magicolor® 3100 Series

Service Manual

MINOLTA QMS

The essentials of imaging

1750051-001B

www.minolta-qms.com

Introduction

1. Trademarks

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2. Copyright Notice

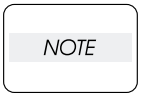
Cautions for operation

1. Marks giving caution

Maintenance operations requiring special cautions or additional information to descriptions of this manual are presented as "Warning", "Caution", or "Note", according to their nature.

If instructions are not observed, death or serious injury may be caused.

If instructions are not observed, injuries of workers or physical damages to assets (including this laser printer) may result.



Particularly important essentials for procedures, steps, rules, and others.

Reference Incidental information to descriptions.

2. Related documents

▼ Instruction manuals (standard user manuals)
Describe operation and handling of this laser printer.

▼ Performance specifications
Describe in detail various specifications of this laser printer.
(In the event of discrepancy between this manual and the performance specifications, the performance specifications shall take preference.)

▼ Spare parts list
Information on maintenance parts (spare parts) for this laser printer

3. Safety

To prevent possible accidents during maintenance operation, you should observe strictly the "Warning" and "Caution" information in this manual.
Dangerous operations and operations out of range of this manual should be absolutely avoided.
Generally various processes not covered by this manual may be required in actual operation, which should be performed carefully always giving attention to safety.

3.1 Power source

Keep the power supply off during maintenance operation to prevent electric shock, burns and other damages. Keep the power plug disconnected during the maintenance operation.
If the power supply should be kept connected for measurement of voltage or other similar reasons, sufficient care should be given to prevent electric shock, by following the procedures of this manual.

WARNING

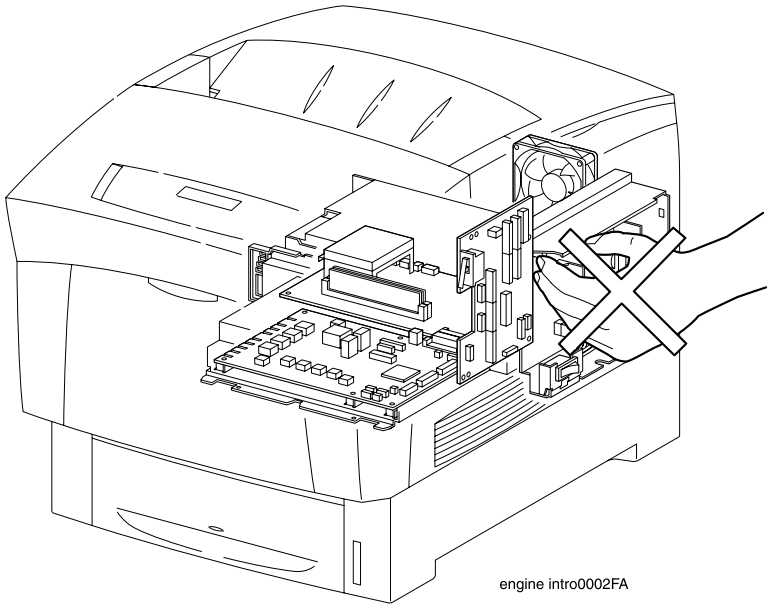
While the printer is ON, never touch live parts if not required absolutely.

WARNING

Power is supplied to the power switch / inlet (LVPS ASSY) even while the printer is off. Never touch its live components.

WARNING

Do not touch live parts unless otherwise specified.



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3.2 Driving units

When servicing gears or other driving units, be sure to turn them OFF and plug off. Drive them manually when required.

Never touch the gears or other driving units while the printer is running.

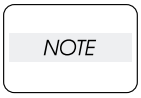
3.3 High-temperature units

When servicing high-temperature units (securing unit, etc.), be sure to turn them OFF to prevent burns, injuries and other troubles, remove the power plug and start service processes after they have cooled down enough.

Immediately after completion of operation, they are still hot. Start services after more than 40 minutes.

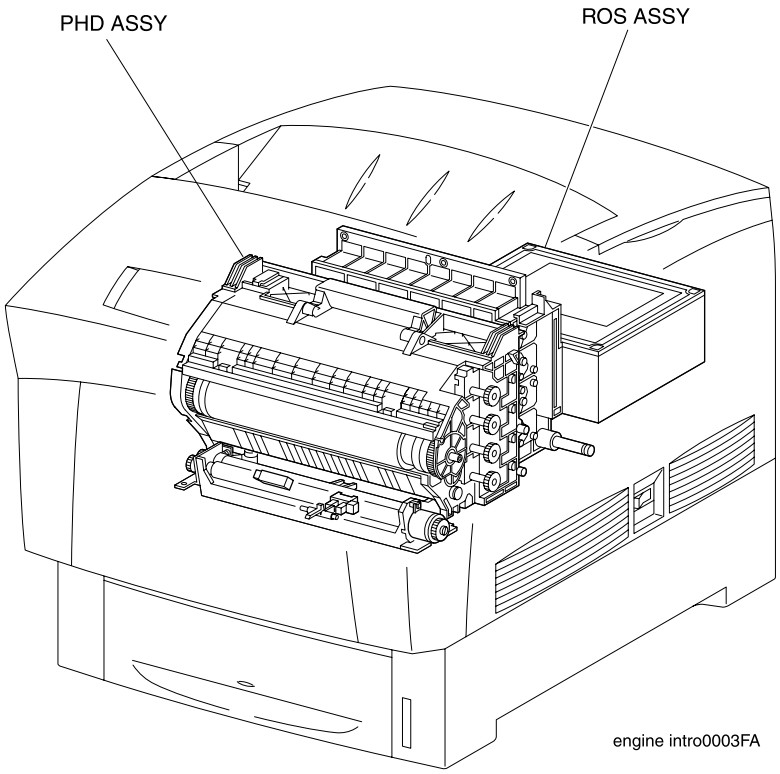
3.4 Laser beams

•If your eyes are exposed to laser beams, you may lose your eyesight.
•Never open the cover if warning label for laser beams is attached there.
•Before disassembling and reassembling this laser printer, be sure to turn it OFF.
•When servicing this laser printer while it is running, be sure to follow the procedures specified in this manual.
•You should understand the features of the laser beams which are capable of having an injurious action on the human body, not to extend the danger over the workers as well as other people around the printer.



Laser beams have features as follows:
•Frequencies are smaller in width than other beams (sun and electric bulbs) and phases are uniform so that high monochromatic and convergence performance can be obtained and thin beams of light can reach places at a long distance.
•Due to the high convergence, beams are concentrated in high density and high temperature, which is dangerous to human body.

Reference: Laser beams of this laser printer is invisible rays which you cannot see.



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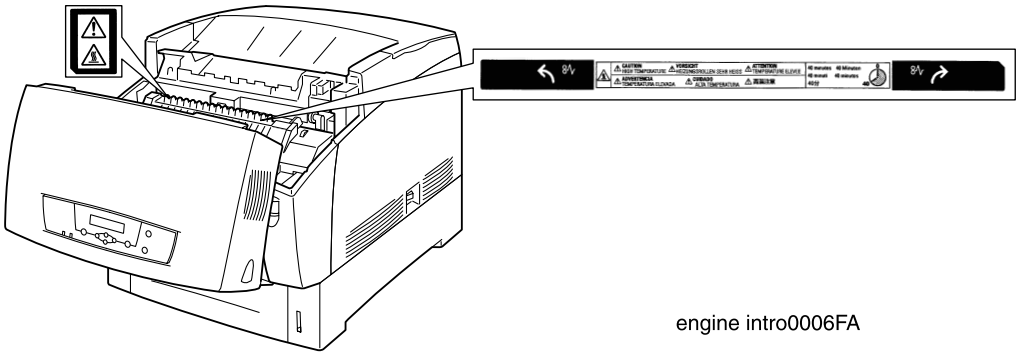
3.5 Warning/caution labels

Warning labels and caution labels are attached to this laser printer to prevent accidents Check those labels for their peeling or stain when servicing the printer.

3.5.1 Caution label for high-temperature units



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4. List of Abbreviations

ADC	Automatic Density Control	MPT	Multipurpose Tray
AG	Analog Ground	MSI	Multi Sheet Inserter
AUX	Auxiliary	N/F	Normal Force
B/W	Blank and White	NP	No Paper
BCR	Bias Charge Roller	NVM	Non Volatile Memory
BTR	Bias Transfer Roller (Image Transfer Roller)	OPC	Organic Photo Conductor
BUR	Back Up Roller	P/H	Paper Handling
C	Cyan	PCDC	Pixel Count Dispense Control
CART	Cartridge	PHD	Printer Head (Imaging Cartridge)
CCW	Counterclockwise	Pixel	Picture Cell (Picture Element)
CL	Clutch	PPM	Prints per Minute
CLN	Cleaning (or Cleaner)	PV	Print Volume
CLK	Clock	PWB	Printed Wiring Board
CR	Charge Roller	R/H	Right Hand
CRU	Customer Replaceable Unit	REGI	Registration
CRUM	CRU Monitor	ROS	Raster Output Scanner
CW	Clockwise	RTN	Return
DB	Developing Bias	SEF	Short Edge Feed
DTS	Detack Saw	SG	Signal Ground
EP	Electrophotography	SNR	Sensor
FDR	Feeder	SOL	Solenoid
FG	Frame Ground	SOS	Start of Scan
FRU	Field Replaceable Unit	SPI	Scans per Inch
Hex	Hexadecimal	SYNC	Synchronous
I/F	Interface	T/A	Take Away
IDT	Intermediate Drum Transfer	TC	Toner Concentration
ID	Image Density (or Identification)	TEMP	Temperature
K	Black	TR	Transfer
L/H	Left Hand	TRANS	Transport
L/P	Low Paper	WDD	Wide Range Dynamic Damper
LD	Laser Diode	XERO	Xerographic
LEF	Long Edge Feed	Y	Yellow
M	Magenta		

Unpacking the Printer

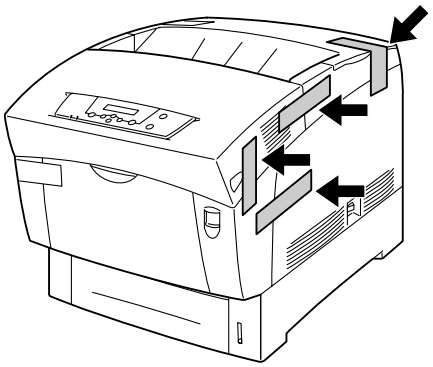
CAUTION

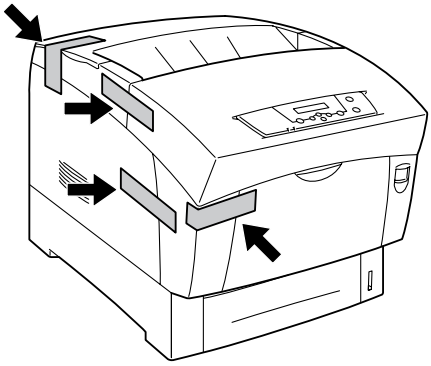
The printer must be carried horizontally with two or more persons.

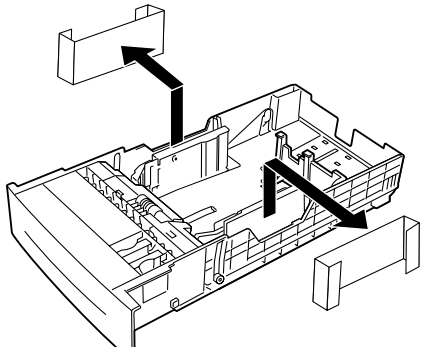
CAUTION

Extreme care must be taken to avoid personal injuries

Check visually the printer for evidence of any damages.
Peel all tapes off the printer.
Remove protection parts (2 pieces) from the paper tray.







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Chapter 1 Troubleshooting

NOTE

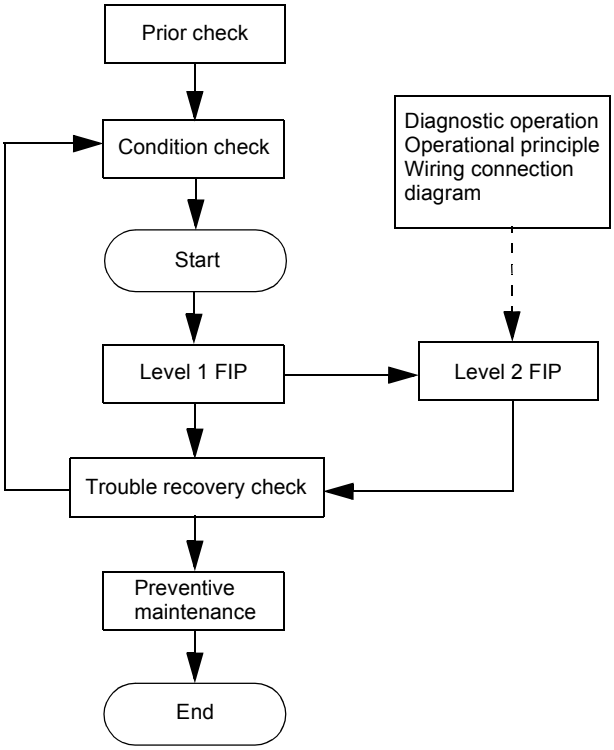
Troubleshooting in this manual assumes use of Diag. tools (maintenance tools). However, the troubleshooting allows for the case where the Diag tools are not used. You can correct troubles according to these troubleshooting procedures after understanding them well.

1. Progressing with the Troubleshooting

After making sure of actual condition of a trouble, proceed with the troubleshooting process making use of the Fault Isolation Procedure (FIP), “Operation of Diagostics” (Chapter 2), “Plug/Jack (P/J) Connector Locations” (Chapter 7), and “Principles of Operation” (Chapter 6).

1.1 Flow of Troubleshooting

Flow of the troubleshooting is as follows:



1.2 Preparatory Requirements

Be sure to check the following items before starting any troubleshooting procedures:

1) Voltage of the power supply is within the specifications (measure the voltage at the electric outlet).

2) Power cord is free from breakage, short-circuit, disconnected wire, or incorrect connection in the power cord.

3) The laser printer is properly grounded.

4) The laser printer is not installed at a place subjected to too high temperature, too high humidity, too low temperature, too low humidity or rapid change of temperature.

5) The laser printer is not installed close to water service, humidifier, heat generating unit, or fire, in very dusty place, or a place exposed to air flow from the air conditioning system.

6) The laser printer is not installed in a place where volatile gas or inflammable gas is generated.

7) The laser printer is not installed under direct sunbeams.

8) The laser printer is installed in a well-ventilated place.

9) The laser printer is installed on a stout and stable plane.

10) Paper used meets specifications (standard paper is recommendable).

11) The laser printer is handled properly.

12) Parts which should be periodically replaced are replaced each time when specified number of sheets have been printed.

1.3 Cautions for Service Operations

1) Be sure to remove the power cord except when it is specifically required.

If the printer is kept ON, never touch the conductive parts while it is not specifically required.
The power switch/inlet of LVPS is live even while the power supply is cut off. Never touch the live parts.

2) When checking some parts with covers removed and with the interlock and safety and power switches ON, remove the connector (P/J151) on the ROS ASSY except when it is specifically required.

When checking some parts with covers removed and with the interlock and safety and power switches ON, laser beams may be irradiated from the ROS ASSY. Since it is dangerous, be sure to remove the connector (P/J151) while it is not required.

3) When checking some parts with the left cover removed and power ON, be sure to remove the connector (P/J5011) on the HVPS while it is not required.

When checking some parts with the left cover removed and power ON, high voltage may be applied by the HVPS. Be sure to remove the connector (P/J5011) on the HVPS. When connecting the connector (P/J5011) on the HVPS according to the instructions of the FIP, never touch the HVPS and parts of high voltage.

4) When using Diag. tools or other tools of high voltage, be sure to keep them covered except when otherwise specified.

When using Diag.Tool or other tools of high voltage, never touch parts of high voltage. When using Diag.Tool or other tools of high voltage, be sure to follow the procedure of this manual.

5)When operating the driving units using the Diag or other tools, be sure to keep them covered unless otherwise specified.

When operating the driving units using the Diag or other tools, never touch the driving units. When operating the driving units using Diag or other tools, be sure to observe the procedures in this manual.

6) When touching hot parts, be careful not to get burnt.

7) Workers should wear a wrist band or the like to remove static electricity from their body, grounding their body while working.

1.4 Cautions for FIP Use

1) It is assumed in the FIP that the printer controller (CONTROLLER PWB) is normally functioning. If the trouble cannot be corrected by troubleshooting, replace the printer controller with a normal one and check for proper operation again.
   If the trouble is still not corrected, replace the major parts and then related parts in succession and confirm according to the procedure of the "Initial check" and "Major check parts".

2) When troubleshooting according to the FIP, normal HNB MCU PWB, Imaging Unit (PHD) or other parts may be necessary for isolation of failed parts. Prepare them in advance.

3) In the initial check according to the FIP, check only items which can be simply checked.

4) In the initial check according to the FIP, check the constitutive parts of the major check parts and related parts, as well as major check parts.

5) When working with the printer, Be sure to remove the power cord except when required specifically. Never touch live parts if not required, while the power cord is connected.

6) Connector condition is denoted as follows:
   [P/J12] → Connector (P/J12) is connected.
   [P12] → Plug side with the connector (P/J12) removed (except when attached directly to the board).
   [J12] → Jack side with the connector (P/J12) removed (except when attached directly to the board).

7) [P/J1-2PIN <=> P/J3-4PIN] in the FIP means measurement with the plus side of the measuring instrument connected to [P/J1] and the minus side to [4PIN] of [P/J3].

8) [P/J<=>P/12] in the FIP means measurement for all terminals corresponding between [P/J1] and [P/J2] referring to "Wire connecting diagram".

9) In [P/J1-2PIN <=> P/J3-4PIN] in the FIP where voltage is measured, [P/J3-4PIN] on the rear minus side is always at the AG (analog ground), SG (signal ground), or RTN (return).
   Therefore, after checking of proper continuity between AGs, SGs, or RTNs respectively, the rear minus side can be connected to the PIN of AG, SG or RTN instead of [P/J3-4PIN].
   However, care should be taken not to mistake since [AG], [SG], and [RTN] are not on the same level.

10) Measure the voltage of small connectors with the special tool. Handle the tool with care, as the leading edge of the tool is pointed.

11) When measuring the voltage, set the PDH ASSY, FUSER ASSY, BRT ASSY and paper tray, close the FRONT COVER ASSY and power ON if not required specifically.

12) Numerical values in the FIP are only for standard. If numerical values are approximate, they should be considered permissible.

13) Parts which are always removed to check as indicated in the FIP and procedures for that purpose are not specifically referred to here. They should be handled carefully.

14) "Replacement" in the FIP indicates replacement of parts which are considered to be the source of trouble to be checked after replacing those parts, assemblies containing them, or parts (HIGH ASSY).

15) In the FIP, the paper pick-up unit by means of the paper tray at the lower part of the printer is referred to as "try 1", the first level of the paper pick-up unit feeder unit as "try 2", and the second level as the "tray3".

16) In the FIP, existence and non-existence of Diag tools (maintenance tools,) are distinguished in some cases. Correct troubles according to the instructions in the FIP.

17) In the FIP, procedures are differentiated depending on specifications. Correct troubles according to the instructions in the FIP.

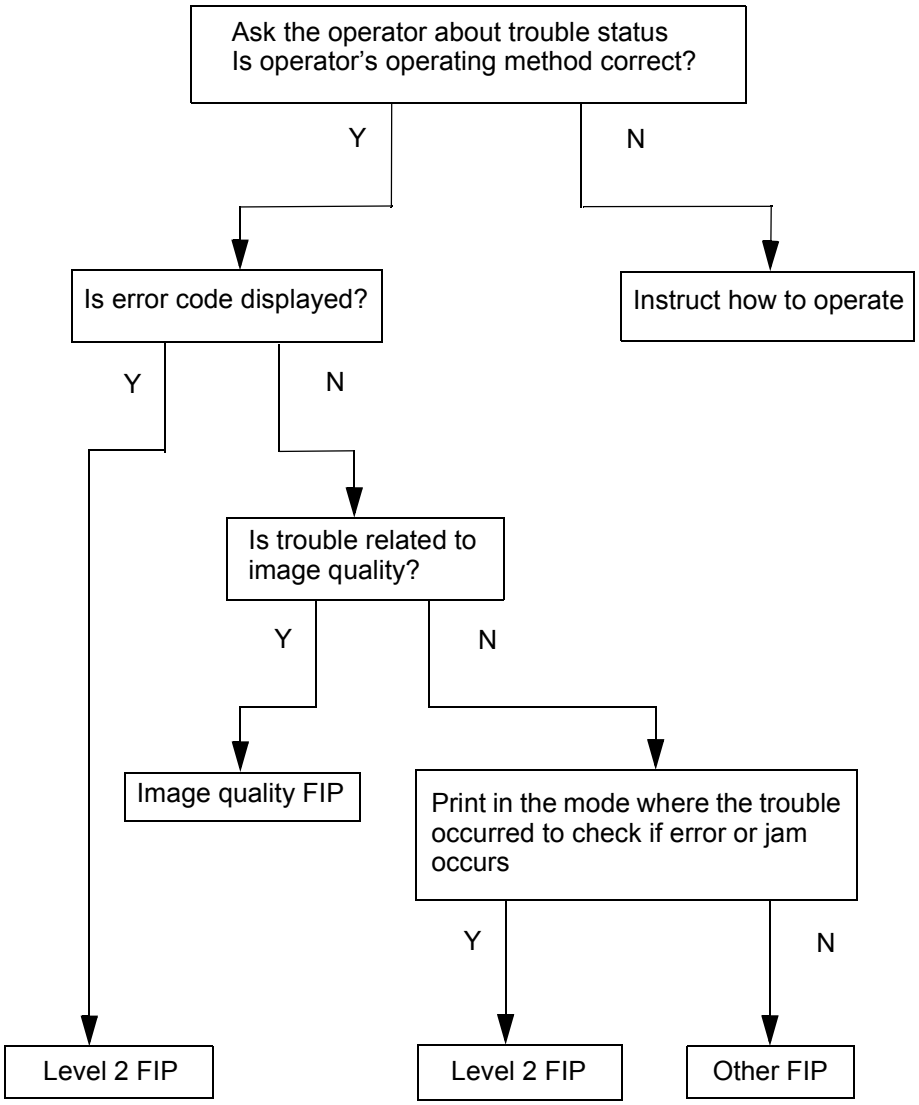
18) For optional parts, some troubleshooting procedure may follow the manual for those options, of which you should take note.
Keep those manuals for the optional parts when required.

2. Level 1 FIP

2.1 Level 1 FIP

The level 1 FIP is the first step for trouble diagnosis. The level 1 FIP isolates the presence of various troubles including error codes, and the level 2 FIP provides a guide for proceeding of the troubleshooting.

2.2 Flow of Level 1 FIP



3. Level 2 FIP

3.1 Level 2 FIP

The Level 2 FIP is the trouble diagnostic procedure to sort various troubles in addition to the error codes. In the troubleshooting, executing the steps given in the FIP or checking procedure allows you to find out a cause of trouble in a short time.

3.2 Error / Status Code List

This error / status cord list is based on the interface specifications.

NOTE

Since the error / status codes are represented by the printer controller on the printer, display on the printer is shown in parentheses below.

Reference FIP	Name of error Contents of error	Reference FIP page #
1	Yellow Toner Cartridge Detached (Yellow Toner Cartridge Missing) Cartridge sensor detected no-toner cartridge.	37
2	Magenta Toner Cartridge Detached (Magenta Toner Cartridge Missing) Cartridge sensor detected no-toner cartridge.	38
3	Cyan Toner Cartridge Detached (Cyan Toner Cartridge Missing) Cartridge sensor detected no-toner cartridge.	39
4	Black Toner Cartridge Detached (Black Toner Cartridge Missing) Cartridge sensor detected no-toner cartridge.	40
5	PHD Detached (Imaging Unit Missing) Machine detected no-Imaging Unit (PHD).	41
6	BTR Detached (Transfer Unit Missing) Machine detected no-Transfer Unit (BTR).	42
7	Fuser Detached (Fuser Unit Missing) Machine detected no-FUSER ASSY.	43
8	CRUM ID Error (Call for Service CRUM ID Error) ID of Imaging Unit (PHD) is different from the recorded ID.	44
9	CRUM ID Error (Invalid Imaging Unit) ID of Imaging Unit (PHD) is different from the recorded ID.	45
10	Media Type Mismatch (Media Type Mismatch) 1. Plain paper was detected in the printing by selecting OHP. 2. OHP was detected in the printing by selecting plain paper.	46
11	Feed Jam (Media Feed Jam) Regi sensor cannot detect paper within specified time.	47
12	Regi Jam (Media Jam Registration) Regi sensor cannot detect passage of paper within specified time.	50
13	Fuser Jam (Media Jam Fuser) Exit sensor cannot detect passage of paper within specified time.	51

Reference FIP	Name of error Contents of error	Reference FIP page #
14	Duplex Jam (Media Jam Duplex) Duplex jam sensor cannot detect passage of paper within specified time.	52
15	ROS Failure (Call for Service ROS Motor) 1. Laser power down. 2. SOS signal not detected.	54
16	Fuser Failure (Call for Service Fuser Failure) 1. Temperature exceeding 235°C detected consecutively 4 times. 2. Temperature below 120°C detected consecutively 4 times. 3. Resistance value of STS sensor over 2437KW detected consecutively 4 times. 4. Target temperature is not reached more than 60 seconds after the fuser lamp lighted up. 5. After the target temperature is reached, the fuser lamp was kept ON for more than specified time. 6. Value of the STS sensor does not change after the lamp lights up. 7. Temperature exceeding 230°C detected during printing process consecutively twice.	55
17	NV-RAM Error (Call for Service NV-RAM Error) Error of NV-RAM	56
18	ADC Sensor Error (ADC Sensor Dustiness Warning) Power down of ADC sensor	57
19	Fan Motor Failure (Call for Service Fan Motor Error) Failure of Fan Motor	58
20	Low Density Error (Call for Service Low Density) Toner density is low.	60
21	Firmware Error (Call for Service Firmware Error) Error of software	61
22	Environment Sensor Error (Call for Service ENV Sensor Error) 1. The temperature over +100°C or below -20°C was detected. 2. The humidity over 100% was detected.	62
23	Yellow Toner Empty (Yellow Toner Low) Yellow toner emptied.	63
24	Magenta Toner Empty (Magenta Toner Low) Magenta toner emptied.	64
25	Cyan Toner Empty (Cyan Toner Low) Cyan toner emptied.	65
26	Black Toner Empty (Black Toner Low) Black toner emptied.	66
27	PHD Life Over (Replace Imaging Unit) Imaging Unit (PHD) life expired.	67
28	BTR Life Over (Replace Transfer Unit) Transfer Unit (BTR) life expired.	68
29	Fuser Life Over (Replace Fuser Unit) FUSER ASSY life expired.	69

Reference FIP	Name of error Contents of error	Reference FIP page #
30	ADC Sensor Dustiness (ADC Sensor Dustiness Error) ADC sensor signal level below specified value.	70
31	Front Cover (Front Cover Open) Front cover open.	71
32	BTR Life Warning (Transfer Unit Life Low) Transfer Unit (BTR) life running out.	72
33	Fuser Life Warning (Fuser Life Low) Fuser life running out.	73
34	Paper Empty (Put %s in %s Bin) Paper in the paper cassette exhausted.	74
35	Upper Cassette Detached (Adjust Input Bin) Paper cassette dislocated.	75
36	Full Stack (Output Bin Full) Delivery tray full of paper	76
37	Yellow Toner Empty 2 (Yellow Toner Empty) Yellow toner emptied.	77
38	Magenta Toner Empty 2 (Magenta Toner Empty) Magenta toner emptied.	78
39	Cyan Toner Empty 2 (Cyan Toner Empty) Cyan toner emptied.	79
40	Black Toner Empty 2 (Black Toner Empty) Black toner emptied.	80

3.3 Operating / Clearing the Error

NOTE

In the table below, "shutdown" means that control over motors, ROS ASSY, FUSER ASSY and so on is stopped after a certain time.

NOTE

In the table below, "print" means that printing is continued even if error message is generated.

Diag Error Message (Display Error Message)	Operation
	Method of clearing
Yellow Toner Cartridge Detached (Yellow Toner Cartridge Missing)	Shutdown
	Toner cartridge replacement
Magenta Toner Cartridge Detached (Magenta Toner Cartridge Missing)	Shutdown
	Toner cartridge replacement
Cyan Toner Cartridge Detached (Cyan Toner Cartridge Missing)	Shutdown
	Toner cartridge replacement
Black Toner Cartridge Detached (Black Toner Cartridge Missing)	Shutdown
	Toner cartridge replacement
PHD Detached (Imaging Unit Missing)	Shutdown
	Imaging Unit (PHD) replacement
BTR Detached (Transfer Unit Missing)	Shutdown
	Transfer Unit (BTR) replacement
Fuser Detached (Fuser Unit Missing)	Shutdown
	Power OFF/ON after replacing the FUSER ASSY
CRUM ID Error (Call for Service CRUM ID Error) or (Invalid Imaging Unit)	Shutdown
	Imaging Unit (PHD) replacement
Media Type Mismatch (Media Type Mismatch)	Shutdown
	Power OFF/ON after removing the jam paper
Feed Jam (Media Feed Jam)	Next paper is not picked up after a sheet of paper is delivered during operation
	Open and close the front cover after removing the jammed paper
Regi Jam (Media Jam Registration)	Shutdown
	Open and close the front cover after removing the jammed paper
Fuser Jam (Media Jam Fuser)	Shutdown
	Open and close the front cover after removing the jammed paper

Diag Error Message (Display Error Message)	Operation
	Method of clearing
Duplex Jam (Media Jam Duplex)	Shutdown
	Open and close the front cover after removing the jammed paper
ROS Failure (Call for Service ROS Motor)	Shutdown
	Power ON/OFF
Fuser Failure (Call for Service Fuser Failure)	Shutdown
	Power ON/OFF
NV-RAM Error (Call for Service NV-RAM Error)	Shutdown
	Power ON/OFF
ADC Sensor Error (ADC Sensor Dustiness Warning)	Shutdown
	Power ON/OFF
Fan Motor Failure (Call for Service Fan Motor Error)	Shutdown
	Power ON/OFF
Low Density Error (Call for Service Low Density)	Shutdown
	Power ON/OFF
Firmware Error (Call for Service)	Shutdown
	Power ON/OFF
Environment Sensor Error (Call for Service Sensor Error)	Shutdown
	Power ON/OFF
Yellow Toner Empty (Yellow Toner Low)	Shutdown
	Toner cartridge replacement
Magenta Toner Empty (Magenta Toner Low)	Shutdown
	Toner cartridge replacement
Cyan Toner Empty (Cyan Toner Low)	Shutdown
	Toner cartridge replacement
Black Toner Empty (Black Toner Low)	Shutdown
	Toner cartridge replacement
PHD Life Over (Replace Imaging Unit)	Shutdown
	Imaging Unit (PHD) replacement
BTR Life Over (Replace Transfer Unit)	Shutdown
	Transfer Unit (BTR) replacement
Fuser Life Over (Replace Fuser Unit)	Shutdown
	Clearing the counter after replacing the FUSER ASSY
ADC Sensor Dustiness (ADC Warning)	Print
	Open and close the front cover after cleaning the sensor
Front Cover (Front Cover Open)	Shutdown
	Close the front cover

Diag Error Message (Display Error Message)	Operation
	Method of clearing
Yellow Toner Near Empty (Yellow Toner Low)	Print
	Toner cartridge replacement
Magenta Toner Near Empty (Magenta Toner Low)	Print
	Toner cartridge replacement
Cyan Toner Near Empty (Cyan Toner Low)	Print
	Toner cartridge replacement
Black Toner Near Empty (Black Toner Low)	Print
	Toner cartridge replacement
PHD Life Warning (Imaging Unit Life Low)	Print
	Imaging Unit (PHD) replacement
BTR Life Warning (Transfer Unit Life Low)	Print
	Transfer Unit (BTR) replacement
Fuser Life Warning (Fuser Life Low)	Print
	Replace the FUSER ASSY and clear the counter
ADC Sensor Dustiness (ADC Sensor Dustiness Error)	Print
	Clean the sensor and open and close the front cover
Paper Empty (Put Paper in Input Bin)	Print (Paper cannot be delivered from the cassette)
	Replenish the paper
Upper Cassette Detached (Adjust Input Bin)	Print (Paper cannot be delivered from the cassette)
	Paper cassette replacement
Full Stack (Output Bin Full)	Print
	Take out paper from the delivery tray
Yellow Toner Empty 2 (Yellow Toner Empty)	Shutdown
	Toner cartridge replacement
Magenta Toner Empty 2 (Magenta Toner Empty)	Shutdown
	Toner cartridge replacement
Cyan Toner Empty 2 (Cyan Toner Empty)	Shutdown
	Toner cartridge replacement
Black Toner Empty 2 (Black Toner Empty)	Shutdown
	Toner cartridge replacement

3.4 Error Code FIP

FIP-1 Yellow Toner Cartridge Detached (Yellow Toner Cartridge Missing)

Step	Check		
		Yes	No
1	Initial check. Check the following for damage: Cartridge condition SW TCRU ASSY (Y) condition SW TCRU ASSY (Y) actuator condition SW TCRU ASSY SW TCRU ASSY (Y) connector condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SW TCRU ASSY Using the diagnostic tool, check by Diagnostic Input Test. Does SW TCRU ASSY (Yellow Cartridge Toner Bottle Sensor) function normally?	Replace PWBA HNB MCU	Go to step [3]
3	Check PWBA HNB DRV for signal Is P/J51-11PIN <=> P/J51-12PIN 0VDC?	Go to step [7]	Go to step [4]
4	Check SW TCRU ASSY (Y) for signal Is P/J431-2PIN<=>P/J431-1PIN 0VDC?	Go to step [6]	Go to step [5]
5	Check SW TCRU ASSY (Y) for continuity Is P431-2PIN <=> P431-1PIN of SW TCRU ASSY (Y) check continuous?	Go to step [6]	Replace SW TCRU ASSY (Y)
6	Check HARNESS ASSY TNR for continuity J51 <=> J431 check continuous?	Go to step [7]	Replace HARNESS ASSY TNR
7	Check PWBA HNB DRV for signal Is P/J42-4PIN<=>P/J42-14PIN 0VDC?	Go to step [8]	Replace PWB HNB DRV
8	Check PWBA HNB MCU for signal Is P/J12-27PIN <=> P/J12-17PIN of PWBA HNB MCU PWB 0VDC?	Replace PWBA HNB MCU	Go to step [9]
9	Check HARNESS ASSY DRV2 for continuity J12 <=> J42 check continuous?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2

FIP-2 Magenta Toner Cartridge Detached (Magenta Toner Cartridge Missing)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Cartridge condition SW TCRU ASSY (M) condition SW TCRU ASSY (M) actuator condition SW TCRU ASSY SW TCRU ASSY (M) connector condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SW TCRU ASSY Using the diagnostic tool, check by Diagnostic Input Test. Does SW TCRU ASSY (Magenta Cartridge Toner Bottle Sensor) function normally?	Replace PWBA HNB MCU	Go to step [3]
3	Check PWBA HNB DRV for signal Is P/J51-13PIN <=> P/J51-14PIN 0VDC?	Go to step [7]	Go to step [4]
4	Check SW TCRU ASSY(M) for signal Is P/J432-2PIN <=> P/J432-1PIN 0VDC?	Go to step [6]	Go to step [5]
5	Check SW TCRU ASSY (M) for continuity P432-2PIN <=> P432-1PIN of SW TCRU ASSY (M) check continuous?	Go to step [6]	Replace SW TCRU ASSY (M)
6	Check HARNESS ASSY TNR for continuity J51 <=> J432 check continuous?	Go to step [7]	Replace HARNESS ASSY TNR
7	Check PWBA HNB DRV for signal Is P/J42-5PIN <=> P/J42-14PIN 0VDC?	Go to step [8]	Replace PWB HNB DRV
8	Check PWBA HNB MCU for signal Is P/J11-26PIN <=> P/J11-17PIN of HNB MCU WITHMCU PWB 0VDC?	Replace PWBA HNB MCU	Go to step [9]
9	Check HARNESS ASSY DRV2 for continuity J12 <=> J42 check continuous?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2

FIP-3 Cyan Toner Cartridge Detached (Cyan Toner Cartridge Missing)

Step	Check	Yes	No
1	Initial check Check the following for damage. Cartridge condition SW TCRU ASSY (C) condition SW TCRU ASSY (C) actuator condition SW TCRU ASSY SW TCRU ASSY (C) connector condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SW TCRU ASSY Using the diagnostic tool, check by Diagnostic Input Test. Does SW TCRU ASSY (Cyan Cartridge Toner Bottle Sensor) function normally?	Replace PWBA HNB MCU	Go to step [3]
3	Check PWBA HNB DRV for signal Is P/J51-29PIN <=> P/J51-30PIN 0VDC?	Go to step [7]	Go to step [4]
4	Check SW TCRU ASSY (C) for signal Is P/J433-2PIN <=> P/J433-1PIN 0VDC?	Go to step [6]	Go to step [5]
5	Check SW TCRU ASSY (C) for continuity P433-2PIN <=> P433-1PIN of SW TCRU ASSY (C) check continuous?	Go to step [6]	Replace SW TCRU ASSY (C)
6	Check HARNESS ASSY TNR for continuity J51 <=> J433 check continuous?	Go to step [7]	Replace HARNESS ASSY TNR
7	Check PWBA HNB DRV for signal Is P/J42-6PIN <=> P/J42-14PIN 0VDC?	Go to step [8]	Replace PWB HNB DRV
8	Check PWBA HNB MCU for signal Is P/J12-25PIN <=> P/J12-17PIN of PWBA HNB MCU PWB 0VDC?	Replace PWBA HNB MCU	Go to step [9]
9	Check HARNESS ASSY DRV2 for continuity J12 <=> J42 check continuous?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2

FIP-4 Black Toner Cartridge Detached (Black Toner Cartridge Missing)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Cartridge condition SW TCRU ASSY (K) condition SW TCRU ASSY (K) actuator condition SW TCRU ASSY SW TCRU ASSY (K) connector condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SW TCRU ASSY Using the diagnostic tool, check by Diagnostic Input Test. Does SW TCRU ASSY (Black Cartridge Toner Bottle Sensor) function normally?	Replace PWBA HNB MCU	Go to step [3]
3	Check PWBA HNB DRV for signal Is P/J51-31PIN<=>P/J51-32PIN 0VDC?	Go to step [7]	Go to step [4]
4	Check SW TCRU ASSY (K) for signal Is P/J434-2PIN<=>P/J434-1PIN 0VDC?	Go to step [6]	Go to step [5]
5	Check SW TCRU ASSY (K) for continuity P434-2PIN <=> P434-1PIN of SW TCRU ASSY (K) check continuous?	Go to step [6]	Replace SW TCRU ASSY (K)
6	Check HARNESS ASSY TNR for continuity J51 <=> J434 check continuous?	Go to step [7]	Replace HARNESS ASSY TNR
7	Check PWBA HNB DRV for signal Is P/J42-3PIN <=> P/J42-14PIN 0VDC?	Go to step [8]	Replace PWB HNB DRV
8	Check PWBA HNB MCU for signal Is P/J12-28PIN <=> P/J12-17PIN of PWBA HNB MCU PWB 0VDC?	Replace PWBA HNB MCU	Go to step [9]
9	Check HARNESS ASSY DRV2 for continuity J12 <=> J42 check continuous?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2

FIP-5 PHD Detached (Imaging Unit Missing)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Imaging Unit (PHD) condition PWBA CRUM in Imaging Unit (PHD) condition	Replace the parts concerned	Go to step [2]
2	Check PWBA CRUM Is PWBA CRUM connector connected to the harness connector normally?	Go to step [3]	Replace HARNESS ASSY CRUM
3	Check HARNESS ASSY CRUM for continuity J170 <=> J71 check continuous?	Go to step [4]	Replace HARNESS ASSY CRUM
4	Check HARNESS ASSY EEPROM for continuity J17 <=> J140 check continuous?	Go to step [5]	Replace HARNESS ASSY EEPROM
5	Check Imaging Unit (PHD) Replace Imaging Unit (PHD), and check if an error occurs	Replace PWBA HNB MCU	End of work

FIP-6 BTR Detached (Transfer Unit Missing)

Step	Check		
		Yes	No
1	Initial check Check the following for evidence of fault. Transfer Unit (BTR) condition SENSOR ADC ASSY condition	Replace the parts concerned	Go to step [2]
2	Check HARNESS ASSY ADC for connection Is HARNESS ASSY ADC connected to the SENSOR ADC ASSY normally?	Go to step [3]	Replace the parts concerned
3	Check HARNESS ASSY ADC for continuity J136 <=> J1361 check continuous?	Go to step [4]	Replace HARNESS ASSY ADC
4	Check HARNESS ASSY FRONT1A for continuity J1361 <=> J13 check continuous?	Go to step [5]	Replace HARNESS ASSY FRONT1A
5	Check HARNESS ASSY FRONT1A for signal Is P/J136-5PIN <=> P/J136-3PIN 0VDC?	Replace SENSOR ADC ASSY	Go to step [6]
6	Check Transfer Unit (BTR) Replace new Transfer Unit (BTR), and check if an error occurs	Replace PWBA HNB MCU	End of work

FIP-7 Fuser Detached (Fuser Unit Missing)

Step	Check	Yes	No
1	Initial check Check the following for damage. FUSER ASSY condition	Replace the parts concerned	Go to step [2]
2	Check FUSER ASSY Remove the FUSER and measure resistance value Is P232-A4PIN <=> P232-A5PIN less than 400KΩ?	Go to step [3]	Replace FUSER ASSY
3	Check HARNESS ASSY FSR2 for continuity J232 <=> J138 check continuous?	Go to step [4]	Replace HARNESS ASSY FSR2
4	Check HARNESS ASSY FRONT 1A for continuity P138 <=> J13 check continuous?	Replace PWBA HNB MCU	Replace HARNESS ASSY FRONT 1A

FIP-8 CRUM ID Error (Call for Service CRUM ID Error)

Step	Check		
		Yes	No
1	Verify that the printer has a genuine Minolta-QMS PHD ASSY (Imaging Unit)	Go to step [2]	Replace Imaging Unit (PHD)
2	Check the following for damage. Imaging Unit (PHD) condition PWBA CRUM in Imaging Unit (PHD) condition	Replace the parts concerned	Go to step [3]
3	Check PWBA CRUM for connection Is PWBA CRUM connector connected to the harness connector normally?	Go to step [4]	Replace HARNESS ASSY CRUM
4	Check HARNESS ASSY CRUM for continuity J170 <=> J71 check continuous?	Go to step [5]	Replace HARNESS ASSY CRUM
5	Check HARNESS ASSY EEPROM for continuity J17 <=> J140 check continuous?	Go to step [6]	Replace HARNESS ASSY EEPROM
6	Check Imaging Unit (PHD) Replace new Imaging Unit (PHD), and check if an error occurs	Replace PWBA HNB MCU	End of work

FIP-9 CRUM ID Error (Invalid Imaging Unit)

Step	Check	Yes	No
1	Verify that the printer has a genuine Minolta-QMS PHD ASSY (Imaging Unit)	Go to step [2]	Replace Imaging Unit (PHD)
2	Check the following for damage. Imaging Unit (PHD) condition PWBA CRUM in Imaging Unit (PHD) condition	Replace the parts concerned	Go to step [3]
3	Check PWBA CRUM for connection Is PWBA CRUM connector connected to the harness connector normally?	Go to step [4]	Replace HARNESS ASSY CRUM
4	Check HARNESS ASSY CRUM for continuity J170 <=> J71 check continuous?	Go to step [5]	Replace HARNESS ASSY CRUM
5	Check HARNESS ASSY EEPROM for continuity J17 <=> J140 check continuous?	Go to step [6]	Replace HARNESS ASSY EEPROM
6	Check Imaging Unit (PHD) Replace new Imaging Unit (PHD), and check if an error occurs	Replace PWBA HNB MCU	End of work

FIP-10 Media Type Mismatch (Media Type Mismatch)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. SENSOR OHP condition CHUTE ASSY REGI condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SENSOR OHP Feed the paper to the SENSOR. Does SENSOR OHP (OHP Sensor) function normally? Using diagnostic tool, check by Diagnostic Input Test.	Replace PWBA HNB MCU	Go to step [3]
3	Check PWBA HNB MCU for signal Is P/J32-2PIN <=> P/J32-1PIN 0VDC?	Go to step [4]	Go to step [5]
4	Check PWBA HNB MCU for signal Feed the paper to the SENSOR. Does P/J32-2PIN <=> P/J32-1PIN change from 0VDC to +3.3VDC?	Replace PWBA HNB MCU	Go to step [5]
5	Check PWBA HNB MCU for signal Is P/J32-3PIN <=> P/J32-1PIN +5VDC?	Replace SENSOR OHP	Replace PWBA HNB MCU

FIP-11 Feed Jam (Media Jam Feed)

Step	Check	Yes	No
1	Initial check Check the following. Paper condition in cassette Paper cassette condition Paper dust or foreign substances in paper path Wear or damage of rolls and gears in FEEDER SENSOR REGI condition MAIN DRIVE ASSY condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SENSOR REGI Feed the paper to the SENSOR. Does the SENSOR REGI (Regi Sensor) function normally? Using diagnostic tool, check by Diagnostic Input Test.	Go to step [6]	Go to step [3]
3	Check REGI CLUTCH HARNESS for connection Is it connected normally to the SENSOR REGI?	Go to step [4]	Replace the parts concerned
4	Check REGI CLUTCH HARNESS for continuity J181 <=> J18 check continuous?	Go to step [5]	Replace CHUTE REGI
5	Check PWBA HNB MCU for signal Is P/J18-3 <=> P/J18-2 0VDC?	Replace SENSOR REGI	Go to step [6]
6	Check MAIN DRIVE MOTOR for operation Does the MAIN DRIVE MOTOR run when printing 1 sheet?	TRAY Go to step [16] MSI Go to step [28]	With tool Go to step [7] Without tool Go to step [8]
7	Check MAIN DRIVE MOTOR Does the MAIN DRIVE MOTOR function normally? Using diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Replace PWBA HNB MCU	Go to step [8]
8	Check PWBA HNB DRV for signal Is P/J48-1PIN <=> P/J60-2PIN +24VDC?	Go to step [12]	Go to step [9]
9	Check INTERLOCK SW Is the INTERLOCK SW pressed normally?	Go to step [10]	Replace the parts concerned
10	Check INTERLOCK SW for signal Check the following if +24VDC is present. SW-1PIN <=> P/J60-2PIN SW-2PIN <=> P/J60-2PIN	Replace PWBA HNB DRV	Go to step [11]
11	Check PWBA HNB DRV for power supply Is P/J60-1PIN <=> P/J60-2PIN +24VDC?	Replace PWBA HNB DRV	Go to FIP-DC
12	Check PWBA HNB DRV for power supply Is P/J61-8PIN <=> P/J61-7PIN +5VDC?	Go to step [13]	Go to step [14]
13	Check PWBA HNB DRV for power supply Is P/J61-6PIN <=> P/J61-5PIN +3.3VDC?	Go to step [15]	Go to step [14]
14	Check HARNESS ASSY LVNC for continuity J61 <=> J165 check continuous?	Go to FIP-DC	Replace HARNESS ASSY LVNC

Step	Check		
		Yes	No
15	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J41-30PIN <=> J11-11PIN J41-31PIN <=> J11-10PIN J41-33PIN <=> J11-8PIN	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV1
16	Check CLUTCH ASSY TURN for operation Does the Turn Roll in the Feeder run when printing 1 sheet?	Go to step [22]	With tool Go to step [17] Without tool Go to step [18]
17	Check CLUTCH ASSY TURN Does the CLUTCH ASSY TURN function normally? Using CLUTCH ASSY TURN diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the CLUTCH for slip, or the gear for damage.	Go to step [18]
18	Check PWBA HNB DRV for signal Is P/J47-13PIN <=> P/J60-2PIN +24VDC?	Go to step [19]	Replace PWBA HNB DRV
19	Check HARNESS ASSY FDR for continuity Check the following for continuity. J47-13PIN <=> P475-2PIN J47-14PIN <=> P475-1PIN	Go to step [20]	Replace HARNESS ASSY FDR
20	Check CLUTCH ASSY TURN for resistance value Remove the CLUTCH connector J475 Is J475-1PIN <=> J475-2PIN less than 200Ω?	Go to step [21]	Replace CLUTCH ASSY TURN
21	Check HARNESS ASSY DRV2 for continuity Is J12-9PIN <=> J42-22PIN check continuous?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2
22	Check SOLENOID FEED for operation Does the Feed Gear in the Feeder run when printing 1 sheet?	Check parts for missing and change paper, if no problem	With tool Go to step [23] Without tool Go to step [24]
23	Check SOLENOID FEED Does the SOLENOID FEED function normally? Using SOLENOID FEED diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the spring and stopper of SOLENOID FEED for disengagement	Go to step [24]
24	Check PWBA HNB DRV for signal Is P/J47-11PIN <=> P/J60-2PIN +24VDC?	Go to s step [25]	Replace PWBA HNB DRV
25	Check HARNESS ASSY FDR for continuity Check the following for continuity. J47-11PIN <=> P474-2PIN J47-12PIN <=> P474-1PIN	Go to step [26]	Replace HARNESS ASSY FDR
26	Check SOLENOID FEED for resistance value Remove the SOLENOID connector J474 Is J474-1PIN <=> J474-2PIN less than 100Ω?	Go to step [27]	Replace SOLENOID FEED
27	Check HARNESS ASSY DRV2 for continuity J12-10PIN <=> J42-21PIN check continuous?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2

Step	Check		
		Yes	No
28	Check CLUTCH ASSY TURN MSI for operation Does the TURN ROLL in the MSI run when printing 1 sheet?	Go to step [31]	With tool Go to step [29] Without tool Go to step [30]
29	Check CLUTCH ASSY TURN MSI Does the CLUTCH ASSY TURN MSI function normally? Using CLUTCH ASSY TURN MSI diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the CLUTCH for slip, or the gear for damage.	Go to step [30]
30	Check CLUTCH ASSY MSI TURN for resistance value Remove the CLUTCH connector J19. Is J19-1PIN <=> J19-2PIN less than 200Ω?	Replace PWBA HNB MCU	Replace CLUTCH ASSY TURN MSI
31	Check SOLENOID FEED MSI for operation Does the Feed Gear in the MSI run when printing 1 sheet?	Check parts for missing and change paper, if no problem	With tool Go to step [32] Without tool Go to step [33]
32	Check SOLENOID FEED MSI Does the SOLENOID FEED TURN MSI function normally? Using SOLENOID FEED TURN MIS diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the spring and stopper of SOLENOID FEED for disengagement	Go to step [33]
33	Check SOLENOID FEED MSI for resistance value Remove the SOLENOID FEED MSI J132 Is J132-1PIN <=> J132-2PIN less than 100Ω?	Go to step [34]	Replace SOLENOID FEED MSI
34	Check HARNESS ASSY FRONT2 for continuity Check the following for continuity. P132-1PIN <=> J139-11PIN P132-2PIN <=> J139-10PIN	Go to step [35]	Replace HARNESS ASSY FRONT2
35	Check HARNESS ASSY FRONT1A for continuity Check the following for continuity. P139-1PIN <=> J13-11PIN P139-2PIN <=> J13-10PIN	Replace PWBA HNB MCU	HARNESS ASSY FRONT1A

FIP-12 Regi Jam (Media Jam Registration)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. SENSOR REGI actuator condition CHUTE ASSY REGI condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SENSOR REGI Does SENSOR REGI function normally? Using SENSOR REGI diagnostic tool, check by Diagnostic Input Test.	Go to step [6]	Go to step [3]
3	Check REGI CLUTCH HARNESS for connection Is it connected normally to the SENSOR REGI?	Go to step [4]	Replace the parts concerned
4	Check REGI CLUTCH HARNESS for continuity J181 <=> J18 check continuous?	Go to step [5]	Replace CHUTE REGI
5	Check PWBA HNB MCU for signal Is P/J18-3 <=> P/J18-2 0VDC?	With tool Go to step [6] Without tool Go to step [7]	Replace SENSOR REGI
6	Check CLUTCH REGI Does the CLUTCH REGI function normally? Using CLUTCH REGI diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Go to step [9]	Go to step [7]
7	Check CLUTCH REGI for resistance value Remove the CLUTCH connector J18. Is J18-4PIN <=> J18-5PIN less than 200Ω?	Go to step [8]	Replace CHUTE REGI
8	Check PWBA HNB MCU for signal Close the INTERLOCK SW Is P18-4PIN <=> P18-2PIN +24VDC?	Go to step [9]	Replace PWBA HNB MCU
9	Check CHUTE REGI Does the ROLL rotate smoothly by hand?	Replace the CHUTE REGI on the machine, and check the gears for meshing.	Replace CHUTE REGI

FIP-13 Fuser Jam (Media Jam Fuser)

Step	Check	Yes	No
1	Initial check Check the following for damage. SENSOR EXIT actuator condition FUSER ASY condition FRONT COVER condition CHUTE DUP IN condition Transfer Unit (BTR) condition Imaging Unit (PHD) condition	Replace the parts concerned	Go to step [2]
2	Check FUSER ASSY connector Remove the FUSER ASSY connector, and check for broken or curved pins.	With tool Go to step [3] Without tool Go to step [4]	Replace the parts concerned
3	Check SENSOR EXIT Does SENSOR EXIT function normally? Using SENSOR EXIT diagnostic tool, check by Diagnostic Input Test.	Go to step [9]	Go to step [4]
4	Check HARNESS FSR2 for signal Push the paper in the FUSER ASSY Is P/J138-3PIN <=> P/J138-2PIN 0VDC?	Go to step [6]	Go to step [5]
5	Check HARNESS FSR2 for continuity J232 <=> J138 check continuous?	Go to step [6]	Replace HARNESS ASSY FSR2
6	Check HARNESS ASSY FRONT 1A for continuity P138 <=> J13 check continuous?	Go to step [7]	Replace HARNESS ASSY FRONT 1A
7	Check FUSER ASSY Check if an error occurs though the FUSER ASSY was replaced with a new one.	Go to step [9]	End of work
8	Check FUSER MOTOR for operation Does the FUSER MOTOR run when printing 1 sheet?	Check the gears for meshing	With tool Go to step [9] Without tool Go to step [10]
9	Check FUSER MOTOR Does FUSER MOTOR function normally? Using FUSER MOTOR diagnostic tool, check by Diagnostic Output Test.	Replace PWBA HNB MCU	Go to step [10]
10	Check PWBA HNB DRV for signal Is P/J52-1PIN <=> P/J60-2PIN +24VDC?	Go to step [11]	Replace PWBA HNB DRV
11	Check HARNESS ASSY DRV 1 for continuity Check the following for continuity. J11-12PIN <=> J41-29PIN J11-13PIN <=> J41-28PIN J11-14PIN <=> J41-27PIN J11-15PIN <=> J41-26PIN J11-16PIN <=> J41-25PIN	Go to step [12]	Replace HARNESS ASSYDRV 1
12	Check FUSER MOTOR Replace a new FUSER MOTOR, and check if the FUSER MOTOR rotates when printing 1 sheet.	End of work	Replace PWBA HNB MCU

FIP-14 Duplex Jam (Media Jam Duplex)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. CHUTE ASSY EXIT condition DUP MOTOR condition SENSOR DUP JAM actuator condition CHUTE ASSY OUT condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Checking SENSOR DUP JAM Does SENSOR DUP JAM function normally? Using SENSOR DUP JAM diagnostic tool, check by Diagnostic Input Test.	Go to step [7]	Go to step [3]
3	Check HARNESS ASSY FRONT2 for signal Push the SENSOR DUP JAM actuator by finger Is J319-3PIN <=> J319-2PIN 0VDC?	Go to step [5]	Go to step [4]
4	Check HARNESS ASSY FRONT2 for continuity J133 <=> J139 check continuous?	Go to step [5]	Replace HARNESS ASSY FRONT2
5	Check HARNESS ASSY FRONT 1A for continuity P139 <=> J13 check continuous?	Go to step [6]	Replace HARNESS ASSY FRONT 1A
6	Check SENSOR DUP JAM Check if an error occurs though the SENSOR was replaced with a new one.	Go to step [7]	End of work
7	Check DUP MOTOR for operation Check if the sheet is reversed when printing 1 sheet in the Duplex mode.	Go to step [13]	With tool Go to step [8] Without tool Go to step [9]
8	Check DUP MOTOR Does DUP MOTOR function normally? Using DUP MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Go to step [13]	Go to step [9]
9	Check PWBA HNB DRV for signal Is P/J50-1PIN <=> P/J60-2PIN +24VDC?	Go to step [10]	Replace PWBA HNB DRV
10	Check HARNESS ASSY DUP for continuity J131 <=> J50 check continuous?	Go to step [11]	Replace HARNESS ASSY DUP
11	Check HARNESS ASSY DRV2 for continuity Check the following for continuity. J12-5PIN <=> J42-26PIN J12-6PIN <=> J42-25PIN J12-7PIN <=> J42-24PIN J12-8PIN <=> J42-23PIN J12-29PIN <=> J42-2PIN	Go to step [12]	Replace HARNESS ASSY DRV2
12	Check DUP MOTOR Check if an error occurs though the MOTOR was replaced with a new one.	Replace PWBA HNB MCU	End of work

Step	Check		
		Yes	No
13	Does the EXIT ROLL rotate smoothly by hand?	Check the sheets for gear or skew	Check the gears for foreign substances

FIP-15 ROS Failure (Call for Service ROS Motor)

Step	Check		
		Yes	No
1	Check HARNESS ASSY ROSKA for continuity J15 <=> P151 check continuous?	Replace ROS ASSY	Replace HARNESS ASSY ROSKA

FIP-16 Fuser Failure (Call for Service Fuser Failure)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. FUSER ASY condition	Replace the parts concerned	Go to step [2]
2	Check FUSER ASSY connector Disconnect the FUSER ASSY connector, and check for broken or curved pins.	Go to step [3]	Replace the parts concerned
3	Check FUSER ASSY Check if an error occurs though the FUSER ASSY was replaced with a new one.	Replace PWBA HNB MCU	End of work

FIP-17 NV-RAM Error (Call for Service NVRAM Error)

Step	Check		
		Yes	No
1	Does an error occur even if the power is turned off and on?	Replace PWBA HNB MCU	If the error recurs, replace PWBA HNB MCU

FIP-18 ADC Sensor Error (ADC Sensor Dustiness Warning)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. SENSOR ADC ASSY condition	Replace the parts concerned	Go to step [2]
2	Check HARNESS ASSY ADC for continuity J136 <=> J1361 check continuous?	Go to step [3]	Replace HARNESS ASSY ADC
3	Check HARNESS ASSY FRONT 1A for continuity J13 <=> P1361 check continuous?	Go to step [4]	Replace HARNESS ASSY FRONT 1A
4	Check SENSOR ADC ASSY Check if an error occurs though the SENSOR ADC ASSY was replaced with a new one.	Replace PWBA HNB MCU	End of work

FIP-19 Fan Motor Failure (Call for Service Fan Motor Error)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. FAN FUSER condition FAN REAR condition	Replace the parts concerned	Go to step [2]
2	Isolating faulty FAN Does the FAN REAR rotate when printing 1 sheet?	With tool Go to step [3] Without tool Go to step [4]	With tool Go to step [15] Without tool Go to step [16]
3	Check FAN REAR Does FAN REAR function normally? Using FAN REAR diagnostic tool, check by Diagnostic Output Test.	Replace PWBA HNB MCU	Go to step [4]
4	Check LVPS STD for signal Print 1 sheet. Is P/J166-1PIN <=> P/J166-3PIN +24VDC?	Go to step [9]	Go to step [5]
5	Check LVPS STD for signal Print 1 sheet. Is P/J165-6PIN <=> P/J165-2PIN 0VDC?	Go to step [6]	Replace LVPS STD
6	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J61-3PIN <=> P/J61-7PIN 0VDC?	Go to step [7]	Replace HARNESS ASSY LVNC
7	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J42-12PIN <=> P/J42-14PIN 0VDC?	Go to step [8]	Replace PWBA HNB DRV
8	Check PWBA HNB MCU for signal Print 1 sheet. Is P/J12-19PIN <=> P/J12-17PIN 0VDC?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2
9	Check FAN REAR Check if an error occurs though the Fan Rear was replaced with a new one.	Go to step [10]	End of work
10	Check LVPS STD for signal Print 1 sheet. Is P/J166-2PIN <=> P/J166-3PIN +3.3VDC?	Replace FAN REAR	Go to step [11]
11	Check LVPS STD for signal Print 1 sheet. Is P/J165-7PIN <=> P/J165-2PIN +3.3VDC?	Replace LVPS STD	Go to step [12]
12	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J61-2PIN <=> P/J61-7PIN +3.3VDC?	Replace HARNESS ASSY LVNC	Go to step [13]
13	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J42-29PIN <=> P/J42-14PIN +3.3VDC?	Replace PWBA HNB DRV	Go to step [14]
14	Check PWBA HNB MCU for signal Print 1 sheet. Is P/J12-2PIN <=> P/J12-17PIN +3.3VDC?	Replace HARNESS ASSY DRV2	Replace PWBA HNB MCU

Step	Check	Yes	No
15	Check FAN FUSER Does FAN FUSER function normally? Using FAN FUSER diagnostic tool, check by Diagnostic Output Test.	Replace PWBA HNB MCU	Go to step [16]
16	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J50-7PIN <=> P/J50-9PIN +24VDC?	Go to step [19]	Go to step [17]
17	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J42-30PIN <=> P/J42-14PIN 0VDC?	Go to step [18]	Replace PWBA HNB DRV
18	Check PWBA HNB MCU for signal Print 1 sheet. Is P/J12-1PIN <=> P/J12-17PIN 0VDC?	Replace PWBA HNB MCU	Replace HARNESS ASSY DRV2
19	Check HARNESS ASSY DUP for continuity J50 <=> J137 check continuous?	Go to step [20]	Replace HARNESS ASSY DUP
20	Check FAN FUSER Check if an error occurs though the FAN FUSER was replaced with a new one.	Go to step [21]	End of work
21	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J50-8PIN <=> P/J50-9PIN +3.3VDC?	Replace FAN FUSER	Go to step [22]
22	Check PWBA HNB DRV for signal Print 1 sheet. Is P/J42-27PIN <=> P/J42-14PIN +3.3VDC?	Replace PWBA HNB DRV	Go to step [23]
23	Check PWBA HNB MCU for signal Print 1 sheet. Is P/J12-4PIN <=> P/J12-17PIN +3.3VDC?	Replace HARNESS ASSY DRV2	Replace PWBA HNB MCU

FIP-20 Low Density Error (Call for Service Low Density)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Transfer Unit (BTR) condition SENSOR ADC ASSY condition Imaging Unit (PHD) condition Residual toner	Replace the parts concerned	Go to step [2]
2	Check HARNESS ASSY ADC for connection Is the HARNESS ASSY ADC connected to the SENSOR ADC ASSY normally?	Go to step [3]	Replace the parts concerned
3	Check HARNESS ASSY ADC for continuity J136 <=> J1361 check continuous?	Go to step [4]	Replace HARNESS ASSY ADC
4	Check HARNESS ASSY FRONT1A for continuity P1361 <=> J13 check continuous?	Go to step [5]	Replace HARNESS ASSY FRONT1A
5	Check Transfer Unit (BTR) Replace new Transfer Unit (BTR), and check if an error occurs.	Go to step [6]	End of work
6	Check Imaging Unit (PHD) Replace new Imaging Unit (PHD), and check if an error occurs.	Go to step [7]	End of work
7	Check SENSOR ADC ASSY Imaging Unit (PHD) Replace new SENSOR ADC ASSY, and check if an error occurs.	Replace PWBA HNB MCU	End of work

FIP-21 Firmware Error (Call for Service Firmware Error)

Step	Check		
		Yes	No
1	Does an error occur even if the power is turned off and on?	Replace PWBA HNB MCU	If the error recurs, replace PWBA HNB MCU

FIP-22 Environment Sensor Error (Call for Service ENV Sensor Error)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. SENSOR HUM TEMP condition	Replace the parts concerned	Go to step [2]
2	Check HARNESS ASSY TMPA for signal Is P/J2361-1PIN <=> P/J2361-2PIN less than +3VDC or +0.1VDC?	Go to step [4]	Go to step [3]
3	Check HARNESS ASSY TMPA for signal Is P/J2361-3PIN <=> P/J2361-2PIN more than +2.5VDC?	Go to step [4]	Replace PWBA HNB MCU
4	Check HARNESS ASSY TMPA for signal Is P/J2361-4PIN <=> P/J2361-2PIN +5VDC?	Replace SENSOR HUM TEMP	Replace PWBA HNB MCU

FIP-23 Yellow Toner Empty (Yellow Toner Low)

Step	Check	Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-16PIN <=> P/J51-15PIN less than +0.2VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TNR for continuity J441 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity J12-23 <=> J42-8 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA HNB DRV for signal Is P/J51-1PIN <=> P/J60-2PIN +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity J511 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-25 <=> J41-16 J11-26 <=> J41-15 J11-27 <=> J41-14 J11-28 <=> J41-13	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

FIP-24 Magenta Toner Empty (Magenta Toner Low)

Step	Check	Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-18PIN <=> P/J51-17PIN less than +0.2VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TNR for continuity J442 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity J12-22 <=> J42-9 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA HNB DRV for signal Is P/J51-6PIN <=> P/J60-2PIN +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity J512 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-29 <=> J41-12 J11-30 <=> J41-11 J11-31 <=> J41-10 J11-32 <=> J41-9	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

FIP-25 Cyan Toner Empty (Cyan Toner Low)

Step	Check	Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-34PIN <=> P/J51-33PIN less than +0.2VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TNR for continuity J443 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity J12-21 <=> J42-10 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA HNB DRV for signal Is P/J51-19PIN <=> P/J60-2PIN +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity J513 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-33 <=> J41-8 J11-34 <=> J41-7 J11-35 <=> J41-6 J11-36 <=> J41-5	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

FIP-26 Black Toner Empty (Black Toner Low)

Step	Check	Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was the replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-36PIN <=> P/J51-35PIN less than +0.2VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TNR for continuity J444 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity J12-24 <=> J42-7 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA DRV3 for signal Is P/J51-24PIN <=> P/J60-2PIN +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity J514 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-37 <=> J41-4 J11-38 <=> J41-3 J11-39 <=> J41-2 J11-40 <=> J41-1	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

FIP-27 PHD Life Over (Replace Imaging Unit)

Step	Check	Yes	No
1	Initial check Check the following for damage. Imaging Unit (PHD) condition PWBA CRUM in Imaging Unit (PHD) condition	Replace the parts concerned	Go to step [2]
2	Check PWBA CRUM for connection Is PWBA CRUM connector connected to the harness connector normally?	Go to step [3]	Replace HARNESS ASSY CRUM
3	Check HARNESS ASSY CRUM for continuity J170 <=> J71check continuous?	Go to step [4]	Replace HARNESS ASSY CRUM
4	Check HARNESS ASSY EEPROM for continuity P71 <=> J140 check continuous?	Go to step [5]	Replace HARNESS ASSY EEPROM
5	Check Imaging Unit (PHD) Replace new Imaging Unit (PHD), and check if an error occurs.	Replace PWBA HNB MCU	End of work

FIP-28 BTR Life Over (Replace Transfer Unit)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Transfer Unit (BTR) condition SENSOR TONER FULL condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SENSOR TONER FULL Does SENSOR TONER FULL function normally? Using SENSOR TONER FULL diagnostic tool, check by Diagnostic Input Test.	Go to step [6]	Go to step [3]
3	Check HARNESS ASSY TFLSNS for signal Remove the Transfer Unit (BTR) Is P/J141-2PIN <=> P/J141-1PIN 0VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TFLSNS for signal Is P/J141-3PIN <=> P/J141-1PIN +5VDC?	Go to step [5]	Replace HARNESS ASSY EEPROM
5	Check HARNESS ASSY TFLSNS for continuity J142 <=> J142 check continuous?	Replace SENSOR TONER FULL	Replace HARNESS ASSY TFLSNS
6	Check Transfer Unit (BTR) Replace new Transfer Unit (BTR), and check if an error occurs	Replace PWBA HNB MCU	End of work

FIP-29 Fuser Life Over (Replace Fuser Unit)

Step	Check		
		Yes	No
1	Check NVM Does the error occur even if the Fuser counter is cleared?	Replace PWBA HNB MCU	End of work

FIP-30 ADC Sensor Dustiness (ADC Sensor Dustiness Error)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Transfer Unit (BTR) condition SENSOR ADC ASSY condition	Replace the parts concerned	Go to step [2]
2	Check HARNESS ASSY ADC for connection Is HARNESS ASSY ADC connected to the SENSOR ADC ASSY normally?	Go to step [3]	Replace the parts concerned
3	Check HARNESS ASSY ADC for continuity J136 <=> J1361 check continuous?	Go to step [4]	Replace HARNESS ASSY ADC
4	Check HARNESS ASSY FRONT1A for continuity P1361 <=> J13 check continuous?	Go to step [5]	Replace HARNESS ASSY FRONT1A
5	Check HARNESS ASSY ADC for signal Is P/J1361-1PIN <=> P/J1361-3PIN 0VDC?	Replace SENSOR ADC ASSY	Replace PWBA HNB MCU

FIP-31 Front Cover (Front Cover Open)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. PWBA HNB DRV condition Front Cover condition Interlock SW actuator condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check Interlock SW Does Interlock SW function normally? Using Interlock SW diagnostic tool, check by Diagnostic Input Test.	Replace PWBA HNB MCU	Go to step [3]
3	Check PWBA HNB DRV for signal Close the FRONT COVER Is P/J41-35PIN <=> P/J41-22PIN 0VDC?	Replace PWBA HNB MCU	Replace PWBA HNB DRV

FIP-32 BTR Life Warning (Transfer Unit Life Low)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Transfer Unit (BTR) condition SENSOR TONER FULL condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SENSOR TONER FULL Does SENSOR TONER FULL function normally? Using SENSOR TONER FULL diagnostic tool, check by Diagnostic Input Test.	Go to step [6]	Go to step [3]
3	Check HARNESS ASSY TFLSNS for signal Remove the Transfer Unit (BTR) Is P/J141-2PIN <=> P/J141-1PIN 0VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TFLSNS for signal Is P/J141-3PIN <=> P/J141-1PIN +5VDC?	Go to step [5]	Replace HARNESS ASSY EEPROM
5	Check HARNESS ASSY TFLSNS for continuity J142 <=> J142 check continuous?	Replace SENSOR TONER FULL	Replace HARNESS ASSY TFLSNS
6	Check Transfer Unit (BTR) Replace new Transfer Unit (BTR), and check if an error occurs	Replace PWBA HNB MCU	End of work

FIP-33 Fuser Life Warning (Fuser Life Low)

Step	Check		
		Yes	No
1	Check NVM Does the error occur even if the Fuser counter is cleared?	Replace PWBA HNB MCU	End of work

FIP-34 Paper Empty (Put %s in %s Bin)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. SENSOR NO PAPER condition SENSOR actuator condition	Replace the parts concerned	TRAY 1 Go to step [2] MSI Go to step [7]
2	Does the error occur even if the paper is added?	With tool Go to step [3] Without tool Go to step [4]	End of work
3	Check SENSOR NO PAPER Does SENSOR NO PAPER function normally? Using SENSOR LOW PAPER diagnostic tool, check by Diagnostic Input Test.	Replace PWBA HNB MCU	Go to step [4]
4	Check PWBA HNB DRV for signal Is P/J47-7 <=> P/J47-6 +3.3VDC?	Go to step [6]	Go to step [5]
5	Check PWBA HNB DRV for signal Is P/J42-19 <=> P/J42-15 +3.3VDC?	Replace PWBA HNB DRV	Replace PWBA HNB MCU
6	Check PWBA HNB DRV for signal Is P/J47-5 <=> P/J47-6 +3.3VDC?	Replace SENSOR NO PAPER	Replace PWBA HNB DRV
7	Does the error occur even if the paper is added?	With tool Go to step [8] Without tool Go to step [9]	End of work
8	Check SENSOR NO PAPER Does SENSOR NO PAPER function normally? Using SENSOR LOW PAPER diagnostic tool, check by Diagnostic Input Test.	Replace PWBA HNB MCU	Go to step [9]
9	Check HARNESS ASSY FRONT2 for signal Is P/J139-7PIN <=> P/J139-8PIN +3.3VDC?	Go to step [11]	Go to step [10]
10	Check HARNESS ASSY FRONT1A for continuity Check the following for continuity. P139-3PIN <=> J13-9PIN P139-4PIN <=> J13-8PIN P139-5PIN <=> J13-7PIN	Replace PWBA HNB MCU	Replace HARNESS ASSY FRONT1A
11	Check HARNESS ASSY FRONT2 for signal Is P/J135-3PIN <=> P/J135-2PIN +3.3VDC?	Replace SENSOR NO PAPER	Replace HARNESS ASSY FRONT2

FIP-35 Upper Cassette Detached (Adjust Input Bin)

Step	Check	Yes	No
1	Initial check Check the following for damage. SW ASSY SIZE condition Actuator condition PAPER CASSETTE condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SW ASSY SIZE Does SW ASSY SIZE function normally? Using SW ASSY SIZE diagnostic tool, check by Diagnostic Input Test.	Replace PWBA HNB MCU	Go to step [3]
3	Check PWBA HNB DRV for signal Check the following, and does the result meet the combination table? P/J47-1PIN <=> P/J47-3PIN P/J47-2PIN <=> P/J47-3PIN P/J47-4PIN <=> P/J47-3PIN Refer to paper size control of operation principle	Go to step [4]	Replace SW ASSY SIZE
4	Check PWBA HNB DRV for signal Check the following, and does the result meet the combination table? P/J42-16PIN <=> P/J42-15PIN P/J42-17PIN <=> P/J42-15PIN P/J42-18PIN <=> P/J42-15PIN	Replace PWBA HNB MCU	Replace PWBA HNB DRV

Paper size	Switches		
	P/J47-1PIN or P/J42-16PIN	P/J47-2PIN or P/J42-17PIN	P/J47-4PIN or P/J42-18PIN
LEGAL14" (SEF)	ON	ON	ON
LEGAL13" (SEF)	ON	ON	OFF
EXECUTIVE (SEF)	ON	OFF	ON
B5 (SEF)	ON	OFF	OFF
A4 (SEF)	OFF	ON	ON
LETTER (SEF)	OFF	OFF	ON
A5	OFF	ON	ON
No cassette	OFF	OFF	OFF

FIP-36 Full Stack (Output Bin Full)

Step	Check		
		Yes	No
1	Initial check Check the following for damage. SENSOR FULL STACK condition Actuator condition	Replace the parts concerned	With tool Go to step [2] Without tool Go to step [3]
2	Check SENSOR FULL STACK Does SENSOR FULL STACK function normally? Using SENSOR FULL STACK diagnostic tool, check by Diagnostic Input Test.	Replace PWBA HNB MCU	Go to step [3]
3	Check HARNESS ASSY FRONT2 for signal Is P/J139-6PIN <=> P/J139-5PIN +3.3VDC?	Replace PWBA HNB MCU	Go to step [4]
4	Check HARNESS ASSY FRONT2 for signal Is P/J139-4PIN <=> P/J139-5PIN +3.3VDC?	Replace SENSOR FULL STACK	Replace HARNESS ASSY FRONT1A Replace PWBA HNB MCU

FIP-37 Yellow Toner Empty 2 (Yellow Toner Empty)

Step	Check	Remedy	
		Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-16 <=> P/J51-15 less than +0.2VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TNR for continuity Is J441 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity Is J12-23 <=> J42-8 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA HNB DRV for signal Is P/J51-1 <=> P/J60-2 +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity Is J511 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-25 <=> J41-16 J11-26 <=> J41-15 J11-27 <=> J41-14 J11-28 <=> J41-13	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

FIP-38 Magenta Toner Empty 2 (Magenta Toner Empty)

Step	Check	Remedy	
		Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-18 <=> P/J51-17 less than +0.2VDC?	Go to step [6]	Go to step [4]
4	HARNESS ASSY TNR for continuity Is J442 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity Is J12-22 <=> J42-9 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA HNB DRV for signal Is P/J51-6PIN <=> P/J60-2PIN +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity Is J512 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-29 <=> J41-12 J11-30 <=> J41-11 J11-31 <=> J41-10 J11-32 <=> J41-9	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

FIP-39 Cyan Toner Empty 2 (Cyan Toner Empty)

Step	Check	Remedy	
		Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-34PIN <=> P/J51-33PIN less than +0.2VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TNR for continuity Is J443 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity Is J12-21 <=> J42-10 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA HNB DRV for signal Is P/J51-19 <=> P/J60-2 +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity Is J513 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-33 <=> J41-8 J11-34 <=> J41-7 J11-35 <=> J41-6 J11-36 <=> J41-5	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

FIP-40 Black Toner Empty 2 (Black Toner Empty)

Step	Check	Remedy	
		Yes	No
1	Initial check Check the following for damage. SENSOR TONER LOW condition TONER CARTRIDGE condition TONER MOTOR condition	Replace the parts concerned	Go to step [2]
2	Check TONER CARTRIDGE Check if an error occurs though the TONER CARTRIDGE was replaced with a new one.	Go to step [3]	End of work
3	Check PWBA HNB DRV for signal Is P/J51-36 <=> P/J51-35 less than +0.2VDC?	Go to step [6]	Go to step [4]
4	Check HARNESS ASSY TNR for continuity Is J444 <=> J51 check continuous?	Go to step [5]	Replace HARNESS ASSY TNR
5	Check SENSOR TONER LOW Check if an error occurs though the SENSOR TONER LOW was replaced with a new one.	Go to step [6]	End of work
6	Check HARNESS ASSY DRV2 for continuity Is J12-24 <=> J42-7 check continuous?	With tool Go to step [7] Without tool Go to step [8]	Replace HARNESS ASSY DRV2
7	Check TONER MOTOR Does TONER MOTOR function normally? Using TONER MOTOR diagnostic tool, check by Diagnostic Output Test. In the test, close the INTERLOCK SW.	Check the toner stirring AUGER or gear for damage	Go to step [8]
8	Check PWBA DRV3 for signal Is P/J51-24 <=> P/J60-2 +24VDC?	Go to step [9]	Replace PWBA HNB DRV
9	Check HARNESS ASSY TNR for continuity Is J514 <=> J51 check continuous?	Go to step [10]	Replace HARNESS ASSY TNR
10	Check TONER MOTOR Check if an error occurs though the TONER MOTOR was replaced with a new one.	Go to step [11]	End of work
11	Check HARNESS ASSY DRV1 for continuity Check the following for continuity. J11-37 <=> J41-4 J11-38 <=> J41-3 J11-39 <=> J41-2 J11-40 <=> J41-1	Replace PWBA HNB DRV, and if still faulty, replace PWBA HNB MCU	Replace HARNESS ASSY DRV1

3.5 Image Trouble FIP

NOTE

The descriptions below assumes that the printer controller works normally. By testing the printing operation for the engine only, conditions can be isolated simply to determine whether the trouble exists on the printer controller side or engine side.
◆ When the test print with the engine only is correct, the printer controller is fault.
◆ When printing on the engine only is not correct, the engine is faulty.
When trouble is considered to be on the printer controller side, replace the printer controller with proper one and check for proper operation again.
If the trouble persists even after the replacement, check the host side using the image FIP for each condition as described below for effective troubleshooting.

If print image quality trouble occurs, print on paper of letter or A4 size in order to judge and understand the trouble precisely and take proper remedy steps. Use the image quality FIP correction table to diagnose the trouble.

If the problem cannot be corrected according to the image quality FIP, check the trouble after replacing the "Major check parts" specified for the "Initial check" in the image quality FIP in succession.

Image quality FIP describes the representative image quality troubles as follows:

- ✧ FIP-1.P1 "Light (Undertoned) Prints"
- ✧ FIP-1.P2 "Blank Prints"
- ✧ FIP-1.P3 "Black Prints"
- ✧ FIP-1.P4 "Vertical Band Deletions"
- ✧ FIP-1.P5 "Horizontal Band Deletions"
- ✧ FIP-1.P6 "Black (color) spots"
- ✧ FIP-1.P7 "Background"
- ✧ FIP-1.P8 "Skewed Image"
- ✧ FIP-1.P9 "Crease"
- ✧ FIP-1.P10 "Unfused Image or Image Easily Rubs Off of Paper "

3.6 Roller Circumferences

Reference Rollers related with image quality troubles and interval appearing on prints are shown in the table below.

Parts	Cycle
Magnet Roll	29 mm
Drum	63 mm
BTR	65 mm
Padolle	7.5 mm
HTC	23 mm
IDT 1	132 mm
IDT 2	132 mm
Heat Roll	82 mm

FIP-P1 Light (Undertoned) Prints

Condition / initial check		
∆The overall image density is too light. Initial check Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. Major parts to be checked Imaging Unit (PHD), FUSER ASSY, Transfer Unit (BTR), ROS ASSY, PWBA HNB MCU, SUB HVPS		
Item	**Check**	**Remedy**
1	Faulty Imaging Unit (PHD) Is the image quality improved if Imaging Unit (PHD) is replaced?	Replace the Imaging Unit (PHD)
2	Faulty ROS ASSY Is the image quality improved if ROS ASSY is replaced?	Replace the ROS ASSY
3	Faulty PWBA HNB MCU Is the image quality improved if PWBA HNB MCU is replaced?	Replace the PWBA HNB MCU
4	Faulty BTR ASSY Is the image quality improved if PHD ASSY is replaced?	Replace the BTR ASSY
5	Faulty S-HVPS Is the image quality improved if S-HVPS is replaced?	Replace the S-HVPS

FIP-P2 Blank Prints

Condition / initial check		
∆The entire image area is blank. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ Imaging Unit (PHD), Transfer Unit (BTR), ROS ASSY, PWBA HNB MCU		
Item	**Check**	**Remedy**
1	Intercepted laser beam path Check if foreign substance or dirt is present in the laser beam path between ROS ASSY and Drum in PHD ASSY	Remove foreign substance or dirt
2	Faulty ROS ASSY Is the image quality improved if ROS ASSY is replaced?	Replace the ROS ASSY
3	Faulty charging or developing Is the image quality improved if PHD ASSY is replaced?	Replace the PHD ASSY
4	Faulty transfer Is the image quality improved if BTR ASSY is replaced?	Replace the BTR ASSY
5	Faulty PWBA HNB MCU Is the image quality improved if PWBA HNB MCU is replaced?	Replace the PWBA HNB MCU

FIP-P3 Black Prints

Condition / initial check		
∆ The entire image area is black. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ Imaging Unit (PHD), Transfer Unit (BTR), ROS ASSY, PWBA HNB MCU		
Item	**Check**	**Remedy**
1	Faulty transfer Is the image quality improved if the laser beam exit window of ROS ASSY is shielded with a sheet?	Replace the PWBA HNB MCU
2	Faulty ROS ASSY Is the image quality improved if ROS ASSY is replaced?	Replace the ROS ASSY
3	Faulty Imaging Unit (PHD) Is the image quality improved if Imaging Unit (PHD) is replaced?	Replace the Imaging Unit (PHD)

FIP-P4 Vertical Band Deletions

Condition / initial check
∆There are areas of the image that are extremely light or are missing entirely. These missing areas form wide bands that run vertically along the page in the paper feeding direction. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ Imaging Unit (PHD), FUSER ASSY, Transfer Unit (BTR), ROS ASSY, PWBA HNB MCU, SUB HVPS

Item	Check	Remedy
1	Faulty Imaging Unit (PHD) Is the image quality improved if Imaging Unit (PHD) is replaced?	Replace the Imaging Unit (PHD)
2	Faulty ROS ASSY Is the image quality improved if ROS ASSY is replaced?	Replace the ROS ASSY
3	Faulty FUSER ASSY Check the HEAT ROLL and NIP BELT for evidence of damage, dirt, or foreign substances.	Replace the FUSER ASSY
4	Faulty Transfer Unit (BTR) Is the image quality improved if Transfer Unit (BTR) is replaced?	Replace the Transfer Unit (BTR)

FIP-P5 Horizontal Band Deletions

Condition / initial check
There are areas of the image that are extremely light or are missing entirely. These missing areas from wide bands that run horizontally across the page parallel with the paper feeding direction. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ Imaging Unit (PHD), FUSER ASSY, Transfer Unit (BTR), ROS ASSY, PWBA HNB MCU, SUB HVPS

Item	Check	Remedy
1	Faulty Imaging Unit (PHD) Is the image quality improved if Imaging Unit (PHD) is replaced?	Replace the Imaging Unit (PHD)
2	Faulty ROS ASSY Is the image quality improved if ROS ASSY is replaced?	Replace the ROS ASSY
3	Faulty FUSER ASSY Check the HEAT ROLL and NIP BELT for evidence of damage, dirt, or foreign substances.	Replace the FUSER ASSY
4	Faulty Transfer Unit (BTR) Is the image quality improved if Transfer Unit (BTR) is replaced?	Replace the Transfer Unit (BTR)
5	Checking the cyclicity Check if a trouble occurs cyclically. Measure the distance between spots and compare with the roller table on page 81.	Replace the parts concerned

FIP-P6 Black (color) spots

Condition / initial check
Black (color) spots on print ∆ Toner spots are scatted disorderly on the entire paper. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ Imaging Unit (PHD), FUSER ASSY, Transfer Unit (BTR), ROS ASSY, PWBA HNB MCU, SUB HVPS

Item	Check	Remedy
1	Faulty Imaging Unit (PHD) Is the image quality improved if Imaging Unit (PHD) is replaced?	Replace the Imaging Unit (PHD)
3	Faulty FUSER ASSY Check the HEAT ROLL and NIP BELT for evidence of damage, dirt, or foreign substances.	Replace the FUSER ASSY
4	Faulty Transfer Unit (BTR) Is the image quality improved if Transfer Unit (BTR) is replaced?	Replace the Transfer Unit (BTR)

FIP-P7 Background

Condition / initial check		
Background ∆ The entire page or a part of paper is dirty (too light gray) with toner. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ Imaging Unit (PHD), FUSER ASSY, Transfer Unit (BTR), ROS ASSY, PWBA HNB MCU, SUB HVPS		
Item	**Check**	**Remedy**
1	Faulty Imaging Unit (PHD) Is the image quality improved if Imaging Unit (PHD) is replaced?	Replace the Imaging Unit (PHD)
2	Faulty ROS ASSY Is the image quality improved if ROS ASSY is replaced?	Replace the ROS ASSY
3	Faulty FUSER ASSY Check the HEAT ROLL and NIP BELT for evidence of damage, dirt, or foreign substances.	Replace the FUSER ASSY
4	Faulty Transfer Unit (BTR) Is the image quality improved if Transfer Unit (BTR) is replaced?	Replace the Transfer Unit (BTR)
5	Faulty PWBA HNB MCU Is the image quality improved if PWBA HNB MCU is replaced?	Replace the PWBA HNB MCU

FIP-P8 Skewed Image

Condition / initial check		
Print skewing ∆ Image is printed in skewed position. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ PAPER FEEDER, CHUTE ASSY REGI, CHUTE ASSY OUT, Transfer Unit (BTR), Imaging Unit (PHD), ROS ASSY		
Item	**Check**	**Remedy**
1	Faulty paper setting Check if paper or paper cassette is set normally.	Set the paper and paper cassette normally. (Ask customer for correct setting)
2	Faulty paper transfer path Check the paper transfer path for presence of burrs, foreign substances or dirt.	Clean or replace the parts concerned
3	Faulty paper feed rolls Check if the paper feed rolls feed the paper normally.	Clean or replace the parts concerned
4	Faulty paper transfer rolls Check the paper transfer rolls for evidence of foreign substances, dirt, deformation, or malfunction.	Clean or replace the parts concerned
5	Checking ROS ASSY for mounting Check if ROS ASSY for mounting	Replace the ROS ASSY
6	Faulty Imaging Unit (PHD) Is the image quality improved if Imaging Unit (PHD) is replaced	Replace the Imaging Unit (PHD)

FIP-P9 Crease

Condition / initial check		
Crease on print ∆ Print on creased paper. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ PAPER FEEDER, CHUTE ASSY REGI, CHUTE ASSY OUT, Transfer Unit (BTR), FUSER ASSY		
Item	**Check**	**Remedy**
1	Wet paper Do the wrinkles disappear if the paper is replaced with newly unpacked paper?	Replace the paper (Ask the customer to store the paper in a dry place)
2	Faulty FUSER ASSY Check the HEAT ROLL and NIP BELT for evidence of damage, dirt, or foreign substances.	Replace the FUSER ASSY
3	Paper skew feed Check if the paper is fed on the skew	Go to FIP-P8
4	Faulty paper transfer path Check the paper transfer path for presence of burrs, foreign substances or dirt.	Clean or replace the parts concerned
5	Faulty paper transfer rolls Check the paper transfer rolls for evidence of foreign substances, dirt, deformation, or malfunction.	Clean or replace the parts concerned

FIP-P10 Unfused Image or Image Easily Rubs off of Page

Condition / initial check		
The toner image is not completely fused to the paper. ∆ The image easily rubs off. ▼ Initial check ▼ Incorrect parts, improper installation, damage, deformation, dirt, foreign substance attached, etc. ∇ Major parts to be checked ∇ FUSER ASSY		
Item	**Check**	**Remedy**
1	Wet paper Do the wrinkles disappear if the paper is replaced with newly unpacked paper?	Replace the paper (Ask the customer to store the paper in a dry place)
2	Faulty FUSER ASSY Is the image quality improved if FUSER ASSY is replaced	Replace the FUSER ASSY

3.7 Other FIPs

Covers the power supply troubleshooting FIP.

FIP-AC

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Power Cord disconnection or loose connection Improper power supply voltage on the customer side	Repair	Go to step [2]
2	Check AC SW for continuity Disconnect the POWER CORD and wait for 10 seconds. With the POWER CORD disconnected, turn the AC SW on. J161-1PIN <=> J161-2PIN check continuous?	Replace LVPS STD	Replace HARNESS ASSY AC SW

FIP-DC

Step	Check		
		Yes	No
1	Initial check Check the following for damage. Blown fuse in LVPS STD AC power supply failure	Repair	Go to step [2]
2	Checking LVPS STD Disconnect the connectors J163, J165 and J164 from the LVPS STD, and turn the AC SW on. Is P163-1PIN <=> P163-2PIN +24VDC?	Go to step [3]	Replace LVPS STD
3	Checking LVPS STD Is P165-1PIN <=> P165-2PIN +5VDC?	Go to step [4]	Replace LVPS STD
4	Checking LVPS STD Is P165-3PIN <=> P165-4PIN +3.3VDC?	Go to step [5]	Replace LVPS STD
5	Checking HARNESS ASSY LV RPG Turn the AC SW off, and connect J164 to the LVPS STD, then turn the AC SW on. Is P/J164-1PIN <=> P/J164-2PIN +3.3VDC?	Go to step [6]	Check HARNESS ASSY LV RPG for frame short
6	Checking HARNESS ASSY LVNC Turn the AC SW off, and connect J165 to the LVPS STD, then turn the AC SW on. Is P/J165-1PIN <=> P/J165-2PIN +5VDC?	Go to step [7]	Check HARNESS ASSY LVNC for frame short
7	Checking HARNESS ASSY 24V Turn the AC SW off, and connect J163 to the LVPS STD, then turn the AC SW on. Is P/J163-1PIN <=> P/J163-2PIN +24VDC?	End of work	Check HARNESS ASSY 24V for frame short

4. Preventive Maintenance

When you visit a customer, perform preventive maintenance services irrespective of the major object of your visit to prevent possible troubles beforehand.

◆ Preventive maintenance procedure

1) Ask the customer how the laser printer is used.
2) Record the accumulated number of sheets printed.

NOTE

Replace the parts to be replaced periodically based on the number of prints. If required, replace such parts at this time.

3) Print on several sheets of paper to check for proper operation.
4) Remove foreign substances on the Transfer Unit (BTR), Imaging Unit (PHD), FUSER ASSY and paper delivery rolls and clean stains with a brush or dry cloth.

NOTE

If stain is serious, clean with wet cloth and then dry cloth. Be careful not to damage the parts at this time.

5) Cleaning of fan exhaust port
   Remove the FRONT HEAD COVER and clean the FUSER FAN to remove dust deposited on it with a brush. Remove the REAR COVER and clean the dust deposit on the fan.

NOTE

If the exhaust port or fan is clogged, temperature in this laser printer increases causing trouble.

6) Print on several sheets again to check for proper operation.

Chapter 2 Operation of Diagnostics

1. Diagnostics for a Standalone Printer

1.1 General

The test print can be used on a standalone printer for operational check. For this purpose, the test print pattern stored in the printer is printed continuously at the continuous printing speed.

1.2 Printing Method

1) Remove the magicolor 3100 Controller Board. (See Disassembly and Assembly 12.3.)
2) Put paper in tray 1, and turn the power on.

CAUTION

In the following steps, never touch live parts or driving parts.

3) Short the two pins of the test print connector (P31) on the PWBA HNB MCU.

Reference: To short the two pins, use the tip of a screwdriver to touch both pins at the same time.

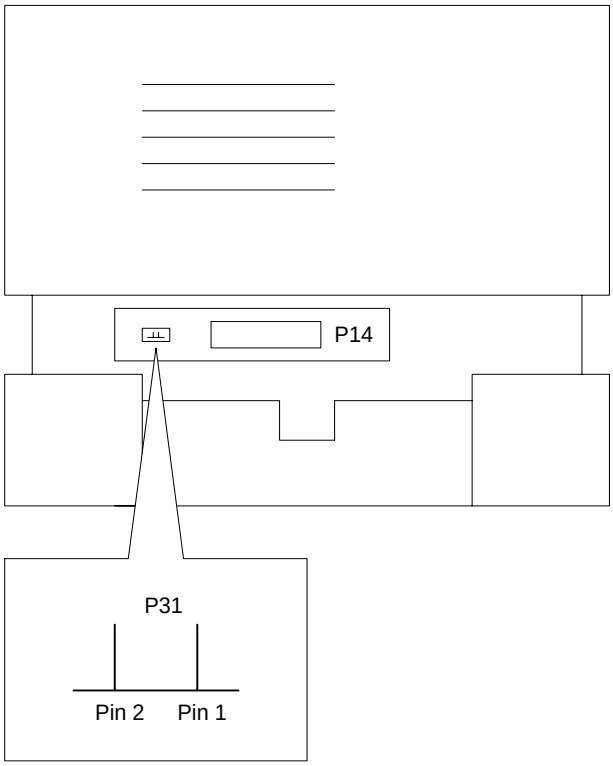
4) The printer goes into a READY mode and starts printing. (Printing is carried out continuously in the Duplex mode).
5) To stop the printing, remove the short from the two pins.

NOTE

The paper is fed from tray 1 only, and if no paper is in tray 1, printing is not carried out.

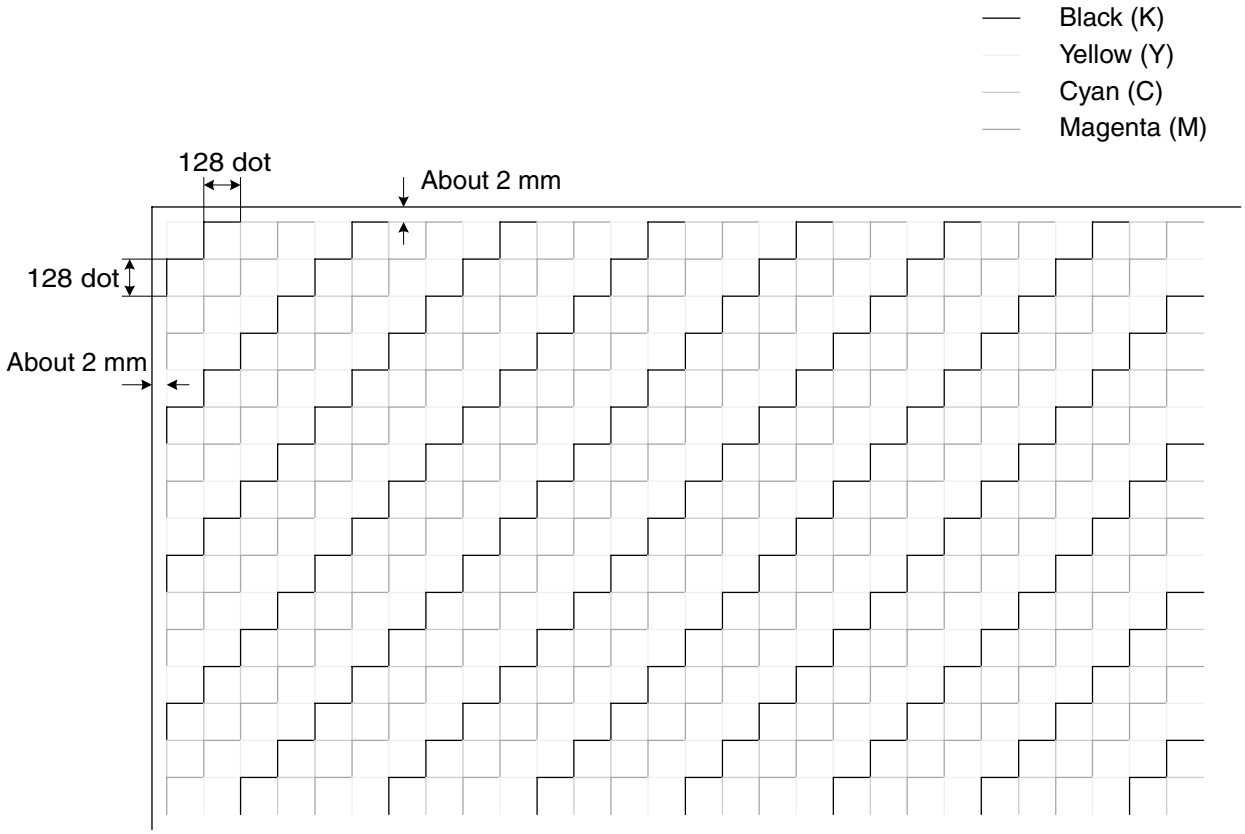
Reference:Printing will not start if the printer has an error.

Reference: For the READY mode, see 6.2 Operation Modes in Section 6 "Principle of Operation".



1.3 Test Print Pattern

The test print is composed of a black (K), cyan (C), magenta (M), and yellow (Y) lattice pattern. The pattern is in this order every 128 dots in vertical and horizontal directions.



engine diag0002FA

2. Diagnostics Using the MINOLTA- QMS magicolor 3100 Diagnostics (Hanabi Service Commander)

2.1 General

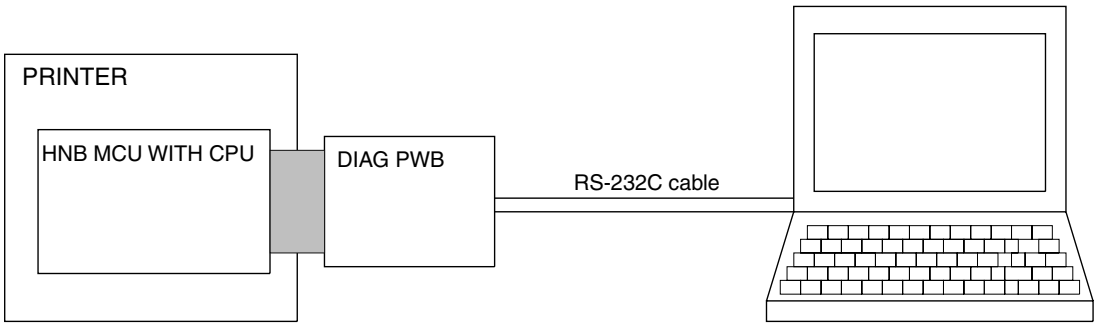
2.1.1 Configuration

The printer uses the MINOLTA-QMS magicolor 3100 Diagnostics (Hanabi Service Commander) to set/ execute diagnostic functions. The system configuration as shown in the figure below, is needed to run the magicolor 3100 Diagnostics (application software) on the personal computer.

Reference: The diagnostic tools needed are as follows:

- ***DIAG PWB (board)***
- ***magicolor 3100 Diagnostics (Hanabi Service Commander) CD***
- ***RS-232C cable (D-Sub 9 pins)***
- ***Personal Computer***

Reference: The DIAG PWB, RS-232C cable, personal computer, and MINOLTA-QMS magicolor 3100 Diagnostic (Hanabi Service Commander) used to execute the diagnostics are altogether called diagnostic tools (maintenance tools).



2.1.2 General description of the magicolor 3100 Diagnostics (Hanabi Service Commander)

The magicolor 3100 Diagnostics (Hanabi Service Commander) sends and receives the data (commands and statuses) transferred between the personal computer, DIAG PWB and PWBA HNB MCU instead of the printer controller to the PWBA HNB MCU.

2.1.3 General description of DIAG PWB

The following parts are mounted on the board:

- Connector for PWBA HNB MCU connection
- RS-232C cable connector (D-Sub 9 pins)
- DIP switch (for RS-232C cross/straight switching)
- Switch (for test print)

NOTE **The switch for a test print is equivalent to the test print for a standalone printer.**

2.2 Preparation

2.2.1 Supported configuration/platform

MINOLTA-QMS magicolor 3100 Diagnostics (Hanabi Service Commander) requires the following configuration:

Items	Description
CPU	Pentium 90 MHz (166 MHz or higher frequencies preferable)
Memory	48 MB (64 MB preferable)
Display	VGA (640 × 480)
OS	Windows 2000 / Windows Me / Windows 98 / Windows 95
Communication port	RS-232C interface (COMM 1 only)

2.2.2 Installing magicolor 3100 Diagnostics

1) Start Windows.
2) Insert the MINOLTA-QMS magicolor 3100 Diagnostics (Hanabi Service Commander) CD into your CD-ROM Drive.
3) Click the "Start" button on your toolbar.
4) Click "Run."
5) In the dialog box that appears type "x:\commander\setup.exe," and click "OK" (where "x" is the letter of your CD-ROM drive).
6) Follow the installation instructions that apppear.

2.2.3 Uninstalling magicolor 3100 Diagnostics

1) Start Windows, and click the "Start" button on your toolbar, then click the "Settings" button. Then click on the “Control Panel” button.
2) Double-click the “Add/Remove Programs” icon in the Control Panel window.
3) Select Hanabi Service Commander Vx.xx in the Add/Remove Programs Properties window, and click the “Add/Remove” button.
4) Shut down and restart your computer.

NOTE

If you uninstall the system, you will lose any data results from any prior sessions!

2.2.4 Connecting diagnostic tools

1) Remove the magicolor 3100 CONTROLLER BOARD. (See RRP12.3.)
2) Connect the DIAG PWB to the interface connector (P14) of the PWBA HNB MCU.
3) Connect the DIAG PWB to the personal computer with the RS-232C cable.

NOTE

The RS-232C cable used must be compatible to the DIP SW (cross/straight) setting and the connector of the DIAG PWB, and also it must be shielded properly and less than 6 ft (2m) in length.

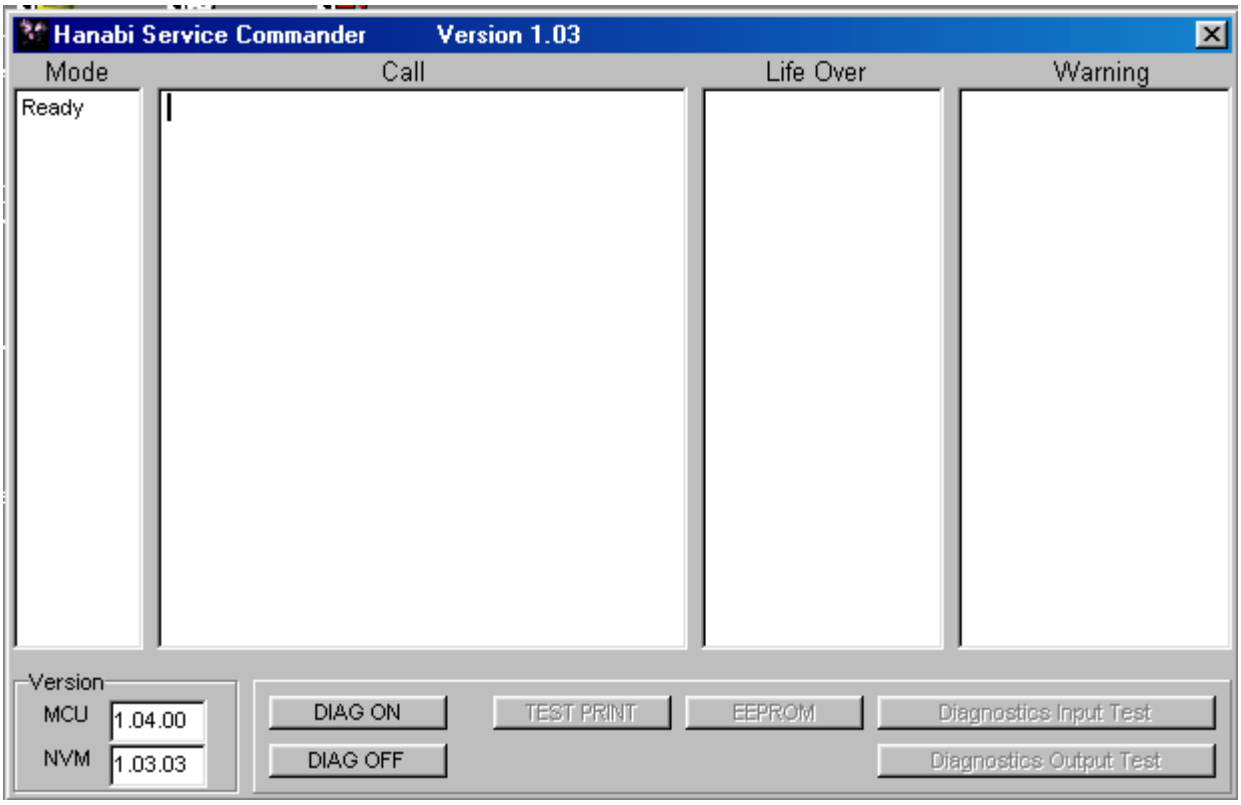
2.3 Operation of magicolor 3100 Diagnostics

2.3.1 Starting magicolor 3100 Diagnostics

1) Turn on the the printer.
2) Start the Windows, and double-click the shortcut icon “Hanabi Service Commander” on the desktop.

2.3.2 Description of the initial screen

Once the Hanabi Service Commander has started, the screen shown below appears.
This screen displays the printer condition, and the versions of the PWBA HNB MCU and NVM. Selecting active buttons on this screen allows various diagnostics to be executed.



The following windows show the printer conditions are as follows.

Window name	Description
Mode	Current operation mode is displayed. For the modes, refer to "6.2 Operation Mode’s in Section 6, “Principles of Operation."
Call	The contents of errors in the ERROR mode are displayed. If any error is displayed here, the printer cannot print. For the errors, refer to Section 1, “Troubleshooting".
Life Over	The errors related to the lifetime in the ERROR mode are displayed. The printer can perform printing operation, if errors are displayed in this window and there is no error is displayed in the Call window. For the errors, refer to Section 1, “Troubleshooting".
Warning	Warnings for the printer are displayed. For the errors, refer to Section 1, “Troubleshooting".

2.3.3 Executing/stopping the diagnosis

[Executing diagnosis]

Click the ”DIAG ON' button, and the TEST PRINT, EEPROM, Diagnostics Input Test, and Diagnostics Output Test buttons on the initial screen become active to start various diagnostic functions.

[Stopping diagnosis]

Click the “DIAG OFF” button, and the current diagnosis is stopped and the TEST PRINT, EEPROM, Diagnostics Input Test, and Diagnostics Output Test buttons on the initial screen become inactive.

2.3.4 Kinds of diagnostic functions

Four kinds of diagnostic functions are provided.

Functions	Description
Test Print	Executes a test print of the pattern stored in the printer.
Input Test	Checks the sensors and switches and there condition.
Output Test	Operate the motors and solenoids.
EEPROM Read/Write	Read/write various data in EEPROM (Non-Volatile Memory).

2.3.5 Communication log files

The Hanabi Service Commander can record the data (commands and statuses) transmitted/received between the PC and the PWBA HNB MCU in a file. The following files are automatically created in the folder where the Hanabi Service Commander has been installed.

log0.txt
log1.txt
log2.txt
log3.txt

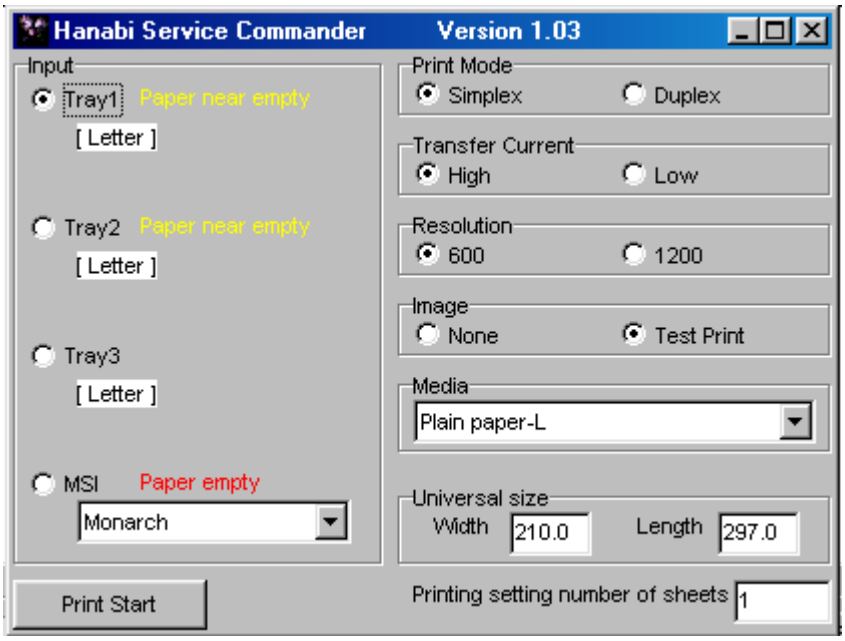
The data of one day are written to one file even if the Diagnostic Commander is started/exited repeatedly. Up to four files (namely, files for four days) are created. The data of the fifth day will overwrite the oldest file.

2.3.6 Exiting Diagnostic Commander

Click the Close button.

2.4 Test Print

Clicking the “TEST PRINT” button causes the following screen to be displayed.



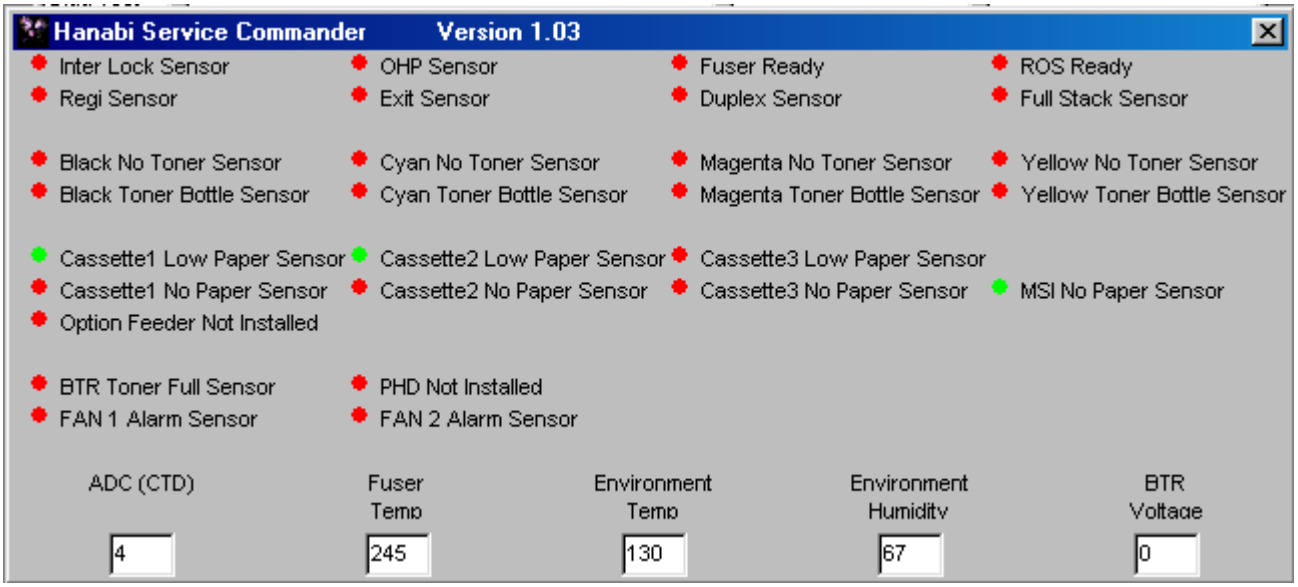
Select the proper Input, Print Mode, Color Mode, Resolution, Image and number of sheets. Then click the “Print Start” button, and the printing will start under those conditions. Parameter settings are as listed below.

Setting items	Description
Input (Paper trays)	Tray1/Tray2/Tray3/MSI: Paper size set in each tray is detected automatically and displayed. The status of each tray is also displayed. Paper empty / Paper near empty / Upper Cassette Detached If MSI is selected, select the paper size from the pull-down menu: Monarch / Postcard / COM-10 / DL / Statement / A5 / C5 / B5 / Executive / Letter / A4 / Legal13 / Legal14 / Universal size
Print Mode	Duplex / Simplex
Color mode	Color / Black (**Note:** The Black setting prints a color test page at 80% density)
Resolution	1200 dpi / 600 dpi
Image (Print image)	None (blank sheet)/Test Print (built-in test pattern)
Media (Paper type)	Set the type of paper: Plain paper-L / Thicker paper-L / Heavier paper-L / Heavier paper-H / Envelope / Postcard / Transparency(=OHP)/ Label-H / Plain paper-L High Gloss / Thicker paper-L High Gloss / Label-L / Heavier paper-L Back Face / Heavier paper-H Back Face / Envelope Back Face / Postcard Back Face / Plain paper-H / Thicker paper-H / Plain paper-H High Gloss / Thicker paper-H High Gloss
Universal size	This item becomes enabled if MSI is selected in the Input item and Universal size is selected for paper size. Enter values for the paper Width and Length.
Printing setting number of sheets	Set the print count.

2.5 Input Test

2.5.1 Executing input test

Click the “Diagnostic Input Test” button, and the following screen will appear.



The screen will vary according to the conditions of the sensors and switches.

The ON or OFF condition of digital sensors and switches can be checked from the color of the indicators on the left side of each name.

ON: Green OFF: Red

For analog devices, A/D converted values are displayed.

NOTE

For the relation between A/D converted values and data, refer to the Input Test Readme.txt file in the folder where the Hanabi Service Commander has been installed.

2.5.2 Types of input test

Two types, digital input tests and analog input tests, are provided. The digital input tests that can be checked are as listed below.

Name	Parts Name/Function	ON Condition
Inter Lock Sensor	PWBA HNB DRV is installed	Front cover open
OHP Sensor	OHP SENSOR ASSY	Paper present
Fuser Ready	–	Under printing
ROS Ready	–	Under printing
Regi Sensor	SENSOR PHOTO (Regi Sensor)	Media present
Exit Sensor	Contained in FUSER ASSY	Media present
Duplex Sensor	SENSOR PHOTO (Dup Jam Sensor)	Media present
Full Stack Sensor	SENSOR PHOTO (Full Stack Sensor)	Full stack
Black No Toner Sensor	SENSOR TONER LOW (K)	No toner (K)
Cyan No Toner Sensor	SENSOR TONER LOW (C)	No toner (C)
Magenta No Toner Sensor	SENSOR TONER LOW (M)	No toner (M)
Yellow No Toner Sensor	SENSOR TONER LOW (Y)	No toner (Y)
Black Toner Bottle Sensor	SWITCH TCRU ASSY (K)	No toner bottle (K)
Cyan Toner Bottle Sensor	SWITCH TCRU ASSY (C)	No toner bottle (C)
Magenta Toner Bottle Sensor	SWITCH TCRU ASSY (M)	No toner bottle (M)
Yellow Toner Bottle Sensor	SWITCH TCRU ASSY (Y)	No toner bottle (Y
Cassette1 Low Paper Sensor	SENSOR PHOTO (Low Paper Sensor)	Low paper
Cassette2 Low Paper Sensor	SENSOR PHOTO (Low Paper Sensor2)	Low paper
Cassette3 Low Paper Sensor	SENSOR PHOTO (Low Paper Sensor3)	Low paper
Cassette1 No Paper Sensor	SENSOR PHOTO (No Paper Sensor)	No paper
Cassette2 No Paper Sensor	SENSOR PHOTO (No Paper Sensor2)	No paper
Cassette3 No Paper Sensor	SENSOR PHOTO (No Paper Sensor3)	No paper
MSI No Paper Sensor	SENSOR PHOTO (MSI No Paper Sensor)	No paper
Optional Feeder Not Installed	Detect whether Optional Feeder is installed or not installed	Optional Feeder is not installed
BTR Toner Full Sensor	Transfer Unit (BTR ASSY) SENSOR	Full toner
(PHD) Not Installed	Detects whether Imaging Unit (PHD ASSY) is installed or not installed	Imaging Unit (PHD ASSY) is not installed
FAN 1 Alarm Sensor	FAN FUSER	Detect FAN FUSER alarm
FAN 2 Alarm Sensor	FAN REAR	Detect FAN REAR alarm

The analog input tests that can be checked are as listed below.

Name	Parts Name	Contents of display
ADC(CTD)	SENSOR ADC ASSY	Toner density on the Transfer Unit (BTR ASSY) surface
Fuser Temp	FUSER ASSY	Heat roll surface temperature

Name	Parts Name	Contents of display
Environment Temp	SENSOR HUM TEMP	Inside temperature of printer
Environment Humidity	SENSOR HUM TEMP	Inside humidity of printer
BTR Voltage	Transfer Unit (BTR ASSY)	Voltage being applied to the Transfer Unit (BTR ASSY)

2.6 Output Test

WARNING

Never touch the High Voltage Power Supply or Low Voltage Power Supply when voltage is present.

WARNING

Never touch the driving parts while the printer is operating.

NOTE

Continuous activation of the Toner Motor (Yellow/Magenta/Cyan/Black), will cause excessive toner to be supplied, do not run for more than 60 seconds.

CAUTION

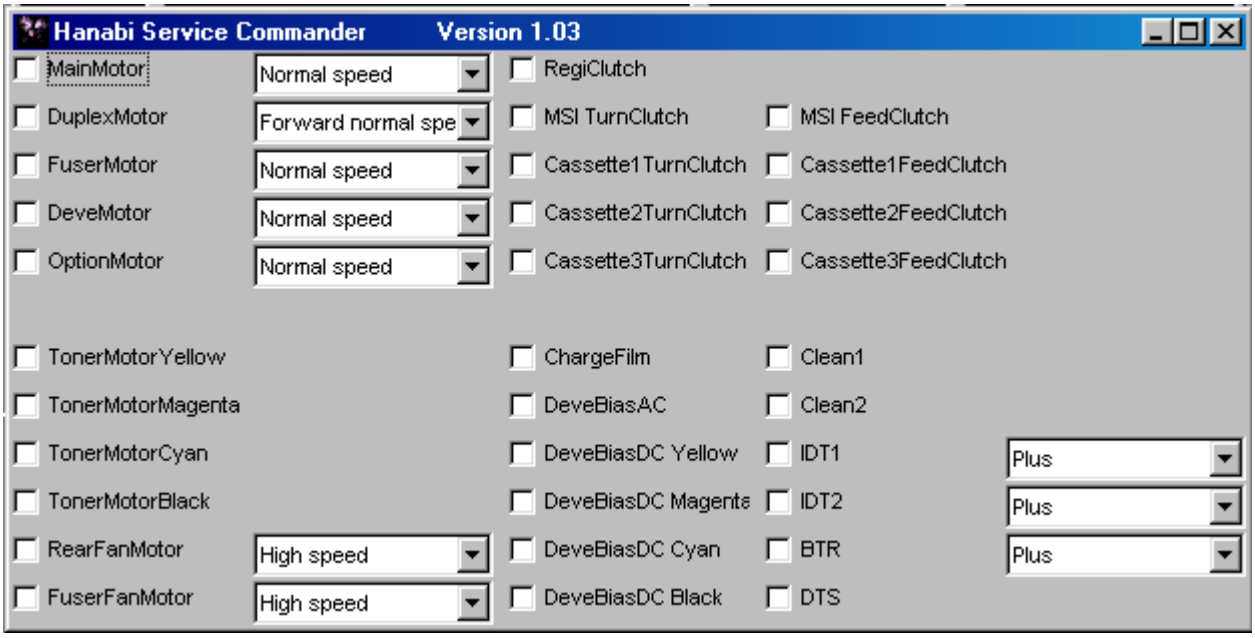
Before executing the output test, be sure to read al of the "Caution" and "Prohibition" described in the Output Test Readme.txt file in the folder where the Diagnostic Commander has been installed

WARNING

For the items marked <Warning!> or <Caution!> in the checking method, refer to the "WARNING" and "CAUTION" statements mentioned above to prevent problems.

2.6.1 Executing output test

Click on the “Diagnostics Output Test” button, and the following screen will appear.



Click on the box on the left side of the item to be operated. A " √ " is displayed in the box and the operation starts. If you click on the box again, the process is cancelled and the operation stops. However, some parts will stop automatically after a specified time has elapsed. For the items that have a pull-down menu, select the menu to be executed.

2.6.2 Types of output tests

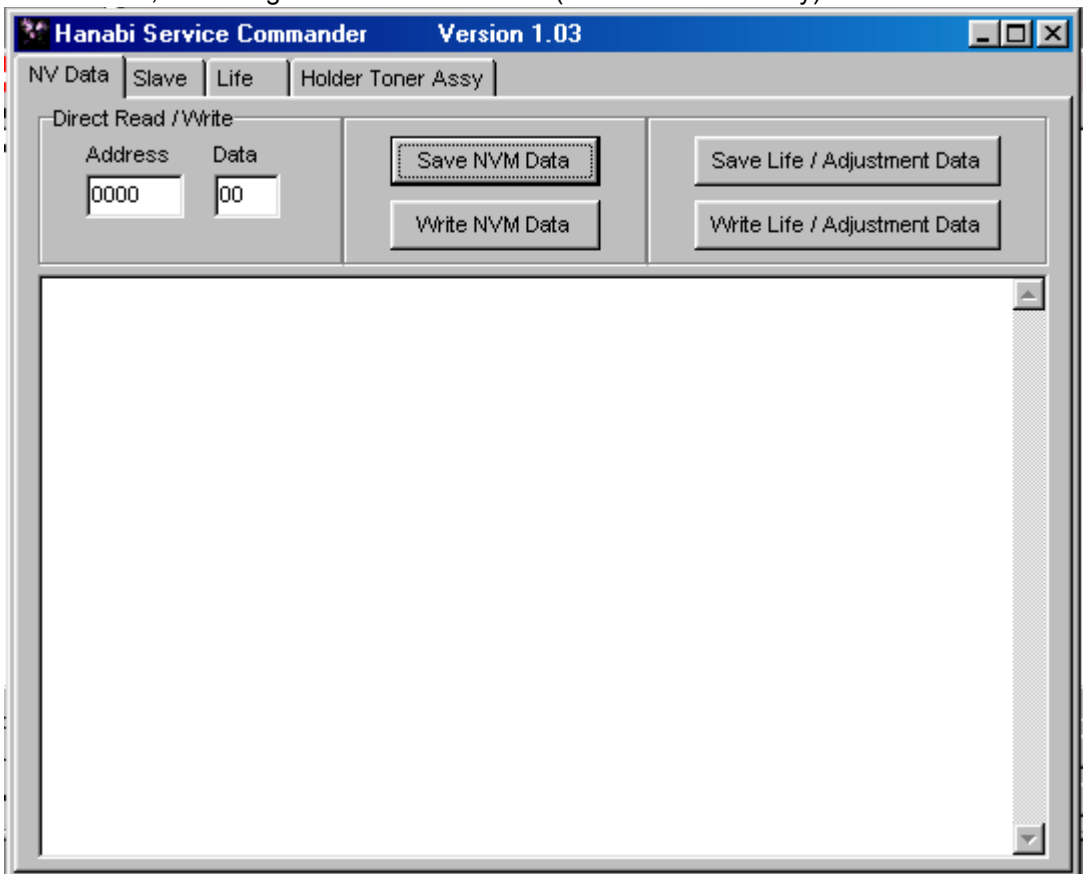
The output tests that can be checked are as listed below.

Name	Parts Name/Function	Selectable items	Checking method
Main Motor	MAIN DRIVE ASSY	Normal Speed	The state of a motor is checked by listening for sound of operation or viewing.
		Half Speed	
Duplex Motor	MOT ASSY DUP	Forward Normal Speed	
		Forward Half Speed	
		Forward Double Speed	
		Reverse Normal Speed	
		Reverse Half Speed	
		Reverse Double Speed	
Fuser Motor	FUSER DRIVE ASSY	Normal Speed	
		Half Speed	
Deve Motor	DEVE DRIVE ASSY	Normal Speed	
		Half Speed	
Option Motor	DRIVE ASSY FEEDER	Normal Speed	
		Half Speed	
Toner Motor Yellow	HOLDER TCRU ASSY (1)	–	
Toner Motor Magenta	HOLDER TCRU ASSY (2)	–	
Toner Motor Cyan	HOLDER TCRU ASSY (3)	–	
Toner Motor Black	HOLDER TCRU ASSY (4)	–	
Rear Fan Motor	FAN REAR	High Speed	
		Low Speed	
Fuser Fan Motor	FAN FUSER	High Speed	
		Low Speed	
Regi Clutch	CHUTE REGI	–	The state of a clutch is checked by listening for sound of operation.
MSI Turn Clutch	CLUTCH TURN (MSI)	–	
MSI Feed Clutch	SOLENOID FEED MSI	–	
Cassette1 Turn Clutch	CLUTCH ASSY TURN (Tray1)	–	
Cassette1 Feed Clutch	SOLENOID FEED (Tray1)	–	
Cassette2 Turn Clutch	CLUTCH ASSY TURN (Tray2)	–	
Cassette2 Feed Clutch	SOLENOID FEED (Tray2)	–	
Cassette3 Turn Clutch	CLUTCH ASSY TURN (Tray3)	–	
Cassette3 Feed Clutch	SOLENOID FEED (Tray3)	–	

Name	Parts Name/Function	Selectable items	Checking method
Charge Film	Charge DC voltage to HTC Imaging Unit (PHD ASSY)	–	 Don't check for high-voltage output.
Deve Bias AC	Developing bias AC voltage Imaging Unit (PHD ASSY)	–	
Deve Bias DC Yellow	Developing bias AC voltage (Y) Imaging Unit (PHD ASSY)	–	
Deve Bias DC Magenta	Developing bias DC voltage (M) Imaging Unit (PHD ASSY)	–	
Deve Bias DC Cyan	Developing bias DC voltage (C) Imaging Unit (PHD ASSY)	–	
Deve Bias DC Black	Developing bias DC voltage (K) Imaging Unit (PHD ASSY)	–	
Clean1	DC voltage to IDT1 Cleaner Imaging Unit (PHD ASSY)	–	
Clean2	DC voltage to IDT2 Cleaner Imaging Unit (PHD ASSY)	–	 Don't check for high-voltage output.
IDT1	DC voltage to IDT1 Imaging Unit (PHD ASSY)	Plus	
		Minus	
IDT2	DC voltage to IDT2 Imaging Unit (PHD ASSY)	Plus	
		Minus	
BTR	DC voltage to BTR Transfer Unit (BTR ASSY)	Plus	
		Minus	
DTS	DC voltage to Detack Saw Transfer Unit (BTR ASSY)	–	

2.7 Operation of EEPROM

Click the “EEPROM” button, and the following screen will appear when the “NV Data” tab is selected. From this screen, the dialog related to the NVRAM (Non-Volatile Memory) is executed.



2.7.1 Direct Read/Write

The “Address” field and “Data” field are displayed on the screen when the “NV Data” tab is selected. Entering an address and data here allows you to directly read/write the desired NVM area.

NOTE **This file is intended to be used by a MINOLTA-QMS Level 3 Technical Support Engineer to diagnose problems with data in the NVRAM. Refer to the NVM Readme.txt file in the folder where the Hanabi Service Commander was installed.**

Direct Read

1) Enter an arbitrary address in the Address field, and press the “Enter” key.
2) The result is displayed in the information display area.
   Successful termination Read: XXXX (Address) - XX (Data)
   Read inhibited area Read: XXXX (Address) - The address does not exist.

Direct Write

1) Enter an arbitrary address in the Address field and desired data in the Data field, then press the “Enter” key.
2) The result is displayed in the information display area.
   Successful termination Write: XXXX (Address) - XX
   Read only Write: XXXX (Address) - You cannot write to this address.

NOTE **The address and data to be entered are hexadecimal numbers. The result is displayed also with hexadecimal numbers.**

2.7.2 Text File

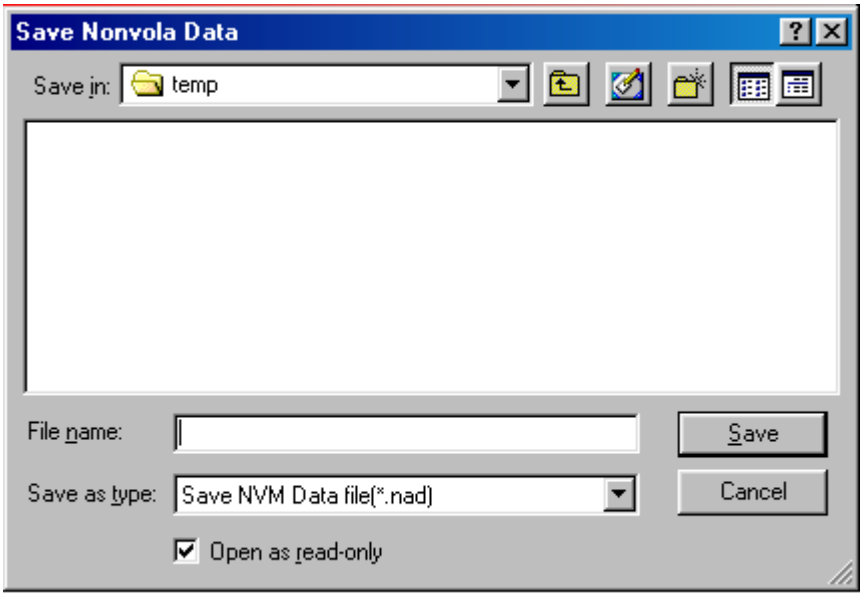
2.7.3 “Save NVM Data", 2.7.4 “Write NVM Data", 2.7.5 “Save Life / Adjustment Data", and 2.7.6 “Write Life / Adjustment Data" use the text files for reading/writing the NVM data. These text files are created in the same format. They are composed of the number of lines that correspond to the NVM data to be read/ written, one line consisting of an address (4-digit hex number), a space, and data (2-digit hex number). However, the extension of each text file is different so that it may be designated to a particular test.

NOTE **Refer to the NVM Readme.txt file in the folder where the Hanabi Service Commander was installed for the relation between a text file and an extension.**

2.7.3 Save NVM Data

All NVM data (stored in PWBA HNB MCU and Imaging Unit (PHD ASSY) of the printer are read and saved in the text file (.NAD extension).

1) Click the “Save NVM Data” button, and the following screen will appear.



2) Enter the file name in the [File Name] field where the read NVM data are written.

NOTE **A warning will be displayed if a file of the same file name already exists.**

3) Click the “Save” button. The contents of the NVM data will be read and saved.

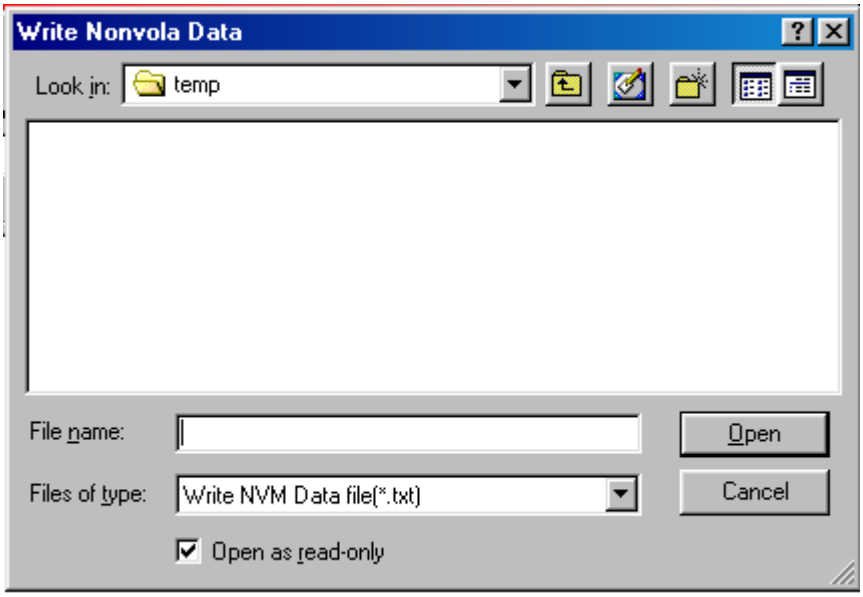
2.7.4 Write NVM Data

The data described in an already prepared text file are written to the NVM. In the text file, an address and data are described, the same as in the file created in 2.7.3 “Save NVM Data." The data is written only to the addresses described in the file (.TXT extension).

NOTE

If the printer version is updated, the NVM initial values may have to be changed. In such a case, rewrite the NVM data using this function.

1) Click the “Write NVM Data” button, and the following screen will appear.



2) Select the text file of NVM data to be written.
3) Click the “Open” button.
4) Upon completion of writing, the message is displayed.

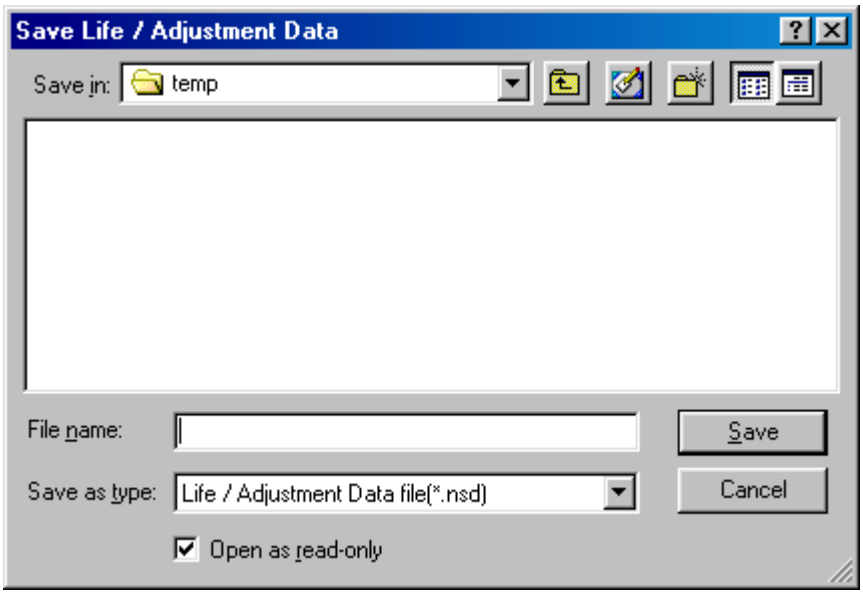
Successful termination: completed.

Unsuccessful termination: Write - in operation of a nenvolatile memory was not completed normally.

2.7.5 Save Life / Adjustment Data

If the PWBA HNB MCU is replaced, only the NVM data to be transferrred to a new PWB is read and saved in the text file (.NSD extension).

1) Click the “Save Life / Adjustment Data” button, and the following screen will appear.



2) Enter the file name in the [File Name] field where the read NVM data are written.

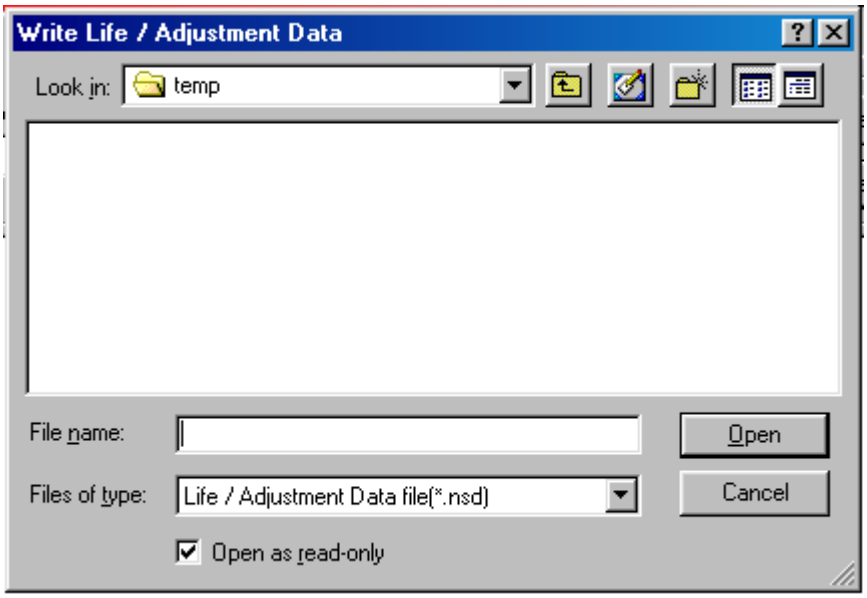
NOTE **A warning will be displayed if a file of the same file name already exists.**

3) Click the “Save” button. The contents of the Life / Adjustment data will be read and saved.

2.7.6 Write Life / Adjustment Data

After the PWBA HNB MCU was replaced, the NVM data read from the PWB before replacement and saved in the text file are written to the new PWB. For this purpose, the text file created in 2.7.5 “Save Life / Adjustment Data" is used (.NSD extension).

1) Click the “Write Life / Adjustment Data” button, and the following screen will appear.



2) Enter the file name of the text file created in "2.7.5 Save Life / Adjustment Data" where the NVM data to be written are saved in the [File Name] field.
3) Click the “Open” button.
4) Upon completion of writing, the message is displayed.
   Successful termination: complete!
   Unsuccessful termination: Write - in operation of a nonvolatile memory was not completed normally.

2.7.7 Slave

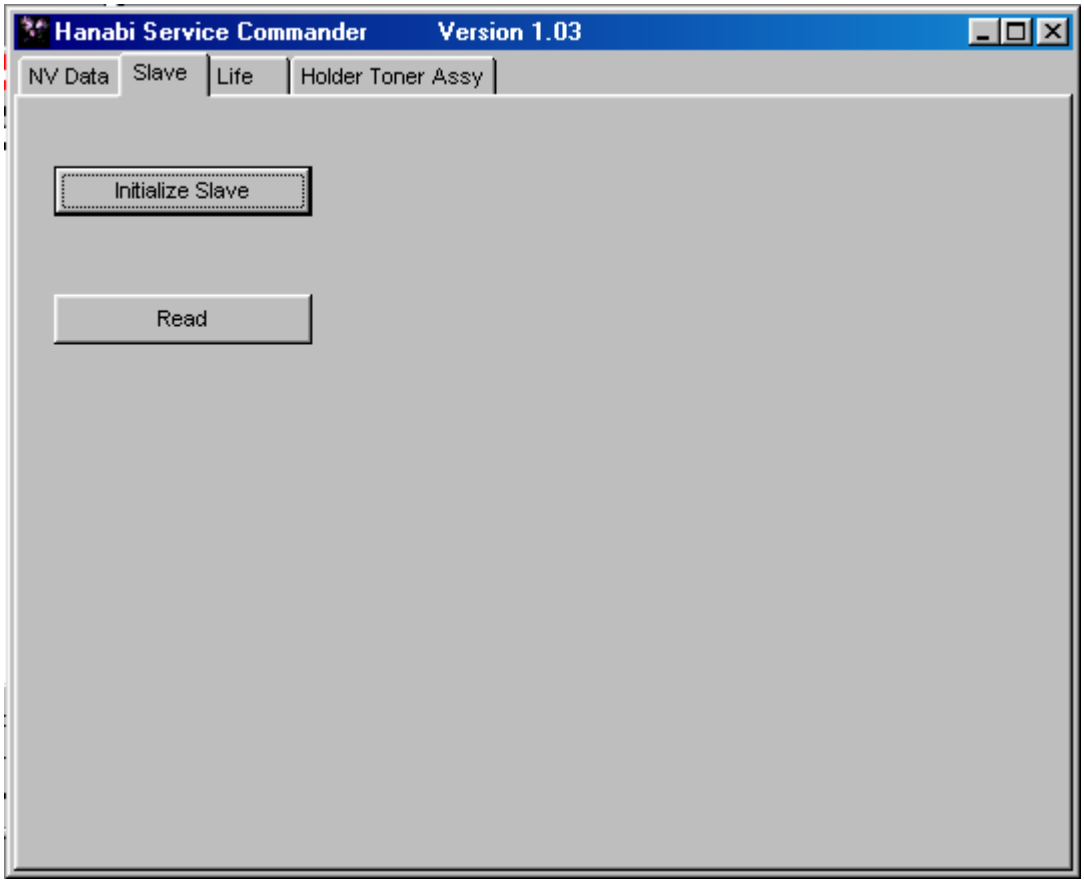
The printer has two NVM's for storing the following machine specific information. One NVM is called the Master, and the other one is called the Slave.

- Product No.
- Serial No.
- Maker Code No.
- Data (Controller setting data)

NOTE

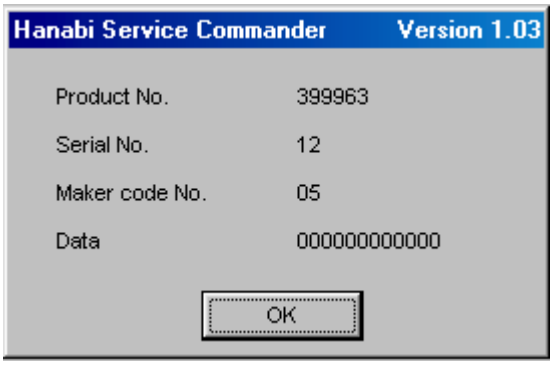
Refer to the Slave Readme.txt file in the folder where the Hanabi Service Commander was installed.

Click the "Slave" tab, and the following screen will appear.



2.7.8 Read Slave

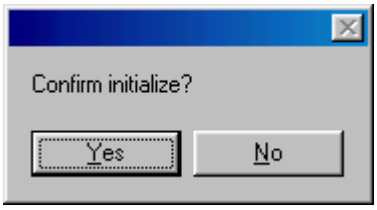
1) Press the “Read” button on the screen where the “Slave” tab is selected.
2) The contents of the Slave NVM are displayed.



2.7.9 Initialize Slave

The data of Slave NVM is initialized.

1) Click the “Initialize Slave” button, and the following screen will appear.



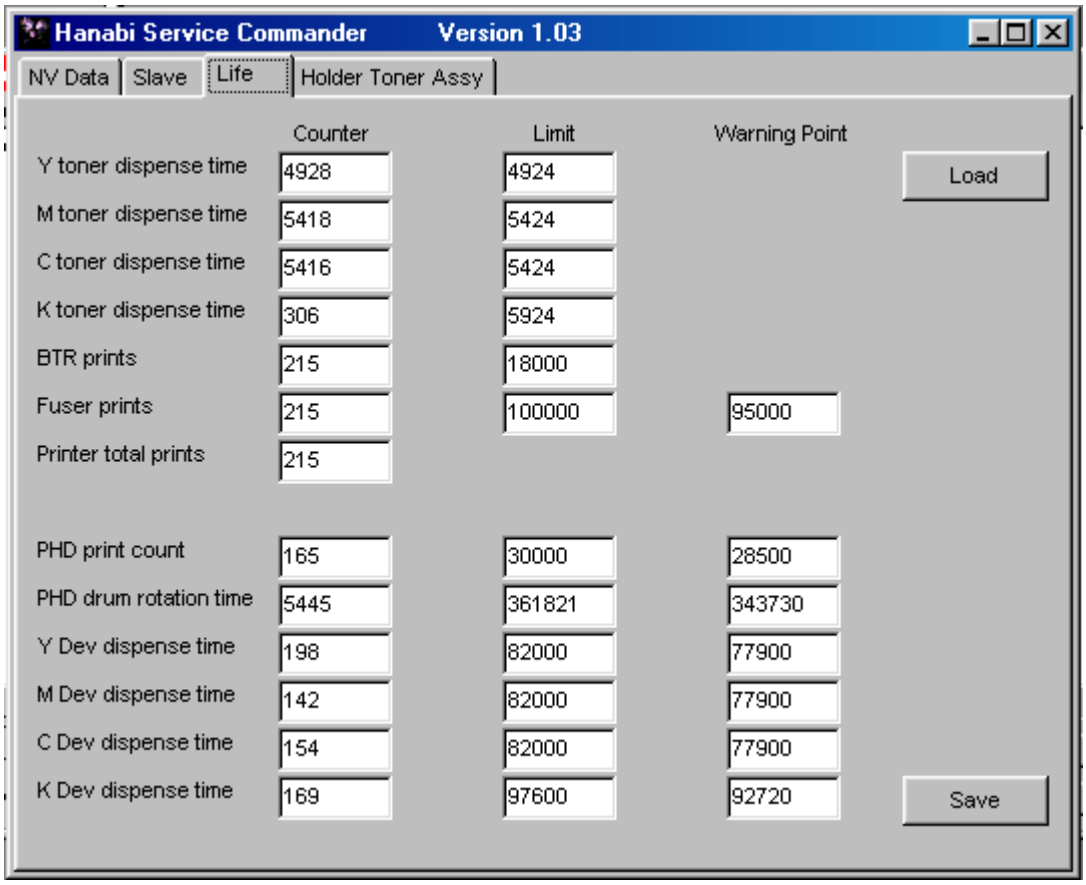
2) Click the “Yes” button to initialize Slave.
3) The message is displayed that initialization of Slave is completed.
   Successful termination: Initialization of Slave was completed.
   Unsuccessful termination: Initialization of Slave was not completed.

2.7.10 Life

The life counters stored in the NVM are displayed. Some life counters are rewritable. When the “Life” tab is clicked, a life counter display screen is displayed. At this time, a counter value is not yet displayed yet.

[Read]

Click the “Load” button, and the current life counters are read. The following screen will appear.



[Write]

Enter a value in the counter field to be changed, and click the “Save” button.

CAUTION

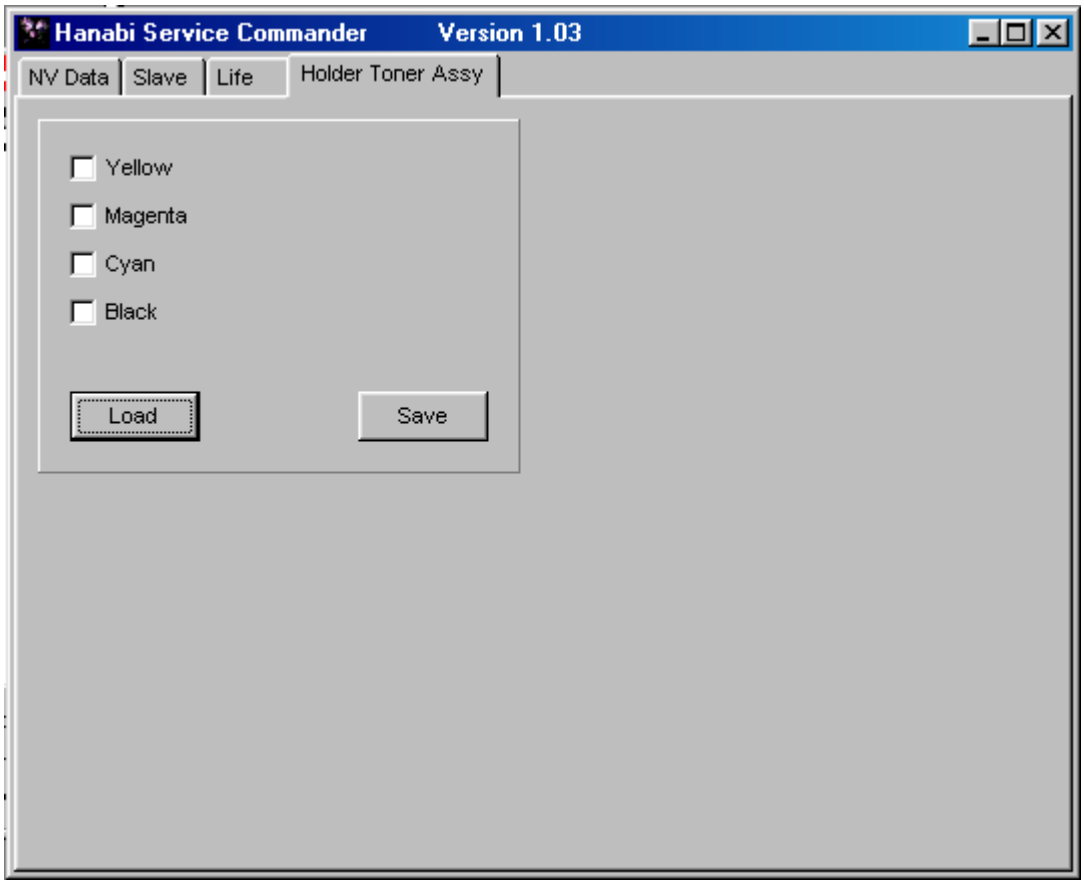
Do not change the counters, except if told to by a MINOLTA-QMS Level 3 Technical Support Engineer to diagnose problems with data in the NVRAM.

Writing is disabled on the screen for the non-rewritable counters.

2.7.11 Holder Toner Assy

This diagnostic routine primes the toner feed tube with toner when a new Toner Assy is installed.

1) Click the “Holder Toner Assy” tab
2) Click the “Load” button” and the following screen will appear.



3) Click the box of the color(s) of the exchanged HOLDER ASSY(S).
(A "√ " is displayed in the box.)
4) Click the “Save” button.

Chapter 3 Removal and Replacement Procedures

1. Removal and Replacement Procedures

Parts removal and replacement procedures are described in major 12 items which correspond to classification of parts list.

- ✻ RRP 1 COVERS
- ✻ RRP 2 PAPER CASSETTE
- ✻ RRP 3 PAPER FEEDER
- ✻ RRP 4 HOUSING ASSY RETARD
- ✻ RRP 5 FRONT ASSY IN
- ✻ RRP 6 CHUTE ASSY OUT
- ✻ RRP 7 CHUTE ASSY EXIT
- ✻ RRP 8 BTR ASSY & FUSER
- ✻ RRP 9 XEROGRAPHICS
- ✻ RRP 10 TCRU ASSY
- ✻ RRP 11 FRAME & DRIVE
- ✻ RRP 12 ELECTRICAL

NOTE

Parts are controlled as spare parts. When servicing for parts for which no procedures are described, observe their assembling condition before starting the service.

NOTE

For optional parts, refer to the manual for them.

NOTE

Though the optional parts are assumed to be removed, they may not be removed if not required for the purpose of service operation.

1.1 Before starting service work

- ◆ Turn the power OFF and remove the power cord from the electric outlet.
- ◆ Remove the PHD ASSY (PL9.1.3) before starting the disassembling process.
- ◆ Remove the TCRU ASSY as necessary, and perform disassembly process.
- ◆ When performing service operation for parts around the FUSER ASSY, start the service after the FUSER ASSY and parts around it have cooled down.
- ◆ Do not give forcible power to prevent damage of parts or functions.
- ◆ Since a wide variety of screws are used, be careful not to mistake their positions, to prevent crushing of the screw holes or other troubles.
- ◆ Wear a wrist band or the like as far as possible to remove static electricity of the human body.

1.2 Description of procedures

- ✧ "RRP X,Y "AAAAA" at the top of procedures represent the parts AAAAA are to be removed and replaced.
- ✧ "(PL X.Y.Z)" following the parts name in procedures represent that the parts are those of the plate (PL) "X.Y", item "Z" in Chapter 5, Parts List. Their forms, replacing position or other conditions can be seen in Chapter 4, Parts List.
- ✧ In the procedures, directions are represented as follows.
  - ▼ Front: Front when you are facing the front of this laser printer.
  - ▼ Rear: Inner direction when you are facing the front of this laser printer.
  - ▼ Left: Left hand when you are facing the front of this laser printer.
  - ▼ Right: Right hand when you are facing the front of this laser printer.

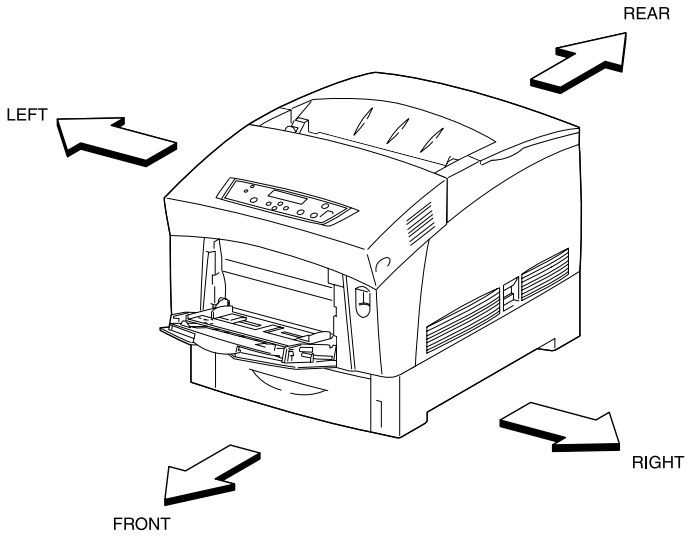
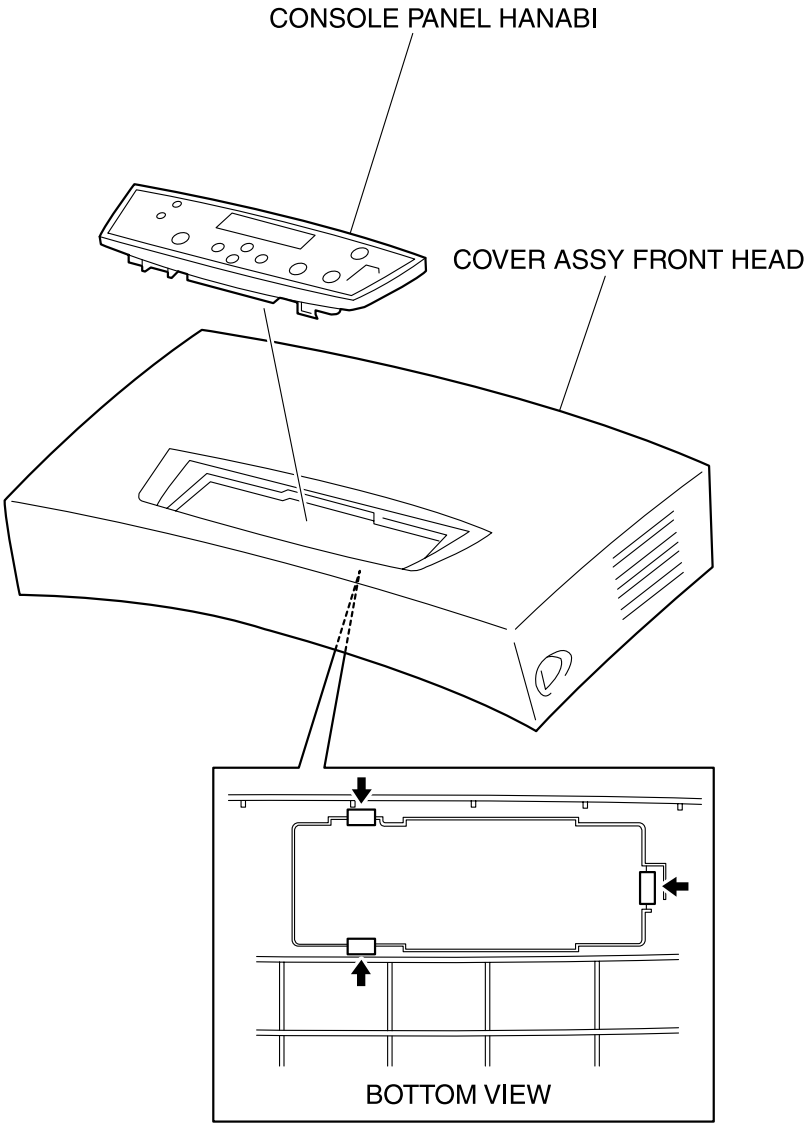


Figure: Definition of Printer Orientation

- ✧ "◆ In case of _____ specifications" in the procedures indicate that service operation should be provided only to laser printer of specified specifications (service operation should not be provided for laser printer of specifications not covered).
- ✧ "RRP X.Y" in the midst or at the end of sentences in the procedures indicate that work procedures related with the "RRP X.Y" are described.
- ✧ The screws in the illustrations should be removed using a plus (+) screwdriver unless otherwise specified.
- ✧ A black arrows in the illustrations indicate movement in the arrow mark direction.
  Numbered black arrows indicate movement in the order of the numbers.
- ✧ For the positions of the connectors (P/J), refer to Chapter 7, Wiring Diagrams and Signal Information.

RRP1. COVERS

RRP1.1 CONSOLE PANEL HANABI (PL1.1.1)



engine rrp0001FA

Figure: CONSOLE PANEL HANABI Removal

Removal

1) Remove the COVER ASSY FRONT HEAD (PL1.1.2). (RRP1.2)
2) Release the hooks at 3 positions securing the CONSOLE PANEL HANABI (PL1.1.1) to the COVER ASSY FRONT HEAD.
3) Remove the CONSOLE PANEL HANABI from the COVER ASSY FRONT HEAD.

Replacement

Replace the components in the reverse order of removal.

RRP1.2 COVER ASSY FRONT HEAD (PL1.1.2)

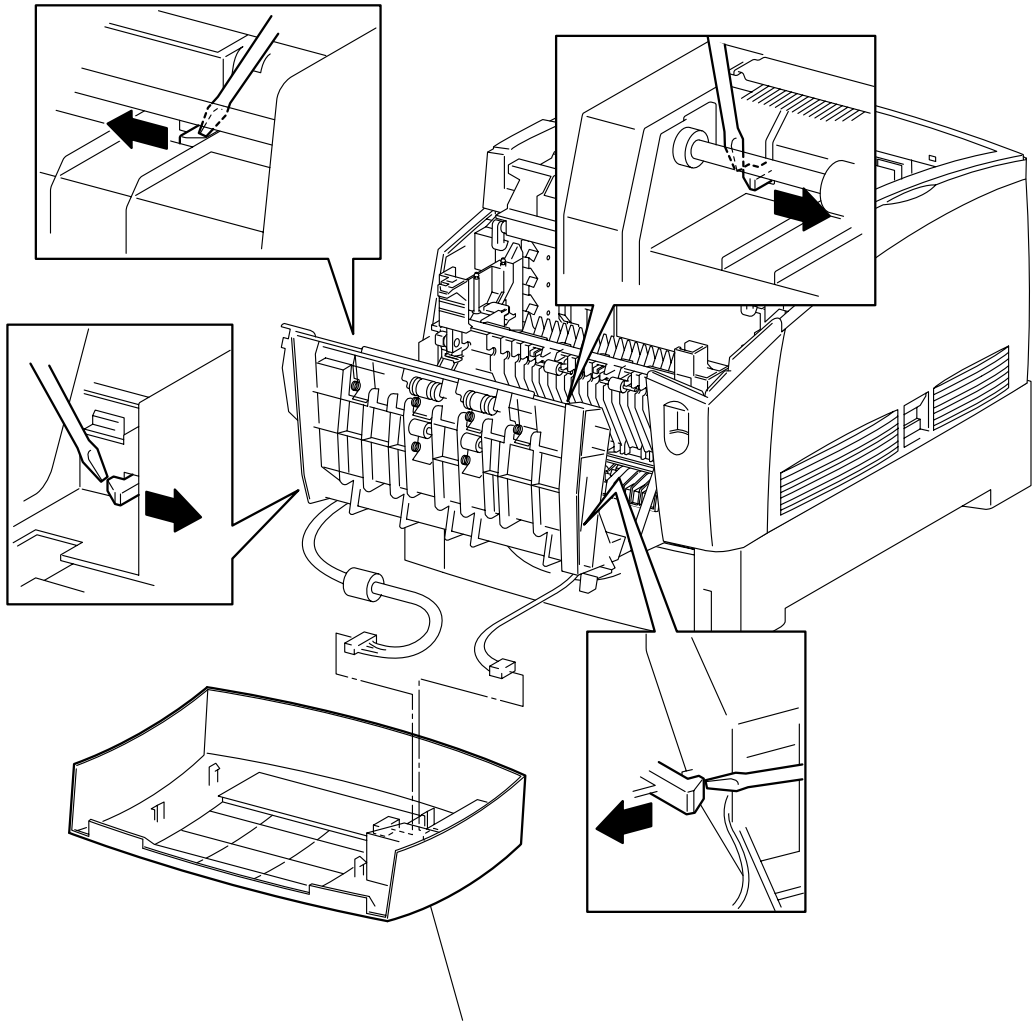


Figure: COVER ASSY FRONT HEAD Removal

Removal

1) Release the latch at B of the printer and open the CHUTE ASSY OUT (PL6.1.1).
2) Release the hooks at 4 positions securing the COVER ASSY FRONT HEAD to the CHUTE ASSY OUT.

NOTE

Do not separate the CHUTE ASSY OUT and COVER ASSY FRONT HEAD too far in the following process since they are connected with a connector.

3) Separate the COVER ASSY FRONT HEAD a little from the CHUTE ASSY OUT.
4) Remove the connector (P/J220) on the CONSOLE PANEL HANABI (PL1.1.1).
5) Remove the connector (P/J137) on the HOLDER LEVER OUT (PL1.1.4).
6) Remove the COVER ASSY FRONT HEAD from the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

Blank page.

RRP1.3 FAN FUSER (PL1.1.7)

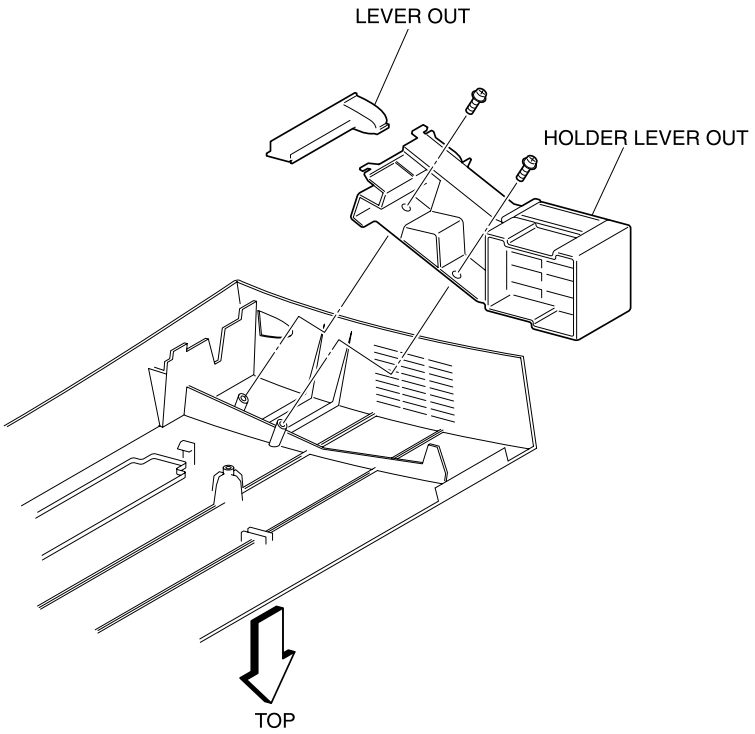
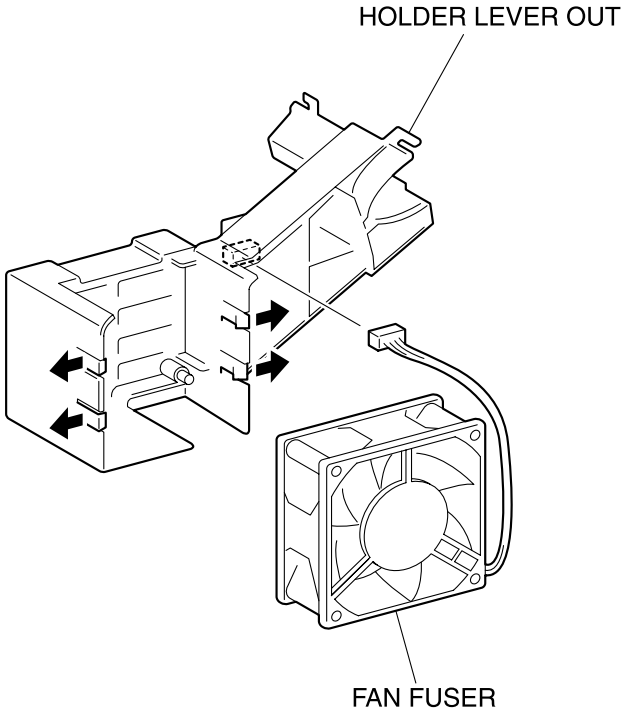


Figure: FAN FUSER Removal (1)



engine rrp0004FB

Figure: FAN FUSER Removal (2)

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove 2 screws securing the HOLDER LEVER OUT (PL1.1.4) from the rear of the COVER ASSY FRONT HEAD.
3) Remove the HOLDER LEVER OUT (PL1.1.4) from the COVER ASSY FRONT HEAD together with the FAN FUSER, LEVER OUT (PL1.1.5).
4) Remove the LEVER OUT from the HOLDER LEVER OUT.
5) Remove the connector (P/J137) of the FAN FUSER.

NOTE

Take note and remember how the wire harness is routed because the new wiring harness must be routed in the same way.

6) Release the hooks securing the FAN FUSER at 4 positions to the HOLDER LEVER OUT.
7) Remove the FAN FUSER from the HOLDER LEVER OUT.

Replacement

Replace the components in the reverse order of removal.

NOTE

When mounting the FAN FUSER on the HOLDER LEVER OUT, route the wire harness in the same way that the removed fan's harness was routed.

RRP1.4 COVER TOP MAIN (PL1.1.9)

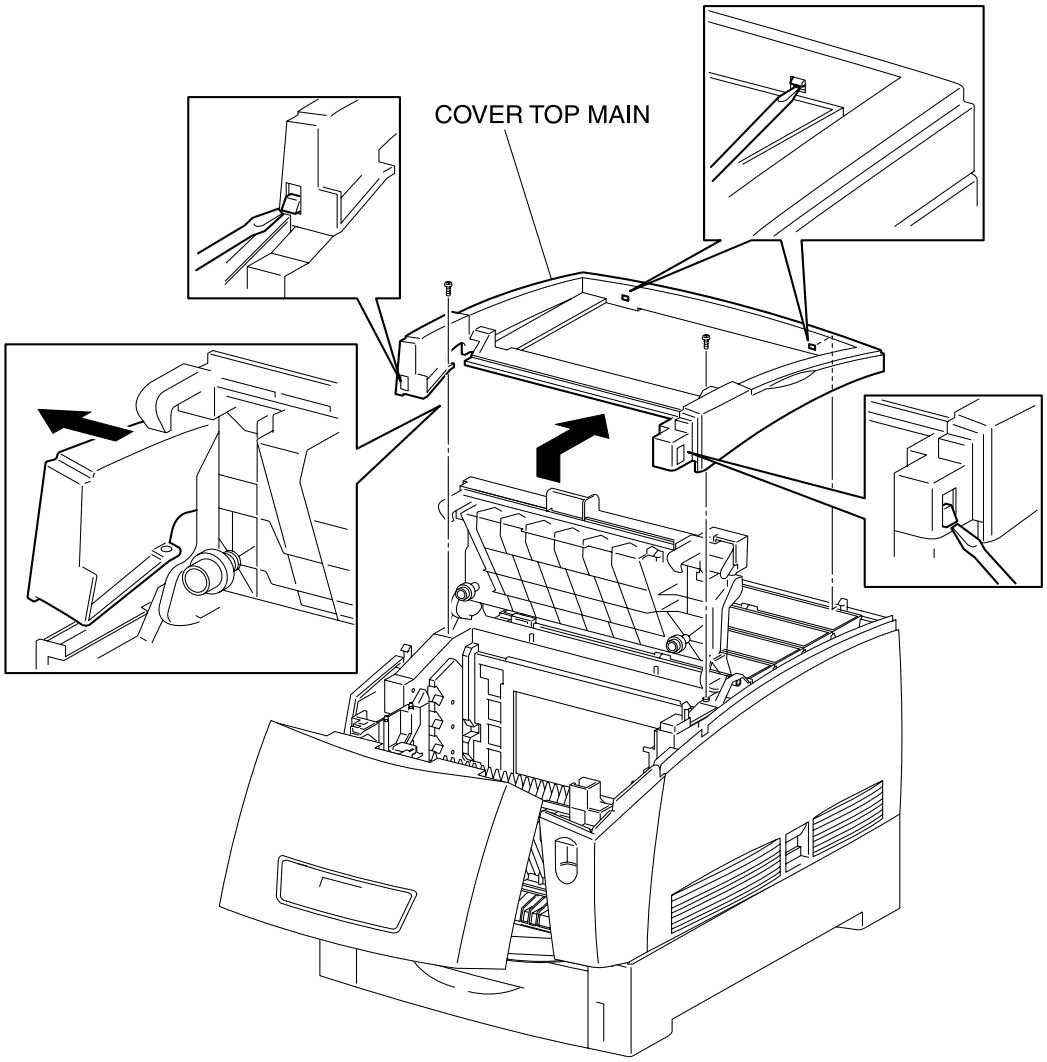


Figure: COVER TOP MAIN Removal

Removal

NOTE

Before removing the COVER TOP MAIN, remove the PHD and toner cartridges.

1)Remove the COVER TOP (PL1.1.8) from the printer.

2) Release the latch at B from the printer and open the CHUTE ASSY OUT (PL6.1.1).
3) Open the COVER ASSY TOP PHD (PL1.1.10) from the printer.
4) Remove 2 screws securing the COVER TOP MAIN (PL1.1.9) to the printer.
5) Release the hooks at 4 positions securing the rear of the COVER TOP MAIN to the printer.
6) Raise the COVER TOP MAIN slightly from the printer and extract the left front edge of the COVER TOP MAIN deflecting it leftward.
7) Remove the COVER TOP MAIN from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP1.5 COVER ASSY TOP PHD (PL1.1.10)

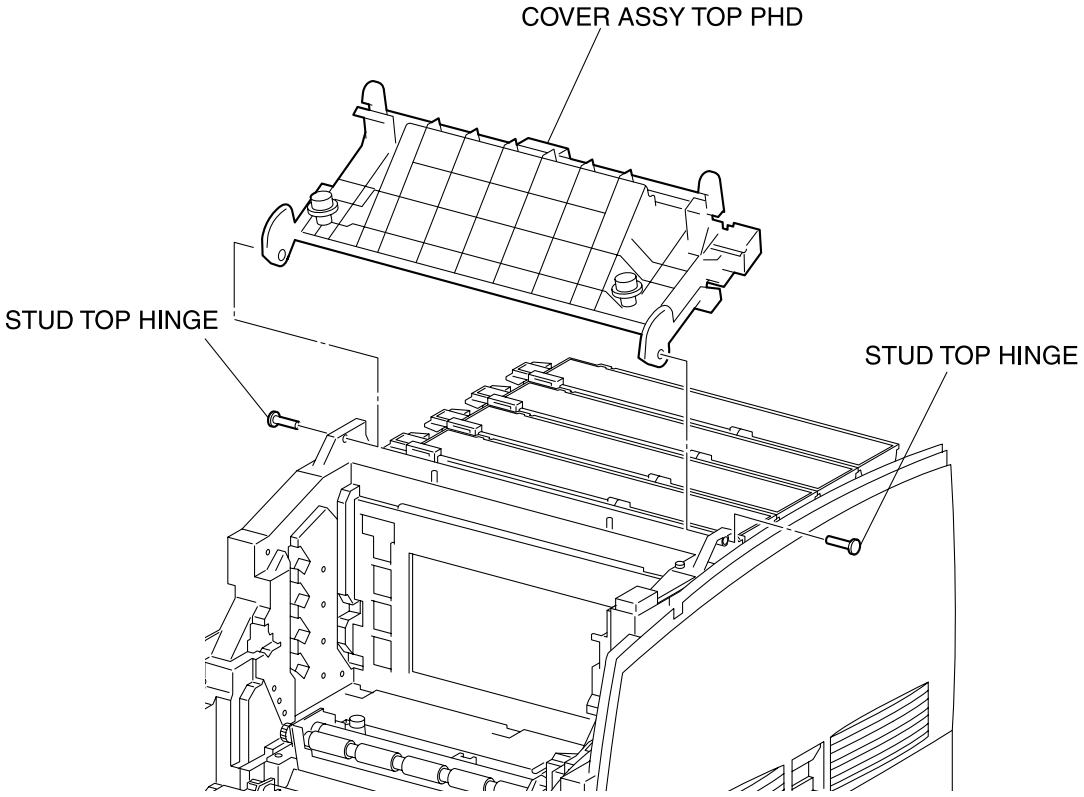


Figure: COVER ASSY TOP PHD Removal

Removal

1) Remove the COVER MSI. (RRP1.11)
2) Remove the TRAY ASSY MSI. (RRP)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER ASSY FRONT. (RRP1.13)
6) Remove the COVER SIDE L. (RRP1.14)
7) Open the COVER ASSY TOP PHD from the printer.
8) Extract the right and left STUD TOP HINGE (PL1.1.21) securing the COVER ASSY TOP PHD from the printer.
9) Remove the COVER ASSY TOP PHD from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP1.6 COVER REAR (PL1.1.20)

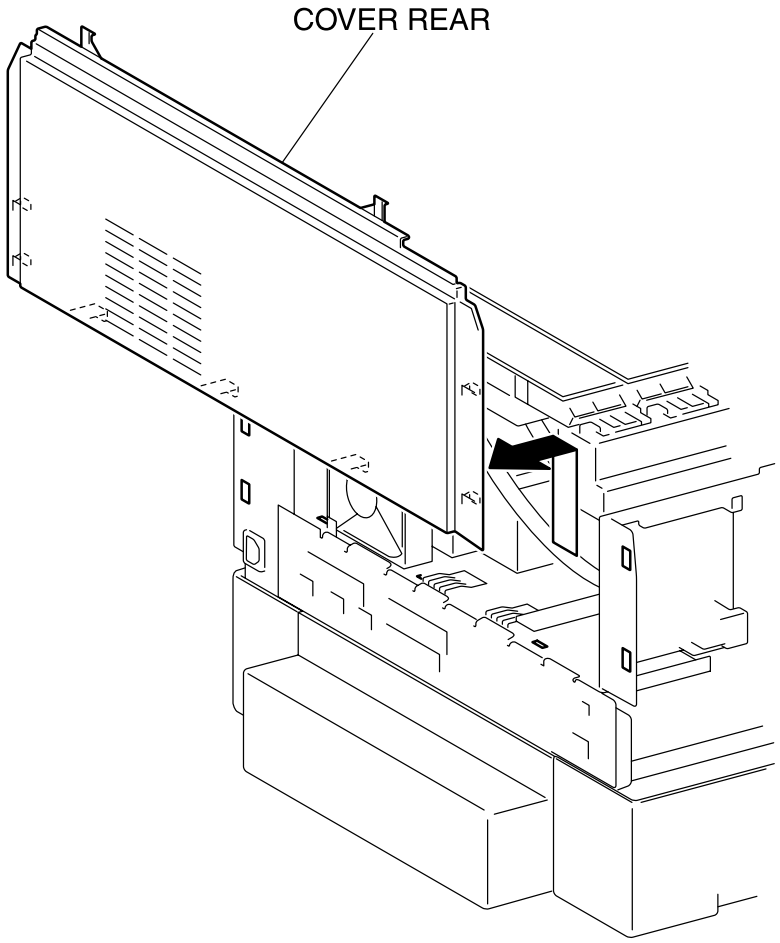


Figure: COVER REAR Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
3) Remove the COVER MSI. (RRP1.11)
4) Remove the TRAY ASSY MSI. (RRP1.12)
5) Remove the COVER ASSY FRONT. (RRP1.13)
6) Remove the COVER ASSY FRONT IN. (RRP1.10)
7) Remove the COVER SIDE L. (RRP1.14)
8) Remove the COVER SIDE R. (RRP1.9)
9) Raise the COVER REAR slightly above the printer, pull it out frontward and remove.

Replacement

Replace the components in the reverse order of removal.

RRP1.7 LINK:L (PL1.1.23)

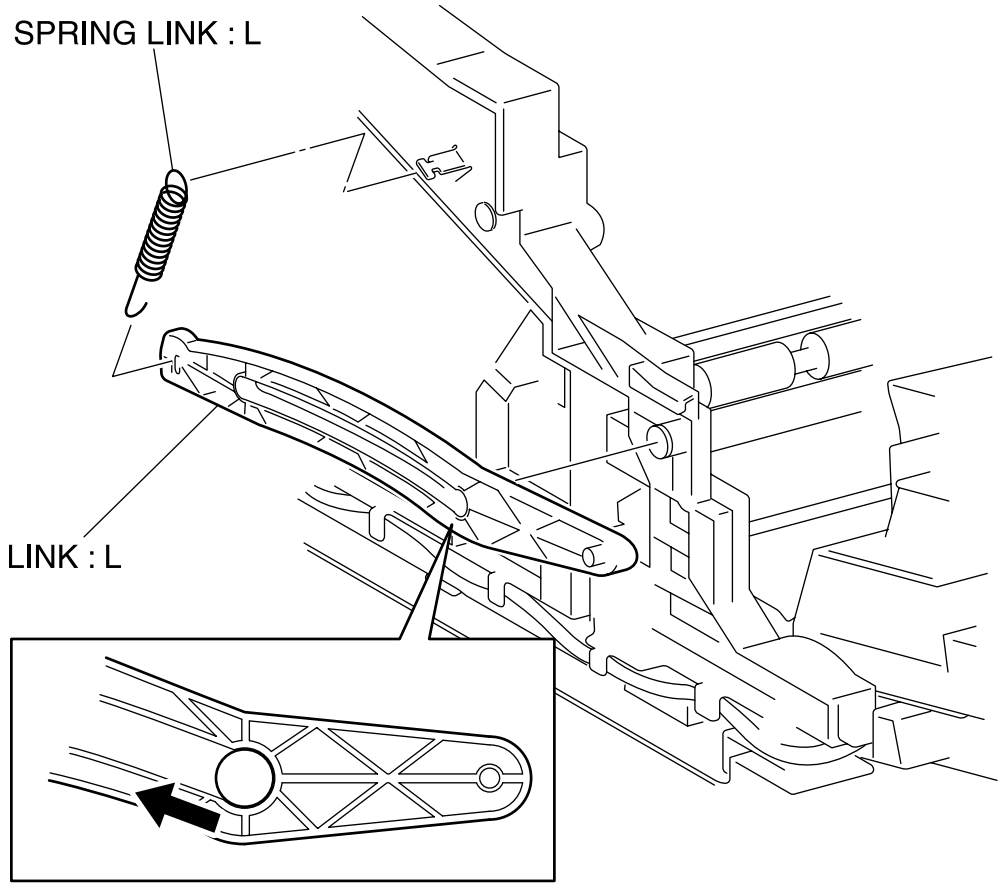


Figure: LINK:L Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
3) Remove the COVER MSI. (RRP1.11)
4) Remove the TRAY ASSY MSI. (RRP1.12)
5) Remove the COVER ASSY FRONT. (RRP1.13)
6) Remove the COVER SIDE L. (RRP1.14)
7) Remove the upper hook of the SPRING LINK:L (PL1.1.22) from the projection on the left side of the printer.
8) Slide the LINK:L rearward from the printer and align the shaft of the printer and hole of the LINK:L.
9) Remove the LINK:L from the printer together with the SPRING LINK:L.
10) Remove the SPRING LINK:L from the LINK:L.

Replacement

Replace the components in the reverse order of removal.

RRP1.8 LINK:R (PL1.1.23)

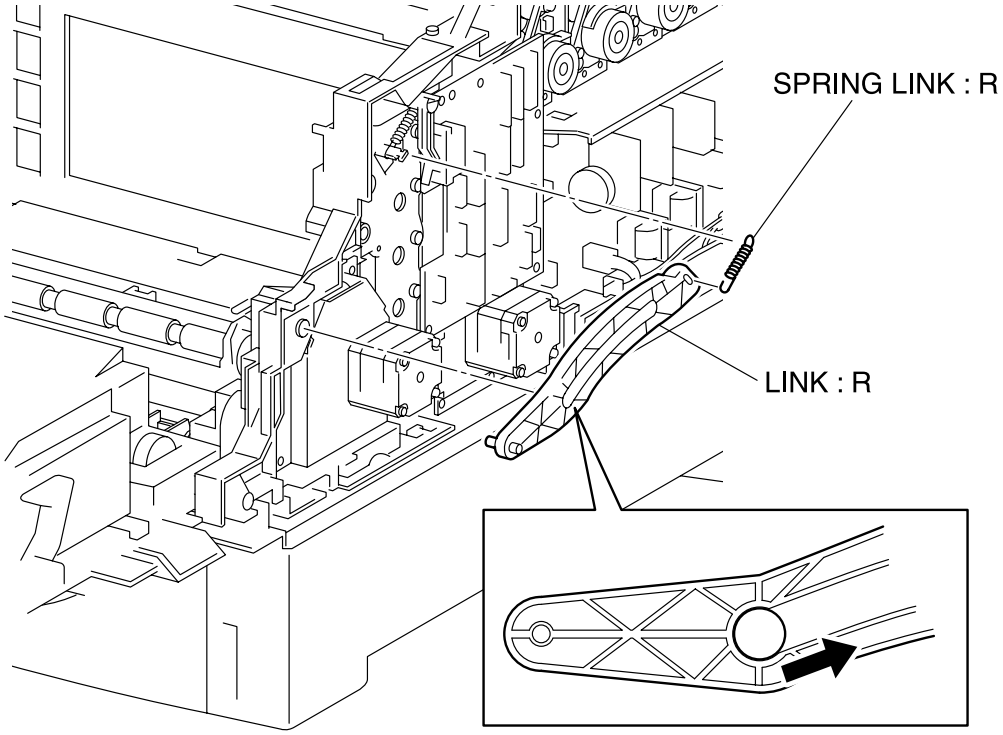


Figure: LINK:R Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Remove the COVER SIDE R. (RRP1.9)
4) Extract the upper hook of the SPRING LINK:R (PL1.1.22) from the projection on the right side of the printer.
5) Slide the LINK:R rearward from the printer and align the shaft of the printer and the hole of the LINK:R.
6) Remove the LINK:R from the printer together with the SPRING LINK:R.
7) Remove the SPRING LINK:R from the LINK:R.

Replacement

Replace the components in the reverse order of removal.

RRP1.9 COVER SIDE R (PL1.1.24)

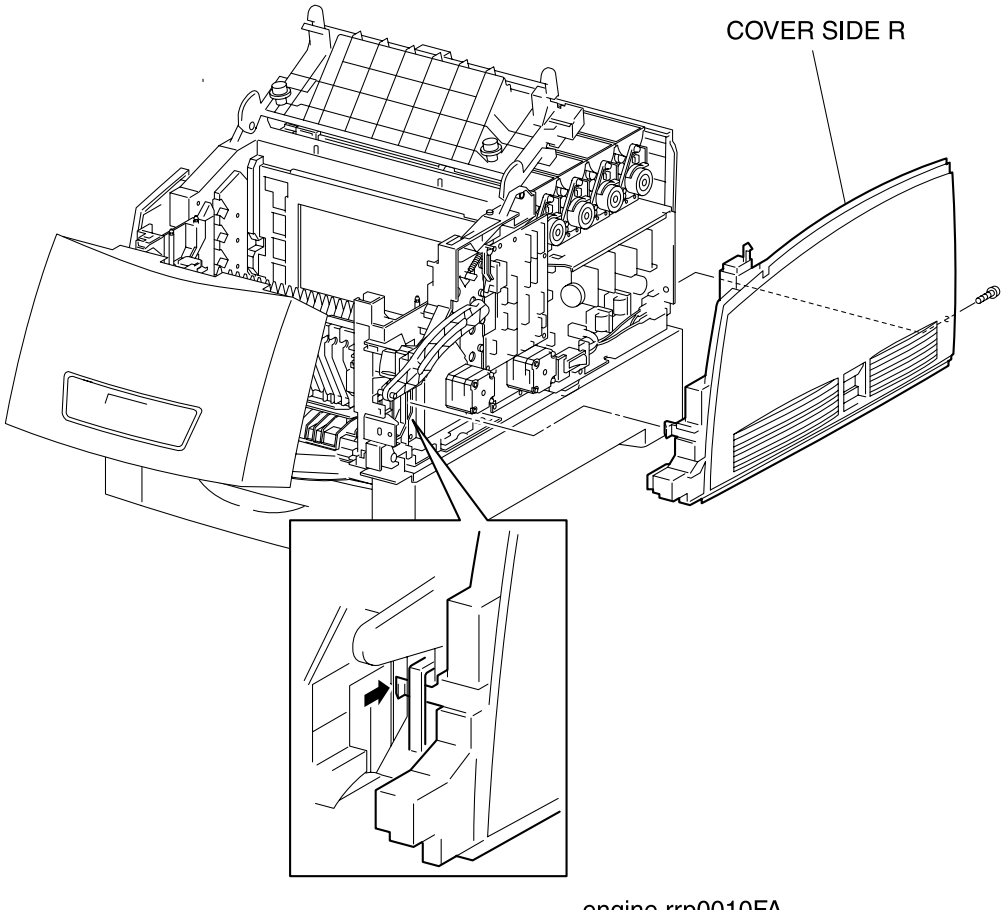


Figure: COVER SIDE R Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Remove 1 screw securing the COVER SIDE R to the printer.
4) Release a hook securing the COVER SIDE R at 1 position at the front end to the printer.
5) Remove the COVER SIDE R from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP1.10 COVER ASSY FRONT IN (PL1.1.25)

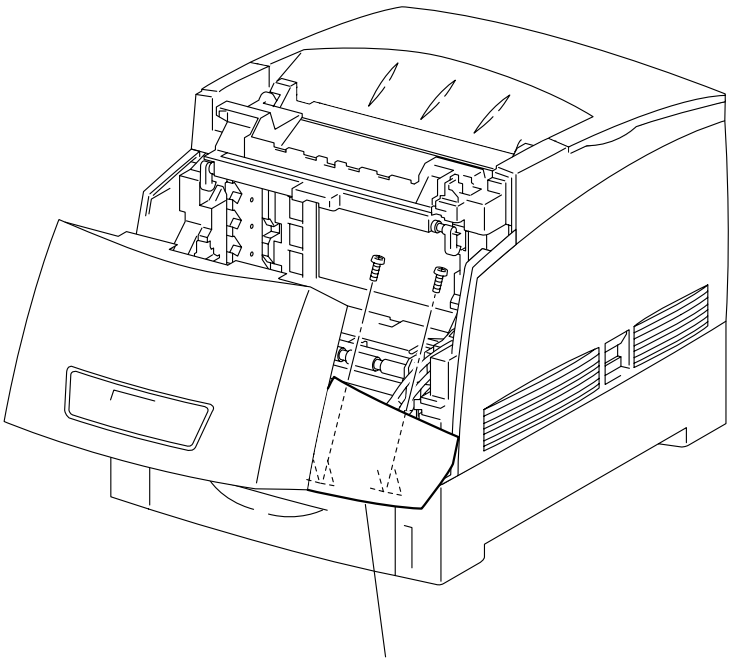


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Figure: COVER ASSY FRONT IN Removal (1)

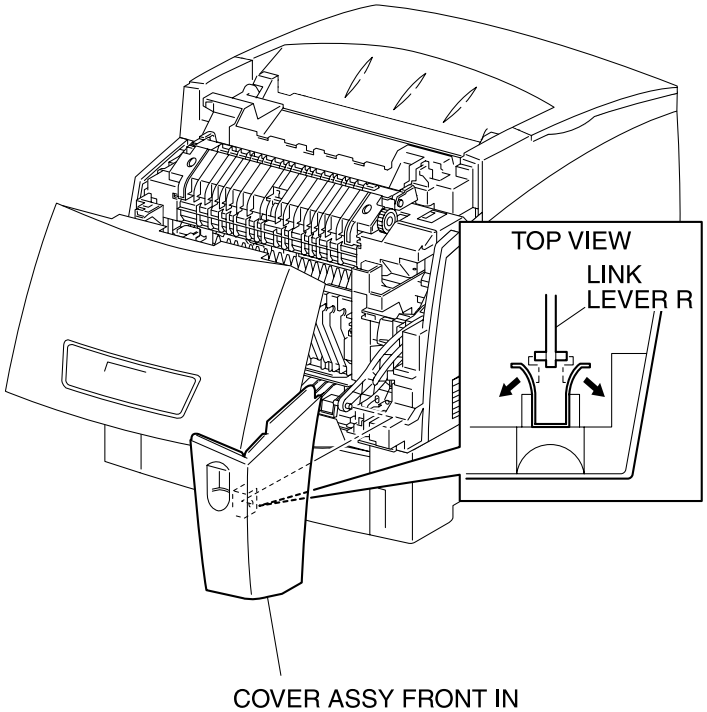

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Figure: COVER ASSY FRONT IN Removal (2)

Removal

1) Release the latch at B from the printer and open the FRONT ASSY IN (PL5.1.1) together with the CHUTE ASSY OUT (PL6.1.1).
2) Remove 2 screws securing the COVER ASSY FRONT IN to the FRONT ASSY IN.
3) Release the latch at A from the printer and open the CHUTE ASSY OUT.

NOTE

In the following process, do not separate the COVER ASSY FRONT IN and LINK:R too far since they are connected.

4) Pull out the COVER ASSY FRONT IN slightly from the FRONT ASSY IN.
5) Release the LINK LEVER: R shaft from the leaf spring at the back of the COVER ASSY FRONT IN and remove the COVER ASSY FRONT IN.

Replacement

Replace the components in the reverse order of removal.

RRP1.11 COVER MSI (PL1.1.26)

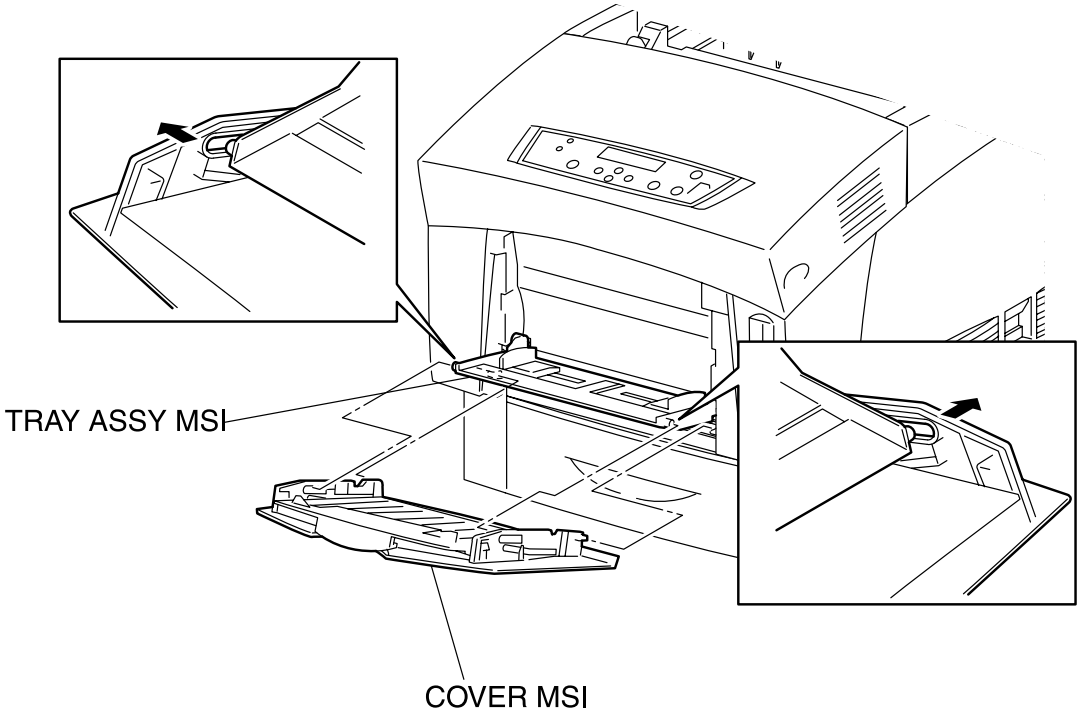

Figure: COVER MSI Removal

Removal

1) Open the COVER MSI (PL1.1.26) from the front of the printer.
2) Deflecting the left side of the TRAY ASSY MSI (PL1.1.28) inward from the long hole on the left side of the COVER MSI, extract the pin of the TRAY ASSY MSI from the long hole.
3) Extract the right side pin of the TRAY ASSY MSI from the right long hole of the COVER MSI.
4) Lowering the tip of the COVER MSI down the printer, pull out the COVER MSI forward and remove.

Replacement

Replace the components in the reverse order of removal.

RRP1.12 TRAY ASSY MSI (PL1.1.28)

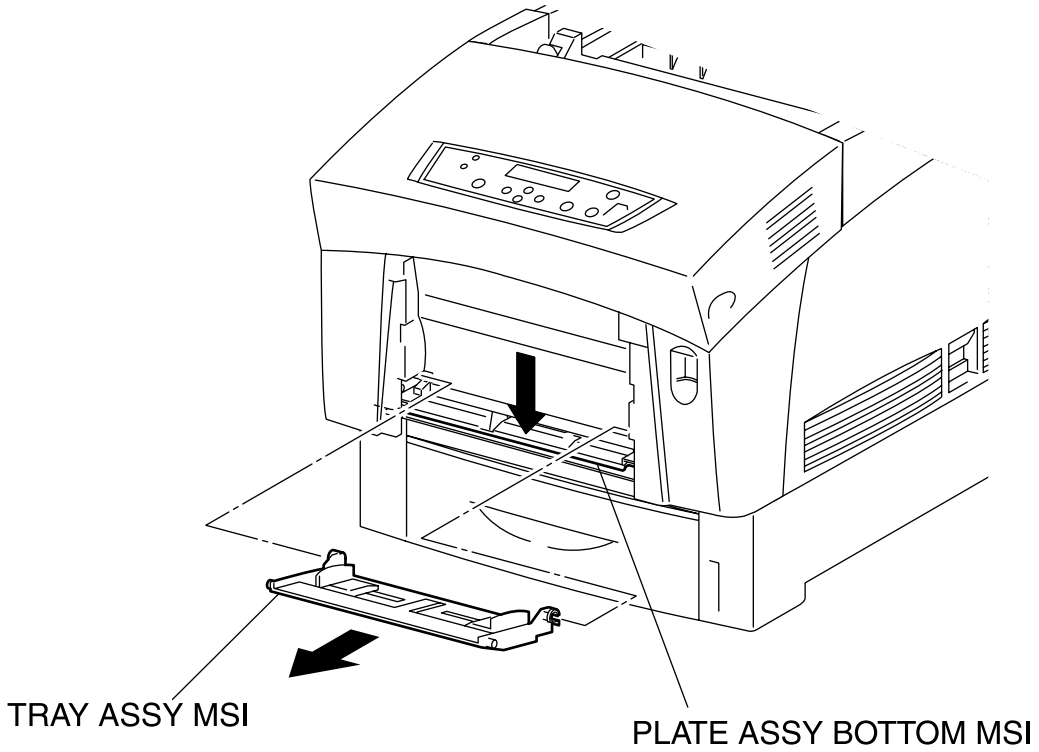

Figure: TRAY ASSY MSI Removal

Removal

1) Open the COVER MSI (PL1.1.26) from the printer.
2) Remove the COVER MSI. (RRP1.11)
3) Check that the PLATE ASSY BOTTOM MSI is shifted down.
4) Open the TRAY ASSY MSI, raise it pushing inward, and pull it out frontward.

Replacement

Replace the components in the reverse order of removal.

RRP1.13 COVER ASSY FRONT (PL1.1.29)

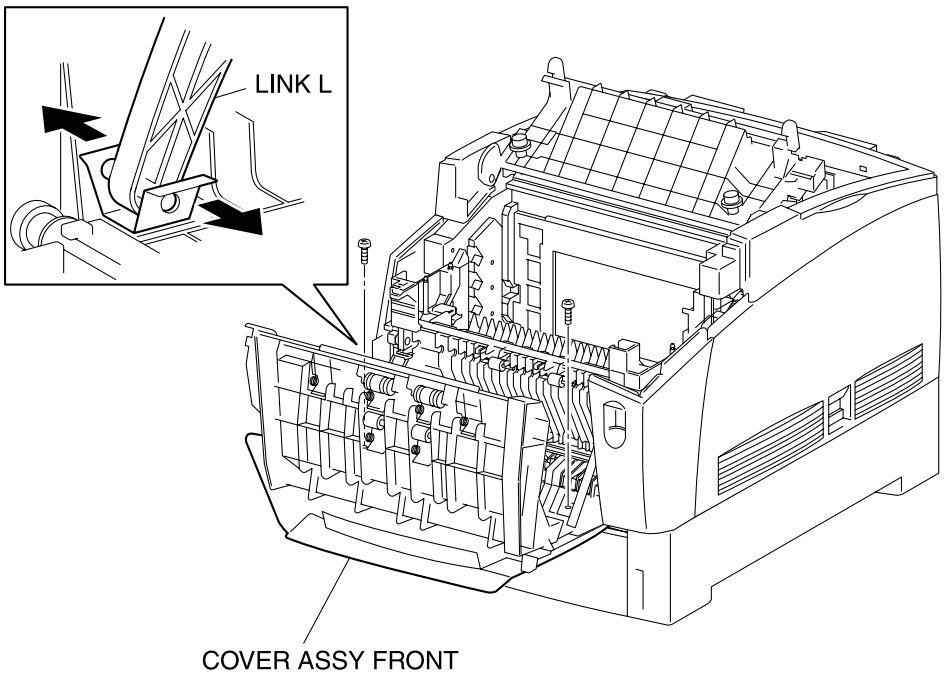

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Figure: COVER ASSY FRONT Removal (1)

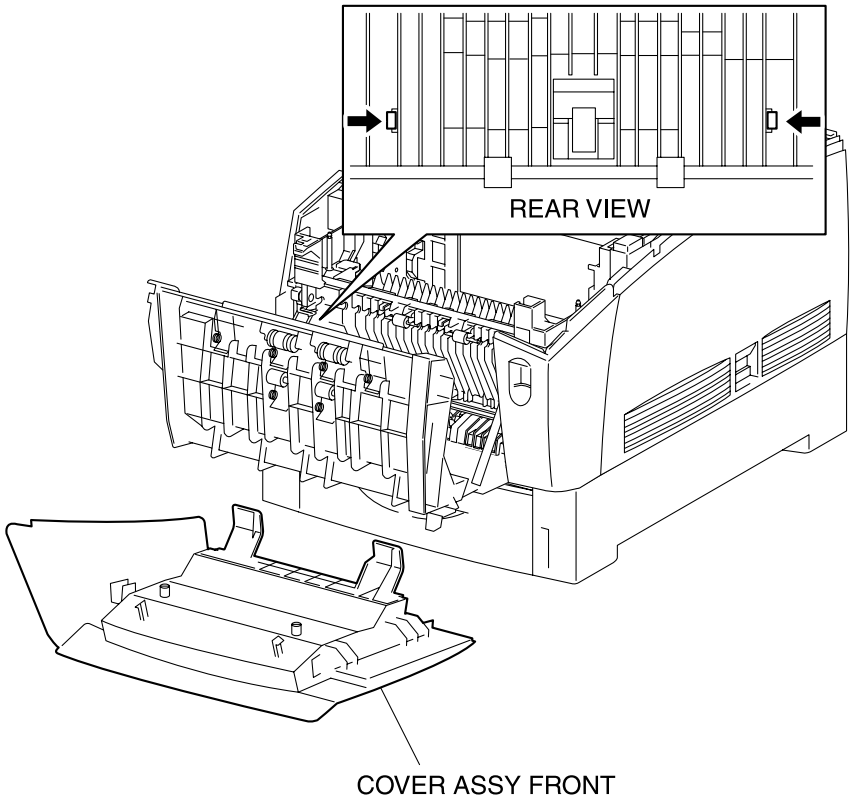

Figure: COVER ASSY FRONT Removal (2)

Removal

1) Remove the COVER MSI. (RRP1.11)
2) Remove the TRAY ASSY MSI. (RRP1.12)
3) Remove the ASSY FRONT IN RRP. (RRP 1.10)
4) Release the strap from the CHUTE ASSY IN. (RRP 5.1)
5) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
6) Release the latch at B from the printer and open the CHUTE ASSY OUT.
7) Shift the pin at the tip of the LINK:L (PL1.1.23) from the leaf spring at the back of the COVER ASSY FRONT.
8) Remove 2 screws securing the COVER ASSY FRONT to the CHUTE ASSY OUT (PL6.1.1).
9) Release the hooks securing the COVER ASSY FRONT at 2 positions to the CHUTE ASSY OUT.
10) Remove the COVER ASSY FRONT from the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

RRP1.14 COVER SIDE L (PL1.1.30)

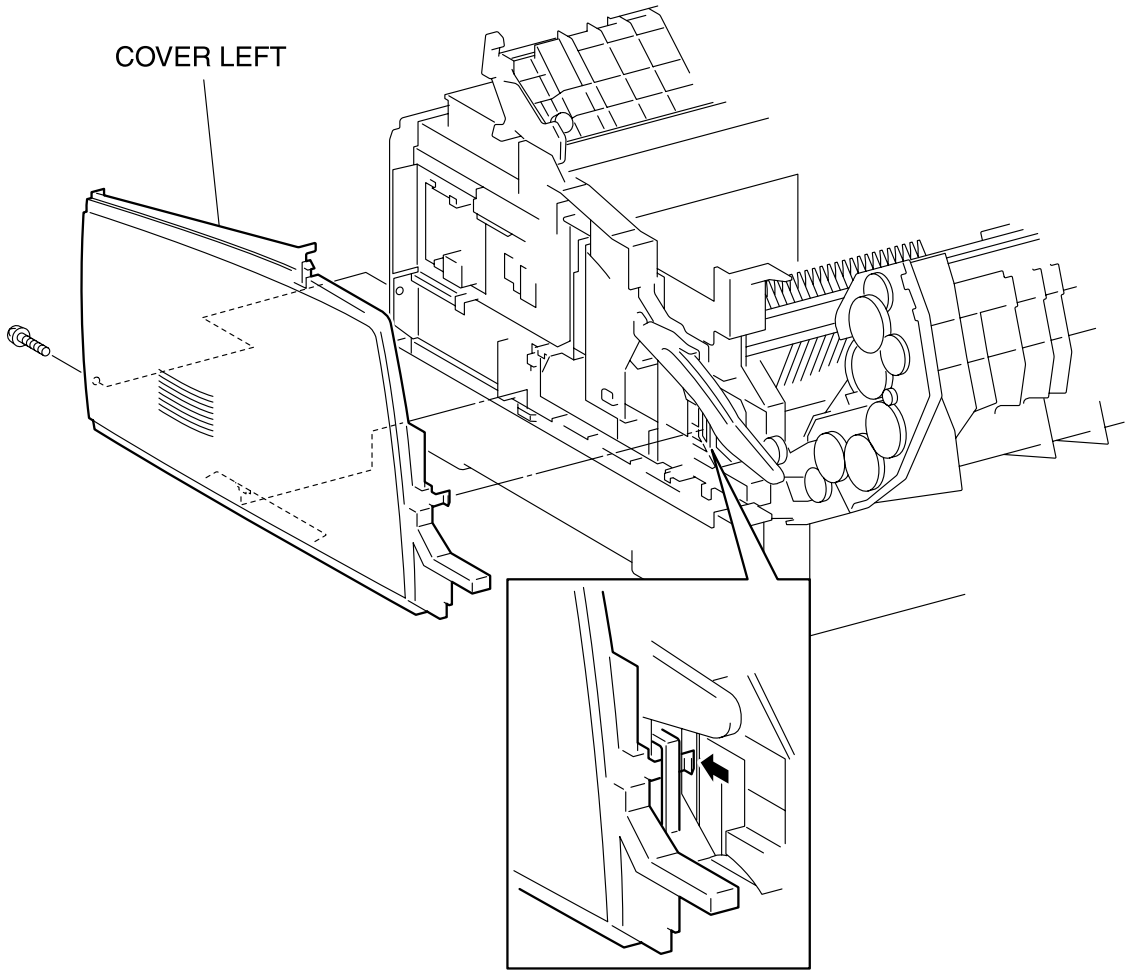

Figure: COVER SIDE L Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT. (RRP1.13)
3) Remove 1 screw securing the COVER SIDE L to the printer.
4) Release a hook securing the COVER SIDE L at 1 position at the front edge to the printer.
5) Remove the COVER SIDE L from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP2. PAPER CASSETTE

RRP2.1 ROLL ASSY (PL2.1.1)

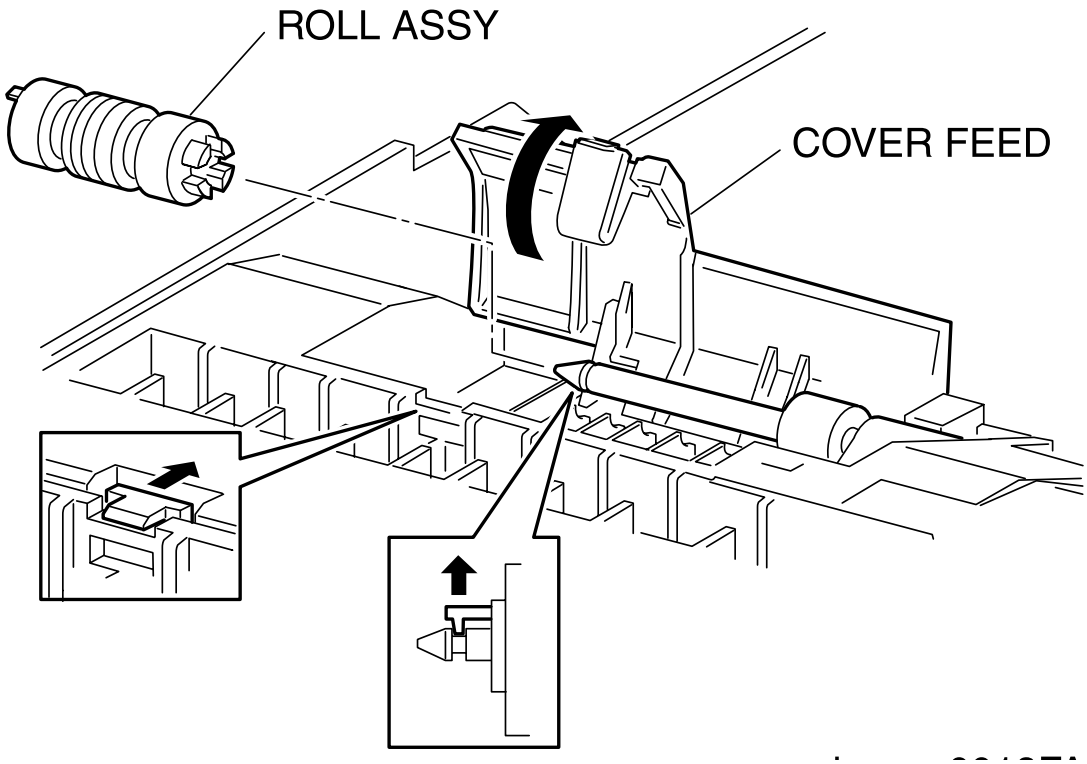

Figure: ROLL ASSY Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Release the COVER FEED secured to the CASSETTE at one point and open the COVER FEED.
3) Release a hook securing the ROLL ASSY at 1 position to the SHAFT RETARD from the CASSETTE.
4) Pull out the ROLL ASSY from the SHAFT RETARD.

Replacement

Replace the components in the reverse order of removal.

RRP2.2 HOLDER RETARD (PL2.1.3)

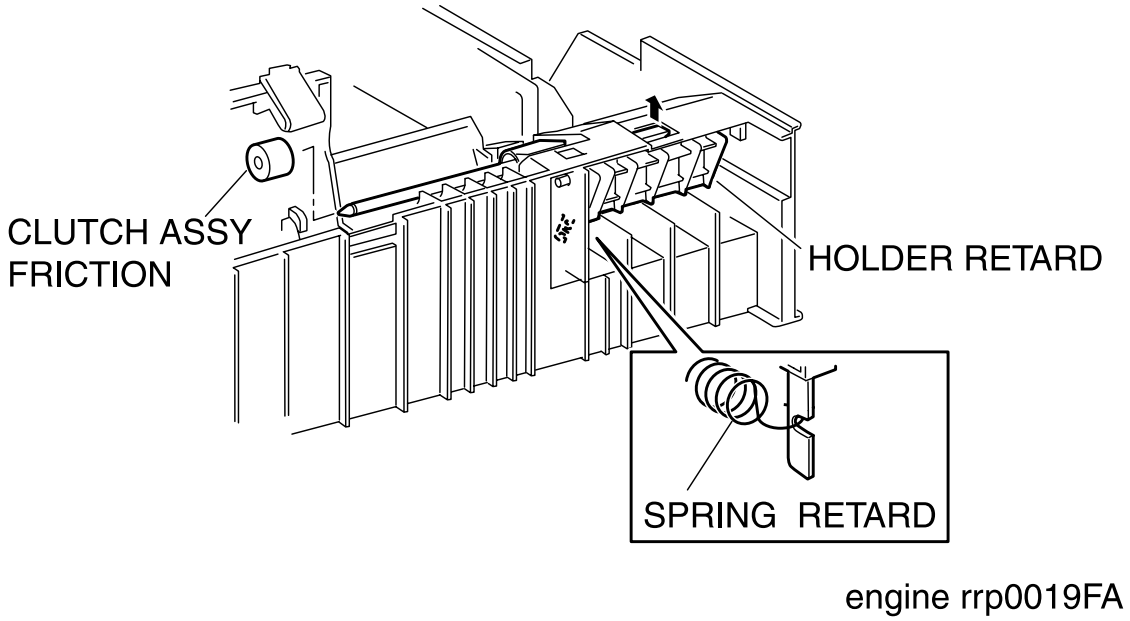

Figure: HOLDER RETARD Removal (1)

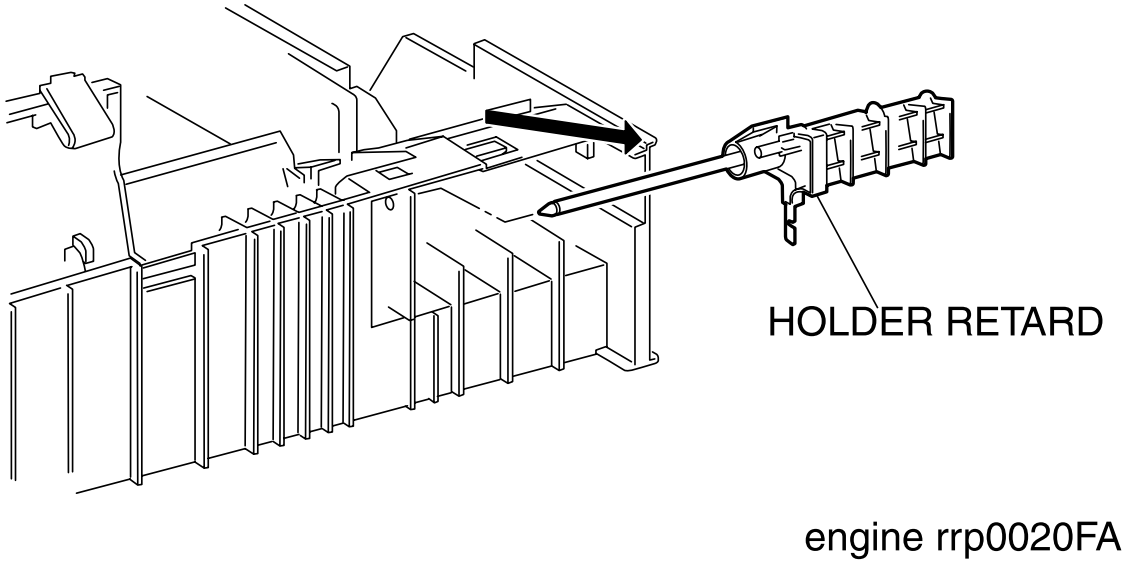

Figure: HOLDER RETARD Removal (2)

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the CASSETTE ASSY FRONT. (RRP2.3)
3) Remove the ROLL ASSY. (RRP2.1)
4) Pull out the CLUTCH ASSY FRICTION (PL2.1.2) on the SHAFT RETARD from the CASSETTE.
5) Release the hook of the SPRING RETARD (2.1.4) hitched to the bottom groove of the HOLDER RETARD from the CASSETTE.
6) Release the hook at 1 position securing the top portion of the HOLDER RETARD from the CASSETTE and move the HOLDER RETARD leftward.
7) Pull out the right end of the HOLDER RETARD slightly from the CASSETTE and extract the HOLDER RETARD and remove.

Replacement

Replace the components in the reverse order of removal.

RRP2.3 CASSETTE ASSY FRONT (REFERENCE ONLY)

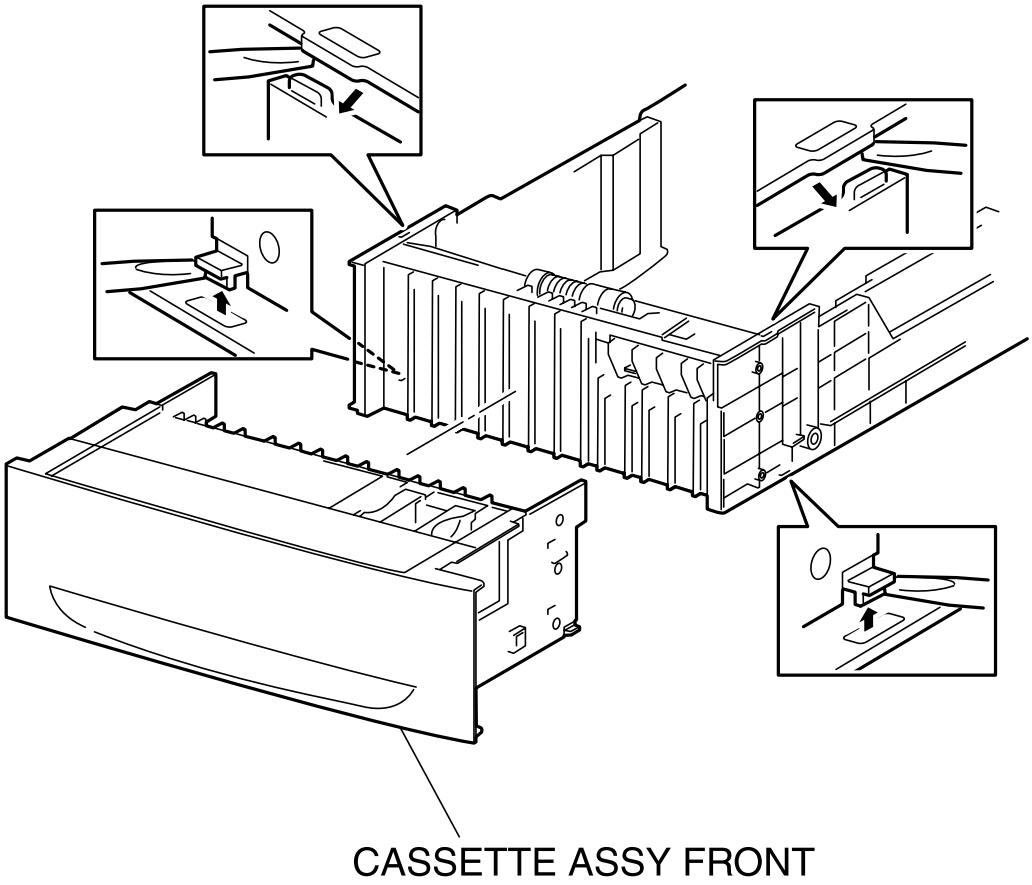

Figure: CASSETTE ASSY FRONT Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Release the bottom and top hooks securing the CASSETTE ASSY FRONT from the right side of the CASSETTE using a mini screwdriver or the like.
3) Release the bottom and top hooks securing the CASSETTE ASSY FRONT from the left side of the CASSETTE using a mini screwdriver or the like.
4) Pull out the CASSETTE ASSY FRONT from the CASSETTE.

Replacement

Replace the components in the reverse order of removal.

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RRP3. PAPER FEEDER

RRP3.1 CHUTE ASSY TURN (PL3.1.2)

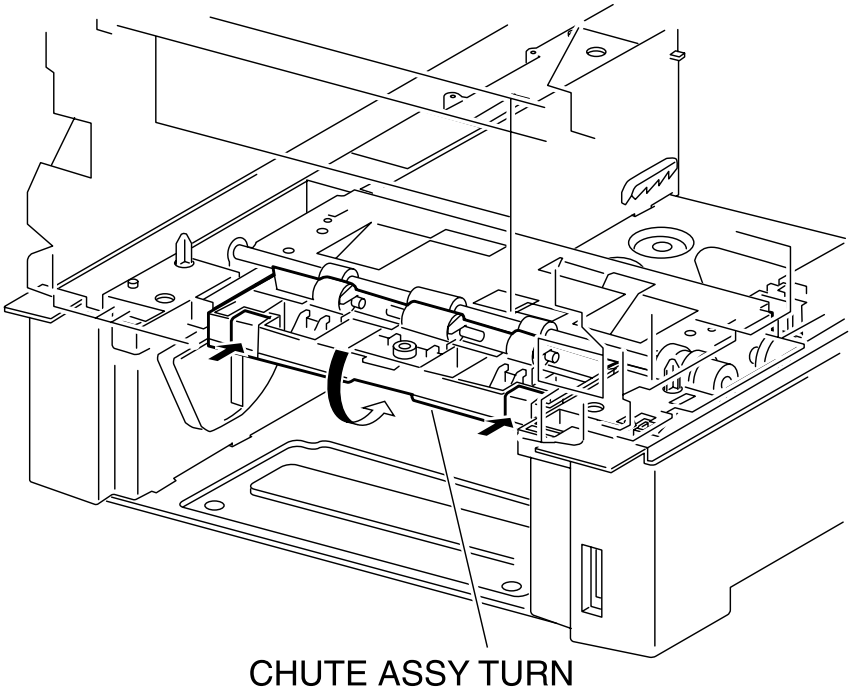

Figure: CHUTE ASSY TURN Removal (1)

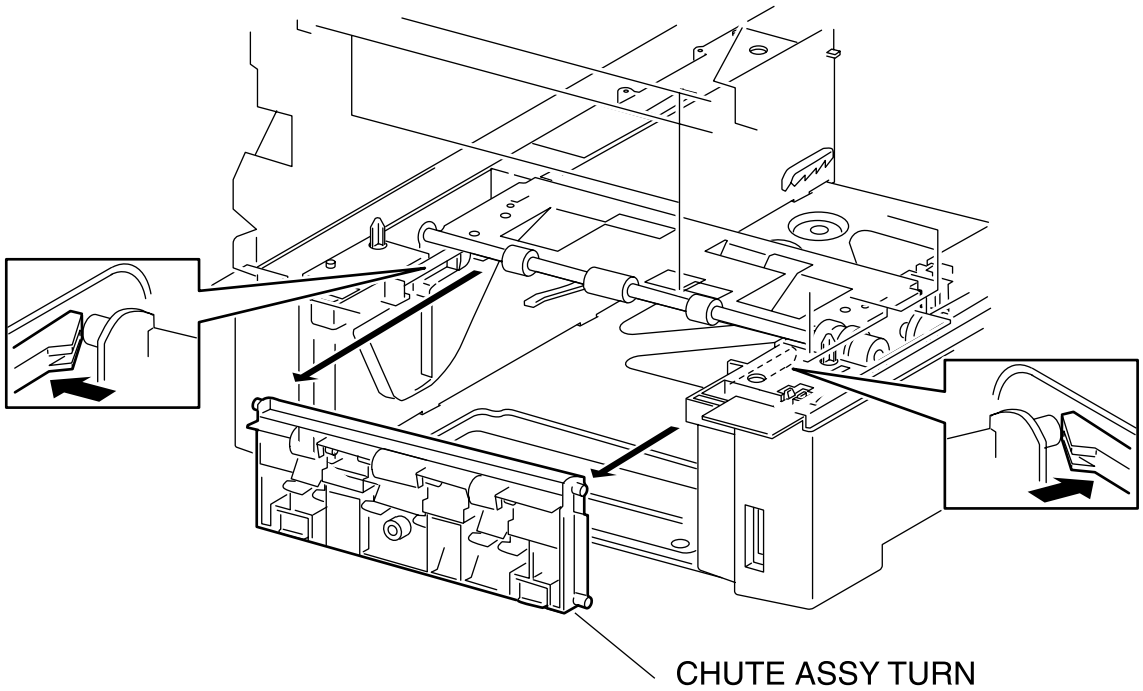

Figure: CHUTE ASSY TURN Removal (2)

Removal

1) Pull out the CASSETTE from the printer.
2) Release the hooks at 2 positions securing the CHUTE ASSY TURN to the printer FEEDER.
3) Turn the CHUTE ASSY 90 degrees rearward from the printer FEEDER.
4) Release the hook securing the right and left shaft of the CHUTE ASSY TURN to the printer FEEDER.
5) Pull out the CHUTE ASSY TURN from the printer FEEDER and remove.

Replacement

Replace the components in the reverse order of removal.

RRP3.2 COVER CASSETTE REAR (PL3.1.3)

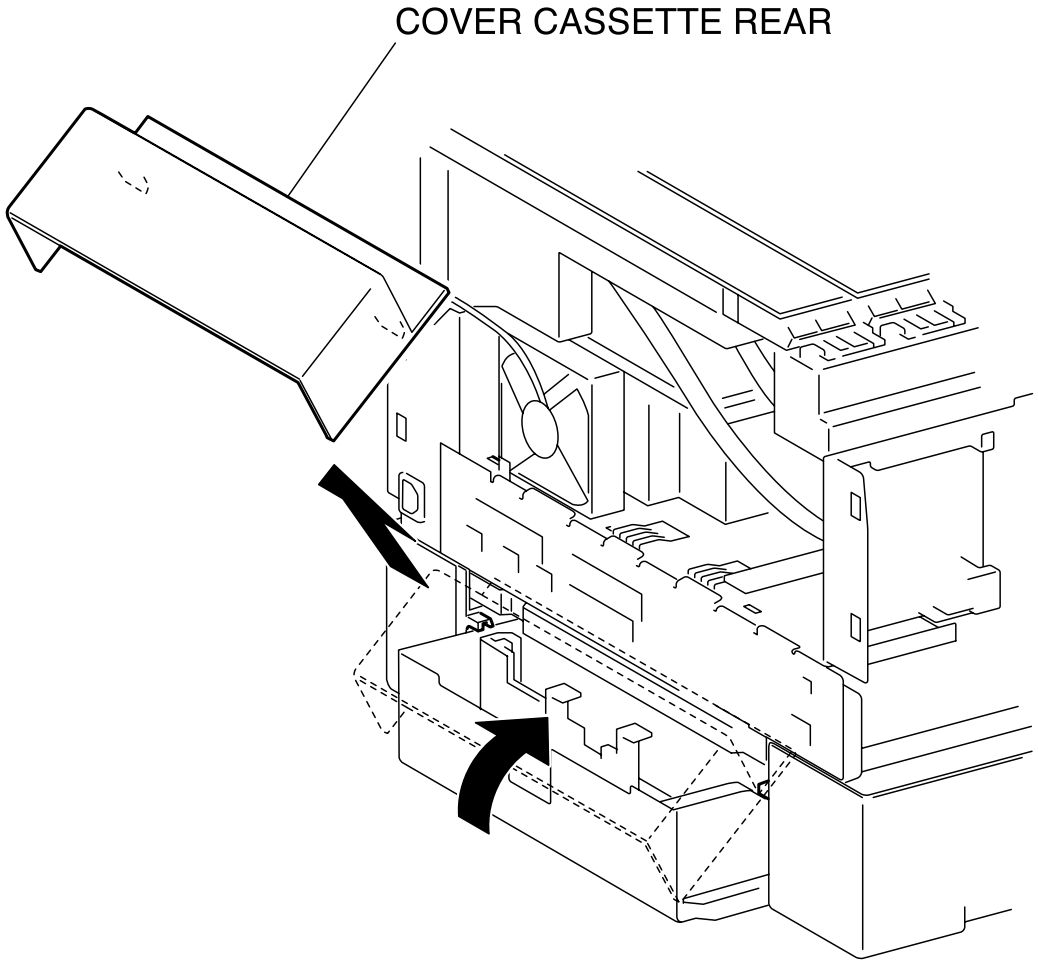

Figure: COVER CASSETTE REAR Removal

Removal

1) Turning the CASSETTE ASSY REAR upward from the rear side of the printer, pull out the CASSETTE ASSY REAR toward the front to remove.

Replacement

Replace the components in the reverse order of removal.

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RRP3.3 FEEDER ASSY UNIT (REFERENCE ONLY)

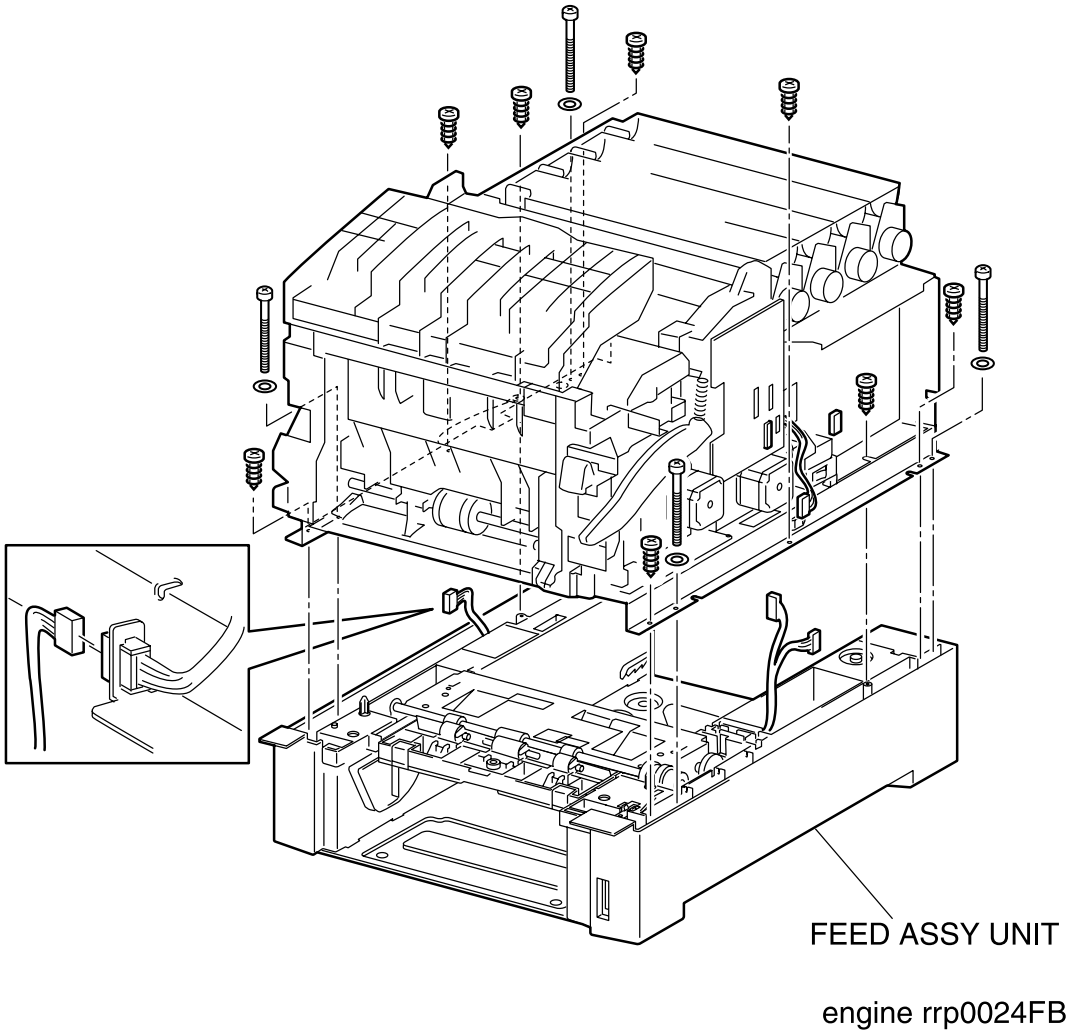

Figure: FEEDER ASSY UNIT Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the COVER CASSETTE REAR. (RRP3.2)
7) Deflect the shaft of the LINK ACTUATOR (PL3.3.5) secured to the ACTUATOR NO PAPER (PL3.3.4) from the printer FEEDER and shift the ACTUATOR NO PAPER from the shaft.
8) Pull out the LINK ACTUATOR from the hole on the printer FEEDER and remove.
9) Remove the connector (P/J24) connecting the printer and FEEDER ASSY UNIT from the left side of the printer.
10) Remove the connector (P/J210) connecting the printer and FEEDER ASSY UNIT from the right side of the printer.
11) Remove the connector (P/J47) on the PWBA HNB DRV (PL12.1.12) from the right side of the printer.
12) Remove 8 screws securing the FEEDER ASSY UNIT to the printer.

NOTE

In the following step, removal of the left front screw is blocked by the printer housing. Lift the left front side of the printer up slightly to remove the screw.

13) Remove 4 long screws securing the FEEDER ASSY UNIT to the printer.
14) Shift the harness of the connector (P/J24) from the square hole on the bottom plate at the lower part of the printer toward the FEEDER.
15) Shift the connector (P/J210) and the harness of the connector (P/J47) from the square hole on the bottom plate at the lower part of the printer toward the FEEDER.

CAUTION

The top unit of the printer should be lifted up by more than one person.

NOTE

When removing the top unit of the printer from the FEEDER ASSY UNIT, be careful not to drop or damage the upper parts of the printer.

16) Raise the printer and separate it from the FEEDER ASSY UNIT.

Replacement

Replace the components in the reverse order of removal.

NOTE

Take care not to pinch the harness on the FEEDER ASSY UNIT side, when replacing the printer top unit on the FEEDER ASSY UNIT.

RRP3.4 HOUSING ASSY FEEDER L (REFERENCE ONLY)

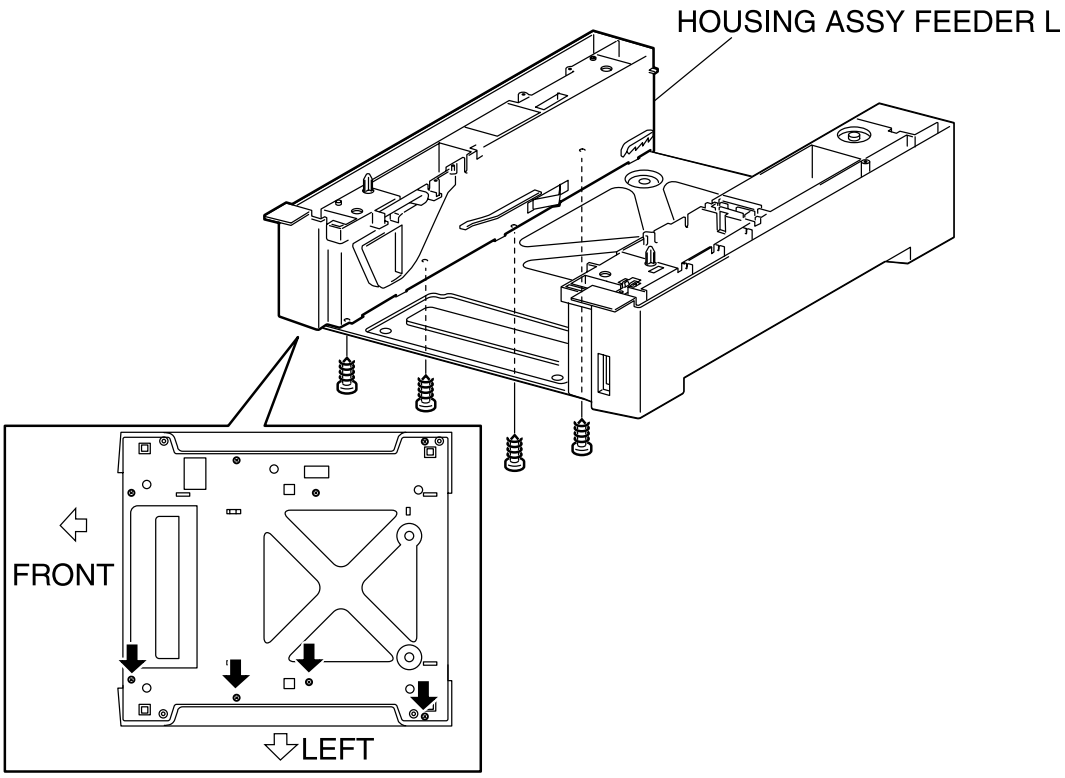

Figure: HOUSING ASSY FEEDER L Removal (1)

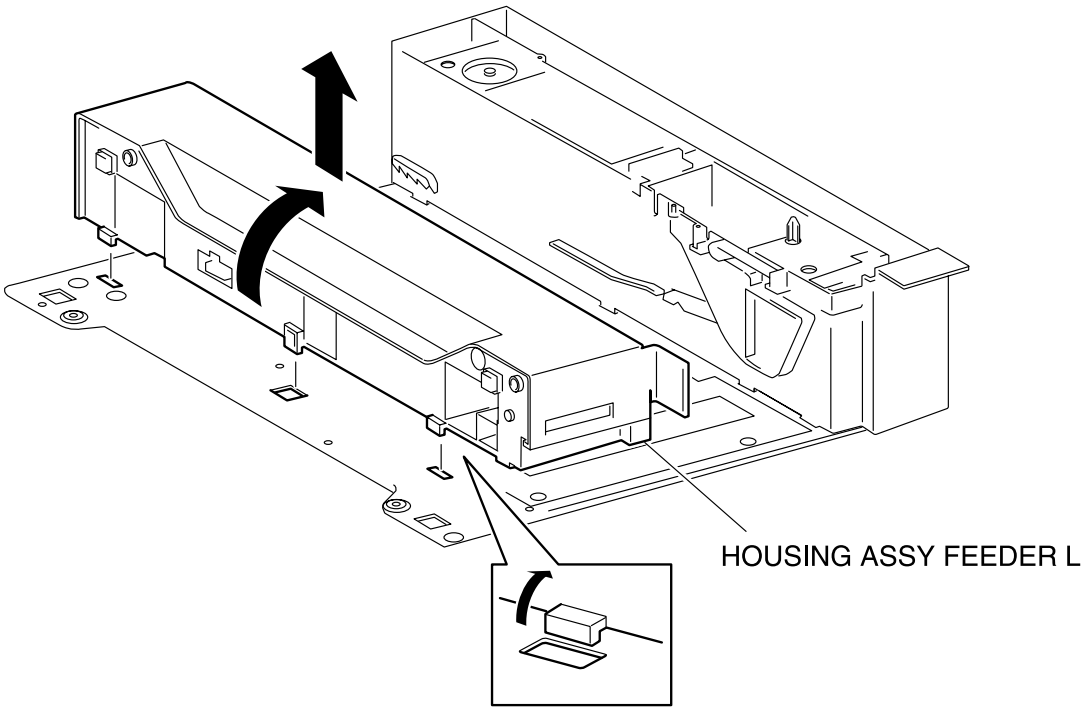

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Figure: HOUSING ASSY FEEDER L Removal (2)

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the COVER CASSETTE REAR. (RRP3.2)
7) Remove the FEEDER ASSY UNIT. (RRP3.3)
8) Remove the PICKUP ASSY. (RRP3.12)
9) Remove 4 screws securing the HOUSING ASSY FEEDER L to the PLATE BOTTOM.
10) Pull down the HOUSING ASSY FEEDER L inward and extract the hooks at 3 positions out of the hole at the PLATE BOTTOM.
11) Remove the HOUSING ASSY FEEDER L upward from the PLATE BOTTOM.

Replacement

Replace the components in the reverse order of removal.

RRP3.5 HOUSING ASSY FEEDER R (REFERENCE ONLY)

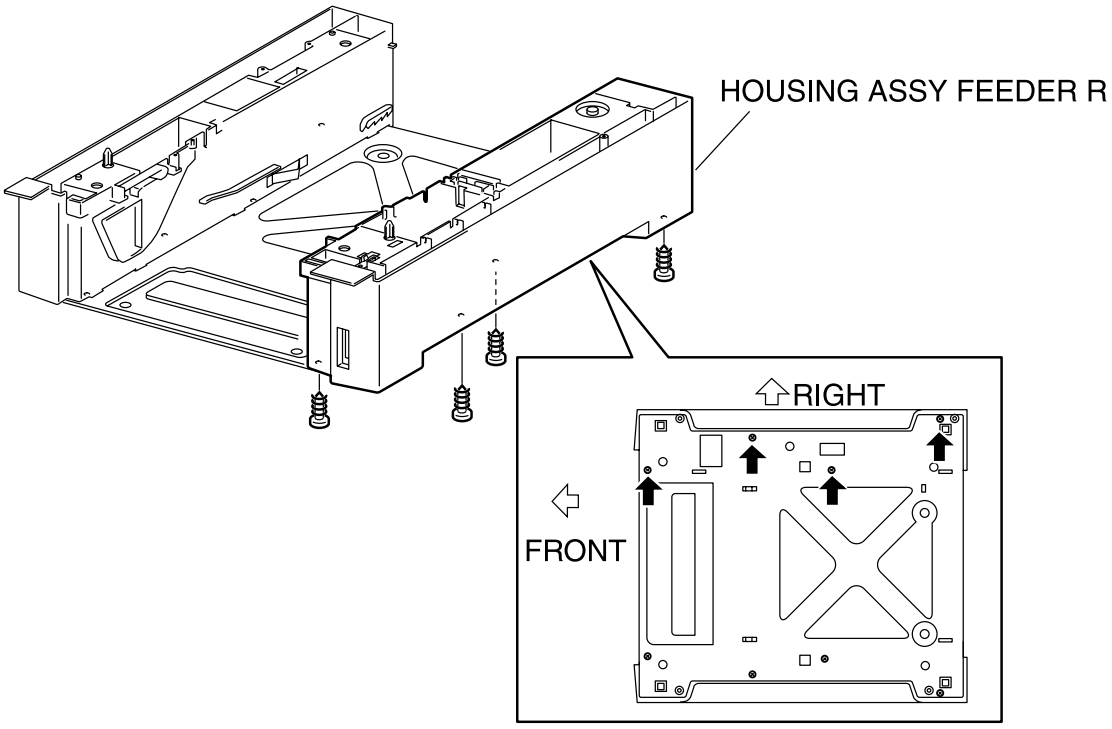

Figure: HOUSING ASSY FEEDER R Removal (1)

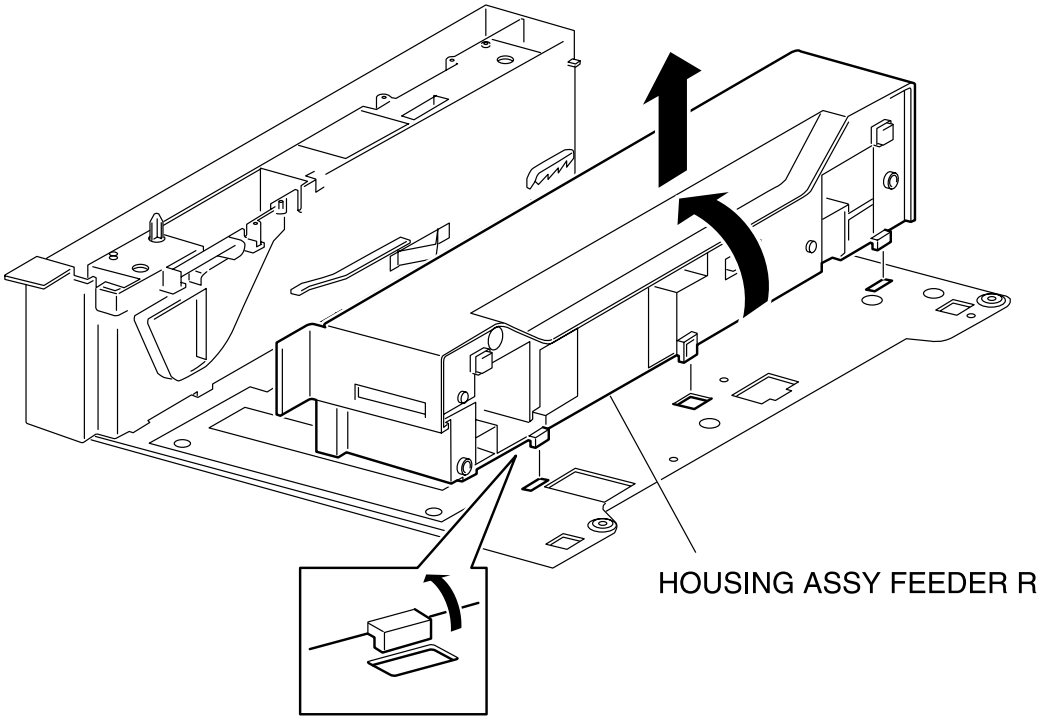

Figure: HOUSING ASSY FEEDER R Removal (2)

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the COVER CASSETTE REAR. (RRP3.2)
7) Remove the FEEDER ASSY UNIT. (RRP3.3)
8) Remove the PICKUP ASSY. (RRP3.12)
9) Remove 4 screws securing the SUPPORT FEEDER LEFT to the PLATE BOTTOM.
10) Pull down the HOUSING ASSY FEEDER R inward and extract the hooks at 3 positions out of the hole at the PLATE BOTTOM.
11) Remove the HOUSING ASSY FEEDER R upward from the PLATE BOTTOM.

Replacement

Replace the components in the reverse order of removal.

RRP3.6 SENSOR HUM TEMP (PL3.2.2)

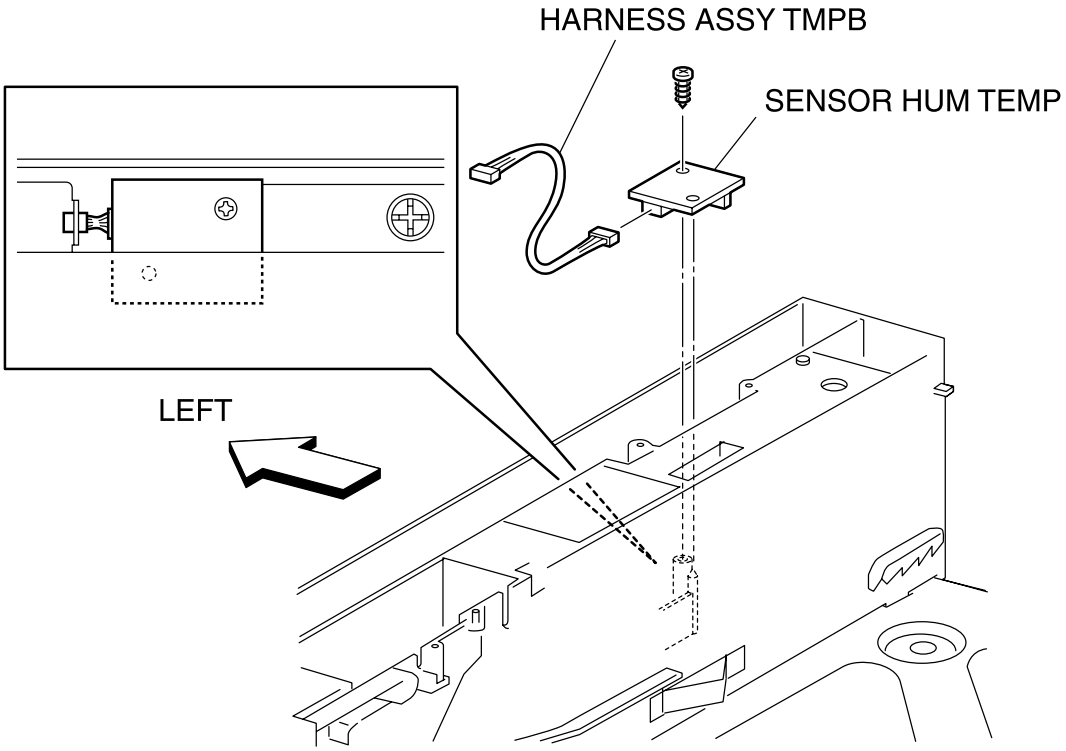

Figure: SENSOR HUM TEMP Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER SIDE L. (RRP1.14)
3) Remove the HARNESS ASSY TMPB.
4) Remove a screw securing the SENSOR HUM TEMP.

Replacement

Replace the components in the reverse order of removal.

RRP3.7 HARNESS ASSY OPFREC (PL3.2.3)

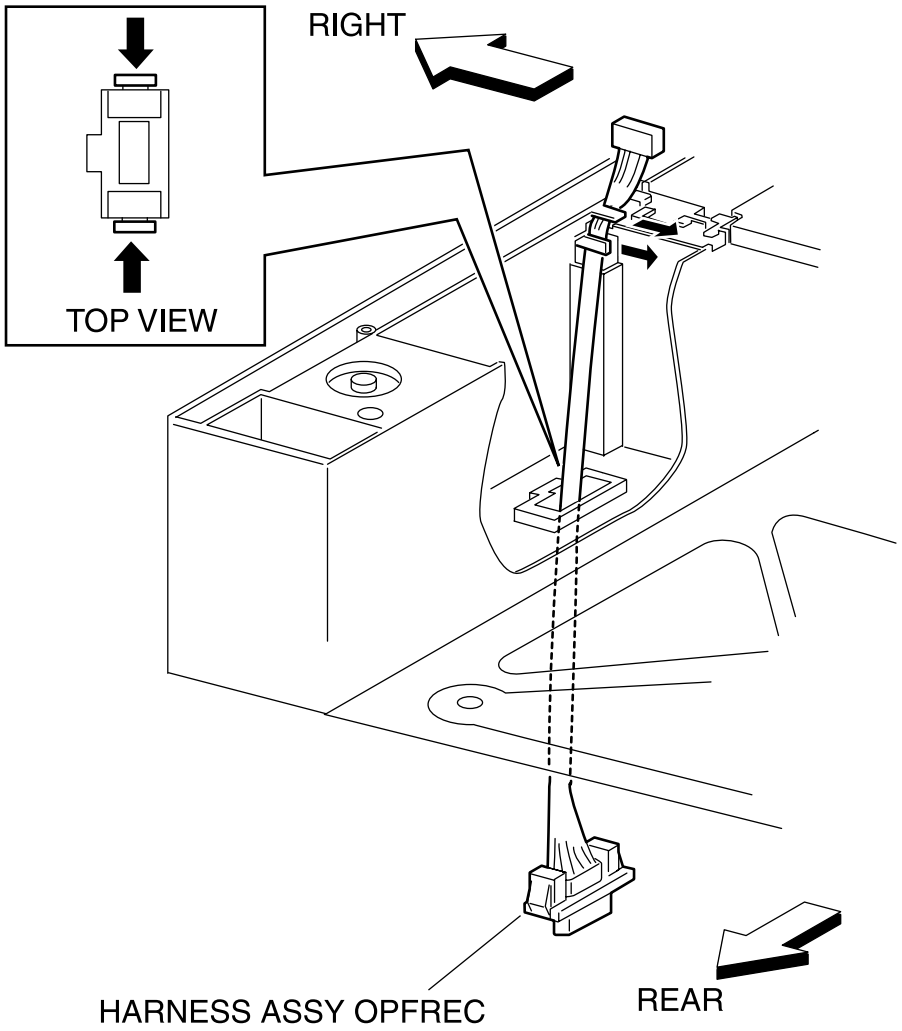

Figure: HARNESS ASSY OPFREC Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Shift the harness of the HARNESS ASSY OPFREC from the HOUSING ASSY FEEDER R of the FEEDER ASSY UNIT.
10) Release the hooks at 2 positions securing the HARNESS ASSY OPFREC to the HOUSING ASSY FEEDER R.
11) Pull out the HARNESS ASSY OPFREC downward from the HOUSING ASSY FEEDER R.

Replacement

Replace the components in the reverse order of removal.

RRP3.8 SWITCH ASSY SIZE (PL3.2.4)

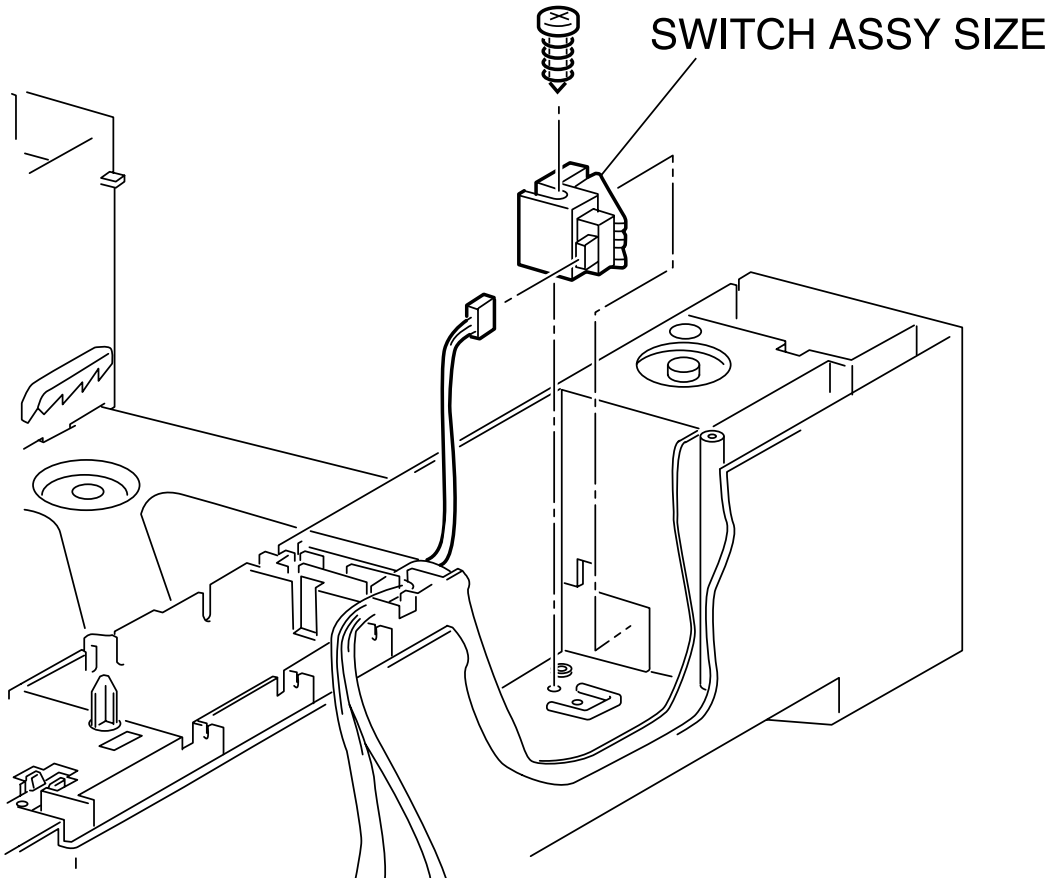

Figure: SWITCH ASSY SIZE Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove 1 screw securing the SWITCH ASSY SIZE from the HOUSING ASSY FEEDER R of the FEEDER ASSY UNIT.
10) Remove the connector (P/J471) on the SWITCH ASSY SIZE.
11) Remove the SWITCH ASSY SIZE from the HOUSING ASSY FEEDER R.

Replacement

Replace the components in the reverse order of removal.

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RRP3.9 LEVER LOW PAPER (PL3.2.7)

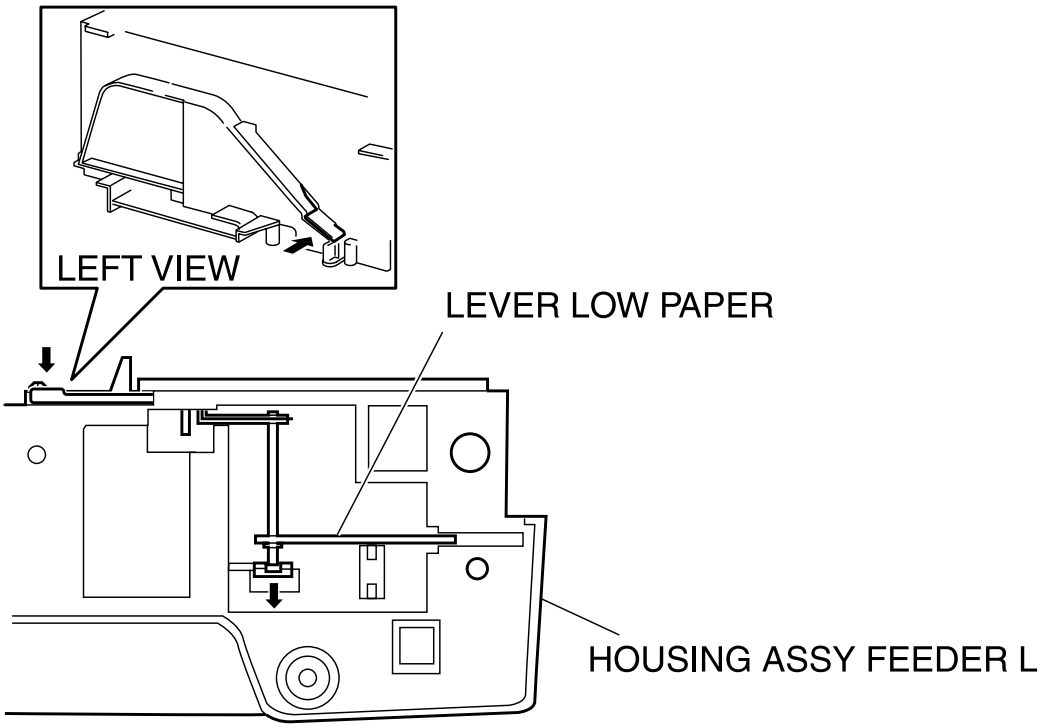

Figure: LEVER LOW PAPER Removal (1)

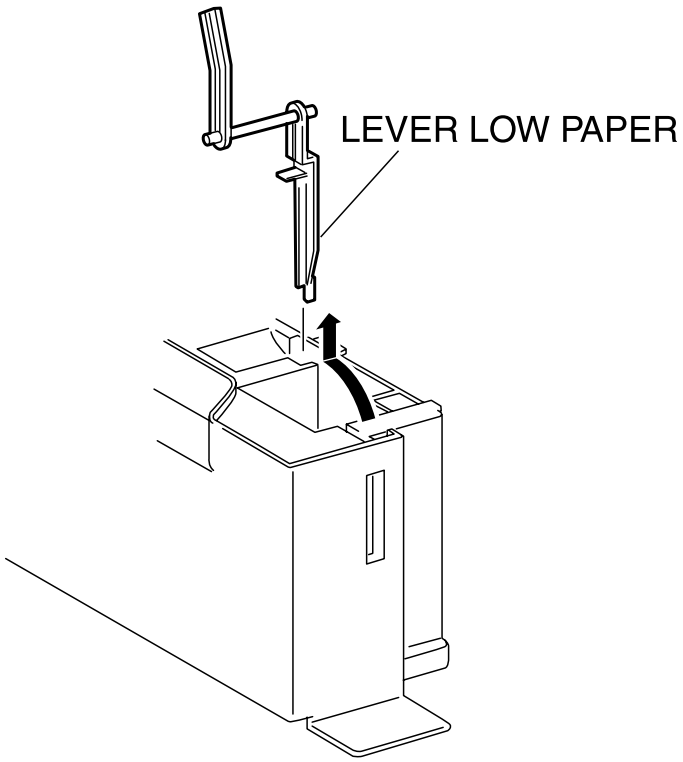

Figure: LEVER LOW PAPER Removal (2)

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the INDICATOR. (RRP3.10)
10) Remove the GUIDE INDECATOR. (RRP3.11)
11) Remove the HOUSING ASSY FEEDER R. (RRP3.5)
12) Deflecting the shaft of the HOUSING ASSY FEEDER R securing the right axis of the LEVER LOWER PAPER from the bottom surface of the HOUSING ASSY FEEDER R and shift the right axis.
13) Push in the actuator of the LEVER LOWER PAPER to the inside of the HOUSING ASSY FEEDER R from the left side of the HOUSING ASSY FEEDER R.
14) Raise the LEVER LOWER PAPER above perpendicularly above the HOUSING ASSY FEEDER R and pull it out upward.

Replacement

Replace the components in the reverse order of removal.

RRP3.10 INDICATOR (PL3.2.8)

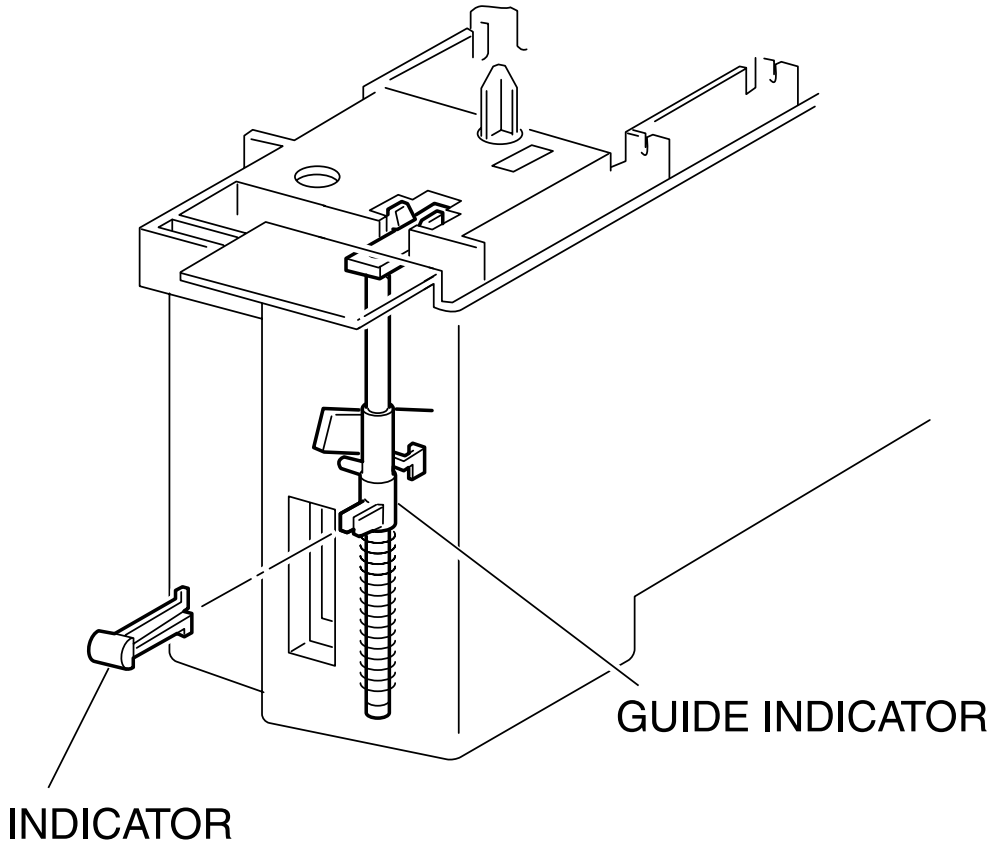

Figure: INDICATOR Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Hold the tip of the INDICATOR with radio pliers and pull the INDICATOR frontward and remove from the HOUSING ASSY FEEDER R of the FEEDER ASSY UNIT.

Replacement

Replace the components in the reverse order of removal.

NOTE

Hold the GUIDE INDICATOR (PL3.2.10), when replacing the INDICATOR.

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RRP3.11 GUIDE INDICATOR (PL3.2.10)

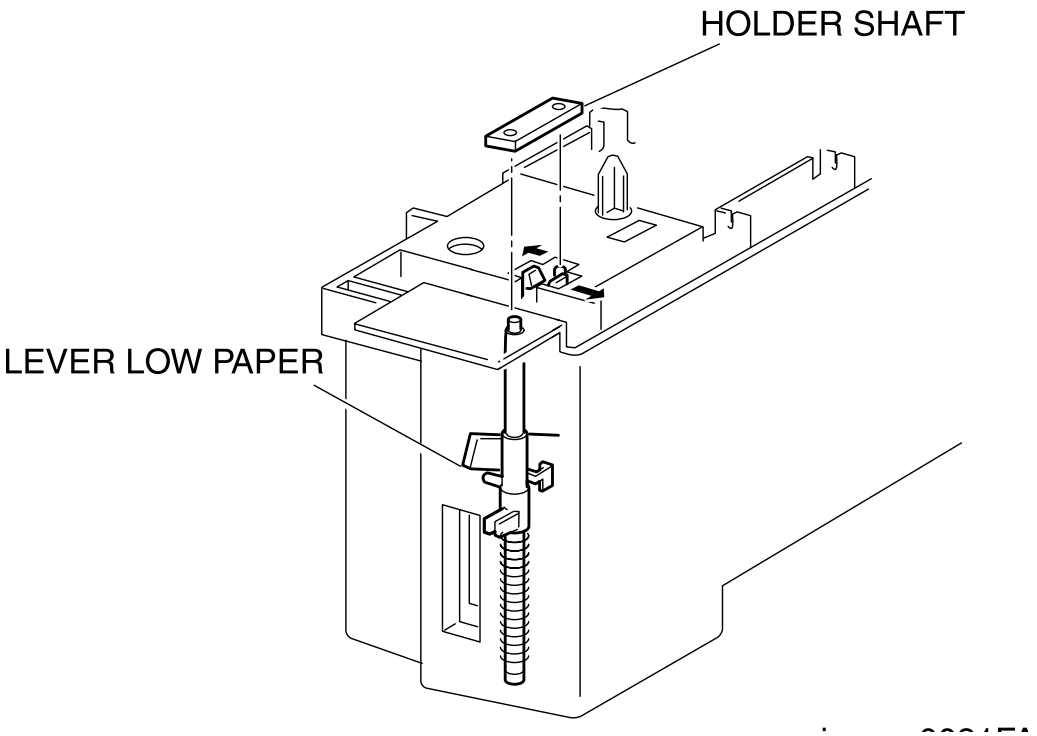

Figure: GUIDE INDICATOR Removal (1)

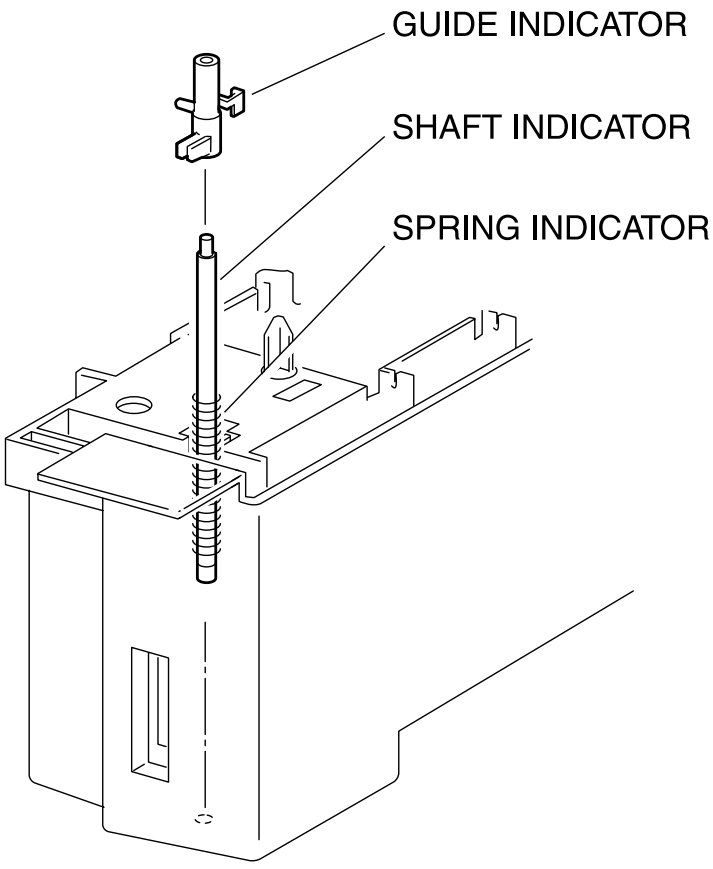

Figure: GUIDE INDICATOR Removal (2)

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Release the hooks at 2 positions securing the HOLDER SHAFT (PL3.2.9) to the HOUSING ASSY FEEDER R of the FEEDER ASSY UNIT.
10) Pull out the GUIDE INDICATOR from the HOUSING ASSY FEEDER R together with the SPRING INDICATOR (PL3.2.11) and SHAFT INDICATOR (PL3.2.12).
11) Pull out the GUIDE INDICATOR from the SHAFT INDICATOR.

Replacement

Replace the components in the reverse order of removal.

NOTE

Put the leading end of LEVER LOW PAPER (PL3.2.7) on a left convex portion of the GUIDE INDICATOR, when replacing the GUIDE INDICATOR.

RRP3.12 PICKUP ASSY (PL3.3.1)

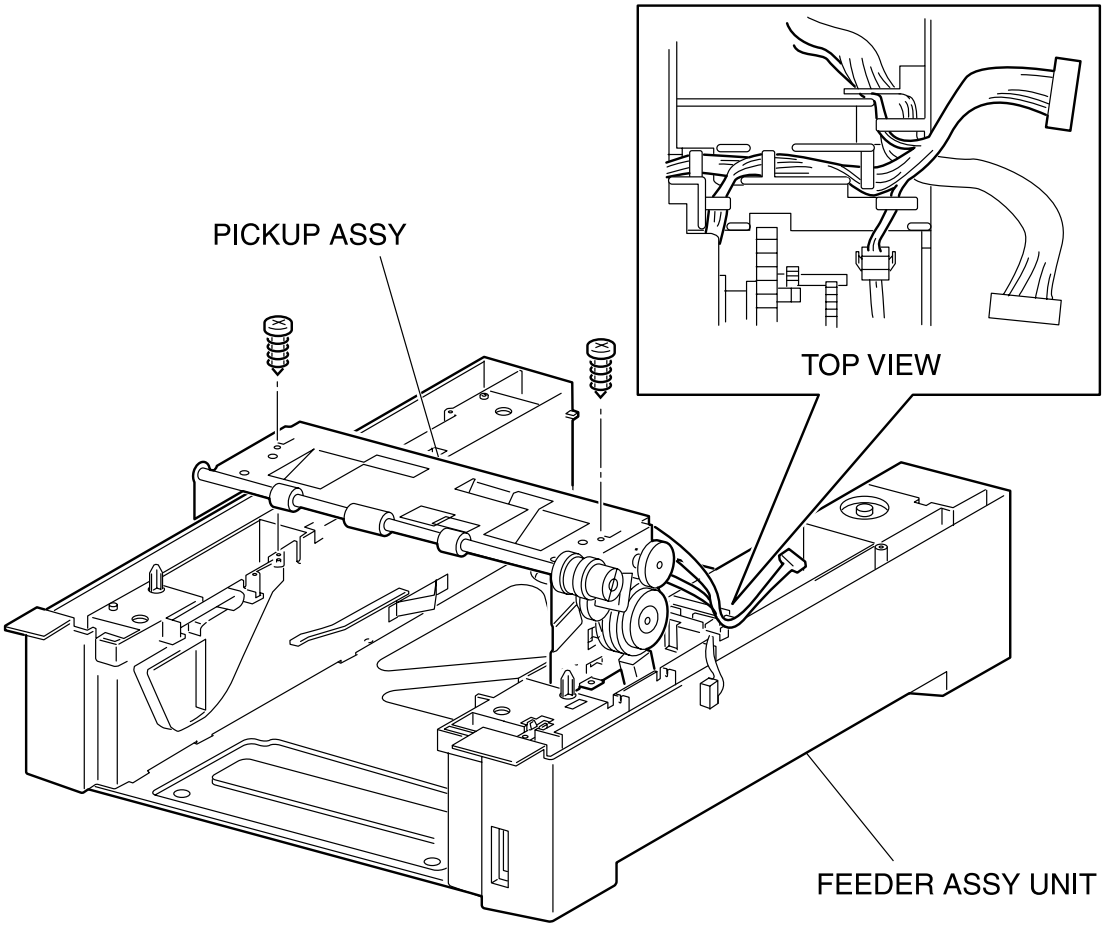

Figure: PICKUP ASSY Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the SWITCH ASSY SIZE. (RRP3.8)
10) Shift the harness of the PICKUP ASSY from the right hook of the FEEDER ASSY UNIT.
11) Remove 2 screws securing the PICKUP ASSY from the FEEDER ASSY UNIT.
12) Raise the PICKUP ASSY from the FEEDER ASSY UNIT.

Replacement

Replace the components in the reverse order of removal.

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RRP3.13 ROLL ASSY FEED (PL3.3.2)

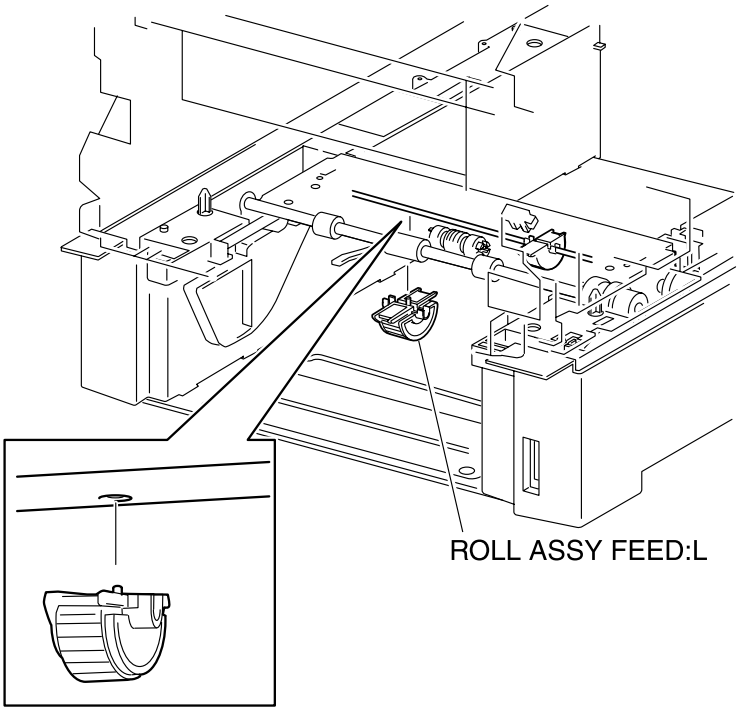


Figure: ROLL ASSY FEED Removal (1)

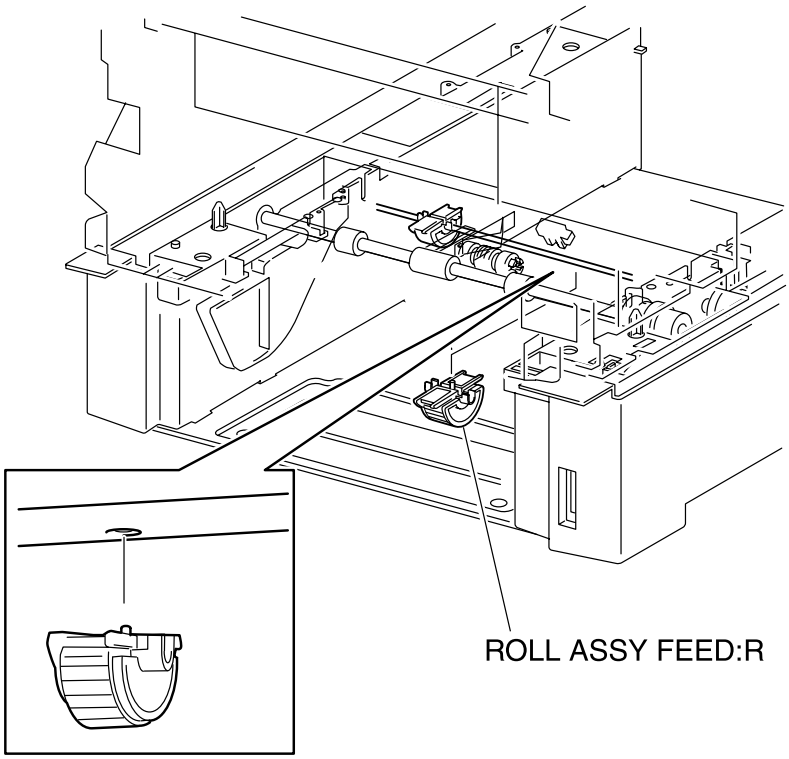


Figure: ROLL ASSY FEED Removal (2)

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the CHUTE ASSY TURN. (RRP3.1)

NOTE

In the following steps, replace and remove the ROLL ASSY FEED, unilateral at a time, to confirm the replacing direction of the ROLL ASSY FEED.

3) Rotate the SHAFT FEED 1 (PL3.3.1) so that the rubber of the ROLL ASSY FEED faces downward from the printer FEEDER.
4) Release the hook securing the ROLL ASSY FEED to the SHAFT FEED 1 and remove the ROLL ASSY FEED.

Replacement

Replace the components in the reverse order of removal.

RRP3.14 SENSOR PHOTO:NO PAPER (PL3.3.3)

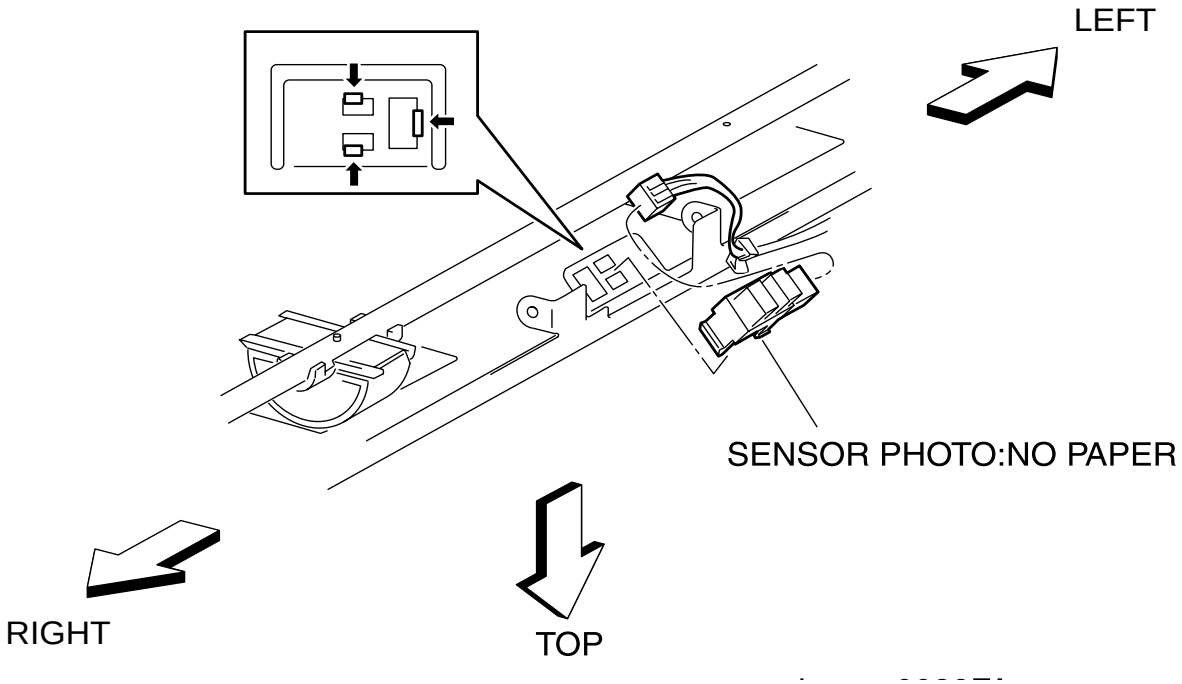


Figure: SENSOR PHOTO:NO PAPER Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the PICKUP ASSY. (RRP3.12)
10) Turn up the PICKUP ASSY (PL3.3.1).
11) Remove the ACTUATOR NO PAPER. (RRP3.16)
12) Remove the right side of the ROLL ASSY FEED (PL3.3.3) from the PICKUP ASSY. (RRP3.13)
13) Remove the connector (P/J472) on the SENSOR PHOTO:NO PAPER.
14) Release the hooks at 3 positions securing the SENSOR PHOTO:NO PAPER to the PICKUP ASSY.
15) Remove the SENSOR PHOTO:NO PAPER from the PICKUP ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP3.15 SENSOR PHOTO:LOW PAPER (PL3.3.3)

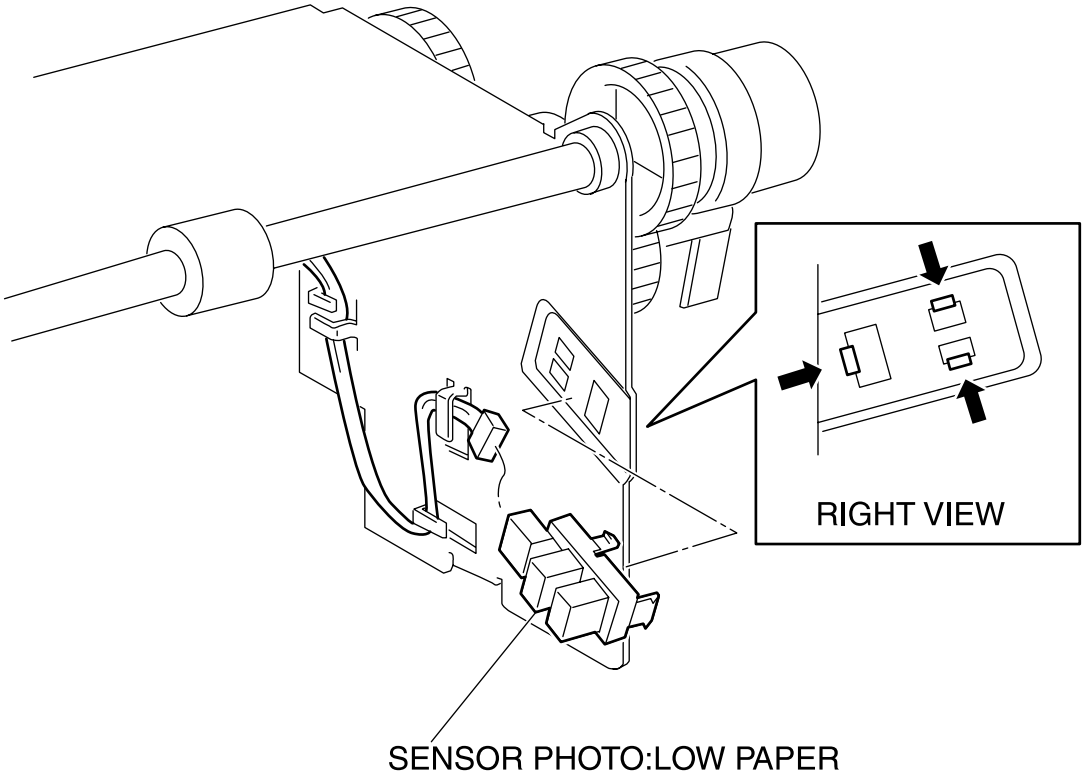


Figure: SENSOR PHOTO:LOW PAPER Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the PICKUP ASSY. (RRP3.12)
10) Remove the connector (P/J473) on the SENSOR PHOTO:LOW PAPER.
11) Release the hooks at 3 positions securing the SENSOR PHOTO:LOW PAPER to the PICKUP ASSY (PL3.3.1).
12) Remove the SENSOR PHOTO:LOW PAPER from the PICKUP ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP3.16 ACTUATOR NO PAPER (PL3.3.4)

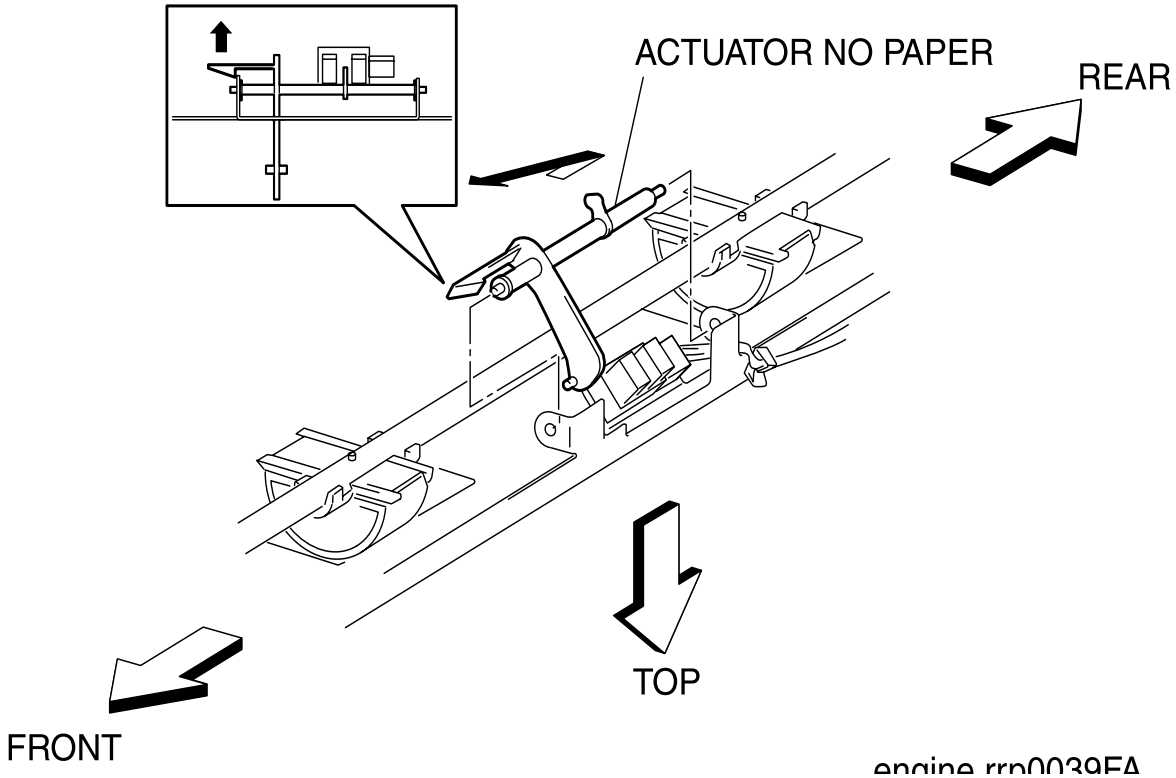


Figure: ACTUATOR NO PAPER Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the PICKUP ASSY. (RRP3.12)
10) Turn up the PICKUP ASSY (PL3.3.1).
11) Release the hook at 1 position securing the ACTUATOR NO PAPER to the PICKUP ASSY and extract the left side shaft of the ACTUATOR NO PAPER.
12) Pull out the ACTUATOR NO PAPER left upward from the PICKUP ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP3.17 LINK ACTUATOR (PL3.3.5)

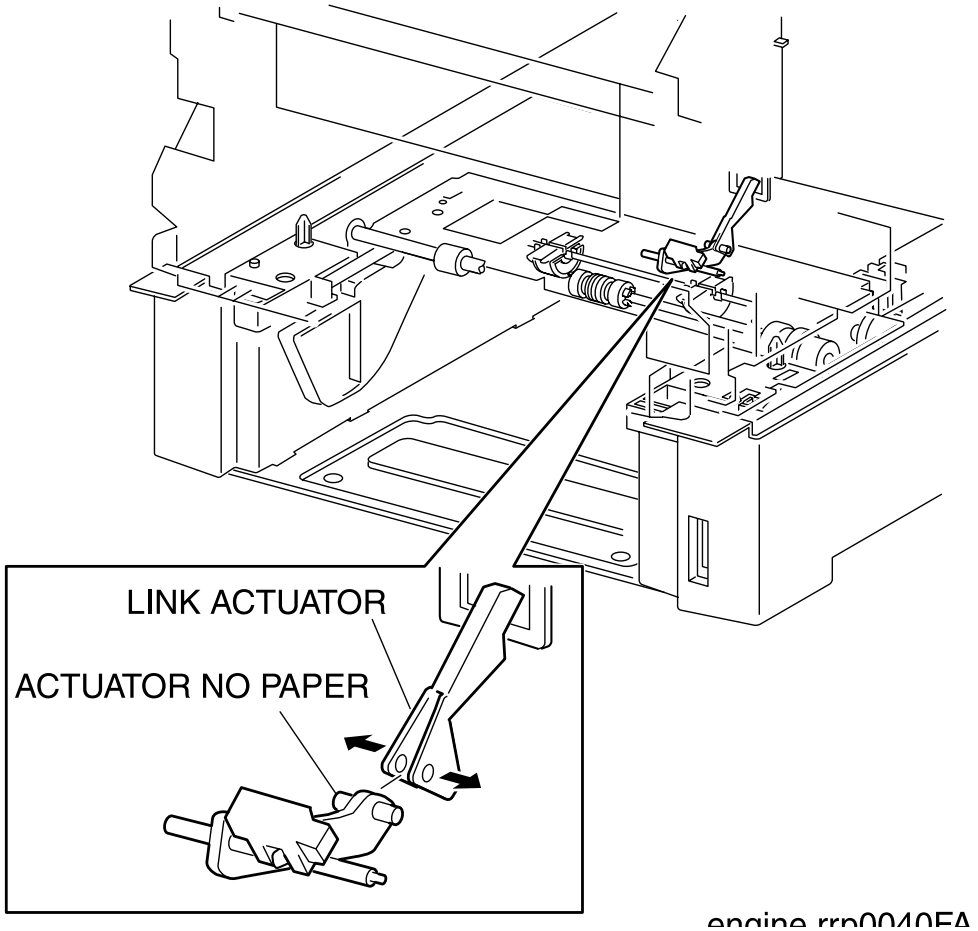


Figure: LINK ACTUATOR Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Shift the bracket of the LINK ACTUATOR from the shaft of the ACTUATOR NO PAPER (PL3.3.5) of the printer.
3) Extract the actuator of the LINK ACTUATOR from the hole on the printer and remove the LINK ACTUATOR.

Replacement

Replace the components in the reverse order of removal.

RRP3.18 SOLENOID FEED (PL3.3.16)

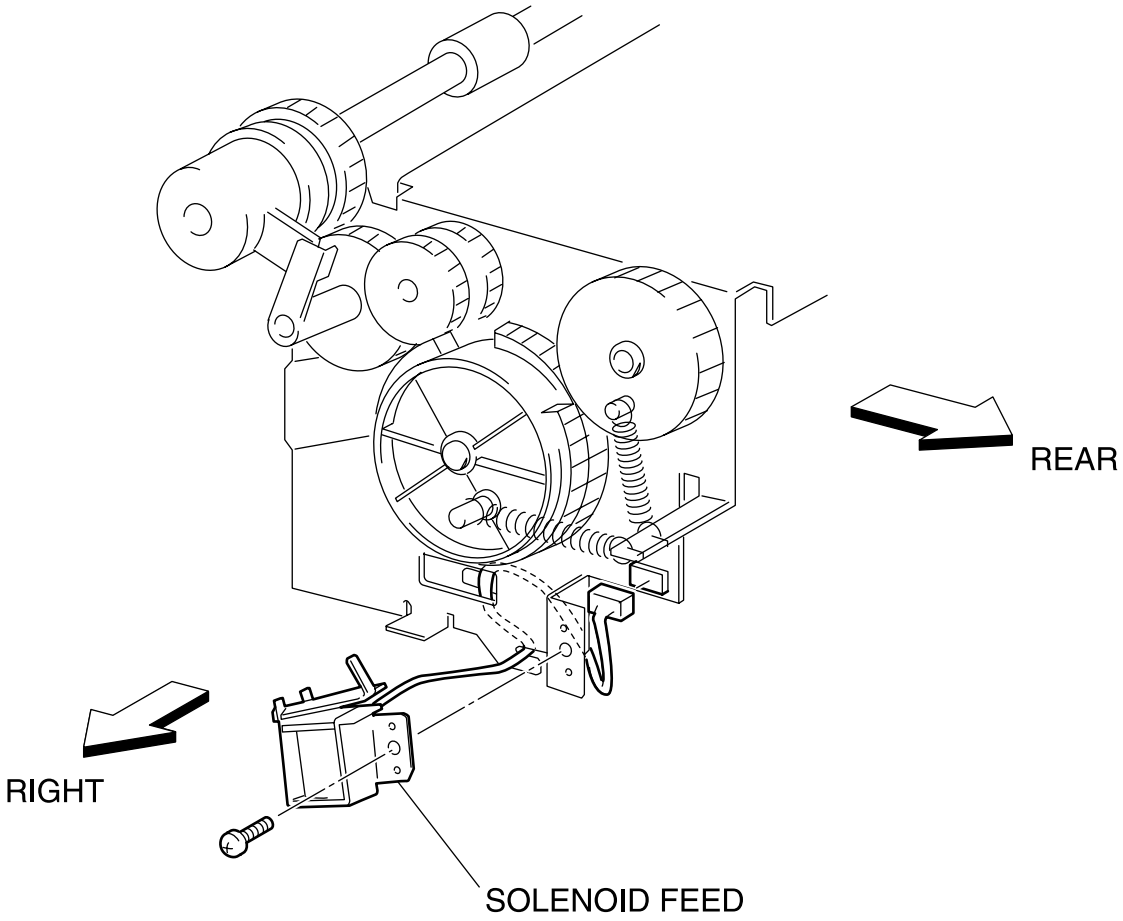


Figure: SOLENOID FEED Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the PICKUP ASSY. (RRP3.12)
10) Remove 1 screw securing the SOLENOID FEED from the PICKUP ASSY (PL3.3.1).
11) Separate the SOLENOID FEED a little from the PICKUP ASSY and shift the harness of the SOLENOID FEED.
12) Remove the connector (P/J474) of the SOLENOID FEED from the PICKUP ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP3.19 CLUTCH ASSY TURN (PL3.3.17)

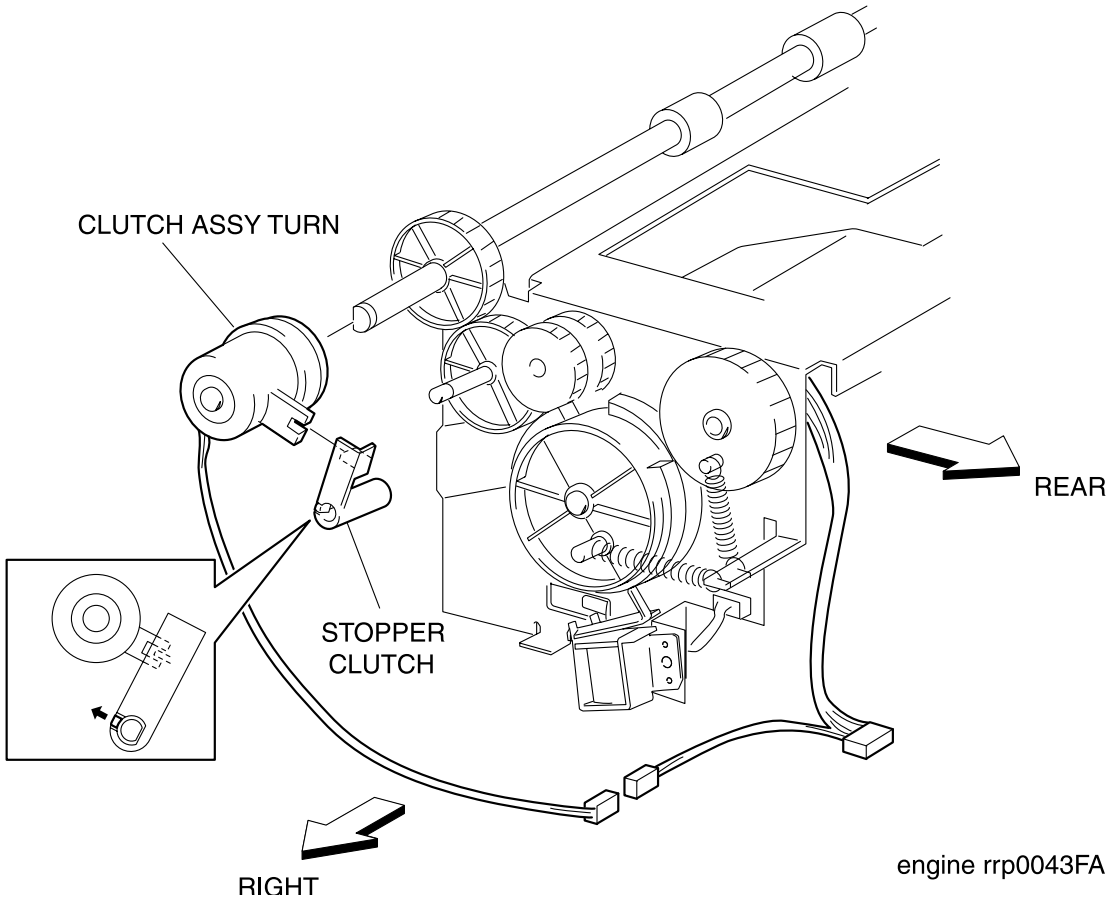


Figure: CLUTCH ASSY TURN Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the PICKUP ASSY. (RRP3.12)
10) Release the hook at 1 position securing the STOPPER CLUTCH (PL3.3.16) to the shaft on the right side shaft of the PICKUP ASSY (PL3.3.1).
11) Pull out the STOPPER CLUTCH from the shaft of PICKUP ASSY.
12) Remove the connector (P/J475) of the CLUTCH ASSY TURN from the PICKUP ASSY.
13) Pull out the CLUTCH ASSY TURN from the shaft on the right side of the PICKUP ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP3.20 ROLL ASSY TURN (PL3.3.19)

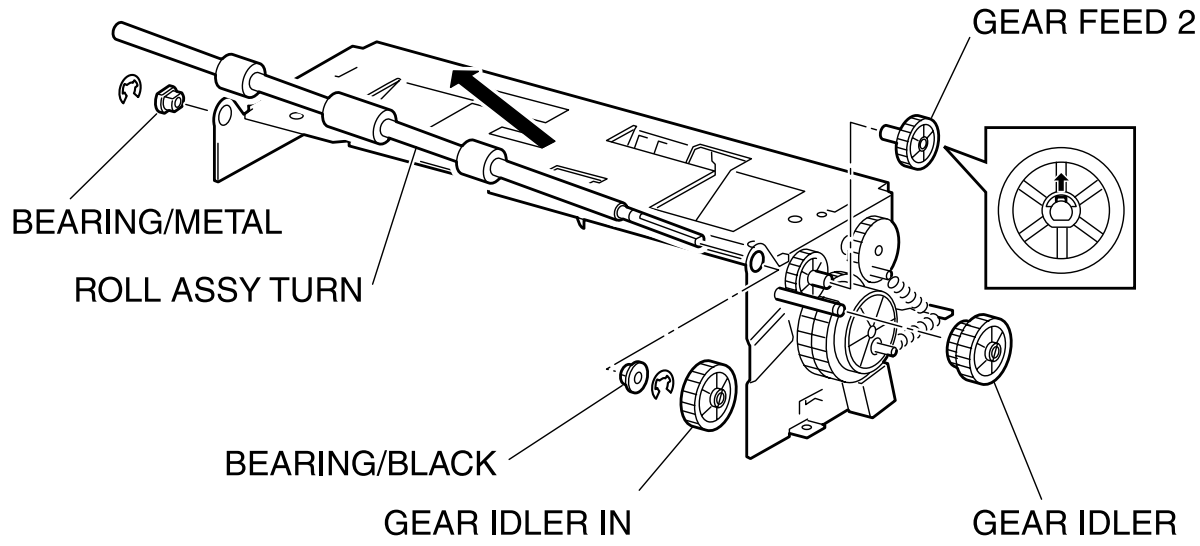


Figure: ROLL ASSY TURN Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER SIDE L. (RRP1.14)
4) Remove the COVER SIDE R. (RRP1.9)
5) Remove the CHUTE ASSY TURN. (RRP3.1)
6) Remove the LINK ACTUATOR (RRP 3.17).
7) Remove the COVER CASSETTE REAR. (RRP3.2)
8) Remove the FEEDER ASSY UNIT. (RRP3.3)
9) Remove the PICKUP ASSY. (RRP3.12)
10) Remove the CLUTCH ASSY TURN. (RRP3.19)
11) Release the hook at 1 position securing the GEAR FEED 2 (PL3.3.12) to the shaft of the PICKUP ASSY (PL3.3.1) and pull out the GEAR FEED 2.
12) Pull out the GEAR IDLER (PL3.3.15) from the shaft of PICKUP ASSY.
13) Pull out the GEAR IDLER IN (PL3.3.19) from the shaft of the PICKUP ASSY.
14) Remove the right and left E rings securing the shaft of the ROLL ASSY TURN to the PICKUP ASSY.
15) Remove the BEARING/METAL (PL3.3.7) securing the right shaft of the ROLL ASSY TURN from the PICKUP ASSY.
16) Remove the BEARING/BLACK (PL3.3.21) securing the left shaft of the ROLL ASSY TURN from the PICKUP ASSY.
17) Slide the ROLL ASSY TURN from the PICKUP ASSY rightward, pull out the left edge of the ROLL ASSY TURN from the bearing bore and then pull out the ROLL ASSY TURN left upward.

Replacement

Replace the components in the reverse order of removal.

RRP3.21 ROLL ASSY (PL3.3.22)

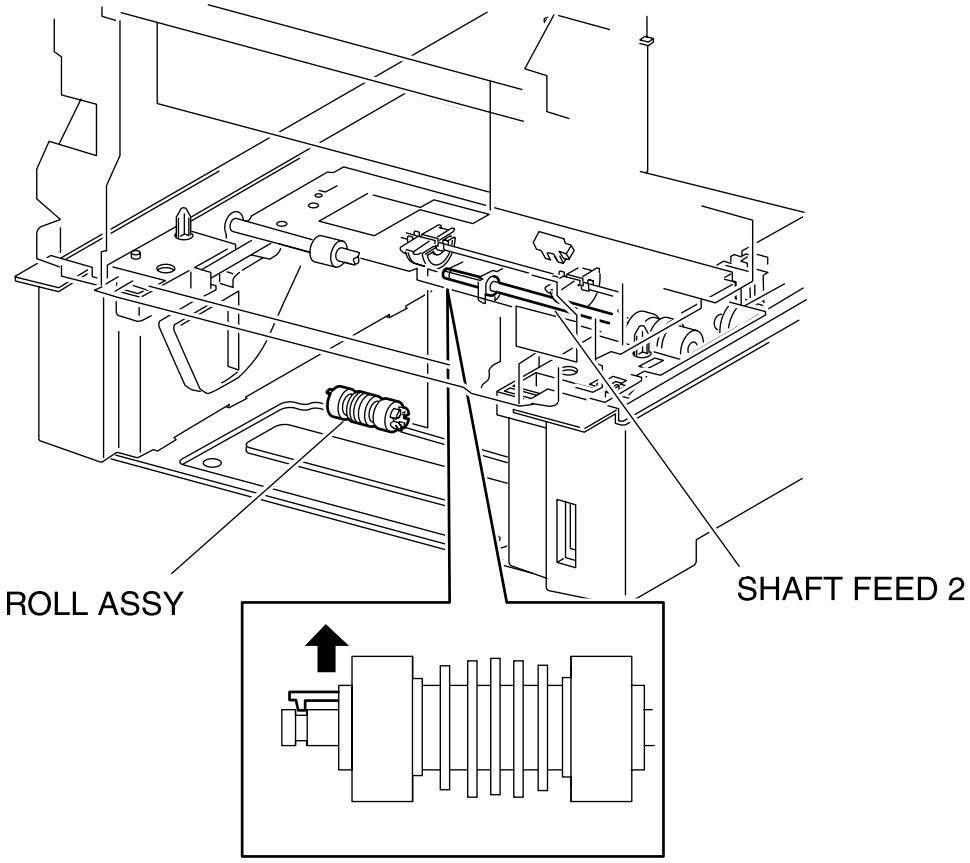


Figure: ROLL ASSY Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Release the hook at 1 position securing the ROLL ASSY to the SHAFT FEED 2 (PL3.3.22) from the FEEDER of the printer.
3) Pull out the ROLL ASSY left side from the SHAFT FEED 2.

Replacement

Replace the components in the reverse order of removal.

RRP4. HOUSING ASSY RETARD

RRP4.1 HOUSING ASSY RETARD (PL4.1.1)

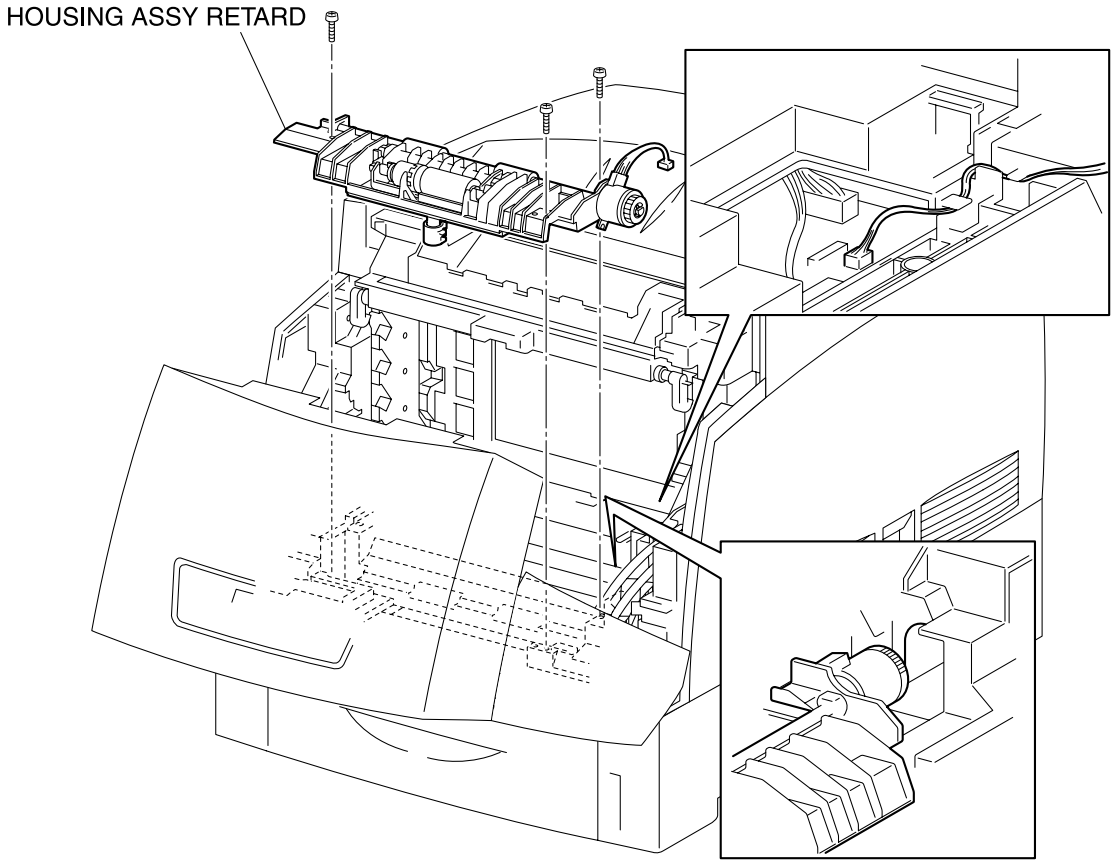


Figure: HOUSING ASSY RETARD Removal

Removal

1) Remove the CHUTE ASSY REGI. (RRP9.3)
2) Remove the connector (P/J19) of the CLUTCH TURN (PL4.1.9) from on the PWBA HB MCU (PL12.1.1) of the printer.
3) Release LINK: L and LINK: R from their leaf springs and slowly open the front cover to gain access to the HOUSING ASSY RETARD.
4) Remove 3 screws securing the HOUSING ASSY RETARD to the printer.
5) Remove the HOUSING ASSY RETARD from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP4.2 ROLL TURN (PL4.1.2)

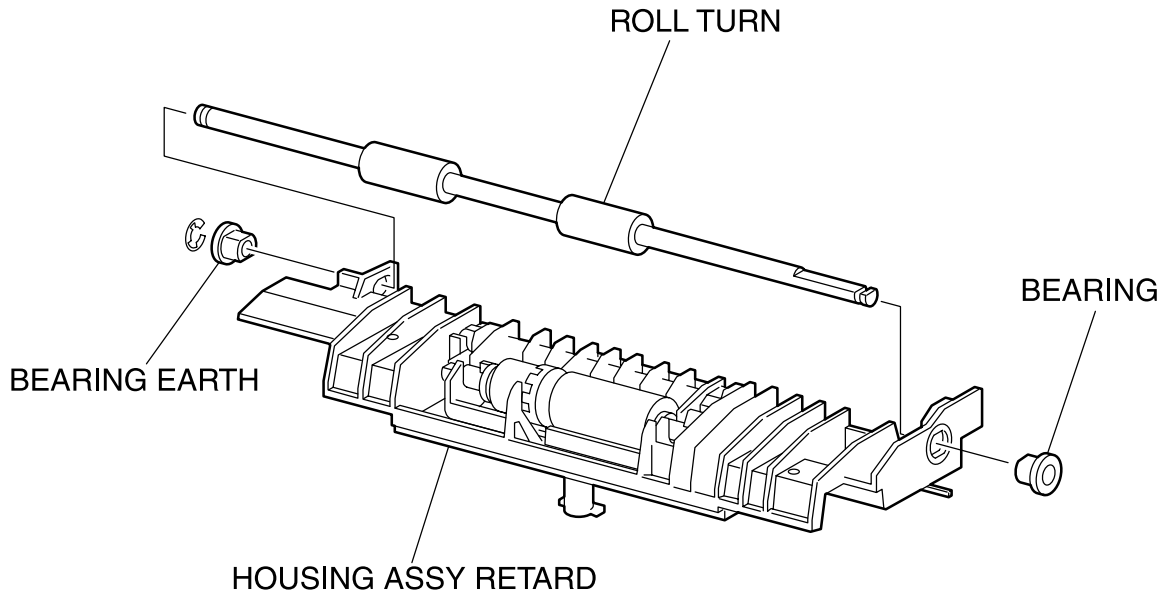


Figure: ROLL TURN Removal

Removal

1) Remove the CHUTE ASSY REGI. (RRP9.3)
2) Remove the HOUSING ASSY RETARD. (RRP4.1)
3) Remove the CLUTCH TURN. (RRP4.4)
4) Remove the left side of E-ring securing the ROLL TURN to the HOUSING ASSY RETARD (PL4.1.1).
5) Pull out the BEARING EARTH (PL4.1.13) securing left side of bearing of the ROLL TURN from the HOUSING ASSY RETARD.
6) Pull out the BEARING (PL4.1.8) securing the right side of bearing of the ROLL TURN from the HOUSING ASSY RETARD.
7) Slide the ROLL TURN from the HOUSING ASSY RETARD rightward, pull out the left side of bearing of the ROLL TURN from the bearing bore and pull out the ROLL TURN left upward.

Replacement

Replace the components in the reverse order of removal.

RRP4.3 ROLL ASSY RETARD (PL4.1.5)

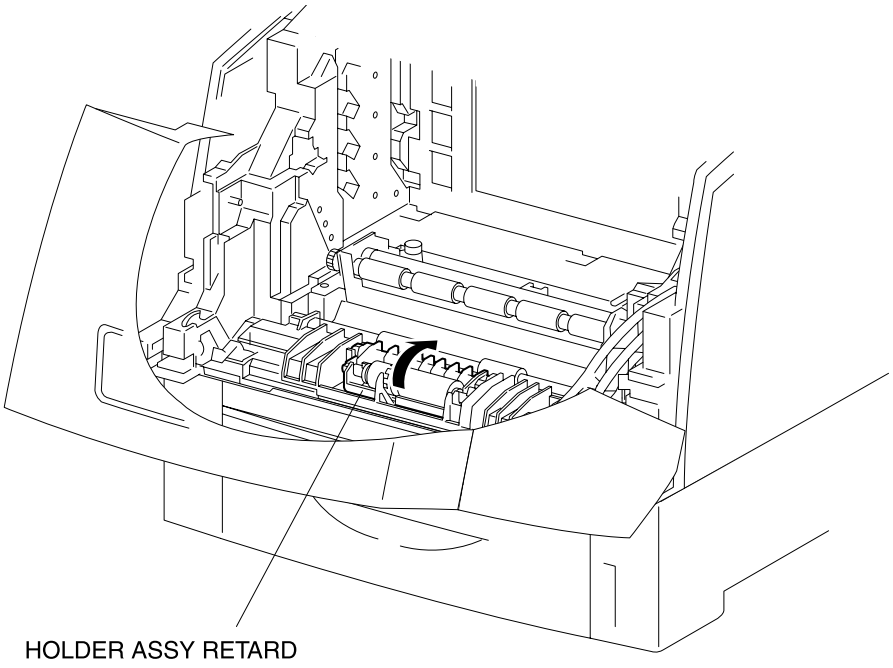


Figure: ROLL ASSY RETARD Removal (1)

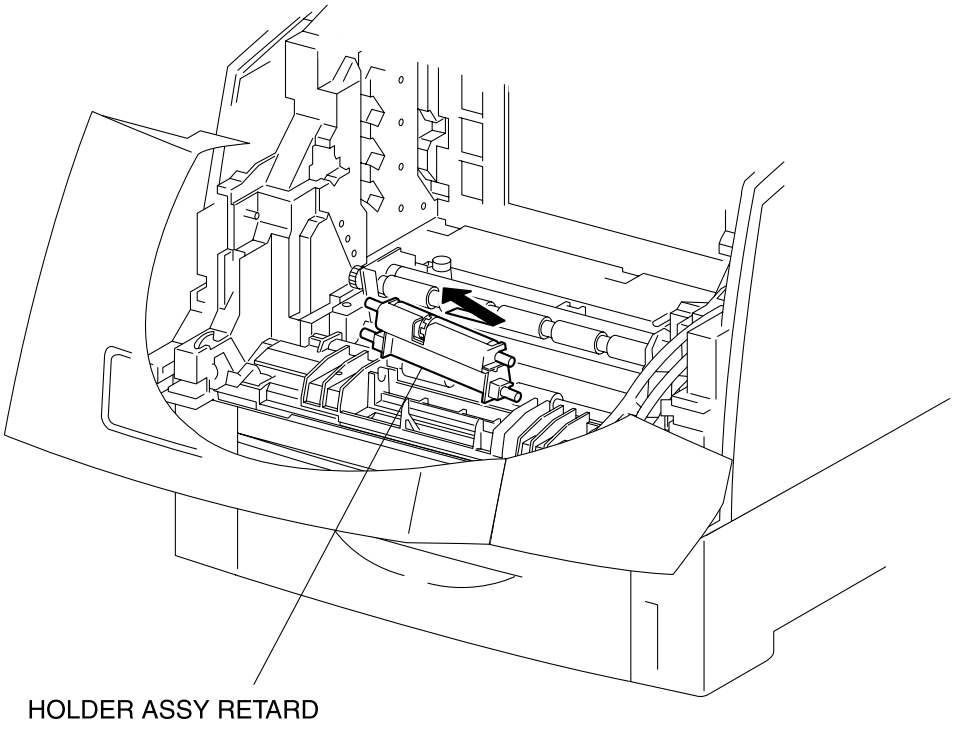


Figure: ROLL ASSY RETARD Removal (2)

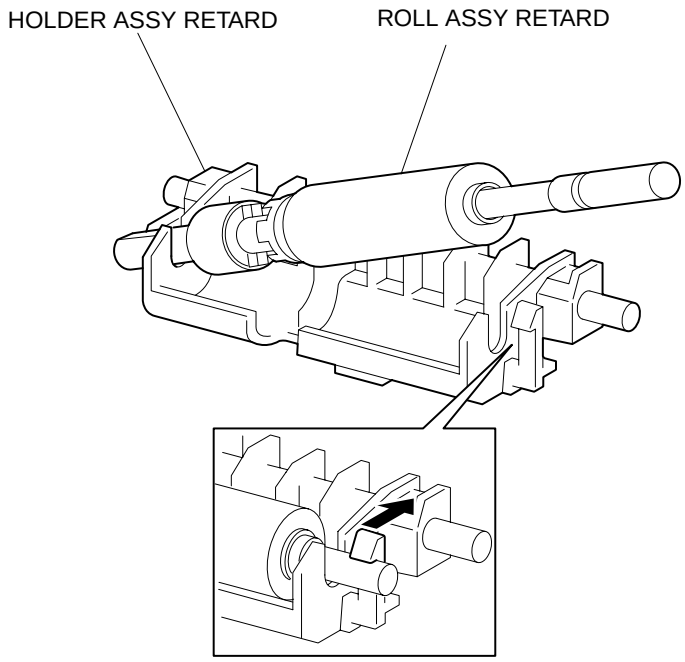


Figure: ROLL ASSY RETARD Removal (3)

Removal

1) Release the latch at A from the printer and open the FRONT ASSY IN (PL5.1.1).
2) Push back the rear edge of the HOLDER ASSY RETARD from the HOUSING ASSY RETARD (PL4.1.1) of the printer, and turn the HOLDER ASSY RETARD to the rear.
3) Sliding the HOLDER ASSY RETARD rightward, pull the left shaft of HOLDER ASSY RETARD out of the bearing bore in the HOUSING ASSY RETARD.
4) Pull out the HOLDER ASSY RETARD to left upward from the HOUSING ASSY RETARD.
5) Release the hook at 1 position securing the SHAFT RTD (PL4.1.3) to the HOLDER ASSY RETARD of the printer.
6) Raise the SHAFT RTD to right upward, and pull out the ROLL ASSY RETARD.

Replacement

Replace the components in the reverse order of removal.

RRP4.4 CLUTCH TURN (PL4.1.9)

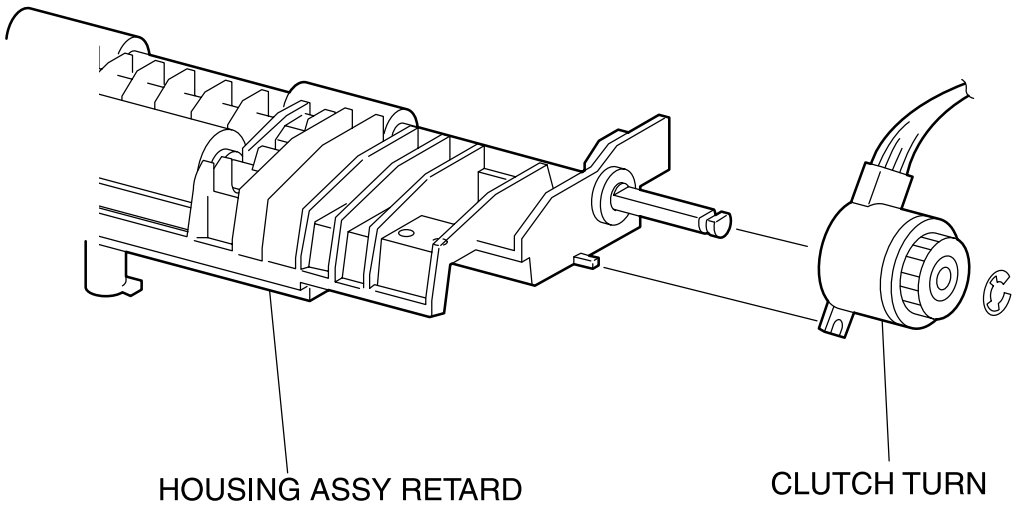


Figure: CLUTCH TURN Removal

Removal

1) Remove the CHUTE ASSY REGI. (RRP9.3)
2) Remove the HOUSING ASSY RETARD. (RRP4.1)
3) Remove the E-ring securing the CLUTCH TURN to the shaft of the HOUSING ASSY RETARD (PL4.1.1).
4) Remove the CLUTCH TURN from the shaft of the HOUSING ASSY RETARD.

Replacement

Replace the components in the reverse order of removal.

RRP4.5 STUD RTD (PL4.1.10)

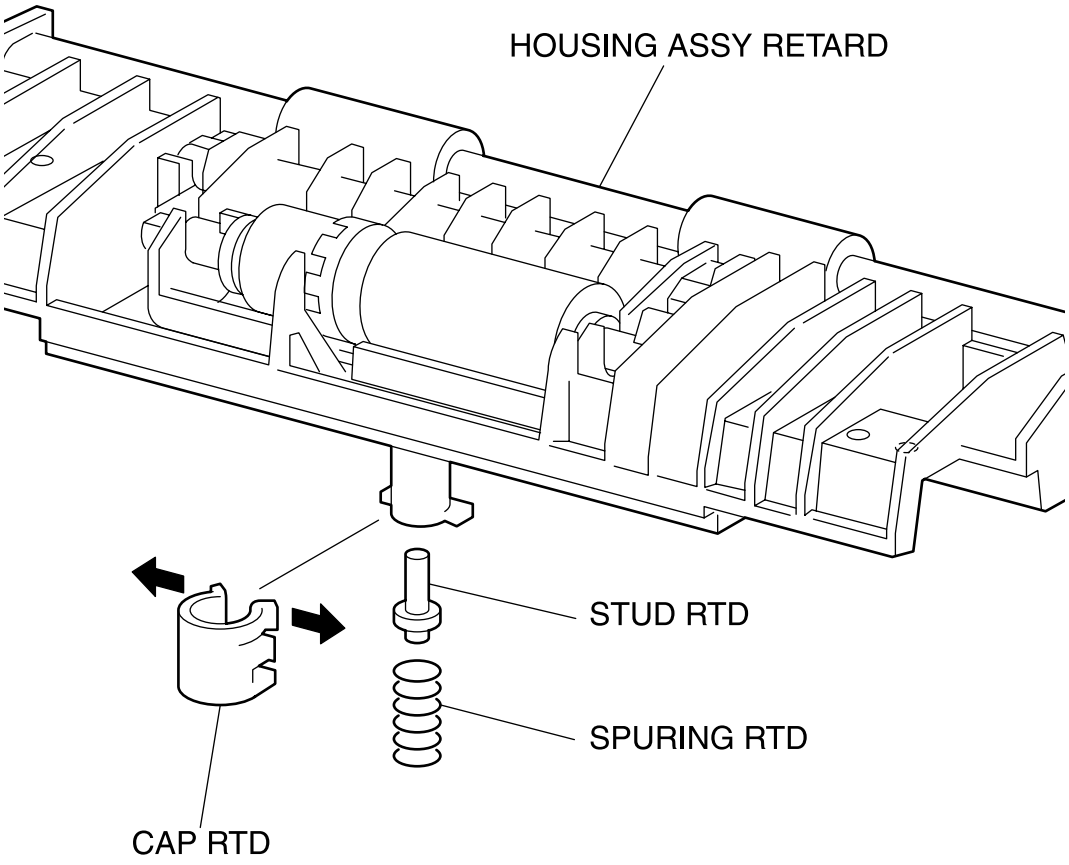


Figure: STUD RTD Removal

Removal

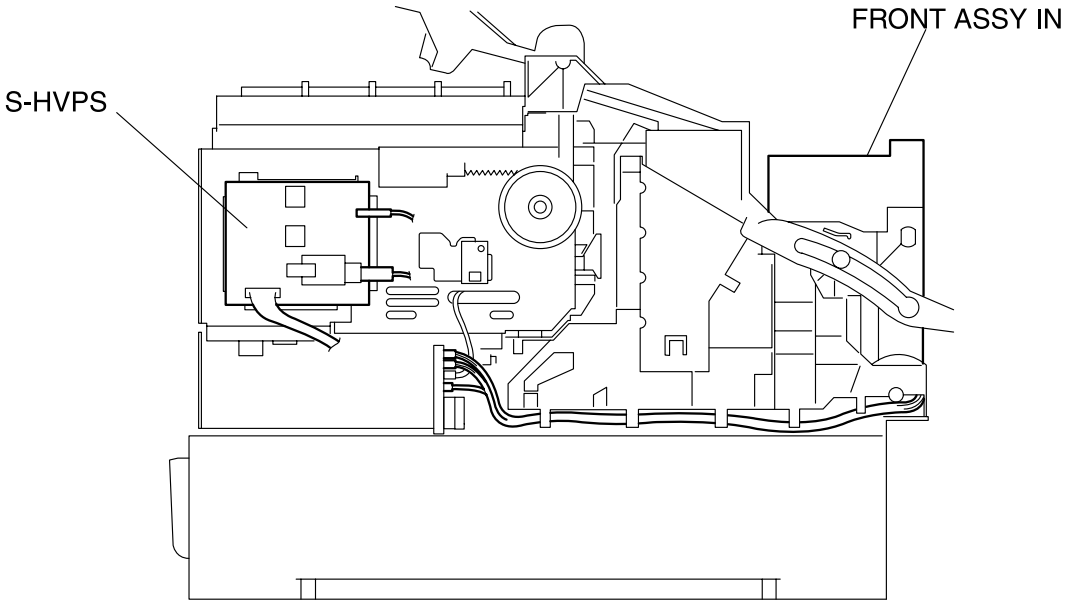
1) Remove the CHUTE ASSY REGI. (RRP9.3)
2) Remove the HOUSING ASSY RETARD. (RRP4.1)
3) Release the hooks at 2 positions securing the CAP RTD (PL4.1.12) to the convex portion at the lower part of the HOUSING ASSY RETARD (PL4.1.1).
4) Remove the CAP RTD from the HOUSING ASSY RETARD together with the STUD RTD and SPRING RTD 370 (PL4.1.11).
5) Remove the STUD RTD from the CAP RTD.

Replacement

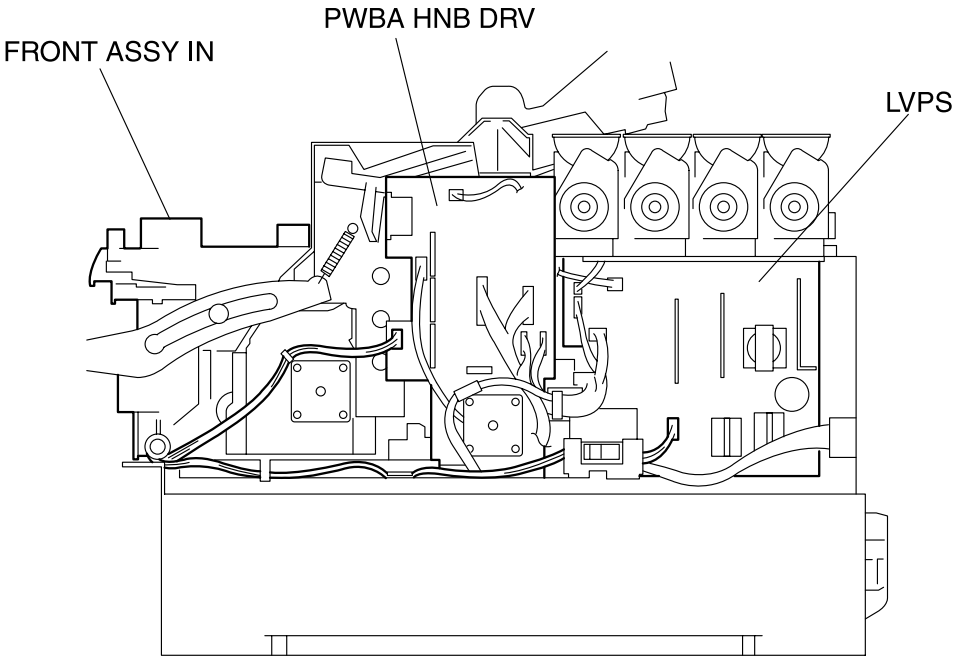
Replace the components in the reverse order of removal.

RRP5. FRONT ASSY IN

RRP5.1 FRONT ASSY IN (PL5.1.1)



LEFT SIDE VIEW



RIGHT SIDE VIEW

Figure: FRONT ASSY IN Removal (1)

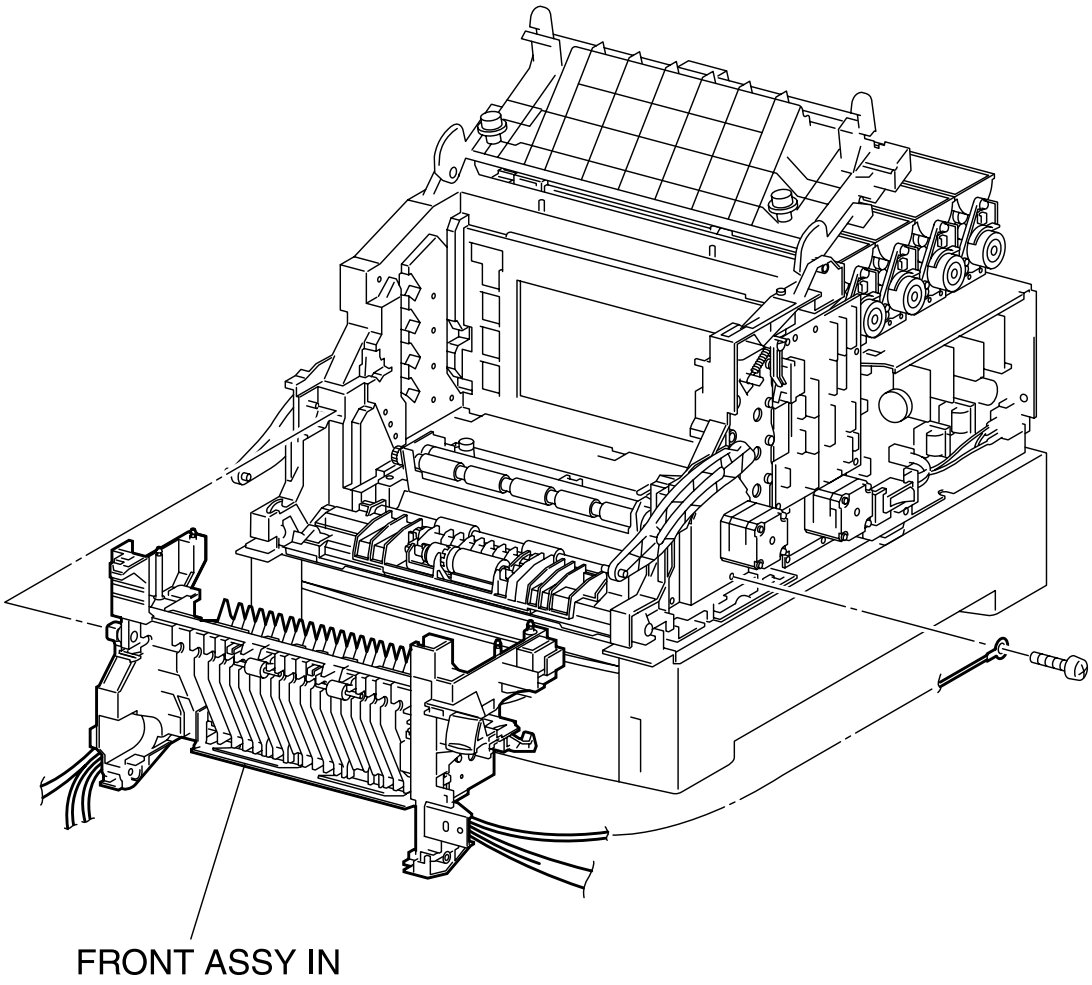


Figure: FRONT ASSY IN Removal (2)

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the CHUTE ASSY OUT. (RRP6.1)

NOTE

In the following steps, lock the FRONT ASSY IN to the printer with the latch at A to prevent the FRONT ASSY IN from drop off.

12) Remove the connector (P/J5030) and connector (P/J5020) on the S-HVPS (PL10.1.17) from the left side of the printer.
13) Remove the connector (P/J141), connector (P/J1361), and connector (P/J138) from the connector bracket on the left side of the printer.
14) Shift the harness of the connectors removed above from the bottom portion of the HSG ASSY BIAS (PL9.1.4) on the left side of the printer.
15) Remove the connector (P/J52) on the PWBA HNB DRV (PL12.1.12) on the right side of the printer.
16) Remove the connector (P/J162) on the LVPS STD (PL12.1.10) on the right side of the printer.
17) Remove 1 screw securing the WIRE ASSY FSR EARTH (PL5.1.20) on the right side of the printer.
18) Release the harness (P/J52) of the FUSER DRIVE ASSY (PL5.1.18) from the clamp on the MAIN DRIVE ASSY (PL11.1.14).
19) Shift the harness (P/J162) of the HARNESS ASSY FSR 2 (PL5.1.9) from the hook of the housing on the right side of the printer.
20) Release the latch at A from the printer, and pull out the FRONT ASSY IN frontward and remove.

Replacement

Replace the components in the reverse order of removal.

RRP5.2 SENSOR ADC ASSY (PL5.1.11)

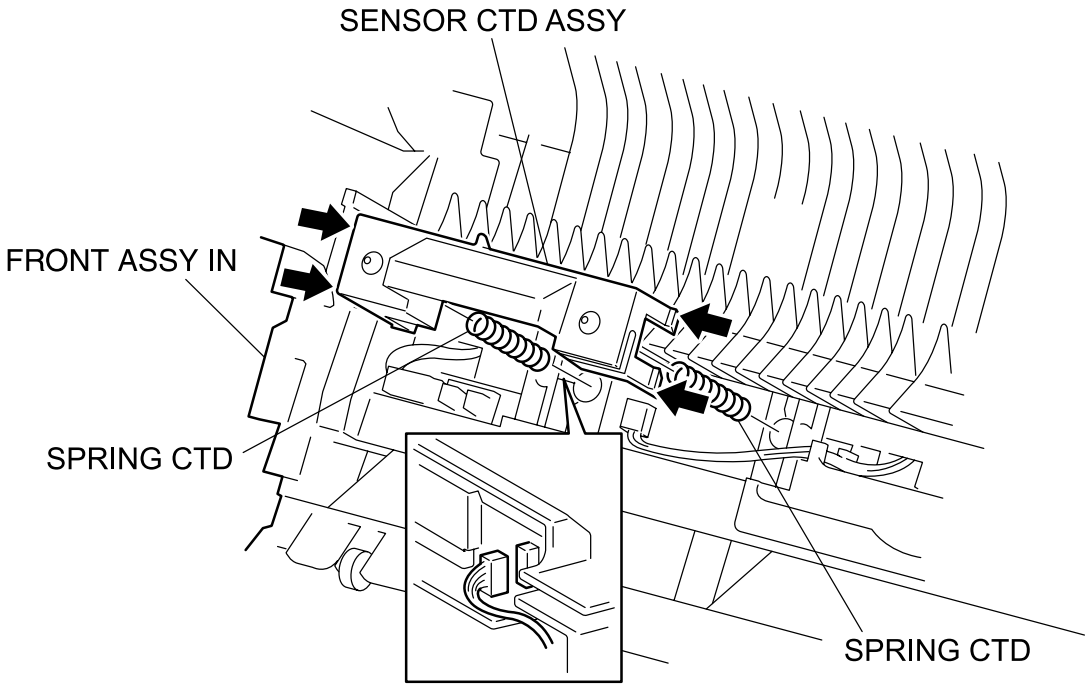


Figure: SENSOR ADC ASSY Removal

Removal

1) Release the latch at A from the printer and open the FRONT ASSY IN (PL5.1.1).
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Release the hooks at 4 positions securing the SENSOR ADC ASSY to the FRONT ASSY IN of the printer.
4) Raise the SENSOR ADC ASSY slightly from the FRONT ASSY IN and pull out the connector (P/J136).
5) Remove the SENSOR ADC ASSY from the FRONT ASSY IN together with the SPRING ADC (PL5.1.12).
6) Remove the SPRING ADC from the SENSOR ADC ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP5.3 SENSOR TNR FULL (PL5.1.13)

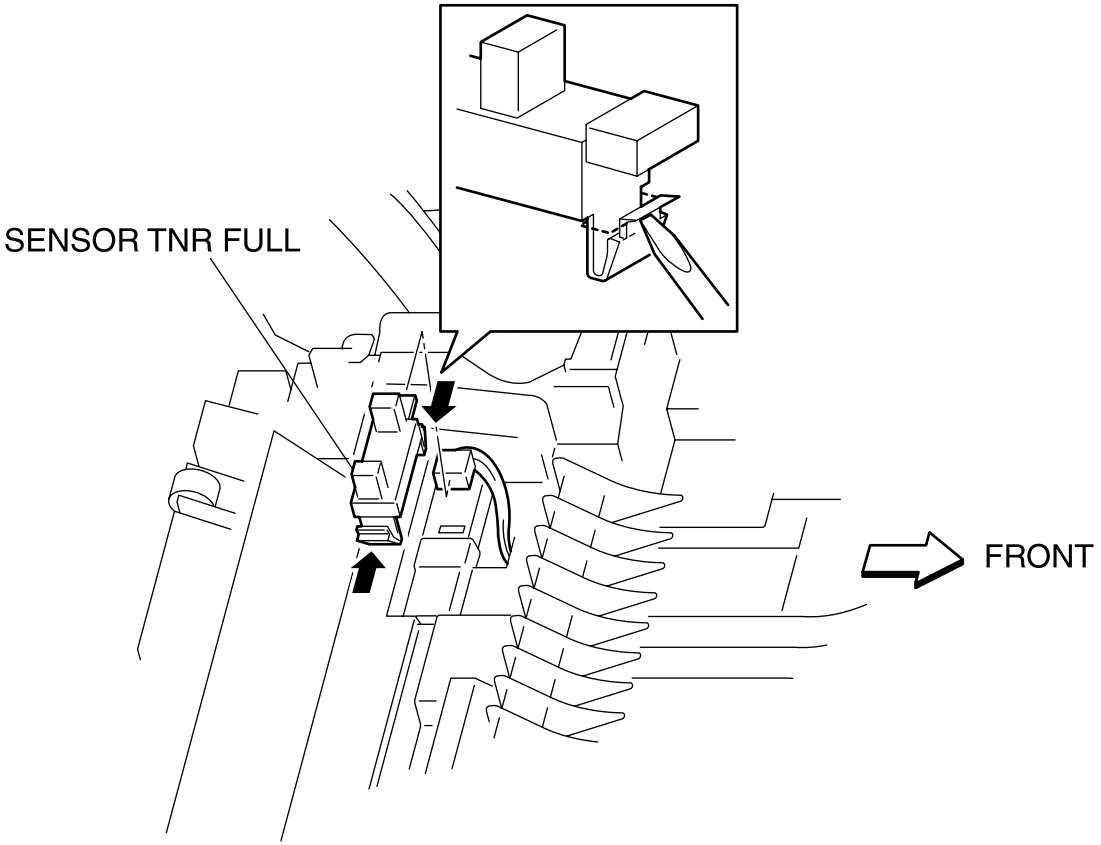


Figure: SENSOR TNR FULL Removal

Removal

1) Release the latch at A from the printer and open the FRONT ASSY IN (PL5.1.1).
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the connector (P/J142) on the SENSOR TNR FULL from the FRONT ASSY IN of the printer.
4) Release the hooks at 2 positions securing the SENSOR TNR FULL to the FRONT ASSY IN with a mini screwdriver or the like.
5) Remove the SENSOR TNR FULL from the FRONT ASSY IN.

Replacement

Replace the components in the reverse order of removal.

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RRP5.4 FUSER DRIVE ASSY (PL5.1.18)

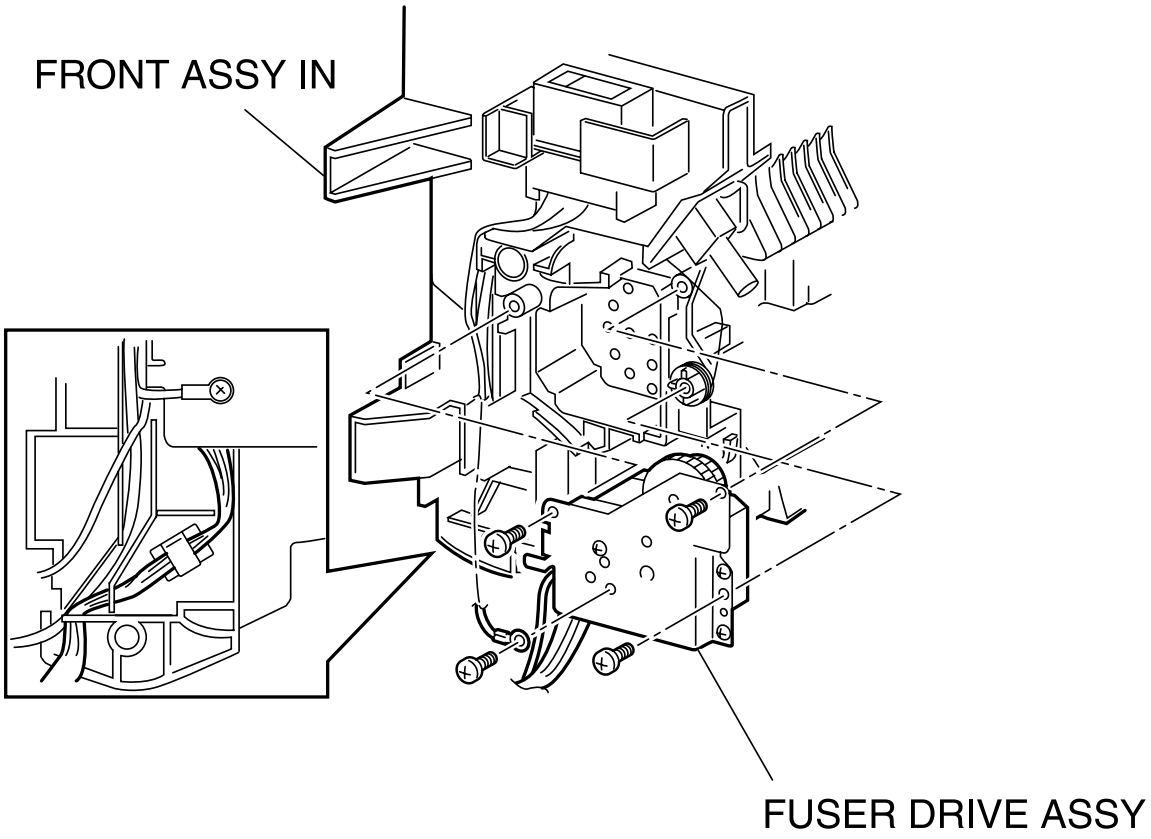


Figure: FUSER DRIVE ASSY Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the CHUTE ASSY EXIT. (RRP7.1)
9) Remove the COVER ASSY FRONT IN. (RRP1.10)
10) Remove the COVER SIDE L. (RRP1.14)
11) Remove the COVER SIDE R. (RRP1.9)
12) Remove the CHUTE ASSY OUT. (RRP6.1)
13) Remove the FRONT ASSY IN. (RRP5.1)
14) Remove the LATCH R. (RRP5.5)
15) Remove a screw securing the earth (P/J233) of the HARNESS ASSY FSR (PL4.1.9) to the FUSER DRIVE ASSY of the FRONT ASSY IN (PL5.1.1).
16) Remove a screw securing the edge (P/J235) of the WIRE ASSY FSR EARTH (PL5.1.20) to the MAIN DRIVE ASSY (PL11.1.14).
17) Shift the harness (P/J52) and earth (P/J235) of the FUSER DRIVE ASSY from the hook and housing, secured to the FRONT ASSY IN (PL5.1.1).
18) Remove 3 screws securing the FUSER DRIVE ASSY to the FRONT ASSY IN.
19) Remove the FUSER DRIVE ASSY from the FRONT ASSY IN.

Replacement

Replace the components in the reverse order of removal.

RRP5.5 LATCH R (PL5.1.21)

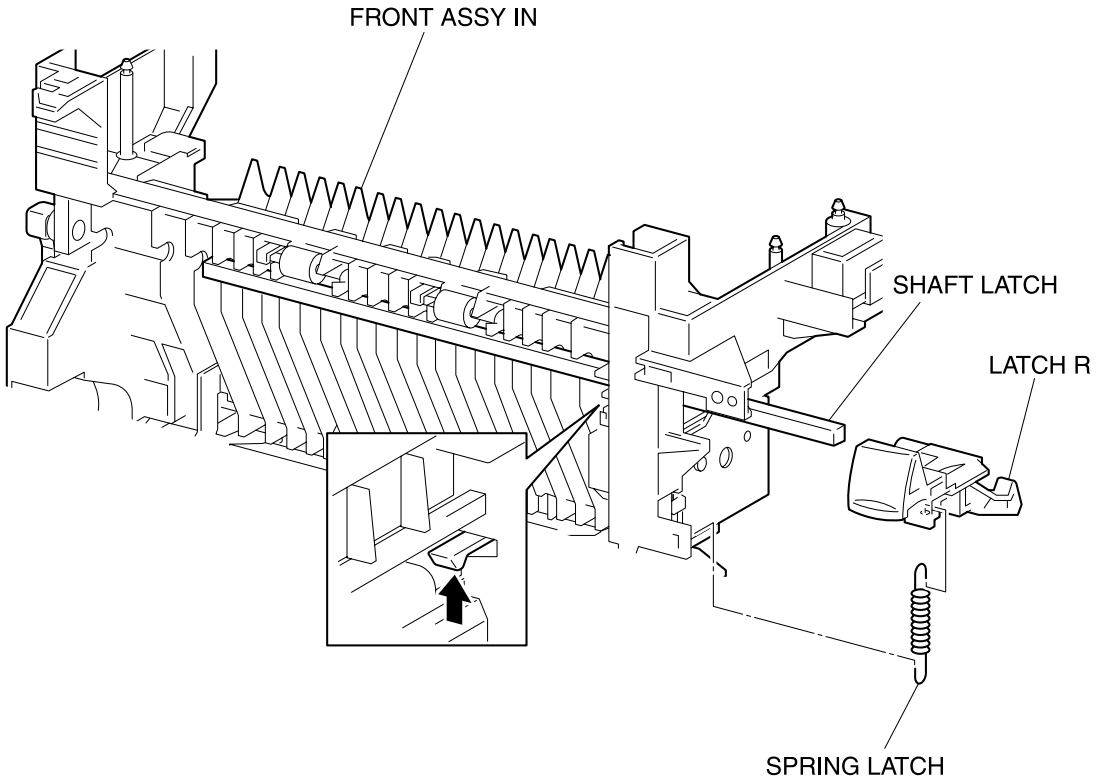


Figure: LATCH R Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Release the latch at A from the printer and open the FRONT ASSY IN (PL5.1.1.1).
4) Release the hook at the lower part of the SPRING LATCH (PL5.1.22) securing it to the hole on the right side of the FRONT ASSY IN.
5) Release the hook at 1 position securing the LATCH R (PL5.1.1) to the FRONT ASSY IN.
6) Pull out the LATCH R from the FRONT ASSY IN together with the SHAFT LATCH (PL5.1.23) and the SPRING LATCH.
7) Remove the SPRING LATCH from the LATCH R.
8) Pull out the SHAFT LATCH from the LATCH R.

Replacement

Replace the components in the reverse order of removal.

RRP5.6 LATCH L (PL5.1.30)

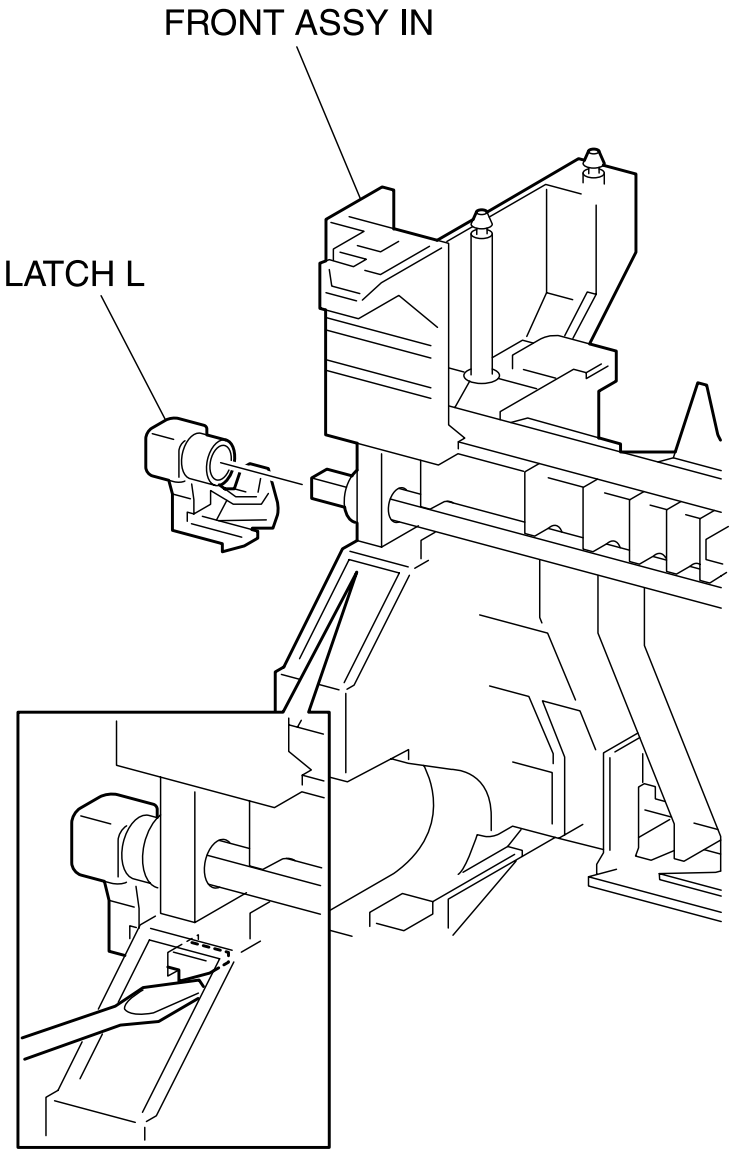


Figure: LATCH L Removal

Removal

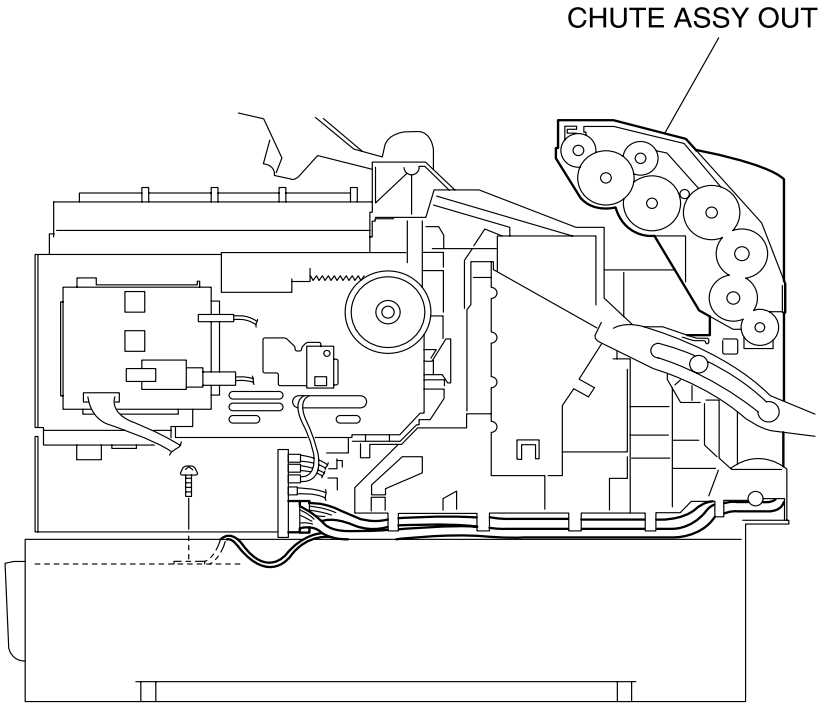
1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Release the latch at A from the printer and open the FRONT ASSY IN (PL5.1.1).
4) Release the hook at 1 position securing the LATCH L to the left side of the FRONT ASSY IN.
5) Remove the LATCH L from the FRONT ASSY IN.

Replacement

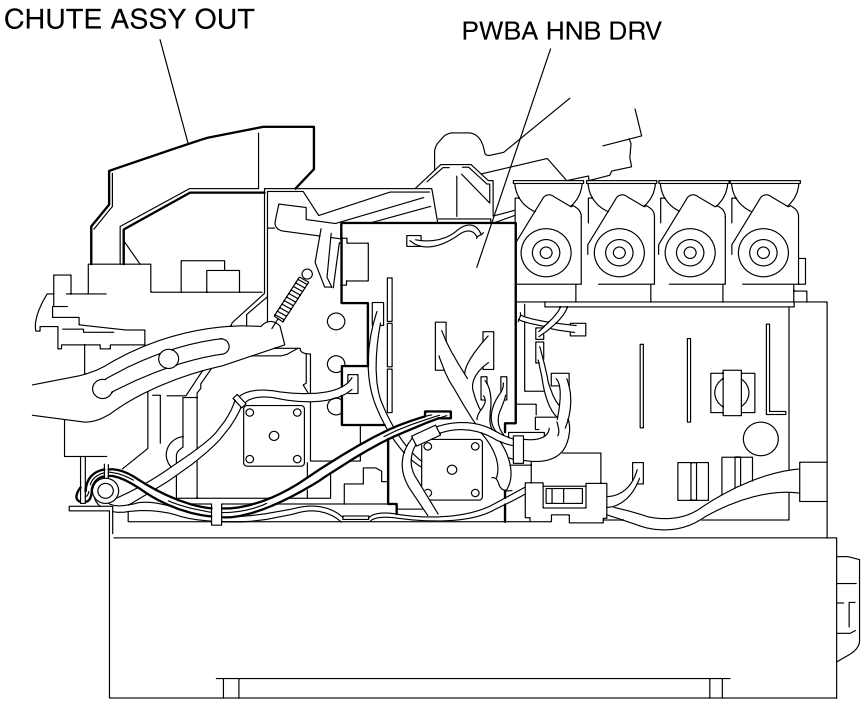
Replace the components in the reverse order of removal.

RRP6. CHUTE ASSY OUT

RRP6.1 CHUTE ASSY OUT (PL6.1.1)

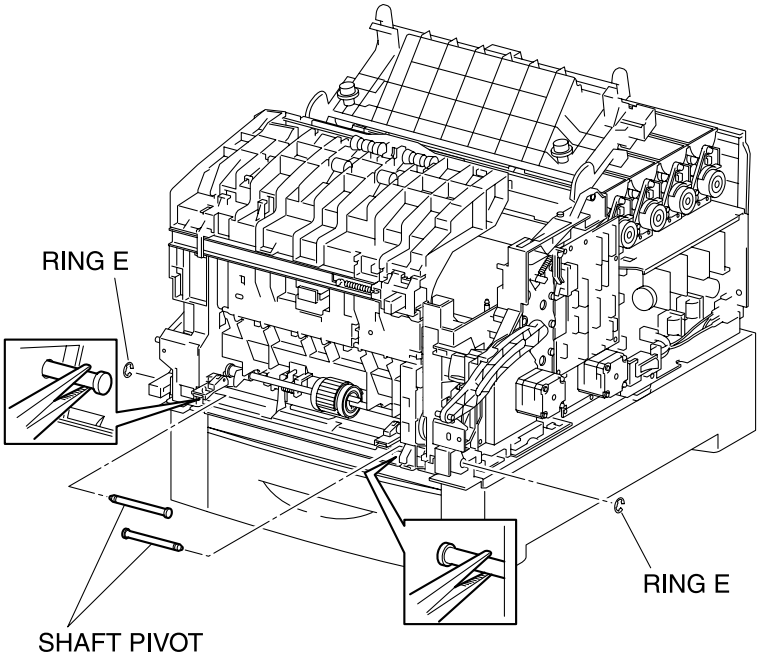


LEFT SIDE VIEW



RIGHT SIDE VIEW

Figure: CHUTE ASSY OUT Removal (1)



engine rrp0059FA

Figure: CHUTE ASSY OUT Removal (2)

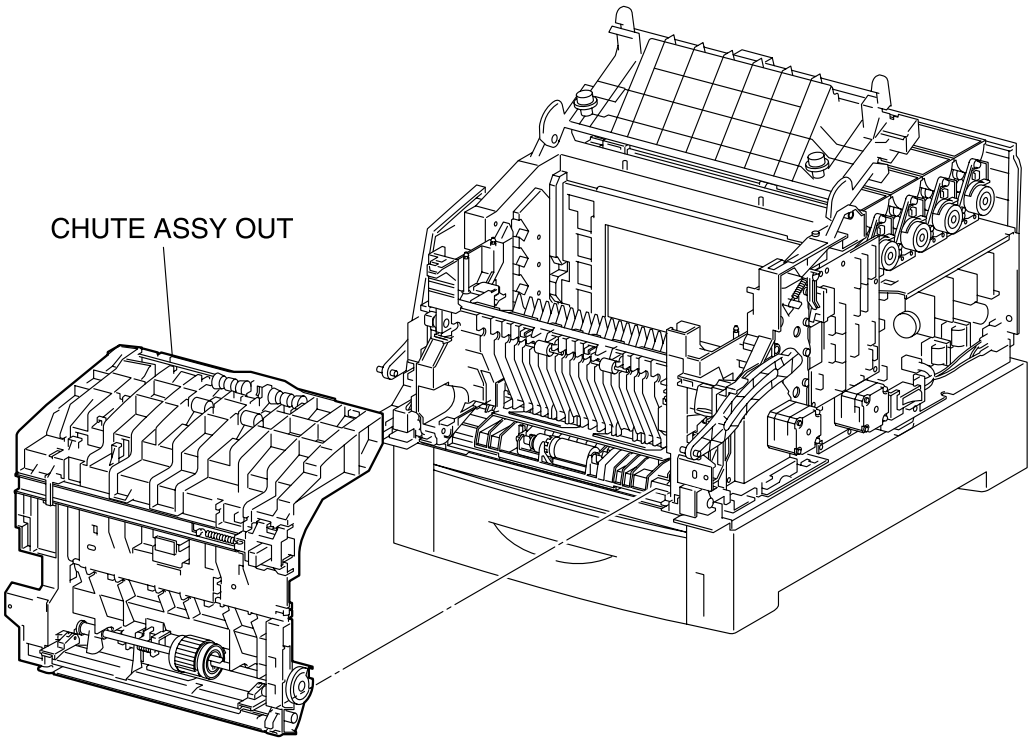


Figure: CHUTE ASSY OUT Removal (3)

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
4) Remove the COVER MSI. (RRP1.11)
5) Remove the TRAY ASSY MSI. (RRP1.12)
6) Remove the COVER ASSY FRONT. (RRP1.13)
7) Remove the COVER ASSY FRONT IN. (RRP1.10)
8) Remove the CHUTE ASSY EXIT. (RRP7.1)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the STRAP. (RRP8.6)

NOTE

In the following step, lock the CHUTE ASSY OUT and FRONT ASSY IN (PL5.1.1) to the printer with the latches at A and B for drop off.

12) Remove the connector (P/J221) from the connector bracket on the left side surface of the printer.
13) Remove the connector (P/J139) from the connector bracket on the left side surface of the printer.
14) Shift the harness of the connector removed above from the bottom portion of the HSG ASSY BIAS (PL9.1.4) on the left side surface of the printer.
15) Remove the connector (P/J50) on the PWBA HNB DRV (PL12.1.12) on the right side surface of the printer.
16) Shift the harness (P/J50) of the HARNESS ASSY DUP (PL6.1.23) from the right side surface of the printer.
17) Remove the RING E (PL8.1.14) on the right and left SHAFT PIVOT (PL8.1.1) securing the bottom portion of the CHUTE ASSY OUT from the printer.

CAUTION

In the following steps, take care not to hurt your hand with burrs of the PLATE ASSY BOTTOM MSI (PL6.1.42).

18) Pull out the left SHAFT PIVOT from the CHUTE ASSY OUT inward with radio pliers.
19) Pull out the right SHAFT PIVOT from the CHUTE ASSY OUT inward with radio pliers.
20) Release the latch at B from the printer and pull out the CHUTE ASSY OUT frontward and remove.

Replacement

Replace the components in the reverse order of removal.

RRP6.2 SENSOR PHOTO:FULL STACK (PL6.1.4)

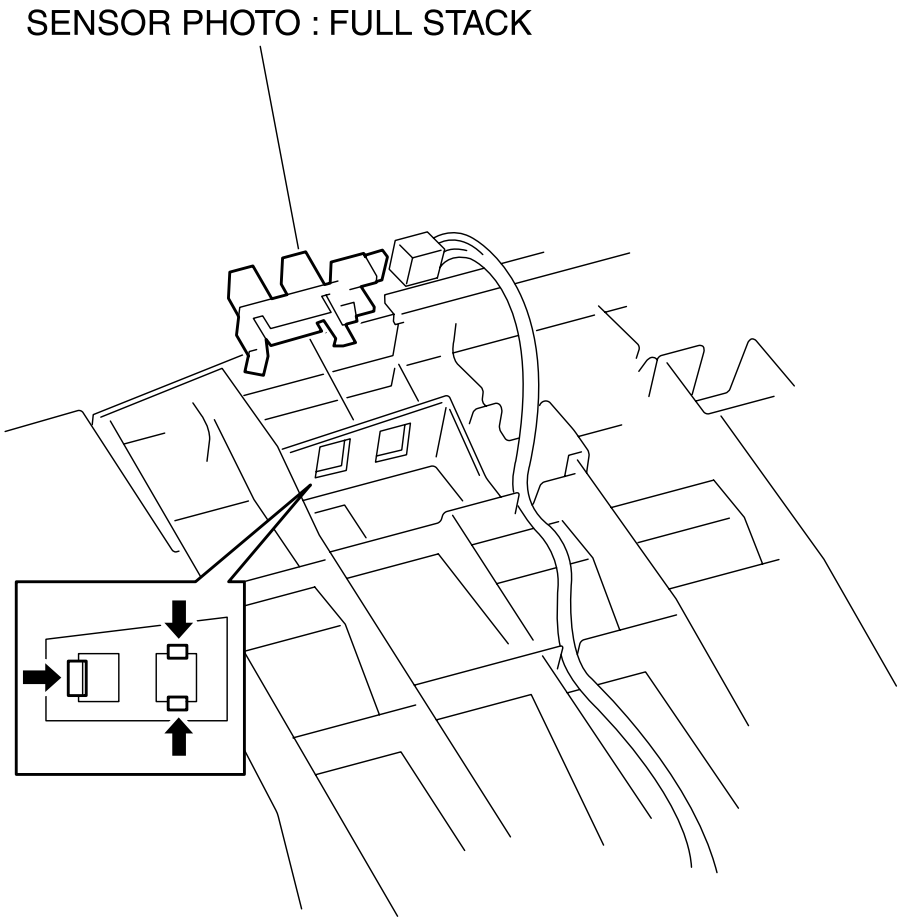


Figure: SENSOR PHOTO:FULL STACK Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the ACTUATOR FULL. (RRP6.3)
3) Release the hooks at 3 positions securing the SENSOR PHOTO: FULL STACK to the CHUTE ASSY OUT.
4) Remove the connector (P/J134) on the SENSOR PHOTO: FULL STACK from top portion of the CHUTE ASSY OUT (PL6.1.1) of the printer.
5) Remove the SENSOR PHOTO:FULL STACK from the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

RRP6.3 ACTUATOR FULL (PL6.1.5)

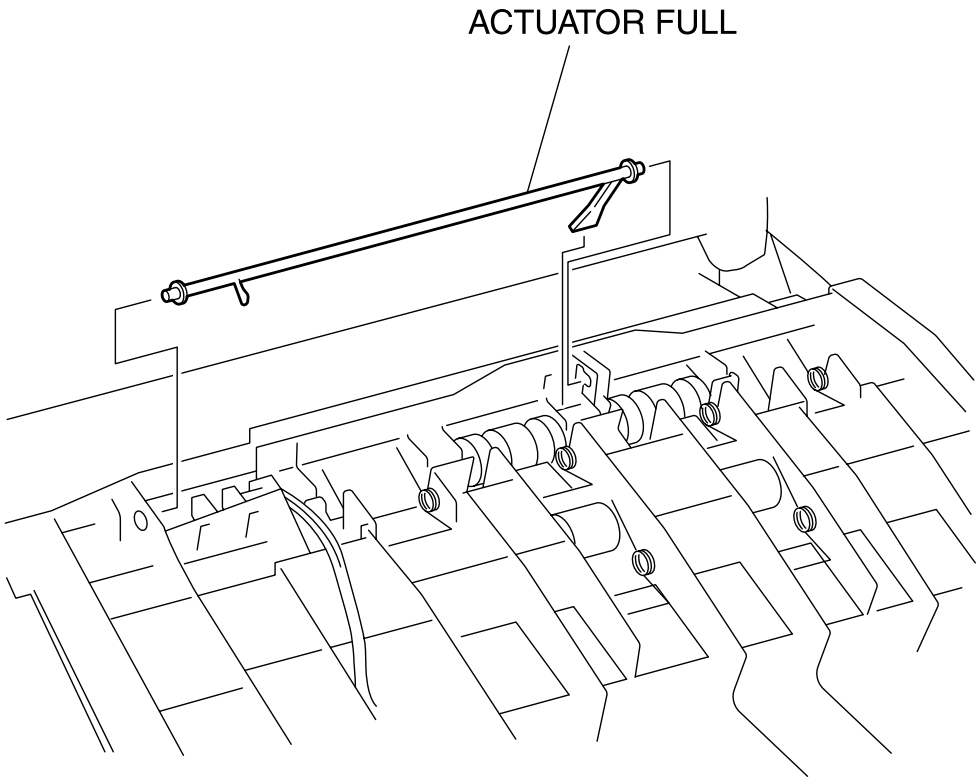


Figure: ACTUAOTR FULL Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Deflect the shaft of the ACTUATOR FULL from top portion the CHUTE ASSY OUT (PL6.1.1) of the printer and extract the shaft of the ACTUATOR FULL from the bearing bore on the left side of the CHUTE ASSY OUT.
3) Shift the actuator of the ACTUATOR FULL from the hole at the center of the CHUTE ASSY OUT and pull up the ACTUATOR FULL from the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

RRP6.4 SENSOR PHOTO:DUP (PL6.1.4)

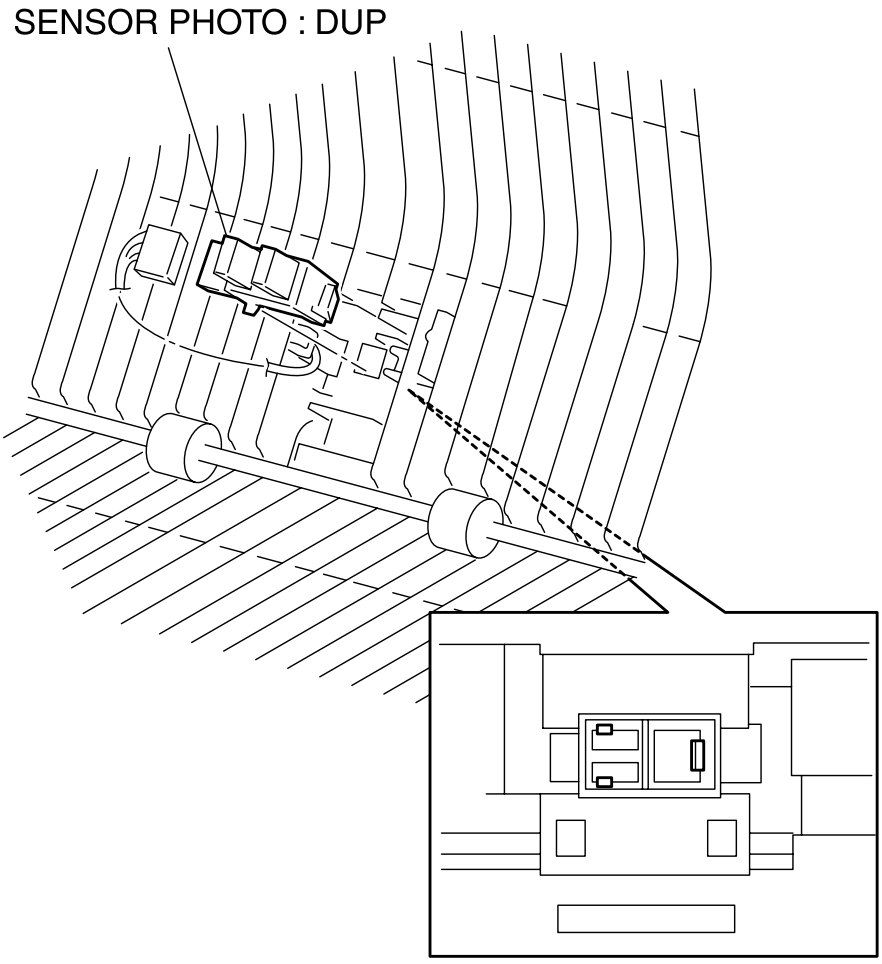


Figure: SENSOR PHOTO:DUP Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the ACTUATOR DUP. (RRP6.8)
6) Release the hooks at 3 positions securing the SENSOR PHOTO:DUP to the CHUTE ASSY OUT (PL6.1.1)
7) Remove the SENSOR PHOTO:DUP from the CHUTE ASSY OUT and remove the connector (P/J133)

Replacement

Replace the components in the reverse order of removal.

RRP6.5 SENSOR PHOTO:MSI (PL6.1.4)

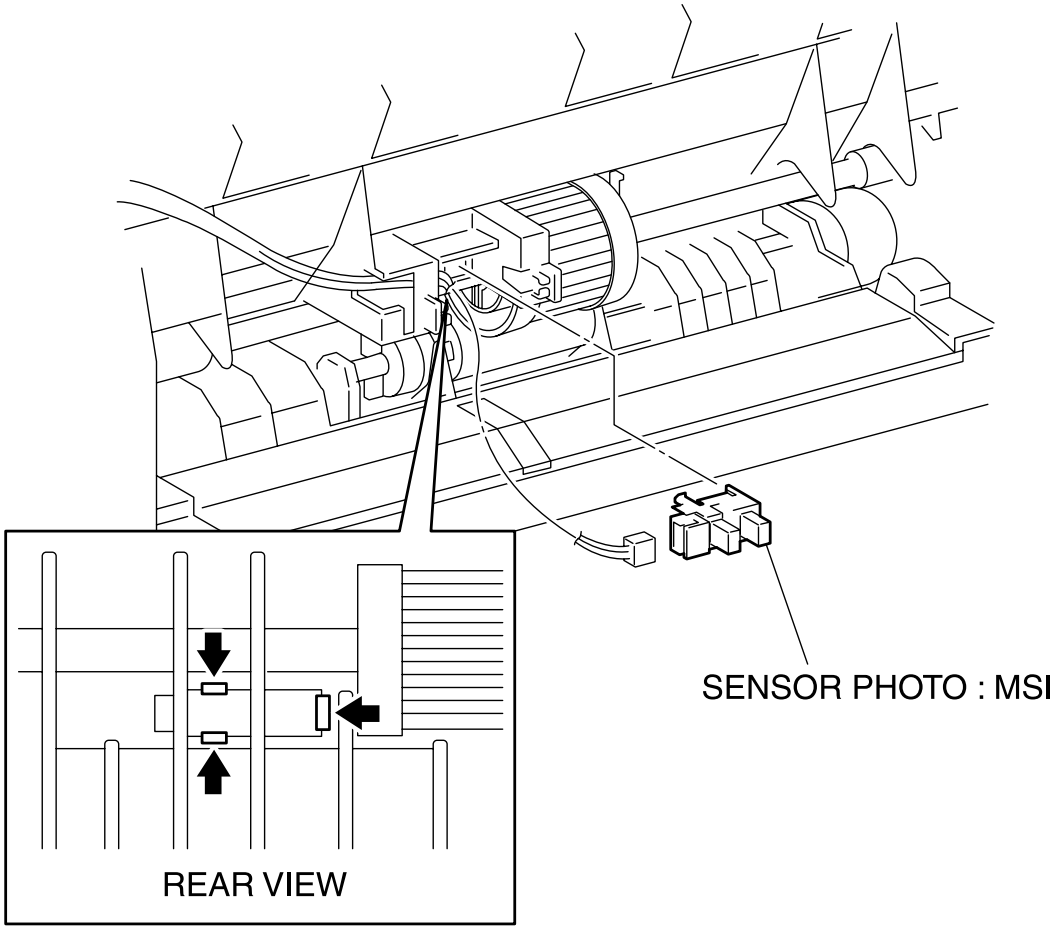


Figure: SENSOR PHOTO:MSI Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the ACTUATOR MSI. (RRP6.11)
6) Remove the connector (P/J135) on the SENSOR PHOTO:MSI from the CHUTE ASSY OUT (PL6.1.1).
7) Release the hooks at 3 positions securing the SENSOR PHOTO:MSI to the CHUTE ASSY OUT.
8) Remove the SENSOR PHOTO:MSI from the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

RRP6.6 ELIMINATOR ASSY (PL6.1.9)

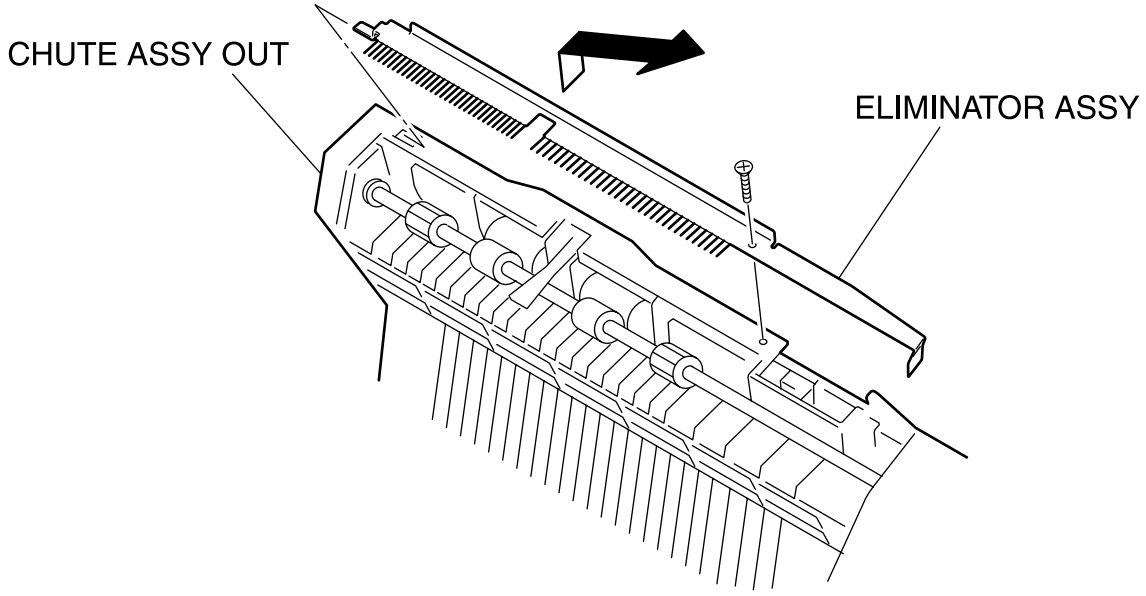


Figure: ELIMINATOR ASSY Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove 1 screw securing the ELIMINATOR ASSY to the CHUTE ASSY OUT (PL6.1.1).
5) Raising the left end of the ELIMINATOR ASSY upward, pull out the ELIMINATOR ASSY toward the left to remove from the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

RRP6.7 ROLL DUP (PL6.1.12)

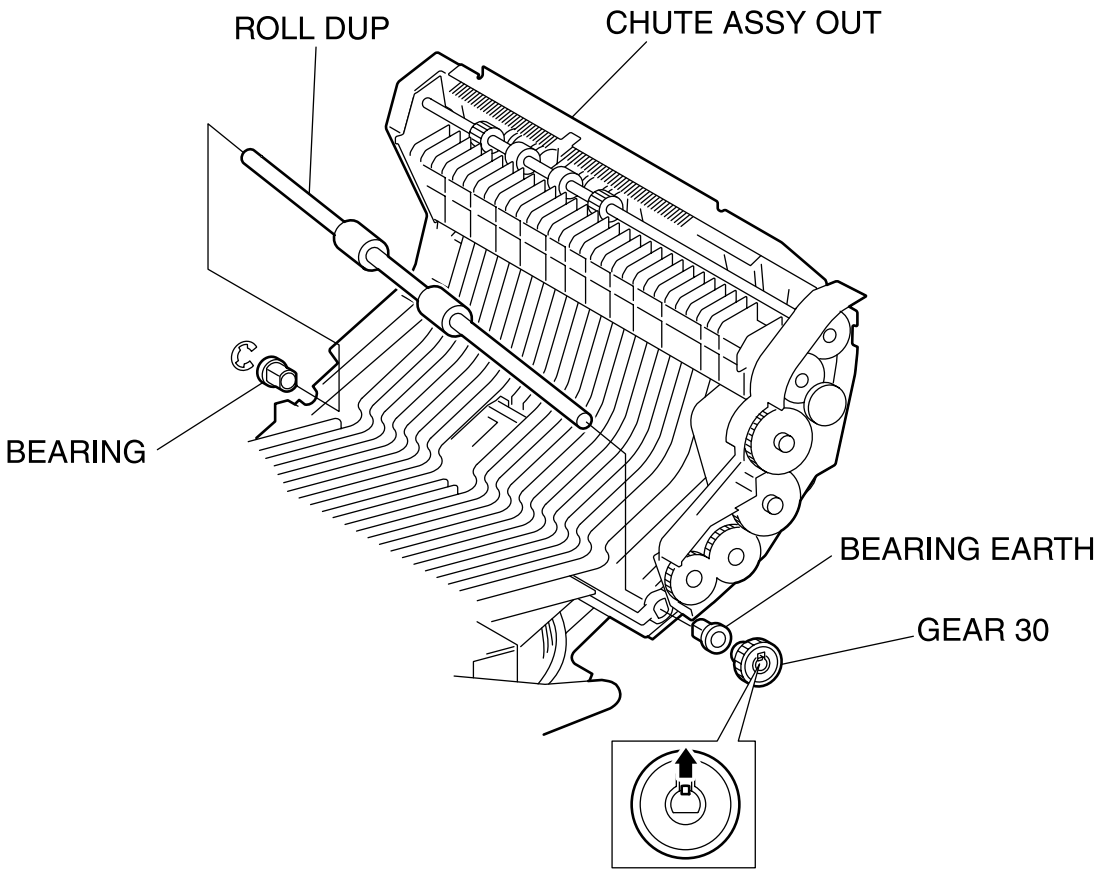


Figure: ROLL DUP Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Release the hook at 1 position of the GEAR 30 (PL6.1.10) secured to the shaft of the ROLL DUP from the CHUTE ASSY OUT (PL6.1.1) of the printer.
6) Remove the GEAR 30 from the shaft of the ROLL DUP.
7) Extract the BEARING EARTH (PL6.1.11) securing the left shaft of the ROLL DUP to the CHUTE ASSY OUT.
8) Remove the E-ring securing the right shaft of the ROLL DUP to the CHUTE ASSY OUT.
9) Extract the BEARING (PL6.1.16) securing the right shaft of the ROLL DUP to the CHUTE ASSY OUT.
10) Raise the right shaft of the ROLL DUP above the CHUTE ASSY OUT, shift it from the bearing bore and pull out the ROLL DUP.

Replacement

Replace the components in the reverse order of removal.

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RRP6.8 ACTUATOR DUP (PL6.1.13)

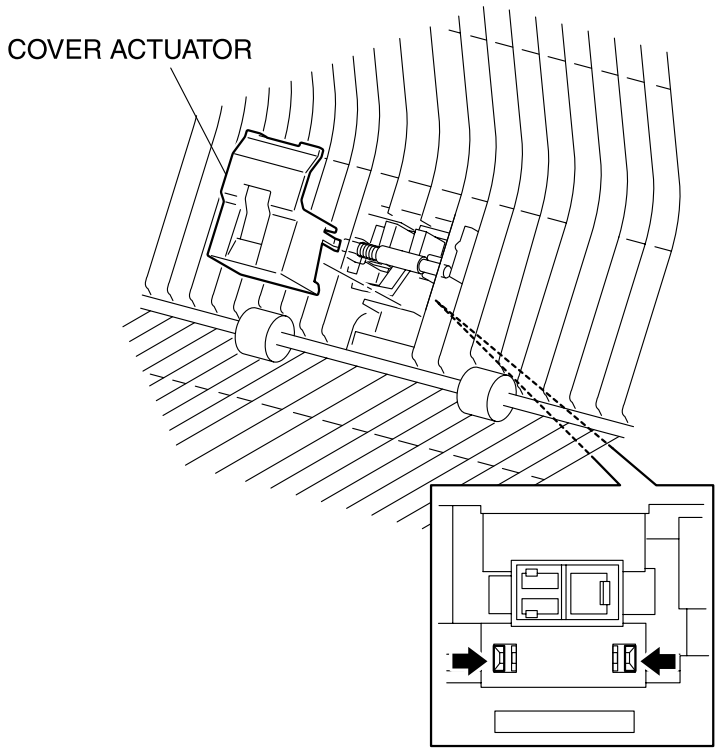

Figure: ACTUATOR DUP Removal (1)

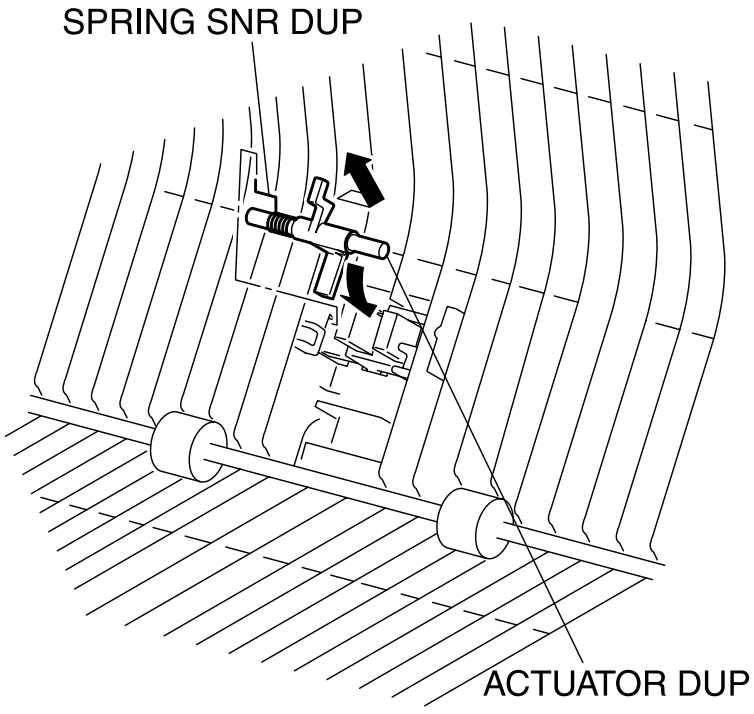

Figure: ACTUATOR DUP Removal (2)

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Release the hooks at 2 positions securing the COVER ACTUATOR (PL6.1.14) to the CHUTE ASSY OUT (PL6.1.1) of the printer.
6) Remove the COVER ACTUATOR from the CHUTE ASSY OUT.
7) Pushing the actuator of the ACTUATOR DUP inward from the CHUTE ASSY OUT, slide the ACTUATOR DUP leftward and extract the right side shaft of the ACTUATOR DUP from the right side bearing.
8) Extract the ACTUATOR DUP from the CHUTE ASSY OUT together with the SPRING SNR DUP.
9) Remove the SPRING SNR DUP (PL6.1.15) from the ACTUATOR DUP.

Replacement

Replace the components in the reverse order of removal.

RRP6.9 LATCH OUT (PL6.1.18)

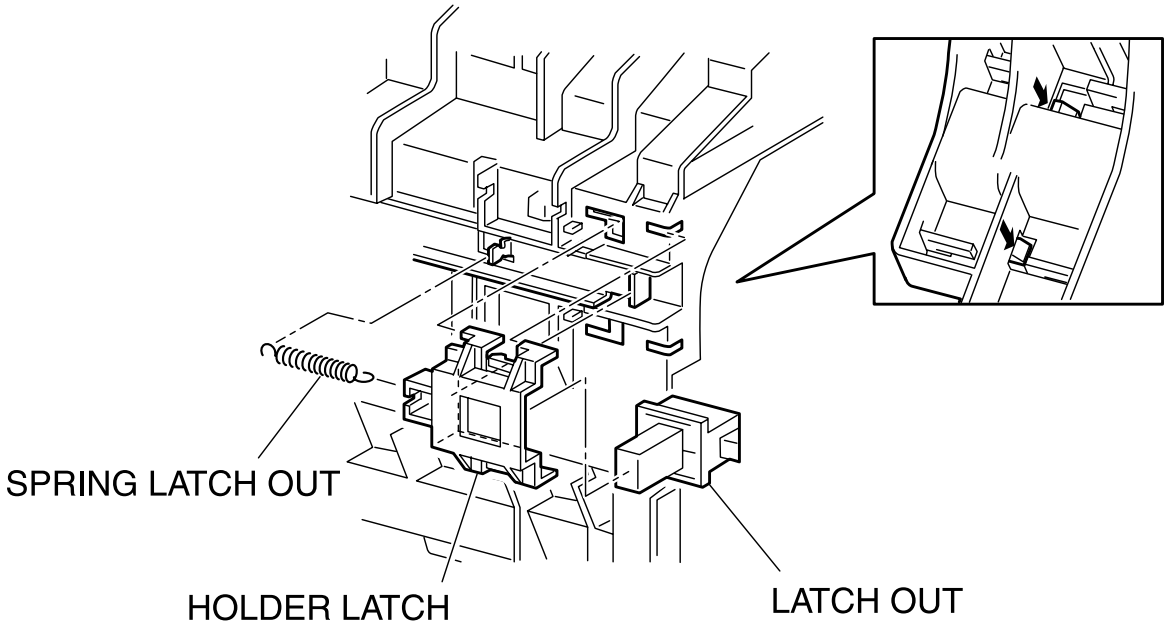

Figure: LATCH OUT Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the SPRING LATCH OUT (PL6.1.20) from the CHUTE ASSY OUT (PL6.1.1) of the printer.
6) Release the hooks at 2 positions on the rear securing the HOLDER LATCH (PL6.1.19) to the CHUTE ASSY OUT.
7) Pull out the HOLDER LATCH rightward from the CHUTE ASSY OUT together with the LATCH OUT.
8) Remove the LATCH OUT from the HOLDER.

Replacement

Replace the components in the reverse order of removal.

RRP6.10 ROLL ASSY FEED (PL6.1.27)

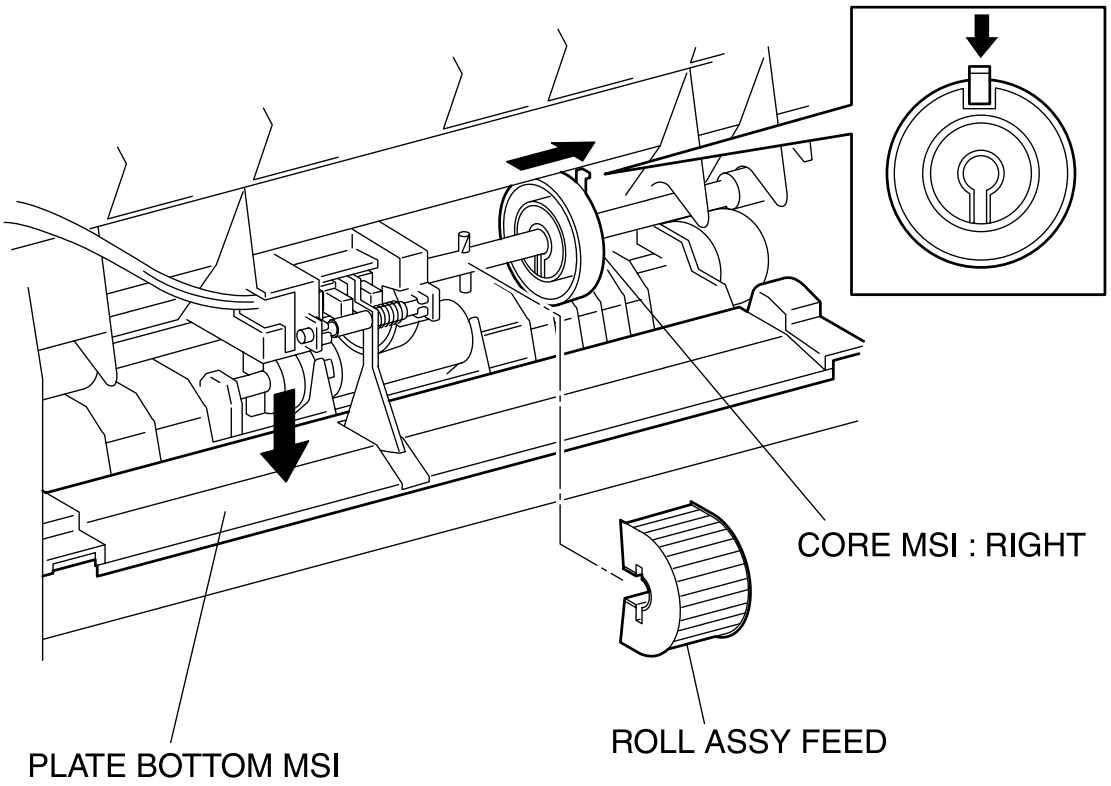

Figure: ROLL ASSY FEED Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Release the hook at one position securing the ROLL CORE MSI: RIGHT (PL6.1.26) to the SHAFT MSI (PL6.1.28) on the CHUTE ASSY OUT (PL6.1.1) from the printer, and push down the PLATE BOTTOM MSI (PL6.1.31) slightly to release the nip with the ROLL ASSY FEED (PL6.1.27).
6) From the printer, push down the PLATE BOTTOM MSI (PL6.1.31) on the CHUTE ASSY OUT and release the nip with the ROLL ASSY FEED (PL6.1.27).
7) Slide the ROLL ASSY FEED rightward from the SHAFT MSI and pull out the ROLL ASSY FEED frontward.

Replacement

Replace the components in the reverse order of removal.

RRP6.11 ACTUATOR MSI (PL6.1.37)

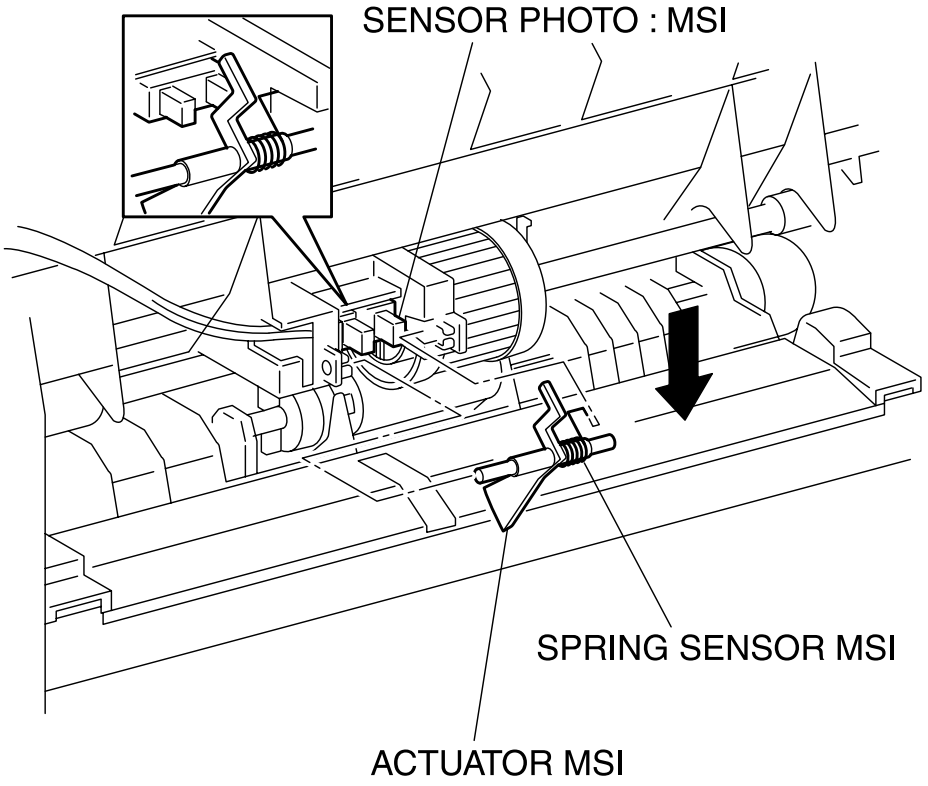

Figure: ACTUATOR MSI Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Pushing down the PLATE BOTTOM MSI on the CHUTE ASSY OUT (PL6.1.1) from the printer, push the actuator of the ACTUATOR MSI inward.
6) Slide the ACTUATOR MSI leftward from the CHUTE ASSY OUI and extract the shaft on the right side of the ACTUATOR MSI.
7) Move the right shaft of the ACTUATOR MSI frontward from the CHUTE ASSY OUT and extract the ACTUATOR MSI together with the SPRING SENSOR MSI (PL6.1.36).
8) Remove the SPRING SENSOR MSI from the ACTUATOR MSI.

Replacement

Replace the components in the reverse order of removal.

RRP6.12 SOLENOID FEED MSI (PL6.1.40)

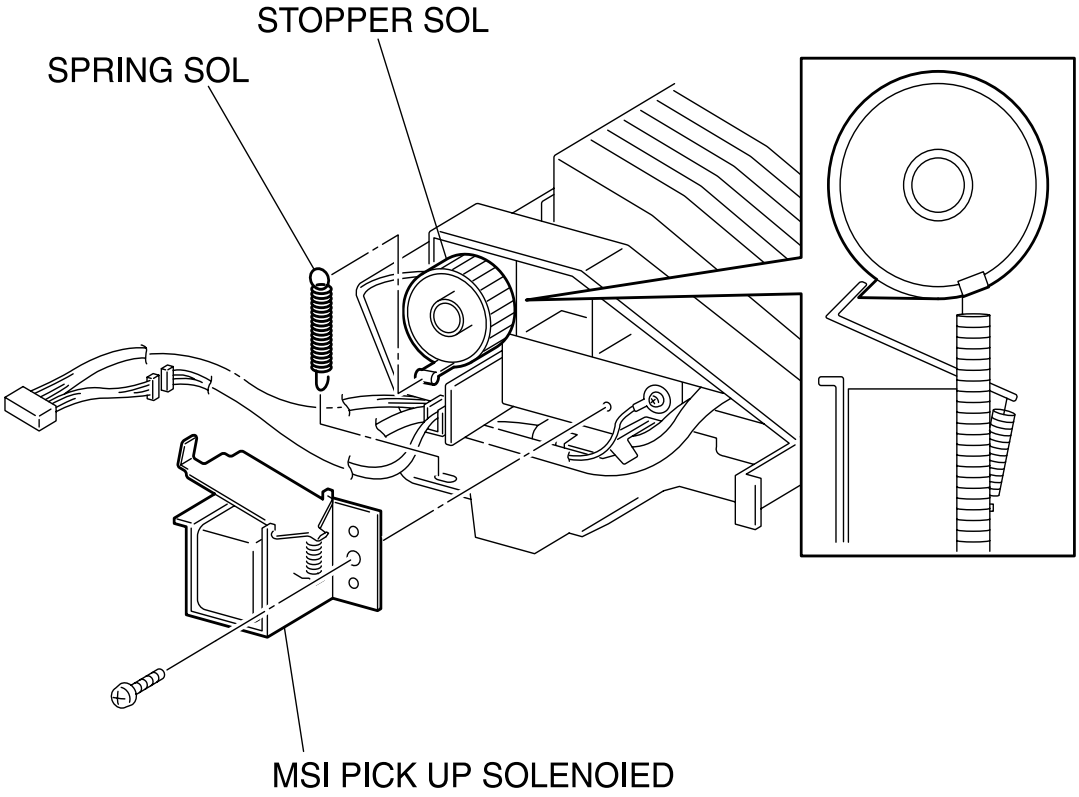

Figure: SOLENOID FEED MSI Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
4) Remove the COVER MSI. (RRP1.11)
5) Remove the TRAY ASSY MSI. (RRP1.12)
6) Remove the COVER ASSY FRONT. (RRP1.13)
7) Remove the COVER ASSY FRONT IN. (RRP1.10)
8) Remove the CHUTE ASSY EXIT. (RRP7.1)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the STRAP. (RRP8.6)
12) Remove the CHUTE ASSY OUT. (RRP6.1)
13) Release the hook of the SPRING SOL (PL6.1.39) hitched on the convex portion on the STOPPER SOL (PL6.1.38) from the left side surface of the CHUTE ASSY OUT (PL6.1.1).
14) Remove the connector (P/J132) of the SOLENOID FEED MSI from the CHUTE ASY OUT.
15) Remove 1 screw securing the SOLENOID FEED MSI to the CHUTE ASSY OUT.
16) Remove the SOLENOID FEED MSI from the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

RRP6.13 SHAFT ASSY ROLL FEED (REFERENCE ONLY)

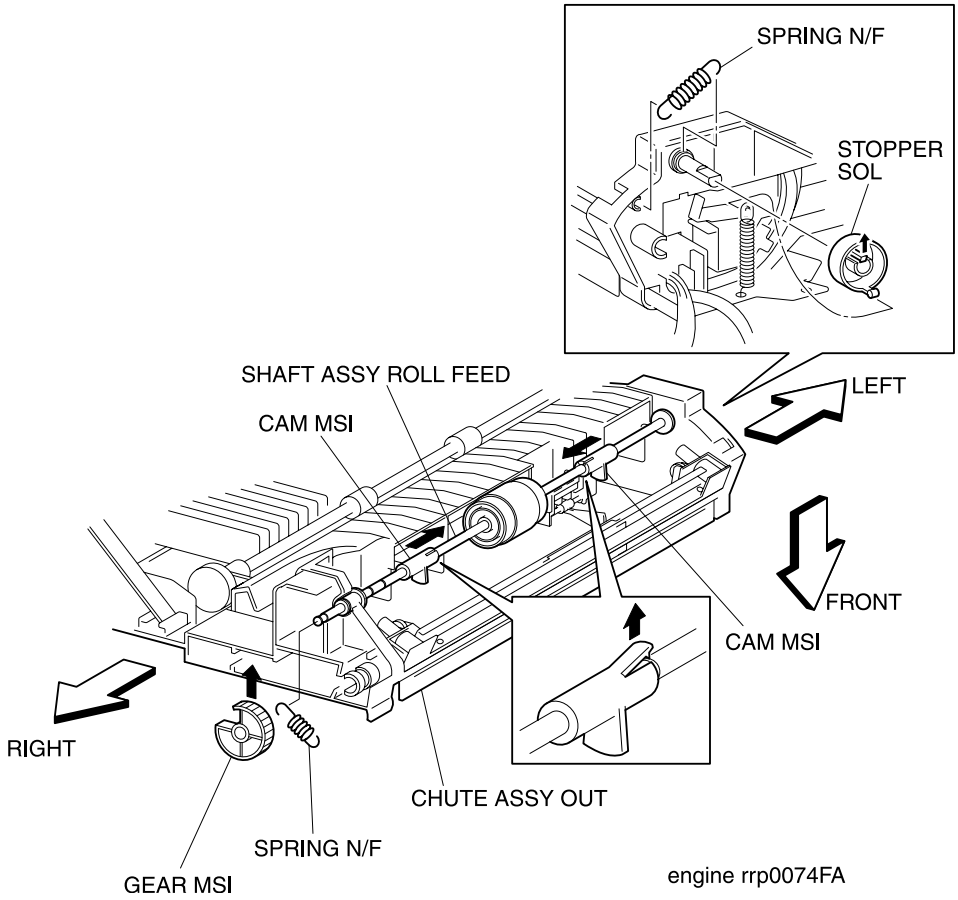

Figure: SHAFT ASSY ROLL FEED Removal (1)

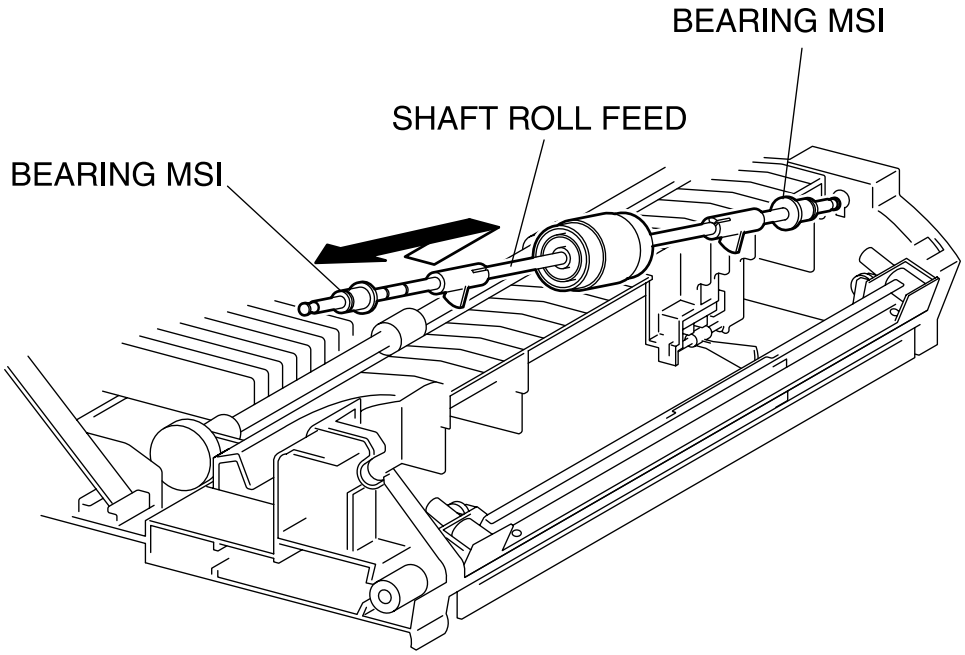

Figure: SHAFT ASSY ROLL FEED Removal (2)

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
4) Remove the COVER MSI. (RRP1.11)
5) Remove the TRAY ASSY MSI. (RRP1.12)
6) Remove the COVER ASSY FRONT. (RRP1.13)
7) Remove the COVER ASSY FRONT IN. (RRP1.10)
8) Remove the CHUTE ASSY EXIT. (RRP7.1)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the STRAP. (RRP8.6)
12) Remove the CHUTE ASSY OUT. (RRP6.1)
13) Remove the SOLENOID FEED MSI. (RRP6.2)
14) Release a hook of the SPRING SOL (PL6.1.39) from a convex portion on the STOPPER SOL (PL6.1.38) from the CHUTE ASSY OUT.
15) Release the hook at 1 position securing the STOPPER SOL to the left shaft of SHAFT MSI, and pull out the STOPPER SOL of the shaft from the CHUTE ASSY OUT.
16) Release the hook at 1 position securing the GEAR MSI (PL6.1.22) to the right shaft of SHAFT MSI, and pull the GEAR MSI out of the shaft from the CHUTE ASSY OUT.
17) Release the hooks of the SPRING N/F (PL6.1.21) from the left and right shafts of SHAFT ASSY ROLL FEED from the CHUTE ASSY OUT.
18) Release the hook at 1 position securing the CAM MSI (PL6.1.25) to the SHAFT MSI (PL6.1.28), and move the CAM MSI inside from the CHUTE ASSY OUT (PL6.1.1).
19) Pull off the BEARING MSI (PL6.1.24) on the SHAFT MSI toward the inside from the bearing of the CHUTE ASSY OUT.
20) Raising the right end of the SHAFT ASSY ROLL FEED, pull out the SHAFT ASSY FEED from the CHUTE ASSY OUT.
21) After removing the SHAFT ASSY FEED, be sure to replace the CAM MSI. Do not leave the hook of the CAM MSI being raised.

Replacement

Replace the components in the reverse order of removal.

RRP6.14 PLATE ASSY BOTTOM MSI (PL6.1.42)

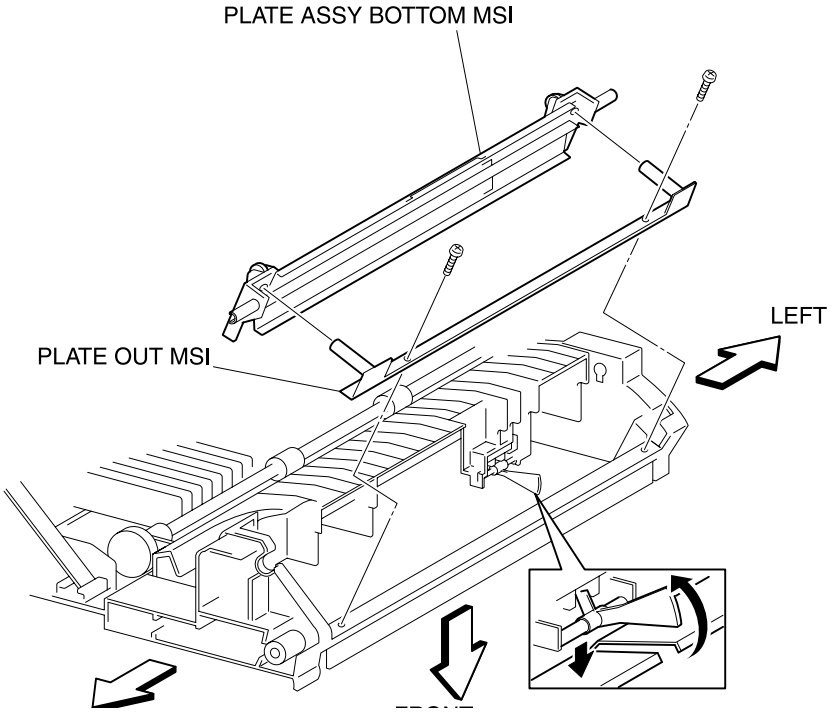

Figure: PLATE ASSY BOTTOM MSI Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
4) Remove the COVER MSI. (RRP1.11)
5) Remove the TRAY ASSY MSI. (RRP1.12)
6) Remove the COVER ASSY FRONT. (RRP1.13)
7) Remove the COVER ASSY FRONT IN. (RRP1.10)
8) Remove the CHUTE ASSY EXIT. (RRP7.1)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the STRAP. (RRP8.6)
12) Remove the CHUTE ASSY OUT. (RRP6.1)
13) Remove the SHAFT ASSY ROLL FEED. (RRP6.13)
14) Remove the SPRING N/F MSI (PL6.1.21) and remove the STOPPER SOL. (PL6.1.38)
15) Remove 2 screws securing the PLATE OUT MSI (PL6.1.35) to the CHUTE ASSY OUT (PL6.1.1).

NOTE

In the following steps, shift the actuator of the ACTUATOR MSI (PL6.1.37) from a bore in the PLATE BOTTOM MSI (PL6.1.32).

16) Remove the PLATE OUT MSI from the CHUTE ASSY OUT together with the PLATE ASSY BOTTOM MSI.
17) Remove the PLATE ASSY BOTTOM MSI from the PLATE OUT MSI.

Replacement

Replace the components in the reverse order of removal.

RRP7. CHUTE ASSY EXIT

RRP7.1 CHUTE ASSY EXIT (PL7.1.1)

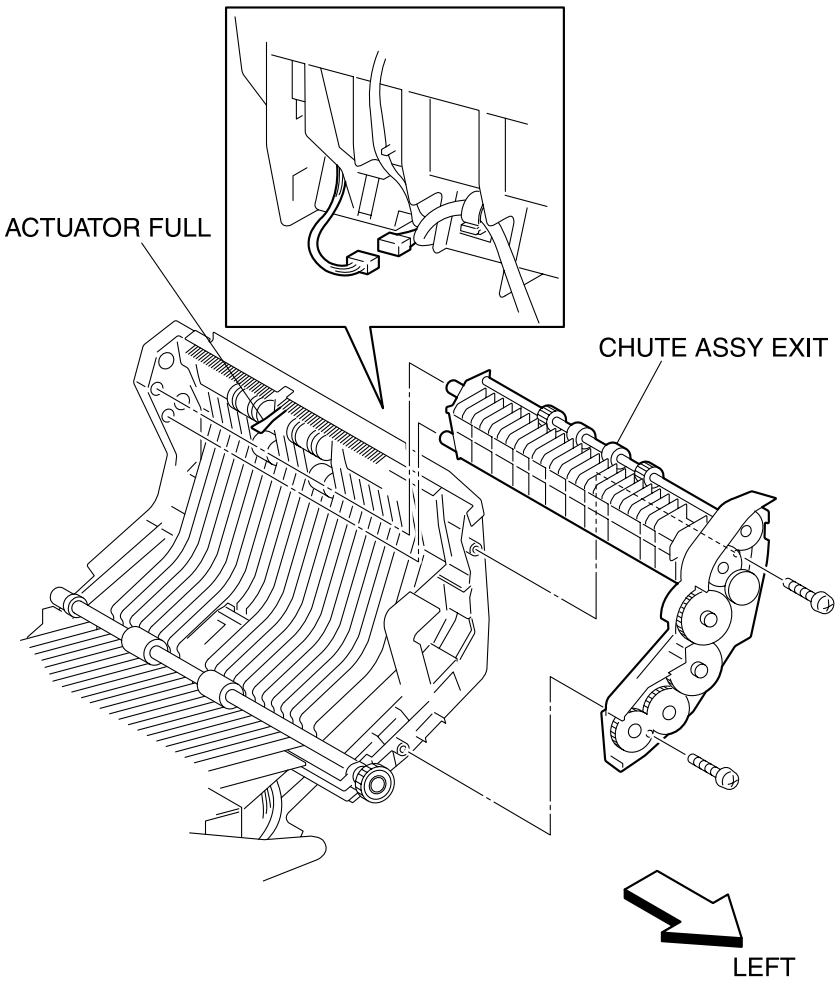

Figure: CHUTE ASSY EXIT Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the connector (P/J131) of the MOTOR ASSY DUP (PL7.1.8) on the CHUTE ASSY OUT (PL6.1.1).
6) Shift the harness of the MOTOR ASSY DUP (PL7.1.8) to the CHUTE ASSY EXIT side from the CHUTE ASSY OUT.
7) Remove 2 screws securing the CHUTE ASSY EXIT to the CHUTE ASSY OUT.
8) Pull out the CHUTE ASSY EXIT from the left side surface of the CHUTE ASSY OUT.

Replacement

Replace the components in the reverse order of removal.

NOTE

When replacing the CHUTE ASSY EXIT, be careful to avoid the ACTUATOR FULL (PL6.1.5) on the CHUTE ASSY OUT to be inserted into the ROLL EXIT (PL7.1.4).

RRP7.2 ROLL EXIT (PL7.1.4)

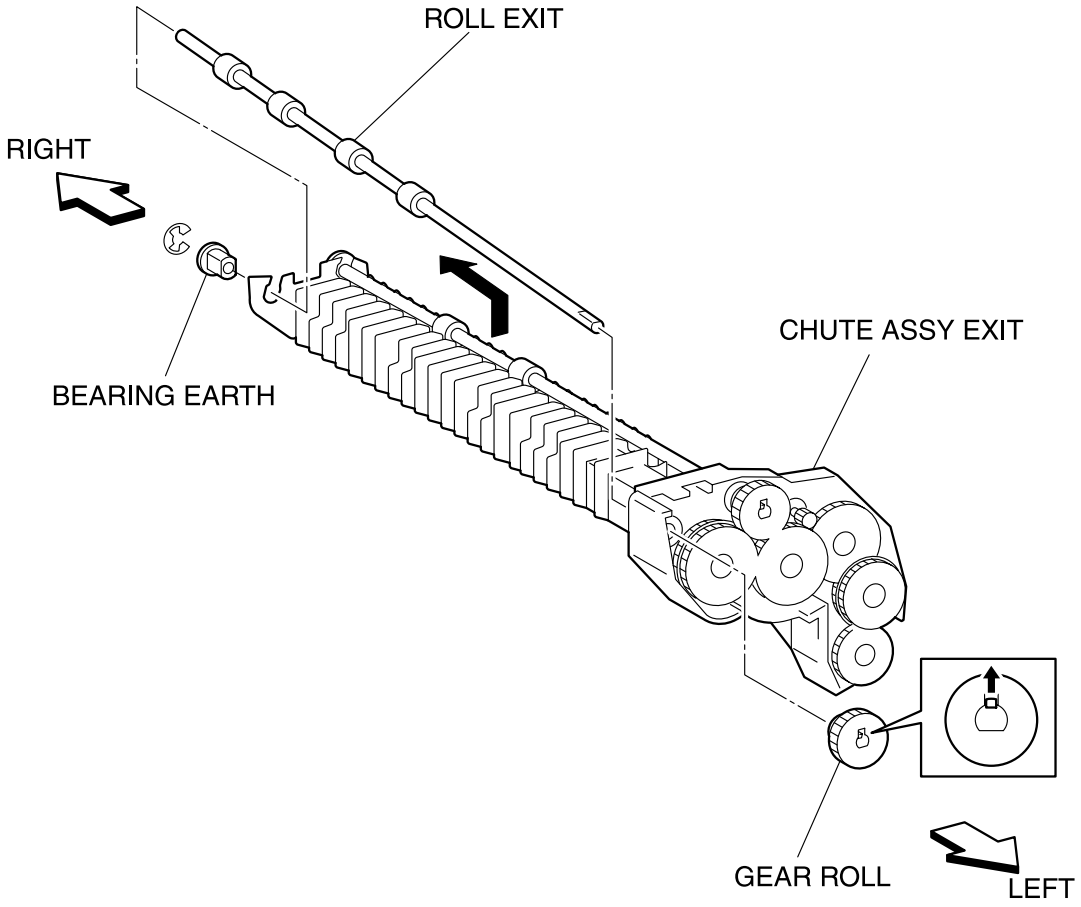

Figure: ROLL EXIT Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the CHUTE ASSY EXIT. (RRP7.1)
6) Release the hook at 1 position securing the GEAR ROLL to the left shaft of the ROLL EXIT from the CHUTE ASSY EXIT (PL7.1.1).
7) Remove the GEAR ROLL (PL7.1.2) from the left shaft of the ROLL EXIT.
8) Extract the BEARING EARTH (PL7.1.3) from the left shaft of the ROLL EXIT of the CHUTE ASSY EXIT.
9) Remove the E-ring securing the right shaft of the ROLL EXIT to the CHUTE ASSY EXIT.
10) Extract the BEARING (PL7.1.7) from the right shaft of the ROLL EXIT.
11) Raise the right shaft of the ROLL EXIT from the CHUTE ASSY EXIT and pull out the ROLL EXIT right upward.

Replacement

Replace the components in the reverse order of removal.

RRP7.3 ROLL MID (PL7.1.5)

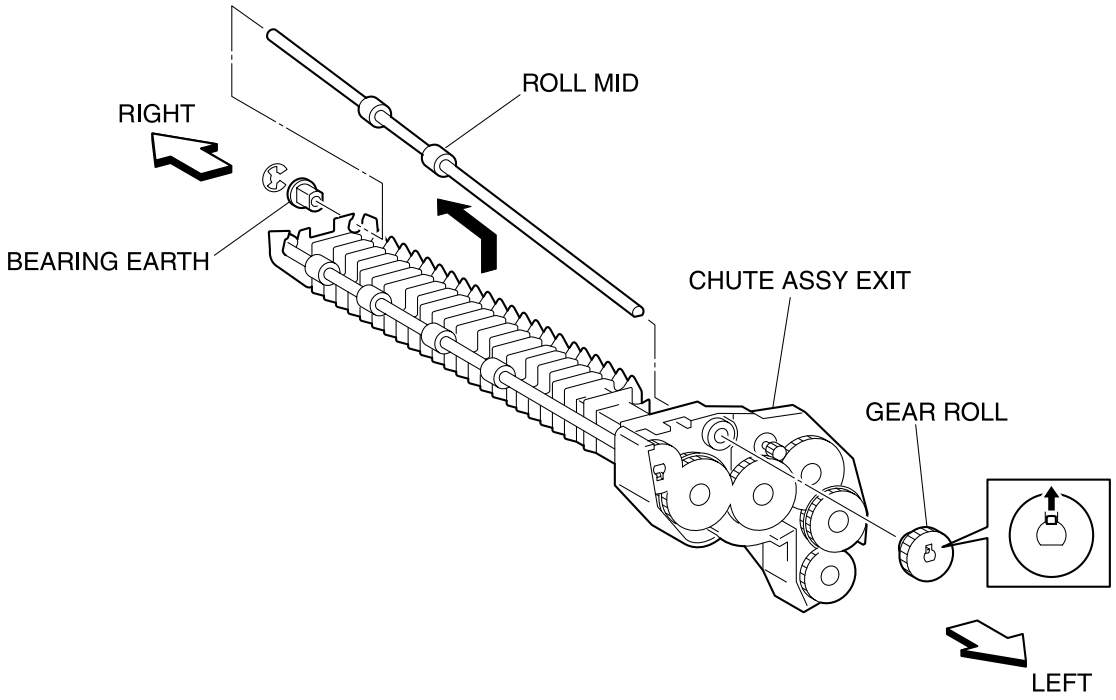

Figure: ROLL MID Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the CHUTE ASSY EXIT. (RRP7.1)
6) Release the hook at 1 position securing the GEAR ROLL (PL7.1.2) to the left shaft of the ROLL MID from the CHUTE ASSY EXIT (PL7.1.1).
7) Remove the GEAR ROLL from the left shaft of the ROLL MID.
8) Extract the BEARING EARTH (PL7.1.3) from the left shaft of the ROLL MID of the CHUTE ASSY EXIT.
9) Remove the E-ring securing the right shaft of the ROLL MID to the CHUTE ASSY EXIT.
10) Extract the BEARING (PL7.1.7) from the right shaft of the ROLL MID.
11) Raise the right shaft of the ROLL MID from the CHUTE ASSY EXIT and pull out the ROLL EXIT right upward.

Replacement

Replace the components in the reverse order of removal.

RRP7.4 MOTOR ASSY DUP (PL7.1.8)

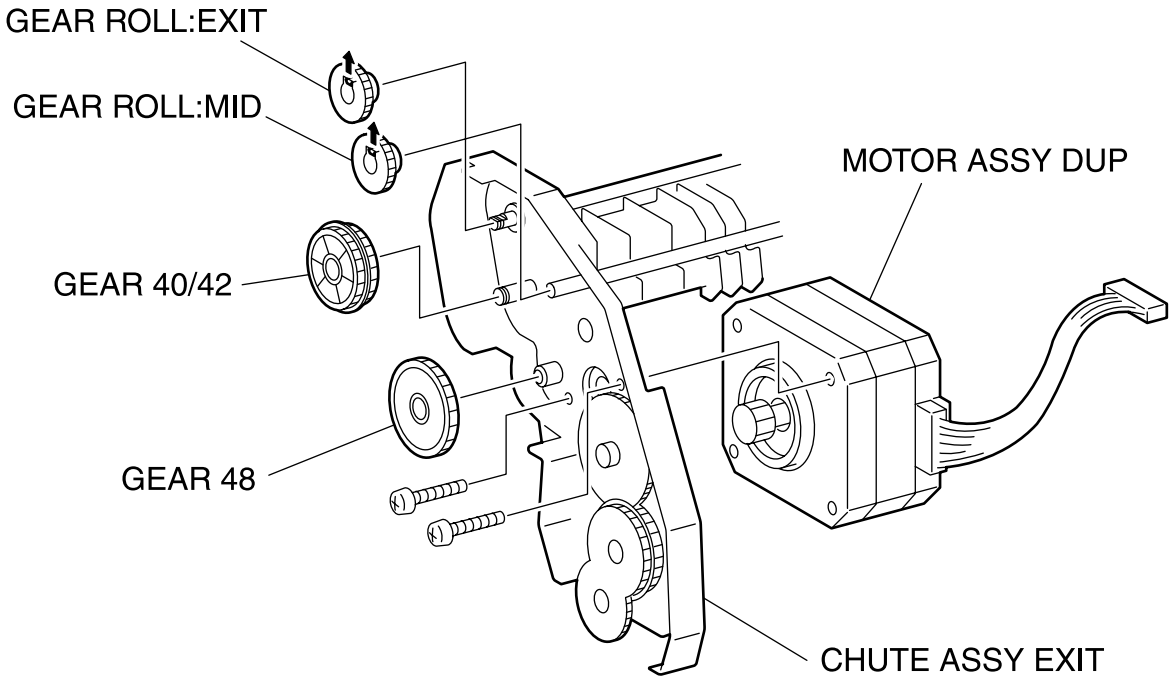

Figure: MOTOR ASSY DUP Removal

Removal

1) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
2) Remove the COVER MSI. (RRP1.11)
3) Remove the TRAY ASSY MSI. (RRP1.12)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the CHUTE ASSY EXIT. (RRP7.1)
6) Release the hook at 1 position securing the GEAR ROLL (PL7.1.2) to the left shaft of the ROLL EXIT (PL7.1.4) from the CHUTE ASSY EXIT (PL7.1.1).
7) Remove the GEAR ROLL from the left shaft of the ROLL EXIT.
8) Release the hook at 1 position securing the GEAR ROLL to the left shaft of the ROLL MID (PL7.1.5) from the CHUTE ASSY EXIT.
9) Remove the GEAR ROLL from the left shaft of the ROLL EXIT.
10) Remove the GEAR 40/42 (PL7.1.10) from the left side surface of the CHUTE ASSY EXIT.
11) Remove the GEAR 48 (PL7.1.11) from the left side surface of the CHUTE ASSY EXIT.
12) Remove 2 screws securing the MOTOR ASSY DUP to the CHUTE ASSY EXIT.
13) Remove the MOTOR ASSY DUP from the CHUTE ASSY EXIT.

Replacement

Replace the components in the reverse order of removal.

RRP8. BTR ASSY & FUSER

RRP8.1 FUSER ASSY (PL8.1.1)

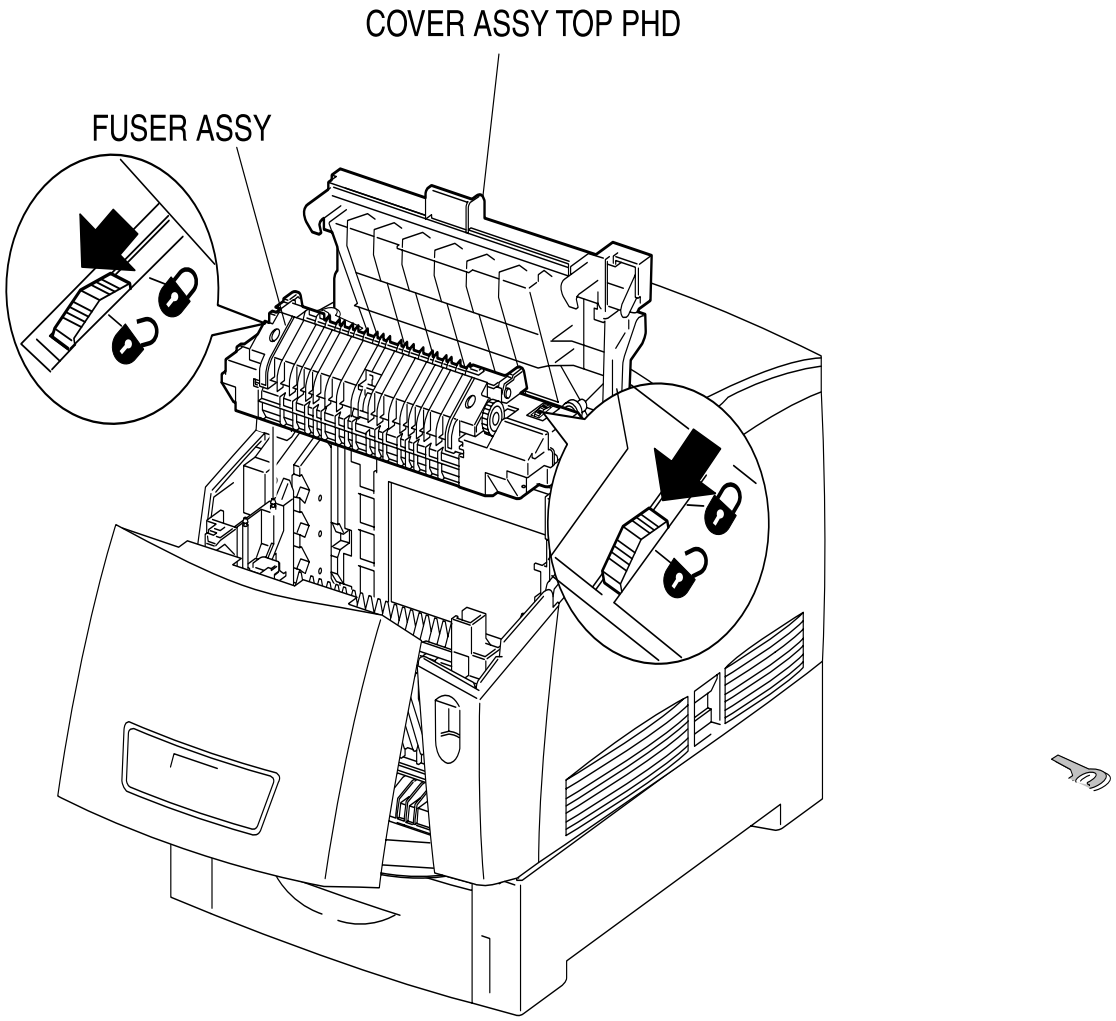

Figure: FUSER ASSY Removal

Removal

FUSER is high temperature after operation. Be careful when working it not to get burning.

1) Release the latch at the part B from the printer and open the CHUTE ASSY OUT. (PL6.1.1.)
2) Open the COVER ASSY TOP PHD (PL1.1.10) from the printer.
3) Remove 4 screws securing the FUSER ASSY to the FRONT ASSY IN (PL5.1.1) of the printer.
4) Remove the FUSER ASSY from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP8.2 ROLL ASSY EXIT (PL8.1.3)

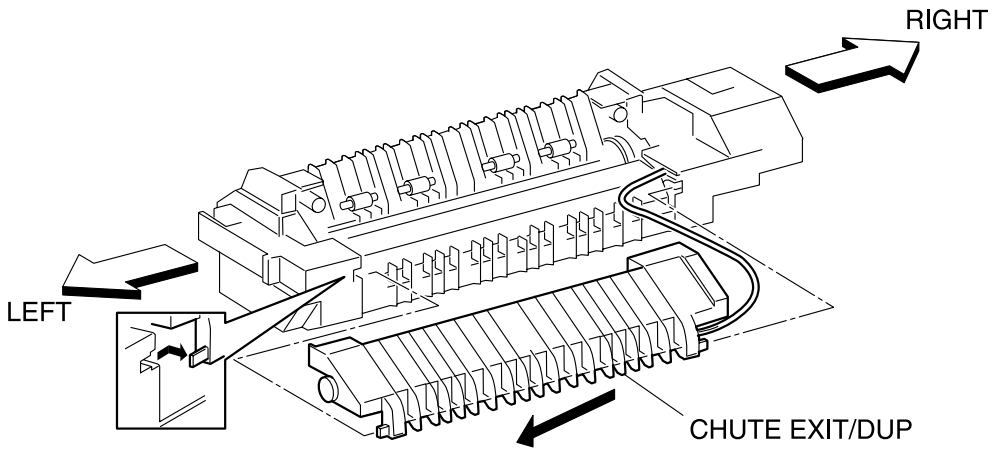

Figure: ROLL ASSY EXIT Removal (1)

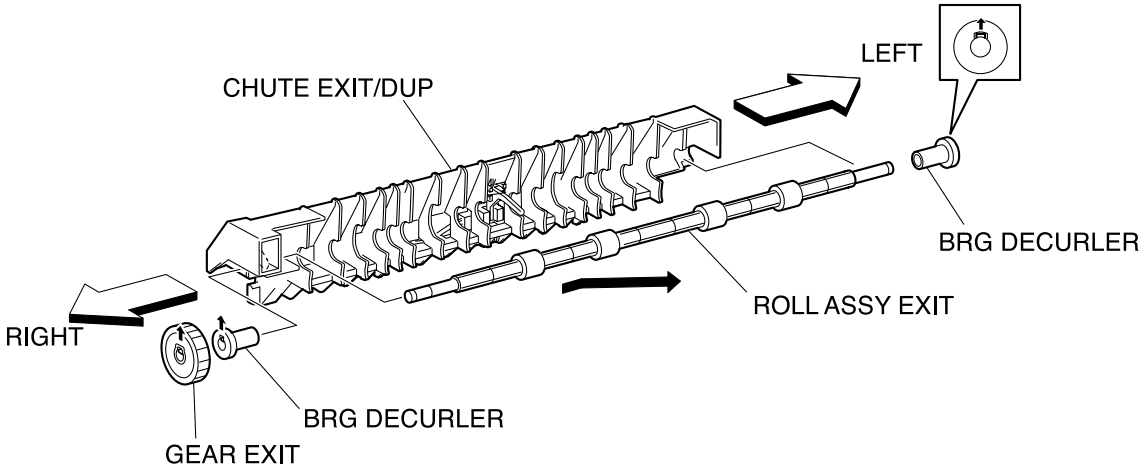

Figure: ROLL ASSY EXIT Removal (2)

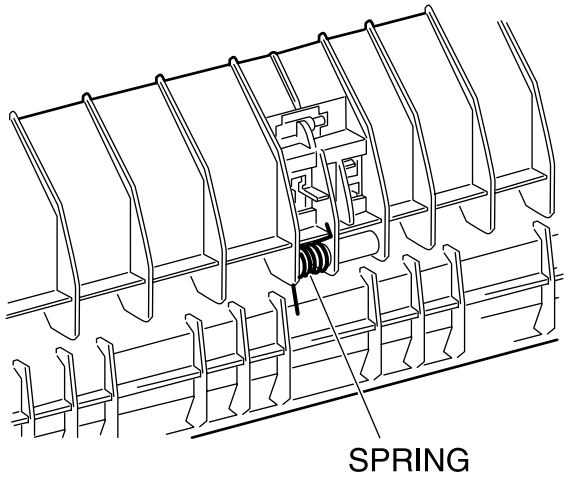

Figure: ROLL ASSY EXIT Replacement

Removal

WARNING

FUSER is high temperature after operation. Be careful when working it not to get burning.

1) Remove the FUSER ASSY. (RRP8.1)
2) Slide the CHUTE EXIT/DUP (PL8.1.10) rightward from the FUSER ASSY (PL8.1.1) and align the left shaft of the CHUTE EXIT/DUP to the through hole of the FUSER ASSY.

NOTE

Do not separate the FUSER ASSY and CHUTE EXIT/DUP too far since they are connected with harness.

3) After extracting the left end of the CHUTE EXIT/DUP from the through hole of the FUSER ASSY, pull out the CHUTE EXIT/DUP leftward from the FUSER ASSY.
4) Release the hook at 1 position securing the ROLL EXIT (PL8.1.4) to the right shaft of ROLL ASSY EXIT, and pull the ROLL EXIT off the shaft.
5) Release a hook each securing the BRG DECURLER (PL8.1.2) from the right and left shafts of the ROLL ASSY EXIT and pull out the BRG DECURLER from the right and left shaft.
6) From the CHUTE EXIT/DUP, shift the left end of the ROLL ASSY EXIT from the bearing and pull out the ROLL ASSY EXIT left upward.

Replacement

Replace the components in the reverse order of removal.

NOTE

When installing the CHUTE EXIT/DUP to the FUSER ASSY, be careful not to allow the spring at the center of the CHUTE EXIT/DUP to be inserted in the FUSER ASSY.

RRP8.3 ACTUATOR EXIT (PL8.1.7)

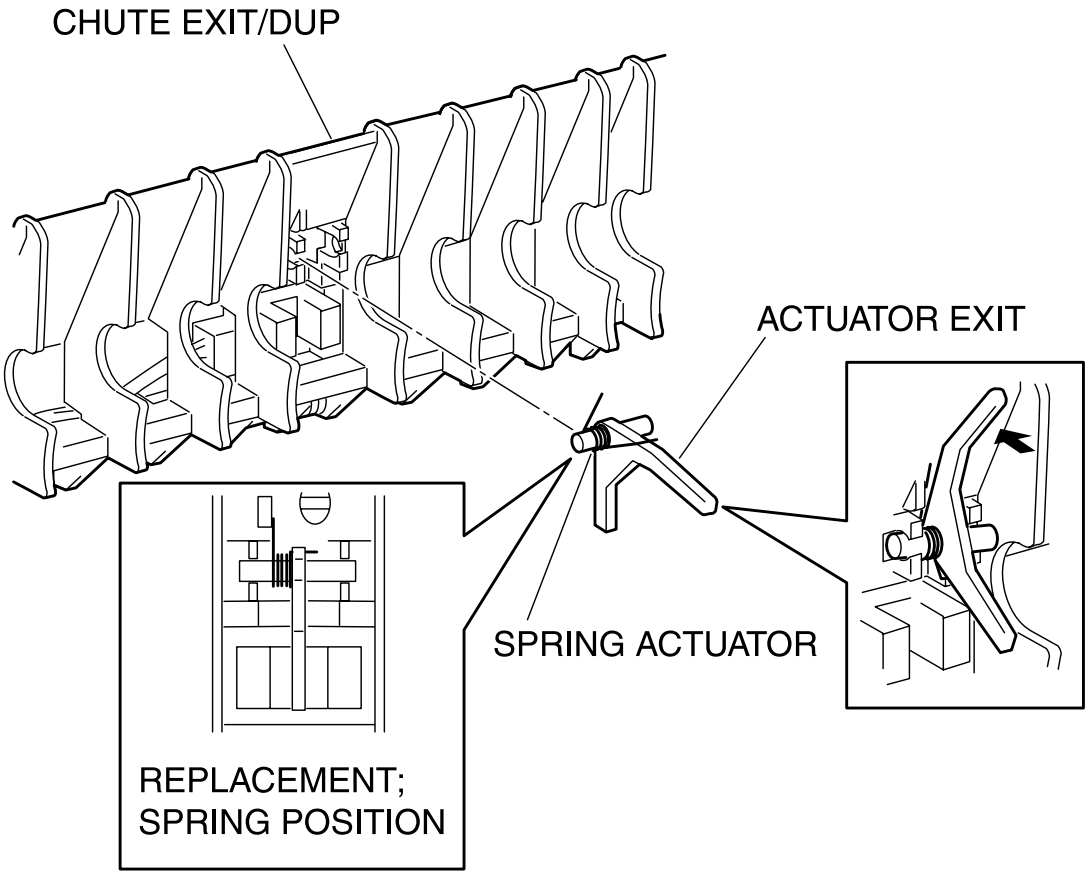

Figure: ACTUATOR EXIT Removal

Removal

WARNING

FUSER is high temperature after operation. Be careful when working it not to get burning.

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the ROLL ASSY EXIT. (RRP8.2)
3) Holding the actuator of the ACTUATOR EXIT from the CHUTE EXIT/DUP of the FUSER ASSY, pull down the ACTUATOR EXIT rightward an extract the left shaft of the ACTUATOR EXIT.
4) Pull out the ACTUATOR EXIT from the CHUTE EXIT/DUP rightward together with the SPRING ACTUATOR (PL8.1.8).
5) Remove the SPRING ACTUATOR from the ACTUATOR EXIT.

Replacement

Replace the components in the reverse order of removal.

RRP8.4 BTR UNIT ASSY (PL8.1.12)

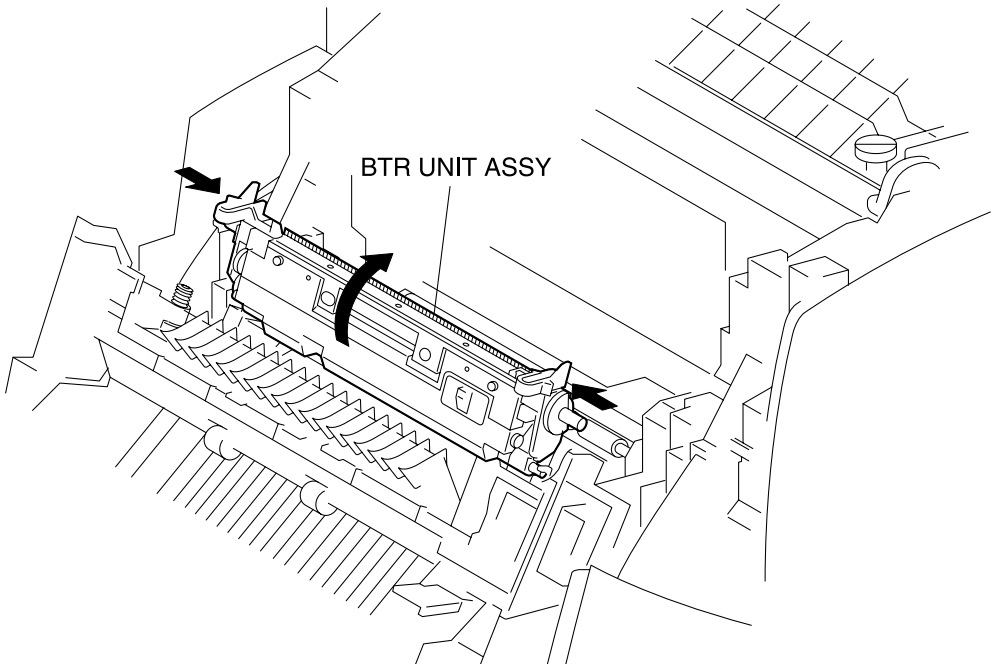

Figure: BTR UNIT ASSY Removal (1)

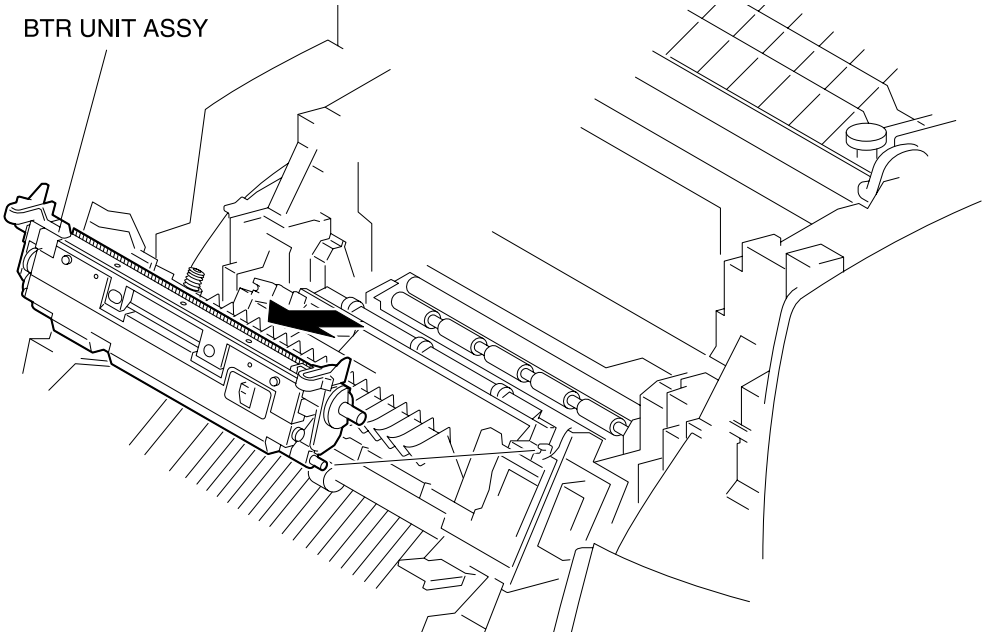

Figure: BTR UNIT ASSY Removal (2)

Removal

1) Release the latch at A from the printer and open the FRONT ASSY IN (PL5.1.1).
2) Holding the right and left knobs securing the BRT UNIT ASSY (PL8.1.12) to the FRONT ASSY IN of the printer, unlock and rotate the BTR UNIT ASSY rearward.
3) Extract the BTR UNIT ASSY frontward from the FRONT ASSY IN and remove.

Replacement

Replace the components in the reverse order of removal.

RRP8.5 STRAP (PL8.1.13)

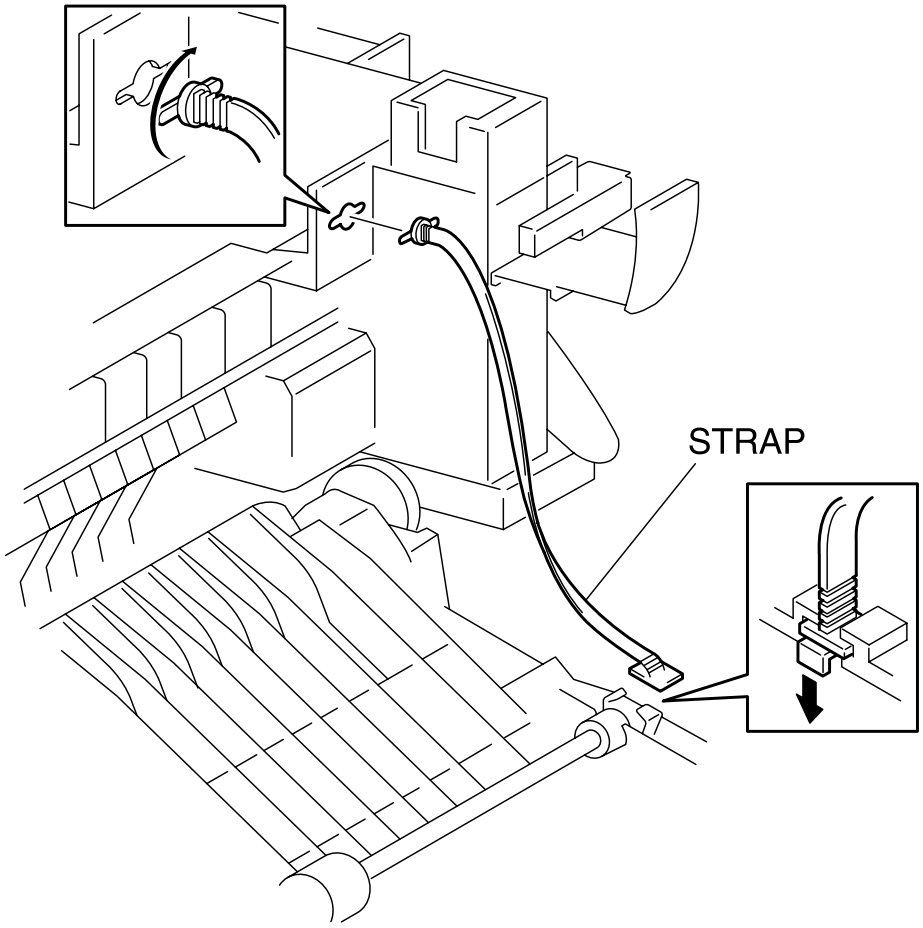

Figure: STRAP Removal

Removal

1) Release the latch at B from the printer and open the CHUTE ASSY OUT (PL6.1.1).
2) Release hooks that secure the bottom portion of STRAP, and slide the bottom portion of STRAP toward the right to remove from the CHUTE ASSY OUT.
3) Turning the top of STRAP secured to the upper right of the FRONT ASSY IN (PL5.1.1), meet a convex portion with the key hole in the FRONT ASSY IN and pull out the top of STRAP to remove the STRAP.

Replacement

Replace the components in the reverse order of removal.

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RRP9. XEROGRAPHICS

RRP9.1 ROS ASSY (PL9.1.1)

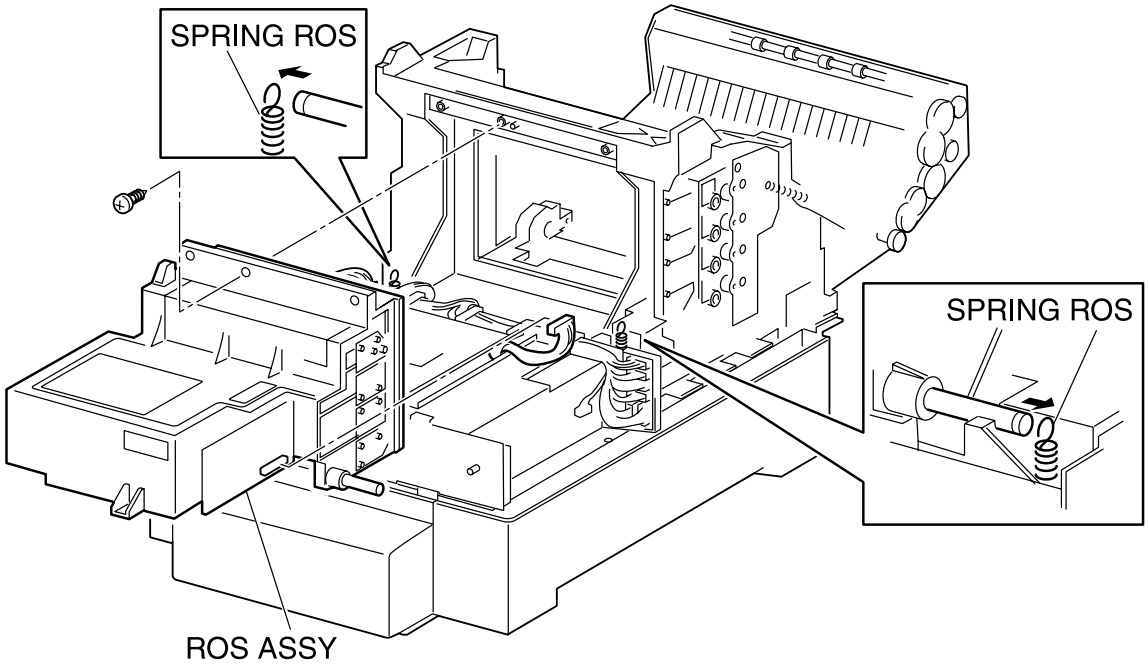

Figure: ROS ASSY Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the COVER ASSY FRONT IN. (RRP1.10)
6) Remove the COVER SIDE L. (RRP1.14)
7) Remove the COVER SIDE R. (RRP1.9)
8) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
9) Remove the LVPS. (RRP12.4)
10) Remove the connector (P/J151) on the ROS ASSY.
11) Release the hook of the SPRING ROS (PL9.1.2) securing the right and left shafts of the ROS ASSY from the printer.
12) Remove 1 screw securing the ROS ASSY to the printer.
13) Remove the ROS ASSY from the printer.

Replacement

1) Align the ROS ASSY with its replace position to the printer.
2) Secure the left and right shafts of the ROS ASSY to the printer with the hooks at the top of SPRING ROS (PL9.1.2).
3) Secure the ROS ASSY to the printer with 1 screw.
4) Replace the connector (P/J151) to the ROS ASSY.
5) Replace the LVPS. (RRP12.4)
6) Replace the HOLDER TCRU ASSY UNIT. (RRP10.1)
7) Replace the COVER SIDE R. (RRP1.9)
8) Replace the COVER SIDE L. (RRP1.14)
9) Replace the COVER ASSY FRONT IN. (RRP1.10)
10) Replace the COVER ASSY FRONT. (RRP1.13)
11) Replace the COVER ASSY FRONT HEAD. (RRP1.2)
12) Replace the COVER TOP MAIN. (RRP1.4)
13) Replace the CASSETTE to the printer.

RRP9.2 HSG ASSY BIAS (PL9.1.4)

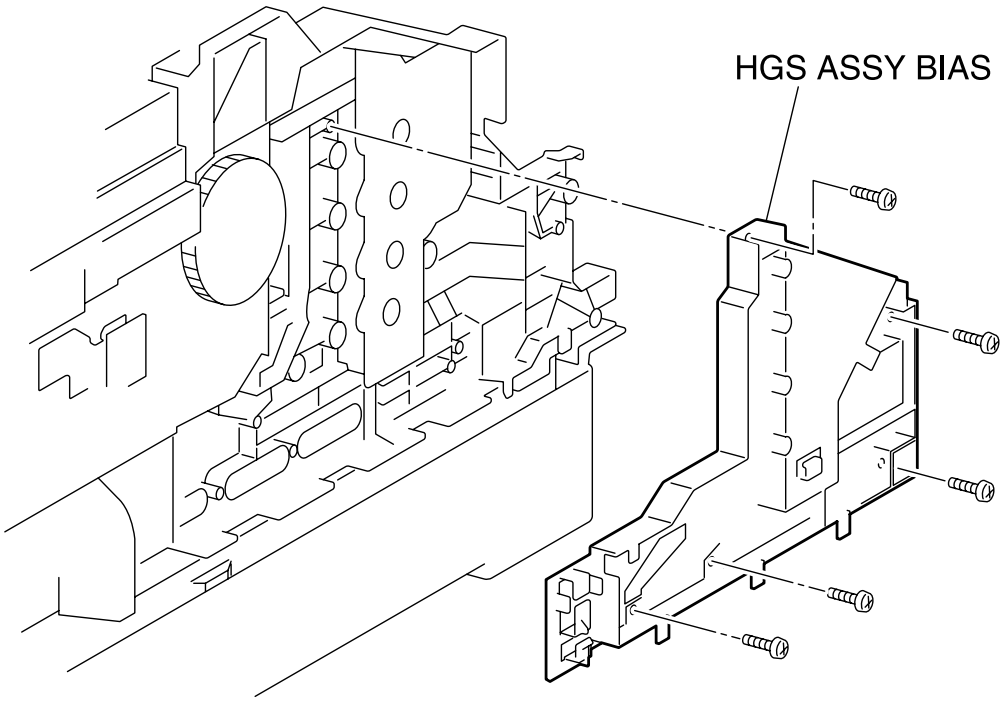

Figure: HSG ASSY BIAS Removal

Removal

1) Pull out the CASSETTE from the printer.
2) Remove the COVER TOP MAIN. (RRP1.4)
3) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
4) Remove the COVER ASSY FRONT. (RRP1.13)
5) Remove the COVER ASSY FRONT IN. (RRP1.10)
6) Remove the COVER SIDE L. (RRP1.14)
7) Remove the LINK:L. (RRP1.7)
8) Remove 5 screws securing the HSG ASSY BIAS (PL9.1.4) to the left side surface of the printer.
9) Remove the HSG ASSY BIAS from the printer.

Replacement

Replace the components in the reverse order of removal.

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RRP9.3 CHUTE ASSY REGI (PL9.1.6)

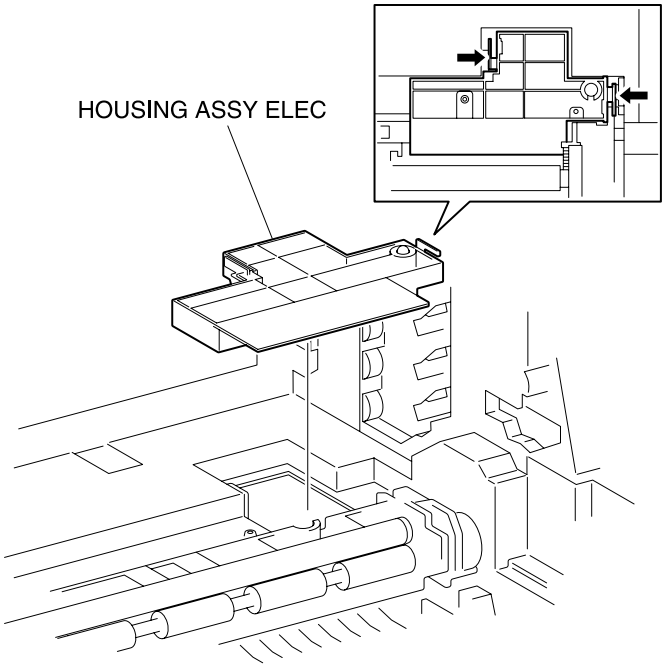

Figure: CHUTE ASSY REGI Removal (1)

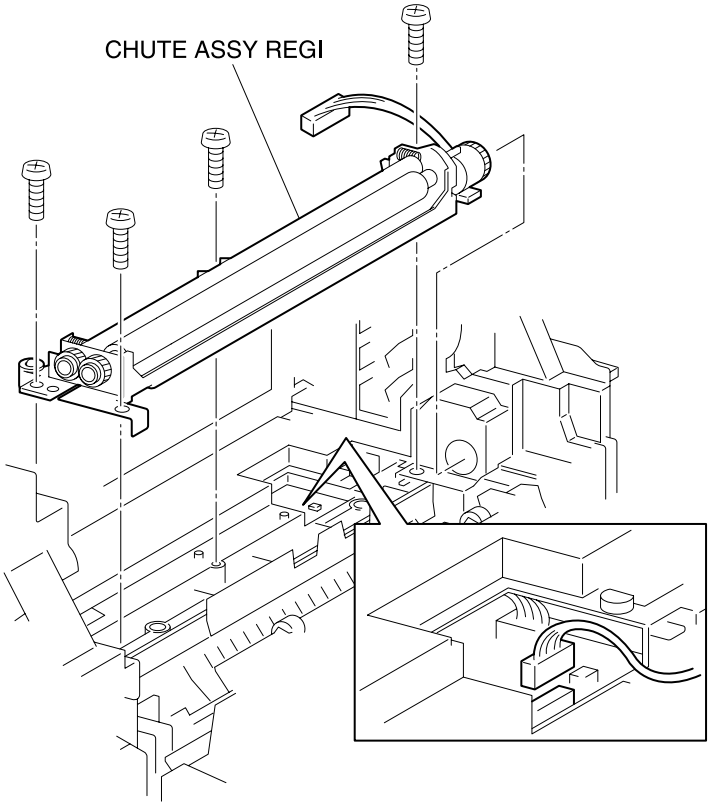

Figure: CHUTE ASSY REGI Removal (2)

Removal

1) Release the latch at A from the printer and open the FRONT ASSY IN (PL5.1.1).
1) Remove the PHD.
2) Release the hooks at 2 positions securing the HOUSING ASSY ELEC (PL9.1.11) to the printer and remove the HOUSING ASSY ELEC upward.
3) Remove the connector (P/J18) of the CHUTE ASSY REGI from the printer.

NOTE

Remove the connector (P/J32) of the OHP SENSOR, if installed.

4) Remove 4 screws securing the CHUTE ASSY REGI to the printer.
5) Raise the left end of the CHUTE ASSY REGI and pull out the CHUTE ASSY REGI leftward from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP9.4 SENSOR PHOTO:REGI (PL9.1.8)

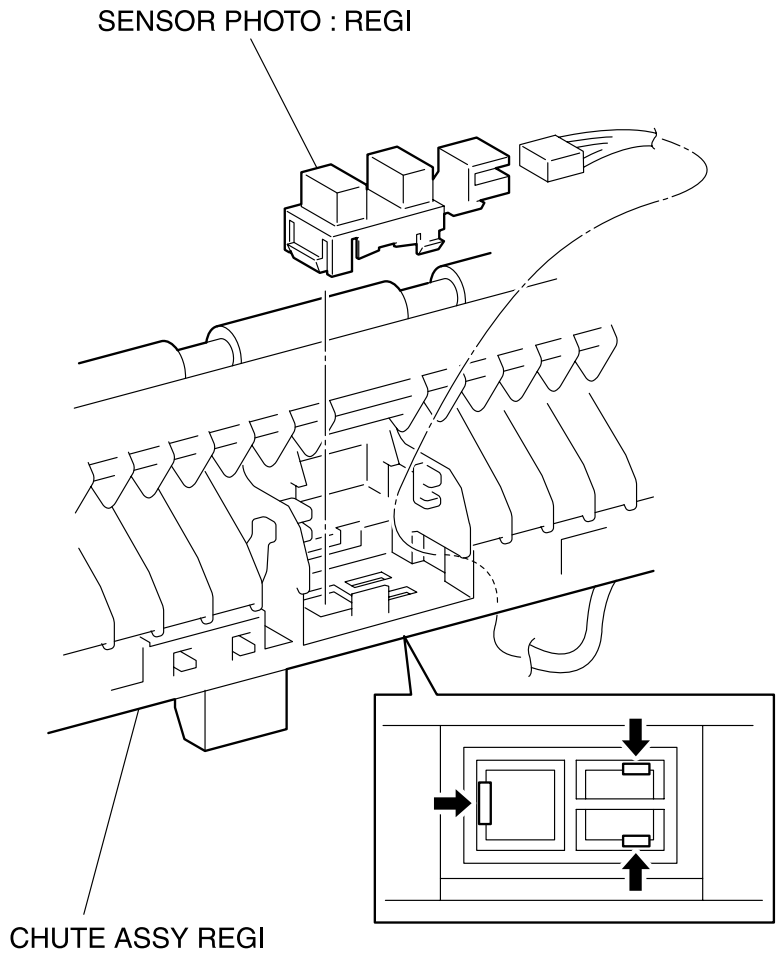

Figure: SENSOR PHOTO:REGI Removal

Removal

1) Remove the CHUTE ASSY REGI. (RRP9.3)
2) Remove the ACTUATOR REGI. (RRP9.5)
3) Remove the connector (P/J181) on the SENSOR PHOTO:REGI from the CHUTE ASSY REGI (PL9.1.6).
4) Release the hooks at 3 positions securing the SENSOR PHOTO:REGI to the SHUTE ASSY REGI.
5) Remove the SENSOR PHOTO:REGI from the CHUTE ASSY REGI.

Replacement

Replace the components in the reverse order of removal.

RRP9.5 ACTUATOR REGI (PL9.1.9)

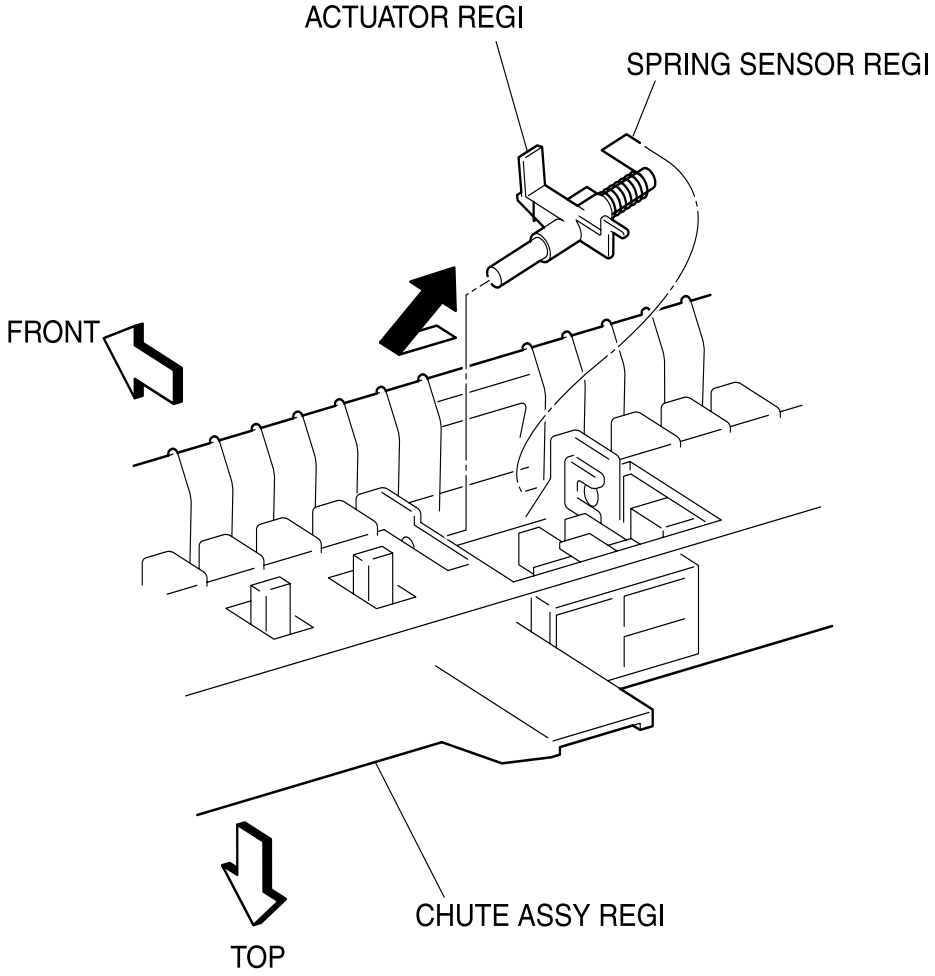

Figure: ACTUATOR REGI Removal

Removal

1) Remove the CHUTE ASSY REGI. (RRP9.3)
2) Holding the shielding portion of the ACTUATOR REGI from the CHUTE ASSY REGI (PL9.1.6), move the ACTUATOR REGI leftward and extract the right shaft of the ACTUATOR REGI from the bearing of the CHUTE ASSY REGI.
3) Pull out the ACTUATOR REGI from the CHUTE ASSY REGI together with the SPRING SENSOR REGI (PL9.1.10).
4) Remove the SPRING SENSOR REGI from the ACTUATOR REGI.

Replacement

Replace the components in the reverse order of removal.

RRP9.6 OHP SENSOR ASSY (PL9.1.12)

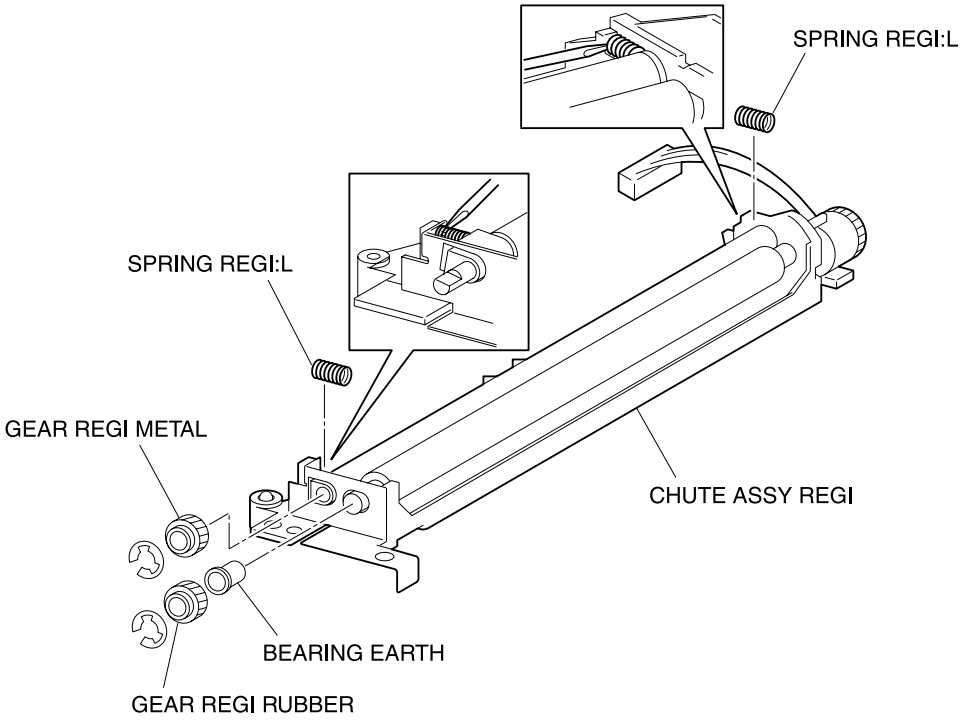

Figure: OHP SENSOR ASSY Removal (1)

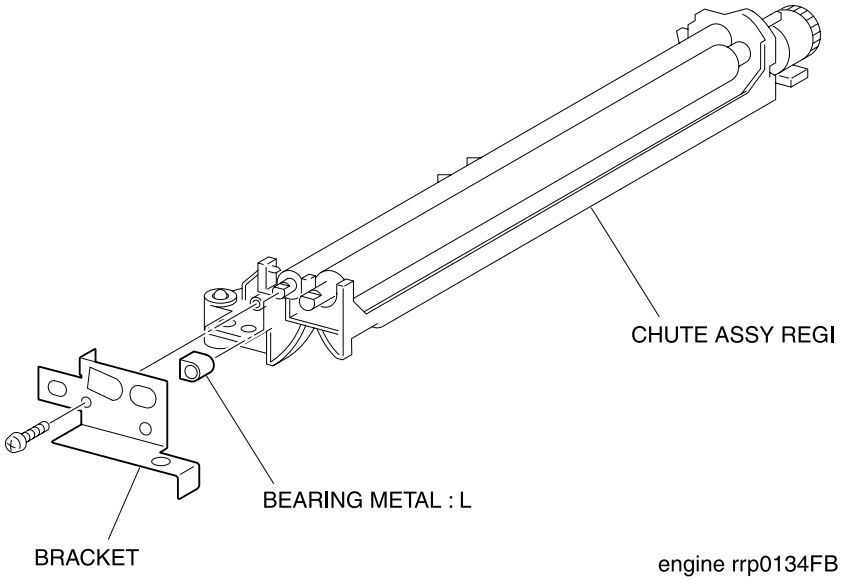

Figure: OHP SENSOR ASSY Removal (2)

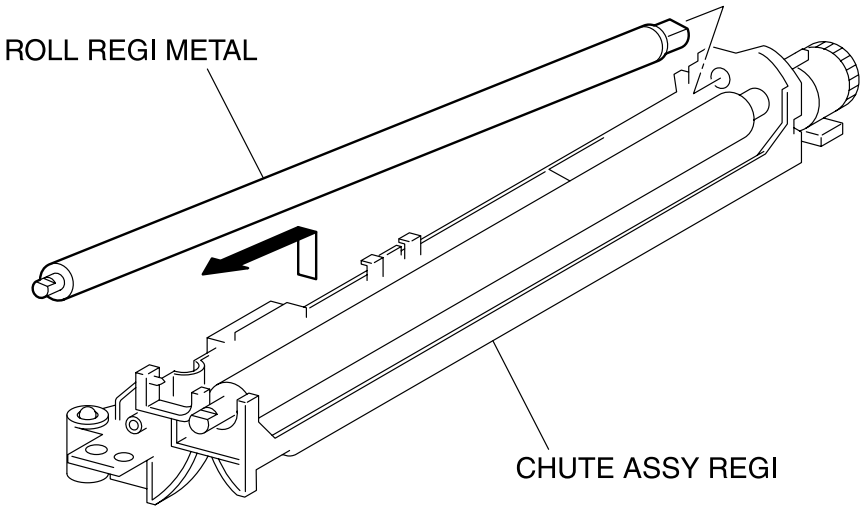

Figure: OHP SENSOR ASSY Removal (3)

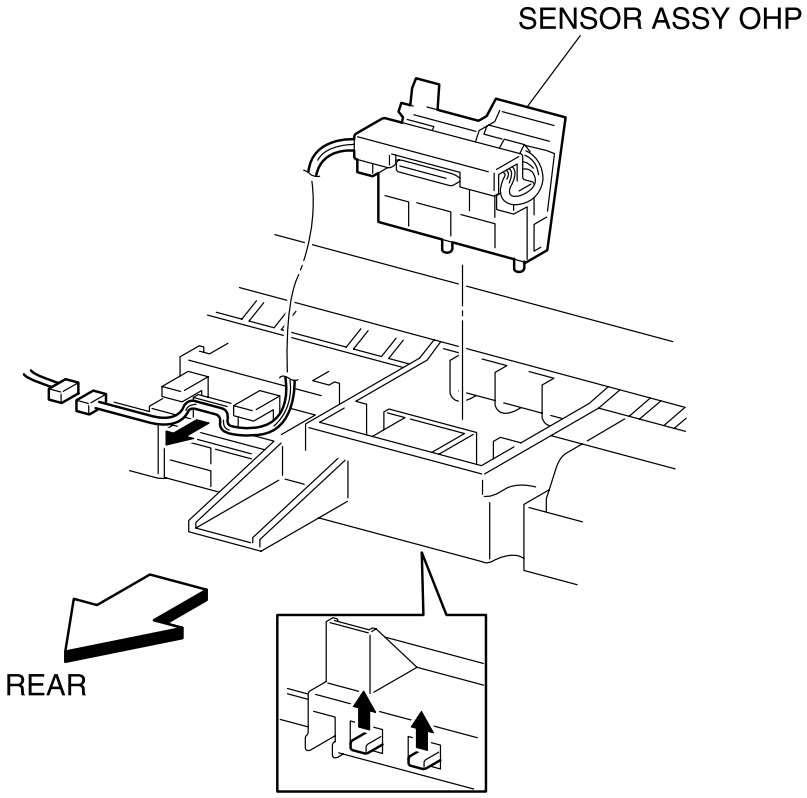

Figure: OHP SENSOR ASSY Removal (4)

Removal

1) Remove the CHUTE ASSY REGI. (RRP9.3)
2) Remove an E-ring that secures the GEAR REGI METAL from the CHUTE ASSY REGI (PL9.1.6), and pull out the GEAR REGI METAL of the left shaft of the ROLL REGI METAL.
3) Remove an E-ring that secures the GEAR REGI RUBBER from the CHUTE ASSY REGI, and pull out the GEAR REGI RUBBER of the left shaft of the ROLL REGI RUBBER.
4) Pull out the BEARING EARTH that secures the left shaft of the ROLL REGI RUBBER on the CHUTE ASSY REGI.

NOTE

In the following steps, take care not to lose the SPRING REGI:R and SPRING REGI:L as they will spring.

5) Remove the SPRING REGI:L from the right side of CHUTE ASSY REGI using a mini screwdriver.
6) From the left side surface of CHUTE ASSY REGI, remove a screw that secures the BRACKET ASSY.
7) Pull out the BEARING METAL L (black) that secures the left shaft of ROLL REGI METAL on the CHUTE ASSY REGI.
8) Raising the left shaft of ROLL REGI METAL, pull out the ROLL REGI METAL together with the BEARING METAL R (white) on the right shaft from the CHUTE ASSY REGI.
9) Release the hook at 2 position on the bottom of CHUTE ASSY REGI that secure the OHP SENSOR ASSY from the CHUTE ASSY REGI.
10) Remove the OHP SENSOR ASSY from the CHUTE ASSY REGI.

Replacement

Replace the components in the reverse order of removal.

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RRP10.TCRU ASSY

RRP10.1 HOLDER TCRU ASSY UNIT (REFERENCE ONLY)

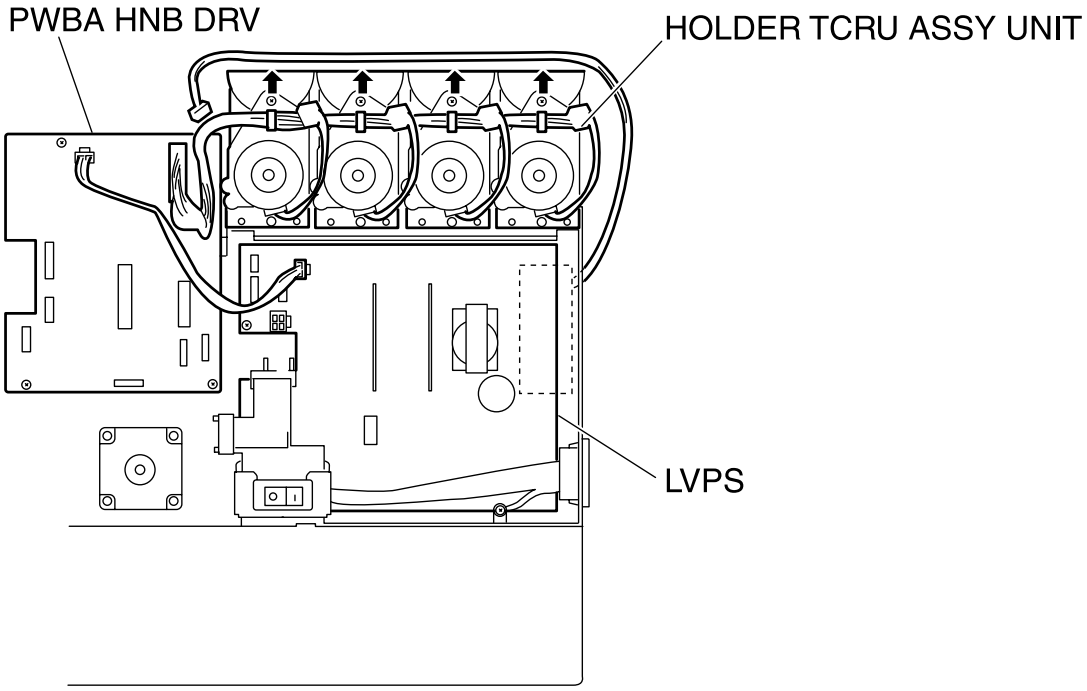

Figure: HOLDER TCRU ASSY UNIT Removal (1)

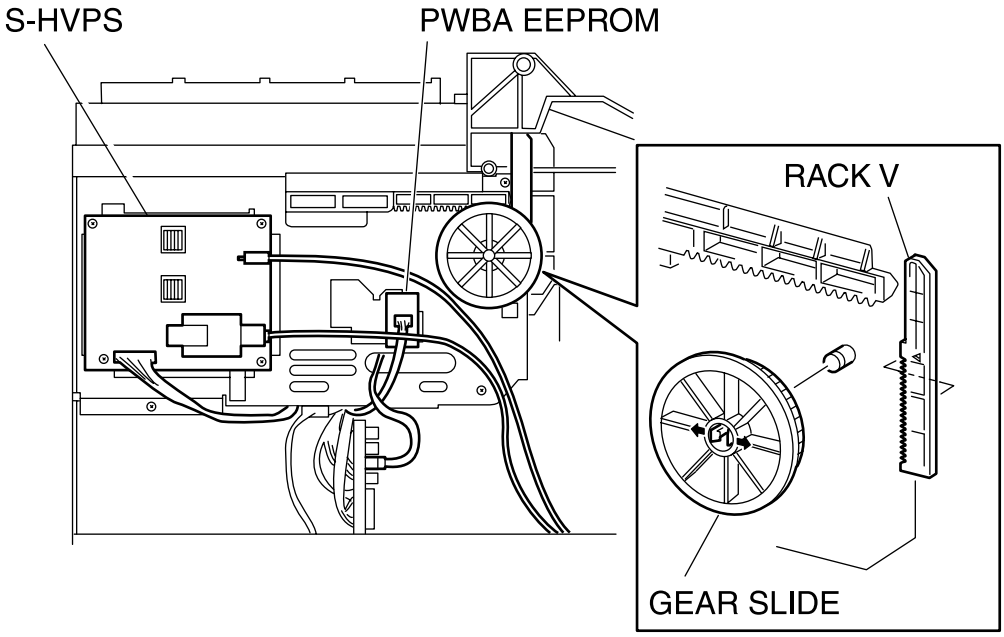

Figure: HOLDER TCRU ASSY UNIT Removal (2)

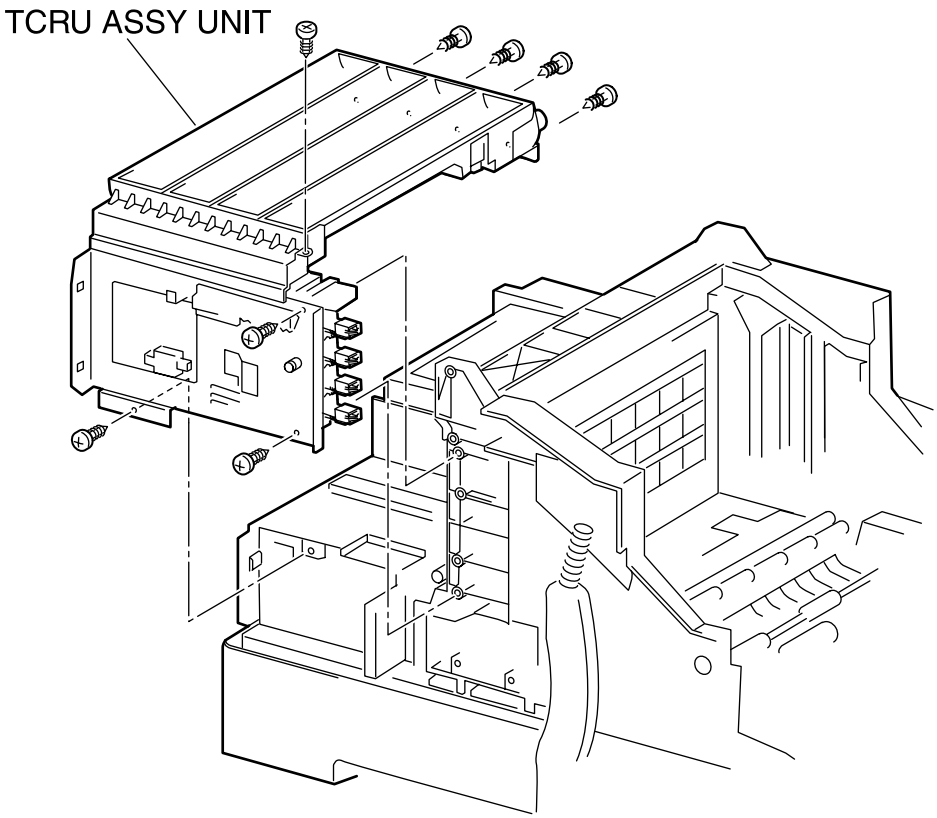

Figure: HOLDER TCRU ASSY UNIT Removal (3)

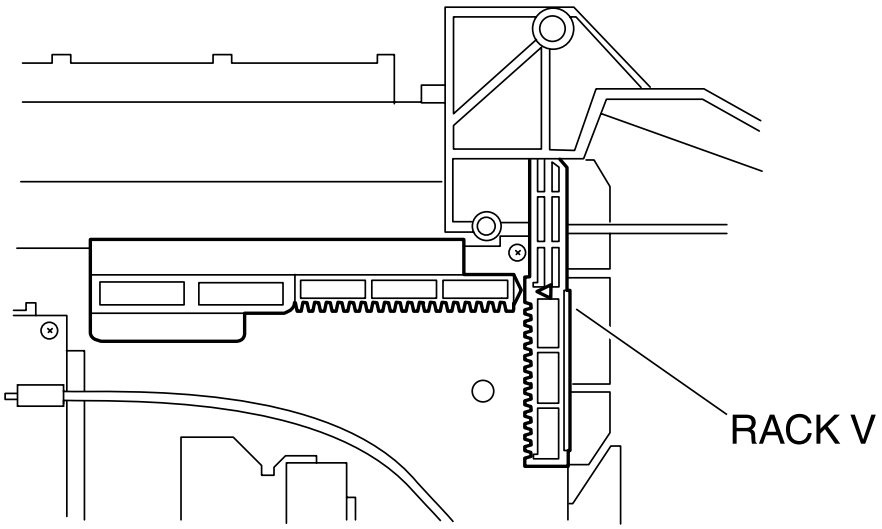

Figure: HOLDER TCRU ASSY UNIT Replacement

Removal

NOTE

When removing the HOLDER TCRU ASSY UNIT, remove the toner deposit on the HOLDER TCRU ASSY with a vacuum cleaner or the like before starting its removal process.

NOTE

When removing the toner deposit on the HOLDER TCRU ASSY with a vacuum cleaner, attach an earth code to the end of the cleaner to escape the static electricity.

NOTE

When removing the toner deposit on the HOLDER TCRU ASSY, be careful not to allow the toner to fly to the sensors on the HOLDER TCRU ASSY by the static electricity.

NOTE

Do not touch the sensor face.

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the COVER REAR. (RRP1.6)
12) Remove the connector (P/J166) of FAN REAR (PL12.1.2) on the LVPS STD (PL12.1.10) from the right side surface of the printer.
13) Shift the harness (P/J166) of the FAN REAR from the hook of the HOLDER TCRU ASSY (PL10.1.1, 2, 3, 4) on the right side surface of the printer.
14) Remove the connector (P/J51) on the PWBA HNB DRV (PL12.1.12) from the right side surface of the printer.
15) Remove the connector (P/J144) on the PWBA EFPROM STD (PL10.1.16) on the left side surface of the printer.
16) Remove the connector (P/J5020), connector (P/J5030), and connector (P/J5011) on the S-HVPS (PL10.1.17) on the left side surface of the printer.
17) From the printer, release the harness of the connector (P/J5011) from the clamp.
18) Release the hooks at 2 positions securing the GEAR SLIDE to the left side surface of the printer.
19) Remove the GEAR SLIDE from the printer.
20) Remove the RACK V from the printer.
21) Remove 8 screws securing the HOLDER TCRU ASSY UNIT to the printer.
22) Remove the HOLDER TCRU ASSY UNIT from the printer.

Replacement

Replace the components in the reverse order of removal.

NOTE

In replacing the GEAR SLIDE, meet the leading edge of gear rail on the left side with the vertex of a triangle mark on the RACK V.

RRP10.2 HOLDER TCRU ASSY (1) (PL10.1.1)

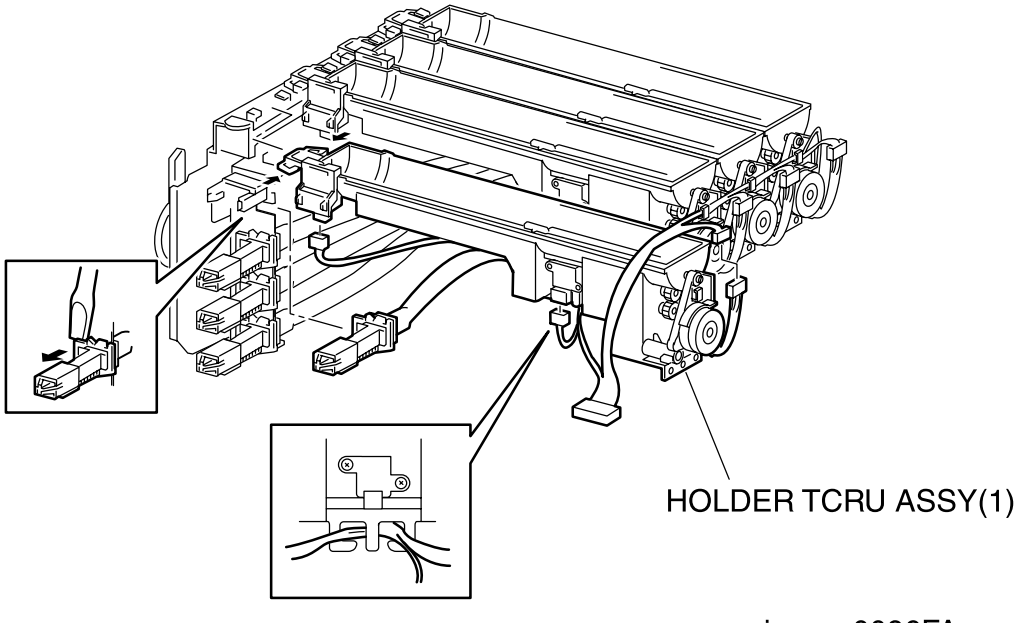

Figure: HOLDER TCRU ASSY (1) Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.5)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
12) From the HOLDER TCRU ASSY UNIT, release the hook securing the toner discharging unit of the HOLDER TCRU ASSY (1) on the PLATE ASSY DISPENSER L (PL10.1.9) with a mini screwdriver.
13) From the PLATE ASSY DISPENSER, pull out the toner discharging unit on the HOLDER TCRU ASSY (1) rightward.
14) Extract the connector (P/J511) of the motor from the right side surface of the HOLDER TCRU ASSY (1).
15) Extract the connector (P/J441) and connector (P/J431) from the HOLDER TCRU ASSY (1).
16) Shift the harness from the hook at the bottom portion of the HOLDER TCRU ASSY (1).
17) Release the hook securing the HOLDER TCRU ASSY (1) to the PLATE ASSY DISPENSER.
18) Slide the HOLDER TCRU ASSY (1) rightward from the HOLDER TCRU ASSY UNIT and remove the HOLDER TCRU ASSY (1).

Replacement

NOTE

Replace the components in the reverse order of removal.

Execute the following diagnosis after having exchanged HOLDER TCRU ASSY (1).

2.7.11 Holder Toner Assy (Chapter 2 Operation of Diagnostic)

RRP10.3 HOLDER TCRU ASSY (2) (PL10.1.2)

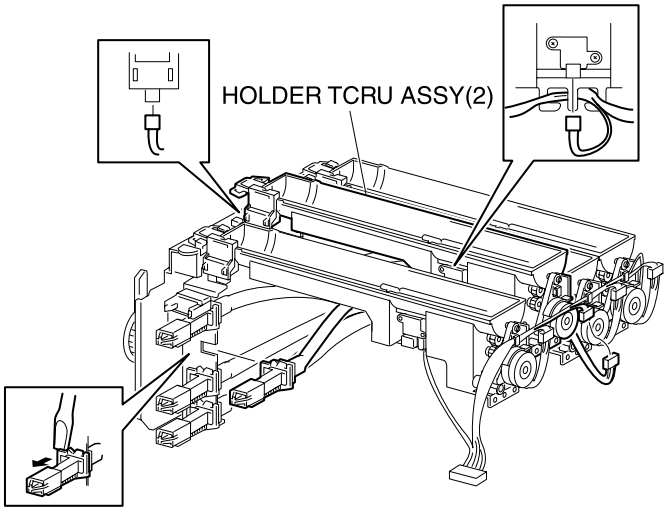

Figure: HOLDER TCRU ASSY (2) Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.5)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
12) From the HOLDER TCRU ASSY UNIT, release the hook securing the toner discharging unit of the HOLDER TCRU ASSY (2) on the PLATE ASSY DISPENSER L (PL10.1.9) with a mini screwdriver.
13) From the PLATE ASSY DISPENSER, pull out the toner discharging unit on the HOLDER TCRU ASSY (2) rightward.
14) Release the hook securing the HOLDER TCRU ASSY (2) to the PLATE ASSY DISPENSER.

NOTE

In the following steps, do not separate the HOLDER TCRU ASSY UNIT and HOLDER TCRU ASSY (2) too far since they are connected with harness.

15) After sliding the HOLDER TCRU ASSY (2) rightward from the HOLDER TCRU ASSY UNIT, raise the HOLDER TCRU ASSY (2) slightly.
16) Extract the motor connector (P/J512) from the right side surface of the HOLDER TCRU ASSY.
17) Extract the connector (P/J442) and connector (P/J432) from the HOLDER TCRU ASSY (2).
18) Shift the harness from the hook at the lower part of the HOLDER TCRU ASSY (2).

Replacement

Replace the components in the reverse order of removal.

NOTE

Execute the following diagnosis after having exchanged HOLDER TCRU ASSY (2).
2.7.11 Holder Toner Assy (Chapter 2 Operation of Diagnostic)

RRP10.4 HOLDER TCRU ASSY (3) (PL10.1.3)

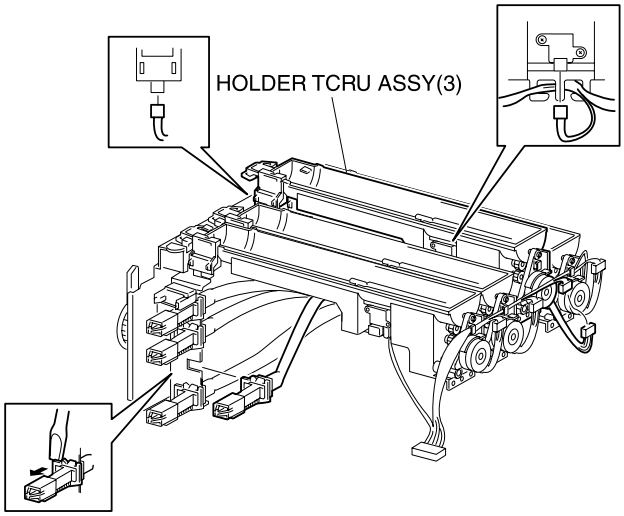

Figure: HOLDER TCRU ASSY (3) Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
12) From the HOLDER TCRU ASSY UNIT, release the hook securing the toner discharging unit of the HOLDER TCRU ASSY (3) on the PLATE ASSY DISPENSER L (PL10.1.9) with a mini screwdriver.
13) From the PLATE ASSY DISPENSER, pull out the toner discharging unit on the HOLDER TCRU ASSY (3) rightward.
14) Release the hook securing the HOLDER TCRU ASSY (3) to the PLATE ASSY DISPENSER.

NOTE

In the following steps, do not separate the HOLDER TCRU ASSY UNIT and HOLDER TCRU ASSY (3) too far since they are connected with harness.

15) After sliding the HOLDER TCRU ASSY (3) rightward from the HOLDER TCRU ASSY UNIT, raise the HOLDER TCRU ASSY (3) slightly.
16) Extract the motor connector (P/J513) from the right side surface of the HOLDER TCRU ASSY.
17) Extract the connector (P/J443) and connector (P/J433) from the HOLDER TCRU ASSY (3).
18) Shift the harness from the hook at the bottom portion of the HOLDER TCRU ASSY (3).

Replacement

Replace the components in the reverse order of removal.

NOTE

Execute the following diagnosis after having exchanged HOLDER TCRU ASSY (3).
2.7.11 Holder Toner Assy (Chapter 2 Operation of Diagnostic)

RRP10.5 HOLDER TCRU ASSY (4) (PL10.1.4)

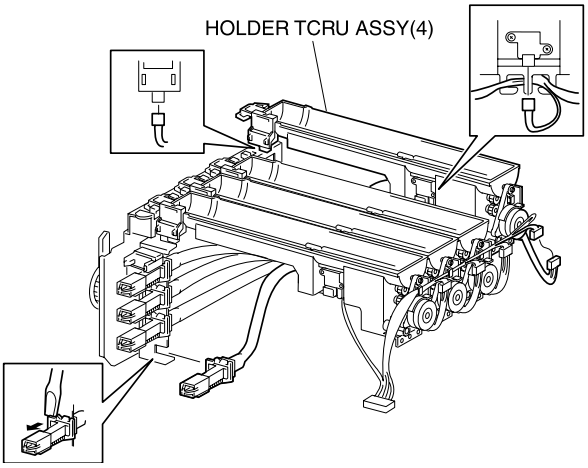

Figure: HOLDER TCRU ASSY (4) Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
12) From the HOLDER TCRU ASSY UNIT, release the hook securing the toner discharging unit of the HOLDER TCRU ASSY (4) on the PLATE ASSY DISPENSER L (PL10.1.9) with a mini screwdriver.
13) From the PLATE ASSY DISPENSER, pull out the toner discharging unit on the HOLDER TCRU ASSY (4) rightward.
14) Release the hook securing the HOLDER TCRU ASSY (4) to the PLATE ASSY DISPENSER.

NOTE

In the following steps, do not separate the HOLDER TCRU ASSY UNIT and HOLDER TCRU ASSY (4) too far since they are connected with harness.

15) After sliding the HOLDER TCRU ASSY (4) rightward from the HOLDER TCRU ASSY UNIT, raise the HOLDER TCRU ASSY (4) slightly.
16) Extract the motor connector (P/J514) from the right side surface of the HOLDER TCRU ASSY.
17) Extract the connector (P/J444) and connector (P/J434) from the HOLDER TCRU ASSY (4).
18) Shift the harness from the hook at the bottom portion of the HOLDER TCRU ASSY (4).

Replacement

Replace the components in the reverse order of removal.

NOTE

Execute the following diagnosis after having exchanged HOLDER TCRU ASSY (4).
2.7.11 Holder Toner Assy (Chapter 2 Operation of Diagnostic)

RRP10.6 SWITCH TCRU ASSY (PL10.1.18)

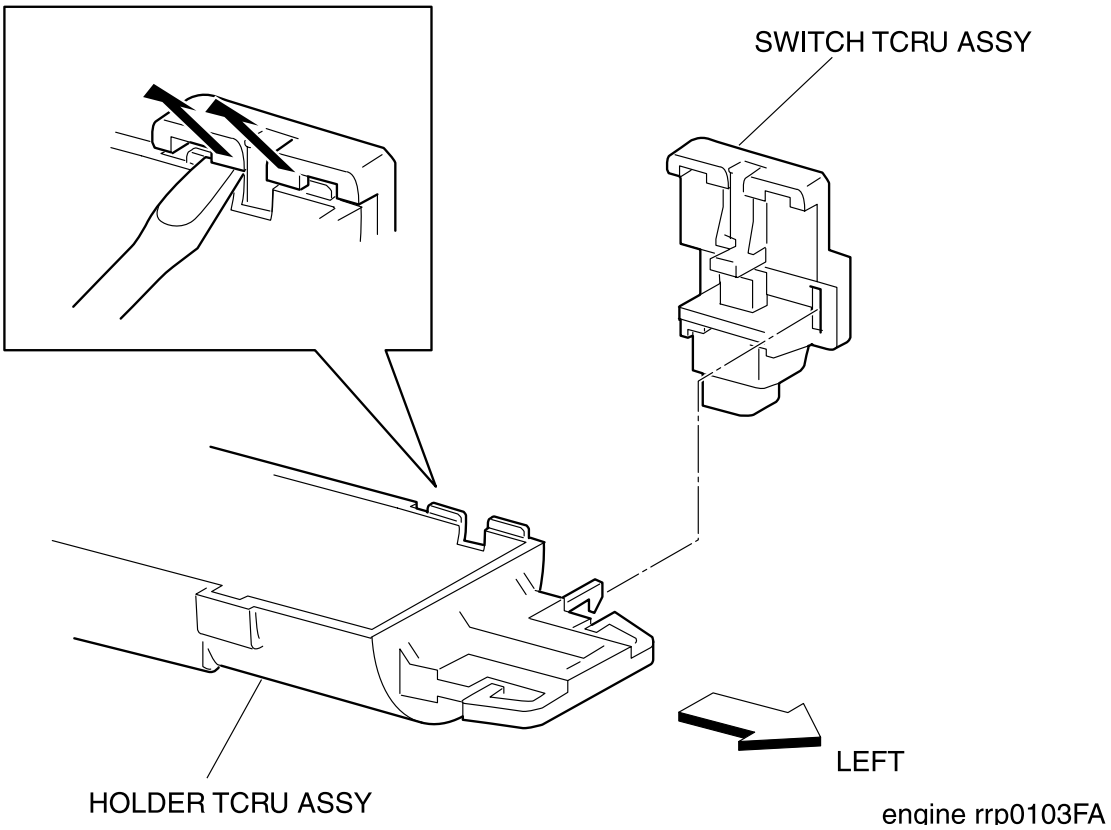

Figure: SWITCH TCRU ASSY Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
12) Remove the HOLDER TCRU ASSY. (RRP10.2, 3, 4, 5)
13) Release the hooks at 2 positions securing the SWITCH TCRU ASSY to the HOLDER TCRU ASSY (PL10.1.1, 2, 3, 4) with a mini screwdriver.
14) Remove the SWITCH TCRU ASSY from the HOLDER TCRU ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP10.7 SENSOR TONER LOW (PL10.1.8)

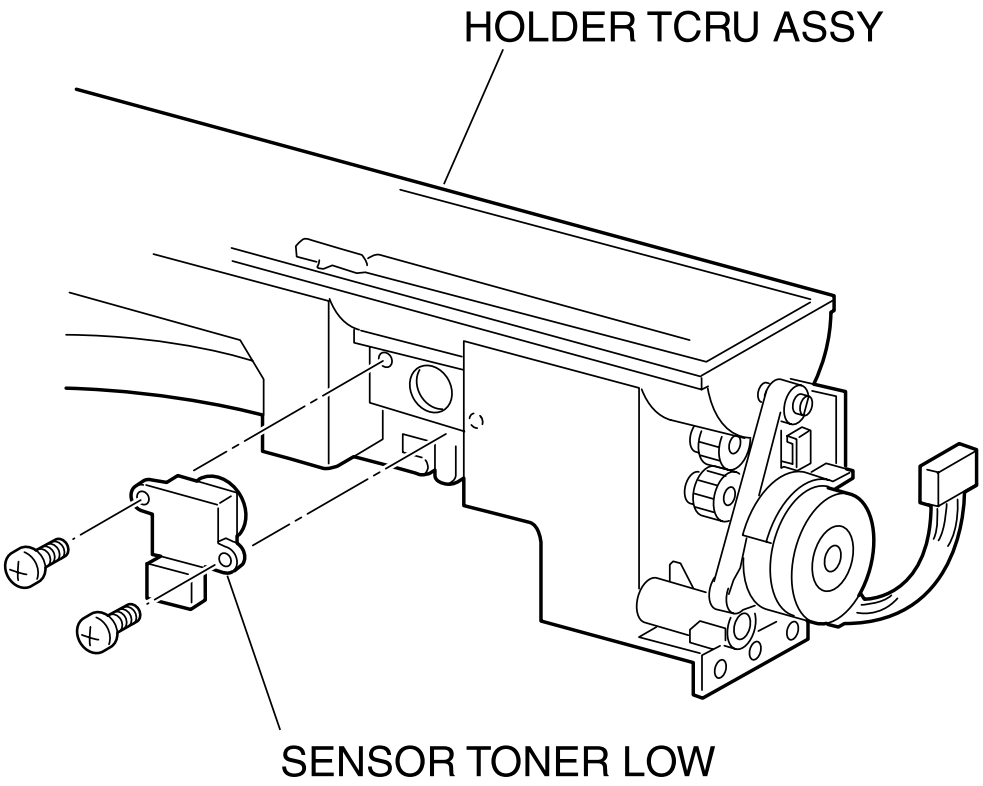

Figure: SENSOR TONER LOW Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the COVER SIDE R. (RRP1.9)
11) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
12) Remove the HOLDER TCRU ASSY. (RRP10.2,3,4,5)
13) Remove 2 screws securing the SENSOR TONER LOW to the HOLDER TCRU ASSY (PL10.1.1, 2, 3, 4).
14) Remove the SENSOR TONER LOW from the HOLDER TCRU ASSY.

Replacement

Replace the components in the reverse order of removal.

RRP10.8 PWBA EEPROM STD (PL10.1.16)

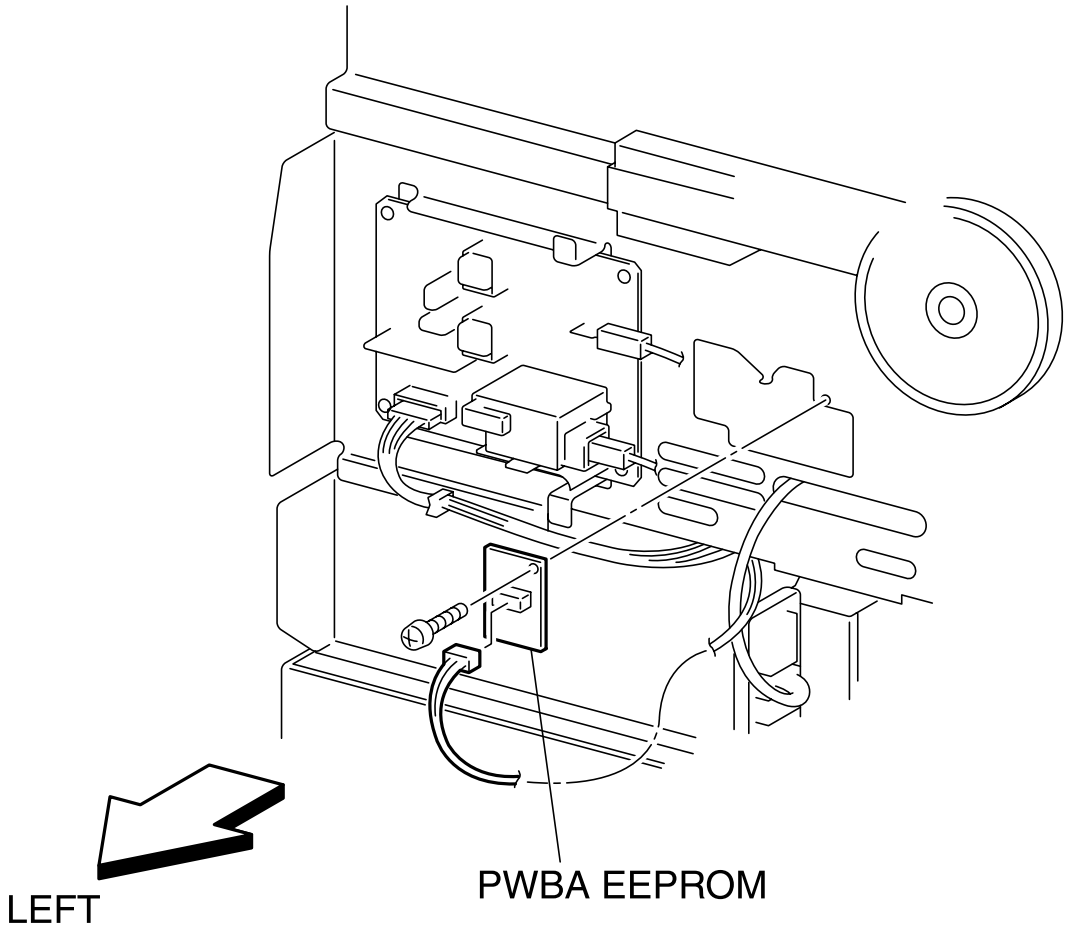

Figure: PWBA EEPROM STD Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the connector (P/J144) on the PWBA EEPROM from the left side surface of the printer.
11) Remove 1 screw securing the PWBA EEPROM.
12) Remove the PWBA EEPROM from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP10.9 S-HVPS (PL10.1.17)

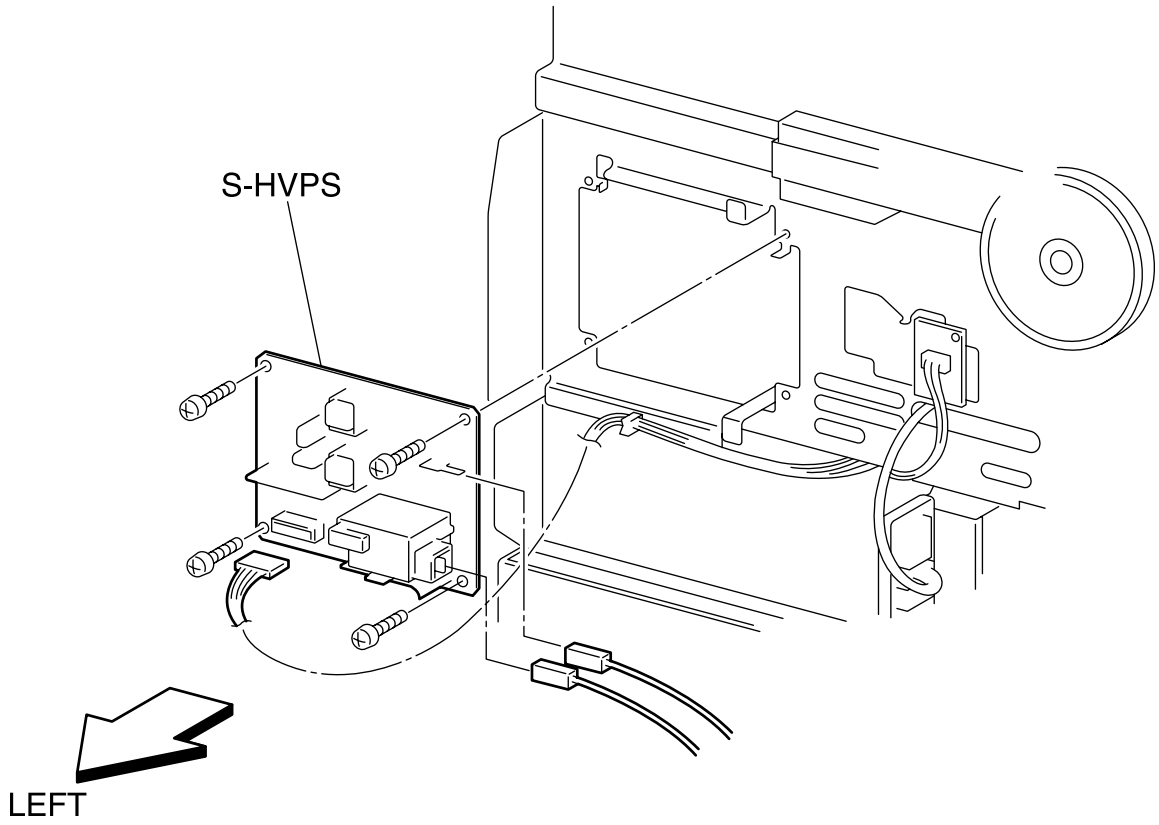

Figure: S-HVPS Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the connector (P/J5011) on the S-HVPS (PL10.1.17) from the left side surface of the printer.
11) Remove the connector (P/J5030) on the S-HVPS.
12) Remove the connector (P/J5020) on the S-HVPS.
13) Remove 4 screws securing the S-HVPS.
14) Remove the S-HVPS from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP11.FRAME & DRIVE

RRP11.1 LEVER DRUM:L (PL11.1.4)

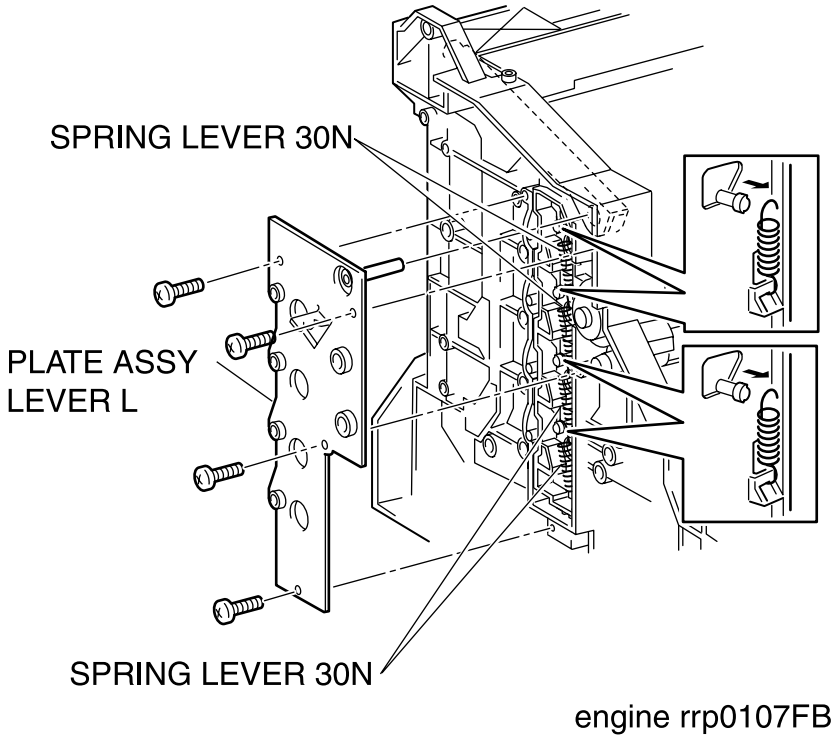

Figure: LEVER DRUM:L Removal (1)

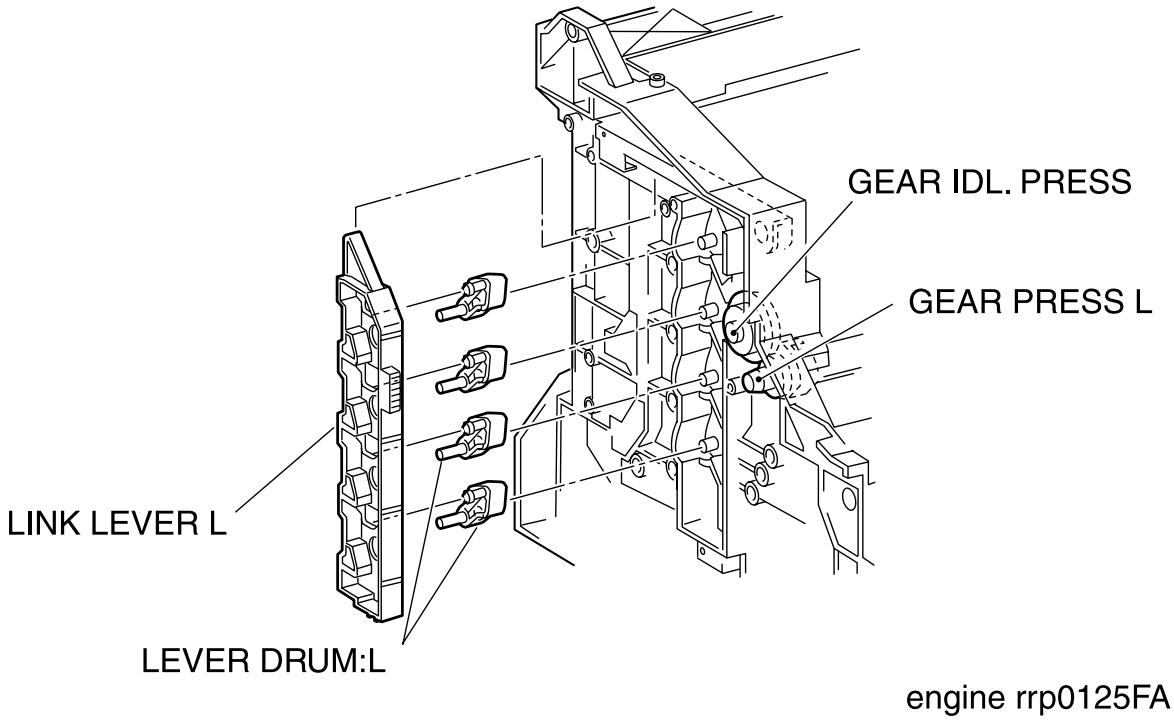

Figure: LEVER DRUM:L Removal (2)

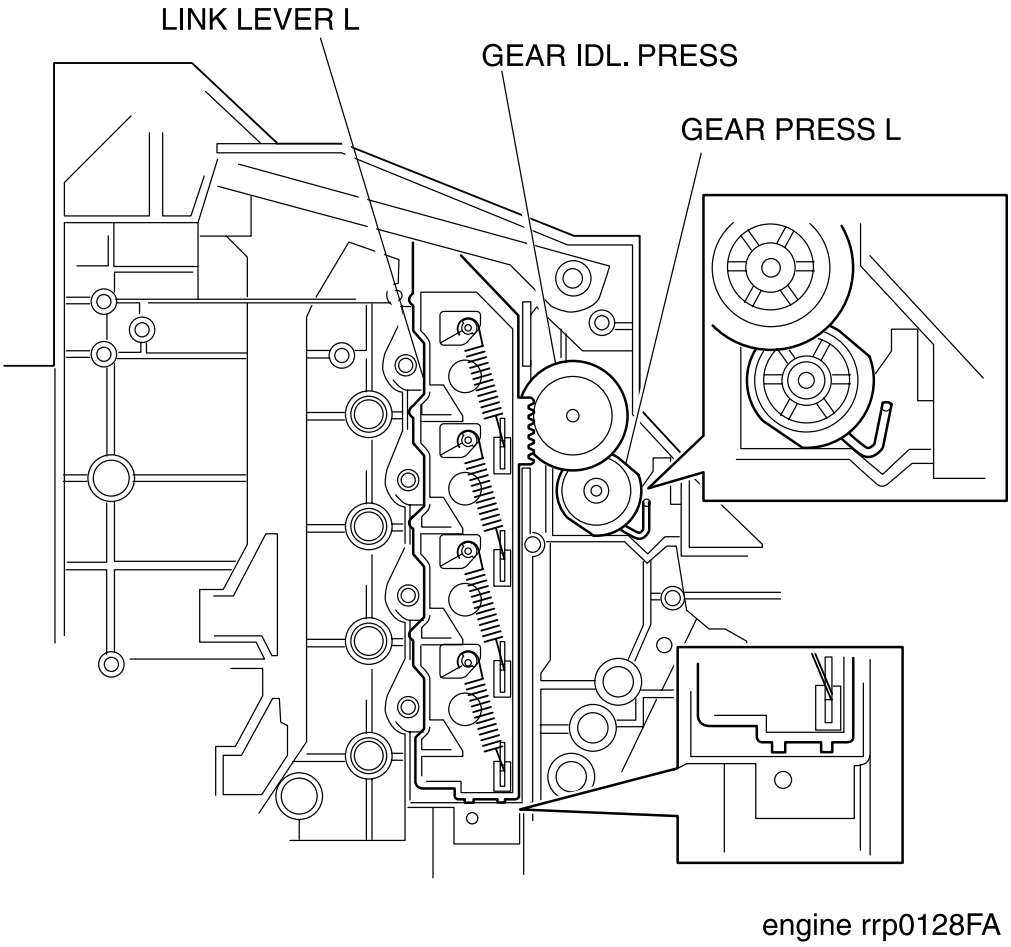

Figure: LEVER DRUM:L Replacement

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
3) Remove the COVER MSI. (RRP1.11)
4) Remove the TRAY ASSY MSI. (RRP1.12)
5) Remove the COVER ASSY FRONT. (RRP1.13)
6) Remove the COVER ASSY FRONT IN. (RRP1.10)
7) Remove the COVER SIDE L. (RRP1.14)
8) Remove the COVER ASSY TOP PHD. (RRP1.5)
9) Remove the LINK:L. (RRP1.7)
10) Remove the HSG ASSY BIAS. (RRP9.2)
11) Remove 4 screws securing the PLATE ASSY LEVER L (PL11.1.1) from the left side surface of the printer.
12) Remove the PLATE ASSY LEVER L from the printer.
13) Release the hook of the SPRING LEVER 30N (PL11.1.5) hitched over the convex portion of the 4 LEVER DRUM from the left side surface of the printer.
14) Remove the LINK LEVER: L (PL11.1.3) from the printer together with the SPRING LEVER:30N
15) Remove the LEVER DRUM:L from the printer.

Replacement

Replace the components in the reverse order of removal.

NOTE

In replacing the LINK LEVER (PL11.1.3), align the SPRING IDT L (PL11.1.17) and the bottom of LINK LEVER L with the positions shown in the figure (LEVER DRUM:L Replacement).

RRP11.2 LEVER DRUM:R (PL11.1.4)

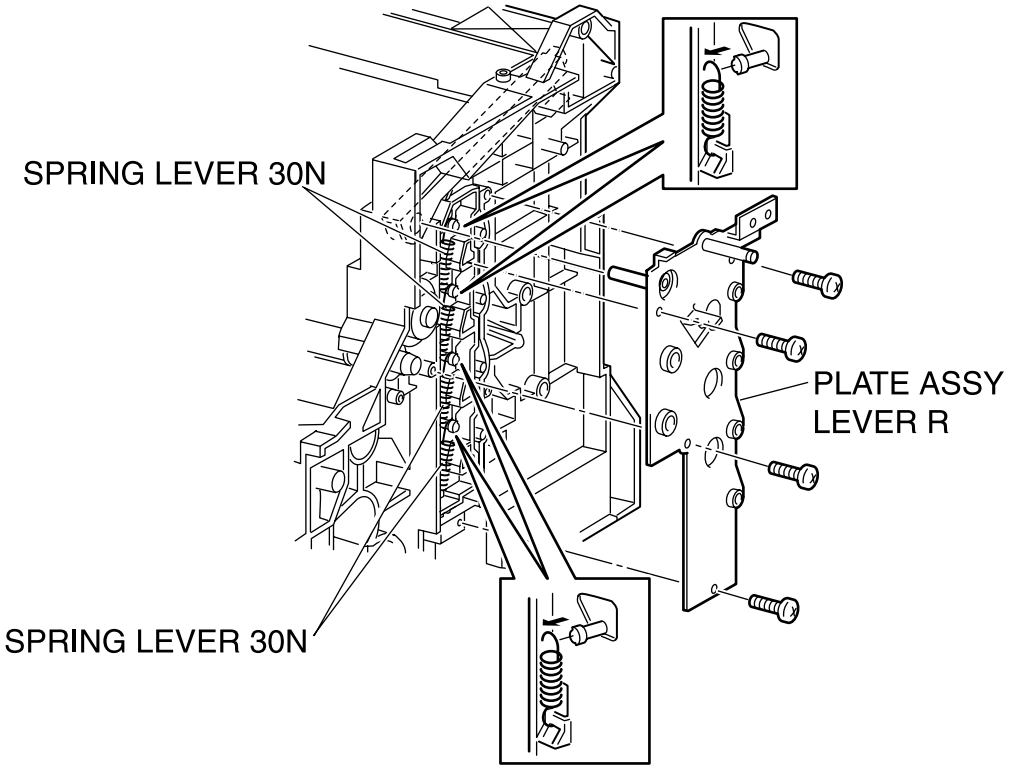

Figure: LEVER DRUM:R Removal (1)

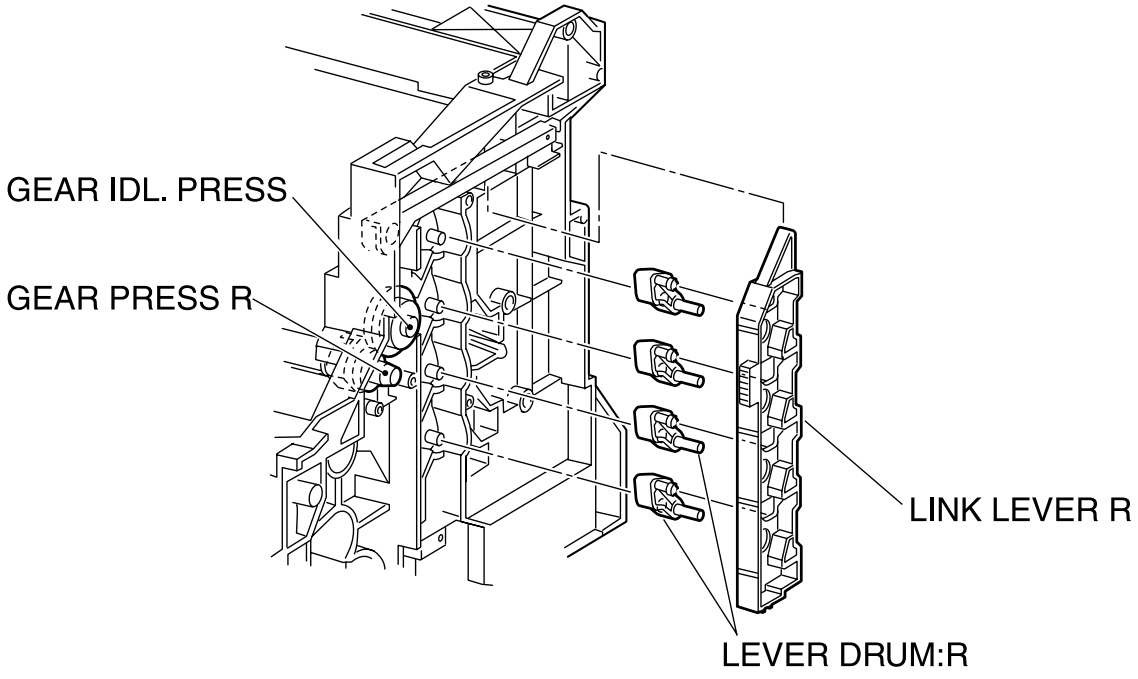

Figure: LEVER DRUM:R Removal (2)

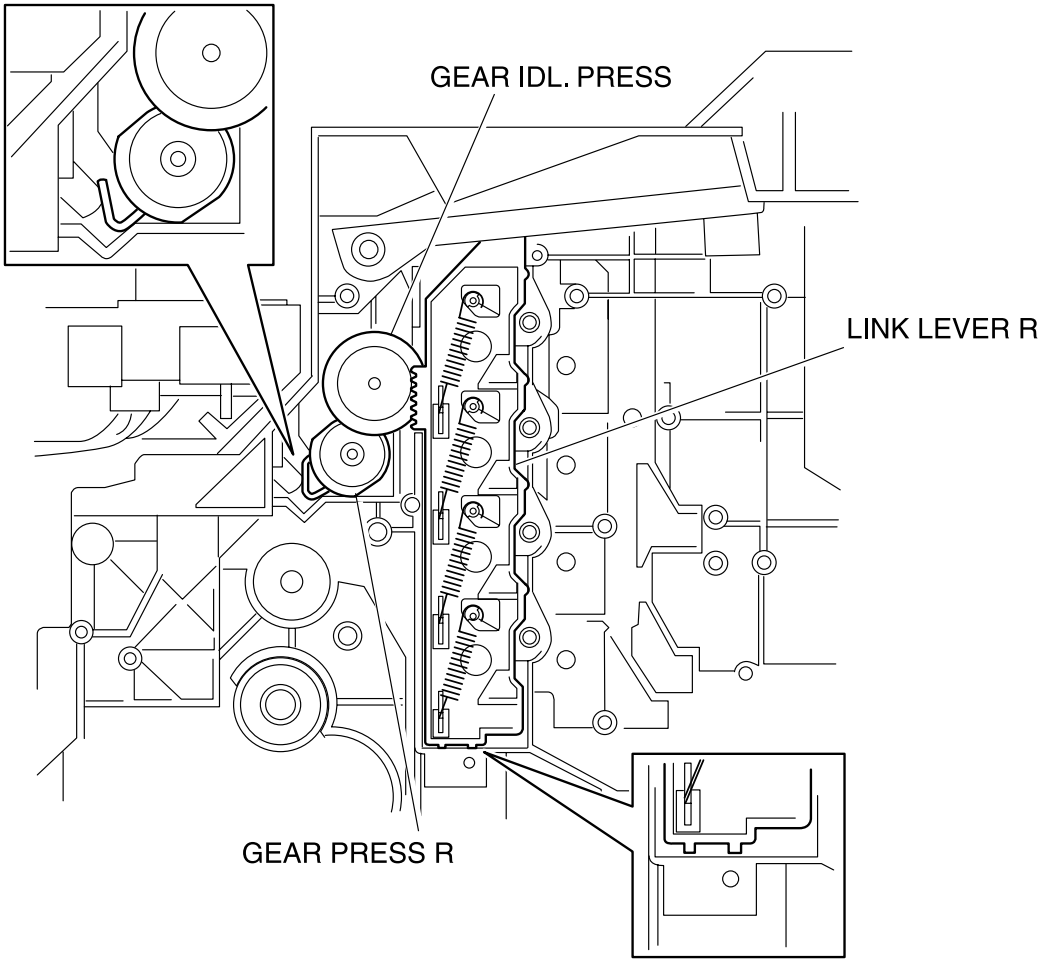

Figure: LEVER DRUM:R Replacement

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
3) Remove the COVER MSI. (RRP1.11)
4) Remove the TRAY ASSY MSI. (RRP1.12)
5) Remove the COVER ASSY FRONT. (RRP1.13)
6) Remove the COVER ASSY FRONT IN. (RRP1.10)
7) Remove the COVER SIDE L. (RRP1.14)
8) Remove the COVER SIDE R. (RRP1.9)
9) Remove the COVER ASSY TOP PHD. (RRP1.5)
10) Remove the LINK:R. (RRP1.8)
11) Remove the MAIN DRIVE ASSY. (RRP11.5)
12) Remove the DEVE DRIVE ASSY. (RRP11.4)
13) Remove the ACTUATOR I/R. (RRP11.3)
14) Remove 4 screws securing the PLATE ASSY LEVER R (PL11.1.7) from the right side surface of the printer.
15) Remove the PLATE ASSY LEVER R from the printer.

16) Release the hook of the SPRING LEVER 30N (PL11.1.5) hitched over the convex portion of the 4 LEVER DRUM:R from the right side surface of the printer.
17) Remove the LINK LEVER:R (PL11.1.6) from the printer together with the SPRING LEVER 30N.
18) Remove the LEVER DRUM:R from the printer.

Replacement

Replace the components in the reverse order of removal.

NOTE

In replacing the LINK LEVER R (PL11.1.6), align the SPRING IDT R (PL11.1.12) and the bottom of LINK LEVER L with the positions shown in the figure (LEVER DRUM:L Replacement).

RRP11.3 ACTUATOR I/R (PL11.1.8)

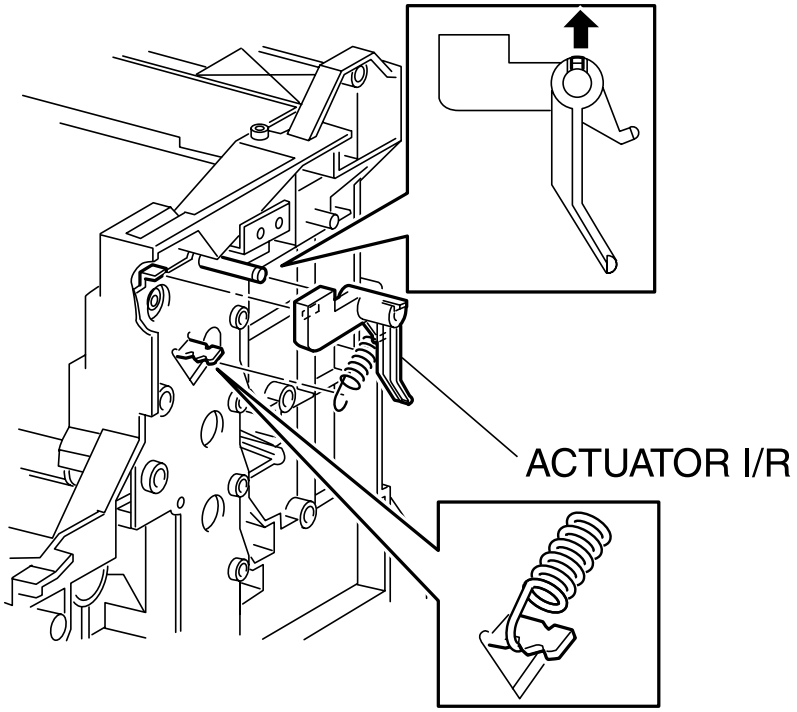

Figure: ACTUATOR I/R Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
3) Remove the COVER MSI. (RRP1.11)
4) Remove the TRAY ASSY MSI. (RRP1.12)
5) Remove the COVER ASSY FRONT. (RRP1.13)
6) Remove the COVER ASSY FRONT IN. (RRP1.10)
7) Remove the COVER SIDE L. (RRP1.14)
8) Remove the COVER SIDE R. (RRP1.9)
9) Remove the COVER ASSY TOP PHD. (RRP1.5)
10) Remove the LINK:R. (RRP1.8)
11) Remove the MAIN DRIVE ASSY. (RRP11.5)
12) Remove the DEVE DRIVE ASSY. (RRP11.4)
13) From the right side surface of the printer, release the hook of the SPRING I/R (PL11.1.9) hitched over the convex portion of the PLATE ASSY LEVER R (PL11.1.7).
14) From the printer, release the hook at 1 position securing the ACTUATOR I/R to the shaft on the PLATE ASSY LEVER R.
15) Remove the ACTUATOR I/R from the PLATE ASSY LEVER R together with the SPRING I/R.
16) Remove the SPRING I/R from the ACTUATOR I/R.

Replacement

Replace the components in the reverse order of removal.

RRP11.4 DEVE DRIVE ASSY (PL11.1.13)

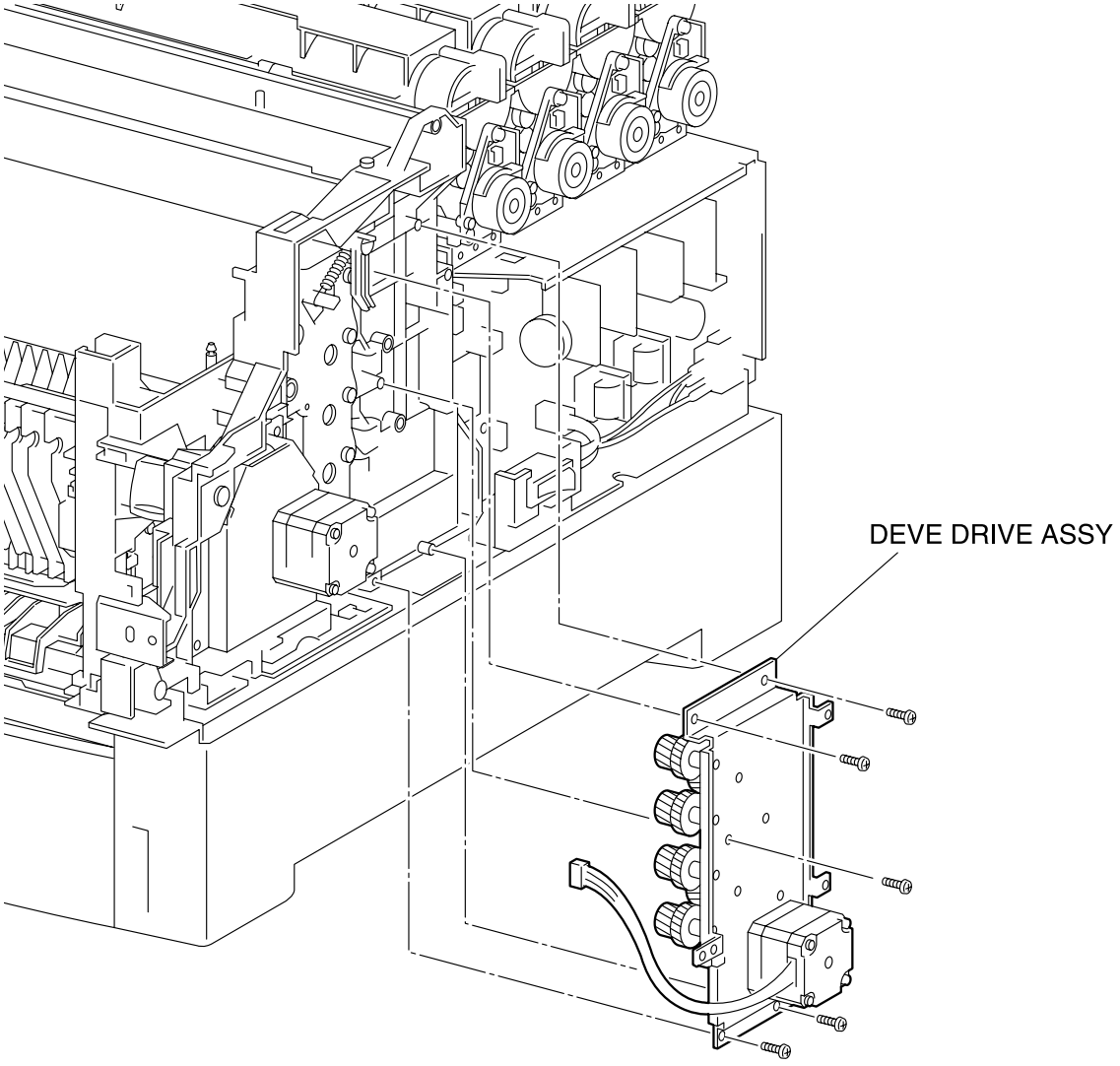

Figure: DEVE DRIVE ASSY Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Remove the COVER SIDE R. (RRP1.9)
4) Remove the PWBA HNB DRV. (RRP12.6)
5) Remove 5 screws securing the DEVE DRIVE ASSY from the right side surface of the printer.
6) Remove the DEVE DRIVE ASSY from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP11.5 MAIN DRIVE ASSY (PL11.1.14)

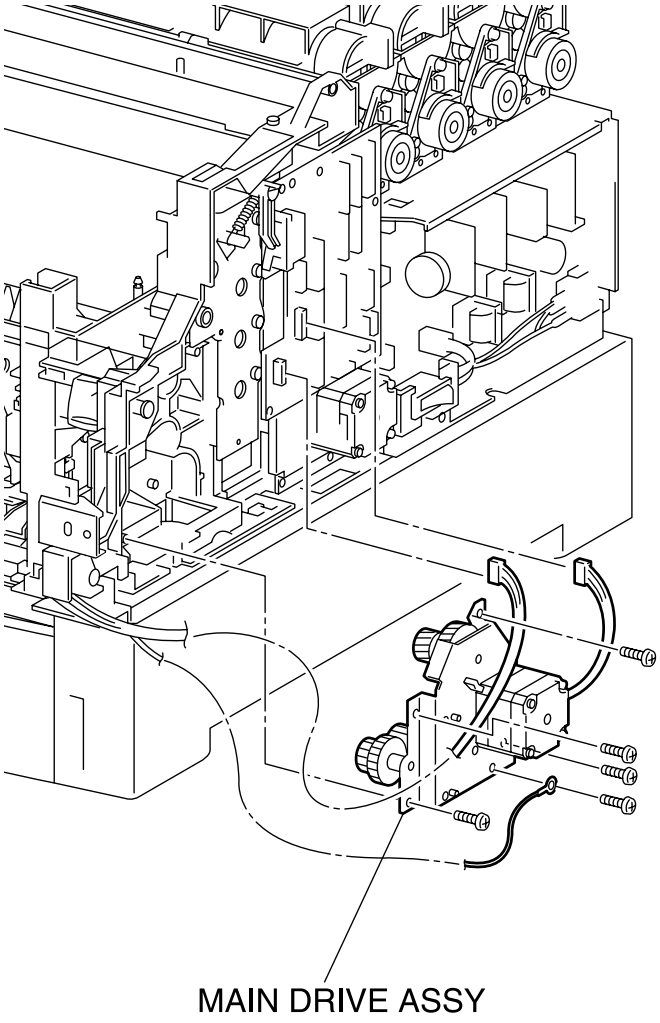

Figure: MAIN DRIVE ASSY Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Remove the COVER SIDE R. (RRP1.9)
4) Remove the LINK:R. (RRP1.8)
5) Remove the connector (P/J48) on the PWBA HNB DRV (PL12.1.12) from the right side surface of the printer.
6) Remove the connector (P/J52) on the PWBA HNB DRV.
7) Release the harness (P/J52) from the clamp on the MAIN DRIVE ASSY on the right side surface of the printer.
8) Remove a screw securing the edge (P/J235) of the WIRE ASSY FSR EARTH (PL5.1.20) to the MAIN DRIVE ASSY (PL11.1.14).
9) Remove 4 screws securing the MAIN DRIVE ASSY to the printer.
10) Remove the MAIN DRIVE ASSY from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP11.6 PWBA ASSY EARTH (PL11.1.16)

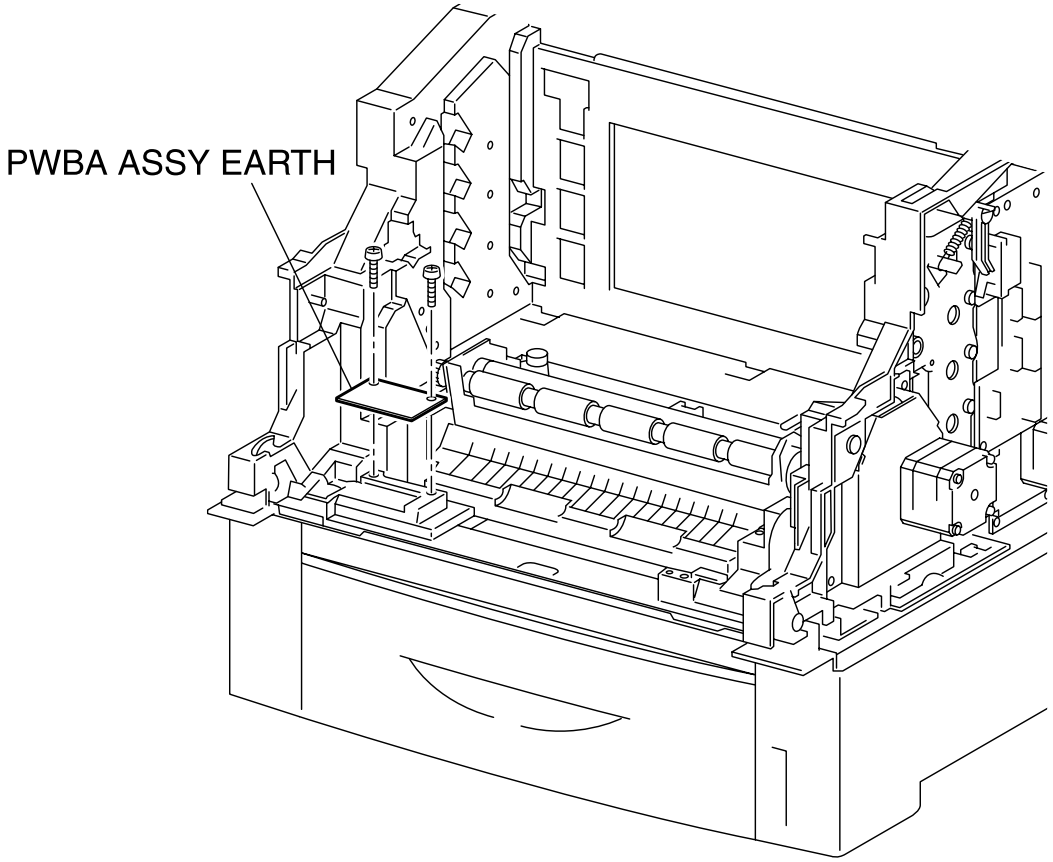

Figure: PWBA ASSY EARTH Removal

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the BTR UNIT ASSY. (RRP8.4)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the CHUTE ASSY EXIT. (RRP7.1)
9) Remove the COVER ASSY FRONT IN. (RRP1.10)
10) Remove the COVER SIDE L. (RRP1.14)
11) Remove the COVER SIDE R. (RRP1.9)
12) Remove the CHUTE ASSY OUT. (RRP6.1)
13) Remove the FRONT ASSY IN. (RRP5.1)
14) Remove 2 screws securing the PWBA ASSY EARTH to the printer.
15) Remove the PWBA ASSY EARTH from the printer.

Replacement

Replace the components in the reverse order of removal.

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RRP12.ELECTRICAL

RRP12.1 PWBA HNB MCU (PL12.1.1)

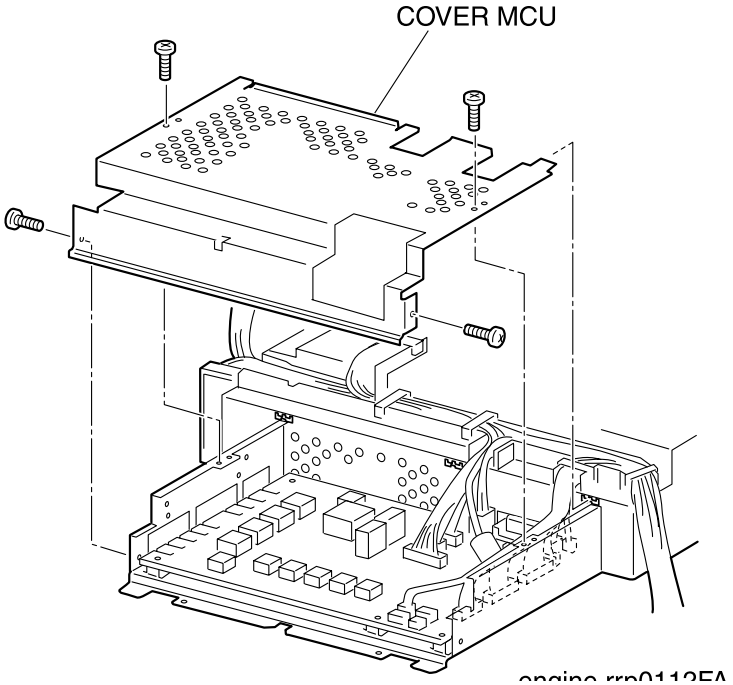


Figure: PWBA HNB MCU Removal (1)

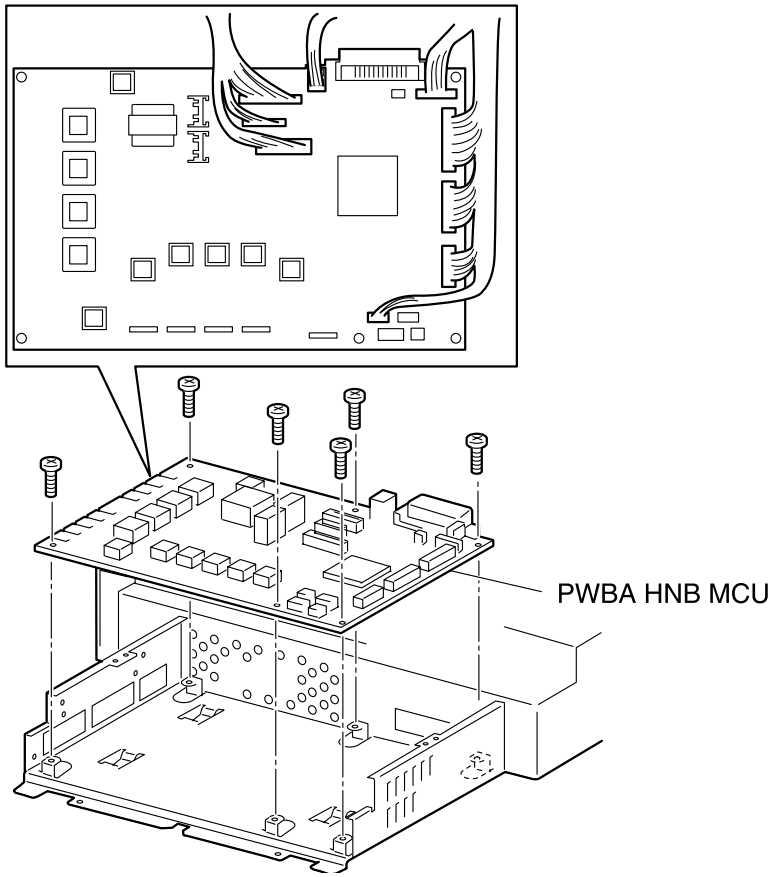


Figure: PWBA HNB MCU Removal (2)

Removal

1) Save the Life/Adjustment Data (Chapter 2 Operation of Diagnostic, 2.7.5)
1) Remove the CONTROLLER BOARD. (RRP12.3)
2) Remove the CHUTE ASSY REGI. (RRP9.3)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the HSG ASSY BIAS. (RRP9.2)
11) Remove the COVER SIDE R. (RRP1.9)
12) Remove the COVER ASSY TOP PHD. (RRP1.5)
13) Remove the COVER REAR. (RRP1.6)
14) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
15) Remove the PWBA HNB DRV. (RRP12.6)
16) Remove the LVPS STD. (RRP12.4)
17) Remove the BOX ASSY MCU/ESS. (RRP12.7)
18) Remove the HOUSING ASSY CONTACT. (RRP12.8)
19) Remove 4 screws securing the COVER MCU to the BOX ASSY MCU/ESS.
20) Remove the COVER MCU from the BOX ASSY MCU/ESS.
21) Remove the all connectors on the PWBA HNB MCU from the BOX ASSY MCU/ESS.
22) Remove 6 screws securing the PWBA HNB MCU to the BOX ASSY MCU/ESS.
23) Remove the PWBA HNB MCU from the BOX ASSY MCU/ESS.

Replacement

Replace the components in the reverse order of removal.

NOTE

If the replacement PWBA HNB MCU has been previously used in another printer, the Slave data must be initialized. Refer to **2.7.9 Initialize Slave (Chapter 2 Operation of Diagnostic)**

Restore the Life/Adjustment Data (Chapter 2 Operation of Diagnostic, 2.7.6)

RRP12.2 FAN REAR (PL12.1.2)

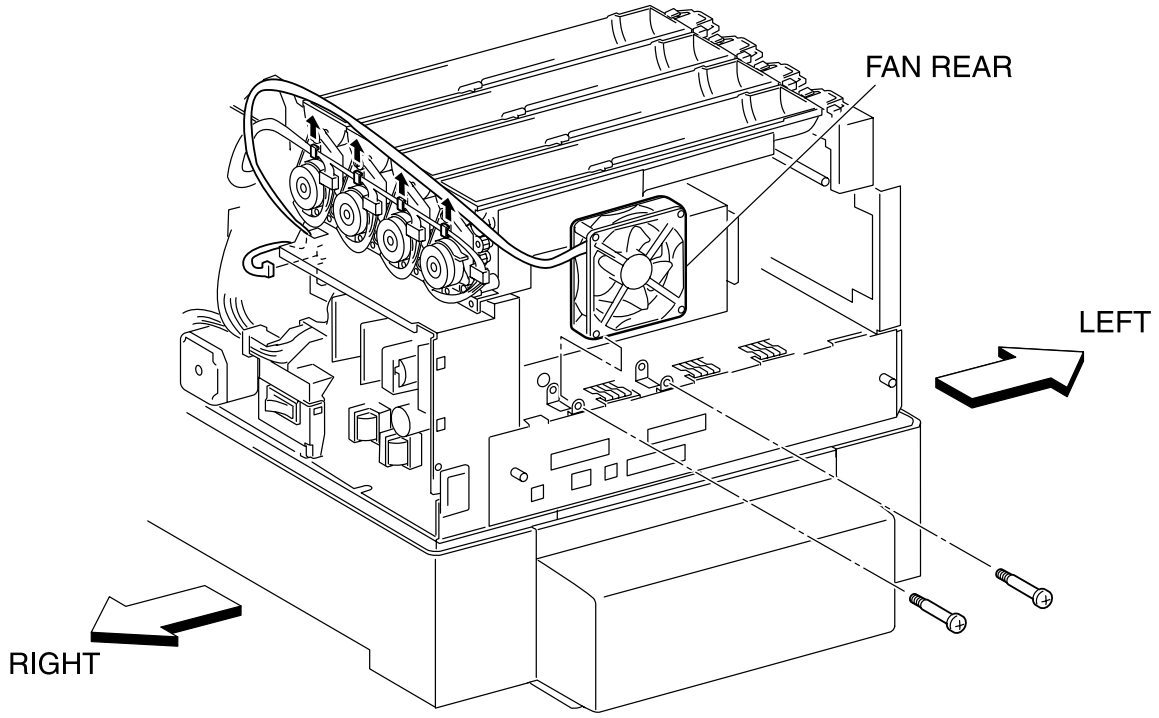


Figure: FAN REAR Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
3) Remove the COVER MSI. (RRP1.11)
4) Remove the TRAY ASSY MSI. (RRP1.12)
5) Remove the COVER ASSY FRONT. (RRP1.13)
6) Remove the COVER ASSY FRONT IN. (RRP1.10)
7) Remove the COVER SIDE L. (RRP1.14)
8) Remove the COVER SIDE R. (RRP1.9)
9) Remove the COVER REAR. (RRP1.6)
10) Remove the connector (P/J166) on the LVPS from the right side surface of the printer.
11) Shift the harness (P/J166) of the FAN REAR from 3 hooks of the HOLDER TCRU ASSY of the printer.
12) Remove 2 screws securing the FAN REAR from the printer.
13) Remove the FAN REAR from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP12.3 CONTROLLER BOARD (PL12.1.4)(TBD)

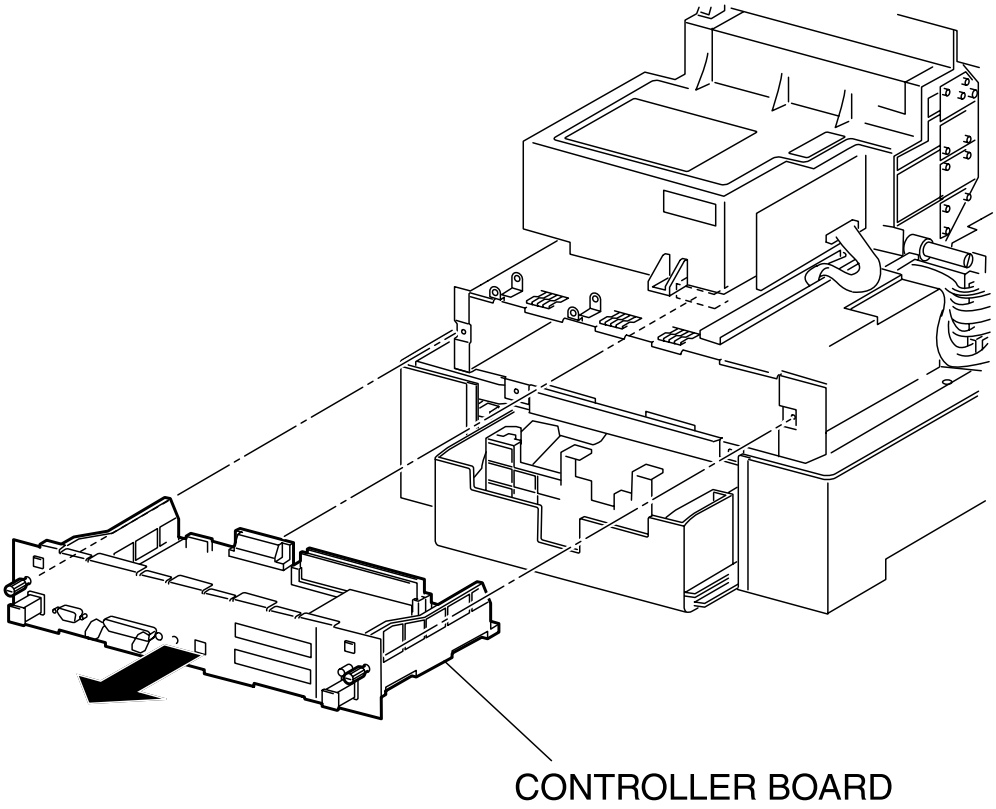


Figure: CONTROLLER BOARD Removal

Removal

1) Remove the COVER CASSETTE REAR. (RRP3.2)
2) From the rear side of the printer, loosen the screws that secure the CONTROLLER BOARD.
3) Holding the left and right knobs on the CONTROLLER BOARD, pull out the CONTROLLER BOARD of the printer.

Replacement

Replace the components in the reverse order of removal.

NOTE

In replacing the CONTROLLER BOARD on the printer, connect the connector at the leading end of CONTROLLER BOARD to the connector of the PWBA HNB MCU (PL12.1.1).

RRP12.4 LVPS (PL12.1.10)

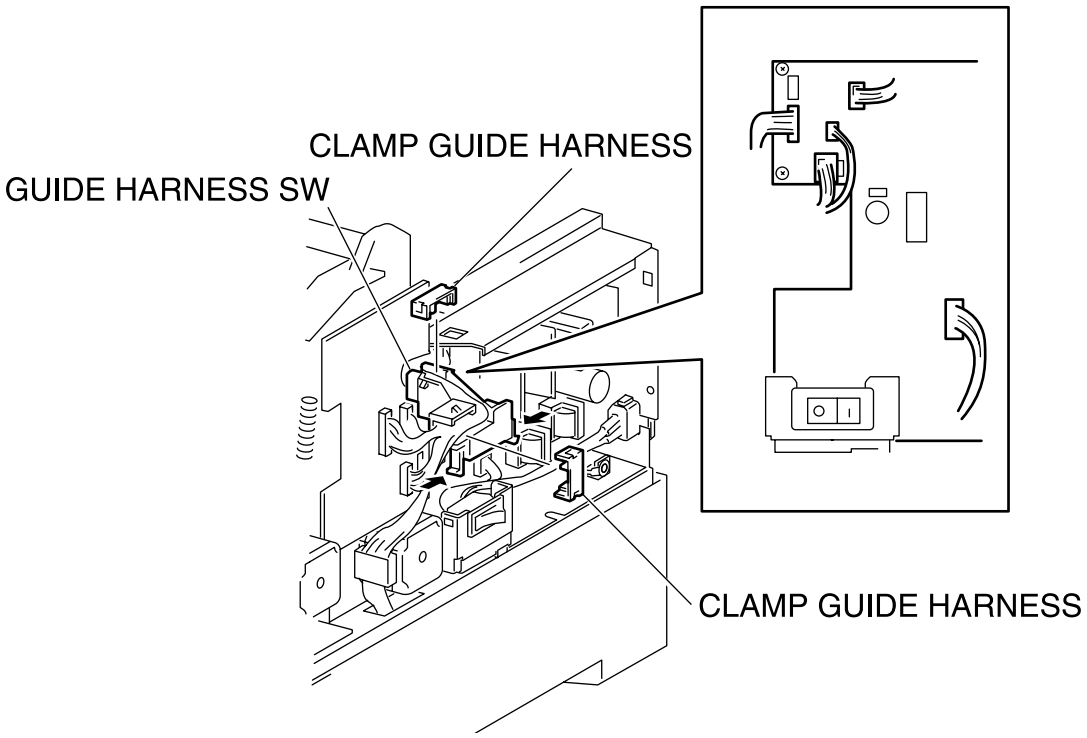


Figure: LVPS Removal (1)

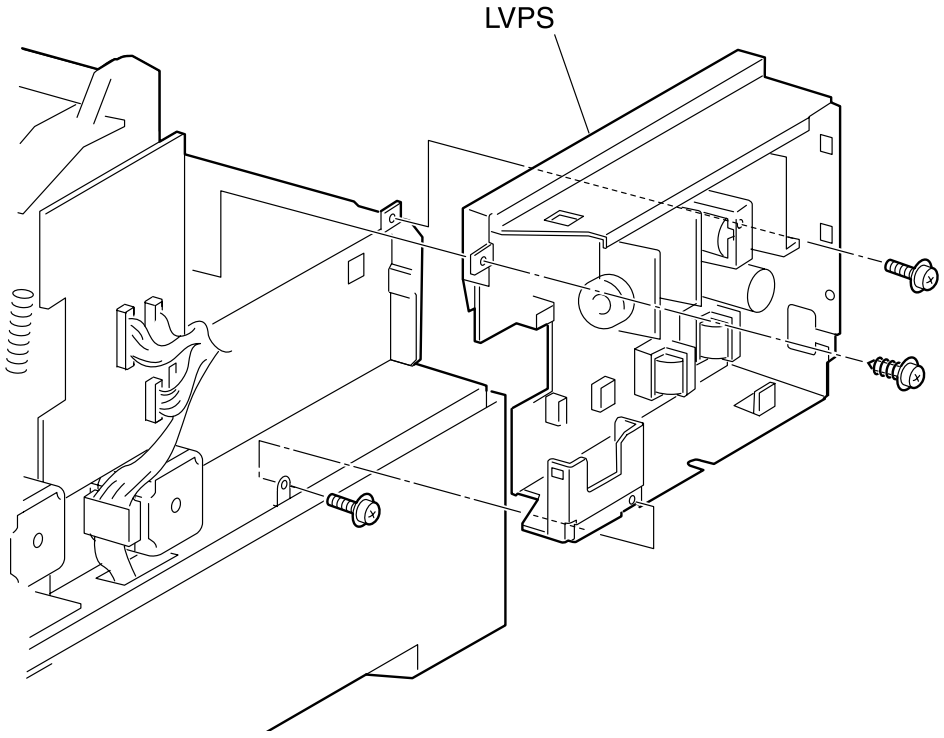


Figure: LVPS Removal (2)

Removal

1) Remove the FUSER ASSY. (RRP8.1)
2) Remove the CHUTE ASSY REGI. (RRP9.3)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the HSG ASSY BIAS. (RRP9.2)
11) Remove the COVER SIDE R. (RRP1.9)
12) Remove the COVER ASSY TOP PHD. (RRP1.5)
13) Remove the COVER REAR. (RRP1.6)
14) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
15) Remove the PWBA HNB DRV. (RRP12.6)
16) Remove the CLAMP GUIDE HARNESS (PL12.1.3) at 2 positions secured on the GUIDE HARNESS SW of the LVPS STD.
17) Shift the harness from the GUIDE HARNESS SW.
18) Release the hooks at 2 positions securing the GUIDE HARNESS SW to the switch bracket on the LVPS STD.
19) Remove the GUIDE HARNESS ASSY from the LVPS STD.
20) Remove the HARNESS ASSY AC SW. (RRP12.5)
21) Remove the connector (P/J162), (P/J163), (P/J164), (P/J165) and (P/J167) on the LVPS STD.
22) Remove 3 screws securing the LVPS STD to the printer.
23) Remove the LVPS STD from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP12.5 HARNESS ASSY AC SW (PL12.1.11)

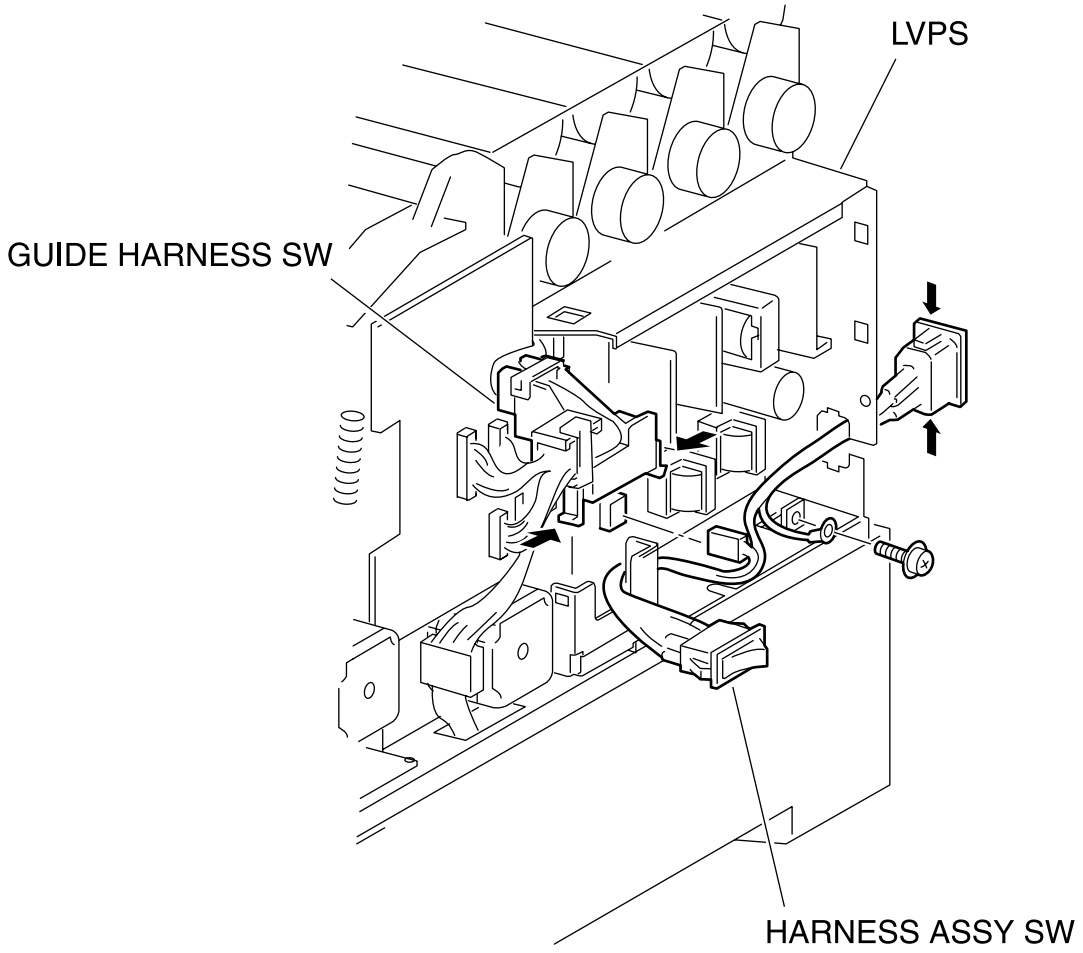


Figure: HARNESS ASSY AC SW Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Remove the COVER SIDE R. (RRP1.9)
4) Remove 1 screw securing the earth of the HARNESS ASSY AC SW to the LVPS STD (PL12.1.10) from the printer.
5) From the printer, release the hooks at 2 positions securing the GUIDE HARNESS SW to the switch bracket on the LVPS STD and shift the GUIDE HARNESS SW upward.
6) Shift the switch of the HARNESS ASSY AC SW from the switch bracket of the LVPS STD.
7) Remove the connector (P/J161) on the LVPS STD.
8) Releasing the hooks at 2 positions securing the socket of the HARNESS ASSY AC SW to the rear of the LVPS STD and pull out the socket rearward.
9) Remove the HARNESS ASSY AC SW from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP12.6 PWBA HNB DRV (PL12.1.12)

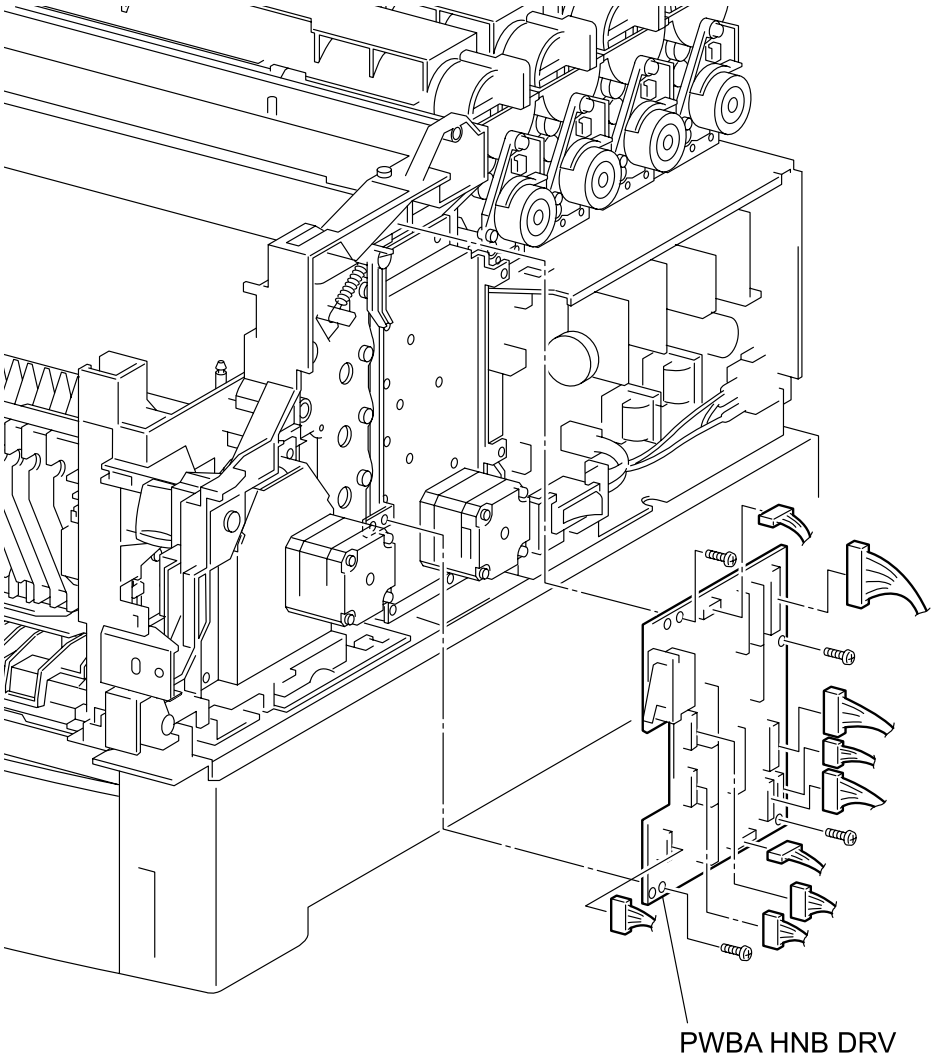


Figure: PWBA HNB DRV Removal

Removal

1) Remove the COVER TOP MAIN. (RRP1.4)
2) Remove the COVER ASSY FRONT IN. (RRP1.10)
3) Remove the COVER SIDE R. (RRP1.9)
4) Remove all connectors on the PWBA HNB DRV from the right side surface of the printer.
5) Remove 4 screws securing the PWBA HNB DRV to the printer.
6) Remove the PWBA HNB DRV from the printer.

Replacement

Replace the components in the reverse order of removal.

RRP12.7 BOX ASSY MCU/ESS (REFERENCE ONLY)

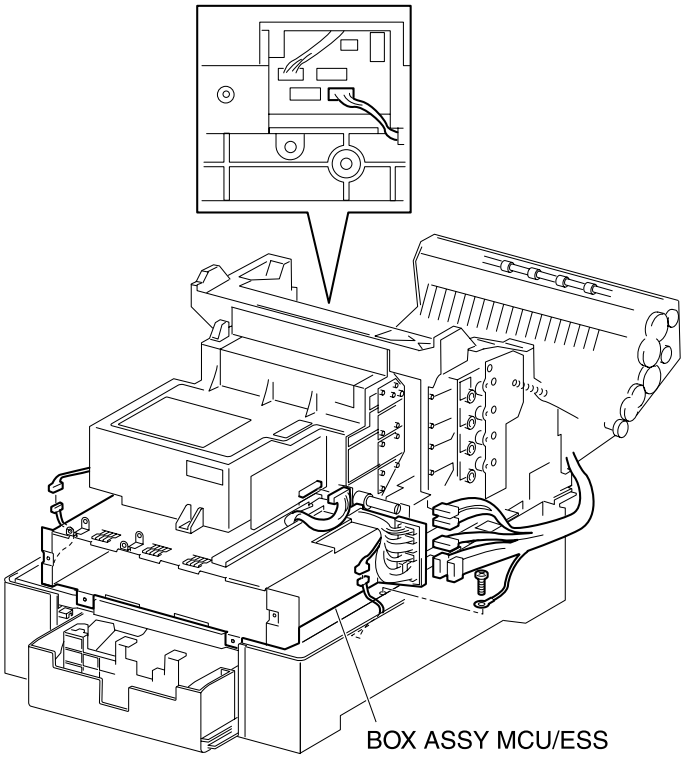


Figure: BOX ASSY MCU/ESS Removal (1)

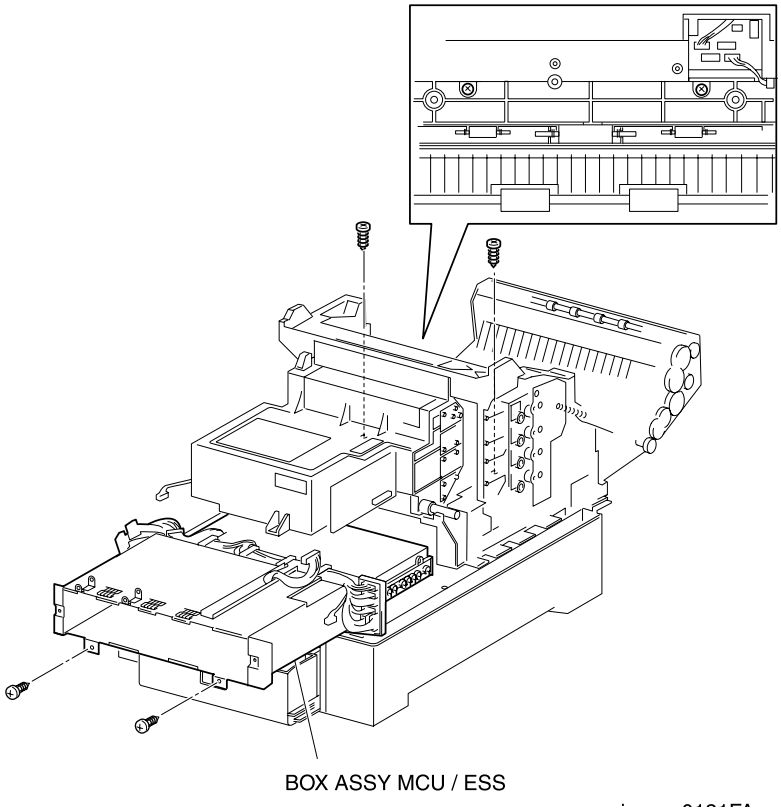


Figure: BOX ASSY MCU/ESS Removal (2)

Removal

1) Remove the CONTROLLER BOARD. (RRP12.3)
2) Remove the CHUTE ASSY REGI. (RRP9.3)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the HSG ASSY BIAS. (RRP9.2)
11) Remove the COVER SIDE R. (RRP1.9)
12) Remove the COVER ASSY TOP PHD. (RRP1.5)
13) Remove the COVER REAR. (RRP1.6)
14) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
15) Remove the PWBA HNB DRV. (RRP12.6)
16) Remove the LVPS STD. (RRP12.4)
17) Remove the connector (P/J210) connecting the printer and FEEDER from the right side surface of the printer.
18) Remove the connector (P/J151) on the ROS ASSY (PL9.1.1) from the right side surface of the printer.
19) Remove the connector (P/J24) connecting the FEEDER to the printer from the left side surface of the printer.
20) Remove the connector (P/J141), connector (P/J1361), connector (P/J138), connector (P/J221) and connector (P/J139) on the connector bracket from the left side surface of the printer.
21) Remove the connector (P/J19) on the PWBA HNB MCU (PL12.1.1) from the inside of the printer.
22) Remove 1 screw securing the earth cable from the left side surface of the printer.
23) Remove 4 screws securing the BOX ASSY MCU/ESS to the printer.
24) Pull out the BOX ASSY MCU/ESS rearward from the printer and remove.

Replacement

Replace the components in the reverse order of removal.

RRP12.8 HOUSING ASSY CONTACT (PL12.1.14)

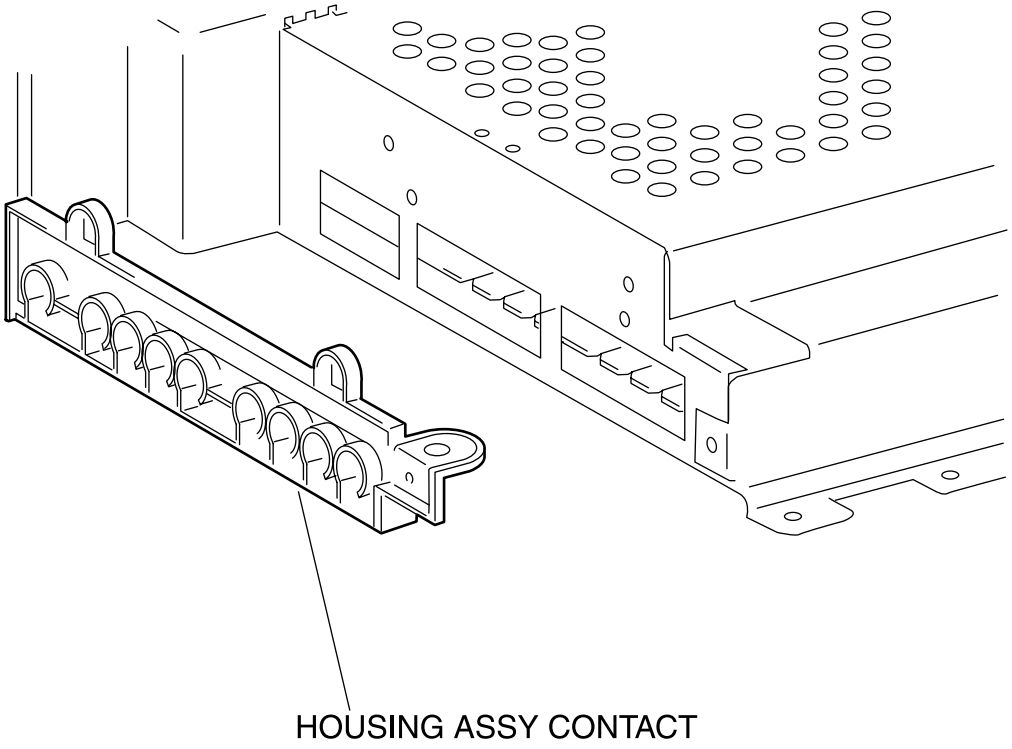


Figure: HOUSING ASSY CONTACT Removal

Removal

1) Remove the CONTROLLER BOARD. (RRP12.3)
2) Remove the CHUTE ASSY REGI. (RRP9.3)
3) Remove the COVER TOP MAIN. (RRP1.4)
4) Remove the COVER ASSY FRONT HEAD. (RRP1.2)
5) Remove the COVER MSI. (RRP1.11)
6) Remove the TRAY ASSY MSI. (RRP1.12)
7) Remove the COVER ASSY FRONT. (RRP1.13)
8) Remove the COVER ASSY FRONT IN. (RRP1.10)
9) Remove the COVER SIDE L. (RRP1.14)
10) Remove the HSG ASSY BIAS. (RRP9.2)
11) Remove the COVER SIDE R. (RRP1.9)
12) Remove the COVER ASSY TOP PHD. (RRP1.5)
13) Remove the COVER REAR. (RRP1.6)
14) Remove the HOLDER TCRU ASSY UNIT. (RRP10.1)
15) Remove the PWBA HNB DRV. (RRP12.6)
16) Remove the LVPS STD. (RRP12.4)
17) Remove the BOX ASSY MCU/ESS. (RRP12.7)
18) Remove the HOUSING ASSY CONTACT to the BOX ASSY MCU/ESS.
19) Pull out the HOUSING ASSY CONTACT from the BOX ASSY MCU/ESS and remove it.

Replacement

Replace the components in the reverse order of removal.

Chapter 4 Plug/Jack (P/J) Connector Locations

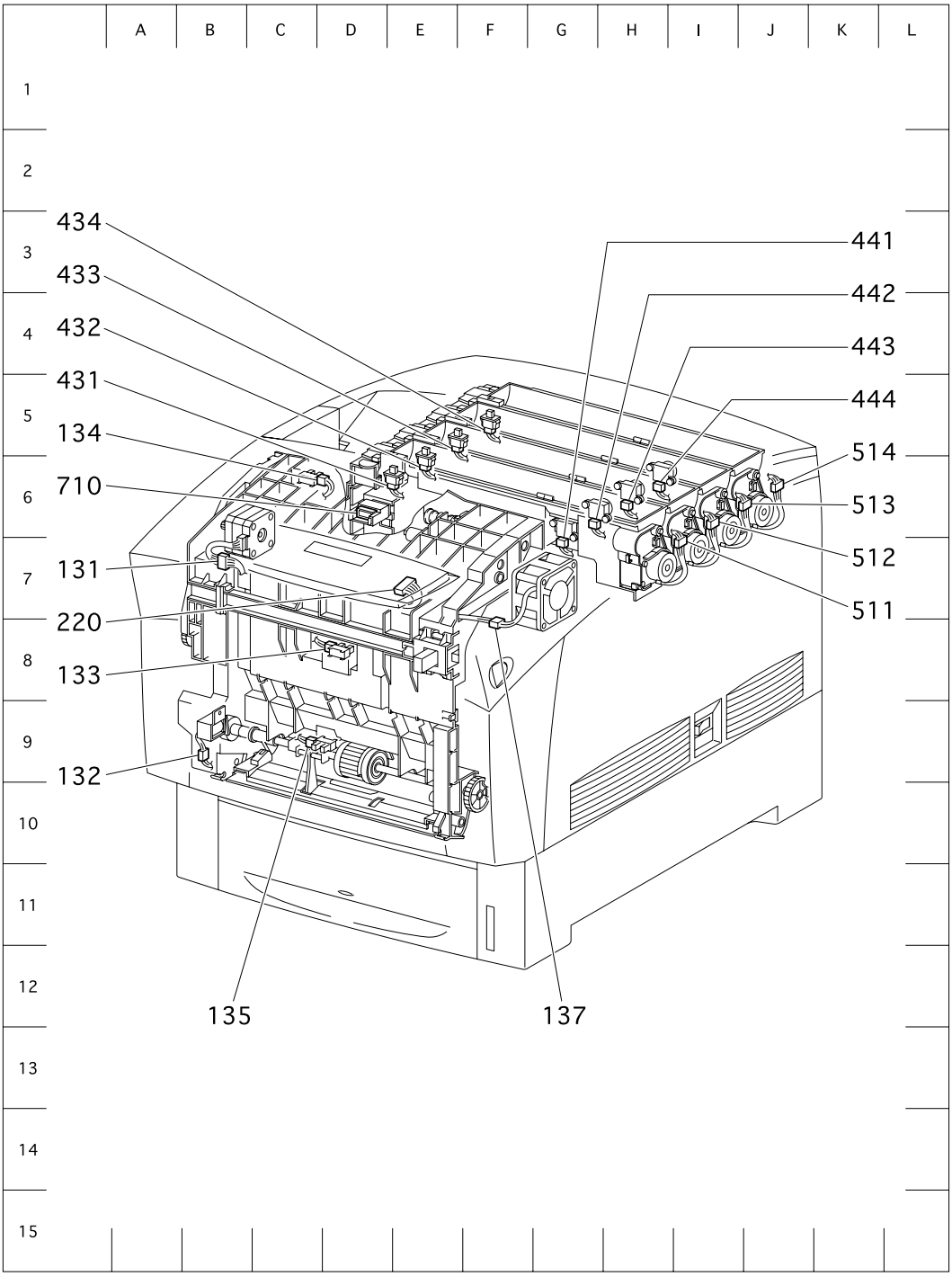
1. Connector [P (plug) / J (jack)]

1.1 List of P/J

P/J	Coordiates	Remarks
11	J-43	Connects PWBA HNB MCU and PWBA HNB DRV
12	I-43	Connects PWBA HNB MCU and PWBA HNB DRV
13	H-43	Connects PWBA HNB MCU, S-HVPS, FSR2(FSR22) Harness Assembly, Front 2 Harness Assembly and CTD Harness Assembly
14	J-43	Connects PWBA HNB MCU and Controller Board
15	H-43	Connects PWBA HNB MCU and ROS Assembly
18	H-44	Connects PWBA HNB MCU and REGI Chute Assembly (REGI Clutch, REGI Sensor)
19	H-44	Connects PWBA HNB MCU and Retard Housing Assembly (TURN Clutch)
21	I-43	Connects PWBA HNB MCU and OPFREC Harness Assembly
22	J-43	Connects PWBA HNB MCU and OPEPANE BS Harness Assembly
23	I-43	Connects PWBA HNB MCU and LVPS STD Assembly
24	H-43	Connects PWBA HNB MCU and TMPA Harness Assembly
26	H-43	--
30	H-43	Flash-write
31	J-43	Test-print
32	H-43	Connects PWBA HNB MCU and OHP Sensor
41	I-18	Connects PWBA HNB DRV and PWBA HNB MCU
42	J-18	Connects PWBA HNB DRV and PWBA HNB MCU
47	J-18	Connects PWBA HNB DRV, Pick Up Assembly (No Paper Sensor, Low Paper Sensor, Solenoid Feed, Clutch Assembly Turn) and Switch Assembly Size
48	I-18	Connects PWBA HNB DRV and Main Drive Assembly
49	I-17	Connects PWBA HNB DRV and DEVE Drive Assembly
50	J-18	Connects PWBA HNB DRV, Chute Assembly Exit (Motor Assembly DUP) and Cover Assembly Front Head (Fan Fuser)
51	J-16	Connects PWBA HNB DRV and Holder TCRU Assembly (CRU Sensor, Low Toner Sensor, TNR Motor)
52	I-18	Connects PWBA HNB DRV and Chute Assembly IN (Fuser Drive Assembly)
60	I-17	Connects PWBA HNB DRV and LVPS STD Assembly
61	J-18	Connects PWBA HNB DRV and LVPS STD Assembly
71	B-32	Connects EEPROM Harness Assembly and Plate Assembly Dispenser L (CONN Assembly CRUM MC)
131	B-7	Connects Chute Assembly Exit (Motor Assembly DUP) and PWBA HNB DRV
132	B-9	Connects Chute Assembly Out (Solenoid Feed MSI) and Front 1A Harness Assembly
133	D-8	Connects Chute Assembly Out (DUP JAM Sensor) and Front 1A Harness Assembly
134	D-6	Connects Chute Assembly Out (Full Stack Sensor) and Front 1A Harness Assembly
135	C-9	Connects Chute Assembly Out (MSI No Paper Sensor) and Front 1A Harness Assembly
136	C-23	Connects Front Assembly In (ADC Sensor Assembly) and Front 1A Harness Assembly
137	F-8	Connects Cover Assembly Front Head (Fan Fuser) and PWBA HNB DRV
138	B-32	Connects Front 1A Harness Assembly and Fuser Assembly
139	B-33	Connects Front 1A Harness Assembly and Chute Assembly Out (Solenoid Feed MSI, DUP JAM Sensor, Full Stack Sensor, MSI No Paper Sensor)

P/J	Coordiates	Remarks
140	H-43	Connects PWBA HNB MCU, CRUM Harness Assembly, TFLSNS Harness Assembly and PWBA EEPROM STD
141	B-32	Connects EEPROM Harness Assembly and Chute Assembly In (TNR Full Sensor)
142	D-23	Connects Chute Assembly In (TNR Full Sensor) and EEPROM Harness Assembly
144	E-35	Connects PWBA EEPROM STD and PWBA HNB MCU
151	F-22	Connects ROS Assembly and PWBA HNB MCU
161	H-29	Connects LVPS STD Assembly and Power Cord
162	H-29	Connects LVPS STD Assembly and Fuser Assembly
163	H-27	Connects LVPS STD Assembly and PWBA HNB DRV
164	H-28	Connects LVPS STD Assembly and PWBA HNB MCU
165	H-28	Connects LVPS STD Assembly and PWBA HNB DRV
166	H-27	Connects LVPS STD Assembly and Fan
167	H-28	Connects LVPS STD Assembly and PWBA HNB MCU
181	E-38	Connects REGI Chute Assembly (REGI Sensor) and PWBA HNB MCU
210	H-23	Connects OPF Main Harness Assembly and Option Feeder
220	E-7	Connects Console Panel Hanabi and OPEPANE AS Harness Assembly
221	B-33	Connects OPEPANE AS Harness Assembly and Console Panel Hanabi
231	C-49	Connects Sensor HUM Temp and TMPB Harness Assembly
232	F-23	Connects Fuser Assembly and Front 1A Harness Assembly
311	I-42	Connects PWBA HNB MCU and LVPS STD Assembly
431	E-6	Connects Holder Assembly MQ-Y (CRU Sensor) and PWBA HNB DRV
432	E-6	Connects Holder Assembly MQ-M (CRU Sensor) and PWBA HNB DRV
433	E-5	Connects Holder Assembly MQ-C (CRU Sensor) and PWBA HNB DRV
434	F-5	Connects Holder Assembly MQ-K (CRU Sensor) and PWBA HNB DRV
441	G-7	Connects Holder Assembly MQ-Y (Low Toner Sensor) and PWBA HNB DRV
442	G-6	Connects Holder Assembly MQ-M (Low Toner Sensor) and PWBA HNB DRV
443	H-6	Connects Holder Assembly MQ-C (Low Toner Sensor) and PWBA HNB DRV
444	H-6	Connects Holder Assembly MQ-K (Low Toner Sensor) and PWBA HNB DRV
471	J-49	Connects Switch Assembly Size and PWBA HNB DRV
472	E-49	Connects No Paper Sensor and PWBA HNB DRV
473	H-57	Connects Low Paper Sensor and PWBA HNB DRV
474	G-49	Connects Solenoid Feed and PWBA HNB DRV
475	H-49	Connects Clutch Assembly Turn and PWBA HNB DRV
511	I-7	Connects Holder Assembly MQ-Y (TNR Motor) and PWBA HNB DRV
512	I-6	Connects Holder Assembly MQ-M (TNR Motor) and PWBA HNB DRV
513	J-6	Connects Holder Assembly MQ-C (TNR Motor) and PWBA HNB DRV
514	J-6	Connects Holder Assembly MQ-K (TNR Motor) and PWBA HNB DRV
710	D-6	Connects Plate Assembly Dispenser L (CONN Assembly CRUM MC) and EEPROM Harness Assembly
810	J-57	Connects Option Feeder and PWBA HNB MCU
1361	B-32	Connects Front 1A Harness Assembly and Chute Assembly In (ADC Sensor Assembly)
2361	E-36	Connects TMPB Harness Assembly and Sensor HUM Temp
5011	F-35	Connects S-HVPS and PWBA HNB MCU
5020	E-35	Connects S-HVPS and Chute Assembly In
5030	E-35	Connects S-HVPS and Chute Assembly In

1.2 P/J layout diagram



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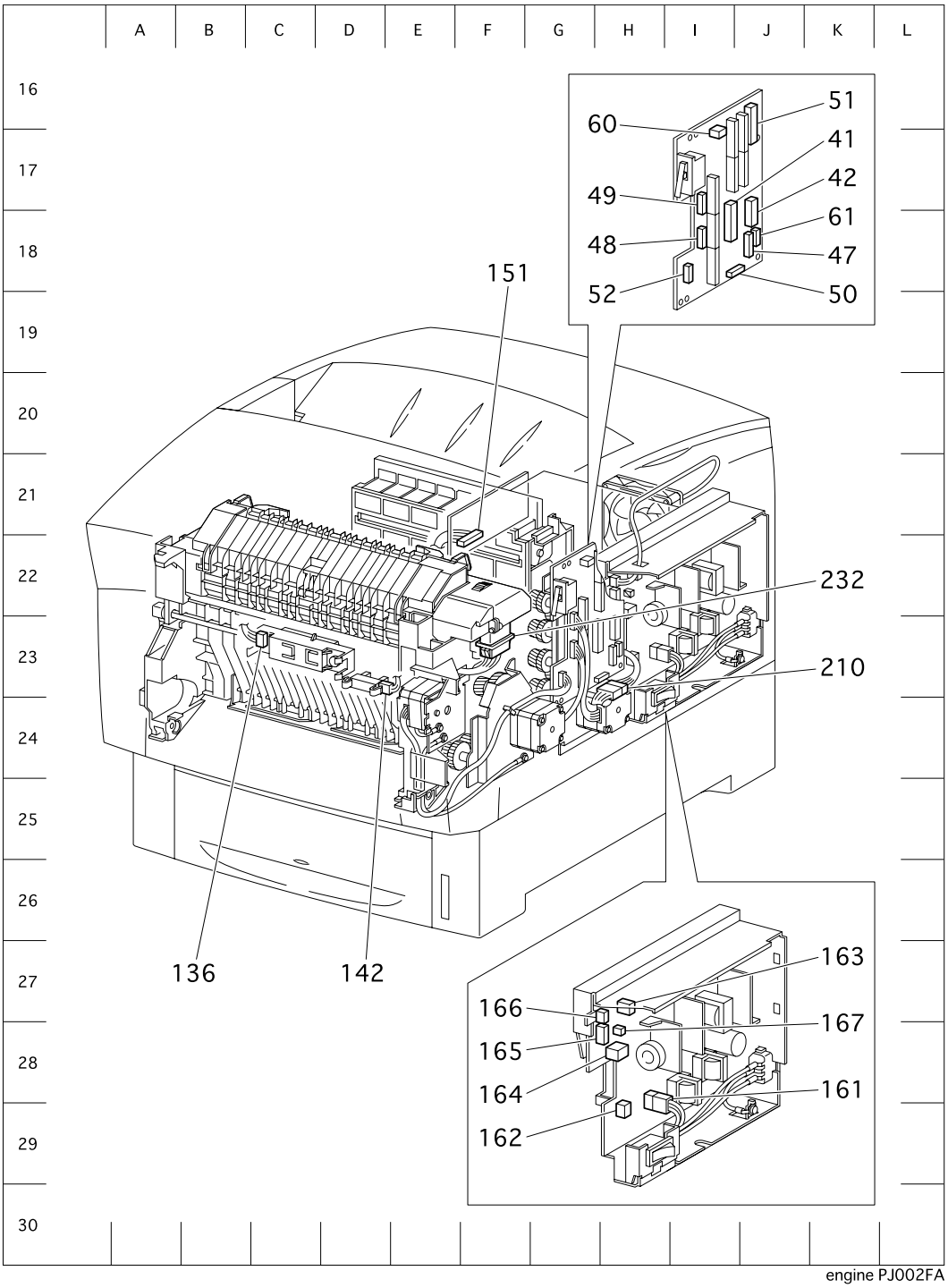
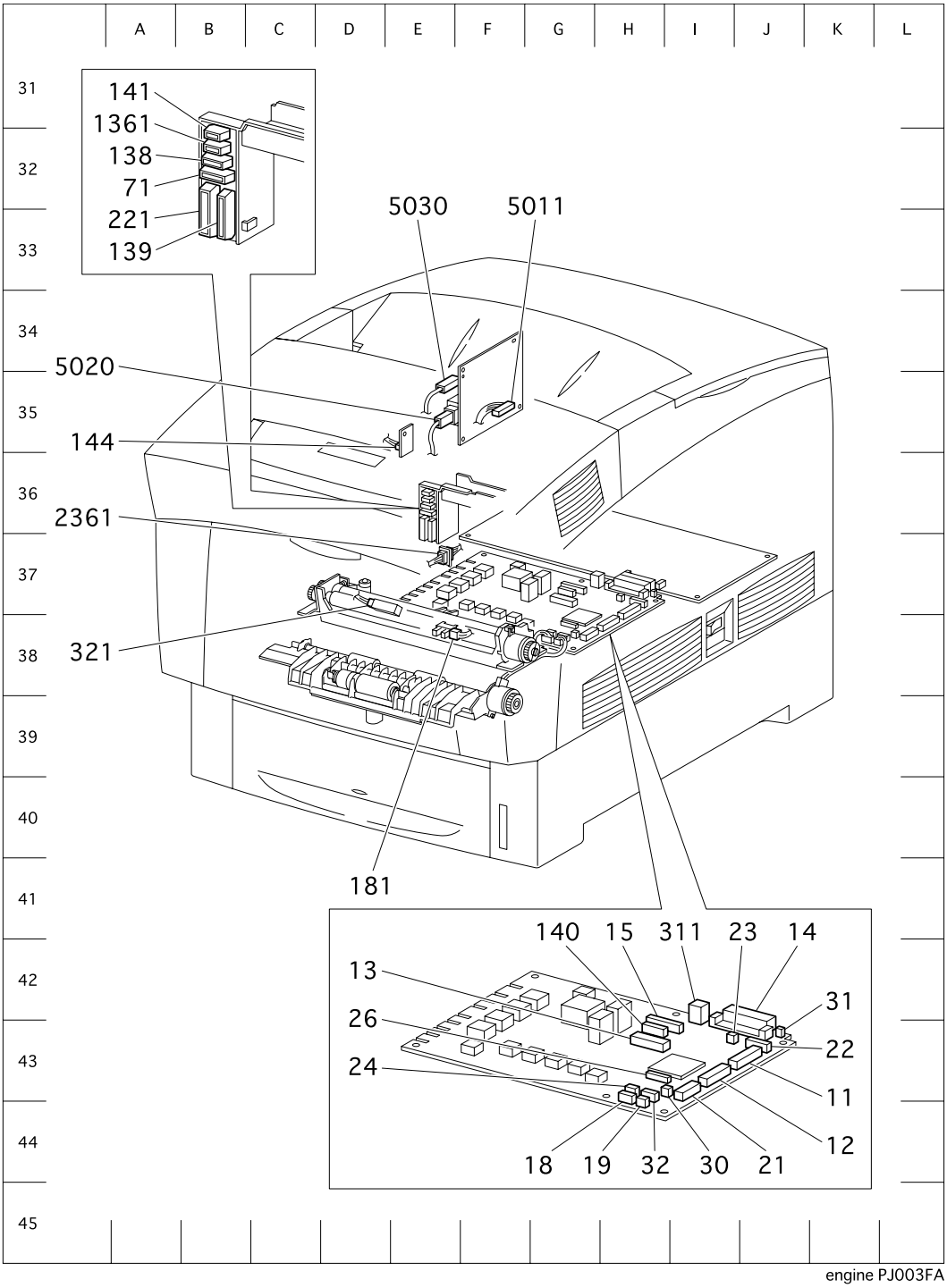
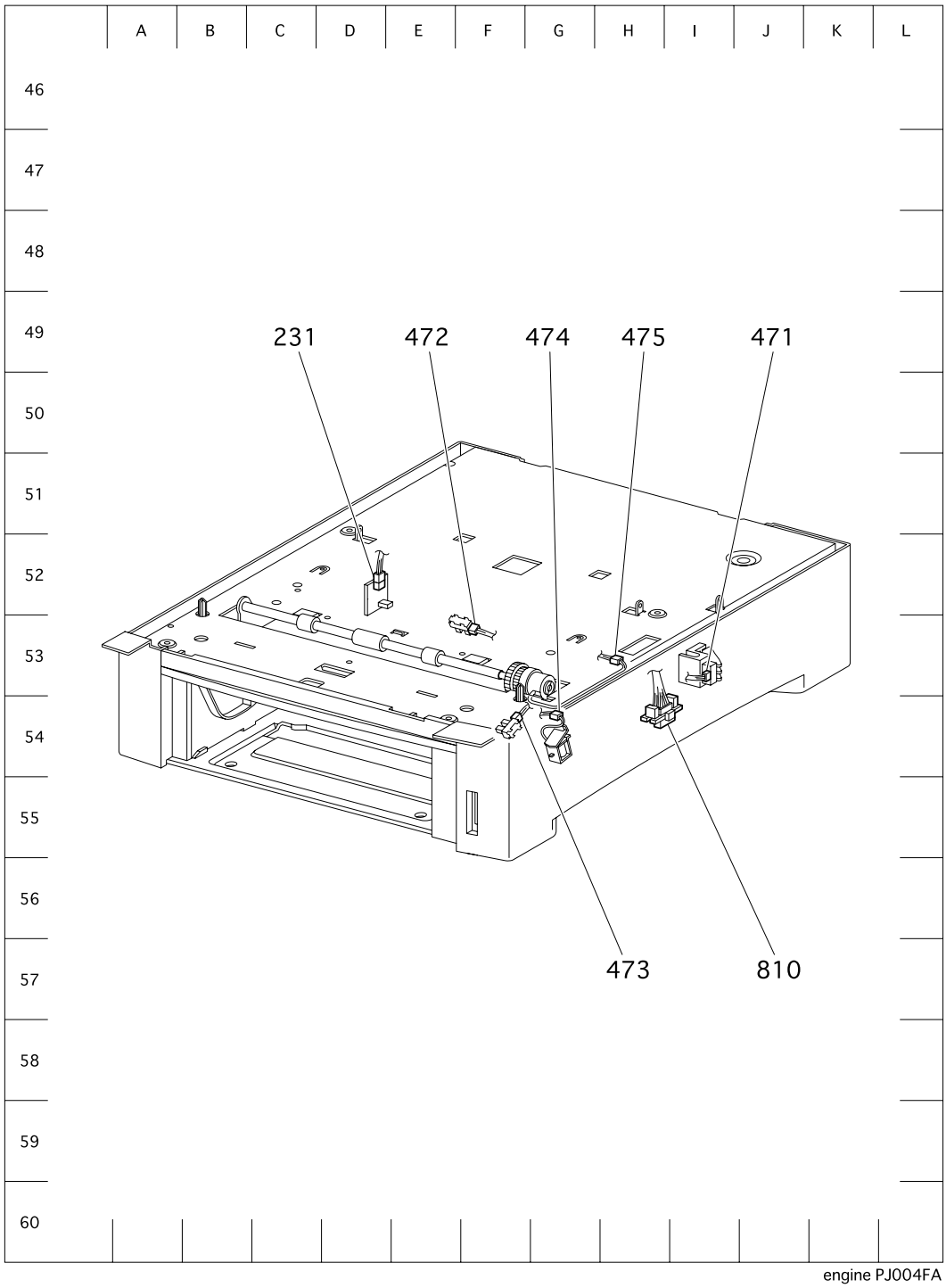


engine PJ002FA



engine PJ003FA



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Chapter 5 Parts List

1. Parts List

1.1 Caution for use of parts list

- The figures indicating the illustrations are the item No. in the list and present correspondence between the illustrations and parts.
- The notation of PL "X.Y.Z" is composed of the plate (PL), item "X.Y", and parts "Z".
- The alphabet characters in the illustrations represent screws and clips as follows:
  "S": screw, "E": E-ring, "KL": KL clip, "C": C-ring, and "N": nut
- "▼" mark in the illustrations are attached to items indicating assembly parts in the illustrations.
- Encircled alphabetical figures in the illustrations indicate interrupted leader lines. Same characters in the illustrations represent lines to be connected.
- The mark "(with 2-5)" attached to assembly parts on the illustrations and lists represents that the items "2, 3, 4, and 5" of that plate are contained and the mark "(with 2-5, PL6.1.1.1) represent that the item "2, 3, 4, and 5" of that plate and the item "1" of the plate "6.1" are contained.
- The mark "[Same PLX.Y.Z]" attached to parts in the illustrations and lists resents that the parts is the same as the parts of the item "Z" of the plate "X.Y".
- The mark "★" attached to the item in the list represents "recommended spare parts" which can be usually supplied. (Supply of other parts shall be examined separately.)
- The mark "※" attached to parts in the list represents "Note" or "Reference" about that parts is contained in the same page.
- "HIGH ASSY" in the list represent the high level assembly parts containing that parts.

NOTE

For spare parts, refer to the "Spare parts list" which is issued separately.

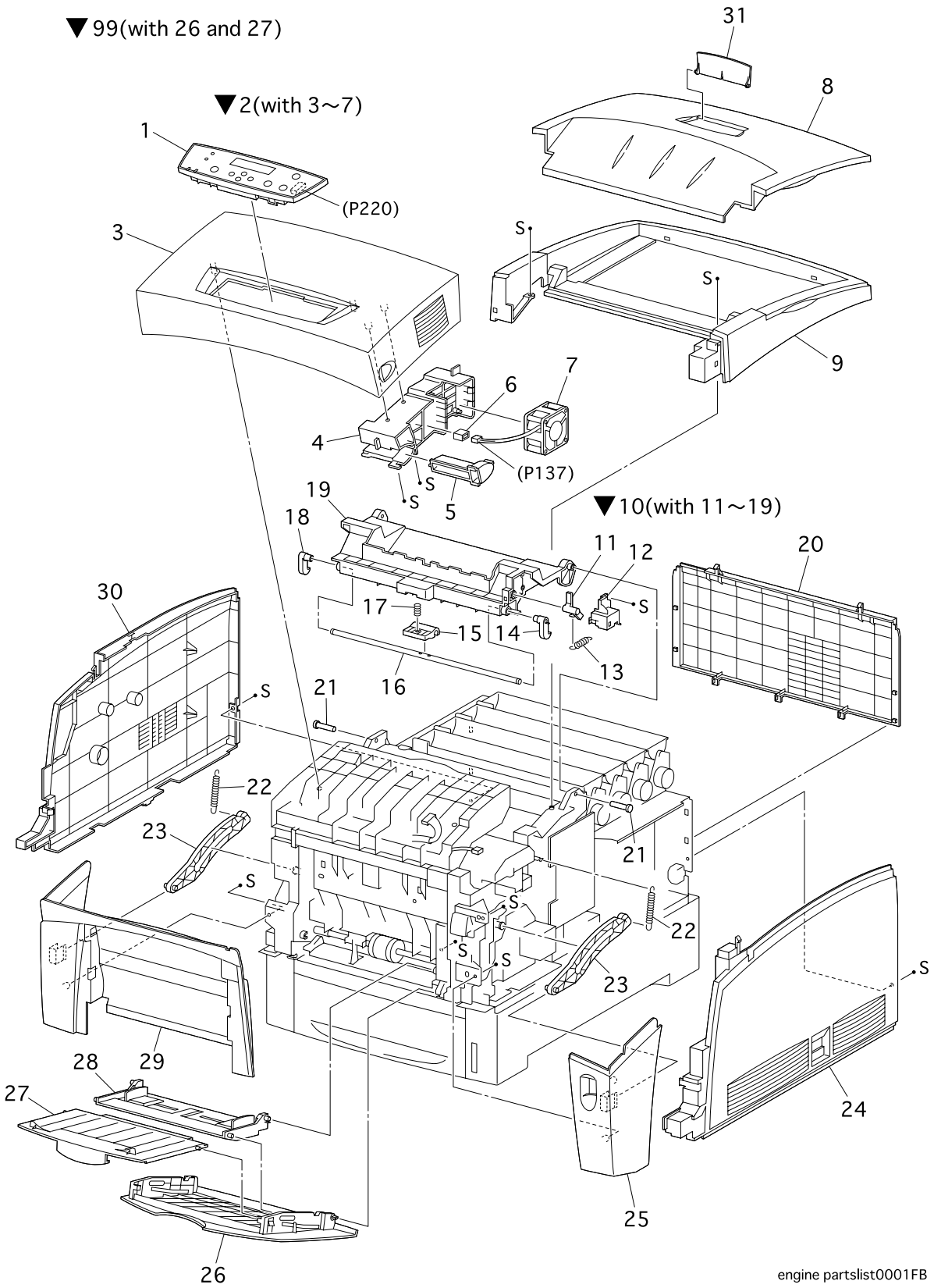
NOTE

For the connector (P/J), parts such as harness, wire, etc. in the list, refer to "Chapter 6, Electric wiring"

NOTE

It should be noted that configuration of parts may be different or some parts are not used depending on specifications of OEM.

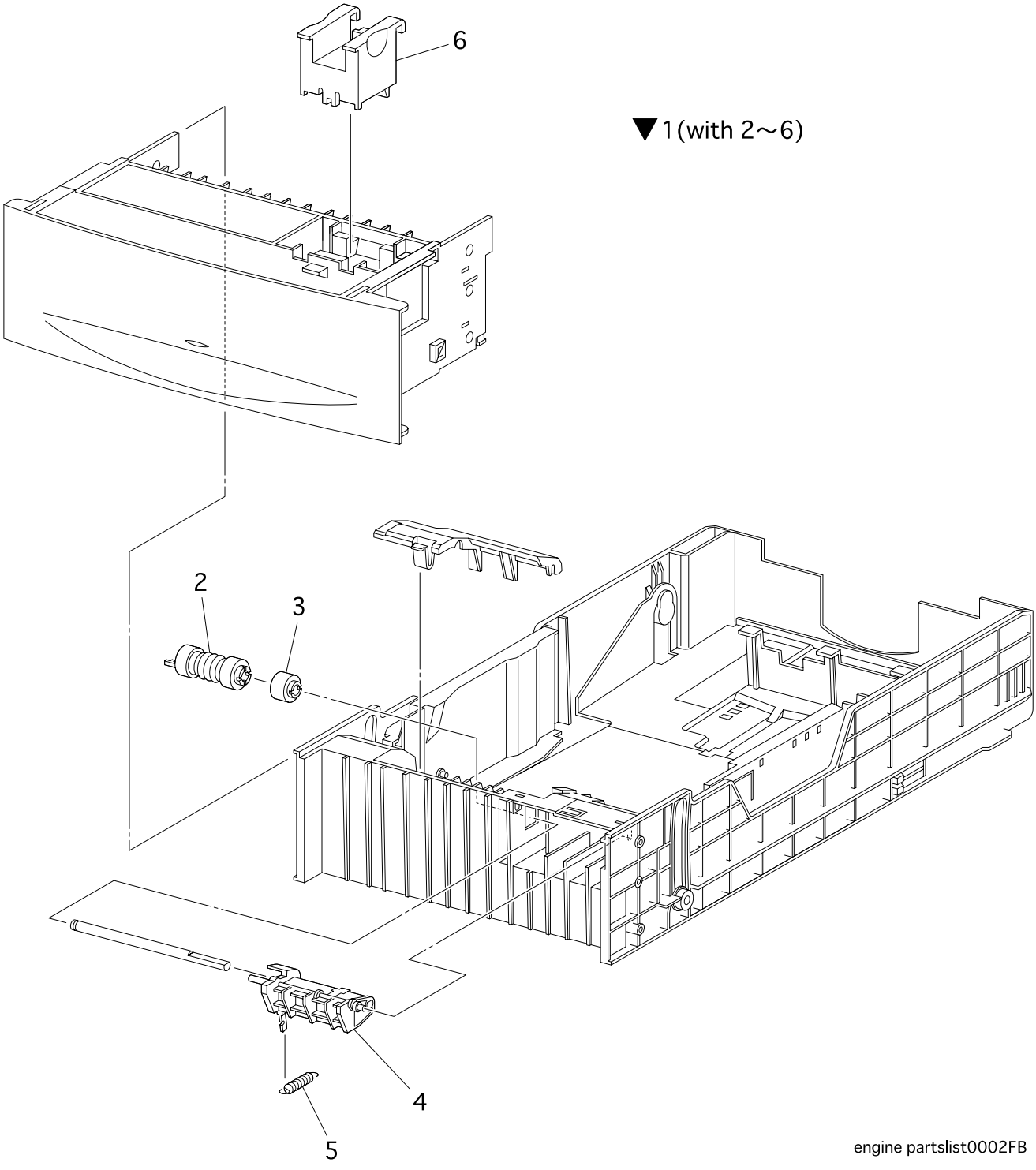
PL 1.1 Cover [Illustration]



PL 1.1 Cover [List]

Item	Parts name	
1	CONSOLE PANEL HANABI	865802K32510
2	COVER ASSY FRONT HEAD (with 3~7)	865802K32860
3	--	
4	HOLDER LEVER OUT	865019E48220
5	LEVER OUT	865011E10690
6	--	
7	FAN FUSER	865127E82890
8	COVER TOP	865802E31150
9	COVER TOP MAIN	865802E22950
10	COVER ASSY TOP PHD(with 11~19)	865802K33120
11	--	
12	--	
13	SPRING CAM I/R	865809E28210
14	LATCH TOP R	865003E53230
15	HANDLE TOP	865003E56850
16	--	
17	SPRING HANDLE	865809E28240
18	LATCH TOP L	865003E53220
19	--	
20	COVER REAR	865802E22930
21	STUD TOP	865026E76270
22	SPRING LINK	865809E28570
23	LINK	865012E10050
24	COVER SIDE R	865802E22910
25	COVER ASSY FRONT IN	865802K34280
26	COVER MSI	865050K44820
27	TRAY MSI SLIDE	865050E16900
28	TRAY ASSY BASE	865050K44610
29	COVER ASSY FRONT	865802K34290
30	COVER SIDE L	865802E22900
31	COVER TOP STOPPER	865802E31170
99	TRAY ASSY LOW(with 26 and 27)	865050K44820

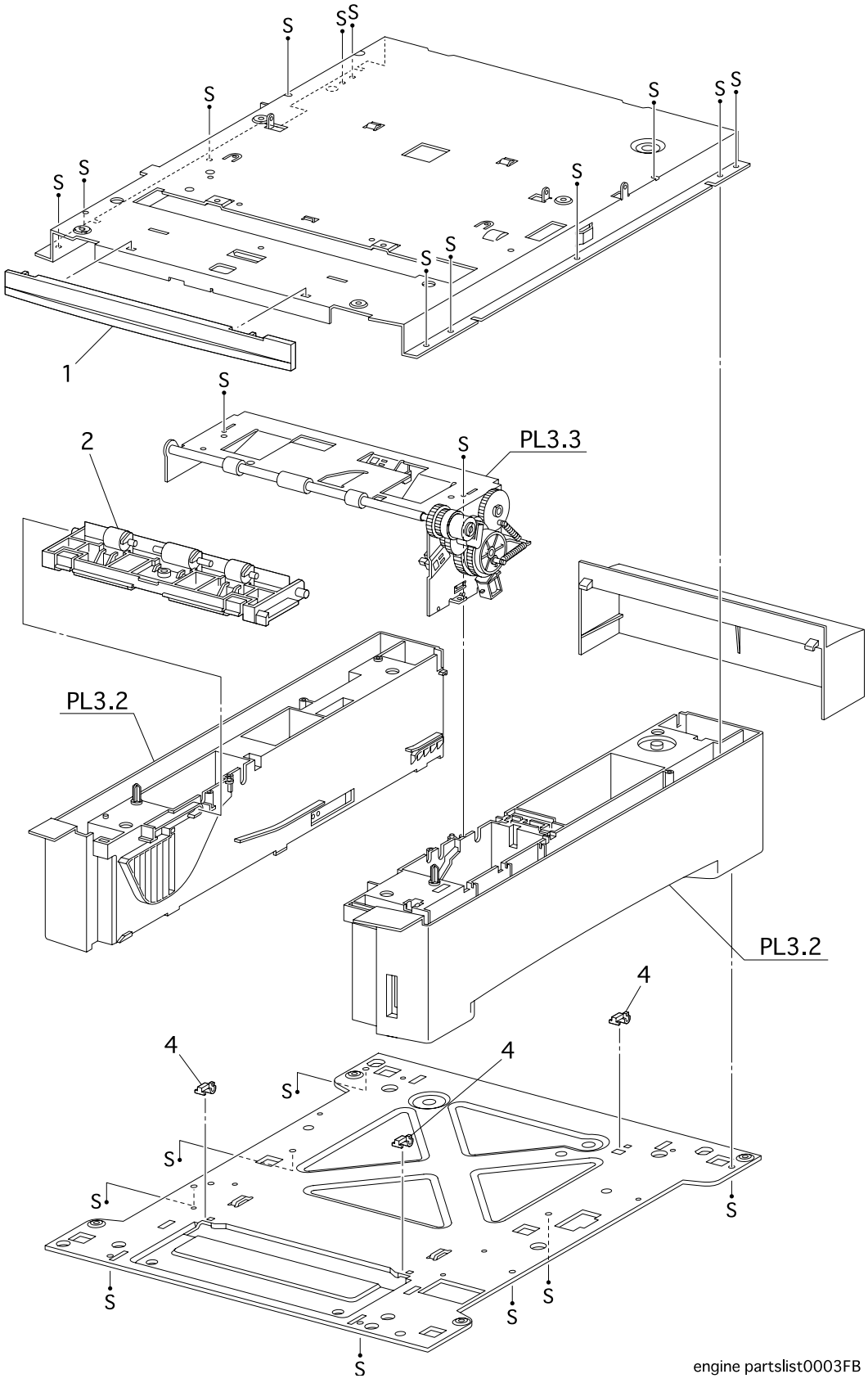
PL 2.1 Paper Cassette [Illustration]



PL 2.1 Paper Cassette [List]

Item	Parts name	
1	CASSETTE ASSY(with 2~6)	865084K03070
2	ROLL ASSY	865059K21730
3	CLUTCH ASSY FRICTION	865005E16150
4	HOLDER RETARD	865019E49230
5	SPRING RETARD	865809E30100
6	A5 BLOCK	

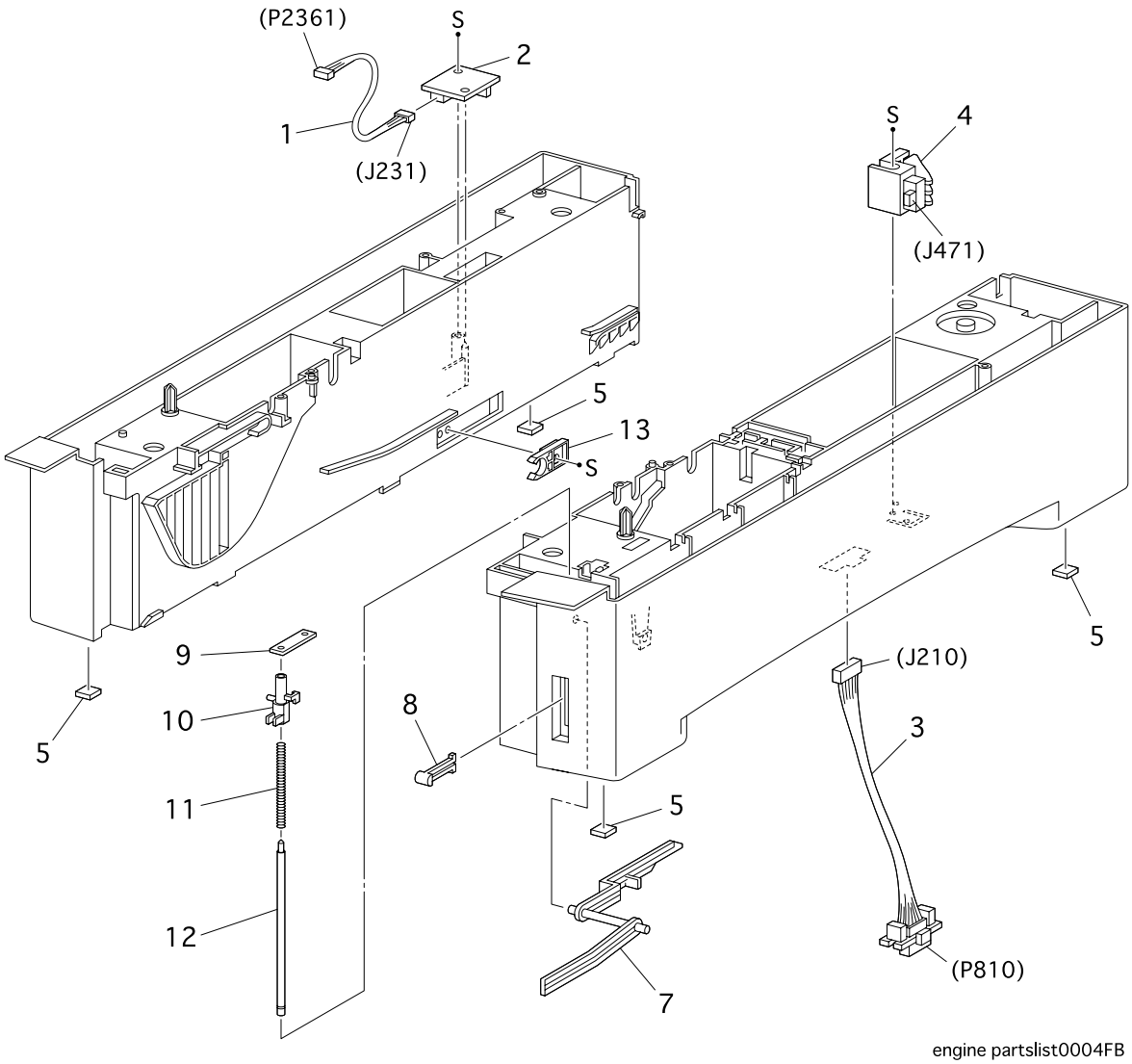
PL 3.1 Paper Feeder I [Illustration]



PL 3.1 Paper Feeder I [List]

Item	Parts name	
1	COVER FDR FRONT	865802E22810
2	CHUTE ASSY TURN	865054K18000
3	--	
4	BLOCK	865014E42120
5	--	

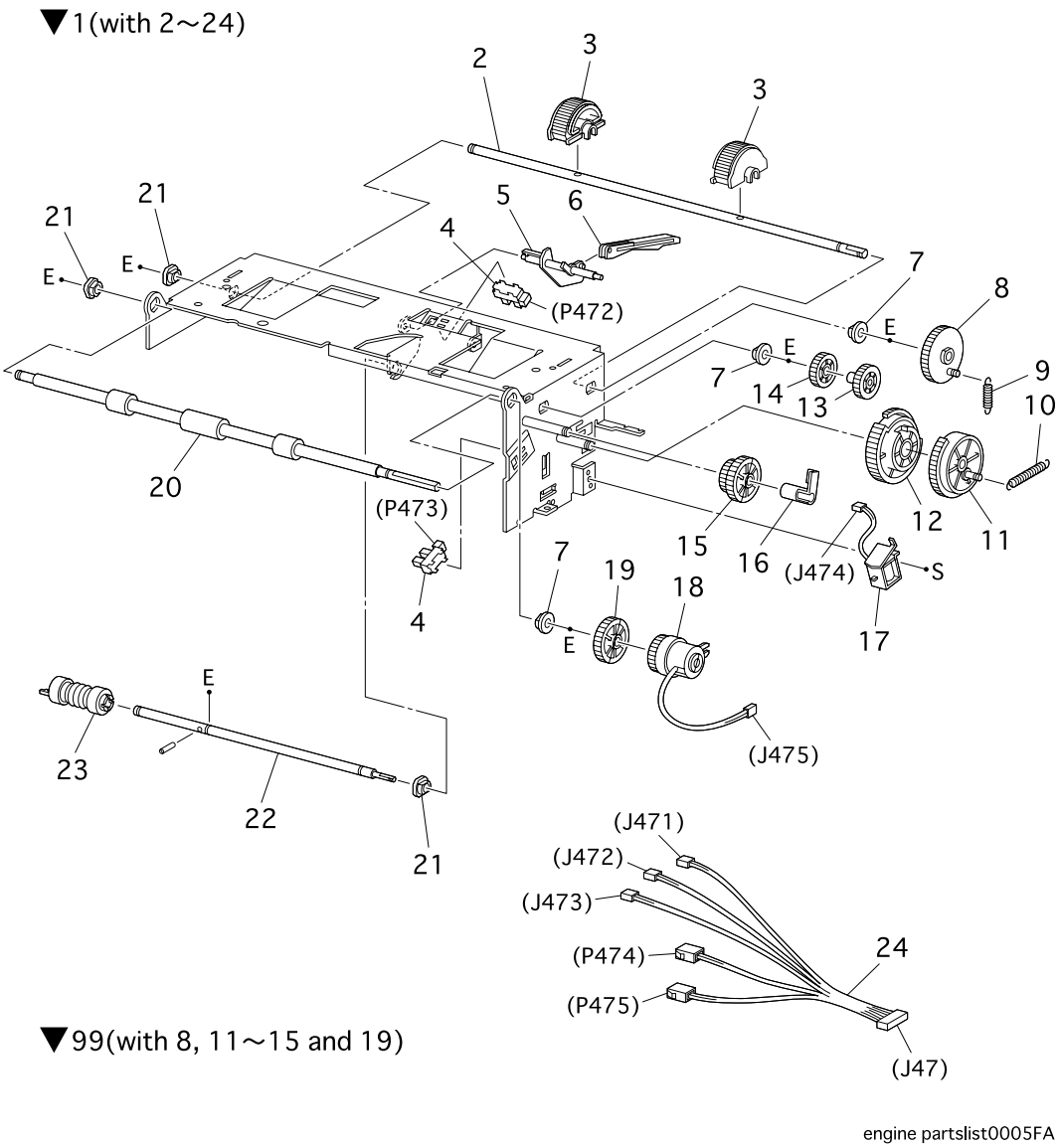
PL 3.2 Paper Feeder II [Illustration]



PL 3.2 Paper Feeder II [List]

Item	Parts name	
1	HARNESS ASSY TMPA(J231-J2361)	865162K69650
2	SENSOR HUM TEMP	865130K61530
3	HARNESS ASSY OPFREC(J210-P810)	865162K69700
4	SWITCH ASSY SIZE	865110K11240
5	FOOT	865017E92080
6	--	
7	LEVER LOW PAPER	865011E10680
8	INDICATOR	865123E91110
9	HOLDER SHAFT INDICATOR	865019E48400
10	GUIDE INDICATOR	865032E16070
11	SPRING INDICATOR	865809E28300
12	SHAFT INDICATOR	865006E71960
13	STOPPER CST	865003E56900

PL 3.3 Paper Feeder III [Illustration]



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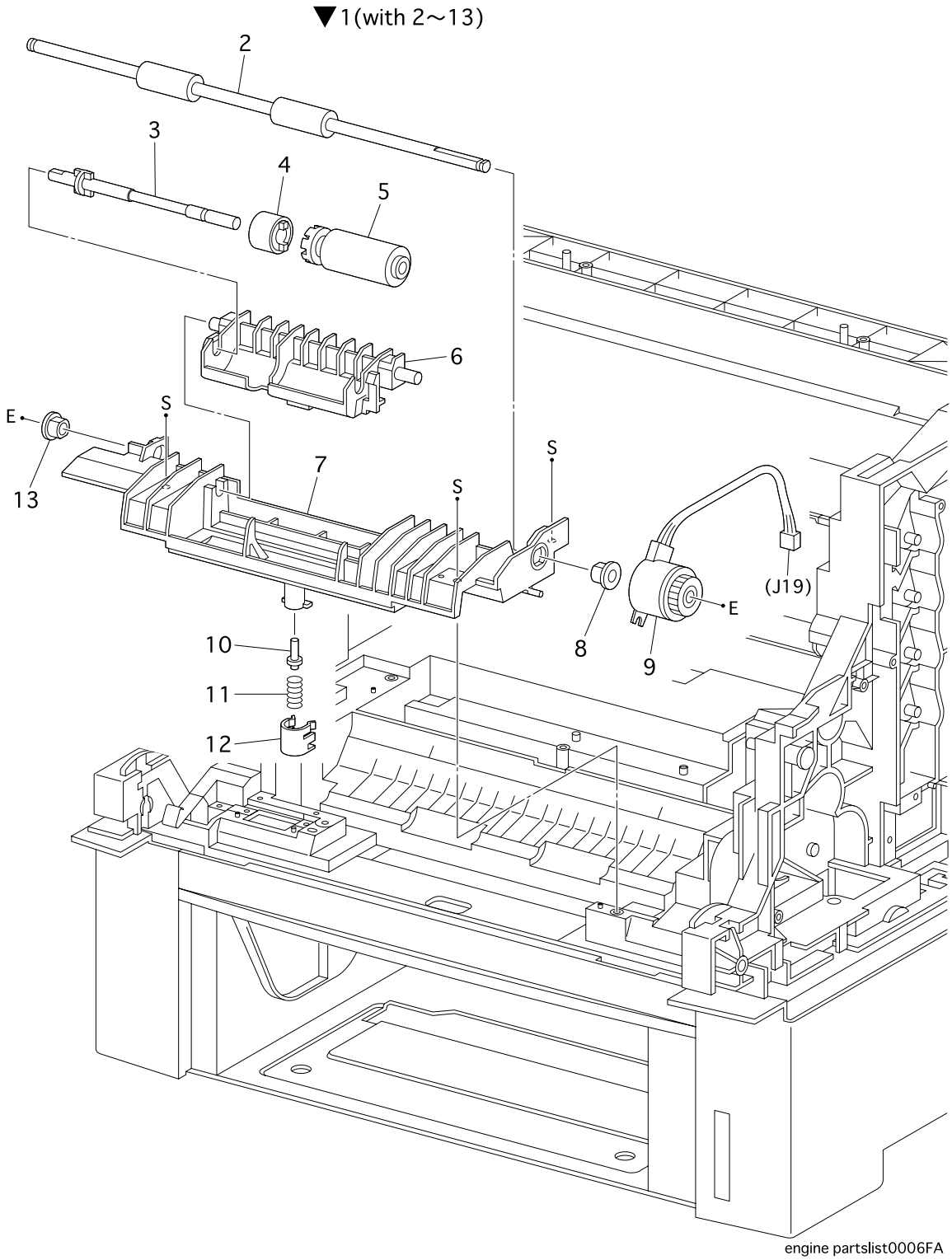
PL 3.3 Paper Feeder III [List]

Item	Parts name	
1	PICKUP ASSY(with 2~24)	865001K03730
2	SHAFT FEED 1	865006E71970
3	ROLL ASSY FEED	865059K18240
4	SENSOR PHOTO	865130E82740
5	ACTUATOR NO PAPER	865120E18640
6	LINK ACTUATOR	865012E93210
7	BEARING (ø6×L8)/METAL	865413W75959
8	--	
9	SPRING FEED 1	865809E28310
10	SPRING FEED H	865809E28320
11	--	
12	--	
13	--	
14	--	
15	--	
16	STOPPER CLUTCH	865003E53290
17	SOLENOID FEED	865121E87700
18	CLUTCH ASSY TURN	865005K06010
19	--	
20	ROLL ASSY TURN	865059K18260
21	BEARING (ø6×L8)/BLACK	865413W11660
22	SHAFT FEED 2	865006E71980
23	ROLL ASSY	865059K18250
24	HARNESS ASSY FEEDER(J47-J471/J472/J473/P474/P475)	865162K69690
99	KIT GEAR FDR(with 8,11~15 and 19)	865604K02530

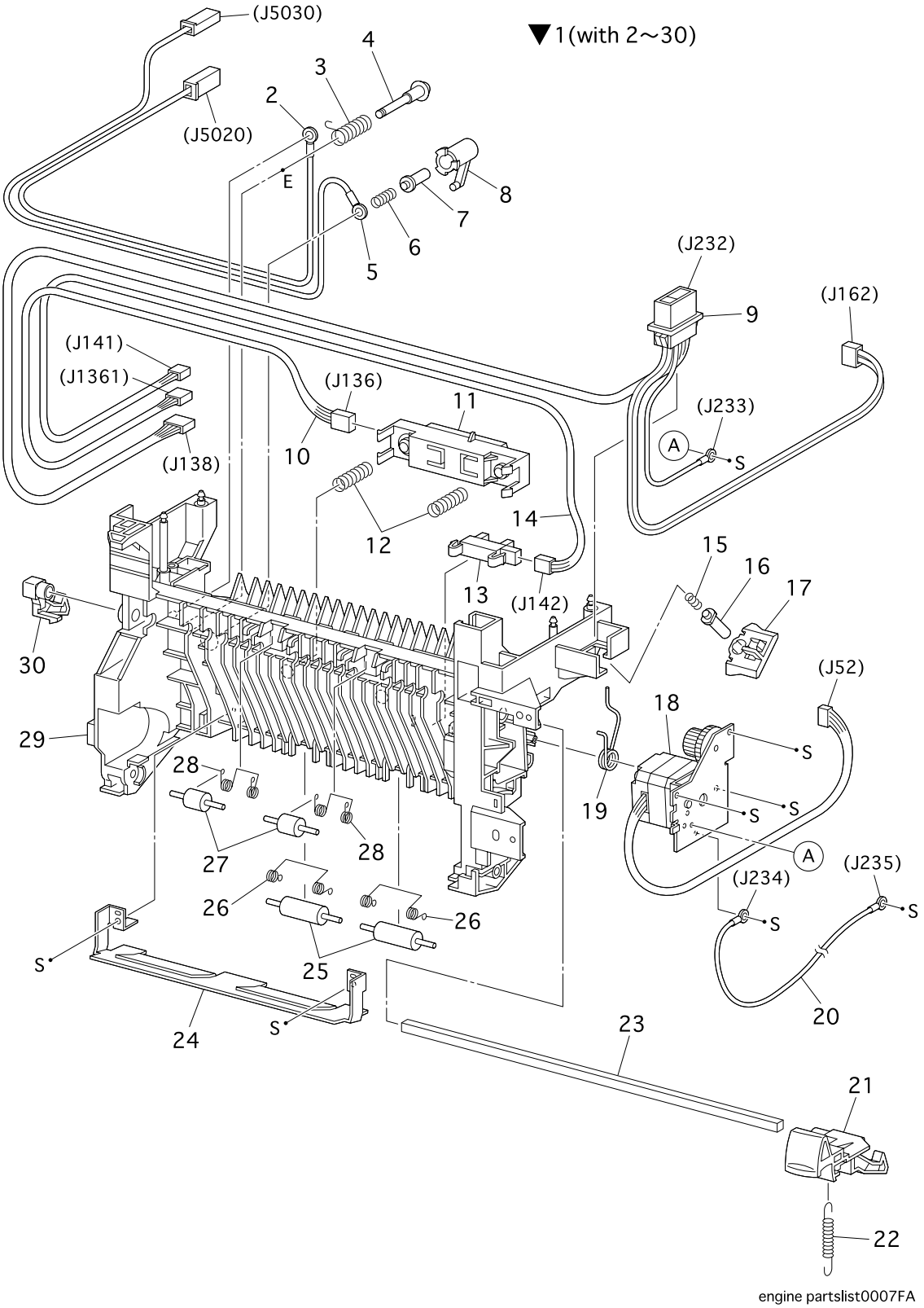
PL 4.1 Housing Assy Retard [Illustration]



PL 4.1 Housing Assy Retard [List]

Item	Parts name	
1	HOUSING ASSY RETARD(with 2~13)	865802K24840
2	ROLL TURN	865059K19940
3	--	
4	CLUTCH ASSY FRICTION	865005K82440
5	ROLL ASSY RETARD	865059K19950
6	--	
7	--	
8	BEARING	865013E18060
9	CLUTCH TURN	865121E87710
10	STUD RETARD	865026E77720
11	SPRING RETARD 370	865809E28670
12	CAP RETARD	865021E97470
13	BEARING EARTH	865016E19270

PL 5.1 Chute Assy In [Illustration]



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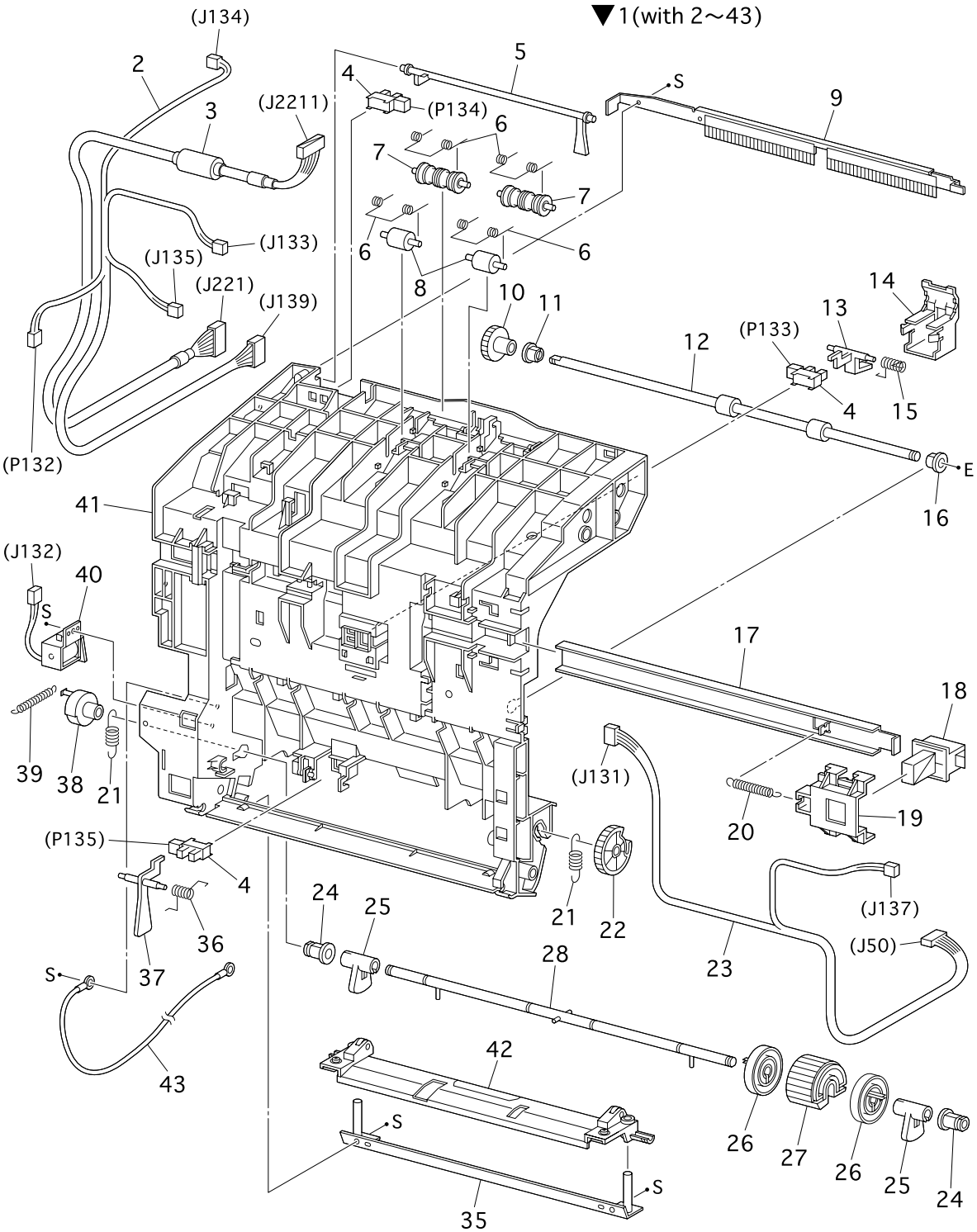
PL 5.1 Chute Assy In [List]

Item	Parts name	
1A	CHUTE ASSY IN(100V)	865084K03670
1B	CHUTE ASSY IN(200V)	865084K03680
2	WIRE ASSY BTR2(J5020)	865117K34570
3	SPRING BTR R2	865809E28630
4	--	
5	WIRE ASSY DTSK(J5030)	865117K34560
6	--	
7	--	
8	--	
9A	HARNESS ASSY FSR2(100V/120V)(J232-J138/J162/J233)	865162K69630
9B	HARNESS ASSY FSR22(220V)(J232-J138/J162/J233)	
10	HARNESS ASSY CTD(J136-J1361)	865162K69620
11	SENSOR ADC ASSY	865019K97900
12	SPRING ADC	865809E28620
13	SENSOR TNR FULL	865130E91010
14	HARNESS ASSY TFLSNS(J141-J142)	865162K69830
15	--	
16	--	
17	--	
18	FUSER DRIVE ASSY	865007K86690
19	--	
20	WIRE ASSY FSR EARTH(J234-J235)	865117K34580
21	LATCH R	865003E53370
22	SPRING LATCH 1.2kgf	865809E28590
23	--	
24	--	
25	ROLL PINCH TURN	865059E95690
26	SPRING PINCH TURN	865809E28610
27	ROLL PINCH DUP	865059E95700
28	SPRING PINCH DUP	865809E28600
29	--	
30	LATCH L	865003E53380

PL 6.1 Chute Assy Out [Illustration]



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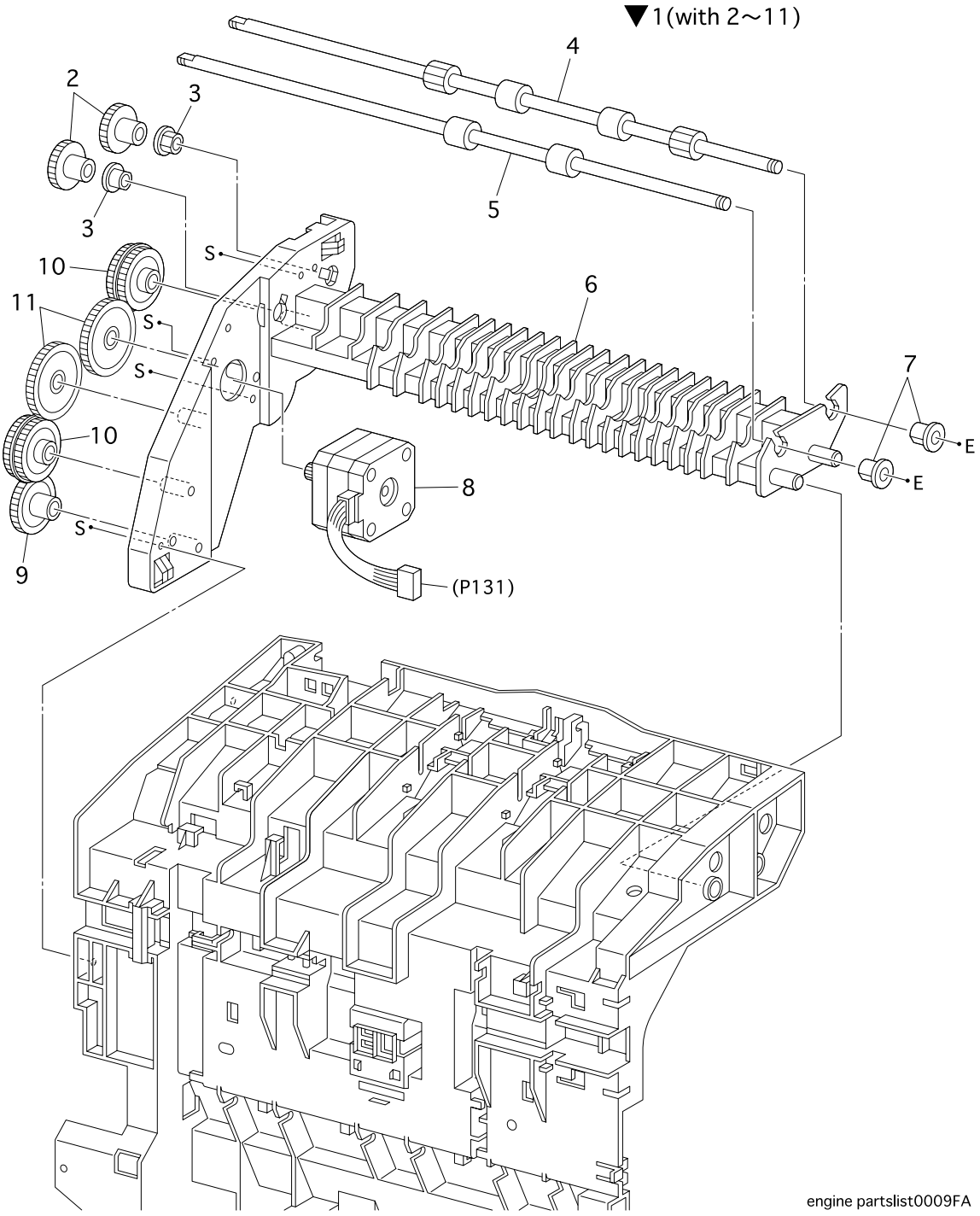
PL 6.1 Chute Assy Out [List]

Item	Parts name	
1	CHUTE ASSY OUT(with 2~43)	865084K03690
2	HARNESS ASSY FRONT 2(J139-P132/J133/J134/J135)	865162K69590
3	HARNESS ASSY OPEPANE BS(J221-J2211)	865162K69610
4	SENSOR PHOTO	865130E82740
5	ACTUATOR FULL	865120E18740
6	SPRING PINCH E0IT	865809E28710
7	ROLL PINCH E0IT	865059E95780
8	ROLL PINCH	865059E95760
9	--	
10	GEAR 30	865007E66670
11	BEARING EARTH	865059E95750
12	ROLL DUP	865059E95750
13	ACTUATOR DUP	865120E18750
14	COVER ACTUATOR	865802E23280
15	SPRING SNR DUP	865809E30110
16	BEARING	865013E19280
17	--	
18	LATCH OUT	865003E53410
19	--	
20	SPRING LATCH OUT	865809E28730
21	SPRING N/F MSI 250gf	865809E28700
22	GEAR MSI	865007E65840
23	HARNESS ASSY DUP(J50-J131/J137)	865062K69600
24	--	
25	CAM MSI	865008E93880
26	ROLL CORE MSI	865059E95740
27	ROLL ASSY FEED	865059K19960
28	--	
29	--	
30	--	
31	--	
32	--	
33	--	
34	--	
35	--	
36	SPRING SENSOR MSI	865809E28720
37	ACTUATOR MSI	865120E18730
38	STOPPER SOL	865003E53400
39	SPRING SOL 0.5	865809E28690
40	SOLENOID FEED MSI	865121E88250
41	--	
42	PLATE ASSY BOTTOM MSI	865015K52790
43	WIRE ASSY DUP EARTH	

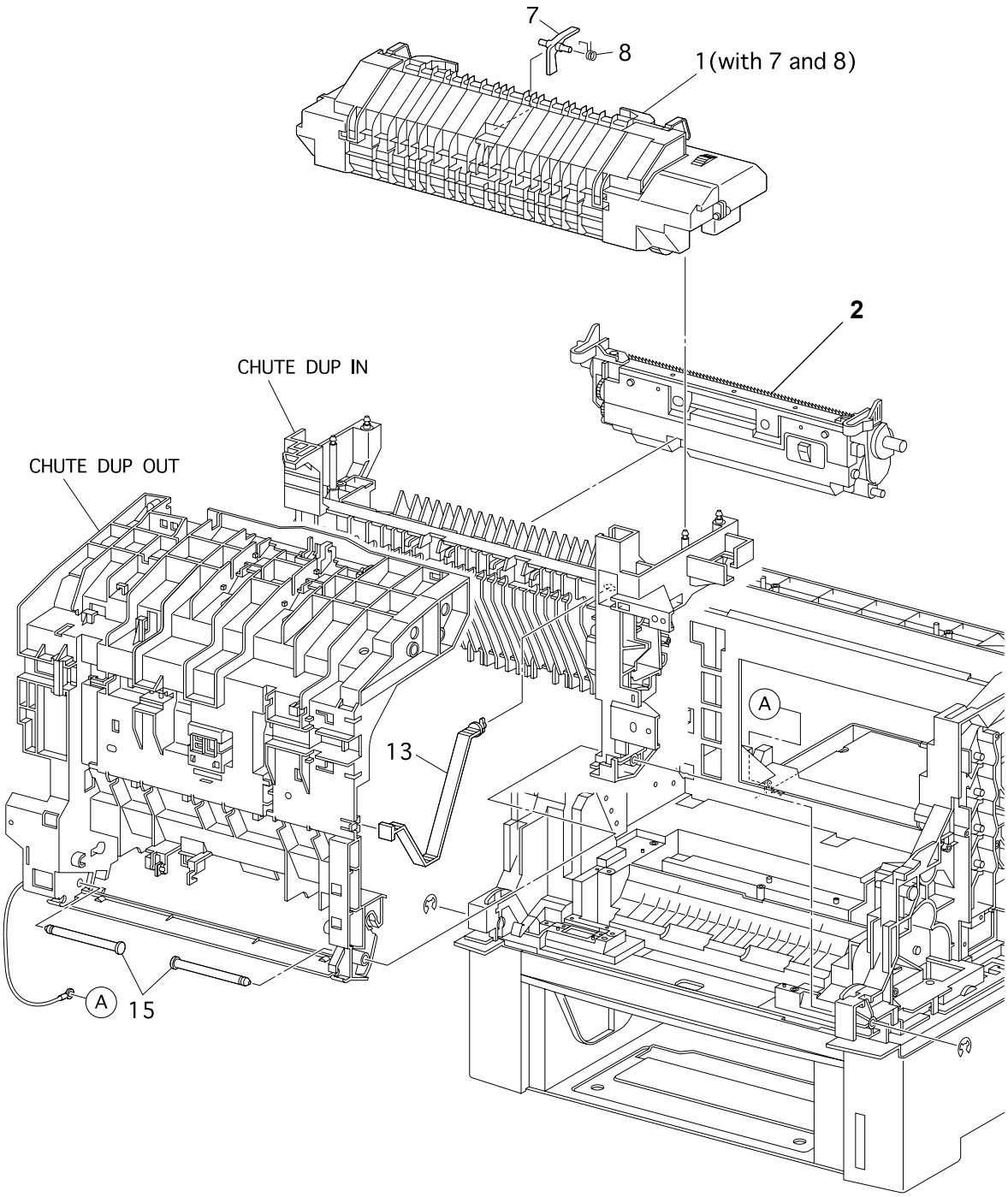
PL 7.1 Chute Assy Exit [Illustration]



PL 7.1 Chute Assy Exit [List]

Item	Parts name	
1	CHUTE ASSY EXIT(with 2~11)	865054K18100
2	--	
3	--	
4	ROLL EXIT	865059E96430
5	ROLL MID	865059E95770
6	--	
7	--	
8	MOTOR ASSY DUP	865127K31710
9	--	
10	--	
11	--	

PL 8.1 BTR Assy & Fuser [Illustration]



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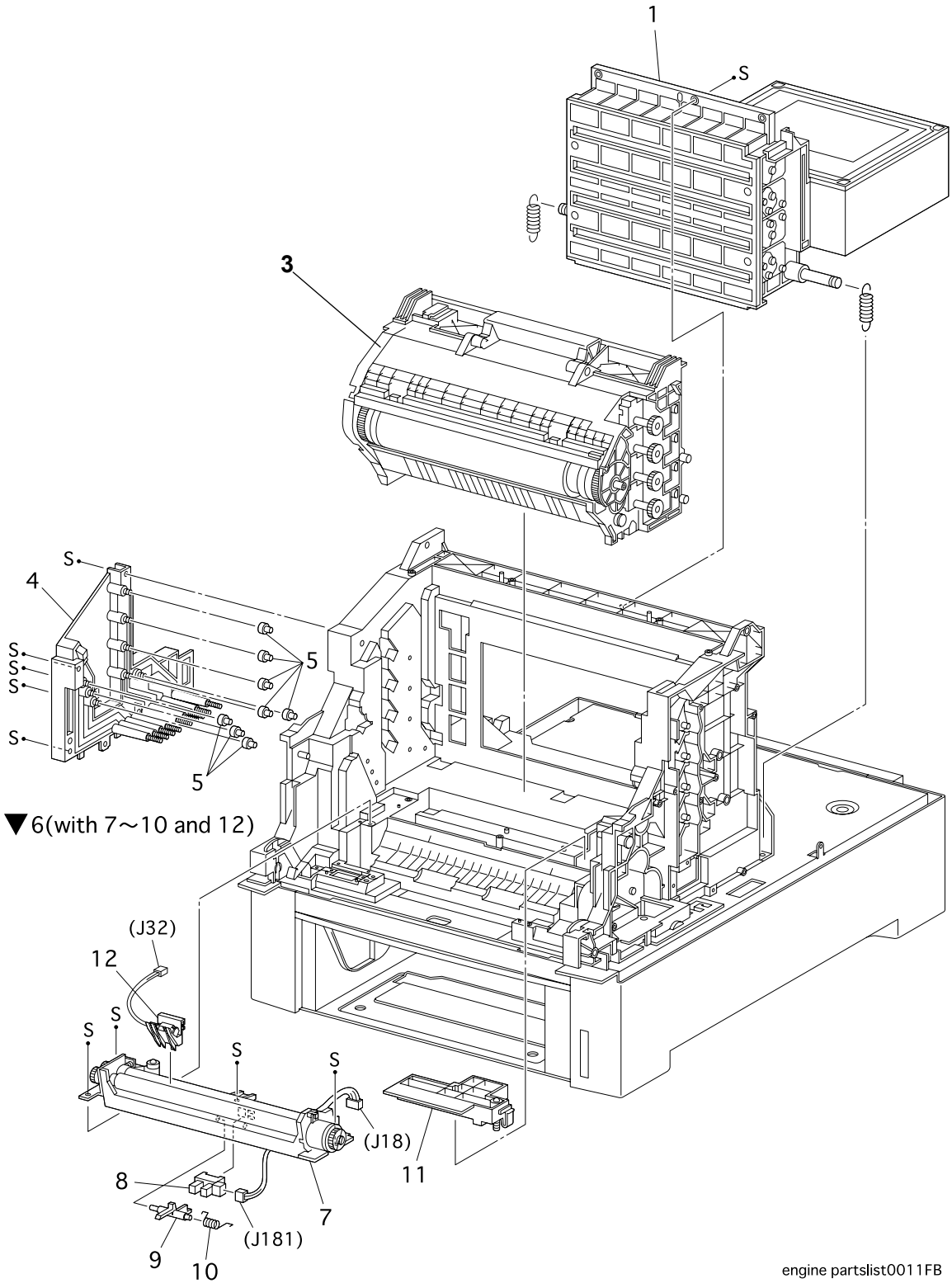
PL 8.1 BTR Assy & Fuser [List]

Item	Parts name	
1	FUSER ASSY(with 7 and 8)110V MQI	865NS080199A
	FUSER ASSY (with 7 and 8)220V MQI	865NS080199B
2	BTR ASSY(Transfer Unit)	1710494-001
3	--	
4	--	
5	--	
6	--	
7	ACTUATOR EXIT	865120E20790
8	SPRING ACTUATOR	865809E34550
9	--	
10	--	
11	--	
12	--	
13	STRAP	865003E53390
14	--	
15	SHAFT PIVOT	865006E72030

PL 9.1 Xerographics [Illustration]

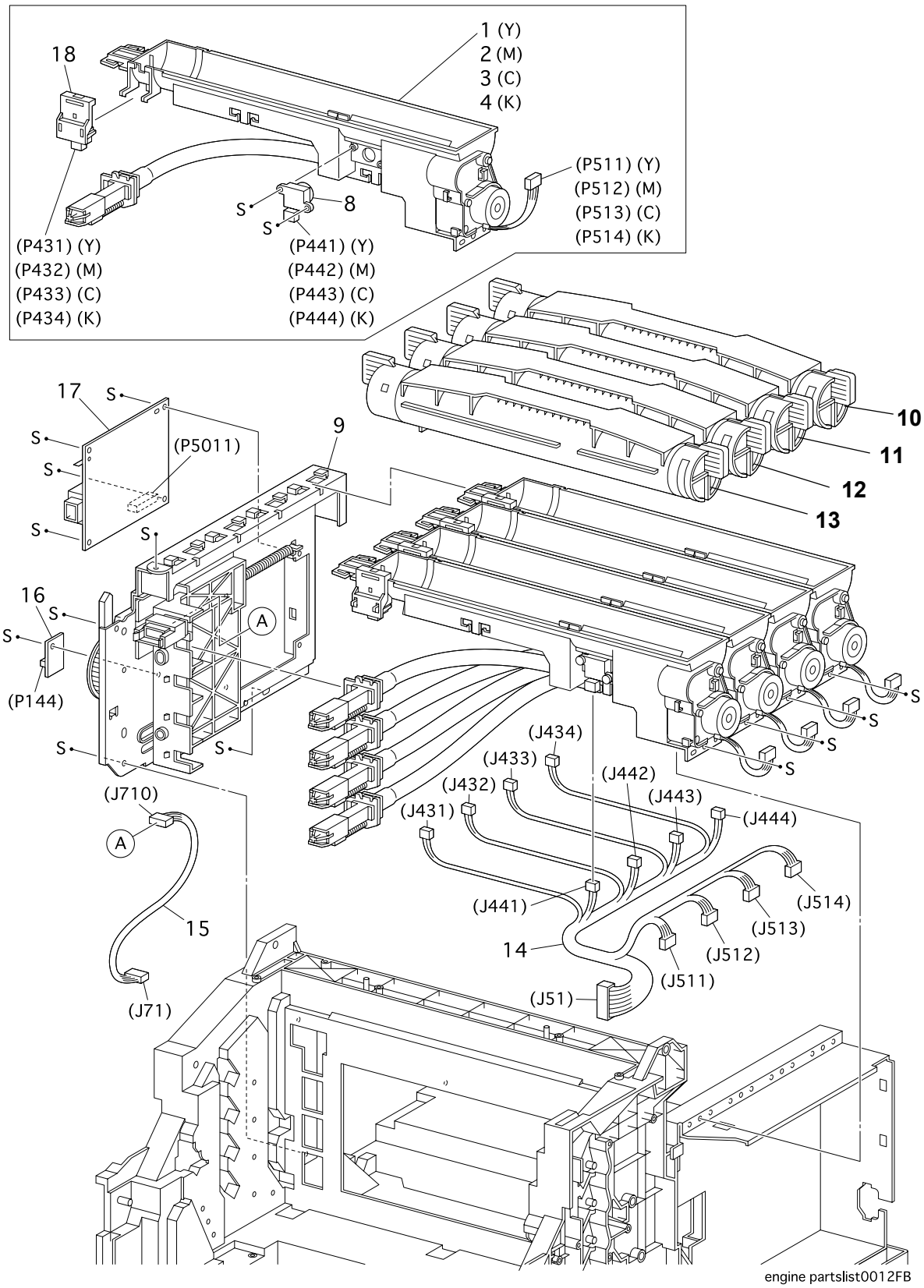


PL 9.1 Xerographics [List]

Item	Parts name	
1	ROS ASSY	865062K10860
2	--	
3	PHD ASSY PKG MQI	1710493-001
4	HSG ASSY BIAS	865805K24820
5	STUD PLUNGER	865026E77670
6	CHUTE ASSY REGI(with 7~10 and 12)	865054K20530
7	--	
8	SENSOR PHOTO	865130E82740
9	ACTUATOR REGI	865120E20680
10	SPRING SENSOR REGI	865809E34580
11	HOUSING ASSY ELEC	865802K24830
12	KIT SNR OHP(w/HARNESS)*	865604K02520

*Note:FACTORY OPTION

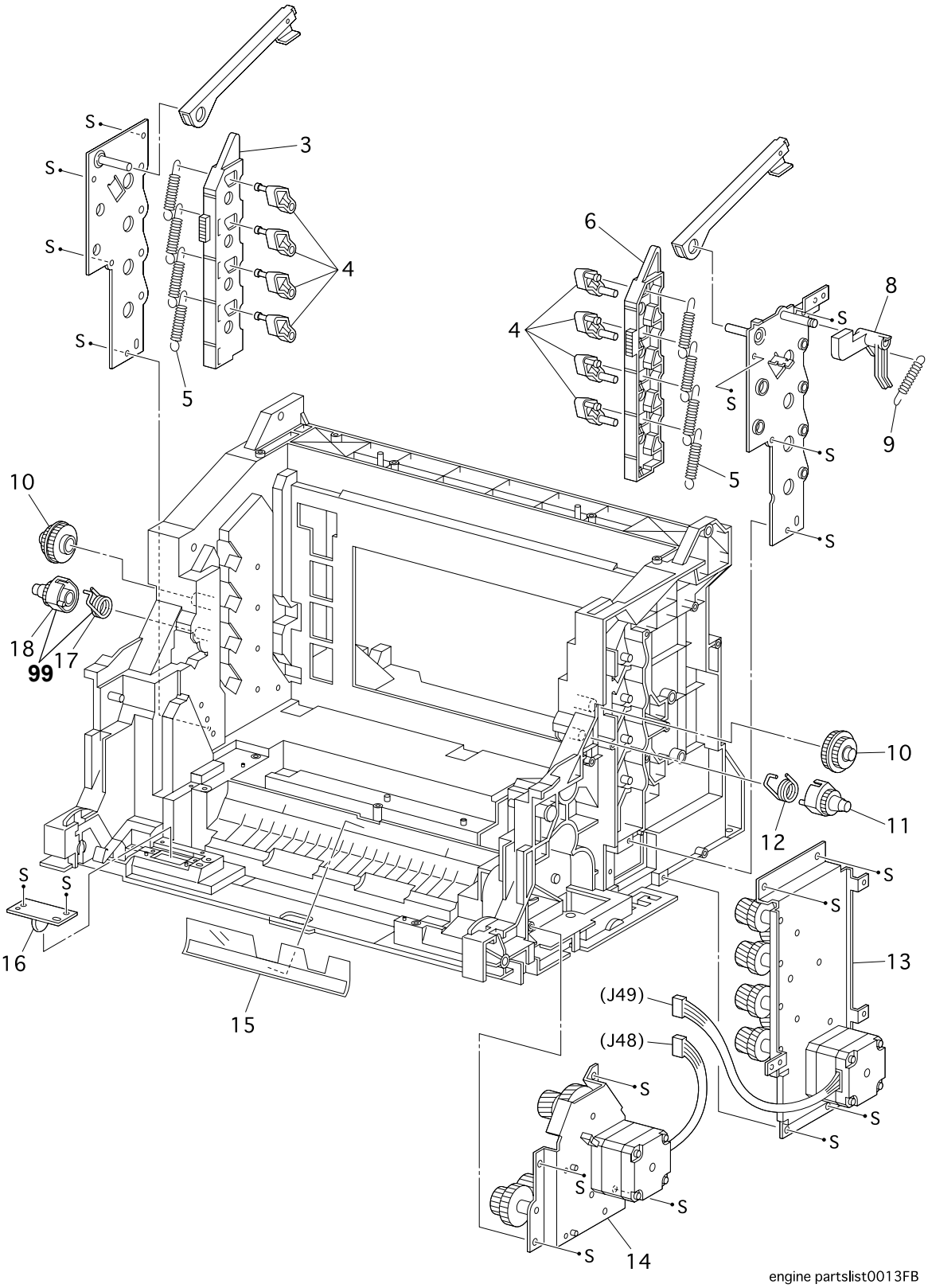
PL 10.1 TCRU Assy [Illustration]



PL 10.1 TCRU Assy [List]

Item	Parts name	
1	HOLDER ASSY Y	865084K03770
2	HOLDER ASSY M	865084K03780
3	HOLDER ASSY C	865084K03790
4	HOLDER ASSY K	865084K03800
5	--	
6	--	
7	--	
8	SENSOR TONER LOW	865130E85200
9	PLATE ASSY DISPENSER L	865015K49550
10	PKG TCRU MQI-Y	1710490-002
11	PKG TCRU MQI-M	1710490-003
12	PKG TCRU MQI-C	1710490-004
13	PKG TCRU MQI-K	1710490-001
14	HARNESS ASSY TNR	865162K69670
	(J51-J431/J432/J433/J434/J441/J442/J443/J444/J511/J512/J513/J514)	
15	HARNESS ASSY CRUM(J71-J710)	865062K69680
16	PWBA EEPROM	865160K83190
17	S-HVPS	865105K19520
18	SWITCH TCRU ASSY	865110K11250

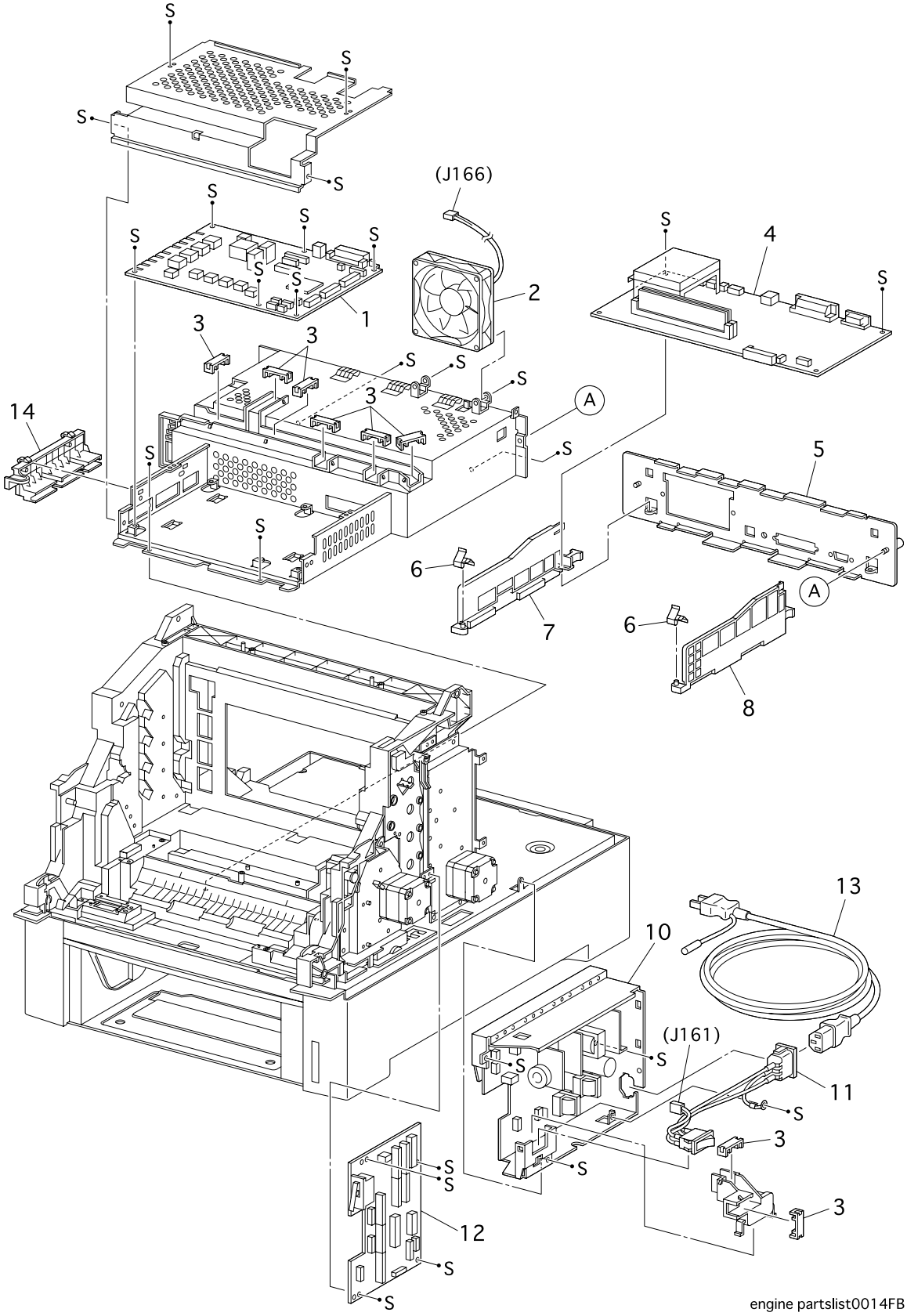
PL 11.1 Frame & Drive [Illustration]



PL 11.1 Frame & Drive [List]

Item	Parts name	
1	--	
2	--	
3	LINK LEVER L	865012E10040
4	LEVER DRUM	865011E10730
5	SPRING LEVER 30N	865809E28430
6	LINK LEVER R	865012E10030
7	--	
8	ACTUATOR I/R	865120E18680
9	SPRING I/R	865809E28460
10	GEAR IDL. PRESS	865007E65810
11	GEAR PRESS R	865007K87250
12	SPRING IDT R	865809E28440
13	DEVE DRIVE ASSY	865007K86680
14	MAIN DRIVE ASSY	865007K86670
15	FILM REGI	865035E58130
16	PWBA ASSY EARTH	865160K70780
17	SPRING IDT L	865809E28450
18	GEAR PRESS L	865007E65800
99	GEAR ASSY PRESS L	865007K87260

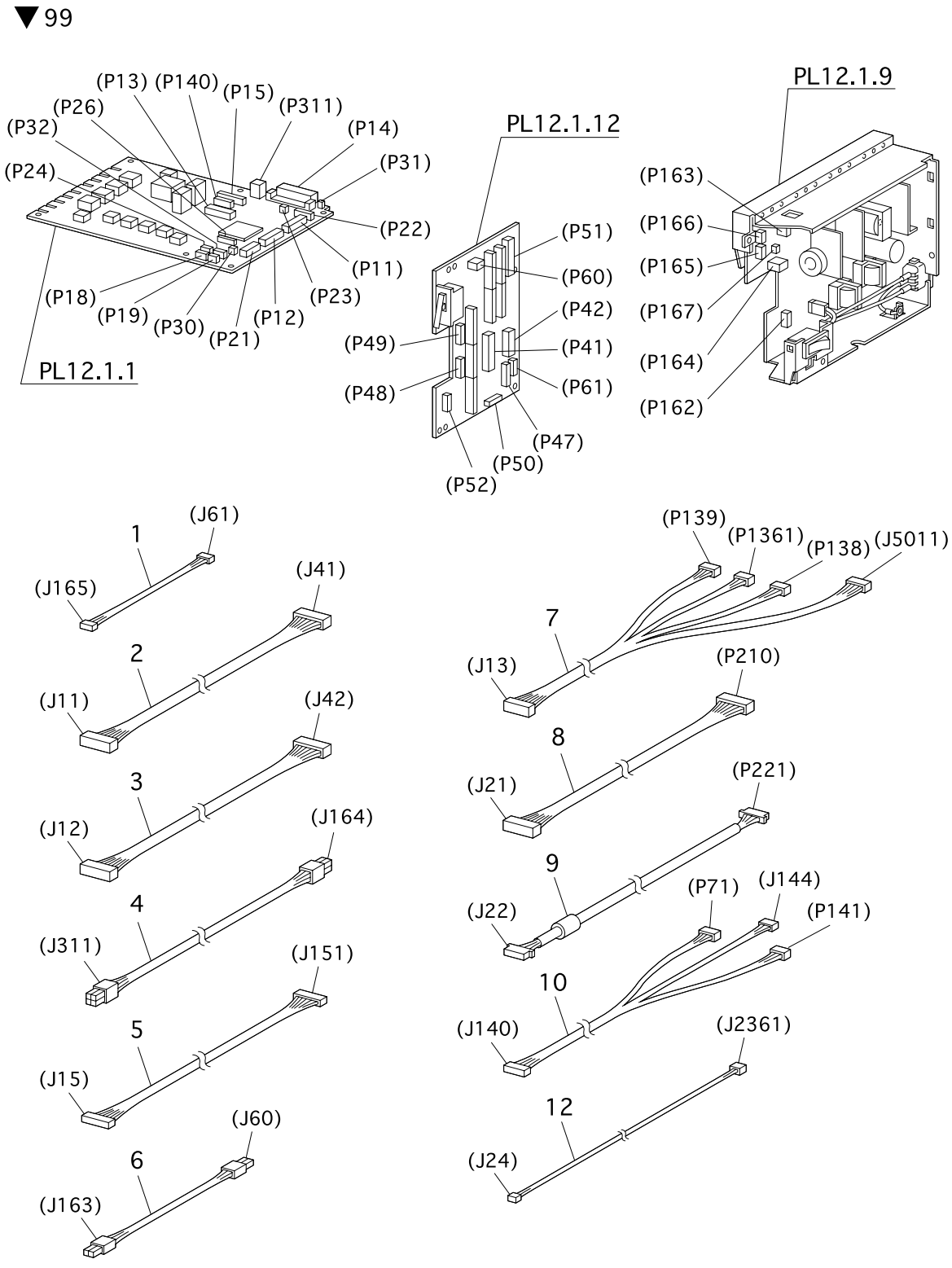
PL 12.1 Electrical [Illustration]



PL 12.1 Electrical [List]

Item	Parts name	
1	PWBA HNB MCU	865160K83960
2	FAN REAR	865127E82900
3	CLAMP GUIDE HARNESS	865019E49010
4	CONTROLLER BOARD	865160K83750
5	PLATE REAR ESS	865015K50530
6	SPRING EARTH ESS	865809E29820
7	GUIDE R ESS	865032E17450
8	GUIDE L ESS	865032E17440
9	--	
10A	LVPS STD 100/120V	865105K19480
10B	LVPS STD 230V	865105K19500
11	HARNESS ASSY AC SW	865162K69580
12	PWBA HNB DRV	865160K78360
13	POWER CORD US	865T359847
14	HOUSING ASSY CONTACT	865802K32500

PL 13.1 Harness [Illustration]



engine partslist0015FB

PL 13.1 Harness [List]

Item	Parts name	
1	HARNESS ASSY LVNC(J165-J61)	865162K69710
2	HARNESS ASSY DRV 1(J11-J41)	865162K69720
3	HARNESS ASSY DRV 2(J12-J42)	865162K69730
4	HARNESS ASSY LVRPG(J164-J311)	865162K69740
5	HARNESS ASSY ROSKA(J15-J151)	865162K69750
6	HARNESS ASSY 24V(J60-J163)	865162K69760
7	HARNESS ASSY FRONT 1A(J13-P139/P1361/P1381/J5011)	865162K69770
8	HARNESS ASSY OPF MAIN(J121-P210)	865162K69780
9	HARNESS ASSY OPEPANE AS(J22-P221)	865162K69790
10	HARNESS ASSY EEPROM(J140-P71/J144/P141)	865162K69810
11	--	
12	HARNESS ASSY TMPB(J24-J2361)	865162K69800
99	KIT PEPACK IOT	865604K02930

Chapter 6 Principles of Operation

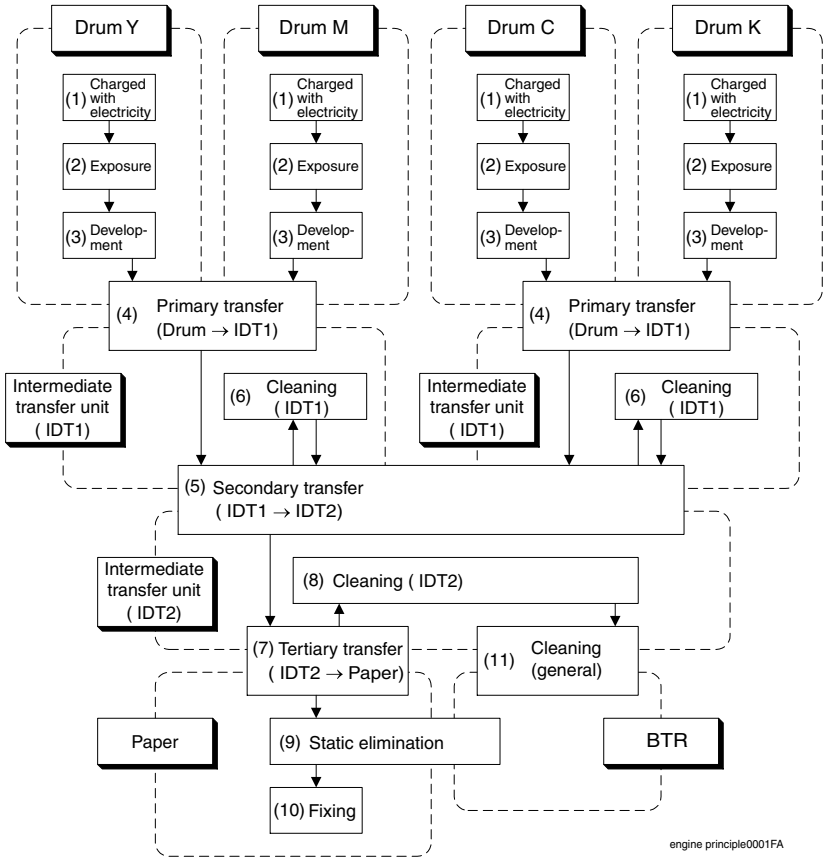
1. Printing Process

1.1 Summary of Printing Process

This printer is a "Full-color laser printer" which applies the principal of an electrophotographic recording system. The tandem system comprising a drum and developing unit respectively for each color of yellow, magenta, cyan and black (Y, M, C and K) places toner image of each color on paper producing full-color prints finally through 3 intermediate transfer units (IDT 1: 2, IDT 2: 1).

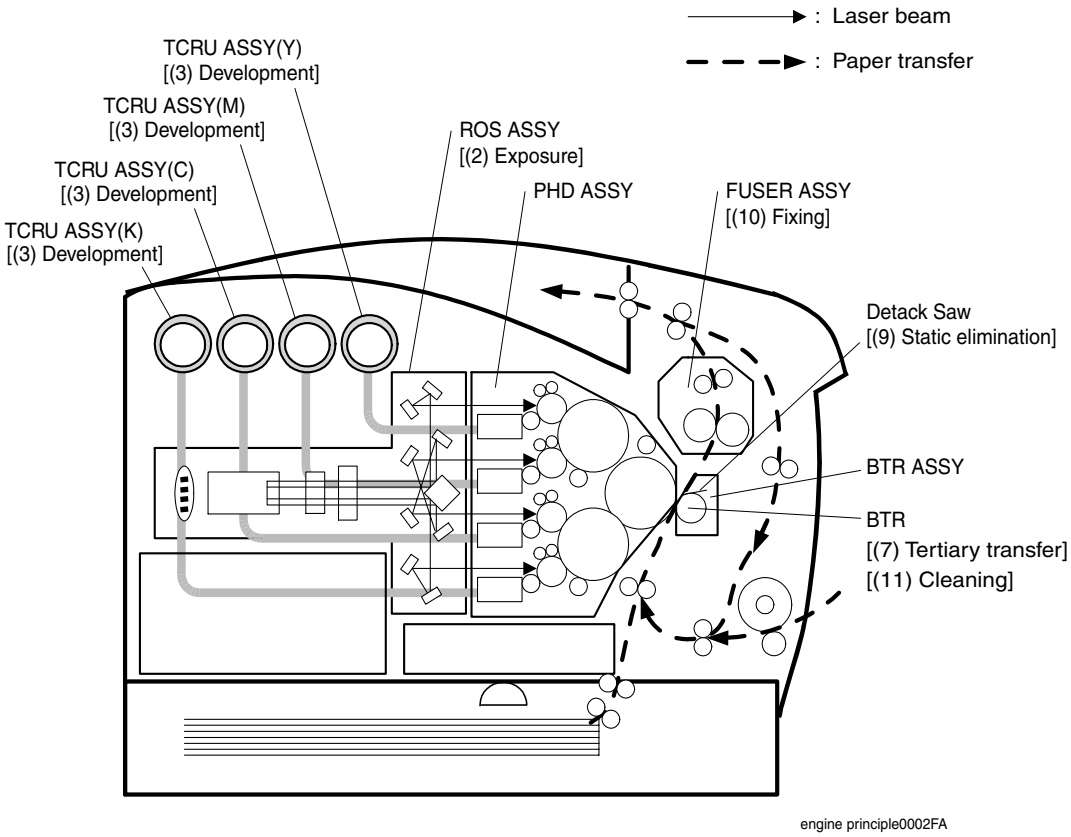
Printing processes of this printer is composed of the basic steps as follows.

(1) Charging with electricity:Drum surface is charged with electricity.
(2) Exposure: ..... Image unit is exposed to laser beams.
(3) Development: ..... Image is developed with toner.
(4) Primary transfer:Toner image is transferred to the intermediate transfer unit (IDT 1).
(5) Secondary transfer:Toner image on the intermediate transfer (IDT 1) is transferred to the intermediate transfer unit (IDT 2).
(6) Cleaning:The intermediate transfer (IDT 1) is cleaned.
(7) Tertiary transfer:Four-color finished toner image on the intermediate transfer unit (IDT 2) is transferred onto the paper.
(8) Cleaning:Intermediate transfer unit (IDT 2) is cleaned.
(9) Static elimination:Electric charge of the paper is eliminated.
(10) Fixing:Toner on the paper is fixed by heat and pressure.
(11) Cleaning:Remaining toner on the drum and intermediate transfer units are collected.



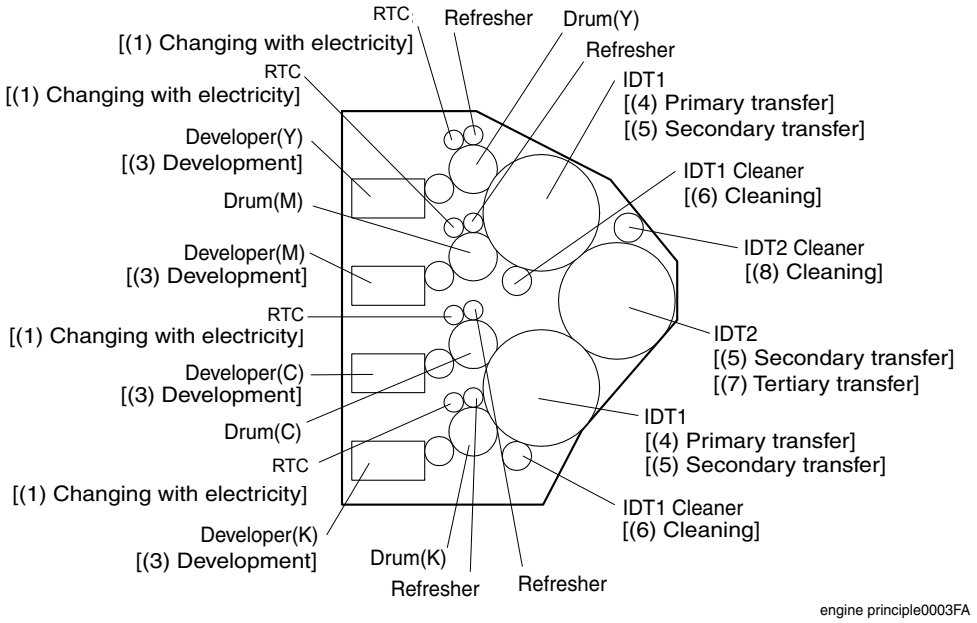
1.2 Schematic Diagram for Printing Processes

Outline of printing processes is shown in the figures below.



engine principle0002FA

PHD ASSY is integrated major units of printing processes. It is composed as follows.



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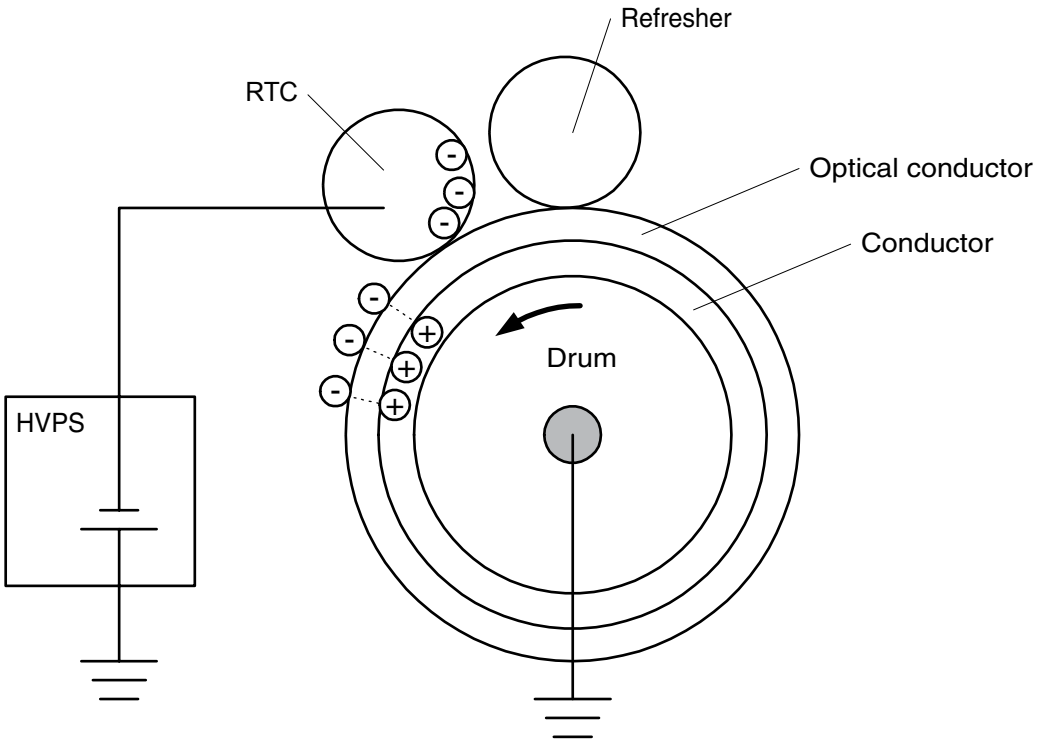
1.3 Description of Printing Process Techniques

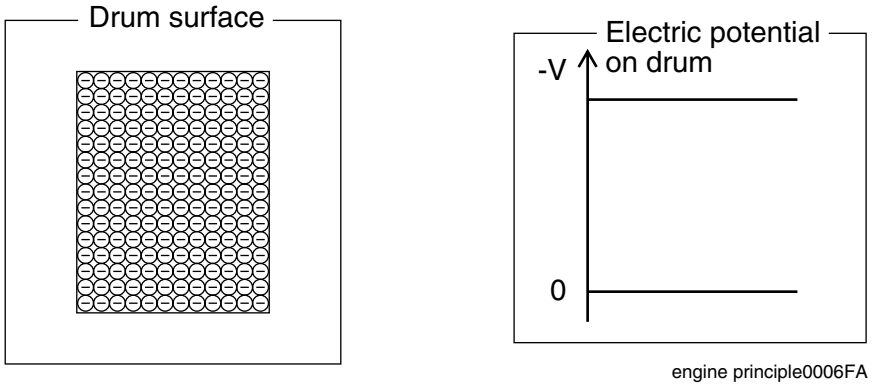
1.3.1 Charging with electricity

In the charging process, the drum surface rotating at a constant speed is charged uniformly with negative electricity by discharging of RTC (Rubber Tube Charge: Charged film).
This process is performed in parallel for yellow, magenta, cyan and black colors.

- ✧ The RTC is kept in contact with the drum and rotates following the rotations of the drum.
  RTC is a conductive roll, receives discharge voltage from HVPS (High Volume Power Supply) and discharges at minus DC voltage.
- ✧ The drum surface is uniformly and negatively charged with DC bias voltage.
  The drum surface is optical conductor (which is insulator in a dark place and conductor when receiving light) and the drum inside is composed of conductor.
- ✧ The Refresher is a conductive brush, and it receives negative DC voltage from the HVPS to catch the toner of reverse polarity returned to the drum via IDT. Also, it removes discharge products.



engine principle0004FA



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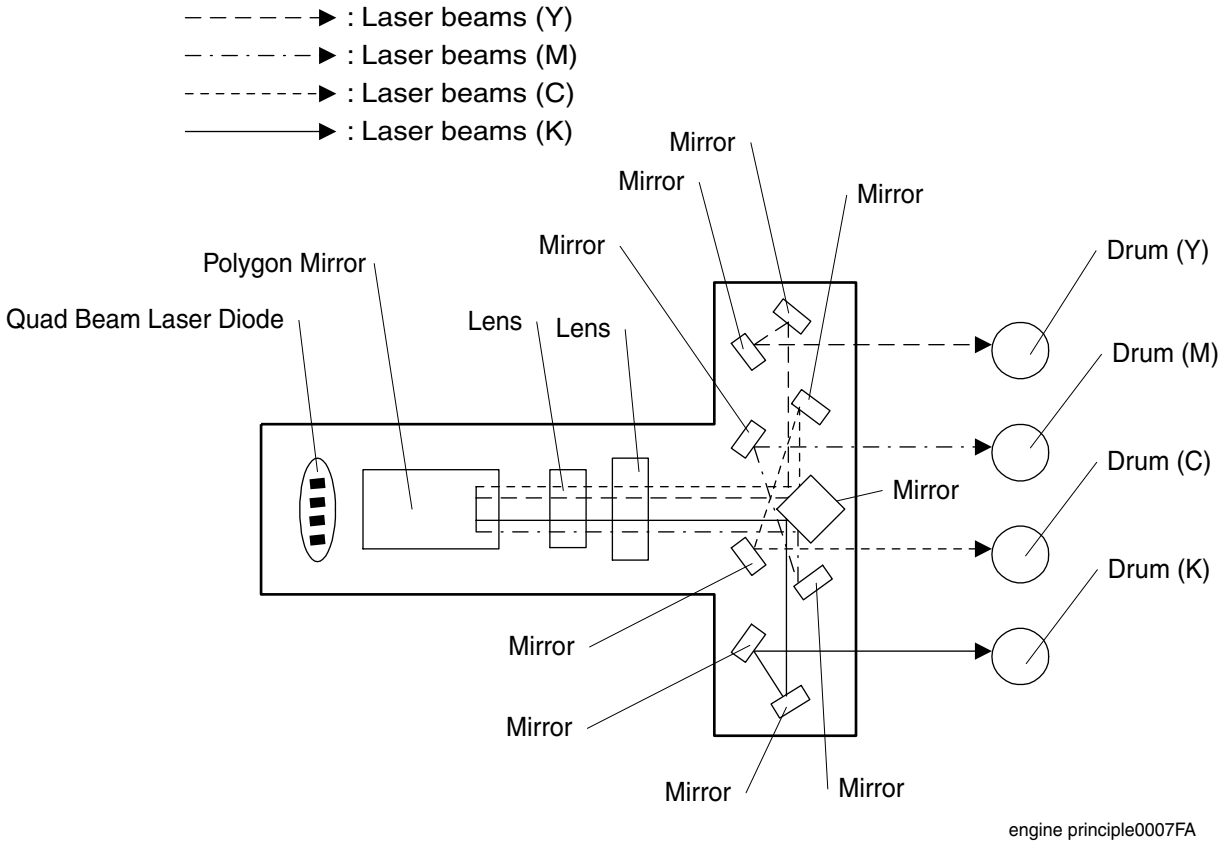
1.3.2 Exposure

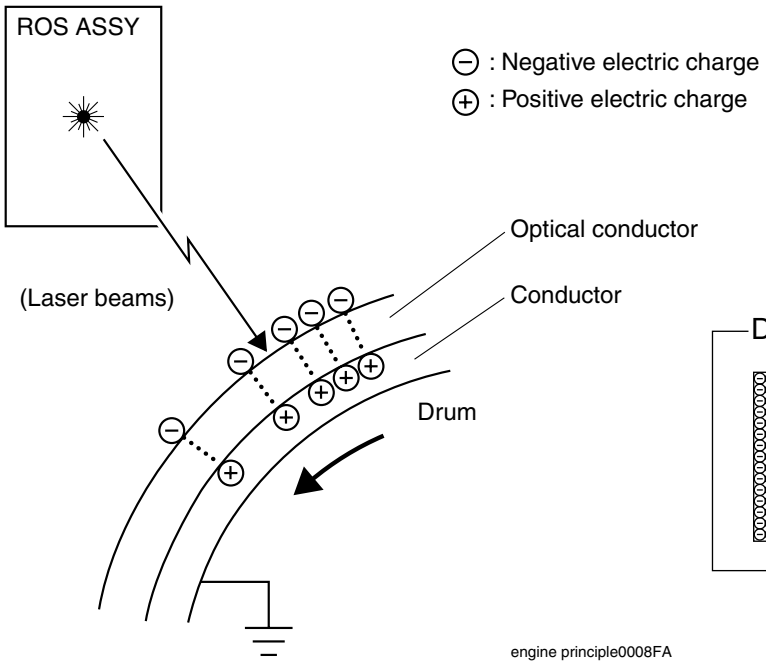
In the exposure process, the drum surface charged negatively is scanned by laser beams to form invisible electrostatic latent image on the drum surface.
This process is performed in parallel for yellow, magenta, cyan and black colors.

✧ Laser beams are emitted from the laser diode in the ROS ASSY. By the rotating polygon mirror, fixed mirror and lens attached to the scanner ASSY of the ROS ASSY, each color of drum surface is scanned from end to end in the axial direction.

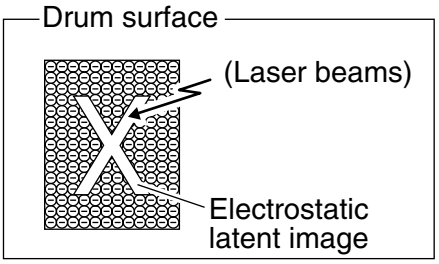


engine principle0007FA

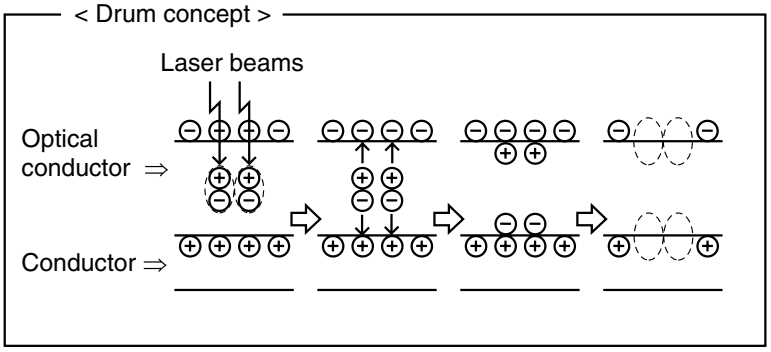
✧ The laser beams are emitted based on the print data (image data) from the printer controller. When the print data instructs to print pixel points, laser beams are generated and when the print data instructs not to print, no laser beams are generated. (On the areas which are developed by toner, the laser beams light up and areas which are not developed by toner, laser beams go out.)
The laser beams emitted on the drum surface generate a pair (electron <=> hole) in the optical conductive layer. [Electrons are excited on the conductive zone, causing holes at the valence band.] Electrons are induced by the electric field, moved toward the inside metallic part and flow into it. The holes move toward the outer surface of the optical conductive layer, are combined with the minus charge (electron) on the outer surface again and decrease negative charge. As a result, on the drum surface where the electric potential increases, invisible static latent image (print image) is generated.



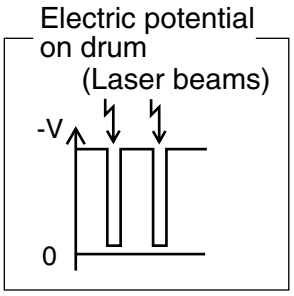
engine principle0008FA



engine principle0009FA



engine principle0011FA



engine principle0010FA

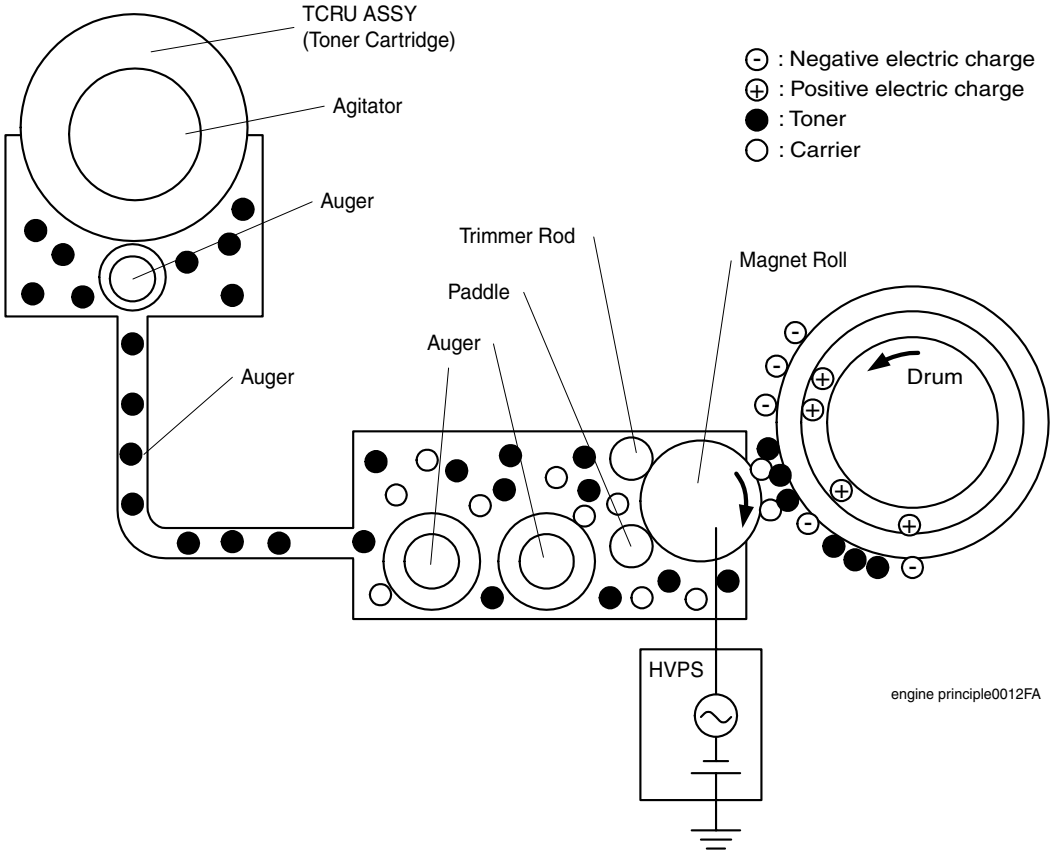
1.3.3 Development

In the development process, toner is electrically attached to the invisible statistic latent image on the drum surface to form visible toner image on the drum.
This process is performed in parallel for yellow, magenta, cyan and black color respectively.

- ✧ The toner in the toner cartridge is agitated by the Agitator in the toner cartridge and fed into the toner holder. Further, the toner is fed to the developer by the Auger in the toner holder and the Auger in the tube that connects the toner holder and the developer. The Agitator and Auger are spiral agitating components and they are driven by the toner motor provided on the rear of toner cartridge. The toner to be consumed according to the print count is calculated and fed into the developer. This is called "toner dispensation", which is controlled by two types of control, "PCDC" and "ADC". For the PCDC and ADC, see 7.4 Process Control in this chapter.

- ✧ The toner fed into the developer and the carrier in the developer are agitated by the Auger, and supplied to the Magnet Roll arranged in the vicinity of the drum surface. The toner and carrier are charged by friction due to the agitation (toner in negative, carrier in positive), and they are absorbed each other electrically. As the carrier is a magnetic substance, it is attracted to the Magnet Roll having a magnetic force and a homogeneous layer is formed by the Trimmer Rod and the Paddle.

- ✧ The magnet roll is covered by a thin semi-conductive sleeve over the surface. DB (Developing Bias) voltage is supplied to this semiconductor sleeve from HVPS. DB voltage is negative DC voltage combined with AC voltage. The magnet roll is kept at constant negative voltage against the optical conducting layer of the drum by DC voltage. Therefore, at the area on the drum surface where the negative electric charge does not decrease, potential is lower than the magnet roll, while the potential is higher than the magnet roll at the area where the negative charge on the drum surface decreases. The AC voltage shakes the developer on the magnet roll surface pressing the toner to fly to the drum. Thus, the toner charged negatively is attracted only by the area where the minus charge has decreased on the drum surface from the magnet roll (static latent image) and the toner image is formed on the drum.
  When the toner is attached, minus charge at that portion increases, potential decreases, and force to attract the toner decreases.



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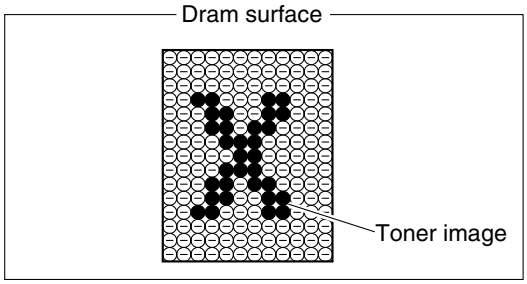
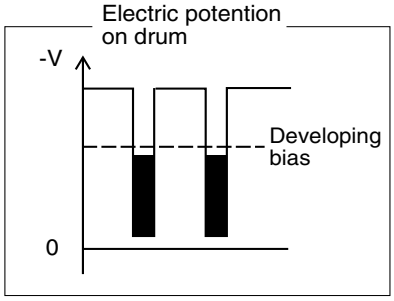


engine principle0013FA



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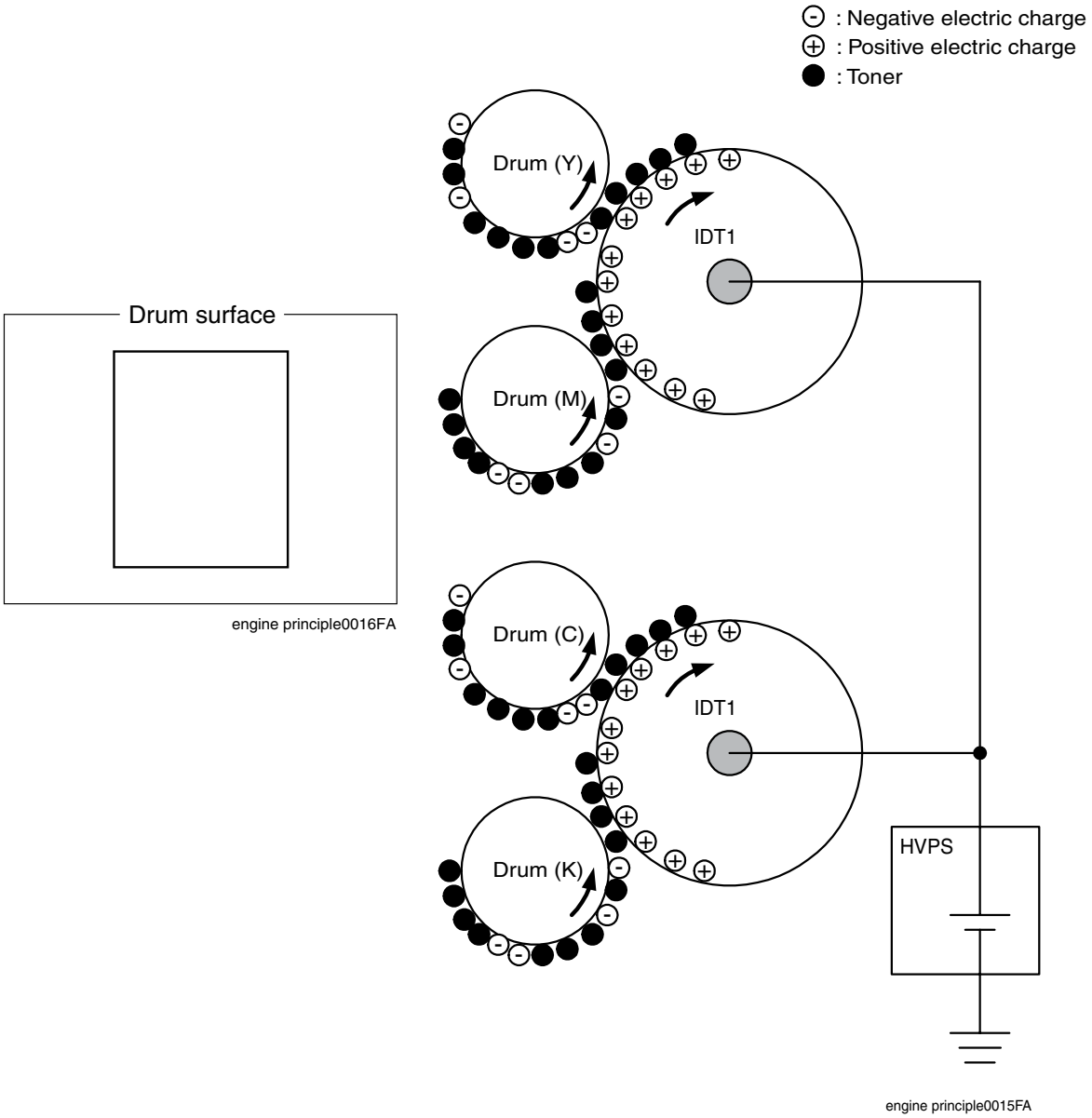
1.3.4 Primary transfer (drum -> IDT 1)

In the primary transfer process, toner image formed on the drum surface is transferred onto the surface of the IDT 1 (Intermediate Drum Transfer 1: intermediate transfer roll 1).

Two IDT 1 are provided: yellow and magenta, and cyan and black are respectively transferred to their IDT 1.

✧ IDT 1 is a conductive roll and receives supply of high positive voltage from HVPS.
The toner image (negatively charged) on the drum is attracted to the IDT1 positively charged, and transferred from the drum to the IDT1 surface.
At this time, electric charge of the drum surface is neutralized by the IDT1



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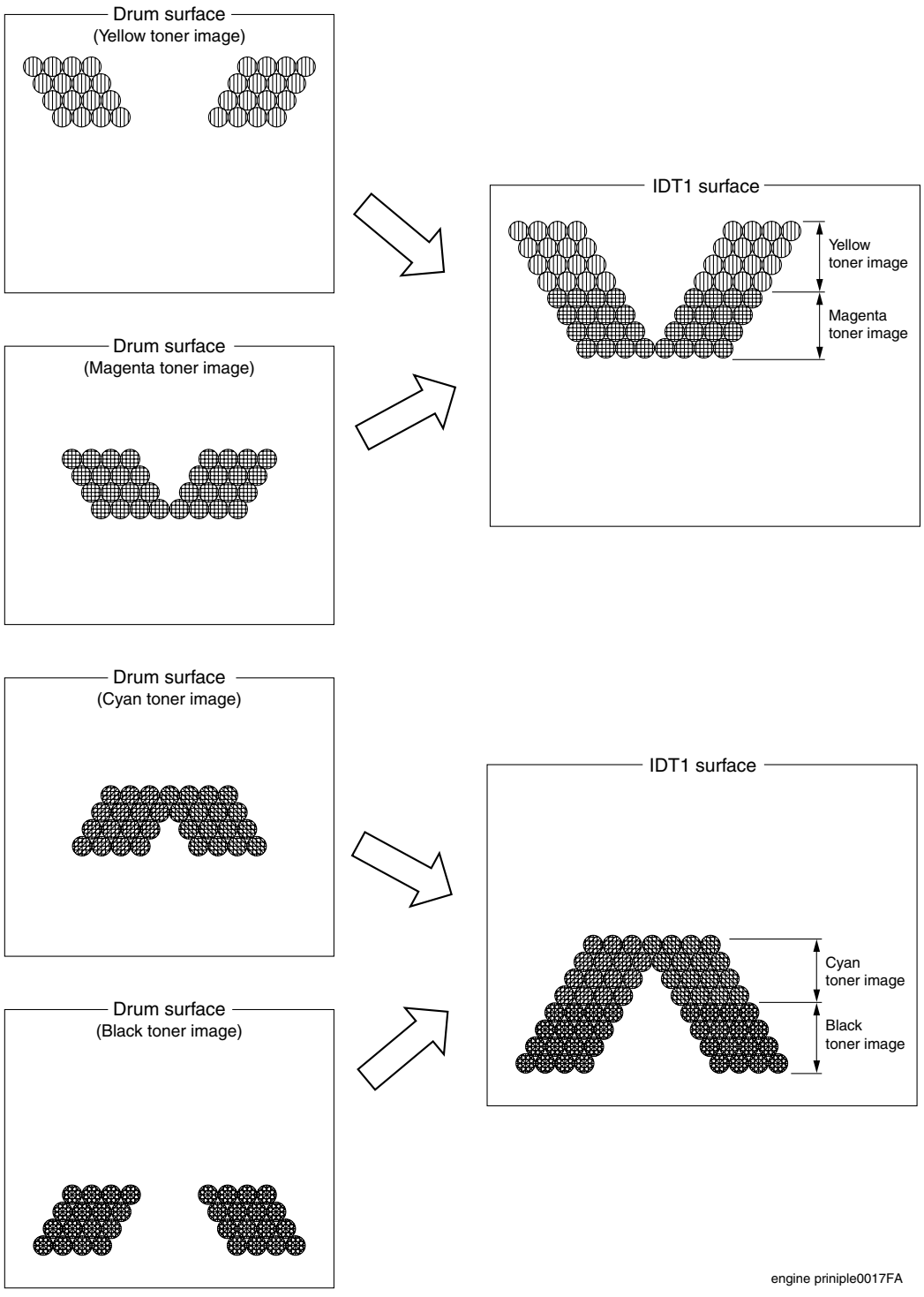
engine principle0015FA


Drum surface
(Yellow toner image)
Drum surface
(Magenta toner image)
IDT1 surface
Yellow
toner image
Magenta
toner image
Drum surface
(Cyan toner image)
Drum surface
(Black toner image)
IDT1 surface
Cyan
toner image
Black
toner image
engine priniple0017FA

1.3.5 Secondary transfer (IDT 1 -> IDT 2)

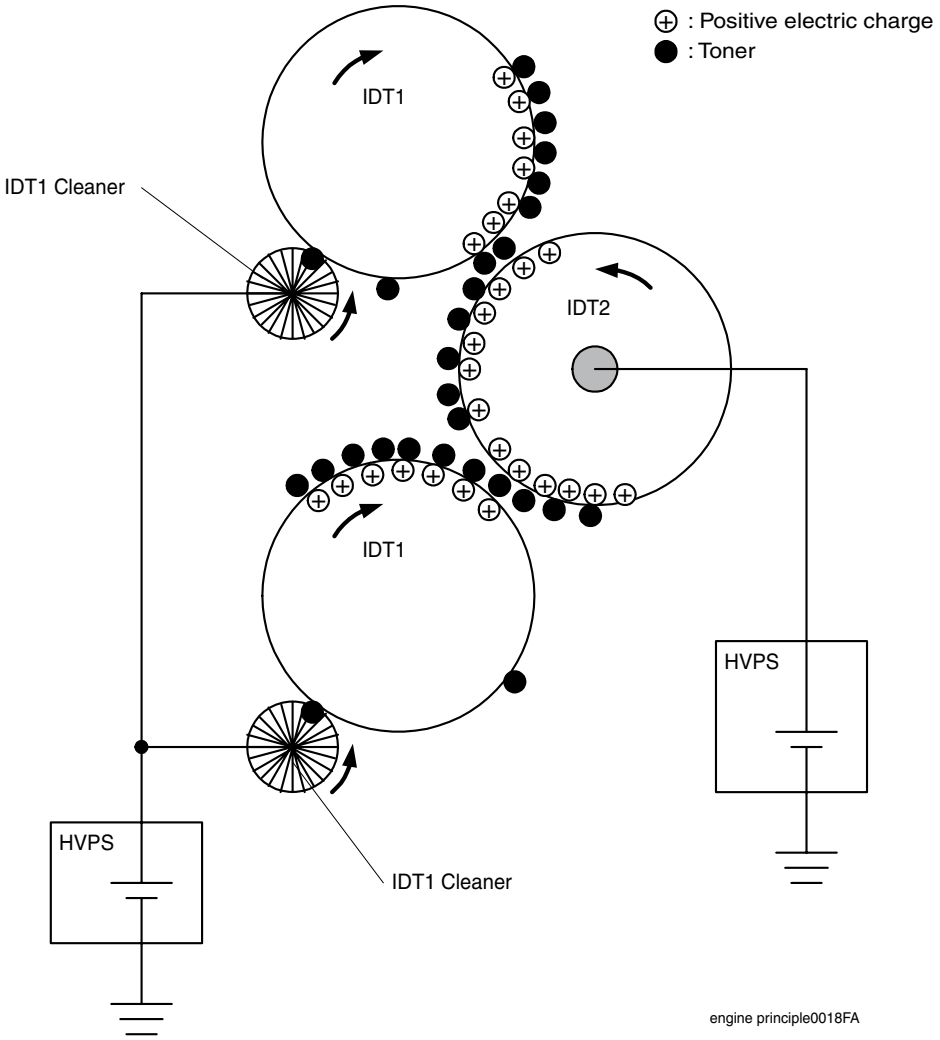
In the secondary transfer process, the toner image formed on the IDT 1 surface is transferred onto the surface of the IDT 2 (Intermediate Drum Transfer 1: intermediate transfer roll 2).
Two color toner image transferred onto the 2 IDT 1 is transferred to the IDT 2. Thus, 4 color toner image are compiled on the IDT 2 as finished toner image.

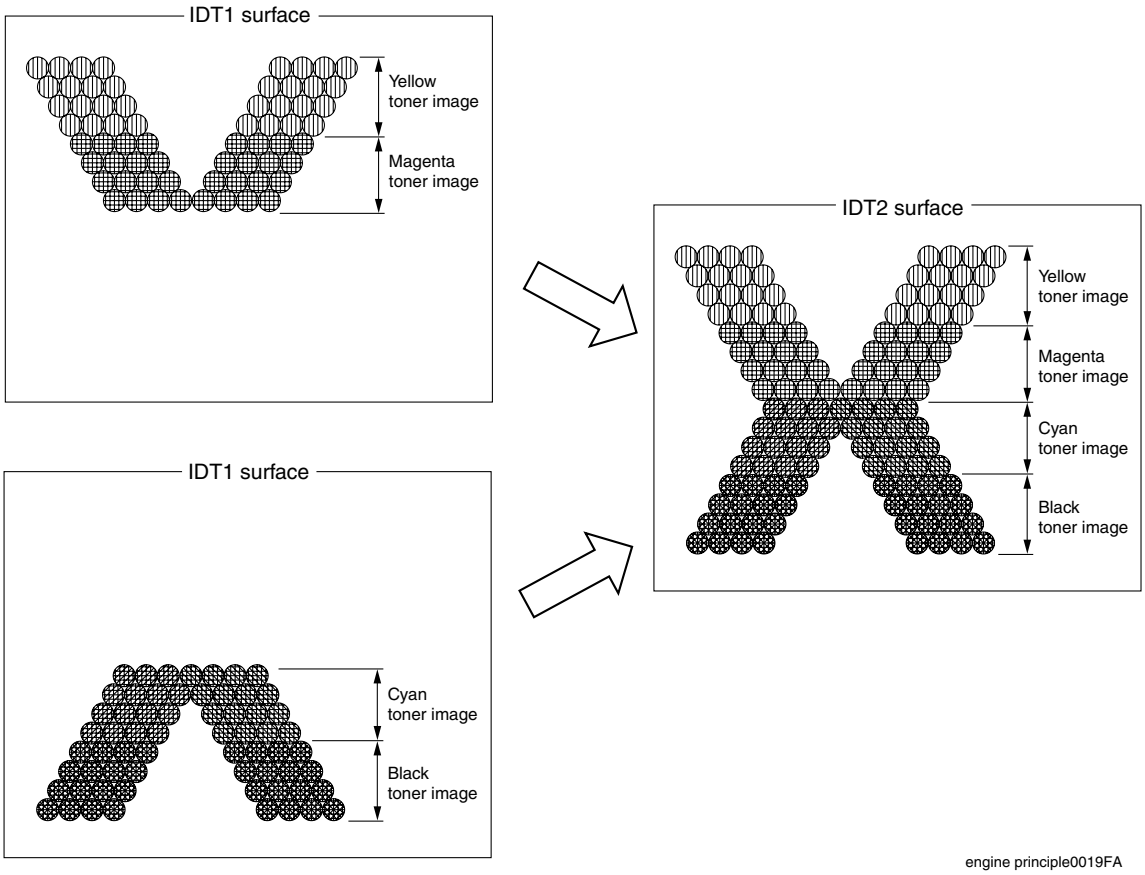
- ✧ IDT 2 is a conductive roll and receives supply of positive high voltage from HVPS.
  Both the IDT 1 and IDT 2 are positively charged. Voltage is higher on the IDT 2 and toner image is attracted to the IDT 2 surface and transferred onto the IDT 2.

1.3.6 Cleaning (IDT 1)

In the cleaning process (IDT 1), toner remaining on the IDT 1 after the toner image is transferred to the IDT 2 is temporarily stored in the IDT 1 cleaner.

- ✧ The IDT 1 cleaner receives positive high voltage from the HVPS with a conductive roll brush.
  The IDT 1 cleaner is placed in contact with the IDT 1 at the position through which it passes after the toner image having been transferred from the drum is transferred to the IDT 2. Toner remaining on the IDT 1 is electrically scraped and stored. The toner stored is collected upon completion of printing or at the time of cleaning cycle. (Refer to 1.3.11 Cleaning (general).)





engine principle0019FA

1.3.7 Tertiary transfer (IDT 2 - paper)

In the tertiary transfer process, finished toner image formed on the IDT 2 surface is transferred onto the paper under the voltage supplied to the BTR (Bias Transfer Roll).

- ✧ BTR is composed in the BTR ASSY. BTR is a conductive roll and receives positive high current from HVPS. When paper passes through between IDT2 and BTR, plus potential is given to the back side of the paper so that the toner on the IDT 2 is transferred onto the paper. At this time, potential on the BTR is higher than that on the IDT 2.

1.3.8 Cleaning (IDT 2)

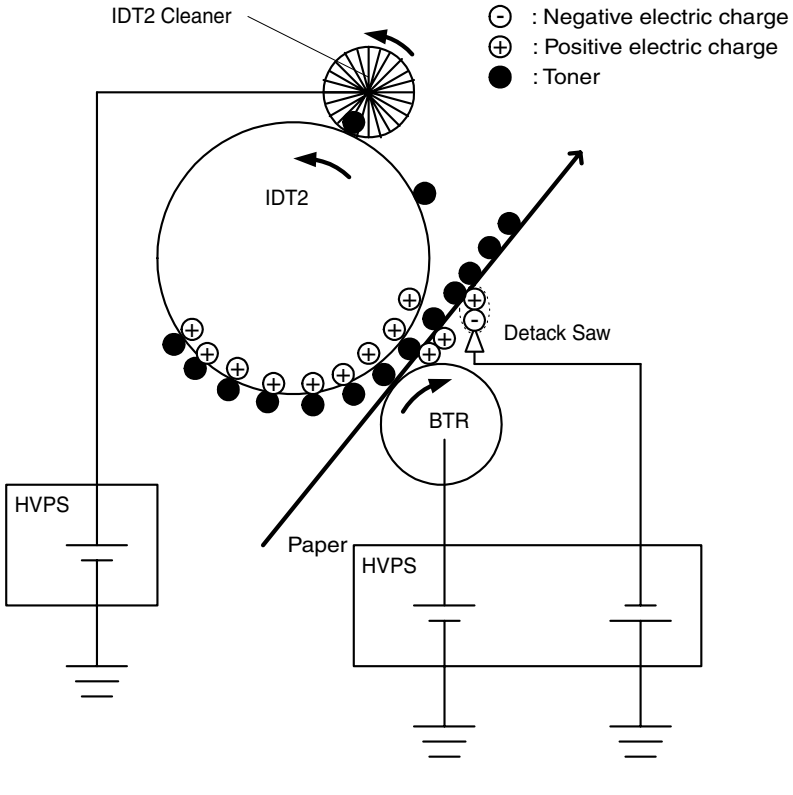
In the cleaning process, toner remaining on the IDT 2 after the toner image is transferred onto the paper is temporarily held at the IDT 2 cleaner.

- ✧ The IDT 2 cleaner is a conductive roll brush and receives positive high voltage from HVPS.
  The IDT 2 cleaner is placed in contact with the IDT 2 at a position through which it passes after the toner image having been transferred from IDT 1 is transferred onto the paper. Remaining toner on the IDT 2 is electrically scraped and held at the IDT 2 cleaner. The toner held is collected upon completion of printing or at the cleaning cycle. (Refer to 1.3.11 Cleaning (general).)

1.3.9 Static elimination

In the static elimination process, negative DC voltage is given to the back side of the paper from the Detack Saw (static elimination board) to neutralize and eliminate the charge of paper.

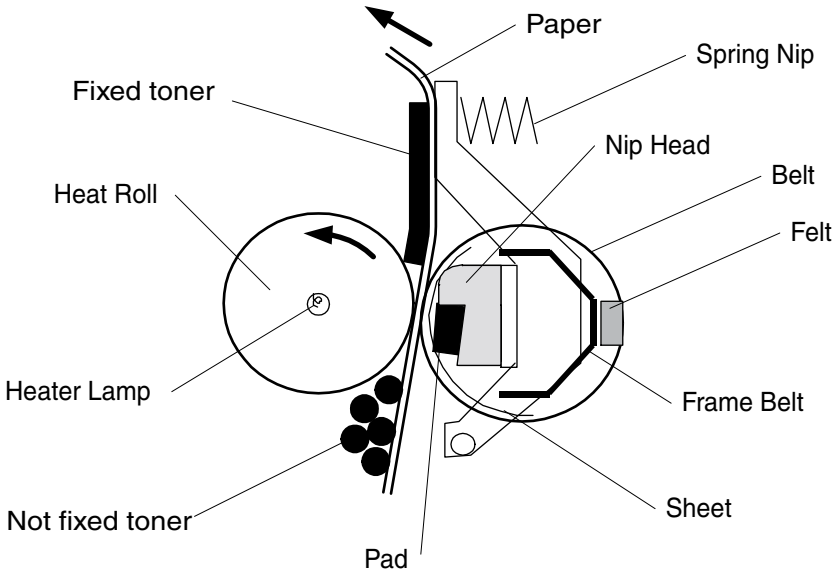
- ✧ The Detack Saw receives high voltage from HVPS. The positive charge caused in the tertiary transfer process generates image quality troubles by scattering toner. Static electricity of the paper is eliminated by discharge of the Detack Saw preventing those image quality troubles.



1.3.10 Fixing

In the fixing process, toner is fixed on the paper by heat and pressure.

✧ Finished toner image transferred from the belt is easily broken only by touching it with fingers. The toner image is fixed on the paper with the FUSER ASSY (fixing unit).
The toner melts by heat of the HEAT ROLL with the Heater lamp as the heat source and is deposited on the paper under pressure given by the belt opposed against the heat roll.



engine principle0021FA

1.3.11 Cleaning (general)

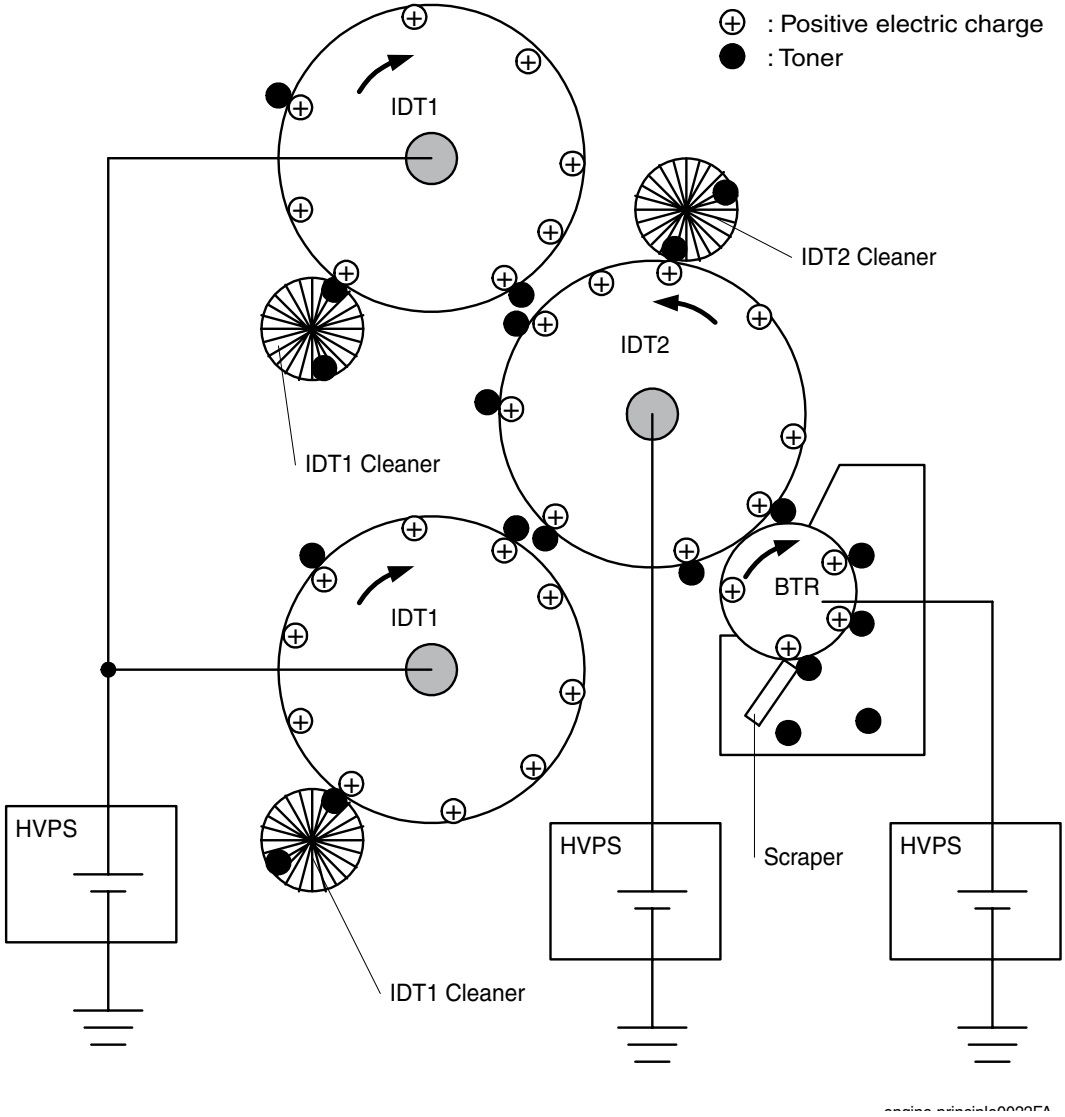
In the cleaning (general) process, toner stored in the IDT 1 cleaner and IDT 2 cleaner after the finished toner image is transferred onto the paper and the toner remaining on the BTR are removed.

✧ The toner not completely transferred in the "secondary transfer" and "tertiary transfer" processes is held temporarily in the IDT1 Cleaner and IDT2 Cleaner. Also, the toner of which polarity is reversed and returned to the drum is held in the Refresher. Further, the toner that passes the Refresher may stick to the RTC.

These toners are cleaned at the completion of the printing. The recovery method is different between the toner held in the IDT1 Cleaner and IDT2 Cleaner and the toner held in the Refresher and RTC.

(1) IDT1 Cleaner and IDT2 Cleaner

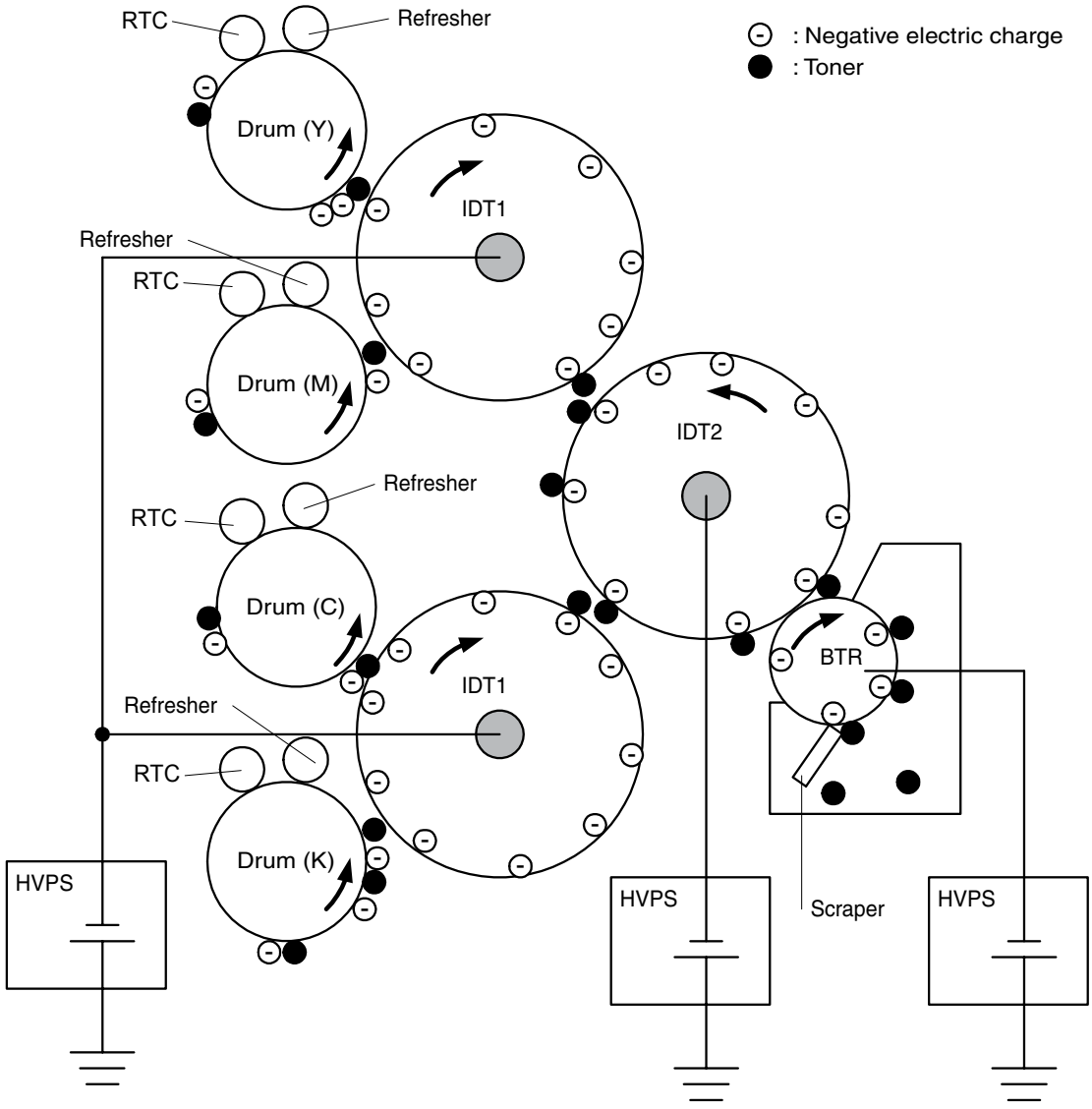
High voltage equivalent to the voltage at the printing transfer is applied to the IDT1, IDT2, and BTR. The toner (negative polarity) remaining in the IDT1 Cleaner and IDT2 Cleaner are moved to the IDT1 and IDT2 electrically by transforming the IDT1 Cleaner and IDT2 Cleaner to 0V. Then, in the same manner as in the printing transfer, the residual toner is collected to the BTR surface by potential difference between IDT1, IDT2, and BTR.



(2) Refresher and RTC

High voltage of the polarity (negative) reverse to that at the printing transfer is applied to the IDT1, IDT2, and BTR. At this time, the drum surface is charged negatively by negative voltage of the IDT1. The toner (positive polarity) remaining in the Refresher and RTC are move to the drum electrically by transforming the Refresher and RTC to 0V. Then, in the same manner as in the printing transfer, the residual toner is collected to the BTR surface by potential difference between IDT1, IDT2, and BTR.

✧ Toner attached to the surface of BTR is scraper off with the BTR cleaner which is in contact with the BTR and collected into the collection space in the BTR UNIT ASSY.



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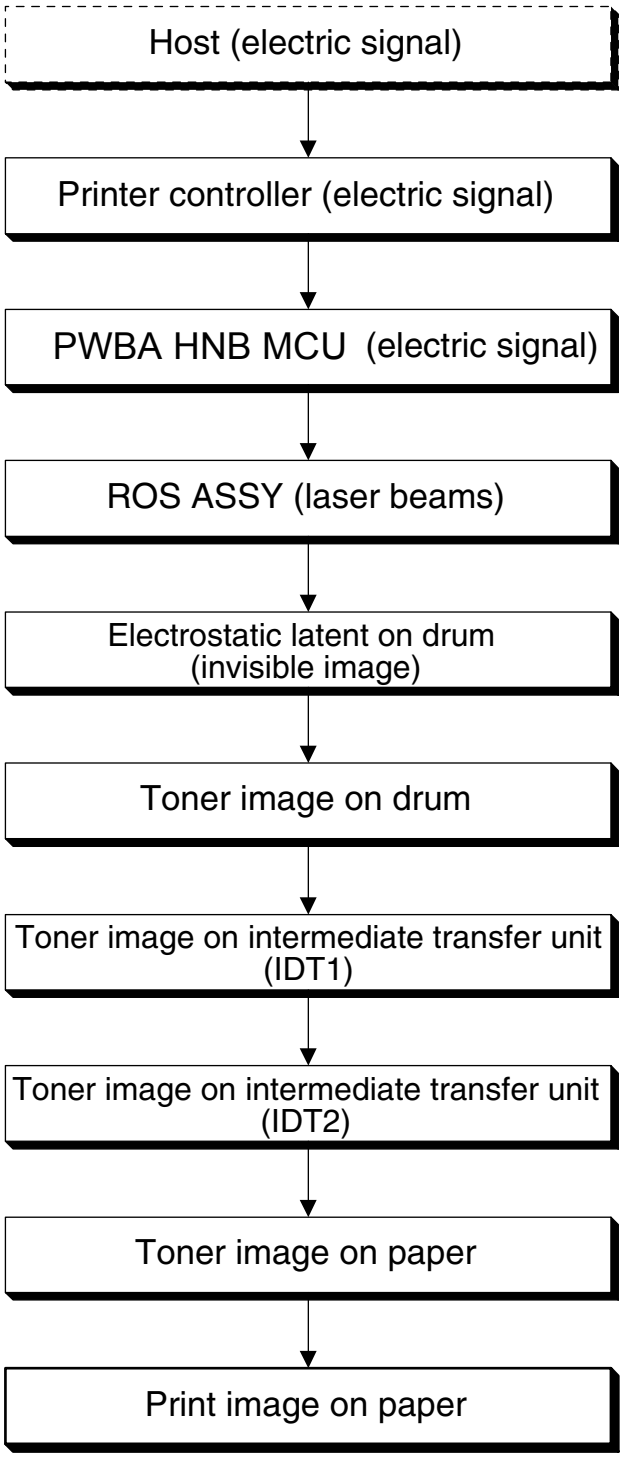
2. Flow of Print Data

2.1 Data Flow

Print data (electric signal) from the printer controller flows as shown below to turn to the print image finally.

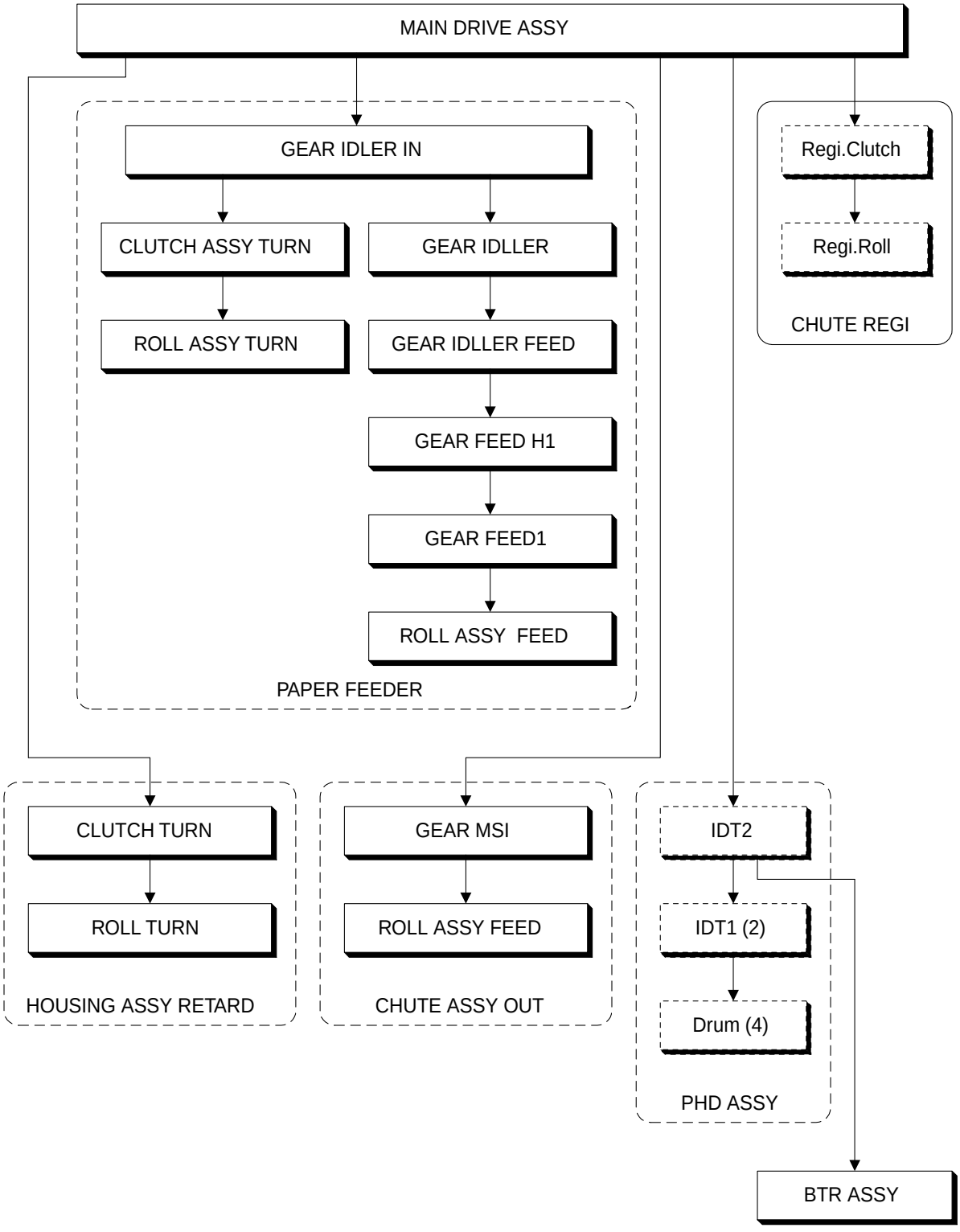


engine principle0023FA

3. Drive Transmission Route

3.1 MAIN DRIVE ASSY

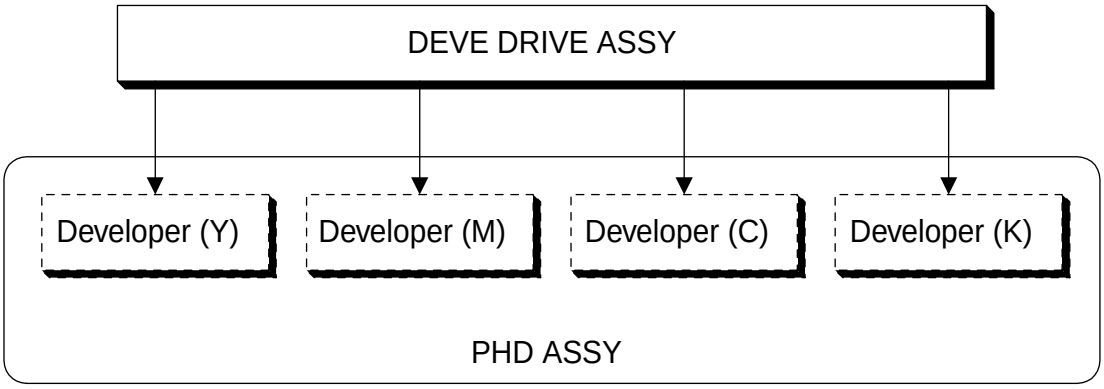
Rotary power of the MAIN DRIVE ASSY is transmitted through the route below.



engine principle0024FA

3.2 DEVE DRIVE ASSY

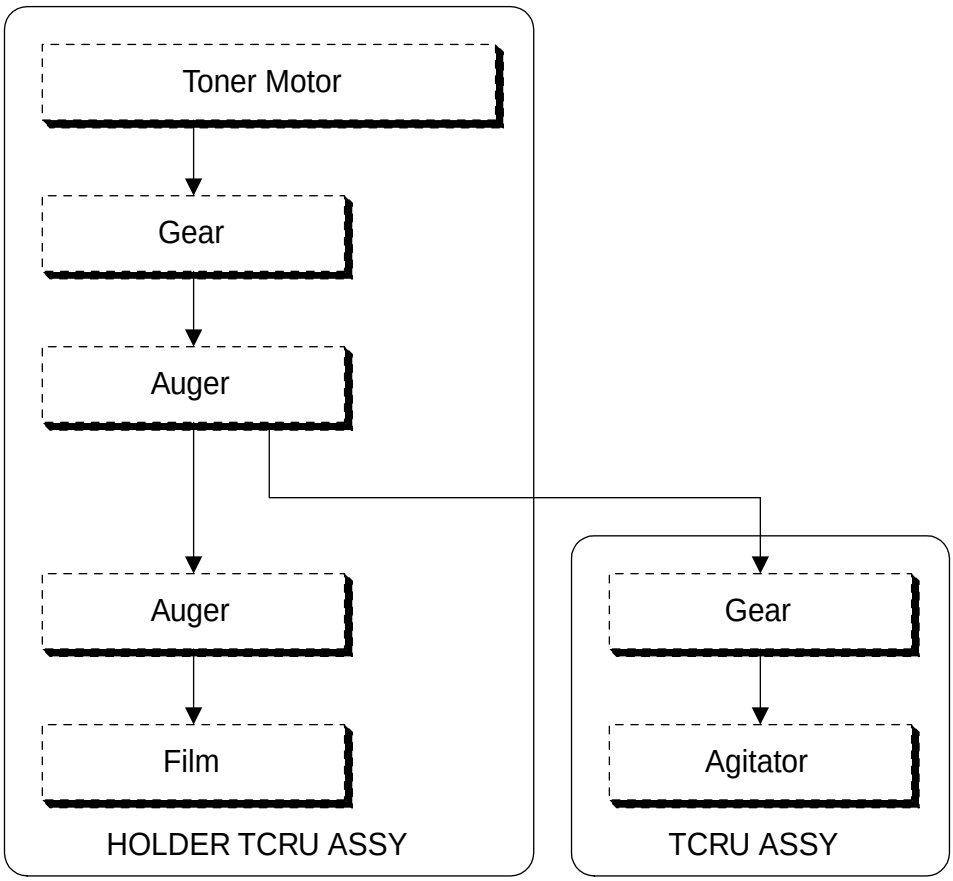
The rotary power of the DEVE DRIVE ASSY drives the developers of 4 colors in the PHD ASSY.



engine principle0025FA

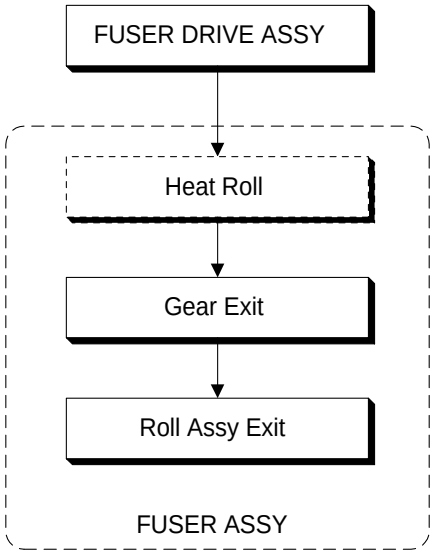
3.3 HOLDER TCRU ASSY (Y, M, C, K)

Rotary power of the toner motor in the HOLDER TCRU ASSY drives the agitator in the TCRU ASSY (to supply toner from the TCRU ASSY to HOLDER TCRU ASSY) and auger in the HOLDER TCRU ASSY (to supply toner to developer in the PHD ASSY). Four HOLDER TCRU ASSY, Y, M, C and K, operate respectively in the same way.



3.4 FUSER DRIVE ASSY

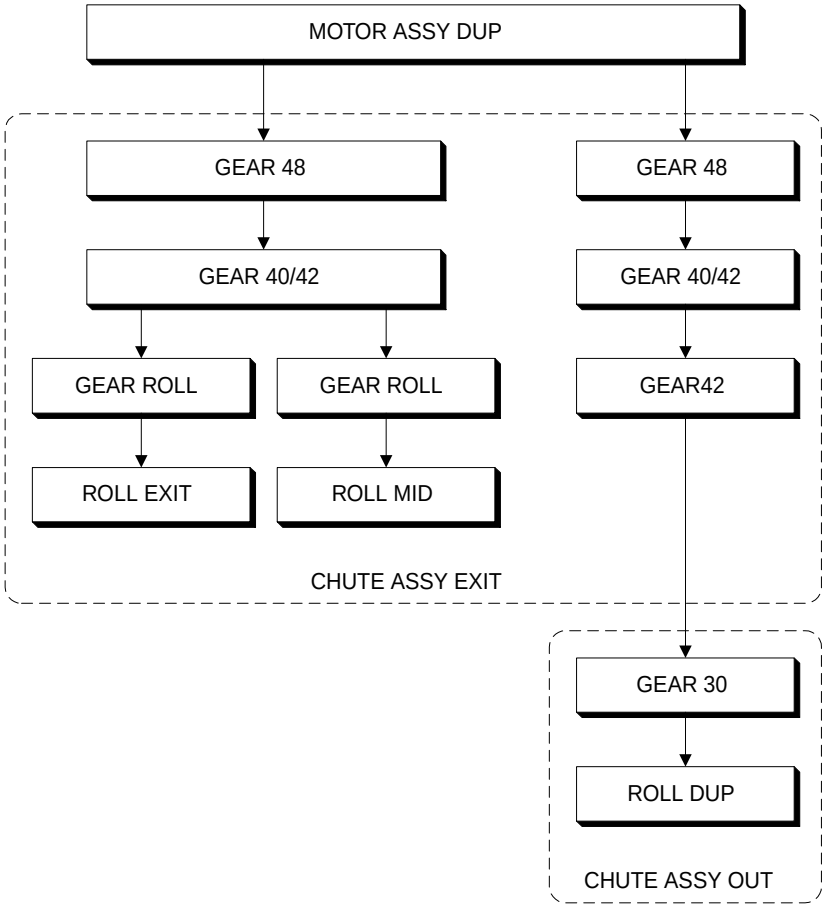
Rotary power of the FUSER DRIVE ASSY drives the FUSER ASSY.



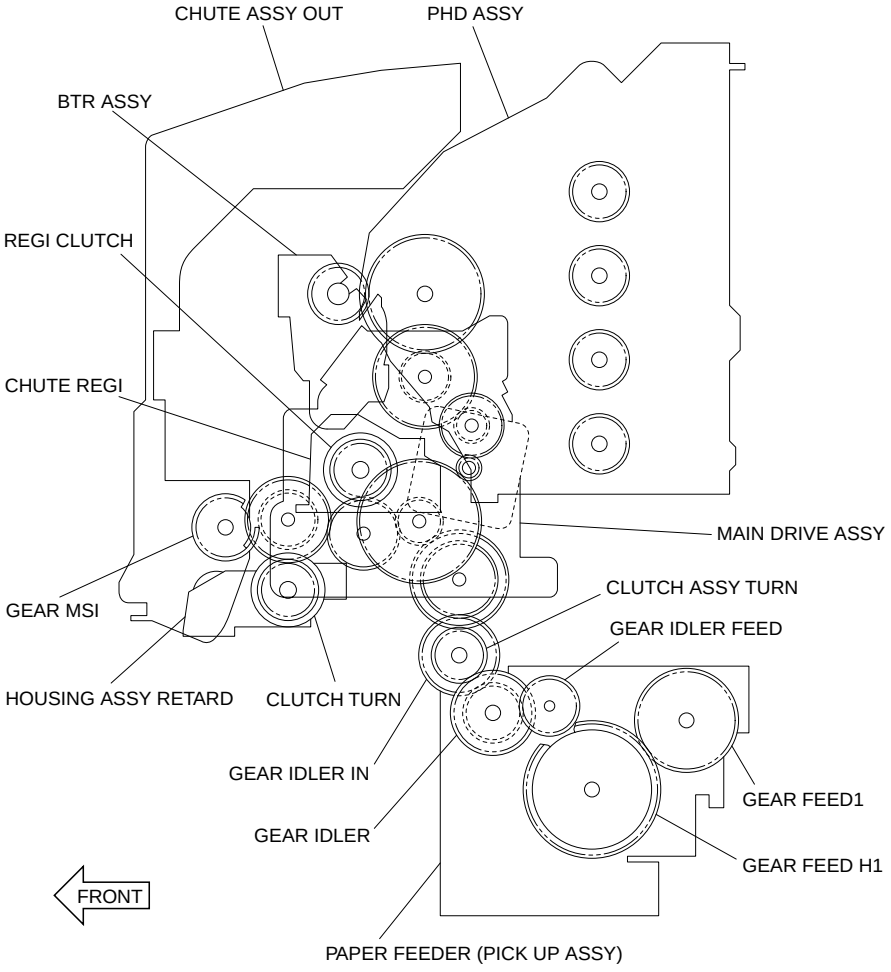
engine principle0026FA

3.5 MOTOR ASSY DUP

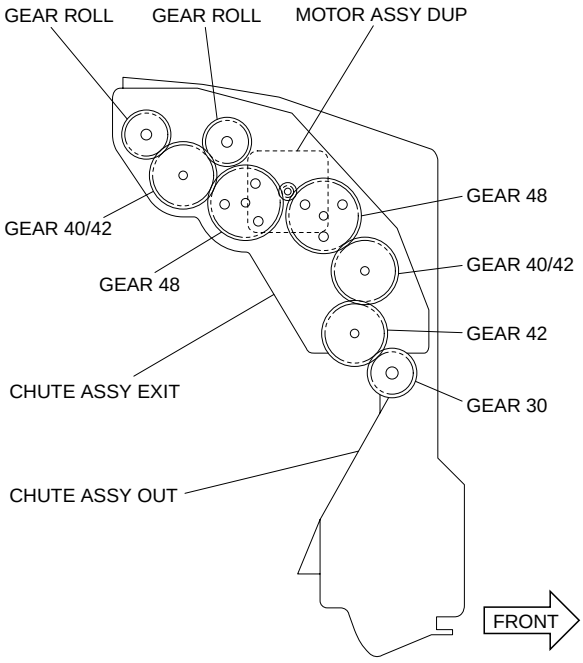
Rotary power of the MOTOR ASSY DUP is transmitted through the route below.



3.6 Gear • Layout



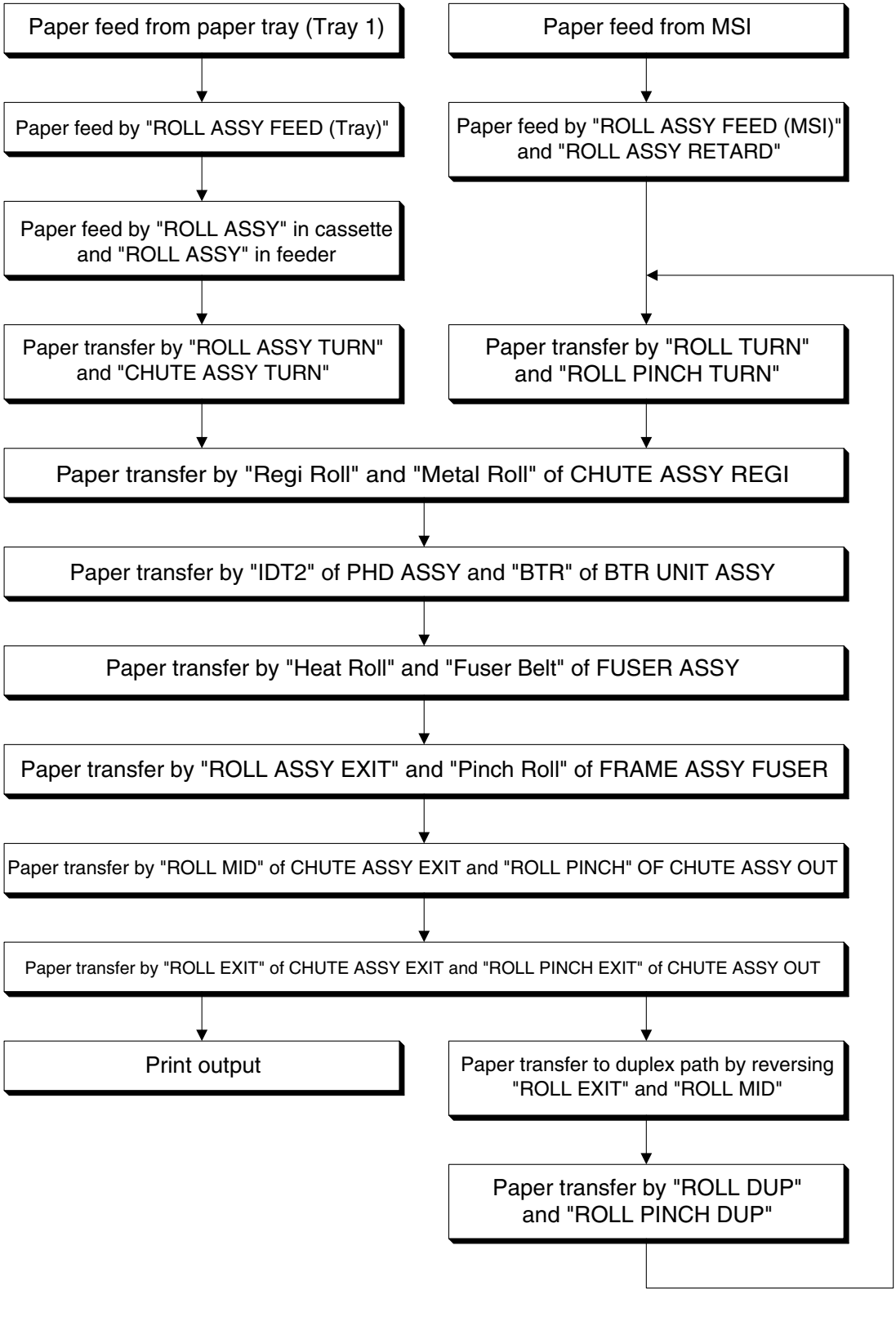
engine principle0029FA



engine principle0043FA

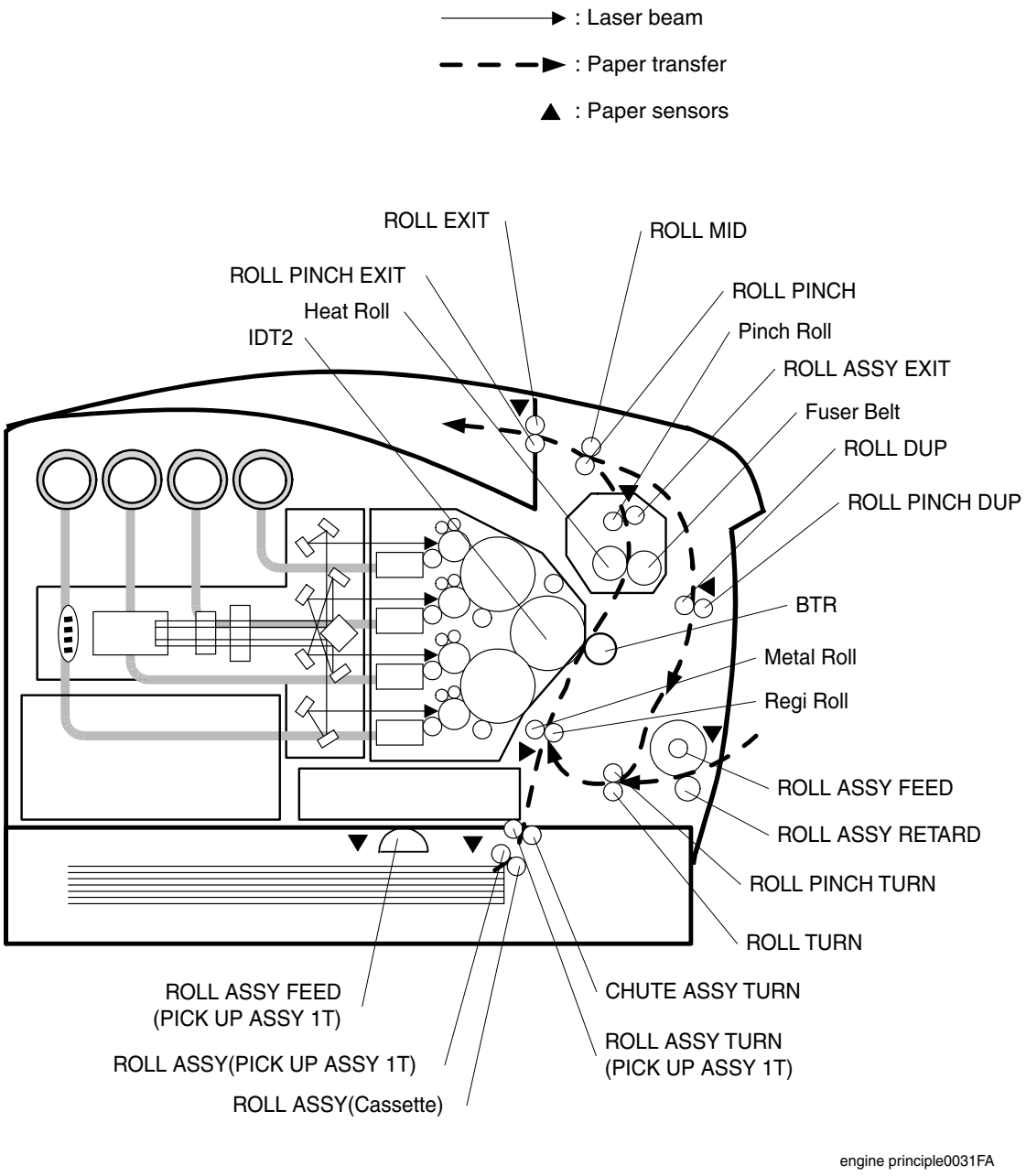
4. Paper Transport

4.1 Paper Transport Route (without option)



engine principle0030FA

4.2 Layout of Paper Transport Route



engine principle0031FA

5. Functions of Major Functional Components

Major functional components comprising the printer are described below referring to their illustrations. Those components are classified into the following blocks based on the configuration of the printer.

- ☆ Paper Cassette
- ☆ Paper Feeder
- ☆ Housing Assy Retard
- ☆ Front Assy In
- ☆ Chute Assy Out
- ☆ Chute Assy Exit
- ☆ BTR Assy & Fuser
- ☆ Xerographics
- ☆ TCRU Assy
- ☆ Frame & Drive
- ☆ Electrical

5.1 Paper Cassette

5.1.1 Major functions

▼ Side Guide

The Side Guide can move at right angle to the paper transfer direction to align the paper width.

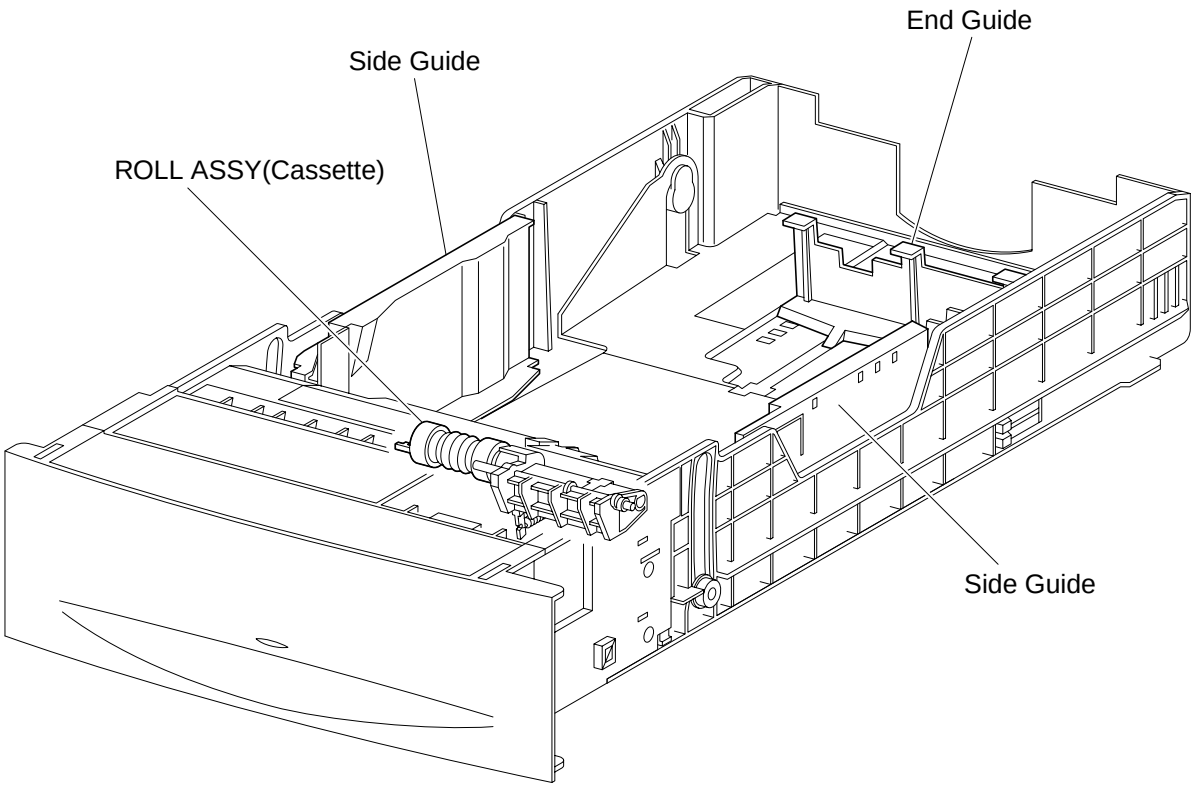
▼ End Guide

The End Guide can move in the paper transfer direction to determine the paper size. The ON/OFF of SWITCH ASSY SIZE (see 5.2 Paper Feeder) varies according to the End Guide position to detect the paper size.

▼ ROLL ASSY (Cassette)

The ROLL ASSY (Cassette) and the ROLL ASSY (PICK UP ASSY T1) (see 5.2 Paper Feeder) pinch the paper to feed.

5.1.2 Reference diagram



engine principle0032FA

5.2 Paper Feeder

5.2.1 Major functions

▼ SWITCH ASSY SIZE

SWITCH ASSY SIZE detects paper size and existence or non existence of the paper tray.

▼ SENSOR PHOTO (No Paper Sensor)

Detects existence or non existence of paper in the paper tray based on the position of ACTUATOR NO PAPER. (No paper: Sensor beam is intercepted)

▼ SENSOR PHOTO (Low Paper Sensor)

The actuator lowers according to how much paper remains in the paper tray. When the actuator lowers to certain extent, it intercepts the sensor beam to detect low paper quantity.
As the actuator position can be seen from the front side of paper tray, you can confirm approximate residual paper quantity.

▼ SOLENOID FEED

Controls operation (rotation/stop) of ROLL ASSY FEED by controlling the rotations of the GEAR FEED.

▼ CLUTCH ASSY TURN

Transmits the drive from the MAIN DRIVE ASSY to ROLL ASSY TURN.

▼ ROLL ASSY FEED

When the SOLENOID FEED operates, the GEAR FEED and GEAR IDLER FEED are engaged by the force of the SPRING FEED. Under the drive from the MAIN DRIVE ASSY, the ROLL ASSY FEED starts rotating and the ROLL ASSY (PICK UP ASSY T1) sends paper.
After having rotated one turn, the GEAR FEED and GEAR IDLER FEED are disengaged at the notch of the GEAR FEED, no drive is transmitted any more, and the ROLL ASSY FEED stops rotating. Thus sheets of paper is sent out one by one.

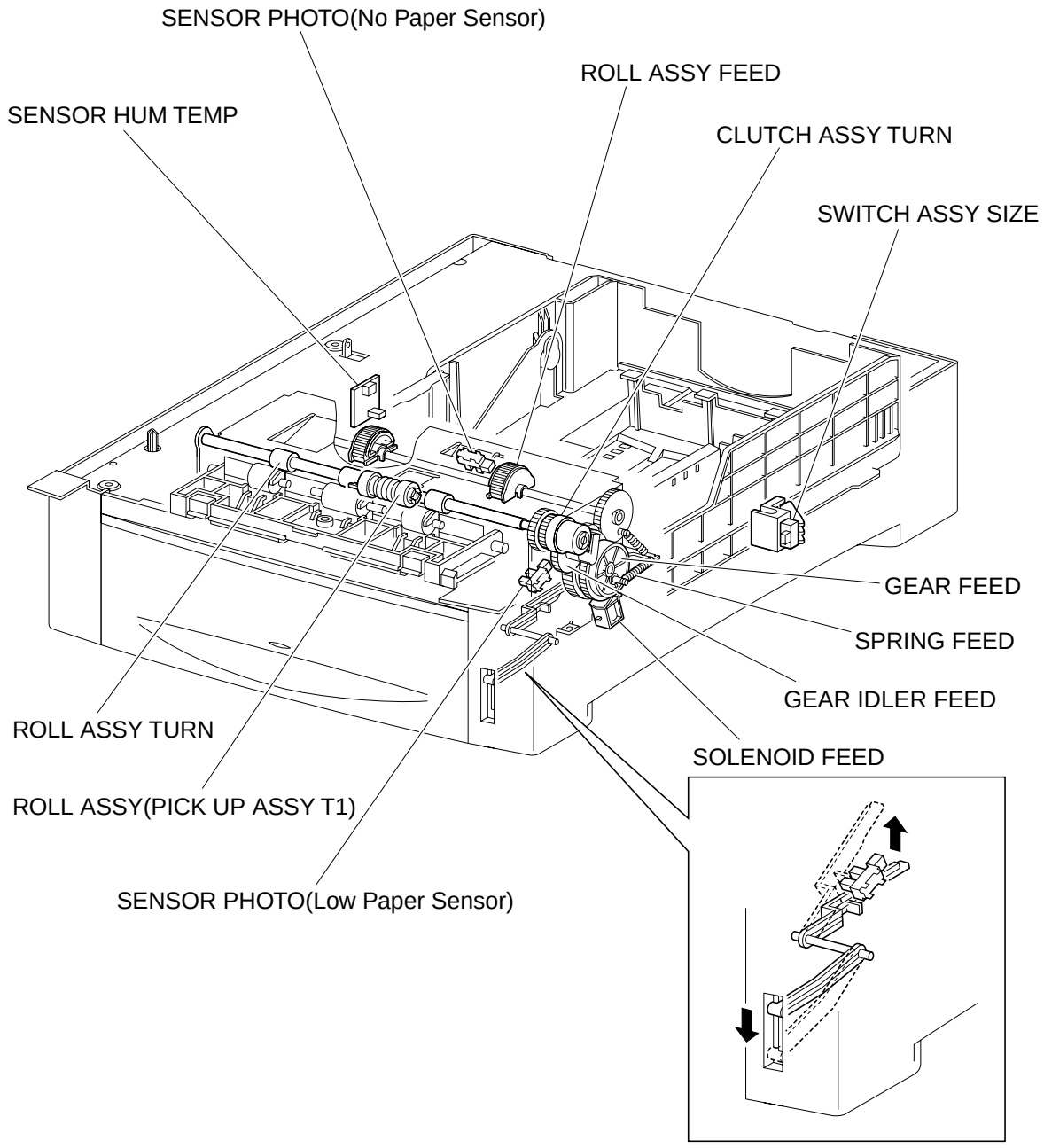
▼ ROLL ASSY TURN

The ROLL ASSY TURN rotates by the drive from the MAIN DRIVE ASSY through the CLUTCH ASSY TURN to feed the paper from the paper tray to CHUTE REGI (Regi Roll) ("refer to 5.8 Xerographics").

▼ SENSOR HUM TEMP

Detects temperature and humidity in the printer.
The printer corrects the charging voltage, the voltage supplied to the transfer rolls, and the developing bias based on the detected temperature and humidity.

5.2.2 Reference diagram



engine principle0033FA

5.3 Housing Assy Retard

5.3.1 Major functions

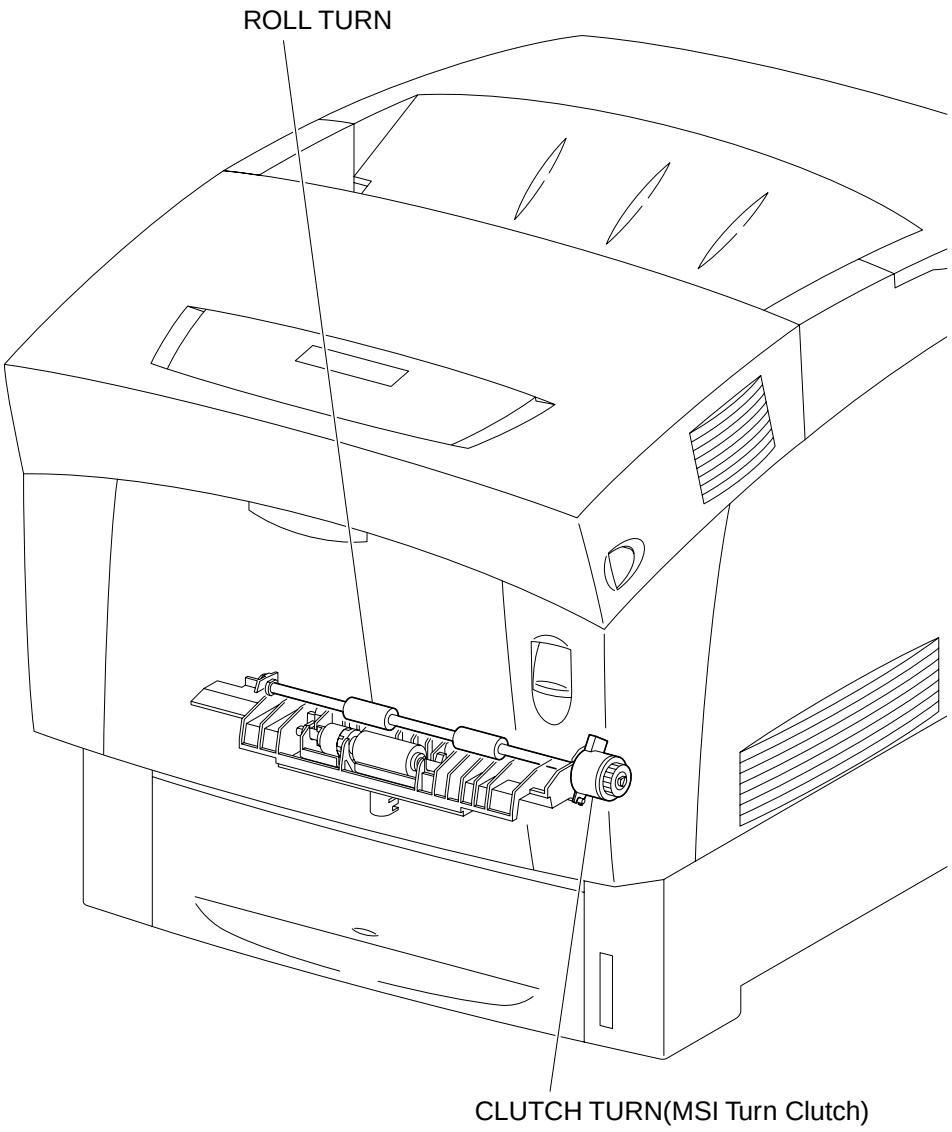
▼ CLUTCH TURN (MSI Turn Clutch)

Transmits the drive from the MAIN DRIVE ASSY to the ROLL TURN.

▼ ROLL TURN

The ROLL TURN is rotated by the drive from the MAIN DRIVE ASSY through the CLUTCH TURN (MSI Turn Clutch) to feed the paper from the manual feed tray to the CHUTE REGI (Regi Roll) (refer to "5.8 Xerographics").

5.3.2 Reference diagram



engine principle0034FA

5.4 Front Assy In

5.4.1 Major functions

▼ SENSOR ADC ASSY

Reads the density of the toner image prepared on the surface of BTR in the BTR UNIT ASSY (refer to "5.7 BTR ASSY & Fuser") and feeds it back to the process control (refer to "7.4 Process Control").

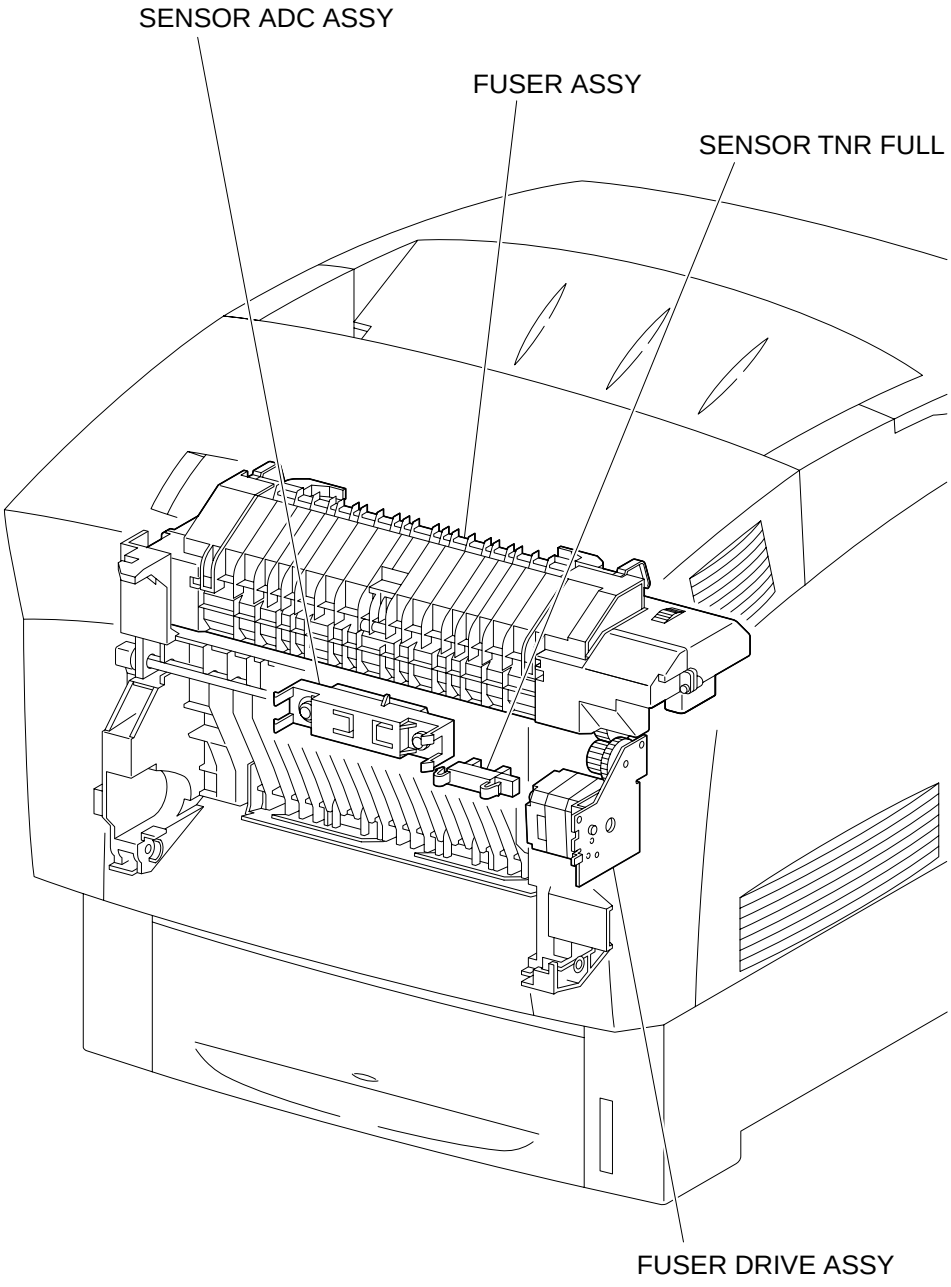
▼ SENSOR TNR FULL

Detects that the toner collect space in the BTR UNIT ASSY (refer to "5.7 BTR ASSY & Fuser") has become full of waste toner to be collected.

▼ FUSER DRIVE ASSY

Supplies the drive to the FUSER ASSY (refer to "5.7 BTR ASSY & Fuser").

5.4.2 Reference diagram



engine principle0035FA

5.5 Chute Assy Out

5.5.1 Major functions

▼ SENSOR PHOTO (Full Stack Sensor)

Detects that the prints discharged onto the top cover have accumulated more than specified number of sheets based on the change of position of the actuator.

(Full stack: Sensor beam is received)

▼ SENSOR PHOTO (Dup Jam Sensor)

Detects that paper has reached and passed through the ROLL DUP based on the change of position of the actuator.

(Paper present: Sensor beam is received)

▼ SENSOR PHOTO (MSI No Paper Sensor)

Detects existence or non existence of paper on the manual feed tray based on the change of position of the actuator.

(No paper: Sensor beam is intercepted)

▼ SOLENOID FEED MSI

Controls the operation (rotation/stop) of ROLL ASSY FEED by controlling the rotations of the GEAR MSI.

▼ ROLL ASSY FEED

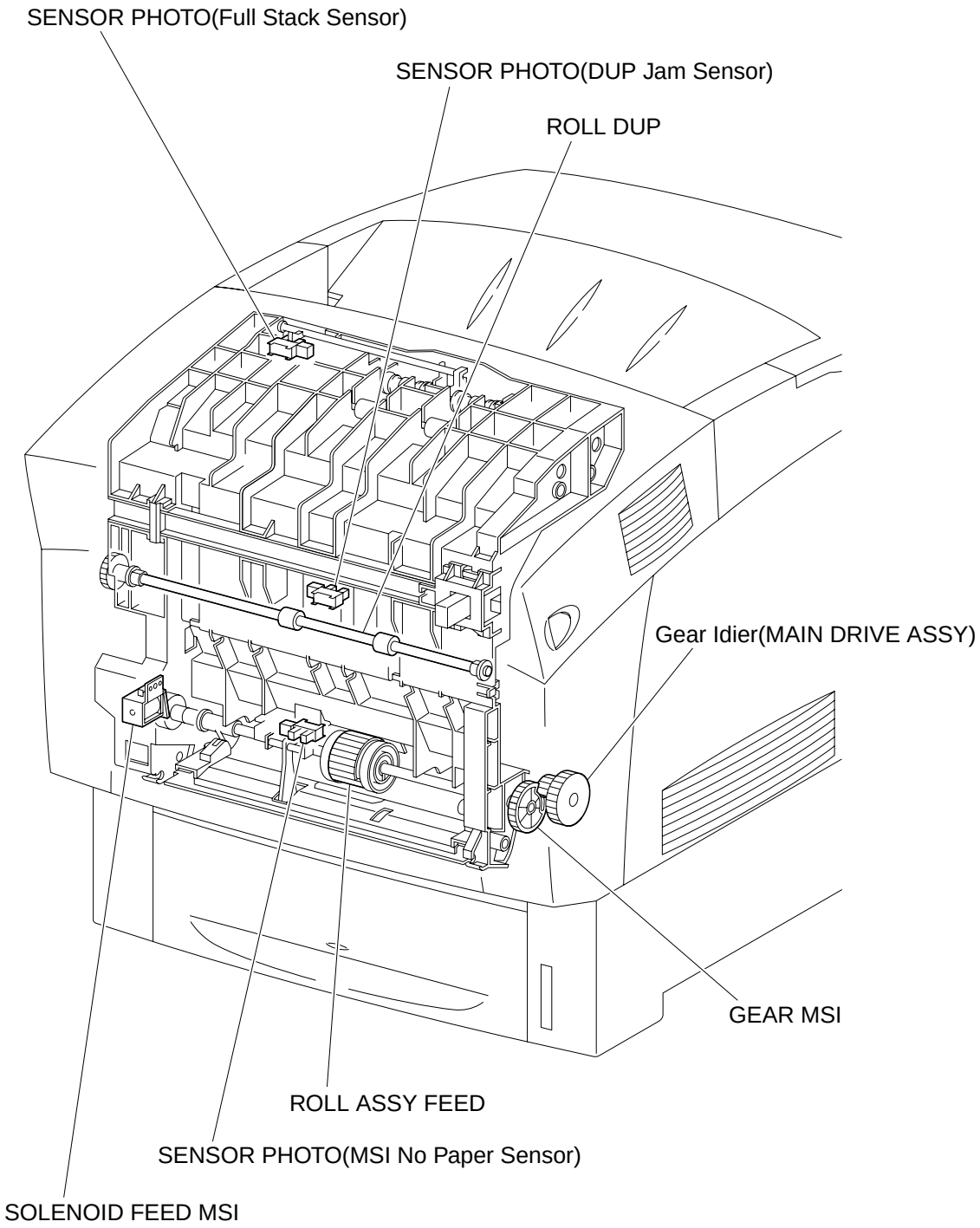
When the SOLENOID FEED MSI operates, the GEAR MSI and GEAR IDLER are engaged by the force of the SPRING SOL, the ROLL ASSY FEED starts rotating under the drive from the MAIN DRIVE ASSY, and feeds paper from the manual feed tray.

After having rotated one turn, the GEAR MSI and GEAR IDLER are disengaged at the notch of the GEAR MSI, drive is not transmitted any more, and the ROLL ASSY FEED stops rotating. Thus sheets of paper are fed one by one.

▼ ROLL DUP

The ROLL DUP rotates under the drive from the MOTOR ASSY DUP and feeds paper printed on simplex returned from the CHUTE ASSY EXIT to the ROLL TURN (refer to "5.3 Housing Assy Retard)".

5.5.2 Reference diagram



engine principle0036FA

5.6 Chute Assy Exit

5.6.1 Major functions

▼ MOTOR ASSY DUP

Supplies drive to the ROLL EXIST, ROLL MID, and ROLL DUP.

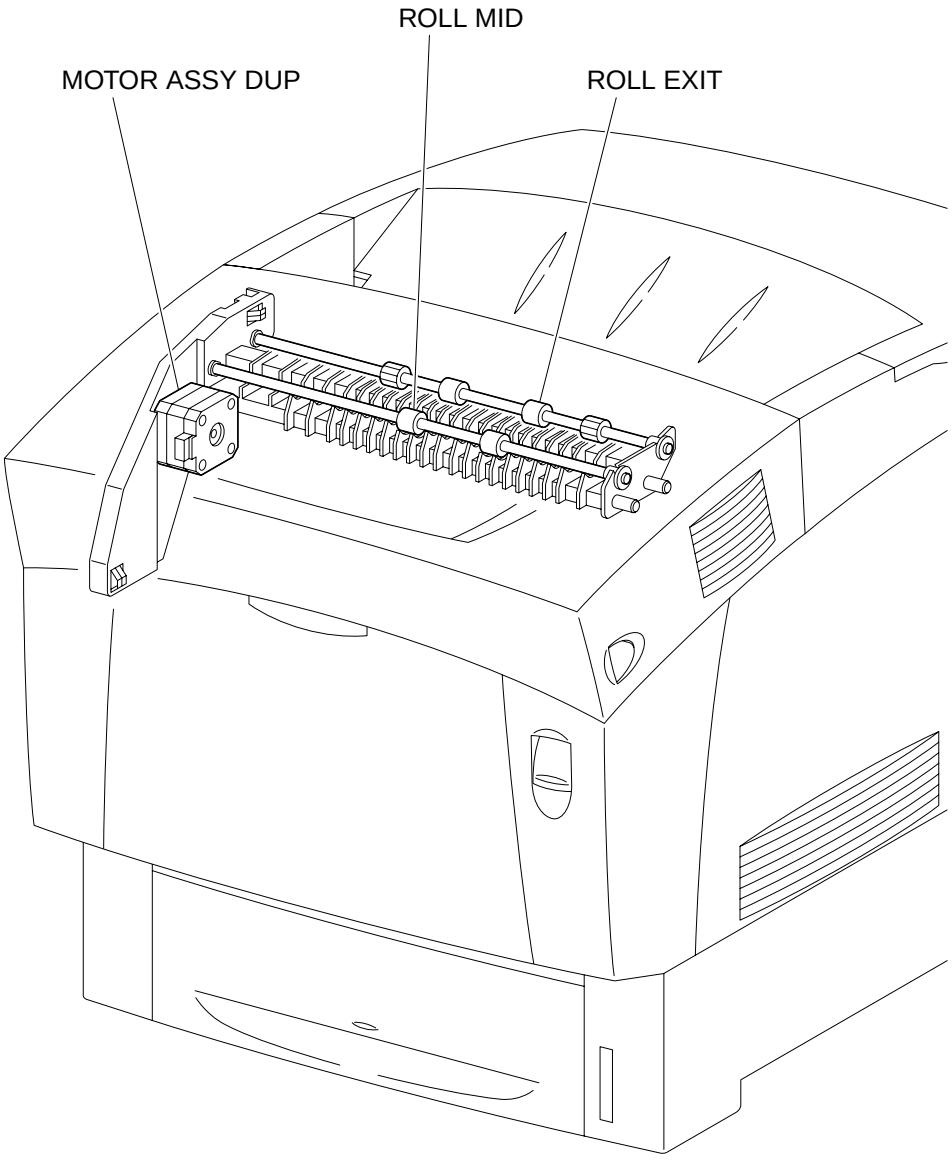
▼ ROLL EXIT

The ROLL EXIT rotates under the drive from the MOTOR ASSY DUP, and feeds fixed prints onto the top cover. It reverses in the duplex document mode and feeds the prints after fixed on simplex in the REGI direction.

▼ ROLL MID

The ROLL MID rotates under the drive from the MOTOR ASSY DUP, and feeds fixed prints onto the top cover. It reverses in the duplex document mode and feeds the prints after fixed on simplex in the REGI direction.

5.6.2 Reference diagram



engine principle0037FA

5.7 BTR Assy & Fuser

5.7.1 Major functions

▼ FUSER ASSY

The FUSER ASSY fixes toner which was transferred onto the paper but not fixed by the heat and pressure and feeds paper before and after being fixed.

The FUSER ASSY mainly consists of the following parts:

- Heat Roll• Belt Unit
- Heater Lamp• Roll Assy Exit
- Thermostat• Exit Sensor
- Temp Sensor

∇ Exit Sensor

Detects passage of print after fixed based on the change of position of the actuator.

▼ BTR UNIT ASSY

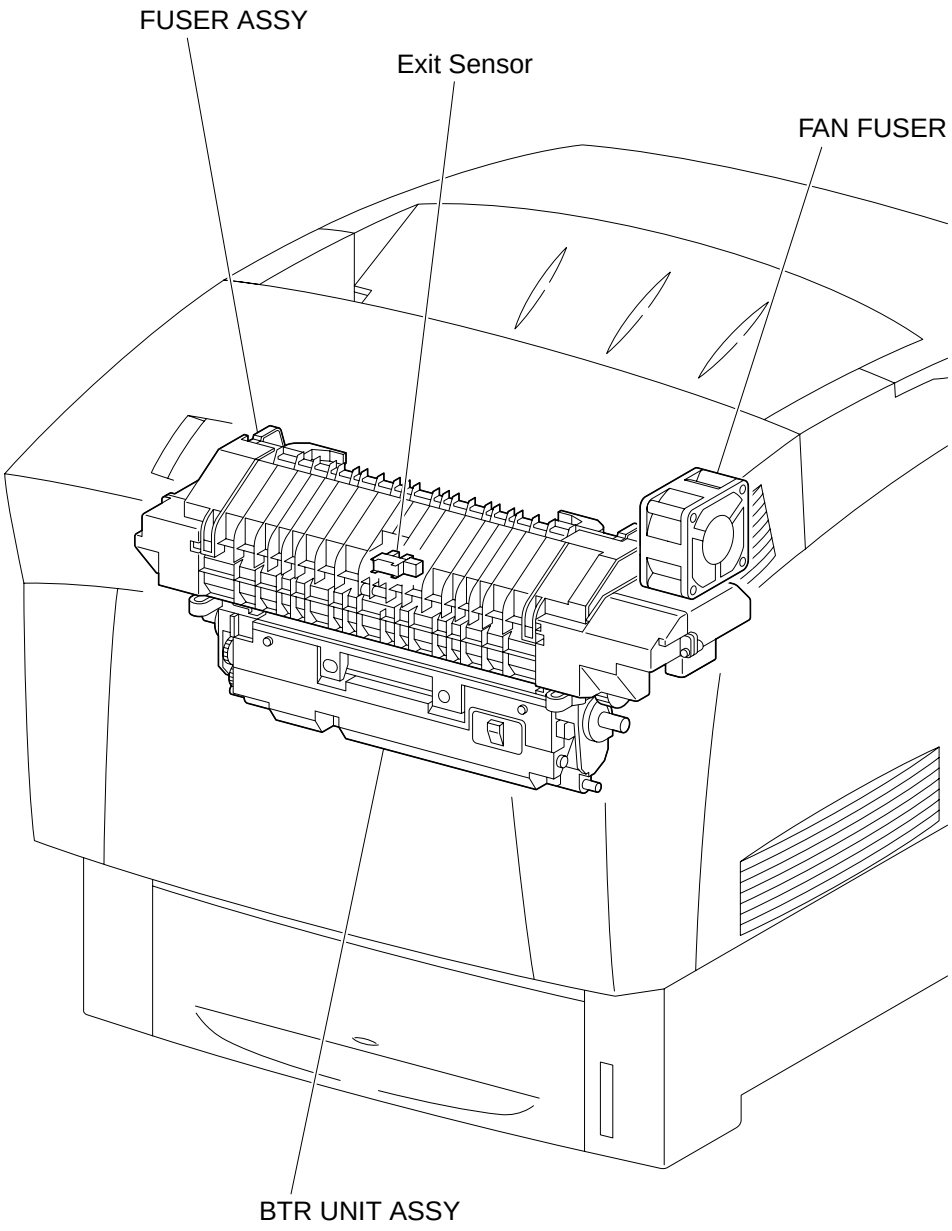
The BTR UNIT ASSY consists of a BTR (Bias Transfer Roll) and a waste toner recovery system.

The BTR (Bias Transfer Roll) is opposed to the IDT 2 in the PHD ASSY and transfer the toner image on the IDT 2 onto the paper.

▼ FAN FUSER

The FAN FUSER exhausts the heat of FUSER ASSY to prevent inside temperature from overheating.

5.7.2 Reference diagram



engine principle0038FA

5.8 Xerographics

5.8.1 Major functions

▼ ROS ASSY

ROS ASSY (Raster Output Scanner Assembly) is an exposure unit to generate laser beams to form electrostatic latent image on the drum surface.

In this manual, the ROS ASSY is referred to as ROS ASSY.

The ROS ASSY mainly consists of the following parts:

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

▼ PHD ASSY (Imaging Unit)

PHD ASSY (Print Head Assembly) carries out a series of operation in the print process such as charging, developing and transfer.

PHD ASSY mainly consists of the following parts.

- Drum (Y)• Developer (Y)
- Drum (M)• Developer (M)
- Drum (C)• Developer (C)
- Drum (K)• Developer (K)
- RTC (Y)• Refresher (Y)
- RTC (M)• Refresher (M)
- RTC (C)• Refresher (C)
- RTC (K)• Refresher (K)
- IDT 1 (2)• IDT 2
- IDT 1 cleaner (2)• IDT 2 Cleaner

▼ CHUTE REGI (Regi Clutch)

The CHUTE REGI is composed of the Regi Clutch, Regi Roll and Metal Roll.

Drive from the MAIN DRIVE ASSY is transmitted to the Regi Roll through the Regi Clutch. Feeds paper from the tray, MSI and duplex path in the PHD ASSY direction. When the paper tip reaches the CHUTE REGI, the CHUTE REGI has the paper make a loop until the Regi Roll starts rotating and correct the skew (feeding the paper in inclined condition) of the tip of the paper.

▼ SENSOR PHOTO (Regi Sensor)

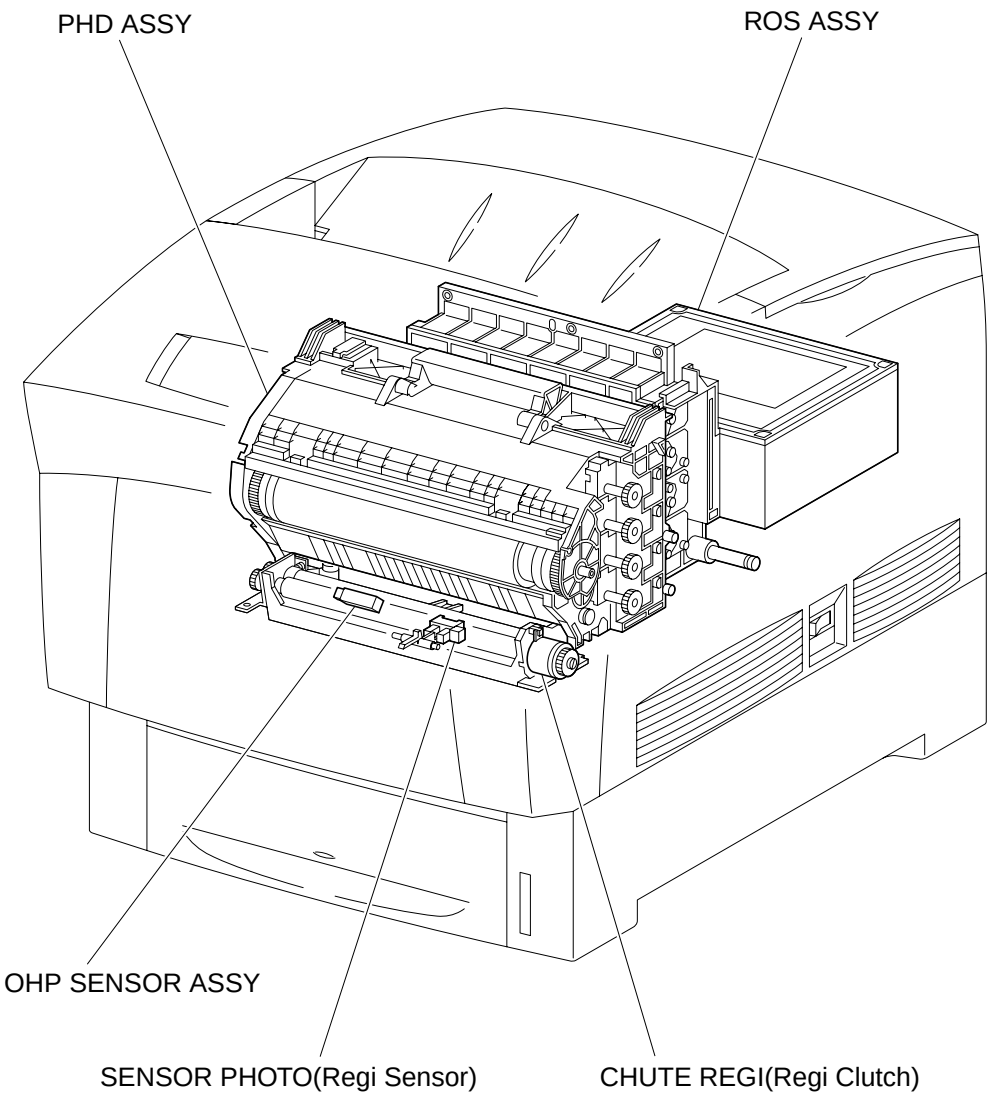
Detects that the paper tip has reached the CHUTE REGI.

(Paper present: Beam is received)

▼ OHP SENSOR ASSY

As plain paper scatters the radiated light, the OHP SENSOR ASSY can capture the reflected light to detect the paper. The OHP paper scarcely scatters the radiated light, and therefore the OHP SENSOR ASSY cannot capture the reflected light. Thus, whether the paper fed from MSI is plain paper or OHP paper is judged.

5.8.2 Reference diagram



engine principle0039FA

5.9 TCRU Assy

5.9.1 Major functions

▼ SWITCH TCRU ASSY (Y)
▼ SWITCH TCRU ASSY (M)
▼ SWITCH TCRU ASSY (C)
▼ SWITCH TCRU ASSY (K)
Detects whether TCRU ASSY (toner bottle) of each color is installed or not.

▼ SENSOR TONER LOW (Y)
▼ SENSOR TONER LOW (M)
▼ SENSOR TONER LOW (C)
▼ SENSOR TONER LOW (K)
Detects residual toner of each color.

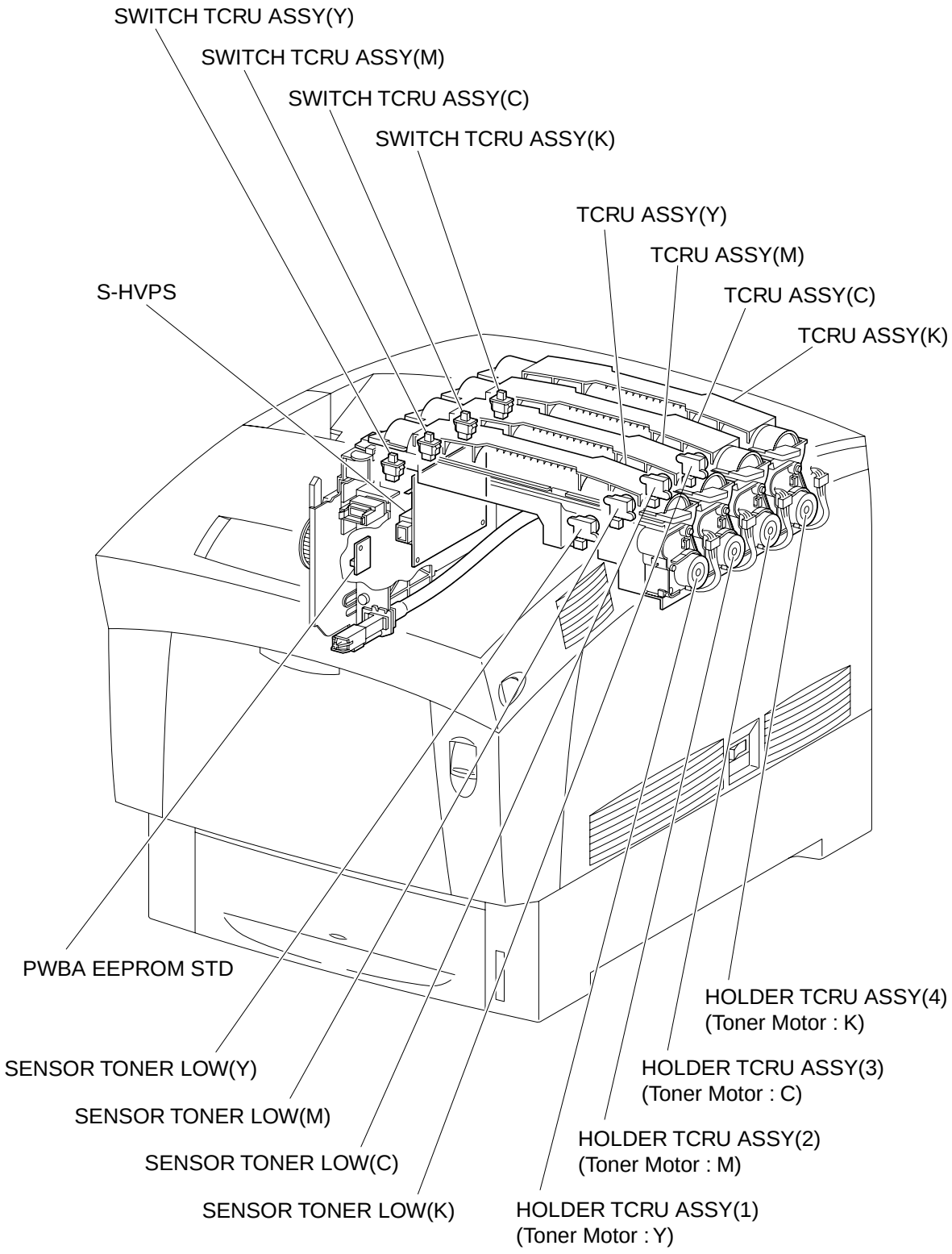
▼ HOLDER TCRU ASSY (1) (Toner Motor: Y)
▼ HOLDER TCRU ASSY (2) (Toner Motor: M)
▼ HOLDER TCRU ASSY (3) (Toner Motor: C)
▼ HOLDER TCRU ASSY (4) (Toner Motor: K)
The toner motor incorporated in the HOLDER TCRU ASSY of each color supplies the drive to the Agitator in the TCRU ASSY of each color and to Auger in the HOLDER TCRU ASSY and supplies toner to the developer incorporated in the PHD ASSY.

▼ TCRU ASSY (Y)
▼ TCRU ASSY (M)
▼ TCRU ASSY (C)
▼ TCRU ASSY (K)
Toner bottle containing tone of each color.

▼ PWBA EEPROM STD
Printer specific information is stored.

▼ S-HVPS
Supplies high voltage to perform the “tertiary transfer” and “static elimination” of the print process to the following components.
- BTR in the BTR UNIT ASSY.
- Detack Saw in the BTR UNIT ASSY.

5.9.2 Reference diagram



engine principle0040FA

5.10 Frame & Drive

5.10.1 Major functions

▼ MAIN DRIVE ASSY

Supplies the drive to parts as follows.

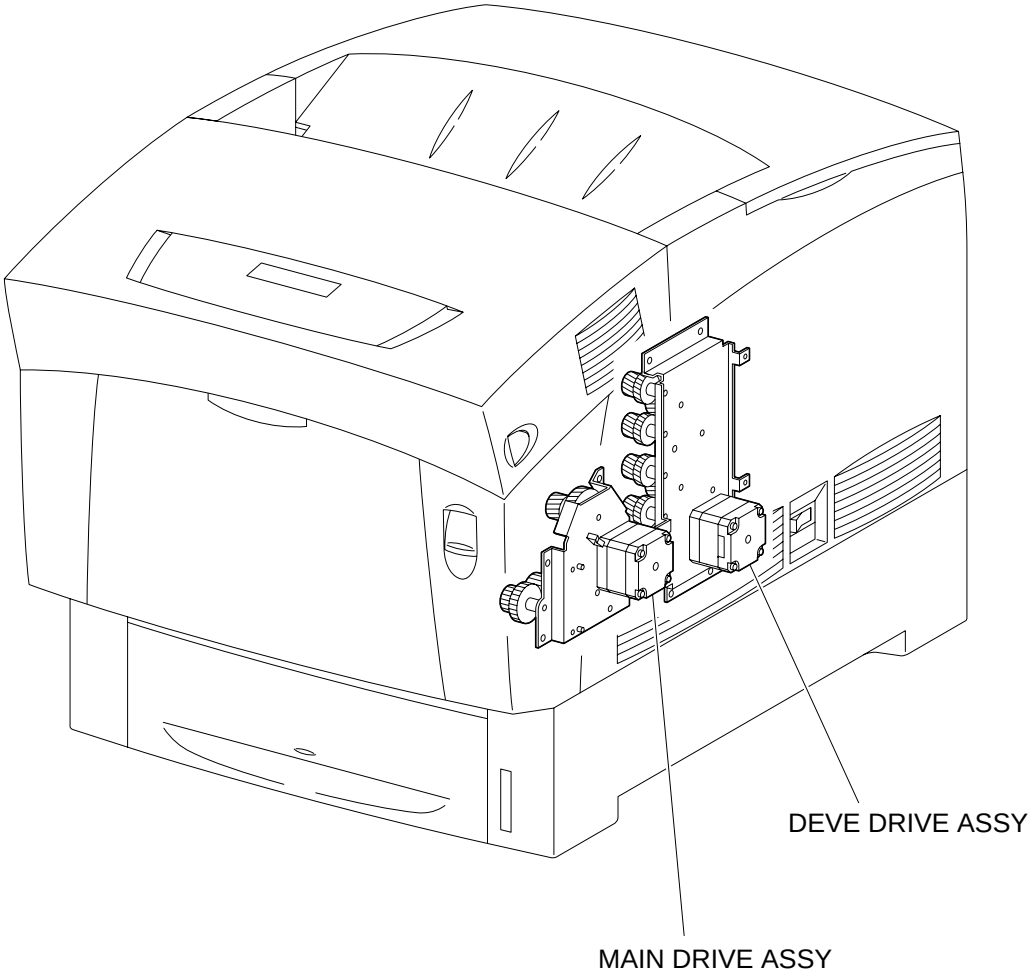
- PAPER FEEDER
- HOUSING ASSY RETARD
- CHUTE ASSY OUT (MSI position)
- CHUTE REGI
- PHD ASSY (IDT 2, IDT 1, Drum)
- BTR UNIT ASSY

▼ DEVE DRIVE ASSY

Supplies the drive to parts as follows.

- PHD ASSY (Develper)

5.10.2 Reference diagram



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5.11 Electrical

5.11.1 Major functions

▼ FAN

Discharges heat out of the printer to prevent too high temperature in the printer.

▼ HARNESS ASSY AC SW

Composed of the main switch and inlet. Controls supply of AC power from the power source to LVPS.

▼ LVPS STD

The LVP STD is provided with two types, 100/200V and 230V.

Supplies AC power from the power source to the FUSER ASSY heater and generates and supplies stable low voltage DC power used for the logic circuit, etc.

LVPS contains control circuit for the heater of the FUSER ASSY, in addition to the power circuit.

▼ PWBA HNB MCU

Controls printing operation based on the communication with the print controller and information from the sensor/switch. Incorporates functions of HVPS.

Major functions are as follows:

- Communication with the printer controller.
- Receive of information from the sensors or switches.
- Control of ROS ASSY

Supplies high voltage to parts in the PHD ASSY (Imaging Unit) to perform charging, development, primary transfer and secondary transfer of the print process to the following parts in the ASSY.

- RTC
- Refresher
- Developer
- IDT 1
- IDT2
- IDT 1 Cleaner
- IDT 2 Cleaner

▼ PWBA HNB DRV

Controls parts of motor and so on by the signal from the PWBA HNB MCU and sends information from the sensors and switches to PWBA HNB MCU. The power from the LVPS STD is supplied to the PWBA HNB MCU through this PWB. Also, the interlock switch is mounted on this PWB.

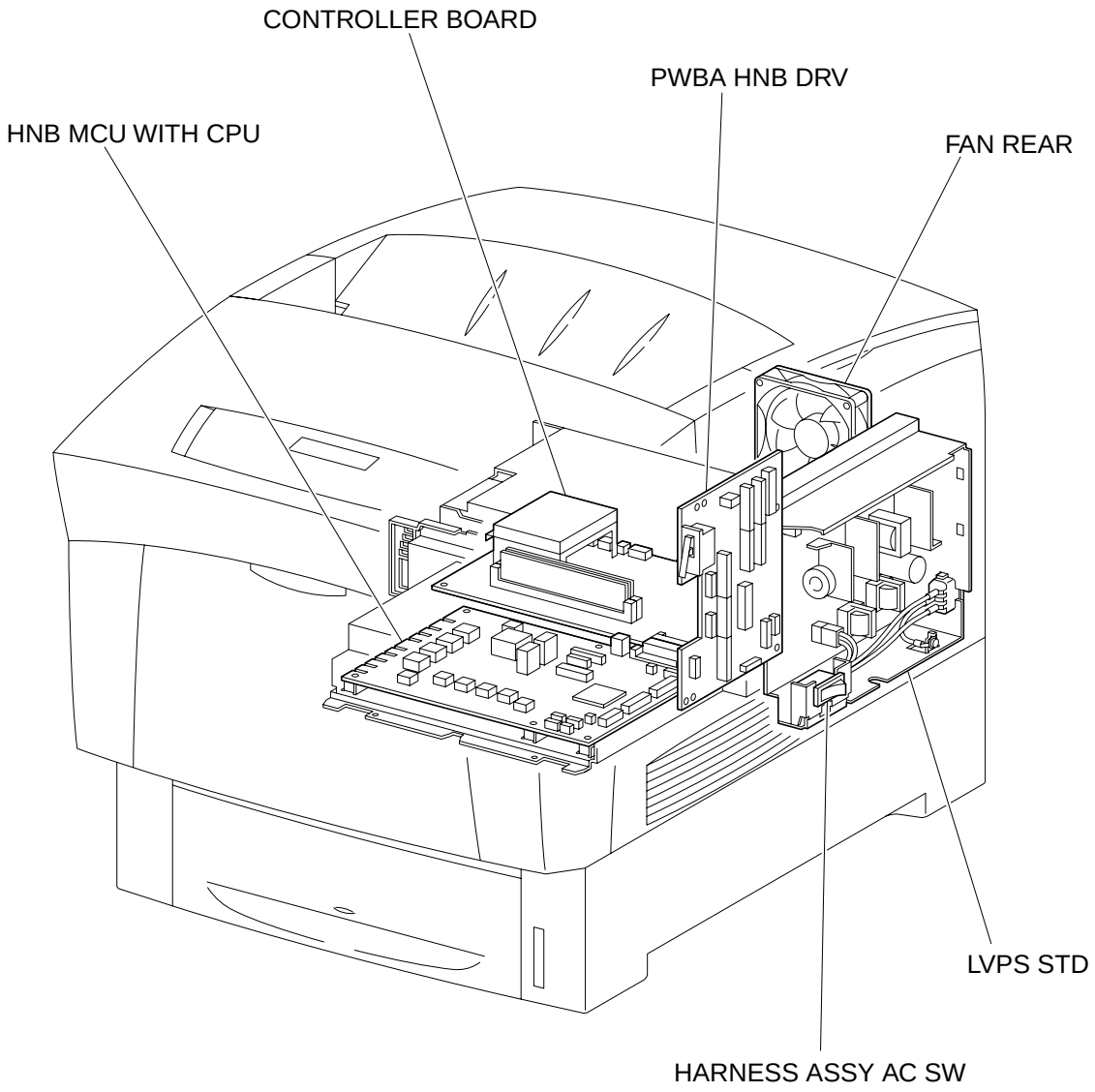
Major functions are as follows:

- Receive of information from the sensors or switches
- Control of Toner Motor in MAIN DRIVE ASSY, DEVE DRIVE ASSY, FUSER DRIVE ASSY, MOTOR ASSY DUP, and HOLDER TDRU ASSY.
- Distributing low voltage DC power outputted from LVPS to each component
- Cutting off the 24VDC circuit by the interlock switch

▼ CONTROLLER BOARD

Receives data from high-order unit (host), prints and controls the whole printer.

5.11.2 Reference diagram



engine principle0042FA

6. MODES

6.1 Print Mode

There are three types of print modes, standard mode, fine mode, and high gloss mode. These are discriminated by the resolution (600dpi/1200dpi) and process speed (full speed/half speed).
Setting the process speed to half speed and the video data transfer speed to ROS to twice the speed at 600dpi attains the resolution of 1200dpi.

1. Standard mode Used for printing with the resolution 600dpi
2. Fine modeUsed for printing on plain paper with the resolution 1200dpi
3. High Gloss modeGloss is raised by setting half speed with plain paper 600dpi

The relation between resolution, process speed, paper, and print mode is shown below.

Paper	Print mode	Resolution/Process speed			
		600dpi		1200dpi	
		Simplex	Duplex	Simplex	Duplex
Plain paper	Standard	Full speed	Full speed	–	–
	Fine	–	–	Half speed	Half speed
	High Gloss	Half speed	Half speed	–	–
Special paper *1	Standard	Half speed	–	–	–
	Fine	–	–	Half speed	–

*1: Thick paper, Label, OHP, Envelope, Postcard

6.2 Operation Modes

For the operation of the printer, the following five modes are provided.

▼ DIAG TEST mode
The printer is ready for receiving diagnostic commands, or the printer diagnostic function is operating.

▼ WAIT mode
The printer is under the adjustment of print quality.

▼ READY mode
The printer is ready for printing.

▼ PRINTING mode
The printer is under printing.

▼ ERROR mode
Any error was detected in the printer.

7. Control

7.1 Control of Paper Size

"ON/OFF of Paper Size Switch of SWITCH ASSY SIZE" and "Diag Tool indication data" are shown in the table below.

NOTE

Paper Size Switches are indicated as SW1, SW2, and SW3 from the above one.

Paper Size	Paper Size Switch			Diag indication data
	SW1	SW2	SW3	
LEGAL14" (SEF)	ON	ON	ON	00
LEGAL13" (SEF)	ON	ON	OFF	01
EXECUTIVE (SEF)	ON	OFF	ON	02
B5 (SEF)	ON	OFF	OFF	03
A4 (SEF)	OFF	ON	ON	04
LETTER (SEF)	OFF	OFF	ON	06
A5	OFF	ON	ON	
No cassette	OFF	OFF	OFF	07

7.2 Selective Control on Paper Pick-up Unit

When not controlled by the printer controller, paper pick-up unit selected at the time of turning ON are as follows.

NOTE

The paper feeder by the paper tray under the printer is called "Tray 1", and the first tray and the second tray in optional TRAY UNIT are called "Tray 2" and "Tray 3" respectively.

7.3 ROS Light Quantity Control

The image data are entered to the laser diodes in the ROS ASSY as electric signals (data are expressed with high and low voltage values), and the laser diodes convert the image data from electric signals to optical signals (data are expressed with blinking laser beams).
Variations in light quantity of laser beams or variations in optical system (such as lenses) or drum sensitivity cannot attain proper electrostatic image, and accordingly the laser diodes monitor the light quantity of laser beams to control the light quantity so as to attain stable and proper electrostatic image.
The ROS in this printer has four laser diodes for yellow, magenta, cyan, and black respectively, and the light quantity is automatically adjusted for each color.

7.4 Process Control

For a stable printing, the parameters related to the image forming must be corrected as necessary. The control of entire printing process including parameter correction control is called "process control". Mainly, the following two controls are made:

- Potential control
- Toner density control

To supplement these two controls, the following controls are provided:

- High Area Coverage Mode
- Admix Mode
- SENSOR ADC ASSY LED light quantity setting

7.4.1 Potential Control

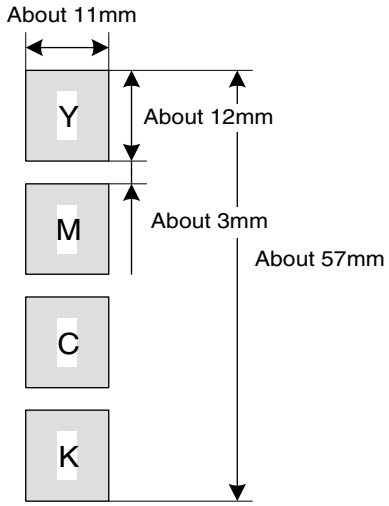
To attain stable printing image density, the drum charging voltage and the developing DC voltage are adjusted according to the developing capability of each color carrier that varies momentarily. The adjusted drum charging voltage and the developing DC voltage are fed back to keep the printing image density constant. The potential control is made immediately before the start of printing, if either of the following conditions is satisfied:

- At the first printing after the power on
- When cumulative print count after the power on exceeds 16
- When a cleaning cycle is executed during continuous printing

The outline of control is as follows.

1) The SENSOR HUM TEMP (temperature and humidity sensor) detects the temperature and humidity, and sets target values of drum charging voltage and developing DC voltage.

2) The patches of respective colors (yellow, magenta, cyan, and black) for the potential control are generated and transferred on the BTR. (For the shape of patches, see the following figure.)



3) The SENSOR ADC ASSY (density sensor) detects the density of the area on BTR where no toner is present and the density of patches.

4) The density measured in step 3) is compared with target value set in step 1) to change the drum charging voltage and the developing DC voltage for each color according to a difference.

7.4.2 Toner Density Control

The toner density must be kept constant to attain stable printing image. To keep the toner density constant, the toner should be dispensed exactly by the quantity consumed for the printing. This system is the PCDC. However, the system with only the PCDC generates a difference from target toner density, thus requiring the system to correct this error. This is the toner density control by the SENSOR ADC ASSY. These two control systems are altogether called the toner density control.

1) PCDC (Pixel Count Dispense Control)

The toner quantity consumed in the developing process is calculated by counting the video signals entered to the ROS ASSY. The video signal counting is made by the charging and discharging of the capacitor in the CR circuit arranged in parallel to the video signal line. The consumed toner quantity is calculated by the toner dispense time. The Toner Motor in the HOLDER TCRU ASSY is driven by the amount of calculated toner dispense time to supply the toner into the developer.

2) ADC (Auto Density Control)

The patches of respective colors (yellow, magenta, cyan, and black) for the toner density control are generated under specified potential condition, and transferred on the BTR. The SENSOR ADC ASSY measures this density. The measured value is compared with reference value, and if the toner density is low, the toner dispense quantity is increased at the next printing, or if the toner density is high, the toner dispense quantity is reduced at the next printing. The toner dispense quantity is calculated by the toner dispense time. This calculation is made for each color.

ADC is made after the completion of printing, if either of the following conditions is satisfied:

- When cumulative print count after the power on exceeds 16
- When a cleaning cycle is executed during continuous printing

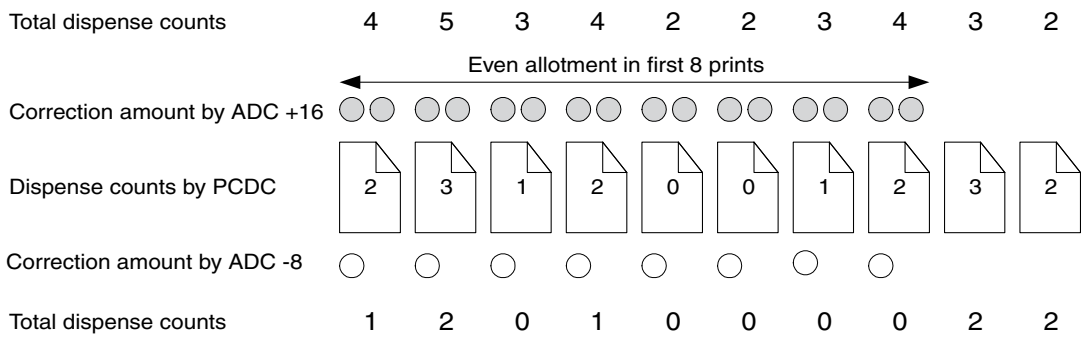
3) Example of toner dispensation

The Toner Motor revolves for the duration of the specified time per 1-time dispensation. The toner dispense time in 1) and 2) above is calculated with the number of revolutions of Toner Motor. In the following description, this is called the dispense count.

The dispense count calculated by the ADC is cancelled in the subsequent 8 prints.

If 16 dispense counts were calculated as a lack of toner by the ADC, the toner is dispensed additionally to the dispense count calculated by the PCDC by 2 counts (16(8=2) in the subsequent 8 prints.

Or, if 16 dispense counts were calculated as an excess of toner by the ADC, the toner is dispensed by subtracting from the dispense count calculated by the PCDC in the subsequent 8 prints. If the excess amount cannot be subtracted in 8 prints, the remainder is subtracted in 9 and subsequent prints.



7.4.3 High Area Coverage Mode

A continuous printing of the image of area coverage exceeding the toner dispense capability causes the toner density in the developer to be lowered.

The High Area Coverage Mode extends the next page feed and dispenses the toner during this time, if the toner dispense time reached the specified value during a continuous printing.

7.4.4 Admix Mode

Even the High Area Coverage Mode may not be able to cope with the reduction of toner density in the developer. Also, if the machine used in high humidity environment is relocated to the place in low humidity environment, the reference value of toner density is different in respective environments, thus causing large discrepancy between measured value by SENSOR ADC ASSY and reference value of toner density.

The Admix Mode dispenses the toner immediately to prevent the reduction of toner density, if the patch density result measured by the SENSOR ADC ASSY is far lower than the reference value when the patches for toner density control are generated.

7.4.5 LED Light Quantity Control of SENSOR ADC ASSY

The SENSOR ADC ASSY is a reflection type density sensor that radiates the light to an objective from the LED in the sensor and detects the reflected light from the objective to output electric signal according to the light quantity. For exact density measurement, the sensor output value (reflected light quantity) must be the specified value when no toner is put on the BTR as an objective. The reflected light quantity varies depending on the BTR surface condition or dirty condition of SENSOR ADC ASSY surface. The light quantity emitted from the LED is controlled so that the reflected light quantity satisfies the specified value. This control is made in two ways; one to set the light quantity so that the reflected light quantity satisfies the specified value, and one to adjust the subsequent light quantity to be within the tolerance.

1) Light quantity setting

The reflected light quantity may vary largely, if the BTR UNIT ASSY was replaced or the SENSOR ADC ASSY was cleaned. Assuming this fact, the light quantity is set when the power is turned on, or the front cover is opened and closed.

The light quantity of LED is increased gradually, and the set value is fixed when the output of SENSOR ADC ASSY exceeds the specified value. At this time, if the output of SENSOR ADC ASSY does not reach the specified value even though the light quantity is increased to the upper limit, the controller judges the sensor as dirty. Also, the controller judges the sensor as faulty in the event of extremely high output.

2) Light quantity adjustment

At the execution of ADC, the light quantity adjustment is made immediately before the patches for toner density control are generated.

The light is emitted from the LED with current setting of light quantity to check if the output value of the SENSOR ADC ASSY is within the specified range. If the output value is low, the light quantity is increased by the specified amount at the next ADC, or if high, the light quantity is reduced at the next ADC.

At this time, if the output value is less than the first lower limit, the controller judges the sensor as dirty and outputs the warning. Further, if less than the second lower limit, the controller judges the sensor as faulty and stops the printing.

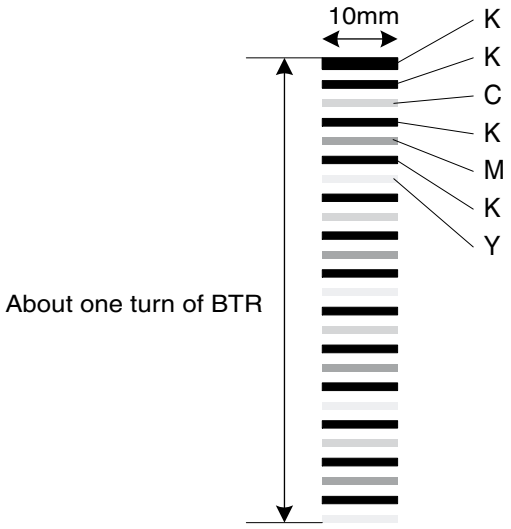
7.5 Color Registration Control

The printer uses a tandem system where the drums and developers exclusively for yellow, magenta, cyan, and black are arranged respectively. The images are formed on the drums of respective colors and they are overlapped to form one image, and in this case a color shift may occur. The color registration control calculates how much the registration is shifted, and adjusts the ROS write timing.

The color registration control is made from a change in inside temperature and the print count at the execution of the process control.
The control is outlined below:

1) With no toner put on the BTR, the output value of SENSOR ADC ASSY is measured to determine the threshold value.

2) The patches for color registration control are generated on the BTR. These patches are composed of 10mm lines of K, C, K, M, K, and Y in this order by the amount of four dispense counts, led by a black trigger.



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3) The density of patches generated by the SENSOR ADC ASSY is read.

4) The adjusting amount of registration shift is calculated from the threshold value determined in 1) and the patch density measured in 3).

5) The ROS write timing is changed from the adjusting amount of registration shift.

7.6 BTR UNIT ASSY Control

7.6.1 Detecting the Installation of BTR UNIT ASSY

Whether the BTR UNIT ASSY is installed is detected when the power is turned on, or the front cover is opened and closed. The sensor for detecting the installation is not provided, but judgment is made from the output of the SENSOR ADC ASSY.

The light is emitted from the LED of SENSOR ADC ASSY with the specified light quantity, and if the output of the SENSOR ADC ASSY is larger than the specified value, the controller judges as installation. If the operation stops by a jam, the toner image could be put on the BTR and in such a case, the sensor output is reduced, causing the controller to judge as uninstallation. To prevent this wrong detection, the BTR is rotated by a half turn if the output is less than the specified value. Then, when the output of the SENSOR ADC ASSY is larger than the specified value, the controller judges as installation, or if less than the specified value, the controller judges as uninstallation.

7.6.2 Detecting the Life of BTR UNIT ASSY

The BTR UNIT ASSY consists of a BTR and a waste toner recovery system. The life of the BTR UNIT ASSY is detected when the toner recovery space has become full.

The full toner recovery space is detected by the SENSOR TNR FULL.

1) Check timing of full waste toner recovery space
   - When the power is turned on, or the front cover is opened and closed
   - When paper is outputted

2) Output of "BTR Life Warning"
   The "BTR Life Warning" is outputted when the SENSOR TNR FULL detects the full toner recovery space.

3) Output of "BTR Life Error"
   After the output of "BTR Life Warning", the print count and the toner dispense time are counted up, and if total counts exceed the specified value, the "BTR Life Error" is outputted.

4) Reset of "BTR Life Warning"/"BTR Life Error"
   The "BTR Life Warning" and "BTR Life Error" are reset, if the SENSOR TNR FULL does not detect the full toner recovery space when the power is turned on, or the front cover is opened and closed.

7.7 Toner Control

Whether the toner bottle is installed is detected by the SWITCH TCRU ASSY, and the presence of toner in the toner bottle is detected by the SENSOR TONER LOW. These switches and sensors are provided for respective colors, and detection is made for each color.

7.7.1 SENSOR TONER LOW

The SENSOR TONER LOW is provided for each color, but the printer cannot detect all colors at a time, but detects one color each. It detects one color per 3.5 seconds, thus requiring 14 seconds for detecting four colors. Accordingly, the presence of toner is detected once per 14 seconds for each color.

The SENSOR TONER LOW is attached to the HOLDER TCRU ASSY, and it detects the presence of toner dispensed by the Toner Motor from the toner bottle into the HOLDER TCRU ASSY.

Also, the SENSOR TONER LOW could make a wrong detection if the toner sticks to the sensor surface. To prevent this, the film attached in the vicinity of the Auger in the HOLDER TCRU ASSY cleans the sensor surface when the toner is dispensed. This film rotates together with the Auger at the toner dispensation to scrape the toner off the SENSOR TONER LOW surface. However, the sensor may detect the toner even if the toner is not present or may not detect the toner even if the toner is present, depending on the film position when the Toner Motor stopped. This is avoided by the printer internal control.

7.7.2 Toner presence control

The control is outlined below.

1) Check timing
   - When the power is turned on, or the front cover is opened and closed
   - Every 14 seconds

2) Output of "Toner Empty Warning"
   The "Toner Empty Warning" is outputted, if the SENSOR TONER LOW detects toner empty two ore more times continuously and also the toner is dispensed during the time of 2-time detection.
   This is taken place to prevent a wrong detection depending on the film position as described in "7.7.1 SENSOR TONER LOW".

3) Output of "Toner Empty Error"
   After the output of "Toner Empty Warning", the toner dispense time is counted up, and if it exceeds the specified value, the "Toner Empty Error" is outputted.

4) Reset of "Toner Empty Warning"/"Toner Empty Error"
   After the output of "Toner Empty Error", the toner is dispensed for 1.5 seconds when the toner bottle installation is detected. At the subsequent toner presence control timing, if the SENSOR TONER LOW detects the toner presence, the "Toner Empty Warning" and "Toner Empty Error" are reset.
   However, in such a case, the controller regards this status as "toner empty". When the toner is dispensed and the SENSOR TONER LOW detects the toner presence three or more times continuously, the controller regards this status as "toner presence".

7.8 Fuser Control

7.8.1 Fuser temperature control

As for the fuser temperature control, the target temperature is set, then the Heat Roll surface temperature is controlled so as to be the target temperature by turning on/off the Heater Lamp.

The Heat Roll surface temperature is detected by the Temp Sensor. The Temp Sensor detects the temperature and the resistance value for disconnection sensing alternately at 40ms cycles. That is, the temperature is detected at 80ms cycles, and if the detection result is higher than target value, the Heater Lamp is turned off, or if lower, the Heater Lamp is turned on.

For the target temperature, different temperature is set respectively at the time of standby, printing, and process control. Also, target temperature is changed according to the inside temperature detected with the SENSOR HUM TEMP, print count, print mode, and input power supply voltage.

7.8.2 Cool down

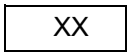
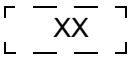
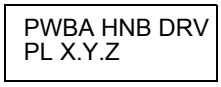
As the printing continues, the temperature distribution of the Heat Roll becomes uneven between paper path and non-paper path. To make the Heat Roll temperature as even as possible, the waiting time is provided, during which the Heater Lamp is not turned on. This is called the cool down.
The cool down is executed for the duration of certain time according to the number of sheets continuously printed, when the set printing with certain type and size of paper completed.
Also, when the paper type or size was changed, the cool down is inserted even in the midway of several hundred sheets of printing.

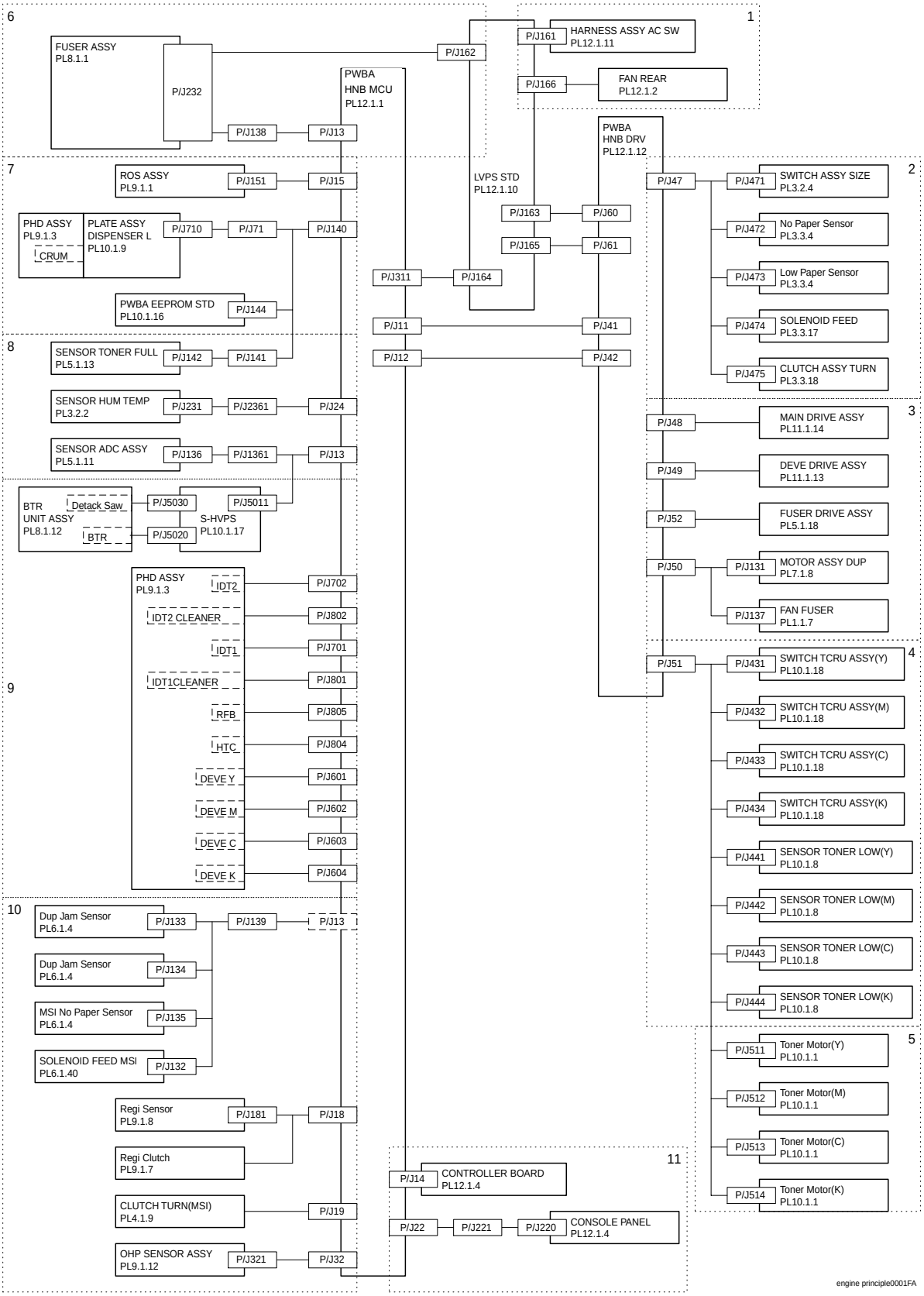
As a simple cool down, the PPM down is provided. This function idles the fuser without feeding the sheets during the printing to improve uneven temperature distribution of the Heat Roll.
In printing certain type/size of paper continuously, the page interval is increased from the specified print counts and the prints per minute are reduced, and thus it is called PPM down.
The PPM execution timing is determined depending on the paper size and type.

Chapter 7 Wiring Diagrams and Signal Information

1. General Wiring Diagram

The following describes the legend of the general wiring diagram shown on the next page.

Symbols	Description
	Denotes a connection between parts with harnesses and wires.
	A frame not having parts name inside denotes the connector (P/J). Numeric value inside implies the connector number.
	A frame of broken line denotes the connector (P/J) written in several places separately. Numeric value inside implies the connector number.
	A frame having parts name inside denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	A frame of dotted line denotes the section in "2. Wiring Diagram between Parts", and numeric value implies the section number.


6
FUSER ASSY
PL8.1.1
P/J232
P/J138
P/J13
P/J162
PWBA
HNB MCU
PL12.1.1
1
P/J161
HARNESS ASSY AC SW
PL12.1.11
P/J166
FAN REAR
PL12.1.2
PWBA
HNB DRV
PL12.1.12
7
ROS ASSY
PL9.1.1
P/J151
P/J15
PHD ASSY
PL9.1.3
CRUM
PLATE ASSY
DISPENSER L
PL10.1.9
P/J710
P/J71
P/J140
PWBA EEPROM STD
PL10.1.16
P/J144
LVPS STD
PL12.1.10
P/J163
P/J60
P/J165
P/J61
P/J311
P/J164
P/J11
P/J41
P/J12
P/J42
2
P/J47
P/J471
SWITCH ASSY SIZE
PL3.2.4
P/J472
No Paper Sensor
PL3.3.4
P/J473
Low Paper Sensor
PL3.3.4
P/J474
SOLENOID FEED
PL3.3.17
P/J475
CLUTCH ASSY TURN
PL3.3.18
8
SENSOR TONER FULL
PL5.1.13
P/J142
P/J141
SENSOR HUM TEMP
PL3.2.2
P/J231
P/J2361
P/J24
SENSOR ADC ASSY
PL5.1.11
P/J136
P/J1361
P/J13
3
P/J48
MAIN DRIVE ASSY
PL11.1.14
P/J49
DEVE DRIVE ASSY
PL11.1.13
P/J52
FUSER DRIVE ASSY
PL5.1.18
P/J50
P/J131
MOTOR ASSY DUP
PL7.1.8
P/J137
FAN FUSER
PL1.1.7
BTR
UNIT ASSY
PL8.1.12
Detack Saw
BTR
P/J5030
P/J5020
P/J5011
S-HVPS
PL10.1.17
9
PHD ASSY
PL9.1.3
IDT2
IDT2 CLEANER
IDT1
IDT1CLEANER
RFB
HTC
DEVE Y
DEVE M
DEVE C
DEVE K
P/J702
P/J802
P/J701
P/J801
P/J805
P/J804
P/J601
P/J602
P/J603
P/J604
4
P/J51
P/J431
SWITCH TCRU ASSY(Y)
PL10.1.18
P/J432
SWITCH TCRU ASSY(M)
PL10.1.18
P/J433
SWITCH TCRU ASSY(C)
PL10.1.18
P/J434
SWITCH TCRU ASSY(K)
PL10.1.18
P/J441
SENSOR TONER LOW(Y)
PL10.1.8
P/J442
SENSOR TONER LOW(M)
PL10.1.8
P/J443
SENSOR TONER LOW(C)
PL10.1.8
P/J444
SENSOR TONER LOW(K)
PL10.1.8
10
Dup Jam Sensor
PL6.1.4
P/J133
P/J139
P/J13
Dup Jam Sensor
PL6.1.4
P/J134
MSI No Paper Sensor
PL6.1.4
P/J135
SOLENOID FEED MSI
PL6.1.40
P/J132
Regi Sensor
PL9.1.8
P/J181
P/J18
Regi Clutch
PL9.1.7
CLUTCH TURN(MSI)
PL4.1.9
P/J19
OHP SENSOR ASSY
PL9.1.12
P/J321
P/J32
5
P/J511
Toner Motor(Y)
PL10.1.1
P/J512
Toner Motor(M)
PL10.1.1
P/J513
Toner Motor(C)
PL10.1.1
P/J514
Toner Motor(K)
PL10.1.1
11
P/J14
CONTROLLER BOARD
PL12.1.4
P/J22
P/J221
P/J220
CONSOLE PANEL
PL12.1.4
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1. Wiring Diagram between Parts

1.1 Configuration

The wiring diagram is separated into 11 sections to show detailed connection between parts.

§ 1 Power supply section
Connection between PWBA HNB MCU and LVPS
Connection between LVPS and PWBA HNB DRV
Connection between PWBA HNB DRV and PWBA HNB MCU
Connection between LVPS and FAN REAR
Connection between LVPS and HARNESS ASSY AC SW

§ 2 Cassette section
Connection between PWBA HNB DRV and SWITCH ASSY SIZE
Connection between PWBA HNB DRV and SENSOR PHOTO (No Paper Sensor)
Connection between PWBA HNB DRV and SENSOR PHOTO (Low Paper Sensor)
Connection between PWBA HNB DRV and SOLENOID FEED (Tray)
Connection between PWBA HNB DRV and CLUTCH ASSY TURN (Tray)
Connection between PWBA HNB MCU and PWBA HNB DRV

§ 3 Drive section
Connection between PWBA HNB DRV and MAIN DRIVE ASSY
Connection between PWBA HNB DRV and DAIV DRIVE ASSY
Connection between PWBA HNB DRV and FUSER DRIVE ASSY
Connection between PWBA HNB DRV and MOTOR ASSY DUP
Connection between PWBA HNB DRV and FAN FUSER
Connection between PWBA HNB MCU and PWBA HNB DRV

§ 4 Developer section 1
Connection between PWBA HNB DRV and SWITCH TCRU ASSY (Y)
Connection between PWBA HNB DRV and SWITCH TCRU ASSY (M)
Connection between PWBA HNB DRV and SWITCH TCRU ASSY (C)
Connection between PWBA HNB DRV and SWITCH TCRU ASSY (K)
Connection between PWBA HNB DRV and SENSOR TONER LOW (Y)
Connection between PWBA HNB DRV and SENSOR TONER LOW (M)
Connection between PWBA HNB DRV and SENSOR TONER LOW (C)
Connection between PWBA HNB DRV and SENSOR TONER LOW (K)
Connection between PWBA HNB MCU and PWBA HNB DRV

§ 5 Developer section 2
Connection between PWBA HNB DRV and HOLDER TCRU ASSY (Toner Motor:Y)
Connection between PWBA HNB DRV and HOLDER TCRU ASSY (Toner Motor:M)
Connection between PWBA HNB DRV and HOLDER TCRU ASSY (Toner Motor:C)
Connection between PWBA HNB DRV and HOLDER TCRU ASSY (Toner Motor:K)
Connection between PWBA HNB MCU and PWBA HNB DRV

§ 6 Fuser section
Connection between LVPS and FUSER ASSY
Connection between PWBA HNB MCU and FUSER ASSY
Connection between PWBA HNB MCU and PWBA HNB DRV
Connection between LVPS and HARNESS ASSY SW

§ 7 ROS section
Connection between PWBA HNB MCU and ROS ASSY
Connection between PWBA HNB MCU and PWBA EEPROM DRV
Connection between PWBA HNB MCU, PLATE ASSY DISPENSER L and PHD ASSY (CRUM)

§ 8 Xerographics section 1
Connection between PWBA HNB MCU and SENSOR TNR FULL
Connection between PWBA HNB MCU and SENSOR HUM TEMP
Connection between PWBA HNB MCU and SENSOR ADC ASSY

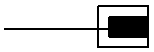
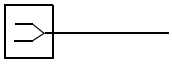
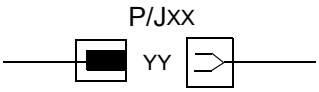
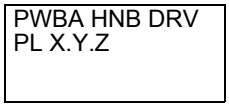
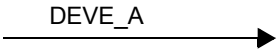
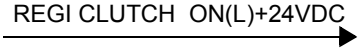
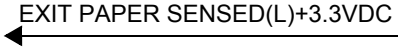
§ 9 Xerographics section 2
Connection between PWBA HNB MCU and S-HVPS

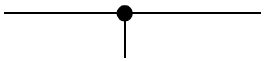
§ 10 Paper feed section
Connection between PWBA HNB MCU and SENSOR PHOTO (Dup Jam Sensor)
Connection between PWBA HNB MCU and SENSOR PHOTO (Full Stack Sensor)
Connection between PWBA HNB MCU and SENSOR PHOTO (MSI No Paper Sensor)
Connection between PWBA HNB MCU and SOLENOID FEED MSI
Connection between PWBA HNB MCU and SENSOR PHOTO (Regi Sensor)
Connection between PWBA HNB MCU and CHUTE REGI (Regi Clutch)
Connection between PWBA HNB MCU and CHUTE TURN (MSI)
Connection between PWBA HNB MCU and OHP SENSOR ASSY

§ 11 Controller section
Connection between PWBA HNB MCU and CONTROLLER BOARD
Connection between PWBA HNB MCU and CONSOLE PANEL HANABI

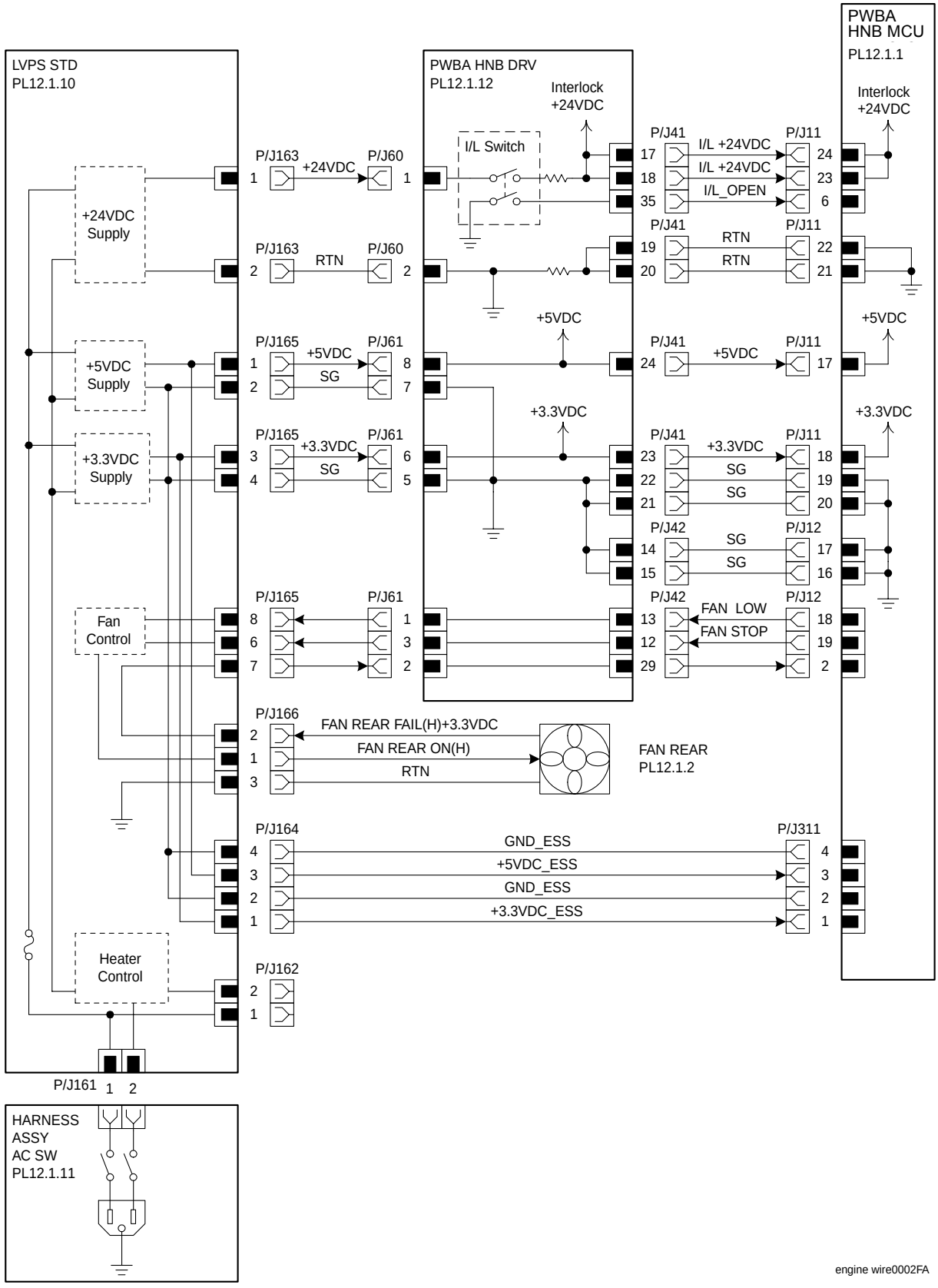
1.2 Notes on Using the Wiring Diagram between Parts

The following describes the legend of the wiring diagrams between parts shown on the following pages.

Symbols	Description
	Denotes a plug.
	Denotes a jack.
	Denotes Pin yy and Jack yy of the connector Pxx and Jxx.
	Denotes the parts. PL X.Y.Z implies the item "Z" of plate (PL) "X.Y" in Chapter 5. Parts List.
	Denotes functional parts attached with functional parts name.
	Denotes the control and its outline in PWB.
	Denotes a connection between parts with harnesses or wires, attached with signal name/contents.
	Denotes the function, and logic value of the signal to operate the function (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.
	Denotes the function, and logic value of the signal when the function operated (Low: L, High: H). The given voltage is for signal in high status. The arrow indicates the direction of signal.

Symbols	Description
	Denotes a connection between wires.
I/L +24VDC	Denotes DC voltage when the interlock switch in PWBA HNB MCU turns on.
+5VDC +3.3VDC	Denotes DC voltage.
SG	Denotes signal ground.
AG	Denotes analog ground.
RTN	Denotes the return.

§ 1 Power supply section



Signal line name	Description
FAN LOW	FAN REAR drive control signals
FAN STOP	
FAN REAR FAIL(H)+3.3VDC	FAN REAR fail detection signal (High: Fail, Low: Normal)
FAN REAR ON(H)	FAN REAR ON/OFF control signal

♦ LVPS overcurrent protection circuit

This circuit stops all outputs, if the power supply voltage 24VDC, 5VDC, or 3.3VDC is shorted.
The circuit is reset, when after the cause of short was removed, the power is turned off, and then on again after certain time.

♦ LVPS overvoltage protection circuit

This circuit stops all outputs, if the power supply voltage 24VDC, 5VDC, or 3.3VDC exceeds the specified voltage respectively.
At this time, the operating point is 32VDC or less for 24VDC, 7VDC or less for 5VDC, or 6V or less for 3.3VDC.
The circuit is reset, when the power is turned off, and then on again after certain time.

♦ FAN output circuit

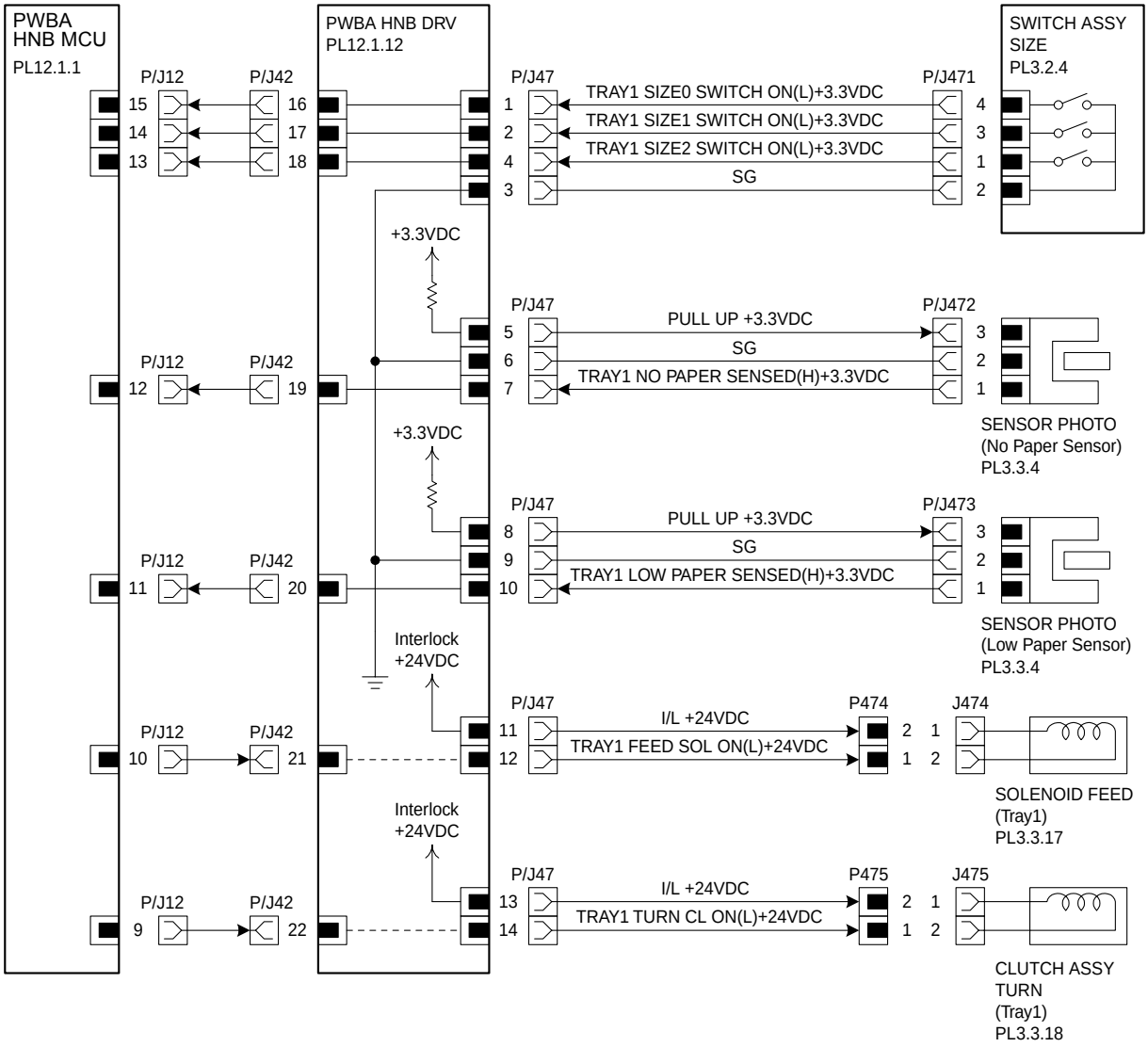
For the FAN REAR ON (H) signal, the output voltage varies depending on the status of FAN LOW signal and FAN STOP signal.

FAN LOW	FAN STOP	FAN REAR ON(H)
High	High	24V
Low	High	15V
High	Low	0V
Low	Low	0V

♦ Output stop by Interlock Switch

Turning off the Interlock Switch mounted on the PWBA HNB DRV causes the "I/L +24VDC" circuit to be shut off. Consequently, +24VDC supply to the PWBA HNB MCU and to the parts connected to the PWBA HNB DRV is stopped.

§ 2 Cassette section



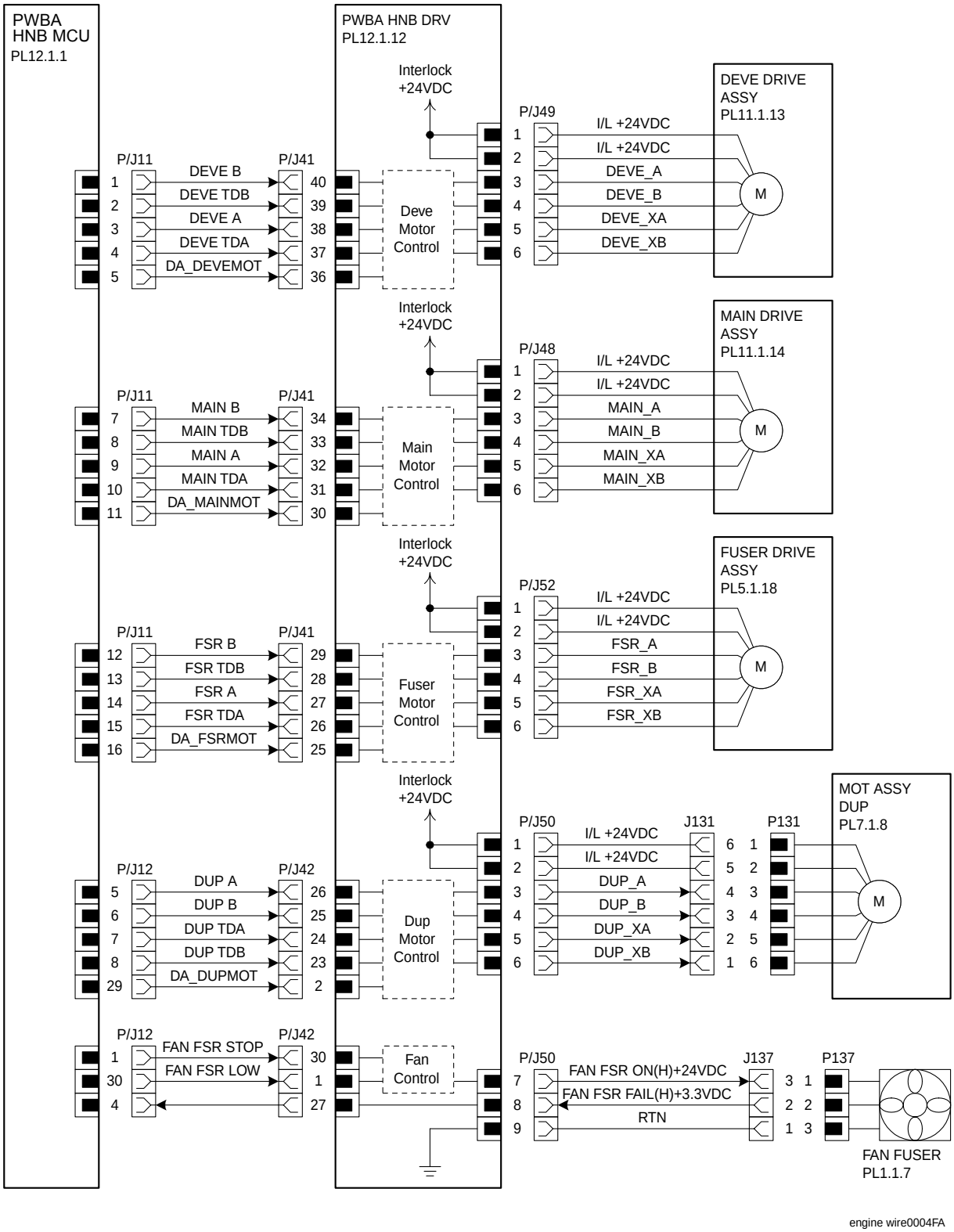
engine wire0003FA

Signal line name	Description
TRAY1 SIZE0 SWITCH ON(L)+3.3VDC	ON/OFF detection signal of SWITCH ASSY SIZE upper SW
TRAY1 SIZE1 SWITCH ON(L)+3.3VDC	ON/OFF detection signal of SWITCH ASSY SIZE middle SW
TRAY1 SIZE2 SWITCH ON(L)+3.3VDC	ON/OFF detection signal of SWITCH ASSY SIZE lower SW
TRAY1 NO PAPER SENSED(L)+3.3VDC	Cassette paper detection signal by SENSOR PHOTO (No Paper Sensor)
TRAY1 LOW PAPER SENSED(L)+3.3VDC	Cassette residual paper detection signal by SENSOR PHOTO (Low Paper Sensor)
TRAY1 FEED SOL ON(L)+24VDC	ON/OFF control signal of SOLENOID FEED (Tray 1)
TRAY1 TURN CL ON(L)+24VDC	ON/OFF control signal of CLUTCH ASSY TURN (Tray 1)

♦ Outline of SWITCH ASSY SIZE

The paper size is determined by a combination of ON/OFF statuses of the upper, middle, and lower switches of SWITCH ASSY SIZE.

Paper size	Switches		
	Upper	Middle	Lower
LEGAL14" (SEF)	ON	ON	ON
LEGAL13" (SEF)	ON	ON	OFF
EXECUTIVE (SEF)	ON	OFF	ON
B5 (SEF)	ON	OFF	OFF
A4 (SEF)	OFF	ON	ON
LETTER (SEF)	OFF	OFF	ON
A5	OFF	ON	ON
No cassette	OFF	OFF	OFF



engine wire0004FA

Signal line name	Description
DEVE B,DEVE TDB,DEVE A, DEVE TDA,DA_DEVEMOT	DEVE DRIVE ASSY drive control signal
DEVE_A,DEVE_B,DEVE_XA,DEVE_XB	DEVE DRIVE ASSY exciting signal
MAIN B,MAIN TDB,MAIN A, MAIN TDA,DA_MAINMOT	MAIN DRIVE ASSY drive control signal
MAIN_A,MAIN_B,MAIN_XA,MAIN_XB	MAIN DRIVE ASSY exciting signa
FSR B,FSR TDB,FSR, FSR TDA,DA_FSRMOT	FUSER DRIVE ASSY drive control signal
FSR_A,FSR_B,FSR_XA,FSR_XB	FUSER DRIVE ASSY exciting signal
DUP B,DUP TDB,DUP A, DUP TDA,DA_DUPMOT	MOT ASSY DUP drive control signal
DUP_A,DUP_B,DUP_XA,DUP_XB	MOT ASSY DUP exciting signal
FAN FSR STOP	FAN FSR drive control signal
FAN FSR LOW	
FAN FSR ON(H)+24VDC	FAN FSR ON/OFF control signal
FAN FSR FAIL(H)+3.3VDC	FAN FSR fail detection signal (High: Fail, Low: Normal)

♦ Outline of DEVE DRIVE ASSY

✧ Motor type: Hybrid stepping motor

✧ Stepping angle:1.8° ± 0.09°

✧ Winding resistance:2.8Ω ± 10% / phase (25°C)

✧ Exciting sequence:(*: Exciting)

Phase	Step (2 phases)			
	1	2	3	4
DEVE_A			*	*
DEVE_B		*	*	
DEVE_XA	*	*		
DEVE_XB	*			*

♦ Outline of MAIN DRIVE ASSY

✧ Motor type: Hybrid stepping motor

✧ Stepping angle:1.8° ± 0.09°

✧ Winding resistance:2.1Ω ± 10% / phase (25°C)

✧ Exciting sequence:(*: Exciting)

Phase	Step (2 phases)			
	1	2	3	4
MAIN_A			*	*
MAIN_B		*	*	
MAIN_XA	*	*		
MAIN_XB	*			*

♦ Outline of FUSER DRIVE ASSY

✧ Motor type: Hybrid stepping motor

✧ Stepping angle:1.8° ± 0.09°

✧ Winding resistance:6.2Ω ± 10% / phase (25°C)

✧ Exciting sequence:(*: Exciting)

Phase	Step (2 phases)			
	1	2	3	4
FSR_A			*	*
FSR_B		*	*	
FSR_XA	*	*		
FSR_XB	*			*

♦ Outline of MOTOR ASSY DUP

✧ Motor type: Hybrid stepping motor

✧ Stepping angle:1.8° ± 0.09°

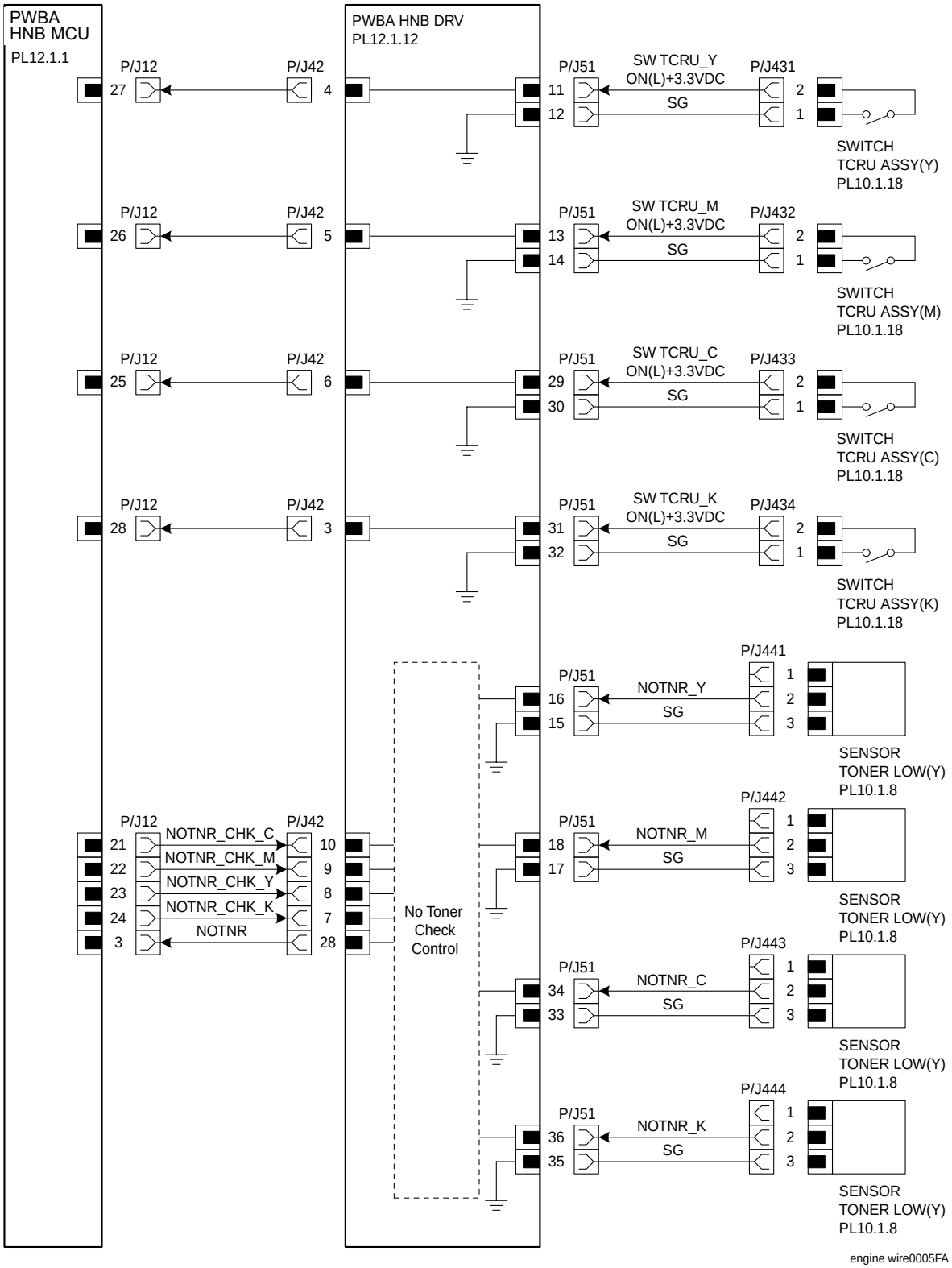
✧ Winding resistance:5.5Ω ± 10% / phase (25°C)

✧ Exciting sequence:(*: Exciting)

Phase	Step (2 phases)							
	1	2	3	4	5	6	7	8
DUP_A					*	*	*	
DUP_XA			*	*	*			
DUP_B	*	*	*					
DUP_XB	*						*	*

Blank Page

§ 4 Developer section 1

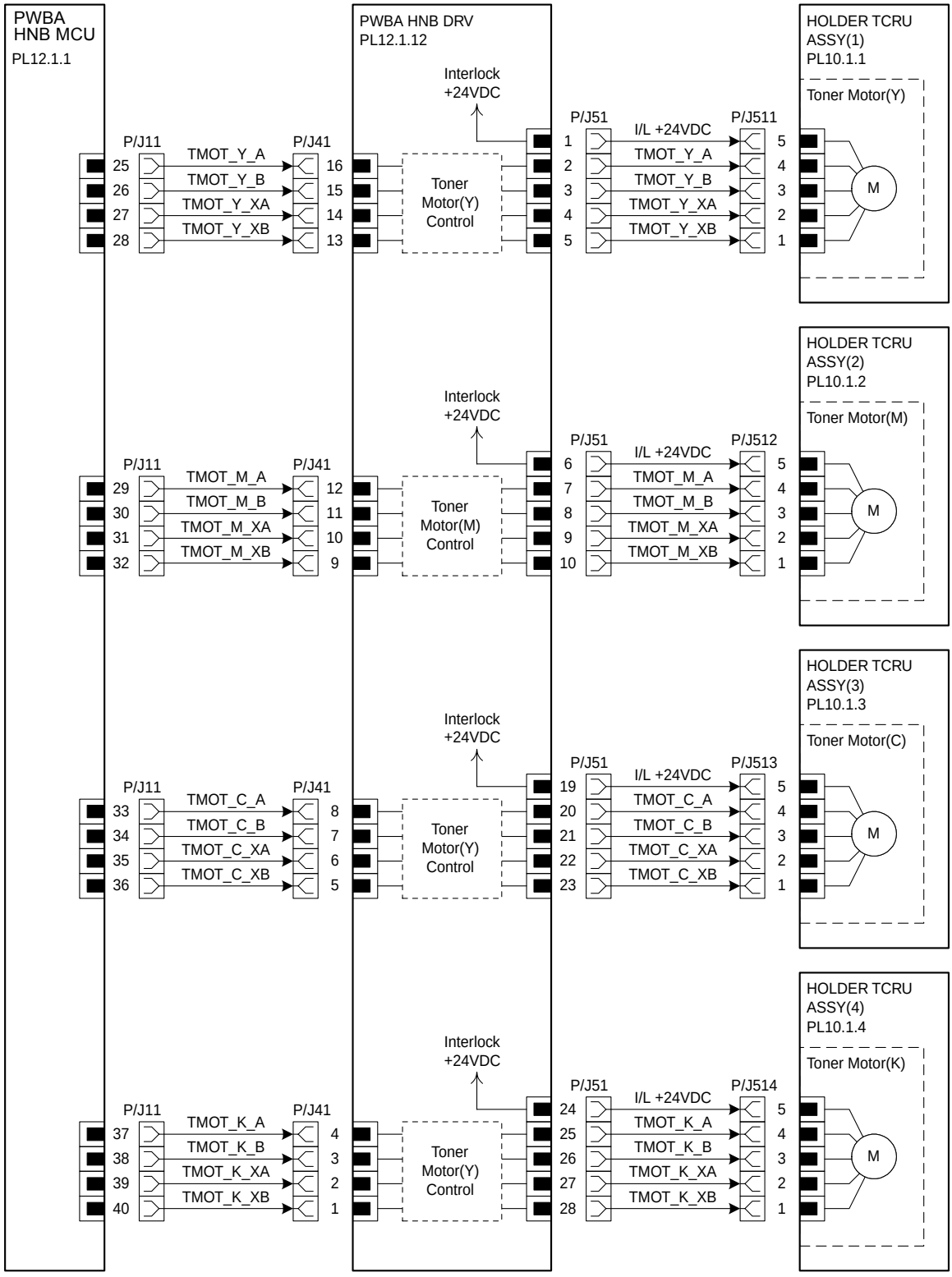


Signal line name	Description
SW TCRU_Y ON(L)+3.3VDC	SENSOR TCRU ASSY (Y) ON/OFF detection signal The switch is ON when toner bottle is present.
SW TCRU_M ON(L)+3.3VDC	SENSOR TCRU ASSY (M) ON/OFF detection signal The switch is ON when toner bottle is present.
SW TCRU_C ON(L)+3.3VDC	SENSOR TCRU ASSY (C) ON/OFF detection signal The switch is ON when toner bottle is present.
SW TCRU_K ON(L)+3.3VDC	SENSOR TCRU ASSY (K) ON/OFF detection signal The switch is ON when toner bottle is present.
NOTNR_Y	Residual toner detection signal by SENSOR TONER LOW (Y)
NOTNR_M	Residual toner detection signal by SENSOR TONER LOW (M)
NOTNR_C	Residual toner detection signal by SENSOR TONER LOW (C)
NOTNR_K	Residual toner detection signal by SENSOR TONER LOW (K)
NOTNR_CHK_Y	SENSOR TONER LOW (Y) selection signal in residual toner check
NOTNR_CHK_M	SENSOR TONER LOW (M) selection signal in residual toner check
NOTNR_CHK_C	SENSOR TONER LOW (C) selection signal in residual toner check
NOTNR_CHK_K	SENSOR TONER LOW (K) selection signal in residual toner check
NOTNR	Residual toner detection signal

♦ Residual toner check circuit

In the residual toner check, four colors cannot be checked at a time but one color each is checked in order.

Which color of residual toner is checked is selected with the NOTNR_CHK_* signal, and the residual toner is detected with the NOTNR_* signal of the selected signal. The result is returned to the PWBA HNB MCU using the NOTNR signal.


PWBA
HNB MCU
PL12.1.1
PWBA HNB DRV
PL12.1.12
HOLDER TCRU
ASSY(1)
PL10.1.1
Toner Motor(Y)
HOLDER TCRU
ASSY(2)
PL10.1.2
Toner Motor(M)
HOLDER TCRU
ASSY(3)
PL10.1.3
Toner Motor(C)
HOLDER TCRU
ASSY(4)
PL10.1.4
Toner Motor(K)
Interlock
+24VDC
Toner
Motor(Y)
Control
Toner
Motor(M)
Control
P/J11
P/J41
P/J51
P/J511
P/J512
P/J513
P/J514
I/L +24VDC
TMOT_Y_A
TMOT_Y_B
TMOT_Y_XA
TMOT_Y_XB
TMOT_M_A
TMOT_M_B
TMOT_M_XA
TMOT_M_XB
TMOT_C_A
TMOT_C_B
TMOT_C_XA
TMOT_C_XB
TMOT_K_A
TMOT_K_B
TMOT_K_XA
TMOT_K_XB
M
engine wire0006FA

Signal line name	Description
TMOT_Y_A.TMOT_Y_B.TMOT_Y_XA.TMOT_Y_XB	Exciting signal of Toner Motor (Y) in HOLDER TCRU ASSY (1)
TMOT_M_A.TMOT_M_B.MOT_M_XA.TMOT_M_XB	Exciting signal of Toner Motor (M) in HOLDER TCRU ASSY (2)
TMOT_C_A.TMOT_C_B.TMOT_C_XA.TMOT_C_XB	Exciting signal of Toner Motor (C) in HOLDER TCRU ASSY (3)
TMOT_K_A.TMOT_K_B.TMOT_K_XA.TMOT_K_XB	Exciting signal of Toner Motor (K) in HOLDER TCRU ASSY (1)

♦ Outline of Toner Motor

✧ Motor type: PM stepping motor

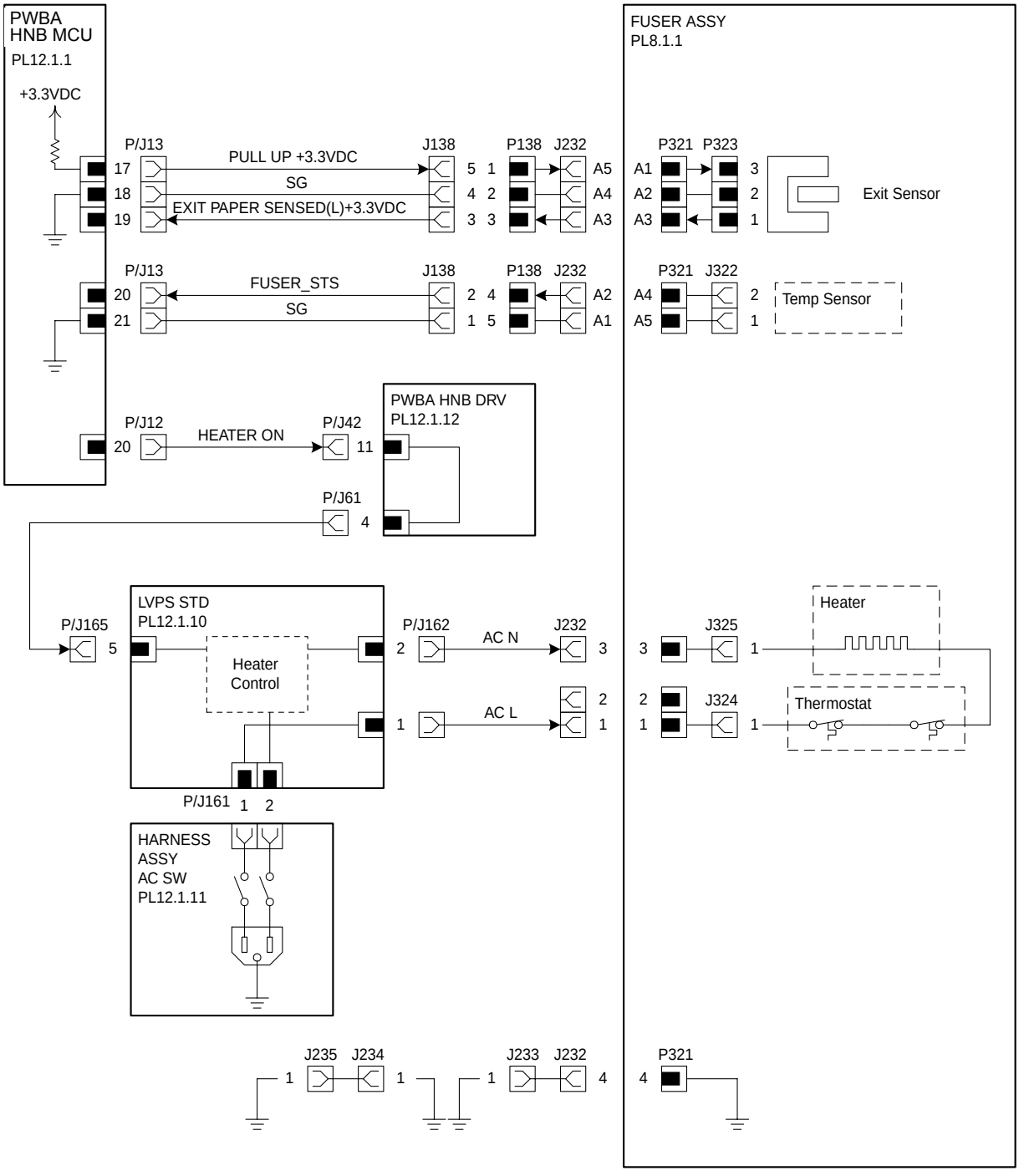
✧ Stepping angle:7.5° ± 0.5°

✧ Winding resistance:6.2Ω ± 10% / phase (20°C)

✧ Exciting sequence:(*: Exciting)

Phase	Step (2 phases)							
	1	2	3	4	5	6	7	8
A	*			*	*			*
XA		*	*			*	*	
B			*	*			*	*
XB	*	*			*	*		

§ 6 Fuser section

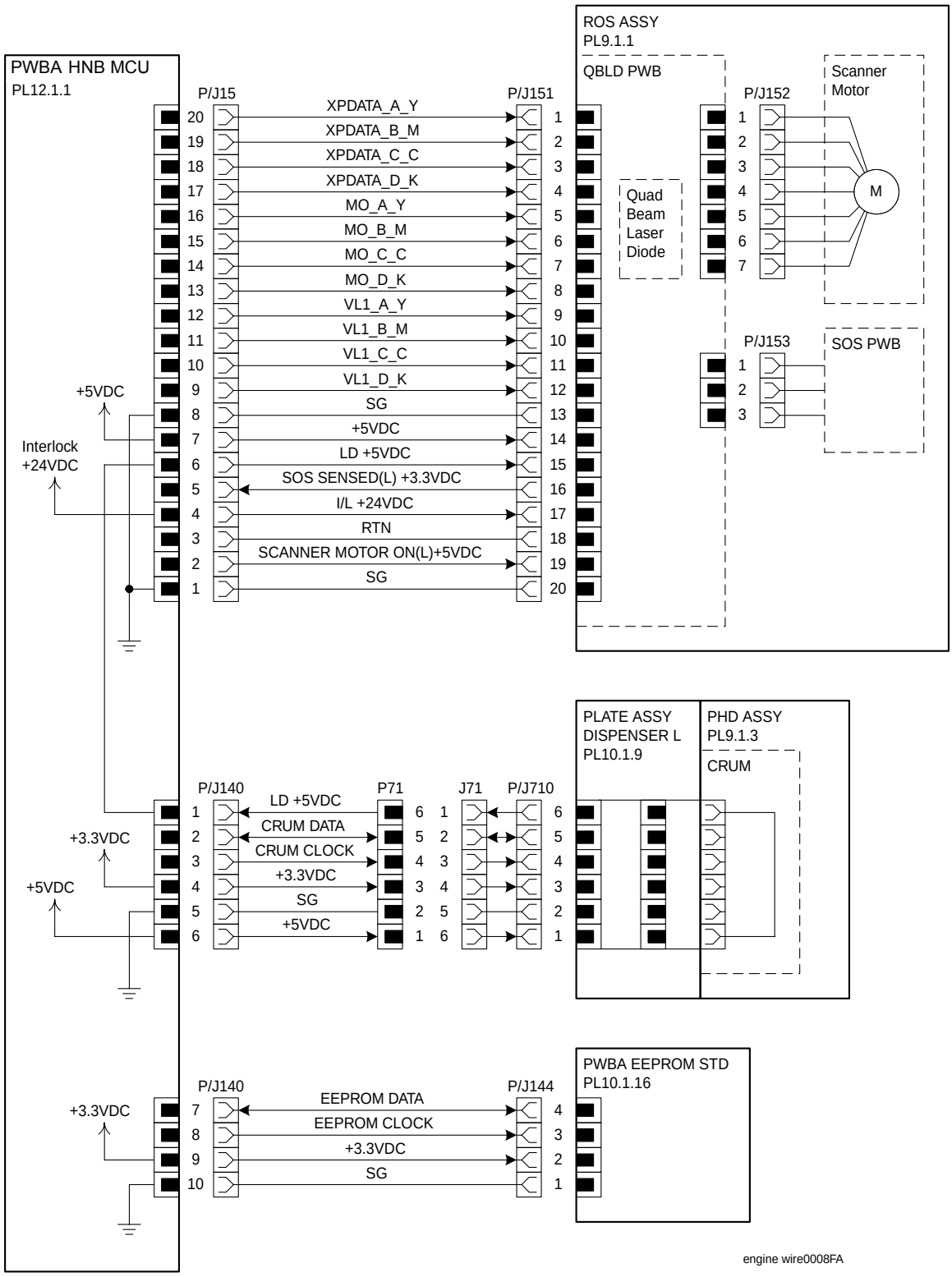


engine wire0007FA

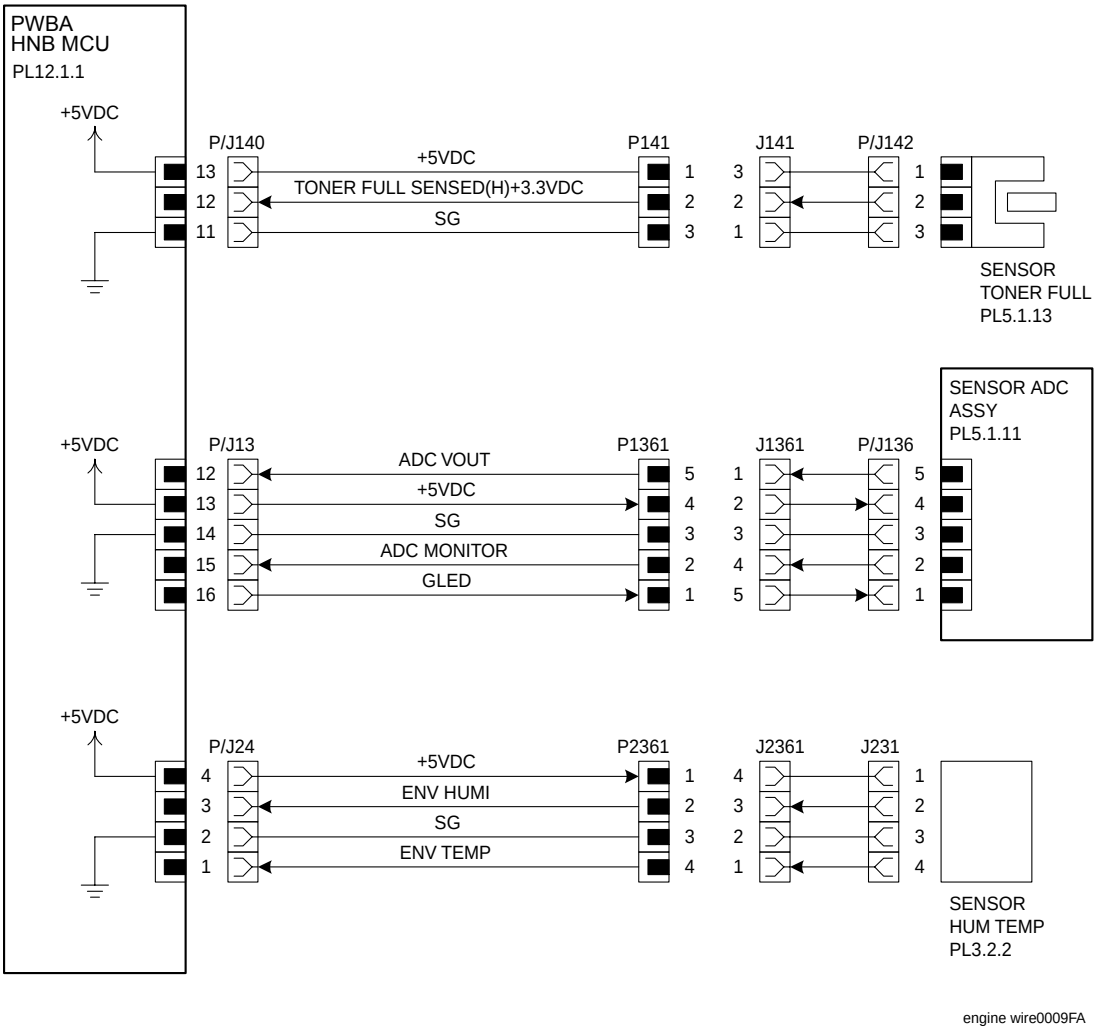
Signal line name	Description
EXIT PAPER SENSED(L)+3.3VDC	Paper detection signal in fuser by Exit Sensor in FUSER ASSY
FUSER_STS	Heat Roll surface temperature data (analog value) measured by Temp Sensor to determine the fuser control temperature
HEATER ON(L)	Heater ON/OFF control signal
AC N	Neutral side of AC input from power supply (Heater power supply voltage)
AC L	Line side of AC input from power supply (Heater power supply voltage)

♦ Heater rated power: 600 ± 30W 100V

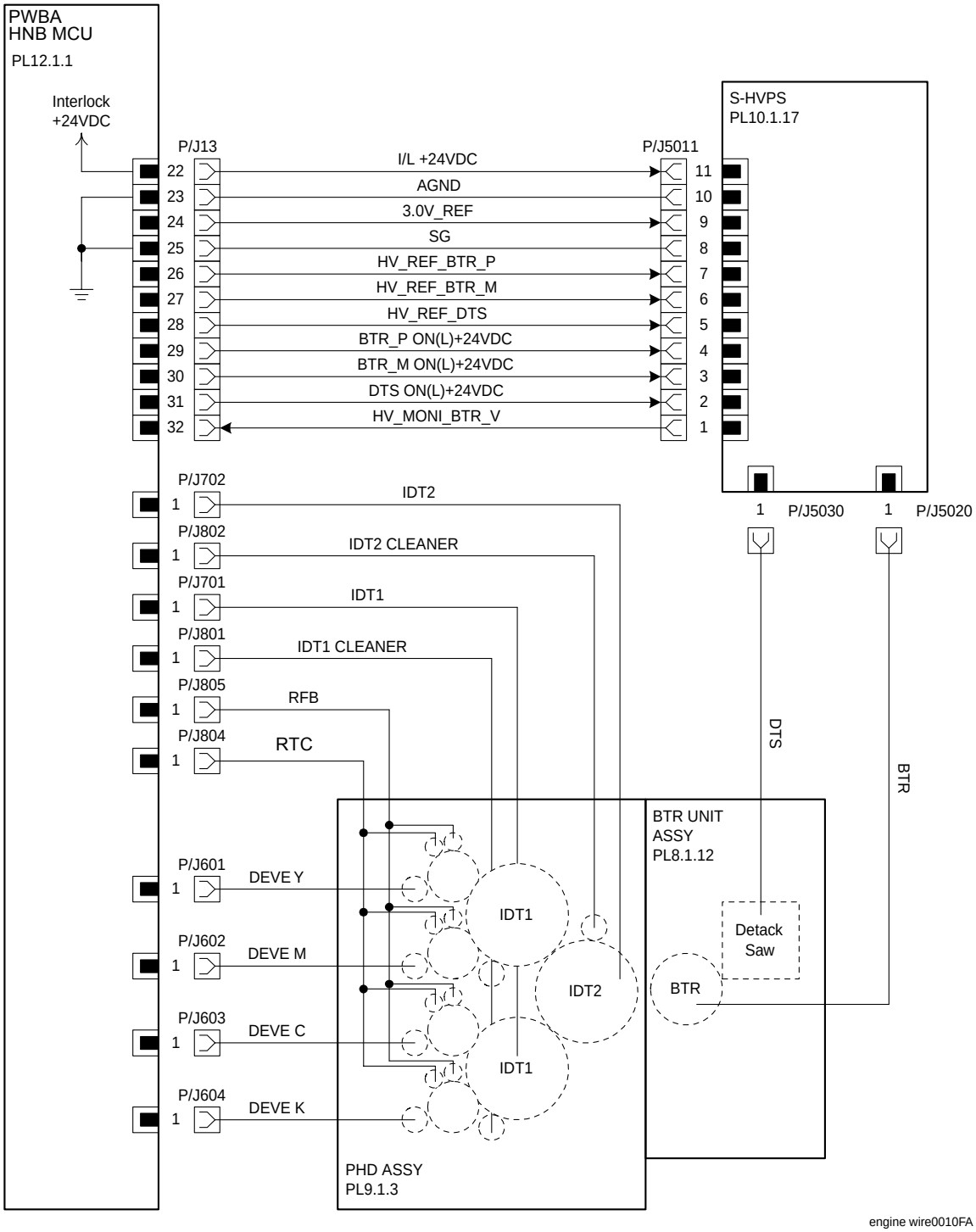
♦ Thermostat contact open temperature: 160°C ± 5°C


PWBA HNB MCU
PL12.1.1
ROS ASSY
PL9.1.1
QBLD PWB
Quad Beam Laser Diode
Scanner Motor
M
P/J15
P/J151
P/J152
P/J153
SOS PWB
XPDATA_A_Y
XPDATA_B_M
XPDATA_C_C
XPDATA_D_K
MO_A_Y
MO_B_M
MO_C_C
MO_D_K
VL1_A_Y
VL1_B_M
VL1_C_C
VL1_D_K
SG
+5VDC
LD +5VDC
SOS SENSED(L) +3.3VDC
I/L +24VDC
RTN
SCANNER MOTOR ON(L)+5VDC
SG
+5VDC
Interlock +24VDC
PLATE ASSY
DISPENSER L
PL10.1.9
PHD ASSY
PL9.1.3
CRUM
P/J140
P71
J71
P/J710
LD +5VDC
CRUM DATA
CRUM CLOCK
+3.3VDC
SG
+5VDC
+3.3VDC
+5VDC
PWBA EEPROM STD
PL10.1.16
P/J140
P/J144
EEPROM DATA
EEPROM CLOCK
+3.3VDC
SG
+3.3VDC
engine wire0008FA

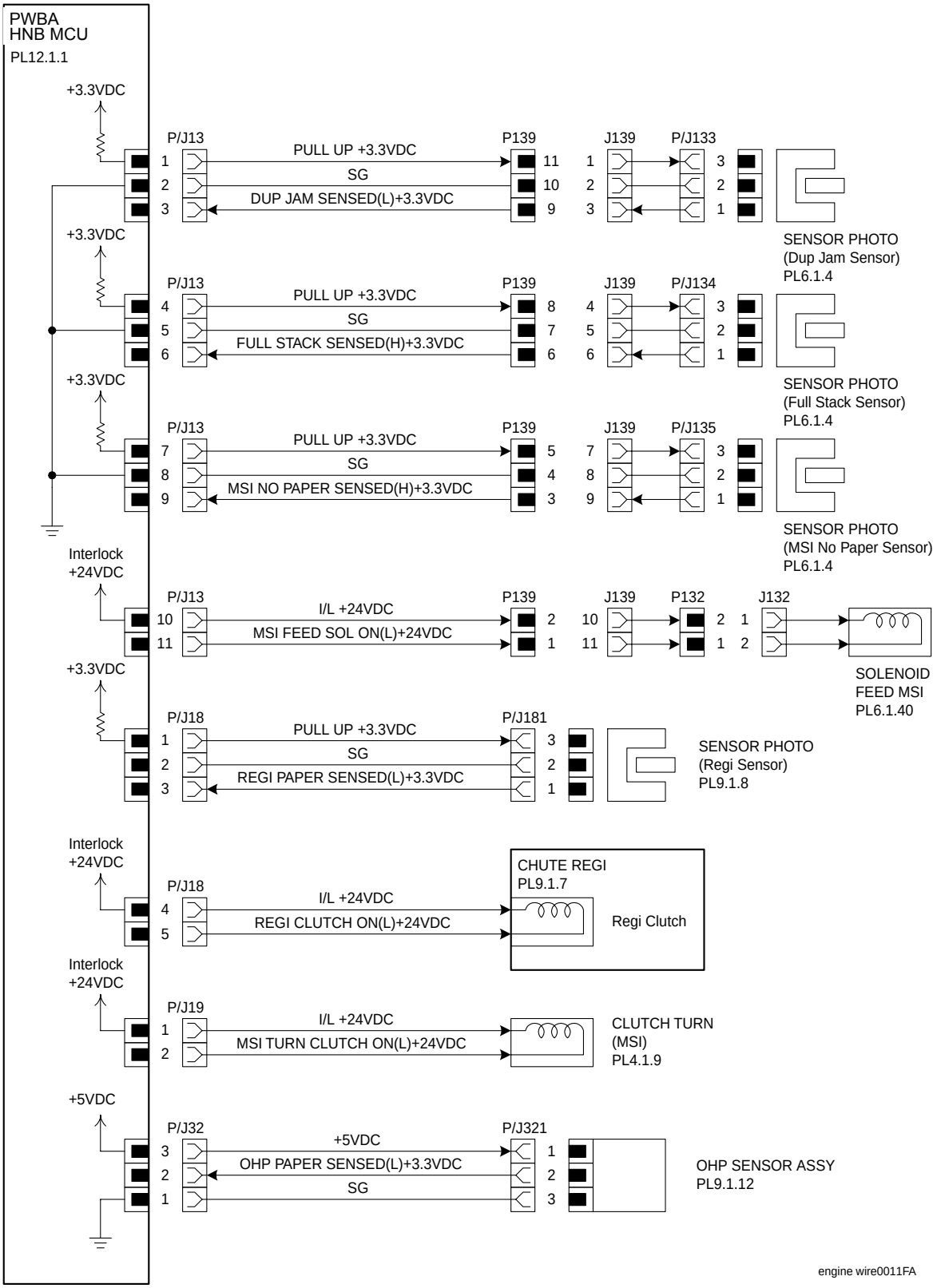
Signal line name	Description
XPDATA_A_Y,XPDATA_B_M,XPDATA_C_C,XPDATA_D_K	Pixel data signals to make Quad Beam Laser Diodes (laser diodes for 4 colors) in ROS ASSY emit the light
MO_A_Y,MO_B_M,MO_C_C,MO_D_K	Light quantity control signals for each color LD (laser diode)
VL1_A_Y,VL1_B_M,VL1_C_C,VL1_D_K	Voltages for adjusting light quantity of each color LD
LD +5VDC	Power supply voltage for each color LD
SOS SENSED(L) +3.3VDC	Scanning start reference signal based on the input of laser beam to the SOS Sensor in PWBA SOS
POLYGON MOTOR ON(L)+5VDC	Polygon Motor ON/OFF control signal in ROS ASSY
EEPROM DATA	Write/read data to EEPROM PWB
EEPROM CLOCK	Clock signal to EEPROM PWB
CRUM DATA	Write/read data to CRU of PHD ASSY
CRUM CLOCK	Clock signal to CRU of PHD ASSY


PWBA
HNB MCU
PL12.1.1
+5VDC
P/J140
13
12
11
+5VDC
TONER FULL SENSED(H)+3.3VDC
SG
P141
1
2
3
J141
3
2
1
P/J142
1
2
3
SENSOR
TONER FULL
PL5.1.13
SENSOR ADC
ASSY
PL5.1.11
+5VDC
P/J13
12
13
14
15
16
ADC VOUT
+5VDC
SG
ADC MONITOR
GLED
P1361
5
4
3
2
1
J1361
1
2
3
4
5
P/J136
5
4
3
2
1
+5VDC
P/J24
4
3
2
1
+5VDC
ENV HUMI
SG
ENV TEMP
P2361
1
2
3
4
J2361
4
3
2
1
J231
1
2
3
4
SENSOR
HUM TEMP
PL3.2.2
engine wire0009FA

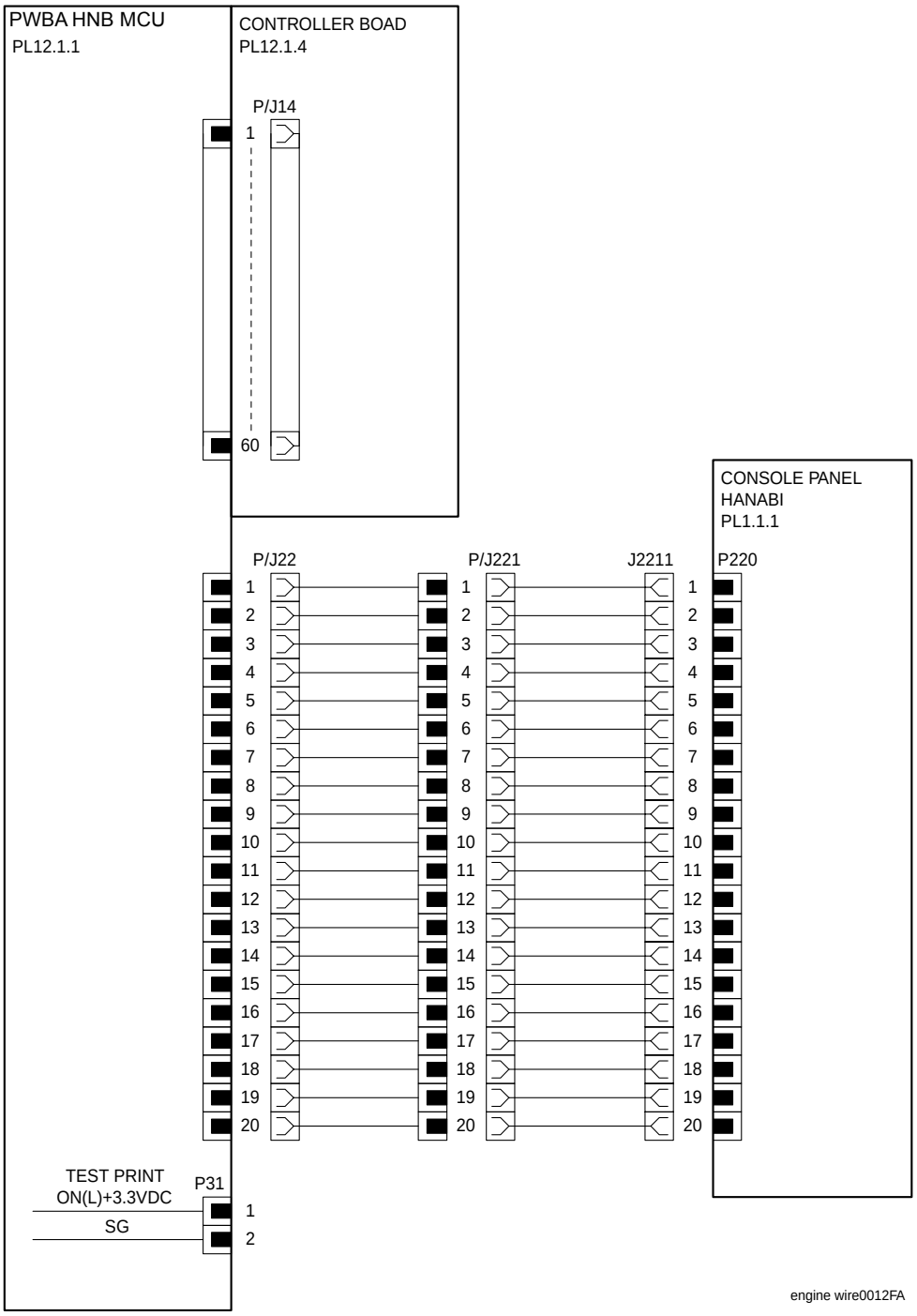
Signal line name	Description
TONER FULL SENSED(H)+3.3VDC	Waste toner recovery bottle full detection signal by SENSOR TONER FULL
ADC VOUT	Measured data (analog value) by ADC Sensor in SENSOR ADC ASSY
ADC MONITOR	Monitor output signal by ADC Sensor in SENSOR ADC ASSY
GLED	LED control signal (analog value) in SENSOR ADC ASSY
ENV HUMI	Environment temperature data (analog value) measured by SENSOR HUM TEMP
ENV TEMP	Environment temperature data (analog value) measured by SENSOR HUM TEMP


PWBA
HNB MCU
PL12.1.1
Interlock
+24VDC
P/J13
22
23
24
25
26
27
28
29
30
31
32
I/L +24VDC
AGND
3.0V_REF
SG
HV_REF_BTR_P
HV_REF_BTR_M
HV_REF_DTS
BTR_P ON(L)+24VDC
BTR_M ON(L)+24VDC
DTS ON(L)+24VDC
HV_MONI_BTR_V
P/J5011
11
10
9
8
7
6
5
4
3
2
1
S-HVPS
PL10.1.17
1
P/J5030
1
P/J5020
DTS
BTR
P/J702
1
IDT2
P/J802
1
IDT2 CLEANER
P/J701
1
IDT1
P/J801
1
IDT1 CLEANER
P/J805
1
RFB
P/J804
1
RTC
P/J601
1
DEVE Y
P/J602
1
DEVE M
P/J603
1
DEVE C
P/J604
1
DEVE K
IDT1
IDT2
IDT1
PHD ASSY
PL9.1.3
BTR UNIT
ASSY
PL8.1.12
Detack
Saw
BTR
engine wire0010FA

Signal line name	Description
HV_REF_BTR_P	Current control signal of BTR (+) output (analog value)
HV_REF_BTR_M	Voltage control signal of BTR (–) output (analog value)
HV_REF_DTS	Voltage control signal of DTS output (analog value)
BTR_P ON(L)+24VDC	Voltage monitor signal of BTR(+) output (analog value)
BTR_M ON(L)+24VDC	Voltage monitor signal of BTR(–) output (analog value)
DTS ON(L)+24VDC	ON/OFF control signal of DTS output
HV_MONI_BTR_V	Voltage monitor signal of BTR output (analog value)
IDT2	Secondary transfer output from HVPS in PWBA HNB MCU to IDT2
IDT2 CLEANER	Output from HVPS in PWBA HNB MCU to IDT2 Cleaner
IDT1	Primary transfer output from HVPS in PWBA HNB MCU to IDT1
IDT1 CLEANER	Output from HVPS in PWBA HNB MCU to IDT1 Cleaner
RFB	Output from HVPS in PWBA HNB MCU to Refresher
RTC	Charging output from HVPS in PWBA HNB MCU to RTC
DEVE Y	Output from HVPS in PWBA HNB MCU to Developer Y(Magnet Roll)
DEVE M	Output from HVPS in PWBA HNB MCU to Developer M(Magnet Roll)
DEVE C	Output from HVPS in PWBA HNB MCU to Developer C(Magnet Roll)
DEVE K	Output from HVPS in PWBA HNB MCU to Developer K(Magnet Roll)
DTS	Discharging output from S-HVPS to Detack Saw in BTR UNIT ASSY
BTR	Third transfer output from S-HVPS to BTR in BTR UNIT ASSY


PWBA
HNB MCU
PL12.1.1
+3.3VDC
P/J13
PULL UP +3.3VDC
SG
DUP JAM SENSED(L)+3.3VDC
P139
J139
P/J133
SENSOR PHOTO
(Dup Jam Sensor)
PL6.1.4
+3.3VDC
P/J13
PULL UP +3.3VDC
SG
FULL STACK SENSED(H)+3.3VDC
P139
J139
P/J134
SENSOR PHOTO
(Full Stack Sensor)
PL6.1.4
+3.3VDC
P/J13
PULL UP +3.3VDC
SG
MSI NO PAPER SENSED(H)+3.3VDC
P139
J139
P/J135
SENSOR PHOTO
(MSI No Paper Sensor)
PL6.1.4
Interlock
+24VDC
P/J13
I/L +24VDC
MSI FEED SOL ON(L)+24VDC
P139
J139
P132
J132
SOLENOID
FEED MSI
PL6.1.40
+3.3VDC
P/J18
PULL UP +3.3VDC
SG
REGI PAPER SENSED(L)+3.3VDC
P/J181
SENSOR PHOTO
(Regi Sensor)
PL9.1.8
Interlock
+24VDC
P/J18
I/L +24VDC
REGI CLUTCH ON(L)+24VDC
CHUTE REGI
PL9.1.7
Regi Clutch
Interlock
+24VDC
P/J19
I/L +24VDC
MSI TURN CLUTCH ON(L)+24VDC
CLUTCH TURN
(MSI)
PL4.1.9
+5VDC
P/J32
+5VDC
OHP PAPER SENSED(L)+3.3VDC
SG
P/J321
OHP SENSOR ASSY
PL9.1.12
engine wire0011FA

Signal line name	Description
DUP JAM SENSED(L)+3.3VDC	Paper detection signal in Duplex section by SENSOR PHOTO (Dup Jam Sensor)
FULL STACK SENSED(L)+3.3VDC	Full Stack detection signal in paper output tray by SENSOR PHOTO (Full Stack Sensor)
MSI NO PAPER SENSED(H)+3.3VDC	Paper detection signal in MSI by SENSOR PHOTO (MSI No Sensor)
MSI FEED SOL ON(L)+24VDC	SOLENOID FEED MSI ON/OFF control signal
REGI PAPER SENSED(L)+3.3VDC	Paper detection signal in Regi section by SENSOR PHOTO (Regi Sensor)
REGI CLUTCH ON(L)+24VDC	ON/OFF control signal of Regi Clutch in CHUTE REGI
MSI TURN CLUTCH ON(L)+24VDC	CLUTCH TURN (MSI) ON/OFF control signal
OHP PAPER SENSED(L)+3.3VDC	OHP paper detection signal by OHP SENSOR ASSY (High: Plain paper present, Low: OHP paper present or no paper)



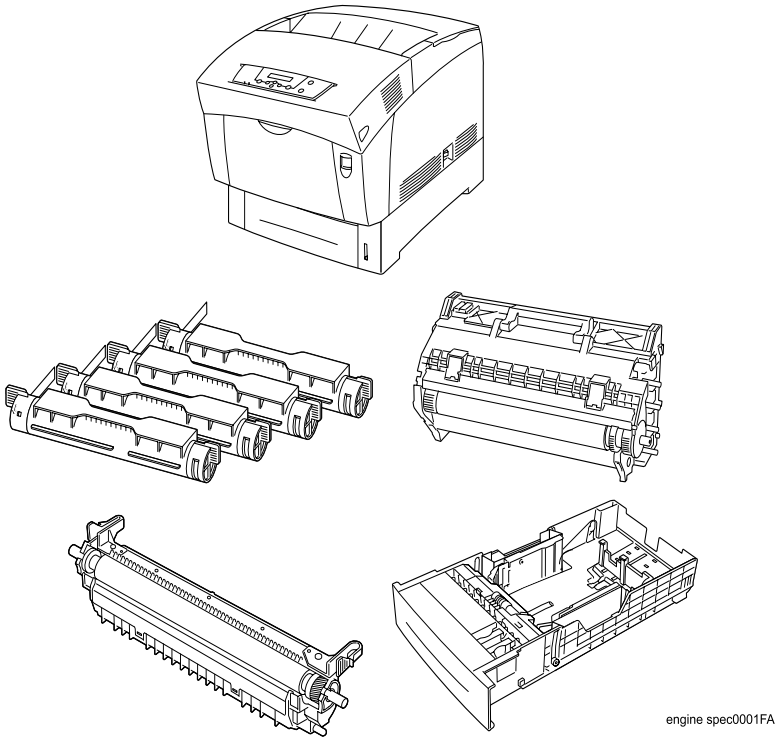
Signal line name	Description
TEST PRINT ON(L)+3.3VDC	Making this signal "Low" (connected to SG) enables the test printing of stored test patterns.

Chapter 8 Printer Specifications

1. Configuration of Printer

1.1 Basic Configuration

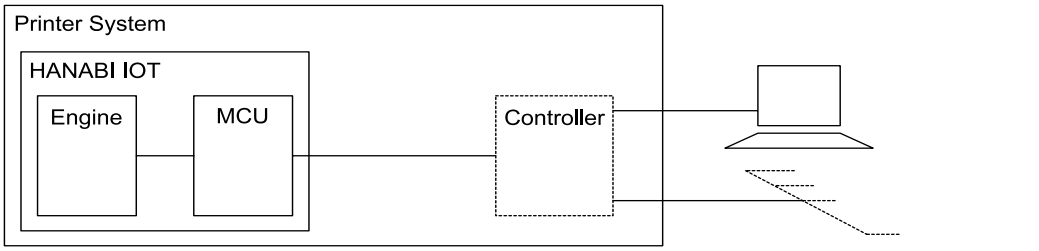
This printer basically consists of the print engine main unit, consumables (CRU), and standard universal paper tray (500 sheets).



engine spec0001FA

1.2 Functional Configuration

Functional configuration of this printer is shown below.



engine spec0010FA

2. Electrical Properties

2.1 Power Source

Two types of power source as follows are available for this printer, which are selected according to the specifications.

- ◆ 100V printer:Voltage: 100-12VAC ±10% (90 ~ 140V), frequency: 50/60Hz ± 3Hz
- ◆ 115/120V printer:Same power source as that for 100V printer.
- ◆ 220/240V printer:voltage: 220-240VAC ±10% (198 ~ 264V), frequency: 50/60Hz ± 3Hz

2.2 Power Consumption

Power consumption in each operation mode at rated voltage input

Operation mode	Condition	Input voltage		
		100VAC	115VAC	240VAC
Printing mode (Running mode)	Max. power consumption condition	850W or less	850W or less	850W or less
READY mode (Ready mode)	Fuser ON	180W or less	180W or less	180W or less
	Fuser OFF	45W or less	45W or less	45W or less

3. Mechanical Properties

3.1 Dimensions/Mass of Printer

Width: 17.28 in., 439mm ± 1%

Depth: 23.2 in., 590mm ± 1% (with no cassette installed), 25.12 in., 638mm ± 1% (with cassette installed)

Height: 17.52 in., 445mm ± 1%

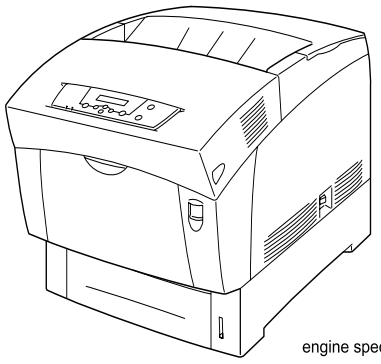
Mass

(No cassette installed + (No CRU):59 lbs., 27 kg ± 1%

(No cassette installed + (CRU):75 lbs., 34 kg ± 1%

(Cassette installed + (No CRU):65 lbs., 29.5 kg ± 1%

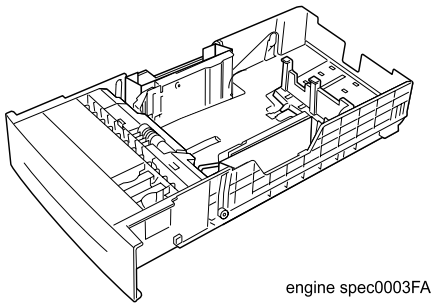
(Cassette installed + CRU):77 lbs., 36.5kg ± 1%



engine spec0002FA

3.2 Dimensions/Mass of Universal Paper Tray (standard paper supply - 500 sheets)

Width: 12.6 in., 321mm ± 1%
Depth: 22 lbs., 558mm ± 1%
Height: 3.8 in., 97mm ± 1%
Mass: 5.7 lbs., 2.6kg ± 1%



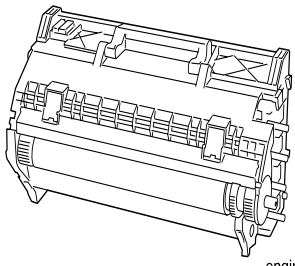
engine spec0003FA

3.3 Dimensions/Mass of Consumables (CRU)

3.3.1 Print head (PHD) cartridge

Width: 13.34 in., 339mm ± 3mm
Depth: 5.7 in., 146mm ± 3mm
Height: 7 in., 179mm ± 3mm
Mass: 10 lbs., 4.6kg ± 0.1kg

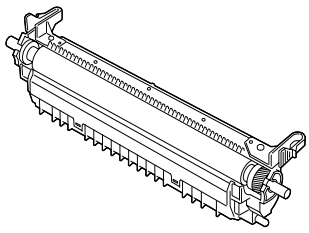
Reference: The print head cartridge has CRUM (CRU memory) to record information.



engine spec0004FA

3.3.2 Transfer roll (BTR) cartridge

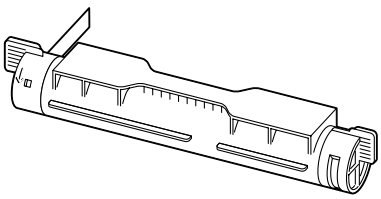
Width: 12.2 in., 309mm ± 3mm
Depth: 3.3 in., 85mm ± 3mm
Height: 2.4 in., 60mm ± 3mm
Mass: 1.1 lbs., 500g ± 10g



engine spec0005FA

3.3.3 Black toner cartridge

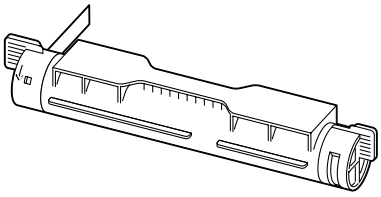
Width: 13.4 in., 340mm ± 3mm
Depth: 2 in., 51mm ± 3mm
Height: 2.2 in., 55mm ± 3mm
Mass: .75 lbs, 335g ± 10g



engine spec0006FA

3.3.4 Yellow toner cartridge

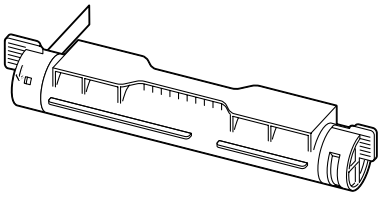
Width: 13.4 in., 340mm ± 3mm
Depth: 2 in., 51mm ± 3mm
Height: 2.2 in., 55mm ± 3mm
Mass: .6 lbs., 285g ± 10g



engine spec0006FA

3.3.5 Magenta toner cartridge

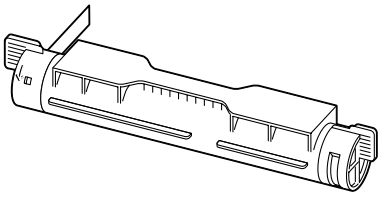
Width: 13.4 in., 340mm ± 3mm
Depth: 2 in., 51mm ± 3mm
Height: 2.2 in., 55mm ± 3mm
Mass: .6 lbs., 285g ± 10g



engine spec0006FA

3.3.6 Cyan toner cartridge

Width: 13.4 in., 340mm ± 3mm
Depth: 2 in., 51mm ± 3mm
Height: 2.2 in., 55mm ± 3mm
Mass: .6 lbs., 285g ± 10g

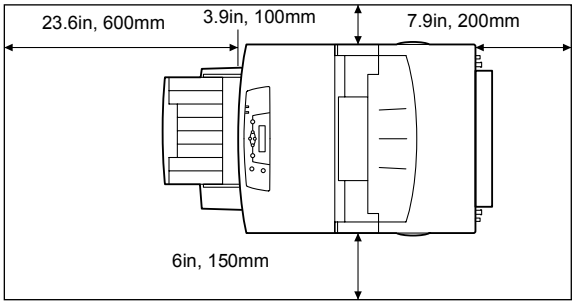


engine spec0006FA

3.4 Installation Space (min. installation space)

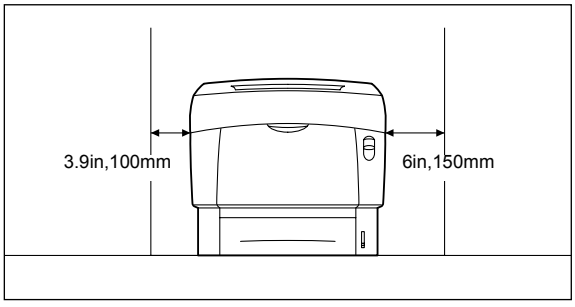
Minimum space as shown below is required to install the printer when it is used for normal objects. (Space occupied by the operator is not included.)

Top view



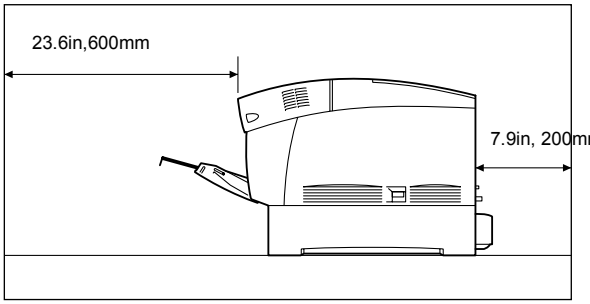
engine spec0007FA

Front view



engine spec0008FA

Side view



engine spec0009FA

4. Functions

4.1 Recording System

OPC drum, 4-tandem cartridges , electro-photographic system using intermediate transfer rolls

4.2 Exposure System

Semiconductor laser, simultaneous scanning by 4 beams

4.3 Development System

Development with dry type 2-component developer

4.4 Fixing System

Heat fusing of the free belt nip system

4.5 Resolution

Two types of resolutions can be switched. Printing speed is halved at 1200dpi

- ◆ Main scanning direction:600 dots/25.4mm (by video signal from controller)
  1200 dots/25.4mm (by video signal from controller) (half-speed mode)
- ◆ Sub scanning direction:600 dots/25.4mm (fixed)
  1200 dots/25.4mm (fixed) (half speed mode)

4.6 Operation Mode

The printer can be operated in either of 2 operation modes. The modes are switched over by command from the printer controller or change of printer operation, etc.

◆ Running mode

State in running or recording operation

Fixing system: Held at operating temperature.

Exposure system: Operating status

Recording system: Operating status
Fuser fan: Operating at high speed
Rear fan: Operating at high speed

◆ Ready mode

Ready state

Fixing system: Stop status *1
Exposure system: Stop status *2
Recording system: Stop status
Fuser fan: Stop status *3 (half-speed running)
Rear fan: Stop status *3 (half-speed running)

*1: Can be changed ready temperature status from the controller.
*2: Can be changed operation status from the controller.
*3: Fan status is changed depending on the state (temperature, etc.) of the fixing system.

4.7 Speed Mode

Speed mode of the printer san be switched over between full-speed mode (printing at the highest processing speed of the printer) and half-speed mode (printing at the half-speed processing mode). The controller cannot instruct to change the speed mode.

4.8 Print Mode

Standard mode, fine mode and high gross mode are available for the printer. Mode is switched by the instruction from the controller. The high gross mode can be selected only for the plain paper, 600psi.

4.9 Paper Mode

11 paper modes are available for this printer. Modes are switched over under the instruction from the controller.

Classification of paper mode

(1) Plain paper L mode
(2) Plain paper H mode
(3) Woodfree paper L mode
(4) Woodfree paper H mode
(5) Thick paper L mode
(6) Thick paper H mode
(7) Label L mode
(8) Label H mode
(9) OHP mode
(10) Envelope mode
(11) Postcard mode

Relation between the resolution, speed mode, print mode and paper mode is shown in the table below.

Paper mode		Resolution/Speed mode			
		600dpi		1200dpi	
	Print mode	Simplex	Duplex	Simplex	Duplex
Plain paper (1) to (4)	Standard	Full speed	Full speed	–	–
	Fine	–	–	Half speed	Half speed
	High Gloss	Half speed	Half speed	–	–
Special paper (5) to (11)	Standard	Half speed	–	–	–
	Fine	–	–	Half speed	–

4.10 Warm-up Time

When nominal voltage (100V, 115V, 220V) is applied, ready temperature (Fuser Stand-by) is reached within 30 seconds after command is given by the controller.

Reference: Measured at 72°F(22°C), 55% RH, nominal voltage.

4.11 FPOT (First Print Output Time)

FPOT time of the printer is shown in the table below.
The time required for the first sheet of paper to be delivered after the START command is given is calculated on the following conditions (rounded to one decimal place).

- IOT performance that the controller does not have IOT wait.
- Theoretical value with the ROS motor ON, Fuser Stand-by.
- A4 SEF paper
- When process control is acting, excluding *2 in the event of *1/Fuser Cool Down.
- Plain paper mode
- Paper sent from the 1st tray and MGI.

1: Process control means TC control, potential control, cleaning cycle, REGI control and that the engine stops paper feeding for a certain time during the continuous printing operation.

2: The print may not start for a certain time after receiving the start command due to prior job running conditions.

Speed mode	FPOT(sec)	
	In Simplex mode FPOT t_S(sec)	In Duplex mode FPOT t_d(sec)
Full speed	≤ 9.5	≤ 18.0
Half speed	≤ 19.0	≤ 34.0

4.12 Continuous Printing Speed

Assuming the time until the trailing end of the 11th sheet is discharged after the trail end of the 1st sheet is discharged as t seconds, number of printed sheets for a minute given by the equation [60/t ×10] is shown in the table below, excluding, however, the time for which the process control is working*1 and during the Fuse Cool Down* 2 are not contained.

NOTE

This function specifies the IOT performance when the controller did not have the × 2 feeders satisfy the following performance.

1:Process control means TC control, potential control, cleaning cycle, REGI control and that the engine stops paper feeding for a certain time during the continuous printing operation.

2:The print may not start for a certain time after receiving the start command due to prior job running conditions.

Refer to Chart 6 Operational Principal, for details of Process control.

Reference: Unit "PPM" stands for "prints per minute" indicating number of prints per minute.

Paper mode	Continuous printing speed					
	Standard mode (600dpi)		Fine mode (1200dpi)		High gross mode (600dpi)	
	Simplex (ppm)	Duplex (ipm)	Simplex (ppm)	Duplex (ipm)	Simplex (ppm)	Duplex (ipm)
Plain paper/Woodfree paper mode (A4/LET SEF)	16	10	8	5	8	5
Thick aper/Label mode (A4/LET SEF)	8	–	8	–	–	–
OHP mode	8	–	8	–	–	–
Envelop/Postcard mode	8	–	8	–	–	–

4.13 Printing Area

4.13.1 Usable paper size

Minimum and maximum paper size usable for this printer are as follows:

Minimum usable paper size:Width 88.9mm (3.5inch) × length 139.7mm (5.5 inch) (when using MSI)

Maximum usable paper size:Width 215.9mm (8.5 inch) × length 355.6mm (14 inch) (when using MSI).

4.13.2 Maximum printable area

Maximum area where image can be printed is as follows:

Width: 210.9mm (8.3 inch) × length: 351.6mm (13.8 inch)

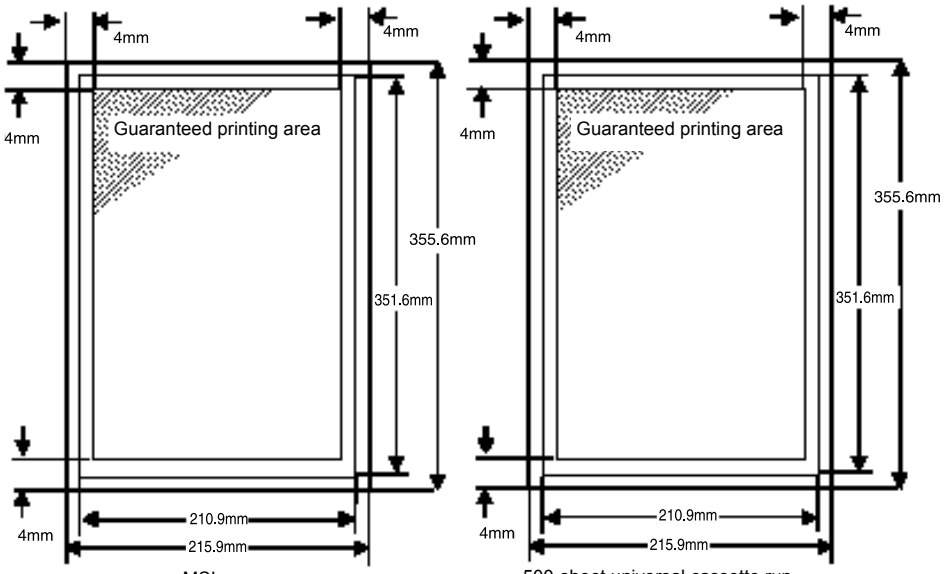
4.13.3 Guaranteed printing area

Area for which the image quality is guaranteed as follows:

Area except for 4mm (0.1575 inch) from edges of the paper.

Maximum area for which the image quantity is guaranteed as follows:

Width: 207.9mm (8.2 inch) × length: 347.6mm (13.7 inch)



4.14 Input Properties

4.14.1 Paper pick-up system

◆ Paper pick-up with paper tray
A paper feed system normally used by this printer.

◆ MSI paper pick-up
The MSI (Multi Sheet Inserter) is equipped as standard. Selection of MSI is designated from the controller.

◆ Duplex paper feeder unit
This unit is equipped as standard to enable the printing on duplex of paper. Selection of Duplex Feeder Unit is designated from the controller.

4.14.2 Paper pick-up capacity

◆ Paper pick-up with paper tray
500 sheets or below 56mm of standard paper

◆ MSI paper pick-up
100 sheets or below 10mm of standard paper

◆ Duplex paper feeder unit

4.15 Output Properties

4.15.1 Paper delivery system

Paper can be delivered by the following method.

◆ FACE DOWN delivery

4.15.2 Paper delivery capacity

◆ FACE DOWN delivery

250 sheets (Letter/A4 standard paper)

4.15.3 Delivery paper size/mass

◆ FACE DOWN delivery

All paper sizes applicable to this printer

4.16 Paper

4.16.1 Paper type

Paper which can be used with this printer is classified into standard paper, general paper and special paper.

◆ Standard paper

Using this type of paper is recommended. Reliability, operability and print image quality are the application range of the specifications.

Following paper is the standard paper.

* Xerox 4200 DP 20lb
* Xerox premier 80gsm

◆ General paper

General paper is plain paper except standard paper and special paper, and its reliability and running performance are within the specification, but the print image quality is out of the specification.

◆ Special paper

Special paper except for plain paper. Reliability and operability are the applicable range of specifications but the print image quality is out of the applicable range of specifications.

4.16.2 Paper mass

◆ Paper feed from paper tray

"60 to 105 gsm" or "16 - 28 lb"

◆ Paper feed from MSI

"60 to 216 gsm" or "16 - 80 lb"

4.16.3 Paper size

Paper size which can be set to each paper pick-up unit is shown in the table below.

Cassette	Paper size	
	JPN/Europe	U.S.
500 Sheet Paper Universal Tray	A4 -SEF B5 -SEF A5 -SEF EXECUTIVE -SEF LETTER -SEF LEGAL(13")-SEF LEGAL(14")-SEF	A4 -SEF B5 -SEF A5 -SEF EXECUTIVE -SEF LETTER -SEF LEGAL(13")-SEF LEGAL(14")-SEF
MSI Tray	A4 -SEF B5 -SEF A5 -SEF EXECUTIVE -SEF LETTER -SEF LEGAL(13")-SEF LEGAL(14")-SEF Postcard -SEF Envelope-SEF Free size	A4 -SEF B5 -SEF A5 -SEF EXECUTIVE -SEF LETTER -SEF LEGAL(13")-SEF LEGAL(14")-SEF Postcard -SEF Envelope-SEF Free size

5. Consumables

Consumables are usually replaced by customers. In the event of recovery of failure attributable to consumables or isolation of failure, you may replace them.

5.1 Items of Consumables

◆ Print head (PHD) cartridge (Imaging Unit)
Composed of photosensitive medium, development machine, intermediate transfer roll, etc.

◆ Transfer roll (BTR) cartridge
Composed of BTR, waste toner collection box, etc.

◆ Black toner cartridge
Cartridge to supply black toner to the development unit.

◆ Yellow toner cartridge
Cartridge to supply yellow toner to the development unit.

◆ Magenta toner cartridge
Cartridge to supply magenta toner to the development unit.

◆ Cyan toner cartridge
Cartridge to supply cyan toner to the development unit.

◆ Fuser unit
Composed of heat and pressure rollers, etc.

5.2 Consumable Life

◆ Print head (PHD) cartridge:equivalent to about 30,000 prints

◆ Transfer roll (BTR) cartridge:equivalent to about 25,000 prints

◆ Black toner cartridge:equivalent to about 9,000 prints

◆ Yellow toner cartridge:equivalent to about 6,000 prints

◆ Magenta toner cartridge:equivalent to about 6,000 prints
◆ Cyan toner cartridge:equivalent to about 6,000 prints
◆ Fuser unit:equivalent to about 100,000 prints

5.3 Parts Requiring Periodical Replacement

Following parts are replaced when a certain number of sheets are printed (life over) to prevent troubles.
◆ FUSE ASSY:Equivalent to about 100.000 prints
◆ RETARD ROLL:Equivalent to about 100,000 prints

6. Operating Environment

6.1 Installation Temperature / Humidity

Operated at: 5 to 32°C(41 to 90°F) / 15 to 85% RH

6.2 Installation Altitude

0 to 3,100m(10,170ft)

6.3 Installation Horizontality

Before and after the installation surface:within 5mm in 646mm
Right and left of installation surface:within 10mm in 560mm

6.4 Ambient Lighting

3000 Lux or less (without no direct sun beams)

7. Safety / Environment Conditions

7.1 Safety Standard

◆ 100V / 120V system
UL1950 3rd Edition
CSA C22.2 No.950-M95
◆ 220V / 240V system
IEC60950 2nd Edition

7.2 Laser Safety Standard

◆ 100V / 120V system
FDA21CFR Chapter 1, Subchapter J, Section 1010, 1040
◆ 220V / 240V system
IEC60825 Class 1 Laser Product

7.3 EMI

◆ 100V system

VCCI Class B

◆ 100V / 120V system

FCC Part 15, Subpart B, Class B (ANSI C63.4)

◆ 220V / 240V system

EN55022 (CISPR Publication 22), Class B

7.4 Noise

◆ READY mode:35.0dB(A) or less

◆ PRINTING mode (full-speed):54.0dB(A) or less

◆ PRINTING mode (half-speed):55.0dB(A) or less

8. Print image Quality

Note 1: Refer to Performance specifications for details.

8.1 Image Quality Guarantee Conditions

The image quality is specified and guaranteed under the following conditions.

8.1.1 Environmental conditions

Temperature: 10 to 32°C(50 to 90°F)

Humidity: 15 to 85%RH (85%RH is at 28°C. No condensation allowed)

8.1.2 Guaranteed paper

The print image quality specified here is guaranteed with standard paper fed from the paper tray.

Reference: Evaluation is made with A4 or Letter size paper shown below.

- ***FX P paper A4***
- ***Xerox 4200 DP Letter***
- ***Xerox Premier 80gsm A4***

8.1.3 Paper condition

The paper used is fresh paper immediately after unpacked, which has been left in the operating environment for 12 hours before unpacking.

8.1.4 Printer condition

The print image quality specified in this section is guaranteed with the printer in normal condition.

8.1.5 Image quality guaranteed area

The print image quality specified in this section is guaranteed in the guaranteed image quality area specified in this manual.

8.1.6 Criterion

The print image quality is guaranteed with the Spec. In rate = 95% (γ = 90%).

9. Option

9.1 Options to be Installed by Users

Users can install the following 2 types of units.

Åü OPTION FEEDER

Two layers of UNIVERSAL TRAY can be added under the printer. This is a paper -pickup unit to pick up paper from each tray.

Åü Earthquake kit (EARTHQUAKE KIT)

Kit of fixing parts fix the printer as anti-earthquake provision.

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