drive assembly in place, and then remove the feeder drive assembly.

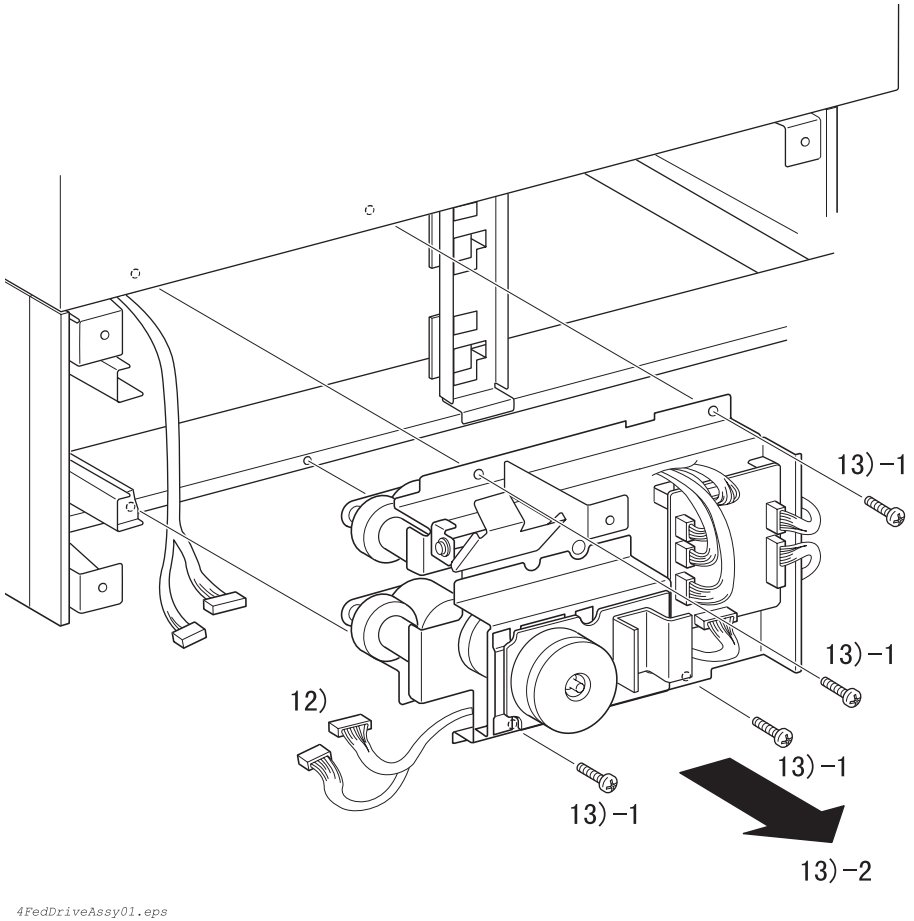
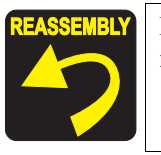


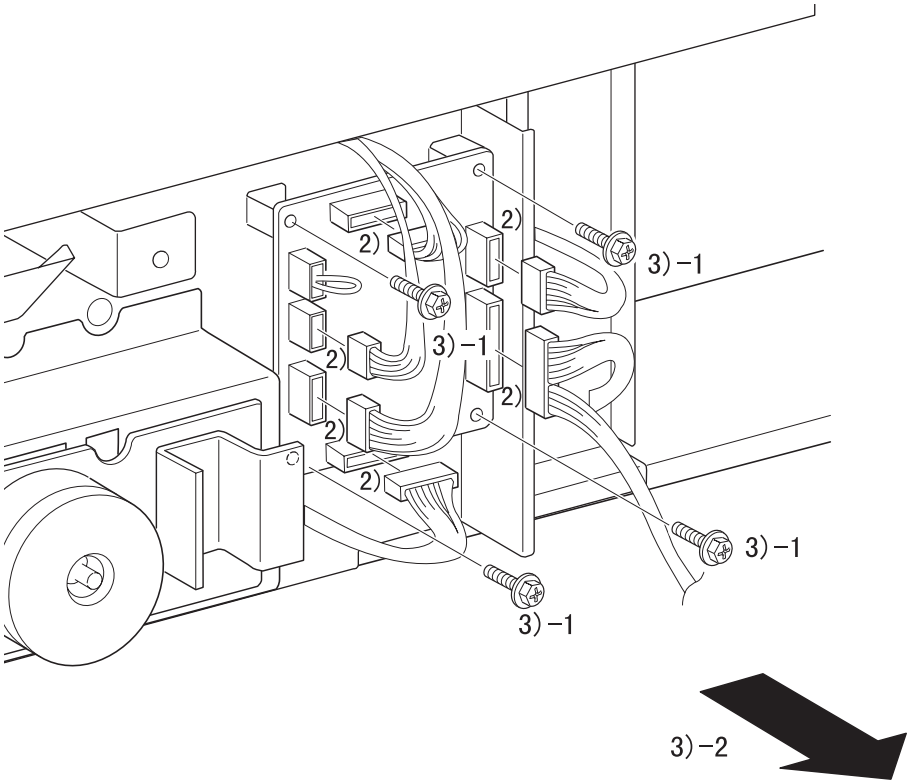
Figure 7-111. Removing the FEEDER DRIVE ASSY

7.8.3.4.10 FEEDER PWB (PL32.1.9)

1. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
2. Disconnect the six connectors (P/J212, P/J213, P/J214, P/J215, P/J216, P/J217,) on the feeder PWB.
3. Remove the four screws (silver, guarded, 6mm) holding the feeder PWB in place, and then remove the feeder PWB.



Ensure that the position of the connectors are not mistaken when reconnecting them.

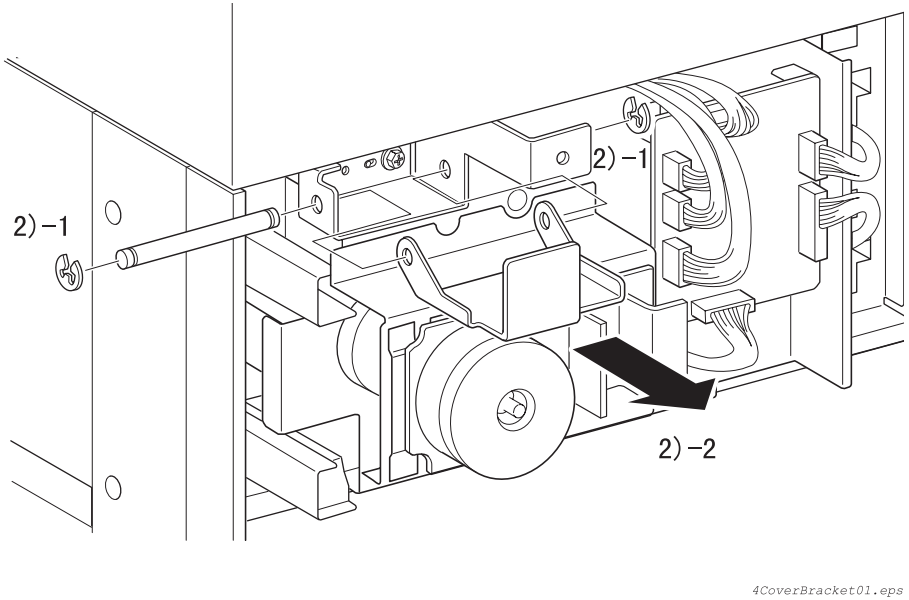


4FedPWB01.eps

Figure 7-112. Removing the FEEDER PWB

7.8.3.4.11 COVER BRACKET (PL32.1.10)

1. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
2. Remove the two E-rings holding the cover bracket shaft in place, and then remove the cover bracket shaft and the cover bracket.



4CoverBracket01.eps

Figure 7-113. Removing the COVER BRACKET

7.8.3.4.12 COVER JOINT BRACKET (PL32.1.12)

1. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
2. Remove the rear O/H cover.
   Refer to "REAR COVER ASSY (PL1.1.30)" (*p.267*)
3. Remove the COVER BRACKET (PL32.1.10). (*p.696*)
4. Release the harness from the clamp to free it.
5. Remove the two screws (silver, guarded, 6mm) holding the cover joint bracket in place, and then remove the cover joint bracket.
6. Remove the clamp from the cover joint bracket.

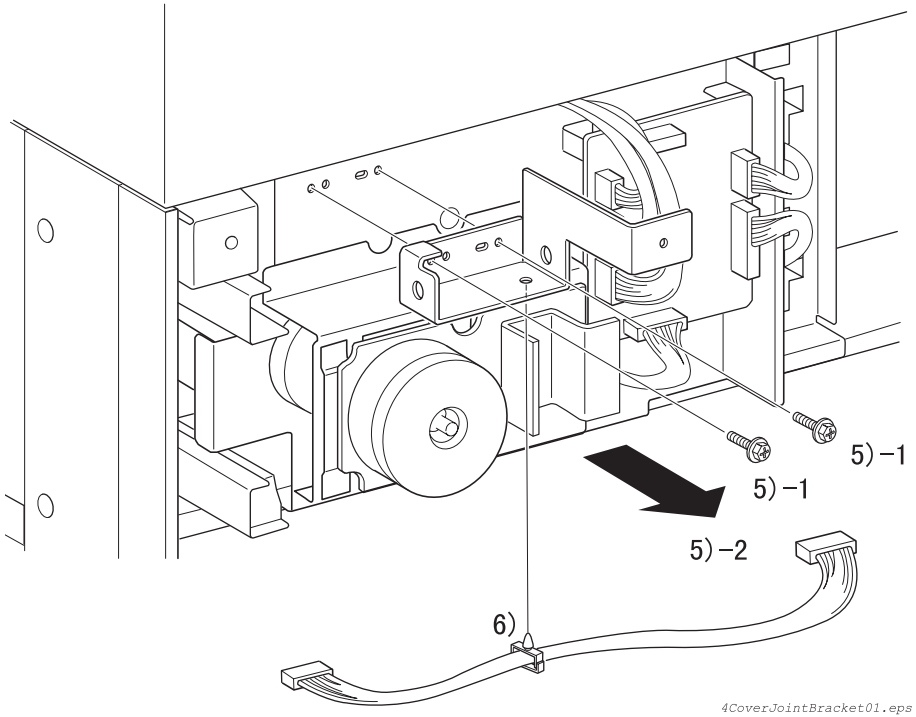


Figure 7-114. Removing the COVER JOINT BRACKET

7.8.3.4.13 SIZE SWITCH ASSY (PL32.1.17)

1. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
2. Disconnect the size harness's connectors (P/J235, P/J236.)
3. Remove the two screws (silver, guarded, 6mm) holding the 2 tray size bracket assembly in place, and then remove the 2 tray size bracket assembly.

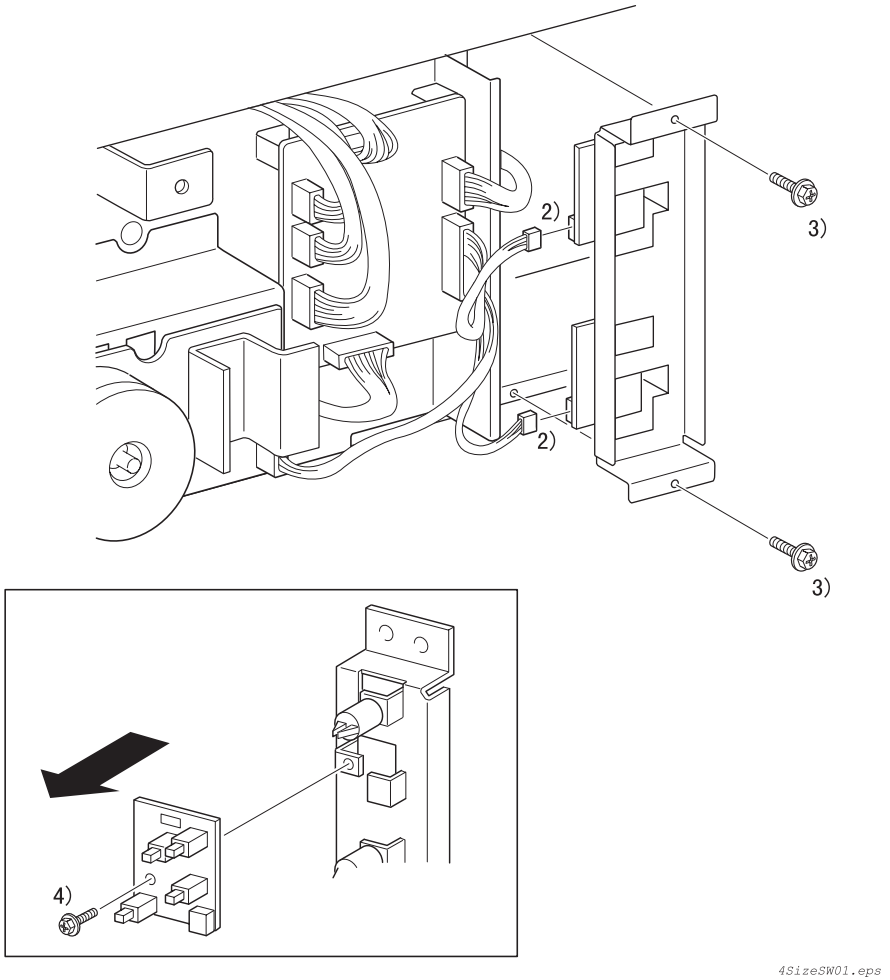
CHECK POINT

The illustration for the next procedure shows the upper size switch assembly, but the lower size switch assembly is removed in the same way.

4. Remove the screw (silver, guarded, 6mm) holding the size switch assembly in place, and then remove the size switch assembly.

REASSEMBLY

Ensure that the position of the connectors are not mistaken when reconnecting them.



4SizeSW01.eps

Figure 7-115. Removing the SIZE SWITCH ASSY

7.8.3.4.14 FEEDER RIGHT COVER SWITCH (PL31.1.21)

1. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
2. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)

CHECK POINT

The illustration for the next procedure shows the front feeder right cover switch, but the rear feeder right cover switch is removed in the same way.

3. Disconnect the feeder right cover switch's connector (P/J237.)
4. Remove the feeder right cover switch's hook from the feeder right cover, and then remove the feeder right cover switch.

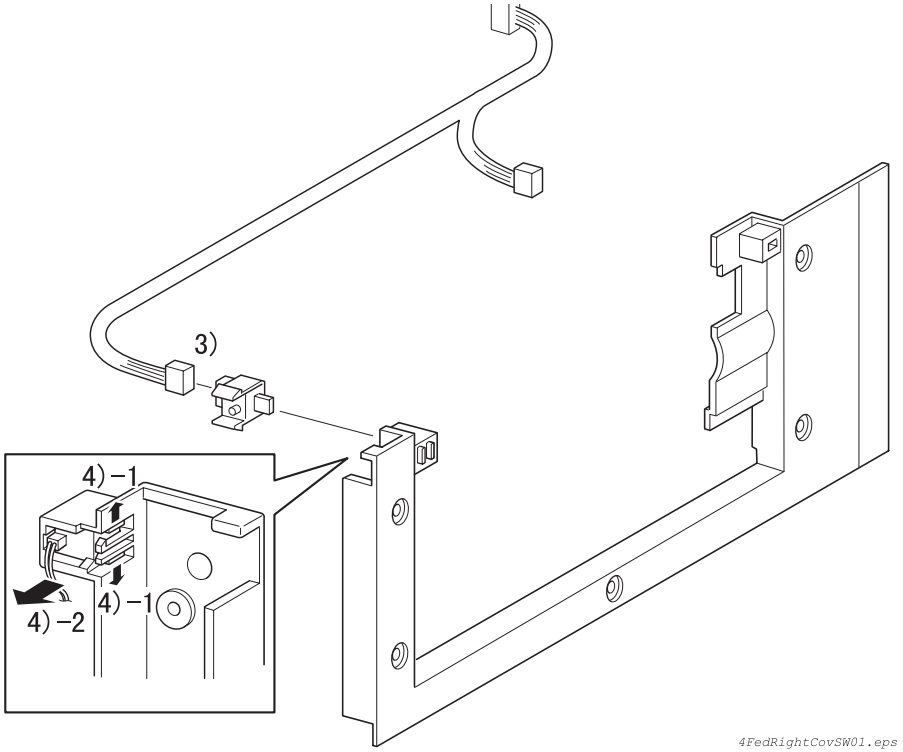


Figure 7-116. Removing the FEEDER RIGHT COVER SWITCH

7.8.3.4.15 LOW PAPER SENSOR-2T (PL32.1.30)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)
8. Remove the FEEDER DRIVE ASSY (PL32.1.4). (*p.695*)
9. Disconnect the low paper sensor-2T connector (P/J231.)
10. Remove the screw (silver, 6mm) holding the tray stopper-2T in place, and then remove the tray stopper-2T.
11. Release the hook on the low paper sensor-2T and then remove the low paper sensor-2T from the tray stopper-2T.

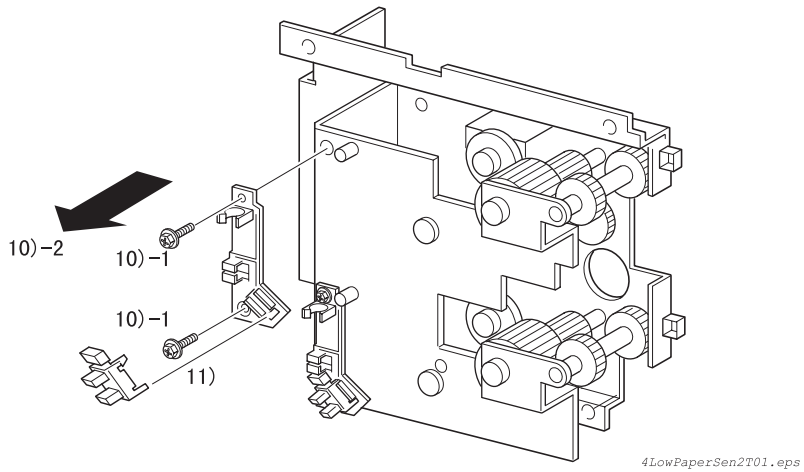


Figure 7-117. Removing the LOW PAPER SENSOR-2T

7.8.3.4.16 LOW PAPER SENSOR-3T (PL32.1.31)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)
8. Remove the FEEDER DRIVE ASSY (PL32.1.4). (*p.695*)
9. Disconnect the low paper sensor-3T connector (P/J232.)
10. Remove the two screws (silver, 6mm) holding the tray stopper-3T in place, and then remove the tray stopper-3T.
11. Release the hook on the low paper sensor-3T and then remove the low paper sensor-2T from the tray stopper-3T.

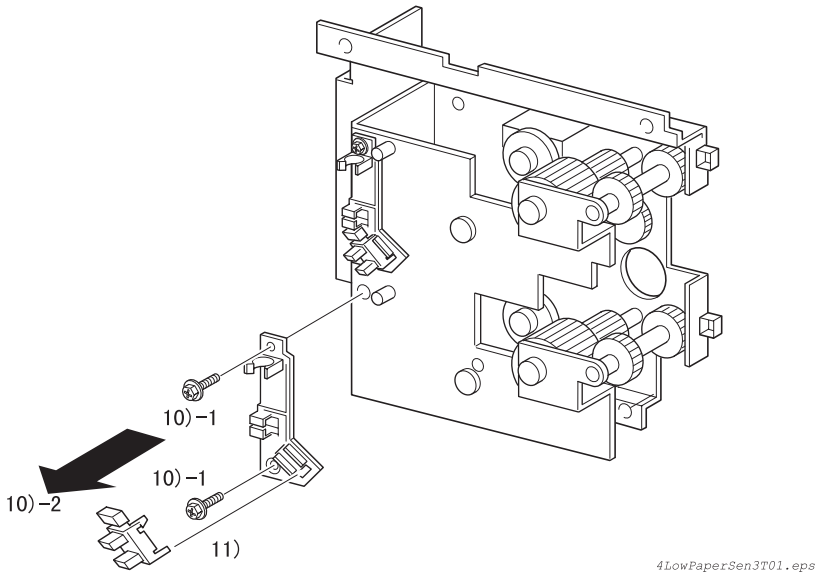


Figure 7-118. Removing the LOW PAPER SENSOR-3T

7.8.3.4.17 T/A CLUTCH ASSY (PL32.2.29)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)
8. Remove the NUD SOLENOID ASSY (PL32.2.51). (*p.706*)
9. Remove the extension springs from the feed bracket and nudger SOL link.
10. Remove both the saddle brush and the harness.

CHECK POINT

Note that the connector numbers in the following procedure differ in accordance with the relevant cassette.

11. Disconnect the T/A clutch connector (P/J227) and remove the harness from the saddle brush.
12. Release the locking clamp mini from the harness to free it.

CHECK POINT

Take care not to lose gear once it has been freed in the following procedure.

13. Remove the two screws (silver, 6mm) holding the feed bracket assembly in place, and then remove the feed bracket assembly.
14. Remove the E-ring holding the T/A clutch assembly in place, and then remove the T/A clutch assembly.

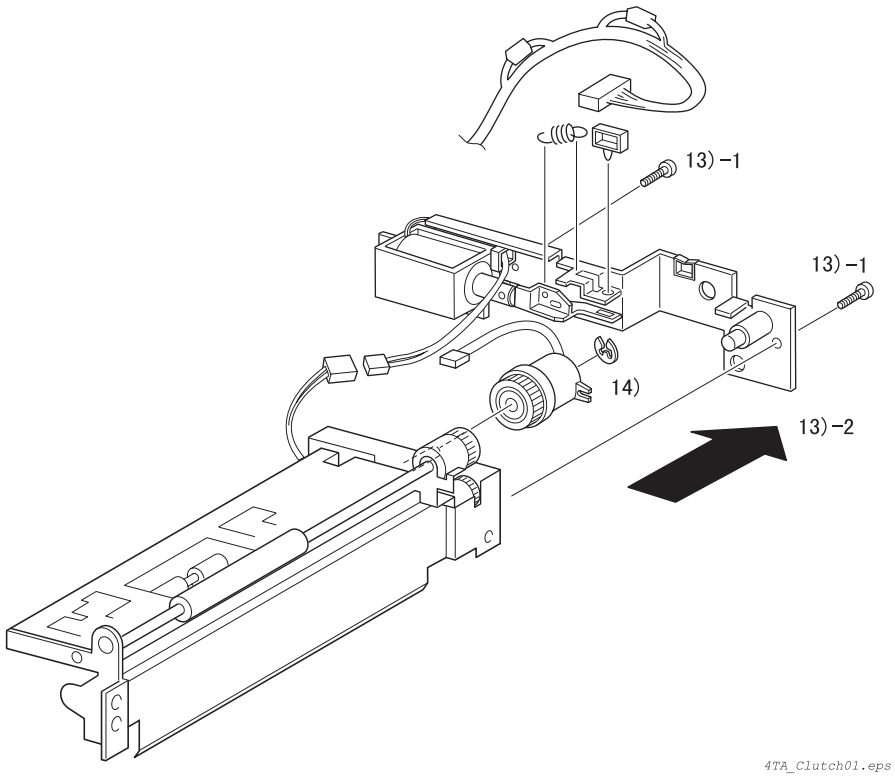


Figure 7-119. Removing the T/A CLUTCH ASSY

7.8.3.4.18 NUDGER SENSOR (PL32.2.33)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)

CHECK POINT

Note that the connector numbers in the following procedure differ in accordance with the relevant cassette.

8. Disconnect the nudger sensor connector (P/J221).
9. Release the nudger sensor hook from the upper frame assembly's frame, and then remove the nudger sensor.

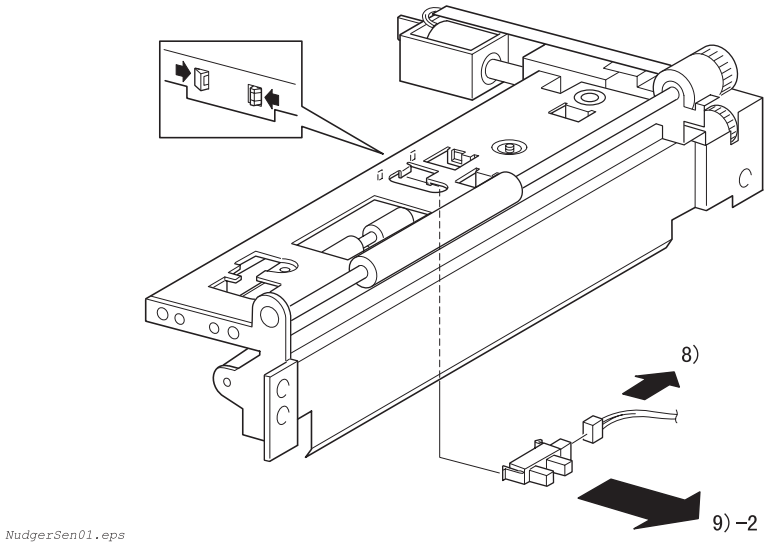


Figure 7-120. Removing the NUDGER SENSOR

7.8.3.4.19 FEED OUT SENSOR (PL32.2.36)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)
8. Remove the screw (silver, 6mm) holding the front upper chute in place, shift the front upper chute forward, and then remove it diagonally to the left.
9. Release the front upper chute's hook holding the feed out sensor in place, and then remove the feed out sensor.

CHECK POINT

Note that the connector numbers in the following procedure differ in accordance with the relevant cassette.

10. Disconnect the feed out sensor connector (P/J223.)

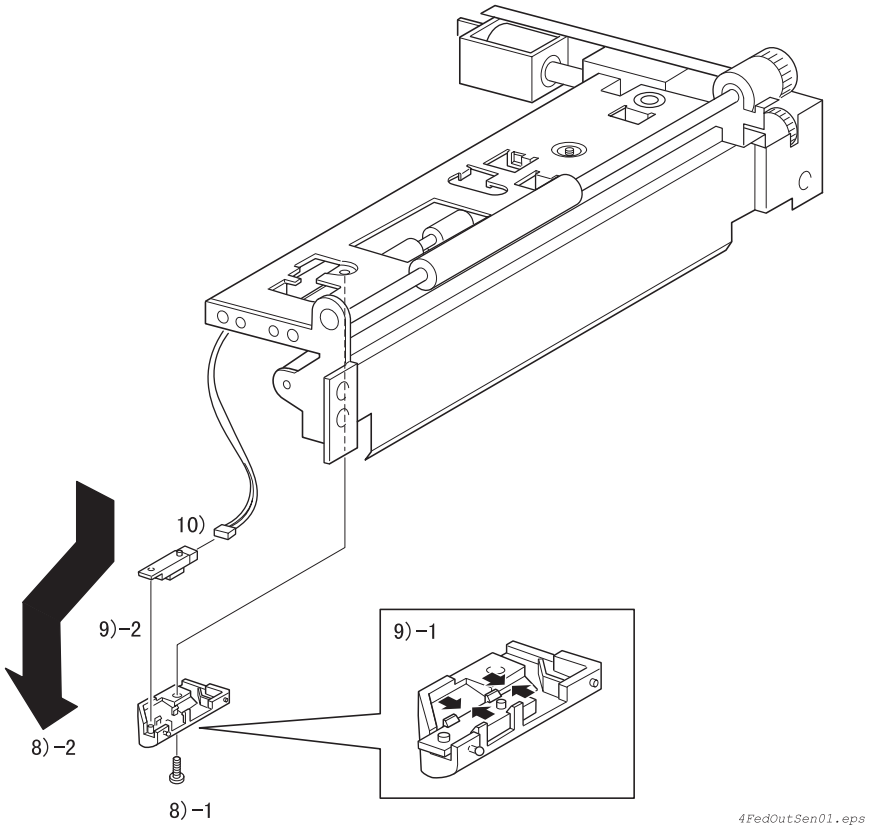


Figure 7-121. Removing the FEED OUT SENSOR

7.8.3.4.20 NO PAPER SENSOR (PL32.2.45)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)

CHECK POINT

Note that the connector numbers in the following procedure differ in accordance with the relevant cassette.

8. Disconnect the no paper sensor connector (P/J219.)
9. Release the no paper sensor hook from the upper frame assembly, and then remove the no paper sensor.

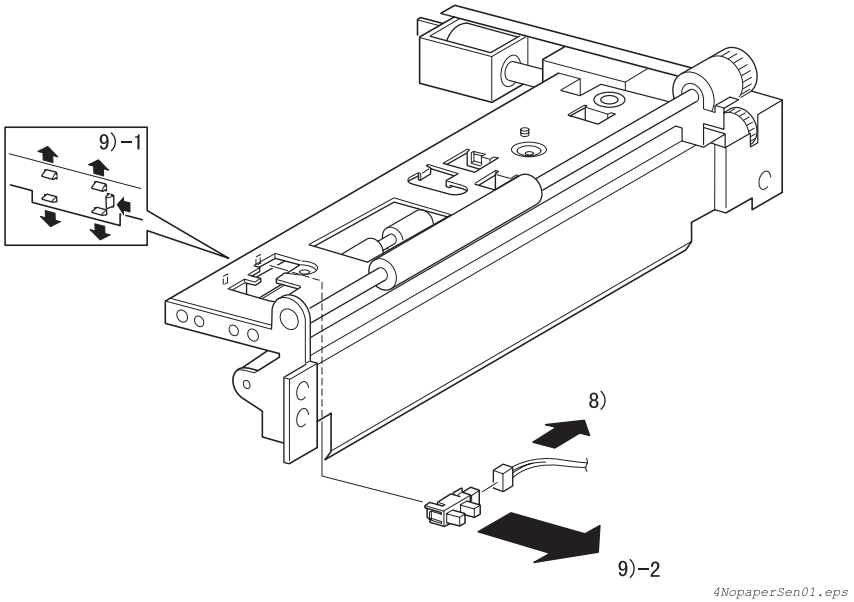


Figure 7-122. Removing the NO PAPER SENSOR

7.8.3.4.21 TA ROLL ASSY (PL32.2.50)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)
8. Remove the E-ring holding the turn clutch assembly in place.
9. Remove the two E-rings holding the TA roll assembly in place, shift the rear bearing forward and remove it from the feed bracket assembly.
10. Shift the front bearing backward and remove it from the feeder front frame.
11. Shift the TA roll assembly forward, and then remove the TA roll assembly from the turn clutch assembly and the feed bracket assembly.
12. Shift the TA roll assembly backward, and the remove it together with the bearing.
13. Remove the bearing from the TA roll assembly.

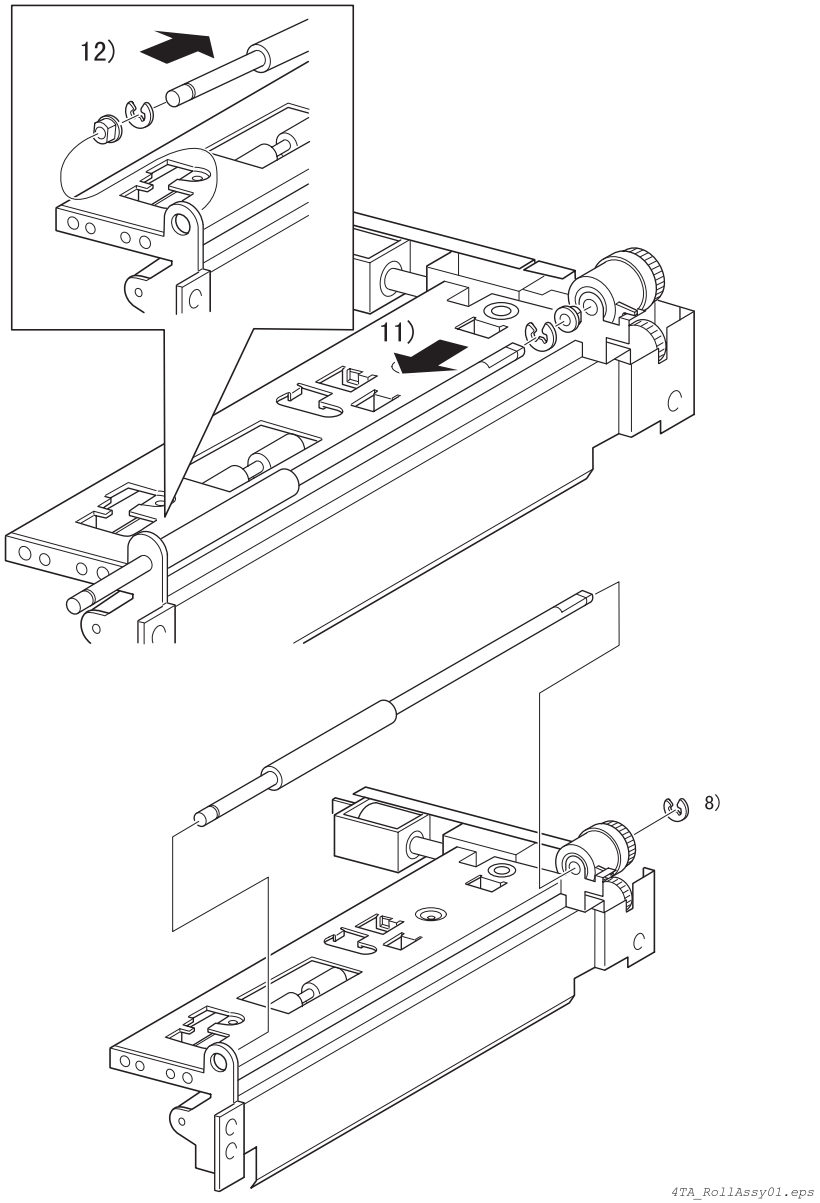


Figure 7-123. Removing the TA ROLL ASSY

7.8.3.4.22 NUD SOLENOID ASSY (PL32.2.51)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)

CHECK POINT

Note that the connector numbers in the following procedure differ in accordance with the relevant cassette.

8. Disconnect the nudger solenoid assembly connector (P/J225.)
9. Remove the screw (silver, 6 mm) securing the NUD SOLENOID ASSY and pull out the SOLENOID LINK from the SPRING PIN. Then remove the SPRING PIN from the NUD SOL LINK upward.

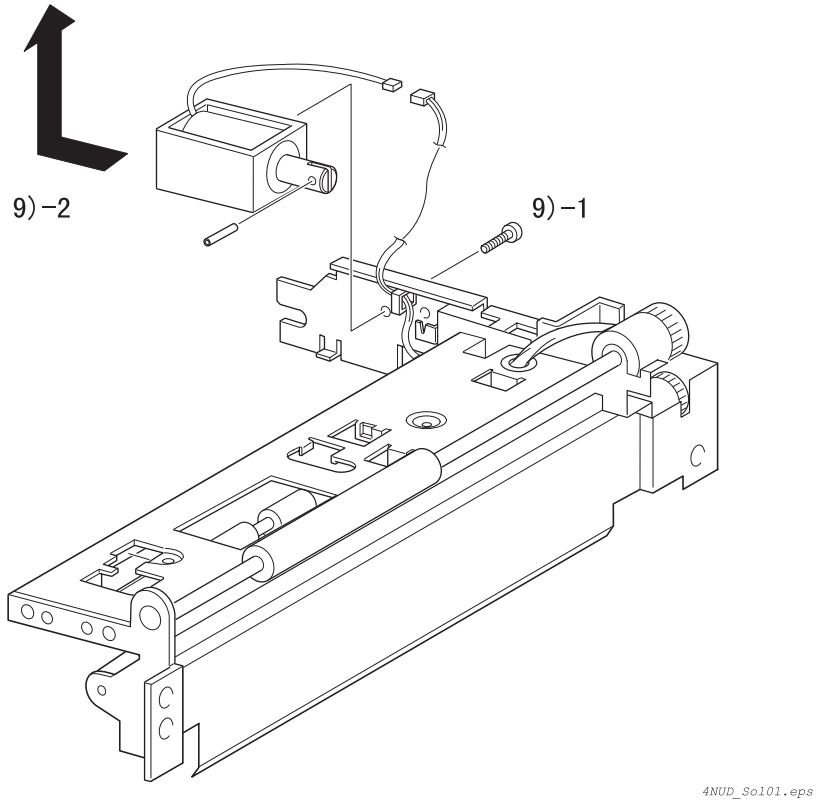


Figure 7-124. Removing the NUD SOLENOID ASSY

7.8.3.4.23 TURN CLUTCH ASSY (PL32.2.56)

1. Remove the RIGHT LOWER COVER (PL1.1.50). (*p.269*)
2. Remove the two screws (silver, guarded, 6mm) holding the R/H lower bracket in place, and then remove the R/H lower bracket.
3. Draw out the two paper cassettes (500 TRAY ASSY) from the Large Capacity Paper Unit.
   Refer to "UNIVERSAL TRAY (PL2.1.1)" (*p.270*)
4. Remove the FEEDER REAR COVER (PL31.1.2). (*p.690*)
5. Remove the FEEDER RIGHT COVER (PL31.1.20). (*p.691*)
6. Remove the FEEDER CHUTE ASSY (PL31.1.30). (*p.692*)
7. Remove the FEEDER HIGH ASSY (PL32.1.1). (*p.693*)

CHECK POINT

Note that the two connector numbers explained in the following procedure are different depending on the relevant cassette.

8. Disconnect the turn clutch assembly connector (P/J229 or J/P230), and then release the saddle bush, the locking clamp mini and the sheet clamp from the harness to free them.
9. Remove the E-ring holding the turn clutch assembly in place.
10. Remove the front E-ring holding the TA roll assembly in place.
11. Shift the TA roll assembly forward, remove the turn clutch assembly and feed bracket assembly together with the front bearing, and then remove the turn clutch assembly.

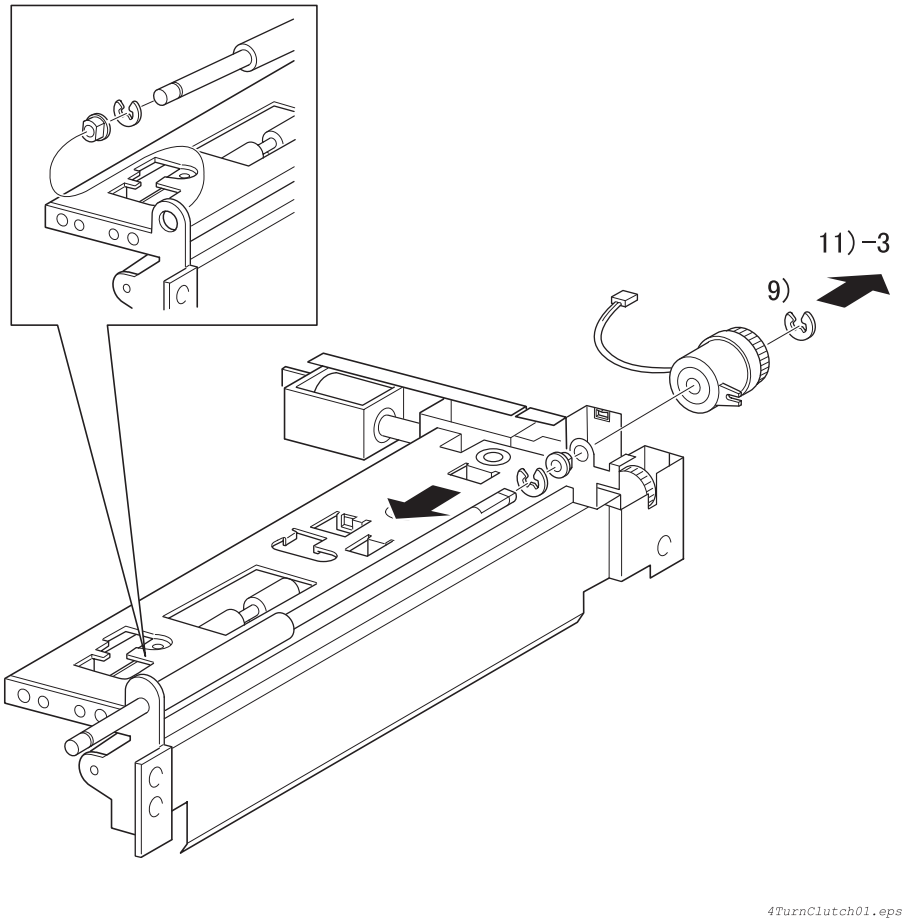


Figure 7-125. Removing the TURN CLUTCH ASSY

7.8.3.5 Large Capacity Paper Unit supplement

This section describes the connector locations and connection diagrams of the Large Capacity Paper Unit. Refer to the appropriate pages for exploded diagrams and ASP lists:

- See *page 726* for Exploded Diagrams of Large Capacity Paper Unit.
- See "ASP list for Large Capacity Paper Unit" (*p.736)*

7.8.3.5.1 Connectors

Table 7-98. P/J List

P/J	Remarks
132	Connection of FEEDER HARNESS and MAIN HARNESS ASSY
211	Connection of FEEDER HARNESS and MAIN HARNESS ASSY
213	Connection of FEEDER PWB and FEEDER HARNESS
214	Connection of FEEDER PWB and FEEDER UPPER HARNESS
215	Connection of FEEDER PWB and FEEDER LOWER HARNESS
216	Connection of FEEDER PWB and TRAY UP SENSOR HARNESS
217	Connection of FEEDER PWB and SIZE HARNESS
218	Connection of FEEDER PWB and FEEDER HARNESS
219	Connection of NO PAPER SENSOR (Cassette 2) and FEEDER HARNESS ASSY
220	Connection of NO PAPER SENSOR (Cassette 3) and FEEDER HARNESS ASSY
221	Connection of NUDGER SENSOR (Cassette 2) and FEEDER HARNESS ASSY
222	Connection of NUDGER SENSOR (Cassette 3) and FEEDER HARNESS ASSY
223	Connection of FEED OUT SENSOR (Cassette 2) and FEEDER HARNESS ASSY
224	Connection of FEED OUT SENSOR (Cassette 3) and FEEDER HARNESS ASSY
225	Connection of NUDGER SOLENOID ASSY (Cassette 2) and FEEDER HARNESS ASSY
226	Connection of NUDGER SOLENOID ASSY (Cassette 3) and FEEDER HARNESS ASSY
227	Connection of T/A CLUTCH ASSY (Cassette 2) and FEEDER HARNESS ASSY
228	Connection of T/A CLUTCH ASSY (Cassette 3) and FEEDER HARNESS ASSY
229	Connection of TURN CLUTCH ASSY (Cassette 2) and FEEDER HARNESS ASSY
230	Connection of TURN CLUTCH ASSY (Cassette 3) and FEEDER HARNESS ASSY
231	Connection of LOW PAPER SENSOR-2T (Cassette 2) and TRAY UP SENSOR HARNESS
232	Connection of LOW PAPER SENSOR-2T (Cassette 3) and TRAY UP SENSOR HARNESS
235	Connection of SIZE SWITCH ASSY (Cassette 2) and SIZE HARNESS
236	Connection of SIZE SWITCH ASSY (Cassette 3) and SIZE HARNESS
237	Connection of FEEDER RIGHT COVER SWITCH (Cassette 2) and COVER SWITCH HARNESS
238	Connection of FEEDER RIGHT COVER SWITCH (Cassette 3) and COVER SWITCH HARNESS
239	Connection of FEEDER MOTOR ASSY and SIZE HARNESS
240	Connection of COVER SWITCH HARNESS and SIZE HARNESS
241	Connection of FEEDER HARNESS ASSY (Cassette 2) and FEEDER UPPER HARNESS
242	Connection of FEEDER HARNESS ASSY (Cassette 3) and FEEDER UPPER HARNESS

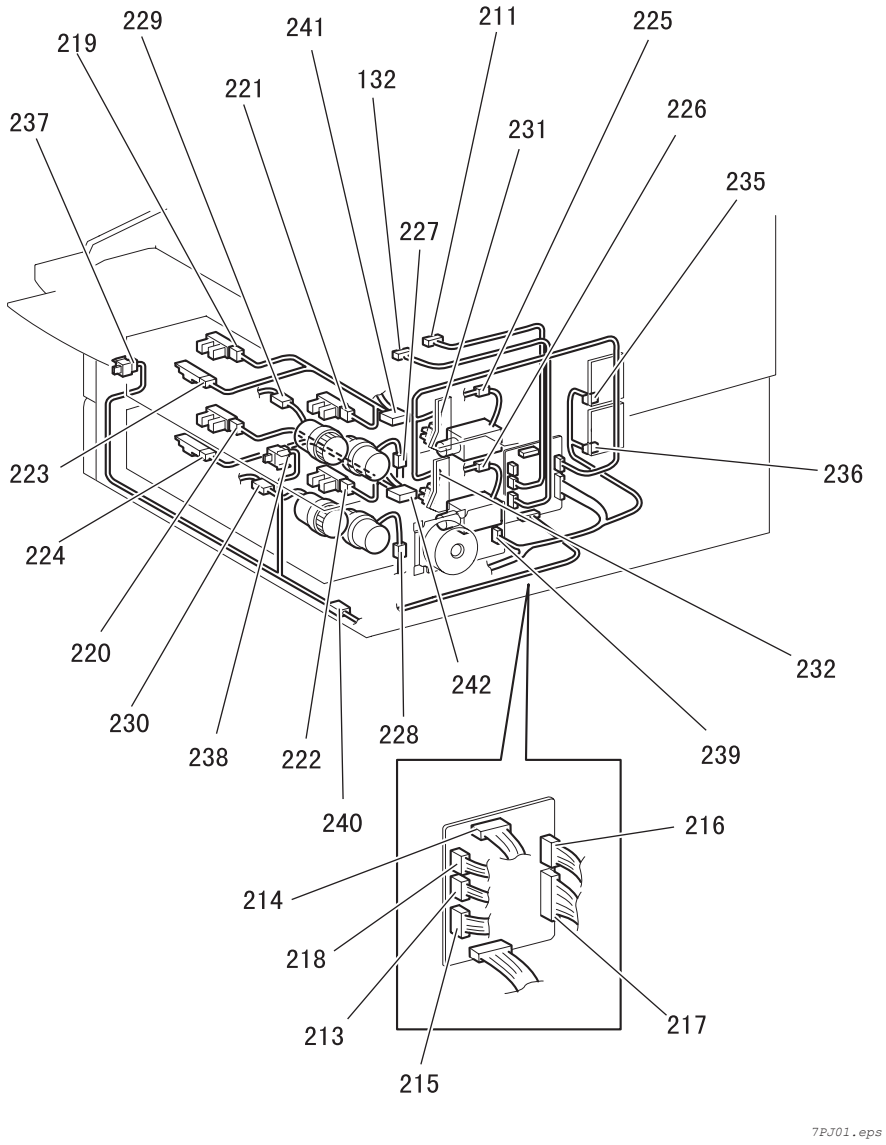


Figure 7-126. P/J Locations of Large Capacity Paper Unit

7.8.3.5.2 Connection wiring diagram

OVERALL CONNECTION WIRING DIAGRAM

Shown at right is the overall connection wiring diagram of Large Capacity Paper Unit. For meanings of symbols used in the diagram, see "Figure 7-9 Symbols Used in the Overall Wiring Connection Diagrams" (*p.465)*.

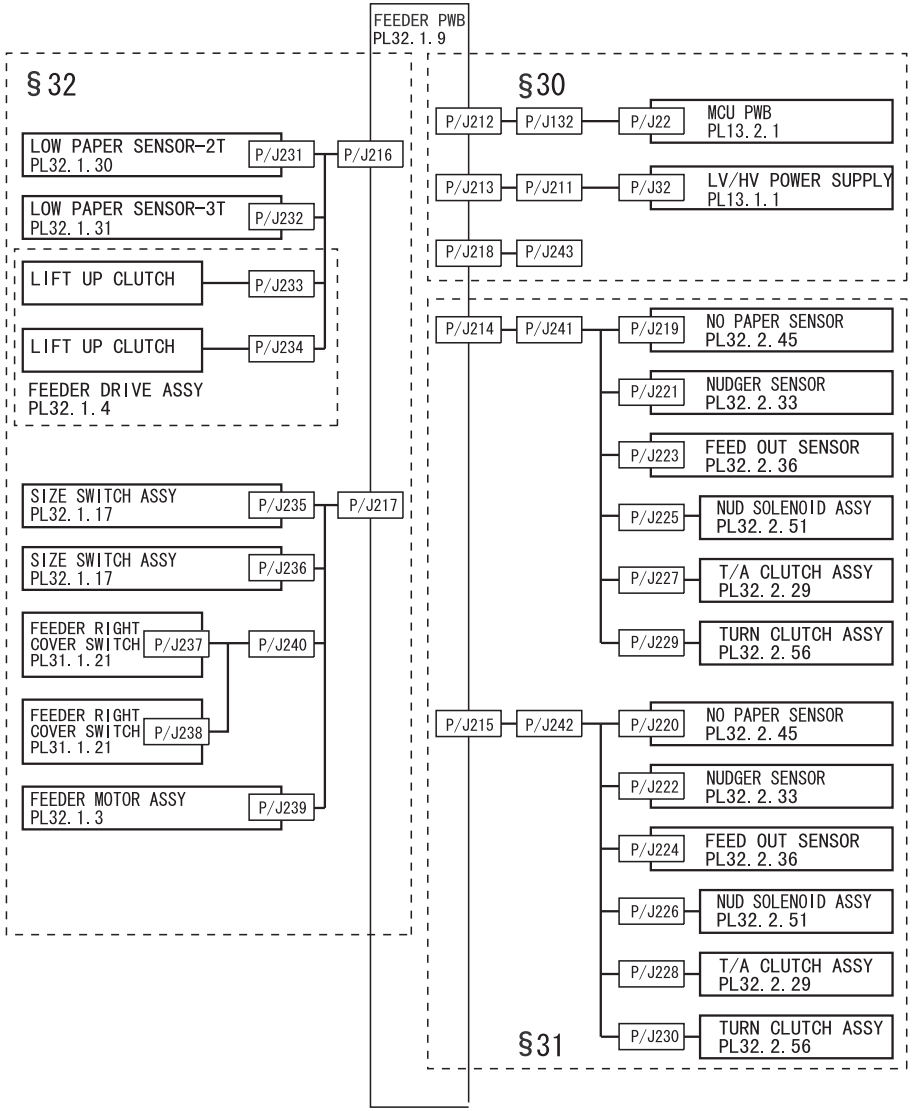


Figure 7-127. Overall Connection Wiring Diagram of Large Capacity Paper Unit

CONNECTION WIRING DIAGRAMS BETWEEN PARTS

Shown here are the wiring diagrams for connection between parts of Large Capacity Paper Unit. For meanings of symbols used in the diagrams, see "Figure 7-10 Symbols Used in the Wiring Connection Diagrams" (*p.469)*.

☐ Constitution:
The connection wiring diagrams are divided into three sections that provide details on the connections between parts.

- ■ §30.MCU PWB, LV/HV POWER SUPPLY, FEEDER PWB
  - Connection of MCU PWB and FEEDER PWB
  - Connection of LV/HV POWER SUPPLY and FEEDER PWB
- ■ §31.FEEDER PWB, NO PAPER SENSOR,NUDGER SENSOR,NUD SOLENOID ASSY,T/A CLUTCH ASSY, TURN CLUTCH ASSY
  - Connection of FEEDER PWB and NO PAPER SENSOR
  - Connection of FEEDER PWB and NUDGER SENSOR
  - Connection of FEEDER PWB and FEED OUT SENSOR
  - Connection of FEEDER PWB and NUDGER SOLENOID ASSY
  - Connection of FEEDER PWB and T/A CLUTCH ASSY
  - Connection of FEEDER PWB and TURN CLUTCH ASSY
- ■ §32.FEEDER PWB, LOW PAPER SENSOR-2T,LOW PAPER SENSOR-3T, FEEDER DRIVE ASSY(LIFT UP CLUTCH),SIZE SWITCH ASSY, FEEDER RIGHT COVER SWITCH,FEEDER MOTOR ASSY
  - Connection of FEEDER PWB and LOW PAPER SENSOR-2T
  - Connection of FEEDER PWB and LOW PAPER SENSOR-3T
  - Connection of FEEDER PWB and FEEDER DRIVE ASSY
  - Connection of FEEDER PWB and SIZE SWITCH ASSY
  - Connection of FEEDER PWB and FEEDER RIGHT COVER SWITCH
  - Connection of FEEDER PWB and FEEDER MOTOR ASSY

§30.MCU PWB, LV/HV POWER SUPPLY, FEEDER PWB

Table 7-99.

Signal line name	Remarks
PRE REGI	Command signal from the MCU PWB to the FEEDER UNIT
START	The signal to indicate the start of paper feeding from the FEEDER UNIT.
SER-TXD	Command signal from the MCU PWB to the FEEDER UNIT
SER-RXD	Status signal from the FEEDER UNIT to the MCU PWB
READY	The signal to notify the user that paper feeder is possible from the FEEDER UNIT
FLAG	Status signal from the FEEDER UNIT to the MCU PWB

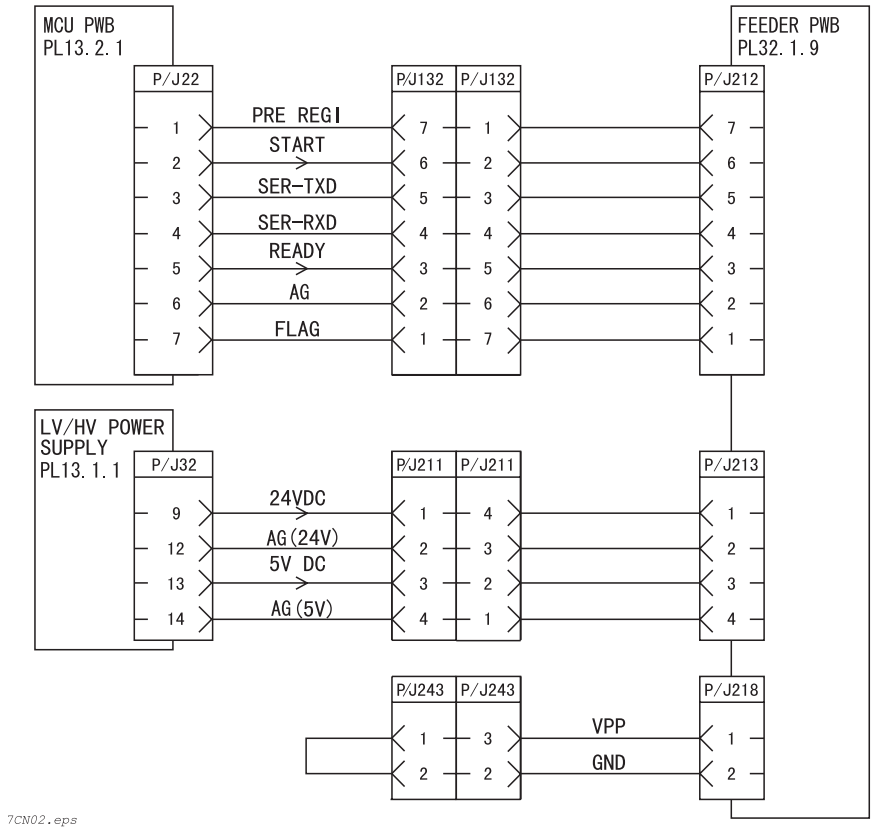


Figure 7-128. §30 Connection wiring diagram

§31. FEEDER PWB, NO PAPER SENSOR,NUDGER SENSOR,NUD SOLENOID ASSY,T/A CLUTCH ASSY, TURN CLUTCH ASSY

Table 7-100.

Signal line name	Remarks
[2]NO PAPER SENSED(L)5VDC	The signal for detecting the existence of paper in the paper cassette with the Cassette 2 no paper sensor (High: No paper. Low: Paper exists)
[2]NUDGER SENSED(L)5VDC	The signal for detecting the nearly empty status with the Cassette 2 nudger sensor
[2]FEED OUT SENSED(L)5VDC	The signal for detecting the existence of paper on the paper path with the Cassette 2 feed out sensor (High: No paper. Low: Paper exists)
[2]NUD SOLENOID ON(L)24VDC	The Cassette 2 NUD SOLENOID control signal (ON: Raised. OFF: Lowered)
[2]T/A CLUTCH ON(L)24VDC	The Cassette 2 T/A CLUTCH control signal
[2]TURN CLUTCH ON(L)24VDC	The Cassette 2 TURN CLUTCH control signal
[3]NO PAPER SENSED(L)5VDC	The Cassette 3 NO PAPER SENSOR control signal
[3]NUDGER SENSOR(L)5VDC	The Cassette 3 NUDGER SENSOR control signal
[3]FEED OUT SENSED(L)5VDC	The Cassette 3 FEED OUT SENSOR control signal
[3]NUD SOLENOID ON(L)24VDC	The Cassette 3 NUD SOLENOID control signal
[3]T/A CLUTCH ON(L)24VDC	The Cassette 3 T/A CLUTCH control signal
[3]TURN CLUTCH ON(L)24VDC	The Cassette 3 TURN CLUTCH control signal

Note 1: The [2] and [3] attached to the beginning of the signal wire names indicate that the signal is related to Cassette 2 or Cassette 3 respectively.
The paper tray feeder at the bottom of the printer body is called "Cassette 1" and the upper paper feeder and the lower paper feeder of the optional FEEDER UNIT are called "Cassette 2" and "Cassette 3", respectively.

- ☐ NUD SOLENOID ASSY coil resistance:34Ω ± 10% (20°C)
- ☐ T/A CLUTCH ASSY coil resistance:172Ω ± 10% (20°C)
- ☐ TURN CLUTCH ASSY coil resistance:150Ω ± 10% (20°C)

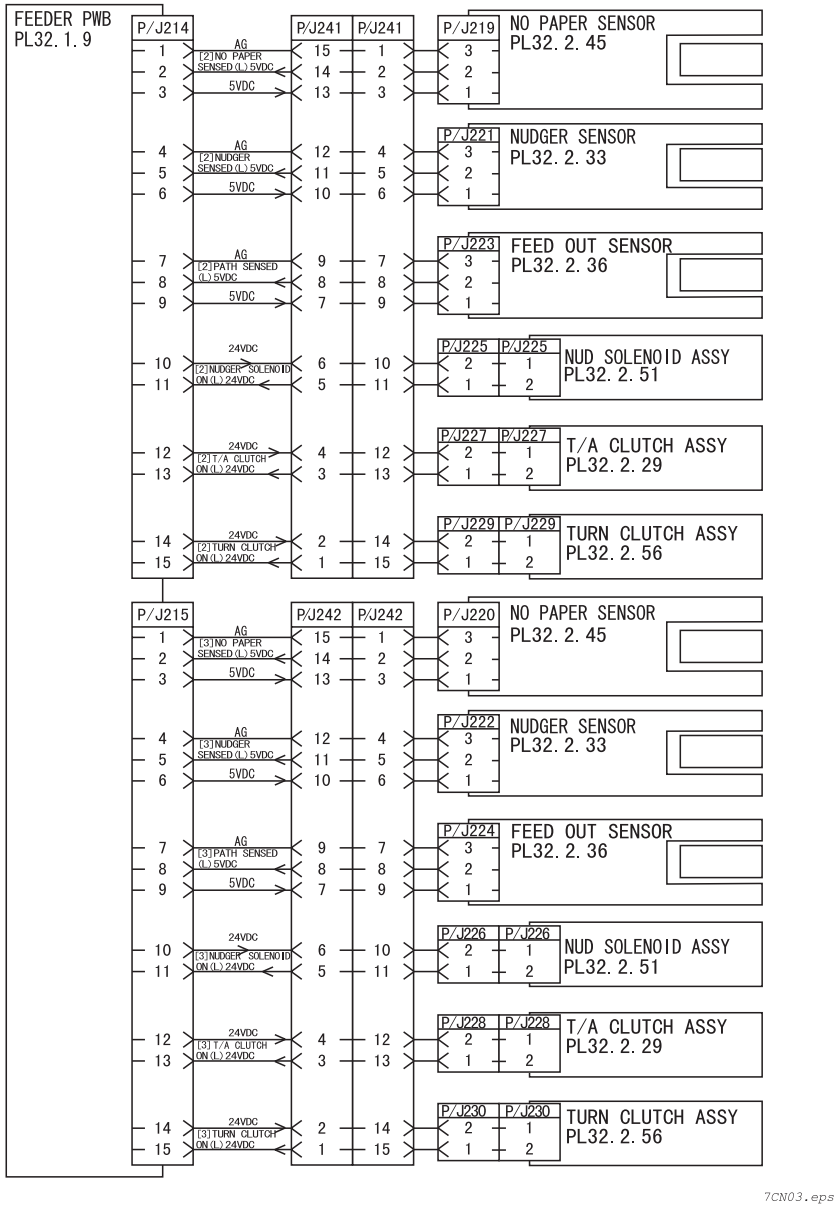


Figure 7-129. §31Connection wiring diagram

§32. FEEDER PWB, LOW PAPER SENSOR-2T,LOW PAPER SENSOR-3T, FEEDER DRIVE ASSY(LIFT UP CLUTCH),SIZE SWITCH ASSY, FEEDER RIGHT COVER SWITCH,FEEDER MOTOR ASSY

Table 7-101.

Signal line name	Remarks
[2]LOW PAPER SENSED	The Cassette 2 height detection signal
[3]LOW PAPER SENSED	The Cassette 3 height detection signal
[2]LIFT UP CLUTCH(FEEDER DRIVE ASSY) ON(L)24VDC	The Cassette 2 lift up clutch ON/OFF control signal
[3]LIFT UP CLUTCH(FEEDER DRIVE ASSY) ON(L)24VDC	The Cassette 3 lift up clutch ON/OFF control signal
[2]SIZE SWITCH	The signal for detecting the size of the paper in the Cassette 2 paper cassette
[3]SIZE SWITCH	The signal for detecting the size of the paper in the Cassette 3 paper cassette
FEEDER RIGHT COVER SWITCH ON	The signal for detecting if the feeder chute assembly is open (OFF) or closed (ON) with the feeder right cover switch

Note 1: The [2] and [3] attached to the beginning of the signal wire names indicate that the signal is related to Cassette 2 or Cassette 3 respectively.
The paper tray feeder at the bottom of the printer body is called "Cassette 1" and the upper paper feeder and the lower paper feeder of the optional FEEDER UNIT are called "Cassette 2" and "Cassette 3", respectively.

2: “J172” is used only with FEEDER UNIT (3TRAY).

☐ Outline of the FEEDER MOTOR

- Motor type: Permanent magnetic field DC servo motor
- Number of poles: 3-phase 8 poles
- Motor control revolutions: 1803.58rpm ± 0.5%
- Rotation direction: Counter-clockwise when seen from the rear of the unit

☐ Outline of the SIZE SWITCH signal
The size of the paper in the paper cassette is determined with the On/OFF operations of the paper size switch on the size switch assembly. The paper size switch's ON/OFF status and the voltage of the size switch for each relevant paper size are listed below.

The paper size switch moves sequentially through [SW1], [SW2], [SW3] and [SW4] when seen from the front of the unit to represent [ON], [1], [OFF] and [0] respectively.

Table 7-102.

Paper size	Paper Size Sensor			
	S1	S2	S3	S4
No paper cassette	0	0	0	0
B5(LEF) / EXECUTIVE(LEF)	0	1	0	1
A4(LEF)	1	0	1	1
LETTER(LEF)	0	1	1	1
A4(SEF)	0	0	1	1
LEGAL(14")(SEF)	0	0	1	0
B4(SEF)	0	1	1	0
A3(SEF)	1	0	1	0
LEDGER(SEF)	0	1	0	0

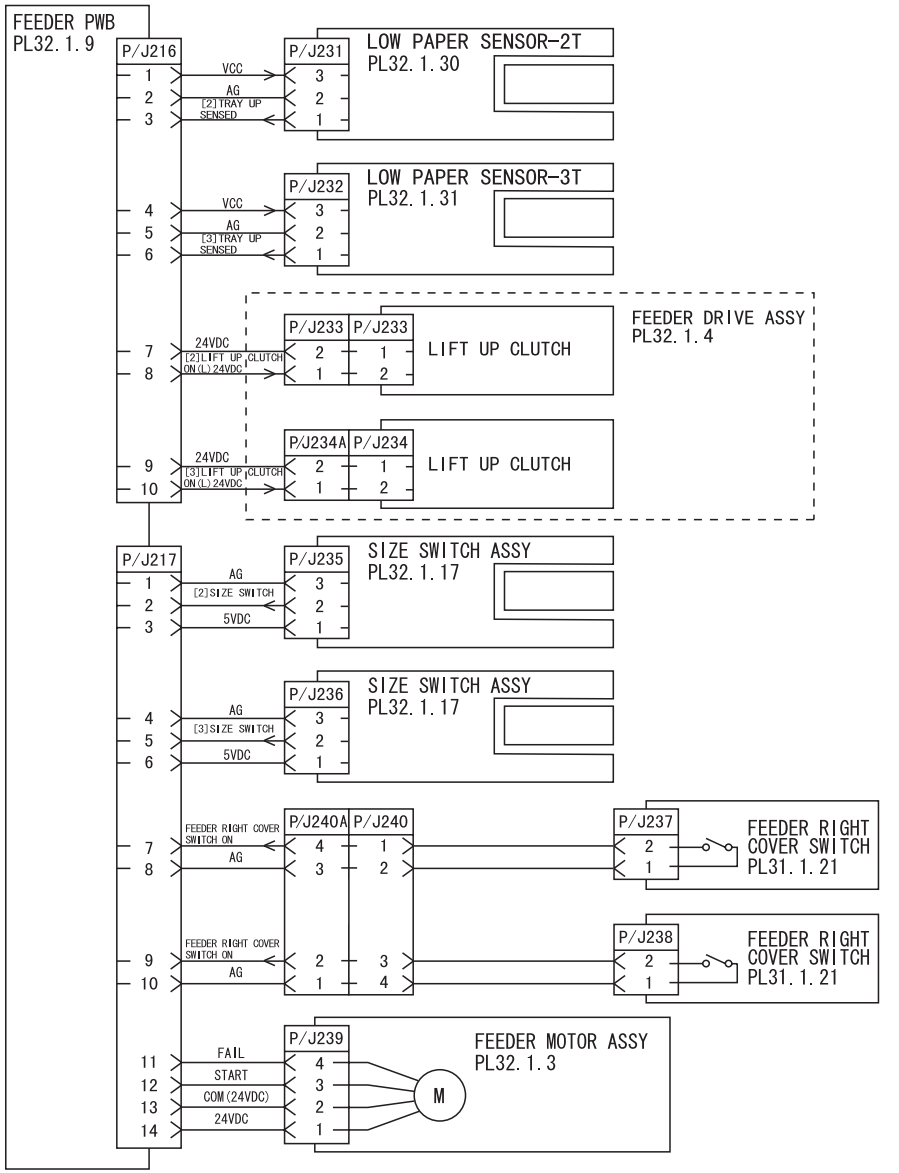


Figure 7-130. §32 Connection wiring diagram

7.8.4 ASP Information

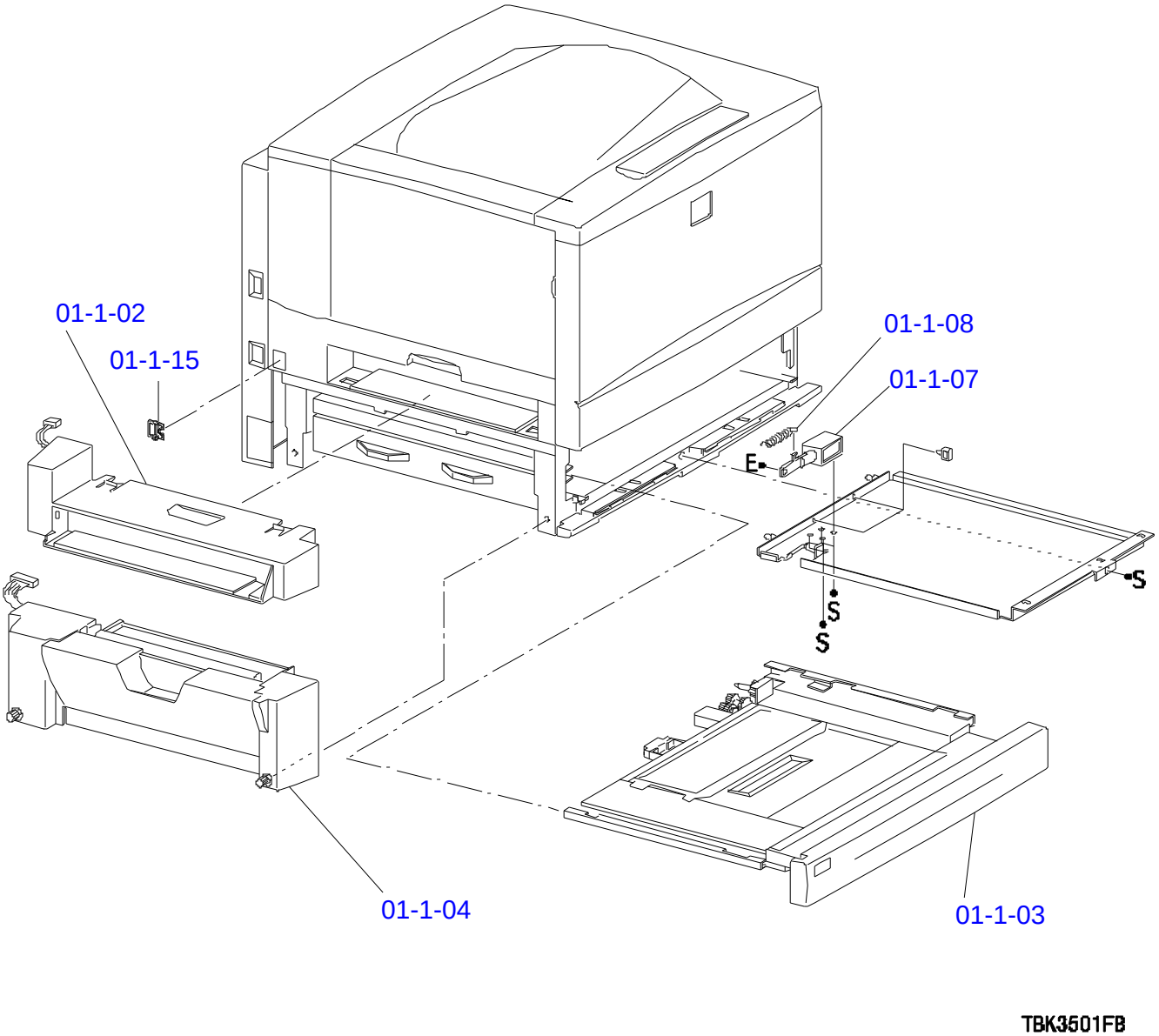
7.8.4.1 Exploded diagrams of optional units

Exploded diagrams of optional units are shown on following pages.

- ☐ Exploded Diagrams of Duplex Unit *(p.717)*
- ☐ Exploded Diagrams of 500-Sheet Paper Cassette Unit *(p.721)*
- ☐ Exploded Diagrams of Large Capacity Paper Unit *(p.726)*

C813-OPTI-019

The parts to which no reference number is assigned will not be available as after-sale service parts.



C813-OPTI-020

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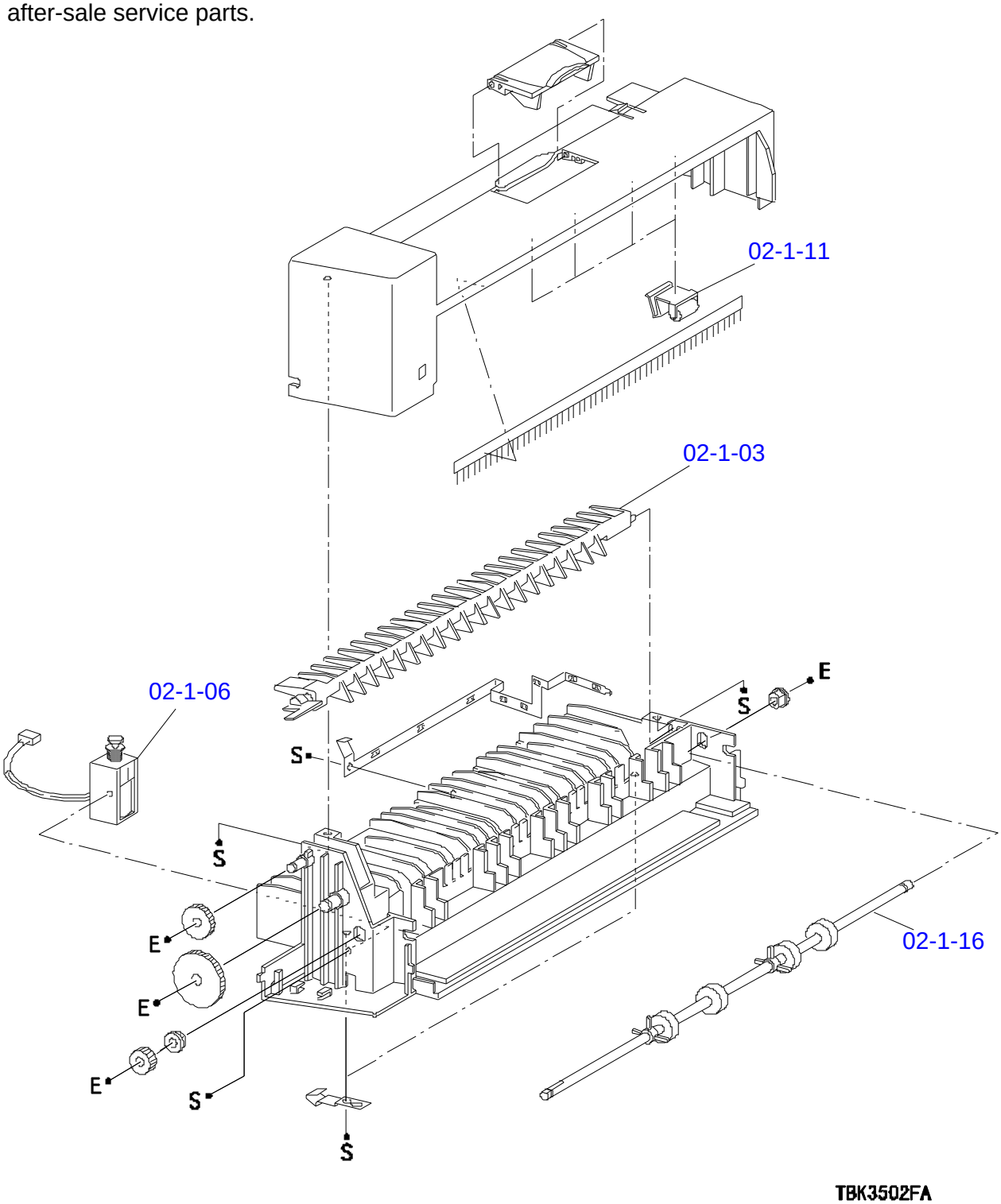

C813-OPTI-021

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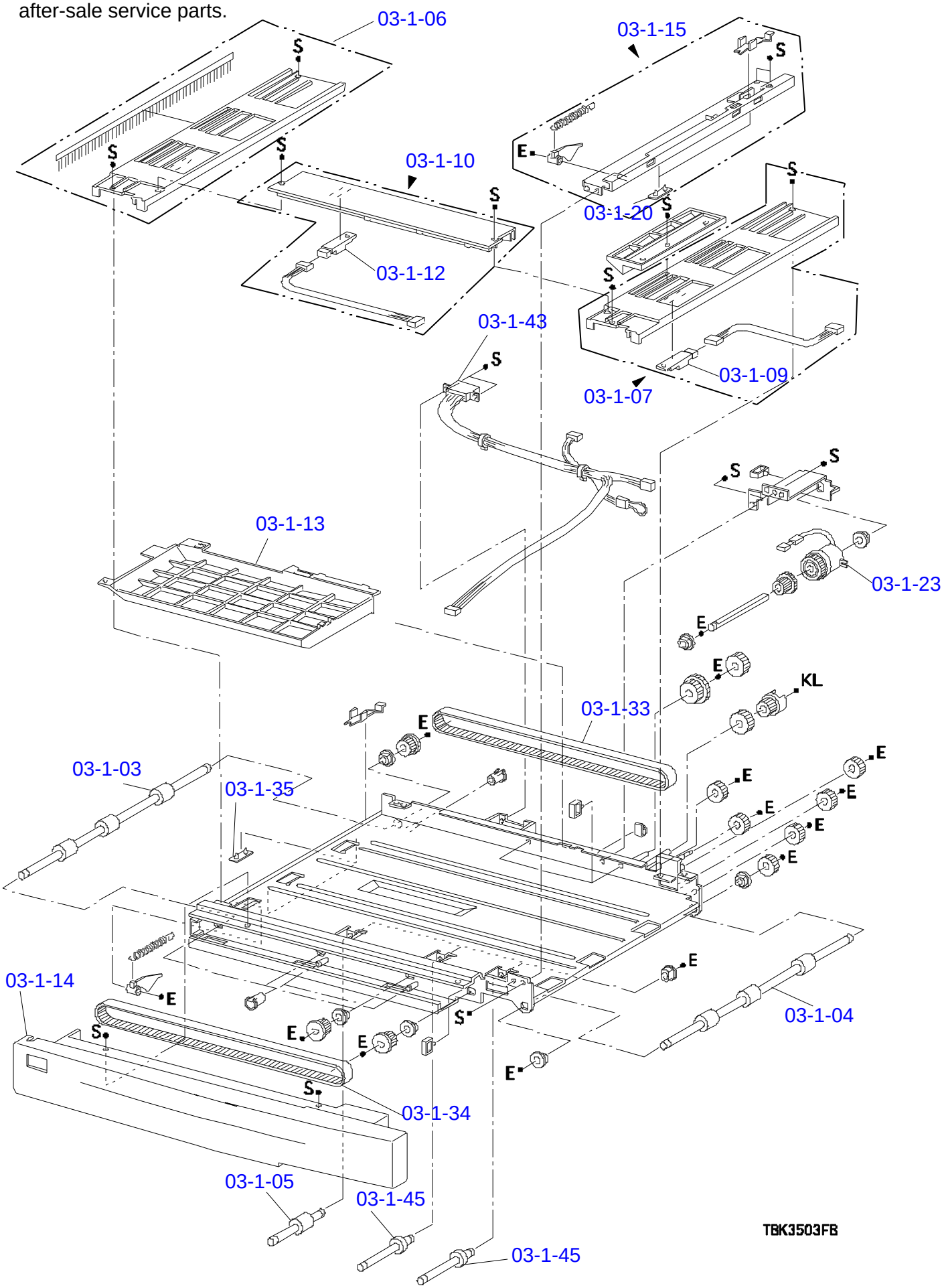

LPCDSP3/DUPLEX UNIT (3.1) Rev.01

C813-OPTI-022

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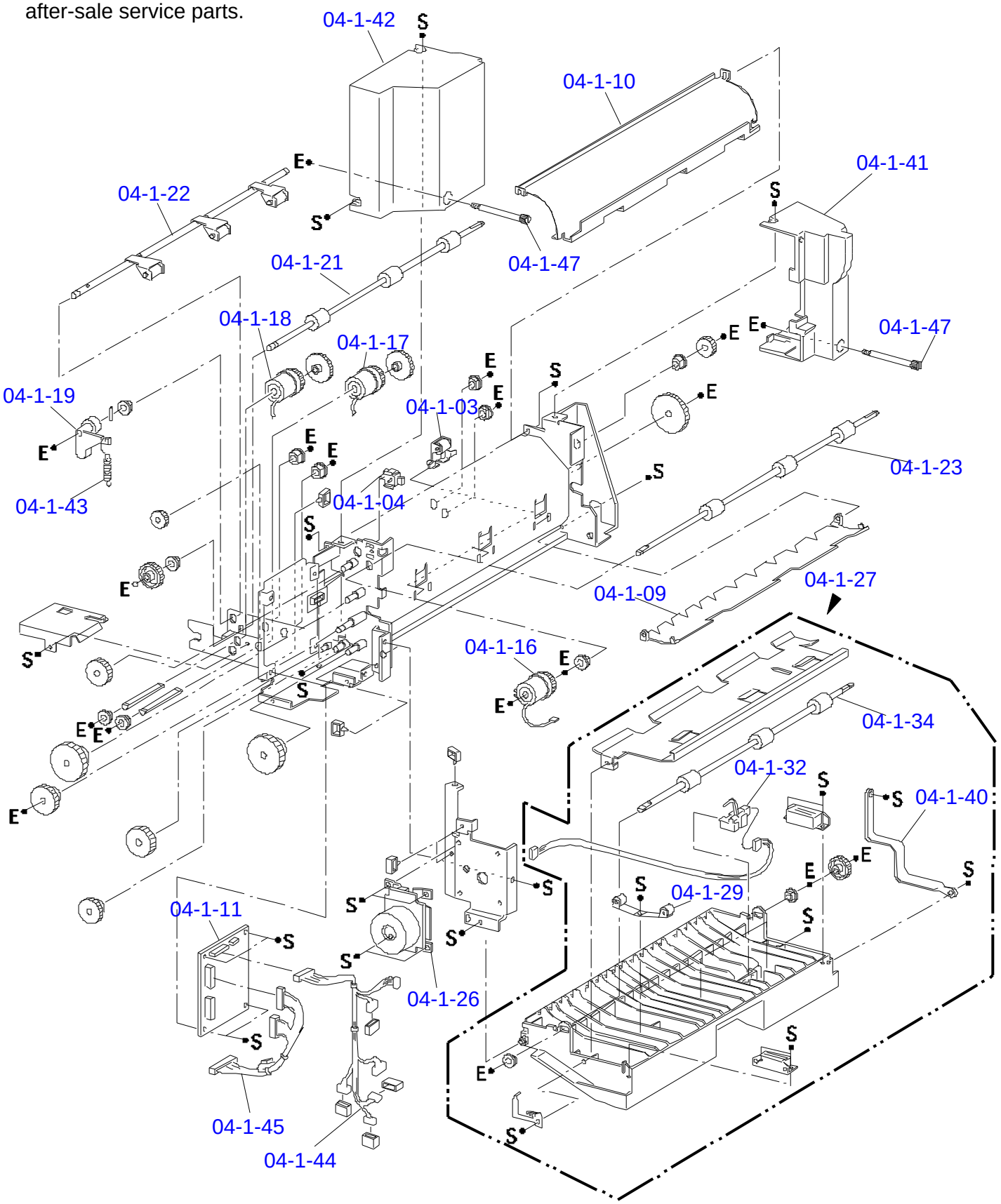

LPCDSP3/DUPLEX UNIT (4.1) Rev.01

C813-OPTI-009

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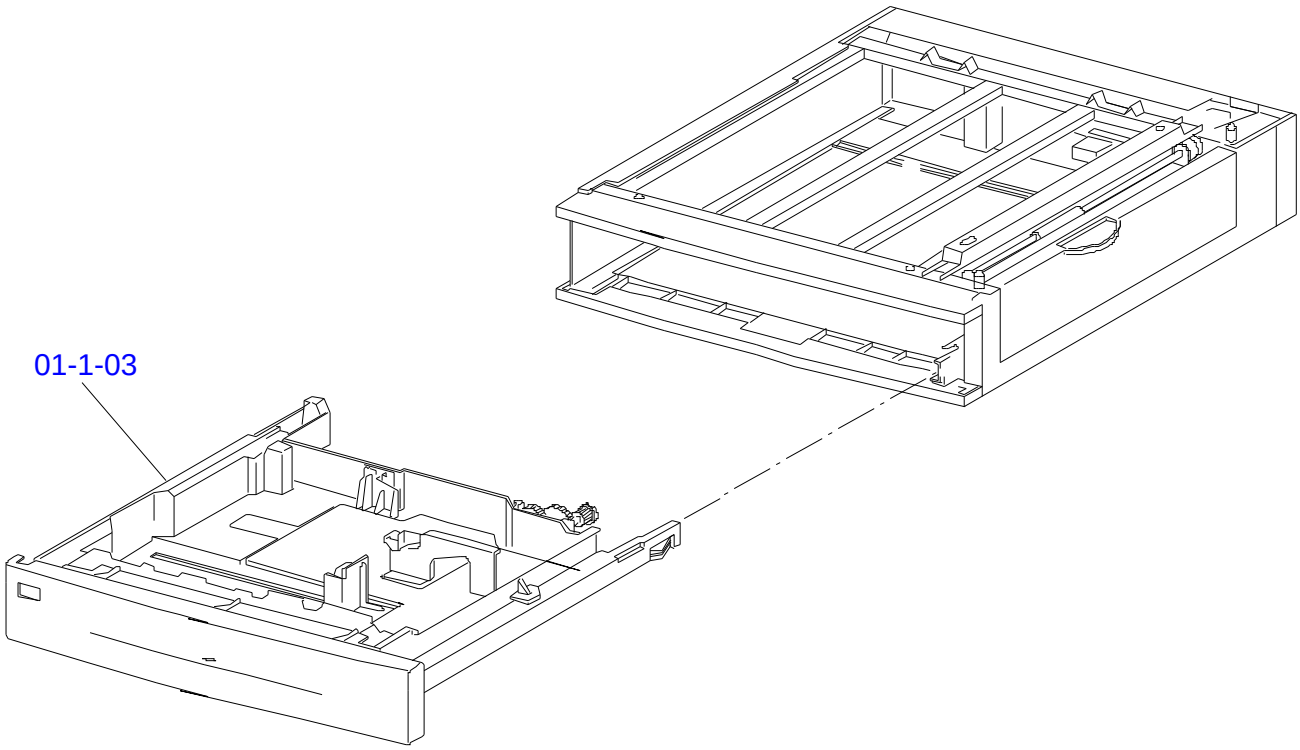

C813-OPTI-010

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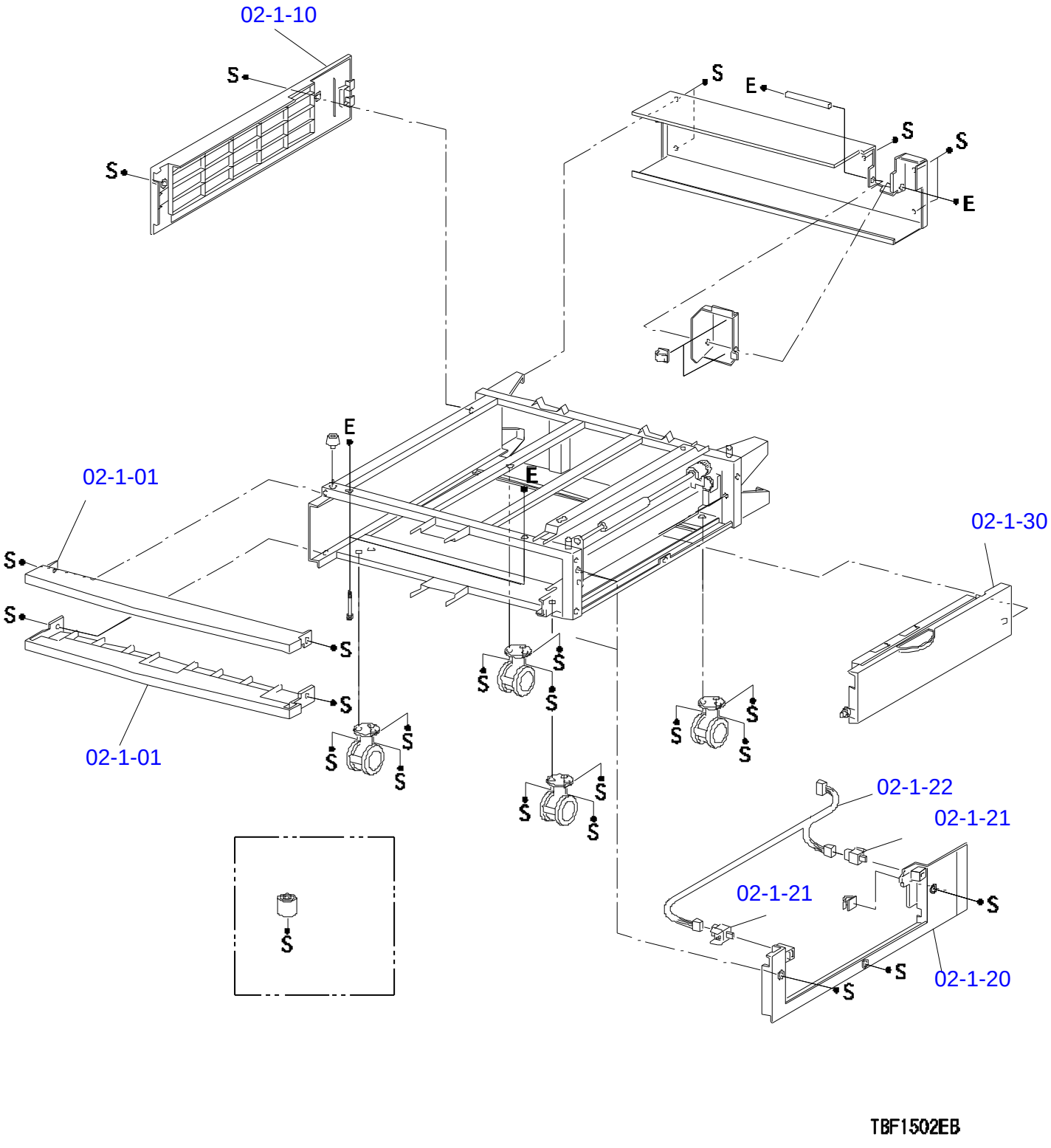

LP88CWC1/250-Sheet PAPER CASSETTE UNIT (2.1)

C813-OPTI-011

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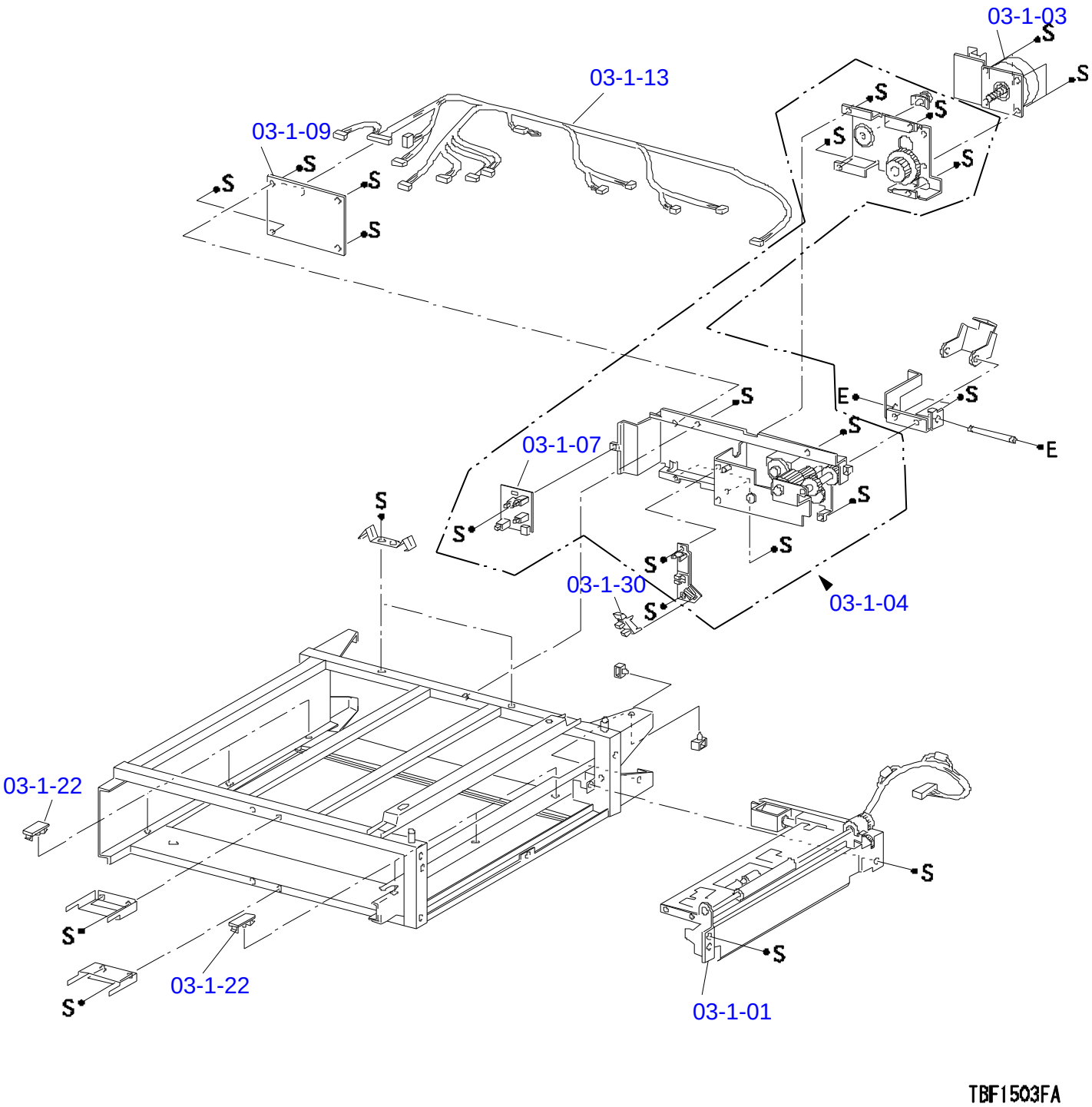

LP88CWC1/250-Sheet PAPER CASSETTE UNIT (3.1) Rev.01

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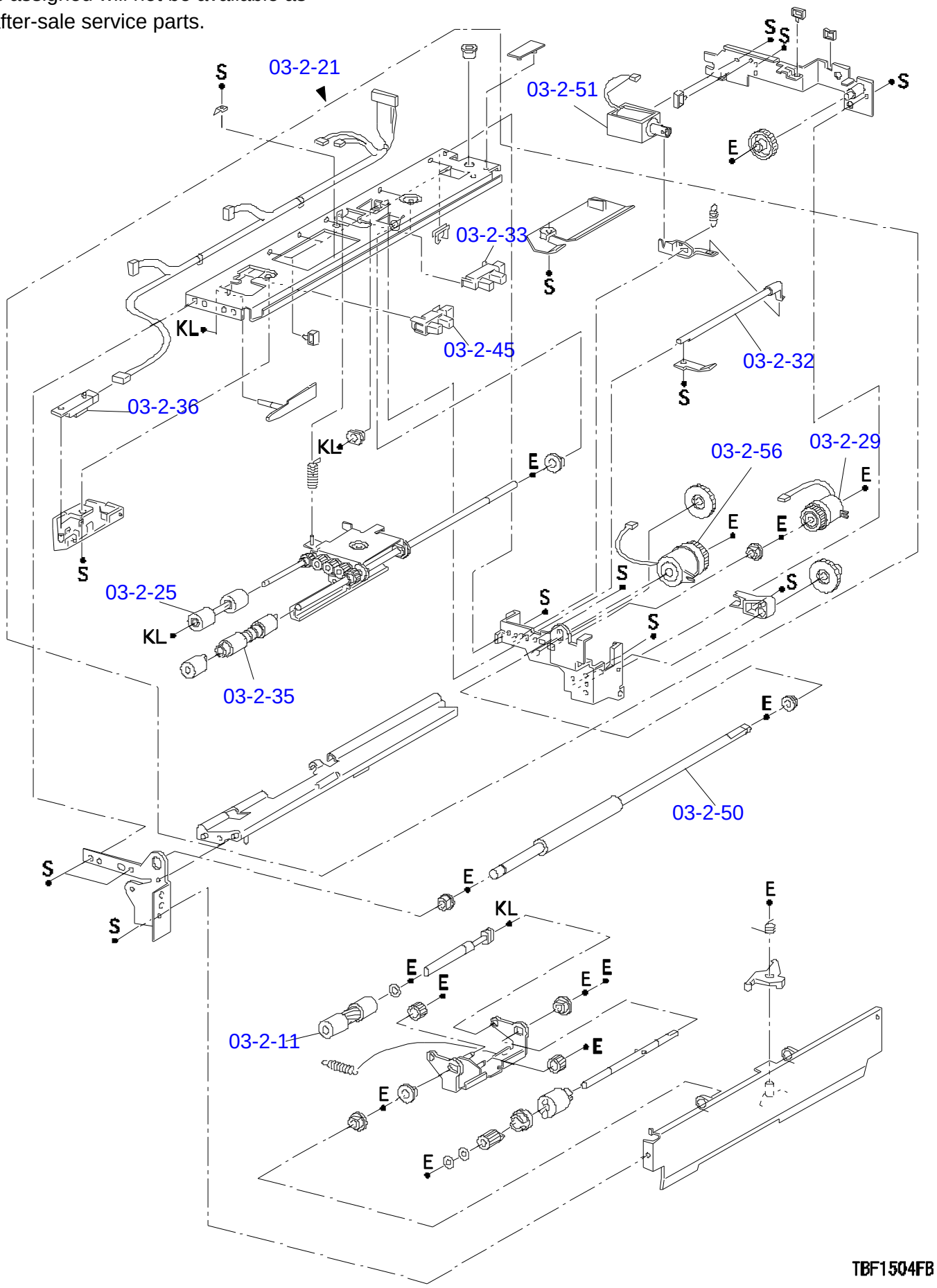
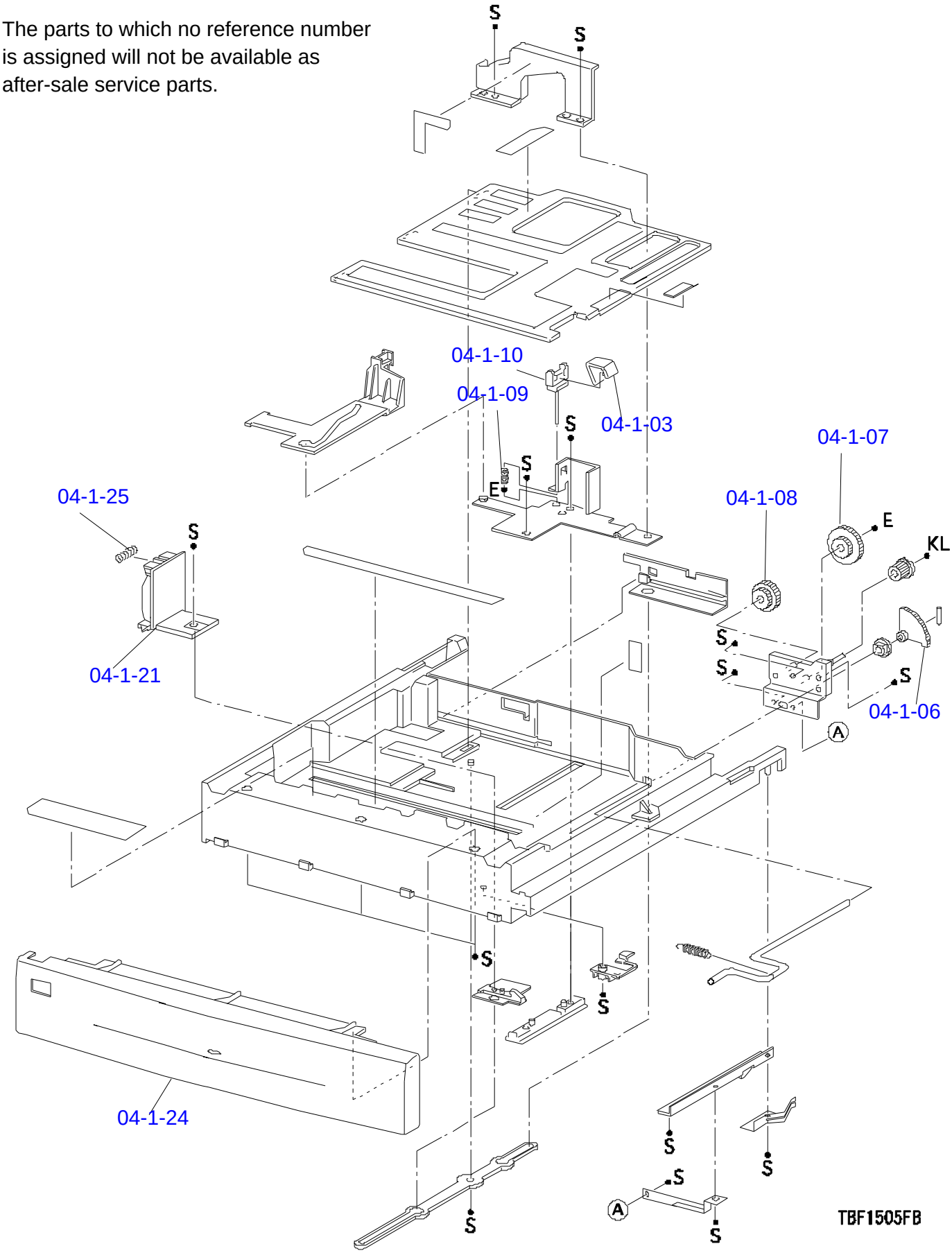


The parts to which no reference number is assigned will not be available as after-sale service parts.



C813-OPTI-014

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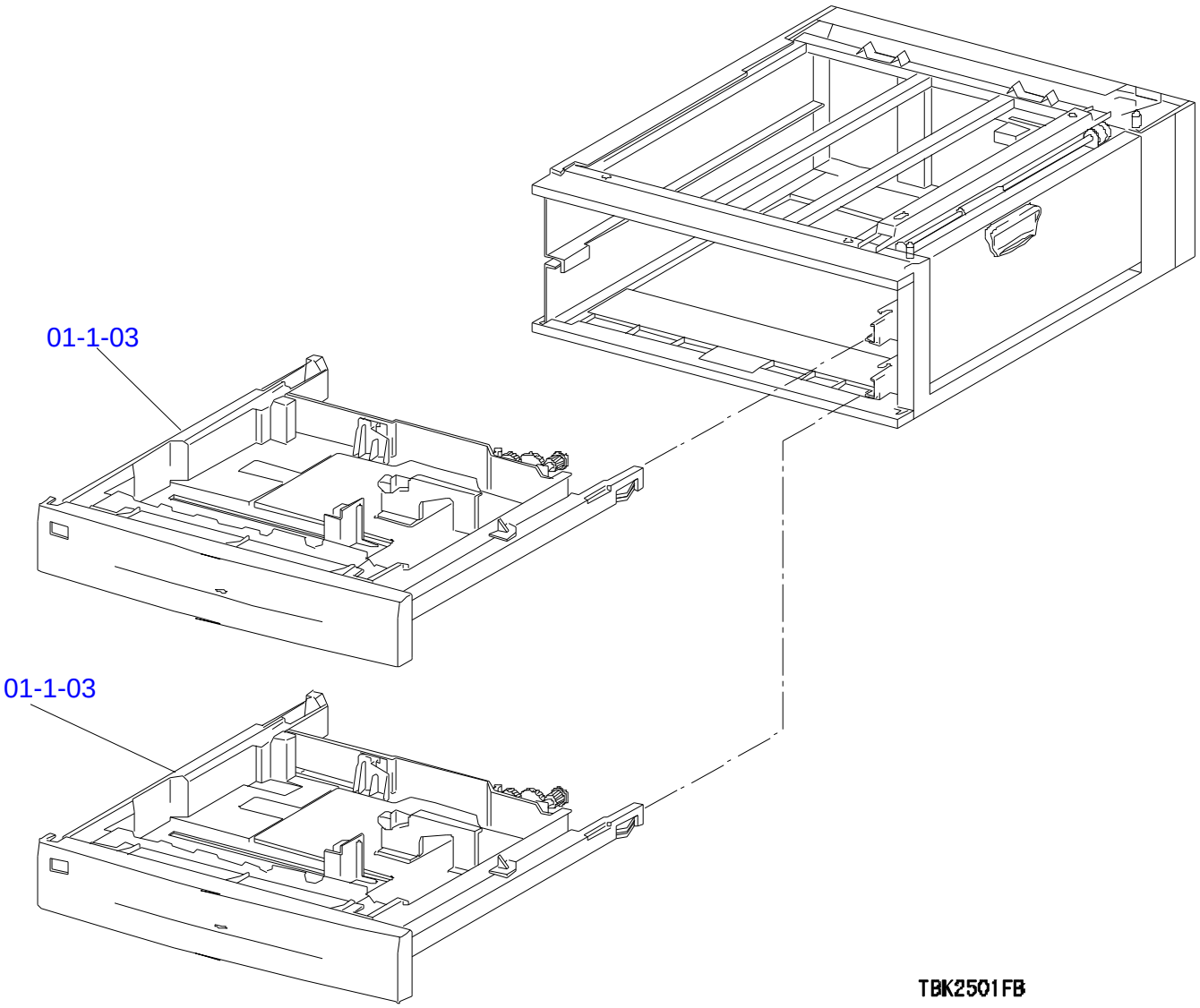

C813-OPTI-015

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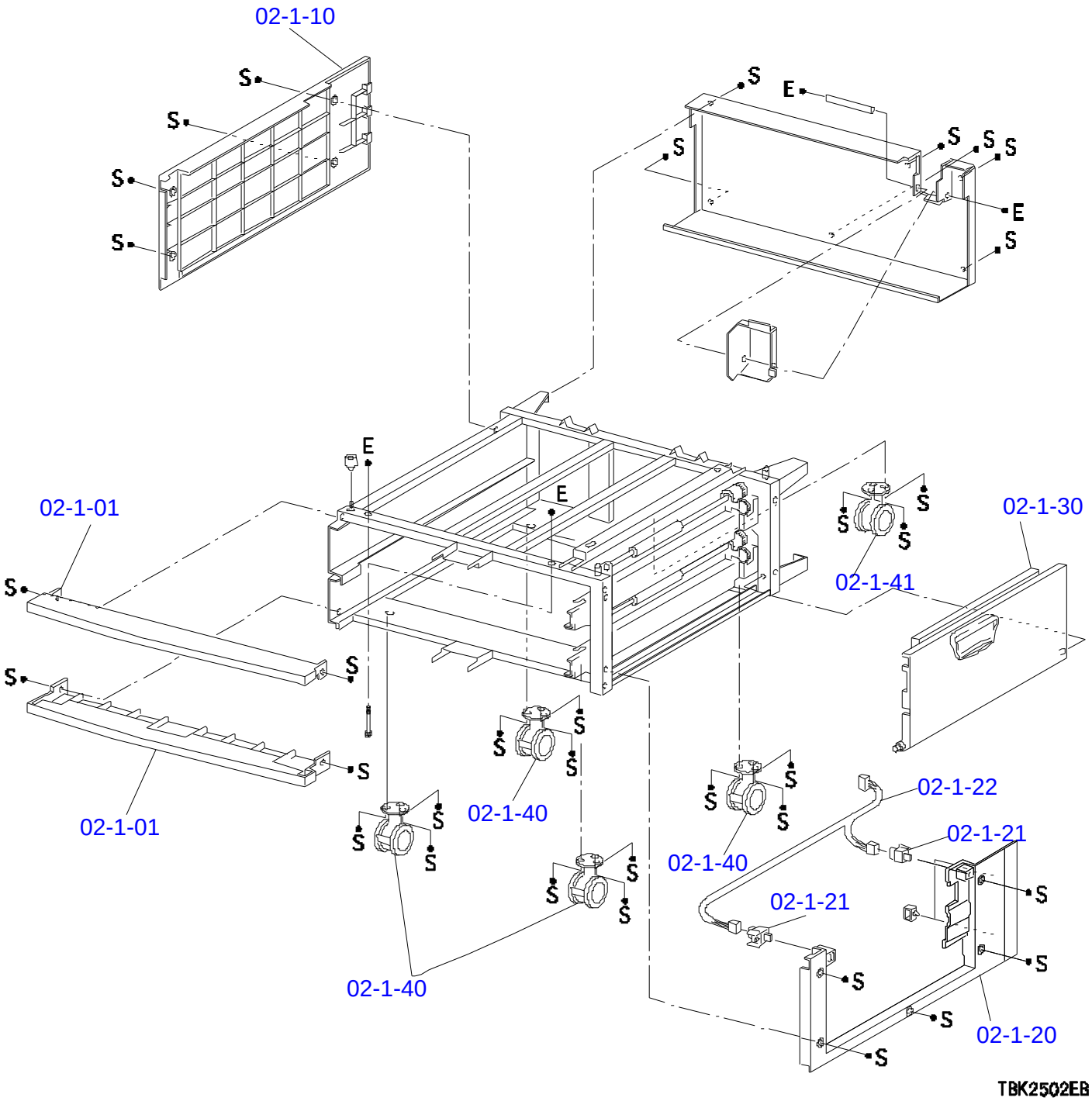

C813-OPTI-016

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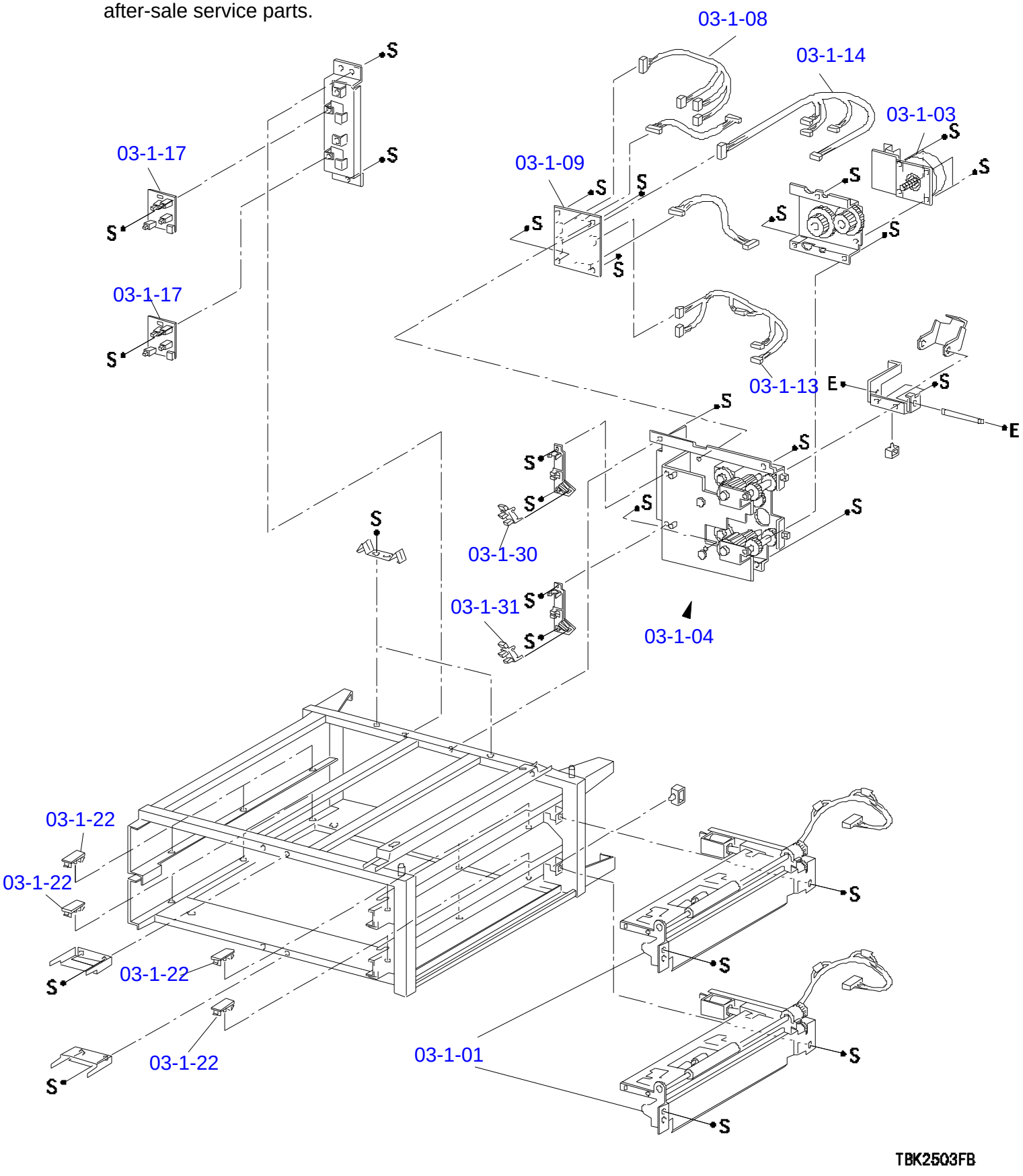
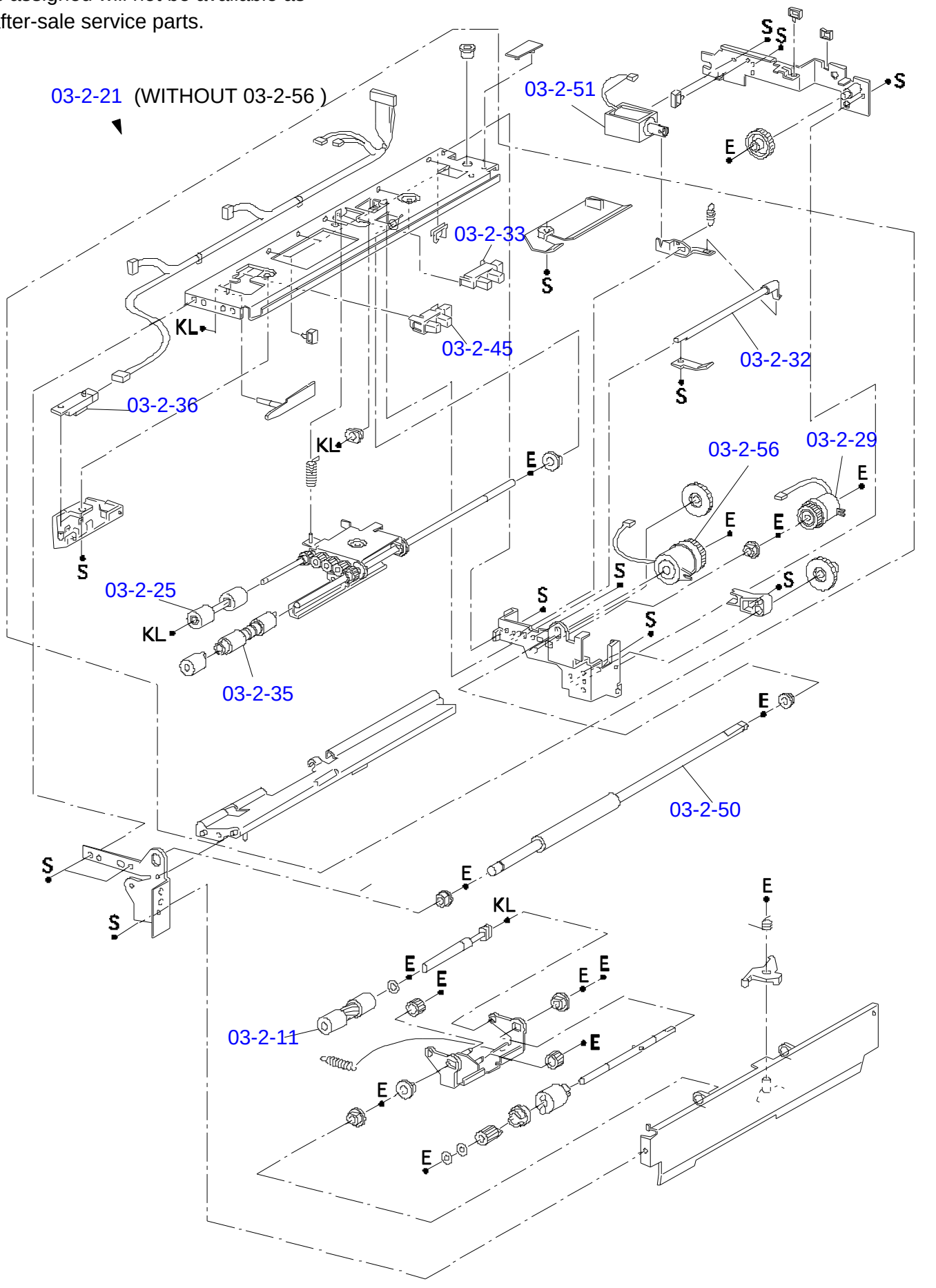
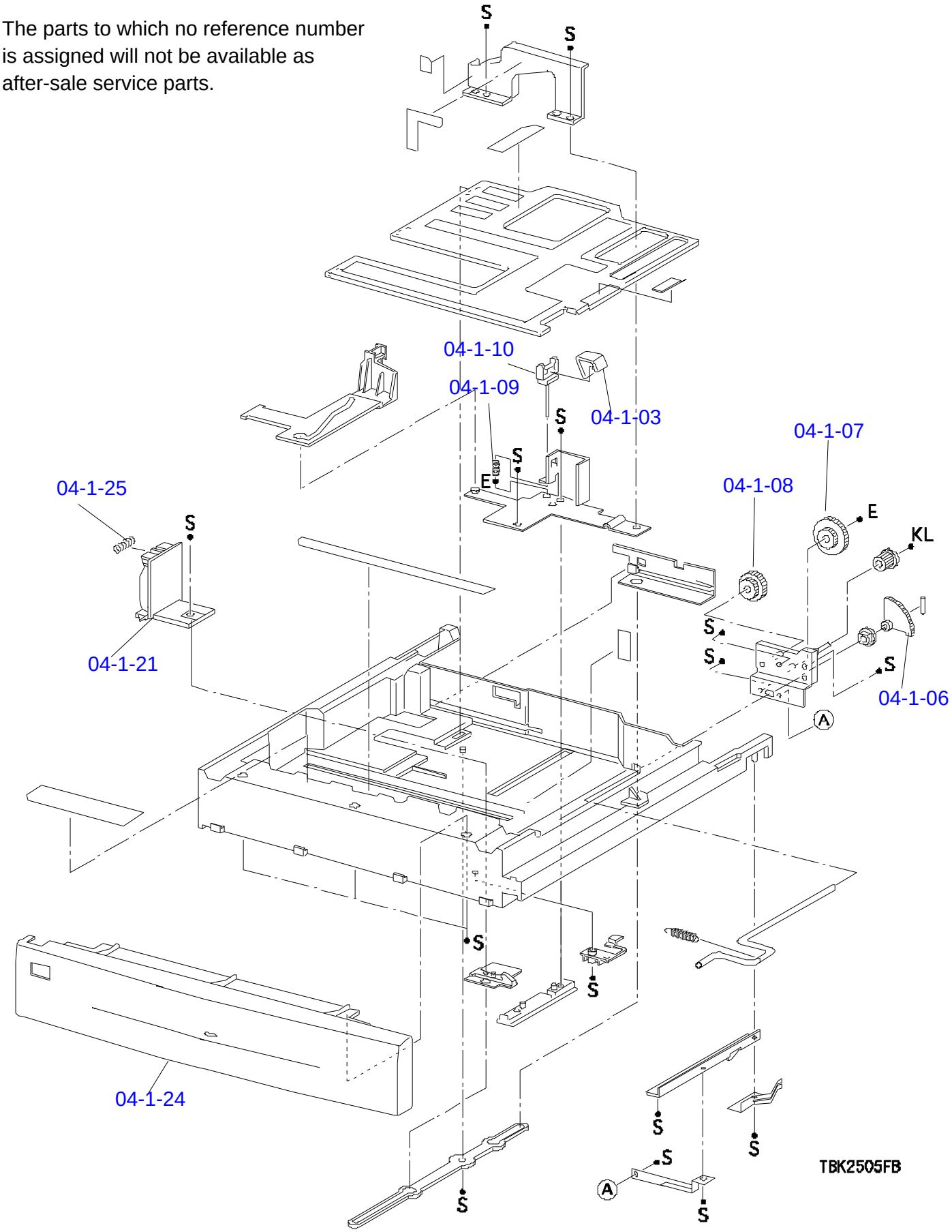


The parts to which no reference number is assigned will not be available as after-sale service parts.

C813-OPTI-017



The parts to which no reference number is assigned will not be available as after-sale service parts.



7.8.4.2 ASP lists for optional units

This section indicates after-sales parts lists and index for parts of optional units for AcuLaser C8600/AcuLaser C7000. For use of ASP lists, see "7.7 ASP List (Parts List)" (*p.554*).

- ASP list for Duplex Unit *(p.734)*
- ASP list for 500-Sheet Paper Cassette Unit *(p.735)*
- ASP list for Large Capacity Paper Unit *(p.736)*

☐ Index for parts (Duplex Unit)

[Numeric]
4 CHUTE-ASSY ..... PL 43.1.9
[A]
ALIGNER ASSY ..... PL 42.1.1
ALIGNER ASSY ..... PL 40.1.3
ALIGNER CHUTE-ASSY ..... PL 42.1.2
ALIGNER COVER-FR ..... PL 42.1.14
ALIGNER DRIVE CLUTCH ..... PL 42.1.23
ALIGNER HARNESS-ASSY ..... PL 42.1.43
ALIGNER OUT SENSOR ..... PL 42.1.9
ALIGNER SENSOR ..... PL 42.1.12
[B]
BEARING ..... PL 43.1.33
BEARING 2 ..... PL 42.1.41
BEARING 6 ..... PL 41.1.4
BEARING(É"6) ..... PL 43.1.13
BEARING-EXIT ..... PL 42.1.42
BELT 346 ..... PL 42.1.33
BELT 383 ..... PL 42.1.34
BRACKET-CLUTCH ..... PL 42.1.21
BRACKET-MOT ..... PL 43.1.25
[C]
CAB SWITCH-I/L ..... PL 43.1.4
CHUTE-1 ..... PL 43.1.28
CHUTE-2 ..... PL 43.1.10
CHUTE-EXIT ASSY ..... PL 41.1.9
CHUTE-SUPPORT ..... PL 42.1.13
CLAMP ..... PL 40.1.9
CLAMP-SHEET ..... PL 42.1.20
CLAMP-SHEET ..... PL 42.1.35
CLUTCH COVER ..... PL 43.1.39
[C]
COLLAR-IDLER ..... PL 42.1.25
COUPLING ..... PL 42.1.28
COVER SUPPORT-L/H ..... PL 43.1.40
COVER-EXIT ..... PL 41.1.10
[D]
DUP CONTROLLER PWB ..... PL 43.1.11
DUP GATE SOLENOID ..... PL 41.1.6
DUP MAIN HARNESS-ASSY ..... PL 43.1.45
DUP TRANSPORT ASSY ..... PL 41.1.1
DUP TRANSPORT ASSY ..... PL 40.1.2
DUPLEX FINAL ASSY ..... PL 40.1.1
[E]
ELIMINATOR ..... PL 41.1.17
ENTER CLUTCH ..... PL 43.1.16
EXIT COVER WINDOW ..... PL 41.1.12
EXIT ROLLER-ASSY ..... PL 41.1.16
[F]
F COVER-INVERTER ..... PL 43.1.41
FORWARD CLUTCH ..... PL 43.1.17
FRAME HIGH ASSY ..... PL 43.1.2
[G]
GATE-DUPLEX ..... PL 41.1.3
GEAR 14Z ..... PL 42.1.31
GEAR 14Z ..... PL 42.1.32
GEAR 17Z ..... PL 42.1.30
GEAR 20Z ..... PL 42.1.29
GEAR 23Z ..... PL 42.1.27
GEAR 30Z ..... PL 43.1.15
GEAR(15Z-S) ..... PL 43.1.20
GEAR(21Z/18T) ..... PL 42.1.24
[G]
GEAR(24Z) ..... PL 43.1.12
GEAR(26Z) ..... PL 43.1.8
GEAR(28Z/21Z) ..... PL 42.1.26
GEAR(30/24Z) ..... PL 43.1.7
GEAR(38Z) ..... PL 43.1.46
GEAR(40Z/20Z) ..... PL 43.1.5
GEAR(66Z/20Z) ..... PL 43.1.6
GEAR-24Z ..... PL 43.1.35
GEAR-27Z ..... PL 41.1.8
GEAR-SUPR ..... PL 41.1.5
[H]
HARNESS-ASSY,SNR DUP ..... PL 43.1.36
HARNESS-ASSY-DUP ..... PL 43.1.44
[I]
IN CHUTE-ASSY ..... PL 42.1.6
IN ROLLER-ASSY ..... PL 42.1.3
INV CHUTE-ASSY ..... PL 43.1.27
INV MOTOR ..... PL 43.1.26
INV ROLLER-ASSY ..... PL 43.1.23
INV SCREW ..... PL 43.1.47
INV2 ROLLER-ASSY ..... PL 43.1.21
INVERTER ASSY ..... PL 43.1.1
INVERTER ASSY ..... PL 40.1.4
INVERTER CHUTE ..... PL 43.1.30
INVERTER MOTOR ASSY ..... PL 43.1.24
INVERTER SENSOR ..... PL 43.1.32
[L]
L/H PLATE-GUIDE ..... PL 42.1.37
LINK SPRING-PINCH ..... PL 43.1.43
LINK-PINCH ..... PL 43.1.19
LOWER CHUTE ASSY ..... PL 40.1.6
LOWER INV SOL SPRING ..... PL 40.1.8
LOWER INV SOLENOID ..... PL 40.1.7
LOWER INVERTER ASSY ..... PL 40.1.5
[M]
MAGNET CATCH-F ..... PL 43.1.37
MAGNET CATCH-R ..... PL 43.1.31
[O]
OPTION CAP A ..... PL 40.1.15
OUT CHUTE GUIDE ..... PL 42.1.46
OUT CHUTE-ASSY ..... PL 42.1.7
OUT ROLLER-ASSY ..... PL 42.1.4
[P]
PINCH ROLL ASSY ..... PL 41.1.11
PINCH ROLL ASSY ..... PL 43.1.29
PINCH ROLLER-ASSY ..... PL 43.1.3
PULLEY 16T ..... PL 42.1.39
PULLEY 20T ..... PL 42.1.40
[R]
R COVER-INVERTER ..... PL 43.1.42
R/H PLATE-GUIDE ..... PL 42.1.18
R/H RAIL SUB ASSY ..... PL 42.1.16
R/H RAIL-ASSY ..... PL 42.1.15
REGI CHUTE-ASSY ..... PL 42.1.10
REGI ROLLER-ASSY ..... PL 42.1.5
REGI ROLLER-ASSY-B10 ..... PL 42.1.45
REVERSE CLUTCH ..... PL 43.1.18
ROLLER-ASSY-PINCH ..... PL 43.1.22
[S]
SHAFT-CLUTCH ..... PL 42.1.22
SHAFT-CLUTCH ..... PL 43.1.14
SHAFT-IDLER ..... PL 41.1.18
SHFT-SPUR ..... PL 41.1.19
SNS1 HARNESS-ASSY ..... PL 42.1.8
SNS2 HARENESS-ASSY ..... PL 42.1.11
SPRING PLATE ..... PL 43.1.38
SPRING-EARTH ..... PL 41.1.2
SPRING-EXTENSION ..... PL 42.1.19
SPRING-EXTENSION ..... PL 42.1.38
SPRING-LATCH ..... PL 41.1.15
SPUR GEAR-46Z ..... PL 41.1.7
STOPPER-IN ..... PL 42.1.17
STOPPER-IN ..... PL 42.1.36
[T]
TRI ROLLER-ASSY ..... PL 43.1.34

☐ Index for parts (500-Sheet Paper Cassette Unit)

[Numeric]
1T FEEDER UNIT(SEC) ..... PL 50.1.1
500 TRAY ASSY(SEC) ..... PL 50.1.3
500 TRAY ASSY(SEC) ..... PL 53.1.1
[B]
BEARING ..... PL 52.2.17
BEARING ..... PL 52.2.39
BEARING 6 ..... PL 52.2.18
BEARING 6 ..... PL 52.2.20
BEARING 8 ..... PL 52.2.55
BEARING F ..... PL 52.2.38
BOTTOM PAD ..... PL 53.1.19
BOTTOM PLATE ..... PL 53.1.28
[C]
CLAMP ..... PL 51.1.23
CLAMP ..... PL 52.2.43
CLAMP-MINI ..... PL 52.1.23
COLLER ..... PL 52.2.16
COVER BRACKET ..... PL 52.1.10
COVER BRACKET SHAFT ..... PL 52.1.11
COVER JOINT BRACKET ..... PL 52.1.12
COVER SWITCH HARNESS ..... PL 51.1.22
[D]
DOUBLE CASTER ..... PL 51.1.40
[E]
END GIDE PLATE ..... PL 53.1.13
END GUIDE ACTUATOR(SEC) ..... PL 53.1.23
END GUIDE LINK ..... PL 53.1.11
END GUIDE(SEC) ..... PL 53.1.21
EXIT BEARING ..... PL 52.2.40
EXTENSION SPRING ..... PL 52.2.53
EXTENSION SPRING ..... PL 53.1.32
[F]
FDR REAR FRAME ASSY ..... PL 52.2.23
FEDER ASSY-1T ..... PL 50.1.2
FEED BRACKET ASSY ..... PL 52.2.2
FEED GUIDE SPRING ..... PL 52.2.61
FEED OUT SENSOR ..... PL 52.2.36
FEED ROLL ASSY ..... PL 52.2.35
[F]
FEEDER CHUTE ASSY-1T(SEC) ..... PL 51.1.30
FEEDER DRIVE ASSY ..... PL 52.1.4
FEEDER EME SPRING ..... PL 52.1.24
FEEDER FRAME-1T ..... PL 52.1.20
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7.8.4.2.1 ASP list for Duplex Unit

Table 7-103. ASP List for Duplex Unit

RefNo.	Part Name
01-1-02	DUP TRANSPORT ASSY
01-1-03	ALIGNER ASSY
01-1-04	INVERTER ASSY
01-1-07	LOWER INV SOLENOID
01-1-08	LOWER INV SOL SPRING
01-1-15	OPTION CAP A
02-1-03	GATE DUPLEX
02-1-06	DUP GATE SOLENOID
02-1-11	PINCH ROLL ASSY
02-1-16	EXIT ROLLER ASSY
03-1-03	IN ROLLER ASSY
03-1-04	OUT ROLLER ASSY
03-1-05	REGI ROLLER ASSY
03-1-06	IN CHUTE ASSY
03-1-07	OUT CHUTE ASSY
03-1-09	SENSOR
03-1-10	REGI CHUTE ASSY
03-1-12	SENSOR
03-1-13	CHUTE SUPPORT
03-1-14	ALIGNER COVER-FR
03-1-15	R/H／×ŸASSY
03-1-20	SHEET CLAMP
03-1-23	ALIGNER DRIVE CLUTCH
03-1-33	BELT 346
03-1-34	BELT 383
03-1-35	SHEET CLAMP
03-1-43	ALIGNER HARNESS ASSY
03-1-45	REGI ROLLER ASSY-B10
04-1-03	PINCH ROLLER-ASSY
04-1-04	EXIT CHUTE SWITCH

Table 7-103. ASP List for Duplex Unit (continued)

RefNo.	Part Name
04-1-09	4 CHUTE ASSY
04-1-10	CHUTE 2
04-1-11	DUP CONTROLLER PWB
04-1-16	TURN CLUTCH
04-1-17	TURN CLUTCH
04-1-18	TURN CLUTCH
04-1-19	LINK PINCH
04-1-21	INV2 ROLLER ASSY
04-1-22	ROLLER ASSY PINCH
04-1-23	INV ROLLER ASSY
04-1-26	INV MOTOR
04-1-27	INV CHUTE-ASSY
04-1-29	PINCH ROLL ASSY
04-1-32	TOP EXIT SENSOR
04-1-34	TRI ROLL ASSY
04-1-40	COVER SUPPORT L/H
04-1-41	F COVER INVERTER
04-1-42	R COVER INVERTER
04-1-43	LINK SPRING PINCH
04-1-44	HARNESS ASSY DUP
04-1-45	DUP MAIN HARNESS ASSY
04-1-47	INV SCREW

7.8.4.2.2 ASP list for 500-Sheet Paper Cassette Unit

Table 7-104. ASP List for 500-Sheet Paper Cassette Unit

RefNo.	Part Name
01-1-03	500 TRAY ASSY
02-1-01	FEEDER FRONT COVER
02-1-10	FEEDER LEFT COVER
02-1-20	FEEDER RIGHT COVER
02-1-21	EXIT CHUTE SWITCH
02-1-22	COVER SWITCH HARNESS
02-1-30	FEEDER CHUTE ASSY-1T
03-1-01	FEEDER HIGH ASSY
03-1-03	FEEDER MOTOR ASSY
03-1-04	FEEDER DRIVE ASSY
03-1-07	TRAY3 PAP SIZE SNR PWB
03-1-09	FEEDER PWB
03-1-13	FEEDER HARNESS ASSY-1T
03-1-22	SHEET CLAMP
03-1-30	E.R.M. SENSOR
03-2-11	RETARD ROLL ASSY
03-2-21	UPPER FRAME ASSY
03-2-25	NUDGER ROLL ASSY
03-2-29	TURN CLUTCH
03-2-32	NUDGER LEVER
03-2-33	NUDGER SENSOR
03-2-35	FEED ROLLASSY
03-2-36	SENSOR
03-2-45	NO PAPER SENSOR
03-2-50	TA ROLL ASSY
03-2-51	NUD SOLENOID ASSY
03-2-56	TURN CLUTCH ASSY
04-1-03	SIDE GUIDE LOCK KNOB
04-1-06	GEAR 55
04-1-07	GEAR 16/49

Table 7-104. ASP List for 500-Sheet Paper Cassette Unit (continued)

RefNo.	Part Name
04-1-08	GEAR 16/32
04-1-09	END GUIDE SPRING
04-1-10	LEVER ASSY
04-1-21	END GUIDE
04-1-24	FRONT TRAY COVER
04-1-25	REAR GUIDE SPRING

7.8.4.2.3 ASP list for Large Capacity Paper Unit

Table 7-105. ASP list for Large Capacity Paper Unit

RefNo.	Part Name
01-1-03	500 TRAY ASSY
02-1-01	FEEDER FRONT COVER
02-1-10	FEEDER LEFT COVER
02-1-20	FEEDER RIGHT COVER
02-1-21	EXIT CHUTE SWITCH
02-1-22	COVER SWITCH HARNESS
02-1-30	FEEDER CHUTE ASSY
02-1-40	DOUBLE CASTER-F
02-1-41	DOUBLE CASTER-R
03-1-01	FEEDER HIGH ASSY
03-1-03	FEEDER MOTOR ASSY
03-1-04	FEEDER DRIVE ASSY
03-1-08	TRAY UP SENSOR HARNESS
03-1-09	FEEDER PWB
03-1-13	FEEDER HARNESS
03-1-14	SIZE HARNESS
03-1-17	TRAY3 PAP SIZE SNR PWB
03-1-22	SHEET CLAMP
03-1-30	E.R.M. SENSOR
03-1-31	E.R.M. SENSOR
03-2-11	RETARD ROLL ASSY
03-2-21	UPPER FRAME ASSY
03-2-25	NUDGER ROLL ASSY
03-2-29	TURN CLUTCH
03-2-32	NUDGER LEVER
03-2-33	NUDGER SENSOR
03-2-35	FEED ROLLASSY
03-2-36	SENSOR
03-2-45	NO PAPER SENSOR
03-2-50	TA ROLL ASSY

Table 7-105. ASP list for Large Capacity Paper Unit (continued)

RefNo.	Part Name
03-2-51	NUD SOLENOID ASSY
03-2-56	TURN CLUTCH ASSY
04-1-03	SIDE GUIDE LOCK KNOB
04-1-06	GEAR 55
04-1-07	GEAR 16/49
04-1-08	GEAR 16/32
04-1-09	END GUIDE SPRING
04-1-10	LEVER ASSY
04-1-21	END GUIDE
04-1-24	FRONT TRAY COVER
04-1-25	REAR GUIDE SPRING