MB760 / MB770

MPS5502

Maintenance Manual

(1 of 2) Printer Unit

070113A

Copyright Information

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PREFACE

This manual provides an overview of method for maintaining the MB760/MB770. This manual is intended for maintenance staff. For more information about how to operate the MB760/MB770, please refer to User ‘s manual.

Note!
- Manual may be revised and updated at any time without notice.
- Unexpected mistakes may exist in the manual.
  OKI will not assume any responsibility whatsoever for damage to the equipmentrepaired/adjusted/changed by the user etc with this manual.
- The par ts used for this printer may be damaged when handlinginapropriately. We strongly recommend maintaining this machine by our registration maintenance staff.
- Please operate the machine after removing static electricity.

⚠ Warning	
	Risk of explosion if battery is replaced by an incorrect type. Battery of the printer need not to be replaced. Do not touch the battery. Replace the whole board to replace the SU board (MHE). In the case of replacing batteries at board repairs, replace with the specified type ones. Installation of another type batteries may result in explosion. Caution for used batteries are as follows; do not recharge, force open, heat or dispose of in fire.

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1. Configuration

1.1 System configuration

Fig. 1-1 represents the system configuration of the pritnter.

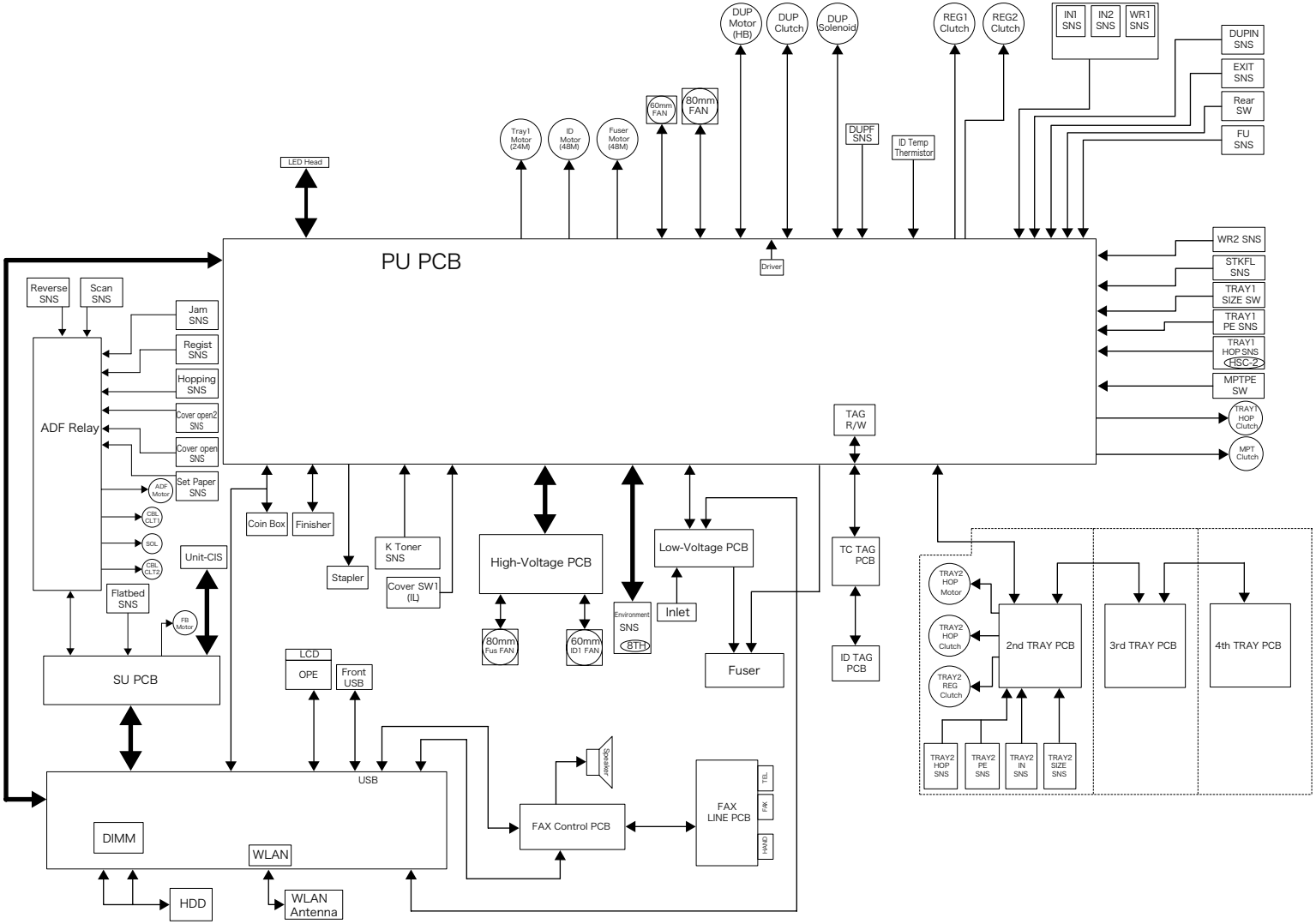


Fig. 1-1

1.2 The configuration of printer

The parts in the MB760 / MB770 are shown as below.

- Electrophotography process mechanism
- Paper feed path
- Contorol parts (CU part/ PU part)
- Operate panel
- Power parts (High-voltage part / low-voltage part)

The Configuration of the MFP is shown in Fig 1-2.

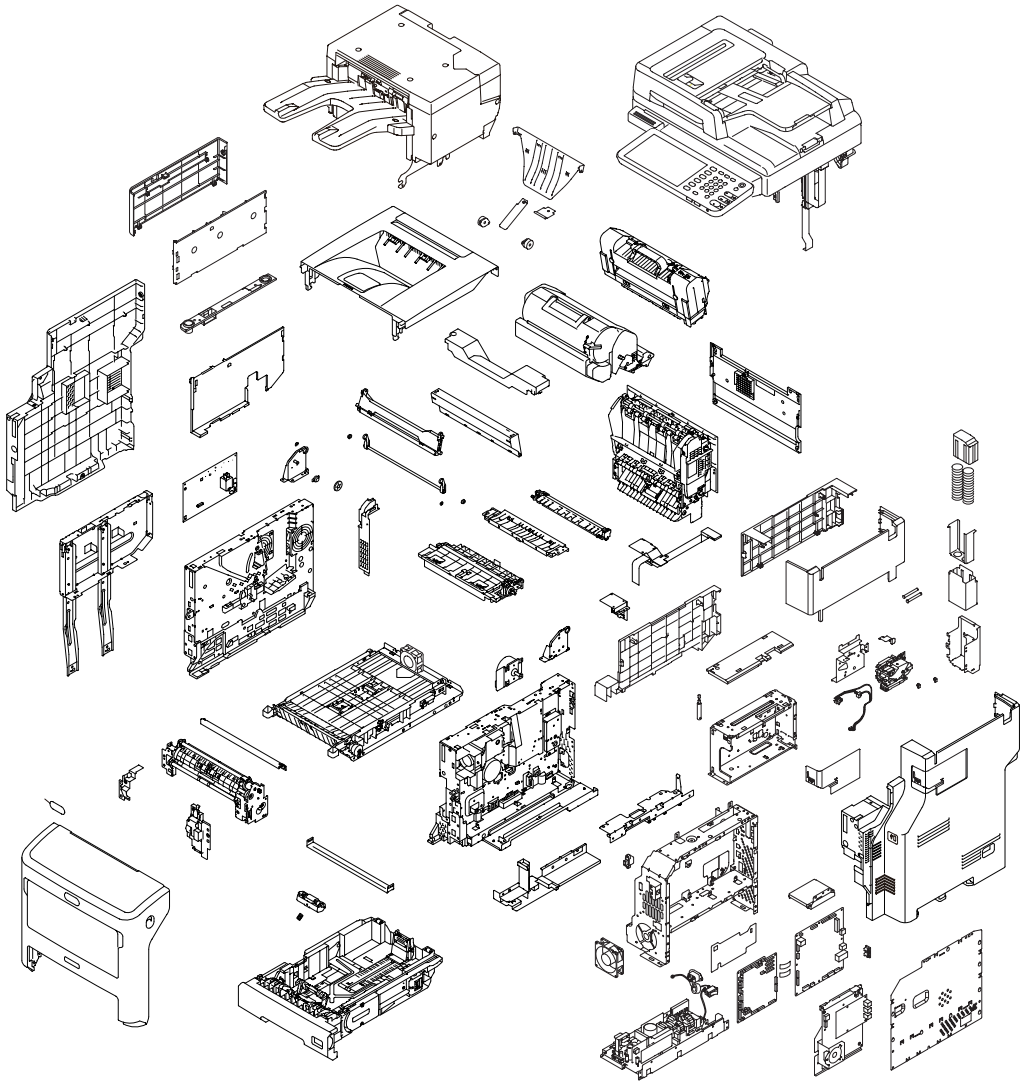


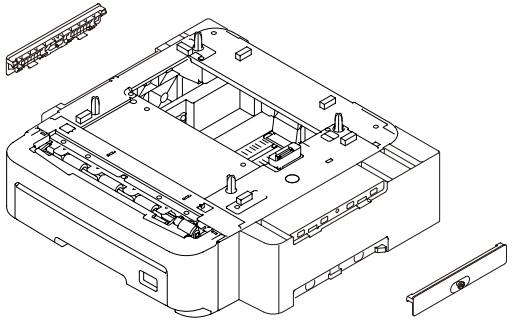
Fig. 1-2

1.3 Options Parts

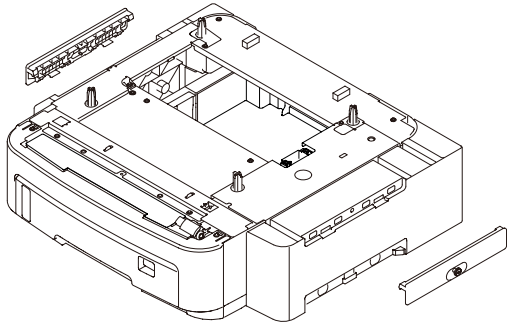
The optical parts for this printer are shown as below.

(1) Optional tray (second tray / third tray /fourth tray*)

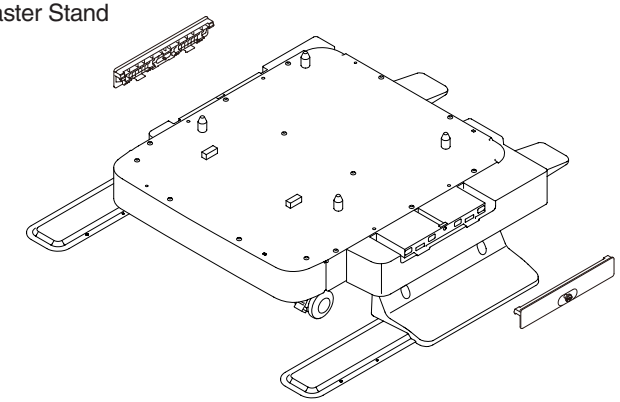
*fourth tray :not support for Finisher model



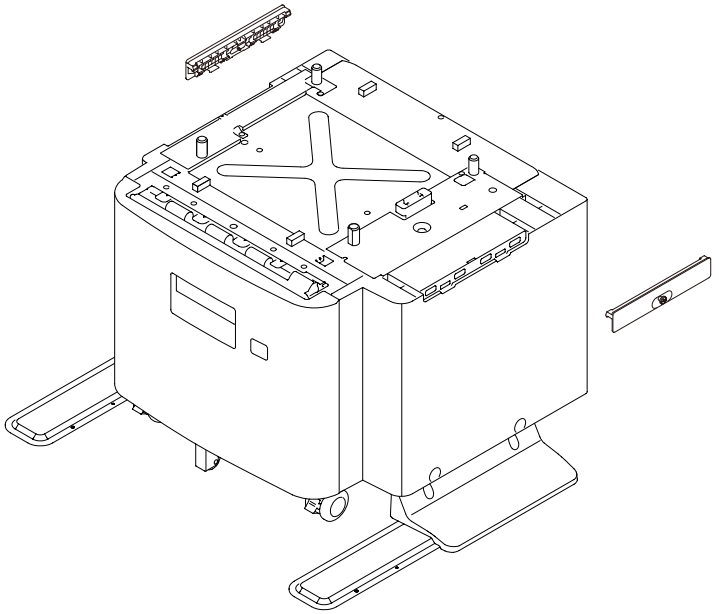
(2) Spacer



(3) Caster Stand



(4) LCF



1.4 Specifications

Fundamental specifications

Category	Item	MB760	MB770
Outside dimensions	Width	522 mm	
	Depth	564 mm	
	Height	675 mm (Finisher model:811 mm)	
Weight	Short-Model	Approx 43Kg	
	W Finisher-Model	Approx 54Kg	
	W/O Finisher-Model	Approx 47Kg	
CPU CU	APM86190		
RAM CU	Resident	2 GB	
	Option	N/A	
ROM CU	Program	8 MB	
Control Panel	LCD	9-inch WVGA color touch panel Size:198.0 mm(W) x 111.7 mm(H) Resolution:800dot x480dot	
	Hard Keys	Ten key, start key, power key, POWER SAVE and others	
Operation sound	Operation	TBD	
	Standby	37 dB(A) (Sound pressure level)	
	Power save mode	Inaudible	
Power consumption	Power input	110-127V AC (Range 99-140V AC) 220-240V AC (Range 198-264V AC)	
	Sleep mode	1.5 W (no FAX model) 2.0 W (FAX model)	
	Power save mode	40 W	
	Idle	120 W	
	Typical operation	870 W	
	Peak	1500 W	

Category	Item	MB760	MB770
Operating environment (temperature)	During operation	10 °C to 32 °C,17 °C to 27 °C (Print quality assurance temperature)	
	During non-operation	0°C - 43°C, Power OFF	
	During storage (Maximum one year)	-10°C to 43°C, with drum and toners	
	During transportation (Maximum one month)	-29°C - 50°C, with drum, without toners	
Operating environment (humidity)	During operation	20% - 80%, 50% - 70% (Print quality assurance humidity), Maximum wet-bulb temperature 25°C	
	During non-operation	10% - 90%, Maximum wet-bulb temperature 26.8°C, power OFF	
	During storage	10% - 90%, Maximum wet-bulb temperature 35°C	
	During transportation	10% - 90%, Maximum wet-bulb temperature 40°C	
Emulation	Standard	PCL5e/PCL5c/PCL6/PS3 emulation/ PDF emulation/XPS	
	Emulation switch	Automatic	
Others	USB-IF logo	Yes	
	Windows logo	Yes	
	Operations on UPS	Operations on UPS (uninterruptible power supply) are not guaranteed. Do not use UPS.	
CPU SU	Core	ARM9	
RAM SU	Resident	256 MB	
	Option	None	
ROM SU	Program	4 MB	

Printer section specifications

Category	Item		MB760	MB770
Print width	Print width		A4 Letter	
Engine speed (A4/ LT)	Monochrome		47 / 49 ppm	52 / 55 ppm
	Duplex		40 / 42 ppm	42 / 44 ppm
First print time (A4)			5sec *Printer is not in low temperature (<16℃)	
Warm-up time	From Cold Start (power-off condition)		Less than 35 sec	
	From Power save		Less than 19 sec	
Resolution	LED head		1200 x 1200 dpi	
	Maximum input resolution		1200 x 1200 dpi	
	Output resolution		True 1200x1200dpi x 1bit	
Life	Maximum Monthly Print Volume when Continous Print		Maximum 280,000 pages/month	
	MTBF		6,000 H	
	MPBF		300,000 pages	
	MTTR		Less than 20 minutes	
	Print Cartridge life (ISO/ IEC19752)	Starter Print Cartridge	10,000 pages (MB760 / MB770)	
		Consumable	18,000 pages / 25,000 pages	18,000 pages / 25,000 pages / 36,000 pages

Category	Item		MPS5502 / ES7170
Life	Toner life (ISO / IEC19752)	Starter toner (supplied)	36,000 pages
		Consumable	36,000 pages
	Toner life (5% duty)	Starter toner (supplied)	Approx. 30,000 pages
		Consumable	30,000 pages
		New drum Supplied toner, first toner	Approx. 30,000 pages

Category	Item		e-STUDIO477s / e-STUDIO527s
Life	Toner life (ISO / IEC19752)	Starter toner (supplied)	10,000 pages
		Consumable	36,000 pages

Category	Item		MB760	MB770
Life	Image drum life	Simplex	100,000 pages (when printed continuously) 72,000 pages (3 pages/job) 40,000 pages (1 page/job)	
		Duplex	80,000 pages (when printed continuously) 58,000 pages (3 pages/job) 32,000 pages (1 page/job)	
	Transfer belt life		200,000 pages	
	Fuser life		200,000 pages	
Paper handling	1st tray		530 sheets of 80 g/m^2	
	Multi purpose tray		100 sheets of 80 g/m^2	
	2nd/3rd/4th Tray Option		530 sheets of 80 g/m^2	
	Paper output capability		100 sheets (80 g/m^2) to be the face-up stacker 500 sheets (80 g/m^2) to the face down stacker	
Paper size	1st tray		Legal 13/13.5/14, letter, executive, A4, A5, B5, 16K (195 x 270 mm)	
	Multi purpose tray		Legal 13/13.5/14, letter, executive, statement, A4, A5, B5, C5, C6, DL, Monarch, index card (3 x 5 inch), custom size, 16K (195 x 270 mm), nagagata3, nagagata4,yougata4,hagaki,ofukuhagaki	
	2nd/3rd/4th Tray Option		Legal 13/13.5/14, letter, executive, statement, A4, A5,B5, custom size, 16K (195 x 270 mm)	
	Duplex		Legal 13/13.5/14, letter, executive, statement, A4, A5, B5, 16K (195 x 270 mm), custom size (148 - 216 mm (W) x 210 - 356 mm (L))	
	Custom size		1st tray, 2nd/3rd/4th tray (option): 148 - 216 mm (W), 210 - 356 mm (L) (5.8 - 8.5 inches (W), 8.3 - 14.0 inches (L)) MP Tray: 64 - 216 mm (W), 127 - 1321 mm (L)	
Minimum paper size	1st/2nd/3rd/4th tray		148 × 210 mm /A5	
	MPT		3 x 5 inch /index card	
	Duplex		148 × 210 mm /A5	

Category	Item	MB760	MB770
Paper thickness	1st/2nd/3rd/4th tray	64 g/m² to 220 g/m²	
	MPT	64 g/m² to 250 g/m²	
	Duplex	64 g/m² to 220 g/m²	
Status switch/ sensor	Paper Empty	Yes	
	Paper Low	None	
	Toner Low	Yes	
	Cover Open	Yes	
	Fuser Temperature	Yes	
	Paper size Detect (Tray)	Yes (A4/B5/Exective/Letter/A4/Legal)	
	Paper size Detect (MPT)	No	
	Stacker full	Yes (Face-down)	
	Paper Thickness Detect	No	
	Continuouse Roll Paper Seg detection	No	
Fonts	PCL Roman (Scalable)	80 fonts	
	PCL Heisei (Scalable)	No	
	PS Roman (Scalable)	138 fonts	
	PS Heisei (Scalable)	No	

Scanner section specifications

Item		
Scanner type		Legal size flatbed with RADF
Image sensor		Color CIS
Light source		LED
Optical resolution		600dpi
Input level (A/D conversion)		48 bits
Output level		24 bits
Document size	Flat bed	Max:8.5"x14" (215.9x355.6mm) Min:No limitation
	ADF	Max:8.5"x14" (215.9x355.6mm) Min:4.13"x5.8" (105x148mm)
Document thickness	Flat bed	20mm
	RADF	16-28lb (60~105g/m^2)
Maximum scanning range	Flat bed	Maximum 215.9x355.6 mm
	RADF	4.13 x 5.8~8.5 x 14 in (105 x 148~215.9x355.6mm)
Scanning speed (A4/Letter,simplex)		Color: up to 40ipm (Less than 300dpi) up to 25ipm (400 / 600dpi) Mono: up to 55ipm
Warm-up time		Less than 1 sec.
Life	MTBF	6000H (Referance only)
	MTTR	Less than 20 minutes
Attachment file format		Color : JPEG, TIFF(multi/single page), PDF(multi/single page), Slim PDF, Secure PDF, XPS(multi/single page) ACS : TIFF(multi/single page), PDF(multi/single page), XPS(multi/single page) Grayscale : JPEG, TIFF(multi/single page), PDF(multi/single page), Slim PDF, Secure PDF, XPS(multi/single page) Mono : TIFF(multi/single page), PDF(multi/single page), XPS(multi/single page)
Supported driver		Scanner driver (Network), Fax Modem driver (Windows only)

Network specifications

Item	
Connection	10Base-T/100Base-TX/1000Base-T
Communication protocol	TCP/IP V4, TCP/IP V6, NetBIOS over TCP, Ether Talk, NetWare, LPR, Port9100, IPP, FTP, WSD-print, SMTP, POP3, HTTP, SNMPv1, SNMPv3, DHCP, DNS, DDNS, WINS, SLP, Bonjour, SNTP
Supported browser	Microsoft Internet Explorer Ver. 6.0 or higher Safari 4.0 or higher Firefox 3.5 or higher

Copy function

Categories		Specs
Copy Resolution		Scan: 600 x 600dpi Print: 600x600dpi
Document size	Flat bed /RADF	A4, A5, A6, B5, Executive, Letter, Legal13, Legal13.5, Legal14, Folio, 8.5" SQ
Numeber of copies		1 to 999 pages
Collate(Sort)		Monochrome: 34(A4), 33(Letter) pages/minute (300 dpi x 300 dpi) 9 to 20 pages/minutes (600 dpi x 600 dpi)
Zoom(Auto is supported)	Custom	13sec
	Preset	13 sec
Edge Erase		Text, Text&Photo, Photo, Extra Fine
Margin shift		Maximum 999 copies
N-up	Document pages	2-up,4-up
ID Card Copy		Yes (by template)
Repeat Copy		Yes (max 8 times)
Poster Copy		No
Document Direction		Portrate,Landscape
Duplex Copy		Yes (1 to 2, 2 to 1, 2 to 2)
Binding Position		Long edge, Short edge
Mixed Size		Yes(Letter/Legal13/Legal14,A4/Folio)
Job build scanning		Yes
Banner Copy		No
Color/Mono		None
Copy image quality adjustment		Background removal, Sharpness

Fax specifications

Category	Item	MB760	MB770
General Function	Compatibility	ITU-T G3	
	Applicable Network	PSTN	
	Country Code	Yes (26 Countries)	
	Transmission Ability	Letter / Legal	
	Reception Ability	Letter /unlimited	
	Fax Resolution	8 x 3.85 dots/mm, 8x 7.7 dots/mm, 8 x 15.4dots/mm, 16 x 15.4 dots/mm, 300 x 300 dots/inch	
	Contrast Control	Auto or manual (11 Level)	
	Send Fax from RADF (duplex document)	Yes	
	Mixed Reading For ADF/FBS	No	
	Autoreduction printing of the FAX	No	
	Fixed reduction printing of the FAX	Yes (90%)	
	Page division print	Yes	
	Maximum Modem Speed	33.6kbps	
	Dual Access	Yes	
	ECM	Yes	
	Coding Scheme	MH, MR, MMR, JBIG	
	Transmission time	Approx. 3 seconds	
	Memory Capacity	1GB	
	Image Battery Back Up	Yes (HDD)	

Category	Item	MB760	MB770
Communication Function	Realtime Tx	Yes	
	Instant Dial Tx (Quick Memory TX)	No	
	Realtime Page Print Reception	No	
	Memory Tx/Rx	Yes	
	Relay Broadcast initiate (OKI Mode)	No	
	Relay Broadcast (OKI Mode)	No	
	Confidential Tx/Rx (OKI Mode)	No	
	Bulletin Poll (OKI Mode)	No	
	F Code Bulletin Poll	Yes	
	F Code Confidential	Yes	
	F Code Routing	Yes	
	Delayed Transmission	Yes	
	Broadcast	Yes (400 stations)	
	Delayed Broadcast	Yes	
	Page Retransmission	No	
	Rotation TX	No	
	Rotation RX	No	
	Fax Forwarding (FAX to FAX)	Yes	
	Fax Forwarding To Email	Yes (by on-ramp gateway function)	
	PC-FAX	Yes (Tx only)	

Category	Item	MB760	MB770
Security Function	Junk Fax Protection	No	
	Memory Only Reception	Yes (High security mode)	
	ID Check TX	No	
	Double input for dialing number	Yes (can be switched by service person)	
	Access Control	Yes	
Telephone & Convenience Function	External handset	No	
	Dialing by Ten key	Yes	
	One touch Dial	No	
	Speed Dial	Yes (3000 Locations)	
	Group Dial	Yes (200 Groups)	
	Automatic Alternate Selecting Call	Yes (90%)	
	Auto Redial	Yes	
	Manual Redial	No	
	On-Hook Dial by HOOK key	Yes (with monitor key)	
	Chain Dial	Yes	
	Coding Scheme	No	
	Auto Rx	Approx. 3 seconds	
	Manual Rx	Yes	
	FAX/TEL Automatic Switching	Yes	
	ANS/FAX Automatic Switching	No	
	Remote RX	Yes	
	Distinctive Ring Detect	No	
	Unique parameter set to Speed Dial	No	
	Sender ID	Yes	
	Personal ID	No	
	Session No.	Yes	
	TSI Time Date print	Yes	
	Acoustic Monitor	Yes	

Category	Item	MB760	MB770
Fax Local Print Function	Activity Report	Yes (Transmission /Reception Journal)	
	Message Confirmation Report (Single Location)	Yes (Transmission Report)	
	Message Confirmation Report with top of document (Single Location)	Yes (Transmission Report)	
	Message Confirmation Report(Broadcast)	Yes	
	Broadcast Entry Report	No	
	Speed Dial List	Yes (Phone Book List)	
	Fax Configuration	Yes	
	Protocol Dump Print	Yes	
	Power Down Report	No	

Internet Fax

Category	Item	MB760	MB770
General Function	Compatibility	T.37 (Simple Mode) T.37 (Direct SMTP Mode)* *by Service Code Setting	
	Transmission Ability	Letter / Legal	
	Reception Ability	Letter /unlimited	
	Fax Resolution	8 x 3.85 dots/mm, 8x 7.7 dots/mm 16 x 15.4 dots/mm (Direct SMTP mode only)	
	Contrast Control	Auto or manual (11 Level)	
	Send Fax from RADF (duplex document)	Yes	
	Mixed Reading For ADF/FBS	Yes	
	Auto reduction printing of the FAX	No	
	Fixed reduction printing of the FAX	No	
	Page division print	No	
	Dual Access	Yes	
	Coding Scheme	MH	
	Attachment file format	Tiff-S Only Tiff-F (only A3, B4 & A4)* *Direct SMTP Mode Only"	
	Memory Capacity	1GB (HDD model)	
	Image Battery Back Up	Yes (HDD)	
Communication Function	Coding Scheme	Yes	
	Auto Rx	No	
	Manual Rx	Yes	
	FAX/TEL Automatic Switching	No	
	ANS/FAX Automatic Switching	No	
	Remote RX	No	
	Fax Forwarding	Yes (send to network folder/E-mail/Internet-Fax/Analog-Fax)	
	PC-FAX	Yes	

Category	Item	MB760	MB770
Security Function	Junk Fax Protection	No	
	Memory Only Reception	No	
	ID Check TX	No	
	Double input for dialing number	No	
	Access Control	Yes	
Fax Local Print Function	Dialing by keyboard	Yes	
	One touch Dial	No	
	Speed Dial	Yes	
	Group Dial	No	
	Sender ID	No	
	Personal ID	No	
	TSI Time Date print	No	
Fax Local Print Function	Activity Report	Yes	
	Message Confirmation Report (Single Location)	Yes	
	Message Confirmation Report with top of document (Single Location)	Yes	
	Error Report	Yes	
	Message Confirmation Report (Broadcast)	No	
	Broadcast Entry Report	No	
	Speed Dial List	Yes	
	Power Down Report	No	

1.5 Interface specifications

1.5.1 Specification of USB interface

1.5.1.1 General of USB interface

(1) Spec.
USB(Hi-speed USB is supported)

(2) Transmission mode
Full speed (Maximum 12 Mbps ± 0.25%)
High speed (Maximum 480 Mbps ± 0.05%)

(3) Power control
Self power device

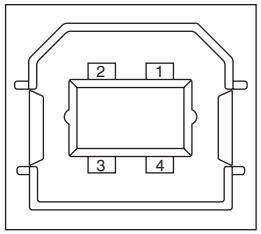
1.5.1.2 Connector and cable of USB interface

(1) Connector
• Printer side: B Receptacle (female)

Up-stream port

UBB-4R-D14C-4D(LF)(SN)(JST Mfg. Co.,Ltd) or equivalent

Connector pins array



• Cable side: B plug(male)

(2) Cable
The length of the cable: the cable of less than 5m with USB 2.0 spec.

(Less than 2m is recommended)

(Please use the shielded wire for the cable.)

1.5.1.3 USB Interface signal

	Signal name	Function
1	Vbus	Power (+5V)
2	D-	For data transmission
3	D+	For data transmission
4	GND	Signal ground
Shell	Shield	

1.5.2 Specifications of network interface

1.5.2.1 General of network interface

Spec.

Network Protocol

TCP/IP sepc.: Network layer

ARP, IP, ICMP, IPv6, IPSec

Transfer layer

TCP, UDP

Application layer

LPR, Port9100, FTP, HTTP, HTTPS, IPP, SNMPv1/v3, TELENET,DHCP/BOOTP, DNS, DDNS, WINS, UPmP, Bonjour, SNTP,SMTP, POP, Windows Rally (WSD Print, LLTD).

NBT/NetBEUI: SMB, NetBIOS, NetBIOS over TCP

Netware: Remote printer mode(Maximum 8 print sever)

Print sever mode (Maximum 8 files sever: 32 queue)

For encrypted password (when it is print sever mode)

NetWare6J/5J/4.1J (NDS, bindery)

SNMP

EtherTalk: ELAP, AARP, DDP, AEP, NBP, ZIP, RTMP, ATP, PAP

IEEE802.1X: EAP-TLS, PEAP

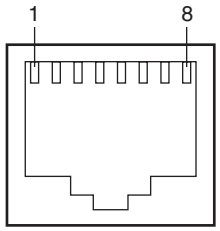
1.5.2.2 Connector and cable of network interface

(1) Connector

1000BASE-T/100BASE-TX/10BASE-T

(Auto switch, cannot be used simultaneously)

Connector pins array



(2) Cable

Non-shield twisted-pair cable with RJ-45 connector

(Category 5e is recommended)

1.5.2.3 Signal of network interface

(1) Connector

Pin No.	Signal name	Direction	Function
1	TXD+	FROM PRINTER	Send data (+)
2	TXD-	FROM PRINTER	Send data (-)
3	RXD+	TO PRINTER	Receive data (+)
4	–	–	Not use
5	–	–	Not use
6	RXD-	TO PRINTER	Receive data (-)
7	–	–	Not use
8	–	–	Not used

(2) 1000Base-T

Pin No.	Signal name	Direction	Function
1	TRD+(0)	bi-direction	Data0 (+) transmission and reception
2	TRD-(0)	↑	Data0 (-) transmission and reception
3	TRD+(1)	↑	Data1 (+) transmission and reception
4	TRD+(2)	↑	Data2 (+) transmission and reception
5	TRD-(2)	↑	Data2 (-) transmission and reception
6	TRD-(1)	↑	Data1 (-) transmission and reception
7	TRD+(3)	↑	Data3 (+) transmission and reception
8	TRD-(3)	↑	Data3 (-) transmission and reception

1.5.3 Telephone Line interface Specification

1.5.3.1 Outline of telephone Line interface

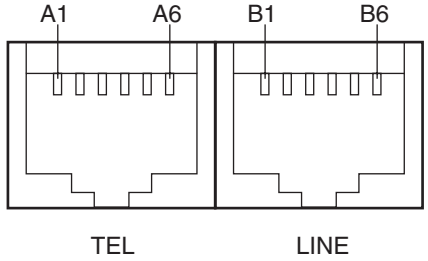
The machine will reliably communicate with distant station over voice-level telephone line

1.5.3.2 Telephone Line interface Connector and cable

Connector Type : RJ-11

Cable Type : TEL Cable (With RJ-11 plug)

Connector contact arrengement



1.5.3.3 Telephone Line interface signal

	Contact No.	Functions
TEL	A1	Unspecified
	A2	Unspecified
	A3	TCP
	A4	TCP
	A5	Unspecified
	A6	Unspecified
LINE	B1	Unspecified
	B2	Unspecified
	B3	TCP
	B4	TCP
	B5	Unspecified
	B6	Unspecified

TCP:Teminal Connection Point

1.5.4 USB Host interface

1.5.4.1 Outline of USB Host interface

(1) Basic Specification
USB

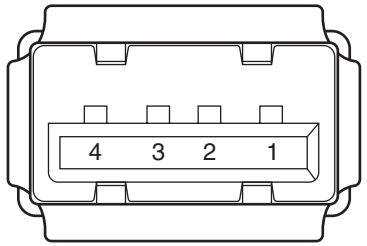
(2) Transmission ModeHi Speed (480Mbps±0.05% max.)

(3) Supply Power
Max. 500mA

(4) Connection devices
USB memory

1.5.4.2 USB Host interface Connector

USB A plug connector



Connector pin arrangement

1.5.4.3 USB Host interface signal

	Signal name	Function
1	Vbus	Power Supply (+5V)(red)
2	D-	Data transmission (white)
3	D+	Data transmission (green)
4	GND	Single ground (black)
Shell	Shield	

1.5.5 Specification of ACC interface

1) Connector

Printer side: USB A receptacle (female)

Downstream port

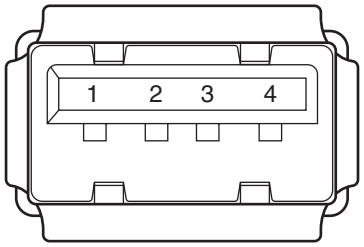
UBA-4R-D14C2-4D(LF)(SN) (JST Mfg. Co.,Ltd) or equivalent

Cable side: USB A plug (male)

2) Interface signals

	Signal name	Function
1	Vbus	Power Supply (+5V)
2	D-	Data transmission
3	D+	Data transmission
4	GND	Single ground Shell
Shell	Shield	Shield

3) Connector pin arrengement



4) Connecting device

Card reader (Option)

2. Set up

2.1 Notes and precautions

⚠ Warning

- Do not set it in any high-temperature locations or near any heat sources.
- Do not set it in a place where the chemical reaction may occur (laboratory etc.).
- Do not set it near any liquid that may ignite such as alcohol and thinner.
- Do not keep it out of reach of children.
- Do not place it on an unstable or uneven surface.
  (unstable table and slanting place, etc.).
- Do not put it in direct sunshine. And do not put it in a moist or dusty place.
- Do not set it in wet or corrosive environment.
- Do not set it in a place where may cause vibration.
- If the MFP is dropped down or the cover is damaged, please pull out the power plug
- from the outlet and contact the customer center.
- This may cause an electric shock, fire, injury.
- Please read this manual carefully before connecting the power supply cable, printer cable, ground cable.
  This may cause fire.
- Do not insert any foreign objects into the vent hole.
- This may cause an electric shock, fire, injury.
- Do not put a vessel(s) filled with water on the MFP
  This may cause an electric shock, fire.
- Do not touch the fuser unit when you open the cover of the MFP.
  It is hot and could cause burns.
- Do not throw the toner cartridge, the image drum cartridge into the fire.
  It may cause burns due to dust explosion.
- Do not use inflammable sprays near the MFP.
  It may cause fire because some parts in the MFP may become very hot.
- If the cover becomes abnormally hot, smoke rises, it smells strange or it sounds abnormal, please pull out the power plug from the outlet and contact the customer center.
  It may cause fire.

⚠ Warning

- If the liquid such as water enters the MFP, please pull out the power plug from the outlet and contact the customer center.It may cause fire.
- If you drop the foreign objects such as clip in the MFP, please pull out the power plug from the outlet and take the foreign objects out.
  This may cause an electric shock, fire, injury.
- Do not disassemble the MFP unless following the correct procedure written in the manual.This may cause an electric shock, fire, injury.

⚠ Caution

- Do not set it in a place where the vent hole of the MFP is blocked.
- Do not set it directly on heavy wool or shag carpet.
- Do not place it in locations of poor ventilation such as enclosed areas.
- Give particular attention to adequate ventilation care when using it continuously in a narrow room for a long time.
- Do not place it close to strong magnetic fields and noise source.
- Do not place it next to the monitor and television.
- Hold tightly the both sides of the MFP when you move the MFP.
- Because the weight of the MFP is approximately 60kg (in a state of packing), it needs more than two adults to lift it up.
- Do not come close to the paper exit part while printing.
- This may cause injury.

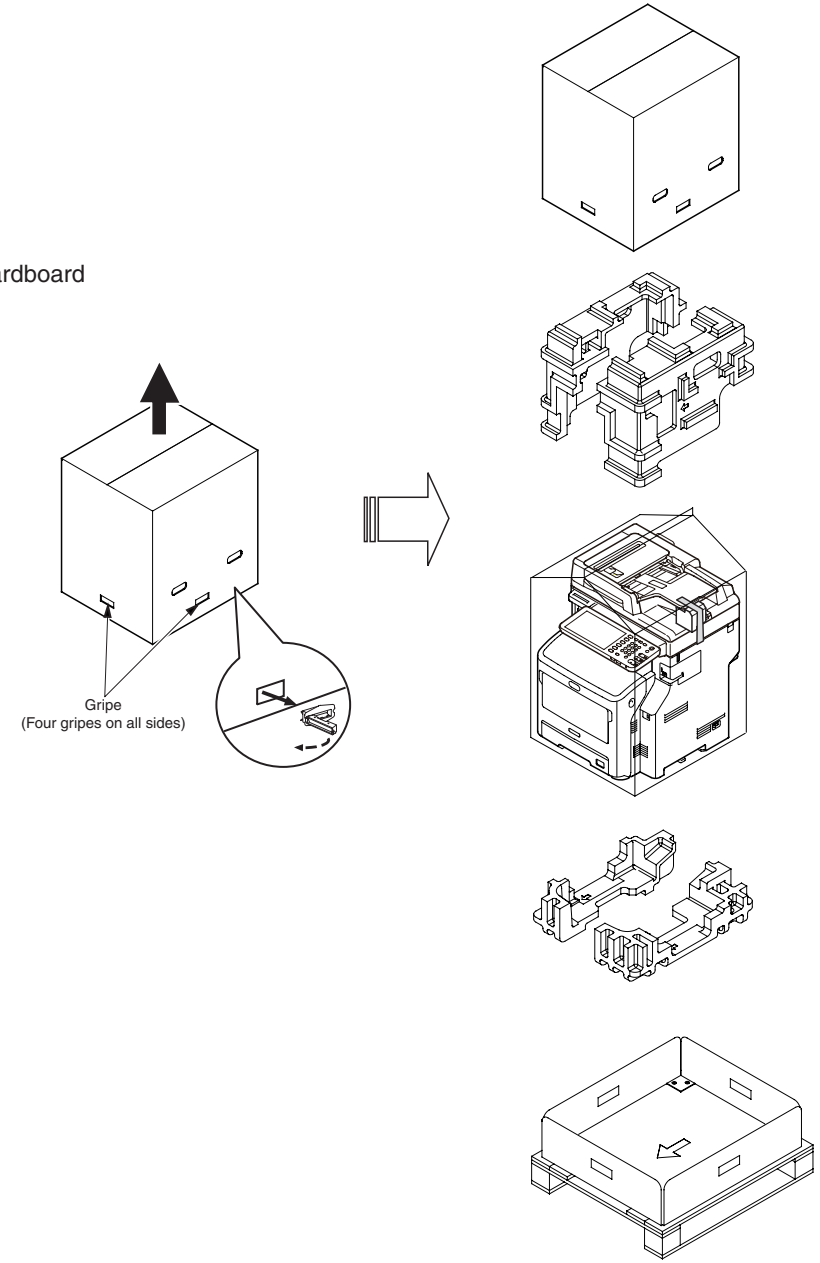
Please explain the safety precautions about installation and handling with showing the all precautions in user's manual to customer. Especially, the details about power supply cable and the ground cable must be explained completely.

2.2 Unpack method

⚠ Warning	Personal injuries may occur.	⚠

Because the weight of the MFP is approximately 55kg:Short model (68kg:Finisher model, 60kg:w/o Finisher model)(in a state of packing), it needs more than three adults to lift it up.

- Take out the gripe on each side as shown in the following figure, and lift the cardboard box up.



2.3 Setting method

- Set the MFP under these conditions.

  Surrounding environment: 10~32 ℃

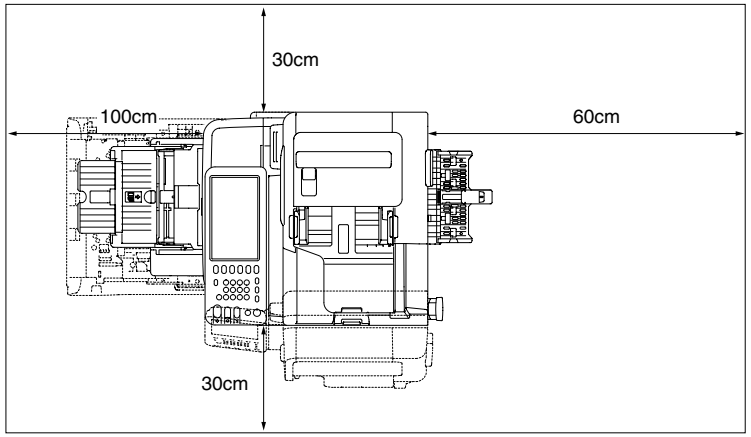
  Surrounding humidity: 20~80%RH (Relative humidity)

  Highest wet bulb temperature: 25 ℃
- Protect the MFP from dew formation.
- Use the humidifier or the static electricity prevention mats etc. when setting the MFP in the environment where the humidity is 30% or less.

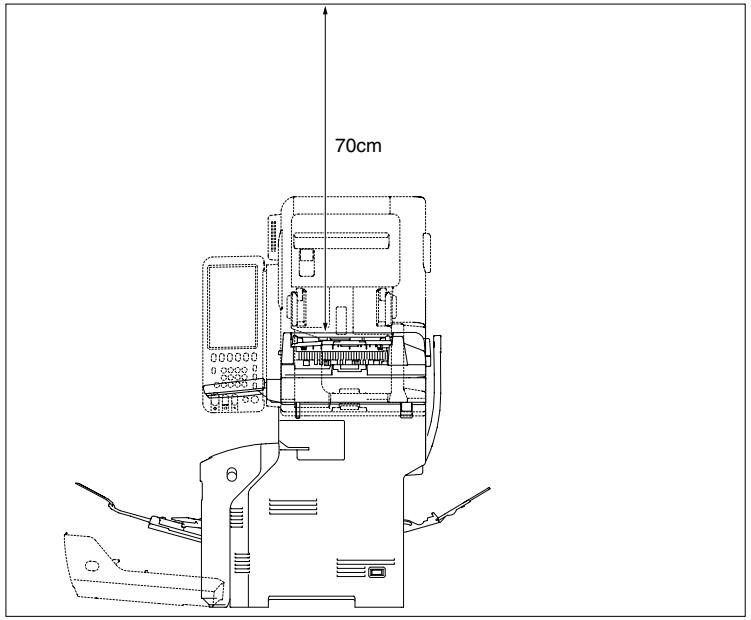
Set space

- The flat desk should be wide enough to put the MFP on.
- Ensure that there is enough room around the MFP for proper ventilation.

Plan view



Side view



2.4 Assembling method

2.4.1 Cable connect

Power condition

- Keep the following items.
  AC voltage : 100V ±10% /110~127V ± 10%/ 220~240V ± 10%
  Frequency of the power supply : 50Hz or 60Hz ± 2%
- Use the voltage adjusting transformer etc. when the power supply is unstable.
- The maximum power consumption of this MFP is 1,500W. Confirm the power supply can provide enough power.
- The operation with UPS (uninterruptible power supplies) is not guaranteed. Explain to the customers that do not use UPS (uninterruptible power supplies).

⚠ Warning | It may cause an electric shock, fire.

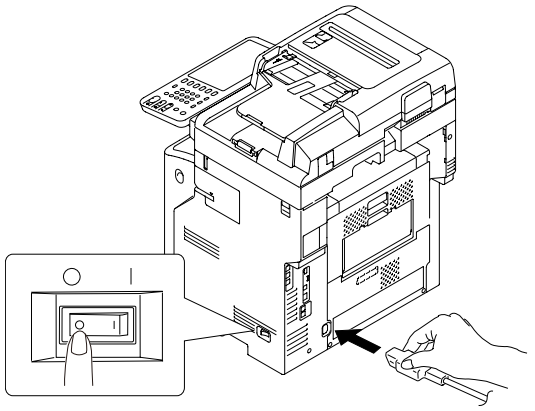
- Installation and removal of the power supply cord and the ground cable must be performed after pressing down the power switch to OFF.
- Please connect the ground cable with a specified ground terminal. Please contact the dealer if you cannot get it.
- Be careful not to connect it with the lightning rod, the water pipe, the gas pipe, and the earth of the telephone wire.
- Connection of the ground terminal must be performed before inserting the power plug into the power outlet. And, removal of the ground terminal must be performed after pulling the power plug out of the power outlet.
- Please hold the power plug to disconnect or plug in the power supply cord.
- Please insert the power plug firmly into the outlet.
- Do not pull out or plug in the power plug with wet hands.
- Do not locate the MFP in a place where the cable may be abused by persons walking on, and do not place the heavy objects on the power cable.
- Do not use the power supply cord that is bundled or connect the power supply with an extension cord.
- Do not use a damaged power supply cord.
- Do not use a multiple outlet extension cord.
- Please connect this MFP into an outlet different from that to which other electric products is connected. Especially, the operation of the MFP might be affected by the electrical noise when the MFP is connected simultaneously with the air-conditioner, the copier and shredder etc. Please use the noise filter or the noise cut-off transformer sold at the market if you have to connect the MFP into a same outlet.
- Please use the attached power cord and insert it into the outlet directly. Do not use an unspecified power cord.
- Do not use an extension cable. Please use a cable that is more than 15A current rating if you have to use an extension cable.
- If the extension cord is used, the MFP might operate abnormally by the decrease of AC voltage.
- Do not unplug the power cord or switch off the power during printing.
- Please unplug the power cord if you do not use the MFP for a long time (long vacation or travel etc).
- Do not use the attached power cord of this MFP to the other electric products.

Explain completely the connection of the power supply cable and the ground cable with showing the user's manual to customer.

Connect the power cable.

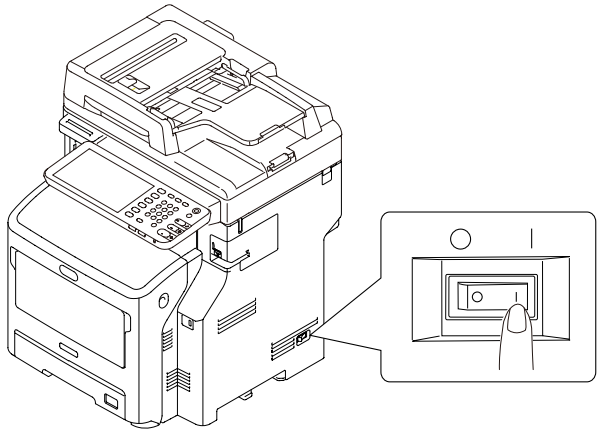
Note! Confirm that the power switch is turned to OFF " ○ ".

(1) Insert the power cable into the MFP.



(2) Insert the power plug into the outlet.

Press down the power switch to ON(|).



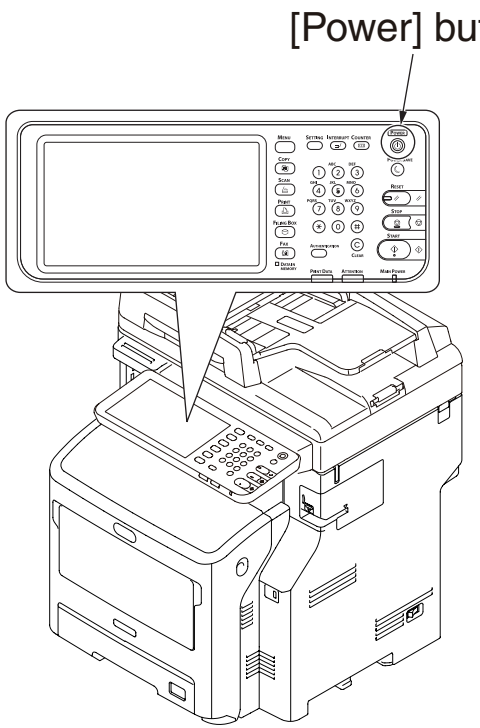
If the MFP is completely started up, the message "Ready To Print" would be displayed on the control panel shown as follows.

Note! When the MFP is getting cold, it may lead to error if the power is turned on. (Error number ○○ , ○○ , ○○). At this time, please turn off the power and wait for a while, and then turn on the power again.

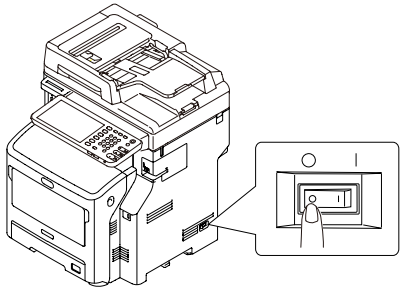
Turn the power off.

Note! If you turn off the power without properly shutting down, it may cause damage to the MFP. Please follow the following procedure to turn the power off.

(1) A message [Shut down Yes/No] appears. Be sure Yes is selected and press the Set [Power] button.
A message [Shutting down] appears, the MFP being shutting down.



(2) If the message [Turn off power/Shutdown completed] is displayed, press down the power switch to OFF " ○ ".



When do not use the MFP for long time

Please explain to the customer about the following items.

Unplug the power cord if you do not use the MFP for a long time (long vacation or travel etc).

Install the stopper to the fuser.

Note! • Remove the power plug out of the power outlet.

• Even if the power plug of this MFP is pulled out for a long time (four weeks or more), the functional problems will not be caused easily.
However, please explain to the customer that the deterioration of consumable such as toners and the image drums is not guaranteed.

2.4.2 Optional part installation and confirmation

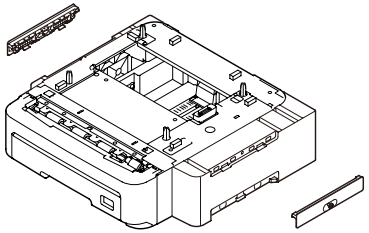
(1) Installation of the optional tray unit (second/ third/ fourth tray/ LCF)

Notes! • Fourth tray:not support for Finisher model

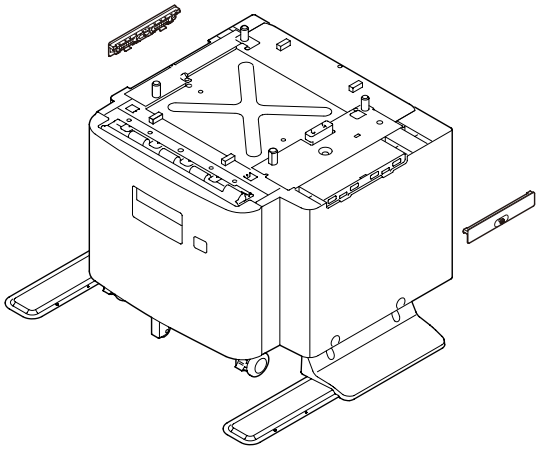
It is a traditional paper tray for adding paper into the MFP.

Second/ third/ fourth tray : 530 pieces of 70 kg paper can be set. Using it with a standard paper cassette and a multi-purpose tray can print 2220 pieces of pages continuously

LCF : 2000 pieces of 70kg paper can be set. Using it with a standard paper cassette and a multi-purpose tray can print 2630 pieces of pages continuously.



<second / third /fourth tray>



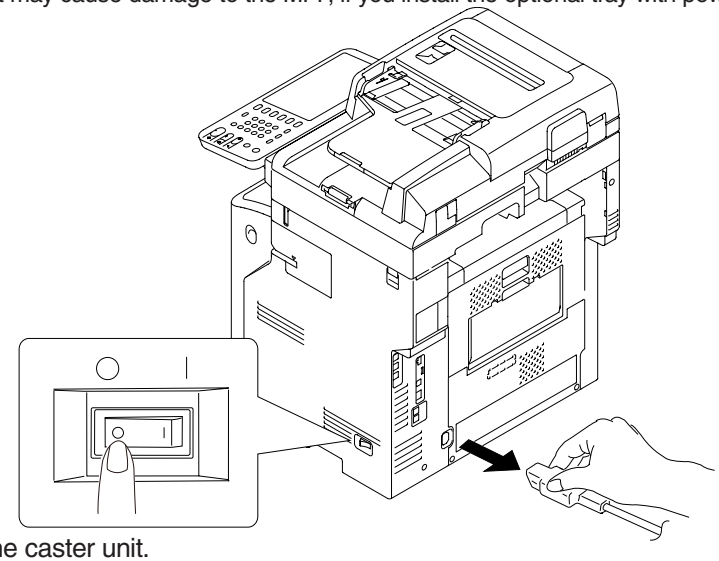
<LCF>

(1) Turn the MFP power to OFF and pull out the power cord from the outlet.

Turn the power off with following the procedure in chapter 3.5.2 [Turn the power off.].

Notes! • If you turn off the power without properly shutting down, it may cause damage to the MFP. Please operate the [Shutdown Menu].

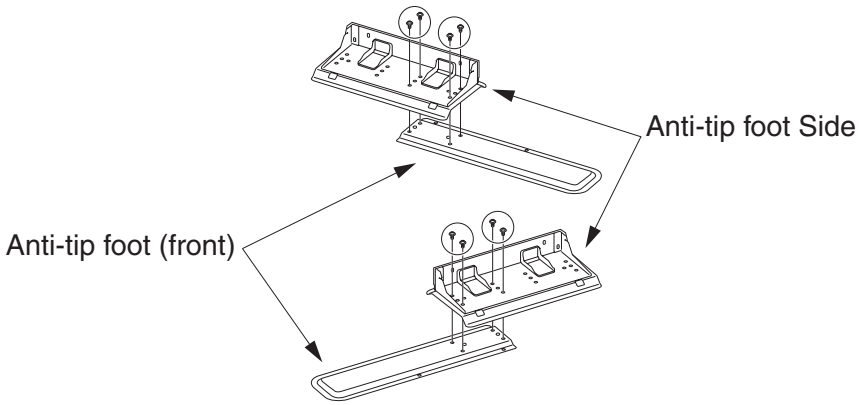
• It may cause damage to the MFP, if you install the optional tray with power ON.



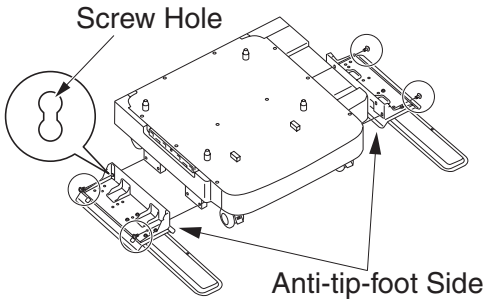
(2) Attach the caster unit.

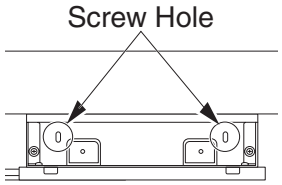
(2)-1 Attach the anti-tip feet (both sides and front) with four screws.

Notes! Attachment directions are different for the left side and the right side



(2)-2 Put the bottoms of the anti-tip feet (both sides) on the floor, align the sides to the cabinet and tighten them with the two screws each.

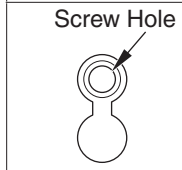
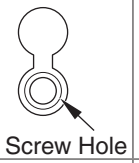
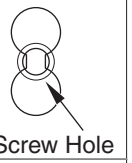




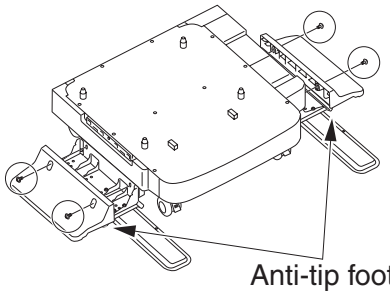
Notes! •Do not tighten the upper screws.

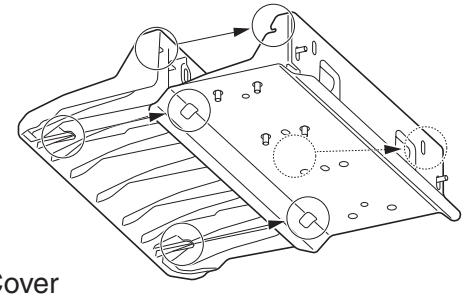
•When you tighten the bottom screws, attach the anti-tip foot to the location where a screw does not incline.

*You can the attach the screws to Case1 and Case2. As the screw incline when you tighten the screw in Case3, lift the anti-tip foot and attach the screw to Case2.

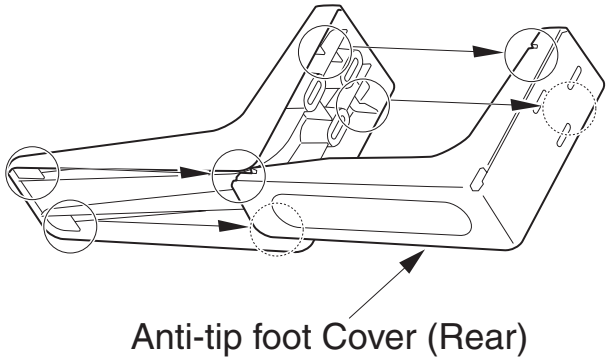
Case1	Case2	Case3
		
OK	OK	NG

(2)-3 Tighten the anti-tip foot covers (both sides) and anti-tip feet with two screws each.

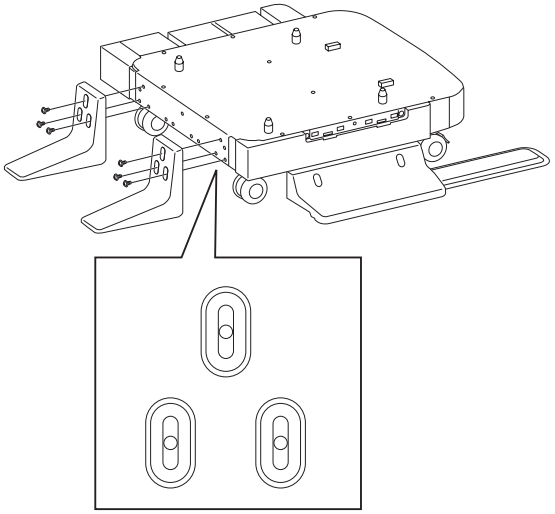




(2)-4 Align the anti-tip foot cover (rear) to the rear side of the anti-tip foot.



(2)-5 Put the bottoms of the anti-tip feet on the floor and tighten them with three screws.



(3) Install the optional tray unit and LCF unit to the MFP.

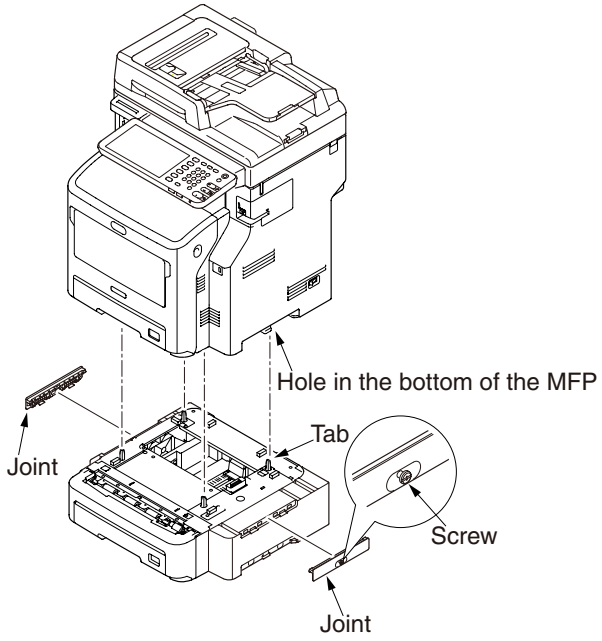
Note! Because the weight of the MFP weights is approximately 42kg, it needs more than three adults to lift it up.

① Match the tab into the hole in the bottom of the MFP.

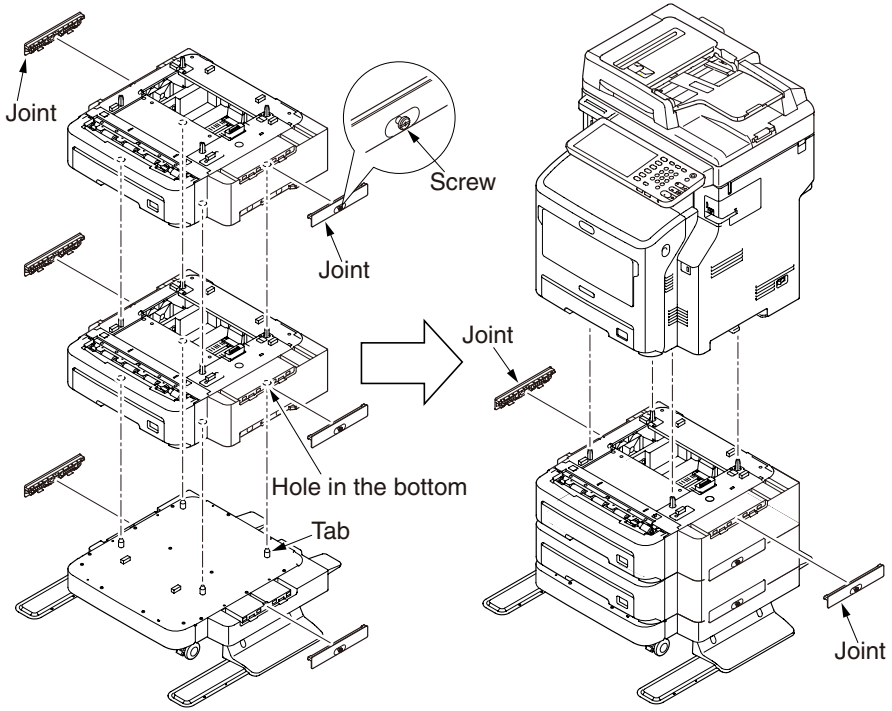
② Put the MFP on the optional tray unit slowly.

③ Attach the joint (2 places) to optional tray unit and screw up.

Remove it following the steps 1-2 in reverse order.



Note! When you install two or more optional trays to the MFP, set the optional tray directly on top of the other optional tray, and then put them on the MFP.



3. Compornent replacement

In this chapter, the procedure for replacement of part, assembly and unit is described.
The replacement procedure is described by removal of the parts. please install the new parts with following the replacement procedure in reverse order.
The parts (such as ①, ②)shown in the manual are different from the parts used in the Disassmbly for Maintenance figure (45387101TL) and RSPL (45387101TR).

3.1 Precautions on component replacement

(1) Remove the AC cable and the interface cable before replacing the parts.

(a) Remove the AC cable accableing to the following procedure.

① Switch the power switch of MFP off “O”.

② Disconnect the AC insertion plug of the AC power cable from the AC power source.

③ Disconnect the earth wire from the earth terminal of the AC power source outlet.

④ Disconnect the AC cable and the interface cable with the MFP.

⚠Warning	Risk of Electric Shock.	⚡

There is a risk of electric shock during replacement of the low voltage power supply.Use insulating gloves or avoid direct contact with any conducting part of the power supply, and caution should be exercised during replacement.
The capacitor may take one minute to complete discharge after the AC cable is unplugged. Also, there is a possibility that the capacitor doesn’t discharge because of a breakage of the PCB, etc., so remember the possibility of electric shock to avoid electric shock.

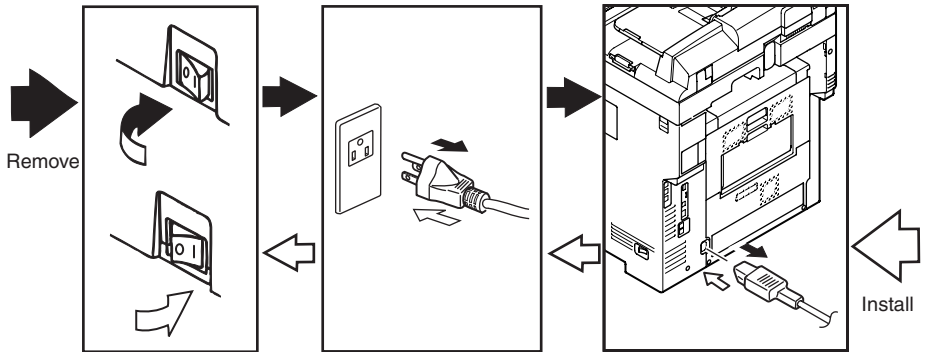
(b) Reconnect the MFP accableing to the following procedure.

① Connect the AC cable and the interface cable with the MFP.

② Connect the earth wire to the earth terminal of the AC power source outlet.

③ Connect the AC power cable insertion plug to the AC power source

④ Switch the power switch of MFP on “I”.



(2) Do not disassemble it if the MFP works normally.

(3) Disassemble it as required. Do not remove the part that is not shown in the replacement procedure.

(4) Please use the specified maintenance tool.

(5) Disassemble it accableing to the proper procedure. It may cause damage to theparts if disassemble it without following the proper procedure.

(6) As the small parts such as the screws are lost easily, please fix them to the original position temporarily.

(7) Do not use gloves that may cause static electricity easily when handling IC and the circuit board such as microprocessor, ROM, and RAM.

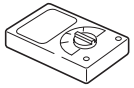
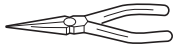
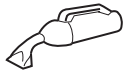
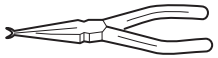
(8) Do not put the PCB on the device and the floor directly.

(9) Do not work for a long time with the MFP with the top cover open, and an image drum unit installed in it.

[Maintenance Tool]

The required tools for replacing the PCB and the unit are shown in Table 3-1-1.

Table 3-1-1: Maintenance Tools

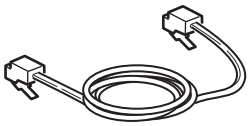
No.	Maintenance Tools		Q'ty	Use	Remarks
1		No. 2-200 +Magnetic driver	1	3 - 5mm Screw	
2		No. 3-100 Driver	1		
3		No. 5-200 Driver	1		
4		Digital multimater	1		
5		Combination priers	1		
6		Handy cleaner (the type corresponds to the toner)	1		Refer to the following note.
7		E Ring Pliers	1	For E ring detaching	
8		USB memory device (Note)	1	CU/HDD FW Update	Refer to "6.1 Removed and installation of Boards/HDD" in the Software Guide.

(Note) Refer to "6.1 “FIRMWARE UPDATING” in the Software Guide accableing to the conditions for USB memory device

Note! Use the specified cleaner corresponding to the toner. It may cause a fire when using a general-purpose cleaner.

The required tools for using the Maintenance utillity are shown in Table 3-1-2.

Table 3-1-2: Maintenance Tools

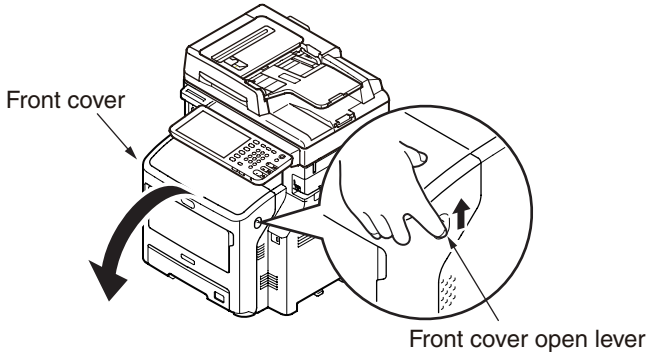
No.	Maintenance Tools		Amount	Purpose	Notes
1		Notebook [Please install the maintenance utillity.]	1		Refer to the chapter 4.2 for the maintenance utility.
2		USB cable	1		
3		Ethernet cable (Cross cable)	1		

3.2 Method of component replacement

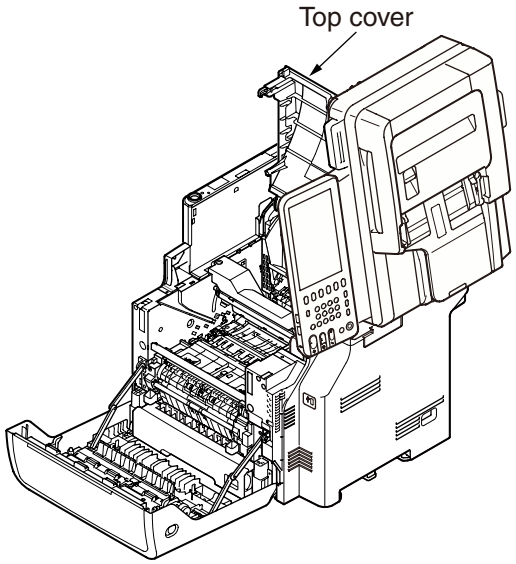
In this chapter, the replacement of parts and assemblies is described by the dissassemble figures.

3.2.1 Transfer Roller

(1) Open the front cover while pulling the front cover open lever.

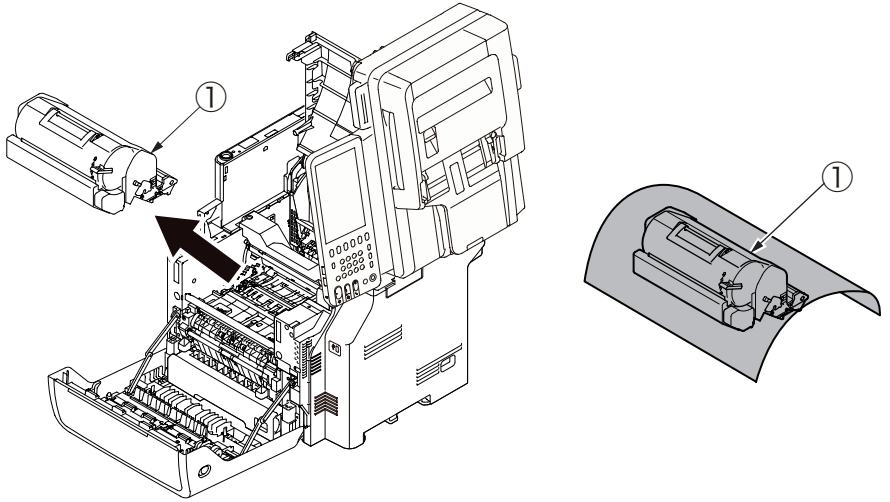


(2) Open the scanner and the top cover.



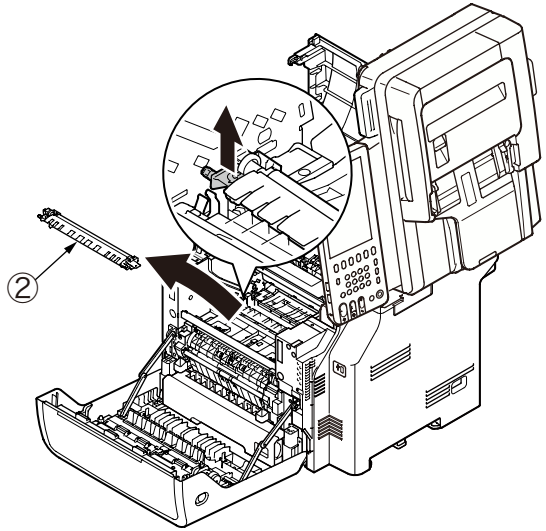
(3) Remove the ID unit ① .

Note! Cover the removed Print cartridge with black paper.



(4) Remove the transfer roller ② , by lifting up its left side.

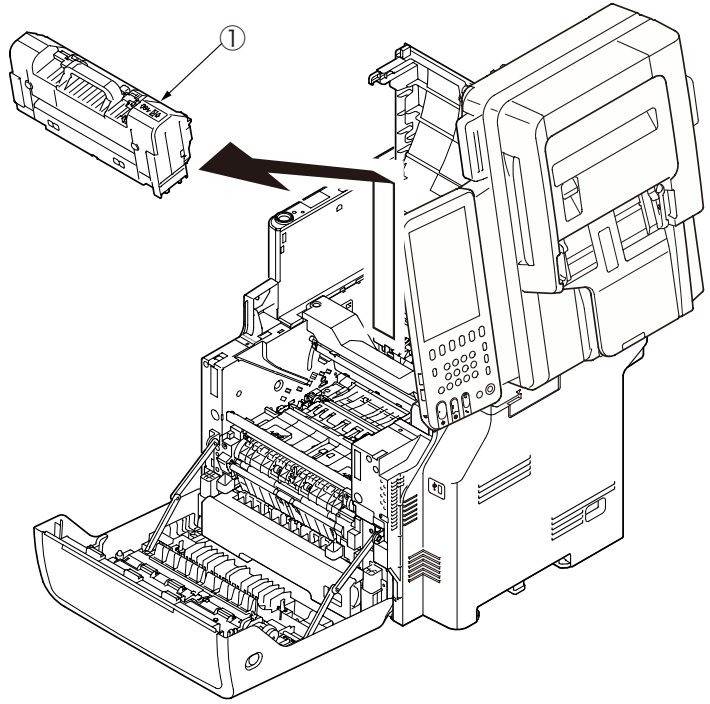
Note! Operating carefully, not to touch transfer roller ② surface.



3.2.2 Fuser unit

(1) Open the front cover, the scanner and the top cover. (Refer to 3.2.1)

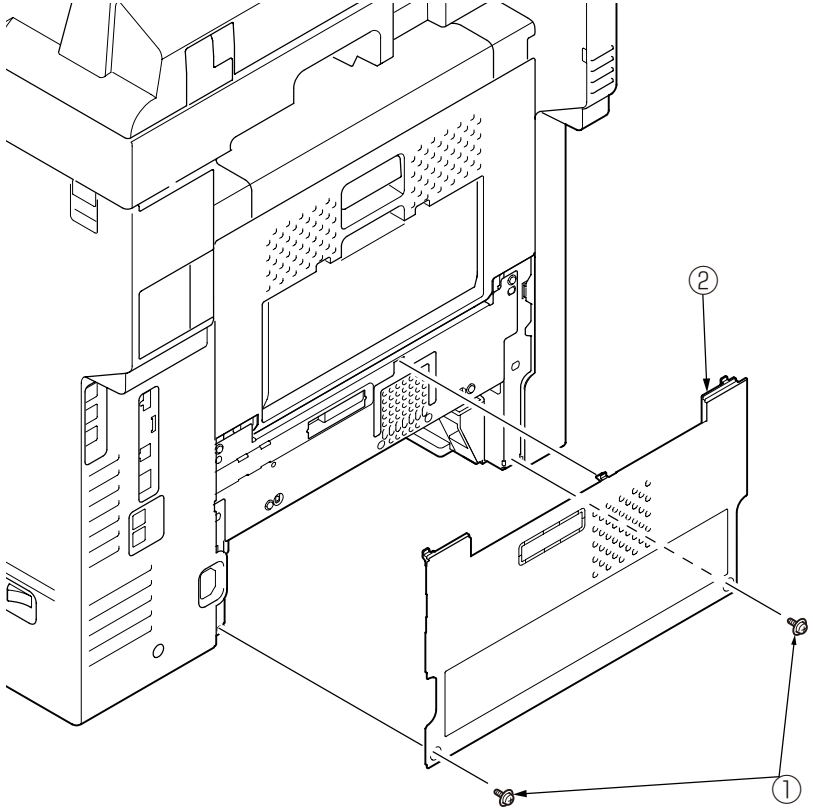
(2) Remove the fuser unit ① .



3.2.3 Cover-Rear-Blind

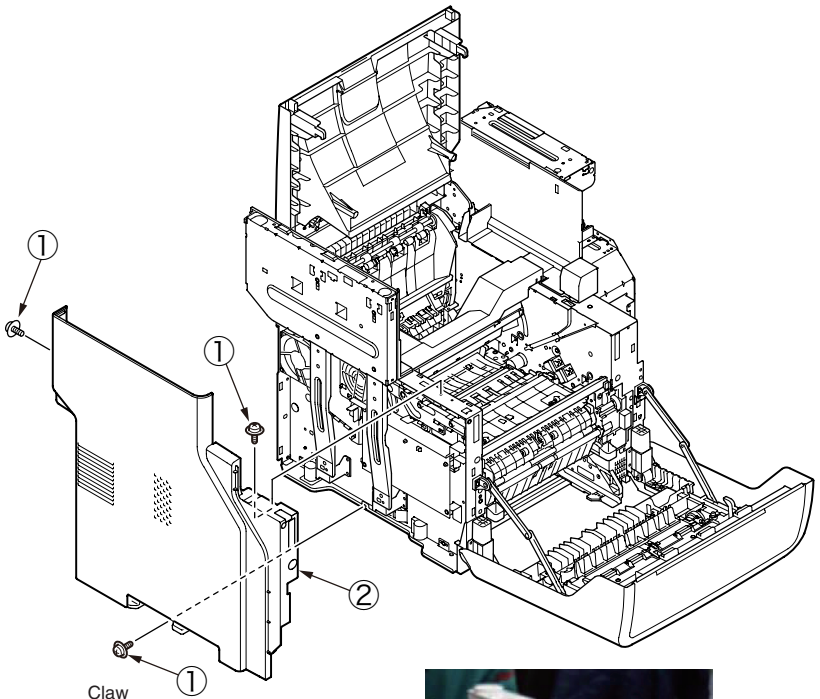
(1) Remove the two screws (silver) ① .

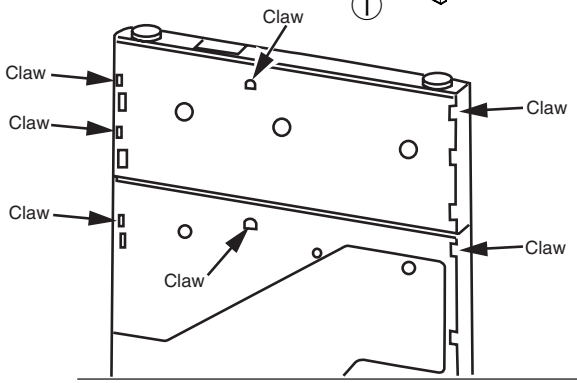
(2) Remove the Cover-Rear-Blind ② .

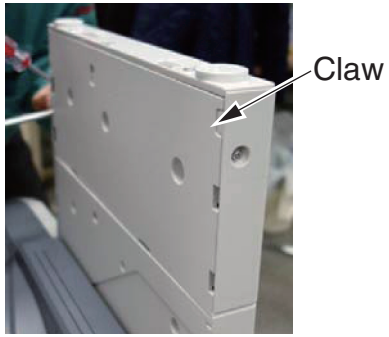


3.2.4 Cover-side-L

(1) Remove the ID unit. (Refer to 3.2.1)
(2) Remove the fuser unit. (Refer to 3.2.2)
(3) Remove the Cover-Rear-Blind. (Refer to 3.2.3)
(4) Remove the three screws (silver) ① .
(5) Disengage the eight claws, and remove the Cover-Side-L ② .

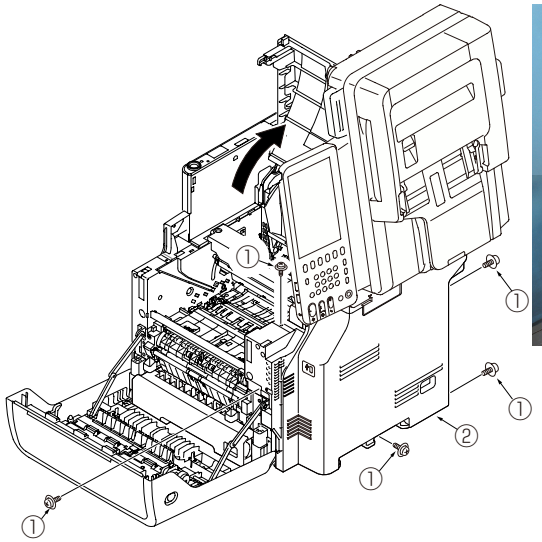


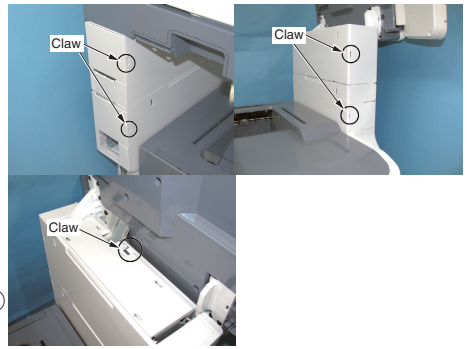


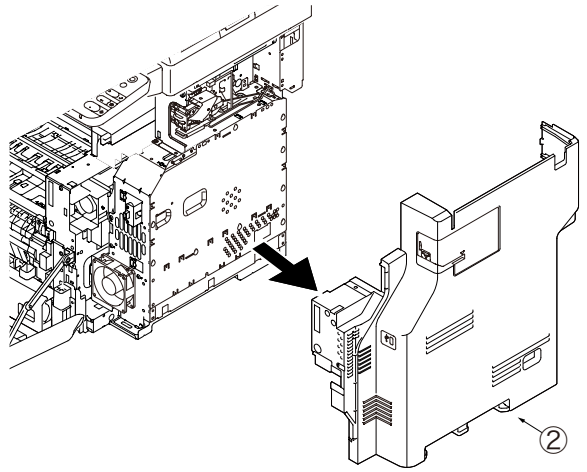


3.2.5 Cover-side-R

(1) Remove the ID unit. (Refer to 3.2.1)
(2) Remove the fuser unit. (Refer to 3.2.2)
(3) Remove the Cover-Rear-Blind. (Refer to 3.2.3)
(4) Open the scanner, and remove the five screws ① .
(5) Close the scanner.
(6) Disengage the eight claws, and remove the Cover-Side-R ② .







3.2.6 Scanner unit

(1) Remove the ID unit. (Refer to 3.2.1)

(2) Remove the Cover-Side-R. (Refer to 3.2.5)

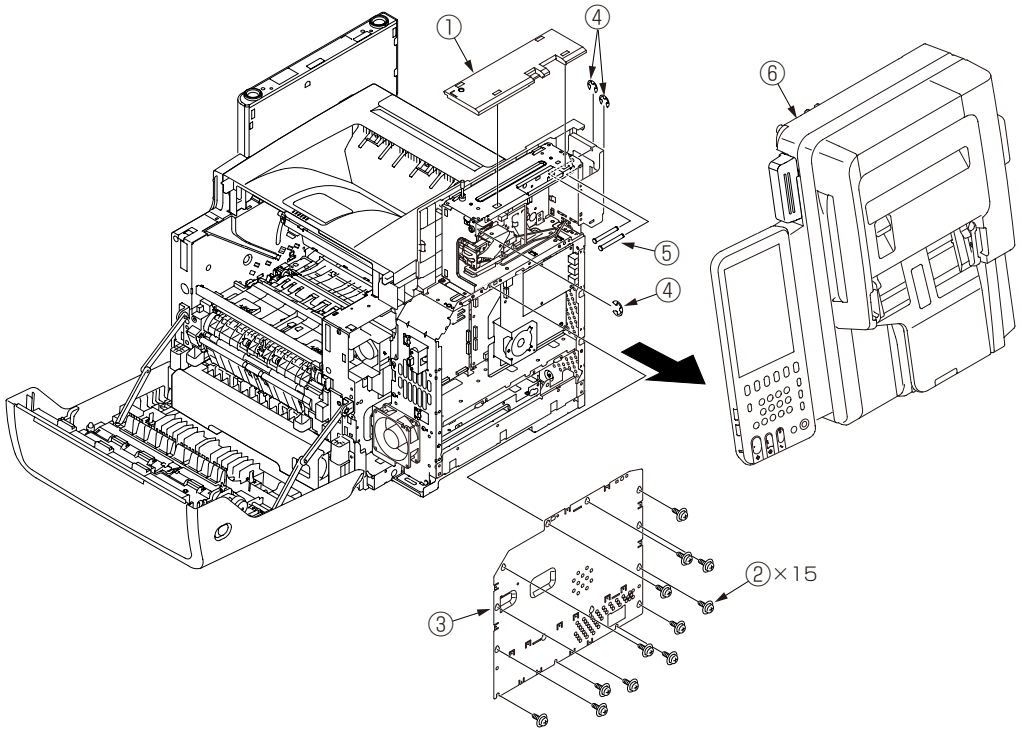
(3) Remove the Cover-Side (R-Top) ① .

(4) Remove the fifteen screws ② , and remove the Plate-Shield ③ .

(5) Disconnect the all connector of the scanner.

(6) Remove the three E rings ④ , and pull out the Shaft-Guide (Hinge) ⑤ .

(7) Remove the scanner ⑥ .



3.2.7 Stay-R

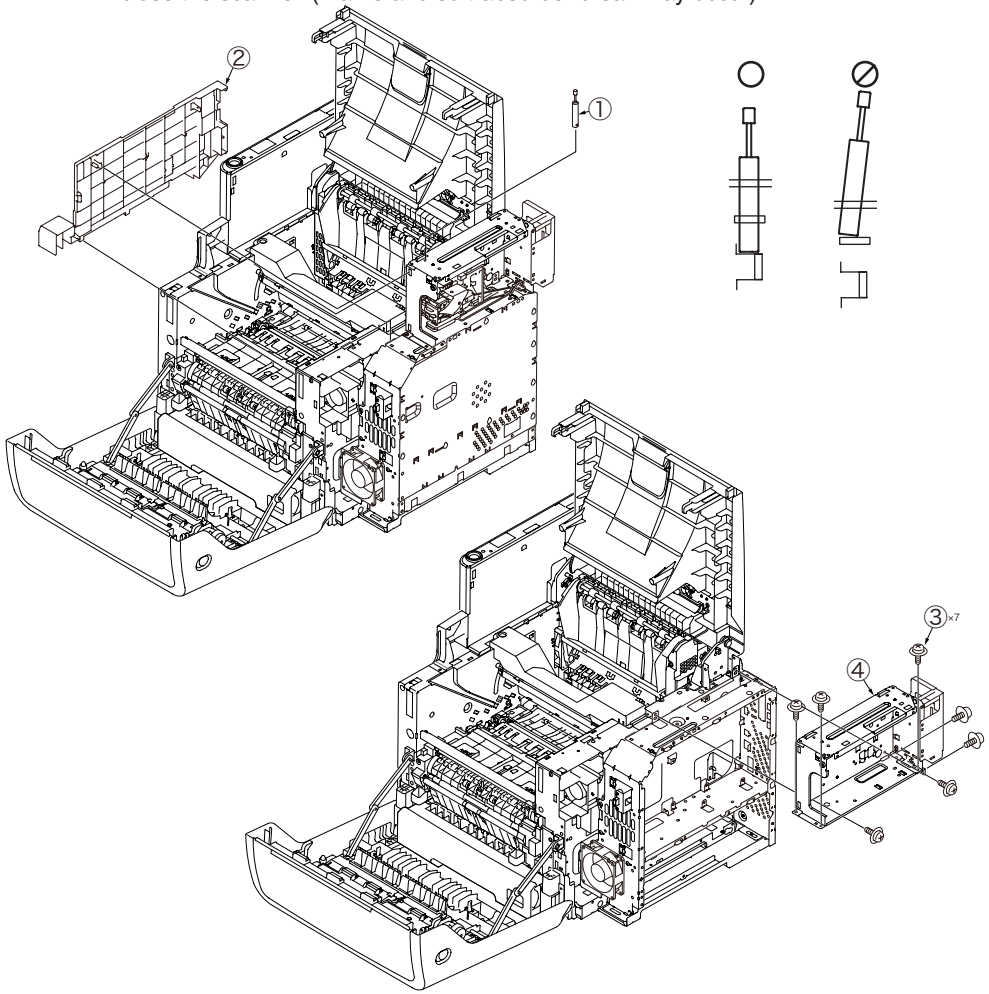
(1) Remove the Cover-Side-R. (Refer to 3.2.5)

(2) Remove the Scanner.(Refer to 3.2.6).

(3) Remove the soft-absorber ① and cover side(R-Inner) ② .

(4) Remove the seven screws ③ and remove the Plate-Stay-R ④ .

Note! When assemble the scanner, assemble the soft-absorber correct position and close the scanner. (Frame and soft-absorber break may occur)



3.2.8 CU/PU PCB/Low voltage power supply

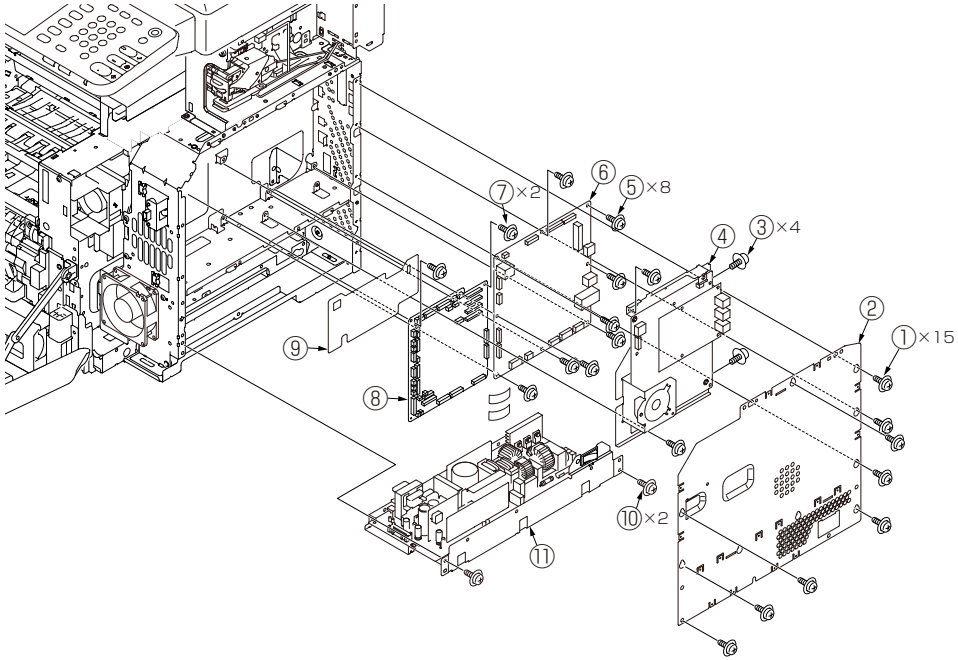
⚠Warning	Electric shock hazard.	

There is a risk of electric shock during replacement of the low voltage power supply.

Use insulating gloves or avoid direct contact with any conducting part of the power supply, and caution should be exercised during replacement.

The capacitor may take one minute to complete discharge after the AC cable is unplugged. Also, there is a possibility that the capacitor doesn't discharge because of a breakage of the PCB, etc, so remember the possibility of electric shock to avoid electric shock.

(1) Open the front cover, the scanner and top cover.
(2) Remove the Cover-Side-R. (Refer to 3.2.5)
(3) Remove the fifteen screws ① to take the plate-shield ② out.
(4) Remove the four screws ③ and all cables, and take the FAX PCB ④ out.
(5) Remove the eight screws ⑤ and all cables, and take the CU PCB ⑥ out.
(6) Remove the two screws ⑦ and all cables, and take the PU PCB ⑧ and Film Board ⑨ out.
(7) Remove the two screws ⑩ and all cables, and take the Low voltage power supply ⑪ out.



Note! •To attach the head cable, insert the end of the film-FG inside the plate-side-R, preventing from touching the edge of the plate-side-R.

•Low-voltage power supply ⑪ and AC inlet Assy should be replaced together. (the pair of low-voltage power supply and AC inlet Assy meets the safety standards.)

3.2.9 Plate-Board-R Assy/Guide-Cable Power Low

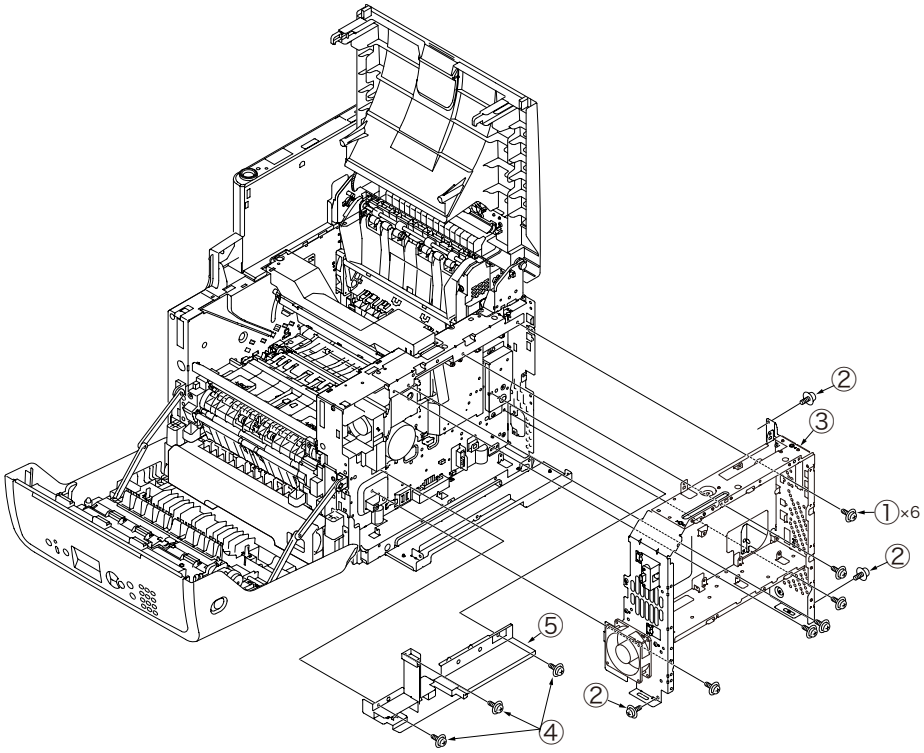
(1) Remove the scanner. (Refer to 3.2.6)

(2) Remove the Stay-R Assy. (Refer to 3.2.7)

(3) Remove the plate shield and take the CU/PU PCB out. (Refer to 3.2.8)

(4) Remove the six screws ① , and remove the three screws ② and remove the Plate-Board-R-Assy ③ .

(5) Remove the three screws ④ , and remove the Guide-Cable Power Low ⑤ .



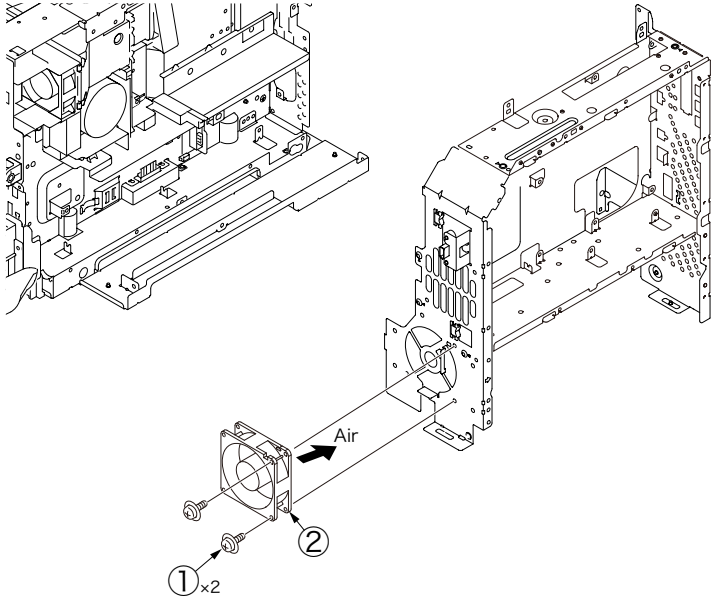
3.2.10 Motor FAN (low voltage)

(1) Remove the scanner. (Refer to 3.2.6)

(2) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

(3) Remove the two screw(silver) ① and connector, and take the FAN (low voltage) ② out.

Note! Be Careful to install the Motor-FAN in the direction.



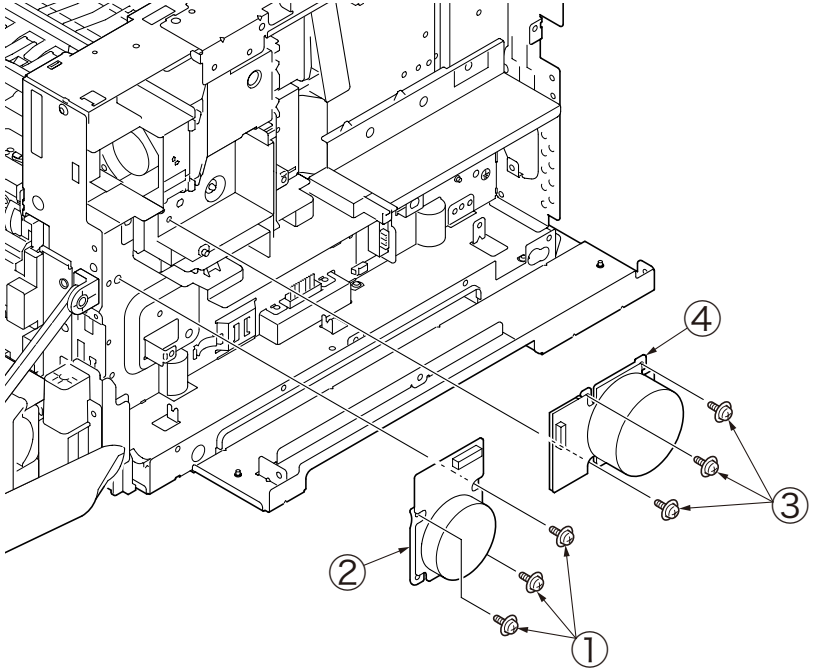
3.2.11 DC motor (hop) / DC motor (ID)

(1) Remove the scanner. (Refer to 3.2.6)

(2) Remove the Plate-Board-R-Assy.(Refer to 3.2.9)

(3) Remove the three screws(sliver) ① , remove the DC motor (hop) ② .

(4) Remove the three screws(sliver) ③ , remove the DC motor (ID) ④ .



3.2.12 Motor FAN (ID) / Micro switch (Plate-Assy-Side(R))

(1) Remove the scanner. (Refer to 3.2.6)

(2) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

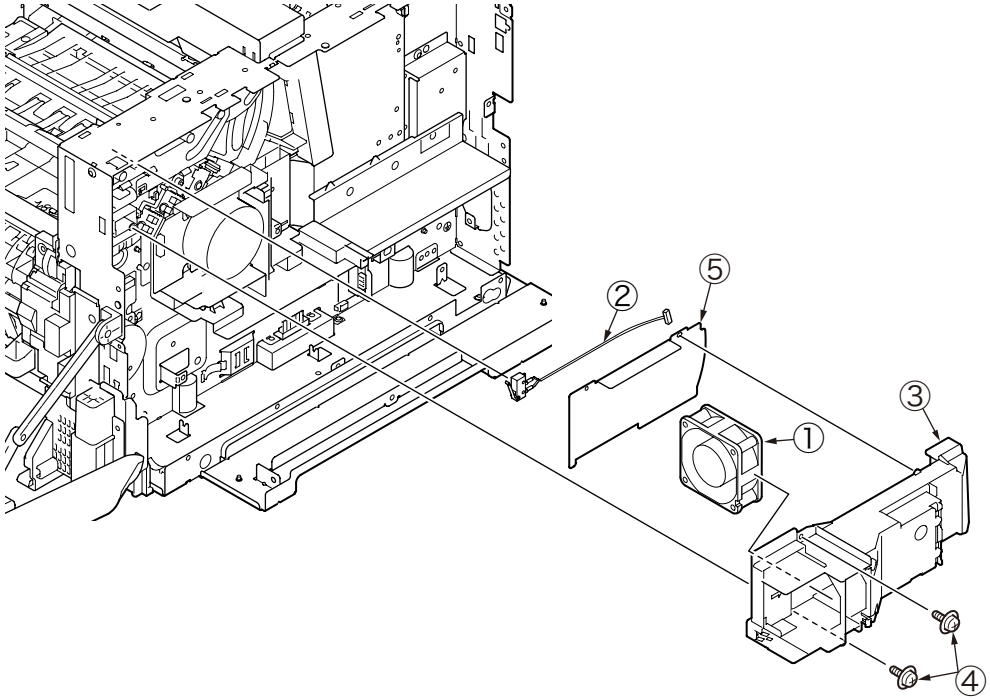
(3) Remove the cables of the Motor FAN (ID) ① , micro switch ② , the toner sensor and the TAG contact from the Guide-ID-FAN ③ .

(4) Remove the two screws (black) ④ , and remove the Guide-ID-FAN ③ and the Sheet-Guide-FAN ⑤ .

(5) Remove the Motor FAN (ID) ① .

(6) Disengage the two claws, and remove the micro switch ② .

Note! Be careful to install the Motor-FAN (ID) ① in the proper direction.



3.2.13 HV-Board / Motor-FAN

(1) Remove the Cover-Side-L. (Refer to 3.2.4)

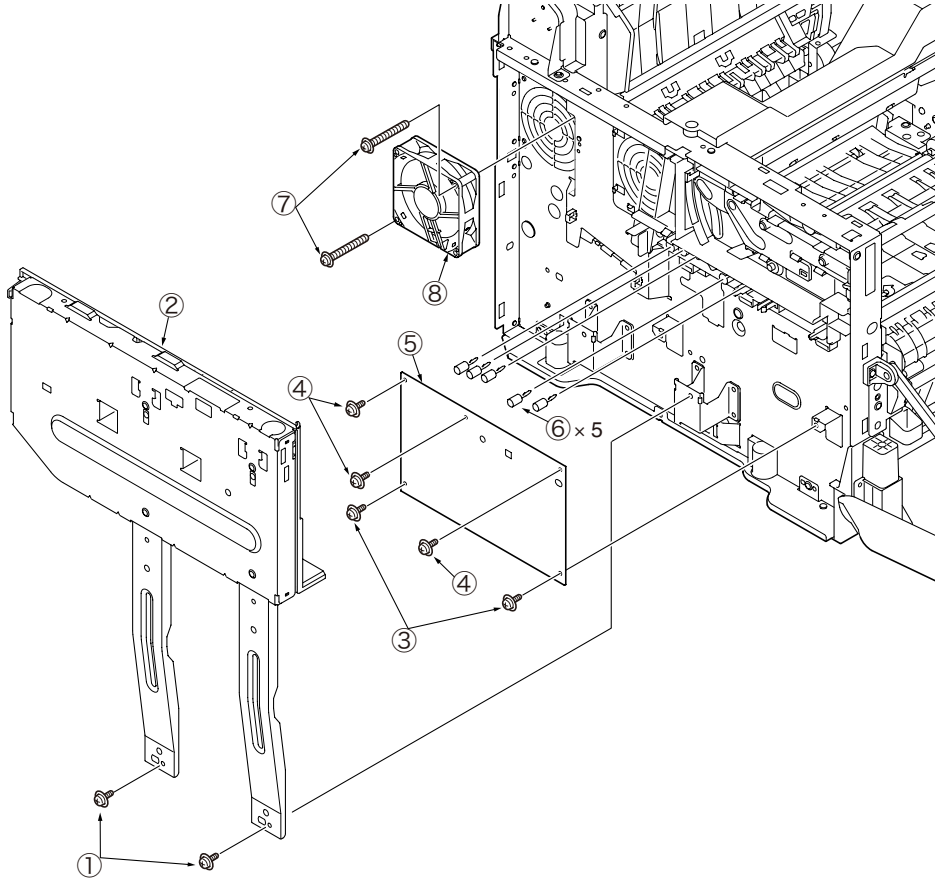
(2) Remove the two screws (silver) ① and remove the Stay-Assy-L ②

(3) Remove the three screws (silver) ③ and the two screws (black) ④ , disengage the claw, and remove HV-Board ⑤ . Be careful not to lose the Spring-Contact ⑥ .

(4) Disconnect all cables from HV-Board ⑤ .

(5) Remove the two screws (silver/28mm) ⑦ , and remove the Motor-FAN ⑧ .

Note! Be careful to install the Motor-Fan in the proper direction..



3.2.14 Cover-Assy-Front

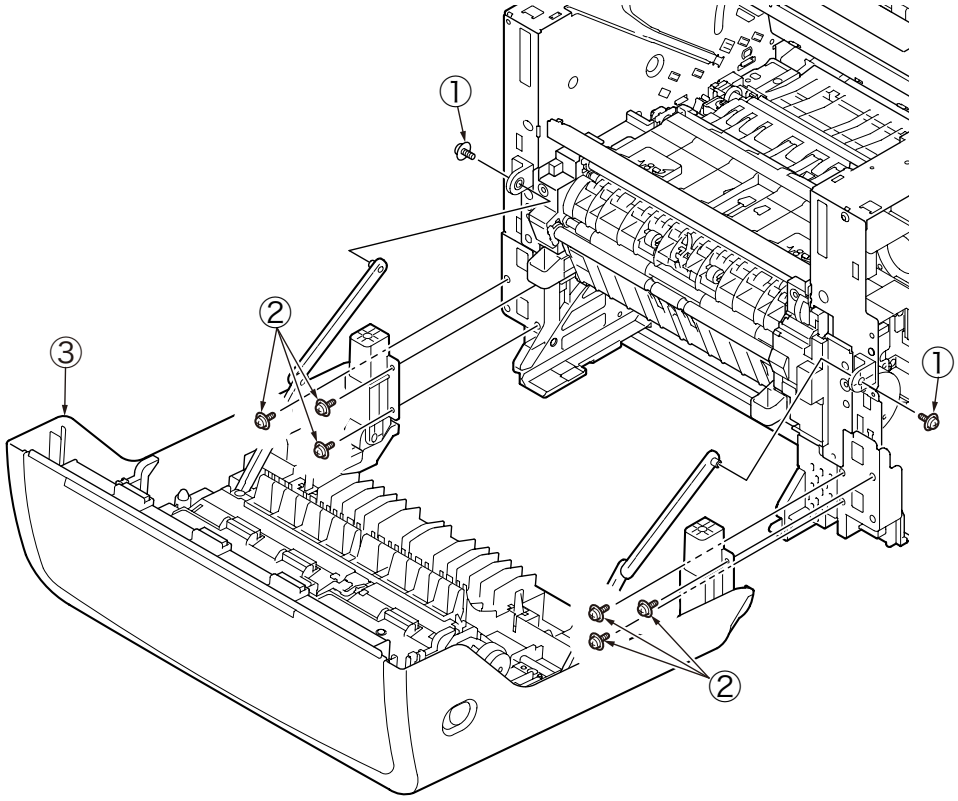
(1) Remove the Cover-Side-L and the Cover–Side-R. (Refer to 3.2.4 / 3.2.5)

(2) Remove the scanner. (Refer to 3.2.6)

(3) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

(4) Remove the two screws (black) ①

(5) Remove the six screws (silver/8mm) ② , and remove the Cover-Assy-Front ③ .

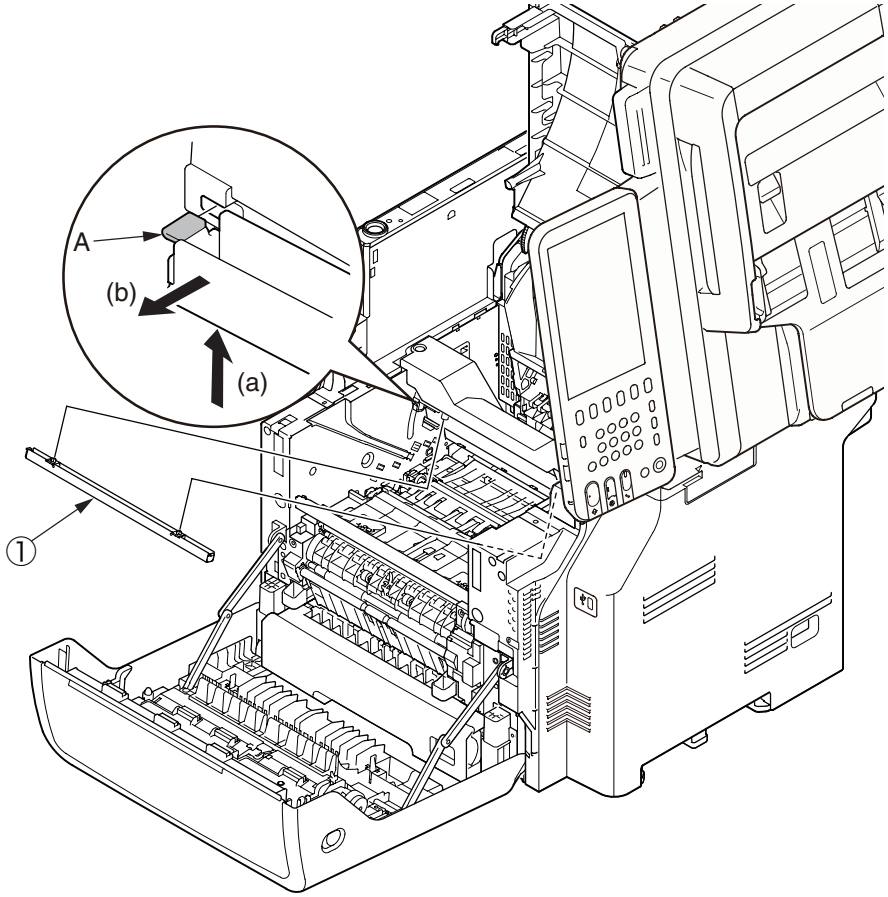


3.2.15 LED Assy

(1) Remove the ID unit. (Refer to 3.2.1)

(2) While pushing LED Assy ① in the direction of the arrow (a), unhook the part A by pulling it in the direction of the arrow (b).

(3) Remove the LED Assy, and disconnect the FFC cable from ① .



3.2.16 Plate-Assy-Duct

(1) Remove the Cover-Side-R. (Refer to 3.2.5)

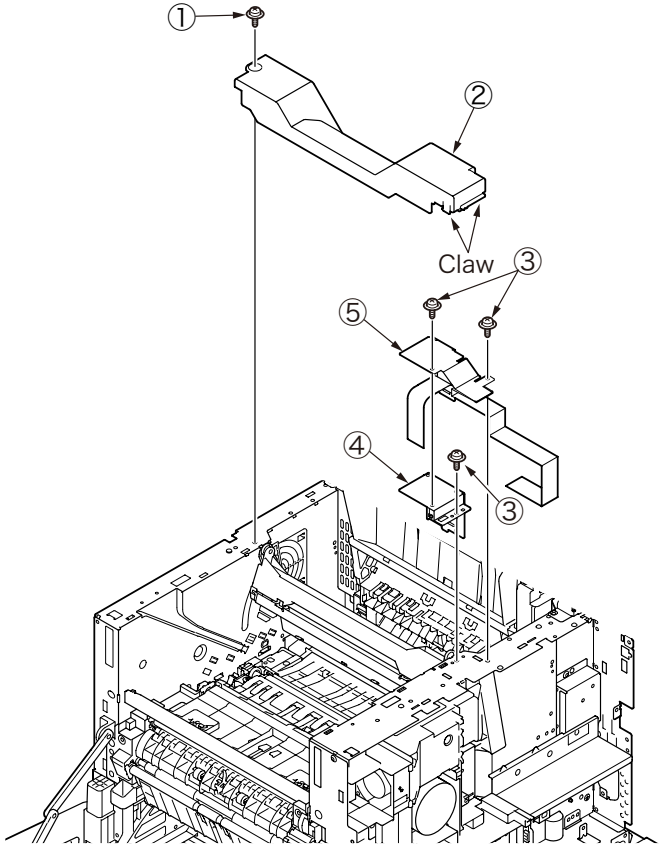
(2) Remove the Plate-Board-R-Assy.(Refer to 3.2.9)

(3) Disconnect the FFC cable of the LED head from the PU-Board.

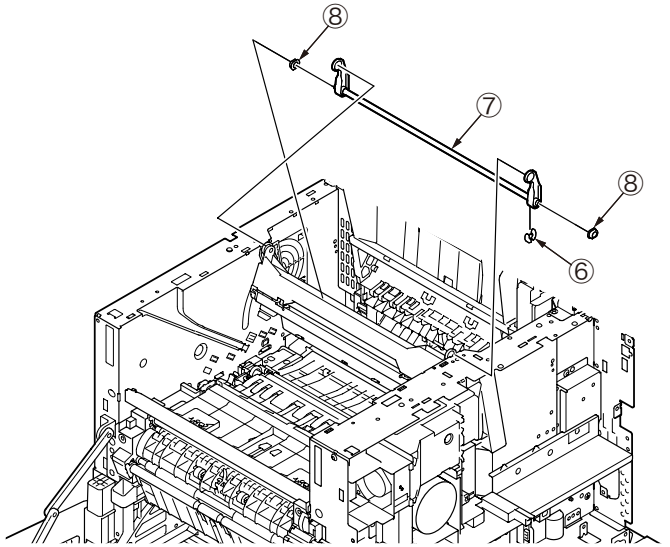
(4) Remove the screw (silver) ① ,

(5) Disengage the two claw, and remove the Cover-Head ② .

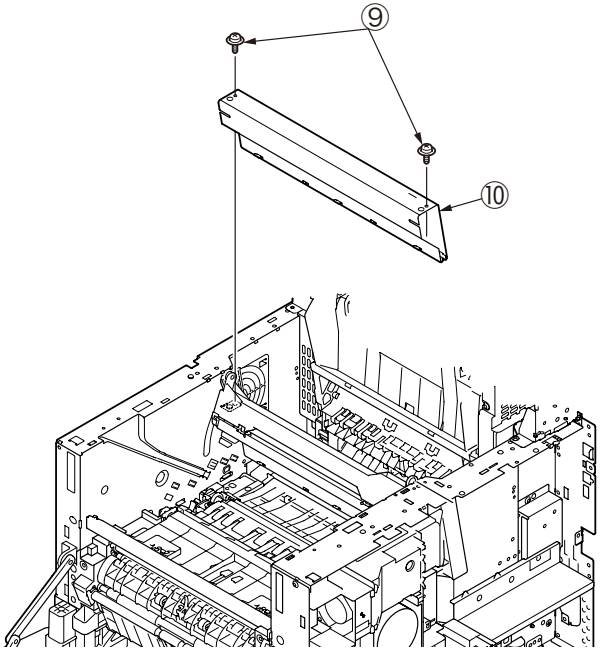
(5) Remove the three screws (silver) ③ , and remove the Plate-Cable-Guide ④ and the FFC cable ⑤



(7) Remove the retainer-4 ⑥ , and remove the Shaft-Link-Head ⑦ and the two Bearing-Metal ⑧ .



(8) Remove the two screws (silver) ⑨ , and remove the Plate-Assy-Duct ⑩ .



3.2.17 Feeder-Assy-Regist / Clutch

(1) Remove the Cover-Side-L and Cover-Side-R. (Refer to 3.2.4 / 3.2.5)

(2) Remove the scanner. (Refer to 3.2.6)

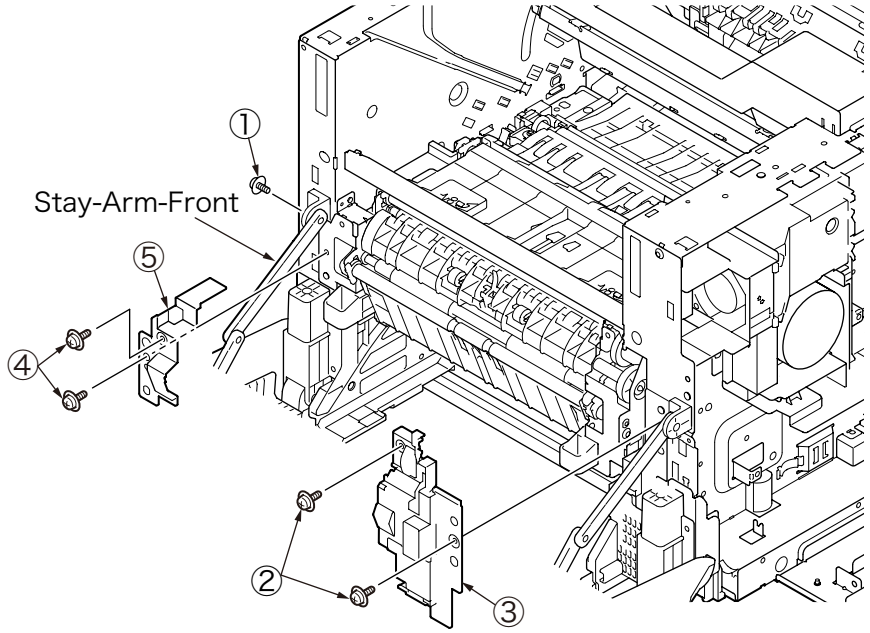
(3) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

(4) Remove the DC motor (hop). (Refer to 3.2.11)

(5) Remove the screw (black) ① , and disengage the Stay-Arm-Front from the Plate-Assy-Side(L)

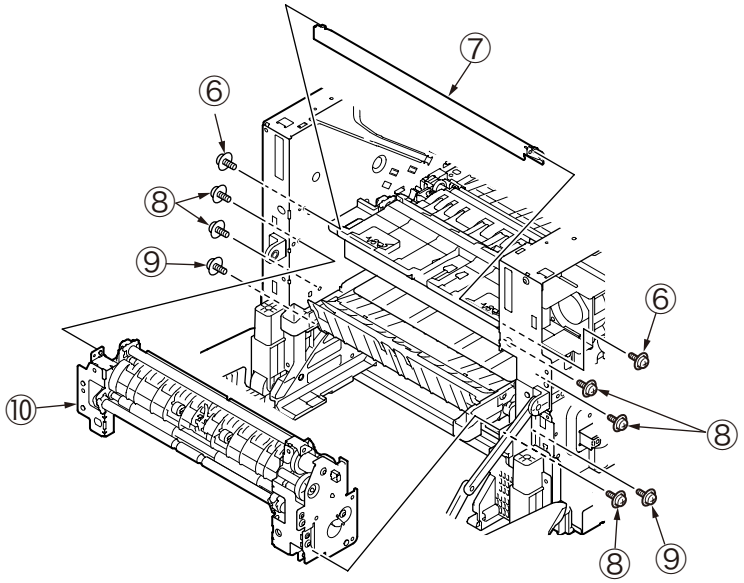
(6) Remove the two screws (silver) ② , and remove the Cover-Front-Side-R ③ .

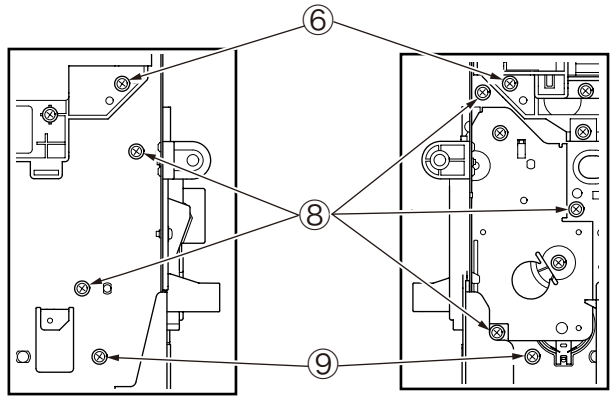
(7) Remove the two screws (silver) ④ , and remove the Cover-Front-Side-L ⑤ .



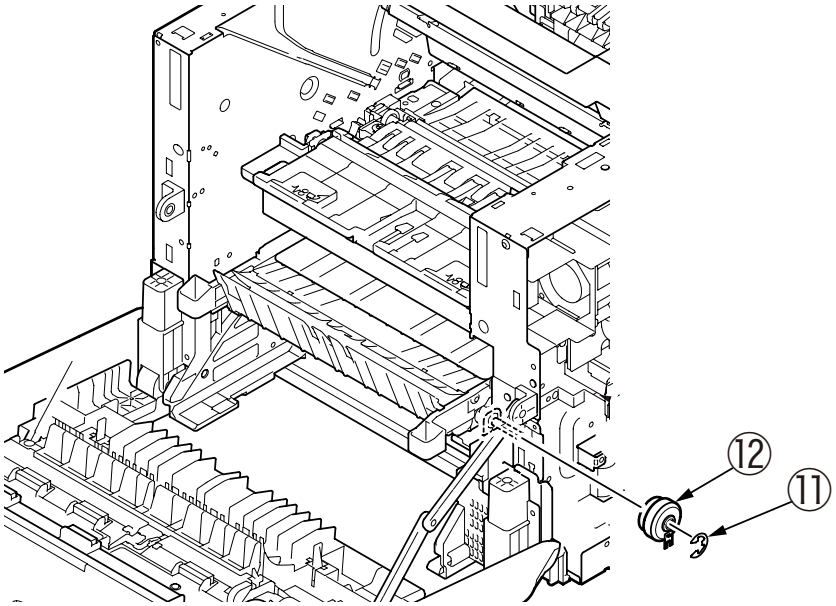
(8) Remove the two screws (silver/8mm) ⑥ , and remove the Plate-Front ⑦ .

(9) Remove the five screws (silver) ⑧ and the two screws (silver) ⑨ , and remove the Feeder-Assy-Regist ⑩ .





(10)Remove the e-ring ⑪ , and remove the Clutch ⑫ .



3.2.18 TR-Assy-Front

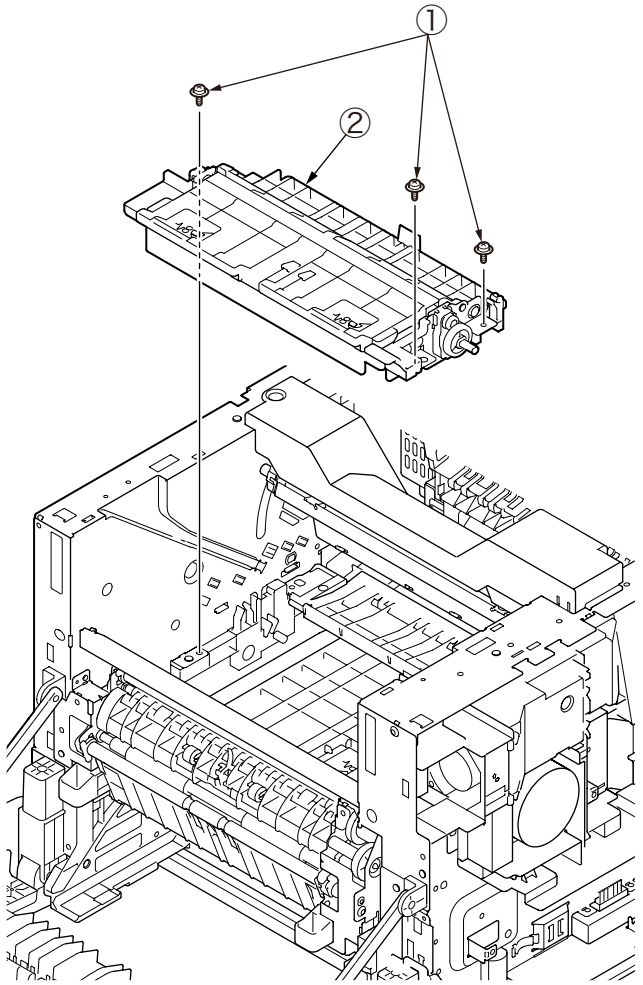
(1) Remove the transfer roller.(Refer to 3.2.1)

(2) Remove the Cover–Side-R. (Refer to 3.2.5)

(3) Remove the Remove the plate shield(Refer to 3.2.8)

(4) Disconnect all cable of TR-Assy-Front from the PU/CU-Board.

(5) Remove the three screws (silver) ① , and remove the TR-Assy-Front ② .



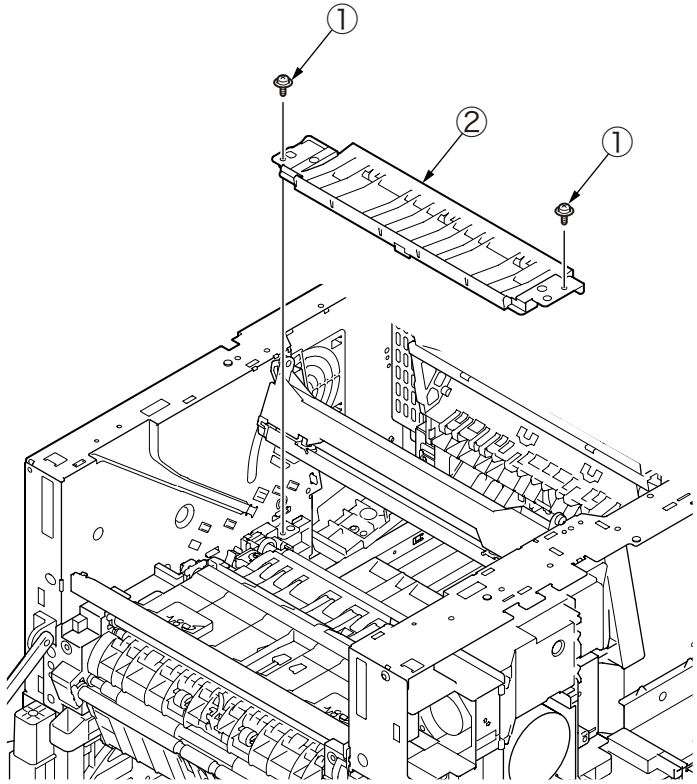
3.2.19 TR-Assy-Rear

(1) Remove the transfer roller. (Refer to 3.2.1)

(2) Remove the Cover–Side-R. (Refer to 3.2.5)

(3) Remove the Plate-Assy-Duct. (Refer to 3.2.16)

(4) Remove the two screws (silver) ① , and remove the TR-Assy-Rear ② .



3.2.20 Cover-Assy-Stacker (Short-Model)

(1) Remove the Cover–Side-R. (Refer to 3.2.5)

(2) Remove the scanner. (Refer to 3.2.6)

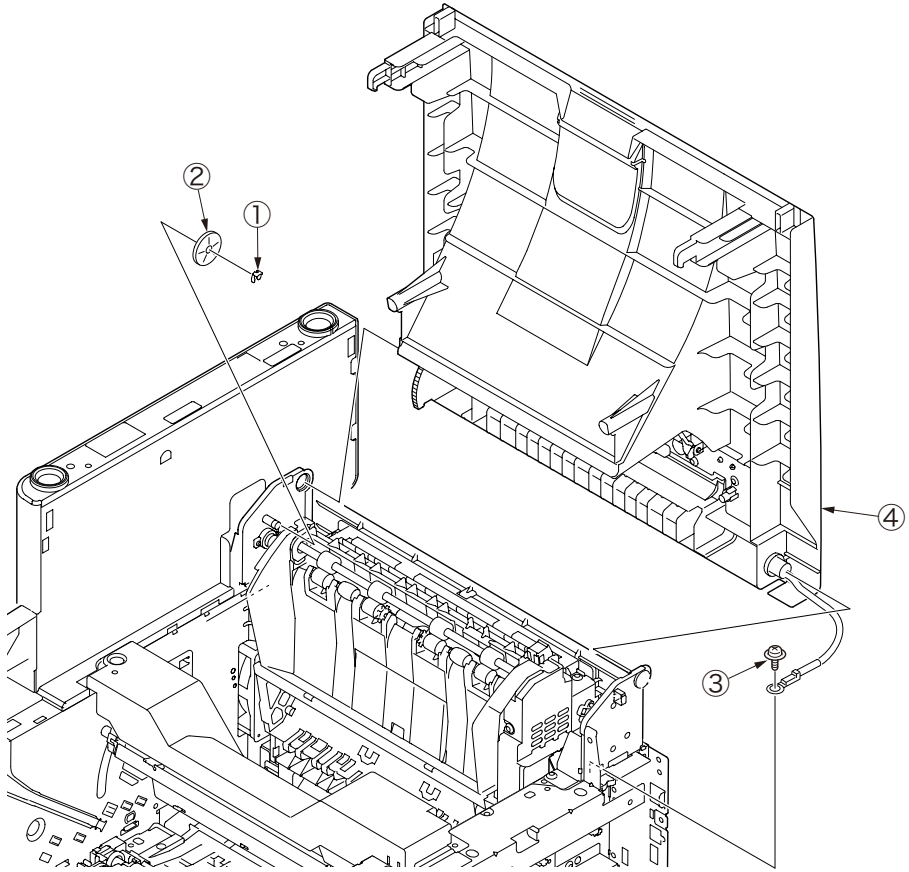
(3) Remove the Plate-Stay-R. (Refer to 3.2.7)

(4) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

(5) Remove the retainer-4 ① , and remove the Gear-Reduction ② .

(6) Remove the screw (silver) ③ , and remove the FG cable of the Cover-Assy-Stacker

(7) Remove the Cover-Assy-Stacker ④ .



3.2.21 Cover-Assy.-St(Tall) (for finisher model only)

(1) Remove the finisher unit. (Refer to 3.2.38)

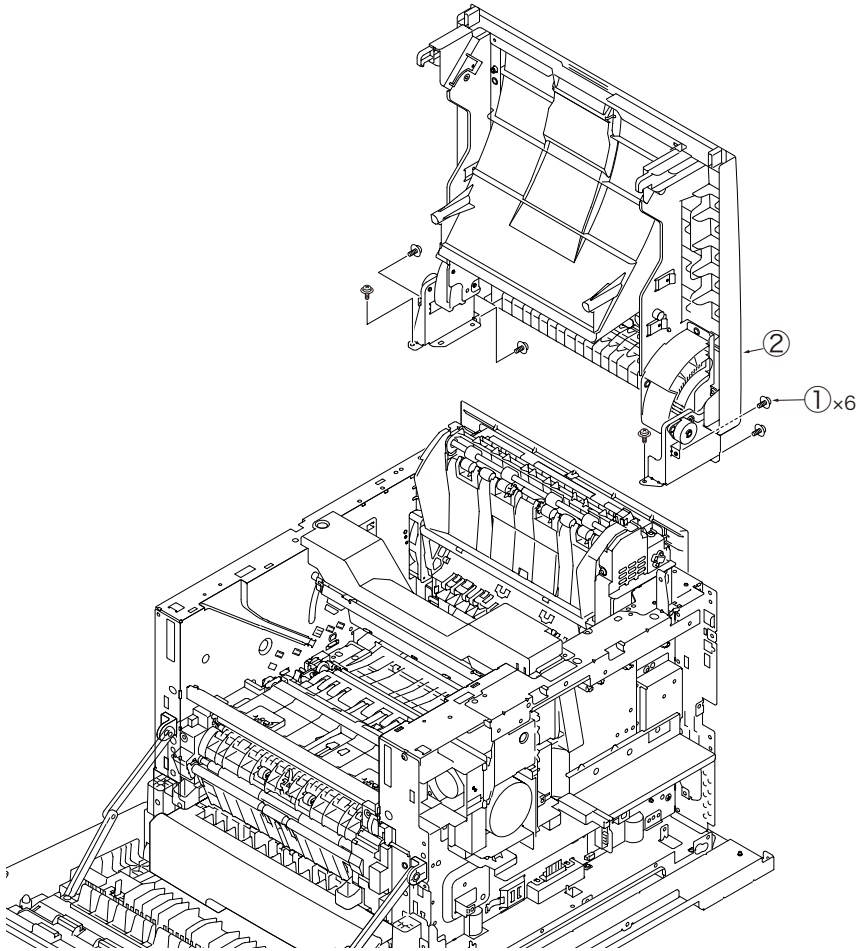
(2) Remove the Cover–Side-R. (Refer to 3.2.5)

(3) Remove the scanner. (Refer to 3.2.6)

(4) Remove the Plate-Stay-R. (Refer to 3.2.7)

(5) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

(6) Remobe the six screws (silver) ① , and remove the Cover Assy.-St (Tall) ② .



(7) Remove the two screws (black) ③ , and remove the Cover-Stacker (Sub-R) ④ .

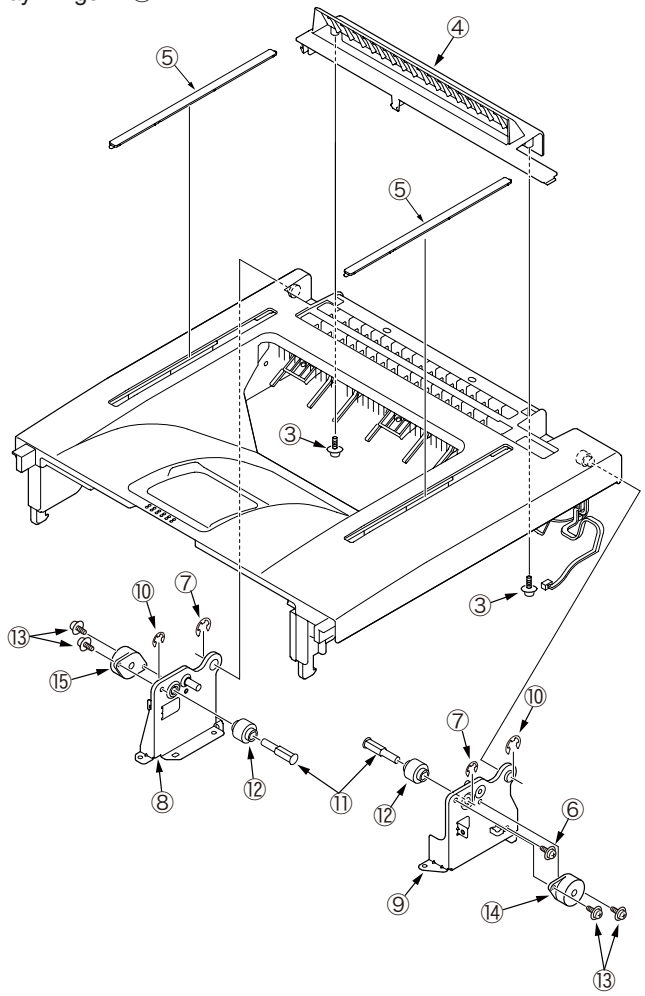
(8) Remove the two Cover-top-Sub-S ⑤ .

(9) Remove the screw (silver) ⑥ .

(10) Remove the two E rings ⑦ , and remove the Plate-Support (L-Caulking) ⑧ and Plate-Support (R-Caulking) ⑨ .

(11) Remove the two E rings ⑩ , and remove the two Shaft-Damper (T) ⑪ and Gear-Damper (Tall) ⑫ .

(12) Remove the four screws (silver) ⑬ , and remove the One-Way-Hinge-L ⑭ and One-Way-Hinge-R ⑮ .



3.2.22 Eject-Assy

(1) Remove the Cover–Side-R. (Refer to 3.2.5)

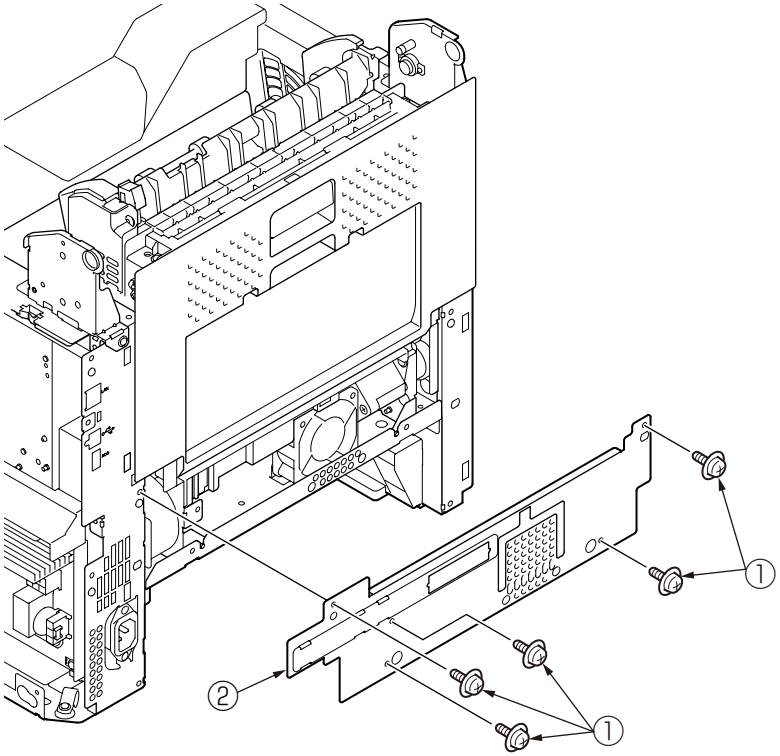
(2) Remove the scanner. (Refer to 3.2.6)

(3) Remove the Plate-Stay-R. (Refer to 3.2.7)

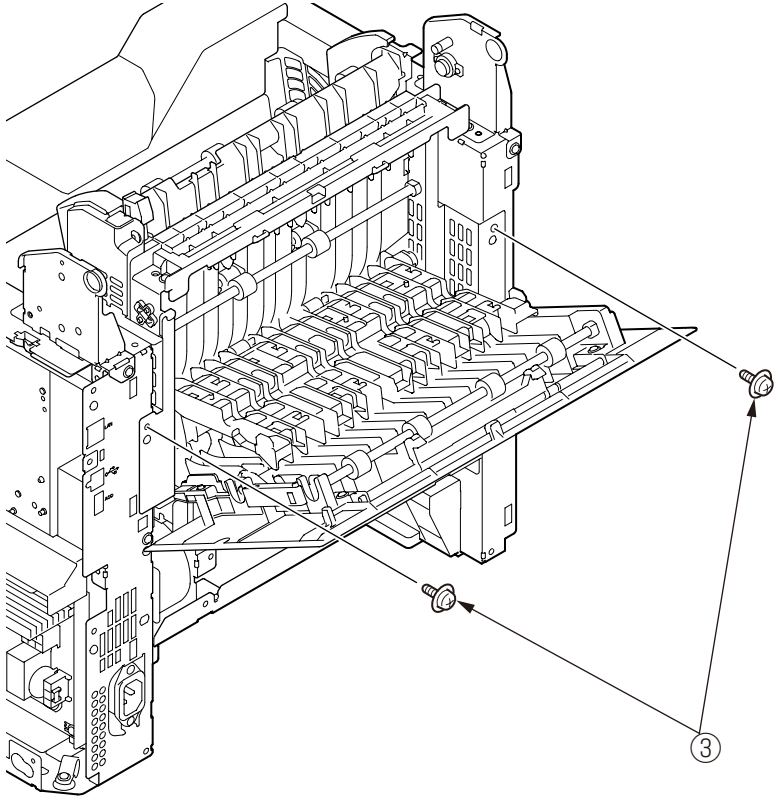
(4) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

(5) Remove the Cover-Assy-Stacker. (Refer to 3.2.20)

(6) Remove the five screws (silver) ① , and remove the Plate-Centro ② .

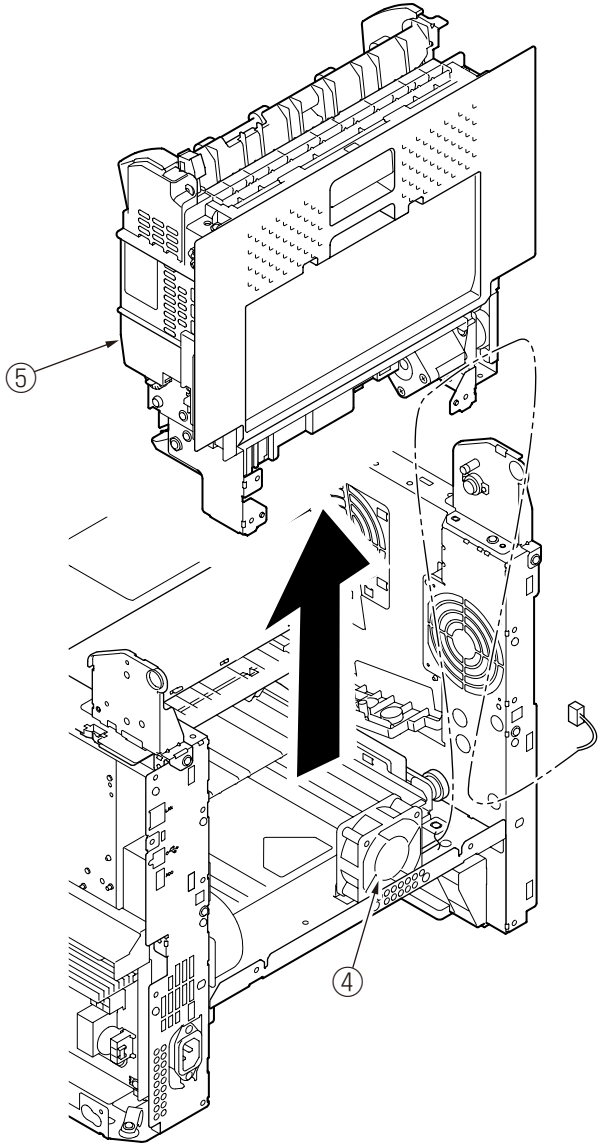


(7) Open the rear cover, and remove the two screws (silver) ③ .



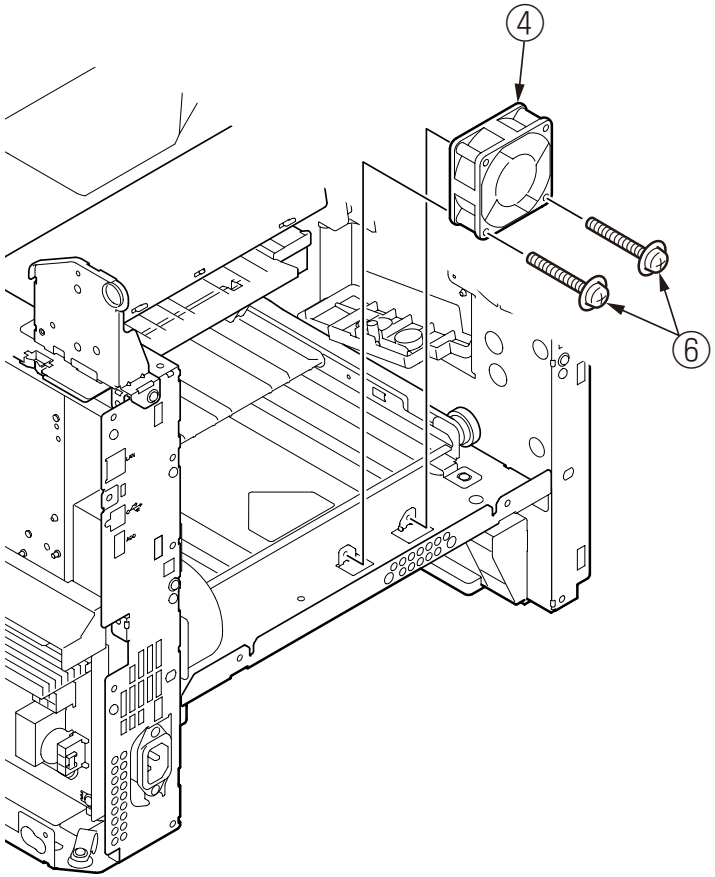
(8) Remove the cable of the Motor FAN ④ from the Eject-Assy ⑤ .

(9) Close the rear cover, and remove the Eject-Assy ⑤ .



(10) Remove the two screws (silver/28mm) ⑥ , and remove the Motor FAN ④ .

Note! Be careful to install the Motor-FAN ④ in the proper direction.



3.2.23 DC motor (fuser)

(1) Remove the Cover–Side-R. (Refer to 3.2.5)

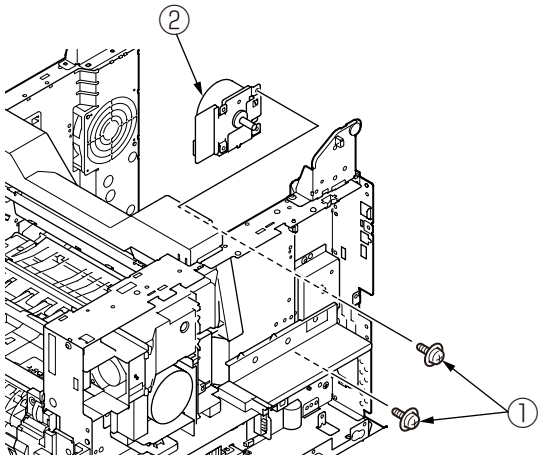
(2) Remove the scanner. (Refer to 3.2.6)

(3) Remove the Plate-Board-R-Assy. (Refer to 3.2.9)

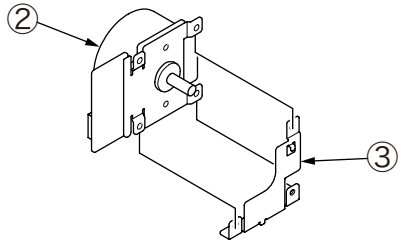
(4) Remove the Cover-Assy-Stacker. (Refer to 3.2.20)

(5) Remove the Eject-Assy. (Refer to 3.2.21)

(6) Remove the two screws (silver) ① , and remove the DC motor (fuser) ② .

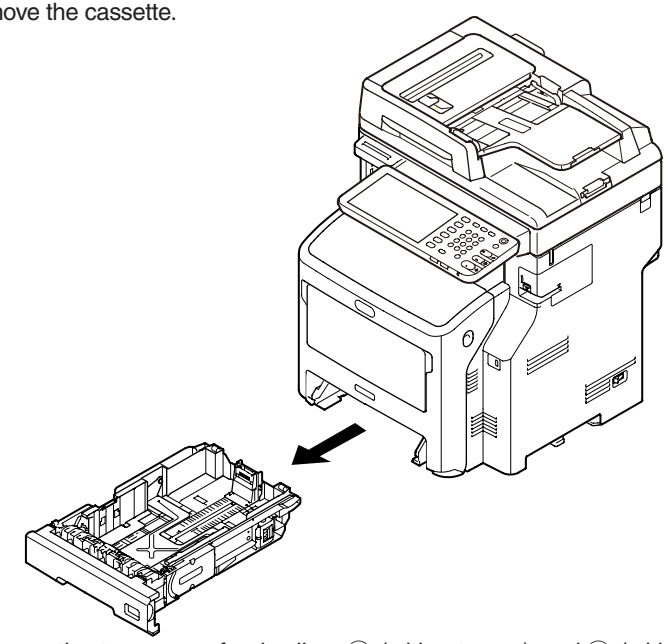


(8) Separate the DC motor (fuser), and the Plate-Motor-FU ③ .

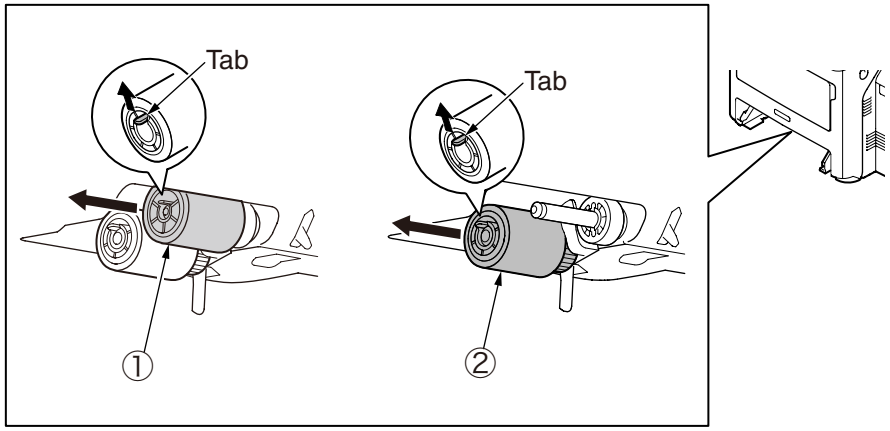


3.2.24 Paper feed rollers

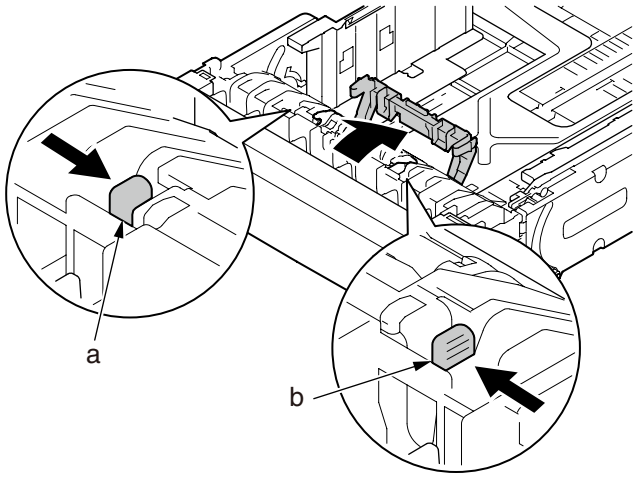
(1) Remove the cassette.

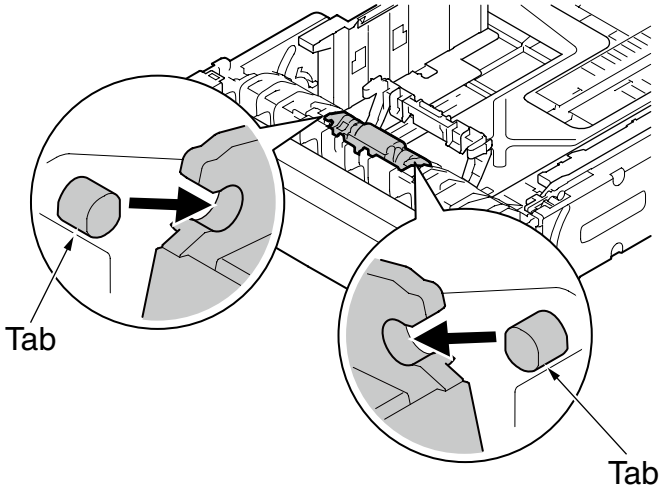


(2) Remove the two paper feed rollers ① (without gear) and ② (with gear) while pushin each tab outward.

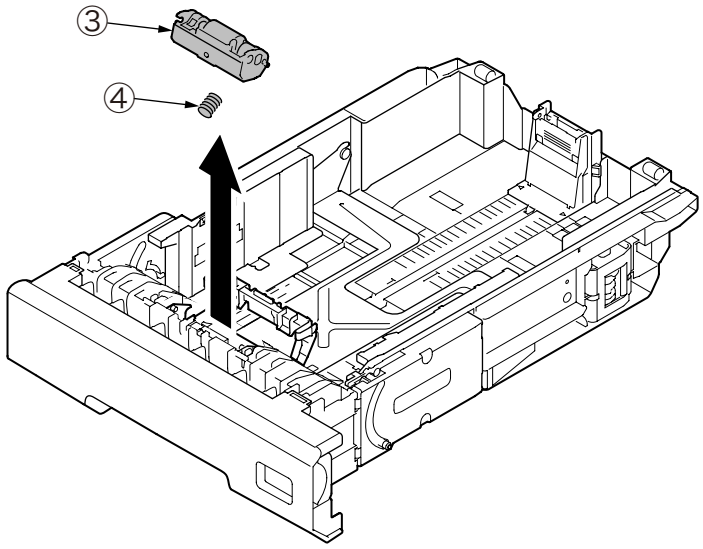


(3) Open the cover while pushing the two tabs (a and b) inward.





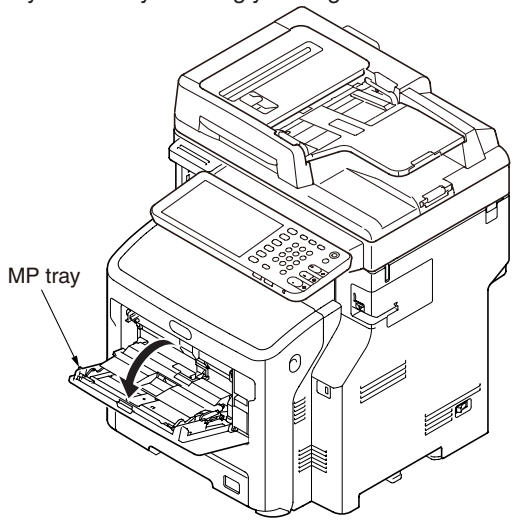
(5) Remove the retard roller tray ③ and the spring ④ .



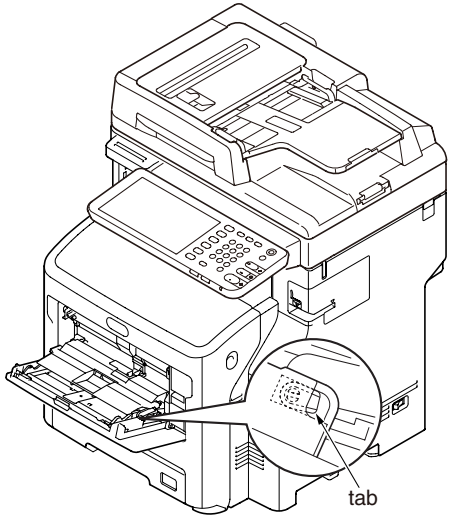
Note! After setting the two paper feed rollers ① and ② , check that they do not come off.

3.2.25 Paper feed rollers (MPT)

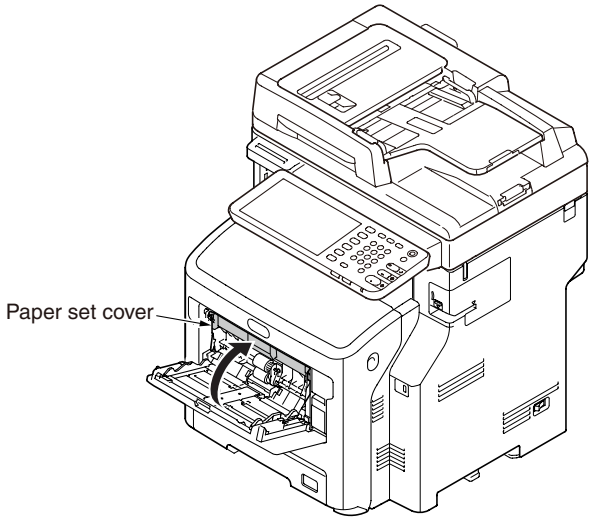
(1) Open the MP tray forward by inserting your fingers into the front reccesses.



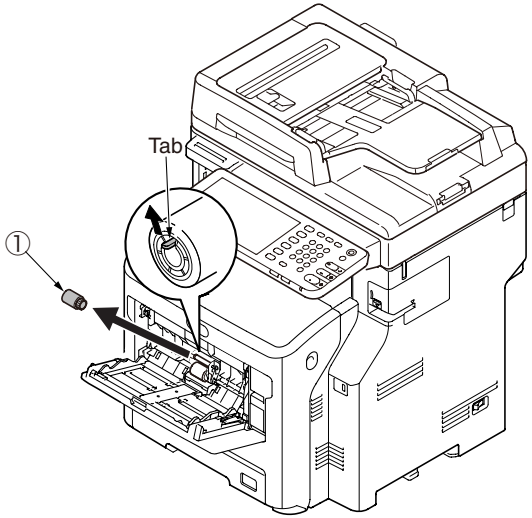
(2) Release the tab of the paper feed roller cover by pressing the right arm inward while lifting up the MP tray lightly, and release the tab on the left side in the same manner.



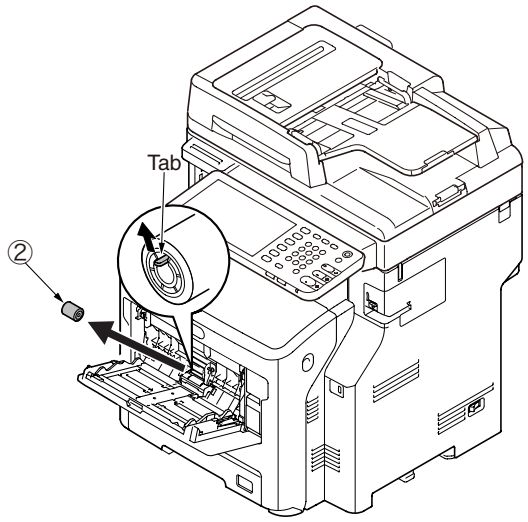
(3) Open the paper set cover.



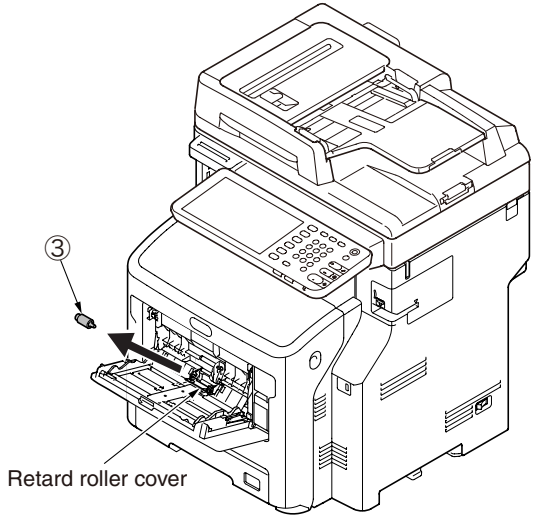
(4) Remove the MPT paper feed roller (with gear) ① while pushing the tab outward.



(5) Remove the MPT paper feed roller (without gear) ② while pushing the tab outward.



(6) Open the retard roller cover while pushing the center part of the MP tray, and remove the MPT retard roller ③ .

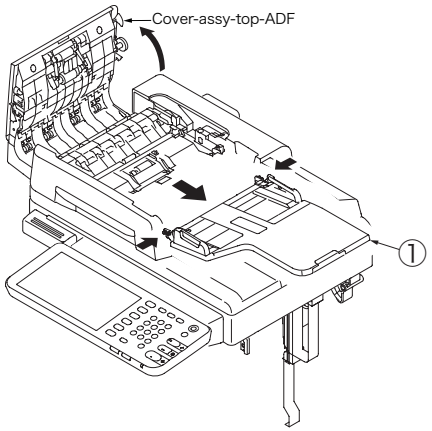


Note! After setting the two paper feed rollers ① and ② , check that they do not come off.

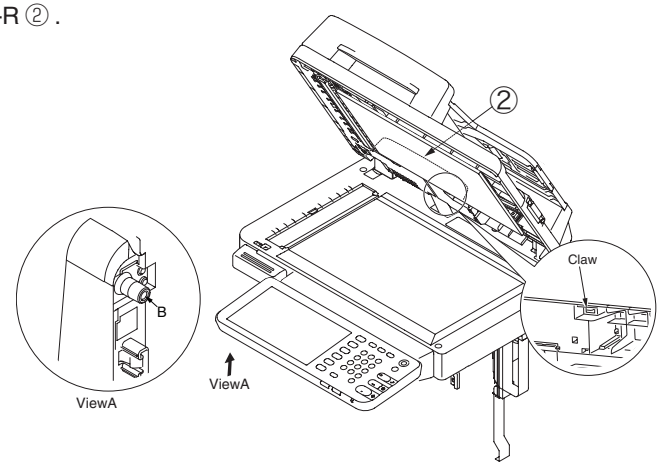
3.2.26 Tray-Assy-Document / Cover-ADF-R

(1) Open the Cover-Assy-top-ADF.

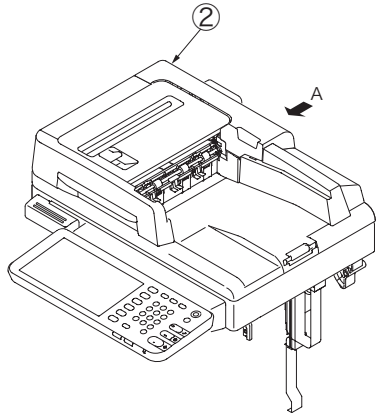
(2) Remove the Tray-Assy-Document ① by pull it in the direction arrow.



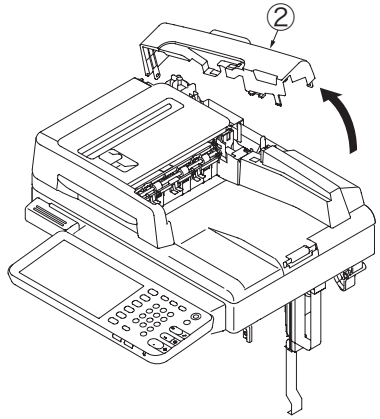
(3) Open the ADF-unit while pushing the portion B, and push the claw of cover-ADF-R ② .



(4) Push the portion A. (Concurrent to push the (3))



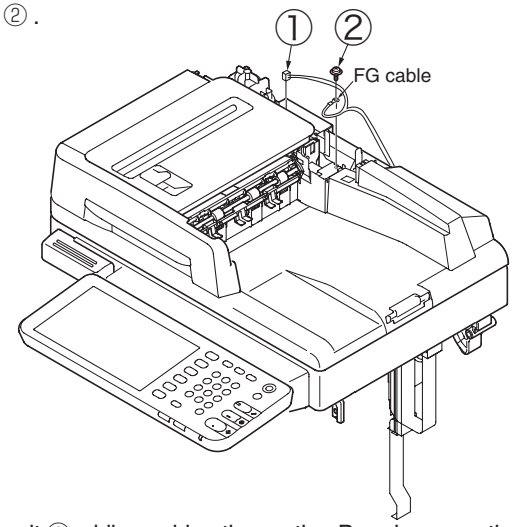
(5) Remove the cover-ADF-R ② in the direction of the arrow.



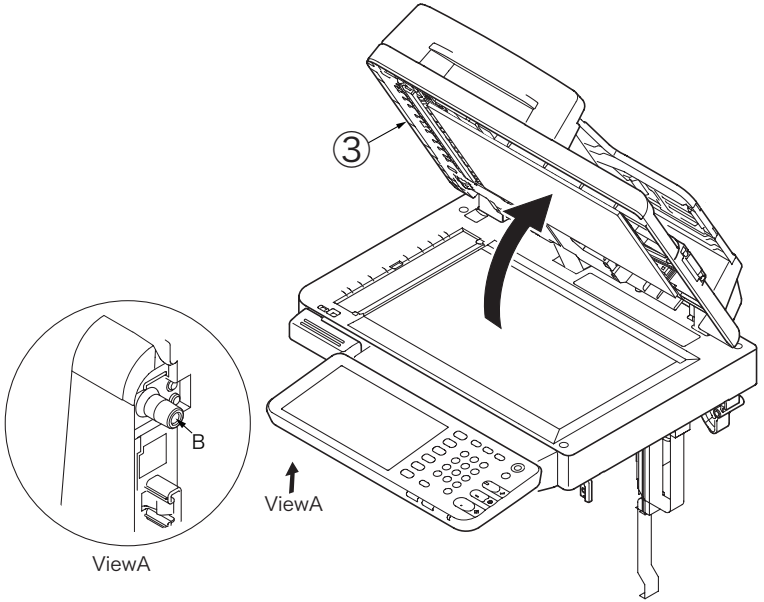
3.2.27 ADF-unit

(1) Remove the cover-ADF-R. (Refer to 2.2.27)

(2) Detach a connector from the ADF board(7RL), and remove the screw(silver) ① and FG cable ② .

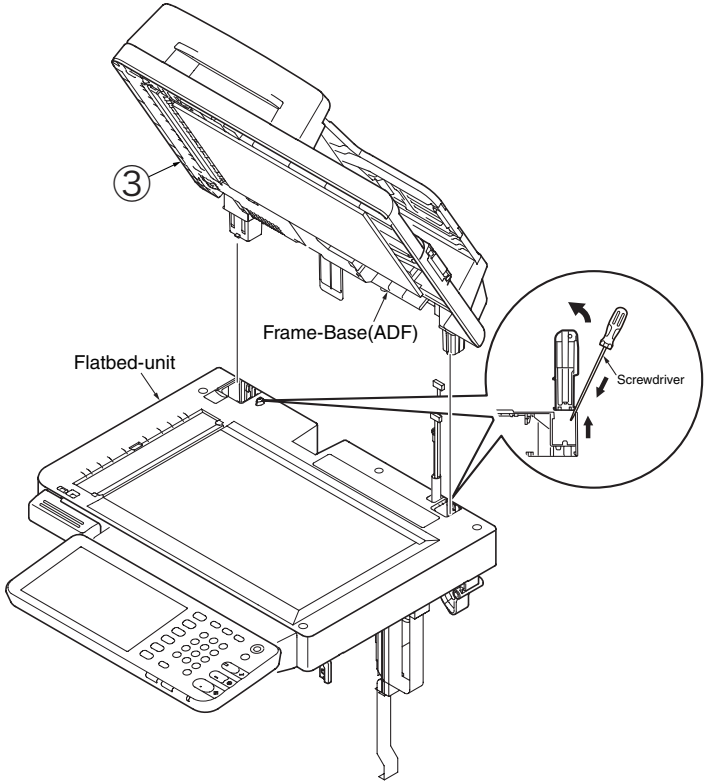


(3) Open the ADF-unit ③ while pushing the portion B and remove the clamp cable.



(4) Remove the ADF-unit by insert the flat-blade screwdriver to gap betweenADF-unit and flatbed-unit with pull the cables out of the Frame-Base (ADF) and Hinge.

Note! To see the Section 3.3 when replacement the ADF-unit ③ .

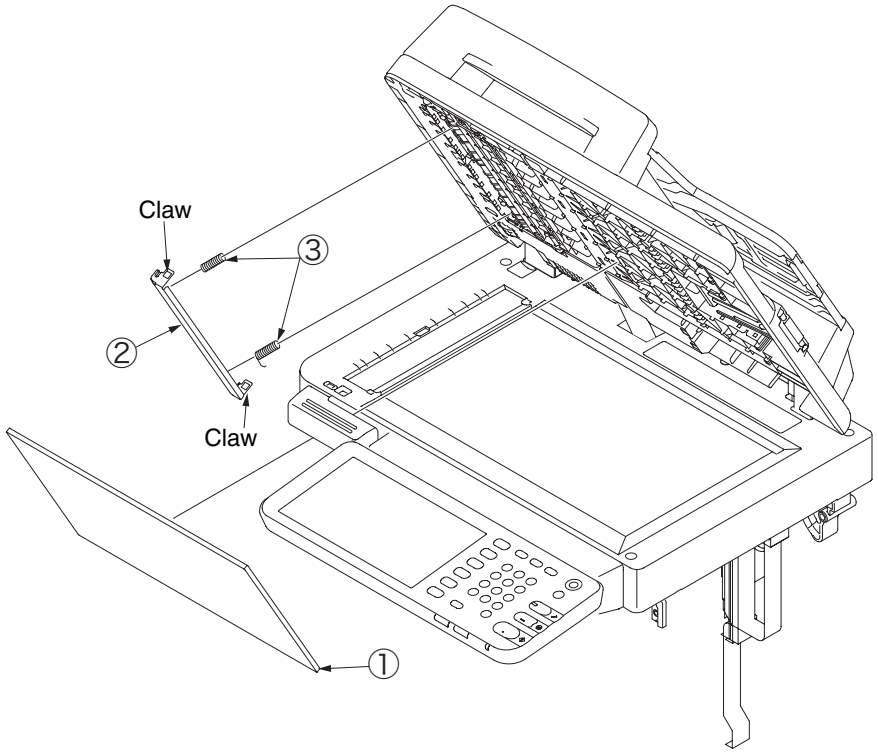


3.2.28 Sheet-document / Paper-weight-Assy / Spring-PW-ADF

(1) Open the ADF-unit.

(2) Remove the sheet-document ① .

(3) Remove two claws to remove the paper-weight-assy ② and two spring-PW-ADF ③ .



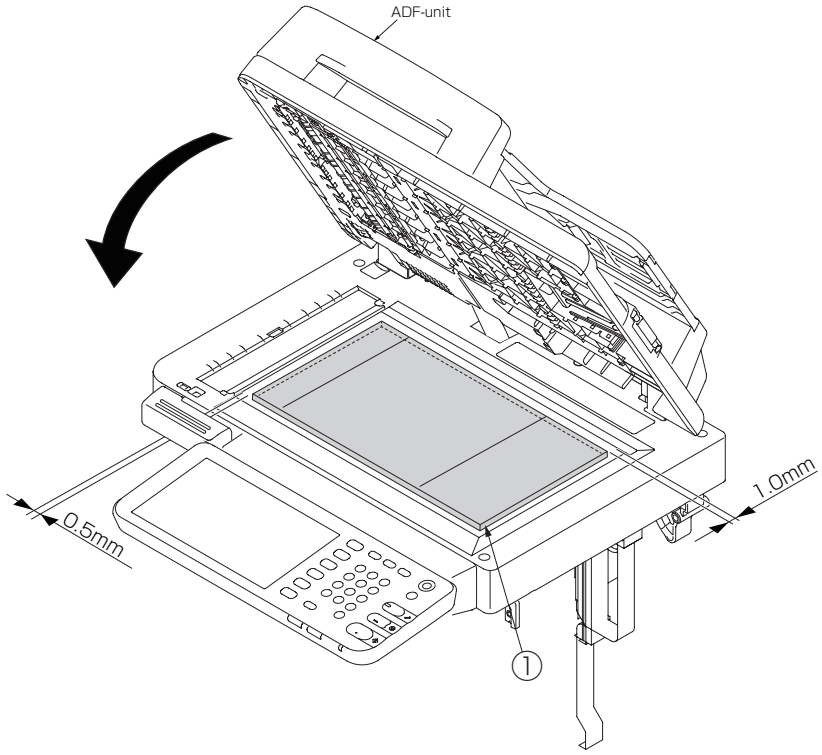
<Attention of affix the sheet-document>

(1) Degrease the affix area of ADF-unit.

(2) Remove the peeling-off sheet.

(3) Set the sheet-document (see the figure below).

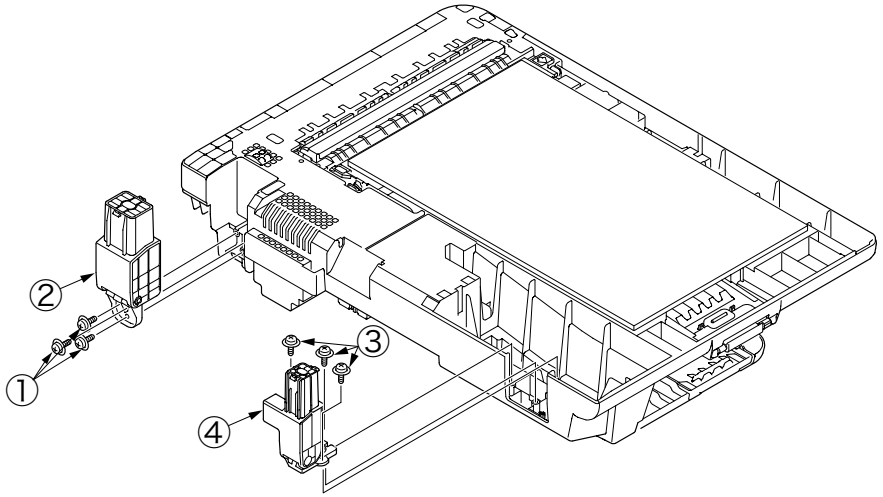
(4) Close the ADF-unit.



3.2.29 Hinge-Assy-L / Hinge-Assy-R

(1) Remove the three screws(black) ① and remove the hinge-Assy-R ② .

(2) Remove the three screws(black) ② and remove the hinge-Assy-L ④ .

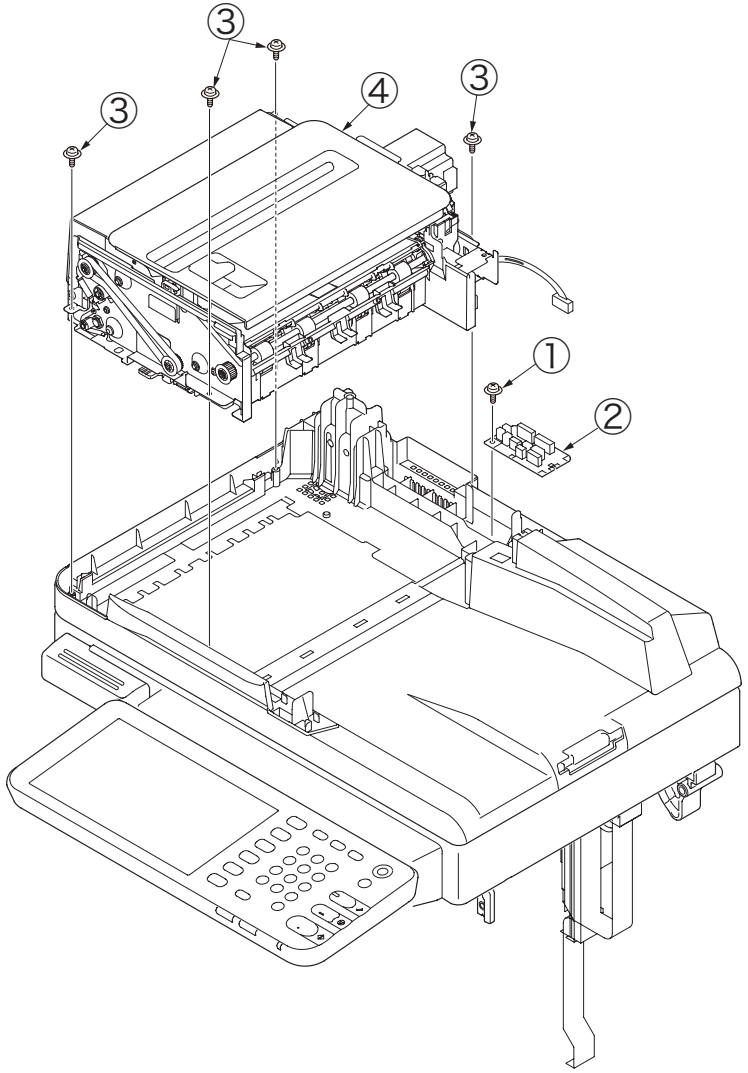


3.2.30 ADF-Assy

(1) Remove the screw(silver) ① and remove the ADF board(7RL) ② .

(2) Remove the four screws(black/6mm) ③ and remove the ADF-assy ④ .

Note! To see the Section 3.3 when replacement the ADF-assy ④ .



3.2.31 Guide-Retard / Roller / Motor / Clutch / Solenoid/ Photo-sensor

(1) Pull and remove Guide-Cable-ADF ① .

(2) Remove the E ring ② and remove the clutch ③ .

(3) Remove the three screws(black/6mm) ④ and remove the plate-motor-ADF ⑤ .

(4) Remove the two screws(silver) ⑥ and remove the motor-pulse ⑦ from ⑤ .

(5) Remove the E ring ⑧ and remove the clutch ⑨ .

(6) Open the Cover-Assy-Top-ADF ⑩ , and warp around a post to Arrow A to remove Cover-Assy-Top-ADF ⑩ .

(7) Disconnect a cable, and warp around post to Arrow B to remove the Guide-Retard-A ⑪ .

(8) Remove the Guide Separator Hop ⑫ .

(9) Remove the three screws(black / 6mm) ⑬ and Plate-Drive ⑭ .

(10) Remove the Feed roller ⑮ .

(11) Remove two screws (silver) ⑯ and remove the solenoid ⑰ .

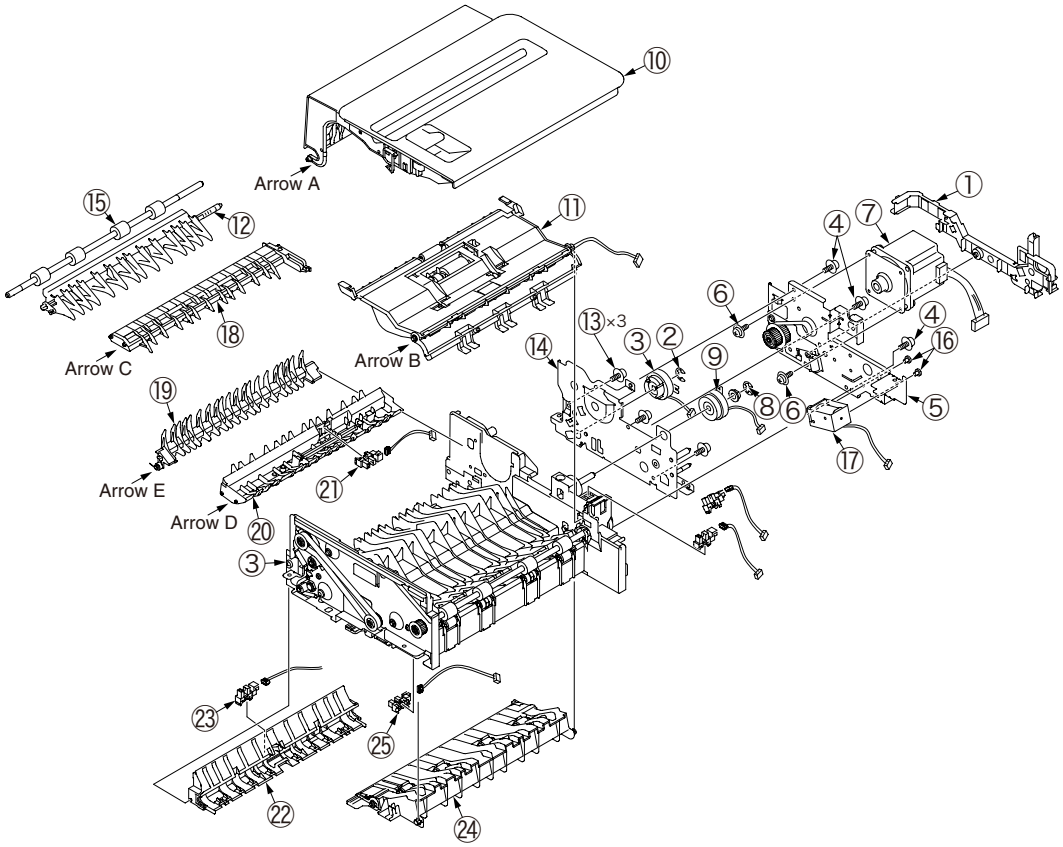
(12) Warp around post to Arrow C to remove Guide-B ⑱ .

(13) Warp around post to Arrow E to remove Guide-Separator ⑲ .

(14) Disconnect all cables and warp around post to Arrow D to remove the Guide-Assy-C ⑳ and remove ㉑ .

(15) Warp around post to Arrow F to remove the Guide-Assy-D ㉒ and remove the photo-sensor ㉓ .

(16) Warp around post to Arrow G to remove the Guide-Retard the Guide-Exit-Lower ㉔ and remove Photo-sensor ㉕ .



3.2.32 Guide-Assy-Retard

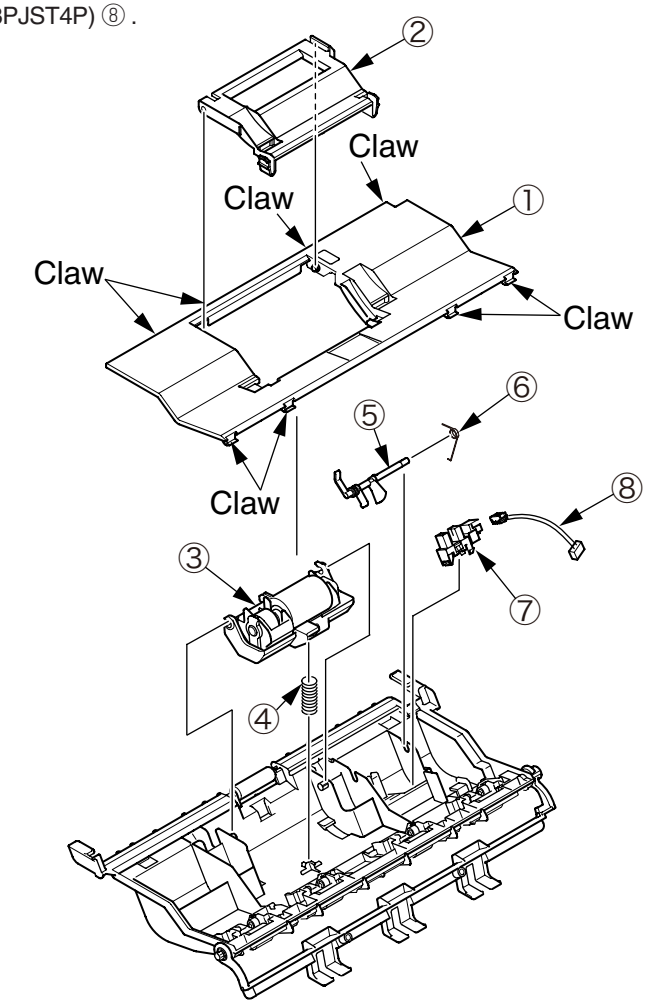
(1) Remove the eight claws and remove the Guide-Retard(sub) ① .

(2) Remove the Cover-Retard(ADF) ② .

(3) Remove the Frame-Assy Retard ③ and remove the spring Retard ④ .

(4) Remove the Lever-Hopping ⑤ and the spring-Hopping ⑥ .

(5) Remove the Photo-coupler ⑦ and remove the cable (conn cable AMP3PJST4P) ⑧ .



3.2.33 Flatbed-Unit

(1) Remove the five screws (black/6mm) ① and remove the cover-Bottom ② .

(2) Remove the screw (silver) ③ and remove the platestopper(OP) ④ .

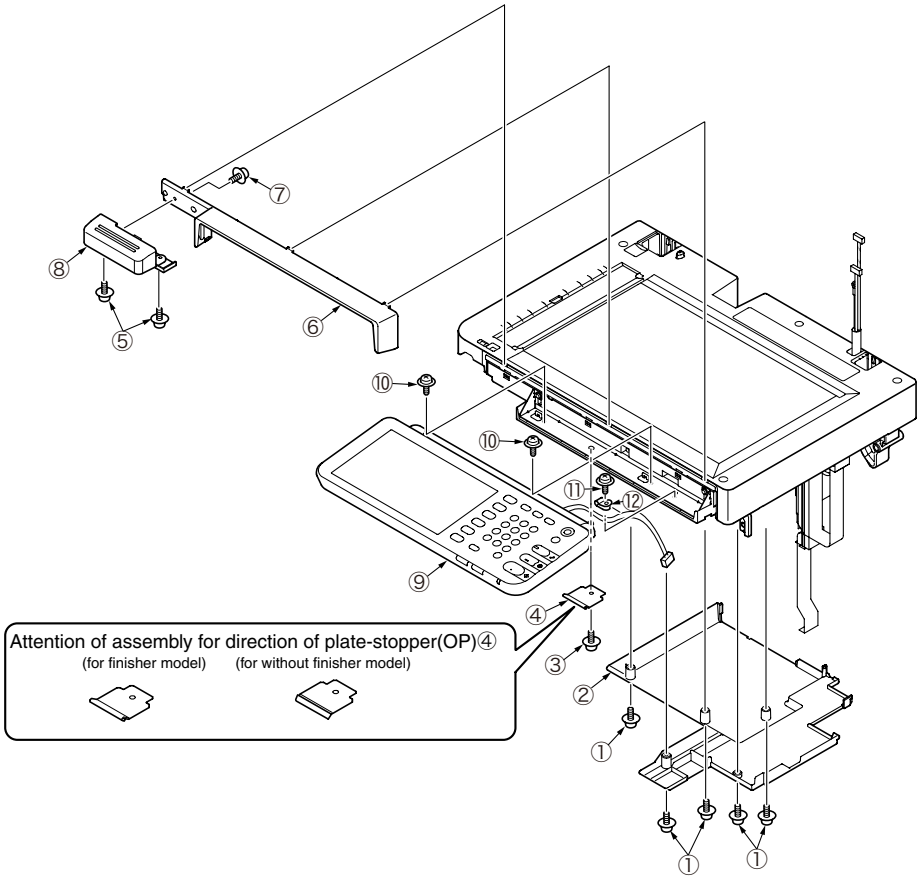
(3) Remove the two screws (black/12mm) ⑤ and remove thecover-OP ⑥

(4) Remove the screw(black) ⑦ and remove the Handle-scanner(S) ⑧ .

(5) Rotate the OP-panel-unit ⑨ 90 degrees.

(6) Remove the two screws(silver) ⑩ .

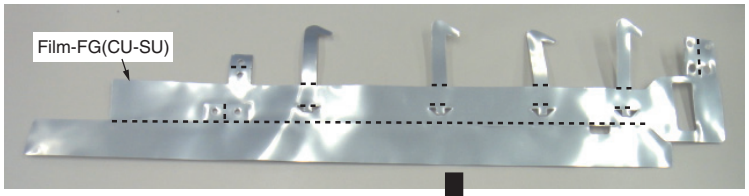
(7) Remove the screw(silver) ⑪ and remove the clamp-cable ⑫ and remove the OP-panel-unit ⑨ .

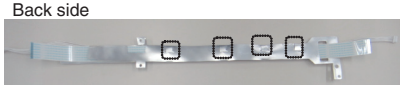


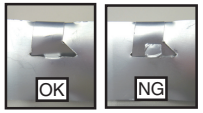
3.2.34 Frame-assy-FB

(1) Remove the five screws (silver) ① and remove the five screws(black/6mm) ② .
(2) And remove the plate-shield-SU ③ .
(3) Remove the all SU-board cables.
(4) Remove the five screws (silver) ④ and remove the SU-board ⑤ .
(5) Remove the screw (black/6mm) ⑥ .
(6) Pull core ⑦ out of FFC cable.
(7) Remove the FFC cable ⑧ .
(8) Remove the four screws (black/10mm) ⑨ and Film-FG(SCN-PR) ⑩ .
(9) Remove the cover-hinge (L) ⑪ and the Plate-Hinge-L(Caulking) ⑫ .
(10) Remove the seven screws (black/12mm) ⑬ and remove the cam-hinge ⑭ .
(11) Remove the screw (black/6mm) ⑮ and the two screws (black/12mm) ⑯ .
(12) Remove the cover-assy-LF ⑰ .

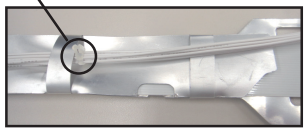
Note! To see the Section 3.3 when replacement the SU-board ⑤ .



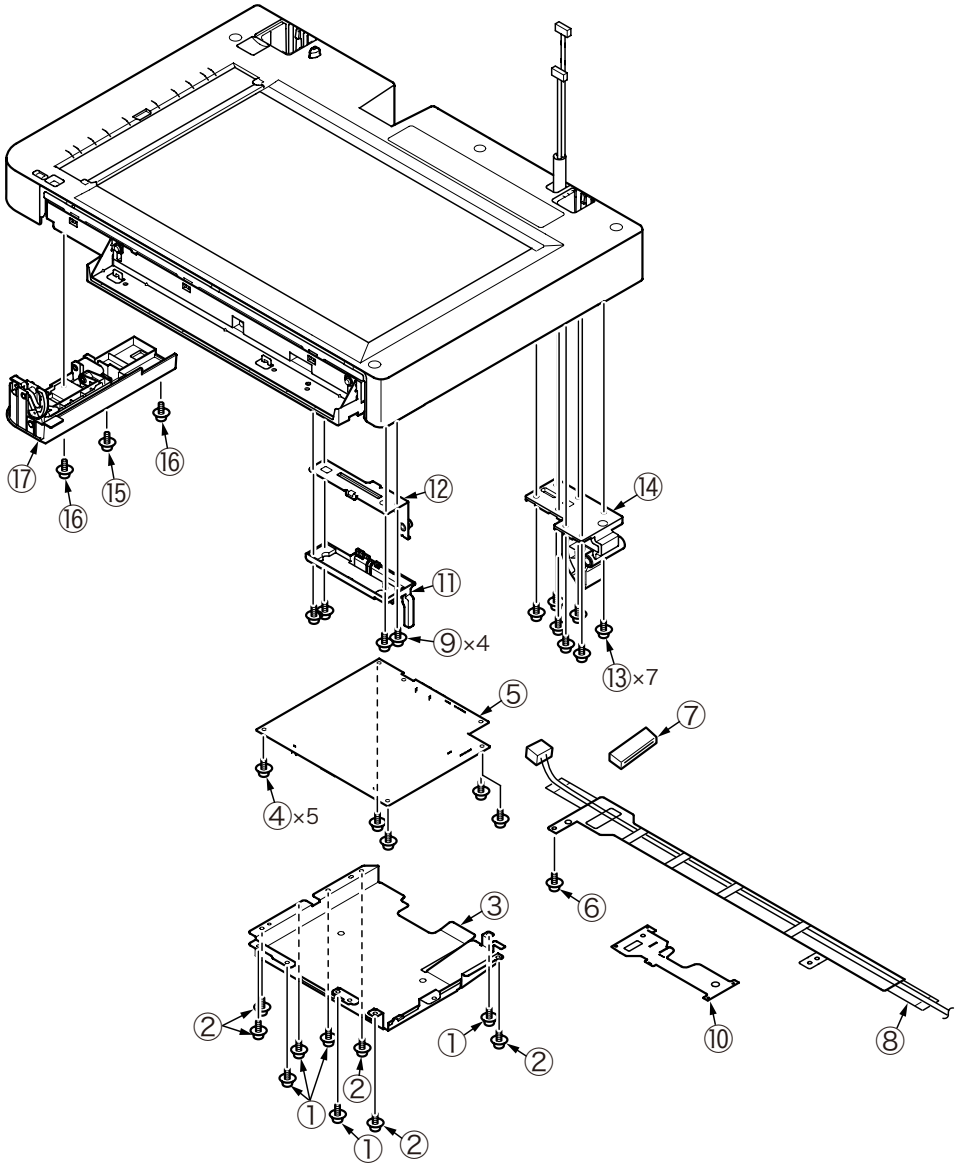




Check the four portion after assembled

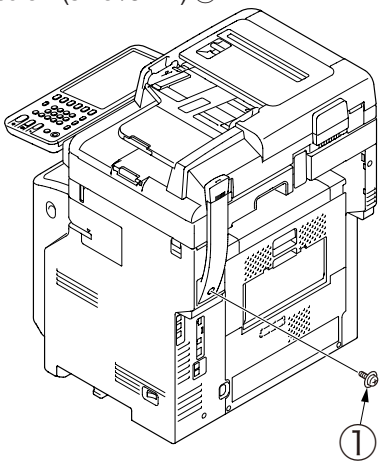


portion of tie wrap



3.2.35 Antenna (for wireless model only)

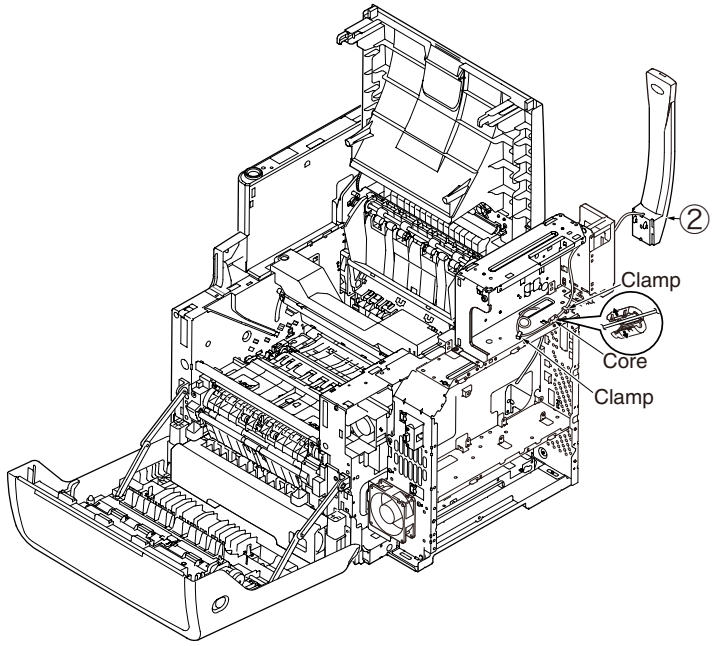
(1) Remove the screw (silver/8mm) ① .



(2) Remove the FAX PCB.(Refer to 3.2.8)

(3) Remove the two clamp-cable and core and disconnect the connector.

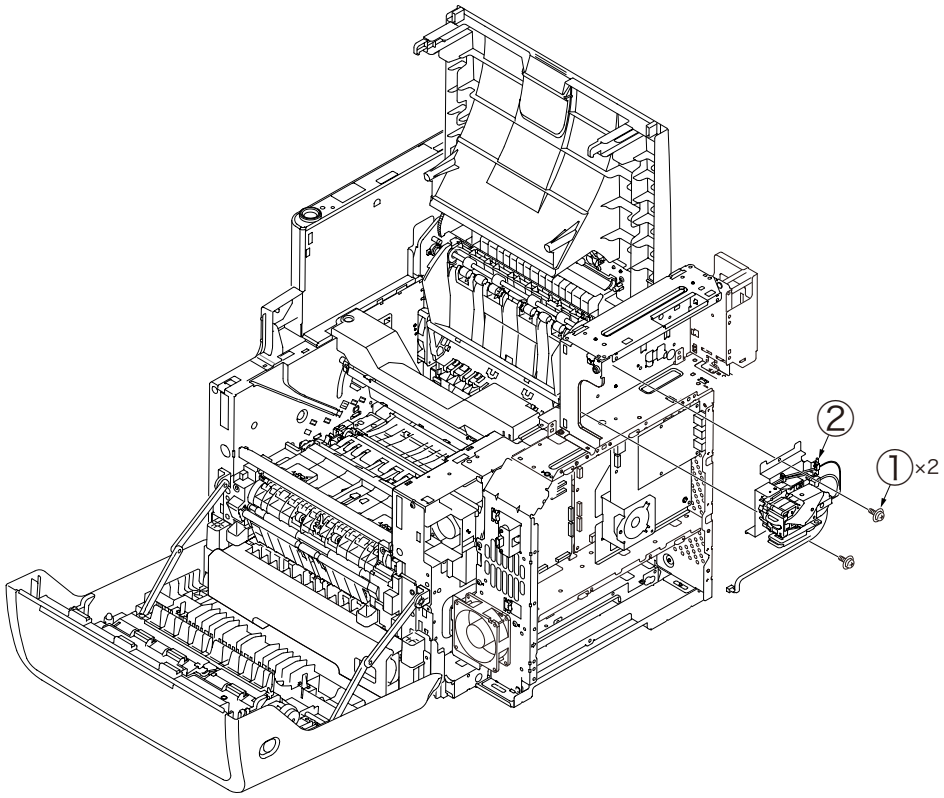
(4) Remove the Antenna ② .



3.2.36 Stapler (for stapler model only)

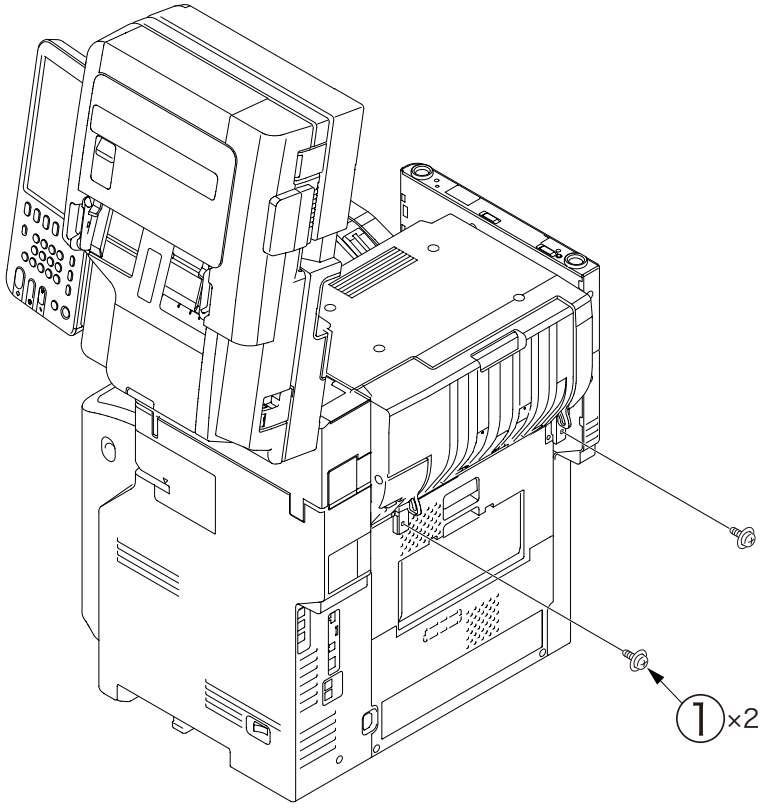
(1) Remove the plate shield. (Refer to 3.2.8).

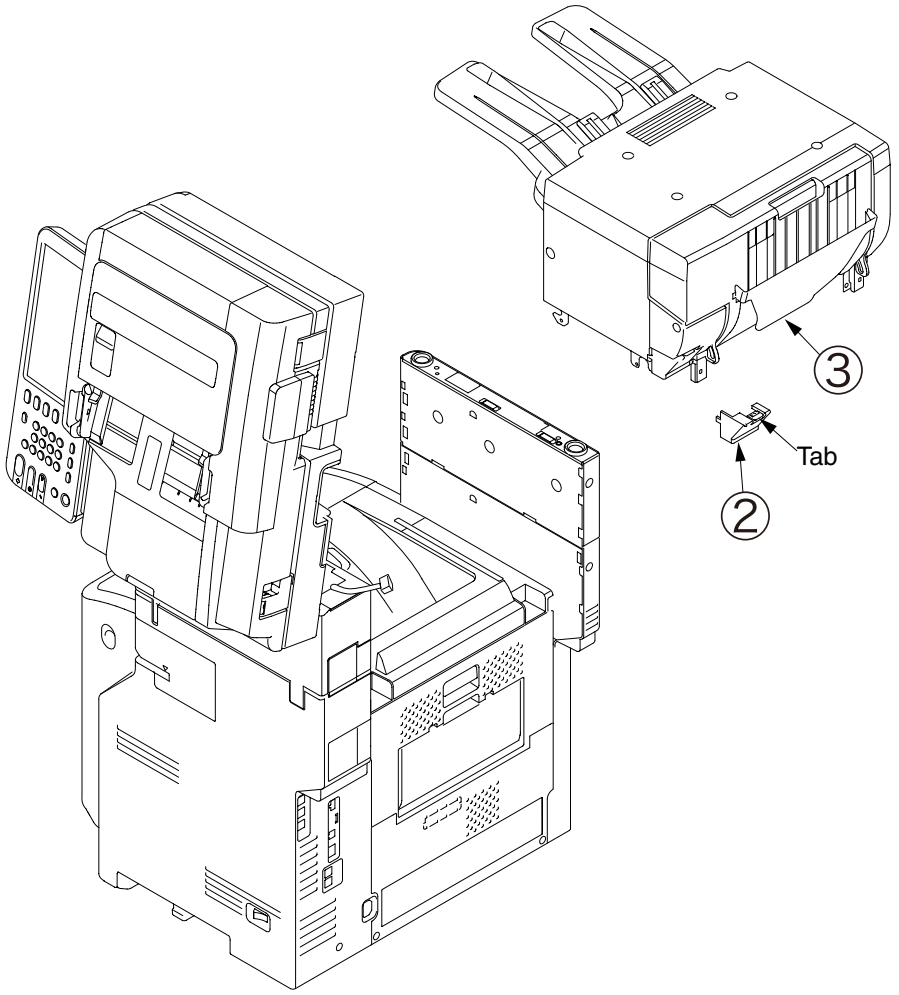
(2) Remove the two screws (silver) ① and remove the Staple ② .



3.2.37 Finisher (for finisher model only)

(1) Open the Scanner and remove the two screws(black) ① .
(2) Remove the cover connector ② by push the tab.
(3) Disconnect the connector and remove the finisher unit ③ .

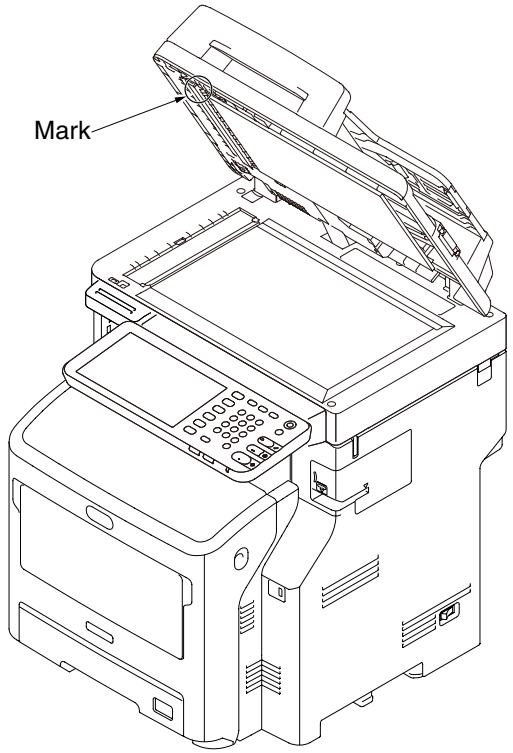




3.3 Check the Scanner Mech Level and SU FW version

When replacement the ADF Unit or ADF Assy or SU board, to check the Mech Level.

Open the ADF and see the Mark following figure and table.



Mech Level	Mark
1	▲
2	■

Mech Level and SU FW version table

Mech Level	Mark	SU FW version
1	▲	01.07 or more
2	■	TBD

3.4 Oiling spots

This chapter shows the oiling spots. Do not oil the other spots that are not shown here. It is not necessary to inject the machine-oil during disassembling. However, please add the specified oil when you wipe the oil off.

Oiling operation

(1) Mark and name of the lubrication oil

EM-D110: MOLYKOTE EM-D110 (No: 44594501)

EM-30LP: MOLYKOTE EM-30LP (No: 44498501)

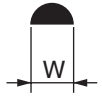
SF-133: SF-133 HANARL SF-133

HP-300: HP-300

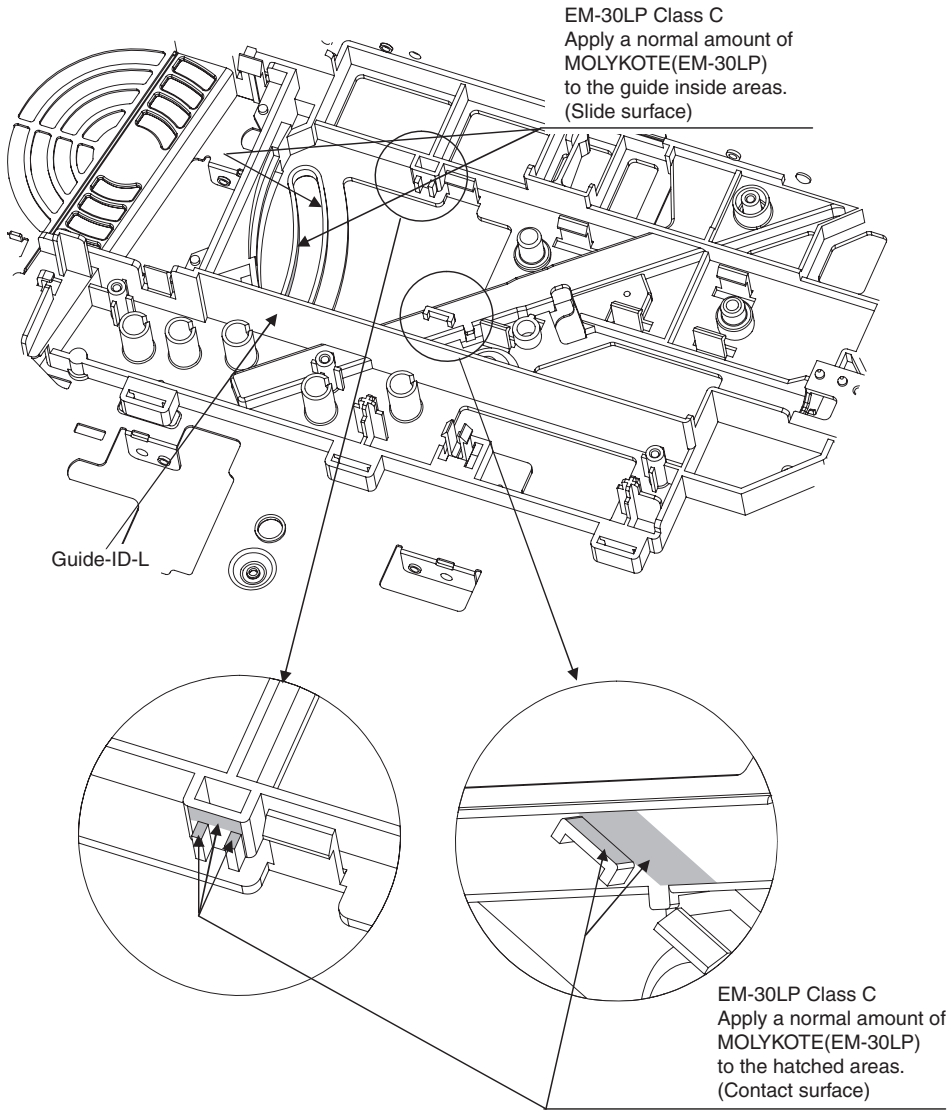
Tetra: C-9310 or C-5005

(2) Standard of amount of grease

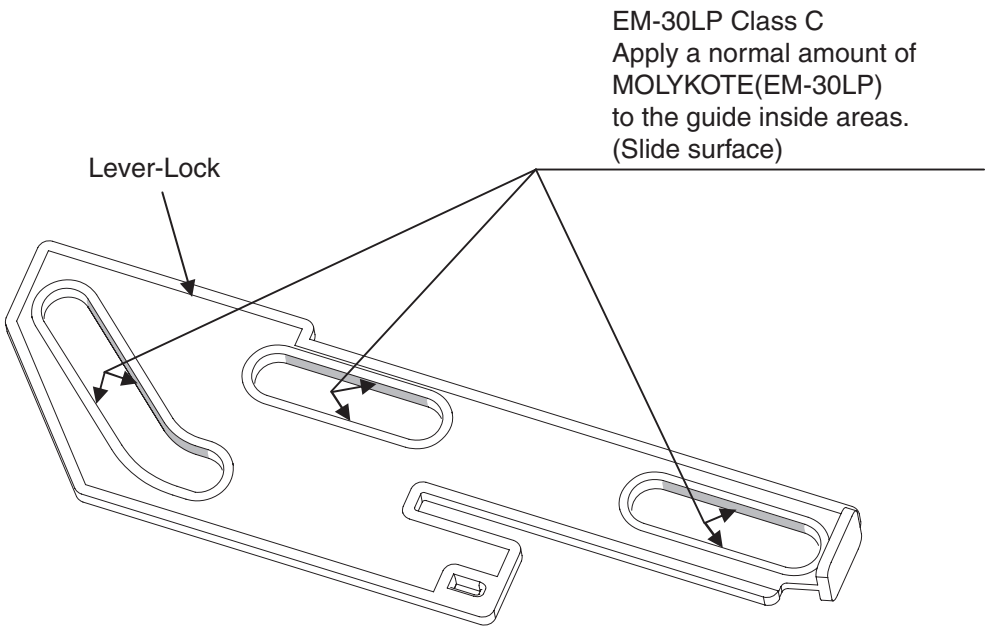
Class	S	A	B	C	D	E	F
Amount of grease(cc)	0.0005	0.003	0.005	0.01	0.03	0.05	0.1
W(mm)	1.24	2.25	2.67	3.37	4.86	5.76	7.26
Sample	•	●	●	●	●	●	●



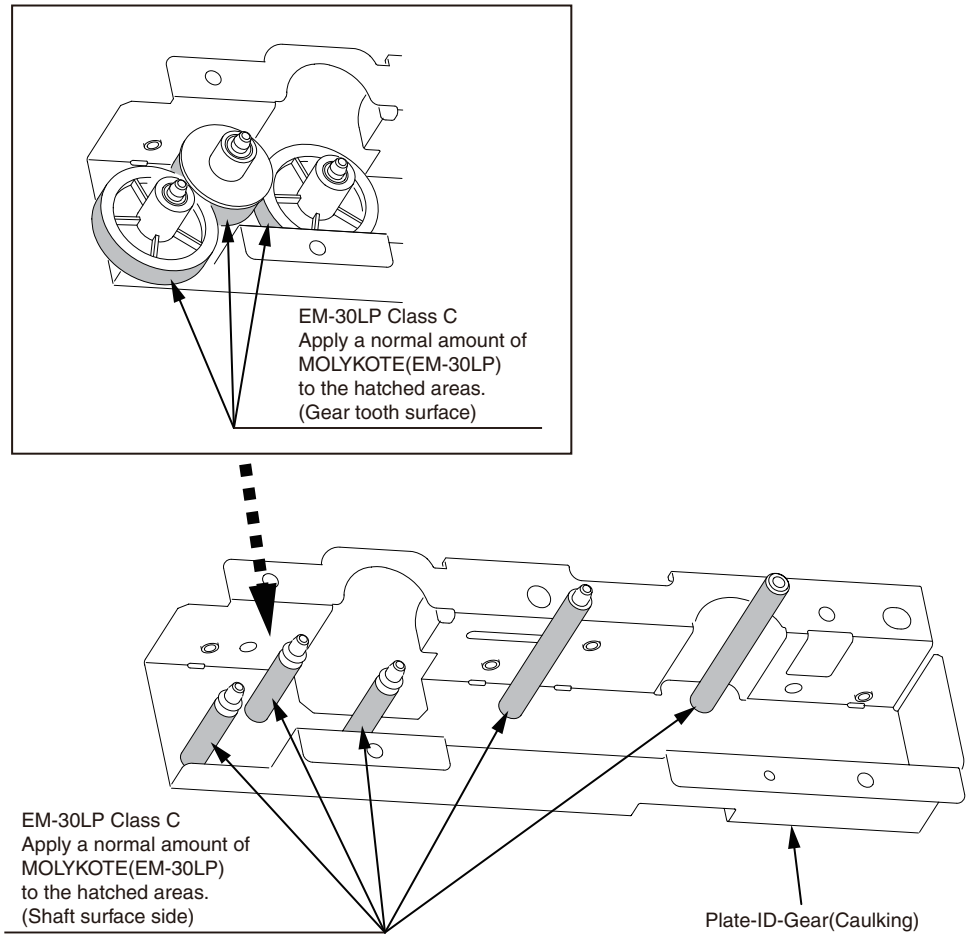
① -1 Plate-Assy-Side-L



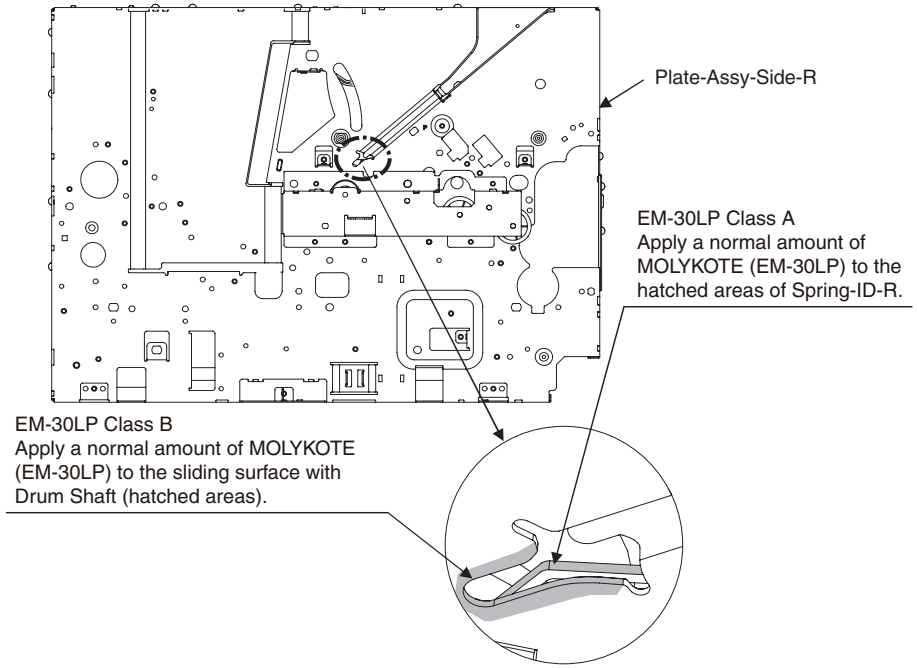
① -2 Plate-Assy-Side-L



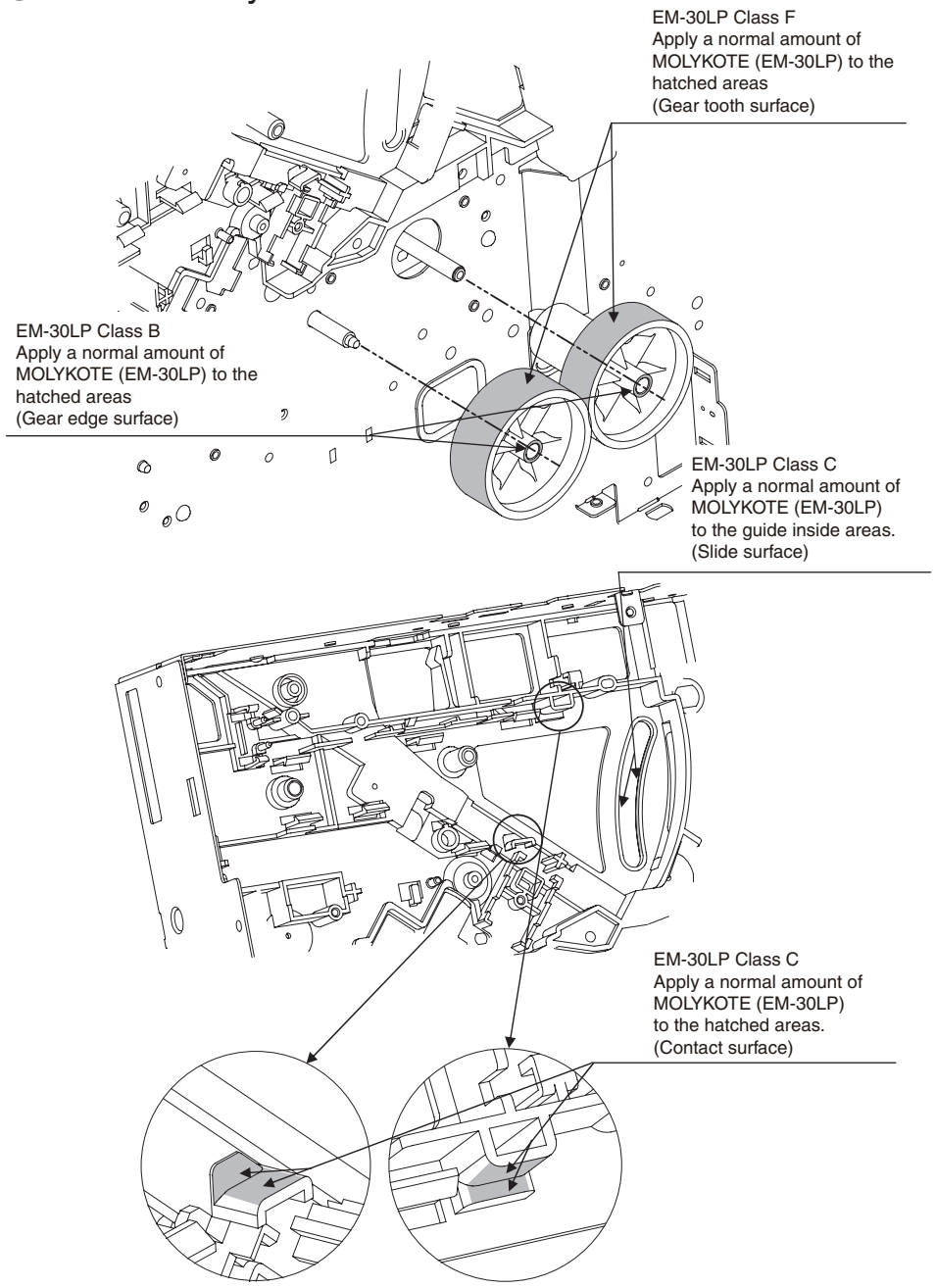
② -1 Plate-Assy-Side-R



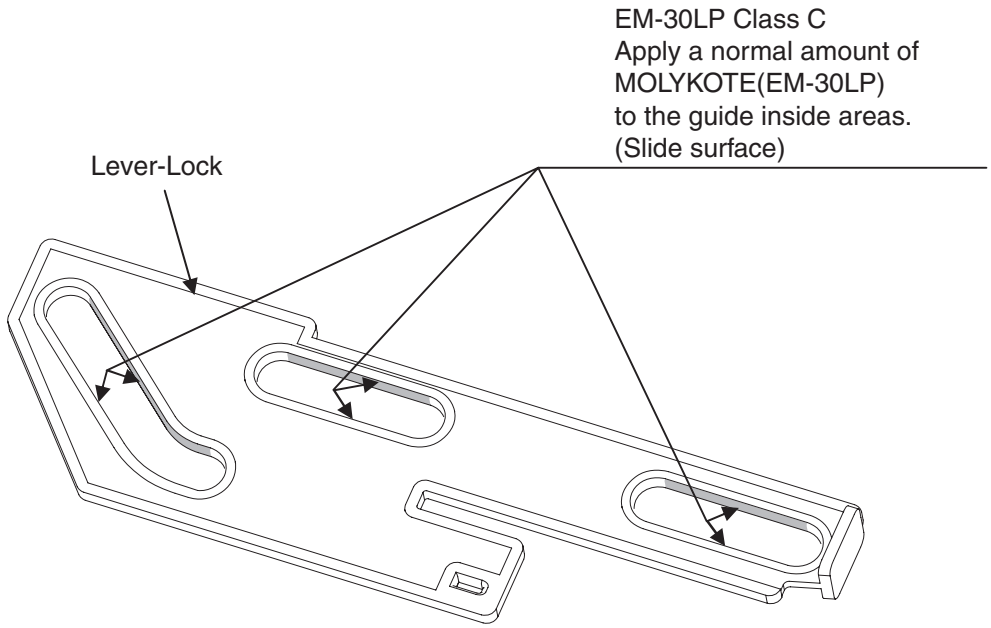
② -2 Plate-Assy-Side-R



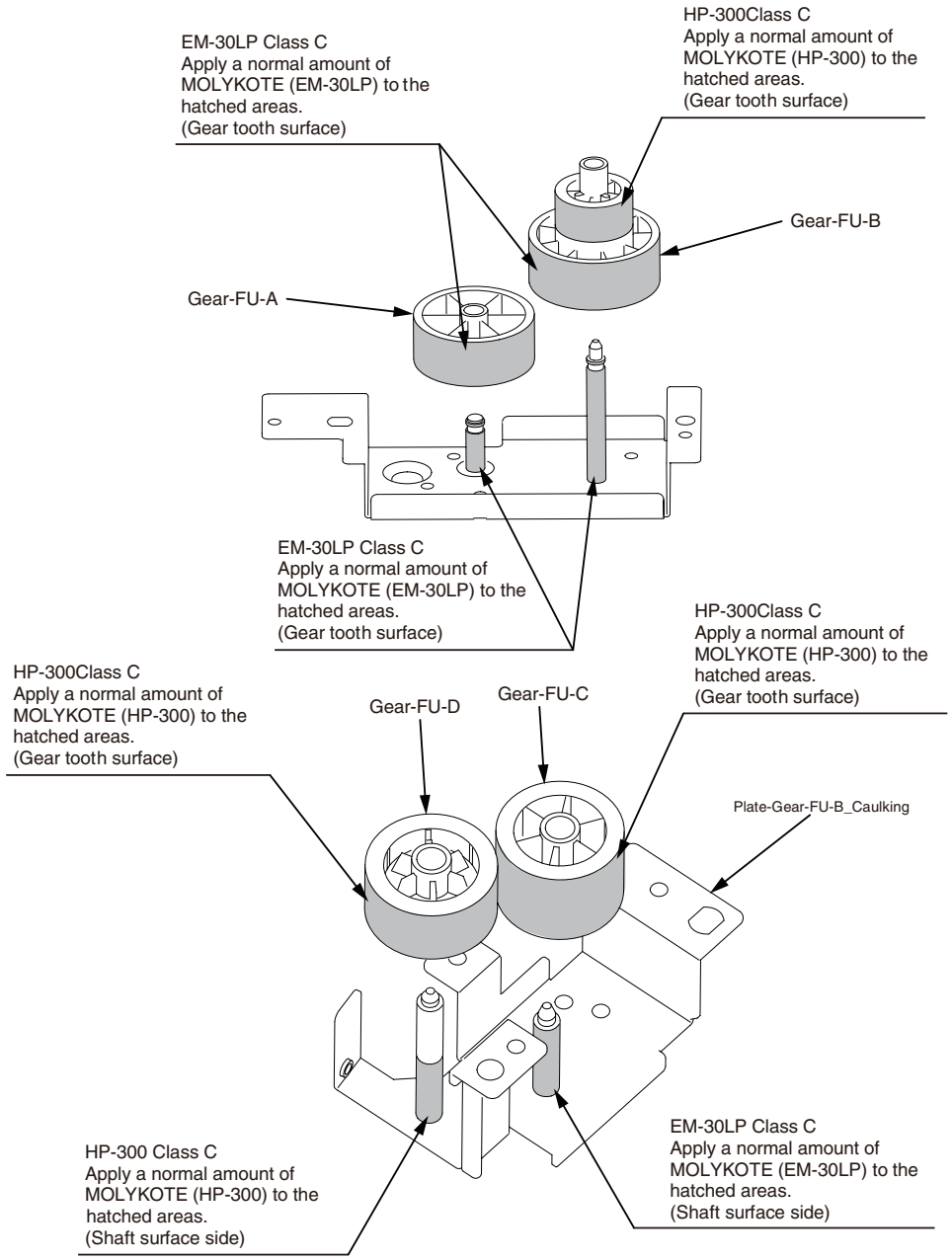
② -3 Plate-Assy-Side-R



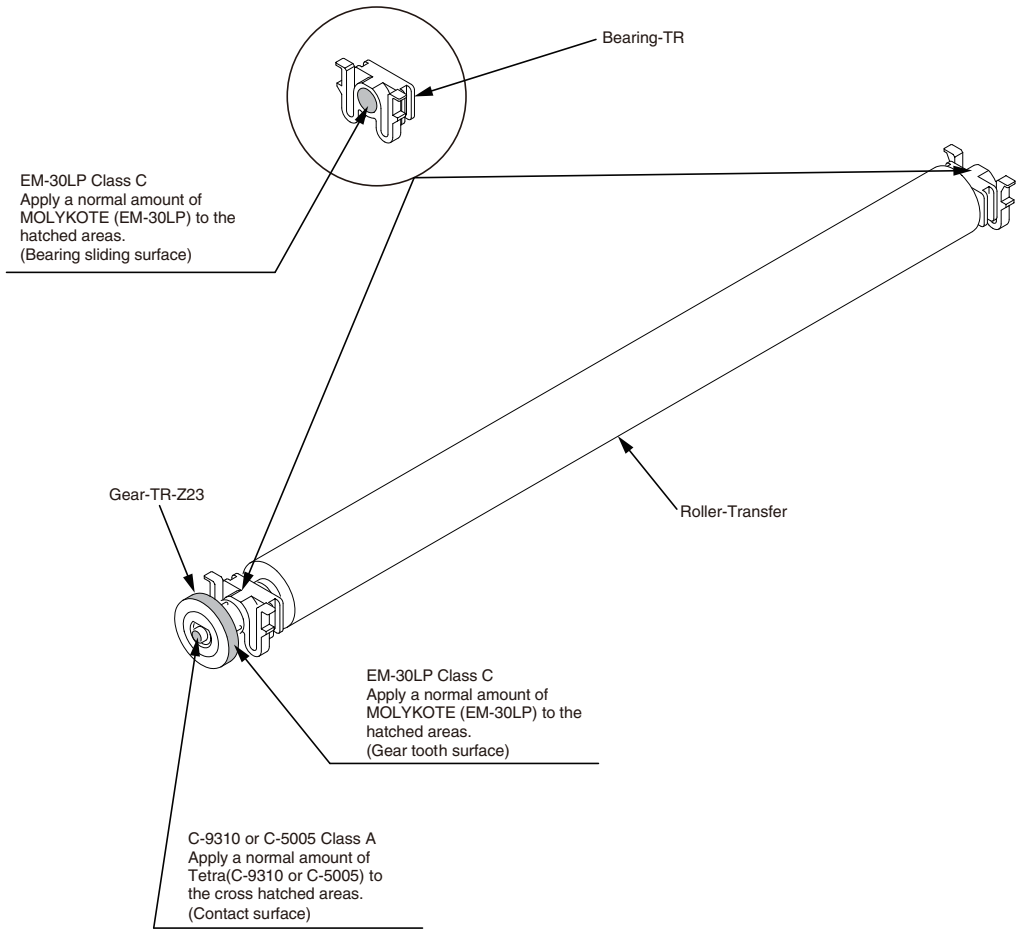
② -4 Plate-Assy-Side-R



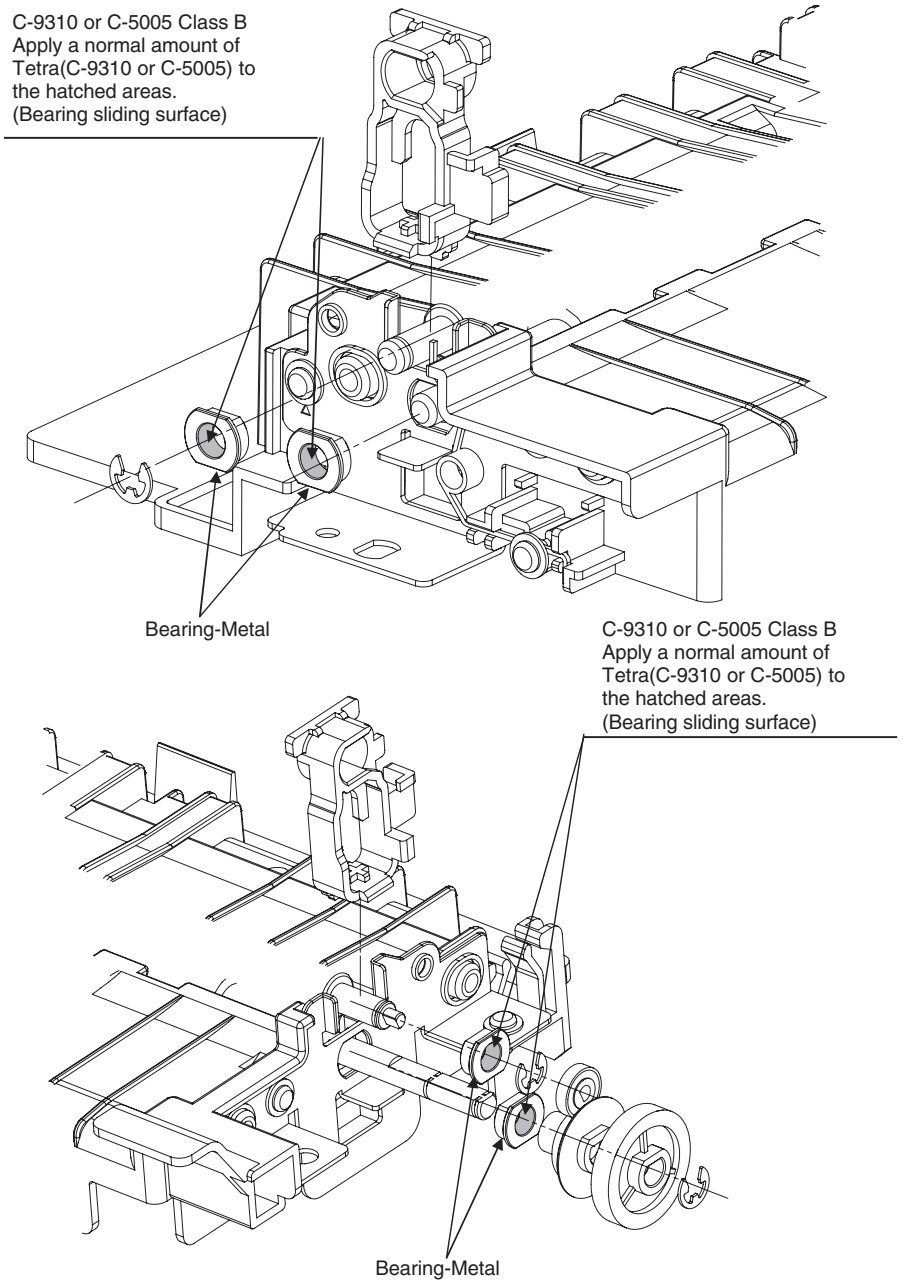
② -5 Plate-Assy-Side-R



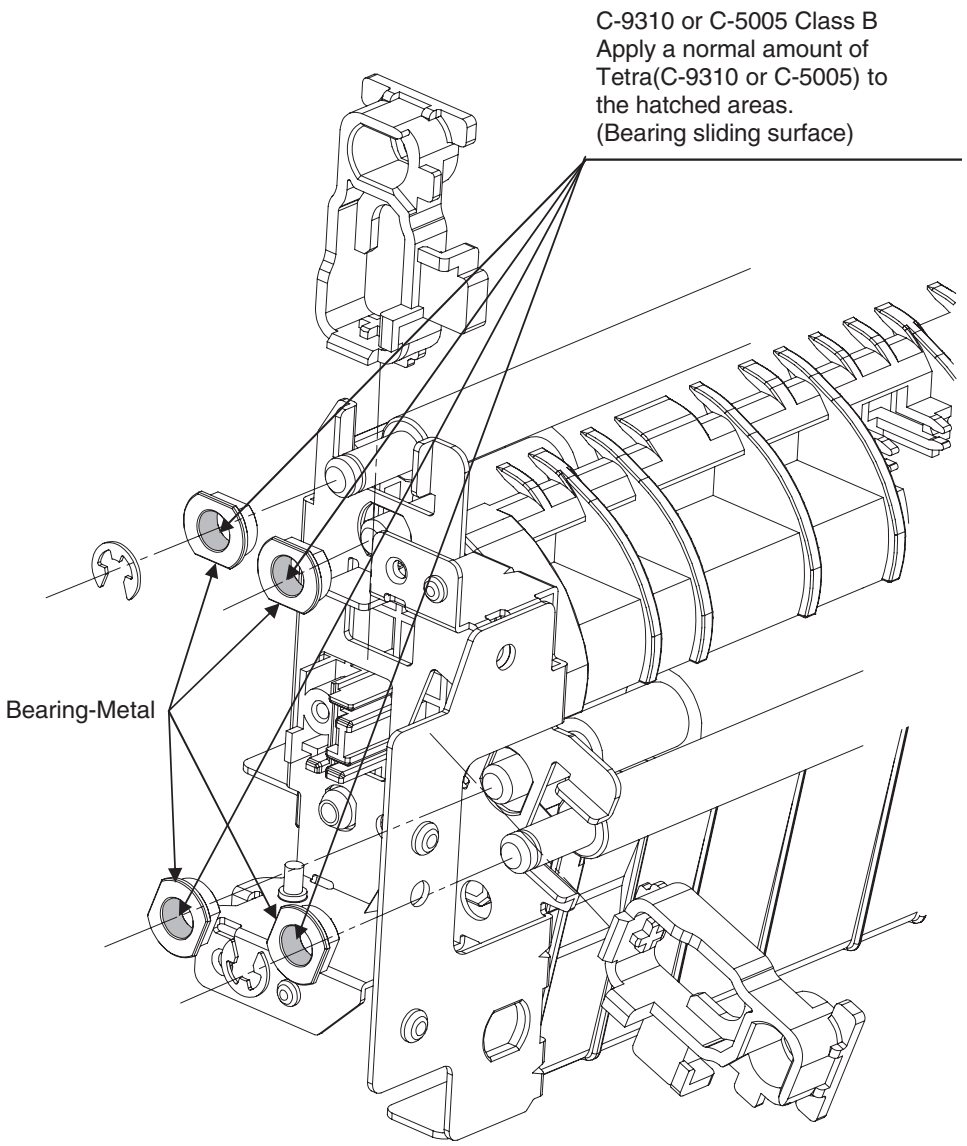
③ TR-Assy-Middle



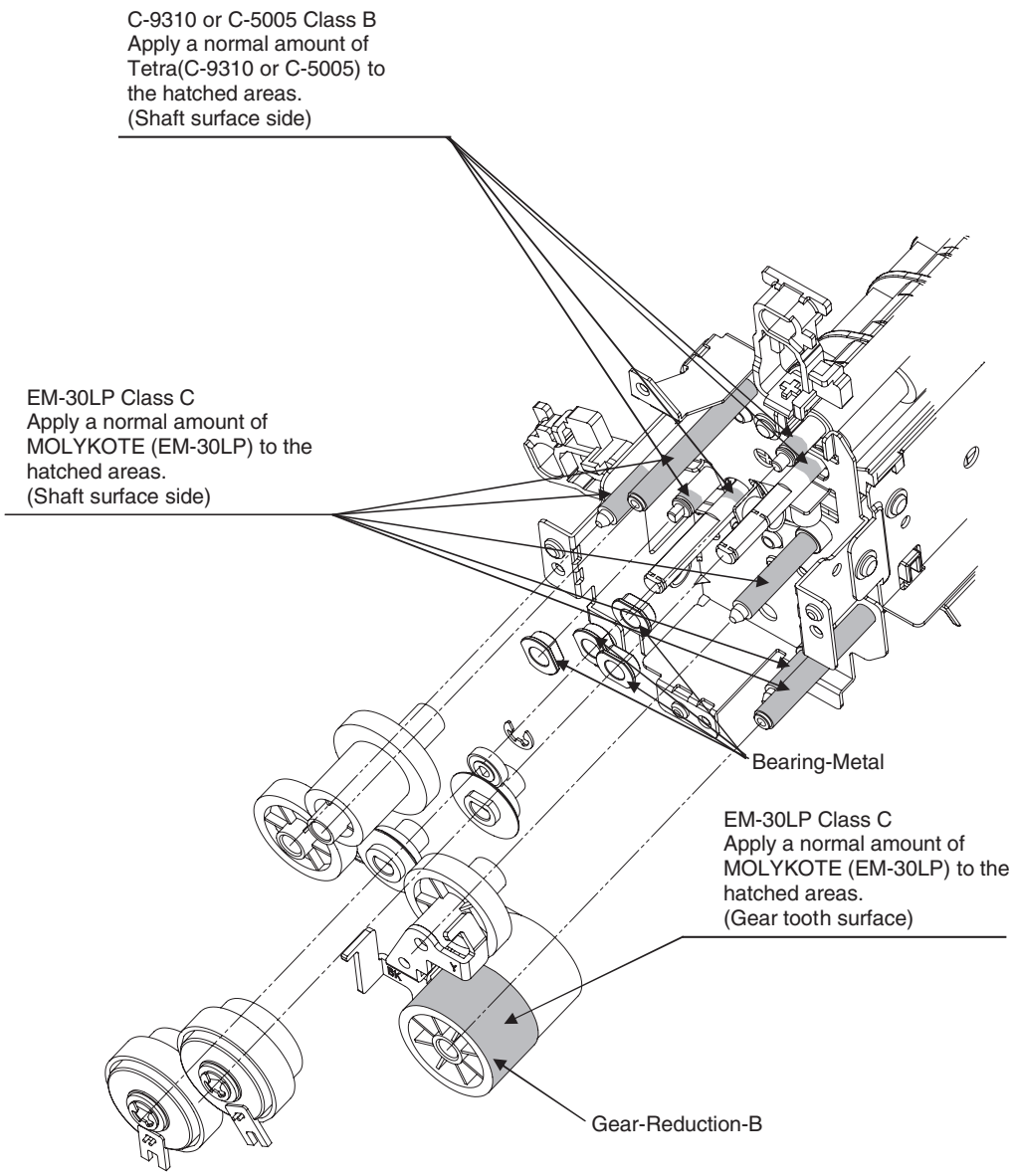
④ TR-Assy-Front



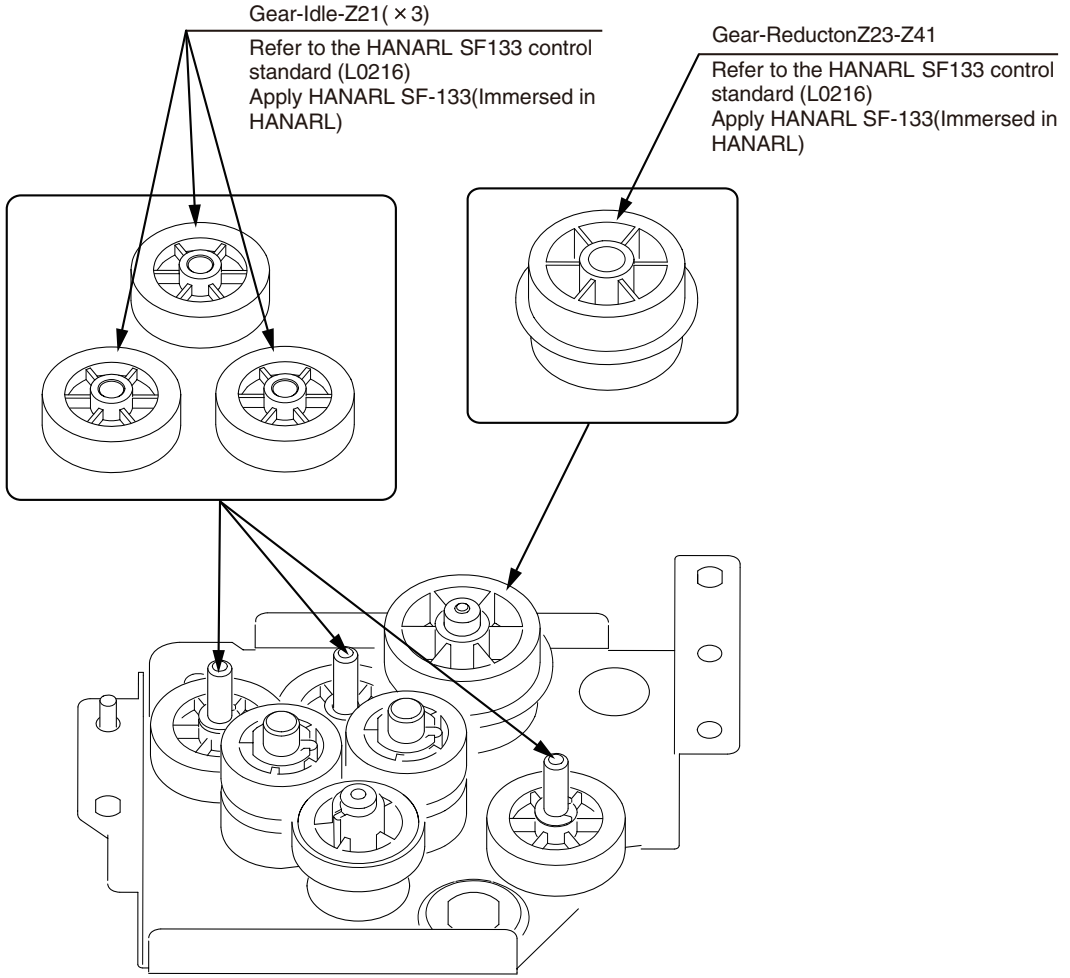
⑤ -1 Feeder-Assy-Regist



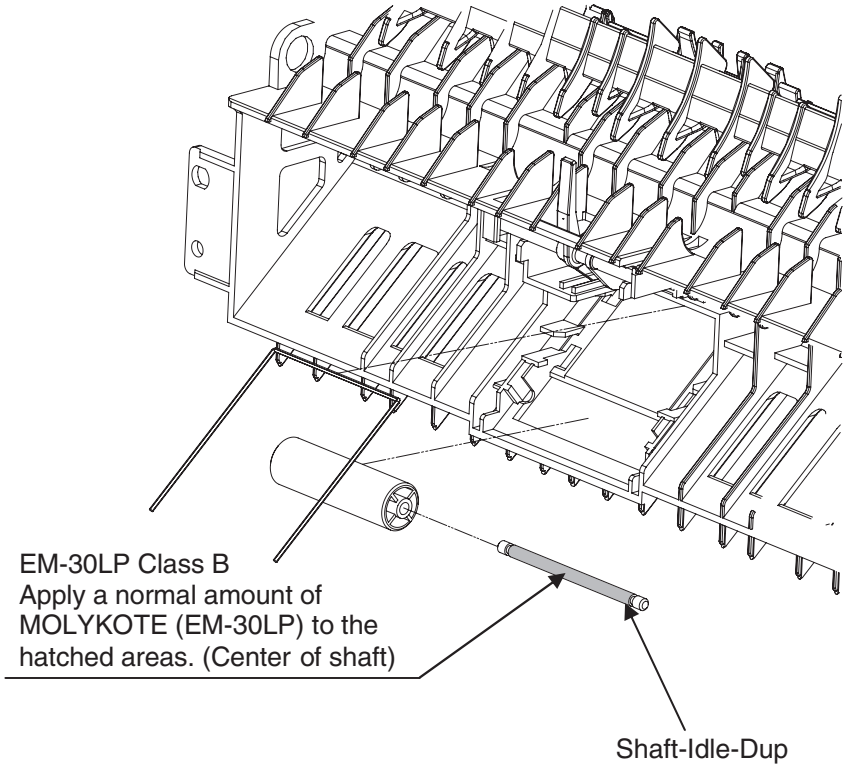
⑤ -2 Feeder-Assy-Regist



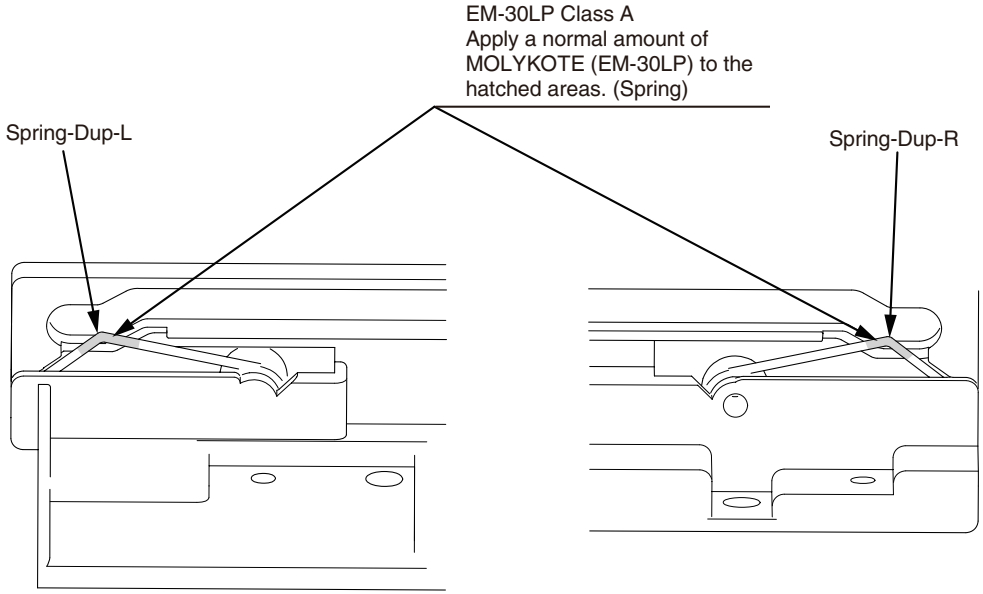
⑥ Eject-Assy



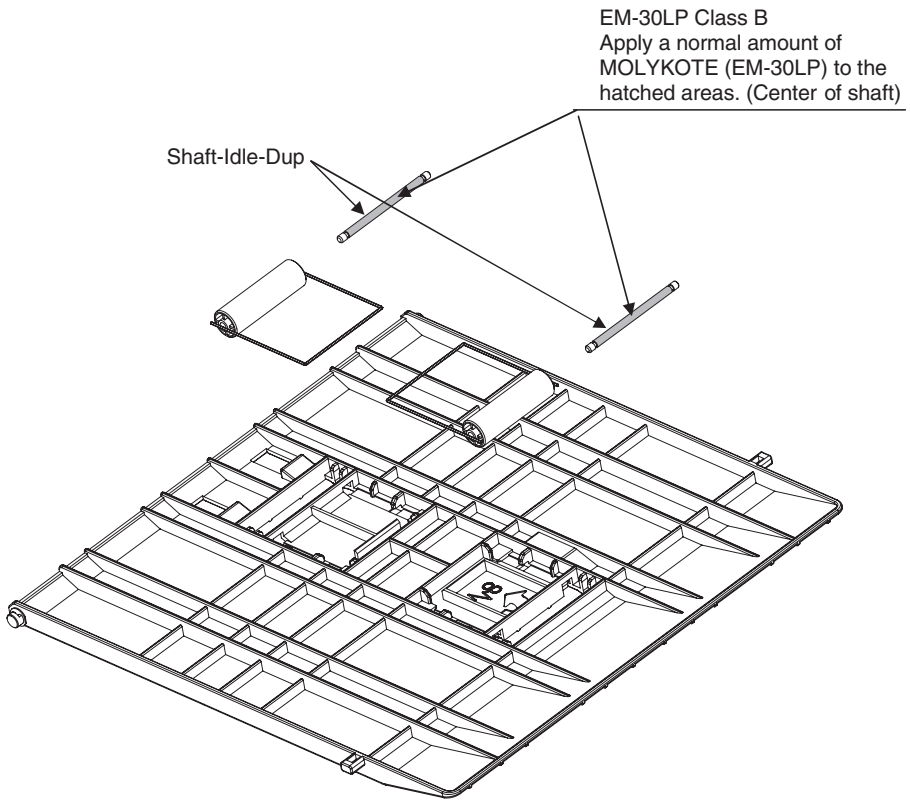
⑦ Guide-Assy-Eject-Lower



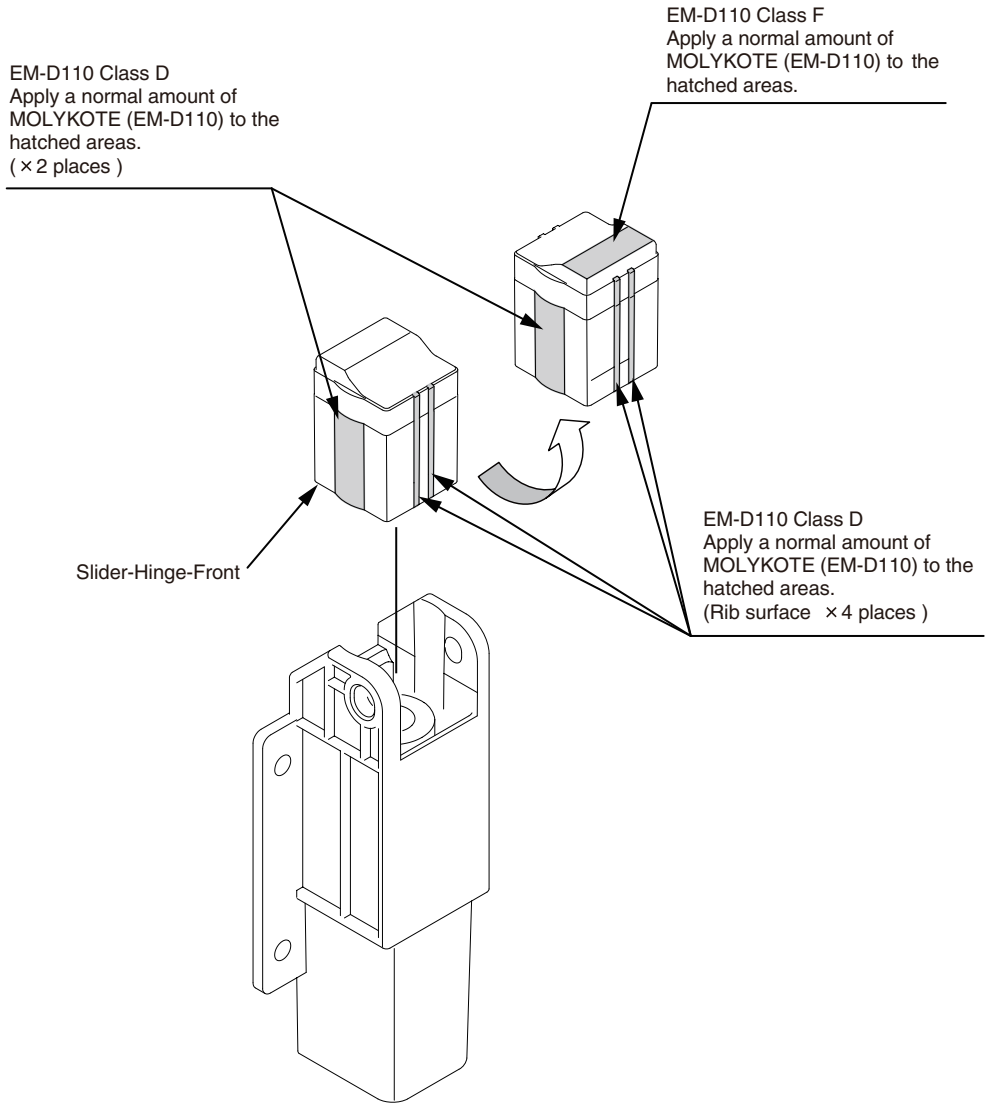
⑧ Plate-Assy-Base



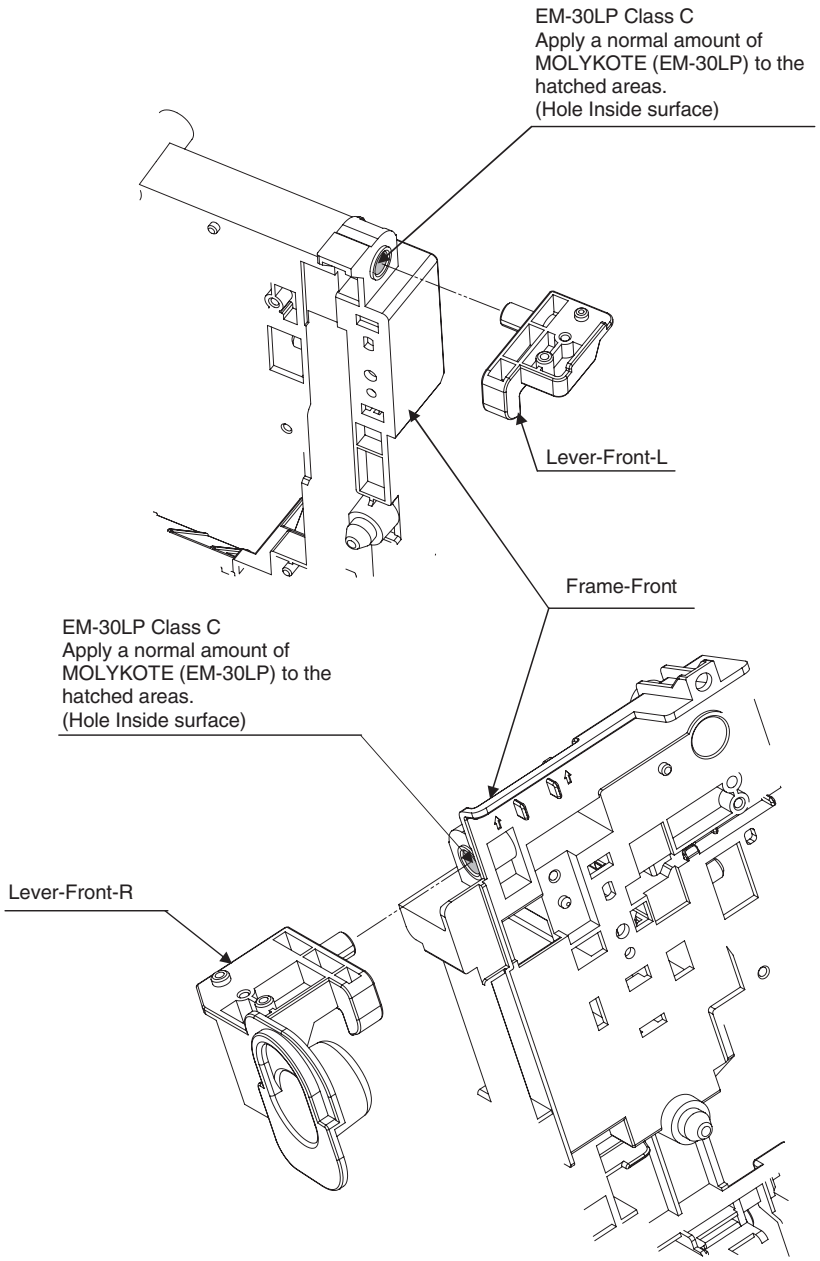
⑨ Duplex-Assy



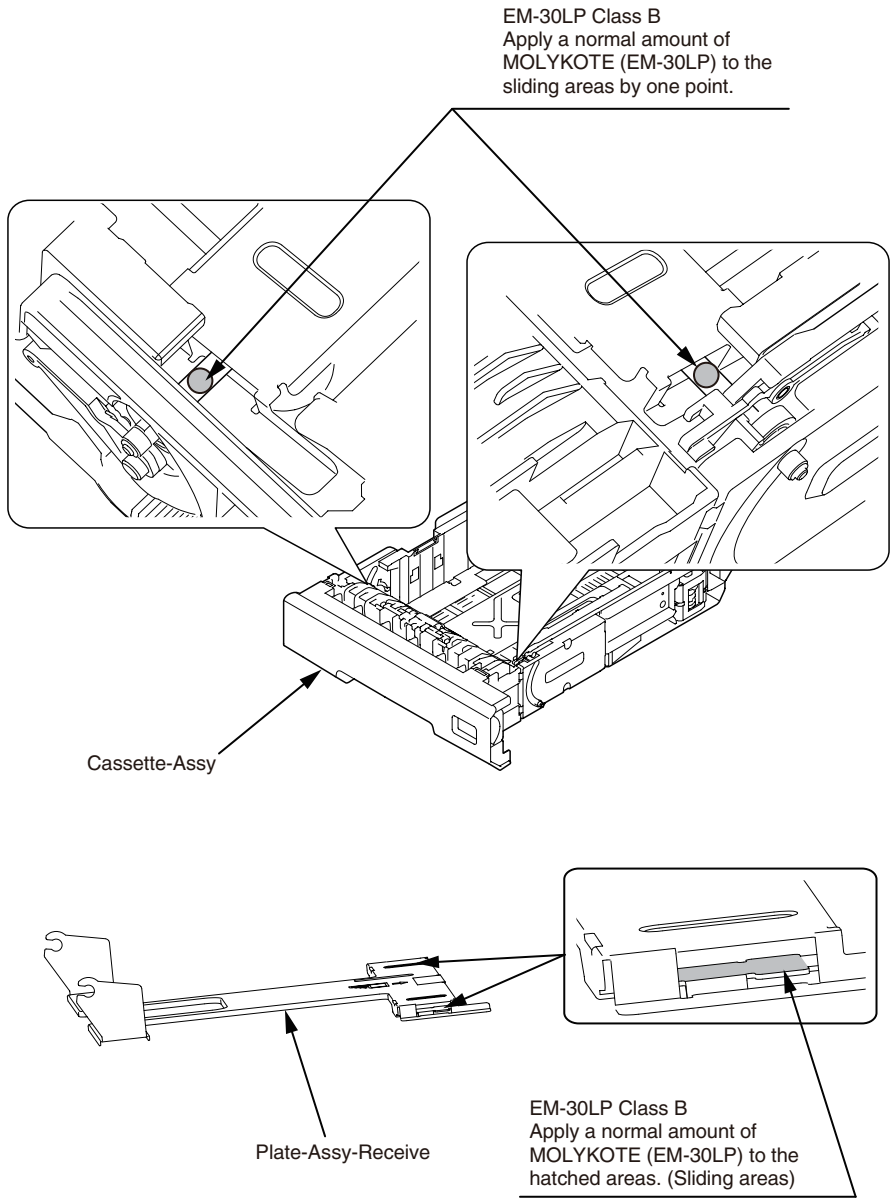
⑩ Hinge-Assy-Front



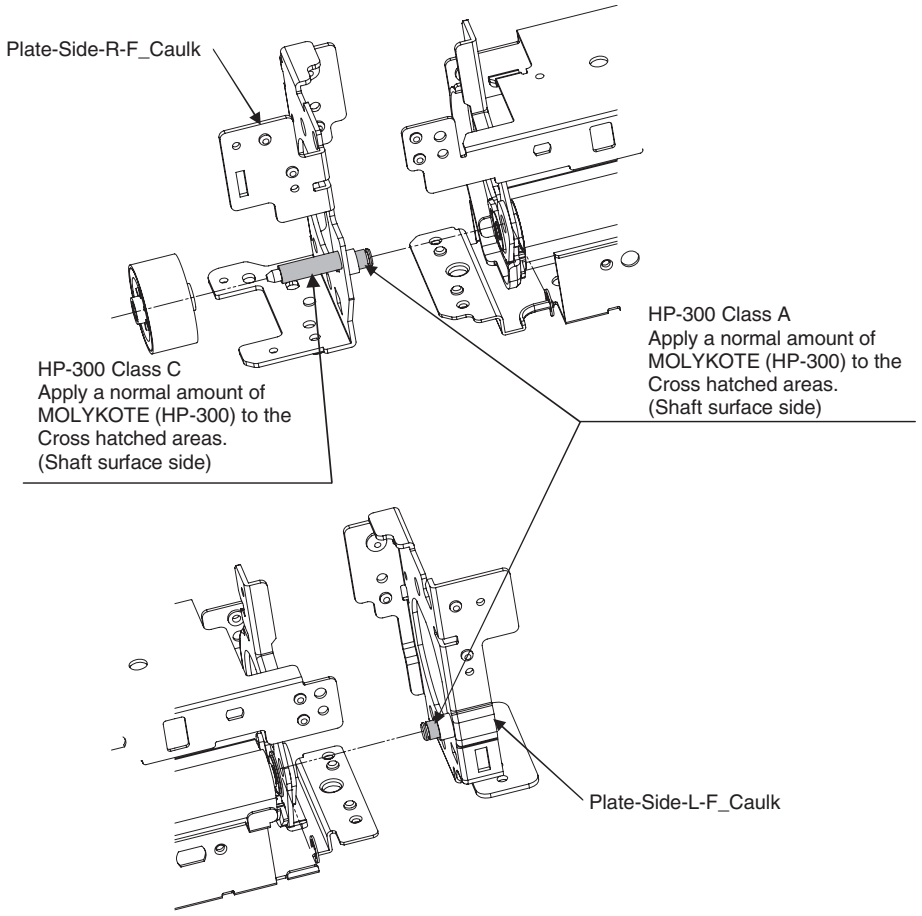
⑪ Frame-Assy-Front



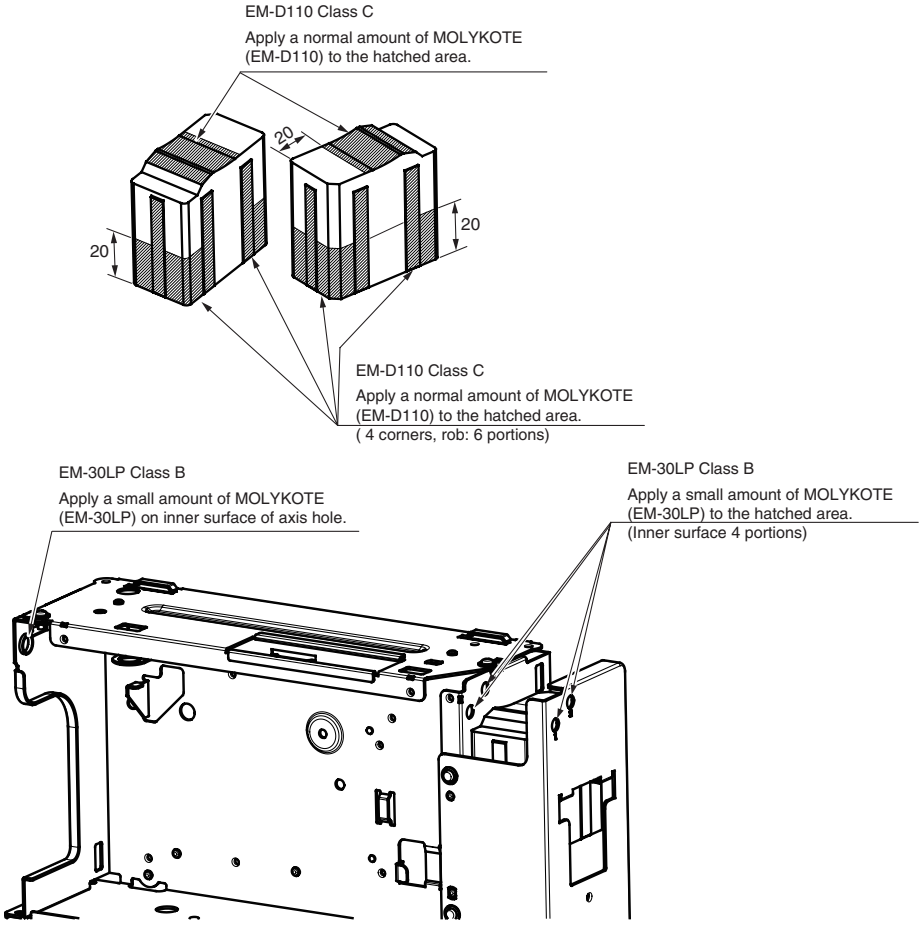
⑫ Cassette-Assy



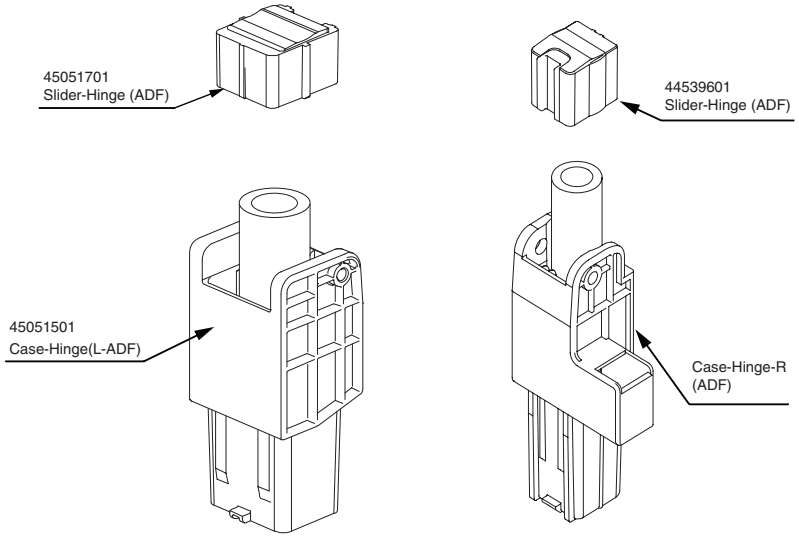
⑬ Fuser-Assy



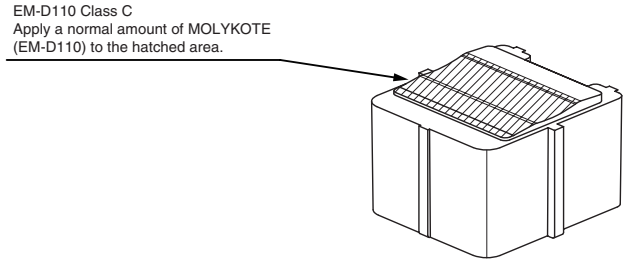
⑭ MFP NIP-MB760/MB770



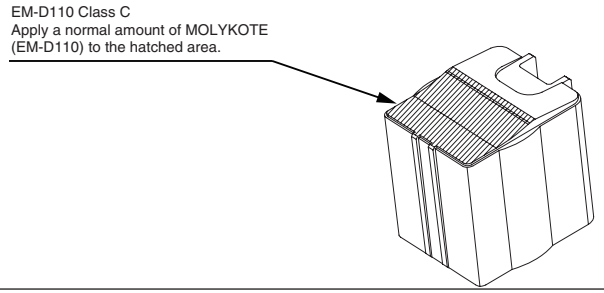
⑮ 45060901PA Hinge-Assy-(L) / 45061001PA Hinge-Assy-(R)



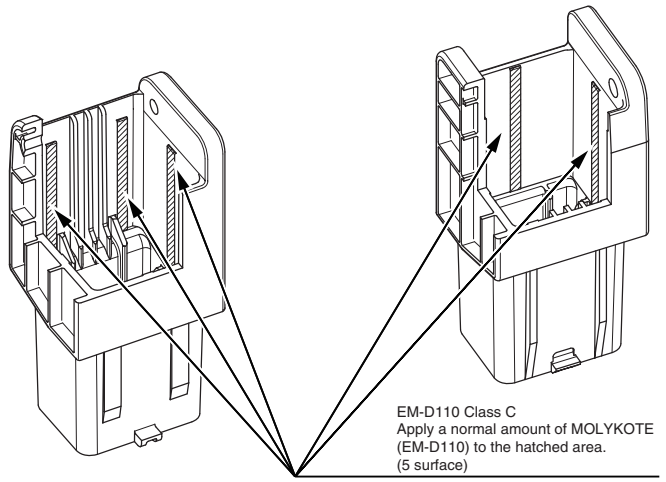
⑮ -1 45051701 Slider-Hinge (ADF)



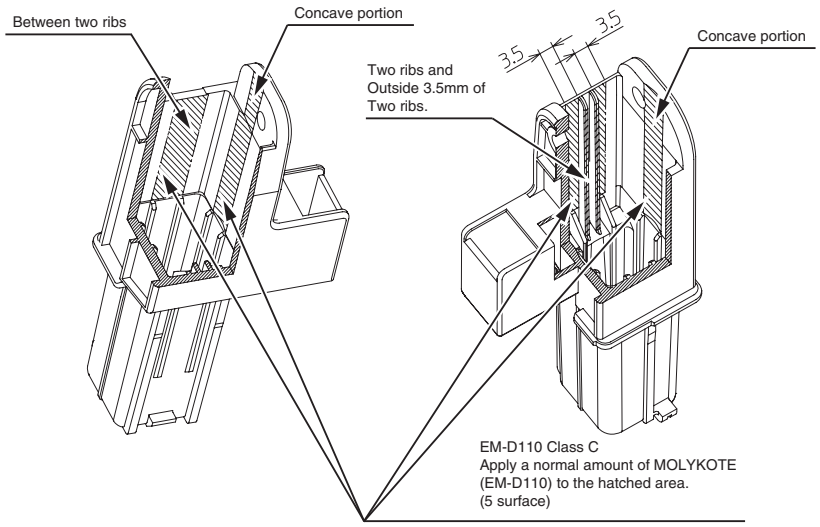
⑮ -2 44539601 Slider-Hinge (ADF)



⑮ -3 45051501 Case-Hinge(L-ADF)

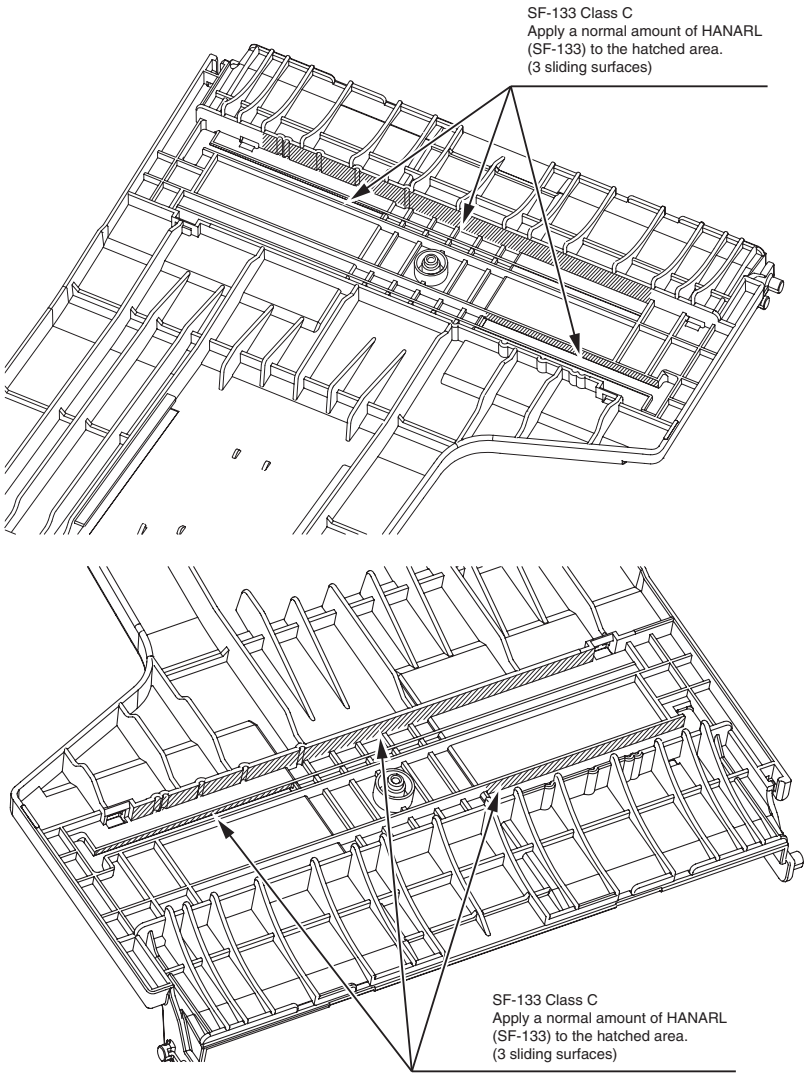


⑮ -4 44539401 Case-Hinge-L



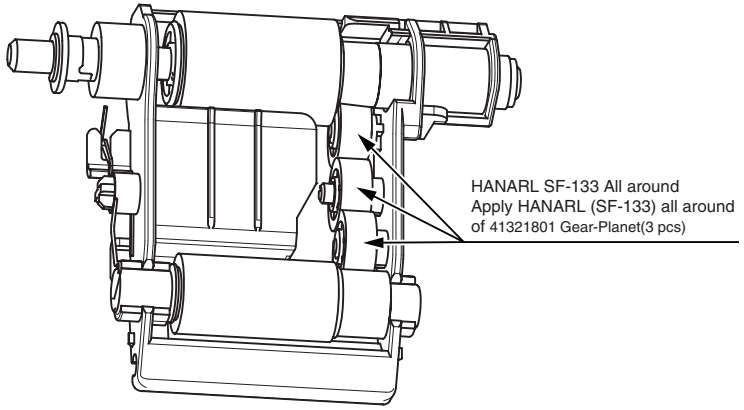
⑯ 4505625xxPA Tray-Assy-Document

445388xx Tray-Document



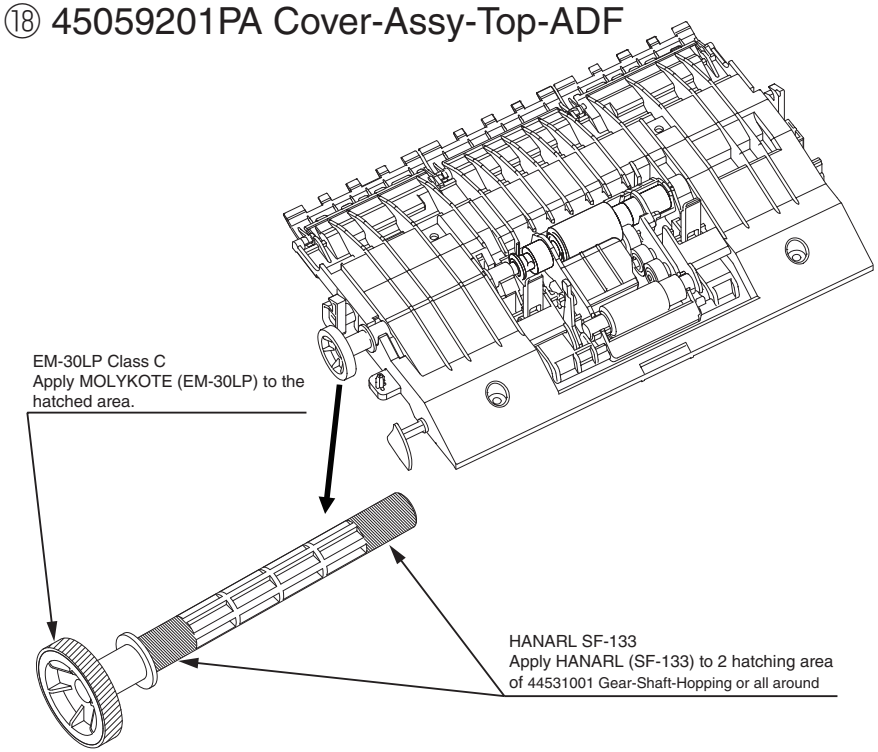
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the Tray-Assy-Document

⑰ 45059801PA Frame-Assy-Hopping-ADF



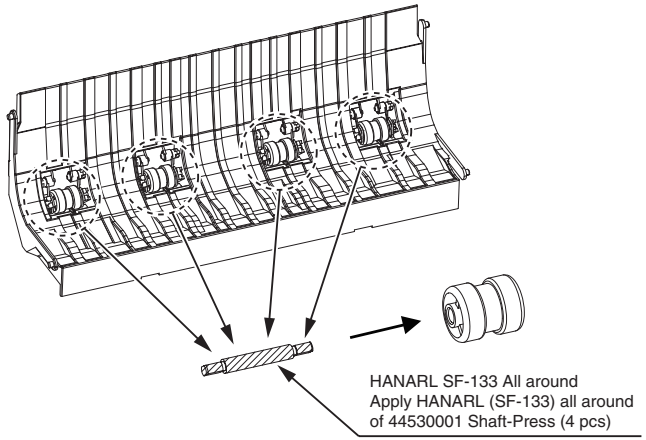
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the 41321801 Gear-Planet.

⑱ 45059201PA Cover-Assy-Top-ADF



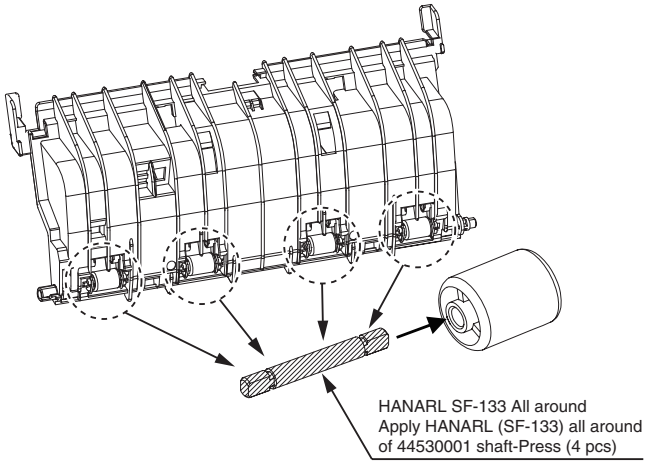
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

⑲ 45059701PA Guide-Assy-Top-B



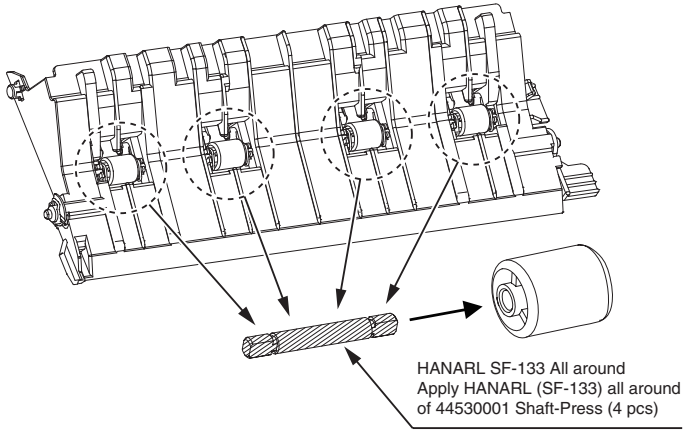
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

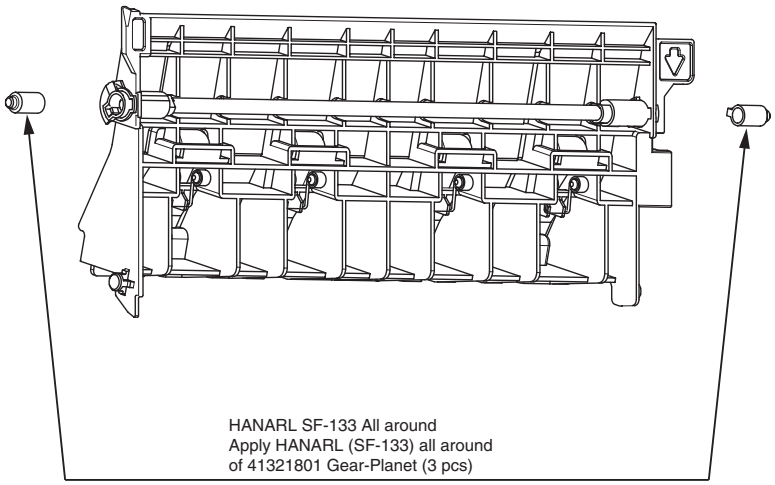
⑳ 45060001PA Guide-Assy-Retard



※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

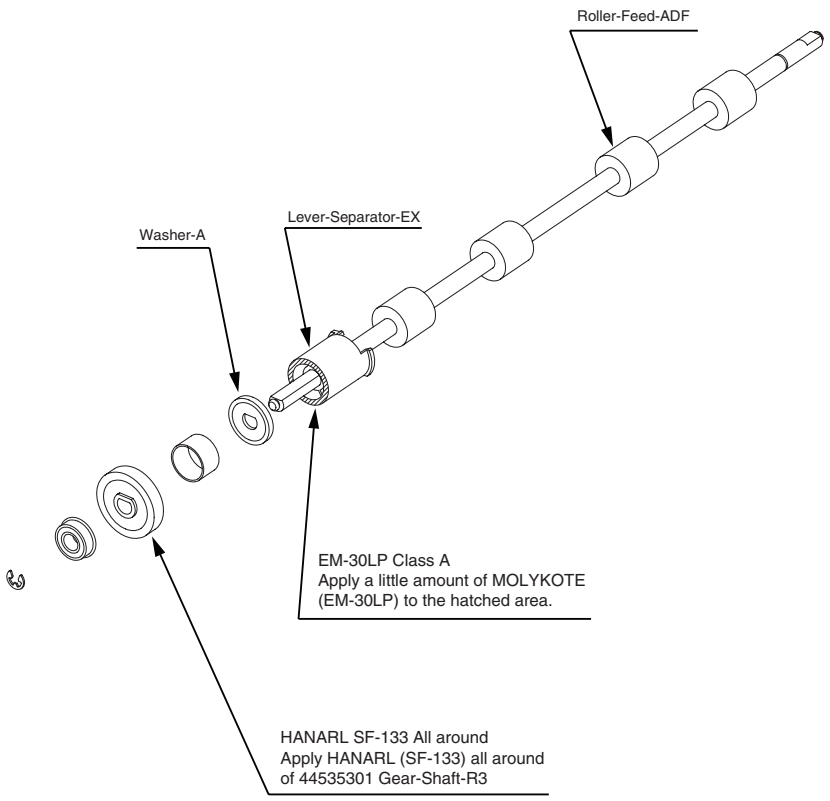
㉑ 45066301PA Guide-Assy-Exit-Lower





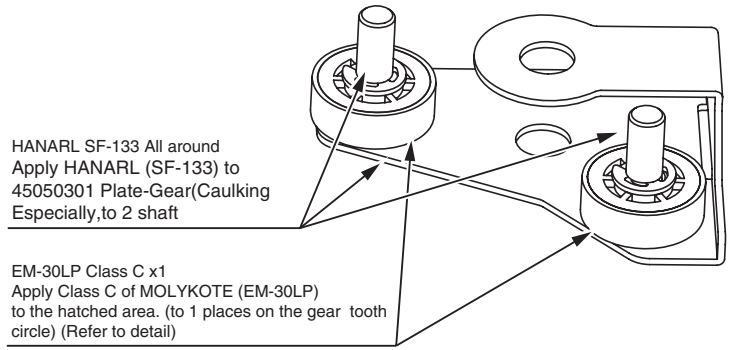
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

㉒ 45060401PA Roller-Assy-Eject-ADF



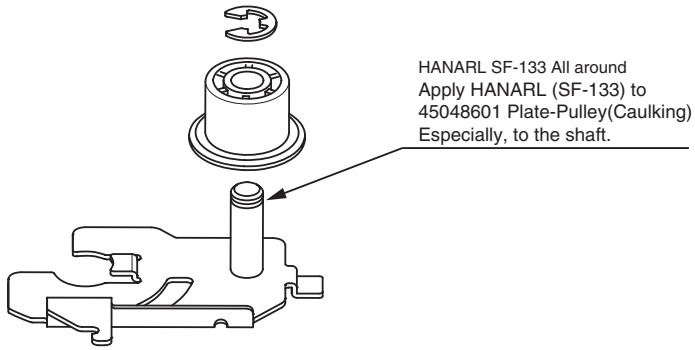
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

㉓ 45060601PA Plate-Assy-Gear



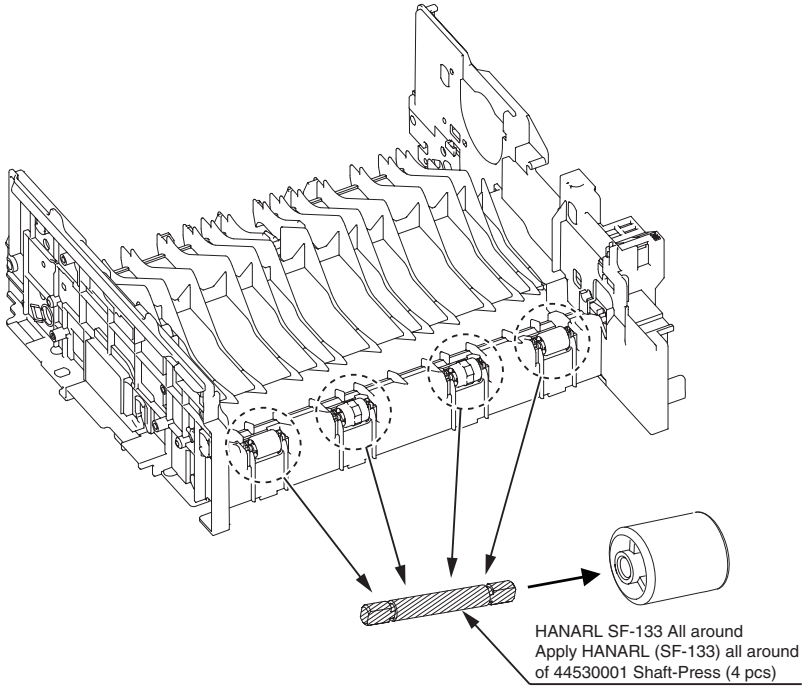
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

㉔ 45060501PA Pulley-Assy-Idle



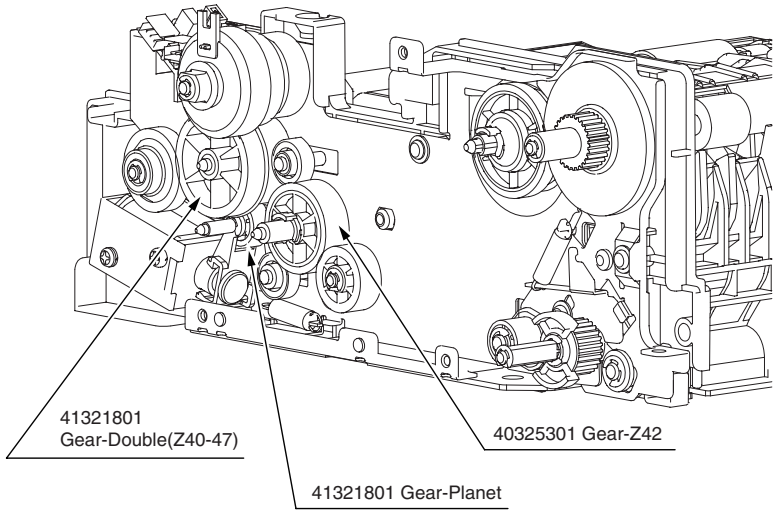
※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

㉕ 4505901PA ADF-Assy
-1 44530001 Shaft-Press



※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the roller.

㉕ -2 Apply HANARL SF-133 to gear

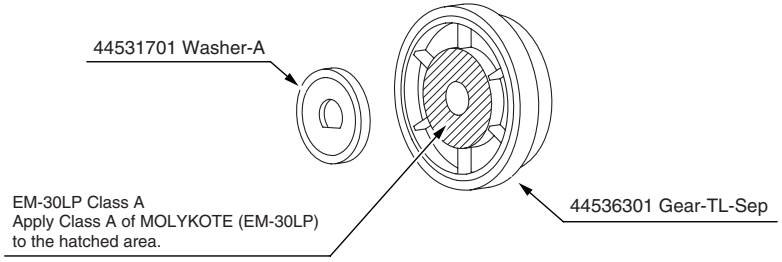


Apply HANARL (SF-133) all around to parts below.

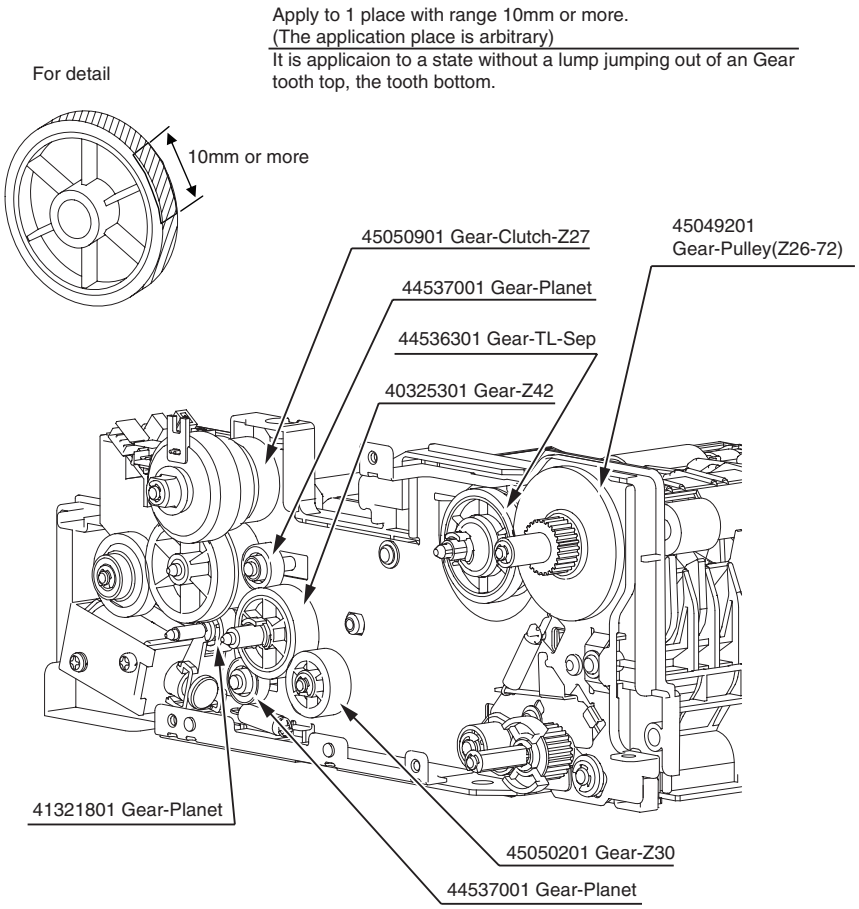
1. 41321801 Gear-Double(Z40-47)
2. 41321801 Gear-Planet
3. 40325301 Gear-Z42

※ Leave it for about 3minutes (drying time) after painting HANARL SF-133, and then assemble the ADF-Assy.

㉕ -3 Apply MOLYKOTE (EM-30LP) to 44536301 Gear-TL-Sep



㉕ -4 Apply MOLYKOTE (EM-30LP) to gear



Apply Class C of MOLYKOTE (EM-30LP) to each gear of parts below.
(to 1 places on the gear tooth circle) (Refer to detail).

1. 44537001 Gear-Planet x2pcs
2. 41321801 Gear-Planet
3. 40325301 Gear-Z42
4. 45050201 Gear-Z30
5. 45050201 Gear-Clutch-Z27
6. 45049201 Gear-Pully(Z26-72)
7. 44536301 Gear-TL-Sep

4. Maintenance Menu

Adjustment of this printer can be performed from the Maintenance Utilities by entering the corresponding menu from the keyboard of the operator panel.

This printer contains the maintenance menu in addition to the normal operation menus. Select an appropriate menu in accordance with the objective of adjustment.

4.1 Maintenance Utility

The adjustments described in table 5-1 should be made by using Maintenance Utility.
The following details the utility:

(1) Maintenance Utility Operating Manuals:
42678818FU02 Rev2 or higher(English)

(2) Maintenance Utility program:

Applicable operating system	File name	Part number
Windows 2000/XP/Vista/7 (English)	MuWin.zip	42678818FW01 Rev2 1.41.0.1800

Table 5-1: Adjustment options in Maintenance Utility

	Option	Adjustment	Section in Maintenance Utility Operating Manual	Operation from operator panel (section in this maintenance manual)
1	Board replacement	Copies information in the EEPROM in the PU block, and the settings in the EEPROM in the CU block. Purpose: To copy the above data onto a CU/PU board with which to replace the CU/PU board for a maintenance purpose.	2.4.1.1.1	Unavailable
2	Serial number setting	Rewrites the serial number recorded in the PU block and selects and rewrites the printer serial number recorded in the CU block and rewrites the output mode recorded in it. Purpose: To configure a maintenance replacement PU/CU board onto which the CU/PU board information cannot be copied with the board replacement function (e.g. due to an interface error).	2.4.1.1.2.3	Unavailable
3	Factory/ Shipping mode	Switches between the Factory and Shipping modes. Purpose: To configure a maintenance replacement PU board onto which the CU/PU board information cannot be copied with the board replacement function (e.g. due to an interface error). The maintenance board is put to the Factory mode usually by default and, by using this function, must be set to the Shipping mode.	2.4.1.1.2.4	5.2.1.10
4	Board option setup information	Checks serial number information and the Factory/Shipping mode.	2.4.1.1.5	Unavailable
5	Send to file	Send the specify file.	2.4.1.2.1	Unavailable

Note: Do not operate or set options added with 'Never use this option,' or a malfunction is potentially caused.

4.2 Maintenance menu functions

4.2.1 Self-diagnostic mode

This section describes the self-diagnostic LEVEL 0 and LEVEL 1 respectively.

4.2.1.1 Operation panel

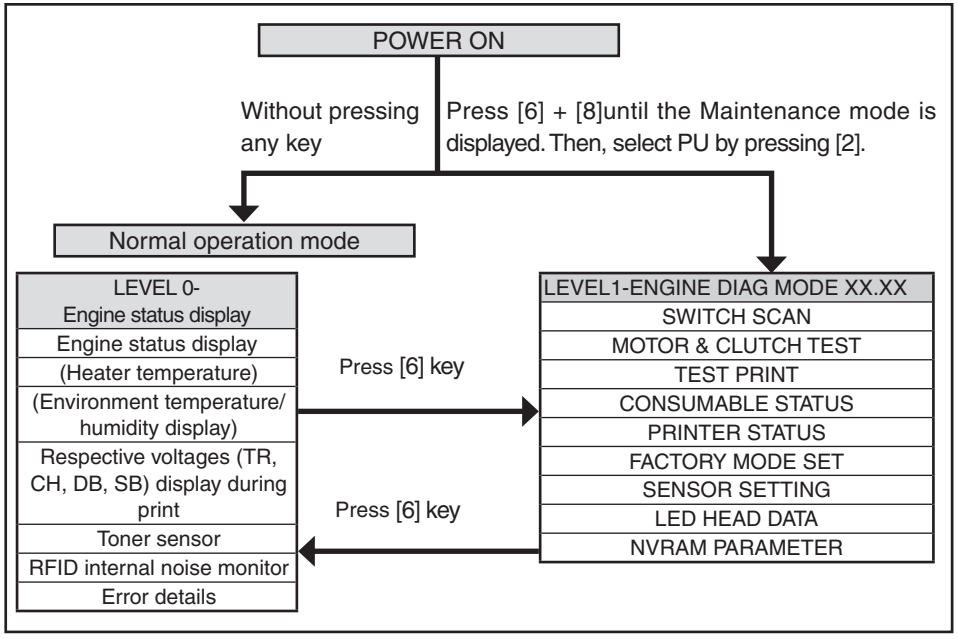
The following description on operating the self-diagnostic is premised on the operation panel layout as shown below.

Self-diagnostic mode layout (overall)

(1) How to select the menu items

XXXXX Menu items can be selected directly.

XXXXX Menu items can be selected by pressing either [2] or [8] key.

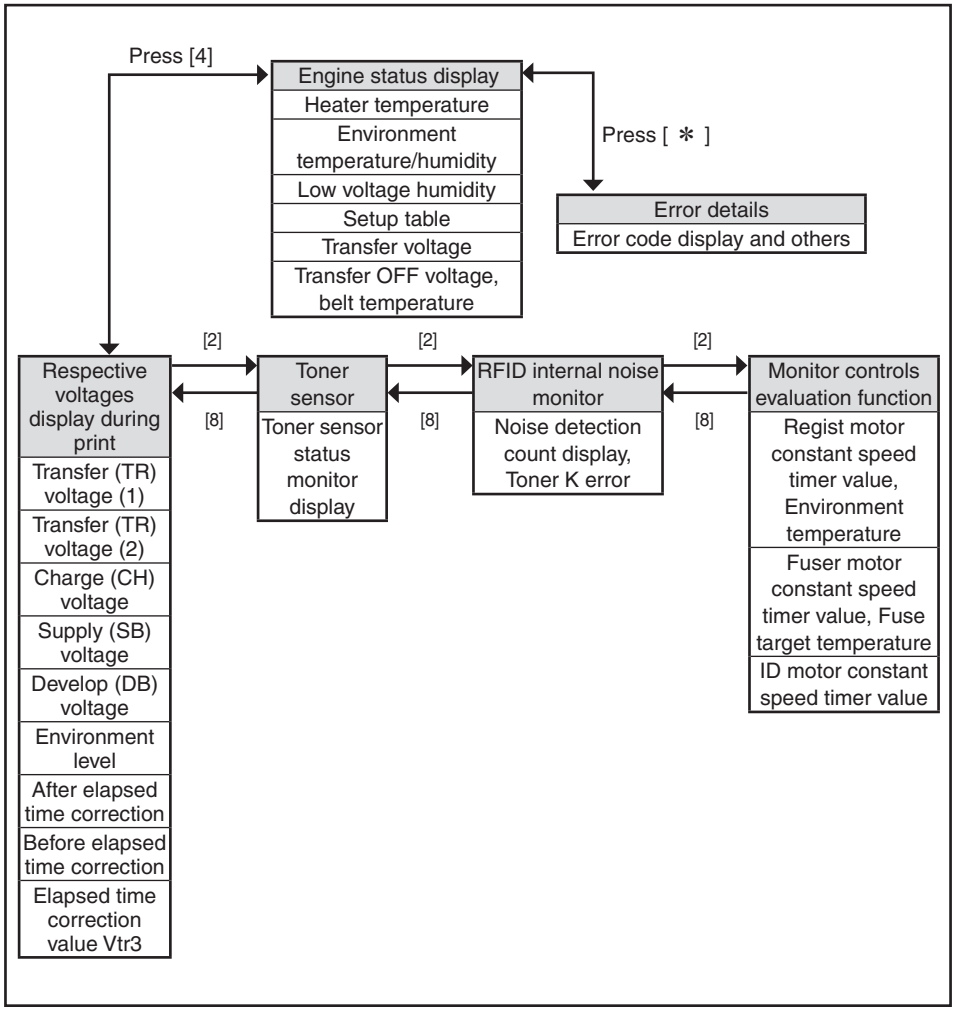


LEVEL0

(1) How to select the menu items

XXXX Menu items can be selected by pressing of [4] or [＊], or by pressing of [2] or [8].

XXXX Menu items can be selected by pressing either [2] or [8] key. Pressing of [4] returns the screen to the menu item selection screen.



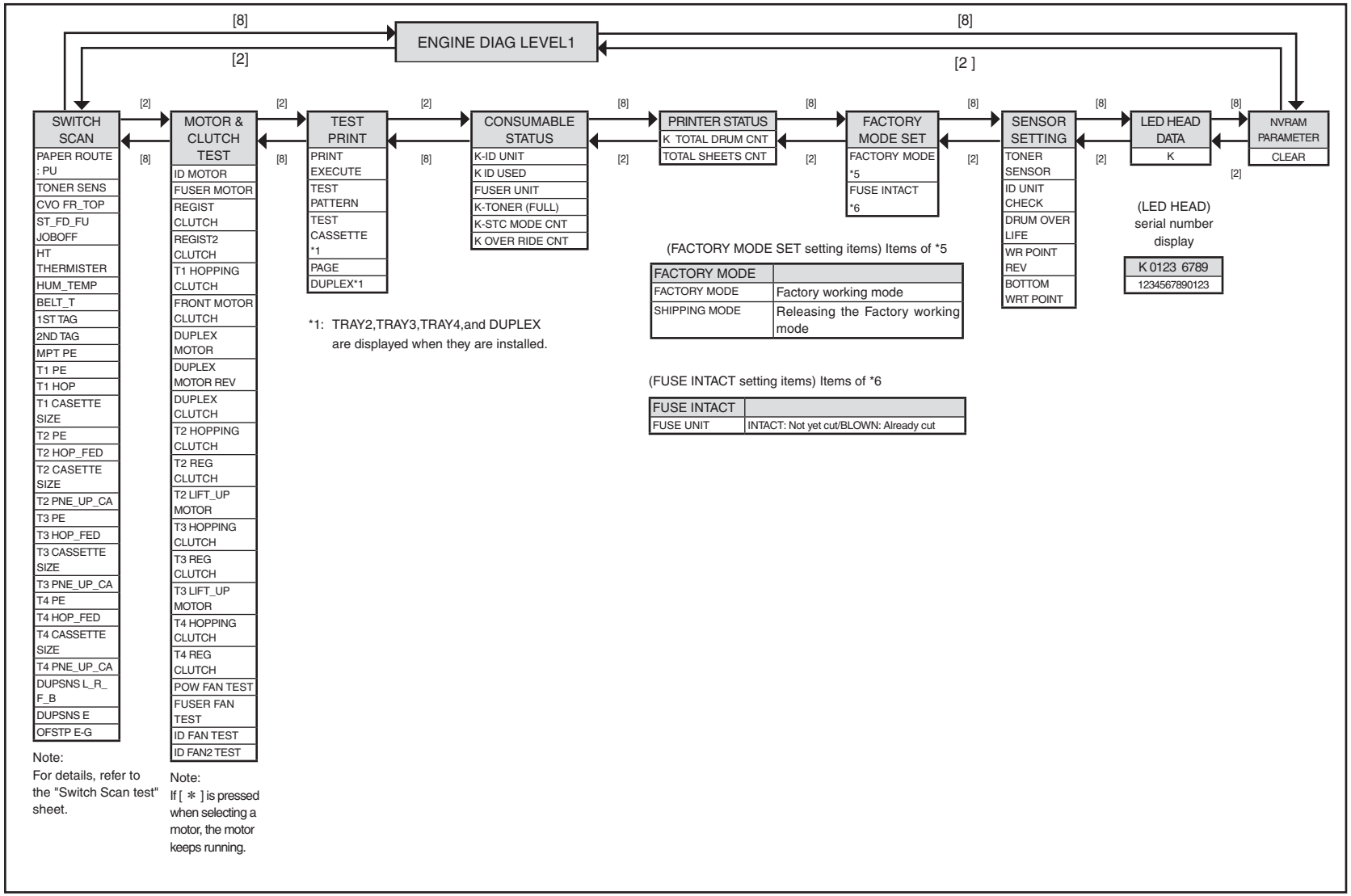
LEVEL1

(1) How to select the menu items

XXXXX Menu items can be selected by pressing either [2] or [8] key, and executed by pressing [6].

XXXXX Menu items can be entered by pressing of [6] or [4], and can be selected by pressing of [2] or [8].

The test can be executed by pressing [6], and can be exited by pressing [4].



4.2.1.2 Ordinary self-diagnostic mode (level 1)

Menu items of the ordinary self-diagnostic mode are shown below.

	Item	Self-diagnostic menu	Adjustment contents	Maintenance utilities
1	Switch scan test	SWITCH SCAN	Entry sensor check and switch check	No.18
2	Motor clutch test	MOTOR&CLTCH TEST	Motor and clutch operation test	No.19
3	Test print execution	TEST PRINT	PU built-in test pattern print	Operation from the maintenance utilities cannot be made.
4	Consumable item counter display	CONSUMABLE STATUS	Consumable items consumption status display	No.23
5	Consumable item accumulative counter display	PRINTER STATUS	Consumable items accumulative consumption status display	No.23
6	Factory/Shipping mode selection	FACTORY MODE SET	Switching between the Factory mode and the Shipping mode	No.3, No.24
7	FUSE status check		Respective FUSEs status display	No.24
8	Engine parameter setting	SENSOR SETTING	Valid/Invalid setups of error detection by various sensors	No.25
9	LED Head serial number display	LED HEAD DATA	Display of LED head serial number	Use of this menu item is prohibited
10	NVRAM parameter setting	NVRAM PARAMETER	Do not use this item	Use of this menu item is prohibited

4.2.1.2.1 How to enter the self-diagnostic mode (level 1)

1. While pressing the [6] and [8] keys, simultaneously, turn on the power to enter the Maintenance mode.

Maintenance mode
Select Number(1-2) 1.SU 2.PU

2. Select the PU by press the [2] key, display "DIAGNOSTIC MODE".

DIAGNOSTICMODE
XX.XX.XX FACTORY/SHIPPING

3. XXX.XX.XX of the message "DIAGNOSTIC MODE XX.XX.XX" that is displayed on the LCD display area indicates the PU firmware version number. The FACTORY WORKING MODE setup value is displayed in the right of the lower row. S-MODE of "SHIPPING" is displayed normally.
4. Press the [2] key or [8] key to advance to the desired step of each self-diagnostic menu. (The menu items rotate when either the [2] key or [8] key is pressed.)

4.2.1.2.2 How to exit the self-diagnostic mode

1. Turn off the power once and back on 10 seconds later.

4.2.1.3 Switch scan test

This self-diagnostic menu is used to check the entry sensor and the switch.

1. Enter the self-diagnostic mode (level 1) and press the [2], [8] key until "SWITCH SCAN" is displayed in the upper row of the display area. (Pressing the [2] key increments the test item and pressing the [8] key decrements the test item.) Press [6] when displayed "SWITCH SCAN"

SWITCH SCAN

2. Press either the [2] or [8] key until the desired menu item corresponding to the unit to be tested in Table 4-2 is displayed in the lower row of the display area. (Pressing the [2] key increments the test item and pressing the [8] key decrements the test item.)
3. Pressing the [6] key starts the test. Name and present status of the corresponding unit are displayed.

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

   Activate the respective units. (Figure 4-1) Status of the respective units are displayed on the corresponding areas of the LCD display. (Display changes depending on each sensor. Refer to Table 4-2 for details.)

4. Press the [#] key to return to the status of step 2.
5. Repeat steps 2 to 4 as required.
6. Press the [4] key to exit the test. (Returns to the status of step 1.)

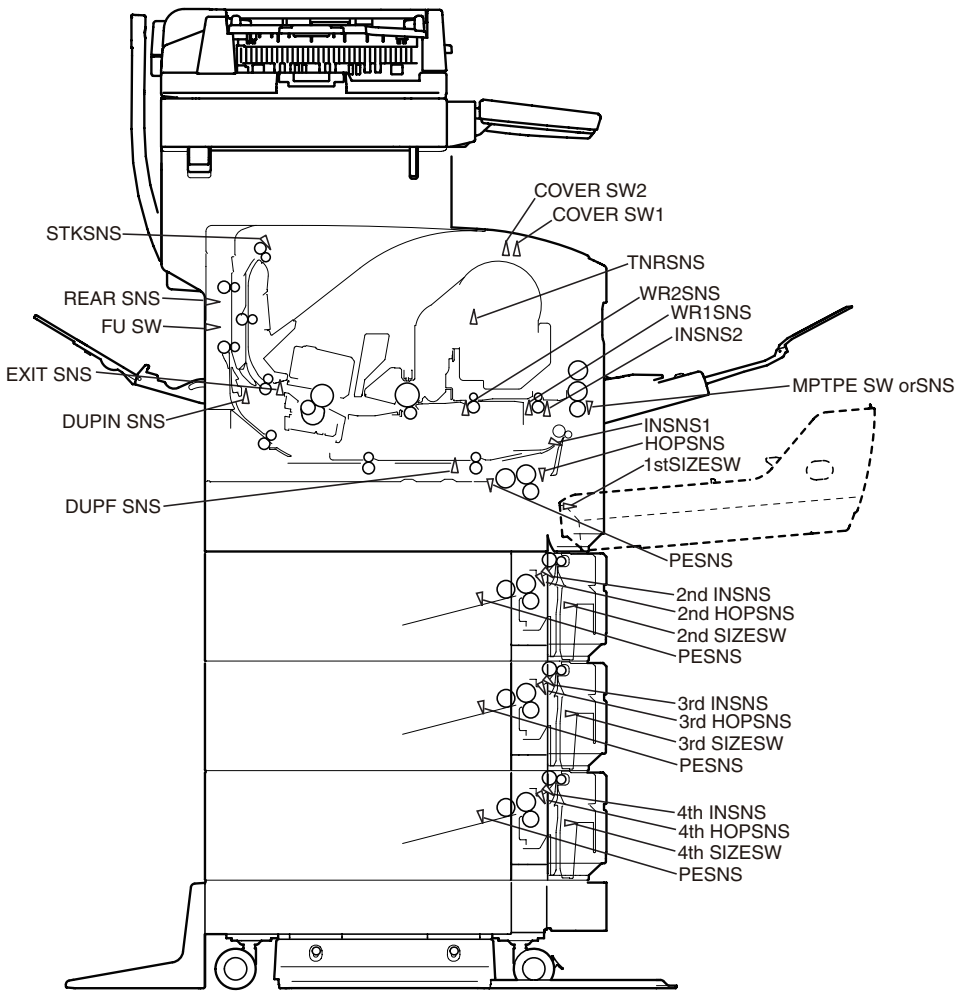


Figure 4-1 Switch and sensor location diagram

Table 4-2 SWITCH SCAN details

<Item having no function> Asterisk mark (*) is displayed in the lower row of display area.

* 1: “L” is displayed when the cover is open (including in the Sleep mode and power-off status), and "H" is displayed when the top cover and front cover is closed and warm-up is done.

* 2: “N” is displayed when unpopulated the TAG.

* 3: "Sensor read value" is displayed when LCF is installed. "*" is displayed when LCF is uninstalled.

Display area, upper row	1		2		3		4	
	Details	Display area, lower row	Details	Display area, lower row	Details	Display area, lower row	Details	Display area, lower row
PAPER ROUTE : PU	Entrance sensor 1	H: No paper L: Paper exists	Entrance sensor 2	H: No paper L: Paper exists	Write sensor	H: No paper L: Paper exists	Exit sensor	H: No paper L: Paper exists
TONER SENS	Toner sensor K	H: Light is interrupted L: Reflected						
CVO FR TOP	Upper Cover open switch	H: Close L: Open	Top Cover Open switch*1	H: Close L: Open	Face up Cover Open switch	H: Open L: Close		
ST_FD	Stacker full sensor	H: Full L: low						
HT THERMISTER	Fuser thermistor, center sensor	AD value: ***H			Side thermistor	AD value: ***H	Heater frame thermistor	AD value: ***H
HUM_TEMP	Humidity sensor	AD value: ***H	Temperature sensor	AD value: ***H				
1ST TAG *2	1st TAG-K UID	UID: ***H						
2ND TAG *2	2nd TAG-K UID	UID: ***H						
MPT PE	MPT paper end sensor	H: No paper L: Paper exists						
T1 PE	Tray 1 paper end sensor	H: No paper L: Paper exists						
T1 HOP	Tray 1 Hopping Sns	H: No paper L: Paper exists						
T1 CASETTE SIZE	Size setting switch 1	Port level H, L	Size setting switch 2	Port level H, L	Size setting switch 3	Port level H, L	Size setting switch 4	Port level H, L
T2 PE	Tray 2 paper end sensor	H: No paper L: Paper exists						
T2 HOP_FED	2nd-Hopping Sns	H: No paper L: Paper exists			Tray 2 feed sensor	H: No paper L: Paper exists		
T2 CASETTE SIZE	Size setting switch 1	Port level H, L	Size setting switch 2	Port level H, L	Size setting switch 3	Port level H, L	Size setting switch 4	Port level H, L
T2 PNE_UP_CA *3	Tray 2 paper near end sensor	H: Paper near end L: Paper exists	Paper upper sensor	H: Paper exists L: No paper	Tray 2 cassette detect sensor	H: Cassette Open L: Cassette Close		
T3 PE	Tray 3 paper end sensor	H: No paper L: Paper exists						
T3 HOP_FED	3rd-Hopping Sns	H: No paper L: Paper exists			Tray 3 feed sensor	H: No paper L: Paper exists		
T3 CASETTE SIZE	Size setting switch 1	Port level H, L	Size setting switch 2	Port level H, L	Size setting switch 3	Port level H, L	Size setting switch 4	Port level H, L
T3 PNE_UP_CA *3	Tray 3 paper near end sensor	H: Paper near end L: Paper exists	Paper upper sensor	H: Paper exists L: No paper	Tray 3 cassette detect sensor	H: Cassette Open L: Cassette Close		
T4 PE	Tray 4 paper end sensor	H: No paper L: Paper exists						
T4 HOP_FED	4th-Hopping Sns	H: No paper L: Paper exists			Tray 4 feed sensor	H: No paper L: Paper exists		
T4 CASETTE SIZE	Size setting switch 1	Port level H, L	Size setting switch 2	Port level H, L	Size setting switch 3	Port level H, L	Size setting switch 4	Port level H, L
DUPSNS I_R_F_B	Duplex (2-sided printing) entrance sensor	H: Paper exists L: No paper			Duplex (2-sided printing) front sensor	H: Paper exists L: No paper		

4.2.1.4 Motor clutch test

This self-diagnostic menu is used to test the motor and clutch.

1. Enter the self-diagnostic mode (level 1) and press the [2], [8] key until "MOTOR&CLUTCH TEST" is displayed in the upper row of the display area.

   (Pressing the [2] key increments the test item and pressing the [8] key decrements the test item.)

   Press the [6] key when "MOTOR&CLUTCH TEST" is displayed.

2. Press either the [2] or [8] key until the desired menu item corresponding to the unit to be tested in Table 5-3 is displayed in the lower row of the display area. (Pressing the [2] key increments the test item and pressing the [8]key decrements the test item.)

MOTOR & CLUTCH TEST
ID MOTOR

3. Pressing the [6] key starts the test. The unit name starts flashing and the corresponding unit is activated for 10 seconds. (Refer to Figure 4-2.)

Note! After the corresponding unit has activated for 10 seconds, it returns to the status of step2, and is re-activated when the corresponding switch is pressed.

- The clutch solenoid repeats turning on and off during the normal print drive. (If a clutch solenoid cannot be activated independently, the motor is driven at the same time.) * "ID UP/DOWN" keeps activated until the [#] key is pressed.
- If [＊] is pressed when selecting a motor, the motor keeps running.

4. When the [#] key is pressed, the corresponding unit stops activating. (Display of the corresponding unit keeps displayed.)
5. Repeat steps 2 to 4 as required.
6. Pressing the [4] key terminates the test. (Returns to the status of step 1.)

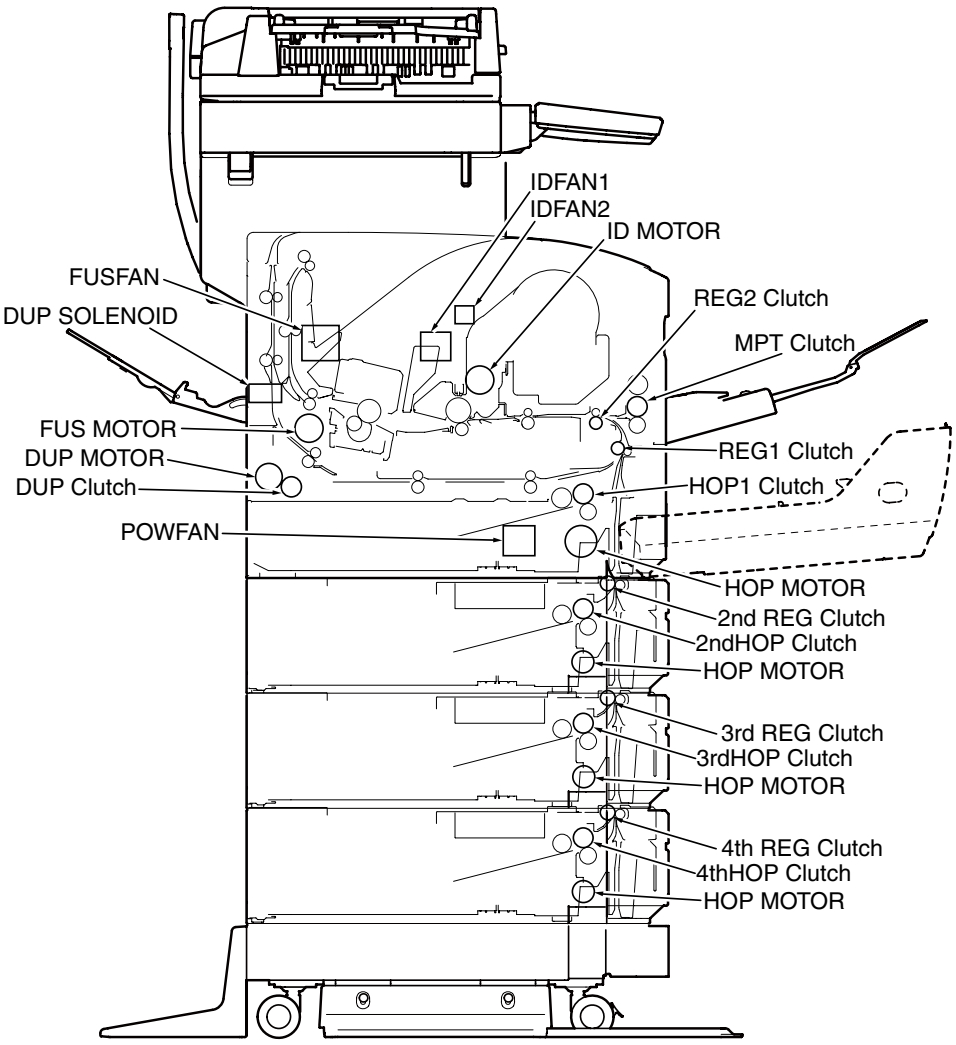


Figure 4-2

Table 4-3

Unit name display	Drive restriction condition	Remarks
ID MOTOR	To be driven when the ID is removed.	–
FUSER_MOTOR	–	–
REGIST CLUTCH	–	–
T1 HOPPING CLUTCH	–	–
MPT HOP CLUTCH	–	–
DUPLEX MOTOR	–	–
DUPLEX CLUTCH	–	–
T2 HOPPING CLUTCH	–	OPTION
T2 REG CLUTCH	–	OPTION
T2 LIFT_UP MOTOR		OPTION
T3 HOPPING CLUTCH	–	OPTION
T3 REG CLUTCH	–	OPTION
T3 LIFT_UP MOTOR		OPTION
T4 HOPPING CLUTCH	–	OPTION
T4 REG CLUTCH	–	OPTION
POW FAN TEST	–	–
FUSER FAN TEST	–	–
ID FAN TEST	–	–
ID FAN2 TEST	–	–

Note! Display while ID Up/Down execution is in progress

MOTOR & CLUTCH TEST
ID UP/DOWN ***

*** Number of times of execution

Display when the REGIST SHUTTER [∗] key is pressed

MOTOR & CLUTCH TEST
SHT ***

*** Number of times of execution

4.2.1.5 Test print

This self-diagnostic menu is used to print the test pattern that is built inside PU. Other test patterns are stored in the controller.

This test print cannot be used to check the print quality.

Diagnosis for the abnormal print image should be performed in accordance with section 7.

1. Enter the self-diagnostic mode (level 1) and keep pressing the [2] , [8]key until "TEST PRINT" is displayed in the upper row of the display area. Then, press the [6] key. (Pressing the [2] key increments the test item and pressing the [8] key decrements the test item.)
2. The setting items that can be applied to the test print only is displayed in the lower row of display area. Keep pressing the [2], [8] key until the desired menu item is displayed. (Pressing the [2] key increments the test item and pressing the [8] key decrements the test item.) (If all setting items need no entry [Default setting], go to step 5.)
3. Keep pressing the [2], [8] key, and press the [6] key at the menu item set by step 2. Then, the setting item is displayed in the upper row of display area, and the setting value is displayed in the lower row of display area.

   Pressing the [2] key increments the setting value. Pressing the [2]key decrements the setting value. (The setting value that is displayed at last is applied.) Pressing the [4] key determines the entry value, and returns to step 2. Repeat step 3 as required.

TEST PATTERN
1

Display	Setting value	Function
PRINT EXECUTE	–	Pressing the [6] key starts print/Pressing the [#] key terminates print. (In units of page)
TEST PATTERN	0	0: White paper print 1~16: Refer to next page. (Pattern print)
TEST CASSETTE	TRAY1	Selecting source of paper supply. If the TRAY 2 is not installed, TRAY2 is not displayed. If the TRAY 3 is not installed, TRAY3 is not displayed. If the TRAY 4 is not installed, TRAY4 is not displayed.
	TRAY2	
	TRAY3	
	TRAY4	
	MFP	
PAGE	0000	Setting number of the test print copies
DUPLEX	2 PAGES STACK	Duplex (2-sided) print is performed by the stack of two sheets of paper. Selecting OFF for duplex (2-sided) print. Duplex (1-sided) print is performed by the stack of one sheet of paper.
	OFF	
	1PAGES STACK	

- ▭ is the initial default value. The menu item that is set here is valid in this menu item only. (The setting item is not saved in EEPROM.)

Note! PAGE setting

Pressing the [2] key or the [8] key shifts the digit. Pressing the [＊] key increments the setting value. Pressing the [2] key increments the setting value. If print is executed while the number of print copies remains in "0000", printing will continue infinitely.

4. While the message "PRINT EXECUTE" that is set by the operation specified in step 2 is being displayed, press the [6] key and the test print is executed with the setting value that has been set by steps 2 and 3.

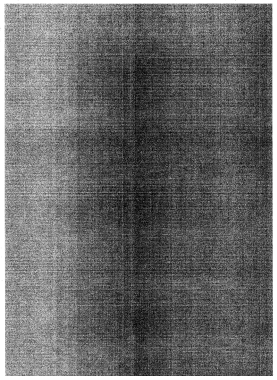
   Pressing the [#] key stops the test print.

   If any alarm that is shown in the following details column is issued at startup of test print or while test print is in progress, the test print is interrupted. (For error details, refer to section 5.2.2.14 Panel display details. However, the comment to be displayed is different in the case of the PU test print.)

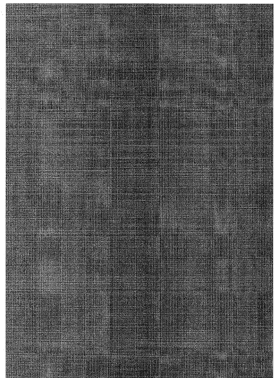
Panel display	Details
STACKER FULL	Stacker full
PAPER END SELECTED TRAY	No paper
SELECTED TRAY IS NOT INSTALLED	Selected tray is not installed.
REMOVE PAPER OUT OF DUPLEX	DUPLEX internal error
INSTALL CASSETTE TRAY OPEN	Cassette removal

Print pattern (It cannot be used for checking PQ.)

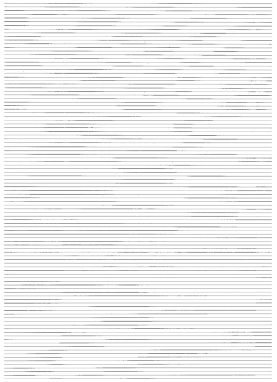
0,1 ～ 16..... White paper print



Pattern 1

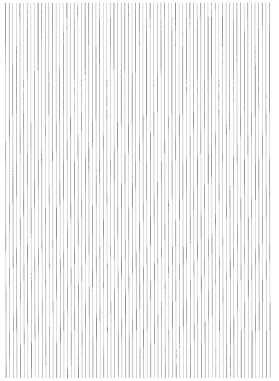


Pattern 2



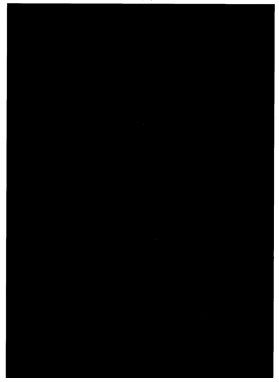
Pattern 3

Pattern 4

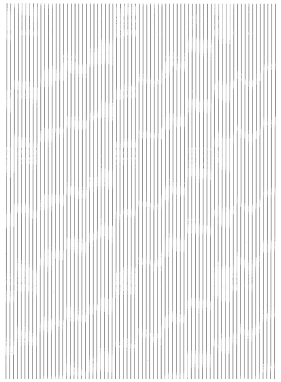


Pattern 5

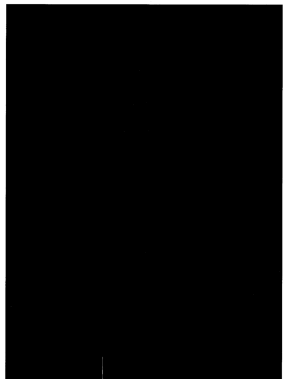
Pattern 6



Pattern 7



Pattern 8



Pattern 9

- During printing, the following messages are displayed.

P=***
W=***

P : Number of test print copies (unit: copies)
W : Print waiting time (unit: second)

- Displays are switched by pressing the [2] key.

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

U : *** = Upper heater temperature measurement value [unit:℃]
[***] = Print execution target temperature [unit:℃]
T : Environment temperature measurement value [unit:℃]
H : Environment humidity measurement value [unit: %]

- Displays are switched by pressing the [2] key.

KTR=*.**

KTR indicate the transfer voltage setting value

- Displays are switched by pressing the [2] key.

KR=*.**

KR : BLACK transfer roller resistance value [unit: uA]

- Displays are switched by pressing the [2] key.

ETMP=***UTMP=***

ETMP : Hopping motor constant speed correction parameter (environment temperature) [unit: DEC]
UTMP : Fuser motor constant speed correction parameter (fuse target temperature) [unit: DEC]

- Displays are switched by pressing the [2] key.

DB:k**

DB : Develop voltage setting table ID number [unit: HEX]

- Displays are switched by pressing the [2] key.

TR1:k**
TR2:k**

TRl : Transfer voltage parameter VTR1 table ID number [unit: HEX]
TR2 : Transfer voltage parameter VTR2 table ID number [unit: HEX]

5. Repeat steps 2 to 4 as required.
6. Pressing the CANCEL key terminates the test. (Returns to the status of step 1.)

4.2.1.6 Consumable item counter display

This self-diagnostic menu is used to display the consumption status of the consumable items.

1. Enter the ordinary self-diagnostic mode and press the [2] , [8] key until "CONSUMABLE STATUS" is displayed in the display area. (Pressing the [2] key increments the test item and pressing the [8] key decrements the test item.) Press the [6] key when "CONSUMABLE STATUS" is displayed in the display area.
2. When the [2] , [8] key is pressed, consumption statuses of the consumable items are displayed in order. (Pressing the [＊] or [#] key is invalid.)
3. Pressing the [4] key terminates the test. (Returns to the status of step 1.)

Upper Display	Lower Display	Format	Unit	Detail
K-ID UNIT	******** IMAGES	DEC	Images	Displays the number of turns performed by image drum unit from the first-time installation of it until present*1
K-ID USED	******** %	DEC	%	Displays the usage of ID.
FUSER UNIT	******** PRINTS	DEC	Prints	Displays the number of prints made from the first-time installation of a fuser unit until present *2
K-TONER (FULL)	******** %	DEC	%	Displays the usage of toner.
K-STC MODE CNT	******** *8192	DEC	DOT	Displays of the printing dot count numbers of toner.
K OVER RIDE CNT	******** TIMES	DEC	Times	Displays the extension life counter value of a toner cartridge.

*1 One third of the number of drum turns inA4 (A4 portrait) three-pages-per-job printing is regarded as one count.

*2 Based on the paper length of Legal 13, if the sheet is the legal 13 length or less, it is regarded as one count, and if the sheet length exceeds the Legal 13 length, the number of counts is determined by how many times as large is the Legal 13 length as that of the sheet. (the decimal is rounded out.)

4.2.1.7 Number of print copies counter display

This self-diagnostic menu is used to display status of the number of copies of a printer.

1. Enter the ordinary self-diagnostic mode and press the [2] key, [8] key until "PRINTER STATUS" is displayed in the display area. (Pressing the [2]key increments the test item and pressing the [8] key decrements the test item.)
2. When the [2], [8] key is pressed, statuses of the number of print copies are displayed in order.(Pressing the [＊] or [#] key is invalid.)
3. Pressing the [4] key terminates the test. (Returns to the status of step 1.)

Display area, upper row	Display area, lower row	Format	Unit	Details
K- TOTAL DRUM CNT	********IMAGES	DEC	IMAGES	Number of print copies are displayed.
TOTAL SHEET CNT	********PRINTS	DEC	Prints	Total number of print copies are displayed.

4.2.1.8 Switching between the Factory mode and the Shipping mode

This self-diagnostic menu item is used to switch between the Factory mode and the Shipping mode.

1. Enter the self-diagnostic mode (level 1) and keep pressing the [2] or [8] key until the following message is displayed.

FACTORY MODE SET

2. When the [6] key is pressed, the following message is displayed. Keep pressing the [2] or [8] key until the target item (refer to the following table) is displayed.

FACTORY MODE
SHIPPING MODE *

3. While the desired item to set is being displayed, press the [6] key that enables selection of the setting values.
4. While the desired setting value is being displayed, press the [6] key that registers the displayed value in EEPROM. (Returns to the status of step 2.)
5. Repeat steps 2 to 4 as required.
6. Pressing the [4] key terminates the test. (Returns to the status of step 1.)

Display	Setting value	Function
FACTORY MODE	FACTORY MODE	Sets the Factory working mode (fuse cut invalid mode).
	SHIPPING MODE	Releases the Factory working mode to make the fuse cut function valid.
FUSE INTACT Note: ******* indicates INTACT or BLOWN.	FUSE UNIT ******	Checks the fuse status of the fuser unit.

4.2.1.9 Self-diagnostic function setting

This self-diagnostic menu is used to set valid/invalid of the error detection by the various sensors.

The error detection can be made invalid or valid for locating source of abnormality. However, this menu item requires expert knowledge to set among the engine operations. Handle this menu item with utmost care.

Be sure to return the setting to the default setting upon completion of usage of this item.

1. Enter the self-diagnostic mode (level 1) and keep pressing the [2] or [8] key until the following message is displayed.

SENSOR SETTING

2. When the [6] key is pressed, the following message is displayed. Keep pressing the [2] or [8] key until the target item (refer to the table below) is displayed.

TONER SENSOR
ENABLE *

3. When the [6] key is pressed, the following message is displayed.

   Pressing the [2] key increments the setting value.

   Pressing the [8] key decrements the setting value.
4. While the desired setting value is being displayed, press the [6] key that registers the displayed value in EEPROM. (Returns to the status of step 2.)
5. Repeat steps 2 to 4 as required.
6. Pressing the [4] key terminates (except the status of step 4) the setting. (Returns to the status of step 1.)

Display	Setting value	Operation at the setting value	Function
TONER SENSOR	ENABLE	Detects	Valid/Invalid of toner sensor operation
	DISABLE	Not to detect	
ID UNIT CHECK	ENABLE	Checks	Valid/Invalid of ID installation check operation
	DISABLE	Not to check	
DRUM OVER LIFE	STOP	Not to continue	Setting of valid/invalid of continuance when drum comes to end of its life
	CONTINUANCE	To continue	
WR POINT REV TBL=**H± *.***mm	00H~FFH	Correction value	The correction value is added to the existing write-down position.
BOTTOM WRT POINT TBL=**H± *.***mm	00H~FFH	Cut value	Amount of cut at the rear end of a paper is set.

Hatched portion: Default is shown

4.2.1.10 LED head serial number display

This self-diagnostic menu item is used to check whether the downloaded LED head data matches the serial number of the actual LED head.

1. Enter the self-diagnostic mode (level 1) and press the [2], [8] key until "LED HEAD DATA" is displayed in the upper row of the display area. (Pressing the [2] key increments the test item and pressing the [8] key decrements the test item.) Press the [6] key when "LED HEAD DATA" is displayed in the display area.
2. When the [2] key or the [8] key is pressed, serial numbers of the K LED head data are displayed in order.
3. Pressing the [4] key terminates the test. (Returns to the status of step 1.)

K ** ** ****
xxxxxxxxxxxxx

** ** ** ****: Rev number

xxxxxxxxxxxxxxx: serial number

4.2.1.11 NVRAM parameter setting

Do not use this menu item.

4.2.2 How to enter the Scanner Maintenance Menu

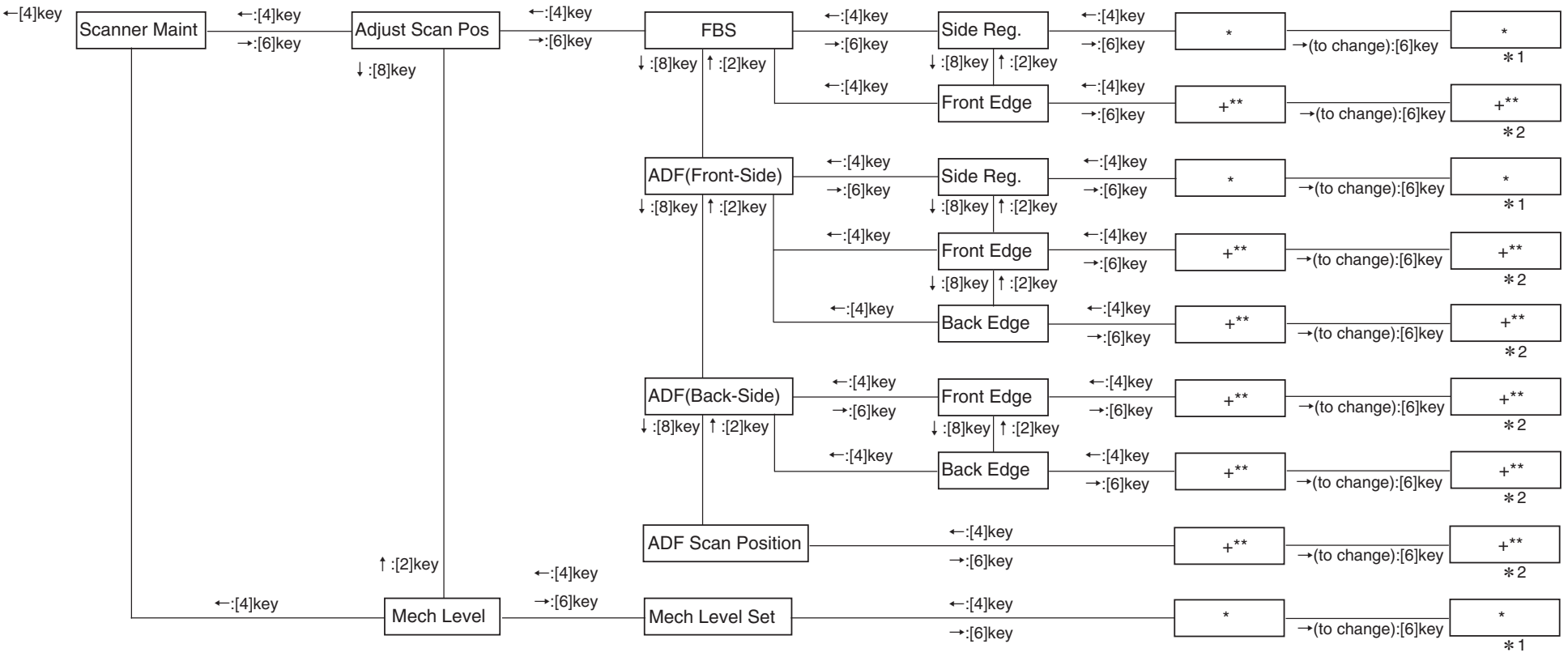
(1) Press the [6] key & [8] key when the MFP power is turned on.

(2) Press the [1] key when the "Select Number" is displayed.

Maintenance mode
Select Number(1-2) 1.SU 2.PU

Basic key assignmenet in the Scanner Maintenance Menu

↑ move	[2] key
← move	[4] key
→ move	[6] key
↓ move	[8] key
cancel	[#] key
confirm	[*] key



＊1 decrement:[2]key,increment:[8]key,cancel:[#]key,confirm:[*]key

＊2 ←digit move:[4]key,→digit move:[6]key,decrement:[2]key,increment:[8]key,cancel:[#]key,confirm:[*]key

(3) Display "Scanner Maint" as the Scanner Maintenace Menu show below.

Item1	Item2	Item3	Item4	Value (Step)	Default value ODA	Default value OEL	Default value JP	Notes
Scanner Maint	Adjust Scan Pos	FBS	Side Reg.	+42 ~ 0	0	0	0	Adjust the scanning start position of main scanning direction when book scanning. Adjust in intervals of one step =2/600 dpi (=0.08 mm).
			Front Edge	+30 ~ -30	0	0	0	During book scanning, add a value for the basic value (= 5 mm) when reading the shadow of the front edge of the document. Adjust in intervals of one step = 4/600 dpi (=0.17 mm).
		ADF (Front-side)	Side Reg.	+42 ~ 0	+21	+21	+21	Adjust the scanning start position of main scanning direction when ADF scanning. Adjust in intervals of one step = 2/600 dpi (=0.08 mm).
			Front Edge	+30 ~ -40	0	0	0	When reading a document from the ADF, add a value for the basic value when reading the shadow of the front edge of the document. To skip the front edge of the document, add a negative value. Increase or decrease the number of motor pulses from detection by the sensor of the front edge of the media until actual reading starts. Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).
			Back Edge	+30 ~ -40	0	0	0	When reading a document from the ADF, add a value for the basic value when skipping the back edge of the document. To read the shadow of the back edge of the document, add a negative value. Increase or decrease the number of motor pulses from detection by the sensor of the back edge of the media until actual reading ends. Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).
		ADF (Back-side)	Front Edge	+30 ~ -40	0	0	0	When reading a document from the ADF, add a value for the basic value when reading the shadow of the front edge of the document. To skip the front edge of the document, add a negative value. Increase or decrease the number of motor pulses from detection by the sensor of the front edge of the media until actual reading starts. Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).
			Back Edge	+30 ~ -40	0	0	0	When reading a document from the ADF, add a value for the basic value when skipping the back edge of the document. To read the shadow of the back edge of the document, add a negative value. Increase or decrease the number of motor pulses from detection by the sensor of the back edge of the media until actual reading ends. Adjust in intervals of one step = 4/600 dpi (= 0.17 mm).
		Adjust ADF Scan Pos		+30 ~ -30	0	0	0	Set the CIS reading position of the ADF for the focusing standard. Adjust in intervals of one step = 4/600 dpi (= 0.17 mm). This is correlated to adjustment of the ADF front edge position.
	Mech Level	Mech Level Set		0 ~ 1	1	1	1	Setting the Scanner Mech Level. Default value is 1. Setting proper value of scanner mech level, when shipping. To check the Mech Level, according to the section 3.3

4.3 Setups upon completion of part replacement

The adjustments that are required upon completion of part replacement are described below.

Replacement parts	Adjustment contents
LED head See note.	Not required
Drum cartridges (K)	Not required
Fuser unit	Not required
PU board	4.3.1 Copying the EEPROM information and utilities are required.
SU board	4.2.2 Check mech. level and set proper value of scanner mech. level.
CU board	Refer to "6.1 Removal and Installation of PC Boards/HDD" in the Software Guide.
HDD	
SRAM	

Note! Refer to the Software Guide for the removal and installation procedures of the CU board, HDD, and SRAM board <for CU board>.

4.3.1 Precautions when replacing the PU board

1. When access to the EEPROM of the board to remove is possible. (When the [Engine EEPROM Error] is not displayed:)
   (1) Obtain the EEPROM information from the board to remove, by using the board replacement function (Maintenance Utilities Operation Manual section 2.4.1.1.9 Board replacement function) of the Maintenance Utilities, and save in the hard disk of PC temporarily.
   (2) Copy the EEPROM information that has been saved in the hard disk of PC by step (1), into the EEPROM of the new replacement board by using the Board replacement function (Maintenance Utilities Operation Manual section 2.4.1.1.9 Board replacement function) of the Maintenance Utilities.

Note! When obtaining and copying the EEPROM information by using the Maintenance Utilities, set the printer into the "Forced ONLINE mode"

2. When access to the EEPROM of the board to remove is impossible.

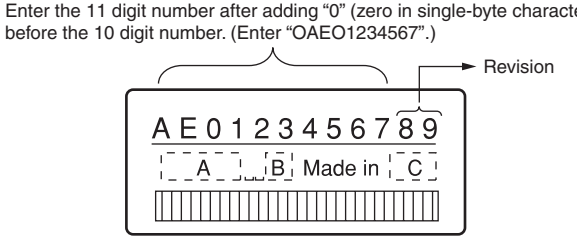
   If the [Engine EEPROM Error] is displayed on the operator panel with the board to remove, or is EEPROM data cannot be read-out, perform the following procedure by using the Maintenance Utilities.

   (1) Setting the serial number information (Maintenance Utilities Operation Manual section 2.4.1.1.10.3)

   The SAP serial number is applied to printer. The SAP serial number is displayed in the top-most row of the serial number label. Its number indicates the production place with 2 digits, manufacture date with 2 digits, serial number (sequential number) with 6 digits and revision number with 2 digits totaling 12 digits number.

- Select PU Serial Number for the printer serial number, and Show Only Serial Number for the output mode.
- The PU serial number is the 10 digits number excluding the revision number of 2 digits among the 12 digits SAP serial number.
- Perform the above setting by using the Maintenance Utilities section “2.4.1.1.10 Board setting function” – section “2.4.1.1.10.3 Serial number information setting”.
- To specify the PU serial number, enter the 11 digits number after adding “0” (Zero in single-byte character) at the top. (Be careful that the read-out data shows the 10 digits number.)
  Enter the 11 digit number by adding “0” (Zero in single-byte character) before the 10 digit number excluding the revision 2 digits that is shown in conceptual drawing of “Serial number information setting” screen as shown below.

- The PU serial number is output to the System/Serial Number column of the



Serial number label conceptual drawing

Configuration. Therefore, confirmation upon completion of rewriting the PU serial number can be performed by printing the Configuration.

(2) Switching to the Shipping mode (Maintenance Utilities Operation Manual section 2.4.1.1.10.4)

When the board is replace with the new board, the new board has been set in the Factory working mode. Therefore, it should be switched to the Shipping mode.

- Switch the mode by using the Maintenance Utilities section “2.4.1.1.10 Board setting function” – section “2.4.1.1.10.4 Factory/Shipping mode” screen.

Note! Note that replacing the PU board with a new one without copying information onto the new one from the board’s EEPROM clears information about the lives of units of the printer, including the belt, toner and image drums, causing errors in managing these lives on the printer until the units are replaced. The counts cleared with such PU board replacement are as shown in the list below and chapter 2 Counter Specifications. When the units are replaced with new ones, their respective counts except for Total Sheets Fed are cleared, the errors being corrected.

Item	Contents	Count contents
Fuser unit	Fuser unit life count	Number of print copies after the new fuser unit is installed, after the data is converted to equivalent number of A4 size paper counts.
ID unit : Black	Life count of respective ID units	Number of print copies after the new ID unit is installed, after the data is converted to equivalent number of A4 size paper counts.
Total number of papers fed	Printer life count	Total number of papers fed
Print : Black	Number of print copies of ID	Number of print copies after the new ID unit is installed.

5. Periodic maintenance

5.1 Cleaning

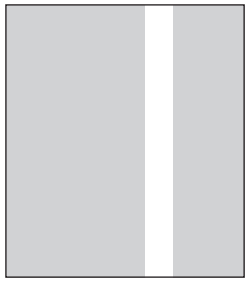
Clean inside and outside of the MFP with clean dry cleaning cloth and small vacuum cleaner (hand cleaner) as required.

Note! Be careful not to touch the image drum terminals, the LED lens array and the LED head connectors.

5.2 How to clean the LED lens array

If the white banding, white stripe (white drop-out, light printing) in the vertical direction occurs on the print surface, clean the LED lens array.

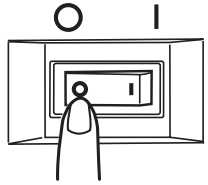
White bending, white stripe
(white drop-out, light printing)



Perform cleaning of the LED head.

If any light print or white banding is recognized or if print character becomes blurred, clean the LED head as descried below.

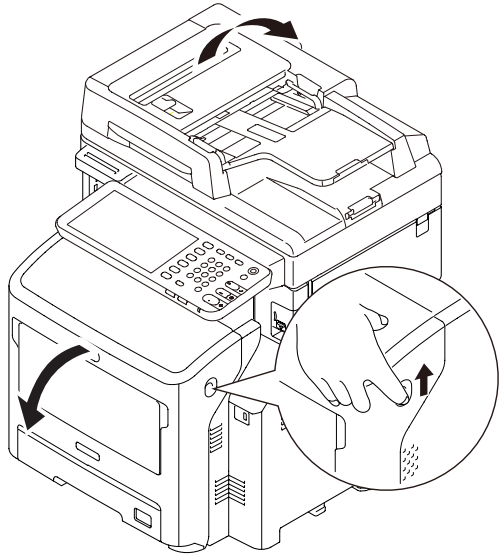
(1) Turn off the power of the MFP.



(2) Open the front cover, the scanner and the top cover.

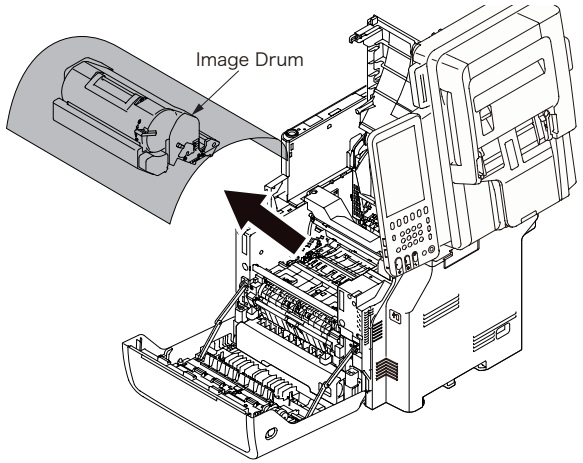
⚠Caution	Personal injuries may occur.	

The fuser unit gets very hot. Do not touch the fuser unit.



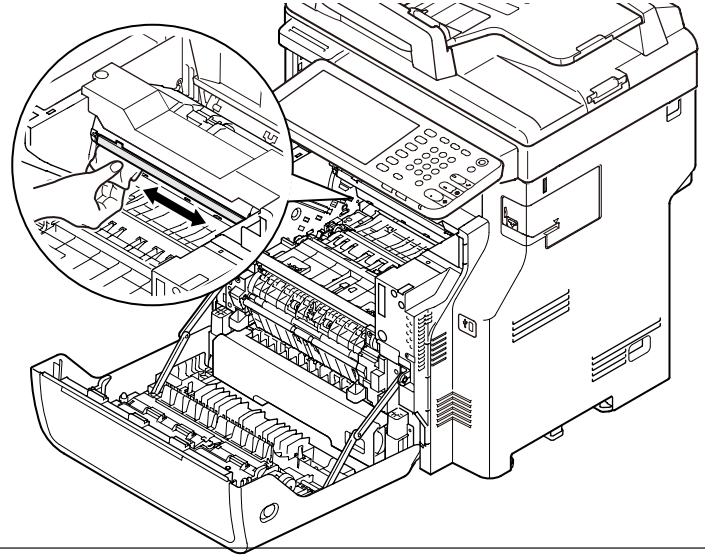
(3) Remove the Image drum cartridge.

1. Remove the Print Cartridges and place them on a flat workbench.
2. Cover the removed image drum cartridge with a black paper.

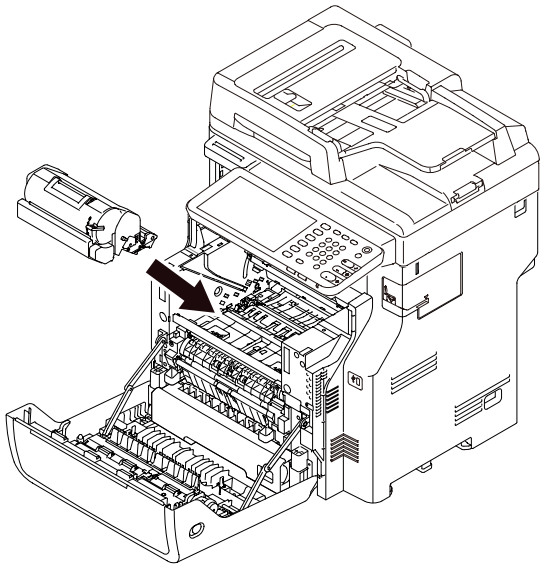


(4) Wipe the lens surface of the LED head with soft tissue paper gently and lightly.

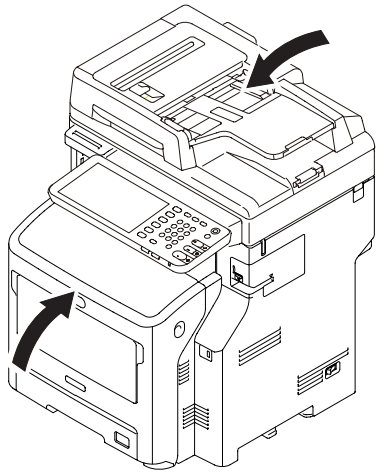
Note! Do not use the solvents such as methyl alcohol or thinner for cleaning the LED head lens because they can damage the LED head.



(5) Return the Print Cartridges to the MFP carefully.



(6) Close the top cover, the scanner and the front cover.



5.3 How to clean the pickup rollers for MP Tray

If the vertical bending in the vertical direction occurs on the print surface the pickup roller.

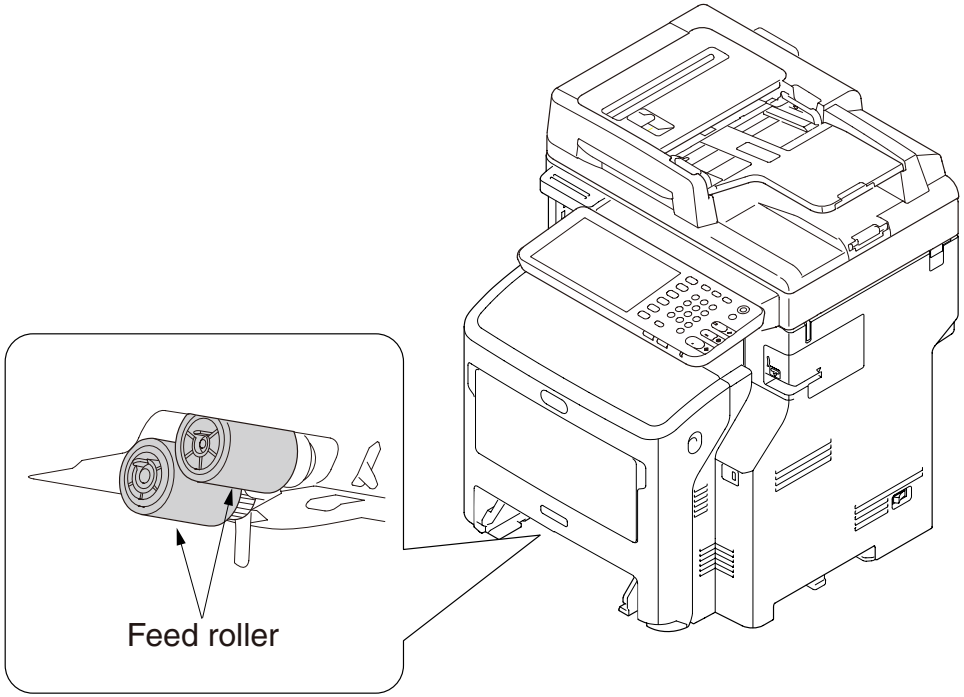
Note! Be sure to use a soft cloth to or the like for cleaning the pidkup roller. Otherwise, the roller surface can be damaged.

Perform cleaning of the feed roller and the separation roller.

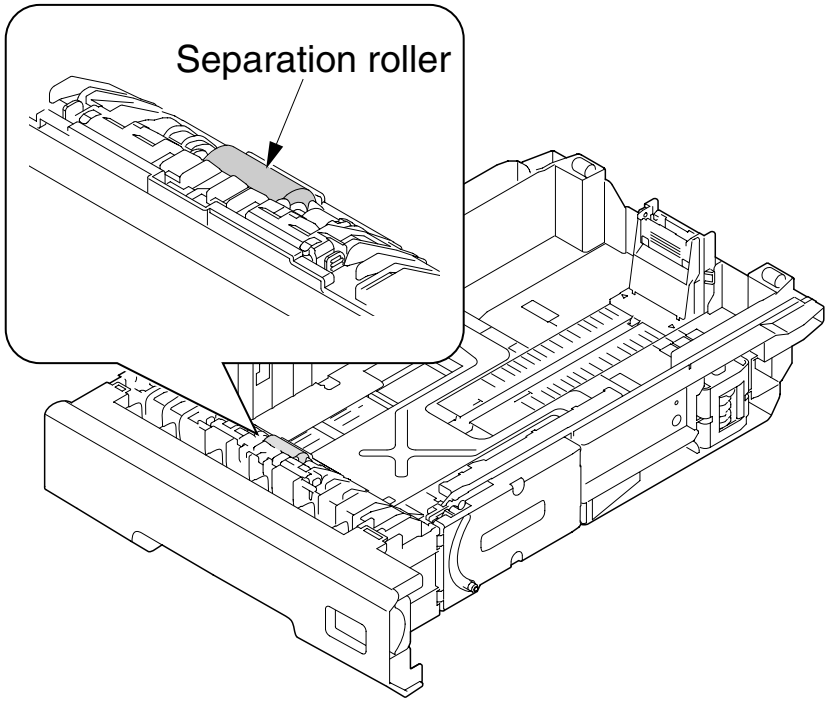
Perform this cleaning when the error code [Open Cassette / Paper Jam / Tray1 /Please see HELP for details] occurs frequently.

(1) Pull out the Cassette.

(2) Clean the 2 feed rollers with a clean cloth stringently wrung out of clean water.



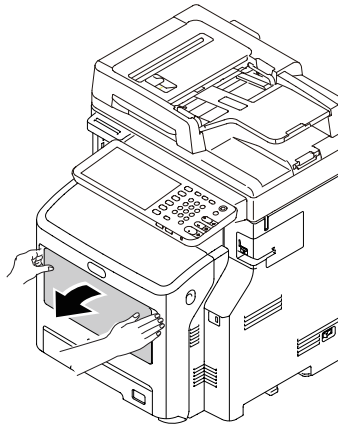
(3) Clean the separation roller of the paper tray with a clean cloth wrung out stringently of clean water.



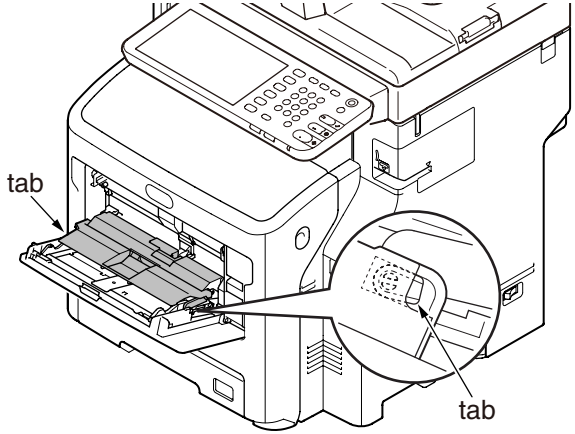
Note! •Clean the second tray (option) in the same manner when the error code [Open Cassette / Paper Jam / Tray2 / Please see HELP for details] occurs frequently.

5.4 How to clean the paper feed rollers for MP Tray

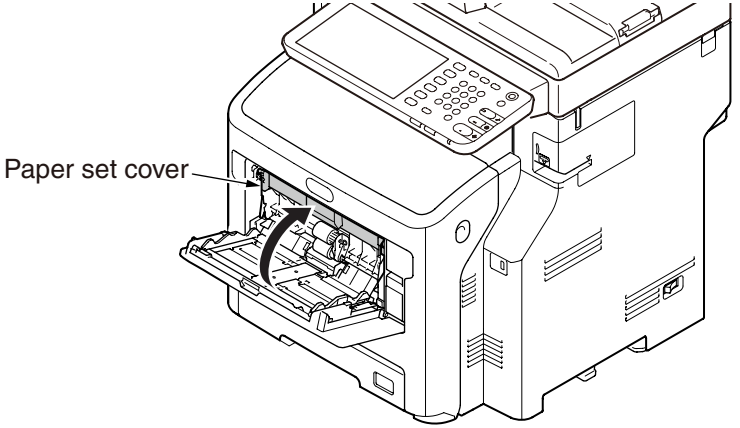
(1) Open the MP tray.



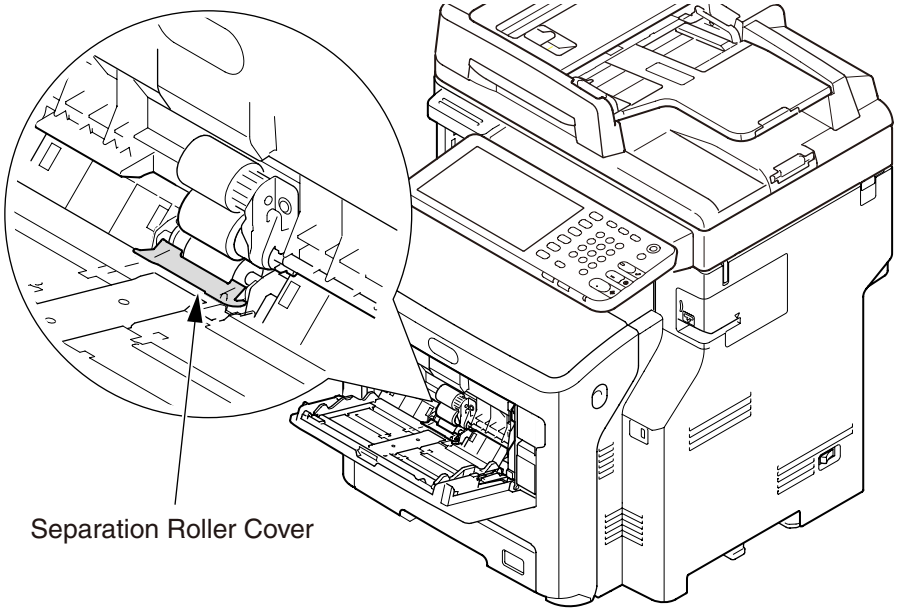
(2) Release the tabs of the paper feed roller cover by pressing the both side arms inward while listing up MP tray lightly.



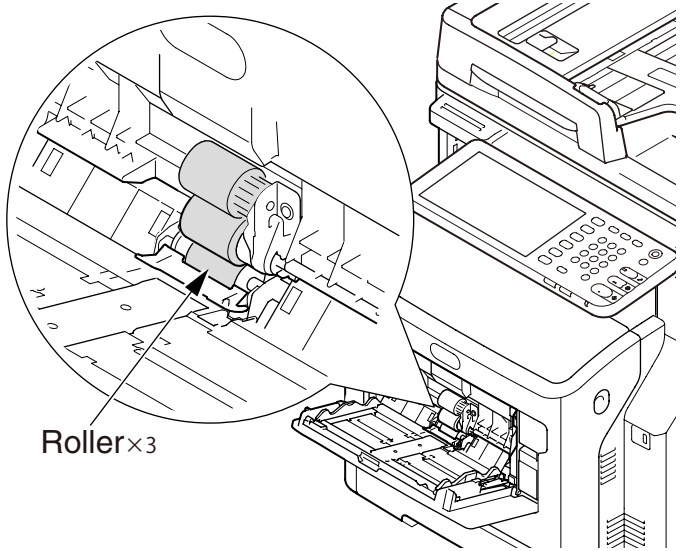
(3) Open the paper set cover until the touches the printer.



(4) Open the separation roller cover forward while pressing the center part of the MP tray.



(5) Wipe the feed rollers and separation roller with a wet cloth that has been wrung out well.



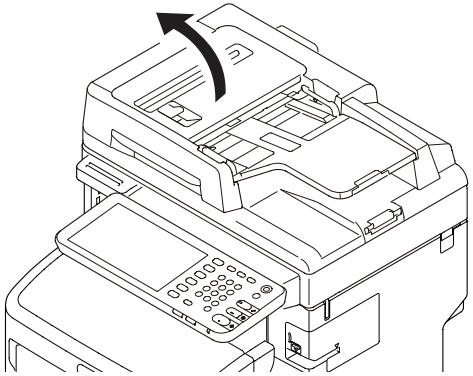
Note! •Clean the feeder roller of the multi-purpose tray in the same manner when the error code [Open cover / Paper Jam / Front Cover / Please see HELP for details] occurs frequently.

5.5 How to clean the rollers in the ADF

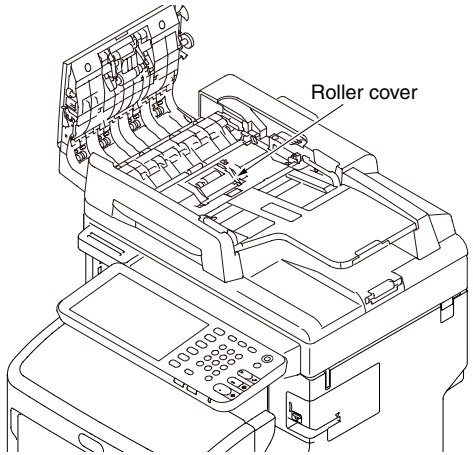
If the document feeding rollers in the ADF are contaminated with ink, toner particles or paper dust, documents and outputs get dirty and a paper jam and noise may occur. To prevent this, it is recommended to clean the rollers once a month.

(1) Turn off the power of MFP.

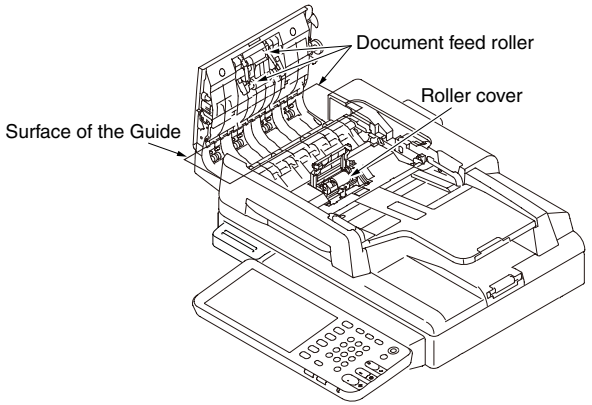
(2) Open the ADF cover.



(3) Open the roller cover.

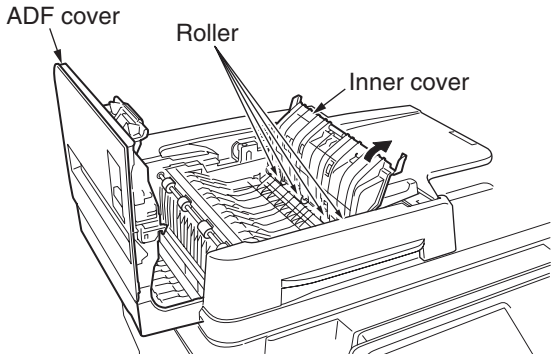


(4) Wipe the document feed rollers with a soft cloth lightly moistened with water. Wipe the whole surface of the roller while turning it with your hand.



Note! If the rollers get too dirty, wipe them with a soft cloth lightly moistened with neutral detergent, and then wipe it again with a soft cloth lightly moistened with water.

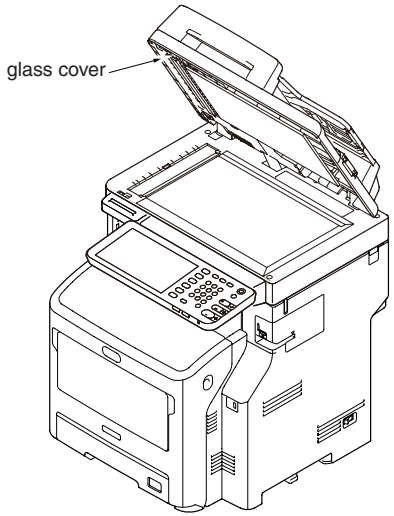
(5) Open the inner cover and wipe the rollers with a soft cloth lightly moistened with water.



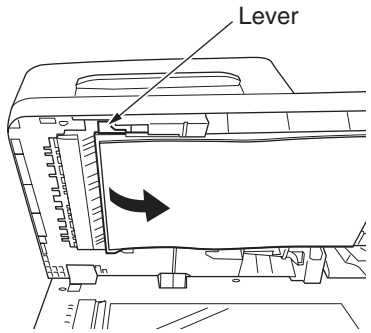
(6) Close the roller cover and ADF Cover.

5.6 How to clean the document rollers in the ADF

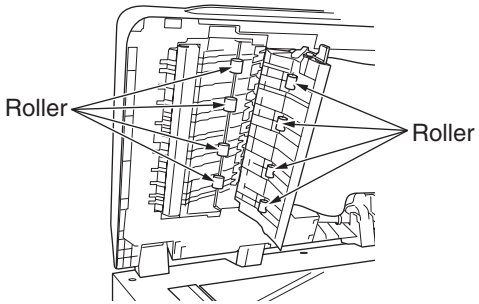
(1) Open the glass cover.



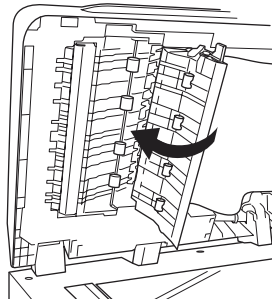
(2) Open the document pad by pull the lever.



(3) Wipe the rollers with a soft cloth lightly moistened with water.



(4) Return the document pad to former position.



(5) Close the glass cover.

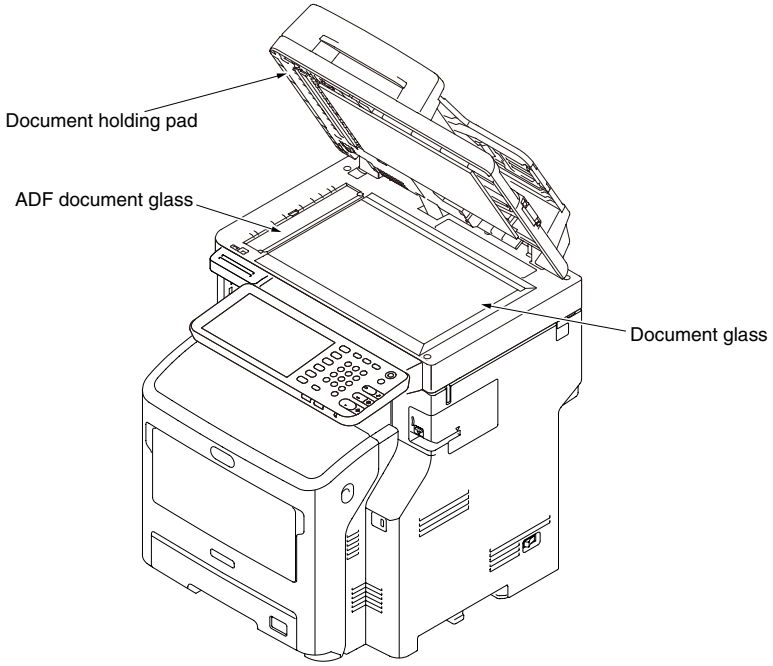
5.7 How to clean the document glass

It is recommended to clean the document glass once a month to maintain image quality of the printouts.

(1) Open the document glass cover.

(2) Wipe the document holding pad, document glass and ADF document glass surface with a soft cloth lightly moistened with water.

Note! Do not use benzine, thinners or alcohol as a cleaning agent. They may damage the plastic parts of the MFP.



(3) Close the document glass cover.

6. Troubleshooting and repair procedure

6.1 Before starting the repair work

(1) Confirm the basic check/inspection points described in User's Manual.

(2) Get the information/status from client at the time when the trouble has occurred as much in details as possible

(3) Create the status close to the user's status when the trouble has occurred, and inspect a printer in that status.

6.2 Confirmation items before taking corrective action against abnormalities

(1) Is the usage environment of a printer normal?

(2) Are the consumable items (toner, drum cartridge) replaced normally?

(3) Is the print media (paper) normal? Refer to Specifications – Paper in User's Manual.

(4) Is the drum cartridge installed normally?

6.3 Precautions when taking corrective action against abnormality

(1) Do not touch the OPC drum surface with your hand or any foreign materials.

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

(3) The fuser unit will be hot. Do not touch.

(4) Do not expose the image drum to any light for 5 minutes or longer under the normal room temperature.

6.4 Preparation for troubleshooting

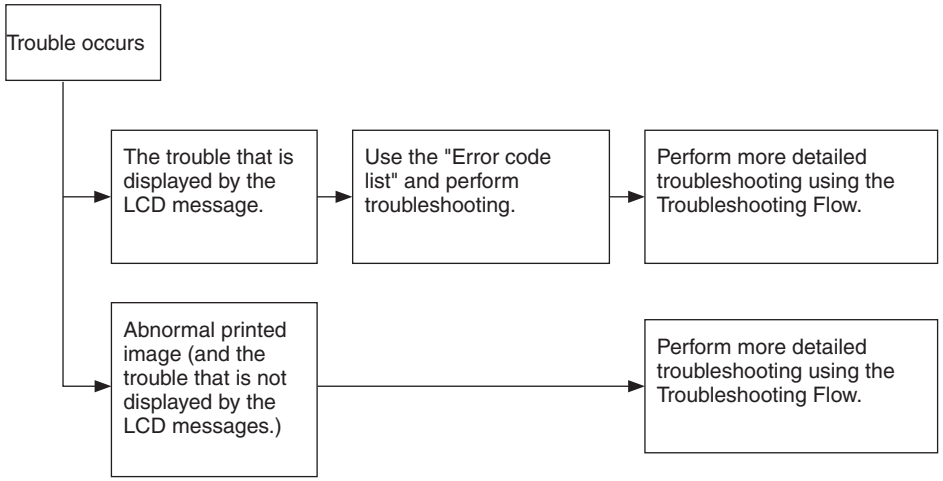
(1) Display on the Operator Panel

Error status of this printer is displayed on the LCD (Liquid crystal display) of the Operator Panel.

Take appropriate troubleshooting action in accordance with the message displayed on the LCD.

6.5 Troubleshooting method

When a trouble occurs in this printer, perform troubleshooting by following the steps described below.



6.5.1 Error code list

Note! For the error codes not described in this manual, refer to the Software Guide.

Error Code	Details
3DE1	Black image drum life (The toner empty error is occurred after the image drum reached its life.)
C060	Hopping Motor lock error
C0A1	Fan Motor Error1(Fuser cooling Fan)
C0A2	Fan Motor Error2(Supply cooling Fan)
C0A5	Fan Motor Error5(Engine Fan Motor Error)
C0A6	Fan Motor Error6(Duplex Fan Motor Error)
C0A8	Fan Motor Error8
C1DA	LCF unit detect error 1
C1DB	LCF unit detect error 2
C260	Ramp error
C270	Scanner error - carriage home position sensor not turning off
C280	Scanner error - carriage home position sensor not turning on
C291	Scanner error - carriage home position error
C383	Black toner sensor error
C41A	Upper thermistor short error
C41B	Upper thermistor circuit open error
C41C	Lower thermistor short error
C41D	Lower thermistor circuit open error
C41E	Compensation thermistor shortened error
C446	Upper heater temperature low
C449	Upper heater temperature high
C44A	Thermistor slope Error
C466	Lower heater low temperature
C468	Lower heater temperature high
C46A	Compensation heater temperature high
C46B	Compensation heater temperature low
C46C	Power Supply Thermistor Short Error
C46D	Power Supply Thermistor Open Error
C46E	Power Supply Thermistor Temp High
C46F	Power Supply Thermistor Temp Low
C4C0	Fuser unit fuse cut error
C56A	Duplex Unit I/F Error
C56B	Tray2 Unit I/F Error

Error Code	Details
C56C	Tray3 Unit I/F Error
C56D	Tray4 unit I/F error
C56E	LCF Unit I/F Error
C5A1	Engine EEPROM error
C5A2	Duplex software error
C5A3	Tray2 software error
C5A4	Tray3 software error
C5A5	Engine software error
C5A6	Tray4 software error
C5A7	LCF Software Error
C5B0	Duplex clock adjust error
C5B2	Tray2 clock adjust error
C5B3	Tray3 clock adjust error
C5B4	Tray4 clock adjust error
C5B5	LCF Clock Adjust Error
C901	Scanner system initializing error
C91A	Engine Error5
C91B	Engine Error4
C91C	Engine Error2
C91D	Engine Error1
C91E	ERR13
C91F	ERR09
C921	AC zero cross error
C940	Engine control error
C96A	Power supply LSI error
C9A0	Detect offline stapler error
CE50	Temperature sensor abnormality
CE51	Humidity sensor abnormality
CE52	Sensor dewed error (Humidity Sensor Wet Error)
CE85	Black LED head missing
CF10	Finisher error
D102	MPTray paper empty
D108	LCF Liftup error
D109	LCF Capacity over
D201	Front cover open
D216	Exit Cover(Mosel)
D21D	Top cover open
D21E	Duplex unit cover open
D301	Black toner is empty
D311	Non genuin toner (Black)
D331	Incompatible toner (Black) → Black Toner Protected Region

Error Code	Details
D335	Incompatible toner (Black) → Black Toner Group Mismatch Error
D345	Black image drum life
D34F	Printer unit life
D361	Standard Bin (Face Down Bin) Full
D371	Toner sensor error (Black)
D381	Toner region mismatch error (Black)
D3B1	Improper Black lock lever position
D3C1	Black toner cartridge not installed
D3D1	Fuser unit life
D3F1	Black ID Exceed Life
D3F2	Black ID Critical Life
D3F4	Black ID Exceed Life Warning
D3F6	K Drum is not genuine
D401	Tray1 missing (cassette missing)
D402	Tray2 missing (cassette missing)
D403	Tray3 missing (cassette missing)
D404	Tray4 missing (cassette missing)
D901	Black drum missing
D910	Duplex unit pulled out
D920	Fuser unit missing
E010	Paper transport jam
E01A	Paper Transport (remained paper)
E01B	Fuser jam
E020	Paper exti jam
E02A	Paper Exit (remained paper)
E061	Tray1 check paper size error
E062	Tray2 check paper size error
E063	Tray3 check paper size error
E064	Tray4 check paper size error
E065	MP Tray check paper size error
E066	LCF paper size setting error
E090	Image data time out jam
E110	Duplex feed jam
E120	MPT feed jam
E130	Tray1 feed jam
E13A	Tray1 paper remaining
E140	Tray2 feed jam
E14A	Tray2 paper remaining
E150	Tray3 feed jam
E15A	Tray3 paper remaining
E160	Tray4 feed jam

Error Code	Details
E16A	Tray4 paper remaining
E19A	Detect the LCF paper remain
E202	Paper feed jam
E20A	Paper Feed (remained paper)
E400	Face Up Cover Jam (OPJAM2 #3)
E520	Duplex transport jam
E52A	Duplex Transport (remained paper)
E570	Duplex entry jam
E57A	Duplex entry (remained paper)
E580	Duplex reversal jam
E58A	Duplex reversal (remained paper)
E711	RADF JAM - Hopping
E712	RADF JAM - paper not reaching the registration sensor
E713	RADF JAM - Reverse
E714	RADF JAM - feed signal reception JAM
E715	RADF JAM - hopping sensor of reversal
E721	RADF JAM - scan sensor
E722	RADF JAM - too long paper detect
E723	RADF JAM - too short paper detect
E724	RADF JAM - remained scan sensor
E725	RADF JAM - too short margin between paper
E726	RADF JAM - illegal sensor detect (duplex)
E727	RADF JAM - illegal sensor detect
E728	RADF JAM - chattering (sensor)
E741	RADF JAM - too long paper detect (duplex)
E742	RADF JAM - too short paper detect (duplex)
E743	RADF JAM - forward reversal regist sensor
E744	RADF JAM - backword reversal regist sensor
E778	RADF JAM - remained paper detect
E779	RADF JAM - paper set sensor
E870	RADF open JAM
F031	Duplex version Error
F032	Tray2 version Error
F033	Tray3 version Error
F034	Tray4 version error
F035	LCF Version Error
F03A	Black tag version mismatch
F070	Communication error between System-CPU and Engine-CPU
F071	Incompatible firmware combination between System-CPU and Engine-CPU
F072	Flash ROM abnormality

Error Code	Details
F073	Uncompatible Specversion Error
F090	SRAM abnormality on the SYS board
F100	HDD format error
F101	HDD uncounted
F102	HDD start error
F103	HDD transfer timeout
F104	HDD data error
F105	HDD other error
F110	Communication error between System-CPU and Scanner-CPU
F111	Scanner response abnormality
F112	Communication error between System-CPU and Scanner-CPU detected by Scanner-CPU
F113	Scanner software error
F114	Scanner CPU exception
F120	Database damaged
F350	Slog board abnormality
F400	CPU fan abnormality

6.5.2 Printer error troubleshooting

Error code	Cause	Error details		Remedial measure
C5A1	Read/write error of the engine EEPROM is detected.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the PU board.
C940	Engine control logic has an error.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the PU board.
F031	Duplex unit for other model is detected.	Is the Duplex unit for that specific model installed?	No	Install the correct duplex unit.
F033	2nd tray for other model is detected.	Is the 2nd tray for that specific model installed?	No	Install the correct 2nd tray.
F032	3rd tray for other model is detected.	Is the 3rd tray for that specific model installed?	No	Install the correct 3rd tray.
E19A		Receive paper remain information of Tray2 or Tray3, and notice remain paper by CU when LCF is setting.		Take out the jammed paper.
F035		Notice the Version Error of Tray2 or Tray3 and setting LCF Version Error by CU.		Install the correct LCF Unit.
F073		Request to print from incompatible SPECVERSION		
C96A	High voltage power supply interface error.	Is the cable connecting the PU board to the high voltage unit connected normally? Have you checked defective contact of contactor points? Note)	No Yes No	Re-connect them normally. Check for defective contact of the high voltage system. Replace the high voltage power supply.
C060	Detect hopping Motor lock error	Hopping motor does not rotate nomary.		Power OFF/ON Turn off the Power of the printer and back on.

Error code	Cause	Error details		Remedial measure
C0A2	Low voltage power supply fan error	Is the fan (bottom right of the front) of the low voltage power supply block working? Is the fan connector connected normally?	No Yes No Yes	Check for sure connection of the fan connector. Replace the PU board. Replace the fan motor.
C0A8		Fan Motor Error8		Turn off the Power of the printer and back on.
CE51	Environment humidity is abnormal./ Humidity sensor is not connected.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the Board 8TH.
CE50	Environment temperature is abnormal.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the Board 8TH.
CE52	Dew condensation of the printer is detected.	This error can easily occur when a printer is brought in to indoor from outdoor. Leave the printer for 2 hours or half day under room temperature, and turn on the power again. Does this error recur?	Yes	After leaving a printer under room temperature, turn on the power again. Replace the Board 8TH.
C0A1	Fuser exhaust fan error	Is the fan connector connected normally? Does this error recur?	No Yes No	Re-connect it normally. Replace the fan motor. Replace the PU board.
C0A5	ID cooling fan error	Is the fan connector connected normally? Does this error recur?	No Yes No	Re-connect it normally. Replace the fan motor. Replace the PU board.

Error code	Cause	Error details		Remedial measure
C0A6	Duplex FAN Alarm Caution	Fan error inside the Duplex unit.		Check if the Duplex unit is installed normally or not. Check if the fans are installed normally or not.
		Does the error recur when the power is turned off once and back on?	Yes	Replace the fan.
		Does the error recur when the power is turned off once and back on?	Yes	
C46C		Power Supply Thermistor Short Error. (When temperature is high)		Turn off the Power of the printer and back on.
C46D		Power Supply Thermistor Open Error (When temperature is low)		Turn off the Power of the printer and back on.
C46E		Power Supply Thermistor Temp High		Turn off the Power of the printer and back on.
C46F		Power Supply Thermistor Temp Low		Turn off the Power of the printer and back on.
CE85	LED head detection error (CE85=K)	Is the LED head connected normally?	No	Install the LED head unit normally.
			Yes	Check the LED HEAD fuse.
		Is the LED HEAD fuse brown?	Yes	After checking fuse
		Does this error recur?	No	Turn on the power again.
			Yes	For the method of checking the LED head unit fuse, refer to section 7.6.
CE7A	ID Up/Down position detection error	Is the ID unit caught by anything when it is removed and re-installed?	Yes	Re-install the ID unit.
			No	Turn on the power again.
		Does this error recur?	Yes	Replace the high voltage power supply.

Error code	Cause	Error details		Remedial measure
C4C0	The fuse has blown out.	Is the fuser unit installed normally?	No	After cleaning the connecting connector of the fuser unit, re-install the fuser unit. Turn on the power again.
		Does this error recur?	Yes	After checking for the sure cable connection,
			Yes	replace the PU or Board IBY.
C383	Toner sensor detection error. (C383=K) This error does not occur with the default settings.	Is the toner cartridge installed?	No	Install the toner cartridge.
		Is the lock lever of the toner set?	No	Rotate the lock lever of toner to the lock position. Turn on the power again.
		Does this error recur?	Yes	Replace the toner sensor assembly.
C44A	Thermistor Slope Error	Is the error message displayed? Does this error recur?		Turn on the power again.
			Yes	After leaving a printer for 30 minutes, turn on the power again.
C41E	Compensation Thermistor Error	Is the error message displayed? Does this error recur?		Turn on the power again.
			Yes	After leaving a printer for 30 minutes, turn on the power again.
C41A C41B	Short-circuit or open-circuit of fuser thermistor is detected.	Does this error recur?		Turn on the power again.
			Yes	Replace the fuser unit.
C449 C446	The fuser thermistor has detected an abnormal temperature (high temperature or low temperature.)	Does this error recur?		Turn on the power again.
			Yes	Replace the fuser unit.
		Does this error recur?	Yes	Replace the low voltage power supply unit.

Error code	Cause	Error details		Remedial measure
C41C	The backup roller thermistor is detected of its short-circuit. (At high temperature)	Does this error recur?	Yes	Turn on the power again. Replace the fuser unit.
C41D	The backup roller thermistor is detected of its open-circuit. (At low temperature)	Does this error recur?	Yes	Turn on the power again. Replace the fuser unit.
C468 C466	The backup roller thermistor has detected an abnormal temperature (high temperature or low temperature.)	Does this error recur? Does this error recur?	Yes Yes	Turn on the power again. Replace the fuser unit. Replace the low voltage power supply unit.
C56A C56B C56C C56D	Option unit I/F error (C56A=Duplex Unit, C56B=2nd Tray, C56C=3rd Tray C56D=4th Tray)	Does this error recur? Does this error recur?	Yes Yes	Turn on the power again. Check for sure connection of the connectors. Replace the option unit.
C56E		When LCF is setting,Tray2 Unit I/F Error or Tray3 Unit I/F Error is report from PU. Interchange the error to LCF Unit I/F Error by CU. Occur:When communication has dropped off.		Turn on the power again.
C5A7		When LCF is setting,Tray2 software Error or Tray3 software Error is report from PU. Interchange the error to LCF Software Error by CU. Occur:Detect flash memory software error of Tray.		Undetected flash memory software error of Tray3.

Error code	Cause	Error details		Remedial measure
C5B5		When LCF is setting, Tray2 Clock Adjust Error or Tray3 Clock Adjust Error is report from PU. Interchange the error to LCF Clock Adjust Error by CU.		Replace the Tray board
C020	Image drum lock error	The ID does not rotate normally. Does the error display recur when the power is turned off once and back on?	 Yes Yes	Check if the ID is installed normally or not. Replace the ID unit. Replace the ID motor.
C4E3	Fuser motor lock error	Fuser does not rotate normally. Does this error recur?	 Yes Yes	Check if the fuser is installed normally or not. Replace the fuser. Replace the fuser motor.
C4FA	Media wrapped around the fuser error	Media has wrapped around the fuser.		Turn off the power. Replace the fuser.
C5B2 C5B3 C5B4	Tray-2/3/4 CPU clock frequency error	C5B2=2nd Tray C5B3=3rd Tray C5B4=4th Tray		Replace the Tray board GOH-12.
C91E		When separate toner is setting, occur the error in case the ID and TC is same Tag.		Set the correct tag in ID and TC.
C91F		Detect to receive the each color. Change the ERR04		Set the correct tag in ID and TC.
F041	Over than available setting number tray detection error	Over than available setting number tray is installed.		Remove the available setting number tray.
F03A	Detection of an unsupported toner cartridge	An unsupported toner cartridge has been detected. F03A:Black toner cartridge position		Replace it with an appropriate toner cartridge.
C1DA C1DB		LCF unit detect error 1 LCF unit detect error 2		Replace the LCF Unit Board
C46A C46B		Compensation Heater Temp high Compensation Heater Temp Low		Turn on the power,after 30min.

Error code	Cause	Error details		Remedial measure
C5A2		Duplex Software Error		Replace the Duplex Unit
C5A3		Tray3 Software Error		Change the Tray3 Board
C5A4		Tray2 Software Error		Change the Tray2 Board
C5A5		Software Error		Change the PU Board
C5A6		Tray4 Software Error		Change the Tray4 Board
C5B0		Duplex Clock Adjust Error		Change the Duplex
C9A0		Offline stapler error		Change the offline stapler
D108		When LCF can not Lift up.		Set the Paper of the LCF Tray again.
D109		Detect the paper capacity is over.		Set the Paper of the LCF Tray again.
D216		Reversal cover is open.		Close the Exit Cover.
D3F1		Occur:The drum counter is over the life limit, and detect toner empty.		Push the ONLINE SW when change the new Image Drum.
D3F2		Occur:Printing 500 page, after the drum counter is over the life limit, and detect toner empty.		Push the SW when change the new Image Drum and Cover open close.
D3F4		Occur:The drum counter is over the life limit, and detect toner empty.		Auto reset when change the new drum.
D3F5		Occur:Printing 500 page, after the drum counter is over the life limit, and detect toner empty.		Auto reset when change the new drum.

Error code	Cause	Error details		Remedial measure
D3F6		The error is detect the Drum is not genuine. It is occur the Self-diagnostic mode of genuine is「warning」or「stop」.		Set the correct tag in ID.
E010 E020 E570		Indicates that jam has occurred in the paper path. Error E010 : Transport Error E020 : Exit Error E570 : Duplex Entry		Take out the jammed paper.
E01A		Occur jam and Paper on the Transport Path		Take out the jammed paper. Change the sensor Lever. Change the PU board.
E01B		Occur jam around Fuser Unit		Take out the jammed paper. Change the sensor Lever. Change the PU board.
E02A		Occur jam and Paper on the Exit Path		Take out the jammed paper. Change the sensor Lever. Change the PU board.
E061 E062 E063 E064 E065		Tray1 check paper size error Tray2 check paper size error Tray3 check paper size error Tray4 check paper size error MP Tray check paper size error		Change the paper size or change the paper in Tray.
E066		Occur:Difference between the actual paper size and realization of engine.		Remove the paper and close the cover.
E090		Image data time out jam		Take out the jammed paper.
E110		Indicates that jam has occurred in the vicinity of Duplex unit. Error E110 : Misfeed from Duplex		

Error code	Cause	Error details		Remedial measure
E120		Indicates that jam has occurred during feeding paper from the MP tray. Error E120: MP Tray		
E130		Occur jam with the Tray1		Take out the jammed paper. Change the sensor Lever. Change the Tray1 board.
E13A		Tray1 paper remaining		Take out the jammed paper. Change the sensor Lever. Change the PU board.
E140		Occur jam with the Tray2		Take out the jammed paper. Change the sensor Lever. Change the Tray2 board.
E14A		Occur jam and Paper on the Tray2		Take out the jammed paper. Change the sensor Lever. Change the Tray2 board.
E150		Occur jam with the Tray3		Take out the jammed paper. Change the sensor Lever. Change the Tray3 board.
E15A		Occur jam and Paper on the Tray3		Take out the jammed paper. Change the sensor Lever. Change the Tray3 board.
E160		Occur jam with the Tray4		Take out the jammed paper. Change the sensor Lever. Change the Tray4 board.

Error code	Cause	Error details		Remedial measure
E16A		Occur jam and Paper on the Tray4		Take out the jammed paper. Change the sensor Lever. Change the Tray4 board.
E202		Paper feed jam		Take out the jammed paper. Change the sensor Lever. Change the PU board.
E20A		Occur jam and Paper on the Feed Path		Take out the jammed paper. Change the sensor Lever. Change the PU board.
E400		Face Up Cover Jam		Change the sensor Lever. Change the cable. Change the relay board or PU board.
E52A		Occur Duplex jam and Paper on the Transport Path		Take out the jammed paper. Change the sensor Lever. Change the Duplex board.
E57A		Occur Duplex jam and Paper on the Entry Path		Take out the jammed paper. Change the sensor Lever. Change the Duplex board.
E580 E520		Indicates that jam has occurred in the vicinity of Duplex unit. Error E580 : Duplex Reversal Error E520 : Duplex Input		
E58A		Occur Duplex jam and Paper on the Reversal Path		Take out the jammed paper. Change the sensor Lever. Change the Duplex board.

Error code	Cause	Error details		Remedial measure
C921		AC voltage zero-crossing error		Check the AC voltage. Change the Low-voltage board or PU board.
F034		Tray4 version error		Change the Tray4 board
F072		PU Flash Error		Change the PU board
F073		Request to print from incompatible SPECVERSION		Chage the PU board.

Note! · Service calls C41E error, C41B error, C41D error, C37C error and C37D error; These errors can occur when the printer temperature is below 0 ˚C. Turn on the power again after the printer temperature has increased.

· Service call C9A0 error can release temporary, by restart the MFP with stapler cover open.

6.5.3 Scanner error troubleshooting

System Spec.				
Code	Category	Cause	Error details	Measure
E711	Error	ADF document jam	Jam due to non-arrival at the hopping sensor – After paper feeding is started, the hopping sensor does not become active. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E712	Error	ADF document jam	Jam due to non-arrival at the regist paper sensor – After feeding for a simplex document scan is started, the regist paper sensor does not become active. (Simplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E713	Error	ADF document jam	Jam due to non-arrival at the reverse paper sensor – After feeding for a duplex document scan is started, the reverse paper sensor does not become active. (Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E714	Error	ADF document jam	Jam due to document removal – In the middle of feeding for a simplex document scan, the document set sensor becomes inactive. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E715	Error	ADF document jam	Activation of the hopping sensor at document reversal – The hopping sensor becomes active when the reverse paper sensor is inactive. Multi-feed of documents is detected. (Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E778	Error	ADF document jam	Remaining document detection at power on – A sensor other than the document set sensor becomes active when the power is turned on or the cover is opened and closed during operation.	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E779	Error	ADF document jam	Activation of only the document set sensor – Only the document set sensor becomes active at initialization of the ADF stopper gate.	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E721	Error	ADF document jam	Jam due to non-arrival at the scan sensor – Although the fed document is transferred to a certain distance, the scan sensor does not become active. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E722	Error	ADF document jam	Regist paper sensor stuck jam/detection of out-of-spec oversized documents – Once the regist paper sensor becomes active, it does not become inactive when the fed document is transferred to the distance exceeding the maximum page size. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E723	Error	ADF document jam	Detection of out-of-spec undersized documents – Once the regist paper sensor becomes active, it becomes inactive before the fed document is transferred by the distance equal to the minimum page size. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E724	Error	ADF document jam	Scan sensor stuck jam – The scan sensor does not become inactive even when the fed document is transferred by 60mm after the regist paper sensor becomes inactive. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E725	Error	ADF document jam	Detection of a too little space between documents – Before the document is transferred by 31mm after the regist paper sensor becomes inactive, the sensor becomes active. Detection of a too little space between the documents. (Simplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E726	Error	ADF document jam	Activation of the reverse paper sensor for the documents not to be reversed – Switching to the first separator is not carried out normally causing activation of the reverse paper sensor. (Simplex and Duplex) • The reverse paper sensor becomes active in feeding of a simplex document. • The reverse paper sensor becomes active between reversal to the back and activation of the regist paper sensor.	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E727	Error	ADF document jam	Activation of a sensor at an unintended timing – The scan sensor, regist paper sensor, hopping sensor or reverse paper sensor becomes active at an unintended timing. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.

System Spec.				
Code	Category	Cause	Error details	Measure
E728	Error	ADF document jam	Detection of chattering of a sensor – Chattering of a sensor is detected. Once a sensor becomes active, the sensor becomes inactive in 5mm feeding of the document. Then the inactive sensor becomes active in the next 5mm feeding. (Simplex and Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E741	Error	ADF document jam	Reverse paper sensor stuck jam/ detection of out-of-spec oversized documents – The reverse paper sensor does not become inactive when the document is transferred to the distance exceeding the maximum page size. (Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E742	Error	ADF document jam	Detection of out-of-spec undersized documents – The reverse paper sensor becomes inactive before the document is transferred by the distance equal to the minimum page size. (Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E743	Error	ADF document jam	Non-arrival at the regist paper sensor at reversing to the front – After reversing to the front, the regist paper sensor does not become active in a lapse of a certain period of time. (Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E744	Error	ADF document jam	Non-arrival at the regist paper sensor at reversing to the back – When the document is transferred following reversal to the back, the regist paper sensor does not become active. (Duplex)	Open the ADF cover, remove every jammed document from the paper feed path, and close the ADF cover.
E870	Error	ADF document jam	ADF open jam – A document jam is caused by opening of the ADF while the RADF is operating.	Remove every jammed document from the paper feed path, and close the ADF cover.
C260	ServiceCall	Scanner lamp error	Lamp error – Exposure adjustment has failed.	Power cycle the unit. If the power cycle does not work to recover from the error, the unit needs repair. The CIS may be damaged.
C270	ServiceCall	Scanner home position error	The home position sensor does not become inactive in the designated period of time – The carriage does not move from the home position in the designated period of time.	Power cycle the unit. If the power cycle does not work to recover from the error, the unit needs repair. The possible cause is the damage of the home position sensor, the belt that moves CIS, or the FB motor.

System Spec.				
Code	Category	Cause	Error details	Measure
C280	ServiceCall	Scanner home position error	The home position sensor does not become active in the designated period of time – The carriage does not reach the home position in the designated period of time. The sensor malfunctions.	Power cycle the unit. If the power cycle does not work to recover from the error, the unit needs repair. The possible cause is the damage of the home position sensor, the belt that moves CIS, or the FB motor.
C291	ServiceCall	Scan position detect error	Scan position detect error – The black edge is not detected in scanning.	Power cycle the unit and retry to scan. If the error occurs again in the next scan, the unit needs repair. The calibration sheet may not be installed properly.
none	Error	ADF cover open	ADF cover open	Close the ADF cover.
none	Warning/ Error	Scanner carriage warning	Carriage warning – The carriage does not return to the home position after the scan. This error may occur when a user presses the document hard against the FB to scan.	Perform the recovery procedure according to the guidance.
F110	ServiceCall	Communication error between system CPU and Scanner CPU	System CPU - Scanner CPU communication error	If the error occurs frequently, check for the proper connection between the CU PCB and the SU PCB.
F111	ServiceCall	Scanner response anomaly	Scanner response anomaly	The SU PCB, the scanner or the scanner firmware may have some problems.
F112	ServiceCall	Controller response anomaly	CU-SU communication error detected by the scanner	If the error occurs frequently, check for the proper connection between the CU PCB and the SU PCB.
F113	ServiceCall	Scanner CPU exception	Anomalous program on the scanner side	The SU PCB, the scanner or the scanner firmware may have some problems.
F114	ServiceCall	Scanner CPU exception	CPU exception on the scanner side	The SU PCB, the scanner or the scanner firmware may have some problems.

6.5.4 Preparation for troubleshooting

Note! When replacing the PU board, read the EEPROM chip contents of the old board first, and copy them to the new board upon completion of the replacement. (Refer to section 4.3.1 Precautions when replacing the PU board.)

6.5.4. (1) LCD display error

Memo For the numbers from ① through ㉞ after name of the respective connectors, refer to section 6.5.4 (19) "Wiring diagram".

(1-1) LCD does not display anything.

Check item	Check work	Action to be taken at NG
(1-1-1) Check		
CU board		Replace CU board.
(1-1-2) Check the system connection		
Connection between the low voltage power supply unit and the CU board.	Check if the cable from the low voltage power supply to the POWER connector ⑦ of the CU board is normally connected or not. Check if the connector is connected only in the half-way or not, and check if the connector is inserted in slanted angle or not.	Re-connect the cable normally.
Cable assembly connecting the low voltage power supply unit and the CU/PU board.	Check if the cable is half-open circuit. Check if sheath of the cable has not peeled off or not. Check if the cable assembly is defective such as internal wires are disconnected or not.	Replace the cable with the normal cable. ***Note!***
Connection between the CU board and Operator Panel	Check if the cable is connected to the OPE connector ㉞ of the CU board normally or not. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not.	Re-connect the cable normally.
Connecting the CU board and the Operator Panel board	Check if the cable has open circuit or not with VOM. Check if sheath of the cable has not peeled off or not by visual inspection.	Replace the OPE unit
(1-1-3) Check the peripherals of the power supplies		
Primary AC power source that is connected to the printer.	Check the supplied voltage of the AC power source.	Supply the AC power.
5V power that is supplied to the CU/PU board.	Check for the 5V power supply at PU ⑦ :Pin-11,13 CU ⑦ :Pin-1,2,3 of the POWER connector of the CU/PU board.	Replace the low voltage power supply.
(1-1-4) Check that power supply circuit has no short-circuit.		
5V power and 24V power that are supplied to the CU/PU board.	Check that power supply circuit has no short-circuit at the POWER connector ⑦ of the CU board. The follow voltage must appear respectively. PU ⑦ Pin 1,2,3,4:24V Pin 5,6,7,8:0VP Pin 9,10:0VL Pin 11,13:5V CU ⑦ Pin 1,2,3:5V Pin 4,5,6:0VL Pin 10,11:0VP Pin 12,13:24V If any voltage does not appear and short-circuit is detected, locate the source of the short-circuit as follows: Disconnect the cables that are connected to the CU board one cable after another until location of the short-circuit is found out.	Replace the part causing short-circuit.

(1-2) Error messages related to Operator Panel are displayed.

Check item	Check work	Action to be taken at NG
(1-2-1) Error message		
Error message	Check the error contents by referring to the Error Message List.	Follow the instruction.

6.5.4. (2) Abnormal operations of printer after the power is turned on

(2-1) Any operation does not start at all.

Check item	Check work	Action to be taken at NG
(2-1-1) Check the peripherals of the power supplies		
Primary AC power source that is connected to the printer.	Check the supplied voltage of the AC power source.	Supply the AC power.
5V power and 24V power that are supplied to the CU/PU board.	Check the power supply voltages at the POWER connector ⑦ of the CU/PU board. The follow voltage must appear respectively. PU ⑦ Pin 1,2,3,4:24V Pin 5,6,7,8:0VP Pin 9,10:0VL Pin 11,13:5V CU ⑦ Pin 1,2,3:5V Pin 4,5,6:0VL Pin 10,11:0VP Pin 12,13:24V	Replace the low voltage power supply.
(2-1-2) Check the system connection		
Connection condition of Operator Panel	Check contents of (1-1). Any operation of a printer will not start until the Operator Panel is detected and is started of its operation.	Follow the contents of (1-1).

(2-2) Abnormal sound is heard.

Check item	Check work	Action to be taken at NG
(2-2-1) Check loss of synchronization of motor (Driver error)		
Operating conditions of the respective motors	Check if operations of the respective motors are normal or not by using the self-diagnostic mode. Check if any load exists or not. "Buzzer" sound when an error occurs.	Replace the PU board.
Condition of the motor cable	Check for normal wiring conditions of the respective motors. Perform the visual check and measure resistance at open circuit with VOM as follows. Remove the motor cable at the board end. Measure resistance between the respective pins of the removed cable and FG with VOM.	Replace the motor cable. Re-connect the cable for normal conditions.
(2-2-2) Check loss of synchronization of motor (Abnormal load of the consumable item)		
Operating conditions of the respective motors	Check if operations of the respective motors are normal or not by using the self-diagnostic mode. Check if any load exists or not. "Buzzer" sound when an error occurs.	Replace the corresponding consumable item. If any attempt of using new part as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

Check item	Check work	Action to be taken at NG
(2-2-3) Check the jumping phenomena of gear tooth. (Abnormal load of the consumable item)		
Operating conditions of the respective motors	Check if operations of the respective motors are normal or not by using the self-diagnostic mode. Check if any load exists or not. "Buzz buzz" sound is generated when an error occurs.	Replace the corresponding consumable item. If any attempt of using new part as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Installation condition of each consumable item	Check by visual inspection if the respective consumable items are installed in their normal positions in which gears of the consumable items engage accurately or not.	Replace an appropriate mechanical part as required, or adjust or repair
(2-2-4) Check the wiring conditions of cables		
Wiring conditions of the cables in the vicinity of the respective cooling fans	Check if the cable contacts with the fan blade because wiring conditions of the cables near fan is poor or not. "Clap, clap" sound is generated when an error occurs.	Correct the wiring conditions of the cable.
(2-2-5) Check installation condition of mechanical parts		
Check the installation conditions of the partition plate under the CU/PU boards.	Remove the CU/PU board, and inspect the installation conditions of the partition plate by visual inspection.	If they are not hooked on the normal specified positions, correct them.

(2-3) Bad odors are generated.

Check item	Check work	Action to be taken at NG
(2-3-1) Locating the exact position of generating bad odor		
Fuser unit	Remove the fuser unit and check the odor.	Implement section (2-3-2).
Low voltage power supply unit	Remove the low voltage power supply unit and check the odor.	Replace the low voltage power supply unit
(2-3-2) Check conditions of the fuser unit		
Life count of fuser unit	Check the life count of the fuser unit by using the self-diagnostic mode.	The fuser close to the new fuser unit smells some odors.
Check that no foreign material exists in fuser unit.	Check that no foreign materials such as paper are stuck inside of the fuser unit.	Remove the foreign material.

(2-4) Rise-up time is slow.

Check item	Check work	Action to be taken at NG
(2-4-1) Check the fuser unit		
Halogen lamp	Check that 120V or 230V is shown on the label on the rear of the fuser unit. (120V:ODA,230V:ODA/OEL)	Replace the fuser unit.

(3) Paper Jams

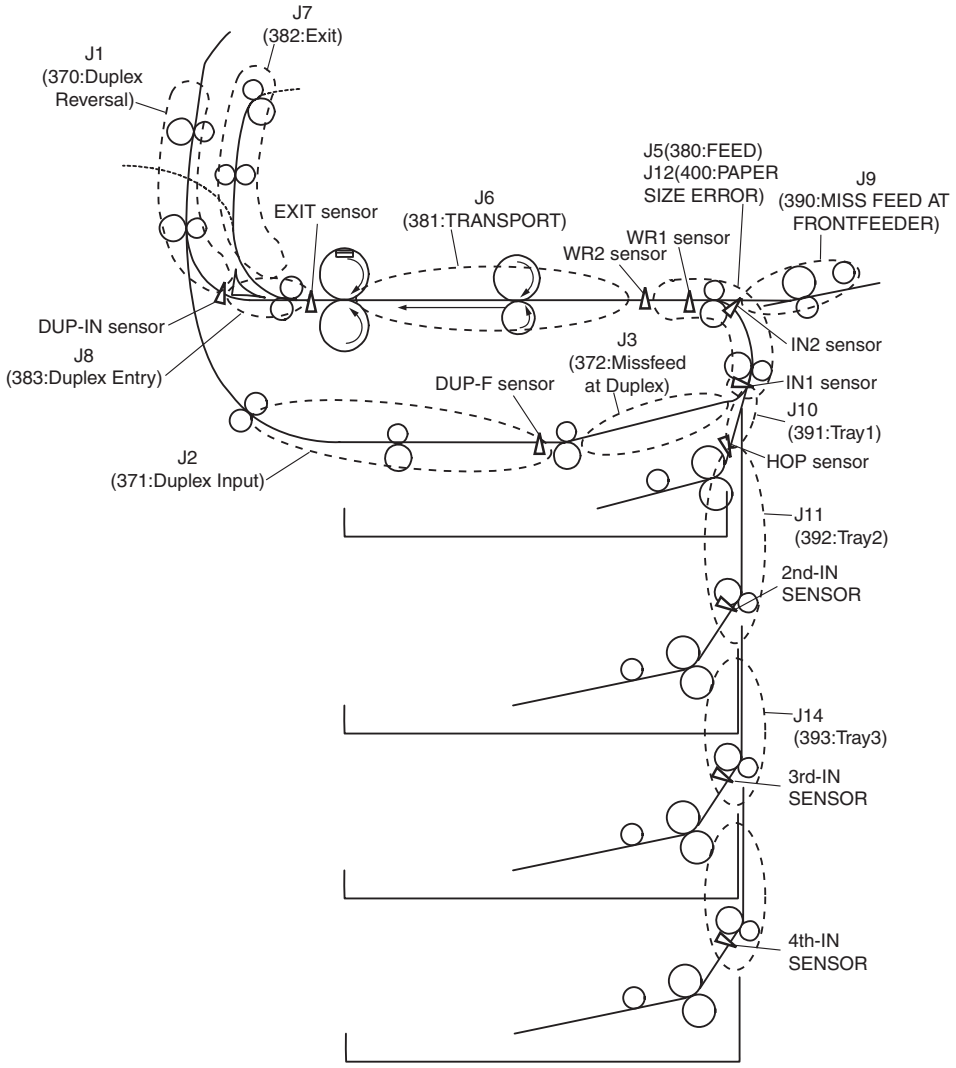
When paper jams occur or paper remains in the printer, "Paper Jam", or "Paper Remain" is displayed on the operation panel.

A method to remove the paper is displayed, remove the paper in the printer according to [Handling].

In addition, A method to remove paper is also described in the reference page at the right table.

Message to be displayed	Reference page
Open Cassette Paper Remain [Tray Name]	Page 6-19
Open Cassette Paper Jam [Tray Name]	
Open Cover Paper Remain Front Cover	Page 6-20
Open Cover Paper Jam Front Cover	Page 6-21
Open Cover Paper Remain Front Cover	
Open Cover Paper Jam Top Cover	Page 6-22 Page 6-24
Open Cover Paper Remain Top Cover	
Check Duplex Unit Paper Remain	Page 6-26
Check Duplex Unit Paper Jam	

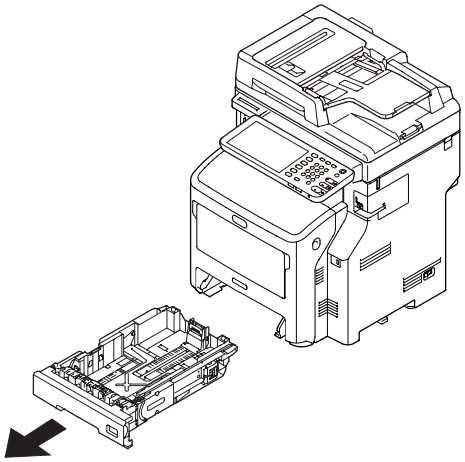
JAM location of occurrence outline chart



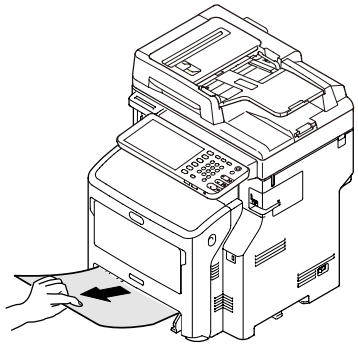
Open Cassette Paper Remain [Tray Name]	Open Cassette Paper Jam [Tray Name]

When the above messages are displayed.
Tray1 is applied here as an example.

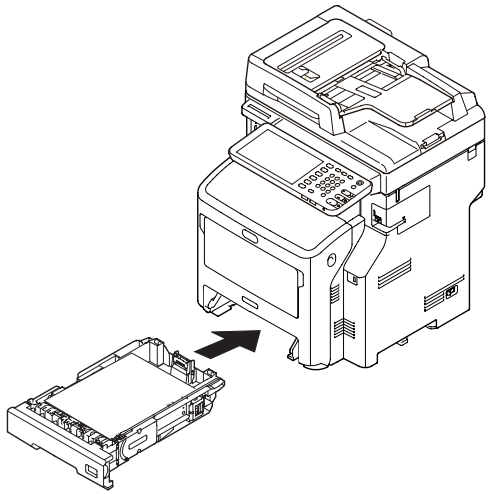
(1) Pull the displayed tray.



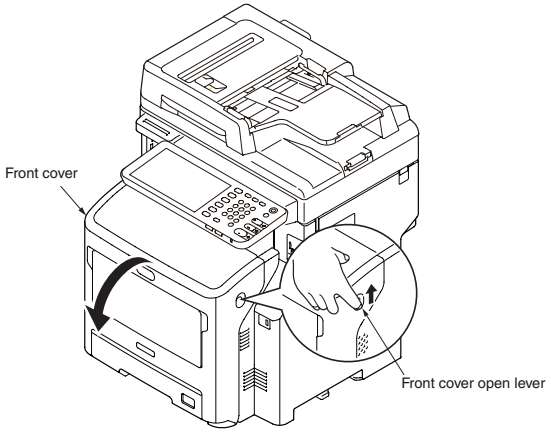
(2) Remove paper.



(3) Return the tray to the printer.



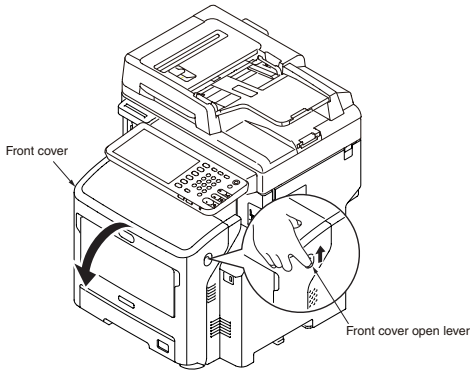
(4) Insert your finger into the recess on the right side of the printer and pull the front cover open lever to open the front cover forward.



Open Cover
Paper Remain
Front Cover

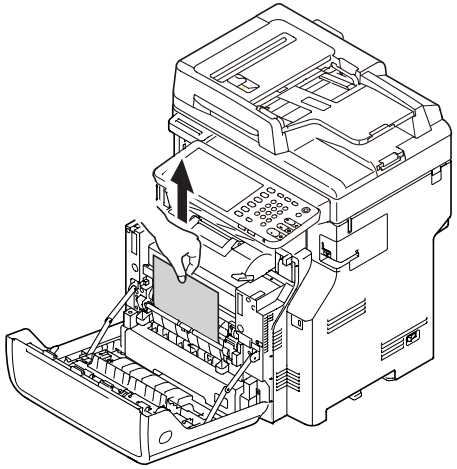
When the above messages are displayed.

(1) Insert your finger into the recess on the right side of the printer and pull the front cover open lever to open the front cover forward.



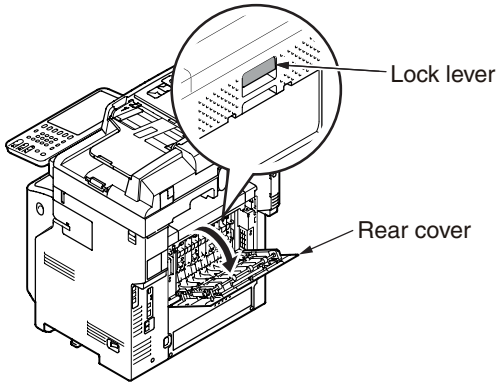
(2) Remove the jammed paper gently.

① If an edge of jammed paper can be seen

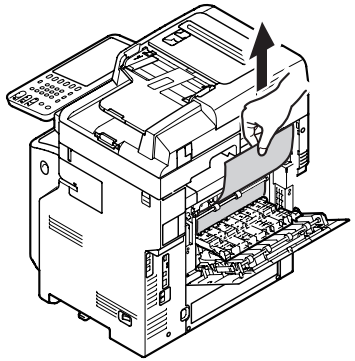


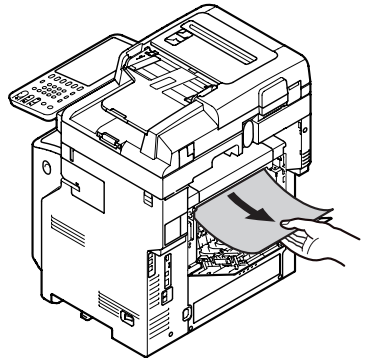
② If you cannot find the jammed paper

1. Open the rear cover by pulling the lock lever on the back side of the printer toward you.

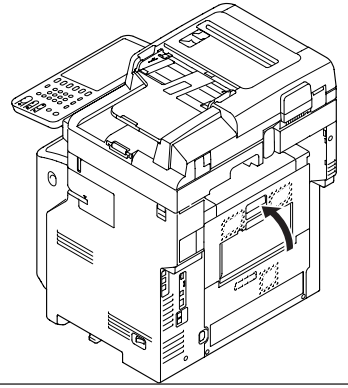


2. Check for jammed paper inside the printer. If jammed paper remains, remove it.





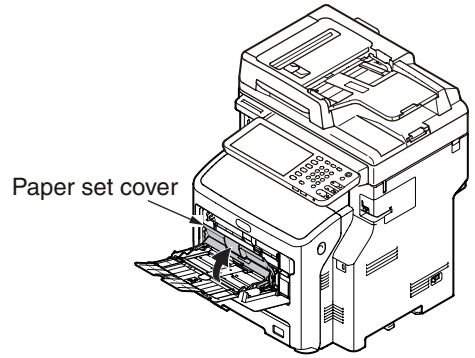
3. Close the rear cover.



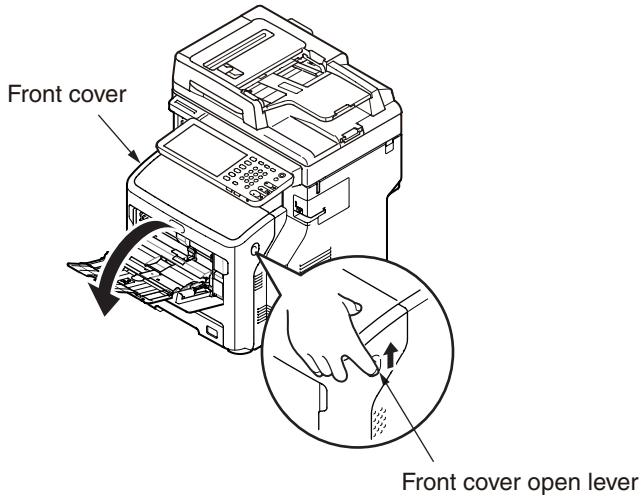
390 Open Cover Paper Jam Front Cover	637 Open Cover Paper Remain Front Cover

Remedy when the above messages are displayed

(1) If there is any paper on the MP Tray, open the paper set cover and take it out.

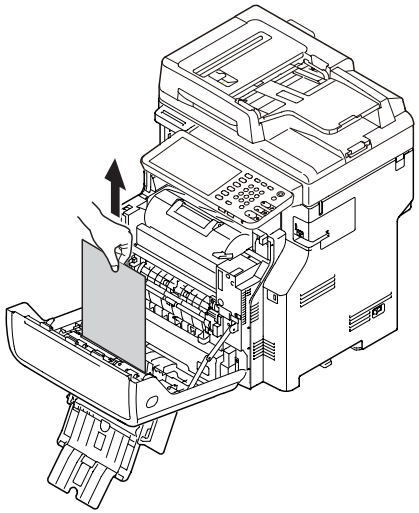


(2) Insert your finger into the recess on the right side of the printer and pull the front cover open lever to open the front cover forward.

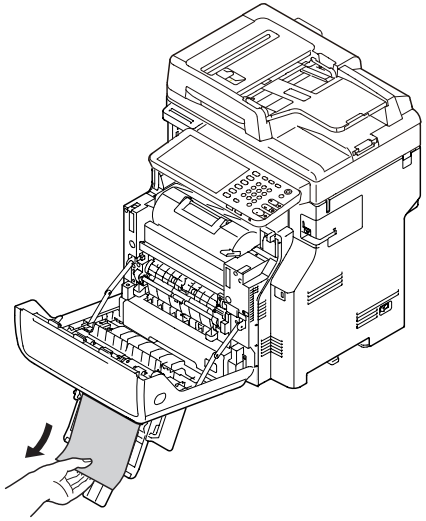


(3) Remove the jammed paper gently.

① If an edge of jammed paper can be seen



② If you cannot find the jammed paper

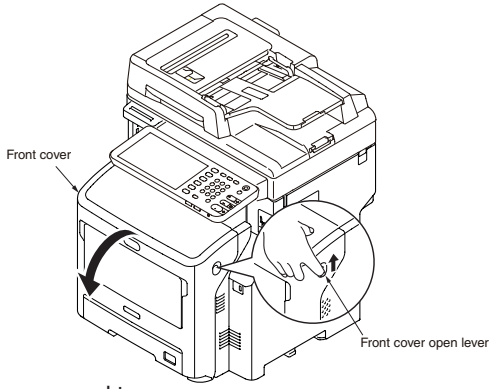


(3) Close the front cover.

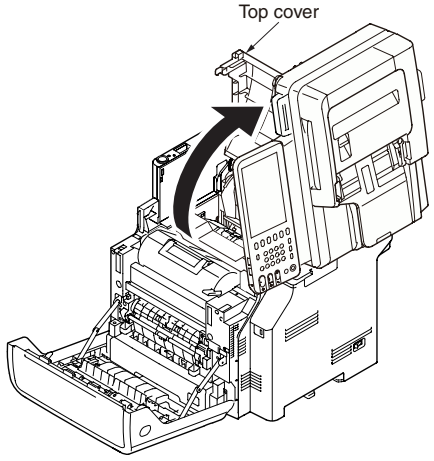
381 Open Cover Paper Jam Top Cover	368 Open Cover Paper Remain Top Cover

Remedy when the above messages are displayed

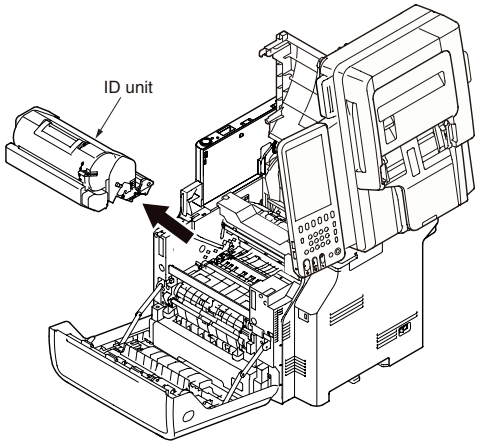
(1) Insert your finger into the recess on the right side of the printer and pull the front cover open lever to open the front cover forward.



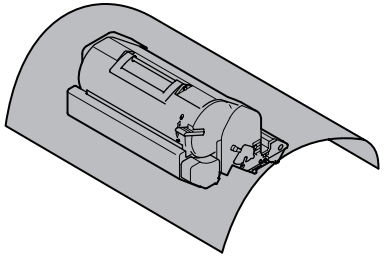
(2) Open the scanner and top cover.



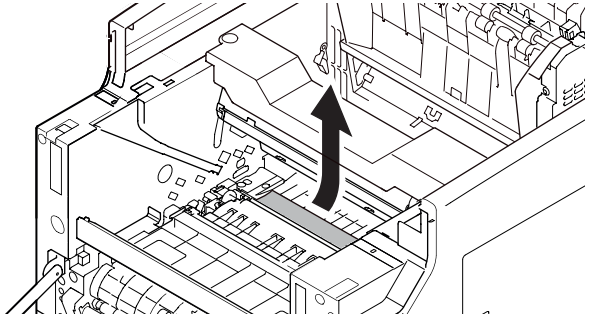
(3) Remove ID unit and place it on new paper etc. on a flat surface.



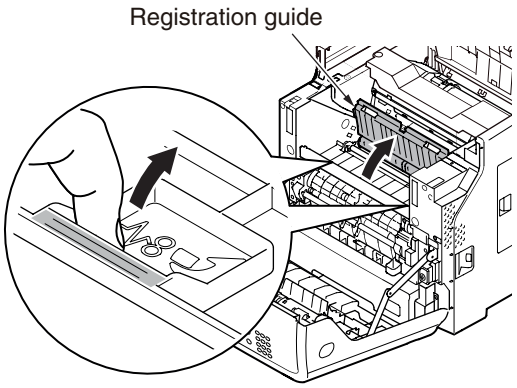
(4) Cover the removed ID unit with black paper so that it will not exposed to light.



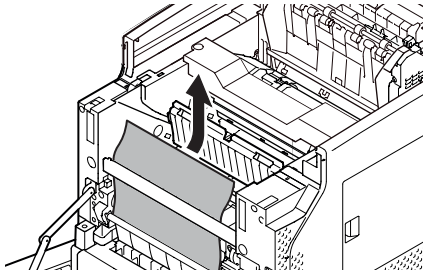
(5) Pull out the jammed paper gently toward the inside of the printer (in the direction of the arrow) if an edge of jammed paper can be seen on the back side of the registration guide.



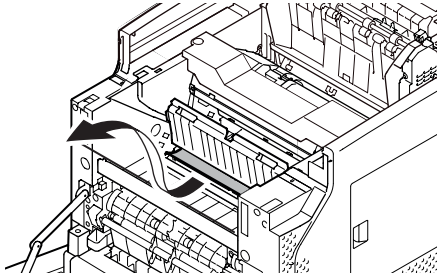
(6) Open the registration guide in the direction of the arrow.



(7) Pull out the jammed paper gently in the direction of the arrow if an edge of jammed paper can be seen on the front side.

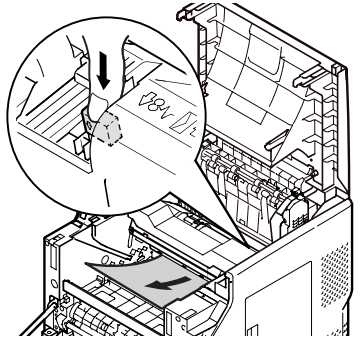


(8) Pull out the jammed paper gently in the direction of the arrow if an edge of jammed paper can be seen on the back side.

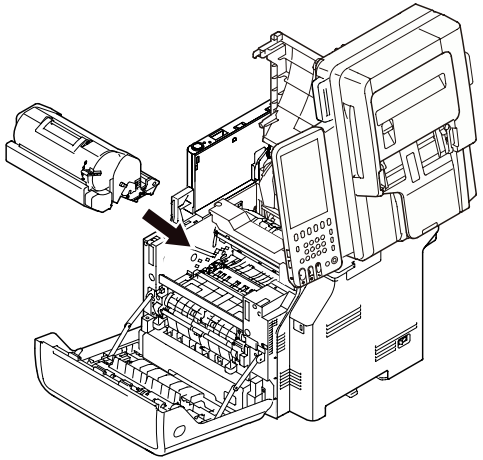


(9) Pull out the jammed paper gently while tilting the release levers (6) on the fuser unit forward if an edge of jammed paper cannot be seen.

If an edge of jammed paper still remains inside the unit, pull out the jammed paper gently toward the inside of the printer.



(10) Return the ID unit into the printer carefully.



(11) Close the top cover.

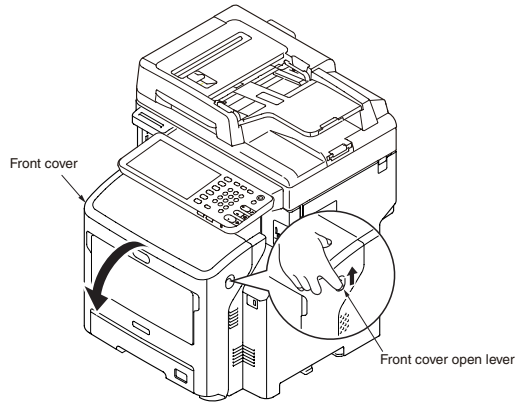
(12) Close the front cover.

Note! Cannot close the front cover securely if the top cover is not closed.

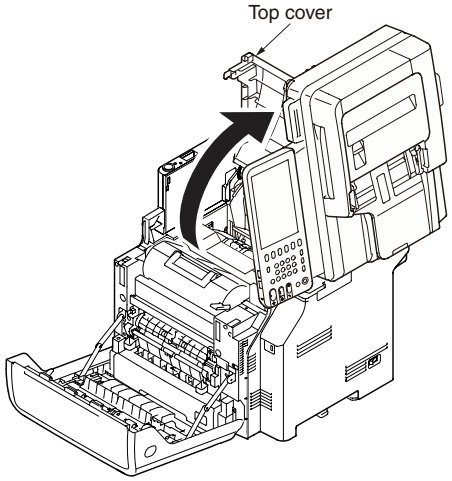
382, 383, 385 Open Cover Paper Jam Top Cover	639, 640 Open Cover Paper Remain Top Cover

Remedy when the above messages are displayed

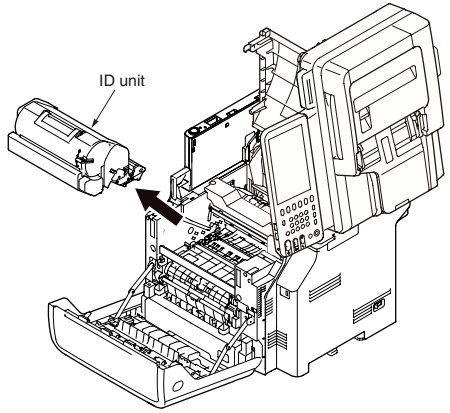
(1) Insert your finger into the recess on the right side of the printer and pull the front cover open lever to open the front cover forward.



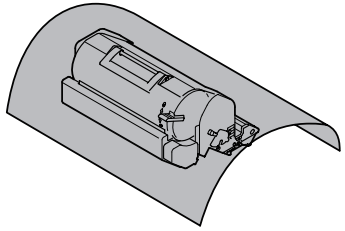
(2) Open the top cover.



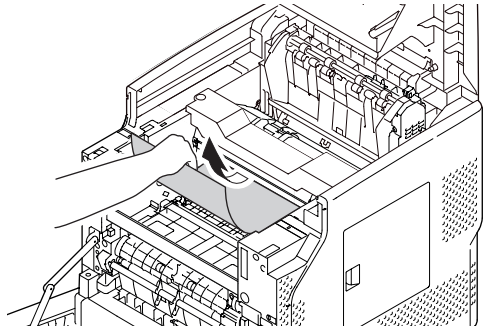
(3) Remove ID unit and place it on new paper etc. on a flat surface.



(4) Cover the removed ID unit with black paper so that it will not exposed to light.



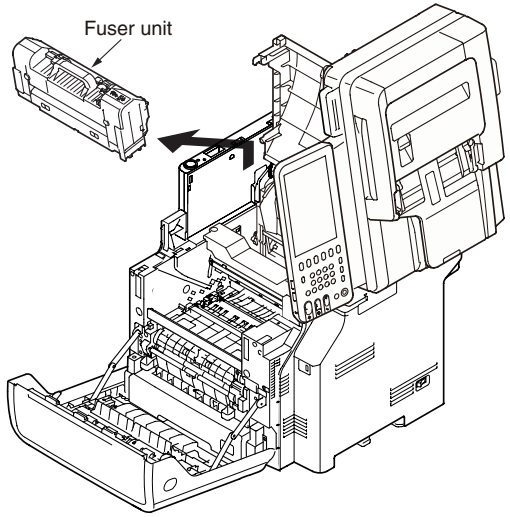
(5) Remove the jammed paper remaining inside of the unit.



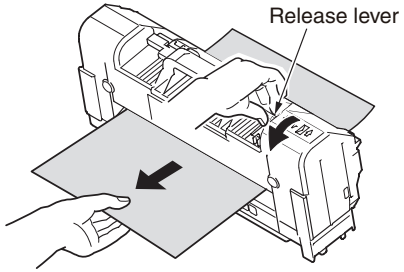
(6) Hold the fuser unit handle and lift the fuser unit out of the printer.

⚠Caution	Possible to get burned.	

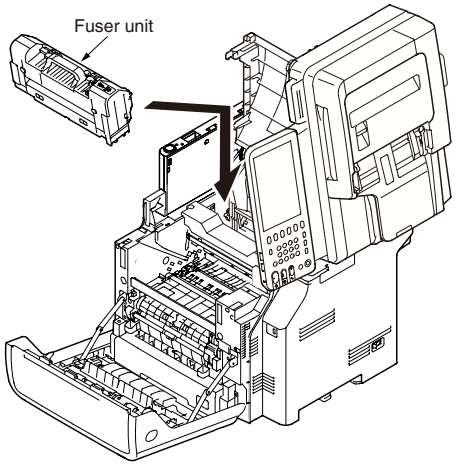
Do not touch the fuser unit. It is hot.



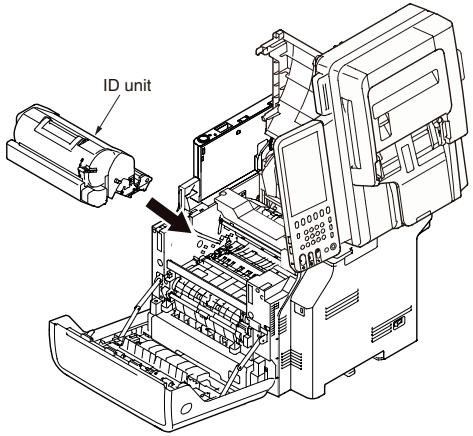
(7) Tilt the release lever on the fuser unit forward, and be sure to pull out the jammed paper forward gently.



(8) Hold the fuser unit handle and return the fuser unit into its original position.



(9) Return the ID unit into the printer carefully.



(10) Close the top cover.

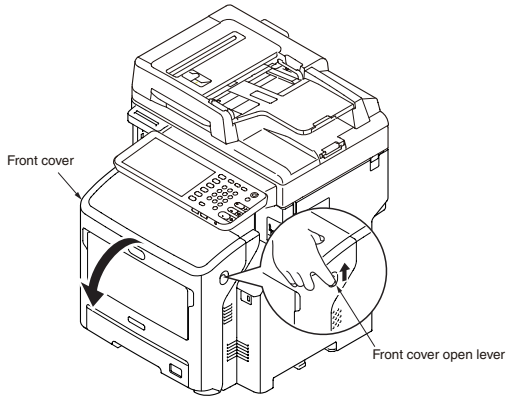
(11) Close the front cover.

Note! Cannot close the front cover securely if the top cover is not closed.

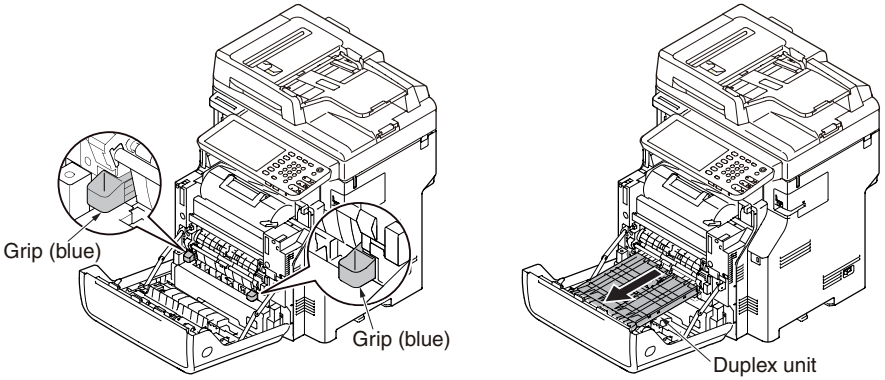
Check Duplex Unit Paper Remain	Check Duplex Unit Paper Jam

Remedy when the above messages are displayed

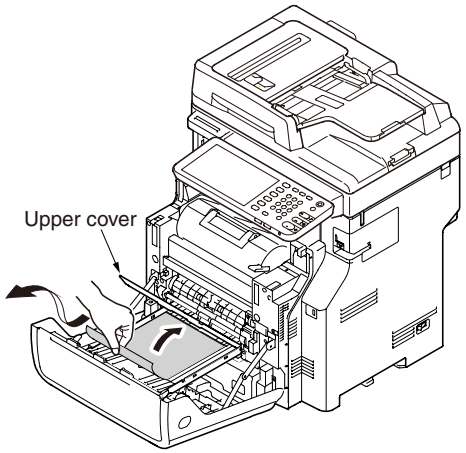
(1) Insert your finger into the recess on the right side of the printer and pull the front cover open lever to open the front cover forward.



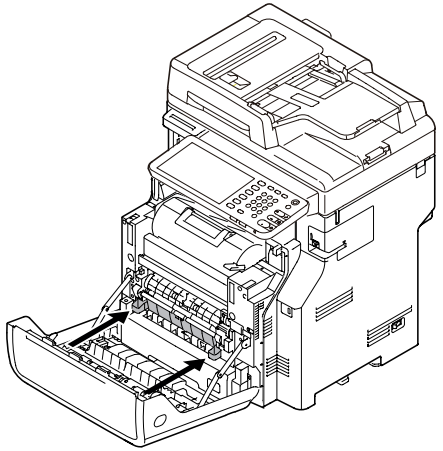
(2) Pull out the duplex unit by holding the grips on its both sides.



(3) Open the upper cover of the duplex unit and check for jammed paper in the duplex unit. If jammed paper remains, pull it out. Then, close the upper cover.



(4) Return the duplex unit to the printer.

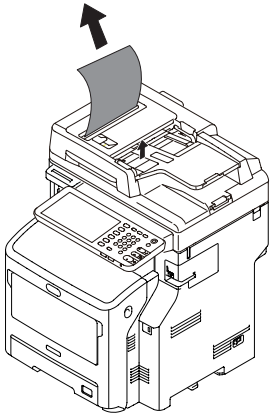


(5) Close the front cover.

Document Jam

In the Duplex Paper Path

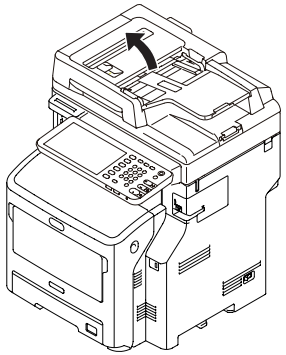
(1) While opening the ADF cover, pull out the document from the duplex paper path.



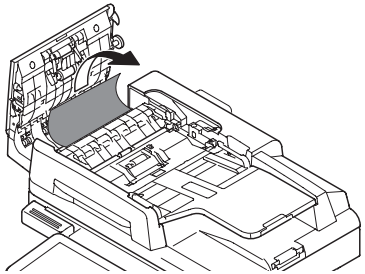
Inside the ADF

(1) Remove any documents from the document tray.

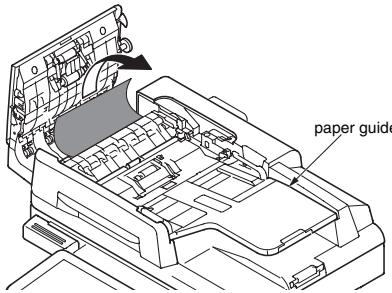
(2) Open the ADF cover.



(3) Hold jammed document by the top edge, and gently pull it out.

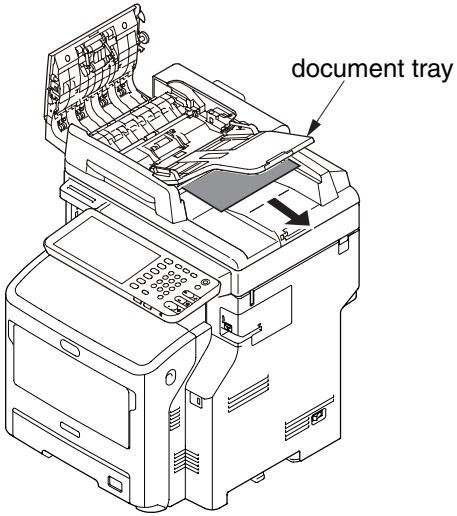


If the edge of the document can been seen under the paper guide, lift the paper guide and then pull out the document.



If the edge of the document cannot be seen in the ADF, lift the document tray and then pull out the document.

Pull down the document tray.



(4) Close the ADF cover.

6.5.4. (3) Paper feed jam (error code E130: 1st tray)

(3-1) Jam occurs immediately after the power is turned on. (1st tray)

Check item	Check work	Action to be taken at NG
(3-1-1) Check condition of the paper running path		
Paper running path of the front unit	Open the front cover check if paper is not jammed in the paper running path.	Remove the jammed paper.
(3-1-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1 and the paper entrance sensor 2.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(3-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the Maintenance Menu SWITCH SCAN function.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check output signal level of the paper entrance sensor 1 and that of the paper entrance sensor 2.	Check for the following signals at the FSNS connector ⑬ of the PU board. Pin-4: Paper entrance sensor 1 Pin-3: Paper entrance sensor 2 Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the FSNS connector ⑬ of the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(3-2) Jam occurs immediately after the paper feed is started. (1st tray)

Check item	Check work	Action to be taken at NG
(3-2-1) Check condition of the paper running path		
Paper running path of the front unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(3-2-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1 and the paper entrance sensor 2.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
Check the separator assemblies of the feed roller, the pickup roller and the tray.	Check if any foreign materials such as paper dust on the surface of the feed roller or of the pickup roller or not.	Remove the foreign material.
	Check if the feed roller or the pickup roller has worn out or not.	Replace the separator assemblies of the feed roller, pickup roller and tray.
(3-2-3) Motor operation check		
Paper feed motor	Confirm that the paper feed motor works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the PU board or the paper feed motor.
Paper feed motor driver	Remove the DCHOP connector ② of the PU board and check the DC-motor(Refer to section 7.1 Resistance check .)	Replace the PU board.

Check item	Check work	Action to be taken at NG
(3-2-4) Check the system connection		
Paper feed motor drive cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the DCHOP connector ② of the PU board and check the DC-motor(Refer to section 7.1 Resistance check .)	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor	Remove the DCHOP connector ② of the PU board and check that approx. 1 Ω or less can be measured across both ends of IP1. (Refer to section 7.1 Resistance check .)	Replace the paper feed motor.
(3-2-5) Solenoid operation check		
Paper feed clutch	Confirm that the paper feed clutch or regist clutch works normally by using the Motor & Clutch Test of the self-diagnostic mode. Remove the metal plate from the right side of a printer so that the clutch becomes visible. Then, check operation of the clutch.	Replace the PU board, or replace the paper feed clutch or regist clutch.

Check item	Check work	Action to be taken at NG
(3-2-6) Check the system connection		
Paper feed clutch cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed clutch cable	Check that any cable is not pinched during assembling of the printer. Remove the HOPCLT connector ⑪ of the PU board and check the followings at the cable side. Short circuit between pin-1 – FG Remove the HOPCLT connector ⑪ of the PU board and check that approx. 240Ω can be measured between pin-1 and pin-2.	Replace the solenoid and re-assemble the printer correctly.

6.5.4. (4) Feed jam (error code E202)

(4-1) Jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(4-1-1) Check condition of the paper running path		
Paper running path of the front unit	Open the front cover check if paper is not jammed in the paper running path.	Remove the jammed paper.
(4-1-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1, that of the paper entrance sensor 2 and that of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
(4-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the Maintenance Menu SWITCH SCAN function.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check the output signal levels of the paper entrance sensor 1, that of the paper entrance sensor 2 and that of the WR sensor.	Check for the following signals at the FSNS connector ⑬ of the PU board. Pin-4: Paper entrance sensor 1 Pin-3: Paper entrance sensor 2 Pin-2: WR sensor Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the FSNS connector ⑬ of the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(4-2) Jam occurs immediately after the paper feed is started.

Check item	Check work	Action to be taken at NG
(4-2-1) Check condition of the paper running path		
Paper running path of the front unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(4-2-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1, that of the paper entrance sensor 2 and that of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
(4-2-3) Motor operation check		
Paper feed motor	Confirm that the paper feed motor works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the PU board, or replace the paper feed motor.
Paper feed motor driver	Remove the DCHOP connector ② of the PU board and check the DC-motor(Refer to section 7.1 Resistance check .)	Replace the PU board.

Check item	Check work	Action to be taken at NG
(4-2-4) Check the system connection		
Paper feed motor drive cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the DCHOP connector ② of the PU board and check the DC-motor(Refer to section 7.1 Resistance check .)	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor	Remove the DCHOP connector ② of the PU board and check that approx. 1 Ω or less can be measured across both ends of IP1. (Refer to section 7.1 Resistance check .)	Replace the paper feed motor.

6.5.4. (5) Paper feed jam (error code E120: Multipurpose tray)

(5-1) Jam occurs immediately after the power is turned on. (Multipurpose tray)

Check item	Check work	Action to be taken at NG
(5-1-1) Check condition of the paper running path		
Paper running path of the multipurpose tray	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(5-1-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 2 and the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
(5-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check the sensor output signal level of the paper entrance sensor 2 and the WR sensor.	Check for the following signals at the FSNS connector ⑬ of the PU board. Pin-2: WR sensor Pin-3: Paper entrance sensor 2 Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the FSNS connector ⑬ of the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(5-2) Jam occurs immediately after paper feed is started. (Multipurpose tray)

Check item	Check work	Action to be taken at NG
(5-2-1) Check condition of the paper running path		
Paper running path of the multipurpose tray	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
Sheet Receive of the multipurpose tray	Confirm that the Sheet Receive has moved up normally. Confirm that the support spindle and spring of the Sheet Receive have been installed in the specified positions normally.	Correct installation of the above parts so that the Sheet Receive moves up to the specified position normally.
(5-2-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 2 and the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
Planetary gear for paper feed control	Rotate the paper feed motor (FRONT MOTOR) using the Motor & Clutch Test of the self-diagnostic mode, and confirm that both of the two planetary gears rotate at the bottom position. (The planetary gear box can be located because it is the white molded block that is located on the right side when the front cover is opened.)	Replace the planetary gear box
Front cover	Confirm that the locks in the right and left of the front cover are locked normally.	Replace the font cover assembly
Check the feed roller and the pickup roller.	Check if any foreign materials such as paper dust on the surface of the feed roller or of the pickup roller or not.	Remove the foreign material.
	Check if the feed roller has worn out or not.	Replace the feed roller.

Check item	Check work	Action to be taken at NG
(5-2-3) Motor operation check		
Paper feed motor	Confirm that the paper feed motor works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the PU board, or replace the paper feed motor.
Paper feed motor driver	Remove the DCHOP connector ② of the PU board and check the DC-motor(Refer to section 7.1 Resistance check .)	Replace the PU board.
(5-2-4) Check the system connection		
Paper feed motor drive cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the DCHOP connector ② of the PU board and check the DC-motor(Refer to section 7.1 Resistance check .)	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor	Remove the DCHOP connector ② of the PU board and check that approx. 1 Ω or less can be measured across both ends of IP1. (Refer to section 7.1 Resistance check .)	Replace the paper feed motor.

6.5.4. (6) Paper running jam (error code E010)

(6-1) Jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(6-1-1) Check condition of the running path.		
Paper running path of the front unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(6-1-2) Check condition of the mechanical parts		
Check the sensor lever of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(6-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check the sensor lever of the WR sensor.	Check for the following signals at the FSNS connector ⑬ of the PU board. Pin-2: WR sensor Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(6-2) Jam occurs immediately after a paper is taken into printer.

Check item	Check work	Action to be taken at NG
(6-2-1) Check condition of the paper running path		
Paper running path on the belt.	Remove the ID unit and check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(6-2-2) Check condition of the mechanical parts		
Check the sensor lever of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(6-2-3) Motor operation check		
Paper feed motor driver, ID motor	Confirm that the paper feed motor, ID motor work normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board, or replace the defective motor among paper feed motor, ID motor, or replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Paper feed motor	Remove the DCHOP connector ② of the PU board and check that approx. 1 Ω or less can be measured across both ends of IP1. (Refer to section 7.1 Resistance check .)	Replace the paper feed motor or PU board.

Check item	Check work	Action to be taken at NG
(6-2-4) Check the system connection		
Paper feed motor drive cable, ID motor drive cable, fuser motor drive cable	Check the connection condition of the cables. PU board DCHOP connector ② , DCID connector ①, DCHEAT connector ③. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Normalize the connection condition. Replace the cable with the normal cable.
Paper feed motor drive cable, ID motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the DCHOP connector ② , DCID connector ① of the PU board and check the DC-motor (Refer to section 7.1 Resistance check .)	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor	Remove the DCHOP connector ② of the PU board and check that approx. 1 Ω or less can be measured across both ends of IP1. (Refer to section 7.1 Resistance check .)	Replace paper feed motor

(6-3) Jam occurs in the middle of paper running path.

Check item	Check work	Action to be taken at NG
(6-3-1) Motor operation check		
Paper feed motor driver, ID motor	Confirm that the paper feed motor, ID motor work normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board, or replace the defective motor among paper feed motor, ID motor, or replace the ID unit. If any attempt of using new ID unit or new belt unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Paper feed motor	Remove the DCHOP connector ② of the PU board and check that approx. 1 Ω or less can be measured across both ends of IP1. (Refer to section 7.1 Resistance check .)	Replace either paper feed motor, belt motor or PU board.

(6-4) Jam occurs immediately after paper has reached the fuser.

Check item	Check work	Action to be taken at NG
(6-4-1) Motor operation check		
Fuser motor	Confirm that the fuser motor works normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board. Replace the fuser motor. Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(6-4-2) Temperature control of the roller rotation speed		
Heat roller detected temperature	Check the detected temperature of the heat roller using the self-diagnostic mode. Is abnormally high temperature or abnormally temperature detected?	Replace fuser unit, or the PU board. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(6-4-3) Check the installation condition of fuser unit		
Fuser unit	Check that the fuser unit is installed normally. (Is it pushed in down to the bottom-most point?)	Install the fuser unit correctly in a printer.

6.5.4. (7) Paper unloading jam (error code E020)

(7-1) Paper unloading jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(7-1-1) Check condition of the paper running path		
Paper running path of the paper unloading unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(7-1-2) Check condition of the mechanical parts		
Check the sensor lever of the paper exit sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(7-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace the PU board or EXIT sensor or its cable or its connection cable.
Check the output signal level of the EXIT sensor.	Check for the following signals at the RSNS connector ㉒ of the PU board. Pin-2: EXIT sensor Confirm that the above signal levels change when the sensor lever is operated.	Replace the EXIT sensor.
Check the power voltages supplied to the relay board.	Check the 5V power voltage at the RSNS connector ㉒ of the EXIT sensor. Pin-1: 5V power supply Pin-3: 0VL	Replace the connection cable.

Check item	Check work	Action to be taken at NG
(7-1-4) Check the system connection		
Signal cable for EXIT sensor cable	Check that FFC is normally inserted at the PU/CU IF connector ⑳. Check that the EXIT sensor are normally connected.	Normalize the connection condition.
Signal cable for EXIT sensor cable	Confirm that the cables are not pinched, sheathes are not peeled off, and they are assembled normally.	Replace the connecting cable and normalize the assembled condition.

(7-2) Paper unloading jam occurs after a paper is taken into printer.

Check item	Check work	Action to be taken at NG
(7-2-1) Check condition of the paper running path		
Face Up Stacker Cover	Confirm that it is either fully opened or fully closed	Eliminate any in-between condition of the cover between the fully open position and fully closed position.
Duplex pull-in gate	Confirm that the Duplex pull-in gate works normally by using the Motor & Clutch Test of the self-diagnostic mode. Is it set to the paper unloading side normally?	Replace the Duplex pull-in gate or the Duplex solenoid
Rear cover	Check that the installation condition of the rear cover hampers smooth movement of a paper in the paper running path, or not.	Remove the rear panel and re-install it.
Paper running path of unloading unit	Check that any mechanical load does not exist that hampers the smooth movement of paper in the paper running path of the paper unloading unit, by the visual inspection. Check if the paper unloading motor becomes difficult to rotate or not.	Correct the portion that becomes mechanical load.

Check item	Check work	Action to be taken at NG
(7-2-2) Check condition of the mechanical parts		
Sensor lever of the paper exit sensor	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(7-2-3) Motor operation check		
Fuser motor	Confirm that the fuser motor works normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board or fuser motor or fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(7-2-4) Check the system connection		
Fuser motor drive cable	Check the connection condition of the cables. PU board DCHEAT connector ③, Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Fuser motor		Replace the fuser motor.

(7-3) Paper unloading jam occurs in the middle of paper running path.

Check item	Check work	Action to be taken at NG
(7-3-1) Motor operation check		
Fuser motor	Confirm that the fuser motor works normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board or fuser motor or fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

6.5.4. (8) Two-sided printing jam (error code: E580, E520, E110, E570)

(8-1) Two-sided printing jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(8-1-1) Check condition of the paper running path		
Paper running path of the Duplex unit	Check if paper is jammed or not in the paper running path. Open the front cover and check if any paper remains in the Duplex feeder or not. Open the rear cover and check if any paper remains in the paper reversing path or not. Remove the Duplex unit. Check if any paper exists in the Duplex insertion slot or not. Open the cover of the Duplex paper running path and check if any paper remains inside of the Duplex unit.	Remove the jammed paper.
(8-1-2) Check condition of the mechanical parts		
Check the sensor levers of the respective sensors of the Duplex unit.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the Duplexunit.
(8-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode. For all sensors except the Dup-IN sensor, check the detection condition of the respective sensor in the two status: One is the status in which paper remains inside the Duplex unit. The other is the status in which paper is removed from the Duplex unit.	Replace the Duplexunit.

(8-2) Two-sided printing jam occurs during taking in the paper into Duplex unit.

Check item	Check work	Action to be taken at NG
(8-2-1) Solenoid operation check		
Duplex solenoid	Confirm that the Duplex solenoid works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the Duplexunit.
Separator DUP (Paper unloading/ DUP paper taking-in switching gate located immediately after the fuser unit)	Check visually movement of the gate by using the Motor & Clutch Test of the self-diagnostic mode. (EXIT SENSOR) Check if movement is unsmooth or not, if amount of open/close is abnormal or not.	Replace the Duplexunit.
ON/OFF timing of the Duplex solenoid	While the cover is in the opened state, perform the test print and confirm if the timing to open the separator DUP is correct or not.	Replace the WR sensor lever or solenoid.
(8-2-2) Sensor lever operation check		
Dup-IN sensor lever	Open the rear cover. Touch the Dup-IN sensor lever to check if its movement is unsmooth or not.	Replace the Duplexunit.
DUP-IN sensor	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace the Duplexunit.
(8-2-3) Check condition of the paper running path		
Paper inverting transport path	Check that any foreign materials such as paper chip or blue do not exist that hampers the smooth movement of paper in the paper inverting transport path.	Remove the foreign material.
(8-2-4) Motor operation check		
Duplex motor	Confirm that the Duplex solenoid works normally by using the Motor & Clutch Test of the self-diagnostic mode. Open the rear cover and check rotation of the roller.	Replace the Duplexunit.
Duplex pull-in/ reversing roller and its pinch roller	Check if the pull-in/reversing roller of the Duplex unit contacts or not with the pinch roller of the cover side when the Duplex rear cover is closed. (Does the pinch roller rotate when the roller is rotating?)	Replace the Duplexunit.

(8-3) Two-sided printing jam occurs in the process of reversing paper.

Check item	Check work	Action to be taken at NG
(8-3-1) Sensor lever operation check		
Dup-IN sensor lever	Open the rear cover. Touch the Dup-IN sensor lever to check if its movement is unsmooth or not.	Replace the Duplexunit.
DUP-IN sensor	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace the Duplexunit.
(8-3-2) Motor operation check		
Duplex motor	Check if the paper reversing operation is started or not by visual inspection when viewing through slit of the rear cover. If the paper reversing operation is not started, check if movement of the planetary gear inside the Duplex unit is unsmooth or not.	Replace the Duplexunit.

(8-4) Two-sided printing jam occurs during transporting paper inside the Duplex unit.

Check item	Check work	Action to be taken at NG
(8-4-1) Sensor lever operation check		
Dup-R, Dup-F sensor lever	Remove the Duplex unit and check movement of the sensor lever.	Replace the Duplexunit.
(8-4-2) Sensor check		
Check the detection condition of the sensor signal	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode. For all sensors except the Dup-IN sensor, check the detection condition of the respective sensor in the two status: One is the status in which paper remains inside the Duplex unit. The other is the status in which paper is removed from the Duplex unit.	Replace the Duplexunit.

(8-5) Paper is not supplied from the Duplex unit to the regist roller.

Check item	Check work	Action to be taken at NG
(8-5-1) Clutch operation check		
Duplex clutch	Confirm that the Duplex clutch works normally by using the Motor & Clutch Test of the self-diagnostic mode. Confirm it by listening to the sound.	Replace the Duplexunit.

6.5.4. (9) Paper size error (error code E061, E062, E063, E064, E065)

(9-1) Jam occurs when paper end is located near the IN1 sensor.

Check item	Check work	Action to be taken at NG
(9-1-1) Check paper feed condition		
Multifeed of papers	Open the front cover and check if multifeed of papers occurs or not.	If the multifeed occurs again after the jammed paper is removed, replace the flap of the tray in use.
Paper size	Does the paper size specified for print match the paper size of paper stuck in the tray.	Change the specified paper size or size of paper inside the tray.
Paper entrance sensor 1	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.

6.5.4. (10) Fuser unit error (error C41A,C41B,C449,C446,C41C,C41D,C468,C466)

(10-1) Error occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(10-1-1) Thermistor is defective Note)		
Upper thermistor, lower thermistor, frame thermistor	Check the respective thermistors if they are shorted or opened internally. Check the resistance value at the connector pins in the bottom of the fuser unit. (Refer to section 7.1 Resistance check (fuser unit).)	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Installed condition of fuser unit.	Check if the fuser nit is pressed in until the connector in the bottom of the fuser unit is surely connected.	Re-set the fuser unit.

Note! Service calls C41B error and C41D error can occur when the printer temperature is below 0℃. Turn on the power again after the printer temperature has increased.

(10-2) Error occurs approx. 1 minute after the power is turned on.

Check item	Check work	Action to be taken at NG
(10-2-1) Temperature increase of fuser unit		
Thermostat, halogen lamp	Heater of the fuser unit is controlled of its temperature. Check if the fuser unit gets hot or not by touching it with hands. If the fuser unit temperature does not increase and remains cold, check that the resistance between pin-pin of connector A and connector B. (Refer to section 7.1 Resistance value (fuser unit).)	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(10-2-2) Temperature increase of fuser unit		
Installation position of the upper thermistor	Check if the upper thermistor is installed in the far position from the specified position or not causing detection of the lower temperature than the actual temperature of fuser unit. Remove the heater cover, and check warpage of sensor by visual inspection.	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Installation position of the lower thermistor	The lower thermister must be installed while contacting with the fuser unit. Check if the lower thermister is installed in the far position from the specified position or not causing detection of the lower temperature than the actual temperature of fuser unit.	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(10-2-3) AC power input to the halogen lamp		
AC power voltage from the low voltage power supply	Check if the AC voltage for heater is normally supplied or not. Power supply CN2 connector ㉓, between pin-1 and pin-2, and between pin-3 and pin-4.	Replace the low voltage power supply.
Heater ON signal that is output from PU to the low voltage power supply	Check that the heater ON signal goes active at the warming up timing, or not. "L" active while ON. Power connector ⑦ of the PU board, between pin-14 and pin-16.	Replace the PU board.

6.5.4. (11) Motor fan error (error code C0A2, C0A1, C0A5, C0A6)

(11-1) The low voltage power supply fan does not rotate immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(11-1-1) Cable connection condition and wiring condition		
Cable connection condition and wiring condition of the low voltage power supply fan and those of the fuser fan	Check if the connectors are connected normally or not. Check if extra length of the cables does not touch the fan blade or not.	Correct the connection condition of the connectors. Correct the cable wiring route. Replace the fan.

(11-2) All fans of the printer do not rotate.

Check item	Check work	Action to be taken at NG
(11-2-1) 24V power supply		
PU board fuses	Check if the fuse F5 and F9 are not open-circuit or not.	Replace the PU board.
24V power that is supplied to the PU board.	Check the power supply voltages at the POWER connector ⑦ of the PU board. The follow voltage must appear respectively. POWER connector ⑦ Pin 1,2,3,4:24V Pin 5,6,7,8:0VP	Replace the low voltage power supply.

6.5.4. (12) Print speed is slow. (Performance is low.)

(12-1) Print speed decreases.

Check item	Check work	Action to be taken at NG
(12-1-2) Media Weight setting		
Media Weight that is specified for the print	Check if the wrong Media Weight has been specified or not.	Correct the Media Weight.

6.5.4. (13) Option unit cannot be recognized.

(13-1) Option try unit cannot be recognized.

Check item	Check work	Action to be taken at NG
(13-1-1) Option try board		
Option try unit	Check if the option try unit of MB7xx specification is being used or not.	Replace the option tray unit.
(13-1-2) Check the system connection		
Check the system connection from the PU board to the option tray board (GOH-12 PCB).	Check that the cable between the PU board option connector ⑩ to the option tray board is normally connected.	Correct the connections.
Square connector connecting the option tray unit to the printer.	Check if any foreign material exists in the connecting portion of the square connector.	Remove the foreign material.
Square connector connecting the option tray unit to the printer.	Is the terminals of the square connector damaged?	Replace the connector.
(13-1-3) Check the control signals.		
Check the control signal that is output from the PU board to the option tray board (GOH-12 PCB).	Check the control signal that is output from the PU board option connector ⑩. Pin-9: TXD (PU → 2nd) Pin-10: RXD (2nd → PU)	Replace the PU board.

6.5.4. (14) LED head cannot be recognized. (error code CE82, CE83, CE84, CE85)

(14-1) Service call CE82 to CE85 (LED HEAD Missing)

Check item	Check work	Action to be taken at NG
(14-1-1) Check the system connection		
Connecting condition at the PU board connector and at the head connector.	Check the connecting condition of the FFC by the visual inspection.	Correct the connection to the normal connecting condition.
Head FFC	Remove the head FFC from the printer. Check if any open-circuit or peeling-off of sheath has occurred or not throughout the cable.	Replace the head FFC or the PU board.
Conduction of the fuse on the PU board.	Check that 5V appears across the capacitor CP8. (Refer to section 7.2.) Check if the fuses F1 and F3 are not open-circuit or not.	Replace the PU board.

6.5.4. (15) Toner cartridge cannot be recognized. (error code C3B3,C3A3,C393,C383)

(15-1) Error caused by the consumable items.

Check item	Check work	Action to be taken at NG
(15-1-1) Consumable items installation condition		
ID unit and toner cartridge	Check that the ID unit is installed in the normal position. Check that the lock lever of the toner cartridge is locked.	Correct the installation to the normal installation condition.

(15-2) Error caused by the toner sensor

Check item	Check work	Action to be taken at NG
(15-2-1) Toner sensor condition		
Toner sensor	Is the receptor of the toner sensor stained?	Wipe off the stain from the toner sensor.
Toner sensor	Confirm that the toner sensor works normally by using the SWITCH SCAN function of the self-diagnostic mode. Place a white paper in front of the toner sensor, and check if the SCAN state changes or not.	Replace the toner sensor board, or the PU board, or the FFC between the toner sensor board and the PU board.

Note! Toner sensor operation check method using the SWITCH SCAN function of the self-diagnostic mode.

(1) How to check operation of the toner sensor at the printer side.

1. Status change of the toner sensor can be checked from the Operator Panel using the self-diagnostic mode. First, switch the display to the Operator Panel display. For the method of switching the display to the Operator Panel display, refer to section 4.2.1.3 Switch Scan Test
2. Remove the ID unit and the toner cartridge (TC) from a printer. There is a window inside a printer opposing the ID side when viewed from the front of a printer. The toner sensor is located inside the window.
3. Place a white paper 3 mm away from the sensor window. The white paper should be placed in the manner of opposing the toner sensor.
4. When light is reflected by a white paper so that incident light falls on the toner sensor, the Operator Panel display shows "L". When the paper is moved so that any light is not reflected by the paper so that the incident light does not reach the toner sensor, "H" is displayed on the Operator Panel.
5. If the Operator Panel display toggles between "H" <-> "L" as a paper is flipped in front of the toner sensor, it indicates that the toner sensor and the related system of the printer are working normally.

Action to be taken at NG

- Clean surface of the toner sensor to remove the stains due to residual toner and paper dust.
- Check the connection condition of the FFC cable at the PU main board (PU) and at the toner sensor board (97T).
- Perform the operation check again. If the situation is not improved and remains unchanged, replace the PU main board (PU) or the toner sensor board (97T).

(2) How to check operation of the toner sensor at the toner cartridge (TC) side

1. To the position where the toner sensor is confirmed to be operating normally in the printer itself by the above paragraph (1), install the TC and the ID unit to check operations by observing display on the Operator Panel.
2. If the ID unit works normally, the display on the Operator Panel will toggle between "H" <-> "L" in synchronism with movement of the silver reflector plate that is located on the side of the ID.

Action to be taken at NG

- Check operation condition of the respective ID motors by using the Motor & Clutch Test of the self-diagnostic mode.
- Clean surface of the silver reflector plate on the side of ID to remove stains. (Stain due to toner or paper dust)

(15-3) Error caused by the defective mechanism

Check item	Check work	Action to be taken at NG
(15-3-1) Mechanical load applied to the ID unit		
ID unit	Check if a heavy mechanical load is being applied to the ID unit due to breakage of the waster toner belt, or not.	Replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(15-3-2) Motor operating condition		
ID motor	Confirm that the respective ID motors work normally or not by using the Motor & Clutch Test of the self-diagnostic mode. Check if any extra load exists or not.	Replace the PU board or the ID motor.

6.5.4. (16) Fuse cut error (error codes C4C0)

(16-1) Fuse cut error

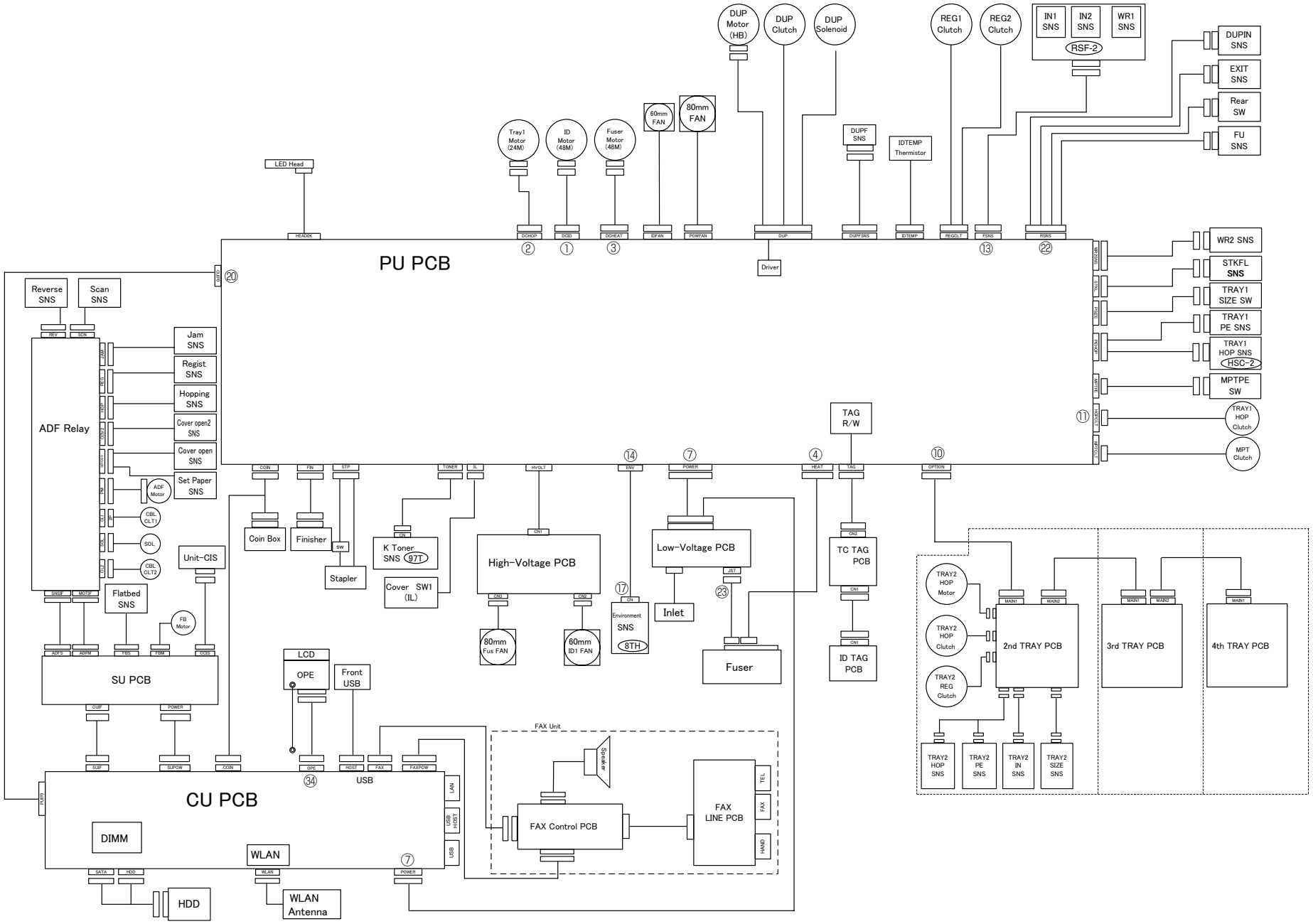
Check item	Check work	Action to be taken at NG
(16-1-1) Check the system connection		
Cable connecting the PU board and the Fuser.	Check if the connector is connected in the half-way only or not, and is inserted in a slanted angle or not at the HEAT connector ④ of the PU board, and at the Fuser side.	Connect the Cable normally. Alternately, replace the Cable.
(16-1-2) Fuse cut circuit		
PU board	Upon completion of the system connection check, turn off the power once and back on. The, check if the error occurs or not.	Replace the PU board.

6.5.4. (17) Humidity sensor error (error code CE51)

(17-1) Humidity sensor error

Check item	Check work	Action to be taken at NG
(17-1-1) Check the system connection		
Connection between the PU board and Environment sensor Board 8TH	Check if the 6-conductor FFC is connected to the ENV connector ⑭ of the PU board normally or not. Check if the 6-conductor FFC is connected to the CN connector ⑰ of the Board 8TH normally or not. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not.	Re-connect the FFC normally.
(17-1-2) Environment condition		
Sharp change of environment condition	Is the environment condition changed sharply from a low temperature environment to a high environment condition within a short time? (Example is such a case that a printer is moved from storage condition of a cold area in winter to an office environment.)	Leave a printer for around one hour in the new environment to get used to the new environment. After that, turn on the power again. Before turn on the power, touch the metal panel of the controller panel and the metal plate inside a printer to feel temperature increase inside a printer with human hands. After confirmation that the printer temperature has increased close to the room temperature, turn on the power again.

6.5.4. (18) Wiring diagram



6.5.5 Troubleshooting the abnormal images

Note! When an attempt is going to be made to replace the PU board, read data contents of the EEPROM chip from the old PU board beforehand, and copy the data contents into the new board after the new PU board is installed.

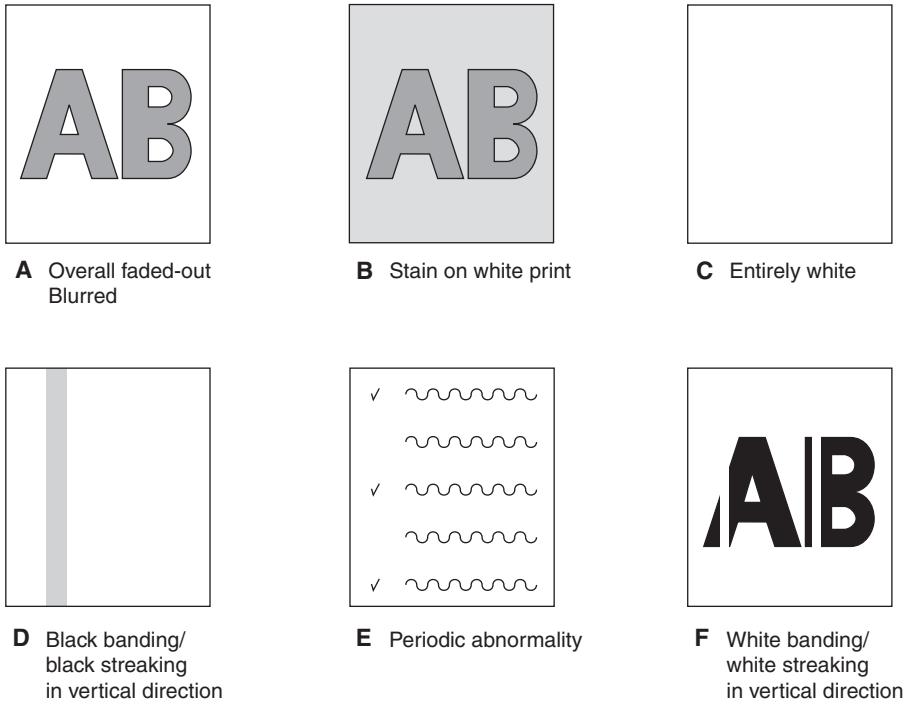


Figure 6-2

6.5.5.(1) Faded-out and blurred entirely. (Refer to Figure 6-2A.)

(1-1) Faded-out and blurred.

Check item	Check work	Action to be taken at NG
(1-1-1) Toner		
Remaining amount of toner	Check if the message "Prepare toner replacement." or "Replace the toner." appears or not.	Replace toner cartridge with new one.
Tape attached to the toner cartridge opening slot	Check to see that the tape attached to the toner cartridge opening slot has been peeled off.	Move the toner cartridge lever to CLOSE position and remove tape from opening slot.
(1-1-2) LED head		
Lens of the LED head	Check if surface of the lens of the LED head is stained or not by toner and paper dust.	Clean the lens with soft tissue paper.
Mounting condition of LED head	Check that the LED head is mounted on the LED head holder correctly. Check that the right and left tension springs are normally installed.	Correct for normal condition.
(1-1-3) Print media		
Media type	Check to see that the print media which is used for printing is not a specially thick media	Use the normal paper.
(1-1-4) High voltage terminal		
ID unit terminal	ICheck that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 6-3.)	IReplace the ID unit or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(1-1-5) ID unit installation condition		
ID unit DOWN position (Defective transfer)	Move the ID unit in and out with hand to confirm that any abnormal mechanical load does not exist, and the ID unit can be moved down to the DOWN position normally. If a piece of paper is inserted in between drum and belt, if top end of the paper can enter easily, it is NG (No Good).	Check the U-shaped groove of the side plate for any abnormality. If repair is found impossible, replace the equipment.

6.5.5.(2) Stain on white print (Refer to Figure 6-2B.)

(2-1) Stain on white print (Partial stain)

Check item	Check work	Action to be taken at NG
(2-1-1) ID unit		
Exposure of drum to light	Is the drum left in a circumstance in which drum surface is exposed to direct light for a long time?	Replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Leakage of toner	Does toner leak out from either ID unit or from toner cartridge?	Replace the ID unit or toner cartridge. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(2-1-2) Fuser unit		
Offset toner of the fuser unit	Check if the offset toner of the previous printing is left adhered on the fuser unit or not, by visual inspection.	Repeat blind printing using unwanted media until offset toner is created on print media. Alternately replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

(2-2) Stain on white print (overall stain)

Check item	Check work	Action to be taken at NG
(2-2-1) Print media		
Type of print media	Check to see that the print media which is used for printing is not a specially thin media.	Use the normal paper.
(2-2-2) High voltage terminal		
ID unit terminal	Check that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 6-3.)	Replace the ID unit or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

6.5.5.(3) White print (Refer to Figure 6-2C.)

(3-1) White print over entire page

Check item		Check work	Action to be taken at NG
(3-1-1) Toner condition			
	Remaining amount of toner	Confirm that sufficient amount of toner remains inside the toner cartridge.	Replace the toner cartridge.
(3-1-2) Exposure condition to light			
	LED head	Confirm that the LED head is positioned in the normal position where the LED head opposes again the drum when the cover is closed. Check that no obstacle exists in front of the LED head, that hampers light emission from the illuminating surface of the LED head.	Correct the installation condition of the LED head.
	Connecting condition of the LED head	Check that the LED head is normally connected.	Replace the LED head.
	Drum shaft	Check that the drum shaft keeps contacting with the right and left side plates normally.	Replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
	F8,F9 fuse on the PU board	Measure resistance of F8,F9. 1 ohm or less: Normal Higher than 1 ohm: NG	Replace the PU board

Check item		Check work	Action to be taken at NG
(3-1-3) High voltage terminal			
	ID unit terminal	Check that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 6-3.)	Replace the ID unit or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

6.5.5.(4) Black banding/black streaking in vertical direction

(4-1) Thin vertical line (with color) (Refer to Figure 6-2D.)

Check item	Check work	Action to be taken at NG
(4-1-1) ID unit condition		
Filming of the ID unit	Is print attempted without toner?	Replace toner cartridge with new one. If replacement does not solve the problem, replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

(4-2) Thin vertical line (without color) (Refer to Figure 6-2F.)

Check item	Check work	Action to be taken at NG
(4-2-1) LED head condition		
LED head	Is any foreign material attached on the light emitting surface of the cell fox lens of the LED head?	Remove the foreign material.
(4-2-2) Condition of paper running path		
Paper running path	Check that any burr that may scatter the un-fused toner on the paper running path does not exist.	Remove the burr.

6.5.5.(5) Periodic abnormality (Refer to Figure 6-2E.)

(5-1) Periodic abnormality occurs in vertical direction

Check item	Check work	Action to be taken at NG
(5-1-1) Cycle		
Image drum	Check that the cycle is 94.3 mm.	Replace the ID unit
Developing roller	Check that the cycle is 39.7 mm.	Replace the ID unit
Toner feed roller	Check that the cycle is 66.6 mm or 72.8mm.	Replace the ID unit
Charge roller	Check that the cycle is 37.7 mm.	Replace the ID unit
Heat roller	Check that the cycle is 90.3mm.	Replace the fuser unit.
Fuser belt	Check that the cycle is 94.3 mm.	Replace the fuser unit.
Transfer roller	Check that the cycle is 51.5 mm.	Replace the Transfer Roller.
		If any attempt of using new consumable item as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

6.5.5.(6) Solid black printing

(6-1) Solid black printing over the whole page

Check item	Check work	Action to be taken at NG
(6-1-1) High voltage contacting condition		
CH terminal	Check that the terminal coming from the printer body contacts with the high voltage terminal that is located on the left side of the ID unit when viewed from the top by visual inspection.	Replace the terminal of printer side.
CH terminal	Check that the high voltage terminal keeps the normal contacting condition on the high voltage board. Open the left cover and remove the high voltage board. Then, check that the terminal is not installed in the abnormal installation condition.	Correct the installation condition of the terminal to the normal condition.
ID unit terminal	Check that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 6-3.)	Replace the ID unit or replace the high voltage board or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(6-1-2) High voltage output condition		
CH output	If high voltage probe is available as a maintenance tool, open the left cover, and check the CH output with the high voltage probe from the soldering side of the high voltage board. (The high voltage probe is not an ordinary maintenance tool.)	Replace the high voltage board.

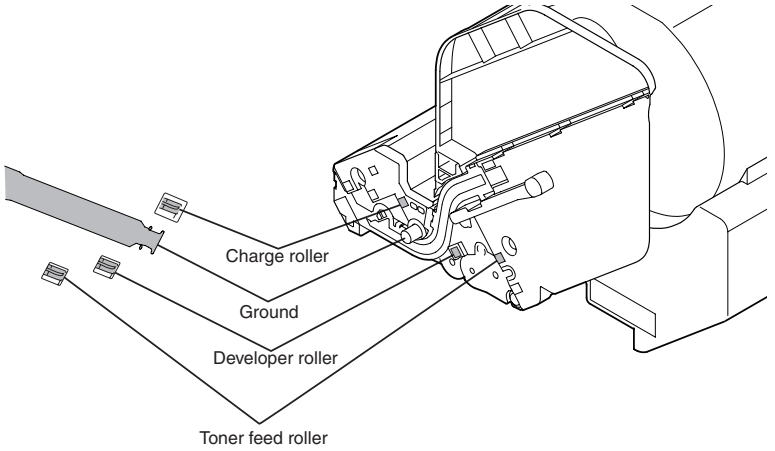


Figure 6-3

6.6 Fuse check

If the following error is issued, check the corresponding fuse of the PU/SU control board and high voltage power supply board.

(Refer to Table 6-6.)

Table 6-6 Fuse error

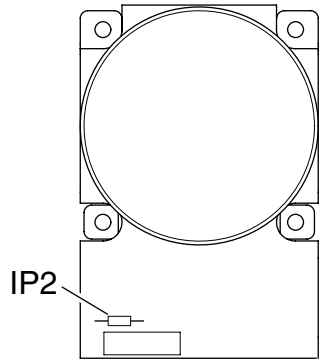
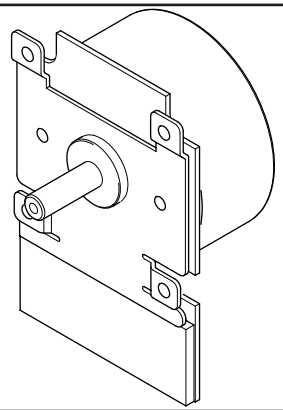
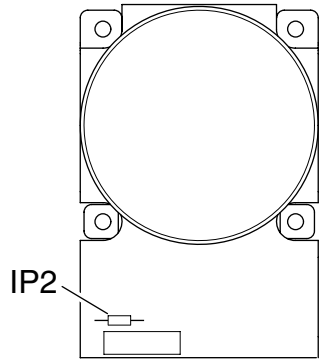
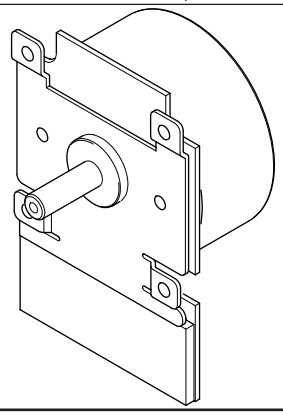
Fuse Name		Error Description		Insert Point	Resistance
		When booting	After boot up		
PU board	F1	It remains the boot screen	Scanner,copy,printer not work	Duplex, 2nd/3rd/4th tray, sensor +5V	Less than 1 Ω
	F2	It repeats boot start	Scanner,copy,printer not work	3.3V DC power	
	F3	No error	Scanner works normally. printer:miss-print(white paper)	LED Head +5V	
	F4	S/C:CE85	Scanner,copy,printer not work	LED Head +3.3V	
	F5	No error, Boot normaly	Scanner,copy,printer not work	Clutch, Motor +24V	
	F6	No error	Scanner,copy,printer not work	Duplex +24V	
	F7	No error. LCD displays warimng Up.	Scanner,copy,printer not work	2nd/3rd/4th tray +24V	
	F9	S/C:C0A1, C0A2, C0A5	Scanner,copy,printer not work	Interlock,Power fan, Fuser fan, ID fan +24V	
	F10	S/C:C4C0	Scanner,copy,printer not work	Fuse cut +24V	
	F11	No error	Scanner ,copy,printer works normally	Stapler +24V	
	F12	No error	Scanner ,copy,printer works normally	Coin-Box +24V	
SU board	F1	No error	ADF not work, Flatbed scanner works normally	ADF motor +24V	Less than 1 Ω
	F2	Attention lamp turns on. 3 beeps sound. Booting looks normally, but it does not work.	Scanner,copy,printer not work	Flatbed motor,Clutch,solenoid	
	F3	It remains the boot screen.	↑	SU Controller	

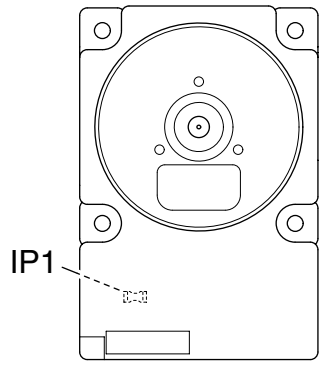
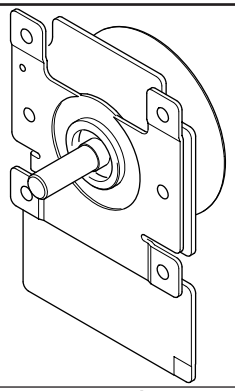
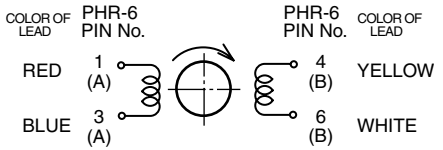
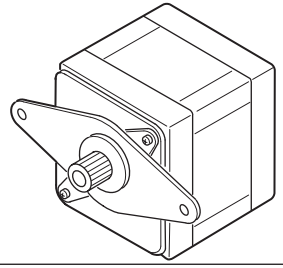
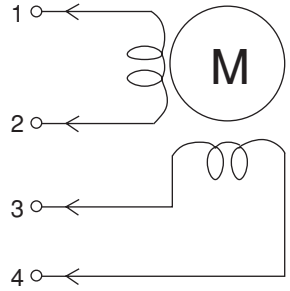
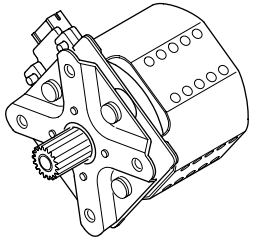
6.7 Paper cassette switches versus Paper size correspondence table

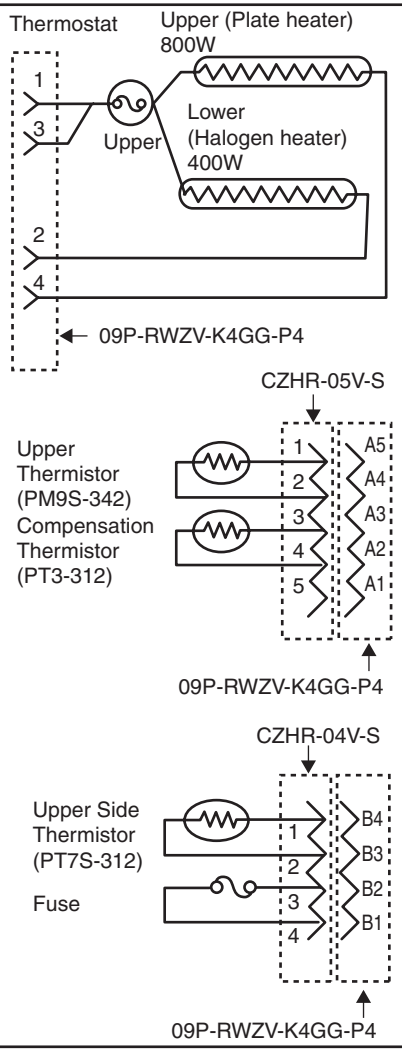
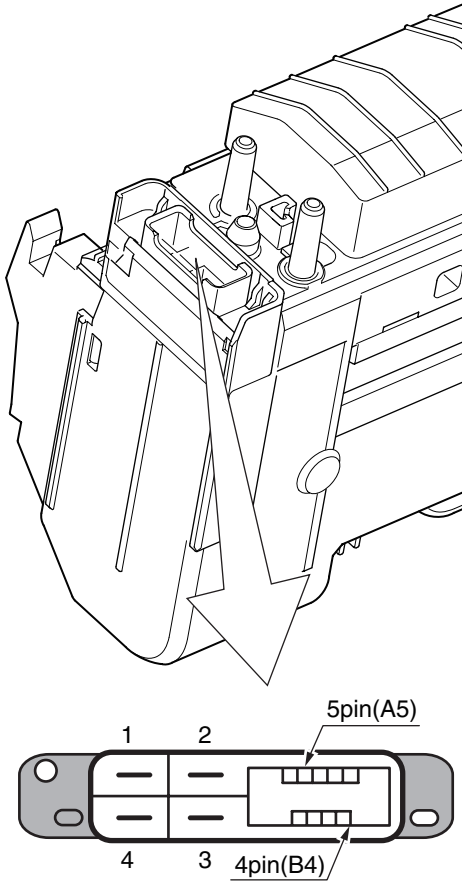
Dial display size		Bit No.			
TRAY1~4	LCF	1	2	3	4
Cassette: none	Cassette: none	H	H	H	H
Not Used	Legal 13.5"	H	L	H	L
A5	Not Used	H	L	H	H
Not Used	Legal 13"	L	L	L	H
Not Used	Blank	L	L	L	L
Not Used	Letter	L	L	H	L
Not Used	Not Used	L	L	L	L
A4	A4	H	H	L	L
Not Used	Not Used	L	H	L	L
Not Used	Legal 14"	L	H	H	L
Legal 13",13.5",14"	Not Used	H	H	H	L
Not used	Not Used	L	L	H	H
Not used	Not Used	L	H	L	H
B5	Not Used	H	H	L	H
Executive	Not Used	H	L	L	H
Not used	Not Used	L	H	H	H
Letter	Not Used	H	L	L	L
* When switch is pressed: Low					

7. Connection diagrams

7.1 Resistance value check

Unit	Electrical circuit diagram, connection	Part outside view	Resistance value
ID motor			Across both ends of IP2: 1Ω or less
Fuser unit motor			Across both ends of IP2: 1Ω or less

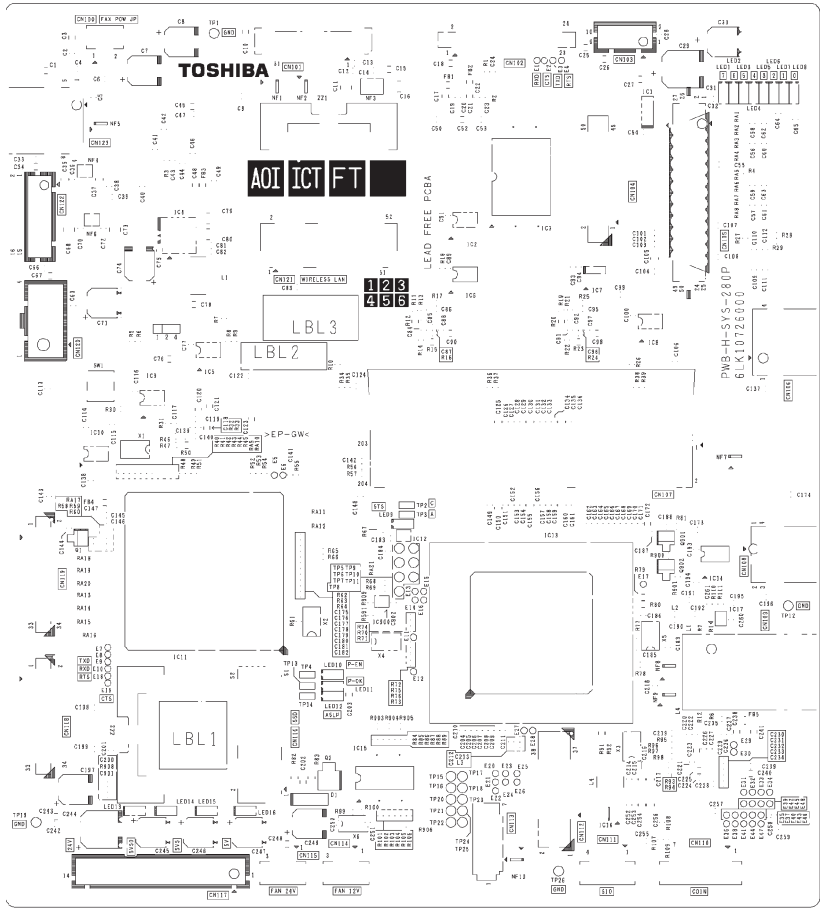
Unit	Electrical circuit diagram, connection	Part outside view	Resistance value
Feed motor			Across both ends of IP1: 1Ω or less
Duplex motor			Between pin-1 and pin-3: 3.2Ω Between pin-4 and pin-6: 3.2Ω
2nd / 3rd tray feed motor			Between pin-1 and pin-2: 2.8Ω Between pin-3 and pin-4: 2.8Ω

Unit	Electrical circuit diagram, connection	Part outside view	Resistance value
Fuser unit			Between pins -A5 and -A4: Approx. 80.58kΩ to 5338kΩ (0 to 93°C) Between pins -A3 and -A2: Approx. 104.5kΩ to 806.5kΩ (0 to 43°C) Between pins -B4 and -B3: Approx. 104.5kΩ to 806.5kΩ (0 to 43°C) Between pins -B2 and -B1: Open

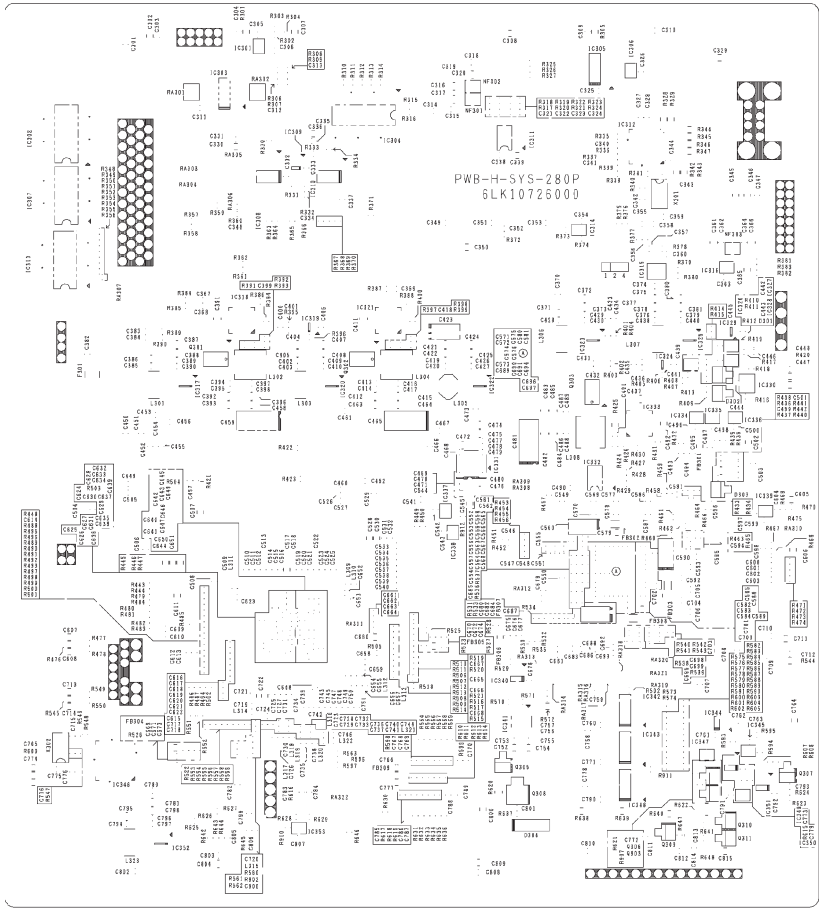
7.2 Parts location

(1) CU PCB

Component side

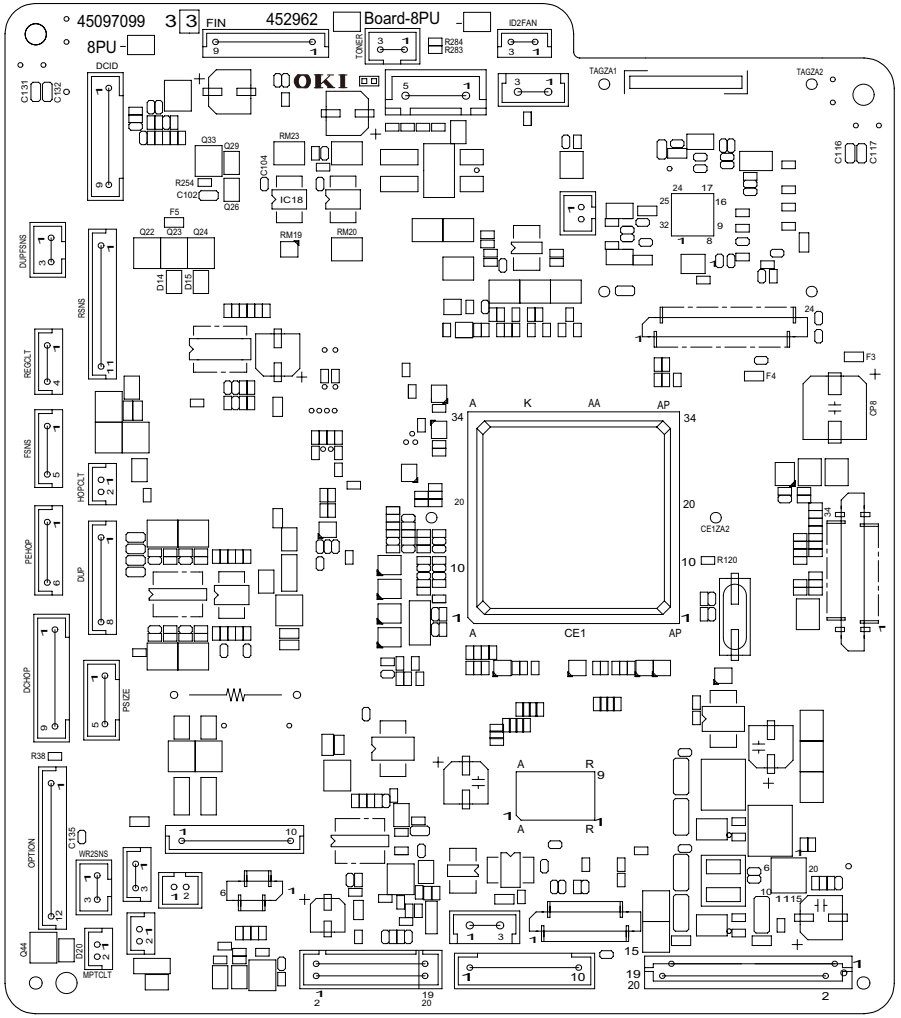


Soldering side

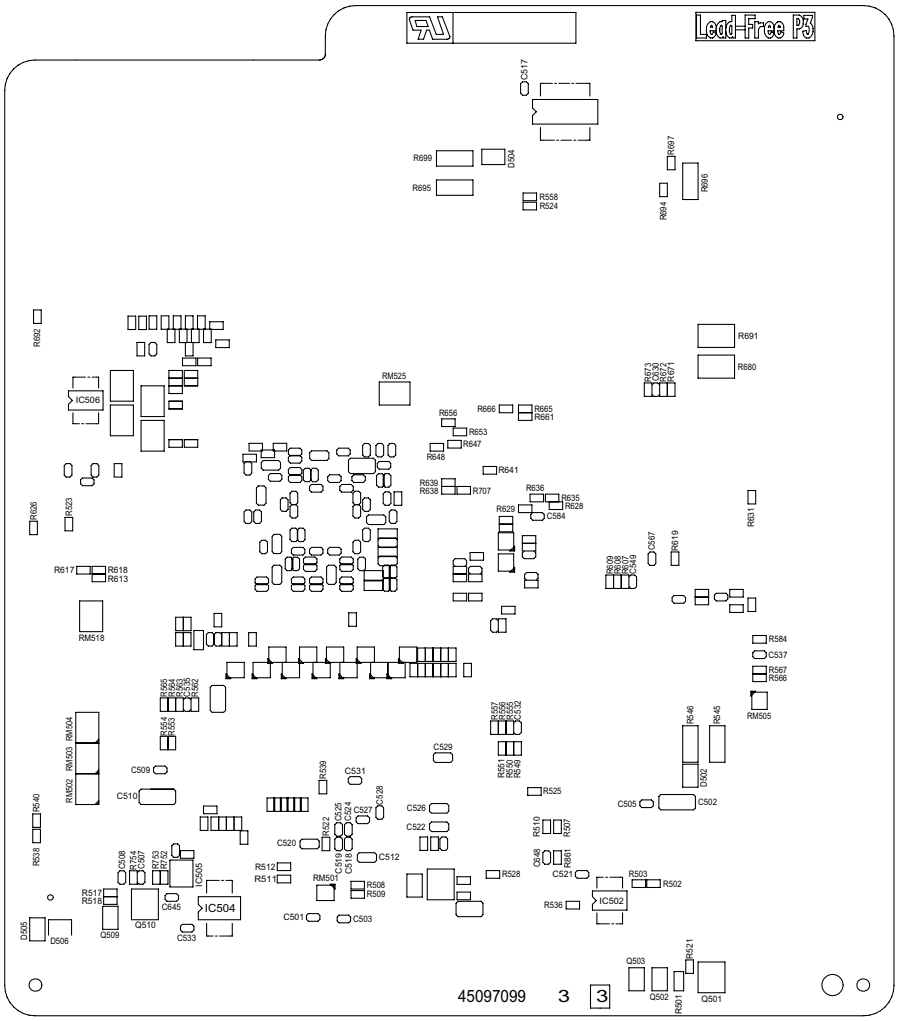


(2) PU PCB

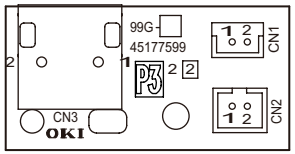
Component side



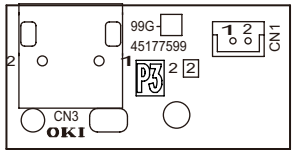
Soldering side



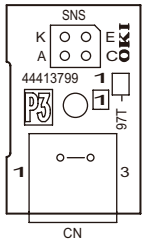
(3) TC Tag contact PCB



(4) ID Tag contact PCB

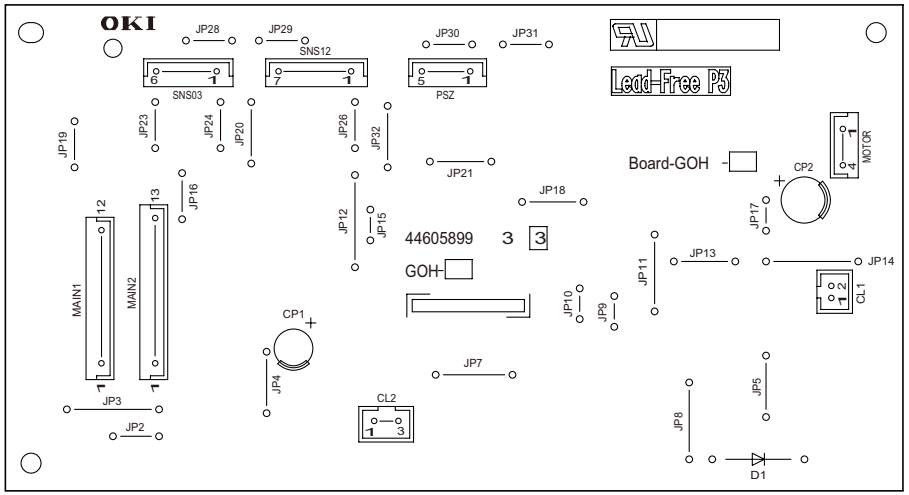


(5) Toner SNS

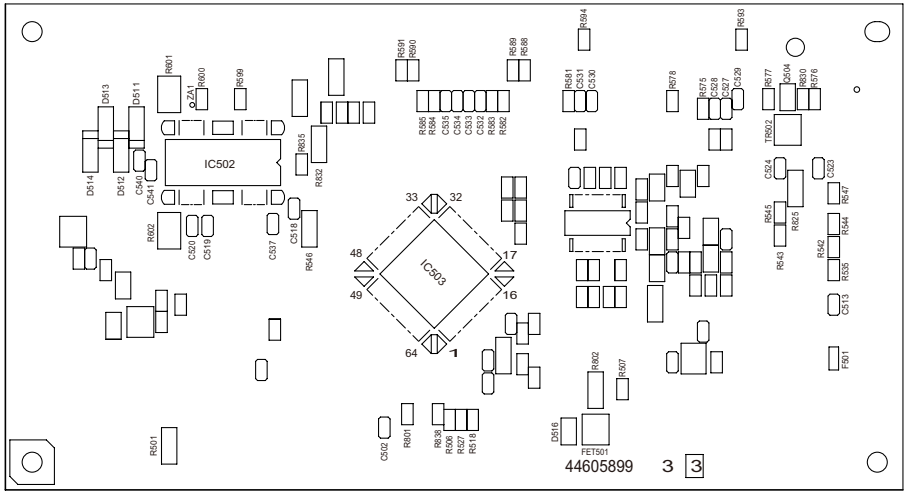


(6) Second Tray Control PCB

Component side

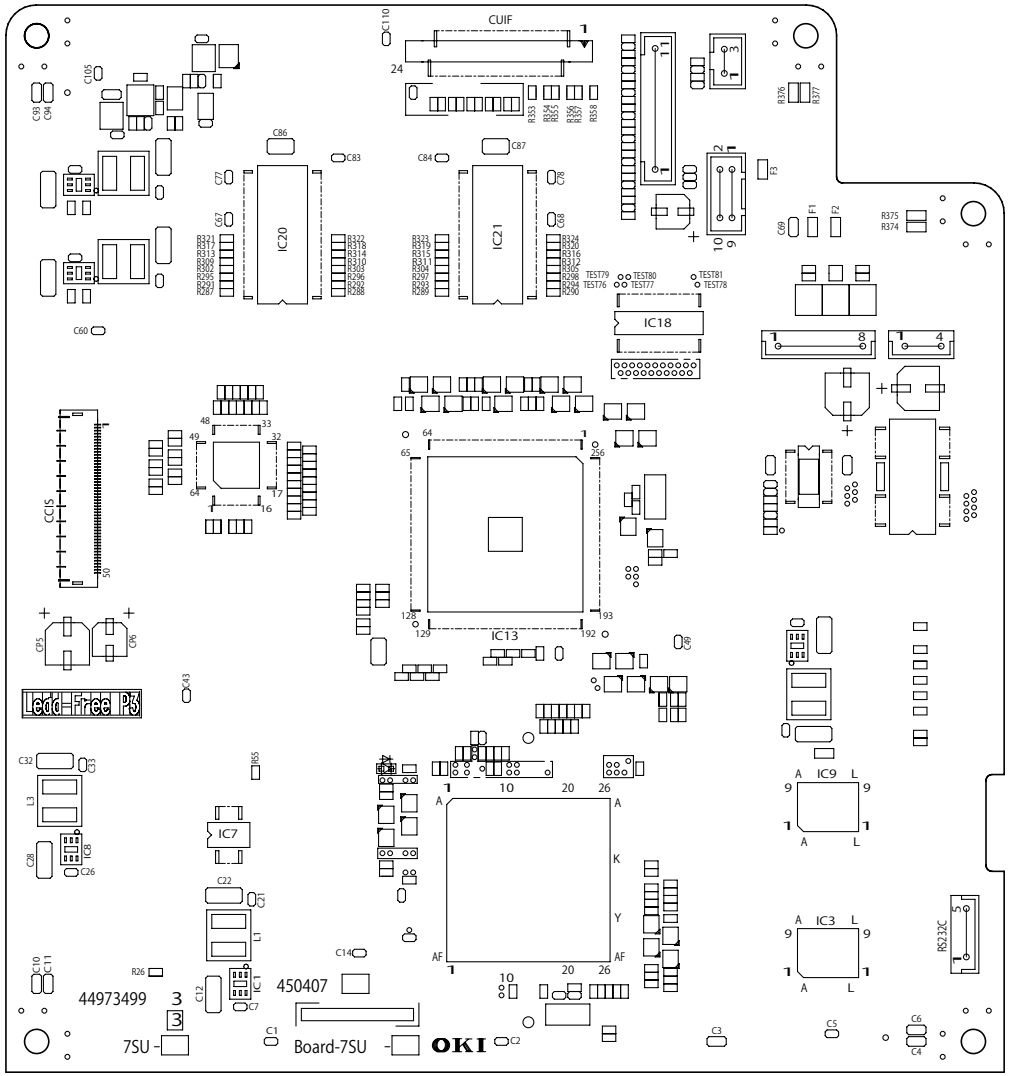


Soldering side

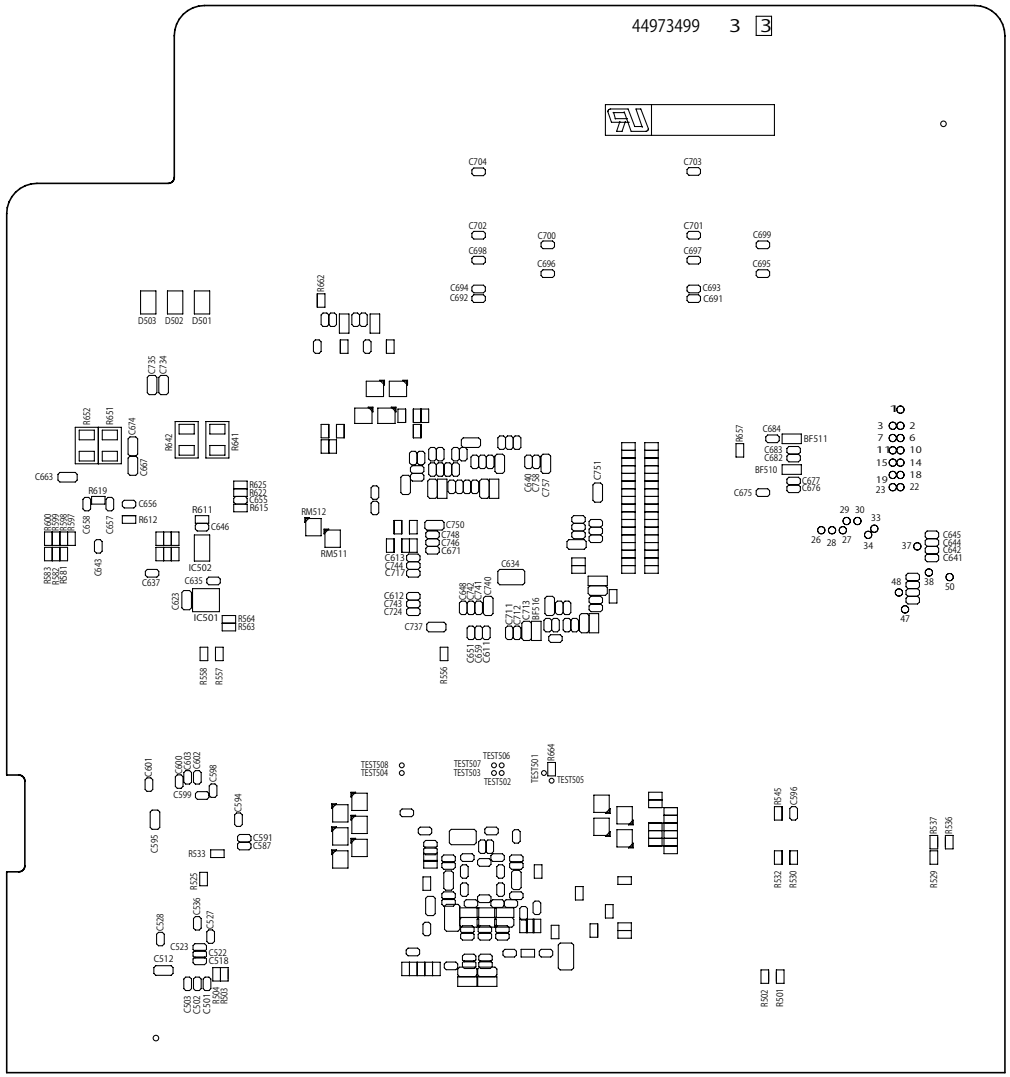


(7) SU PCB

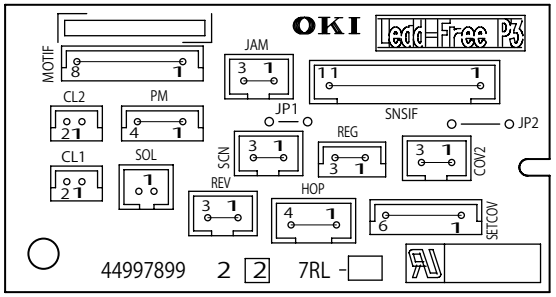
Component side



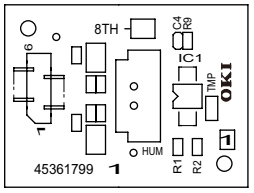
Soldering side



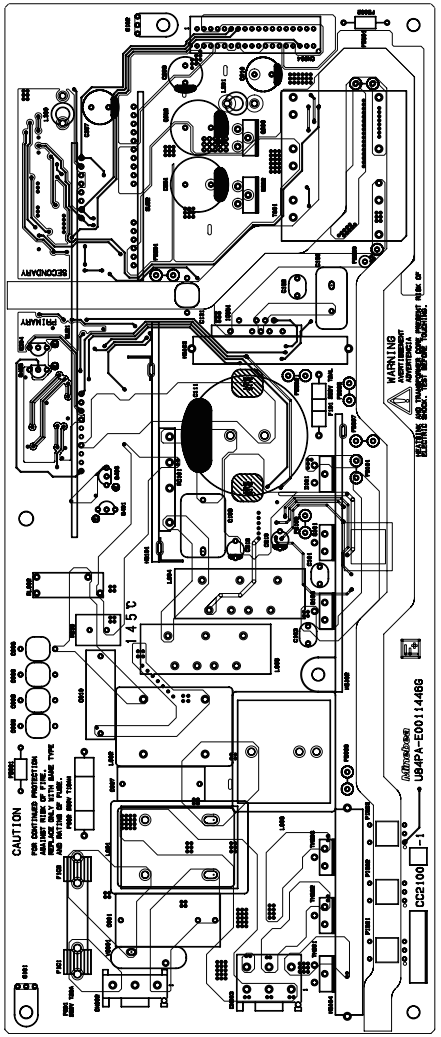
(8) SU connection PCB



(9) Environment SNS

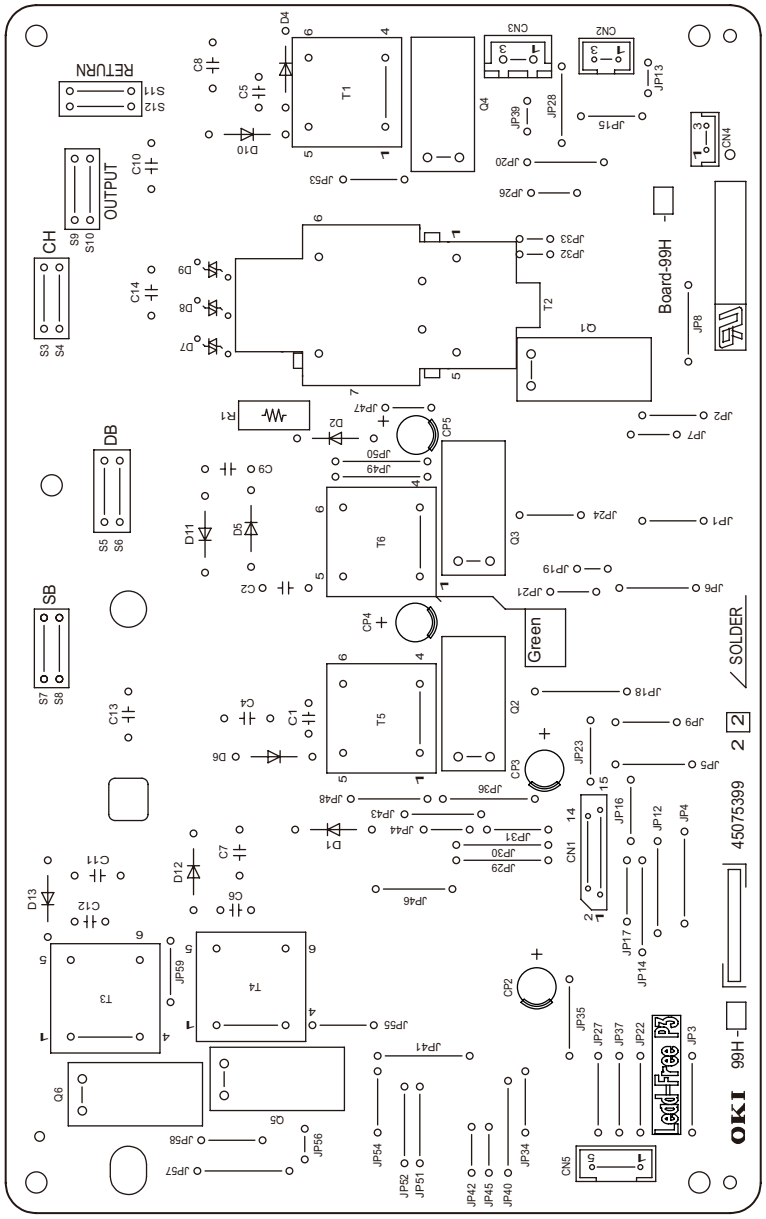


(10) Low-voltage Power Supply PCB



(11) High-voltage Power Supply PCB

Component side



Soldering side