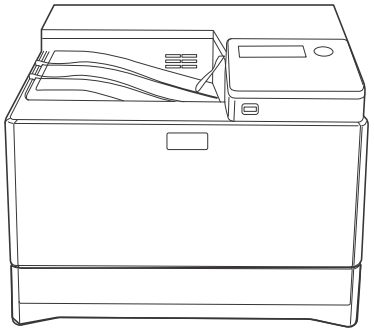
SHARP SERVICE MANUAL

CODE: 00ZMXC300PS2E



DIGITAL FULL COLOR PRINTER

MODEL MX- C300P/C300PE
MX- C300PL

CONTENTS

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

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The contents are subject to change without notice.

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CONTENTS

NOTE FOR SERVICING

1. Precautions for servicing

1) When servicing, disconnect the power plug, the printer cable, the network cable, and the telephone line from the machine, except when performing the communication test, etc.
   It may cause an injury or an electric shock.
2) There is a high temperature area inside the machine. Use extreme care when servicing.
   It may cause a burn.
3) There is a high voltage section inside the machine which may cause an electric shock. Be careful when servicing.
4) Do not disassemble the laser unit. Do not insert a reflective material such as a screwdriver in the laser beam path.
   It may damage eyes by reflection of laser beams.
5) When servicing with the machine operating, be careful not to place your hands by belts, gears, chains, and other drive components.
6) Do not leave the machine with the cabinet disassembled.
   Do not allow any person other than a serviceman to touch inside the machine. It may cause an electric shock, a burn, or an injury.
7) When servicing, do not breathe toner, developer, and ink excessively. Do not get them in the eyes.
   If toner, developer, or ink enters you eyes, wash it away with water immediately, and consult a doctor if necessary.
8) The machine has got sharp edges inside. Be careful not to damage fingers when servicing.
9) Do not throw toner or a toner cartridge in a fire. Otherwise, toner may explode and burn you.
10) When replacing the lithium battery on the PWB, use only the specified battery.
    If a battery of different specification is used, the battery may cause malfunction or breakdown of the machine.
11) When transporting a PWB, be sure to place the PWB in an anti-static bag.
    It may cause a breakdown or malfunctions.

CAUTION
DOUBLE POLE/NEUTRAL FUSING

(200V series only)

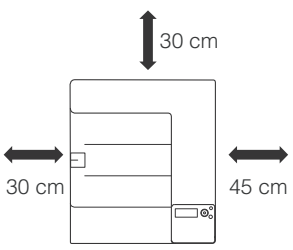
2. Warning for servicing

1) Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements.
   Avoid complex wiring, which may lead to a fire or an electric shock.
2) If there is any abnormality such as a smoke or an abnormal smell, interrupt the job and disconnect the power plug.
   It may cause a fire or an electric shock.
3) Be sure to connect the grounding wire. If an electric leakage occurs without grounding, a fire or an electric shock may result.
   For proper machine functionality, the machine must be grounded.
4) When connecting the grounding wire, never connect it to the following points.
   It may cause an explosion, a fire or an electric shock.
   - Gas tube
   - Lightning conductor
   - A water pipe or a water faucet, which is not recognized as a grounding object by the authorities.
   - Grounding wire for telephone line
5) Do not damage, break, or twist the power cord.
   Do not put heavy objects on the power cable. Do not forcefully bend or pull the power cable.
   It may cause a fire or an electric shock.
6) Keep the power cable away from a heat source.
   Do not insert the power plug with dust on it into a power outlet.
   It may cause a fire or an electric shock.
7) Do not put a metallic object or a container with water in it inside the machine.
   It may cause a fire or an electric shock.
8) With wet or oily hands, do not touch the power plug, do not perform servicing, touch the power plug, insert a telephone jack, or operate the machine with wet or oily hands.
   It may cause an electric shock.

3. Note for installing site

Do not install the machine at the following sites.

1) **Place of high temperature, high humidity, low temperature, low humidity, place under an extreme change in temperature and humidity.**
   Paper may get damp and form moisture inside the machine, causing paper jam or print dirt.
   For operating condition, refer to the specifications described later.
2) **Place of much vibration**
   It may cause a breakdown.
3) **Poorly ventilated place**
   An electro-static type copier will produce ozone inside it.
   The quantity of ozone produced is designed to a low level so as not to affect human bodies. However, continuous use of such a machine may produce an odor of ozone. Install the machine in a well ventilated place.
4) **Place of direct sunlight.**
   Plastic parts and toner may be deformed, discolored, or may undergo qualitative change.
   It may cause a breakdown or print quality issues.
5) **Place which is full of organic gases such as ammonium**
   The organic photoconductor (OPC) drum used in the machine may undergo qualitative change due to organic gases such as ammonium.
   Installation of this machine near a diazo-type copier may result in print quality issues.
6) **Place of much dust**
   When dusts enter the machine, it may cause a breakdown or print quality issues.
7) **Place near a wall**
   Some machines require intake and exhaust of air.
   If intake and exhaust of air are not properly performed, print dirt or a breakdown may be a result.



8) **Unstable or slant surface**

The unstable place like the unstable pedestal or the tilted place could affect the print image quality.

The installation place must be strong enough to safely support the weight of the machine as well as any installed options.

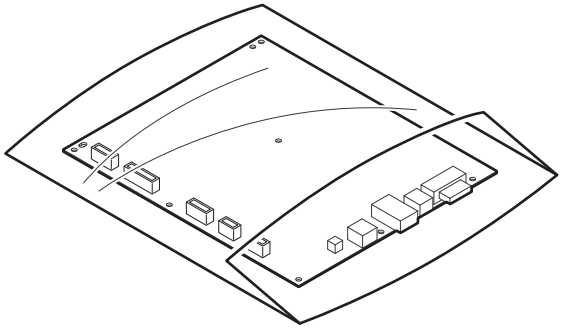
If the machine drops or falls down, it may cause an injury or a breakdown.

If there are optional paper desks and the copier desks specified, it is recommendable to use them.

4. Note for handling PWB and electronic parts

When handling the PWB and the electronic parts, be sure to observe the following precautions in order to prevent against damage by static electricity.

1) When in transit or storing, put the parts in an anti-static bag or an anti-static case and do not touch them with bare hands.



2) When and after removing the parts from an anti-static bag (case), use an earth band as shown below:
   - Put an earth band to your arm, and connect it to the machine.
   - When repairing or replacing an electronic part, perform the procedure on an anti-static mat.

5. Note for replacing the LSU

When replacing, be sure to observe the following items.

1) When replacing the LSU, be sure to disconnect the power plug from the power outlet.
2) When replacing the LSU, follow the procedures described in this Service Manual.
3) When checking the operations after repairing the LSU, keep all the parts including the cover installed and perform the operation check.
4) Do not modify the LSU.
5) When visually checking the inside of the machine for the operation check, be careful not to allow laser beams to enter the eyes.

If the above precaution is neglected or an undesignated work is performed, safety may not be assured.

6. Note for handling the OPC drum unit, the transfer unit, and the developer unit

When handling the OPC drum unit, the transfer unit, and the developer unit, strictly observe the following items.

If these items are neglected, a trouble may be generated in the print image quality.

(OPC drum)

1) Avoid working at a place with strong lights.
2) Do not expose the OPC drum to lights including interior lights for a long time.
3) When the OPC drum is removed from the machine, cover it with light blocking material. (When using paper, use about 10 sheets of paper to cover it.)
4) Be careful not to attach fingerprints, oil, grease, or other foreign material on the OPC drum surface.

(Transfer unit)

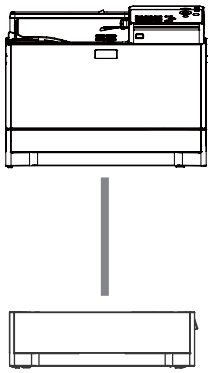
1) Be careful not to attach fingerprints, oil, grease, or other foreign material on the transfer belt and the transfer roller.

(Developer unit)

1) Be careful not to attach fingerprints, oil, grease, or other foreign material on the developer unit.

[1] PRODUCT OUTLINE

1. System configuration



2. Product list

A.North America

Product Name	ppm*	Panel	HDD	NIC	Wireless LAN	Copy	Print			NW Scan	Fax	iFAX	DF	OSA
							SAPL	PCL	PS					
MX-C300PL	30ppm	Mono LCD	No	STD	No	No	No	STD	STD	No	No	No	No	No
MX-C300P	30ppm	Mono LCD	No	STD	STD	No	No	STD	STD	No	No	No	No	No

B.Europe

Product Name	ppm*	Panel	HDD	NIC	Wireless LAN	Copy	Print			NW Scan	Fax	iFAX	DF	OSA
							SAPL	PCL	PS					
MX-C300PL	30ppm	Mono LCD	No	STD	No	No	No	STD	STD	No	No	No	No	No
MX-C300P MX-C300PE	30ppm	Mono LCD	No	STD	STD	No	No	STD	STD	No	No	No	No	No

*The same speed in both Color/Monochrome. The same speed in both A4/LTR.

3. Option list

Model	Name	Model name	MX-C300P, MXC300PE, MX-C300PL
Feeding equipment	500-SHEET Paper Feed Unit	MX-CS11	OPT

STD: Standard provision, OPT: Option, - : No setting

[2] SPECIFICATIONS

1. Basic specifications

A. Engine Specification

Photo Conductor	OPC(Diameter: Black:φ30mm, Color: φ30mmx3 pieces)
Recording	Electronic Photo (Laser)
Development	Dry-Type Dual-Component Magnetic Brush Development
Charging	Charged Saw-Tooth Method Roller Charging
First Transfer	Mid-Transfer (Belt)
Second Transfer	Transfer Roller
Cleaning	Counter Blade
Fusing	Heat Roller
Waste toner disposal	No toner recycling system/Toner collection container system
Continuous toner supply	Not available
Appearance color	Neo White

B. Engine speed (ppm)

(1) Tray 1, 2

Paper size	Monochrome	Color
A4R	30	30
8.5x11R, 7.25x10.5R, B5R,16KR	30	30
A5R, 5.5x8.5R	30	30

(2) Bypass tray

Paper size	Monochrome	Color
8.5x14, 8.5x13, 8.5x13.4, 8.5x13.5	16	16
A4R	21	21
8.5x11R, 7.25x10.5R, B5R,16KR	21	21
A5R, 5.5x8.5R	21	21
Extra	16	16
OHP(A4R, 8.5x11R)	9	9
Envelope (Monarch, Com-10, DL, C5)	9	9
Heavy paper (A4R,A5R,8.5x11R,8.5x5.5R,16KR)	9	9
Heavy paper (other than above size)	9	9

C. Printable area

A4R	202x289 mm
B5R	176x249 mm
A5R	140x202 mm
ExecutiveR	176x249 mm
16KR	187x262 mm
8.5x14	208x348 mm
8.5x13.5	208x335 mm
8.5x13.4	208x342 mm
8.5x13	208x322 mm
8.5x11R	208x271 mm
5.5x8.5R	132x208 mm

Void area	Top: 5mm or less Rear: 5mm or less FR Total: 8mm or less

* No margin print function not provided.

D. Engine resolution

Resolution	Print	Writing : 600x600dpi
Smoothing Function		No
Tone	Print	1bit / 2bit

E. Paper feed section

(1) Basic specifications

Form	Std: 1-Paper Tray / Multi Bypass Tray Max: 2-Paper Tray / Multi Bypass Tray
Heater	No

Tray		Tray 1	Bypass Tray
Paper Capacity	Standard paper (80g/m2)	250sheets	50 sheets
Paper Size Detection		No	
Paper Size Changing Method		Changed by Users	
Paper Size Setting for Shipment		AB systems: A4 Inch systems: 8.5x11	
Detection of Remaining Paper		Only detects if any paper remains or not	

(2) Other paper type capacities

Paper Type	Bypass Tray
Envelope	10 sheets
OHP	10 sheets
Heavy paper	20 sheets
Tab Paper	No
Gloss Paper	1 sheet
Other Special Paper	1 sheet

(3) Size of paper which can be fed

			Paper Feeding Section		
			Main Unit	Optional Drawer	Multi Bypass
Paper size	8.5'x14' (Legal)	216x356mm	No	No	Yes
	8.5'x13.5' (Asian Legal)	216x343mm	No	No	Yes
	8.5'x13.4' (Mexican Legal)	216x340 mm	No	No	Yes
	8.5'x13' (Foolscap)	216x330 mm	No	No	Yes
	8.5'x11'R (Letter R)	216x279 mm	Yes	Yes	Yes
	5.5'x8.5'R (Invoice R)	140x216 mm	Yes	Yes	Yes
	ExecutiveR	184x266 mm	Yes	Yes	Yes
	A4R	210x297 mm	Yes	Yes	Yes
	B5R	182x257 mm	Yes	Yes	Yes
	A5R	148x210 mm	Yes	Yes	Yes
	A6R	105x148mm	No	No	Yes
	16KR	195x270 mm	Yes	Yes	Yes
	Envelope		No	No	Yes
	Custom		No	No	Yes
Paper Type	Thin Paper	55-59g/m2 13-16lb bond	No	No	Yes
	Plain Paper	60-105g/m2 16-28lb bond	Yes	Yes	Yes
		Recycled Paper	Yes	Yes	Yes
		Color Paper	Yes	Yes	Yes
		Letter Head	Yes	Yes	Yes
		Pre-Printed Paper	Yes	Yes	Yes
		Pre-Punched Paper	Yes	Yes	Yes
	Heavy paper	106-220g/m2 28 lb bond -80 lb Cover	No	No	Yes
		221 g/m2 or more 81lb Cover or more	No	No	No
	Envelope	75-90g/m2	No	No	Yes
	Transparency		No	No	Yes
	Label		No	No	Yes
	Tab Paper		No	No	No
	Glossy Paper	125-150g/m2	No	No	Yes
	User Setting 1-7		No	No	No

Envelope Type

Type	Size
Monarch	98x191
Com10	105x241
DL	110x220
C5	162x229

Custom Size

		AB System (mm)		Inch System (inch)	
		Min.	Max.	Min.	Max.
Multi Bypass Tray	X	140	356	5_1/2	14
	Y	90	216	3_5/8	8_1/2

F. Paper exit section

(1) Exit Capacity

Ejection part	Center part of the main unit
Ejection method	Face-down ejection
Paper capacity for ejection	150 sheets (for A4R, 8.5x11R)
Ejectable paper size and weight	Refer to "Size of paper which can be discharged".
Shifter function	No
Detection of ejected paper	No
Detection of full ejected paper	Yes

(2) Size of paper which can be discharged

			Duplex Section	Paper Ejection Section
				Exit Tray
Paper size	8.5'x14' (Legal)	216x356mm	Yes	Yes
	8.5'x13.5' (Asian Legal)	216x343mm	Yes	Yes
	8.5'x13.4' (Mexican Legal)	216x340 mm	Yes	Yes
	8.5'x13' (Foolscap)	216x330 mm	Yes	Yes
	8.5'x13' (Foolscap)	216x330 mm	Yes	Yes
	8.5'x11'R (Letter R)	216x279 mm	Yes	Yes
	5.5'x8.5'R (Invoice R)	140x216 mm	Yes	Yes
	Executive R	184x266 mm	No	Yes
	A4R	210x297 mm	Yes	Yes
	B5R	182x257 mm	Yes	Yes
	A5R	148x210 mm	Yes	Yes
	A6R	105x148mm	No	Yes
	16KR	195x270 mm	Yes	Yes
	Envelope		No	Yes
	Custom		No	Yes
Paper Type	Thin Paper	55-59g/m2 13-16lb bond	No	Yes
	Plain Paper	60-105g/m2 16-28lb bond	Yes	Yes
		Recycled Paper	Yes	Yes
		Color Paper	Yes	Yes
		Letter Head	Yes	Yes
		Pre-Printed Paper	Yes	Yes
		Pre-Punched Paper	Yes	Yes
	Heavy paper	106-220g/m2 28 lb bond -80 lb Cover	No	Yes
		221 g/m2 or more 81lb Cover or more	No	No
	Envelope	75-90g/m2	No	Yes
	Transparency		No	Yes
	Label		No	Yes
	Tab Paper		No	No
	Glossy Paper	125-150g/m2	No	Yes
	User Setting 1-7		No	No

Envelope Type

Type	Size
Monarch	98x191
Com10	105x241
DL	110x220
C5	162x229

Custom Size

		AB System (mm)		Inch System (inch)	
		Min.	Max.	Min.	Max.
Multi Bypass Tray	X	140	356	5_1/2	14
	Y	90	216	3_5/8	8_1/2

G. Operation panel

Form	LCD with backlight
Color	Monochrome
Number of display dots	192x73 dots
LCD driving display area (WxD)	80.63 x 30.65mm
LCD Backlight	White LED
LCD Contrast adjustment	No
Angle/position adjustment	No

H. Controller board

Interface		
IEEE1284 Parallel	No	
Ethernet	1 port	
	Interface	10Base-T, 100Base-TX
	Support Protocol	TCP/IP(IPv4, IPv6)
USB 2.0 (Host)	1 port (Front Port)	
USB 2.0 (Device)	1 port	
USB authentication acquisition	No	
ACRE/DSS Expansion I/F	No	
IrSimple I/F	No	
Serial I/F (for coin vender)	No	
Memory	Refer to Memory	
Memory Slot	No	
Windows premium logo acquisition	No	
WHQL acquisition	Yes	

I. Memory

Memory	512MB
HDD	No

* For Printing, collate printing is available for every print files.

J. Warm-up time

Warm up time	29 sec
Preheat	Yes

2. Printer function

A. Printer driver supported OS

OS		**Custom PCL6**	**Custom PCL5c**	**Custom PS**	**PPD**
Windows	98 / Me	No	No	No	No
	NT 4.0 SP5 or later	No	No	No	No
	2000	No	No	No	No
	XP	CD-ROM	No	CD-ROM	CD-ROM
	XPx64	CD-ROM	No	CD-ROM	CD-ROM
	Server 2003	CD-ROM	No	CD-ROM	CD-ROM
	Server 2003x64	CD-ROM	No	CD-ROM	CD-ROM
	Server 2008	CD-ROM	No	CD-ROM	CD-ROM
	Server 2008x64	CD-ROM	No	CD-ROM	CD-ROM
	Vista	CD-ROM	No	CD-ROM	CD-ROM
	Vistax64	CD-ROM	No	CD-ROM	CD-ROM
	Windows7	CD-ROM	No	CD-ROM	CD-ROM
	Windows7x64	CD-ROM	No	CD-ROM	CD-ROM
	Windows8.1	CD-ROM	No	CD-ROM	CD-ROM
	Windows8.1x64	CD-ROM	No	CD-ROM	CD-ROM
	Server 2012 x64	CD-ROM	No	CD-ROM	CD-ROM
	Server 2012 R2 x64	CD-ROM	No	CD-ROM	CD-ROM
Mac	9	No	No	No	No
	X 10.2	No	No	No	No
	X 10.3	No	No	No	No
	X 10.4	No	No	CD-ROM	No
	X 10.5	No	No	CD-ROM	No
	X 10.6	No	No	CD-ROM	No
	X 10.7	No	No	CD-ROM	No
	X 10.8	No	No	CD-ROM	No
	X 10.9	No	No	Web	No

B. PDL emulation/Font

PDL (command)	**Font installed**
PCL5c compatible / PCL6 compatible	European outline font =80 font types Line printer font (BMP) =1 font types
Postscript3 compatible	European outline font =136 font types

3. Power source

	100V	**200V**
Voltage	100 - 127V 9 A	220 - 240V 5A
Frequency	50/60Hz	50/60Hz
Power code	Fixed Type (Direct)	Inlet
Power Switch	1 switch	

4. Power consumption

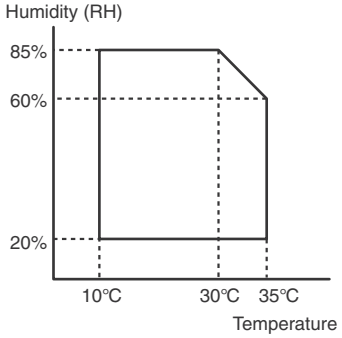
The full configuration can be operated with the rated power source.

	100V	200V
Max. Rated Power	1.1 kW	1.15 kW
Energy consumption efficiency	No restriction	No restriction
Preheat mode transition time	1min	3min
Recovery time from Pre-heat mode	10sec	10sec
Sleep mode transition time	3min	15min
	*Print Job: As soon as printing out. (Default)	
Recovery time from Sleep mode	20sec	20sec

5. Dimensions and Weight

Outer dimensions (WxDxH)		429mmx509mmx337mm
Full dimensions of the main unit		663mm
Weight	Main unit (developer, photoreceptor included)	24.8kg

6. Ambient conditions



[3] CONSUMABLE PARTS

1. Supply system table

A. North America, Middle America, South America

Item	Content	Life	Model name	Quantity in collective package	Remarks
Toner Cartridge (Black)	Toner Cartridge (Black) x1	6k	MX-C30NT-B	10	Life: A4 5% document
Toner Cartridge (Color)	Toner Cartridge (Color) x1	6k	MX-C30NT-C/M/Y	10	Life: A4 5% document
Develop Cartridge (Black)	Develop Cartridge (Black) x1	75K	MX-C30NV-B	10	
Develop Cartridge (Color)	Develop Cartridge (Color) x1	45K	MX-C30NV-C/M/Y	10	
Drum Cartridge	Drum Cartridge x1	BK : 75K CL : 45K	MX-C30DR	10	

B. Europe, Eastern Europe

Item	Content	Life	Model name	Quantity in collective package	Remarks
Toner Cartridge (Black)	Toner Cartridge (Black) x1	6k	MX-C30GT-B	10	Life: A4 5% document
Toner Cartridge (Color)	Toner Cartridge (Color) x1	6k	MX-C30GT-C/M/Y	10	Life: A4 5% document
Develop Cartridge (Black)	Develop Cartridge (Black) x1	75K	MX-C30GV-B	10	
Develop Cartridge (Color)	Develop Cartridge (Color) x1	45K	MX-C30GV-C/M/Y	10	
Drum Cartridge	Drum Cartridge x1	BK : 75K CL : 45K	MX-C30DR	10	

C. Australia, New Zealand, Korea

Item	Content	Life	Model name	Quantity in collective package	Remarks
Toner Cartridge (Black)	Toner Cartridge (Black) x1	6k	MX-C30GT-B	10	Life: A4 5% document
Toner Cartridge (Color)	Toner Cartridge (Color) x1	6k	MX-C30GT-C/M/Y	10	Life: A4 5% document
Develop Cartridge (Black)	Develop Cartridge (Black) x1	75K	MX-C30GV-B	10	
Develop Cartridge (Color)	Develop Cartridge (Color) x1	45K	MX-C30GV-C/M/Y	10	
Drum Cartridge	Drum Cartridge x1	BK : 75K CL : 45K	MX-C30DR	10	

D. Middle East, Taiwan, Africa, Israel, Philippines

Item	Content	Life	Model name	Quantity in collective package	Remarks
Toner Cartridge (Black)	Toner Cartridge (Black) x1	6k	MX-C30FT-B	10	Life: A4 5% document
Toner Cartridge (Color)	Toner Cartridge (Color) x1	6k	MX-C30FT-C/M/Y	10	Life: A4 5% document
Develop Cartridge (Black)	Develop Cartridge (Black) x1	75K	MX-C30FV-B	10	
Develop Cartridge (Color)	Develop Cartridge (Color) x1	45K	MX-C30FV-C/M/Y	10	
Drum Cartridge	Drum Cartridge x1	BK : 75K CL : 45K	MX-C30DR	10	

E.Asia, Hong Kong

Item	Content	Life	Model name	Quantity in collective package	Remarks
Toner Cartridge (Black)	Toner Cartridge (Black) x1	6k	MX-C30AT-B	10	Life: A4 5% document
Toner Cartridge (Color)	Toner Cartridge (Color) x1	6k	MX-C30AT-C/M/Y	10	Life: A4 5% document
Develop Cartridge (Black)	Develop Cartridge (Black) x1	75K	MX-C30AV-B	10	
Develop Cartridge (Color)	Develop Cartridge (Color) x1	45K	MX-C30AV-C/M/Y	10	
Drum Cartridge	Drum Cartridge x1	BK : 75K CL : 45K	MX-C30DR	10	

2. Maintenance parts list

1. U.S.A/Canada/South and Central America

Item	Model name	Content		Life	Quantity in collective package	Remarks
Fusing unit	MX-C30FU	Fusing unit (Heater lamp 120V)	x 1	150K	4	
Primary transfer unit	MX-C30U1	Primary transfer unit	x 1	150K	1	
Toner collection container	MX-C30HB	Toner collection container unit	x 1	8K *1	10	Each color A4 5% coverage30% color ratio

2. Europe/East Europe/Russia/Australia/New Zealand

Item	Model name	Content		Life	Quantity in collective package	Remarks
Fusing unit	MX-C30FU	Fusing unit (Heater lamp 230V)	x 1	150K	4	
Primary transfer unit	MX-C30U1	Primary transfer unit	x 1	150K	1	
Toner collection container	MX-C30HB	Toner collection container unit	x 1	8K *1	10	Each color A4 5% coverage30% color ratio

3. Asia/Middle East/Africa

Item	Model name	Content		Life	Quantity in collective package	Remarks
Fusing unit	MX-C30FU	Fusing unit (Heater lamp 230V)	x 1	150K	4	
Primary transfer unit	MX-C30U1	Primary transfer unit	x 1	150K	1	
Toner collection container	MX-C30HB	Toner collection container unit	x 1	8K *1	10	Each color A4 5% coverage30% color ratio

4. Hong Kong

Item	Model name	Content		Life	Quantity in collective package	Remarks
Fusing unit	MX-C30FU	Fusing unit (Heater lamp 230V)	x 1	150K	4	
Primary transfer unit	MX-C30U1	Primary transfer unit	x 1	150K	1	
Toner collection container	MX-C30HB	Toner collection container unit	x 1	8K *1	10	Each color A4 5% coverage30% color ratio

*1: Life of each color A4 5% coverage30% color ratio conversion value

(The ratio is a rough reference since it differs depending on print contents, paper seizes, kinds of paper, use environment, the number of continuous prints.)

3. Definition of developer/drum life end

When the developer/drum counter reaches the specified count.

When the developer/drum rpm reaches the specified count.

When either of the above reach the specified count, it is judged as life end.

In an actual case, the ratio of monochrome output and color output may differ greatly.

When data of mixed documents (monochrome and color) are output, monochrome document data may be output in the color mode in order to prevent against fall in the job efficiency. (ACS auto color selection).

In addition, when correction or warm-up operation is performed as well as output operation, the developer and the drum rotates.

Therefore, the developer/drum consuming level cannot be determined only by the print quantity. When, therefore, the rpm reaches the specified amount, it is judged as life end.

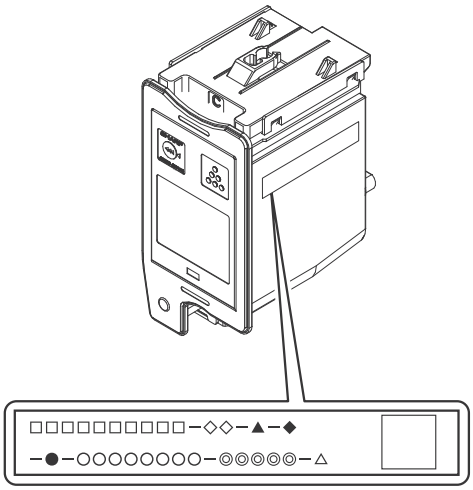
To check the developer/drum life, use SIM22-01.

	Oversea (Except China)
Rotations	575k
Total Prints (Std)	-
Total Prints (Max)	100k(BK) / 60k(CL)

4. Production number identification

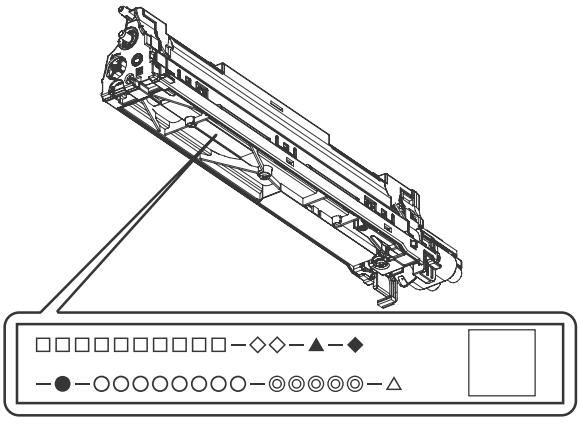
A. Toner cartridge

The label indicating the management number is attached to the bottom of the toner cartridge.



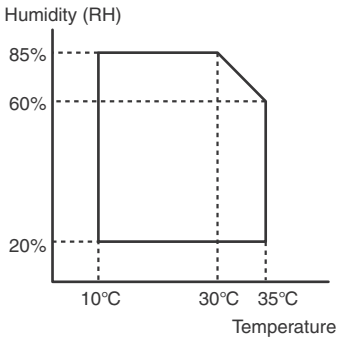
□: Unit code/Model name
◇: Color code (Black: BK /Cyan: CY /Magenta: MA /Yellow: YE)
▲: Destination
◆: Skating
●: Production place
○: Production date (YYYYMMDD)
◎: Serial number
△: Version

B. Developing unit



□: Unit code/Model name
◇: Color code (Black: BK /Cyan: CY /Magenta: MA /Yellow: YE)
▲: Destination
◆: Skating
●: Production place
○: Production date (YYYYMMDD)
◎: Serial number
△: Version

5. Environmental conditions

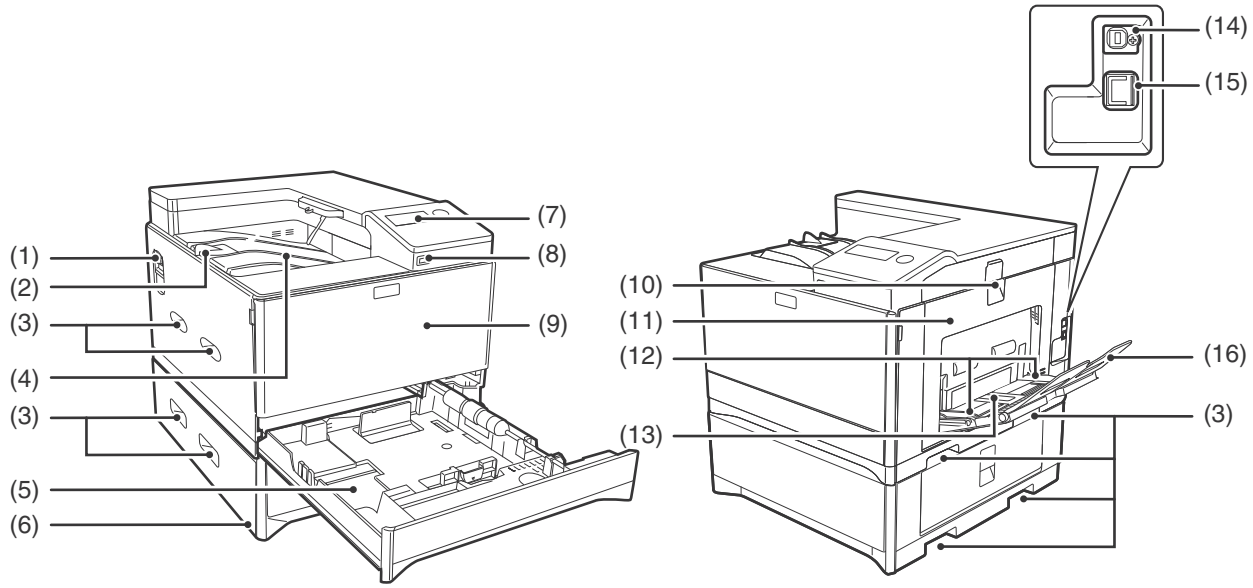


Standard environmental conditions	Temperature	20 - 25 degrees C
	Humidity	65 +/- 5 %RH
Usage environmental conditions	Temperature	10 - 35 degrees C
	Humidity	20 - 85 %RH
Storage period	Toner/Developer: 24 months from the manufactured month (Production lot) under unsealed state Drum: 36 months from the manufactured month under unsealed state	

* Unsealed state is the state that the drum is not exposed. (The drum is covered by the black paper in packing state.)

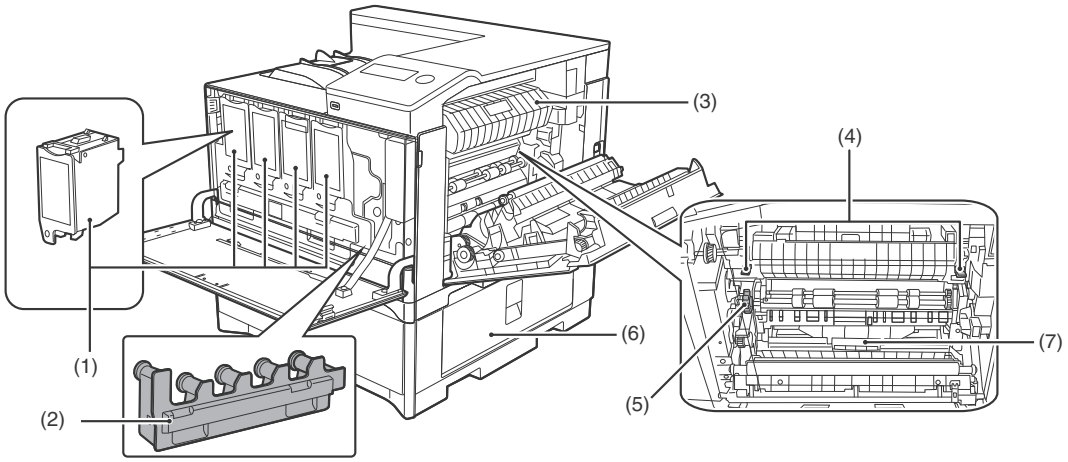
[4] EXTERNAL VIEW AND INTERNAL STRUCTURE

A.External view



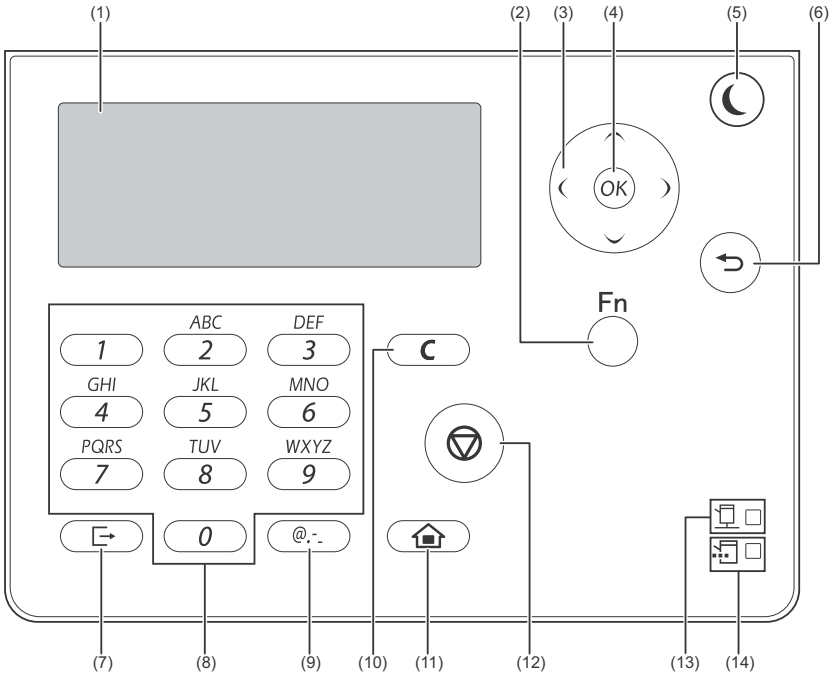
No.	Name	Function/Operation
1	Power switch	Press to turn the machine power on and off.
2	Output tray extensions	When you eject the paper of A4 size or more, you can use open to the outside.
3	Handles	Use to move the machine. When attaching tray 2, use the handle at the bottom.
4	Output tray	Printed pages are output to this tray.
5	Tray 1	Tray 1 can hold approximately 250 sheets of paper (80 g/m2 (21 lbs.)). For restrictions on paper types, sizes, and weights, refer to "USEABLE PAPER".
6	Tray 2 (Option)	Tray 2 can hold approximately 500 sheets of paper (80 g/m2 (21 lbs.)). For restrictions on paper types, sizes, and weights, refer to "USEABLE PAPER".
7	Operation panel	Contains operation keys and indicator lights.
8	USB 2.0 port (Type A)	This is used to connect a USB device such as USB memory to the machine.
9	Front cover	Open to replace the toner cartridge etc.
10	Side cover handle	Pull to open the side cover.
11	Side cover	Open to remove misfed paper.
12	Bypass tray guides	Adjust to the width of the paper when using the bypass tray.
13	Bypass tray	Special paper (heavy paper or transparency film) can be fed from the bypass tray.
14	USB 2.0 port (Type B)	Connect the USB cable to this connector when the machine is used on a USB connection.
15	LAN connector	Connect the LAN cable to this connector when the machine is used on a network.
16	Bypass tray extension	Open this tray when loading paper in the bypass tray.

B.Internal Structure



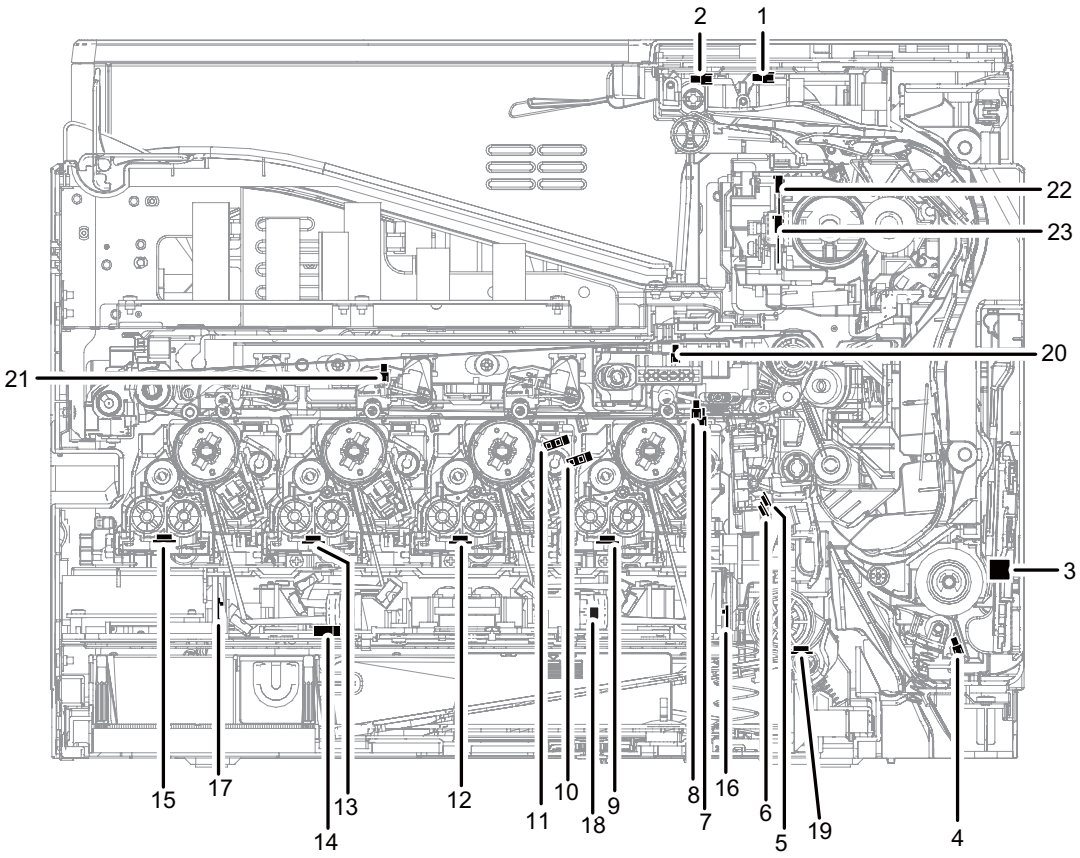
No.	Name	Function/Operation
1	Toner cartridge (Y/M/C/Bk)	Contains toner. When the toner runs out in a cartridge, the cartridge of the colour that ran out must be replaced.
2	Toner collection container	This collects excess toner that remains after printing.
3	Fusing unit paper guide	Open to remove misfed paper.
4	Fusing unit release levers	Push down these levers to release the pressure when removing misfed paper from inside the fusing area or when feeding an envelope from the bypass tray.
5	Roller rotating knob	Rotate to remove misfed paper.
6	Paper tray right side cover	Open this to remove a paper misfeed in trays.
7	Duplex conveyor cover	Open this cover to remove a misfeed.

C.Operation panel



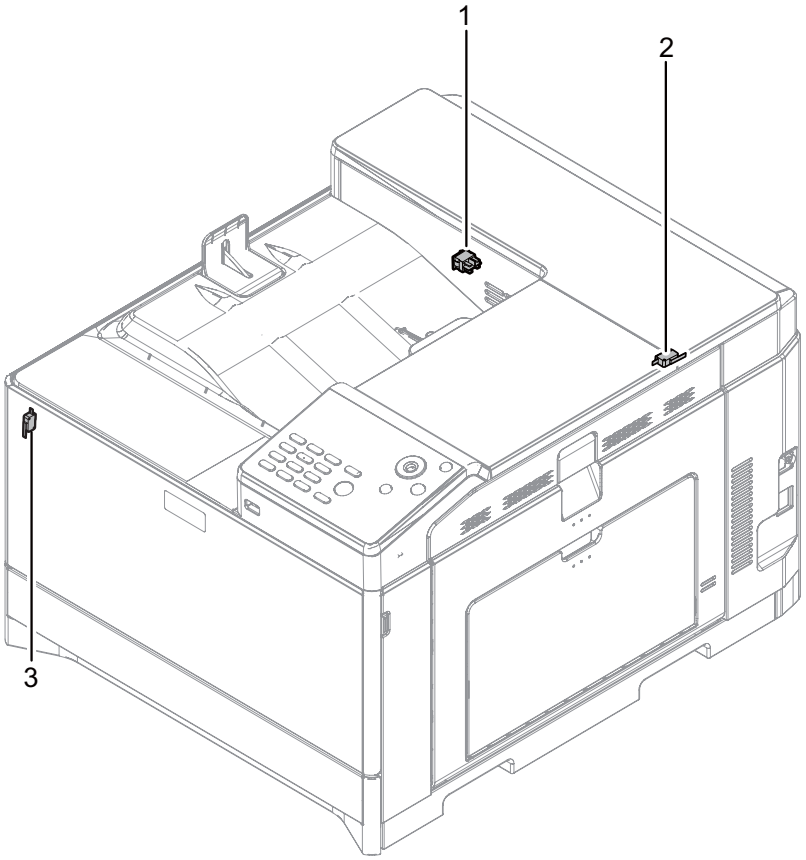
No.	Name	Function/Operation
1	Display	Shows various messages.
2	[SPECIAL FUNCTION] key	Press to set the paper size and configure system settings.
3	Arrow keys	Press to move the highlighting (which indicates that an item is selected) in the display.
4	[OK] key	Press to enter the selected setting.
5	[ENERGY SAVE] key / indicator	Press to enter the energy save mode.
6	[BACK] key	Press to return the display to the previous screen.
7	[LOGOUT] key	Press this key to log out after you have logged in and used the machine.
8	Numeric keys	Enter characters/numbers.
9	[SYMBOL] key	Press to enter a symbol when entering characters.
10	[C] key	Press to clear an enter character of printers.
11	[HOME] key	Press to return the display to the home screen.
12	[STOP] key	Press this key to stop a print job.
13	ONLINE indicator	Print data can be received when this lamp is lit.
14	DATA indicator	Blinks when print data is being received. Lights steadily during printing.

D.Sensor, Detector



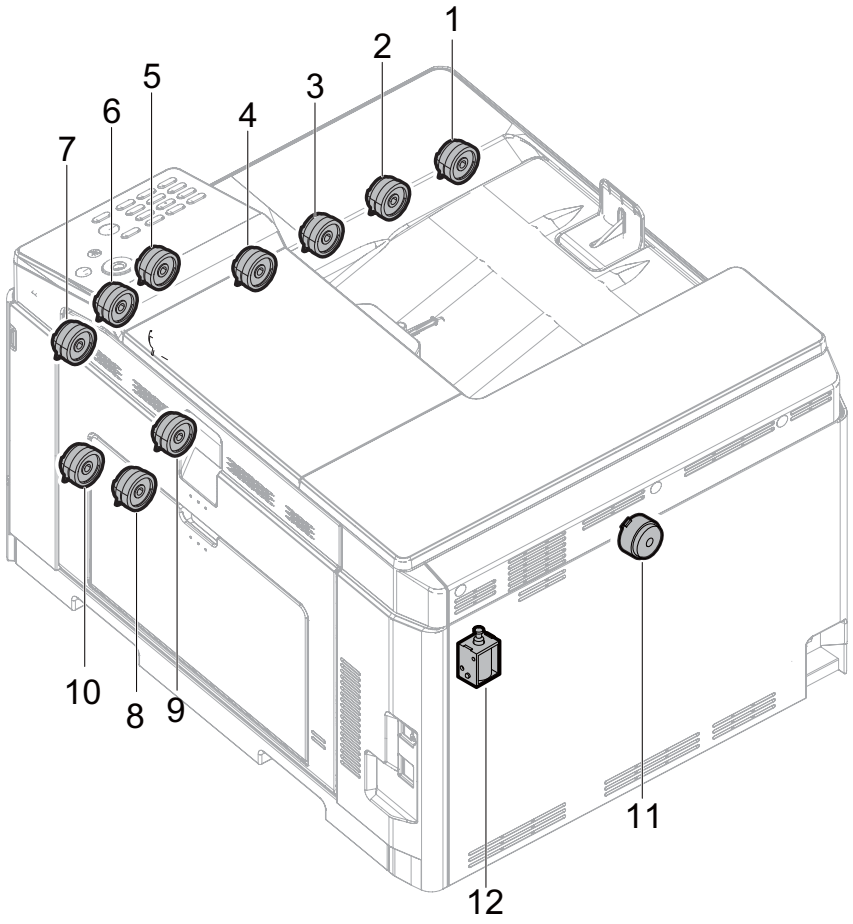
No.	Signal name	Name	Type	Function/Operation
1	POD1	Fusing paper exit detector	Light transmission	Detects paper pass in the fusing section.
2	TFD2	Paper exit full detector	Light transmission	Detects paper full in the paper exit tray.
3	HUD_M/TH_M	Temperature/humidity sensor	Temperature/humidity sensor	Detects the temperature and the humidity. (For the process control)
4	MPED	Paper empty detector (Manual paper feed tray)	Light transmission	Detects paper empty. (Manual paper feed tray)
5	PPD2	Document transport sensor 2	Light reflection	Detects paper pass in front of the resist roller.
6	CPED1	Paper empty sensor (Paper feed tray 1)	Light transmission	Detects paper empty. (Paper feed tray 1)
7	REGS_F/PCS_F	Registration sensor F (Image density sensor)	Light reflection	Detects color shift. (F side) / Detects the CMY toner patch density.
8	REGS_R	Registration sensor R (Image density sensor)	Light reflection	Detects the K toner patch density. (R side)
9	TCS_K	Toner sensor (K)	Magnetic sensor	Detects toner supply from the toner cartridge. Detects the toner density (K).
10	DHPD_K	OPC drum rotation sensor (K)	Light transmission	Detects rotation and the phase of the OPC drum (K).
11	DHPD_CL	OPC drum rotation sensor (CL)	Light reflection	Detects rotation and the phase of the OPC drum (CL).
12	TCS_C	Toner sensor (C)	Magnetic sensor	Detects toner supply from the toner cartridge. Detects the toner density (C).
13	TCS_M	Toner sensor (M)	Magnetic sensor	Detects toner supply from the toner cartridge. Detects the toner density (M).
14	TNFD	Waste toner full detector	Light transmission	Detects when waste toner container has become full.
15	TCS_Y	Toner sensor (Y)	Magnetic sensor	Detects toner supply from the toner cartridge. Detects the toner density (Y).
16	BD_KC	Laser beam sensor (KC) (on BD PWB(BC))	Photo diode	Detects the timing of the laser beams.
17	BD_MY	Laser beam sensor (MY) (on BD PWB(MY))	Photo diode	Detects the timing of the laser beams.
18	TH_LSU	LSU thermistor (on LD PWB)	Thermistor	Detects the temperature in the LSU. (Used for correction of distortion.)
19	TH_P	Ozone duct thermistor	Thermistor	Detects the temperature in the Ozone duct.
20	1TUD_K	Transfer belt separation detector K	Light transmission	Detects position of the transfer belt. Detects initialization of the transfer unit.
21	1TUD_CL	Transfer belt separation detector CL	Light transmission	Detects position of the transfer belt. Detects initialization of the transfer unit.
22	TH_UM	Fusing temperature sensor (Main)	Non-contact thermistor	Detects the surface temperature at the center section of the fusing roller.
23	TH_US	Fusing temperature sensor (Sub)	Thermistor	Detects the surface temperature at the edge section of the fusing roller.

E.Switch



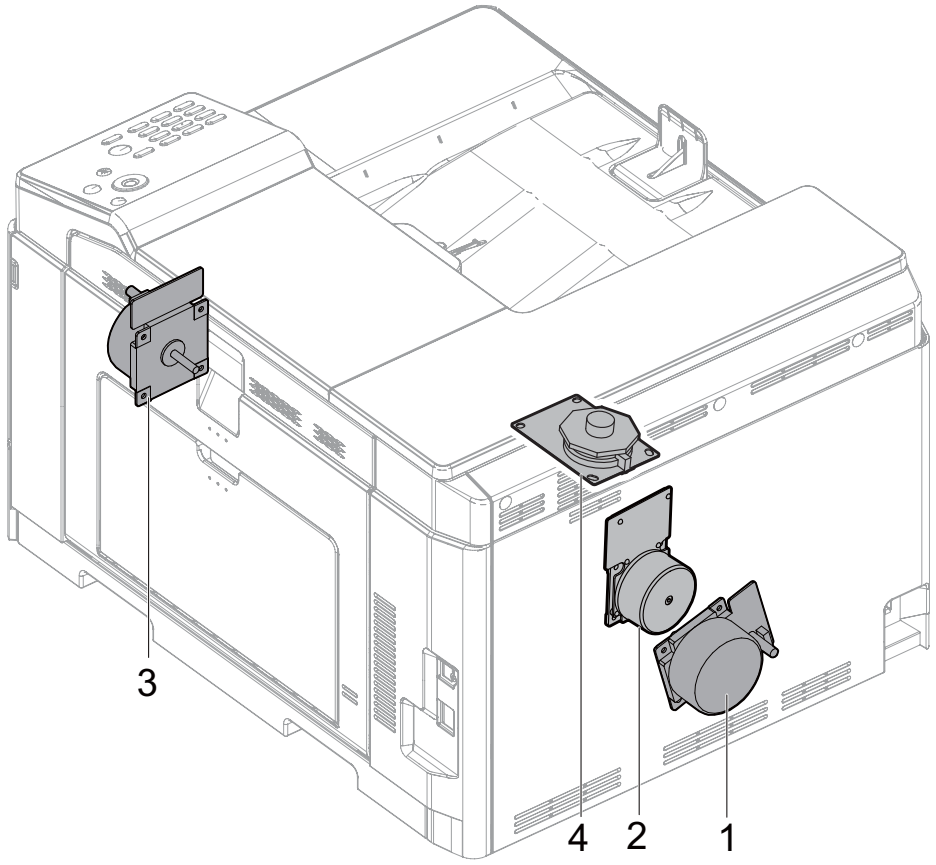
No.	Signal name	Name	Function/Operation	Note
1	MSW	Main power switch	Seesaw switch	Turns ON/OFF the main power.
2	DSW_R	Right door open/close switch	Micro switch	Detects open/close of the right door. Opens/closes the power lines of the fusing section, the motors, and the LSU laser.
3	DSW_F	Front door open/close switch	Micro switch	Detects open/close of the front door. Opens/closes the power lines of the fusing section, the motors, and the LSU laser.

F.Clutches and solenoids



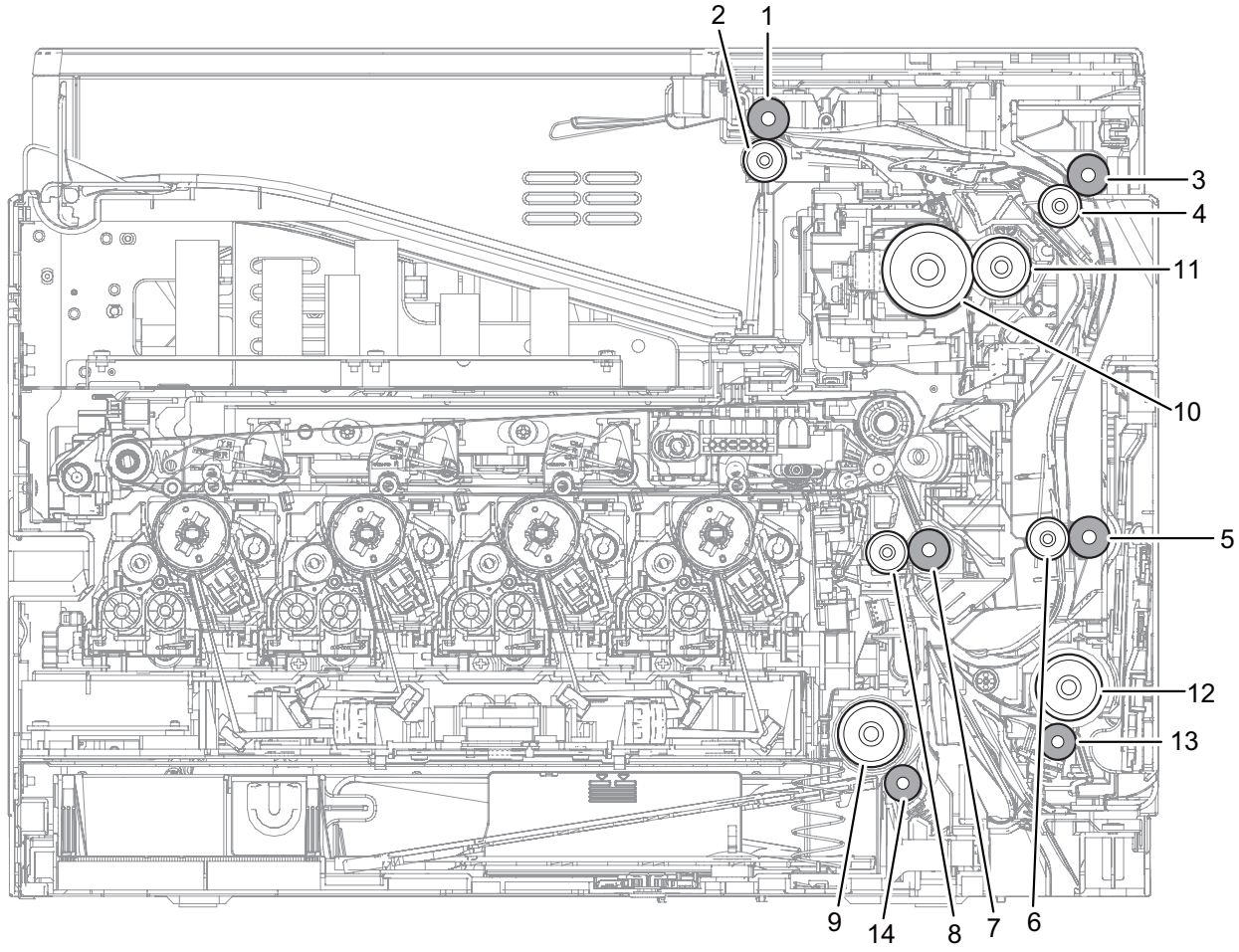
No.	Signal name	Name	Type	Function/Operation
1	TNC_Y	Toner supply clutch (Y)	Electromagnetic clutch	Controls the supply of the Y toner cartridge.
2	TNC_M	Toner supply clutch (M)	Electromagnetic clutch	Controls the supply of the M toner cartridge.
3	TNC_C	Toner supply clutch (C)	Electromagnetic clutch	Controls the supply of the C toner cartridge.
4	TNC_K	Toner supply clutch (BK)	Electromagnetic clutch	Controls the supply of the BK toner cartridge.
5	PORC	Paper exit clutch	Electromagnetic clutch	Controls the operation of the paper exit roller when the paper exit roller rotates clockwise.
6	POC	Paper exit clutch	Electromagnetic clutch	Controls the operation of the paper exit roller when the paper exit roller rotates counter clockwise.
7	ADUC	ADU transport clutch	Electromagnetic clutch	Controls ON/OFF of the roller in the ADU section.
8	CPUC1	Paper feed clutch (Paper feed tray 1)	Electromagnetic clutch	Controls ON/OFF of the roller in the paper feed tray 1 section.
9	RRC	PS clutch	Electromagnetic clutch	Controls the operation of the PS roller.
10	MFPC	Manual paper feed clutch	Electromagnetic clutch	Controls the operation of the roller of the Manual paper feed clutch.
11	ITURC	Primary transfer separation clutch 1	Electromagnetic clutch	Controls the primary transfer separation mode.
12	PCSS	Process control shutter solenoid	Solenoid	Controls Open/Close of the Process control shutter solenoid.

G.Motors



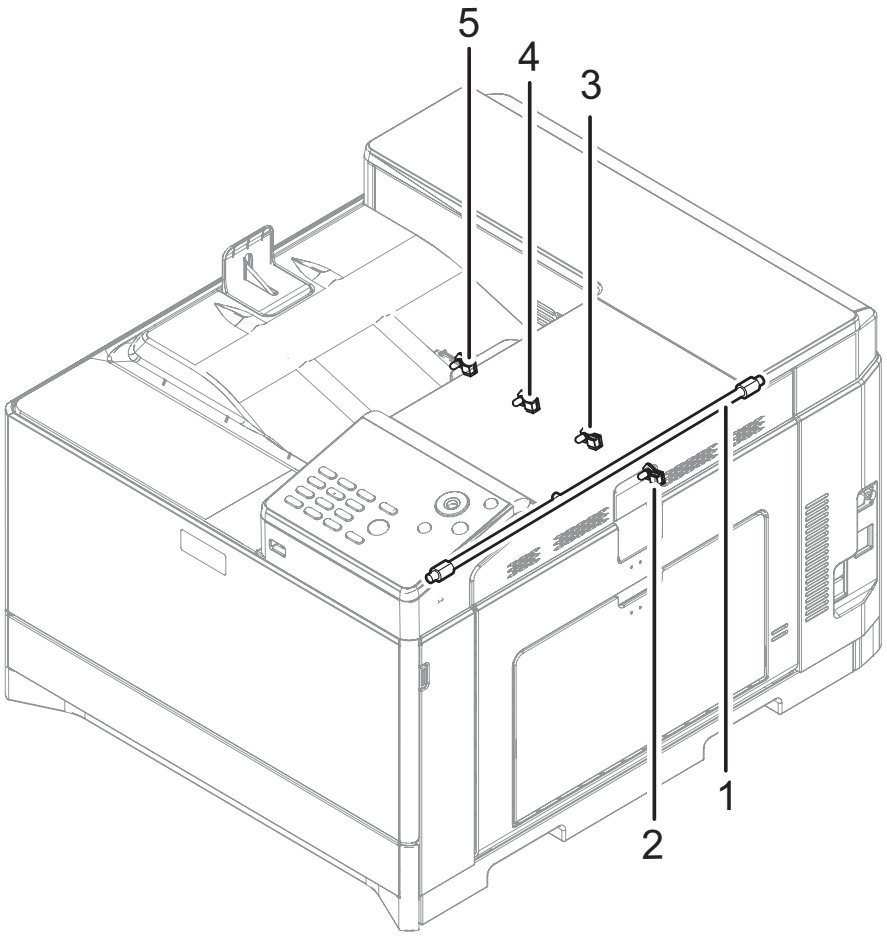
No.	Signal name	Name	Type	Function/Operation
1	DVM	Developing drive motor	DC brush-less motor	Drives the developing/OPC drum section (CL).
2	DM	Drum Motor, Transfer Belt Motor, Black OPC Drum Motor	DC brush-less motor	Drives the developing/black OPC drum (BK)/transfer section.
3	FUM	Fusing Motor and Paper Feed Motor	DC brush-less motor	Drives the fusing unit and the paper feed section.
4	PGM	Polygon motor	DC brush-less motor	Drives the polygon mirrors to reflect the twin laser beams per color.

H.Rollers



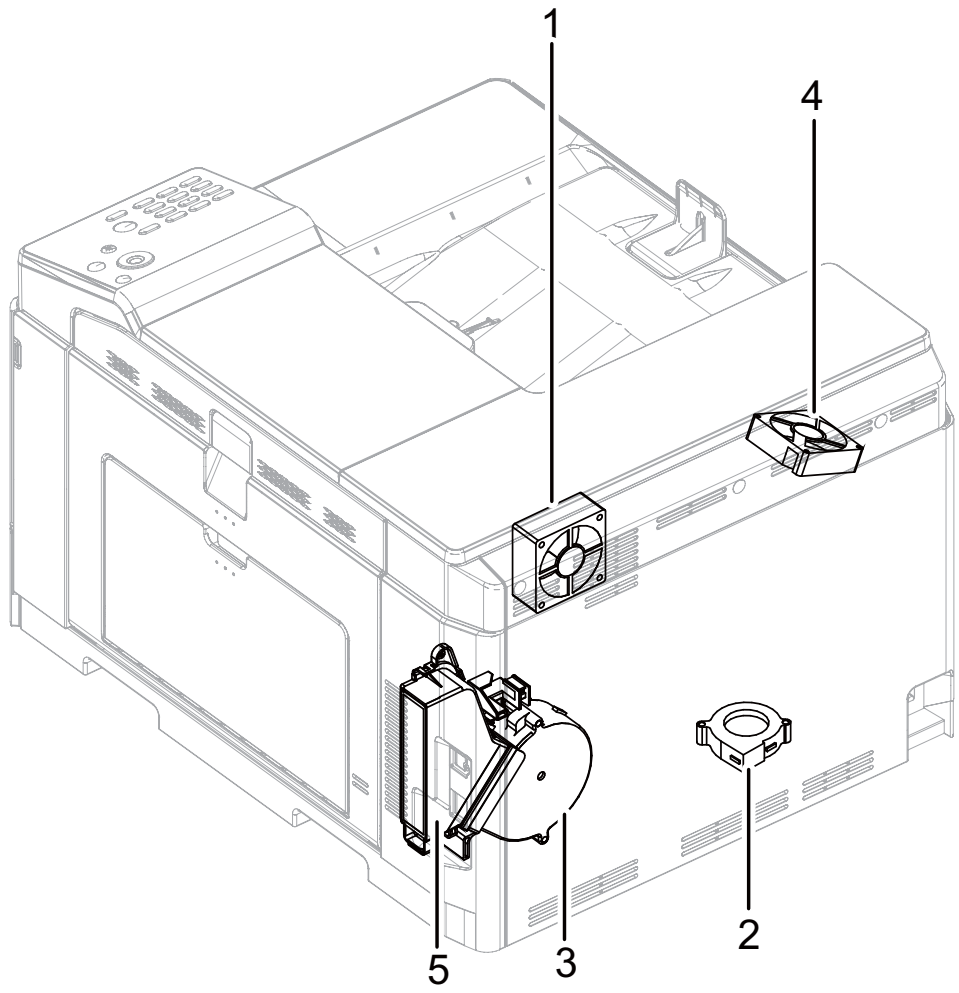
No.	Name	Function/Operation
1	Paper exit roller (Drive)	Drives the roller in the paper exit section.
2	Paper exit roller (Idle)	Apply a pressure to paper and the paper exit roller to provide the transport power of the Paper pressure (idle) roller to paper.
3	Transport roller 4 (Drive)	Transports paper from the transport roller to the transport roller 5.
4	Transport roller 4 (Idle)	Apply a pressure to paper and the transport roller to provide the transport power of the Paper pressure (idle) roller to paper.
5	Transport roller 5 (Drive)	Lower duplex drive transport roller which transports paper to the registration rollers.
6	Transport roller 5 (Idle)	Transports paper to the Pressure (idle) Transport Roller. Paper is buckled between the Pressure (idle) Transport Roller and this roller to correct the paper skew and the relation between images and paper.
7	Registration roller (Drive)	Registration Drive Roller that controls the transport timing of paper and adjusts the relative position between images on the Transfer Belt and the registered paper.
8	Registration roller (Idle)	Transports paper to the transfer section. / Controls the transport timing of paper and adjusts relative relations between the image and paper.
9	Paper Feed Roller	Feeds paper from the cassette to the Registration rollers.
10	Fuser heat roller	Applies heat through the roller to the toner on the paper to fuse the toner into the paper.
11	Fusing pressure roller	Flexible silicone-rubber pressure fusing roller.
12	Paper Feed Roller	Feeds paper to the paper transport section.
13	Separation roller	Apply the pressure to the paper feed roller in reverse direction and prevents the paper from feeding it in layered condition.
14	Separation roller (Paper feed tray 1)	Apply the pressure to the paper feed roller in reverse direction and prevents the paper from feeding it in layered condition.

I.Lamps



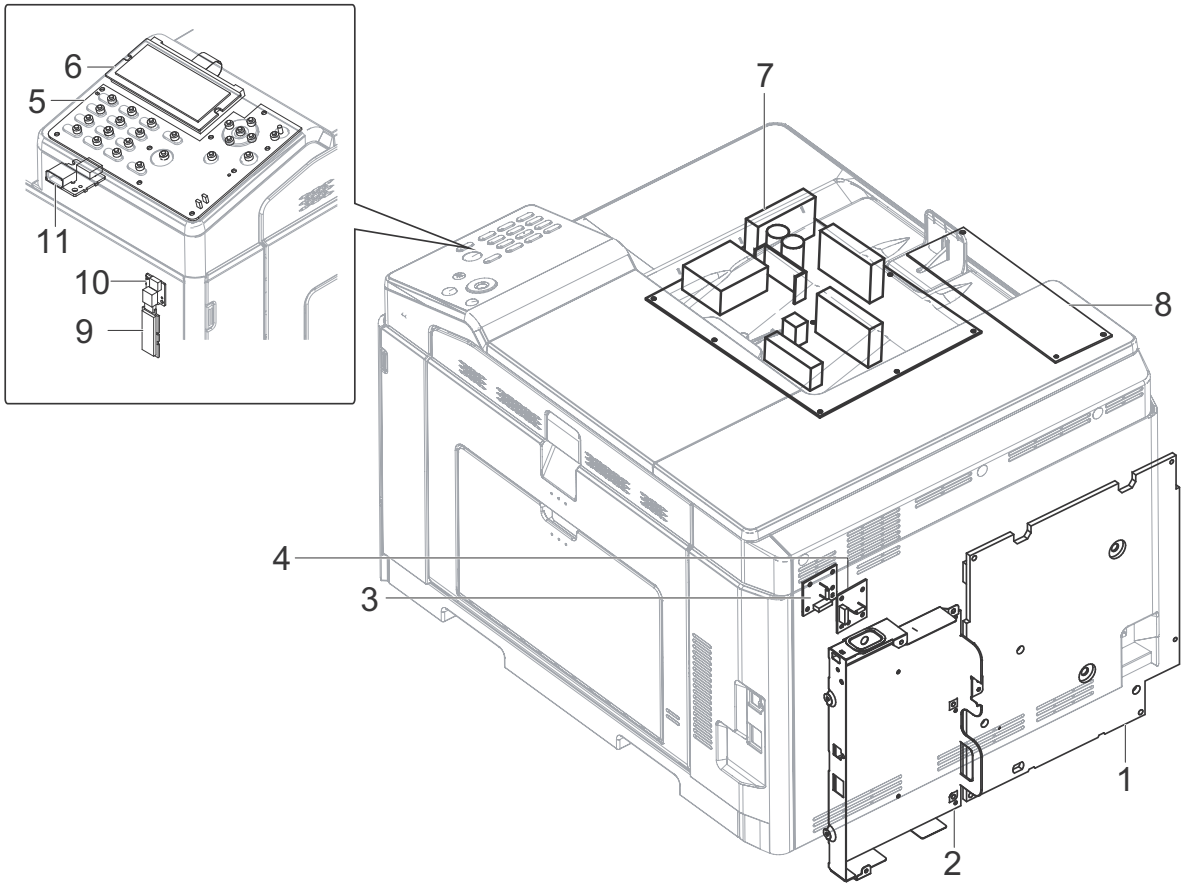
No.	Signal name	Name	Function/Operation
1	HL_UM	Heater lamp (HL_UM)	Heats the fusing roller (F).
2	DL_K	Discharge lamp(K)	Discharges electric charges on the OPC drum.(K)
3	DL_C	Discharge lamp(C)	Discharges electric charges on the OPC drum.(C)
4	DL_M	Discharge lamp(M)	Discharges electric charges on the OPC drum.(M)
5	DL_Y	Discharge lamp(Y)	Discharges electric charges on the OPC drum.(Y)

J.Fans and filters



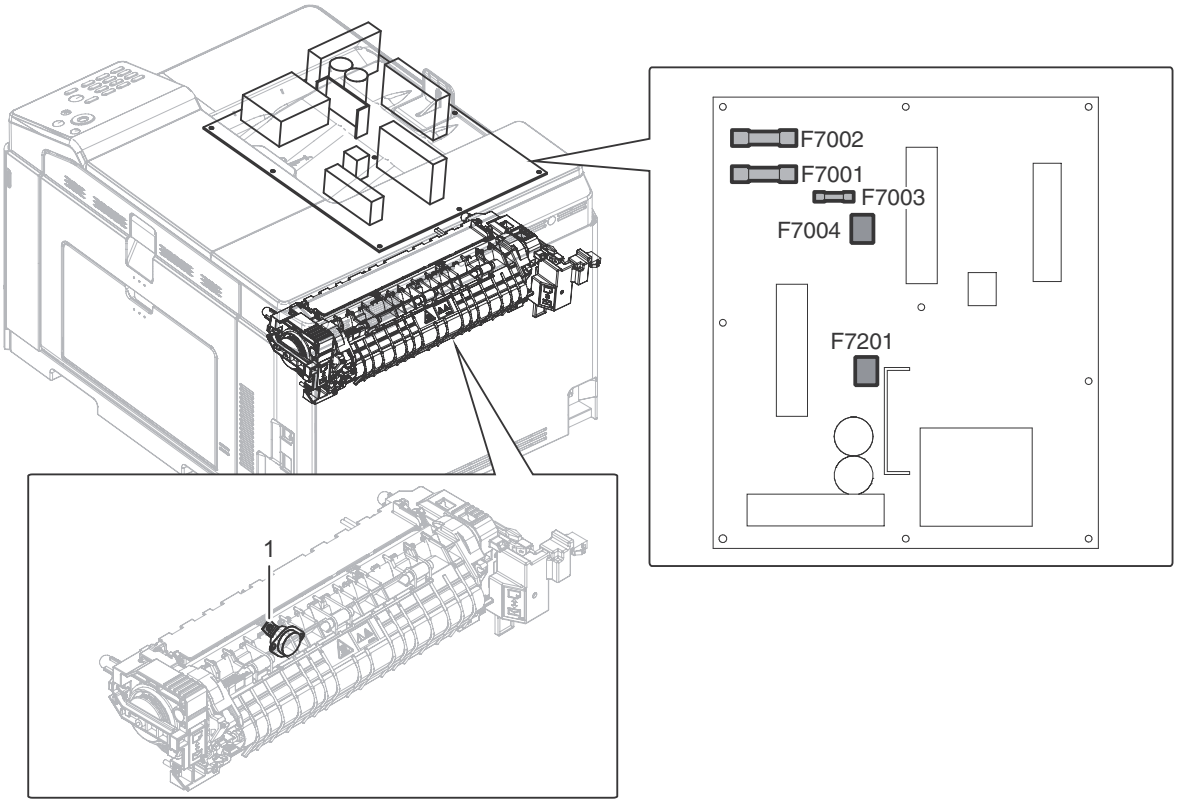
No.	Signal name	Name	Function/Operation
1	FUFM	Fusing cooling fan	Cools the fusing section.
2	LSUFM	LSU cooling fan	Cools the LSU.
3	OZFM1	Ozone fan 1	Filters the ozone generated from the image process section.
4	PSFM	Power cooling fan motor	Cools the power supply.
5	---	Ozone Filter	Absorbs ozone being discharged from the image process unit.

K.PWB



No.	Name	Function/Operation
1	HV PWB	Generates the high voltages for the following components: main charger units, primary transfer unit and DV Units.
2	MFPC PWB	Controls image data and machine functionality.
3	FAN I/F PWB	Controls the two-speed PSFM (Power cooling fan motor).
4	FAN I/F PWB	Controls the two-speed FUFM (Fusing cooling fan).
5	KEY-LED PWB	The LED for the machine condition, the Key for the input and the buzzer are equipped.
6	LCD PWB	Controls the LCD, the Key detection, the LED lighting and the buzzer drive.
7	AC/DC PWB	Supplies DC and AC Voltage to the machine.
8	LSUcnt PWB	Controls the LSU.
9	Wireless LAN PWB	Connects the network with the wireless connection. (Only wireless LAN model)
10	USB CN PWB	Connects Wireless LAN PWB. (Only wireless LAN model)
11	USB I/F PWB	Connects with the USB port on the front of the machine.

L.Fuses/Thermostats



No	Signal name	Name	Specifications	Section
1	TS UM	Thermostat	Fusing roller overheat protection	Fusing unit

Signal name	Name	Specifications	Section
F7001	Fuse	AC250V 20A	AC/DC power PWB
F7002	Fuse	AC250V 20A	AC/DC power PWB
F7003	Fuse	AC250V T4AH	AC/DC power PWB
F7004	Fuse	AC250V T2AL	AC/DC power PWB
F7201	Fuse	DC450V 3.15A	AC/DC power PWB

[5] ADJUSTMENTS

1. General

Each adjustment item in the adjustment item list is associated with a specific Job number. Perform the adjustment procedures in the sequence of Job numbers from the smallest to the greatest.

However, there is no need to perform all the adjustment items. Perform only the necessary adjustments according to the need.

Unnecessary adjustments can be omitted. Even in this case, however, the sequence from the smallest to the greatest Job number must be observed.

If the above precaution should be neglected, the adjustment would not complete normally or trouble may occur.

2. Adjustment item list

Job No	Adjustment item list			Simulation
ADJ 1	Adjusting high voltage values	1-A	Adjust the main charger grid voltage	8-2
		1-B	Adjust the developing bias voltage	8-1
		1-C	Transfer voltage adjustment	8-6
ADJ 2	Image density sensor (image registration sensor) adjustment	2-A	Color image density sensor (image registration sensor F), black image density sensor (image registration sensor R) adjustment	44-2
ADJ 3	Image skew adjustment (LSU unit)			61-4
ADJ 4	ADJ 4 Print image position, image magnification ratio, void area, off-center adjustment (Print engine) (Manual adjustment)	4-A	Print image magnification ratio adjustment (main scanning direction) (Print engine) (Manual adjustment)	50-10
		4-B	Print image print area adjustment (Print engine) (Manual adjustment)	50-10/50-1
		4-C	Print image position adjustment (Off-center direction, Paper transport direction adjustment)	50-10
ADJ 5	Print engine image distortion adjustment / OPC drum phase adjustment / Color registration adjustment (Print engine section)	5-A	Print engine image distortion adjustment (Manual adjustment) / OPC drum phase adjustment (Automatic adjustment) / color registration adjustment (Automatic adjustment)	50-22
		5-B	Print engine image skew (LSU skew) adjustment (Manual adjustment) (No need to adjust normally)	50-20/64-1
		5-C	Color registration offset adjustment (No need to adjust normally)	50-20
ADJ 6	Printer color balance/density adjustment	6-A	Manual color balance adjustment - 1	67-22
		6-B	Manual color balance adjustment - 2	67-25
		6-C	Simple color balance adjustment (Gray balance adjustment)	67-21
		6-D	Printer density adjustment (low density part density adjustment) (Normally unnecessary to adjust)	67-36
		6-E	Printer high density part density correction setting (high density part tone gap countermeasure) (Normally unnecessary to the setting change)	67-34
		6-F	Printer calibration factory default	67-31
		6-G	Reset the printer color balance adjustment (adjustment for each dither) to the default value. (The set values of SIM67-33 are set to the default values.)	67-52
ADJ 7	Fusing paper guide position adjustment			

3. Details of adjustment

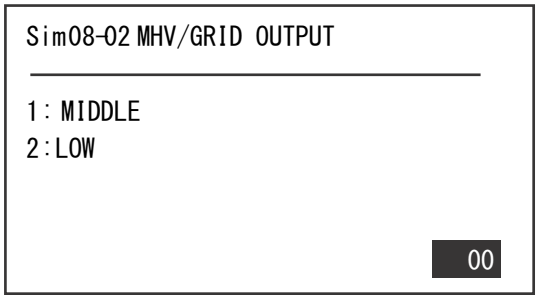
ADJ 1 Adjusting high voltage values

1-A Adjust the main charger grid voltage

This adjustment is needed in the following situations:

* When the high voltage power PWB is replaced.
* U2 trouble has occurred.

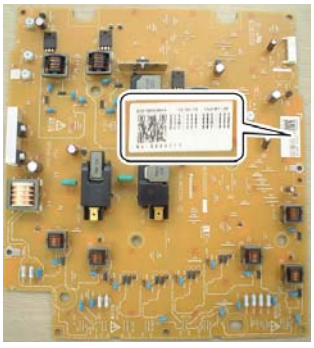
1) Enter the SIM 8-2 mode.



2) Enter the adjustment value (specified value) in the middle speed mode, and press [OK] key.
3) When [OK] key is pressed, the voltage entered in the procedure 3 is outputted for 30sec and the set value is saved.

   When [OK] key is pressed, the output is stopped.

   Enter the adjustment value of each mode which is specified on the label attached on the high voltage power PWB.



NOTE: Note that the adjustment value may differ depending on the high voltage power PWB.

Since the adjustment value label is attached on the high voltage PWB, the PWB must be removed in order to check the adjustment value.

This is a troublesome procedure. Therefore, it is advisable to put down the adjustment value in advance.

No.	Item/Display	Content	Setting range
1	M_GB_K	K charging/grid bias set value at middle speed	150 - 850
2	M_GB_C	C charging/grid bias set value at middle speed	150 - 850
3	M_GB_M	M charging/grid bias set value at middle speed	150 - 850
4	M_GB_Y	Y charging/grid bias set value at middle speed	150 - 850
5	L_GB_K	K charging/grid bias set value at low speed	150 - 850
6	L_GB_C	C charging/grid bias set value at low speed	150 - 850
7	L_GB_M	M charging/grid bias set value at low speed	150 - 850
8	L_GB_Y	Y charging/grid bias set value at low speed	150 - 850

GBK:XXX GBC:XXX GBM:XXX GBY:XXX

When the adjustment value (specified value) of the middle speed mode is set, the adjustment values of the other modes are automatically set according to the middle speed mode setting in a certain relationship.

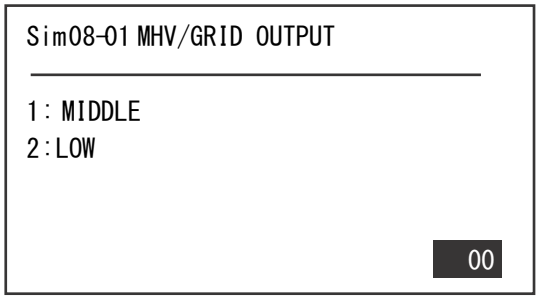
NOTE: Since the high voltage output cannot be checked with a digital multi meter in this model, a judgment of the output must be made by checking the print image quality.

1-B Adjust the developing bias voltage

This adjustment is needed in the following situations:

* When the high voltage power PWB is replaced.
* U2 trouble has occurred.

1) Enter the SIM 8-1 mode.



2) Enter the adjustment value (specified value) in the middle speed mode, and press [OK] key.
3) When [OK] key is pressed, the voltage entered in the procedure 3 is outputted for 30sec and the set value is saved.

   When [OK] key is pressed, the output is stopped.

   Enter the adjustment value of each mode which is specified on the label attached on the high voltage power PWB.

NOTE: Note that the adjustment value may differ depending on the high voltage power PWB.

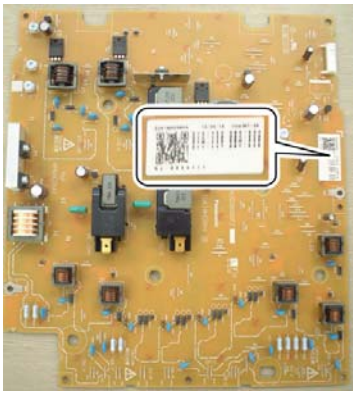
Since the adjustment value label is attached on the high voltage PWB, the PWB must be removed in order to check the adjustment value.

This is a troublesome procedure. Therefore, it is advisable to put down the adjustment value in advance.

No.	Item/Display	Content	Setting range
1	M DVB_K	K developing bias set value at middle speed	0-600
2	M DVB_C	C developing bias set value at middle speed	0-600
3	M DVB_M	M developing bias set value at middle speed	0-600
4	M DVB_Y	Y developing bias set value at middle speed	0-600
5	L DVB_K	K developing bias set value at low speed	0-600
6	L DVB_C	C developing bias set value at low speed	0-600
7	L DVB_M	M developing bias set value at low speed	0-600
8	L DVB_Y	Y developing bias set value at low speed	0-600

DVK:XXX DVC:XXX DVM:XXX DVY:XXX

When the adjustment value (specified value) of the middle speed mode is set, the adjustment values of the other modes are automatically set according to the middle speed mode setting in a certain relationship.



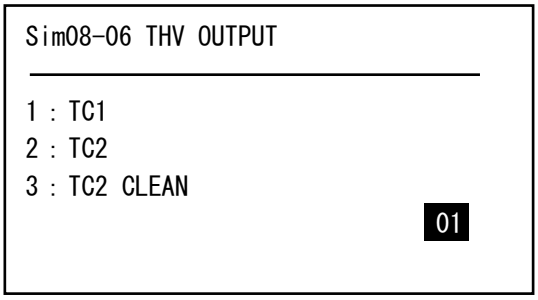
NOTE: Since the high voltage output cannot be checked with a digital multi meter in this model, a judgment of the output must be made by checking the print image quality.

1-C Transfer voltage adjustment

This adjustment is needed in the following situations:

* When the high voltage PWB is replaced.
* U2 trouble has occurred.

1) Enter the SIM 8-6 mode.



2) Select an item to be adjusted.

Enter the adjustment value (specified value), and press [OK] key.

When [OK] key is pressed, the voltage entered in the procedure 3 is outputted for 30sec and the set value is saved.

When [OK] key is pressed, the output is stopped.

By setting the default value (specified value), the specified output is provided.

No.	Item/Display		Content				Adjustment range	Default value
1	TC1	T1 LO CL K	Primary transfer bias adjustment value	Color mode	K	Low speed mode	0 to 255	95
2		T1 MI CL K				Middle speed mode	0 to 255	146
3		T1 LO CL CMY			CMY	Low speed mode	0 to 255	139
4		T1 MI CL CMY				Middle speed mode	0 to 255	186
5		T1 LO BW K		Black/White mode	K	Low speed mode	0 to 255	95
6		T1 MI BW K				Middle speed mode	0 to 255	146
1	TC2	T2 PLN CL S	Secondary transfer bias adjustment value	Color mode	Standard paper mode	Front surface mode	0 to 255	103
2		T2 PLN CL D				Back surface mode	0 to 255	96
3		T2 PLN BW S		Black/White mode		Front surface mode	0 to 255	90
4		T2 PLN BW D				Back surface mode	0 to 255	83
5		T2 HEV1 CL S		Color mode	Heavy paper mode	Front surface mode	0 to 255	83
6		T2 HEV1 CL D				Back surface mode	0 to 255	76
7		T2 HEV1 BW S		Black/White mode		Front surface mode	0 to 255	76
8		T2 HEV1 BW D				Back surface mode	0 to 255	69
9		T2 OHP CL		Color mode	OHP		0 to 255	69
10		T2 OHP BW		Black/White mode			0 to 255	69
11		T2 ENV CL		Color mode	Envelope		0 to 255	69
12		T2 ENV BW		Black/White mode			0 to 255	69
13		T2 THIN CL		Color mode	Thin paper		0 to 255	96
14		T2 THIN BW		Black/White mode			0 to 255	90
15		T2 GLOS CL		Color mode	Gloss paper		0 to 255	83
16		T2 GLOS BW		Black/White mode			0 to 255	76
1	TC2 CLEAN	T2 MNS CLEAN	Secondary transfer cleaning bias adjustment value	Cleaning mode (-)			0 to 255	59
2		T2 PLS CLEAN		Cleaning mode (+)			0 to 255	119
3		T2 COUNTER		Counter (+)			0 to 255	119
4		T2 BTWN LO		Low speed print mode (+)			0 to 255	0
5		T2 BTWN MI		Middle speed print mode (+)			0 to 255	0

ADJ 2 Image density sensor (image registration sensor) adjustment

There are some parts variations in the image density sensor section. Therefore, the absolute detection level differs in each machine. To correct this, calibration is executed.

This adjustment is needed in the following situations:

* When the color image density sensor (image registration sensor F) is replaced.
* When the image registration sensor unit is replace.
* U2 trouble has occurred.

The targets of the adjustment are the color image density sensor (image registration sensor F) and the black image density sensor (image registration sensor R). There are following adjustment methods.

* Black image density sensor (image registration sensor R) calibration SIM44-2

NOTE: The color image density sensor detects color image density and image registration on front frame side, the black image density sensor detects black image density and image registration on rear frame side. That is, two functions is assigned to each one sensor.

Before executing this adjustment, check to confirm the following items.

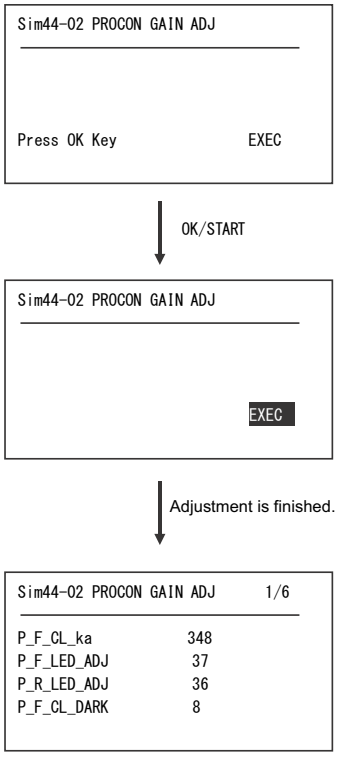
* Check to confirm that the color image density sensor (image registration sensor F) and the black image density sensor (image registration sensor R) are clean.
* Check to confirm that the image density sensor calibration plate is clean.
* Check to confirm that the transfer belt is clean and free from scratches.

2-A Color image density sensor (image registration sensor F), black image density sensor (image registration sensor R) adjustment

NOTE: This adjustment executes automatically at the outset of registration adjustment operation and process control operation as well as SIM44-2.

Normally, therefore, it is not required to perform this adjustment. It is performed only when the sensor is replaced or when the adjustment result is checked.

1) Enter SIM44-2 mode.



2) Press [[OK] key.

The color image density sensor (image registration sensor F), the black image density sensor (image registration sensor R) are automatically adjusted.

After completion of the adjustment, the adjustment result is displayed and [HOME] key returns to the normal display.

No.	Item/Display	Content
1	P_F_CL_ka	F side color sensor correction factor
2	P_F LED ADJ	F sensor light emitting quantity adjustment value
3	P_R LED ADJ	R sensor light emitting quantity adjustment value
4	P_F_CL_DARK	Dark voltage of color (F side)
5	P_F DARK	Dark voltage of sensor (F side)
6	P_R DARK	Dark voltage of sensor (R side)
7	P_F GRND	Belt substrate when the item D adjustment is completed.
8	P_F BELT MAX	Belt substrate input max. value
9	P_F BELT MIN	Belt substrate input min. value
10	P_R GRND	Belt substrate when the item F adjustment is completed.
11	P_R BELT MAX	Belt substrate input max. value
12	P_R BELT MIN	Belt substrate input min. value
13	REG_F BELT MAX	Belt substrate input max. value (F side)
14	REG_F BELT MIN	Belt substrate input min. value (F side)
15	REG_R BELT MAX	Belt substrate input max. value (R side)
16	REG_R BELT MIN	Belt substrate input min. value (R side)
17	REG_F PATCH(K)	Patch light receiving potential F(K)
18	REG_F PATCH(C)	Patch light receiving potential F(C)
19	REG_F PATCH(M)	Patch light receiving potential F(M)
20	REG_F PATCH(Y)	Patch light receiving potential F(Y)
21	REG_R PATCH(K)	Patch light receiving potential R(K)
22	REG_R PATCH(C)	Patch light receiving potential R(C)
23	REG_R PATCH(M)	Patch light receiving potential R(M)
24	REG_R PATCH(Y)	Patch light receiving potential R(Y)

If the adjustment is not completed normally, "ERROR" is displayed.

Error display	Error content
CL_SEN_ADJ_ERR	Color image sensor adjustment abnormality
BK_SEN_ADJ_ERR	Black image density sensor adjustment abnormality
P_F_CL_ka	F side image sensor adjustment abnormality
P_F_GRND	Belt base detection level when completion of Item F adjustment abnormality
P_R_GRND	Belt base detection level when completion of Item R adjustment abnormality
REG_F_LED_ADJ	Registration sensor F adjustment abnormality
REG_R_LED_ADJ	Registration sensor R adjustment abnormality
REG_F_GRND	Belt base detection level (F side) abnormality
REG_R_GRND	Belt base detection level (R side) abnormality

When an error occurs, check the following sections for any abnormality.

? Color image density sensor (image registration sensor F)

? Black image density sensor (image registration sensor R)

? MFP PWB

? Transfer belt (dirt, scratch)

? Transfer belt cleaner

? Color image sensor calibration plate

If any abnormality is found, repair and adjust again.

If an error occurs, the adjustment result is not revised.

ADJ 3 Image skew adjustment (LSU unit)

This adjustment is needed in the following situations:

* When the color shift occurs.
* When the LSU unit is replaced.
* When the LSU unit is removed from the main unit.
* When a color image registration mistake occurs.
* When the unit is installed or when the installing site is changed. (Required depending on the cases.)
* When there is an uneven density area or a difference in color balance in the main scanning direction (back and forth).
* When the color phase is not matched by the color balance adjustment.
* When the OPC drum drive unit is replaced.
* When the primary transfer unit is replaced.

The image skew adjustment (LSU unit) is performed by changing the parallelism of the LSU unit scan laser beams for the OPC drum.

NOTE: Before execution of the this adjustment, perform the following procedures in advance for better efficiency of the adjustment.

1

1) In the SIM50-22 mode, select ALL mode to perform the automatic image registration adjustment.
2) The current skew level is displayed on the SKEW display menu.
3) Put down the displayed skew level value.

(Meaning of the skew level value)

* When nothing is displayed in front of “SKEW_*”, turn the skew adjustment screw (LSU) clockwise by the value (angle).
* When "-" is displayed in front of “SKEW_*”,, turn the skew adjustment screw (LSU) counterclockwise by the value (angle).

NOTE: The K (Black) image skew level cannot be checked with SIM50-22.

Procedure 1

a) Enter SIM61-4 mode.

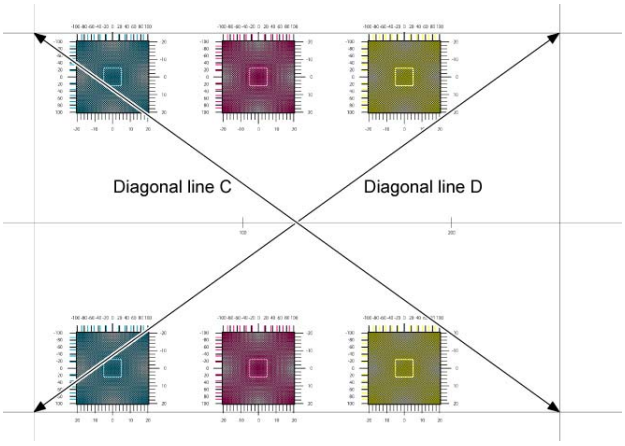
```
Sim61-04 LSU POSITION ADJ

1 : MULTI COUNT          1
2 : PAPER                2

  [   1 - 999]           1
```

(Method 1)

a) Measure the length of the diagonal lines of the rectangle print pattern.



b) Calculate the difference between the measured lengths C and D of the diagonal lines.

c) Check to insure that the difference between C and D is in the following range.

C - D = +/- 0.8mm

If the difference between C and D is in the above range, there is no need to adjust.

b) Select the tray with A4 (11" x 8.5") paper in it.

c) Press [OK] key.

The check pattern is printed out.

d) Check the printed black image for any skew.

There are following two methods of checking the black image for any skew (right angle).

Method 1:

Measure the length of the diagonal lines of the rectangle print pattern. Check the difference in the length of the diagonal lines for judgment of good or no good

Method 2:

Compare the right angle of vertical side/horizontal side of the rectangle print pattern and the right angle sides of A4 (11" x 8.5") paper for judgment of good or no good.

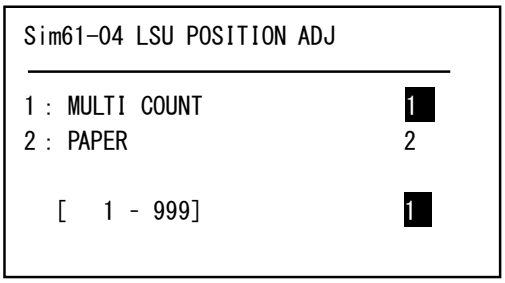
(NOTE)

In the case of Method 2, the right angle of paper to be used may not be exact. Be sure to check the right angle of paper to be used in advance.

1 '16/May

Procedure 2

1) Enter SIM61-4 mode.

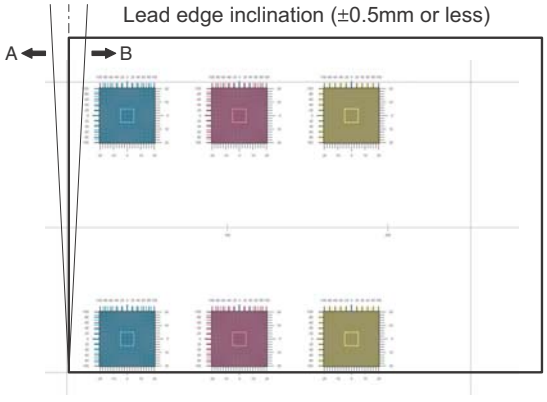


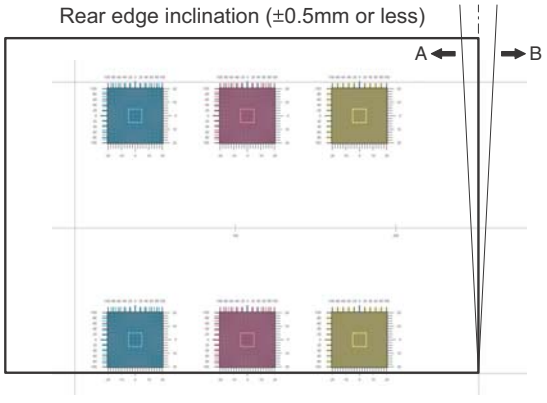
2) Select the tray with A4 (11" x 8.5") paper in it.

3) Press [OK] key.

The check pattern is printed out.

Fit the side of A4 or 11" x 8.5" paper to the long side of the rect angle print pattern.





Measure the shift distance between vertical side of paper and side of the rectangle print pattern.

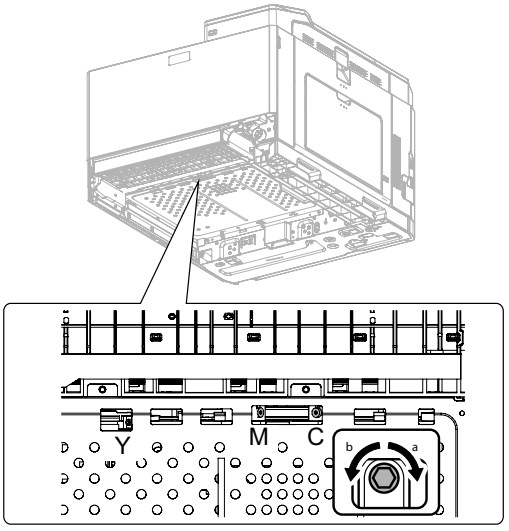
If the above distances (left and right) are 0.5mm or less, there is no need to adjust.

If not, execute the following procedures.

4) Remove the paper tray.

5) If there are several skewed areas on the test printing result, turn all the LSU skew adjustment screws shown in the figure * To make "SKEW_*" values in the following ranges, turn the LSU skew adjustment screws clockwise direction (a) or counterclockwise direction (b).

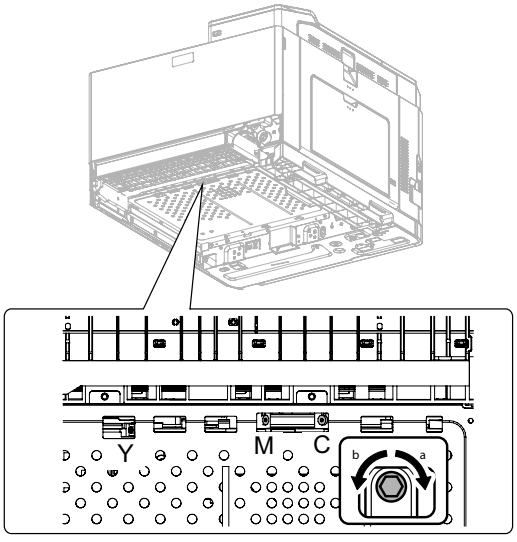
SKEW_C : +/-30, SKEW_M : +/-40, SKEW_Y : +/-20



6) Fix the paper tray. .

7) Repeat the procedures 2) to 4) again, and check to confirm that C, M, and Y (SKEW) result in "OK" being displayed on the operation panel.

If any of them is NG, turn the LSU skew adjustment screw of the corresponding color to adjust.

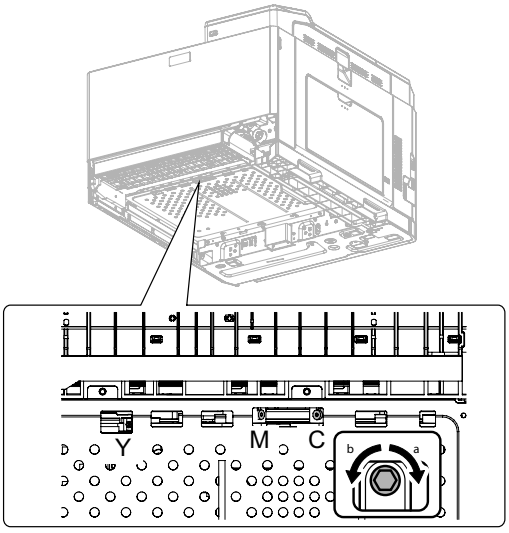


8) 1

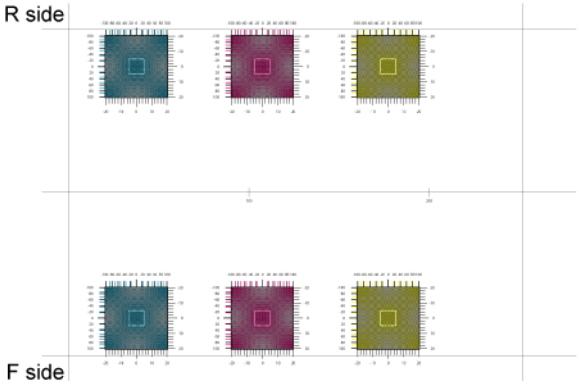
Execute SIM50-22 to check to confirm that C, M, and Y (SKEW) result in "OK" being displayed on the operation panel.

Image registration adjustment is done automatically and SKEW _C, M, Y value is displayed.

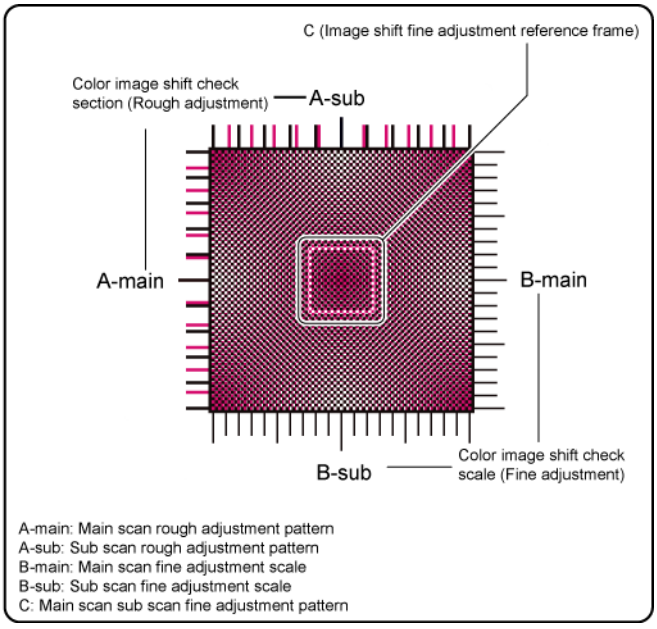
9) If there are several skewed areas on the test printing result, turn all the LSU skew adjustment screws shown in the figure * To make "SKEW_*" values in the following ranges, turn the LSU skew adjustment screws clockwise direction (a) or counterclockwise direction (b).
SKEW_C : +/-30, SKEW_M : +/-40, SKEW_Y : +/-20



10) Enter the SIM61-4 mode and perform the procedures of 2) - 3).
Check the printed color image skew pattern.



The sub scan rough adjustment color image shifts on the R side and the F side are in the same balance both in the rough adjustment check section and the fine adjustment check section



A-main: Main scan rough adjustment pattern
A-sub: Sub scan rough adjustment pattern
B-main: Main scan fine adjustment scale
B-sub: Sub scan fine adjustment scale
C: Main scan sub scan fine adjustment pattern

In each Y/M/C color print pattern printed separately in the F side and in the R side, note the same print color pattern and check to confirm that the front frame side and the rear frame side are in the same condition.

Rough adjustment pattern check:

Check the sub scan rough adjustment color image shift check section on the R side and the F side of each color, use the black scale of "0" as the center reference, and check the balance in shifts of the color image line positions in the positive and the negative directions. The balance in the R side must be the same as that in the F side.

Fine adjustment pattern check:

Check the square frames on the R side and the F side of each color. (Normally five sections of high density can be seen.) Check the sub scanning direction position of the center area of high density (one of the above five sections). These must be on the same position on the R side and the F side.

In this case, use the sub scan direction color image shift check scale (fine adjustment) as the reference.

Visually check the color density and make the darkest section as the center, and use it as the read value of the shift amount.

Check that the difference in the center position of the dark density section is within +/- 2 step.

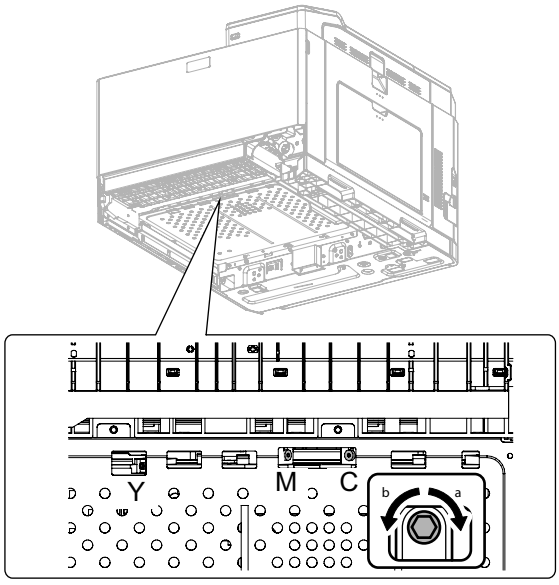
The positional relations of the front and the rear frame of the print color patterns of a same color are compared. There is no need that all the colors are in the same state. Compare only the positional relations of color patterns of a same color.

If the above condition is not met, do the following:

11) Turn the image skew adjustment screw of the target color to adjust.

Relationship between the adjustment screw rotating angle and the change in the adjustment image position:

Adjustment screw rotating angle (degree) = Image shift amount (Adjustment scale) x10



Repeat procedures 10) - 11) until a satisfactory result is obtained.

ADJ 4 Print image position, image magnification ratio, void area, off-center adjustment (Print engine) (Manual adjustment)

Note

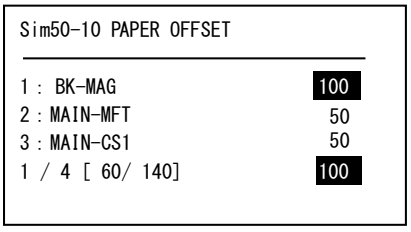
Only when the manual adjustment is required, execute this adjustment.

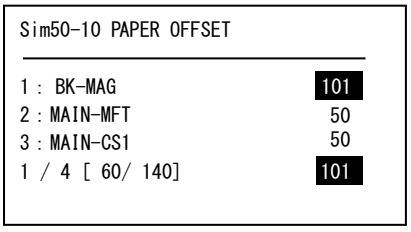
4-A Print image magnification ratio adjustment (main scanning direction) (Print engine) (Manual adjustment)

This adjustment is needed in the following situations:

* When the LSU (writing) unit is replaced.
* When each unit is replaced or fixed.
* When the void amount is changed by the maintenance
* When MFP PWB is replaced.
* U2 trouble has occurred.

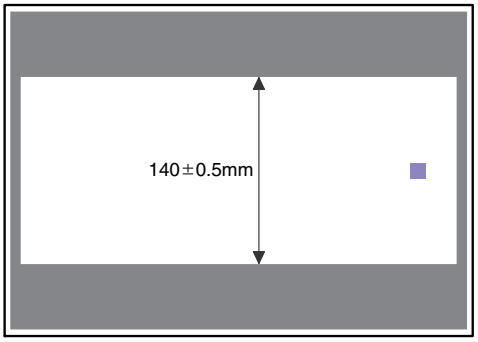
1) Go through the modes specified in Simulation 50-10.





2) Set A4 (11" x 8.5") paper in the paper feed tray.
3) Select the paper feed tray set in procedure 2) with [UP] or [DOWN] keys.
4) Press [OK] key.

   The check pattern is printed out.
5) Check that the inside dimension of the printed halftone is 140 +/- 0.5mm.



If the above requirement is not met, do the following steps.

6) Change the set value of set item A BK-MAG.

(Enter the set value, and press [OK] key and OSA shortcut key.)

When the set value is changed by 1, the dimension is changed by 0.1mm.

When the set value is increased, the BK image magnification ratio in the main scanning direction is increased. When the set value is decreased, the BK image magnification ratio in the main scanning direction is decreased.

Repeat procedures 2) - 5) until a satisfactory result is obtained.

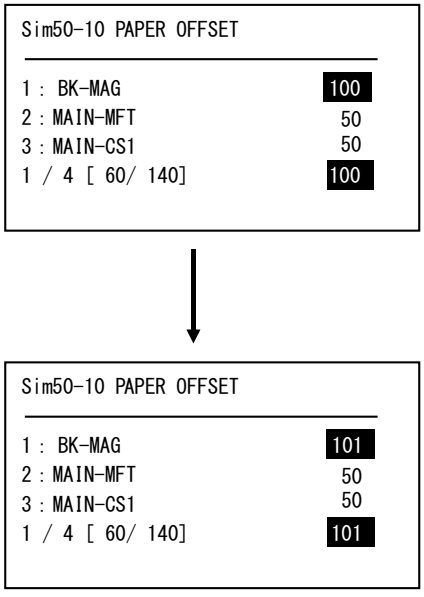
4-B Print image print area adjustment (Print engine) (Manual adjustment)

This adjustment is needed in the following situations:

* When the LSU is replaced or removed.
* When a paper tray is replaced.
* When the paper tray section is disassembled.
* When the manual feed tray is replaced.
* When the manual feed tray is disassembled.
* When the duplex mode paper transport section is disassembled.
* When the registration roller section is disassembled.
* When the MFPC PWB is replaced.
* U2 trouble has occurred.

NOTE: Before execution of this adjustment, be sure to execute the print image magnification ratio adjustment (ADJ 4A) (main scanning direction) (print engine) (manual adjustment).

1) Enter SIM50-10 mode.



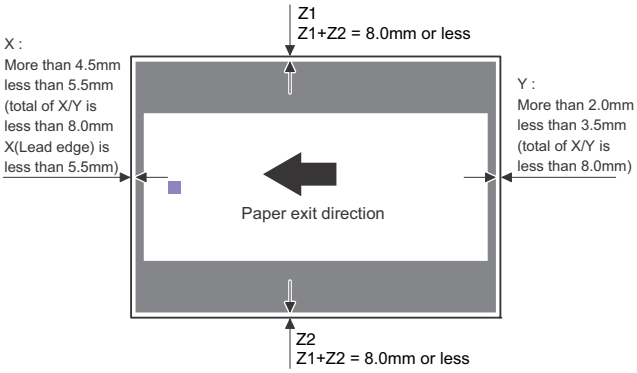
2) Set A4 (11 x 8.5") paper to all the paper feed trays. Select an adjustment item of the target paper feed tray among items B - N and enter the adjustment value. Then select item "10" to select the paper feed tray which is to be used for executing test printing.

3) Press [OK] key.

The adjustment pattern is printed.

4) Check the adjustment pattern to confirm that the items below are in the range of the standard values.

	Content	Standard adjustment value
X	Lead edge void area	More than 4.5mm less than 5.5mm Total of X/Y is less than 8.0mm X(Lead edge) is less than 5.5mm)
Y	Rear edge void area	More than 2.0mm less than 3.5mm (total of X/Y is less than 8.0mm)
Z1/ Z2	FRONT/REAR void area	Total of less than +/- 8.0mm

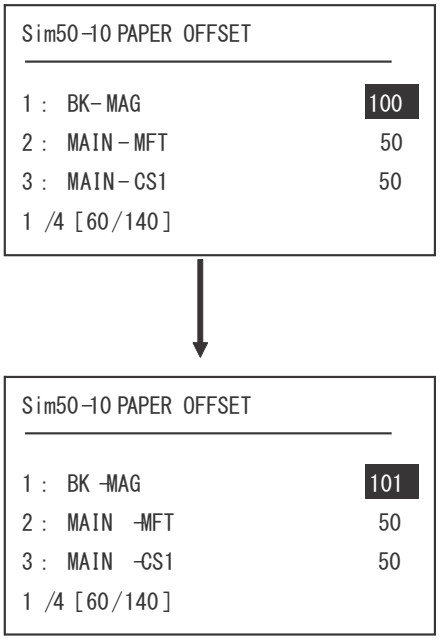


If the above condition is not satisfied, or if it is set to a desired condition, execute the simulation 50-10.

Note

Feed paper from all the paper feed trays to confirm.

5) Enter the SIM 50-10 mode.



6) Select an adjustment item with the [UP] and [DOWN] key, enter the adjustment value, and press [OK] key.

No.	Item/ Display	Content		Setting range	Default value
1	BK-MAG	Main scanning printing scale		60- 140	100
2	MAIN-MFT	Printing off center adjustment value (MFT)		1 - 99	65
3	MAIN-CS1	Printing off center adjustment value (CS1)		1 - 99	65
4	MAIN-CS2	Printing off center adjustment value (CS2)		1 - 99	50
5	MAIN-ADU	Printing off center adjustment value (ADU)		1 - 99	50
6	SUB-MFT	Registration motor ON timing adjustment	MFT	1 - 99	60
7	SUB-CS1		CS1	1 - 99	60
8	SUB-DSK		DSK	1 - 99	50
9	SUB-ADU		ADU	1 - 99	50

When the adjustment value is increased, the void area is increased. When the adjustment value is decreased, the void area is decreased.

When the adjustment value is changed by 1, the void area is changed by 0.1mm.

Note

When the amount of the rear edge void is different between each paper feed tray, change the adjustment value of item (DENB-XXX) in SIM50-1 and adjust.

The adjustment item (DENB) have a effect on the paper of all paper feed tray.

That is, adjustment value of item (DENB-XXX) fine adjusts to adjustment item (DENB) for each paper tray.

After execution of the above, perform procedures 1) - 4) to check that the void area is within the specified range.

Though the lead edge void area adjustment value is proper, if the lead edge void area is not within the specified range, change the adjustment value of item (RRCB-XXX) in SIM 50-1.

Note

The adjustment value and the actual void area are related as follows:

Adjustment value/10 = shift amount

Repeat the above procedures until a satisfactory result is obtained.

4-C Print image position adjustment (Off-center direction, Paper transport direction adjustment)

This adjustment is needed in the following situations:

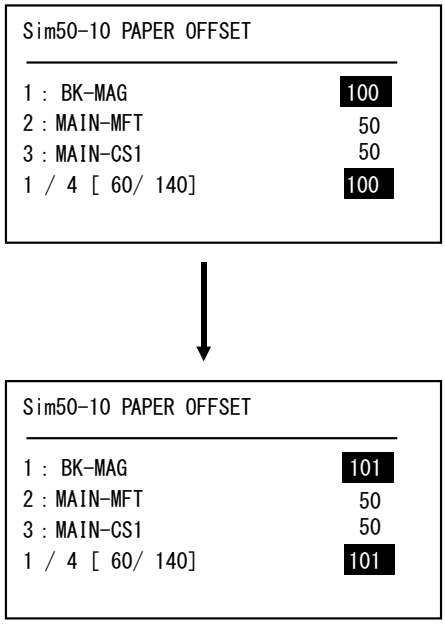
* When the LSU is replaced or removed.
* When a paper tray is replaced.
* When the paper tray section is disassembled.
* When ADJ 2 Print engine image magnification ratio adjustment (Main scanning direction) is performed.
* When the manual feed tray is replaced.
* When the manual feed tray is disassembled.
* When the duplex mode paper transport section is disassembled.
* When the registration roller section is disassembled.
* When the MFP PWB is replaced.
* U2 trouble has occurred.

(Note)

Before execution of this adjustment, check to insure the following item.

* The print image magnification ration adjustment (ADJ 4A) (main scanning direction) (Print engine) (Manual adjustment) has been properly adjusted.

1) Enter SIM50-10 mode.



2) Select the target paper feed tray (MAIN-XX) with the [UP] and [DOWN] keys.

No.	Item/Display		Content		Setting range		Default value
1	BK-MAG		Main scan print magnification ratio K		60 - 140		100
2	MAIN-MFT		Print off center adjustment value (Manual paper feed)		1 - 99		50
3	MAIN-CS1		Print off center adjustment value (Tray 1)		1 - 99		50
4	MAIN-CS2		Print off center adjustment value (Tray 2)		1 - 99		50
5	MAIN-ADU		Print off center adjustment value (Duplex) (NOTE) If the adjustment items A - F are not properly adjusted, this adjustment cannot be executed properly.		1 - 99		50
6	SUB-MFT		Resist motor ON timing adjustment	Manual paper feed	1 - 99		50
7	SUB-CS1			Standard cassette	1 - 99		40
8	SUB-DSK			DESK	1 - 99		42
9	SUB-ADU			ADU	1 - 99		50
10	DENB		Sub scanning direction print area correction value		1 - 99		35
11	PAPER	MFT	Cassette selection	Manual paper feed	1-3	1	2(CS1)
		CS1		Cassette 1		2	
		CS2		Cassette 2		3	
12	DUPLEX	YES	2-sided printing selection	Select	0-1	0	1(NO)
		NO		Not-select		1	

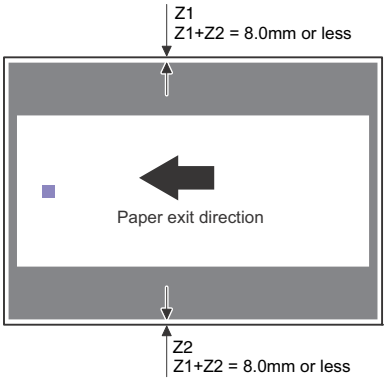
3) Set A4 (11" x 8.5") paper in the paper feed tray selected in procedure 2).

4) Press [OK] key.

The adjustment pattern is printed.

5) Check that the adjustment pattern image is printed in the correct position.

Measure the dimension of the void area in the front and the rear frame direction of the adjustment pattern, and check that all the following conditions are satisfied.



Z1: REAR VOID AREA
Z2: FRONT VOID AREA

RV + FV < 8.0mm or less

If the above requirement is not met, do the following steps.

6) Change the adjustment value.

(Enter the set value, and press [OK] key)

When the adjustment value is increased, the adjustment pattern is shifted to the front frame side. When it is decreased, the adjustment pattern is shifted to the rear frame side.

When the set value is changed by 1, the shift distance is changed by about 0.1mm.

Repeat procedures 5) - 6) until the conditions of procedure 5) are satisfied.

ADJ 5 Print engine image distortion adjustment / OPC drum phase adjustment / Color registration adjustment (Print engine section)

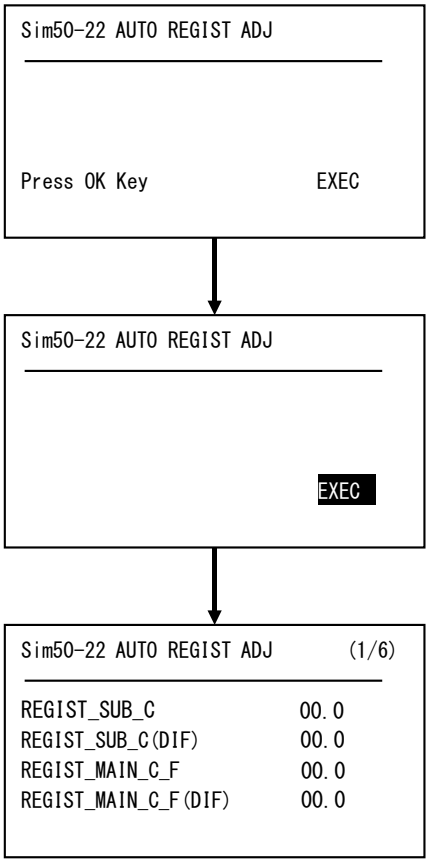
This adjustment must be performed in the following cases:

* When the color shift occurs.
* When the LSU is replaced.
* When the LSU is removed from the main unit.
* When the unit is installed or when the installing place is changed.
* When maintenance work is performed. (Replacement of the OPC drum, the OPC cartridge, the transfer unit, the transfer belt, etc.)
* When [ADJ 6A] Print engine image magnification ratio adjustment (BK) (main scanning direction) is performed.
* U2 trouble has occurred.
* When the MFP PWB is replaced.
* When the color phase is not proper even after execution of the color balance adjustment.
* When the OPC drum drive section is disassembled.
* When the primary transfer unit is replaced. (when it is removed from the machine)
* When the developing unit or the OPC drum unit is removed from the machine.

5-A Print engine image distortion adjustment (Manual adjustment) / OPC drum phase adjustment (Automatic adjustment) / Color registration adjustment (Automatic adjustment)

This adjustment performs the print engine image distortion adjustment, the OPC drum phase adjustment, and the color registration adjustment simultaneously.

1) Enter SIM50-22 mode.

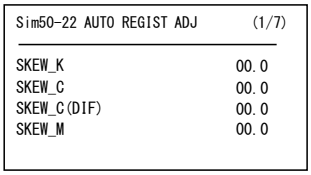


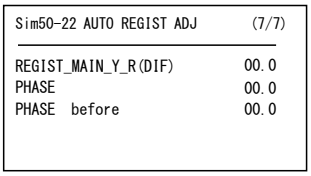
2) Press [OK] key.

[EXEC] is highlighted and the image registration automatic adjustment is started. (It takes about 15 sec to complete the adjustment.)

3) When the adjustment is completed, [EXECUTE] returns to the normal display, and the value of the adjustment result is displayed.

The current skew level for each color is displayed on the SKEW display section.





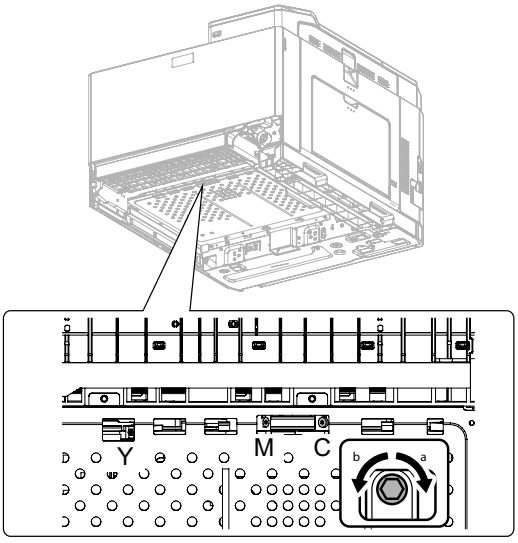
Item/Display	Content	Display
SKEW_K	Print skew amount calculation result (Cyan)	-999 - 999
SKEW_C	Print skew amount calculation result (Cyan)	-999 - 999
SKEW_C(DIF)	Print skew amount calculation result (Cyan) (Difference from the previous adjustment value)	-1999 - 1999

Item/Display	Content	Display
SKEW_M	Print skew amount calculation result (Magenta)	-999 - 999
SKEW_M(DIF)	Print skew amount calculation result (Magenta) (Difference from the previous adjustment value)	-1999 - 1999
SKEW_Y	Print skew amount calculation result (Yellow)	-999 - 999
SKEW_Y(DIF)	Print skew amount calculation result (Yellow) (Difference from the previous adjustment value)	-1999 - 1999
REGIST_SUB_C	Registration adjustment value sub scanning direction (Cyan drum -> Black drum)	10 - 1990
REGIST_SUB_C(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Cyan drum to Black drum)	-1999 - 1999
REGISTMAIN_C_F	Registration adjustment value main scanning direction (Cyan laser writing position F side)	10 - 1990
REGISTMAIN_C_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Cyan laser writing position F side)	-1999 - 1999
REGISTMAIN_C_R	Registration adjustment value main scanning direction (Cyan laser writing position R side)	10 - 1990
REGISTMAIN_C_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Cyan laser writing position R side)	-1999 - 1999
REGIST_SUB_M	Registration adjustment value sub scanning direction (Magenta drum -> Black drum)	10 - 1990
REGIST_SUB_M(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Magenta drum to Black drum)	-1999 - 1999
REGIST_MAIN_M_F	Registration adjustment value main scanning direction (Magenta laser writing position F side)	10 - 1990
REGIST_MAIN_M_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Magenta laser writing position F side)	-1999 - 1999
REGIST_MAIN_M_R	Registration adjustment value main scanning direction (Magenta laser writing position R side)	10 - 1990
REGIST_MAIN_M_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Magenta laser writing position R side)	-1999 - 1999
REGIST_SUB_Y	Registration adjustment value sub scanning direction (Yellow drum -> Black drum)	10 - 1990
REGIST_SUB_Y(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Yellow drum -> Black drum)	-1999 - 1999
REGIST_MAIN_Y_F	Registration adjustment value main scanning direction (Yellow laser writing position F side)	10 - 1990
REGIST_MAIN_Y_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Yellow laser writing position F side)	-1999 - 1999
REGIST_MAIN_Y_R	Registration adjustment value main scanning direction (Yellow laser writing position R side)	10 - 1990
REGIST_MAIN_Y_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Yellow laser writing position R side)	-1999 - 1999

Item/Display	Content	Display
PHASE	OPC drum phase adjustment value (BK to CL)	0 - 359
PHASE before	OPC drum phase adjustment value (BK to CL)	0 - 359

4) Write down the displayed skew level.
When "SKEW_*" values are in the following ranges, the adjustment needs not to be done.
* To make "SKEW_*" values in the following ranges, turn the LSU skew adjustment screws clockwise direction (a) or counterclockwise direction (b).
SKEW_C : +/-30, SKEW_M : +/-40, SKEW_Y : +/-20

5) If there are several skewed areas on the test printing result, turn all the LSU skew adjustment screws shown in the figure to adjust, and perform the procedures 2) to 4).
Repeat the procedures 2) to 5) until the printing result has no skew area.
If the printing result has no skew area, the adjustment is finished.
For the adjustment, remove the paper tray, and turn the skew adjustment screw from the bottom of the main unit.



Important

1

Execute SIM50-22 to check to confirm that C, M, and Y (SKEW) are OK.

The adjustment result can be checked by the following manual adjustment mode.

* ADJ 5B
Image skew adjustment (Manual adjustment) (SIM50-20)
* ADJ 5C
Color registration offset adjustment (SIM50-20)

Note

When the color registration is greatly shifted due to replacement of the LSU, etc, if SIM50-22 is used to perform the color registration automatic adjustment, an error may occur.

In this case, the adjustment may be properly executed by setting the adjustment items A - I of SIM50-20 to "100" and executing the automatic adjustment again.

If color shift in an actual print image differs in the center, the front side, and the rear side, the color shift offset adjustment can improve it. (Refer to ADJ 5C.)

Normally there is a difference in color shift in several dots. Perform the adjustment only when the adjustment is required.

5-B Print engine image skew (LSU skew) adjustment (Manual adjustment) (No need to adjust normally)

If a more accurate adjustment than the automatic adjustment ADJ 5A is required, use this method of adjustment.

This adjustment is made by changing the parallelism of the LSU unit scan laser beams for the OPC drum.

1) Enter the SIM 50-20 or 64-01 mode.
2) Select the paper feed tray with A4(11"x8.5") paper in it, and press [OK] key.
3) The image skew (image registration) adjustment pattern is printed.
4) Check the printed black image for any skew.
Use the four cross points printed in black to measure the squareness.
There are following two methods of checking the black image for any skew (right angle).

Method 1

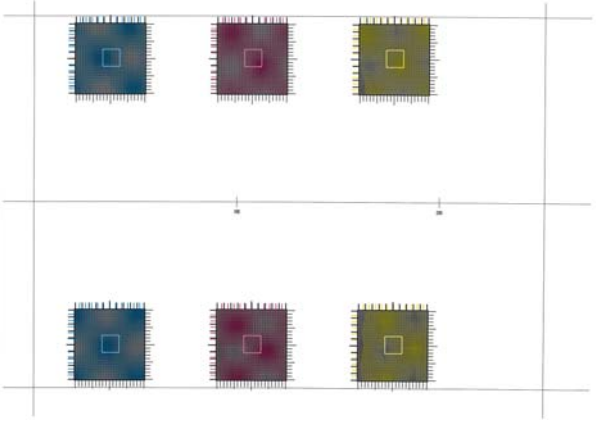
Measure the distances between opposing corners of the rectangle print pattern, and compare the two distances to check the squareness.

Method 2

Check the squareness of the vertical and horizontal sides of the rectangle print pattern by using A4(11"x8.5") paper sides.

Important

In the case of Method 2, the right angle of paper to be used may not be exact. Be sure to check the right angle of paper to be used in advance.



Method 1

Measure the length of the diagonal lines of the rectangle print pattern.

Calculate the difference between the measured lengths C and D of the diagonal lines.

Check to insure that the difference between C and D is in the following range.

C - D = 0.8mm

If the difference between C and D is in the above range, there is no need to adjust.

Method 2

Fit the side of A4(11"x8.5") paper to the long side of the rectangle print pattern.

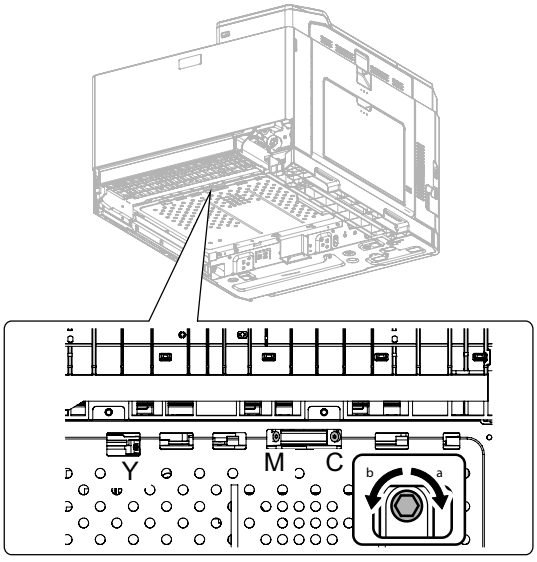
Measure the slant (skew) of the vertical side for the horizontal side of paper as shown in the figure.

If the above distance is 0.5mm or less, there is no need to adjust.

If the above condition is not satisfied, perform the following procedure.

5) Open the front cover, remove the waste toner box, and turn the four LSU image skew adjustment screws in the same direction by the same amount.

For the adjustment, remove the front cover and the waste toner box, and turn the skew adjustment screw.



(Skew adjustment screw rotation direction)

When C is greater than D in the method 1 or there is some skew in the direction A in the method 2, turn the screw clockwise.

When C is smaller than D in the method 1 or there is some skew in the direction B in the method 2, turn the screw counterclockwise.

(Reference of the rotation amount of the skew adjustment screw)

In case of the method 1, 0.8mm/about 1.5 rotations

In case of the method 2, 0.5mm/about 1.5 rotations

Repeat the procedures 2) to 6).

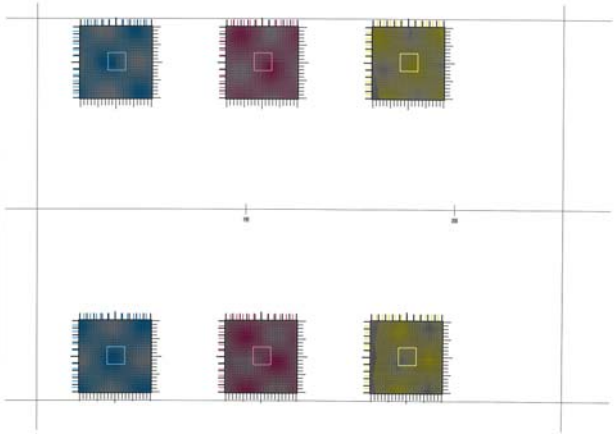
After completion of the black image skew adjustment, go to the procedure 7).

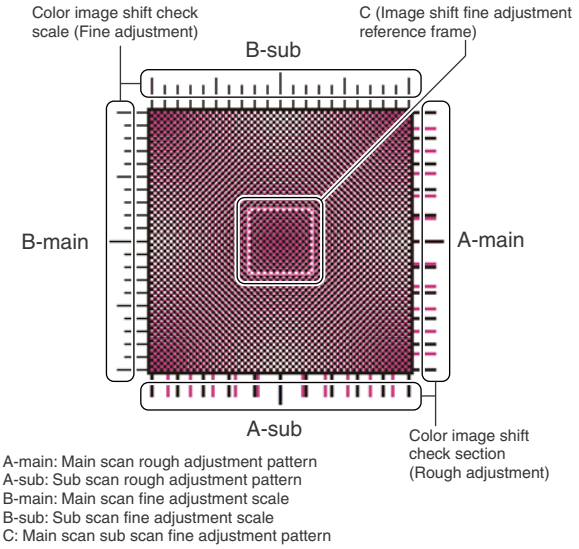
6) Perform the same procedures as 1) and 2).

7) Check the printed color image for any skew.

If the difference between the shift amounts on the F and R sides is within +/- 1 scale of the fine adjustment check scale, there is no need to perform the adjustment.

Measure the skew amount from the print patterns on the front and rear sides of each color.





A-main: Main scan rough adjustment pattern
A-sub: Sub scan rough adjustment pattern
B-main: Main scan fine adjustment scale
B-sub: Sub scan fine adjustment scale
C: Main scan sub scan fine adjustment pattern

In each Y/M/C color print pattern printed separately in the F side and in the R side, note the same print color pattern and check to confirm that the F side and the R side look identical.

Rough adjustment pattern check:

Check the sub scan rough adjustment color image shift check section on the R side and the F side of each color, use the center position of the black scale as the reference, and check the balance in shifts of the color image line positions in the positive and the negative directions. The balance in the R side must be the same as that in the F side.

Fine adjustment pattern check:

Check the square frames on the R side and the F side of each color. (Normally five sections of high density can be seen.) Check the sub scanning direction position of the center area of high density (one of the above five sections). These must be on the same position on the R side and the F side.

In this case, use the sub scan direction color image shift check scale (fine adjustment) as the reference.

Visually check the color density and make the darkest section as the center, and use it as the read value of the shift amount.

Check that the difference in the center position of the dark density section is within +/-1 step.

The positional relations of the front and the rear frame of the print color patterns of a same color are compared. There is no need that all the colors are in the same state. Compare only the positional relations of color patterns of a same color.

If the above condition is not satisfied, perform the following procedure.

8) Turn the LSU skew adjustment screw of the adjustment target color to adjust.

(Skew adjustment screw rotation direction)

When the F side is skewed to the right side for R side: Turn the screw clockwise.

When the F side is skewed to the left side for the R side: Turn the screw counterclockwise.

(Reference of the rotation amount of the skew adjustment screw)

Skew of difference by one step between F and R sides (Difference by one scale of the fine adjustment check scale) / Turn for about 2 clicks.

Repeat the procedures 7) to 8) until a satisfactory result is obtained.

5-C Color registration offset adjustment (No need to adjust normally)

This adjustment is used to set the offset value for the automatic color registration adjustment (ADJ 5A).

If there is any difference in color phase at the center and the four corners of an actual print image, this adjustment may improve it. Especially when there is any color shift at the center area, this adjustment may improve it effectively.

This adjustment cannot eliminate color shifts in all the areas, but average the overall color shifts.

After the automatic adjustment, use this color registration offset adjustment to correct color shift partially, performing the adjustment efficiently.

Note

Before execution of this adjustment, check to confirm that the following adjustment has been properly made.

* ADJ 5A or ADJ 5B image skew adjustment (LSU unit)

[Kinds of adjustment values]

There are following two kinds of registration adjustment values.

- Base registration adjustment value: XXX(FRONT)/XXX(REAR)

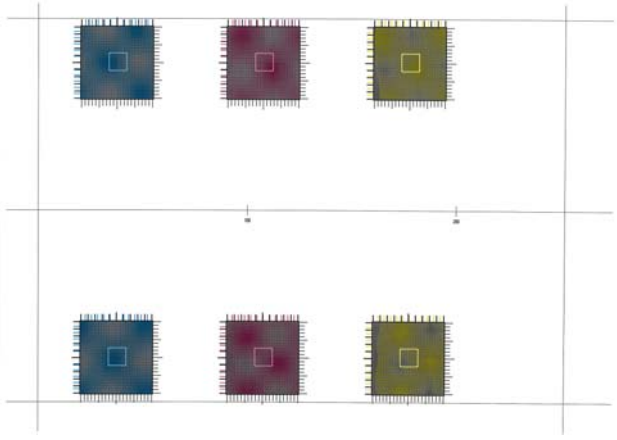
  They are manual adjustment values and automatic adjustment values, and reflected when the automatic registration adjustment is executed. It varies for every operation of the automatic registration adjustment.

- Offset adjustment values: OFFSETXXF/OFFSETXXR

  They are the offset adjustment values added to the above base registration adjustment values, and are not changed unless SIM50-20 is executed to change.

1) Enter SIM50-20 mode.
2) Select the paper feed tray with A4(11"x8.5") paper in it.
3) Press [OK] key.

   The color image registration check pattern is printed.



4) Check the color image registration.

   There are 6 color image registration patterns in total; two on each of the F side, the R side, and the center. Check all the patterns to confirm that they are within the specified range. Also check to confirm that there is not much shift in each color image registration check pattern.

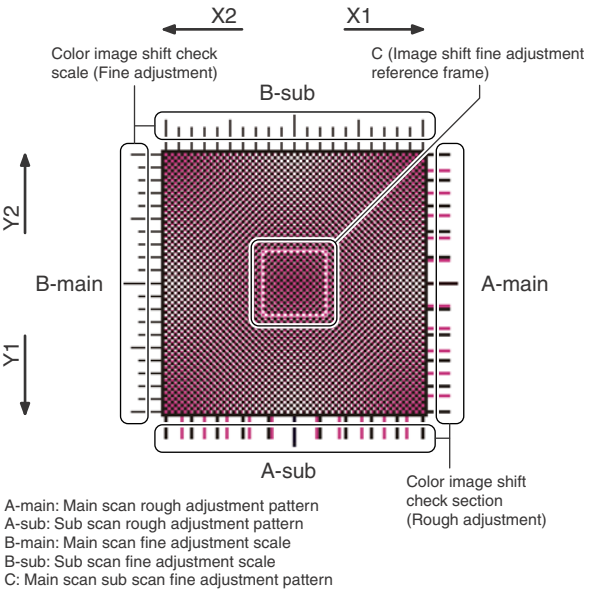
   Note

   There are two kinds of adjustment: one in the main scanning direction and the other in the sub scanning direction. The vertical direction in the above figure is that in the main scanning direction, and the horizontal direction is that in the sub scanning direction.

   There are also two kinds of adjustments: the rough adjustment and the fine adjustment. Perform the rough adjustment then perform the fine adjustment.

For the main scan direction image registration, the offset on the F side, the R side, and at the center is independently adjusted.

If there is a difference in the sub scanning direction image registration between the F and R sides, perform the skew adjustment (ADJ 5A).



A-main: Main scan rough adjustment pattern
A-sub: Sub scan rough adjustment pattern
B-main: Main scan fine adjustment scale
B-sub: Sub scan fine adjustment scale
C: Main scan sub scan fine adjustment pattern

Check the print patterns of the rough adjustment and the fine adjustment of 18 check patterns.

How to check the rough adjustment pattern and input of the adjustment value:

Visually check the color image registration check section, use the center position of the black scale as the reference, and check the shift balance in the positive and negative directions at the color image line position.

Use the center position of the black scale as the reference, and check that the color image line is symmetrical in the positive side and the negative side.

If shift is in the arrow mark X1 and Y1, increase the adjustment value. If shift is in the arrow mark X2 and Y2, decrease the adjustment value.

The reference arrow on the check pattern faces the positive direction.

(Reference adjustment value)

1 scale/10 (When the set value is changed by 10, shift is made by 1 scale.)

How to check the fine adjustment pattern and input of the adjustment value:

Check to confirm that the darkest spot (one of 5 spots seen normally) is within the center area of the image registration adjustment reference frame in the square frame.

At that time, use the color image registration check scale (fine adjustment) as the reference.

Visually check and consider the darkest section of color density as the center, and measure the shift from it.

Check to confirm that the center of the dark density section is within +/- 1 step.

(If the fine adjustment print pattern is in the range of 0 +/- 1 for the fine adjustment reference pattern scale, there is no need to adjust.)

If shift is in the arrow mark X1 and Y1, increase the adjustment value. If shift is in the arrow mark X2 and Y2, decrease the adjustment value.

(Reference adjustment value)

1 scale/1 (When the set value is changed by 1, shift is made by 1 scale.)

If there is a considerable difference in color shift in the square and at the center area, perform the adjustment.

Select an adjustment item (OFF SET X F / OFF SET X R / OFF SET X S), and change the adjustment value to adjust.

OFF SET X F: F side main scanning direction registration offset set value (The color shift on the F side and at the center area is changed.)

OFF SET X D: R side main scanning direction registration offset set value (The color shift on the R side and at the center area is changed.)

OFF SET X S: Sub scanning direction registration offset set value (Color is shifted to the sub scanning direction overall.)

Important

When the adjustment value of OFF SET X F and OFF SET X R are changed, the color at the center area will be affected. Consider this when executing the adjustment.

(Adjustment conditions and method)

To adjust evenly overall, adjust so that the color shifts on the F side, the R aide and at the center are of the same level.

To adjust with the center area most focused, adjust so that the color shift at the center becomes smaller than that on the F side and the R side.

When the offset adjustment value is 0, if the color registration adjustment (automatic adjustment) is performed, the color shift on the F side and that on the R side are automatically adjusted to be smaller than that on the center area.

Item/Display	Content	Display
SKEW_K	Print skew amount calculation result (Cyan)	-999 - 999
SKEW_C	Print skew amount calculation result (Cyan)	-999 - 999
SKEW_C(DIF)	Print skew amount calculation result (Cyan) (Difference from the previous adjustment value)	-1999 - 1999
SKEW_M	Print skew amount calculation result (Magenta)	-999 - 999
SKEW_M(DIF)	Print skew amount calculation result (Magenta) (Difference from the previous adjustment value)	-1999 - 1999
SKEW_Y	Print skew amount calculation result (Yellow)	-999 - 999
SKEW_Y(DIF)	Print skew amount calculation result (Yellow) (Difference from the previous adjustment value)	-1999 - 1999
REGIST_SUB_C	Registration adjustment value sub scanning direction (Cyan drum -> Black drum)	10 - 1990
REGIST_SUB_C(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Cyan drum to Black drum)	-1999 - 1999
REGISTMAIN_C_F	Registration adjustment value main scanning direction (Cyan laser writing position F side)	10 - 1990
REGISTMAIN_C_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Cyan laser writing position F side)	-1999 - 1999
REGISTMAIN_C_R	Registration adjustment value main scanning direction (Cyan laser writing position R side)	10 - 1990
REGISTMAIN_C_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Cyan laser writing position R side)	-1999 - 1999
REGIST_SUB_M	Registration adjustment value sub scanning direction (Magenta drum -> Black drum)	10 - 1990
REGIST_SUB_M(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Magenta drum to Black drum)	-1999 - 1999
REGIST_MAIN_M_F	Registration adjustment value main scanning direction (Magenta laser writing position F side)	10 - 1990
REGIST_MAIN_M_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Magenta laser writing position F side)	-1999 - 1999
REGIST_MAIN_M_R	Registration adjustment value main scanning direction (Magenta laser writing position R side)	10 - 1990
REGIST_MAIN_M_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Magenta laser writing position R side)	-1999 - 1999
REGIST_SUB_Y	Registration adjustment value sub scanning direction (Yellow drum -> Black drum)	10 - 1990
REGIST_SUB_Y(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Yellow drum -> Black drum)	-1999 - 1999
REGIST_MAIN_Y_F	Registration adjustment value main scanning direction (Yellow laser writing position F side)	10 - 1990
REGIST_MAIN_Y_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Yellow laser writing position F side)	-1999 - 1999
REGIST_MAIN_Y_R	Registration adjustment value main scanning direction (Yellow laser writing position R side)	10 - 1990
REGIST_MAIN_Y_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Yellow laser writing position R side)	-1999 - 1999
PHASE	OPC drum phase adjustment value (BK to CL)	0 - 359
PHASE before	OPC drum phase adjustment value (BK to CL)	0 - 359

ADJ 6 Printer color balance/density adjustment

(1) Note before execution of the printer image quality adjustment

a. Requisite condition before execution of the printer image quality adjustment

The following adjustment items which affect the image quality must be properly set.

(Adjustment items which affect the image quality and must be checked or adjusted always before execution of the image quality adjustment.)

	Adjustment Item List			Simulation
ADJ 2	Image density sensor (image registration sensor) adjustment	2A	Color image density sensor (image registration sensor F), black image density sensor (image registration sensor R) adjustment	44-2
ADJ 3	Image skew adjustment (LSU unit)			61-4

	Adjustment Item List			Simulation
ADJ 5	OPC drum phase adjustment	5A	Print engine image distortion adjustment (Manual adjustment) / OPC drum phase adjustment (Automatic adjustment) / color registration adjustment (Automatic adjustment)	50-22

(Adjustment items which affect the image quality, but may not be adjusted frequently. When, however, a trouble occurs, this items must be checked or adjusted.)

	Adjustment item list			Simulation
ADJ 1	Adjusting high voltage values	1A	Adjust the main charger grid voltage	8-2
		1B	Adjust the developing bias voltage	8-1
		1C	Transfer voltage adjustment	8-6

b. Cases when this adjustment is required

In the following cases, this adjustment is required.

1) When maintenance is executed
2) When repair or maintenance (on consumable parts such as developer, the OPC drum, and the transfer belt) is executed:
3) When the machine is installed

(2) Printer color balance/density check

Before checking the printer color balance and the density, be sure to execute the following procedures in advance.

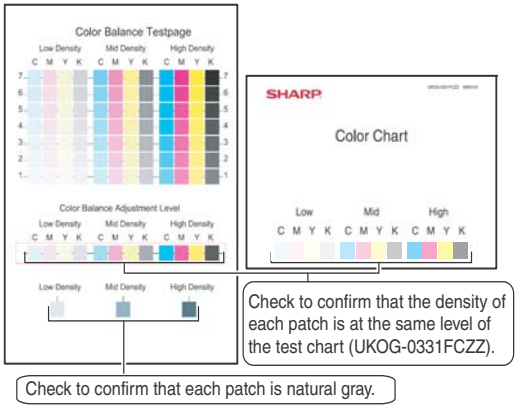
* Execute the high density image correction (Process correction) forcibly. (SIM 44-6)
* The halftone image correction is forcibly executed. (SIM 44-26)
* For the color balance check and adjustment, use the normal white paper.

  If the other kind of paper is used, the proper image quality (color balance, density) may not be obtained.
* Since color appearance may differ depending on the light source, the environment for check and adjustments must be maintained constant.

(Method 1)

1) Use SIM67-23 to print the color balance check sheet, and check to confirm that the density of each patch is at the same level as that of the color chart (UKOG-0331FCZZ).

   At the same time, check to confirm that the gray patch is at the neutral level.

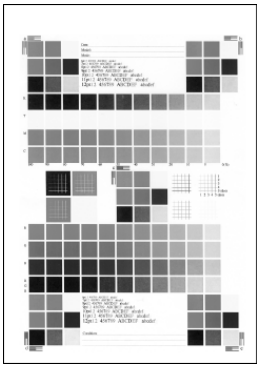


(Method 2)

Execute SIM 64-5 to print the print test pattern.

The print density of the patch must be changed gradually from the lighter level to the darker level. The density changing direction must not be reversed. The density level of each color must be almost at the same level.

At that time, set the SIM64-5 set values to the default values. (SI67-23 can be used as the check)



(3) Color balance adjustment mode

This machine is provided with the following color balance adjustment modes. Use either one of them to adjust.
When the gray balance is not acceptable after the [**a. Manual color balance adjustment**], perform [b. Simple color balance adjustment (Gray balance adjustment)]. When the gray balance is acceptable, [b. Simple color balance adjustment (Gray balance adjustment)] is not needed to be done.

a. Manual color balance adjustment

This adjustment is executed with SIM67-22.

Use this simulation to print the Color Balance Test page, and compare it with the reference density of each color on the color chart (UKOG-0331FCZZ) to find the patch whose density is the closest to the reference density. Then enter the number of that patch.

Execute the above procedures for each of the low density area, the middle density area, and the high density area.

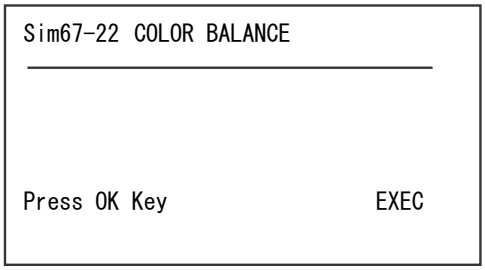
b. Simple color balance adjustment (Gray balance adjustment)

This adjustment is executed with SIM67-21.

Use this simulation to print the Easy Calibration Test page, and enter the coordinate value of the patch whose gray balance is best.
NOTE : When SIM67-22 is done, the adjustment result of SIM 67-21 is cleared.

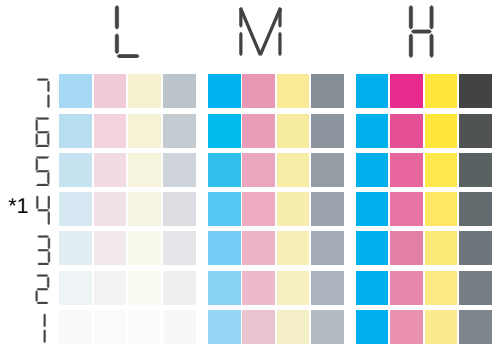
6-A Manual color balance adjustment - 1

1) When this adjustment is done, the adjustment result of SIM 67-21 is cleared.
2) Enter the SIM 67-22 mode.



3) Press [OK] key.

(A4 or 11" x 8.5" paper is automatically selected and the color balance adjustment pattern is printed.)



*1: "Pattern patch 4" indicates the current adjustment color balance. This is varied at every adjustment.

4) Find out the patch which is closest to the patch reference density of the color chart (UKOG-0331FCZZ) in the Low Density area, the Mid Density area, and the High Density area among the patches of printed color balance adjustment pattern. It is necessary to find out 12 patches.

   The visual checking result varies between individuals. Therefore, when the actual printing result is not acceptable, perform this adjustment again and change patches to the darker ones or the lighter ones.

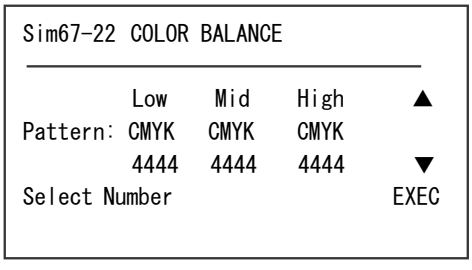
   When the patch out of printed range needs to be selected, select the highest or lowest patch once and perform the adjustment. By this way, the highest or lowest patch becomes the center of the patch pattern (No.4) and the printing ranged is expanded. However, this adjustment should be finished in the default printing range. Therefore, if the patch out of printed range needs to be selected, check the printing engine part at first.

   When the patches of Low and Mid or Mid and High whose density is close (Not close setting value) are selected, the gradation quality could be lost.
   ex). Low = 7 and Mid = 1, Mid = 7 and High = 1

5) Enter the adjust number of the color balance adjustment pattern patch which was found in procedure 3) as the adjustment value.

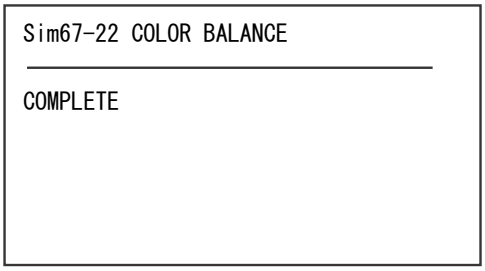
   Select the adjustment density area (LOW, MID, HIGH), and select the adjustment target color (C, M, Y, K), and enter the adjustment number as the adjustment value.

Adjustment density area	Adjustment target color
LOW	C, M, Y, K,
MID	C, M, Y, K,
HIGH	C, M, Y, K,



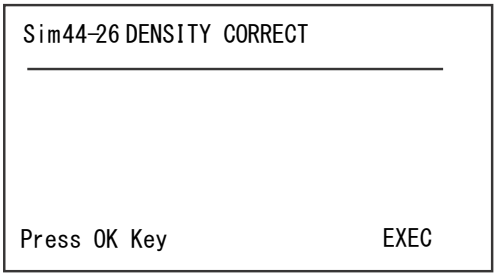
6) Press [OK] key after all adjustment values are entered.

7) After completion of registration of the adjustment data, the test pattern is printed out again. When "COMPLETE" is displayed, press [STOP] key to cancel SIM67-22.

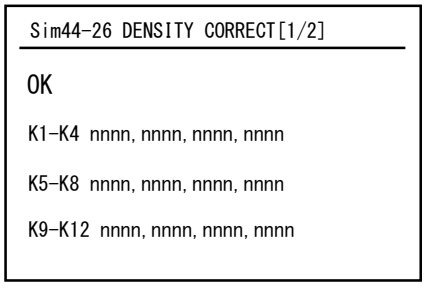


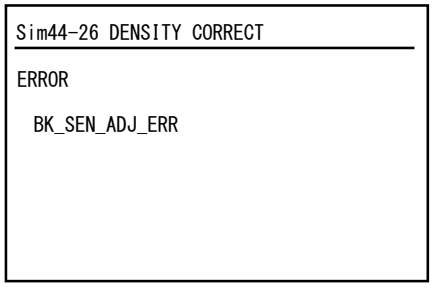
8) Check the adjustment result by using printed test pattern.

9) Enter the SIM 44-26 mode.

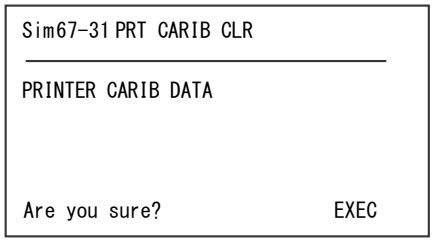


10) Press [OK] key and the machine checks whether the adjustment is done correctly or not. If the result is OK, finish this adjustment. If the result is error, proceed the next step.





11) When the SIM44-26 result is error, enter the SIM 67-31 mode.

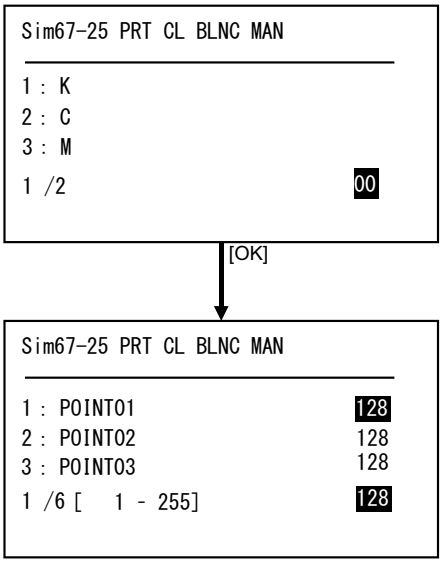


12) Press [OK] key and printer calibration setting values are set to the default values.

13) Perform step 1) to 10) to adjust the machine again. By this way, repeat this procedure to have OK result in SIM44-26.

6-B Manual color balance adjustment - 2 (Normally unnecessary to the setting change)

1) Enter the SIM 67-25 mode.

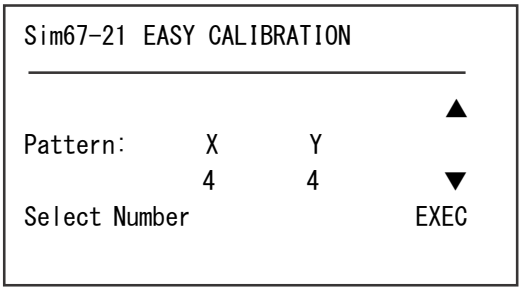


2) Select the color and the adjustment point to be adjusted.
3) Enter the adjustment value and press [OK] key.
   The adjustment value is set in the range of 1 - 255.
   To increase the density, increase the adjustment value. To decrease the density, decrease the adjustment value.
4) Press [STOP] key to cancel SIM67-25.
5) Check the adjustment result by using either of the printer color balance and density check method 1 or 2.

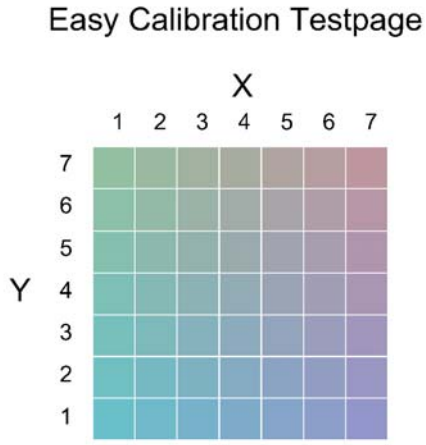
6-C Simple color balance adjustment (Gray balance adjustment)

When SIM 67-22 is done, the adjustment result of SIM 67-21 is cleared.
The adjustment results of SIM 67-21 are registered in SIM 67-33. To clear the adjustment results of SIM 67-21, use SIM 67-52.
The adjustment results values of [Easy Calibration] mode in the system setting menu are registered in SIM 67-25 and are cleared by SIM 67-21.

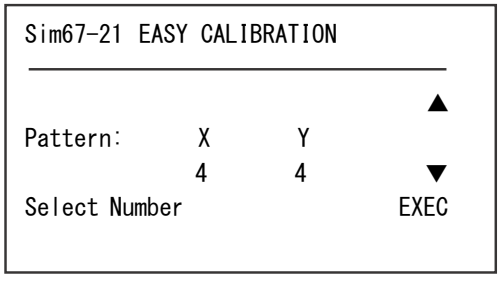
1) Enter the SIM 67-21 mode.



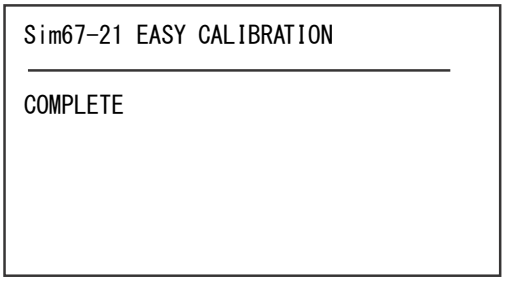
2) Press [OK] key.
   (A4 or 11" x 8.5" paper is automatically selected and the simple color balance adjustment pattern is printed.)



3) Find out the patch which is closest to the neutral gray among the patches of the printed simple color balance adjustment pattern.
   When the patch out of printed range needs to be selected, select the highest or lowest patch once and perform the adjustment. By this way, the highest or lowest patch becomes the center of the patch pattern (No.4) and the printing ranged is expanded. However, this adjustment should be finished in the default printing range. Therefore, if the patch out of printed range needs to be selected, check the printing engine part.
4) Enter the X and Y coordinate values of the simple color balance adjustment pattern patch which was found in procedure 3) as the adjustment values.
   Enter the adjustment value, and press [OK] key.



5) The test pattern is printed out again. When "COMPLETE" is displayed, press [STOP] key to cancel SIM67-21.



6) Check the adjustment result by using printed test pattern.

6-D Printer density adjustment (low density part density adjustment) (Normally unnecessary to adjust)

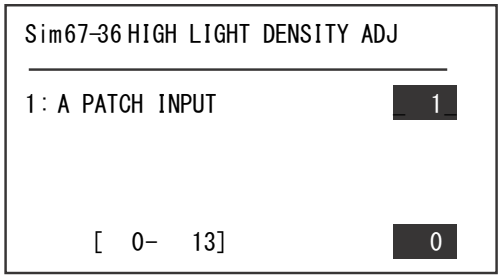
This procedure is to adjust image density of low density area in printer mode.

Adjust to reproduction (not reproduction) setting of the low density image.

This adjustment is required in the following cases.

* When reproduction of low density image is required. When reproduction of low density image is not required, conversely.
* When there is request from the user.

1) Enter the SIM 67-36 mode.



2) Enter the adjustment value, and press [OK] key.

In case of increase of the image density on low density part, increase the adjustment value. For diluting the image density on low density part, decrease the adjustment value.

6-E Printer high density part density correction setting (high density part tone gap countermeasure) (Normally unnecessary to the setting change)

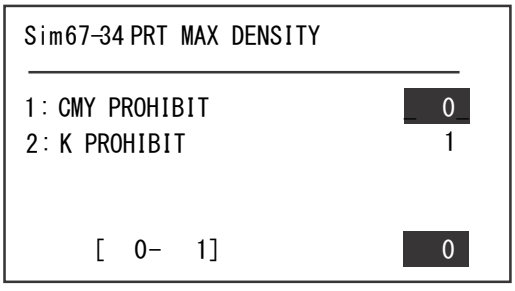
This procedure is to adjust image density of low density area in printer mode.

This setting normally not required. When, however, there are case of following, change the setting.

* When a tone gap occurs on part of high density.
* When there is necessity to increase the density of the part of high density.

a. Adjustment procedure

1) Enter the SIM 67-34 mode.



2) Enter the item 1 or 2 with the 10 keys.

No.	Item/Display	Content		Setting range	Default
1	CMY (0: ENABLE 1:DISABLE)	0	CMY engine maximum density correction mode Enable	0 - 1	0
		1	CMY engine maximum density correction mode Disable		
2	K (0:ENABLE 1: DISABLE)	0	K engine maximum density correction mode Enable	0 - 1	1
		1	K engine maximum density correction mode Disable		

3) Press [OK] key.

* If a tone gap occurs on part of high density, set 0 to item 1 and 2

  The density of high density part decreases. However, the tone gap is better.
* In case of more increase of the density on high density part, set 1 to item 1 and 2.

  The tone gap may occur in high density part.

6-F Printer calibration factory default

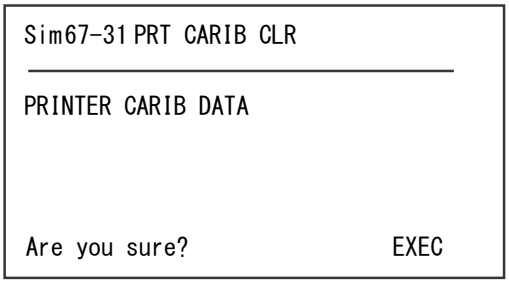
This adjustment is to set printer calibration setting values (SIM 67-21/67-22)to the default values.

This adjustment is used when the color cannot be restored to the correct color tone by the operation mistakes or other causes.

Note that the color cannot be restored to the original condition at the initial installation and perform the adjustments described in [ADJ 6] section. After performing SIM 67-31, perform [ADJ 6] from the beginning.

* This function is only for MX-C300P/C300PE/300E.

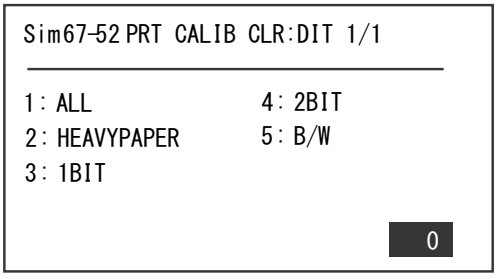
1) Enter the SIM 67-31 mode.



2) Press [OK] key and printer calibration setting values are set to the default values.

6-G Reset the printer color balance adjustment (adjustment for each dither) to the default value. (The set values of SIM67-33 are set to the default values.)

1) Enter the SIM 67-52 mode.



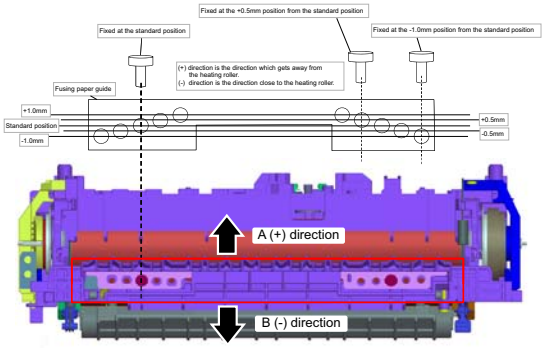
2) Enter [1] to clear with 10 keys and press [OK] key.

ADJ 7 Fusing paper guide position adjustment

Normally there is no need to perform this adjustment. In the following cases, perform this adjustment.

* When a paper jam occurs in the fusing section.
* When wrinkles are made on paper in the fusing section.
* When an image deflection or an image blur is generated in the paper rear edge section.

1) Change the screw position of the fusing paper guide by referring the figure.



The standard fixing position is the center part of the screw holes. Change the position according to the situation.

* When wrinkles are generated on paper, change the position in the arrow direction B.
* When an image deflection or an image blur is generated in the paper rear edge section, change the position in the arrow direction A.

  Normally, the hole on the fusing paper guide standard fixing position is used to fix the fusing paper guide.

[6] SIMULATION

1. General (Including basic operations)

The simulation mode has the following functions, to display the machine operating status, identify the trouble position and causes in an earlier stage, and make various setups and adjustments speedily for improving the serviceability of the machine.

1) Various adjustments
2) Setting of the specifications and functions
3) Canceling troubles
4) Operation check
5) Counters check, setting, clear
6) Machine operating conditions (operation hysteresis), data check, clear.
7) Various (adjustments, setting, operation, counters, etc.) data transport.

The operating procedures and displays depend on the design of the operation panel of the machine.

A. Starting the simulation

Entering the simulation mode

1) Select [SYMBOL](@) key -> [LOGOUT] key -> [C] key -> [LOGOUT] key -> Ready for input of main code of simulation.
2) Entering a main code with the 10 key -> [OK] key ON.
3) Entering a sub code with the 10 key -> [OK] key ON.
4) Select an item with the Arrow key.
5) The machine enters the mode corresponding to the selected item. Press [OK] key to start the simulation operation.

   To cancel the current simulation mode, press [HOME] key. To change the main code and the sub code, press [C] key.

Canceling the simulation mode to return to the normal mode

1) Press [HOME] key.

CAUTION: Do not turn OFF the power when the machine is in the simulation mode.

If the power switch should be turned OFF in the simulation mode, a malfunction may result. In this case, turn OFF/ON the main power source.

Key arrangement

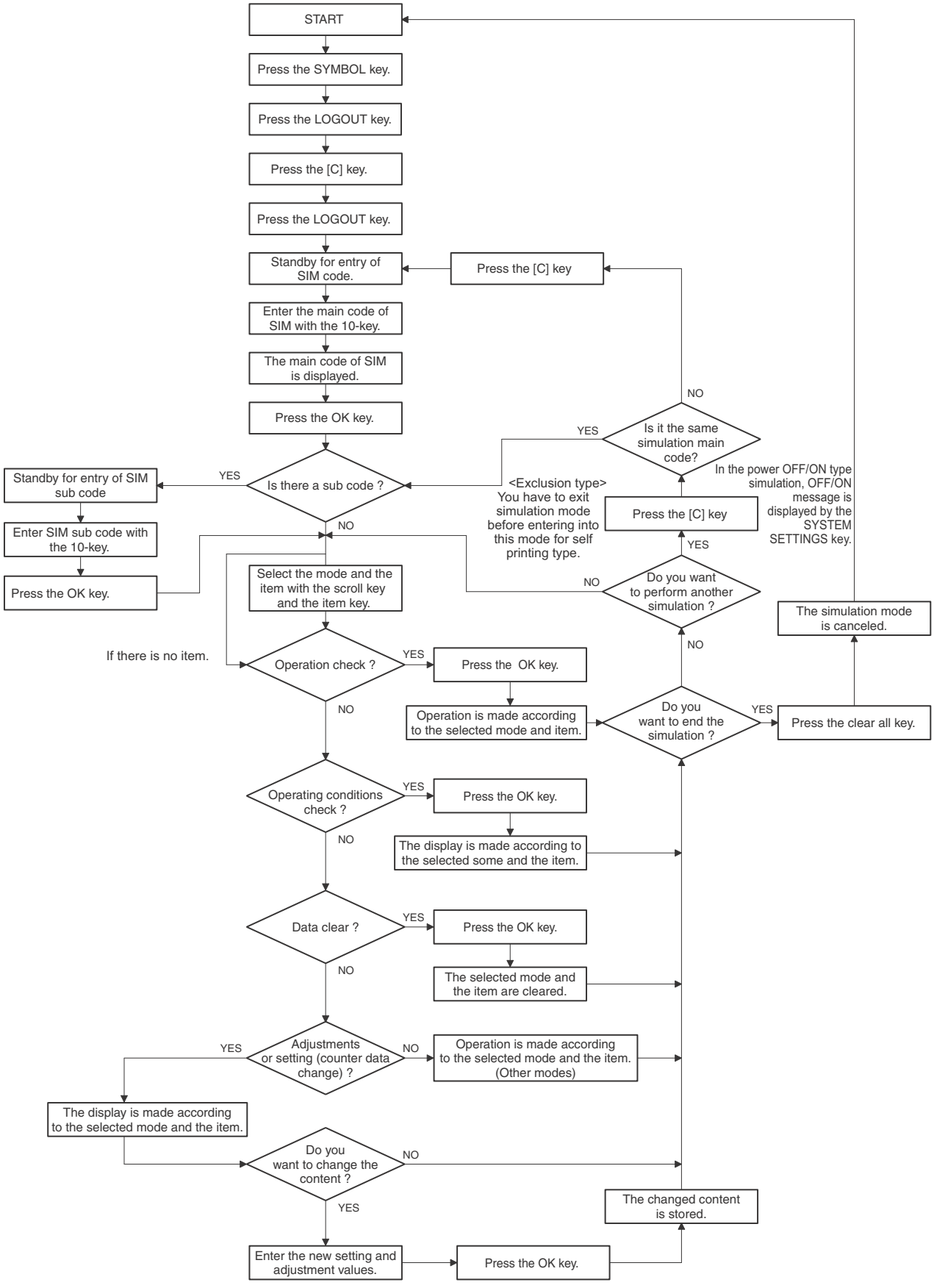
In the simulation mode, the keys are displayed by following the key arrangement of the Neo MFP. The key arrangement of the Neo MFP and the Neo Printer are different.
In the following list, the correlation diagram is described.

Machine	Neo MFP	Neo Printer
Key	*	LOGOUT( )
	#	SYMBOL (@)
	CA	HOME ( )

The function of [*] (Neo MFP) is the same as the [LOGOUT] key (Neo Printer).

The function of [#] (Neo MFP) is the same as the [SYMBOL](@) key (Neo Printer).

The function of [CA] (Neo MFP) is the same as the [HOME] key (Neo Printer).


START
Press the SYMBOL key.
Press the LOGOUT key.
Press the [C] key.
Press the LOGOUT key.
Standby for entry of SIM code.
Press the [C] key
Enter the main code of SIM with the 10-key.
The main code of SIM is displayed.
Press the OK key.
NO
YES
Is it the same simulation main code?
YES
Is there a sub code ?
Standby for entry of SIM sub code
<Exclusion type>
You have to exit simulation mode before entering into this mode for self printing type.
Press the [C] key
In the power OFF/ON type simulation, OFF/ON message is displayed by the SYSTEM SETTINGS key.
NO
Enter SIM sub code with the 10-key.
YES
Press the OK key.
Select the mode and the item with the scroll key and the item key.
NO
Do you want to perform another simulation ?
The simulation mode is canceled.
If there is no item.
Operation check ?
YES
Press the OK key.
NO
Operation is made according to the selected mode and item.
Do you want to end the simulation ?
YES
Press the clear all key.
NO
Operating conditions check ?
YES
Press the OK key.
NO
The display is made according to the selected some and the item.
Data clear ?
YES
Press the OK key.
NO
The selected mode and the item are cleared.
YES
Adjustments or setting (counter data change) ?
NO
Operation is made according to the selected mode and the item. (Other modes)
The display is made according to the selected mode and the item.
Do you want to change the content ?
NO
YES
The changed content is stored.
Enter the new setting and adjustment values.
Press the OK key.

2. List of simulation codes

Main	Sub	Functions	Section
5	1	Check the operation of the display, LCD in the operation panel, and control circuit.	Operation panel
	2	Check the operation of the heater lamp and the control circuit.	Fusing
	4	Check the operation of the discharge lamp and the control circuit.	Process
6	1	Check the operations of the load in the paper transport system (clutches and solenoids) and the control circuits.	Paper transport/Paper exit section
	2	Check the operations of each fan motor and its control circuit.	Others
	3	Check the operations of the primary transfer unit and the control circuit.	Process (Transfer)
	90	Set the machine to the factory default settings.	
7	1	Set the operating conditions of aging.	Others
	6	Set the operating intermittent aging cycle.	
8	1	Check and adjust the operations of the developing voltage in each print mode and the control circuit. * When the middle speed is adjusted, the low speed are also adjusted simultaneously.	Process (Developing)
	2	Check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit. * When the middle speed is adjusted, the low speed are also adjusted simultaneously.	Process (Charging)
	6	Check and adjust the operation of the transfer voltage and the control circuit.	Process (Transport)
10	1	Check the operations of the toner supply mechanism (toner motor) and the related circuit.	Process (Developing)
14	-	Cancel the self-diag H3, H4, H5, U1 troubles.	
16	-	Cancel the self-diag "U2" trouble.	MFPC PWB
21	1	Set the maintenance cycle.	
22	1	Check the print count value in each section and each operation mode. (Used to check the maintenance timing.)	
	2	Check the total numbers of misfeed and troubles. (When the number of total jam is considerably great, it is judged as necessary for repair.)	
	3	Check misfeed positions and the misfeed count of each position. * Presumption of the faulty point by this data is possible.	
	4	Check the trouble (self diag) history.	
	5	Check the ROM version of each unit (section).	Firmware
	6	Output various adjustment/setting data (simulations), the firmware version, the counter list and the process control data.	
	9	Check the number of use (print quantity) of each paper feed section.	Paper feed, ADU
	10	Check the system configuration (option, internal hardware).	
	13	Check the operating time of the process section (OPC drum, DV unit, toner cartridge).	Process
	14	Display the use status of the toner cartridge.	Process
	18	Display the history of clear data.	
23	2	Output the trouble history list of paper jam and misfeed. (If the number of troubles of misfeed is considerably great, the judgment is made that repair is required.)	
24	1	Clear the jam counter, and the trouble counter. (After completion of maintenance, clear the counters.)	
	2	Clear the number of use (the number of prints) of each paper feed section.	
	4	Clear the maintenance counter, the printer counters of the transport unit and the fusing unit. (After completion of maintenance, clear the counters.)	
	5	Clear the developer counter. (After replacement of developer, clear the counter.)	
	9	Clear the printer mode print counter and the self print mode print counter.	
	35	Clear the usage number of toner cartridge	
25	1	Check the operations of the developing section.	Process (Developing section)
	2	Display the value of the selected sensor and register the toner density control value, toner density control voltage, developer adjustment area and sensitivity adjustment value by driving the all drum motors.(Automatic adjustment)	Image process (Photoconductor/ Developing/Transfer/Cleaning)
	4	Display the operation data of the toner supply quantity. (Not used in the market.)	Process
	5	Display the toner density correction data. (Not used in the market.)	Process
26	6	Set the specifications (paper, fixed magnification ratio, etc.) of the destination.	
	18	Set Disable/Enable of the toner save mode operation. (For the Japan and the UK versions.)	
	30	Set the operation mode corresponding to the CE mark (Europe safety standards). (For slow start to drive the fusing heater lamp)	
	35	Set the display mode of SIM 22-4 trouble history when a same trouble occurred repeatedly. There are two display modes: display as one trouble and display as several series of troubles.	
	38	Set Continue/Stop of print when the maintenance life is reached.	
	53	User auto color calibration (color balance adjustment) Inhibit/Allow setting	
	54	Used to set LCD contrast PWM duty	
	69	Set the operating conditions for toner near end.	
	73	Set Toner save setting.	
27	2	Set the sender's registration number and the HOST server telephone number. (FSS function)	
	4	Set the initial call and toner order auto send. (FSS function)	
	7	Set of the enable, alert callout. (FSS function)	
	14	Set the FSS function connection test mode.	
	15	Display the FSS connection status.	
	16	Set the FSS alert send.	
30	1	Check the operations of the sensors and the detectors in other than the paper feed section and the control circuits.	

Main	Sub	Functions	Section
43	1	Set the fusing reference temperature of each operation mode.	
	4	Set the fusing temperature 2 in each mode. (Continued from SIM 43-1.)	
	20	Set the environmental correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-1) in each paper mode.	
	21	Set the environment correction under high temperature and high humidity (H/H) for the fusing temperature setting (SIM 43-1) in each paper mode.	
	22	Set the environment correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-4) in each paper mode.	
	23	Set the environment correction under high temperature and high humidity (H/H) for the fusing temperature setting (SIM 43-4) in each paper mode.	
	24	Set the correction of the temperature adjustment value of SIM 43-1 and 43-4.	
44	1	Set each correction operation function in the image forming (process) section.	Image process (Photoconductor/ Developing/Transfer/Cleaning)
	2	Adjust the sensitivity of the image density sensor (registration sensor).	Process
	4	Set the conditions of the high density process control operation.	Process
	6	Execute the high density process control forcibly.	Process
	9	Display the result data of the high density process control operation.	Image process (Photoconductor/ Developing/Transfer/Cleaning)
	12	Display the operation data of the high density process control and the image density sensor (registration sensor).	Image process (Photoconductor/ Developing)
	14	Display the output level of the temperature and humidity sensor.	Process (OPC drum, development)/Fusing/LSU
	15	Display the toner density control data.	Developing system
	21	Set the half tone process control target.	Process
	22	Display the toner patch density level in the half tone process control operation.	Process
	24	Display the correction target and the correction level in the half tone process control operation.	Process
	25	Set the calculating conditions of the correction value for the half tone process control.	Process
	26	Execute the half tone process control compulsorily.	Process
	27	Clear the correction data of the half tone process control.	Process
	28	Set the process control execution conditions.	Process
	29	Set the operating conditions of the process control during a job.	Process
	31	Adjust the OPC drum phase. (Manual adjustment)	Process
	37	Set the development bias correction level in the continuous printing operation.	
	43	Display the identification information of the developing unit.	Developing system
	62	Set the calibration data of the color image sensor (image registration sensor F).	
46	21	Color balance adjustment (Manual adjustment)	
48	6	Adjust the rotation speed of each motor.	
49	1	Perform the firmware update.	
	2	Perform the FPGA update.	
50	1	Image position adjustment	
	5	Adjust the print lead edge image position. (PRINTER MODE)	
	10	Adjust the black print image magnification ratio and the off-center position. (The adjustment is made separately for each paper feed section.)	
	20	Image registration adjustment (Manual adjustment)	
	22	Adjust the image registration. (Main scan direction, sub scan direction) (Auto adjustment)/OPC drum phase adjustment (Auto adjustment)	
51	1	Adjust the ON/OFF timing of the secondary transport voltage.	
	2	Adjust the contact pressure (deflection amount) on paper by the main unit. (This adjustment is performed when there is a considerable variation in the print image position on the paper or when paper jams frequently occur.)	
55	1	Set the specifications of the engine control operations. (SOFT SW)	
	3	Set the specifications of the controller operation. (SOFT SW)	
56	2	Backup the data in the EEPROM and Flash memory (including user authentication data) to the USB memory. (Corresponding to the device cloning and the storage backup.)	
	5	Print out the each data and simulation list	
60	1	Check the operations (read/write) of the MFP PWB memory.	
61	1	Check the LSU polygon motor rotation and laser detection.	LSU
	3	Set the laser power	
	4	Print the print image skew adjustment pattern. (LSU unit)	
64	1	Test print. (Self print) (Color mode)	
	2	Test print. (Self print) (Monochrome mode)	
	4	Printer test print. (Self print)	
	5	Printer test print. (Self print) (PCL)	
	6	Printer test print. (Self print) (PS)	
65	10	Set the display of key standby time.	

Main	Sub	Functions	Section
67	21	Image calibration	Printer
	22	Printer color balance adjustment	Printer
	23	Print the printer color balance check sheet.	Printer
	25	Printer color balance adjustment (Manual adjustment)	Printer
	31	Clear the calibration value.	Printer
	33	Change the gamma of the printer screen.	Printer
	34	Set the density correction in the printer high density section. (Support for the high density section tone gap)	Printer
	36	Adjust the density in the low density section.	Printer
	52	Reset the printer color balance adjustment (adjustment for each dither) to the default value. (The set values of SIM67-33 are set to the default values.)	

3. Details of simulation

5

5-1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the display, LCD in the operation panel, and control circuit
Section	Operation panel

Operation/Procedure

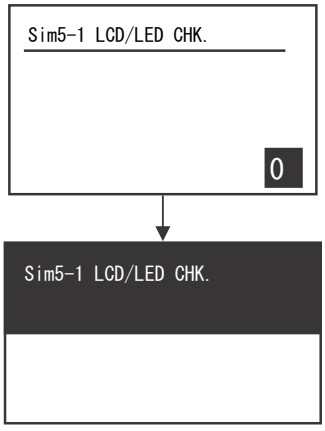
The LCD is changed as shown below.

During this period, each LED is lighted.

The LCD display contrast change and the LED lighting status are checked.

When [OK] key is pressed during the operation, it will be switched to [Key input check] mode.

NOTE: [Key input check] mode is to check if the keys on the operation panel can be detected physically.



5-2

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the heater lamp and the control circuit.
Section	Fusing

Operation/Procedure

1) Press [OK] key.
   The heater lamp operates ON/OFF.
   When [C] key is pressed, the operation is terminated.

5-4

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the discharge lamp and the control circuit.
Section	Process

Operation/Procedure

1) Select the item to be operation checked with .
2) Press [OK] key.
   The discharge lamp lights up for 30 sec.
   When [STOP] key is pressed, the operation is terminated.

Item/Display	Content
DL_K	Discharge lamp for K
DL_C	Discharge lamp for C
DL_M	Discharge lamp for M
DL_Y	Discharge lamp for Y

6

6-1

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the load in the paper transport system (clutches and solenoids) and the control circuits.
Section	Paper transport/Paper exit section

Operation/Procedure

1) Select the item to be operation checked with 10 keys.
2) Press [OK] key.
   The selected load performs the operation.
   When [STOP] key is pressed, the operation is terminated.

Load operation check method:
The load operation is checked by the operation sound. However, there are some loads which cannot be checked with the operation sound.

Item/Display	Name	Content
FUM	Fusing motor	Fusing motor middle speed drive ON/OFF
CPUC	Paper feed tray 1 paper feed clutch	CPUC1 Signal ON/OFF
RRC	PS clutch	RRC Signal ON/OFF
MPFC	Manual paper feed clutch	MPUC1 Signal ON/OFF
POC	Paper delivery clutch	POC Signal ON/OFF
PORC	Paper delivery / switch back clutch	PORC Signal ON/OFF
ADUC	ADU transport clutch 1	ADUC1 Signal ON/OFF
PCSS	Process control shutter solenoid	PCSS Signal ON/OFF
C2MM	Paper feed tray 2 paper feed motor	C2MM Paper feed speed drive ON/OFF
C2LUM	Paper feed tray 2 lift up motor	C2LUM Signal ON/OFF
C2PFC	Paper feed tray 2 paper feed clutch	C2PFC Signal ON/OFF
C2TRC	Paper feed tray 2 paper transport clutch	C2TRC Signal ON/OFF

6-2

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of each fan motor and its control circuit.
Section	Others

Operation/Procedure

1) Select the item to be operation checked with 10 keys..
2) Press [OK] key.
   The selected load performs the operation.
   When [STOP] key is pressed, the operation is terminated.

Load operation check method:
The load operation is checked by the operation sound. However, there are some loads which cannot be checked with the operation sound.

Item/Display	Content
POFM	Paper exit cooling fan motor
PSFM	Power PWB cooling fan motor
LSUFM	LSU cooling fan motor
OZFM1	Ozone fan motor

6-3

Purpose Operation test/check

Function (Purpose) Used to check the operations of the primary transfer unit and the control circuit.

Section Process (Transfer)

Operation/Procedure

1) Press [OK] key, and the transfer unit repeats operations in the mode selected in procedure 1.

During this operation, the transfer unit status (the operation mode position) is displayed.

Mode select key	Display	Transfer mode	Operation
TC1	BLACK	Black mode position	The switching operations are repeated as follows: Drum separation position - Black mode position - Color mode position
	COLOR	Color mode position	
	FREE	Drum separation position	

6-90

Purpose Setting

Function (Purpose) Used to set the machine to the factory settings.

Section

Operation/Procedure

1) Press [OK] key.

7

7-1

Purpose Setting

Function (Purpose) Used to set the operating conditions of aging.

Section Others

Operation/Procedure

1) Select the target to be set with 10 keys.

2) Press [OK] key.
The machine is rebooted in the aging mode.

The aging operation condition set by this mode is maintained hereafter unless the power is turned off or the setting is changed.

No.	Item/Display	Content	Setting range	Setting value
1	AGING	Aging operation setup	0-1	0
2	INTERVAL	Intermittent setup	0-1	0
3	MISFEED DISABLE	JAM detection enable/disable setup	0-1	0
4	FUSING DISABLE	Fusing operation enable/disable setup	0-1	0
5	WARMUP DISABLE	Warm-up skip setup	0-1	0
6	DV CHECK DISABLE	DV unit detection enable/disable setup	0-1	0

7-6

Purpose Setting

Function (Purpose) Used to set the operating intermittent aging cycle.

Section

Operation/Procedure

1) Enter the intermittent aging operation cycle (unit: sec) with 10 key.

2) Press [OK] key.
The time entered in procedure 1) is set.

* The interval time that can be set is 1 to 900 (sec).

The aging operation condition set by this mode is maintained hereafter unless the power is turned off or the setting is changed.

8

8-1

Purpose Operation test/check/adjustment

Function (Purpose) Used to check and adjust the operations of the developing voltage in each print mode and the control circuit.
* When the middle speed is adjusted, the low speed is also adjusted simultaneously.

Section Process (Developing)

Operation/Procedure

1) Select the process speed with 10 keys.

2) Select a target item to be adjusted with Arrow keys.

3) Enter the setting value with 10 keys. (The value specified on the label of the high voltage PWB must be entered.)

* When the Arrow key is pressed, the setting value of each item is saved.

4) Press [OK] key.
When [OK] key is pressed, the voltage inputted in procedure 3 is outputted for 30sec and the set value is saved.
When [OK] key is pressed, the output is terminated.

No.	Item/Display	Content	Setting range	Voltage
1	M DVB_K	K developing bias set value at middle speed	0-600	450
2	M DVB_C	C developing bias set value at middle speed	0-600	450
3	M DVB_M	M developing bias set value at middle speed	0-600	450
4	M DVB_Y	Y developing bias set value at middle speed	0-600	450
5	L DVB_K	K developing bias set value at low speed	0-600	450
6	L DVB_C	C developing bias set value at low speed	0-600	430
7	L DVB_M	M developing bias set value at low speed	0-600	430
8	L DVB_Y	Y developing bias set value at low speed	0-600	430

8-2

Purpose	Operation test/check/adjustment
Function (Purpose)	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit. * When the middle speed is adjusted, the low speed are also adjusted simultaneously.
Section	Process (Charging)

Operation/Procedure

1) Select the process speed.
2) Select a target item to be adjusted with Arrow keys.
3) Enter the adjustment value with 10 keys. (The value specified on the label of the high voltage PWB must be entered.)
   * When the Arrow key is pressed, the setting value of each item is saved.
4) Press [OK] key.
   When [OK] key is pressed, the voltage inputted in procedure 3 is outputted for 30sec and the set value is saved.
   When [OK] key is pressed, the output is terminated.

No.	Item/ Display	Content	Setting range	Default setting
1	M GB_K	K grid bias set value at middle speed	150-850	630
2	M GB_C	C grid bias set value at middle speed	150-850	630
3	M GB_M	M grid bias set value at middle speed	150-850	630
4	M GB_Y	Y grid bias set value at middle speed	150-850	630
5	L GB_K	K grid bias set value at low speed	150-850	615
6	L GB_C	C grid bias set value at low speed	150-850	595
7	L GB_M	M grid bias set value at low speed	150-850	595
8	L GB_Y	Y grid bias set value at low speed	150-850	595

8-6

Purpose	Operation test/check/adjustment
Function (Purpose)	Used to check and adjust the operation of the transfer voltage and the control circuit.
Section	Process (Transport)

Operation/Procedure

1) Select a target item to be adjusted with Arrow keys.
2) Enter the set value with 10 keys.
   Enter the default value specified on the following list.
3) When [OK] key is pressed, the set value is saved.
   When [OK] key is pressed again, the set voltage is outputted.

No.	Item/Display	Content				Adjustment range	Default value
1	T1 LO CL K	Primary transfer bias adjustment value	Color mode	K	Low speed mode	0 - 255	95
2	T1 LO MI K				Middle speed mode	0 - 255	146
3	T1 LO CL CMY			CMY	Low speed mode	0 - 255	139
4	T1 LO MI CMY				Middle speed mode	0 - 255	186
5	T1 LO BW K		Black/White mode	K	Low speed mode	0 - 255	95
6	T1 LO BW K				Middle speed mode	0 - 255	146
1	TC2 PLN CL S	Secondary transfer bias adjustment value	Color mode	Standard Paper mode	Front surface mode	0 - 255	103
2	TC2 PLN CL D				Back surface mode	0 - 255	96
3	TC2 PLN BW S		Black/White mode		Front surface mode	0 - 255	90
4	TC2 PLN BW D				Back surface mode	0 - 255	83
5	TC2 HEV1 CL S		Color mode	Heavy paper mode	Front surface mode	0 - 255	83
6	TC2 HEV1 CL D				Back surface mode	0 - 255	76
7	TC2 HEV1 BW S		Black/White mode		Front surface mode	0 - 255	76
8	TC2 HEV1 BW D				Back surface mode	0 - 255	69
9	T2 OHP CL		Color mode	OHP		0 - 255	69
10	T2 OHP BW		Black/White mode			0 - 255	69
11	T2 ENV CL		Color mode	Envelope		0 - 255	69
12	T2 ENV BW		Black/White mode			0 - 255	69
13	T2 THIN CL		Color mode	Thin		0 - 255	96
14	T2 THIN BW		Black/White mode			0 - 255	90
15	T2 GLOS CL		Color mode	Glossy		0 - 255	83
16	T2 GLOS BW		Black/White mode			0 - 255	76
1	T2 MNS CLEAN	Secondary transfer cleaning bias adjustment value	Negative cleaning (- Pole)			0 - 255	59
2	T2 PLS CLEAN		Positive cleaning (+ Pole)			0 - 255	119
3	T2 COUNTER		Counter (+ Pole)			0 - 255	119
4	T2 BTWN LO		Between paper Low speed (+ Pole)			0 - 255	0
5	T2 BTWN MI		Between paper Mid speed (+ Pole)			0 - 255	0

10

10-1

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the toner supply mechanism (toner supply clutch) and the related circuit.
Section	Process (Developing)

Operation/Procedure

1) Select a target of the operation check with 10 keys.
2) Press [OK] key.
   When [STOP] key is pressed, the operation is terminated.

NOTE: This simulation must be executed without installing the toner cartridges.

If this simulation is executed with the toner cartridges installed, toner will be forcibly supplied to the developing unit, resulting in overtoner.

If this simulation is erroneously executed with the toner cartridges installed, overtoner state may be deleted by making a few black background copy in the single color mode of the target color.

Display	Content
TNM_K	Toner motor K
TNM_C	Toner motor C
TNM_M	Toner motor M
TNM_Y	Toner motor Y
ALL	Toner motor KCMY

14

14--

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag H3, H4, H5, U1 troubles.
Section	

Operation/Procedure

1) Press [OK] key to execute cancellation of the trouble.

16

16--

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag "U2" trouble.
Section	MFPC PWB

Operation/Procedure

1) Press [OK] key to execute cancellation of the trouble.

21

21-1

Purpose Setting

Function (Purpose) Used to set the maintenance cycle.

Section

Operation/Procedure

* Do not change the default setting value of the maintenance counter on SIM21-1. The replacement timing of the fusing cleaning roller, the filter and PS paper dust removal cleaner may not clarify.

1) Set the setting values with 10 keys.

2) Press [OK] key. (The set value is saved.)

No.	Item/Display	Content	Setting range	Default value
1	MAINTE CYCLE (TOTAL)	Maintenance counter (Total)	0 : Default 1 - 300: 1K - 300K 999 : Free	75K
2	MAINTE CYCLE (CL)	Maintenance counter (Color)	0 : Default 1 - 300: 1K - 300K 999 : Free	45K

22

22-1

Purpose Adjustment/Setting/Operation data output/Check

Function (Purpose) Used to check the print count value in each section and each operation mode.
(Used to check the maintenance timing.)

Section

Operation/Procedure

Change the display page with Arrow keys.

Item	Display (Counter)	Content	Note
Total output quantity	TOTAL OUT (BW)	Total output quantity of black and white	All prints including jams
	TOTAL OUT (COL)	Total output quantity of color	All prints including jams
Total use quantity	TOTAL (BW)	Total use quantity of black and white	Effective paper (including self print, excluding jams)
	TOTAL (COL)	Total use quantity of full color	Effective paper (including self print, excluding jams)
Print	PRINT (BW)	Black and white print counter	Billing target (excluding self print)
	PRINT (COL)	Full color print counter	Billing target (excluding self print)
Other	OTHER (BW)	Black and white other counter	Self print quantity
	OTHER (COL)	Color other counter	Self print quantity

22-2

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to check the total numbers of misfeed and troubles. (When the number of total jam is considerably great, it is judged as necessary for repair.)

Section

Operation/Procedure

The paper jam, trouble counter value is displayed.

Display/Item	Content
MACHINE JAM	Machine JAM counter
TROUBLE	Trouble counter

22-3

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to check misfeed positions and the misfeed count of each position.
* Presumption of the faulty point by this data is possible.

Section

Operation/Procedure

The paper jam and misfeed history is displayed from the latest one up to 30 items. (The old ones are deleted sequentially.)

22-4

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to check the trouble (self diag) history.

Section

Operation/Procedure

The trouble history is displayed from the latest one up to 30 items. (The old ones are deleted sequentially.)

* For the list of the trouble codes: Refer to "[6] SELF DIAG AND TROUBLE CODE".

22-5

Purpose Others

Function (Purpose) Used to check the ROM version of each unit (section).

Section Firmware

Operation/Procedure

The ROM version of the installed unit in each section is displayed. When there is any trouble in the software, use this simulation to check the ROM version, and upgrade the version if necessary.

Display/Item	Content
S/N	Serial No.
MCU BOT	MCU (Boot section)
MCU PRG	MCU (Program section)
MCU PRP	MCU (Property)
MCU FPGA	MCU (FPGA)
PNL BOT	PNL (Boot section)
PNL PRG	PNL (Program section)

22-6

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to output various adjustment/setting data (simulations), the firmware version, the counter list and the process control data.

Section

Operation/Procedure

* When installing or servicing, this simulation is executed to print the adjustment data and set data for use in the next servicing. (Memory trouble, PWB replacement, etc.)

1) Select the print list mode with 10 keys. .

Display/Item	Content
1	Firmware version, counter data, etc.
2	List (Parts related with the registration part)
3	Data related to the process control
4	Duplex print

2) Press [OK] key to start printing the list selected in step 1) .

22-9

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to check the number of use (print quantity) of each paper feed section.

Section Paper feed, ADU

Operation/Procedure

The counter values related to paper feed are displayed.

Display/Item	Content
TRAY1	Tray 1 paper feed counter
TRAY2	Tray 2 paper feed counter
ADU	ADU paper feed counter (Paper reverse section)
MFT	Manual paper feed counter

22-10

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to check the system configuration (option, internal hardware).

Section

Operation/Procedure

The system configuration is displayed.

(The model names of the installed devices and options are displayed.)

Item	Display	Content
MACHINE	MX-C300PL	Main unit
	MX-C300P	
	MX-C300PE	
PS	STANDARD	
DESK	NONE/MX-CS11	Paper feed unit
NIC	STANDARD	NIC
WLAN	NONE/STANDARD	WLAN module

22-13

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to check the operating time of the process section (OPC drum, DV unit, toner cartridge).

Section Process

Operation/Procedure

The rotating time and the print quantity of the process section are displayed.

No.	Item/Display		Contents
1	MAINTE	MAINTE ALL CNT	Maintenance(Total) counter
2		MAINTE ALL DAY	Number of day that used Maintenance(Total)
3		MAINTE ALL LIFE	Maintenance(Total) lifr meter
4		MAINTE ALL REMAINDER	Maintenance(Total) remaining day
5		MAINTE COL CNT	Maintenance(Color) counter
6		MAINTE COL DAY	Number of day that used Maintenance(Color)
7		MAINTE COL LIFE	Maintenance(Color) lifr meter
8		MAINTE COL REMAINDER	Maintenance(Color) remaining day
1	FUS	FUS UNIT CNT	Fusing unit counter
2		FUS UNIT TURN	Fusing unit rotation number
3		FUS UNIT DAY	Number of day that used Fusing unit
4		FUS UNIT LIFE	Fusing unit life meter
5		FUS UNIT REMAINDER	Fusing unit remaining day
1	TC1	TC1 UNIT CNT	1st transfer unit counter
2		TC1 UNIT TURN	1st transfer unit rotation number
3		TC1 UNIT DAY	Number of day that used 1st transfer unit
4		TC1 UNIT LIFE	1st transfer unit life meter
5		TC1 UNIT REMAINDER	1st transfer unit remaining day
6		TC1 BELT CNT	1st transfer belt counter
7		TC1 BELT TURN	1st transfer belt rotation number
8		TC1 BELT DAY	Number of day that used 1st transfer belt
9		TC1 BELT LIFE	1st transfer belt life meter
10		TC1 BELT REMAINDER	1st transfer belt remaining day
11		TC1 BLADE CNT	1st transfer blade counter
12		TC1 BLADE TURN	1st transfer blade rotation number
13		TC1 BLADE DAY	Number of day that used 1st transfer blade
14		TC1 BLADE LIFE	1st transfer blade life meter
15		TC1 BLADE REMAINDER	1st transfer blade remaining day
1	TC2	TC2 UNIT CNT	2nd transfer unit counter
2		TC2 UNIT TURN	2nd transfer unit rotation number
3		TC2 UNIT DAY	Number of day that used 2st transfer unit
4		TC2 UNIT LIFE	2st transfer unit life meter
5		TC2 UNIT REMAINDER	2st transfer unit remaining day
6		TC2 CLNROLL CNT	2st cleaning roller counter
7		TC2 CLNROLL TURN	2st cleaning roller rotation number
8		TC2 CLNROLL DAY	Number of day that used 2st cleaning roller
9		TC2 CLNROLL LIFE	2st cleaning roller life meter
10		TC2 CLNROLL REMAINDER	2st cleaning roller remaining day
1	DV (K)	DV CTRG(K) CNT	Developer cartridge print counter (K)
2		DV CTRG(K) TURN	Developer cartridge rotation number(K)
3		DV CTRG(K) DAY	Number of day that used DV cartridge (K)
4		DV CTRG(K) LIFE	Developer cartridge life meter (K)
5		DV CTRG(K) REMAINDER	Developer cartridge remaining day(K)
1	DV (C)	DV CTRG(C) CNT	Developer cartridge print counter (C)
2		DV CTRG(C) TURN	Developer cartridge rotation number(C)
3		DV CTRG(C) DAY	Number of day that used DV cartridge (C)
4		DV CTRG(C) LIFE	Developer cartridge life meter (C)
5		DV CTRG(C) REMAINDER	Developer cartridge remaining day(C)

1	DV (M)	DV CTRG(M) CNT	Developer cartridge print counter (M)
2		DV CTRG(M) TURN	Developer cartridge rotation number(M)
3		DV CTRG(M) DAY	Number of day that used DV cartridge (M)
4		DV CTRG(M) LIFE	Developer cartridge life meter (M)
5		DV CTRG(M) REMAINDER	Developer cartridge remaining day(M)
1	DV (Y)	DV CTRG(Y) CNT	Developer cartridge print counter (Y)
2		DV CTRG(Y) TURN	Developer cartridge rotation number(Y)
3		DV CTRG(Y) DAY	Number of day that used DV cartridge (Y)
4		DV CTRG(Y) LIFE	Developer cartridge life meter (Y)
5		DV CTRG(Y) REMAINDER	Developer cartridge remaining day(Y)
1	DRUM (K)	DRUM CTRG(K) CNT	Drum cartridge print counter (K)
2		DRUM CTRG(K) TURN	Drum cartridge rotation number(K)
3		DRUM CTRG(K) DAY	Number of day that used Drum cartridge (K)
4		DRUM CTRG(K) LIFE	Drum cartridge life meter (K)
5		DRUM CTRG(K) REMAINDER	Drum cartridge remaining day(K)
1	DRUM (C)	DRUM CTRG(C) CNT	Drum cartridge print counter (C)
2		DRUM CTRG(C) TURN	Drum cartridge rotation number(C)
3		DRUM CTRG(C) DAY	Number of day that used Drum cartridge(C)
4		DRUM CTRG(C) LIFE	Drum cartridge life meter (C)
5		DRUM CTRG(C) REMAINDER	Drum cartridge remaining day(C)
1	DRUM (M)	DRUM CTRG(M) CNT	Drum cartridge print counter (M)
2		DRUM CTRG(M) TURN	Drum cartridge rotation number(M)
3		DRUM CTRG(M) DAY	Number of day that used Drum cartridge (M)
4		DRUM CTRG(M) LIFE	Drum cartridge life meter (M)
5		DRUM CTRG(M) REMAINDER	Drum cartridge remaining day(M)
1	DRUM (Y)	DRUM CTRG(Y) CNT	Drum cartridge print counter (Y)
2		DRUM CTRG(Y) TURN	Drum cartridge rotation number(Y)
3		DRUM CTRG(Y) DAY	Number of day that used Drumcartridge (Y)
4		DRUM CTRG(Y) LIFE	Drum cartridge life meter (Y)
5		DRUM CTRG(Y) REMAINDER	Drum cartridge remaining day(Y)
1	TN (K)	TN CTRG(K) CNT	Toner cartridge print counter (K)
2		TN CTRG(K) TURN	Toner cartridge rotation number(K)
3		TN CTRG(K) DAY	Number of day that used Toner cartridge (K)
4		TN CTRG(K) LIFE	Toner cartridge life meter (K)
5		TN CTRG(K) REMAINDER	Toner cartridge remaining day(K)
1	TN (C)	TN CTRG(C) CNT	Toner cartridge print counter (C)
2		TN CTRG(C) TURN	Toner cartridge rotation number(C)
3		TN CTRG(C) DAY	Number of day that used Toner cartridge (C)
4		TN CTRG(C) LIFE	Toner cartridge life meter (C)
5		TN CTRG(C) REMAINDER	Toner cartridge remaining day(C)
1	TN (M)	TN CTRG(M) CNT	Toner cartridge print counter (M)
2		TN CTRG(M) TURN	Toner cartridge rotation number(M)
3		TN CTRG(M) DAY	Number of day that used Toner cartridge (M)
4		TN CTRG(M) LIFE	Toner cartridge life meter (M)
5		TN CTRG(M) REMAINDER	Toner cartridge remaining day(M)
1	TN (Y)	TN CTRG(Y) CNT	Toner cartridge print counter (Y)
2		TN CTRG(Y) TURN	Toner cartridge rotation number(Y)
3		TN CTRG(Y) DAY	Number of day that used Toner cartridge (Y)
4		TN CTRG(Y) LIFE	Toner cartridge life meter (Y)
5		TN CTRG(Y) REMAINDER	Toner cartridge remaining day(Y)
1	OZONE FILTER	OZONE FILTER CNT	Ozone filter counter
2		OZONE FILTER DAY	Number of day that used Toner cartridge
3		OZONE FILTER LIFE	Ozone filter life meter
4		OZONE FILTER REMAINDER	Toner cartridge remaining day

22-14

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to check the usage number of toner cartridge

Section Process

Operation/Procedure

Used to check the usage number of toner cartridge.

No.	Item/Display		Contents
1	K	INSTALL	Accumulated toner cartridge installation number
		NN END	Accumulated near end number
		END	Accumulated end number
		RESIDUAL	Remaining amount (%)
2	C	INSTALL	Accumulated toner cartridge installation number
		NN END	Accumulated near end number
		END	Accumulated end number
		RESIDUAL	Remaining amount (%)
3	M	INSTALL	Accumulated toner cartridge installation number
		NN END	Accumulated near end number
		END	Accumulated end number
		RESIDUAL	Remaining amount (%)
4	Y	INSTALL	Accumulated toner cartridge installation number
		NN END	Accumulated near end number
		END	Accumulated end number
		RESIDUAL	Remaining amount (%)

23

23-2

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to output the trouble history list of paper jam and misfeed. (If the number of troubles of misfeed is considerably great, the judgment is made that repair is required.)

Section

Operation/Procedure

Press [OK] key to execute print.

The trouble history of paper jams and misfeed is printed.

24

24-1

Purpose Data clear

Function (Purpose) Used to clear the jam counter, and the trouble counter. (After completion of maintenance, clear the counters.)

Section

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK] key.
3) Press [OK] key.
   The target counter is cleared.

Item/Display	Content
MACHINE JAM	Main unit JAM counter
TROUBLE	Trouble counter

24-2

Purpose Data clear

Function (Purpose) Used to clear the number of use (the number of prints) of each paper feed section.

Section

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK] key.
3) Press [OK] key.
   The target counter is cleared.

Display/Item	Content
Tray 1	Tray 1 paper feed JAM counter
Tray 2	Tray 2 paper feed JAM counter
ADU	ADU paper feed counter
MFT	manual paper feed counter

24-4

Purpose Data clear

Function (Purpose) Used to clear the maintenance counter, the printer counters of the transport unit and the fusing unit. (After completion of maintenance, clear the counters.)

Section

Operation/Procedure

1) Select the item to be cleared with the 10 keys.
2) Press [OK] key.
3) Press [OK] key to execute the clear.
   The target counter is cleared.

Item/Display		Content
Maintenance	MAINTE ALL	Maintenance counter (Total) (Counter)
		Maintenance counter (Total) (Number of use days)
	MAINTE COL	Maintenance counter (Color) (Counter)
		Maintenance counter (Color) (Number of use days)
Fusing	FUS CLN	Fusing cleaning roller (Counter)
		Fusing cleaning roller (Number of use days)
		Fusing cleaning roller (Accumulated number of rotations)
Transfer	TC1	Primary transfer unit (Counter)
		Primary transfer unit (Number of use days)
		Primary transfer unit (Accumulated number of rotations)
	TC1 BELT	Primary transfer belt (Counter)
		Primary transfer belt (Number of use days)
		Primary transfer belt (Accumulated number of rotations)
	TC1 BLADE	Transfer blade (Counter)
		Transfer blade (Number of use days)
		Transfer blade (Accumulated number of rotations)
	TC2	Secondary transfer unit (Counter)
		Secondary transfer unit (Number of use days)
		Secondary transfer unit (Accumulated number of rotations)
	TC2 CLN	Secondary transfer roller (Counter)
		Secondary transfer roller (Number of use days)
		Secondary transfer roller (Accumulated number of rotations)
Developer	DV K	Developer cartridge (K) (Counter)
		Developer cartridge (K) (Number of use days)
		Developer cartridge (K) (Accumulated number of rotations)
	DV C	Developer cartridge (C) (Counter)
		Developer cartridge (C) (Number of use days)
		Developer cartridge (C) (Accumulated number of rotations)
	DV M	Developer cartridge (M) (Counter)
		Developer cartridge (M) (Number of use days)
		Developer cartridge (M) (Accumulated number of rotations)
	DV Y	Developer cartridge (Y) (Counter)
		Developer cartridge (Y) (Number of use days)
		Developer cartridge (Y) (Accumulated number of rotations)
Drum	DRUM_ K	Drum cartridge (K) (Counter)
		Drum cartridge (K) (Number of use days)
		Drum cartridge (K) (Accumulated number of rotations)
	DRUM_ C	Drum cartridge (C) (Counter)
		Drum cartridge (C) (Number of use days)
		Drum cartridge (C) (Accumulated number of rotations)
	DRUM_ M	Drum cartridge (M) (Counter)
		Drum cartridge (M) (Number of use days)
		Drum cartridge (M) (Accumulated number of rotations)
	DRUM_Y	Drum cartridge (Y) (Counter)
		Drum cartridge (Y) (Number of use days)
		Drum cartridge (Y) (Accumulated number of rotations)

Item/Display		Content
Other	OZONE FILTER	Ozone filter (Counter)
		Ozone filter (Number of use days)

* The winding counter for the fusing web cleaning is cleared by being synchronized with the fusing web cleaning feed counter.

24-5

Purpose Data clear

Function (Purpose) Used to clear the developer counter. (After replacement of developer, clear the counter.)

Section

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK] key.
3) Press [OK] key.
   The target counter is cleared.

NOTE: When SIM22-1 is executed, this counter is also cleared automatically.

Item/Display	Content
DV_K	Developer cartridge print counter (K)
	Developer cartridge accumulated traveling distance (cm) (K)
	Number of day that used developer (Day) K
DV_C	Developer cartridge print counter (C)
	Developer cartridge accumulated traveling distance (cm) (C)
	Number of day that used developer (Day) C
DV_M	Developer cartridge print counter (M)
	Developer cartridge accumulated traveling distance (cm) (M)
	Number of day that used developer (Day) M
DV_Y	Developer cartridge print counter (Y)
	Developer cartridge accumulated traveling distance (cm) (Y)
	Number of day that used developer (Day) Y

24-9

Purpose Data clear

Function (Purpose) Used clear the printer mode print counter and the self print mode print counter.

Section

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK] key.
3) Press [OK] key.
   The target counter is cleared.

Item/Display	Content
PRINT BW	Print counter (B/W)
PRINT COL	Print counter (COLOR)
OTHER BW	Other counter (B/W)
OTHER COL	Other counter (COLOR)

24-35

Purpose Data clear

Function (Purpose) Used to clear the usage number of toner cartridge.

Section

Operation/Procedure

1) Press [OK] key.
2) Press [OK] key.
   The target counter is cleared.

Item/Display
TN END CNT CLR

25

25-1

Purpose Operation test/check

Function (Purpose) Used to check the operations of the developing section.

Section Process (Developing section)

Operation/Procedure

1) Select the process speed with 10 keys.
2) Press [OK] key.
   The developing motor and the OPC drum motor rotate for 3 minutes and the output level of the toner density sensor is displayed.

Process speed	Sensor Name	Contents
MIDDLE	ADJ_M	Toner density sensor (K,C,M,Y in turn)
	VO_M	Toner density sensor control voltage level (K,C,M,Y in turn)
LOW	ADJ_L	Toner density sensor (K,C,M,Y in turn)
	VO_L	Toner density sensor control voltage level (K,C,M,Y in turn)

No.	Item/Display	Contents
1	MIDDLE	Process speed : Middle
2	LOW	Process speed : Low

25-2

Purpose Setting

Function (Purpose) Display the value of the selected sensor and register the toner density control value, toner density control voltage, developer adjustment area and sensitivity adjustment value by driving the all drum motors.(Automatic adjustment)

Section Image process (Photoconductor/Developing/Transfer/Cleaning)

Operation/Procedure

1) Select the item with 10 keys.
2) Press [OK] key.

The developing motor rotates for 1 minutes and 30 seconds, and the toner density sensor makes sampling of the toner density. The detected level is displayed.

After stopping the developing motor, the average value of the toner density sampling results is set as the reference toner density control level.

NOTE: When the above operation is interrupted on the way, the reference toner concentration level is not set. Also when error code of EE-EC, EE-EL or EE-EU is displayed, the reference toner density level is not set normally.

Do not execute this simulation except when new developer is supplied. If it is executed in other cases, undertoner or overtone may occur, causing a trouble.

Display during operation

Item/Display	Content
TCS_K	Toner density sensor control voltage level K
TCS_C	Toner density sensor control voltage level C
TCS_M	Toner density sensor control voltage level M
TCS_Y	Toner density sensor control voltage level Y
TSG_K	Toner density sensor control level K
TSG_C	Toner density sensor control level C
TSG_M	Toner density sensor control level M
TSG_Y	Toner density sensor control level Y

Display after completion of the adjustment

Item/Display	Mode	Range
ADJ_L_K	Toner density control adjustment value in the low speed process mode	1 - 255
ADJ_L_C		1 - 255
ADJ_L_M		1 - 255
ADJ_L_Y		1 - 255
ADJ_M_K	Toner density control adjustment value in the medium speed process mode	1 - 255
ADJ_M_C		1 - 255
ADJ_M_M		1 - 255
ADJ_M_Y		1 - 255
VO_L_K	Toner density sensor control voltage level in the low speed process mode	1 - 255
VO_L_C		1 - 255
VO_L_M		1 - 255
VO_L_Y		1 - 255
VO_M_K	Toner density sensor control voltage level in the medium speed process mode	1 - 255
VO_M_C		1 - 255
VO_M_M		1 - 255
VO_M_Y		1 - 255

Display and condition in case of an error

Error display	Error name	Error details
EE-EL	EL error	The sensor output level is lower than 77, or the control voltage level is higher than 207.
EE-EU	EU error	The sensor output level is higher then 177, or the control voltage level is lower than 52.
EE-EC	EC error	The sensor output level is out of 128+/- 10.

25-4

Purpose Operation test/check

Function (Purpose) Used to display the toner control correction value.

Section Process (Developing section)

Operation/Procedure

1) Select the color with 10 keys.

2) Press [OK] key.

Color	Item/Display	Contents	Minimum	Max
K	YLD_CNT_FB	Toner supply FB ratio by yield count	50	200
	DELTA_DVB	⊿DVB(Process control DVB-ideal DVB)	-500	500
	IDL_DVB	Ideal DVB	100	600
	PROCON_DVB	Process control DVB	0	600
	DV_LIFE	Developer life area	1	32
	COVERAGE_AREA	Average coverage area	1	29
	ENV_AREA	Environmental area	1	16
	MULTI_TIME	Accumulated driving time area	1	8
	PRO_FB_CNT	Process control feedback toner supply remaining number of times	0	65535
	PRO_FB_INT	Process control feedback toner supply interval	0	65535
	PRO_FB_RATIO	Process control feedback toner supply ratio	-127	127
	RECV_MODE_CNT(+)	The number of times of recovery mode (+)	0	65535
	RECV_MODE_CNT(-)	The number of times of recovery mode (-)	0	65535
C	YLD_CNT_FB	Toner supply FB ratio by yield count	50	200
	DELTA_DVB	⊿DVB(Process control DVB-ideal DVB)	-500	500
	IDL_DVB	Ideal DVB	100	600
	PROCON_DVB	Process control DVB	0	600
	DV_LIFE	Developer life area	1	32
	COVERAGE_AREA	Average coverage area	1	29
	ENV_AREA	Environmental area	1	16
	MULTI_TIME	Accumulated driving time area	1	8
	PRO_FB_CNT	Process control feedback toner supply remaining number of times	0	65535
	PRO_FB_INT	Process control feedback toner supply interval	0	65535
	PRO_FB_RATIO	Process control feedback toner supply ratio	-127	127
	RECV_MODE_CNT(+)	The number of times of recovery mode (+)	0	65535
	RECV_MODE_CNT(-)	The number of times of recovery mode (-)	0	65535
M	YLD_CNT_FB	Toner supply FB ratio by yield count	50	200
	DELTA_DVB	⊿DVB(Process control DVB-ideal DVB)	-500	500
	IDL_DVB	Ideal DVB	100	600
	PROCON_DVB	Process control DVB	0	600
	DV_LIFE	Developer life area	1	32
	COVERAGE_AREA	Average coverage area	1	29
	ENV_AREA	Environmental area	1	16
	MULTI_TIME	Accumulated driving time area	1	8
	PRO_FB_CNT	Process control feedback toner supply remaining number of times	0	65535
	PRO_FB_INT	Process control feedback toner supply interval	0	65535
	PRO_FB_RATIO	Process control feedback toner supply ratio	-127	127
	RECV_MODE_CNT(+)	The number of times of recovery mode (+)	0	65535
	RECV_MODE_CNT(-)	The number of times of recovery mode (-)	0	65535
Y	YLD_CNT_FB	Toner supply FB ratio by yield count	50	200
	DELTA_DVB	⊿DVB(Process control DVB-ideal DVB)	-500	500
	IDL_DVB	Ideal DVB	100	600
	PROCON_DVB	Process control DVB	0	600
	DV_LIFE	Developer life area	1	32
	COVERAGE_AREA	Average coverage area	1	29
	ENV_AREA	Environmental area	1	16
	MULTI_TIME	Accumulated driving time area	1	8
	PRO_FB_CNT	Process control feedback toner supply remaining number of times	0	65535
	PRO_FB_INT	Process control feedback toner supply interval	0	65535
	PRO_FB_RATIO	Process control feedback toner supply ratio	-127	127
	RECV_MODE_CNT(+)	The number of times of recovery mode (+)	0	65535
	RECV_MODE_CNT(-)	The number of times of recovery mode (-)	0	65535

25-5

Purpose Operation test/check

Function (Purpose) Used to display the toner supply amount detection system value.

Section Process (Developing section)

Operation/Procedure

1) Select the color with 10 keys.

2) Press [OK] key.

Color	Item/Display	Contents	Minimum	Max
K	TCS_B_AVE.	Toner sensor output block average value	0	255
	TSG_HUM	Current TSG environment correction value (middle speed)	-127	127
	TSG_COV	Current TSG print rate correction value (middle speed)	-127	127
	TSG_LIFE	Current TSG developer life correction value (middle speed)	-127	127
	TSG_ENV	Current TSG cumulative drive area correction value (middle speed)	-127	127
	DELTA_TSG	Average coverage area	-254	254
	TSG REF	Operation voltage correction value	1	255
	TSG_TOTAL	Operation voltage target value (Middle speed)	0	255
	TCS_AVE.	Toner sensor output average value	0	255
	TN_EMP_W	The threshold of toner empty (Over W count detection counts continuously)	0	255
	TN_EMP_X	The threshold of toner empty (Over X count detection counts continuously)	0	255
	TN_EMP_Y	The threshold of toner empty (Over Y count detection counts continuously)	0	255
C	TCS_B_AVE.	Toner sensor output block average value	0	255
	TSG_HUM	Current TSG environment correction value (middle speed)	-127	127
	TSG_COV	Current TSG print rate correction value (middle speed)	-127	127
	TSG_LIFE	Current TSG developer life correction value (middle speed)	-127	127
	TSG_ENV	Current TSG cumulative drive area correction value (middle speed)	-127	127
	DELTA_TSG	Average coverage area	-254	254
	TSG REF	Operation voltage correction value	1	255
	TSG_TOTAL	Operation voltage target value (Middle speed)	0	255
	TCS_AVE.	Toner sensor output average value	0	255
	TN_EMP_W	The threshold of toner empty (Over W count detection counts continuously)	0	255
	TN_EMP_X	The threshold of toner empty (Over X count detection counts continuously)	0	255
	TN_EMP_Y	The threshold of toner empty (Over Y count detection counts continuously)	0	255
M	TCS_B_AVE.	Toner sensor output block average value	0	255
	TSG_HUM	Current TSG environment correction value (middle speed)	-127	127
	TSG_COV	Current TSG print rate correction value (middle speed)	-127	127
	TSG_LIFE	Current TSG developer life correction value (middle speed)	-127	127
	TSG_ENV	Current TSG cumulative drive area correction value (middle speed)	-127	127
	DELTA_TSG	Average coverage area	-254	254
	TSG REF	Operation voltage correction value	1	255
	TSG_TOTAL	Operation voltage target value (Middle speed)	0	255
	TCS_AVE.	Toner sensor output average value	0	255
	TN_EMP_W	The threshold of toner empty (Over W count detection counts continuously)	0	255
	TN_EMP_X	The threshold of toner empty (Over X count detection counts continuously)	0	255
	TN_EMP_Y	The threshold of toner empty (Over Y count detection counts continuously)	0	255
Y	TCS_B_AVE.	Toner sensor output block average value	0	255
	TSG_HUM	Current TSG environment correction value (middle speed)	-127	127
	TSG_COV	Current TSG print rate correction value (middle speed)	-127	127
	TSG_LIFE	Current TSG developer life correction value (middle speed)	-127	127
	TSG_ENV	Current TSG cumulative drive area correction value (middle speed)	-127	127
	DELTA_TSG	Average coverage area	-254	254
	TSG REF	Operation voltage correction value	1	255
	TSG_TOTAL	Operation voltage target value (Middle speed)	0	255
	TCS_AVE.	Toner sensor output average value	0	255
	TN_EMP_W	The threshold of toner empty (Over W count detection counts continuously)	0	255
	TN_EMP_X	The threshold of toner empty (Over X count detection counts continuously)	0	255
	TN_EMP_Y	The threshold of toner empty (Over Y count detection counts continuously)	0	255

26

26-6

Purpose Setting

Function (Purpose) Used to set the specifications (paper, fixed magnification ratio, etc.) of the destination.

Section

Operation/Procedure

1) Select an item to be set with 10 keys.

2) Press [OK] key.
The selected set content is saved.

No.	Item/Display	Contents
1	U.S.A.	United States of America
2	CANADA	Canada
3	INCH	Inch series, other destinations
4	JAPAN	Japan
5	AB_B	AB series (B5 detection), other destinations
6	EUROPE	Europe
7	U.K.	United Kingdom
8	AUS.	Australia
9	AB_A	AB series (A5 detection), other destinations
10	CHINA	China

26-18

Purpose Setting

Function (Purpose) Used to set Disable/Enable of the toner save mode operation.
(For the Japan and the UK versions.)

Section

Operation/Procedure

1) Enter the set value with 10 keys.

2) Press [OK] key.
The selected set content is saved.

No.	Item/Display	Content		Default value
1	TN SAVE MODE PRINT	0	Printer toner save mode is inhibited.	0
		1	Printer toner save mode is allowed.	

26-30

Purpose Setting

Function (Purpose) Used to set the operation mode corresponding to the CE mark (Europe safety standards). (For slow start to drive the fusing heater lamp)

Section

Operation/Procedure

1) Enter the set value with 10 keys.

No.	Item/Display	Content		Range
1	(0:YES, 1:NO)	1	Control allowed	0 - 1
		0	Control inhibited	

2) Press [OK] key.
The set value in step 1) is saved.

* Even in Enable state, the control may not be executed due to the power frequency, etc.

<Destionation setting/ Deffault value>

Destination	Default value	Destination	Default value
U.S.A	1 (CE not supported)	EUROPE	0 (CE supported)
CANADA	1 (CE not supported)	U.K.	0 (CE supported)
INCH	1 (CE not supported)	AUS.	0 (CE supported)
JAPAN	1 (CE not supported)	AB_A	0 (CE supported)
AB_B	1 (CE not supported)	CHINA	0 (CE supported)

26-35

Purpose Setting

Function (Purpose) Used to set the display mode of SIM 22-4 trouble history when a same trouble occurred repeatedly. There are two display modes: display as one trouble and display as several series of troubles.

Section

Operation/Procedure

1) Enter the set value with 10 keys.

No.	Item/Display	Contents		Range
1	TROUBLE MEMORY MODE	0	Only once display. If the trouble is the same as the current one, the trouble is not saved.	0 - 1
		1	Anytime display. Even if the trouble is the same as the current one, the trouble is saved.	

2) Press [OK] key.
The selected set content is saved.

26-38

Purpose Setting

Function (Purpose) Used to set Continue/Stop of print when the maintenance life is reached.

Section

Operation/Procedure

1) Enter the set value with 10 keys.

2) Press [OK] key.
The selected set content is saved.

No.	Item/Display	Content		Setting range
1	M LIFE OVER (0: CONTINUE 1: STOP)	0	Print Enable/Disable setting when the maintenance timing is over (Print Continue)	0 - 1
		1	Print Enable/Disable setting when the maintenance timing is over (Print Stop)	

26-50

Purpose Setting

Function (Purpose) Used to set functions.

Section

Operation/Procedure

1) Enter the set value with 10 key.

2) Press [OK] key. (The set value is saved.)

No.	Item/Display	Content		Range	Default value
1	POWER SHUT OFF SET	0	Auto power shut off is not displayed.	0 - 1	Refer to *1
		1	Auto power shut off is displayed.		

(*1) Default values for each destination

Destination	Default value	Destination	Default value
U.S.A	1	EUROPE	0
CANADA	1	U.K.	0
INCH	1	AUS.	1
JAPAN	1	AB_A	1
AB_B	1	CHINA	1

26-53

Purpose Setting

Function (Purpose) User auto color calibration (color balance adjustment) Inhibit/Allow setting

Section

Operation/Procedure

1) Enter the set value with 10 keys.

No.	Item/Display	Contents		Range
1	ACC	1	ACC is allowed.	0 - 1
		0	ACC is permitted.	

2) Press [OK] key.
The selected set content is saved.

1 '16/May

26-54

Purpose	Setting
Function (Purpose)	Used to set LCD contrast PWM duty
Section	

Operation/Procedure

1) Enter the set value with 10 keys.

No.	Item/Display	Contents	Range
1	LCD PWM duty	PWM duty value	30 - 70

2) Press [OK] key.
The selected set content is saved.

26-69

Purpose	Setting
Function (Purpose)	Used to set the operating conditions for toner near end.
Section	

Operation/Procedure

1) Select the item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
The selected set content is saved.

Item	Display	Content	Range	Default value
A	TN PREP 0:Y 1:N	The toner preparation message is displayed/ is not displayed. (0:Y 1:N)	0 - 1	Refer to the destination list
B	REM TN LV	Toner preparation indication at the toner rest amount x%.(From 0.5% to 9.50%, it is possible to set in0.5%)	0 - 9	4
C	TN N END 0:Y 1:N	The toner near end message is displayed is not displayed.(0:Y 1:N)	0 - 1	Refer to the destination list
D	TN END	Operation Enable / Disable in TONER END	1 - 3	Refer to the destination list
E	TN END CNT	Setting of the number of print outputs Enable after TONER NEAR END.	1 - 3	1
F	TN E-MAIL ALERT	When near near toner end of Toner Low status of E-mail alert system is sent. (0 : near near end / 1 : near end)	0 - 1	1

<List of Default values and set values for each destination>

1

Destination	Set value		
	Toner preparation	Toner near end	
U.S.A	0 (Displayed)	0 (Displayed)	
CANADA	0 (Displayed)	0 (Displayed)	
INCH	0 (Displayed)	0 (Displayed)	
JAPAN	0 (Displayed)	1 (Not Displayed)	
AB_B	0 (Displayed)	0 (Displayed)	
EUROPE	0 (Displayed)	0 (Displayed)	
U.K.	0 (Displayed)	0 (Displayed)	
AUS.	0 (Displayed)	0 (Displayed)	
AB_A	0 (Displayed)	0 (Displayed)	
CHINA	0 (Displayed)	0 (Displayed)	

26-73

Purpose	Setting
Function (Purpose)	Used to set Toner save setting. .
Section	

Operation/Procedure

1) Enter the set value with 10 keys.
2) Press [OK] key.
The selected set content is saved.

Item/Display	Content
TONER SAVE DISP	Toner save setting is displayed (0) / is not displayed (1)

Destination	Default value	Destination	Default value
U.S.A	0	EUROPE	0
CANADA	0	U.K.	1
INCH	0	AUS.	0
JAPAN	1	AB_A	0
AB_B	0	CHINA	0

27

27-2

Purpose	Setting
Function (Purpose)	Used to set the sender's registration number and the HOST server telephone number. (FSS function)
Section	

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Press [OK] key.

Item/Display	Content
USER FAX_NO.	Sender registration number (Max. 16 digits)
SRV TEL_NO.	Host server telephone number (Max. 16 digits) - Refer to the destination list

<List of Default values and set values for each destination>

Destination	Set value
U.S.A	16 figure ALL"(NULL)"
CANADA	16 figure ALL"(NULL)"
INCH	16 figure ALL"(NULL)"
JAPAN	"0120382327"
AB_B	16 figure ALL"(NULL)"
EUROPE	16 figure ALL"(NULL)"
U.K.	16 figure ALL"(NULL)"
AUS.	16 figure ALL"(NULL)"
AB_A	16 figure ALL"(NULL)"
CHINA	16 figure ALL"(NULL)"

27-4

Purpose	Setting
Function (Purpose)	Used to set the initial call and toner order auto send. (FSS function)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display		Content		Setting range		Default value	Remarks
1	TONER ORDER TIMING (K)	EMPTY	Toner order auto send timing setting (K)	EMPTY	0 - 11	0	6 (25%)	
		TONER NEAR END		TONER NEAR END		1		
		5%		5%		2		
		10%		10%		3		
		15%		15%		4		
		20%		20%		5		
		25%		25%		6		
		30%		30%		7		
		35%		35%		8		
		40%		40%		9		
		45%		45%		10		
		50%		50%		11		
2	TONER ORDER TIMING (C)	EMPTY	Toner order auto send timing setting (C)	EMPTY	0 - 11	0	3(49% - 25%)	
		TONER NEAR END		TONER NEAR END		1		
		5%		5%		2		
		10%		10%		3		
		15%		15%		4		
		20%		20%		5		
		25%		25%		6		
		30%		30%		7		
		35%		35%		8		
		40%		40%		9		
		45%		45%		10		
		50%		50%		11		
3	TONER ORDER TIMING (M)	EMPTY	Toner order auto send timing setting (M)	EMPTY	0 - 11	0	6 (25%)	
		TONER NEAR END		TONER NEAR END		1		
		5%		5%		2		
		10%		10%		3		
		15%		15%		4		
		20%		20%		5		
		25%		25%		6		
		30%		30%		7		
		35%		35%		8		
		40%		40%		9		
		45%		45%		10		
		50%		50%		11		
4	TONER ORDER TIMING (Y)	EMPTY	Toner order auto send timing setting (Y)	EMPTY	0 - 11	0	6 (25%)	
		TONER NEAR END		TONER NEAR END		1		
		5%		5%		2		
		10%		10%		3		
		15%		15%		4		
		20%		20%		5		
		25%		25%		6		
		30%		30%		7		
		35%		35%		8		
		40%		40%		9		
		45%		45%		10		
		50%		50%		11		
5	TONER ORDER CONTROL	Setting of toner order timing control			0 - 1		0	0: Toner order is sent by fixed remained amount 1: Toner order is sent by the result of toner consumption calculation
6	TONER DELIVERY CONTROL	Setting of toner comprehensive transport			0 - 1		0	0: Comprehensive transport off 1: Comprehensive transport on
7	TONER DELIVERY INTERVAL	The threshold setting of toner comprehensive transport			1 - 15		3	

27-7

Purpose Setting

Function (Purpose) Used to set of the enable, alert callout. (FSS function)

Section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display	Content		Range	Default value
1	FUNCTION	0	FSS function enable	0 - 1	1(No)
		1	FSS function disable (Default)		
2	ALERT	0	Alert call enable (Default)		0(Yes)
		1	Alert call disable		

27-14

Purpose Setting

Function (Purpose) Used to set the FSS function connection test mode.

Section

Operation/Procedure

1) Enter the set value with 10 keys.

No.	Item/Display	Contents		Range	Default value
1	CONNECTEST ODE(1:ON 0:OFF)	1	Enable FSS function connection test mode.	0 - 1	0 (OFF)
		0	Disable FSS function connection test mode.		

2) Press [OK] key.
   The set value in step 1) is saved.

27-15

Purpose Setting

Function (Purpose) Used to display the FSS connection condition.

Section

Operation/Procedure

1) Enter the set value with 10 keys.

No.	Item/Display	Contents			Default value
1	FSS CONNECTION	Display the FSS connection.	0	Unused	0
			1	Used	

27-16

Purpose Setting

Function (Purpose) Used to FSS alert setting.

Section

Operation/Procedure

1) Enter the set value with 10 keys.
2) Press [OK] key.
   The set value in step 1) is saved.

No.	Item/Display	Contents		Setting range
1	MAINTENANCE ALERT	0	Maintenance alert transmission permission setting	0 - 1
		1		
2	TONER ORDER ALERT	0	Toner order alert transmission permission setting	0 - 1
		1		
3	TONER CTRG ALERT	0	Toner cartridge alert transmission permission setting	0 - 1
		1		
4	TROUBLE ALERT	0	Trouble alert transmission permission setting	0 - 1
		1		

30

30-1

Purpose Operation test/check

Function (Purpose) Used to check the operations of the sensors and the detectors in other than the paper feed section and the control circuits.

Section

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The sensors and the detectors which are turned ON are highlighted.

No./	Item/Display	Contents
1	PPD2	Resist detection
2	POD1	Detects the paper exit from fusing.
3	TFD2	Paper exit tray full detection
4	DSW_R	Right door open/close detection
5	DSW_F	Front cover open/close detection
6	DHPD_K	OPC drum phase detection (K)
7	DHPD_CL	OPC drum phase detection (Color)
8	TNFD	Waste toner full detection
9	CPED1	1CS paper detection
14	MPED	Drum detection
16	C2LUD	2CS paper upper limit detection
17	C2PPD	2CS paper transport detection
18	DSW_C2	2CS transport cover open/close detection
19	CSS2	2CS tray detection
20	1TUD_K	Primary transfer belt separation detection (K)
21	1TUD_CL	Primary transfer belt separation detection (Color)

43

43-1

Purpose Setting

Function (Purpose) Used to set the fusing reference temperature of each operation mode.

Section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

NOTE: The set value is the reference value, and it may differ from the actual fusing temperature depending on the operating conditions.

No.	Item/Display	Content	Setting range	Group A	Group B	Group C
1	HL_UM READY	Ready standby TH_UM set value	70 - 230	145	155	155
2	HL_UM PLAIN PAPER BW	Black-White plain paper TH_UM set value	70 - 230	155	165	165
3	HL_UM PLAIN PAPER CL	Color plain paper TH_UM set value	70 - 230	160	170	170
4	WARM UP END TIME	Warm-up complete time	1 - 255	13	13	13
5	HL_UM PRE-JOB	Resetting from preheating TH_UM set value	30 - 200	150	160	160
6	HL_UM WARMUP_120L	Warm-up TH_UM set value (when the fusing temperature is under 120 degrees C)	70 - 230	150	160	160
7	HL_UM WARMUP_120H	Warm-up TH_UM set value (when the fusing temperature is 120 degrees C or above)	70 - 230	150	160	160
8	HI_WU_FM_ON_TMP	Fusing roller rotation start TH_E (when the fusing temperature in warm-up is alpha degrees C or above)	30 - 200	105	105	105
9	HI_WU_END_TIME	Warm-up complete time (sec) (when the fusing temperature in warm-up is alpha degrees C or above)	0 - 255	13	13	13
10	HI_WU_JOB_SET_TMP	Job Ready TH_UM temperature (when the fusing temperature in warm-up is alpha C or above)	70 - 230	152	162	162
11	LO_WU_JOB_SET_TMP	Job Ready TH_UM temperature (CL) (When the fusing temperature in warming up is under alpha degrees C.)	70 - 230	152	162	162
12	HL_UM_JOB_SET_TMP_BW	Job Ready TH_UM temperature (BW) (When the fusing temperature in warming up is under alpha degrees C.)	70 - 230	152	162	162
1	HL_UM READY	Ready standby TH_UM set value	70 - 230	155	160	160
2	HL_UM PLAIN PAPER BW	Black-White plain paper TH_UM set value	70 - 230	165	170	170
3	HL_UM PLAIN PAPER CL	Color plain paper TH_UM set value	70 - 230	170	175	175
4	WARM UP END TIME	Warm-up complete time	1 - 255	13	13	13
5	HL_UM PRE-JOB	Resetting from preheating TH_UM set value	30 - 200	160	165	165
6	HL_UM WARMUP_120L	Warm-up TH_UM set value (when the fusing temperature is under 120 degrees C)	70 - 230	160	165	165
7	HL_UM WARMUP_120H	Warm-up TH_UM set value (when the fusing temperature is 120 degrees C or above)	70 - 230	160	165	165
8	HI_WU_FM_ON_TMP	Fusing roller rotation start TH_E (when the fusing temperature in warm-up is alpha degrees C or above)	30 - 200	105	105	105
9	HI_WU_END_TIME	Warm-up complete time (sec) (when the fusing temperature in warm-up is alpha degrees C or above)	0 - 255	13	13	13
10	HI_WU_JOB_SET_TMP	Job Ready TH_UM temperature (when the fusing temperature in warm-up is alpha degrees C or above)	70 - 230	162	167	167
11	LO_WU_JOB_SET_TMP	Job Ready TH_UM temperature (CL) (when the fusing temperature in warm-up is under alpha degrees C)	70 - 230	162	167	167
12	HL_UM_JOB_SET_TMP_BW	Job Ready TH_UM temperature (BW) (when the fusing temperature in warm-up is under alpha degrees C)	70 - 230	162	167	167
1	WARMUP FUMON TMP	Fusing motor pre-rotation start TH_US set value (under alpha degrees C)	30 - 200	80	80	80
2	WARMUP FUMOFF	Preheating TH_E set value	0 - 255	30	30	30
3	HL_UM HEAVY PAPER	Resetting from preheating TH_UM set value (Job Ready temperature)	70 - 230	170	170	170
4	HL_UM OHP PAPER	Preheating TH_LM set value	70 - 230	150	150	150
5	HL_UM ENV PAPER	Warm-up TH_UM set value (when the fusing temperature is 120 degrees C or less)	70 - 230	180	180	180
6	HL_UM GLOSS PAPER	Warm-up TH_LM set value (when the fusing temperature is 120 degrees C or less)	70 - 230	160	160	160
7	HL_UM E-STAR	Warm-up TH_E set value (when the fusing temperature is 120 degrees C or less)	30 - 200	140	150	150
8	HL_UM HEAVY2 PAPER	Heavy paper 2 TH_UM set value	70 - 230	175	175	175
9	LO_WARMUP_TIME	The applying time in WUP TH_UM of 120 degrees C or less (Timer from completion of warm-up)	0 - 255	0	0	0
10	HI_WARMUP_TIME	The applying time in WUP TH_UM of 120 degrees C or above (Timer from completion of warm-up)	0 - 255	0	0	0
11	HI_WARMUP_BORDER	The threshold value alpha degrees C or above in warm-up.	1 - 119	100	100	100
12	JOBEND_FUMON_TIME	Fusing motor after rotation time after completion of a job (Excluding heavy paper, OPH, and envelopes)	0 - 255	10	10	10

<Code descriptions>

TH_UM	Fusing upper thermister (main)	HL_UM	Heater lamp upper (main)
TH_LM	Fusing lower thermister (main)	HL_LM	Heater lamp lower (main
TH_E	Fusing thermister (external heat roller)	HL_E	Heater lamp (external heat roller)

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

43-4

Purpose	Setting
Function (Purpose)	Used to set the fusing Target temperature of each operation mode (continuation of SIM 43-01)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.		Item/Display	Content	Setting range	Default value		
					Group A	Group B	Group C
1	PLAIN SwA	HL_UM PLAIN BW DUP	Black-White plain paper duplex TH_UM set value	70 - 230	155	165	165
2		PLAIN BW DUP APP CNT	Black-White plain paper duplex fusing temperature application start image screen number	0 - 60	0	0	0
3		HL_UM PLAIN CL DUP	Color plain paper duplex TH_UM set value	70 - 230	160	170	170
4		PLAIN CL DUP APP CNT	Color plain paper duplex fusing temperature application start image screen number	0 - 60	0	0	0
1	PLAIN SwB	HL_UM PLAIN BW DUP	Black-White plain paper duplex TH_UM set value	70 - 230	165	170	170
2		PLAIN BW DUP APP CNT	Black-White plain paper duplex fusing temperature application start image screen number	0 - 60	0	0	0
3		HL_UM PLAIN CL DUP	Color plain paper duplex TH_UM set value	70 - 230	170	175	175
4		PLAIN CL DUP APP CNT	Color plain paper duplex fusing temperature application start image screen number	0 - 60	0	0	0
1	Other	HL_UM PLAIN BW DUP	Black-White plain paper duplex TH_UM set value	70 - 230	170	170	170
2		HEAVY BW DUP APP CNT	Black-White plain paper duplex fusing temperature application start image screen number	0 - 60	0	0	0
3		HL_UM PLAIN CL DUP	Color plain paper duplex TH_UM set value	70 - 230	170	170	170
4		HEAVY CL DUP APP CNT	Color plain paper duplex fusing temperature application start image screen number	0 - 60	0	0	0

<Code descriptions>

TH_UM	Fusing upper thermister (main)	HL_UM	Heater lamp upper (main)
TH_LM	Fusing lower thermister (main)	HL_LM	Heater lamp lower (main)
TH_E	Fusing thermister (external heat roller)	HL_E	Heater lamp (external heat roller)

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

43-20

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the environmental correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-1) in each paper mode.
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Correction value: -49 - +49, 1 Count = 1 degrees C Change

Correction value	-49	-25	-5	0	+5	+25	+49
Input value	1	25	45	50	55	75	99

No.	Item/Display	Content	Setting range	Group A	Group B	Group C
1	HL_UM READY LL	(LL-Correction) Ready standby TH_UM set value	1 - 99	65	65	65
2	HL_UM PLAIN BW LL	(LL-Correction) Black-White plain paper TH_UM set value	1 - 99	60	60	60
3	HL_UM PLAIN CL LL	(LL-Correction) Color plain paper TH_UM set value	1 - 99	60	60	60
4	WARMUP FUMON TMP LL	(LL-Correction) Fusing motor pre-rotation start TH_UM set value	1 - 99	40	40	40
5	WARMUP FUMOFF LL	(LL-Correction) Fusing motor pre-rotation end TH_LM set value	1 - 99	50	50	50
6	WARMUP END TIME LL	(LL-Correction) Warm-up complete time (warm-up time (sec))	1 - 99	80	80	80
7	HL_UM HEAVY LL	(LL-Correction) Heavy paper TH_UM set value	1 - 99	55	55	55
8	HL_UM OHP LL	(LL-Correction) OHP-TH_UM set value	1 - 99	55	55	55
9	HL_UM ENV LL	(LL-Correction) Envelope TH_UM set value	1 - 99	55	55	55
10	HL_UM GLOSS LL	(LL-Correction) Glossy paper TH_UM set value	1 - 99	55	55	55
11	HL_UM E-STAR LL	(LL-Correction) Preheating TH_UM set value	1 - 99	55	55	55
12	HL_UM PRE-JOB LL	(LL-Correction)Resetting from preheating TH_UM set value (Job Ready temperature)	1 - 99	55	55	55
13	HL_UM HEAVY2 CL LL	Correction value for heavy paper 2 TH_UM set value under LL environment	1 - 99	55	55	55
14	HL_UM WARMUP_120L LL	(LL-Correction) Warm-up TH_UM set value (when the fusing temperature is under 120 degrees C)	1 - 99	55	55	55
15	LO_WARMUP_TIME LL	(LL-Correction) Warm-up TH_UM applying time is under 120 degrees C (Timer from completion of warm-up)	1 - 99	50	50	50
16	HL_UM WARMUP_120H LL	(LL-Correction) Warm-up TH_UM applying time is 120 degrees C or above (Timer from completion of warm-up)	1 - 99	55	55	55
17	HI_WU_TIME LL	P applying time (timer from warm-up complete)	1 - 99	50	50	50
18	HI_WU_FM_ON_TMP LL	(LL-Correction) Fusing roller rotation start TH_E (when the fusing temperature in warm-up is alpha degrees C or above)	1 - 99	40	40	40
19	HI_WU_END_TIME LL	(LL-Correction) Warm-up complete time (sec) (when the fusing temperature in warm-up is alpha degrees C or above)	1 - 99	50	50	50
20	HI_WU_JOB_SET_TMP LL	(LL-Correction) Job Ready TH_UM temperature (when the fusing temperature in warm-up is alpha degrees C or above)	1 - 99	60	60	60
21	HI_WARMUP_BORDER LL	The threshold value alpha degrees C or above in warm-up.	1 - 99	50	50	50
22	LO_WU_JOB_SET_TMP LL	The applying time in WUP TH_UM (CL) of 120 degrees C or above (Timer from completion of warm-up)	1 - 99	60	60	60
23	JOBEND_FUMON_TIME LL	(LL-Correction) Fusing roller rotation time (sec) after completion of a job	1 - 99	50	50	50
24	HI_WU_JOB_SET_TMP_LL_BW	The applying time in WUP TH_UM (BW) of 120 degrees C or above (Timer from completion of warm-up)	1 - 99	60	60	60

*WARMUP END TIME LL: 1count = 1sec / other correction value: 1count = 1 degrees C

*The item D or F: When B5 paper, above value on item D or F is corrected “-5”

*The item G or I: When B5 paper, above value on item G or I is corrected “-5“

<Code descriptions>

TH_UM	Fusing upper thermister (main)	HL_UM	Heater lamp upper (main)
TH_LM	Fusing lower thermister (main)	HL_LM	Heater lamp lower (main)
TH_E	Fusing thermister (external heat roller)	HL_E	Heater lamp (external heat roller)

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

43-21

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the environment correction under high temperature and high humidity (H/H) for the fusing temperature setting (SIM 43-1) in each paper mode.
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Correction value: -49 - +49, 1 Count = 1 degrees C Change

Correction value	-49	-25	-5	0	+5	+25	+49
Input value	1	25	45	50	55	75	99

*1: 1 Count = 1sec Change

No	Item/Display	Content	Setting range	Group A	Group B	Group C
1	HL_UM READY HH	(HH-Correction) Ready standby TH_UM set value	1 - 99	50	50	50
2	HL_UM PLAIN BW HH	(HH-Correction) Black-White plain paper TH_UM set value	1 - 99	50	50	50
3	HL_UM PLAIN CL HH	(HH-Correction) Color plain paper TH_UM set value	1 - 99	50	50	50
4	WARMUP FUMON TMP HH	(HH-Correction) Fusing motor pre-rotation start TH_UM set value	1 - 99	50	50	50
5	WARMUP FUMOFF HH	(HH-Correction) Fusing motor pre-rotation end TH_LM set value	1 - 99	50	50	50
6	WARMUP END TIME HH	(HH-Correction) Warm-up complete time (warm-up time (sec))	1 - 99	50	50	50
7	HL_UM HEAVY HH	(HH-Correction) Heavy paper TH_UM set value	1 - 99	50	50	50
8	HL_UM OHP HH	(HH-Correction) OHP-TH_UM set value	1 - 99	50	50	50
9	HL_UM ENV HH	(HH-Correction) Envelope TH_UM set value	1 - 99	50	50	50
10	HL_UM GLOSS HH	(HH-Correction) Glossy paper TH_UM set value	1 - 99	50	50	50
11	HL_UM E-STAR HH	(HH-Correction) Preheating TH_UM set value	1 - 99	50	50	50
12	HL_UM PRE-JOB HH	(HH-Correction)Resetting from preheating TH_UM set value (Job Ready temperature)	1 - 99	50	50	50
13	HL_UM HEAVY2 CL HH	Correction value for heavy paper 2 TH_UM set value under LL environment	1 - 99	50	50	50
14	HL_UM WARMUP_120L HH	(HH-Correction) Warm-up TH_UM set value (when the fusing temperature is under 120 degrees C)	1 - 99	50	50	50
15	LO_WARMUP_TIME HH	(HH-Correction) Warm-up TH_UM applying time is under 120 degrees C (Timer from completion of warm-up)	1 - 99	50	50	50
16	HL_UM WARMUP_120H HH	(HH-Correction) Warm-up TH_UM applying time is 120 degrees C or above (Timer from completion of warm-up)	1 - 99	50	50	50
17	HI_WU_TIME HH	P applying time (timer from warm-up complete)	1 - 99	50	50	50
18	HI_WU_FM_ON_TMP HH	(HH-Correction) Fusing roller rotation start TH_E (when the fusing temperature in warm-up is alpha degrees C or above)	1 - 99	50	50	50
19	HI_WU_END_TIME HH	(HH-Correction) Warm-up complete time (sec) (when the fusing temperature in warm-up is alpha degrees C or above)	1 - 99	50	50	50
20	HI_WU_JOB_SET_TMP HH	(HH-Correction) Job Ready TH_UM temperature (when the fusing temperature in warm-up is alpha degrees C or above)	1 - 99	50	50	50
21	HI_WARMUP_BORDER HH	The threshold value alpha degrees C or above in warm-up.	1 - 99	50	50	50
22	LO_WU_JOB_SET_TMP HH	The applying time in WUP TH_UM (CL) of 120 degrees C or above (Timer from completion of warm-up)	1 - 99	50	50	50
23	JOBEND_FUMON_TIME HH	(HH-Correction) Fusing roller rotation time (sec) after completion of a job	1 - 99	50	50	50
24	HI_WU_JOB_SET_TMP_HH_BW	The applying time in WUP TH_UM (BW) of 120 degrees C or above (Timer from completion of warm-up)	1 - 99	50	50	50

<Code descriptions>

TH_UM	Fusing upper thermister (main)	HL_UM	Heater lamp upper (main)
TH_LM	Fusing lower thermister (main)	HL_LM	Heater lamp lower (main)
TH_E	Fusing thermister (external heat roller)	HL_E	Heater lamp (external heat roller)

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

43-22

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the environment correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-4) in each paper mode.
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Correction value: -49 - +49, 1 Count = 1 degrees C Change

Correction value	-49	-25	-5	0	+5	+25	+49
Input value	1	25	45	50	55	75	99

No.	Item/Display	Content	Setting range	Group A	Group B	Group C
1	HL_UM PLAIN BW DUP LL	(LL CORRECTION) Black-White plain paper duplex TH_UM set value	1 - 99	60	60	60
2	PLAIN BW DUP APP CNT LL	(LL CORRECTION) Black-White plain paper duplex fusing temperature application start image screen number	1 - 99	50	50	50
3	HL_UM PLAIN CL DUP LL	(LL CORRECTION) Color plain paper duplex TH_UM set value	1 - 99	60	60	60
4	PLAIN CL DUP APP CNT LL	(LL CORRECTION) Color plain paper duplex fusing temperature application start image screen number	1 - 99	50	50	50
5	HL_UM HEAVY BW DUP LL	(LL CORRECTION) Black-White heavy paper duplex TH_UM set value	1 - 99	55	55	55
6	HEAVY BW DUP APP CNT LL	(LL CORRECTION) Black-White heavy paper duplex fusing temperature application start image screen number	1 - 99	50	50	50
7	HL_UM HEAVY CL DUP LL	(LL CORRECTION) Color heavy paper duplex TH_UM set value	1 - 99	55	55	55
8	HEAVY CL DUP APP CNT LL	(LL CORRECTION) Color heavy paper duplex fusing temperature application start image screen number	1 - 99	50	50	50

*PLAIN BW DUP APP CNT LL, PLAIN CL DUP APP CNT LL: 1count = 1 sec

Other values: 1count = 1 degrees C

<Code descriptions>

TH_UM	Fusing upper thermister (main)	HL_UM	Heater lamp upper (main)
TH_LM	Fusing lower thermister (main)	HL_LM	Heater lamp lower (main)
TH_E	Fusing thermister (external heat roller)	HL_E	Heater lamp (external heat roller)

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

43-23

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the environment correction under high temperature and high humidity (H/H) for the fusing temperature setting (SIM 43-04) in each paper mode.
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Correction value: -49 - +49, 1 Count = 1 degrees C Change

Correction value	-49	-25	-5	0	+5	+25	+49
Input value	1	25	45	50	55	75	99

No.	Item/Display	Content	Setting range	Group A	Group B	Group C
1	HL_UM PLAIN BW DUP HH	(HH CORRECTION) Black-White plain paper duplex TH_UM set value	1 - 99	50	50	50
2	PLAIN BW DUP APP CNT HH	(HH CORRECTION) Black-White plain paper duplex fusing temperature application start image screen number	1 - 99	50	50	50
3	HL_UM PLAIN CL DUP HH	(HH CORRECTION) Color plain paper duplex TH_UM set value	1 - 99	50	50	50
4	PLAIN CL DUP APP CNT HH	(HH CORRECTION) Color plain paper duplex fusing temperature application start image screen number	1 - 99	50	50	50
5	HL_UM HEAVY BW DUP HH	(HH CORRECTION) Black-White heavy paper duplex TH_UM set value	1 - 99	50	50	50
6	HEAVY BW DUP APP CNT HH	(HH CORRECTION) Black-White heavy paper duplex fusing temperature application start image screen number	1 - 99	50	50	50
7	HL_UM HEAVY CL DUP HH	(HH CORRECTION) Color heavy paper duplex TH_UM set value	1 - 99	50	50	50
8	HEAVY CL DUP APP CNT HH	(HH CORRECTION) Color heavy paper duplex fusing temperature application start image screen number	1 - 99	50	50	50

*PLAIN BW DUP APP CNT HH, PLAIN CL DUP APP CNT HH: 1count = 1 sec

Other values: 1count = 1 degrees C

<Code descriptions>

TH_UM	Fusing upper thermister (main)	HL_UM	Heater lamp upper (main)
TH_LM	Fusing lower thermister (main)	HL_LM	Heater lamp lower (main)
TH_E	Fusing thermister (external heat roller)	HL_E	Heater lamp (external heat roller)

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

43-24

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the correction of the temperature adjustment value of SIM 43-1 and 43-4.
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Correction value: -49 - +49, 1 Count = 1 degrees C Change

Correction value	-49	-25	-5	0	+5	+25	+49
Input value	1	25	45	50	55	75	99

No.	Item/Display	Content	Setting range	Group A	Group B	Group C
1	NN_120_FUS_DUP_HL_UM	Correction amount for normal paper in duplex printing under 120 degrees C in N/N-Warm Up	1 - 99	50	50	50
2	LL_120_FUS_DUP_HL_UM	Correction amount for normal paper in duplex printing under 120 degrees C in L/L-Warm Up	1 - 99	50	50	50
3	HH_120_FUS_DUP_HL_UM	Correction amount for normal paper in duplex printing under 120 degrees C in H/H-Warm Up	1 - 99	50	50	50
4	NN_120_FUS_DUP_CNT	Number of sheets of application of normal paper in duplex printing under 120 degrees C in N/N-Warm Up (Setting of the number of sheets at which application is started)	1 - 60	5	5	5
5	LL_120_FUS_DUP_CNT	Number of sheets of application of normal paper in duplex printing under 120 degrees C in L/L-Warm Up (Setting of the number of sheets at which application is started)	1 - 60	10	10	10
6	HH_120_FUS_DUP_CNT	Number of sheets of application of normal paper in duplex printing under 120 degrees C in H/H-Warm Up (Setting of the number of sheets at which application is started)	1 - 60	5	5	5
7	COOL_DOWN_HEAVY	Cool-down time heavy paper (Time (sec) required to return to the plain paper fusing temperature)	1 - 60	10	10	10
8	COOL_DOWN_OHP	Cool-down time OHP (Time (sec) required to return to the plain paper fusing temperature)	1 - 60	10	10	10
9	COOL_DOWN_ENVELOPE	Cool-down time envelope (Time (sec) required to return to the plain paper fusing temperature)	1 - 60	10	10	10
10	HL_UM THIN PAPER BW	Thin paper BW-TH_UM	70 - 230	145	145	145
11	HL_UM THIN PAPER CL	Thin paper COL-TH_UM	70 - 230	155	155	155
12	HL_UM THIN PAPER READY	Thin paper Ready-TH_UM	70 - 230	135	135	135
13	HL_UM REC PAPER BW	Recycled paper BW-TH_UM	70 - 230	160	170	170
14	HL_UM REC PAPER CL	Recycled paper COL-TH_UM	70 - 230	165	175	175
15	HL_UM REC PAPER READY	Recycled paper Ready-TH_UM	70 - 230	150	160	160
16	HPOWER_SET	Power voltage setting 1:100V 2:120V 3:230V	1 - 3	1	2	3

*About the correction value

Each correction value for temperature: 1count = 1 degrees C

Each paper exit count: 1count = 1pcs paper

Each cool down time: 1count = 1sec

<Code descriptions>

TH_UM	Fusing upper thermister (main)	HL_UM	Heater lamp upper (main)
TH_LM	Fusing lower thermister (main)	HL_LM	Heater lamp lower (main)
TH_E	Fusing thermister (external heat roller)	HL_E	Heater lamp (external heat roller)

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

44

44-1

Purpose Setting

Function (Purpose) Used to set each correction operation function in the image forming (process) section.

Section Image process (Photoconductor/Developing/Transfer/Cleaning)

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

NOTE: Set the items to the default values unless a change is specially required.

No.	Item/Display	Content	Setting range	Default value
1	HV	Normal operation high density process control Enable/Disable setting	Normal (Disable : 1 : NO) Reverse (Enable : 0 : YES)	0
2	HT	Normal operation half tone process control Enable/ Disable setting		0
3	TC	Transfer output correction Enable/Disable setting		0
4	MD VG	Membrane decrease grid voltage correction Enable/ Disable setting		0
5	MD LD	Membrane laser power voltage correction Enable/ Disable setting		0
6	MD EV	Membrane decrease environment grid voltage correction Enable/Disable setting		0
7	MD DL	Membrane decrease discharge light quantity correction Enable/Disable setting		0
8	MD DL EV	Membrane decrease environment laser power correction Enable/Disable setting		1
9	MD LD EV	Membrane decrease environment discharge light quantity correction Enable / Disable setting		0
10	LD PROCON	Membrane laser power voltage correction by process control Enable / Disable setting		0
11	TN PIX SUP	Toner supply control by yield count Enable / Disable setting		0
12	TN FB	FEEDBACK toner density correction enable / disenable setting		0
13	TN INT	Interval toner supply control enable / disenable setting		0
14	TN RECV	Developer recovery enable / disenable setting		0
15	TN ADJ	Sensor output adjustment enable / disenable setting		0
16	TN EMP	Control the detection of toner drop amount enable/ disenable setting		0
17	TN EMP INT	Control the detection of toner drop amount when job intermission enable / disenable setting		0
18	TN EMP NEW	Control the detection of toner drop amount when installed new cartridge enable / disenable setting		0
19	TN PIX TBL	Execution the calculation of yield count correction table enable / disenable setting	Normal (Disable : 1 : NO) Reverse (Enable : 0 : YES)	0
20	AR AUTO	Auto registration adjustment Enable / Disable setting		0
21	AR ERROR	Auto registration adjustment execution error check Enable / Disable setting		0
22	DM PHASE	Drum phase fitting Enable/ Disable setting		0
23	PRTHT	Half tone process control printer correction feedback Enable/Disable setting		0

44-2

Purpose Adjustment/Setup

Function (Purpose) To execute the light quantity adjustment for process control sensor and registrations sensors (2pcs are done at same time), and reading the surface of belt.

Section Process

Operation/Procedure

When [OK] key is pressed, the adjustment is executed automatically.

After completion of the adjustment, the adjustment result is displayed.

If the adjustment is not executed normally, "ERROR" is displayed.

No.	Display/Item	Content
1	P_F_CL_ka	F side color sensor correction factor
2	P_F LED ADJ	F sensor light emitting quantity adjustment value
3	P_R LED ADJ	R sensor light emitting quantity adjustment value
4	P_F_CL_DARK	Dark voltage of color (F side)
5	P_F DARK	Dark voltage of sensor (F side)
6	P_R DARK	Dark voltage of sensor (R side)
7	P_F GRND	Belt substrate when the item D adjust-ment is completed.
8	P_F BELT MAX	Belt substrate input max. value
9	P_F BELT MIN	Belt substrate input min. value
10	P_R GRND	Belt substrate when the item F adjust-ment is completed.
11	P_R BELT MAX	Belt substrate input max. value
12	P_R BELT MIN	Belt substrate input min. value
13	REG_F BELT MAX	Belt substrate input max. value (F side)
14	REG_F BELT MIN	Belt substrate input min. value (F side)
15	REG_R BELT MAX	Belt substrate input max. value (R side)
16	REG_R BELT MIN	Belt substrate input min. value (R side)
17	REG_F PATCH(K)	Patch light receiving potential F(K)
18	REG_F PATCH(C)	Patch light receiving potential F(C)
19	REG_F PATCH(M)	Patch light receiving potential F(M)
20	REG_F PATCH(Y)	Patch light receiving potential F(Y)
21	REG_R PATCH(K)	Patch light receiving potential R(K)
22	REG_R PATCH(C)	Patch light receiving potential R(C)
23	REG_R PATCH(M)	Patch light receiving potential R(M)
24	REG_R PATCH(Y)	Patch light receiving potential R(Y)

Error name	Error content
CL_SEN_ADJ_ERR	Color sensor adjustment abnormality
BK_SEN_ADJ_ERR	Black sensor adjustment abnormality
P_F_CL_ka	F Color sensor adjustment abnormality
P_F_GRND	F sensor basis material reading abnormality
P_R_GRND	F sensor basis material reading abnormality
REG_F_LED_ADJ	Registration sensor F adjustment abnormality

Error name	Error content
REG_R_LED_ADJ	Registration sensor R adjustment abnormality
REG_F_GRND	F registration basis material reading abnormality
REG_R_GRND	R registration basis material reading abnormality

44-4

Purpose Setting

Function (Purpose) Used to set the conditions of the high density process control operation.

Section Process

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

NOTE: Set the items to the default values unless a change is specially required.

No.	Item/Display	Content	Setting range	Default value
1	PCS TARGET	Sensor target set value	1 - 255	204
2	PCS ADJ LIM	Sensor adjustment target limit value	1 - 255	8
3	BELT G DIF	Effective difference between the belt circuit substrate upper and lower limit values	1 - 255	1
4	B_BK STD DIF	Bias (for black) Target calculation difference	0 - 255	0
5	B PAT INT	Patch bias output interval	1 - 255	60
6	Y TAR ID	Patch density standard value (yellow)	1 - 255	*1
7	M TAR ID	Patch density standard value (magenta)	1 - 255	*1
8	C TAR ID	Patch density standard value (cyan)	1 - 255	*1
9	K TAR ID	Patch density standard value (black)	1 - 255	*1
10	HV BK_GR LIM	Patch position substrate light receiving effective range value	1 - 255	60
11	LED ADJ ROUGH	LED radiation quantity adjustment rough 1step	1 - 255	5
12	LED ADJ ROUGH UPPER	LED radiation quantity adjustment rough 1step execution threshold level upper	1 - 255	240
13	LED ADJ ROUGH LOWER	LED radiation quantity adjustment rough 1step execution threshold level lower	1 - 255	140
14	K_PAT TARGET UPPER 1	Simplified process control solid-patch transition judgment to high density process control upper limitation 1 (K-patch)	1 - 255	10
15	K_PAT TARGET LOWER 1	Simplified process control solid-patch transition judgment to high density process control lower limitation 1 (K-patch)	1 - 255	10
16	K_PAT TARGET UPPER 2	Simplified process control solid-patch transition judgment to high density process control upper limitation 2 (K-patch)	1 - 255	15
17	K_PAT TARGET LOWER 2	Simplified process control solid-patch transition judgment to high density process control lower limitation 2 (K-patch)	1 - 255	15
18	K_HT TARGET UPPER 1	Simplified process control halftone-patch transition judgment to high density process control upper limitation 1 (K-patch)	1 - 255	10
19	K_HT TARGET LOWER 1	Simplified process control halftone-patch transition judgment to high density process control lower limitation 1 (K-patch)	1 - 255	10
20	K_HT TARGET UPPER 2	Simplified process control halftone-patch transition judgment to high density process control upper limitation 2 (K-patch)	1 - 255	15
21	K_HT TARGET LOWER 2	Simplified process control halftone-patch transition judgment to high density process control lower limitation 2 (K-patch)	1 - 255	15
22	CL_PAT TARGET UPPER 1	Simplified process control solid-patch transition judgment to high density process control upper limitation 1 (CL-patch)	1 - 255	10
23	CL_PAT TARGET LOWER 1	Simplified process control solid-patch transition judgment to high density process control lower limitation 1 (CL-patch)	1 - 255	10
24	CL_PAT TARGET UPPER 2	Simplified process control solid-patch transition judgment to high density process control upper limitation 2 (CL-patch)	1 - 255	15
25	CL_PAT TARGET LOWER 2	Simplified process control solid-patch transition judgment to high density process control lower limitation 2 (CL-patch)	1 - 255	15
26	CL_HT TARGET UPPER 1	Simplified process control halftone-patch transition judgment to high density process control upper limitation 1 (CL-patch)	1 - 255	10
27	CL_HT TARGET LOWER 1	Simplified process control halftone-patch transition judgment to high density process control lower limitation 1 (CL-patch)	1 - 255	10
28	CL_HT TARGET UPPER 2	Simplified process control halftone-patch transition judgment to high density process control upper limitation 2 (CL-patch)	1 - 255	15
29	CL_HT TARGET LOWER 2	Simplified process control halftone-patch transition judgment to high density process control lower limitation 2 (CL-patch)	1 - 255	15
30	SP_PAT COEF UPP DIF	Simplified process control density coefficient upper threshold level	1 - 255	10
31	SP_PAT COEF LOW DIF	Simplified process control density coefficient lower threshold level	1 - 255	10

<*1 Reference value tables>

No.	Item/Display	Default value for each Group		
		Group A	Group B	Group C
6	Y TAR ID	48	48	48
7	M TAR ID	50	50	50
8	C TAR ID	50	50	50
9	K TAR ID	48	50	48

Group	Destination					
Group A	Japan	-	-	-	-	-
Group B	U.S.A.	Canada	Inch	-	-	-
Group C	Europe	U.K.	AUS	AB_A	China	AB_B

44-6

Purpose Adjustment

Function (Purpose) Used to execute the high density process control forcibly.

Section Process

Operation/Procedure

When [OK] key is pressed, the adjustment is executed automatically.

After completion of the adjustment, the adjustment result is displayed. (Refer to the table below.)

If the adjustment is not executed normally, "ERROR" is displayed.

Result display	Content description
COMPLETE	Normal complete
ERROR	Abnormal end
INTERRUPTION	Forcible interruption

Details of error display	Content description
CL_SEN_ADJ_ERR	Color sensor adjustment abnormality
BK_SEN_ADJ_ERR	Black sensor adjustment abnormality
K_HV_ERR	K high density process control abnormality
C_HV_ERR	C high density process control abnormality
M_HV_ERR	M high density process control abnormality
Y_HV _ERR	Y high density process control abnormality
TIMEOUT_ERR	Time out

44-9

Purpose Operation data display

Function (Purpose) Used to display the results data of the high density process control operation.

Section Image process (Photoconductor/Developing/Transfer/Cleaning)

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Mode	Page	Item	Content	Range	Default value
PROCON DATA	1/12	P DV K	High density process control DV data (KCMY)	0 - 600	450
		P DV C			
		P DV M			
		P DV Y			
	2/12	P GB K	High density process control GB data (KCMY)	150 - 850	610
		P GB C			
		P GB M			
		P GB Y			
PROCON DATA	3/12	P DV K BASE	High density process control DV data (KCMY) Target	0 - 600	450
		P DV C BASE			
		P DV M BASE			
		P DV Y BASE			
	4/12	P GB K BASE	High density process control GB data (KCMY) Target	150 - 850	630
		P GB C BASE			
		P GB M BASE			
		P GB Y BASE			
	5/12	N(M) DV K	High density process control normal (medium speed) DV data (KCMY)	0 - 600	450
		N(M) DV C			
		N(M) DV M			
		N(M) DV Y			
	6/12	N(M) GB K	High density process control normal (medium speed) GB data (KCMY)	150 - 850	630
		N(M) GB C			
		N(M) GB M			
		N(M) GB Y			
	7/12	N(M) DV K BASE	High density process control normal (medium speed) DV data (KCMY) Target	0 - 600	450
		N(M) DV C BASE			
		N(M) DV M BASE			
		N(M) DV Y BASE			
	8/12	N(M) GB K BASE	High density process control normal (medium speed) GB data (KCMY) Target	150 - 850	630
		N(M) GB C BASE			
		N(M) GB M BASE			
		N(M) GB Y BASE			
	9/12	N(L) DV K	High density process control normal(low speed) DV data (KCMY)	0 - 600	450
		N(L) DV C			430
		N(L) DV M			
		N(L) DV Y			

Mode	Page	Item	Content	Range	Default value
PROCON DATA	10/12	N(L) GB K	High density process control normal(low speed) DV data (KCMY)	150 - 850	615
		N(L) GB C			595
		N(L) GB M			
		N(L) GB Y			
	11/12	N(L) DV K BASE	High density process control normal(low speed) DV data (KCMY) Target	0 - 600	450
		N(L) DV C BASE			430
		N(L) DV M BASE			
		N(L) DV Y BASE			
	12/12	N(L) GB K BASE	High density process control normal(low speed) GB data (KCMY) Target	150- 850	615
		N(L) GB C BASE			595
		N(L) GB M BASE			
		N(L) GB Y BASE			
OTHER	1/21	TN HUD AREA	Toner control display humidity area	1 - 16	8
		TN HUD DATA	Toner control display humidity AD value	0 - 1023	0
		TC TMP AREA	Transfer display temperature area	1 - 9	4
		TC TMP DATA	Transfer display temperature AD value	0 - 1023	0
	2/21	TC HUD AREA	Transfer display humidity area	1 - 9	4
		TC HUD DATA	Transfer display humidity AD value	0 - 1023	0
		MD HUD AREA	Membrane decrease display humidity area	1 - 9	4
		MD HUD DATA	Membrane decrease display humidity AD value	0 - 1023	0
	3/21	MD K DRUM CNT	Membrane decrease drum traveling distance area (KCMY)	0 - 20	0
		MD C DRUM CNT			
		MD M DRUM CNT			
		MD Y DRUM CNT			

Mode	Page	Item	Content	Range	Default value
OTHER	4/21	MD K REV LIFE M	LIFE grid voltage correction display (KCMY) Medium speed / Low speed	0 - 255	0
		MD K REV LIFE L			
		MD C REV LIFE M			
		MD C REV LIFE L			
	5/21	MD M REV LIFE M			
		MD M REV LIFE L			
		MD Y REV LIFE M			
		MD Y REV LIFE L			
	6/21	MD K REV EV M	Environmental grid voltage correction display (KCMY) Medium speed / Low speed	-255 - 255	-1
		MD K REV EV L			0
		MD C REV EV M			-1
		MD C REV EV L			0
	7/21	MD M REV EV M			-1
		MD M REV EV L			0
		MD Y REV EV M			-1
		MD Y REV EV L			0
	8/21	MD K REV ALL M	Grid voltage correction ALL display (KCMY) medium speed / low speed	-255 - 255	-1
		MD K REV ALL L			0
		MD C REV ALL M			-1
		MD C REV ALL L			0
	9/21	MD M REV ALL M			-1
		MD M REV ALL L			0
		MD Y REV ALL M			-1
		MD Y REV ALL L			0

1 '16/May

Mode	Page	Item	Content	Range	Default value
OTHER	10/21	MD K REV LD M	Drum membrane decrease laser power voltage correction (KCMY) medium speed / low speed	0 - 255	100
		MD K REV LD L			
		MD C REV LD M			
		MD C REV LD L			
	11/21	MD M REV LD M			
		MD M REV LD L			
		MD Y REV LD M			
		MD Y REV LD L			
	12/21	MD K REV LD EV M	Environmental changes and Drum membrane decrease laser power voltage correction (KCMY) medium speed / low speed	-255 - 255	100
		MD K REV LD EV L			
		MD C REV LD EV M			
		MD C REV LD EV L			
	13/21	MD M REV LD EV M			
		MD M REV LD EV L			
		MD Y REV LD EV M			
		MD Y REV LD EV L			
	14/21	MD K REV LD_P M	High density process control Drum membrane decrease laser power voltage correction (KCMY) medium speed / low speed	-127 - 127	0
		MD K REV LD_P L			
		MD C REV LD_P M			
		MD C REV LD_P L			
	15/21	MD M REV LD_P M			
		MD M REV LD_P L			
		MD Y REV LD_P M			
		MD Y REV LD_P L			

Mode	Page	Item	Content	Range	Default value
OTHER	16/21	MD K REV DL M	Drum membrane decrease discharge light quantity correction (%) medium speed / low speed	0 - 100	0
		MD K REV DL L			
		MD C REV DL M			
		MD C REV DL L			
	17/21	MD M REV DL M			
		MD M REV DL L			
		MD Y REV DL M			
		MD Y REV DL L			
	18/21	MD K REV DL EV M	Drum membrane decrease environment discharge light quantity correction (%) medium speed / low speed	-100 - 100	0
		MD K REV DL EV L			
		MD C REV DL EV M			
		MD C REV DL EV L			
	19/21	MD M REV DL EV M			
		MD M REV DL EV L			
		MD Y REV DL EV M			
		MD Y REV DL EV L			
	20/21	DESTI-NATION	Machine side CRUM destination (Main unit data)	0 - 41	
		CRUM DEST_K	CRUM destination (CRUM data) (KCMY)	0 - 255	
		CRUM DEST_C			
		CRUM DEST_M			
	21/21	CRUM DEST_Y			
		P CNT HV	High density process control number of executions	0 - 99999999	0
		P CNT HT	Half tone process control number of executions		0

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44-12

Purpose	Operation data display
Function (Purpose)	Used to display the operation data of the high density process control.
Section	Image process (Photoconductor/Developing)

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Mode	Page	Item	Content	Range	Default Value
TARGET	1/4	ADK_CL(K)	Development characteristics gradient coefficient (K)	-9.99 - 9.99	0.00
		ADK_INT(K)	Development characteristics intercept coefficient (K)	-999.9 - 999.9	0.0
		TARGET(K)	High density process control target density level (K)	0 - 255	0
		ADK_CL(C)	Development characteristics gradient coefficient (C)	-9.99 - 9.99	0.00
	2/4	ADK_INT(C)	Development characteristics intercept coefficient (C)	-999.9 - 999.9	0.0
		TARGET(C)	High density process control target density level (C)	0 - 255	0
		ADK_CL(M)	Development characteristics gradient coefficient (M)	-9.99 - 9.99	0.00
		ADK_INT(M)	Development characteristics intercept coefficient (M)	-999.9 - 999.9	0.0
	3/4	TARGET(M)	High density process control target density level (M)	0 - 255	0
		ADK_CL(Y)	Development characteristics gradient coefficient (Y)	-9.99 - 9.99	0.00
		ADK_INT(Y)	Development characteristics intercept coefficient (Y)	-999.9 - 999.9	0.0
		TARGET(Y)	High density process control target density level (Y)	0 - 255	0
TARGET	4/4	P_F_CL_DARK	F color dark electrical potential	0 - 255	0
		P_F_DARK	F sensor dark electrical potential	0 - 255	0
		P_R_DARK	R sensor dark electrical potential	0 - 255	0
PATCH	1/23	Bk_BASE1	High density process control patch data 1_K1_BASE	0 - 255	0
		CL_BASE1	High density process control patch data 1_C1_BASE	0 - 255	0
		K1	High density process control patch data 1_K1	0 - 255	0
		K2	High density process control patch data 1_K2	0 - 255	0
	2/23	K3	High density process control patch data 1_K3	0 - 255	0
		K4	High density process control patch data 1_K4	0 - 255	0
		C1	High density process control patch data 1_C1	0 - 255	0
		C2	High density process control patch data 1_C2	0 - 255	0
	3/23	C3	High density process control patch data 1_C3	0 - 255	0
		C4	High density process control patch data 1_C4	0 - 255	0
		M1	High density process control patch data 1_M1	0 - 255	0
		M2	High density process control patch data 1_M2	0 - 255	0
	4/23	M3	High density process control patch data 1_M3	0 - 255	0
		M4	High density process control patch data 1_M4	0 - 255	0
		Y1	High density process control patch data 1_Y1	0 - 255	0
		Y2	High density process control patch data 1_Y2	0 - 255	0
	5/23	Y3	High density process control patch data 1_Y3	0 - 255	0
		Y4	High density process control patch data 1_Y4	0 - 255	0
		Bk_BASE2	High density process control patch data 2_K1_BASE	0 - 255	0
		CL_BASE2	High density process control patch data 2_C1_BASE	0 - 255	0

Mode	Page	Item	Content	Range	Default Value
PATCH	6/23	K1	High density process control patch data 2_K1	0 - 255	0
		K2	High density process control patch data 2_K2	0 - 255	0
		K3	High density process control patch data 2_K3	0 - 255	0
		K4	High density process control patch data 2_K4	0 - 255	0
	7/23	C1	High density process control patch data 2_C1	0 - 255	0
		C2	High density process control patch data 2_C2	0 - 255	0
		C3	High density process control patch data 2_C3	0 - 255	0
		C4	High density process control patch data 2_C4	0 - 255	0
	8/23	M1	High density process control patch data 2_M1	0 - 255	0
		M2	High density process control patch data 2_M2	0 - 255	0
		M3	High density process control patch data 2_M3	0 - 255	0
		M4	High density process control patch data 2_M4	0 - 255	0
	9/23	Y1	High density process control patch data 2_Y1	0 - 255	0
		Y2	High density process control patch data 2_Y2	0 - 255	0
		Y3	High density process control patch data 2_Y3	0 - 255	0
		Y4	High density process control patch data 2_Y4	0 - 255	0
	10/23	Bk_BASE3	High density process control patch data 3_K1_BASE	0 - 255	0
		CL_BASE3	High density process control patch data 3_C1_BASE	0 - 255	0
		K1	High density process control patch data 3_K1	0 - 255	0
		K2	High density process control patch data 3_K2	0 - 255	0
	11/23	K3	High density process control patch data 3_K3	0 - 255	0
		K4	High density process control patch data 3_K4	0 - 255	0
		C1	High density process control patch data 3_C1	0 - 255	0
		C2	High density process control patch data 3_C2	0 - 255	0

Mode	Page	Item	Content	Range	Default Value
PATCH	12/23	C3	High density process control patch data 3_C3	0 - 255	0
		C4	High density process control patch data 3_C4	0 - 255	0
		M1	High density process control patch data 3_M1	0 - 255	0
		M2	High density process control patch data 3_M2	0 - 255	0
	13/23	M3	High density process control patch data 3_M3	0 - 255	0
		M4	High density process control patch data 3_M4	0 - 255	0
		Y1	High density process control patch data 3_Y1	0 - 255	0
		Y2	High density process control patch data 3_Y2	0 - 255	0
	14/23	Y3	High density process control patch data 3_Y3	0 - 255	0
		Y4	High density process control patch data 3_Y4	0 - 255	0
		Bk_BASE4	High density process control patch data 4_K1_BASE	0 - 255	0
		CL_BASE4	High density process control patch data 4_C1_BASE	0 - 255	0
	15/23	K1	High density process control patch data 4_K1	0 - 255	0
		K2	High density process control patch data 4_K2	0 - 255	0
		K3	High density process control patch data 4_K3	0 - 255	0
		K4	High density process control patch data 4_K4	0 - 255	0
	16/23	C1	High density process control patch data 4_C1	0 - 255	0
		C2	High density process control patch data 4_C2	0 - 255	0
		C3	High density process control patch data 4_C3	0 - 255	0
		C4	High density process control patch data 4_C4	0 - 255	0
	17/23	M1	High density process control patch data 4_M1	0 - 255	0
		M2	High density process control patch data 4_M2	0 - 255	0
		M3	High density process control patch data 4_M3	0 - 255	0
		M4	High density process control patch data 4_M4	0 - 255	0

Mode	Page	Item	Content	Range	Default Value
PATCH	18/23	Y1	High density process control patch data 4_Y1	0 - 255	0
		Y2	High density process control patch data 4_Y2	0 - 255	0
		Y3	High density process control patch data 4_Y3	0 - 255	0
		Y4	High density process control patch data 4_Y4	0 - 255	0
	19/23	Bk_BASE5	High density process control patch data 5_K1_BASE	0 - 255	0
		CL_BASE5	High density process control patch data 5_C1_BASE	0 - 255	0
		K1	High density process control patch data 5_K1	0 - 255	0
		K2	High density process control patch data 5_K2	0 - 255	0
	20/23	K3	High density process control patch data 5_K3	0 - 255	0
		K4	High density process control patch data 5_K4	0 - 255	0
		C1	High density process control patch data 5_C1	0 - 255	0
		C2	High density process control patch data 5_C2	0 - 255	0
	21/23	C3	High density process control patch data 5_C3	0 - 255	0
		C4	High density process control patch data 5_C4	0 - 255	0
		M1	High density process control patch data 5_M1	0 - 255	0
		M2	High density process control patch data 5_M2	0 - 255	0
	22/23	M3	High density process control patch data 5_M3	0 - 255	0
		M4	High density process control patch data 5_M4	0 - 255	0
		Y1	High density process control patch data 5_Y1	0 - 255	0
		Y2	High density process control patch data 5_Y2	0 - 255	0
	23/23	Y3	High density process control patch data 5_Y3	0 - 255	0
		Y4	High density process control patch data 5_Y4	0 - 255	0

44-14

Purpose Operation data display

Function (Purpose) Used to display the output level of the temperature and humidity sensor.

Section Process (OPC drum, development)/Fusing/LSU

Operation/Procedure

The output levels of the fusing temperature sensor, the machine temperature sensor, and the humidity sensor are displayed.

Item/Display	Content	Range	Default value
TH_UM (deg)	Fusing main thermistor detection temperature (Temperature degrees C)	Temperature 0 - 255degrees C(+/-1degrees C)	Measured value
TH_UM_AD (hex)	Fusing main thermistor differential input AD value (AD value)	AD value 0 - 1023	Measured value
TH_UM_AD1(deg)	Fusing main thermistor compensation sensor temperature (Temperature degrees C)	Temperature 0.0 - 255.0degrees C(+/-0.1degrees C)	Measured value
TH_UM_AD1(hex)	Fusing main thermistor compensation sensor, AD value V	AD value 0 - 1023	Measured value
TH_UM_AD2(hex)	Fusing main thermister detection sensor AD value (AD value)	AD value 0 - 1023	Measured value
TH_US(deg)	Fusing sub thermistor detection temperature (Temperature degrees C)	Temperature 0 - 255degrees C(+/-1degrees C)	Measured value
TH_US_AD(hex)	Fusing sub thermistor AD input value (AD value)	AD value 0 - 1023	Measured value
TH_M(deg)	Multipurpose tray temperature sensor AD value (Temperature degrees C)	Temperature -40.0degrees C - 150.0(+/-0.1degrees C)	Measured value
TH_M_AD(hex)	Multipurpose tray temperature sensor AD value (AD value)	AD value 0 - 1023	Measured value
HUD_M(%)	Multipurpose tray humidity sensor AD value (Humidity %)	Humidity 0.0 - 100.0%(+/-0.1%)	Measured value
HUD_M_AD (hex)	Multipurpose tray humidity sensor AD value (AD value)	AD value 0 - 1023	Measured value
TH1_LSU(deg)	LSU thermistor 1 AD value (Temperature degrees C)	Temperature 0.0 - 255.0degrees C(+/-1degrees C)	Measured value
TH1_LSU_AD(hex)	LSU thermistor 1 AD value (AD value)	AD value 0 - 255	Measured value

* above AD values are changed to hexadecimal

44-15

Purpose Operation data display

Function (Purpose) Used to set the OPC drum idle rotation.

Section Developing system

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

NOTE: Set the items to the default values unless a change is specially required.

Item/ Display	Content	Range
TIME	Idle rotation interval (time interval between the previous OPC drum idle rotation and the next one) setting (h)	0 - 255
AREA1	Environmental area difference judgment threshold value setting (difference between the previous OPC drum idle rotation and the current one)	0 - 5
AREA2	Environmental area conditions (AND condition of the previous OPC drum idle rotation and the current one)	1 - 15
CYCLE	Previous rotation time setting (sec) in the process control when recovered from power ON, preheating / sleep mode.	0 - 255

44-21

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the half tone process control target.
Section	Process

Operation/Procedure

1) When pressed [OK] key, the adjustment is executed and the results are displayed.
   In case of abnormal end, “ERROR” and the following error codes are displayed.

Error code	Content
CL_SEN_ADJ_ERR	Color image density sensor sensitivity adjustment error
BK_SEN_ADJ_ERR	Black image density sensor sensitivity adjustment error
[YMCK]	High density process control error [YMCK]
OTHER	Other errors

44-22

Purpose	Operation data display
Function (Purpose)	Used to display the toner patch density level in the half tone process control operation.
Section	Process

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.
   The toner patch density level which is created at the half tone process control operation is displayed.

Item/Display	Content
K/C/M/Y _n	Patch data display(n=1 - 13)
K/C/M/Y _B1	Belt substrate data (START)
K/C/M/Y _B2	Belt substrate data (LAST)

44-24

Purpose	Operation data display
Function (Purpose)	Used to display the correction target and the correction level in the half tone process control operation.
Section	Process

Operation/Procedure

1) Select the display category with 10 keys.
2) To select the selected value, press [OK] key.

No.	Item/Display	Content
1	DITHER RAW VALUE	Half tone process control reference dither value (Previous adjustment)
2	SENSOR_TARGET	Half tone process control reference value
3	S_VALUE	Half tone process control correction value
4	BEFORE S_VALUE	Previous half tone process control correction value
5	CALIB VALUE	Automatic calibration reference value
6	CALIB VALUE PRC	Automatic calibration reference value (half tone process control)

44-25

Purpose	Setting
Function (Purpose)	Used to set the calculating conditions of the correction value for the half tone process control.
Section	Process

Operation/Procedure

1) Select a target adjustment color with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.

NOTE: Set the items to the default values unless a change is specially required.

No.	Item/Display	Content	Min	Max	Default value
1	HIGHT-LIGHT LIMIT K	Correction limit value of the highlight correction amount	0	128	20
2	MAX LIMIT K	Correction limit value of the highest density value	0	128	20
3	HIGHT-LIGHT LIMIT C	Correction limit value of the highlight correction amount	0	128	20
4	MAX LIMIT C	Correction limit value of the highest density value	0	128	20
5	HIGHT-LIGHT LIMIT M	Correction limit value of the highlight correction amount	0	128	20
6	MAX LIMIT M	Correction limit value of the highest density value	0	128	20
7	HIGHT-LIGHT LIMIT Y	Correction limit value of the highlight correction amount	0	128	20
8	MAX LIMIT Y	Correction limit value of the highest density value	0	128	20

44-26

Purpose	Adjustment/Setup
Function (Purpose)	Used to execute the half tone process control compulsorily.
Section	Process

Operation/Procedure

Press [OK] key.

The half tone process control is performed and the operation data are displayed.

Item/Display	Content
CL_SEN_ADJ_ERR	Color sensor adjustment error
BK_SEN_ADJ_ERR	Black sensor adjustment error
[YMCK]	High density process control [YMCK] error
OTHER	Other error

44-27

Purpose	Data clear
Function (Purpose)	Used to clear the correction data of the half tone process control.
Section	Process

Operation/Procedure

1) Press [OK] key.
   The correction data of the half tone process control are cleared.

44-28

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the process control execution conditions.
Section	Process

Operation/Procedure

1) Select an item to be set with Arrow keys.

2) Enter the set value with 10 keys.

3) Press [OK] key.
The set value in step 2) is saved.

NOTE: Set the items to the default values unless a change is specially required.

No.	Mode	Item/Display		Content		Setting range		Default value
1	Process control Enable/Disable setting	INITIAL	YES	When warm-up after clearing the counter of the OPC drum and the developer unit	Enable	0 - 1	0	0
			NO		Disable		1	
2		SW ON		When supplying the power (when clearing shut-off.)	Color process control Enable	0 - 3	0	3
					Process control Disable		1	
					BK process control Enable		2	
					Pixel count judgment (Judgement is based on the setting value of item K, L.)		3	
3		TIME		After passing the specified time from leaving READY continuously (Time can be changed by INTERVAL TIME)	Color process control Enable	0 - 3	0	3
					Process control Disable		1	
					BK process control Enable		2	
					Pixel count judgment (Judgement is based on the setting value of item K, L.)		3	
4		HUM_LIMIT		HUM judgment is made when turning ON the power and after passing TIME.	Color process control Enable	0 - 2	0	0
					Process control Disable		1	
					BK process control Enable		2	
5	Process control Enable/Disable setting	HUM		The temperature and humidity in side the machine are monitored only during a job for every 2hours (set by item N). When the changes in the temperature and the humidity are greater than the specified level (the set value of item O) in comparison with the previous process control.	Color process control Enable	0 - 2	0	0
					Process control Disable		1	
					BK process control Enable		2	
6		REV1	YES	The accumulated traveling distance of BK or M position OPC unit reaches the specified level after turning the power.	Enable	0 - 1	0	0
			NO		Inhibit		1	
7		REV2_BK	YES	The accumulated traveling distance of BK position OPC drum unit reaches the specified level from execution of the previous density correction.	Enable	0 - 1	0	0
			NO		Inhibit		1	
8		REV2_CL	YES	The accumulated traveling distance of M position OPC drum unit reaches the specified level from execution of the previous density correction.	Enable	0 - 1	0	0
			NO		Inhibit		1	
9		REFRESH MODE	YES	Select of YES/NO of the manual process control key with key operation	Key operation display	0 - 1	0	1
			NO		Key operation NO display		1	

No.	Mode	Item/Display		Content		Setting range		Default value
10	Process control conditions setting	DAY		When the next warm-up if there is no color job after a color job after passing the specified days from execution of the previous color process control	Disable of the specified days judgment	0 - 999	0	1
					1 - 999 days passing		999	
11		HI-COV		Setting of the execution judgment of the process control in continuous printing of high print ratio images		0 - 2		0
12		LO-COV		Setting of the execution judgment of the process control in continuous printing of low print ratio images		0 - 1		0
13		REV1_SH		When the accumulated traveling distance of K or M OPC drum unit reaches the specified level after turning ON the power.		0 - 1		1
14		REV2_BK_SH		When the accumulated traveling distance of K OPC drum unit reaches the specified level from execution of the previous density correction.		0 - 1		1
15		REV2_CL_SH		When the accumulated traveling distance of M OPC drum unit reaches the specified level from execution of the previous density correction.		0 - 1		1
16		AVERAGE-PAGE		Setting of the number of pages of item HI-COV set value 2		1 - 10		3
17		LIMIT PAGE		Setting of the number of connected jobs of the process control and of the limit number of the process control		1 - 10		10
18		PIX_RATIO_BK		Variable magnification ratio setting (%) of the BK toner count specified value The set value of 100 corresponds to K print of A4 at the print ratio of 5%.		1 - 999		10
19		PIX_RATIO_CL		Variable magnification ratio setting (%) of the color (CMY) toner count specified value The set value of 100 corresponds to K print of A4 at the print ratio of 5%.		1 - 999		10
20		INTERVAL TIME		Setting of the leaving time when turning ON the power (including the sleep recovery time) (h: hour)		1 - 255		3
21		HUM HOUR		Interval setting of the temperature and humidity monitoring time of "HUM" (unit: 10 minutes)		1 - 24		2
22		HUM_DIF		The specified value of the area difference in humidity between the level at execution of the previous control and the current humidity (Applied to item HUM)		1 - 9		2
23		BK_RATIO		Magnification ratio setting (%) of the specified value of the BK OPC drum traveling distance of "REV2_BK"		1-999 (Entry of 20 corresponds to 100,000mm.)		15
24		M_RATIO		Magnification ratio setting (%) of the M OPC drum traveling distance of "REV2_CL"		1-999 (Entry of 20 corresponds to 100,000mm.)		15
25		REV1_RATIO		Magnification ratio setting (%) of the specified value of the BK OPC drum traveling distance of "REV1"		1-255		20
26		REV1_RATIO_SH		Magnification ratio setting (%) of the M position OPC drum traveling distance of "REV1_SH"		1-255		20
27		BK_RATIO_SH		Magnification ratio setting (%) of the specified value of the BK OPC drum traveling distance of "REV2_BK_SH"		1-999		15
28		M_RATIO_SH		Magnification ratio setting (%) of the M position OPC drum traveling distance of "REV2_CL_SH"		1-999		15
29		COLOR BORDER		Magnification ratio setting (%) of the M position OPC drum traveling distance when executing the BK process control	BK process control is executed without judgment of ratio of the M OPC drum traveling distance. (Addition)	0 - 999		20
					1 - 999(%)			
30		BK ONLY		Disable/Enable setting and setting of the number of repetition of the BK process control when monochrome print is continued.	Enable 5 time	0 - 6	0	4
					Disable 1-5 times		1 - 5	
					Inhibit		6	
31		HT_DIF		Bias change difference value used for judgment of HT process control		1 - 255		40
32	Registration adjustment setting	RG_ON_SYNC	CL	Select of synchronous/asynchronous of the power ON process control		0 - 2	0	0
			ALL				1	
			CL/BK				2	
33		RG_TEMP_TIMER		Execution timing setting after turning ON the power		0 - 240 (MINUTE)		0
34		RG_PERM_TIMER		Span setting from execution Disable to Enable		0 - 15 (HOUR)		0
35		RG_HOUR_TIMER		Span setting of timer execution		0-15 (Above)+(HOUR)		6
36		RG_BW_SYNC		Setting of Enable/Disable of the registration adjustment after a monochrome job		0-1		1

44-29

Purpose Setting

Function (Purpose) Used to set the operating conditions of the process control during a job.

Section Process

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

NOTE: Set the items to the default values unless a change is specially required.

No.	Item/Display	Content	Setting range		Default value
1	PRINTER	During print job	0 - 2	0 : No execution 1 : HV only 2 : HV -> HT	2
2	SELF PRINT	During self print			2

44-31

Purpose Adjustment/Setup

Function (Purpose) Used to adjust the OPC drum phase. (Manual adjustment)

Section Process

Operation/Procedure

NOTE: For the OPC drum phase adjustment, do not use this simulation, but use SIM50-22 (auto adjustment).
It takes a time to finish this mode,

1) Select item A with Arrow key.
2) Enter the value corresponding to the adjustment pattern with 10 keys.
3) Press [OK] key. (The adjustment pattern is printed out.)
4) Select an adjustment pattern whose deflection is within two scale lines on the adjustment pattern of C,M, Y colors.
5) Select item B with Arrow keys.
6) Enter the adjustment pattern sheet number selected in procedure 4).
7) Press [OK] key.
8) The adjusted adjustment pattern is printed.

No.	Item/Display	Content		Setting range	Default value
1	COLOR	Phase adjustment value BK -> CL	Angle step 0 degree (1) -> 45 degree (2) -> 90 degree (3) -> 135 degree (4) -> 180 degree (5) -> 225 degree (6) -> 270 degree (7) -> 315 degree (8)	1 - 8	1
2	PAPER	Tray selection	1 : Manual paper feed 2 : 1 CS 3 : 2CS	1 -3	2

44-37

Purpose Adjustment/Setup

Function (Purpose) Used to set the development bias correction level in the continuous printing operation.

Section

Operation/Procedure

1) Enter the set value with 10 keys.
2) Press [OK] key.
   The set value in step 2) is saved.

NOTE: When the print density is varied in the continuous printing operation, this simulation is used.

No.	Item/Display	Contents	Range	Default value
1	MUL_MC_ADJ	MC bias correction in the continuous printing is enabled / disabled.	0-1	0

44-43

Purpose	Data display
Function (Purpose)	Used to display the identification information of the developing unit.
Section	Developing system

Operation/Procedure

The identification number and the identification signal level of the developing unit are displayed.

No.	Item/Display	Content	Display range
1	DVCH KIND K	K color development unit identification number	1 - 5
2	DVCH KIND C	C color development unit identification number	1 - 5
3	DVCH KIND M	M color development unit identification number	1 - 5
4	DVCH KIND Y	Y color development unit identification number	1 - 5
5	DVCH_AD_K	K color developing unit identification number AD value	0 - 255
6	DVCH_AD_C	C color developing unit identification number AD value	0 - 255
7	DVCH_AD_M	M color developing unit identification number AD value	0 - 255
8	DVCH_AD_Y	Y color developing unit identification number AD value	0 - 255

44-62

Purpose	Setup/Adjustment
Function (Purpose)	Used to set the process control execution conditions.
Section	Process

Operation/Procedure

This simulation allows collective change in the set contents of SIM44-4 and SIM44-28.

A suitable one is selected among a number of options depending on the condition.

1) Select an item to be set with Arrow keys.
   To change the image density in the high density area, select [PROCON TARGET].
   To change the frequency of the process control operations, select [PROCON MODE].
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Item/ Display	Contents	Note	Content
PRO-CON TARGET	Process control target value registration	0 : CL ID DOWN	The densities of C, M, and Y decrease. (The C/M/Y high density process control target values decrease.)
		1 : CL ID UP	The densities of C, M, and Y increase. (The C/M/Y high density process control target values increase.)
		2 : BK ID DOWN	The density of K decreases. (The high density process control target value decreases.)
		3 : BK ID UP	The density of K increases. (The high density process control target value increases.)
		4 : ALL ID DOWN	The densities of C, M, Y and K decrease. (The C/M/Y/K high density process control target values decrease.)
		5 : ALL ID UP	The densities of C, M, Y and K increase. (The C/M/Y/K high density process control target values increase.)
		6 : NOR-MAL	The standard density of C, M, Y and K. (The C/M/Y/K high density process control target values are the standard values.)
PRO-CON MODE	Density adjustment timing mode	0 : HIGH QUALIT Y1	The execution frequency of the process control is high. (It is set when the color image quality is given priority.)
		1 : HIGH QUALIT Y2	The execution frequency of the process control is highest. (It is set when the color image quality is given priority.)
		2 : PRINT PER-FOR-MANCE	The execution frequency of the process control is low. (It is set when the job speed is given priority.)
		3 : BW MODE	The process control is executed in the normal frequency. (It is set when there are little color jobs and many monochrome jobs.)
		4 : NOR-MAL	The process control is executed in the normal frequency.

46

46-21

Purpose Adjustment

Function (Purpose) Color balance adjustment (Manual adjustment)

Section

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Press [OK] key. .
3) Enter the setting value with 10 keys.
4) Press [OK] key.
   When the adjustment value is increased, the image density is increased, and vice versa.
   When [OK] key is pressed, the check pattern in printed in the color balance and density corresponding to the adjustment value.

No.	Item/Display	Density level (Point)	MIn	Max	Default value
K	POINT1K	Point 1	1	255	128
	-	-			
	POINT17 K	Point 17			
C	POINT1C	Point 1	1	255	128
	-	-			
	POINT17 C	Point 17			
M	POINT1M	Point 1	1	255	128
	-	-			
	POINT17 M	Point 17			
Y	POINT1Y	Point 1	1	255	128
	-	-			
	POINT17 Y	Point 17			

48

48-6

Purpose Adjustment

Function (Purpose) Used to adjust the rotation speed of each motor.

Section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

When the adjustment value is increased, the speed is increased, and vice versa. A change of 1 in the adjustment value corresponds to a change of about 0.1% in the speed.

Item/Display		Content	Min	Max	Default
COLOR	FUM	Drum motor correction value	1	99	56
	DVM	Drum motor correction value	1	99	56
	DM	Drum motor correction value	1	99	56
	C2MM	2CStransport motor correction value	1	99	56
MONO	FUM	Fusing motor correction value	1	99	56
	DM	Drum motor correction value	1	99	56
HEAVY	FUM	Drum motor correction value	1	99	54
	DVM	Drum motor correction value	1	99	56
	DM	Drum motor correction value	1	99	56

49

49-1

Purpose

Function (Purpose) Used to perform the firmware update.

Section

Operation/Procedure

1) Save the firmware to the USB flash drive.
2) Insert the USB flash drive into the main unit.
3) Select a target firmware file for update.
4) Press [OK] key.
5) Press [OK] key.
   The selected firmware is updated.
   When the operation normally completed, "Processing finished. Turn off the power." is displayed. When terminated abnormally, "ERROR" is displayed.

49-2

Purpose

Function (Purpose) Used to perform the FPGA update.

Section

Operation/Procedure

1) Save the FPGA file to the USB flash drive.
2) Insert the USB flash drive into the main unit.
3) Select a target FPGA file for update.
4) Press [OK] key.
   Right after pressing the button, the selected firmware is started to be updated.
5) When the operation normally completed, "Please turn off the power" is displayed. When terminated abnormally, "ERROR" is displayed.
   Turn OFF and ON the power of the machine.

50

50-1

Purpose Adjustment

Function (Purpose) Image position adjustment

Section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
   Set the items to the default.
3) Press [OK] key. The set value in step 2) is saved.

No.	Item/Display		Content		Setting range	Default value
1	Lead edge adjustment value	RRCB-CS1	Resist motor ON timing adjustment	Standard Tray	1 - 99	40
2		RRCB-DSK		Desk	1 - 99	42
3		RRCB-MFT		Manual paper feed	1 - 99	50
4		RRCB-ADU		ADU	1 - 99	50

No.	Item/Display		Content	Set-ting range	Default value
5	Void area adjustment	DENA	Lead edge void area adjustment	1 - 99	40
6		DENB	Rear edge void area adjustment	1 - 99	35
7		FRONT/REAR	FRONT/REAR void area adjustment	1 - 99	35
8	Sub scan-ning direction print area correction value	DENB-MFT	Manual feed correc-tion value	1 - 99	50
9		DENB-CS1	Tray 1 correction value	1 - 99	50
10		DENB-CS2	Tray 2 correction value	1 - 99	50
11		DENB-ADU	ADU correction value	1 - 99	50

1 - 4. (RRC-B) Timing of paper (resist roller ON) for the image position on the transfer belt is adjusted. (0.1mm/step)

* When the value is decreased, the timing is delayed. When the value is increased, the timing is advanced.

5. (DEN-A) The paper lead edge void amount is adjusted. (0.1mm/step)

* When the value is increased, the void is increased.

6. (DEN-B) The paper rear edge void amount is adjusted. (0.1mm/step)

* When the value is increased, the void is increased.

50-5

Purpose	Adjustment
Function (Purpose)	Used to adjust the print lead edge image position. (PRINTER MODE)
Section	

Operation/Procedure

1) Select a target adjustment item (DEN-C) with Arrow key.
2) Enter the adjustment value using the 10 keys.
3) Press [OK] key.
   The set value is saved, and the adjustment check pattern is printed.
4) Measure the distance from the paper lead edge the adjustment pattern to the image lead edge, and check to confirm that it is in the standard adjustment value range.
   Standard reference value: 4.0 +/- 2.0mm

When the adjustment value is increased, the distance from the paper lead edge to the image lead edge is increased. When the adjustment value is decreased, the distanced is decreased.

When the set value is changed by 1, the distance is changed by about 0.1mm.

No.	Item/Display	Content	Setting range	Default value	Note
1	DEN-C	Used to adjust the print lead edge image position. (PRINTER MODE)	1 - 99	50	Adjustment value too align the print lead edge for the printer. When the adjustment value of this item is decreased by 1, the printer print start position in the paper transport direction is shifted to the lead edge by 0.1mm.
2	DEN-B	Rear edge void area adjustment	1 - 99	40	Void amount generated at the paper rear edge. When the adjustment value of item B (DEN-B) is decreased by 1, the print area adjustment value in the sub scanning direction for the paper transport direction is decreased by 0.1mm.
3	FRONT/REAR	FRONT/REAR void area adjustment	1 - 99	35	Adjustment of the void amount generated on the left and right edges of paper. When the adjustment value is increased, the void amount is increased.
4	DENB-MFT	Manual feed rear edge void area adjustment correction value	1 - 99	50	Fine adjustment value of each paper feed source for the adjustment value of DEN-B
5	DENB-CS1	Tray 1 rear edge void area adjustment correction value	1 - 99	50	
6	DENB-CS2	Tray 2 rear edge void area adjustment correction value	1 - 99	50	
7	DENB-ADU	ADU rear edge void aria adjustment correction value	1 - 99	50	

When the adjustment value is increased, the distance from the paper lead edge to the image lead edge is increased. When the adjustment value is decreased, the distance from the paper lead edge to the image lead edge is decreased.

When the set value is changed by 1, the distance is changed by about 0.1mm.

50-10

Purpose	Adjustment
Function (Purpose)	Used to adjust the black print image magnification ratio and the off-center position. (The adjustment is made separately for each paper feed section.)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display		Content		Setting range		Default value	Note
1	BK-MAG		Main scan print magnification ratio BK		60 - 140		100	Adjustment Item List
2	MAIN-MFT		Print off center adjustment value (Manual paper feed)		1 - 99		50	
3	MAIN-CS1		Print off center adjustment value (Tray 1)		1 - 99		50	
4	MAIN-CS2		Print off center adjustment value (Tray 2)		1 - 99		50	
5	MAIN-ADU		Print off center adjustment value (Duplex) (NOTE) If the adjustment items A - F are not properly adjusted, this adjustment cannot be executed properly.		1 - 99		50	
6	SUB-MFT		Resist motor ON timing adjustment	Manual paper feed	1 - 99		50	
7	SUB-CS1			Standard cassette	1 - 99		40	
8	SUB-DSK			DESK	1 - 99		42	
9	SUB-ADU			ADU	1 - 99		50	
10	DENB		Sub scanning direction print area correction value		1 - 99		35	
11	PAPER	MFT	Cassette selection	Manual paper feed	1-3	1	2(CS1)	
		CS1		Cassette 1		2		
		CS2		Cassette 2		3		
12	DUPLEX	YES	2-sided printing selection	Select	0-1	0	1(NO)	
		NO		Not-select		1		

Item 1: When the set value is increased, the BK image magnification ratio in the main scanning direction is increased. When the set value is decreased, the image magnification ratio is decreased.

Item 2 - 7: When the adjustment value is increased, it is shifted to the front frame side. When the adjustment value is decreased, it is shifted to the rear frame side.

Item 2 - 7: 1 step = 0.1mm change

50-20

Purpose	Adjustment
Function (Purpose)	Image registration adjustment (Manual adjustment)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display	Contents	Range	Default value
1	OFFSET_SUB_C	Registration adjustment value sub scanning direction offset value CYAN	1 - 99	50
2	OFFSET_MAIN_C_F	Registration adjustment value main scanning direction offset value CYAN (FRONT)	1 - 99	50
3	OFFSET_MAIN_C_R	Registration adjustment value main scanning direction offset value CYAN (REAR)	1 - 99	50
4	OFFSET_SUB_M	Registration adjustment value sub scanning direction offset value MAGENTA	1 - 99	53
5	OFFSET_MAIN_M_F	Registration adjustment value main scanning direction offset value MAGENTA (FRONT)	1 - 99	50
6	OFFSET_MAIN_M_R	Registration adjustment value main scanning direction offset value MAGENTA (REAR)	1 - 99	50
7	OFFSET_SUB_Y	Registration adjustment value sub scanning direction offset value YELLOW	1 - 99	53
8	OFFSET_MAIN_Y_F	Registration adjustment value main scanning direction offset value YELLOW (FRONT)	1 - 99	50
9	OFFSET_MAIN_Y_R	Registration adjustment value main scanning direction offset value YELLOW (REAR)	1 - 99	50
10	PAPER	Cassette selection 1:MFT(Manual paper feed), 2:CS1(Cassette1) 3:CS2(Cassette 2)	1 - 3	2(CS1)
11	REGIST_SUB_C	Registration adjustment value sub scanning direction value CYAN (Black Drum standard)	1 - 199	100
12	REGIST_MAIN_C_F	Registration adjustment value main scanning direction CYAN F side	1 - 199	100
		(Cyan laser writing position F side)	1 - 199	100
13	REGIST_MAIN_C_R	Registration adjustment value main scanning direction CYAN R side	1 - 199	100
		(Cyan laser writing position R side)	1 - 199	100
14	REGIST_SUB_M	Registration adjustment value sub scanning direction value Magenta (Black Drum standard)	1 - 199	100

No.	Item/Display	Contents	Range	Default value
15	REGIST_MAIN_M_F	Registration adjustment value main scanning direction MAGENTA F side	1 - 199	100
		(Magenta laser writing position F side)	1 - 199	100
16	REGIST_MAIN_M_R	Registration adjustment value main scanning direction MAGENTA R side	1 - 199	100
		(Magenta laser writing position R side)		100
17	REGIST_SUB_Y	Registration adjustment value sub scanning direction value Yellow (Black Drum standard)	1 - 199	100
18	REGIST_MAIN_Y_F	Registration adjustment value main scanning direction YELLOW F side	1 - 199	100
		(Yellow laser writing position F side)		100
19	REGIST_MAIN_Y_R	Registration adjustment value main scanning direction YELLOW R side	1 - 199	100
		(Yellow laser writing position R side)	1 - 199	100
20	PAPER	Cassette selection 1:MFT(Manual paper feed), 2:CS1(Cassette1) 3:CS2(Cassette 2)	1 - 3	2(CS1)

50-22

Purpose Adjustment

Function (Purpose) Used to adjust the image registration. (Main scan direction, sub scan direction) (Auto adjustment)/OPC drum phase adjustment (Auto adjustment)

Section

Operation/Procedure

1) Press [OK] key.
   All drum motors are moved and the adjustment starts.

NOTE: The contents of the following list are mainly used by the technical division, and are not necessary for the market.

Item/Display	Content	Display *1
SKEW_K	Print skew amount calculation result (Cyan)	-999 - 999
SKEW_C	Print skew amount calculation result (Cyan)	-999 - 999
SKEW_C(DIF)	Print skew amount calculation result (Cyan) (Difference from the previous adjustment value)	-1999 - 1999
SKEW_M	Print skew amount calculation result (Magenta)	-999 - 999
SKEW_M(DIF)	Print skew amount calculation result (Magenta) (Difference from the previous adjustment value)	-1999 - 1999
SKEW_Y	Print skew amount calculation result (Yellow)	-999 - 999
SKEW_Y(DIF)	Print skew amount calculation result (Yellow) (Difference from the previous adjustment value)	-1999 - 1999
REGIST_SUB_C	Registration adjustment value sub scanning direction (Cyan drum -> Black drum)	10 - 1990
REGIST_SUB_C(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Cyan drum to Black drum)	-1999 - 1999
REGISTMAIN_C_F	Registration adjustment value main scanning direction (Cyan laser writing position F side)	10 - 1990
REGISTMAIN_C_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Cyan laser writing position F side)	-1999 - 1999
REGISTMAIN_C_R	Registration adjustment value main scanning direction (Cyan laser writing position R side)	10 - 1990
REGISTMAIN_C_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Cyan laser writing position R side)	-1999 - 1999
REGIST_SUB_M	Registration adjustment value sub scanning direction (Magenta drum -> Black drum)	10 - 1990
REGIST_SUB_M(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Magenta drum to Black drum)	-1999 - 1999
REGIST_MAIN_M_F	Registration adjustment value main scanning direction (Magenta laser writing position F side)	10 - 1990
REGIST_MAIN_M_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Magenta laser writing position F side)	-1999 - 1999
REGIST_MAIN_M_R	Registration adjustment value main scanning direction (Magenta laser writing position R side)	10 - 1990
REGIST_MAIN_M_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Magenta laser writing position R side)	-1999 - 1999
REGIST_SUB_Y	Registration adjustment value sub scanning direction (Yellow drum -> Black drum)	10 - 1990
REGIST_SUB_Y(DIF)	Registration adjustment value sub scanning direction (Difference from the previous adjustment value) (Yellow drum -> Black drum)	-1999 - 1999
REGIST_MAIN_Y_F	Registration adjustment value main scanning direction (Yellow laser writing position F side)	10 - 1990
REGIST_MAIN_Y_F(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Yellow laser writing position F side)	-1999 - 1999
REGIST_MAIN_Y_R	Registration adjustment value main scanning direction (Yellow laser writing position R side)	10 - 1990
REGIST_MAIN_Y_R(DIF)	Registration adjustment value main scanning direction (Difference from the previous adjustment value) (Yellow laser writing position R side)	-1999 - 1999
PHASE	OPC drum phase adjustment value (BK to CL)	0 - 359
PHASE before	OPC drum phase adjustment value (BK to CL)	0 - 359

*1: The color image skew adjustment is performed according to this display value.

When "R" is displayed in front of the value, turn and click the skew adjustment screw (LSU) clockwise by the value.

When "L" is displayed in front of the value, turn and click the skew adjustment screw (LSU) counterclockwise by the value.

At that time, the values under the decimal point are rounded.

<Error displays in case of abnormal end >

	Error code	Error display	Error content	Description
Forcible end error	-	INTER-RUP-TION	Door open end	Door open during operation
	-	INTER-RUP-TION	Stop button end	CA button pressed during operation
	-	-	OFF end	Unconfirmed operation during operation
Basic error	1	TON-NER EMPTY 01	Toner Empty	BK or ALL Color toner EMPTY detection
	2	BEFOR BEHAV-IOR 02	Other condition	Other condition
	4	SEN-SOR CALIB-LATION F 04	Calibration error	The target is not reached by 3 times of retry of F or R
	5	SEN-SOR CALIB-LATION R 05	Calibration error R	
	6	SEN-SOR CALIB-LATION FR 06	Calibration error FR	
	7	TIME OVER 07	Time error	No data is received for 90 sec. after receiving the previous data.
	8	PRO-CESS CON-TROL 08	Process control error	Process control error detection
Sub scanning adjustment error	10	DATA_SUB_K_F_all 10	Data number error	There is no pitch data.
			Sub scanning direction BK F side	
	11	DATA_SUB_K_F_any 11	Data number error	The pitch data number are not the specified value.
			Sub scanning direction BK F side	
	15	DATA_SUB_K_R_all 15	Data number error	There is no pitch data.
			Sub scanning direction BK R side	
	16	DATA_SUB_K_R_any 16	Data number error	The pitch data number are not the specified value.
			Sub scanning direction BK R side	
	20	DATA_SUB_C_F_all 20	Data number error	There is no pitch data.
			Sub scanning direction CY F side	
Sub scanning adjustment error	21	DATA_SUB_C_F_any 21	Data number error	The pitch data number are not the specified value.
			Sub scanning direction CY F side	
	25	DATA_SUB_C_R_all 25	Data number error	There is no pitch data.
			Sub scanning direction CY R side	
	26	DATA_SUB_C_R_any 26	Data number error	The pitch data number are not the specified value.
			Sub scanning direction CY R side	
	30	DATA_SUB_M_F_all 30	Data number error	There is no pitch data.
			Sub scanning direction MG F side	
	31	DATA_SUB_M_F_any 31	Data number error	The pitch data number are not the specified value.
			Sub scanning direction MG F side	
	35	DATA_SUB_M_R_all 35	Data number error	There is no pitch data.
			Sub scanning direction MG F side	
	36	DATA_SUB_M_R_any 36	Data number error	The pitch data number are not the specified value.
			Sub scanning direction MG R side	
	40	DATA_SUB_Y_F_all 40	Data number error	There is no pitch data.
			Sub scanning direction YE F side	
	41	DATA_SUB_Y_F_any 41	Data number error	The pitch data number are not the specified value.
			Sub scanning direction YE F side	
	45	DATA_SUB_Y_R_all 45	Data number error	There is no pitch data.
			Sub scanning direction YE R side	
	46	DATA_SUB_Y_R_any 46	Data number error	The pitch data number are not the specified value.
			Sub scanning direction YE R side	
Main scanning adjustment error	50	DATA_MAIN_K_F_all 50	Data number error	There is no pitch data.
			Main scanning direction BK F side	
	51	DATA_MAIN_K_F_any 51	Data number error	The pitch data number are not the specified value.
			Main scanning direction BK F side	

	Error code	Error display	Error content	Description
Main scanning adjustment error	55	DATA_MAIN_K_R_all 55	Data number error Main scanning direction BK R side	There is no pitch data.
	56	DATA_MAIN_K_R_any 56	Data number error Main scanning direction BK R side	The pitch data number are not the specified value.
	60	DATA_MAIN_C_F_all 60	Data number error Main scanning direction CY F side	There is no pitch data.
	61	DATA_MAIN_C_F_any 61	Data number error Main scanning direction CY F side	The pitch data number are not the specified value.
	65	DATA_MAIN_C_R_all 65	Data number error Main scanning direction CY R side	There is no pitch data.
	66	DATA_MAIN_C_R_any 66	Data number error Main scanning direction CY R side	The pitch data number are not the specified value.
	70	DATA_MAIN_M_F_all 70	Data number error Main scanning direction MG F side	There is no pitch data.
	71	DATA_MAIN_M_F_any71	Data number error Main scanning direction MG F side	The pitch data number are not the specified value.
	75	DATA_MAIN_M_R_all 75	Data number error Main scanning direction MG R side	There is no pitch data.
	76	DATA_MAIN_M_R_any 76	Data number error Main scanning direction MG R side	The pitch data number are not the specified value.
	80	DATA_MAIN_Y_F_all 80	Data number error Main scanning direction YE F side	There is no pitch data.
	81	DATA_MAIN_Y_F_any 81	Data number error Main scanning direction YE F side	The pitch data number are not the specified value.
	85	DATA_MAIN_Y_R_all 85	Data number error Main scanning direction YE R side	There is no pitch data.

	Error code	Error display	Error content	Description
Main scanning adjustment erro	86	DATA_MAIN_Y_R_any 86	Data number error Main scanning direction YE R side	The pitch data number are not the specified value.
Sub scanning adjustment error	91	RANGE_SUB_C 91	Adjustment value error Sub scanning direction CY R side	The calculation result value is not within the allowable range.
	93	RANGE_SUB_M 93	Adjustment value error Sub scanning direction MG	
	95	RANGE_SUB_Y 95	Adjustment value error Sub scanning direction YE	
Main scanning adjustment error	97	RANGE_MAIN_C_F 97	Adjustment value error Main scanning direction CY R side	
	99	RANGE_MAIN_C_R 99	Adjustment value error Main scanning direction CY R side	
	101	RANGE_MAIN_M_F 101	Adjustment value error Sub scanning direction MG F side	
	103	RANGE_MAIN_M_R 103	Adjustment value error Main scanning direction MG F side	
	105	RANGE_MAIN_Y_F 105	Adjustment value error Adjustment value error	
Main scanning adjustment error	107	RANGE_MAIN_Y_R 107	Adjustment value error Main scanning direction YE R side	

51

51-1

Purpose	Adjustment/Setup
Function (Purpose)	Used to adjust the ON/OFF timing of the secondary transport voltage.
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

When the adjustment value is decreased, the transfer ON/OFF timing for the paper is advanced. When the adjustment value is increased, the timing is delayed.

When the adjustment value is changed by 1, the timing is changed by about 10ms. The setting range is -490 - +490ms.

No.	Item/Display	Content	Default value	Default value
1	TC2 ON TIMING	Secondary transfer voltage ON timing setting	1 - 99	40
2	TC2 OFF TIMING	Secondary transfer voltage OFF timing setting	1 - 99	60

51-2

Purpose	Adjustment/Setup
Function (Purpose)	Used to adjust the contact pressure (deflection amount) on paper by the main unit. (This adjustment is performed when there is a considerable variation in the print image position on the paper or when paper jams frequently occur.)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

Mode	Display/Item	Content		Setting range	Default value
1	TRAY1	Main unit cassette / deflection adjustment value (Plain paper)	LT size (215mm) or less	1 - 99	60
2	MANUAL PLAIN PAPER	Manual feed tray/deflection adjustment value (Plain paper)	LT size (215mm) or less	1 - 99	35
3	MANUAL HEAVY PAPER	Manual feed tray/deflection adjustment value (Heavy paper)	LT size (215mm) or less	1 - 99	60
4	MANUAL ENV	Manual feed tray/deflection adjustment value (Envelope)	-	1 - 99	60
5	ADU PLAIN PAPER	ADU/deflection adjustment value (Plain paper)	LT size (215mm) or less	1 - 99	35
6	DESK	DESK/deflection adjustment value (Plain paper)	LT size (215mm) or less	1 - 99	15

<Adjustment value>

When the adjustment value is increased, the warp amount is increased. When the adjustment value is decreased, the warp amount is decreased.

When the adjustment value is changed by 1, the stop timing is changed by 0.1mm.

55

55-1

Purpose	(Do not use this function unless specially required.)
Function (Purpose)	Used to set the specifications of the engine control operations. (SOFT SW)
Section	

55-3

Purpose	(Do not use this function unless specially required.)
Function (Purpose)	Used to set the specifications of the controller operation. (SOFT SW)
Section	

56

56-2

Purpose Data backup (Data transfer)

Function (Purpose) Used to backup the data in the EEPROM and Flash memory (including user authentication data) to the USB memory.

Section

Operation/Procedure

1) Insert the USB flash drive into the main unit.
2) Select a transfer mode with Arrow keys.
   - IMPORT STORED DATA
   From USB MEMORY DEVICE to EEPROM
   - EXPORT STORED DATA
   From EEPROM to USB MEMORY DEVICE
3) Press [OK] key.
   Data transfer is performed

56-5

Purpose Adjustment/Setting/Operation data check

Function (Purpose) Used to export the SIM22-6 data to a USB flash drive in the TEXT format.

Section

Operation/Procedure

1) Insert the USB flash drive into the main unit.
2) Press [OK] key.

60

60-1

Purpose Operation test/check

Function (Purpose) Used to check the operations (read/write) of the MFP PWB memory.

Section

Operation/Procedure

1) Press [OK] key.
   Start the test.

Result display	Description
OK	Success
NG	Error

61

61-1

Purpose Operation test/check

Function (Purpose) Used to check the LSU polygon motor rotation and laser emission/detection.

Section LSU

Operation/Procedure

1) Press [OK] key.
   When the operation is completed normally, [COMPLETE] is displayed. In case of an abnormal end, [NG] is displayed.

Display	Content
NG:PG	Polygon mirror rotation abnormality
NG:K	Laser light emitting abnormality, Laser light detection abnormality(K)
NG:C	Laser light emitting abnormality (C)
NG:M	Laser light emitting abnormality (M)
NG:Y	Laser light emitting abnormality, Laser light detection abnormality(Y)

61-3

Purpose Adjustment/Setup

Function (Purpose) Used to set the laser power

Section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.
   When the laser power is increased, the print density is increased and the line width of line images are increased.

Mode	Item/Display		Content	Setting range	Default value
1	1 SELF PRINT MID	LP MID (K)	Used to set the laser power (Middle speed/K)	0 - 255	110
2		LP MID (C)	Used to set the laser power (Middle speed/C)	0 - 255	110
3		LP MID (M)	Used to set the laser power (Middle speed/M)	0 - 255	110
4		LP MID (Y)	Used to set the laser power (Middle speed/Y)	0 - 255	110
5		LP MID (BW)	Used to set the laser power (Middle speed/BW)	0 - 255	110
6		LP DUTY MID (K)	Laser DUTY select low speed (K)	0 - 255	0
7		LP DUTY MID (C)	Laser DUTY select low speed (C)	0 - 255	0
8		LP DUTY MID (M)	Laser DUTY select low speed (M)	0 - 255	0
9		LP DUTY MID (Y)	Laser DUTY select low speed (Y)	0 - 255	0
10		LP DUTY MID (BW)	Laser DUTY select low speed (BW)	0 - 255	0
1	2 SELF PRINT LOW	LP LOW(K)	Used to set the laser power (Low speed/K)	0 - 255	110
2		LP LOW(C)	Used to set the laser power (Low speed/C)	0 - 255	110
3		LP LOW(M)	Used to set the laser power (Low speed/M)	0 - 255	110
4		LP LOW(Y)	Used to set the laser power (Low speed/Y)	0 - 255	110
5		LP LOW(BW)	Used to set the laser power (Low speed/BW)	0 - 255	110
6		LP DUTY LOW(K)	Laser DUTY select low speed (K)	0 - 255	0
7		LP DUTY LOW(C)	Laser DUTY select low speed (C)	0 - 255	0
8		LP DUTY LOW(M)	Laser DUTY select low speed (M)	0 - 255	0
9		LP DUTY LOW(Y)	Laser DUTY select low speed (Y)	0 - 255	0
10		LP DUTY LOW(BW)	Laser DUTY select low speed (BW)	0 - 255	0

Mode	Item/Display		Content	Setting range	Default value
1	3 SELF PRINT COR-RECT	LP K1	Used to set the laser power (K1)	0 - 255	0
2		LP K2	Used to set the laser power (K2)	0 - 255	100
3		LP C1	Used to set the laser power (C1)	0 - 255	100
4		LP C2	Used to set the laser power (C2)	0 - 255	100
5		LP M1	Used to set the laser power (M1)	0 - 255	100
6		LP M2	Used to set the laser power (M2)	0 - 255	100
7		LP Y1	Used to set the laser power (Y1)	0 - 255	100
8		LP Y2	Used to set the laser power (Y2)	0 - 255	100
1	4 PRINTER MID-DLE	LP MID (K)	Used to set the laser power (Middle speed/K)	0 - 255	110
2		LP MID (C)	Used to set the laser power (Middle speed/C)	0 - 255	110
3		LP MID (M)	Used to set the laser power (Middle speed/M)	0 - 255	110
4		LP MID (Y)	Used to set the laser power (Middle speed/Y)	0 - 255	110
5		LP MID (BW)	Used to set the laser power (Middle speed/BW)	0 - 255	110
6		LP DUTY MID(K)	Laser DUTY select middle speed (K)	0 - 255	0
7		LP DUTY MID(C)	Laser DUTY select middle speed (C)	0 - 255	0
8		LP DUTY MID(M)	Laser DUTY select middle speed (M)	0 - 255	0
9		LP DUTY MID(Y)	Laser DUTY select middle speed (Y)	0 - 255	0
10		LP DUTY MID(BW)	Laser DUTY select middle speed (BW)	0 - 255	0
11		LP DUTY MID(K1)	Laser DUTY select middle speed (K) 1 BIT	0 - 255	0
12		LP DUTY MID(C1)	Laser DUTY select middle speed (C) 1 BIT	0 - 255	0
13		LP DUTY LOW(M1)	Laser DUTY select middle speed (M) 1 BIT	0 - 255	0
14		LP DUTY LOW(Y1)	Laser DUTY select middle speed (Y) 1 BIT	0 - 255	0
15		LP DUTY LOW(BW1)	Laser DUTY select middle speed (BW) 1 BIT	0 - 255	0
1	5 PRINTER LOW	LP LOW(K)	Used to set the laser power (Low speed/K)	0 - 255	110
2		LP LOW(C)	Used to set the laser power (Low speed/C)	0 - 255	110
3		LP LOW(M)	Used to set the laser power (Low speed/M)	0 - 255	110
4		LP LOW(Y)	Used to set the laser power (Low speed/Y)	0 - 255	110
5		LP LOW(BW)	Used to set the laser power (Low speed/BW)	0 - 255	110
6		LP DUTY LOW(K)	Laser DUTY select low speed (K)	0 - 255	0
7		LP DUTY LOW(C)	Laser DUTY select low speed (C)	0 - 255	0
8		LP DUTY LOW(M)	Laser DUTY select low speed (M)	0 - 255	0
9		LP DUTY LOW(Y)	Laser DUTY select low speed (Y)	0 - 255	0
10		LP DUTY LOW(BW)	Laser DUTY select low speed (BW	0 - 255	0
11		LP DUTY LOW(K1)	Laser DUTY select low speed (K) 1 BIT	0 - 255	0
12		LP DUTY LOW(C1)	Laser DUTY select low speed (C) 1 BIT	0 - 255	0
13		LP DUTY LOW(M1)	Laser DUTY select low speed (M) 1 BIT	0 - 255	0
14		LP DUTY LOW(Y1)	Laser DUTY select low speed (Y) 1 BIT	0 - 255	0
15		LP DUTY LOW(BW1)	Laser DUTY select low speed (BW) 1 BIT	0 - 255	0

61-4

Purpose Adjustment

Function (Purpose) Used to print the print image skew adjustment pattern. (LSU unit)

Section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.
   The print image skew adjustment pattern is printed.

Item/Display			Content			Default value
A	MULTICOUNT		Print quantity (1-999)			1
B	PAPER	MFT	Tray selection	1	Manual paper feed	2 (CS1)
		CS1		2	Tray 1	
		CS2		3	Tray 2	

64

64-1

Purpose Operation test/check

Function (Purpose) Test print. (Self print) (Color mode)

Section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display		Content		Setting range		Default value
1	PRINT PATTERN		Specification of the print pattern (* For details, refer to the description below.)		1 - 58		1
2	DOT1		Setting of print dot number (M parameter) (Self print pattern: m by n)		0-255		1
3	DOT2		Setting of blank dot number (N parameter) (Self print pattern: m by n)		0-255		236
4	DENSITY		Used to specify the print gradation.		0-255		255
5	MULTI COUNT		Number of print		1 - 999		1
6	EXPOSURE	THROUGH	Exposure mode specification	No process (through)	1-8	1	8 (STANDARD DITHER)
		CHAR/PRPIC		Text/ Photograph		3	
		CHAR		Text		4	
		PRINT PIC		Printed Photo		5	
		STANDARD DITHER		Dither without correction		8	
7	PAPER	MFT	Tray selection	Manual paper feed	1 - 3	1	2 (CS1)
		CS1		Tray 1		2	
		CS2		Tray 2		3	
8	DUPLEX	YES	Duplex print selection	Yes	0 - 1	0	1 (NO)
		NO		No		1	
9	PAPER TYPE	PLAIN	Paper type	Standard paper	1 - 5	1	1 (PLAIN)
		HEAVY		Heavy paper		2	
		OHP		OHP		3	
		ENVELOPE		Envelope		4	
		GLOSSY		Glossy paper		5	
10	K		Black		0 - 1	0	0
11	C		Cyan		0 - 1	0	
12	M		Magenta		0 - 1	0	
13	Y		Yellow		0 - 1	0	

<Print pattern of Item A>

Pattern No.	Content	Pattern generating section	Note
1	Grid pattern	LSU-ASIC	
2	Dot print		-
9	Each color 10% area (A4/A4E) density print		Each interval is 41.86mm (989dot).
10	8-color belt print		
11	4-color dot print (sub scan)		
17	All background (half tone)	Half tone (MFP ASIC rear process)	When all colors are selected, print is made in CMY.
18	256 gradations pattern (Other dither)		- When all colors are selected, print is made in CMY. - 16 gradations are printed in the main scanning direction, and feedback is made, and the next 16 gradations are printed. (16 x 16 patch print) - Print is made from 255 gradations, and 0-254 gradations are printed.
21	4-point dot print (main scan)	LSU-ASIC	
22	Slant line		

64-2

Purpose	Operation test/check
Function (Purpose)	Test print. (Self print) (Monochrome mode)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display		Content		Setting range		Default value
1	PRINT PATTERN		Print pattern specification		1 - 58		1
2	DOT1		Setting of print dot number (M parameter) (Self print pattern: m by n)		0-255		1
3	DOT2		Setting of blank dot number		0-255		236
4	DENSITY		Used to specify the print gradation.		1-255		255
5	MULTI COUNT		Number of print		1 - 999		1
6	EXPOSURE	THROUGH	Exposure mode specification	No process (through)	1-8	1	8 (STANDARD DITHER)
		CHAR/PRPIC		Text/ Photograph		3	
		CHAR		Text		4	
		PRINT PIC		Printed Photo		5	
		STANDARD DITHER		Dither without correction		8	
7	PAPER	MFT	Tray selection	Manual paper feed	1 - 3	1	2 (CS1)
		CS1		Tray 1		2	
		CS2		Tray 2		3	
8	DUPLEX	YES	Duplex print selection	Yes	0 - 1	0	1 (NO)
		NO		No		1	
9	PAPER TYPE	PLAIN	Paper type	Standard paper	1 - 5	1	1 (PLAIN)
		HEAVY		Heavy paper		2	
		OHP		OHP		3	
		ENVELOPE		Envelope		4	
		GLOSSY		Glossy paper		5	

<Print pattern of Item A>

Pattern No.	Content	Pattern generating section	Note
1	Grid pattern	LSU-ASIC	
2	Dot print		-
9	Each color 10% area (A4/A4R) density print		
10	8-color belt print		
11	4-color dot print (sub scan)		Print of each color is made for every 1/4 of the sub scanning paper size.
17	All background (half tone)	Half tone (MFP ASIC after process)	-
18	256 gradations pattern (Other dither)		-
21	4-point dot print (main scan)	LSU-ASIC	
22	Slant line		

64-4

Purpose	Operation test/check
Function (Purpose)	Printer test print. (Self print) (256 gradations)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display	Content		Setting range		Default value
1	PRINT PATTERN	Specification of the print pattern (* For details, refer to the description below.)		1 - 6		6
2	DENSITY	Print density selection		1 - 255		128
3	MULTI COUNT	Number of print		1 - 999		1
4	PAPER	Paper feed tray selection	Manual paper feed	1 - 3	1	2 (CS1)
			CS1		2	
			CS2		3	
5	HALFTONE	Halftone	Low	0 - 1	0	0 (LOW)
			High		1	
6	QUALITY	Image quality setting	Standard	0 - 1	0	1 (HIGHQUALITY)
			High quality		1	
7	DITHER	Specification of dither correction	Straight	0 - 1	0	1 (Straight)
			Calibration		1	
8	PAPER TYPE	Paper type	Plain paper	0 - 2	0	0
			Heavy paper		1	
			Glossy paper		2	
9	K		Black		0 - 1	0
10	C		Cyan		0 - 1	0
11	M		Magenta		0 - 1	0
12	Y		Yellow		0 - 1	0

<Print pattern of Item A>

Pattern No.	Content
1	256 gradations pattern (COLOR)
2	256 gradations pattern (B/W)
3	256 gradations pattern (COLOR) (Y-M-C-K continuous)
4	Half tone pattern (COLOR)
5	Half tone pattern (B/W)
6	4-color background, dot print (Sub scanning)

64-5

Purpose	Operation test/check
Function (Purpose)	Printer test print. (Self print) (PCL)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.

2) Enter the set value with 10 keys.

3) Press [OK] key.
The set value in step 2) is saved.

No.	Item/Display	Content		Setting range		Default value
1	PRINT PATTERN	Specification of the print pattern (* For details, refer to the description below.)		1 - 3		3
2	DENSITY	Print density selection		1 - 255		255
3	MULTI COUNT	Number of print		1 - 999		1
4	PAPER	Paper feed tray selection	Manual paper feed	1 - 3	1	2
			CS1		2	
			CS2		3	
5	HALFTONE	Halftone	Low(Image)	0 - 2	0	2
			High(Text)		1	
			Auto		2	
6	QUALITY	Image quality setting	Standard	0 - 1	0	1
			High quality		1	
7	DITHER	Specification of dither correction	Straight	0 - 1	0	1
			Calibration		1	
8	PAPER TYPE	Paper type	Plain paper	0 - 2	0	0
			Heavy paper		1	
			Glossy paper		2	
9	INTENT	Rendering indent	Perceptual	0 - 2	0	0
			Colormetric		1	
			Saturation		2	
10	OUTPUT PROFILE	Output profile	Standard	0 - 2	0	0
			Photo		1	
			Graphic		2	
11	RGB SOURCE PROFILE	RGB source profile	SRGB	0 - 6	0	1
			Gamma 1.6		1	
			Gamma 1.8		2	
			Gamma 2.0		3	
			Gamma 2.6		4	
			Gamma 3.0		5	
			TONER SAVE		6	
12	GRAY COMPENSATION	Gray compensation	K only	0 - 1	0	0 (K)
			KCMY		1	
13	PURE BLACK PRINT	Only black printing	ON	0 - 1	0	0 (ON)
			OFF		1	
14	BW TONER SAVE	Monochrome printing	OFF	0 - 1	0	0 (OFF)
			ON		1	
15	K	Black			0 - 1	0
16	C	Cyan			0 - 1	0
17	M	Magenta			0 - 1	0
18	Y	Yellow			0 - 1	0

<Print pattern of Item A>

Pattern No.	Content
1	COLOR
2	B/W
3	Continuous COLOR,B/W

64-6

Purpose	Operation test/check
Function (Purpose)	Printer test print. (Self print) (PS)
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

No.	Item/Display	Content		Setting range		Default value
1	PRINT PATTERN	Specification of the print pattern (* For details, refer to the description below.)		1 - 2		1
2	DENSITY	Used to specify the print gradation		1 - 255		255
3	MULTI COUNT	Number of print		1 - 999		1
4	PAPER	Paper feed tray selection	Manual paper feed	1 - 3	1	2
			CS1		2	
			CS2		3	
5	HALFTONE	Halftone	Low(Image)	0 - 2	0	2
			High(Text)		1	
			Auto		2	
6	QUALITY	Image quality setting	Standard	0 - 1	0	1
			High quality		1	
7	DITHER	Specification of dither correction	Straight	0 - 1	0	1
			Calibration		1	
8	PAPER TYPE	Paper type	Plain paper	0 - 2	0	0
			Heavy paper		1	
			Glossy paper		2	
9	INTENT	Rendering indent	Perceptual	0 - 2	0	0
			Colormetric		1	
			Saturation		2	
10	OUTPUT PROFILE	Output profile	Standard	0 - 2	0	0
			Photo		1	
			Graphic		2	
11	RGB SOURCE PROFILE	RGB source profile	SRGB	0 - 6	0	0
			Gamma 1.6		1	
			Gamma 1.8		2	
			Gamma 2.0		3	
			Gamma 2.6		4	
			Gamma 3.0		5	
			TONER SAVE		6	
12	GRAY COMPENSATION	Gray compensation	K only	0 - 1	0	0
			KCMY		1	
13	PURE BLACK PRINT	Only black printing	ON	0 - 1	0	0
			OFF		1	
14	BW TONER SAVE	Monochrome printing	OFF	0 - 1	0	0
			ON		1	
15	CMYK SIMULATION	CMYK simulation	OFF	0 - 4	0	0
			SWOP		1	
			EURO		2	
			JAPAN COLOR		3	
			TONER SAVE		4	
16	K	Black			0 - 1	0
17	C	Cyan			0 - 1	0
18	M	Magenta			0 - 1	0
19	Y	Yellow			0 - 1	0

<Print pattern of Item A>

Pattern No.	Content
1	COLOR
2	B/W

65

65-10

Purpose	Setting
Function (Purpose)	Used to set the display of the key waiting time.
Section	Operation panel section

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK] key.
   The set value in step 2) is saved.

67

67-21

Purpose	Adjustment/Setup
Function (Purpose)	Printer color balance adjustment
Section	Printer

Operation/Procedure

1) Press [OK] key.
Starts the High density process control adjustment.

< Error list >

Error Display	Contents
CL_SEN_ADJ_ERR	Color sensor adjustment error
BK_SEN_ADJ_ERR	Black sensor adjustment error
K_HV_ERR	High density process control error (K)
C_HV_ERR	High density process control error (C)
M_HV_ERR	High density process control error (M)
Y_HV_ERR	High density process control error (Y)
TIMEOUT_ERR	Time out

2) Starts the Halftone process control adjustment.

< Error list >

Error Display	Contents
CL_SEN_ADJ_ERR	Color sensor adjustment error
BK_SEN_ADJ_ERR	Black sensor adjustment error
[YMCK]	Halftone process control adjustment error [CMYK]
OTHER	Other error

3) The test pattern is printed out.

4) Select the setting item by arrow keys and input the setting value with 10 keys or [UP]/[DOWN] key. Then, press [OK] key.

5) The test pattern is printed out again.

67-22

Purpose	Adjustment/Setup
Function (Purpose)	Printer color balance adjustment
Section	Printer

Operation/Procedure

1) Press [OK] key.
Starts the High density process control adjustment.

< Error list >

Error Display	Contents
CL_SEN_ADJ_ERR	Color sensor adjustment error
BK_SEN_ADJ_ERR	Black sensor adjustment error
K_HV_ERR	High density process control error (K)
C_HV_ERR	High density process control error (C)
M_HV_ERR	High density process control error (M)
Y_HV_ERR	High density process control error (Y)
TIMEOUT_ERR	Time out

2) The test pattern is printed out.

3) Select the setting item by arrow keys and input the setting value with 10 keys or [UP]/[DOWN] key. Then, press [OK] key.

No.	Item/Display	Setting range	Default value
1	LOW_C	1 - 7	4
2	LOW_M	1 - 7	4
3	LOW_Y	1 - 7	4
4	LOW_K	1 - 7	4
5	MIDDLE_C	1 - 7	4
6	MIDDLE_M	1 - 7	4
7	MIDDLE_Y	1 - 7	4
8	MIDDLE_K	1 - 7	4
9	HIGH_C	1 - 7	4
10	HIGH_M	1 - 7	4
11	HIGH_Y	1 - 7	4
12	HIGH_K	1 - 7	4

The target value of the Halftone process control adjustment is registered. When the error is occurred, the error message is displayed at this moment.

< Error list >

Error Display	Contents
CL_SEN_ADJ_ERR	Color sensor adjustment error
BK_SEN_ADJ_ERR	Black sensor adjustment error
[YMCK]	Halftone process control adjustment error [CMYK]
OTHER	Other error

4) The test pattern is printed out again.

67-23

Purpose	Adjustment/Setup
Function (Purpose)	Used to print the printer color balance check sheet
Section	Printer

Operation/Procedure

1) Press [OK] key.
(A4 or 11" x 8.5" paper is automatically selected and the color balance check pattern is printed.)

67-25

Purpose	Adjustment/Setup
Function (Purpose)	Printer color balance adjustment (Manual adjustment)
Section	Printer

Operation/Procedure

1) Select an item to be set with 10 keys.

2) Change the setting items with Arrow keys and determine the setting values with [OK] key.

3) Set the adjustment value with 10 keys and save the value with [OK] key.

When the adjustment value is increased, the image density is increased, and vice versa.

No.	Item/Display	Setting range	Default value
1	POINT1	1 - 255	128
2	POINT2	1 - 255	128
3	POINT3	1 - 255	128
4	POINT4	1 - 255	128
5	POINT5	1 - 255	128
6	POINT6	1 - 255	128
7	POINT7	1 - 255	128
8	POINT8	1 - 255	128
9	POINT9	1 - 255	128
10	POINT10	1 - 255	128
11	POINT11	1 - 255	128
12	POINT12	1 - 255	128
13	POINT13	1 - 255	128
14	POINT14	1 - 255	128
15	POINT15	1 - 255	128
16	POINT16	1 - 255	128
17	POINT17	1 - 255	128

67-31

Purpose	Data clear
Function (Purpose)	Used to clear the calibration value.
Section	Printer

Operation/Procedure

1) Press [OK] key.
The calibration data (Half tone correction data) are cleared.
(The color balance correction is canceled.)

67-33

Purpose	Adjustment/Setup
Function (Purpose)	Used to change the gamma of the printer screen.
Section	Printer

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Change the setting items with Arrow keys and determine the setting values with [OK] key.
3) Set the adjustment value with 10 keys and save the value with [OK] key.

No.	Item/Display	Content	Setting Range	Heavy paper or screen1 to 7	Screen 8
				Default value	Default value
1	POINT1	Point 1	0 - 255	128	127
2	POINT2	Point 2	0 - 255	128	125
3	POINT3	Point 3	0 - 255	128	124
4	POINT4	Point 4	0 - 255	128	124
5	POINT5	Point 5	0 - 255	128	122
6	POINT6	Point 6	0 - 255	128	120
7	POINT7	Point 7	0 - 255	128	114
8	POINT8	Point 8	0 - 255	128	105
9	POINT9	Point 9	0 - 255	128	95
10	POINT10	Point 10	0 - 255	128	82
11	POINT11	Point 11	0 - 255	128	70
12	POINT12	Point 12	0 - 255	128	64
13	POINT13	Point 13	0 - 255	128	57
14	POINT14	Point 14	0 - 255	128	62
15	POINT15	Point 15	0 - 255	128	75
16	POINT16	Point 16	0 - 255	128	114
17	POINT17	Point 17	0 - 255	128	128

No.	Display/Item	Content
1	HEAVYPAPER_K	Heavy paper K
2	HEAVYPAPER_C	Heavy paper C
3	HEAVYPAPER_M	Heavy paper M
4	HEAVYPAPER_Y	Heavy paper Y
5	SCREEN1_K	600dpi 1bit Photo K
6	SCREEN1_C	600dpi 1bit Photo C
7	SCREEN1_M	600dpi 1bit Photo M
8	SCREEN1_Y	600dpi 1bit Photo Y
9	SCREEN2_K	600dpi 1bit Graphics K
10	SCREEN2_C	600dpi 1bit Graphics C
11	SCREEN2_M	600dpi 1bit Graphics M
12	SCREEN2_Y	600dpi 1bit Graphics Y
13	SCREEN3_K	600dpi 2bit Photo K
14	SCREEN3_C	600dpi 2bit Photo C
15	SCREEN3_M	600dpi 2bit Photo M
16	SCREEN3_Y	600dpi 2bit Photo Y
17	SCREEN4_K	600dpi 2bit Graphics K
18	SCREEN4_C	600dpi 2bit Graphics C
19	SCREEN4_M	600dpi 2bit Graphics M
20	SCREEN4_Y	600dpi 2bit Graphics Y
21	SCREEN5_K	B/W 600dpi 1bit K
22	SCREEN6_K	B/W 600dpi 2bit Photo K
23	SCREEN7_K	B/W 600dpi 2bit Graphics K
24	SCREEN8_K	B/W Toner Save K

67-34

Purpose	Adjustment/Setup
Function (Purpose)	Used to set the density correction in the printer high density section. (Support for the high density section tone gap)
Section	Printer

Operation/Procedure

1) Enter the set value with 10 keys.

0	Enable
1	Disable

2) Press [OK] key. The set value in step 1) is saved.

No.	Item/Display		Content	Setting range	Default value
1	CMY PROHIBIT (0: ENABLE 1: DISABLE)	0	CMY engine highest density correction mode : Enable	0 - 1	0
		1	CMY engine highest density correction mode : Disable		
2	K PROHIBIT (0: ENABLE 1: DISABLE)	0	K engine highest density correction mode : Enable	0 - 1	1
		1	K engine highest density correction mode : Disable		

- When tone gap is generated in the high density section, set items 1 and 2 to "0."
The density in the high density section is decreased, but tone gap is reduced.
- To increase the density in the high density section further, set items 1 and 2 to "1.
The tone gap may occur in high density part.

67-36

Purpose	Adjustment/Setup
Function (Purpose)	Used to adjust the density in the low density section.
Section	Printer

Operation/Procedure

1) Enter the adjustment value using the 10 keys.
2) Press [OK] key.

When the adjustment value is increased, the low density images are strongly reduced. When the adjustment value is decreased, the low density are images are weakly reproduced.

When tone gap is generated in the low density section (highlight section), changing this adjustment value may improve the trouble.

No.	Item/Display	Content	Range	Default value
1	A PATCH INPUT	A patch input value	0 - 13	1

67-52

Purpose	Adjustment
Function (Purpose)	Used to reset the printer color balance adjustment (adjustment for each dither) to the default value. (The set values of SIM67-33 are set to the default values.)
Section	

Operation/Procedure

This simulation is used to reset the adjustment values of SIM67-54 and SIM67-33 to the default values.

1) Select an item to be reset to the default (for each dither) with 10 keys.
   To reset the adjustment values of all the items, select [ALL].

No.	Item/Display	Content
1	ALL	All dither value
2	HEAVY PAPER	Heavy paper dither value
3	1BIT	1 bit dither value
4	2BIT	2 bit dither value
5	B/W	Monochrome dither value

2) Press [OK] key.

[7] TROUBLESHOOTING

1. Error code and troubleshooting

A. General

When a trouble occurs in the machine or when the life of a consumable part is nearly expired or when the life is expired, the machine detects and displays it on the display section. This allows the user and the serviceman to take the suitable action. In case of a trouble, this feature notifies the occurrence of a trouble and stops the machine to minimize the damage.

B. Function and purpose

1) Securing safety. (The machine is stopped on detection of a trouble.)
2) The damage to the machine is minimized. (The machine is stopped on detection of a trouble.)
3) By displaying the trouble content, the trouble position can be quickly identified. (This allows to perform an accurate repair, improving the repair efficiency.)
4) Preliminary warning of running out of consumable parts allows to arrange for new parts in advance of running out. (This avoids stopping of the machine due to running out the a consumable part.)

C. Self diag message kinds

The self diag messages are classified as shown in the table below.

Class 1	User	Warning of troubles which can be recovered by the user. (Paper jam, consumable part life expiration, etc.)
	Service	Warning of troubles which can be recovered only by a serviceman. (Motor trouble, maintenance, etc.)
	Others	-
Class 2	Warning	Warning to the user, not a machine trouble (Preliminary warning of life expiration of a consumable part, etc.)
	Trouble	Warning of a machine trouble. The machine is stopped.
	Others	-

D. Self diag operation

The machine always monitors its own state.

When the machine recognizes a trouble, it stops the operation and displays the trouble message.

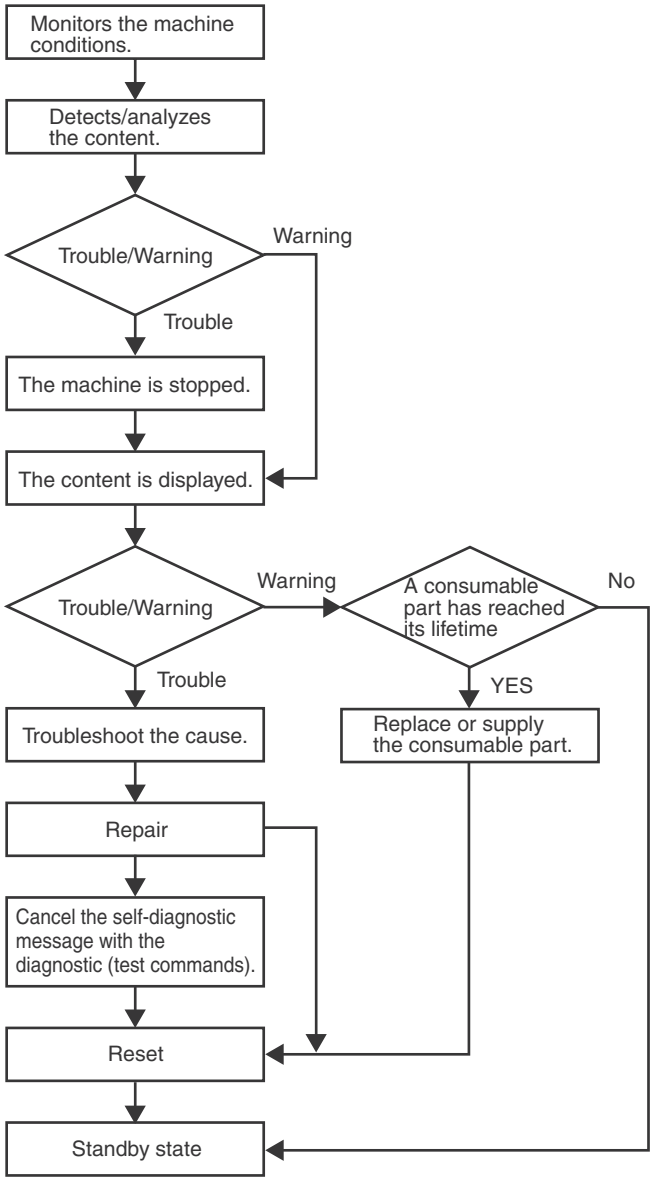
A warning message is displayed when a consumable part life is nearly expired or is expired.

When a warning message is displayed, the machine may be or may not be stopped.

The trouble messages and the warning messages are displayed by the LCD and lamp.

Some trouble messages are automatically cleared when the trouble is repaired. Some other troubles must be cleared by a simulation.

Some warning messages of consumable parts are automatically cleared when the trouble is repaired. Some other warning messages must be cleared by a simulation.



E. Breakdown sequence

(1) Error code and operatable mode

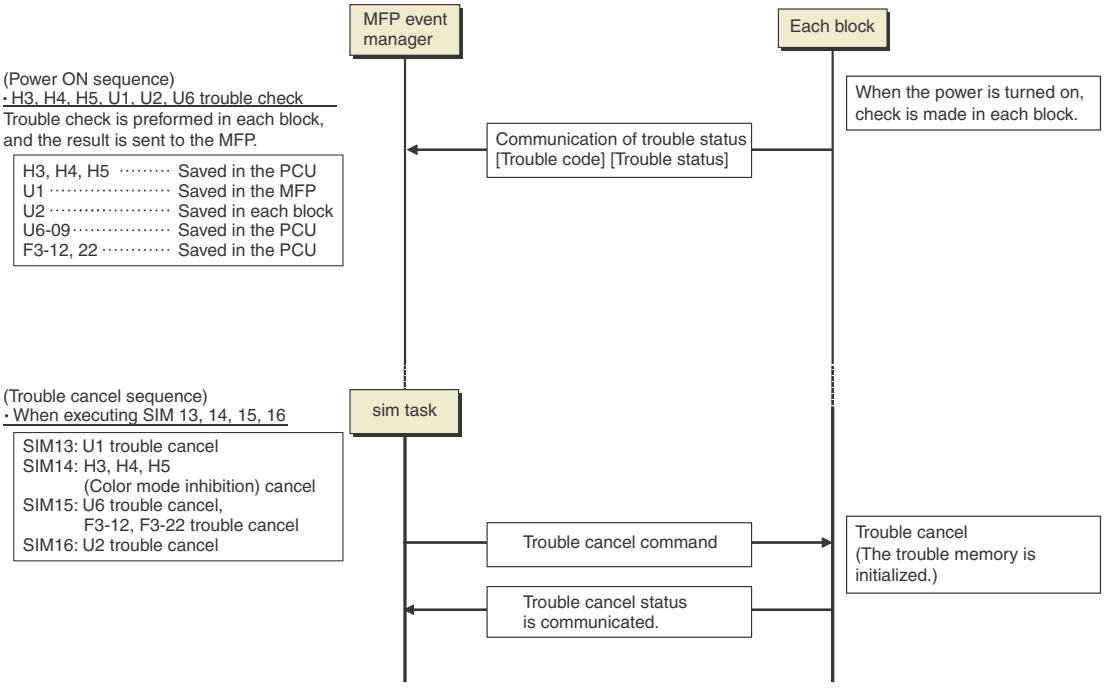
Trouble content		Judgment block	Trouble code	Operatable Mode	
				Print	List print
OPU communication trouble	OPU communication trouble	MFPC	U9(00,81,82,84,88,99)		
Backup battery voltage fall trouble	Backup battery voltage fall		U1 (01)	X	X
Connection trouble Operation disable trouble 2	Memory error (included not installed the expansion RAM)		A0(30), U2 (00, 05, 06, 11)	X	X
Operation disable trouble 3	Image memory trouble, decode error		E7(01)	X	X
Laser trouble	LSU breakdown		E7 (20, 28, 29) L6 (10)	X	X
Engine trouble 2	MFPC troubles (motor, fusing, etc.)		C1 (10)F2 (22, 40, 64, 70, 74)H2 (00, 02, 03)H3 (00, 02)H4 (00)H5 (01)H7 (10)L4 (02, 03, 04, 06, 17, 32, 34, 35, 40)L8 (02)	X	X
Process system trouble	Process system breakdown		E7 (21, 22, 23)F2 (23, 41, 42, 43, 65, 66, 67, 71, 72, 73, 75, 76, 77)	X	X
Paper feed tray 2 trouble	Paper feed tray 2 breakdown		F3 (22)	X	X
Other troubles	Other troubles		EE (EC, EL, EU)	X	X
Process control trouble	Process control breakdown (MFPC detection)		F2 (39, 47, 49, 50, 51, 58, 78)	X	X

Error where only history data are saved

Trouble content	Judgment block	Trouble code	Operatable mode		
			Print	List print	FAST Notification to host
Error history	MFPC	F2 (45), E7(38)	O	O	O

O: Operation enabled ×: Operation disabled

(2) Trouble detection sequence and trouble cancel sequence when turning on the power



(3) How to cancel the error code

Simulation	Error Code
SIM14	U1, H3, H4, H5
SIM16	U2
Power OFF - ON	Other errors

F. Error code list

(1)Error code

Trouble code		Trouble code content	Trouble detection	Mechanism	Option	Electricity	Supply
Main code	Sub code						
A0	30	Machine configuration error	MFPC			O	
C1	10	Main charger trouble (K)	MFPC			O	
E7	20	LSU BD(KC) detection error / LSU LD deform error (K)	MFPC			O	
	21	LSU LD deform error (C)	MFPC			O	
	22	LSU LD deform error (M)	MFPC			O	
	23	LSU BD(MY) detection error / LSU LD deform error (Y)	MFPC			O	
	28	LSU-MFPC connection error	MFPC			O	
	29	LSU ASIC frequency error	MFPC			O	
	38	Zoran chip AD adjustment error	MFPC			O	
EE	EC	Automatic toner density adjustment error (Sampling level 76 - 117/139 - 178)	MFPC			O	
	EL	Automatic toner density adjustment error (Overtoner)	MFPC			O	
	EU	Automatic toner density adjustment error (Undertoner)	MFPC			O	
F2	22	Discharge lamp trouble (K)	MFPC				O
	23	Discharge lamp trouble (CMY)	MFPC				O
	39	Main unit thermister trouble	MFPC				O
	40	Toner density sensor trouble (K)	MFPC				O
	41	Toner density sensor trouble (C)	MFPC				O
	42	Toner density sensor trouble (M)	MFPC				O
	43	Toner density sensor trouble (Y)	MFPC				O
	45	K image density sensor trouble	MFPC				O
	47	Ozone duct thermister trouble	MFPC				O
	49	LSU thermister trouble	MFPC				O
	50	K drum phase sensor trouble	MFPC				O
	51	CL drum phase sensor trouble	MFPC				O
	58	Main unit humidity sensor trouble	MFPC				O
	64	Toner supply operation trouble (K)	MFPC				O
	65	Toner supply operation trouble (C)	MFPC				O
	66	Toner supply operation trouble (M)	MFPC				O
	67	Toner supply operation trouble (Y)	MFPC				O
	70	Improper toner cartridge detection (K)	MFPC				O
	71	Improper toner cartridge detection (C)	MFPC				O
	72	Improper toner cartridge detection (M)	MFPC				O
	73	Improper toner cartridge detection (Y)	MFPC				O
	74	Toner cartridge CRUM error (K)	MFPC				O
	75	Toner cartridge CRUM error (C)	MFPC				O
	76	Toner cartridge CRUM error (M)	MFPC				O
	77	Toner cartridge CRUM error (Y)	MFPC				O
	78	Image density sensor for the registration trouble (transfer belt reflection rate trouble)	MFPC				O
F3	22	Paper feed tray 2 lift operation trouble	MFPC	O			
H2	00	Thermister open trouble (TH_UM_AD2)	MFPC	O			
	02	Sub thermister open trouble (TH_US)	MFPC	O			
	03	Compensation thermister open trouble	MFPC	O			
H3	00	Compensation thermister open trouble (TH_UM)	MFPC	O			
	02	Fusing section high temperature trouble (TH_US)	MFPC	O			
H4	00	Fusing section low temperature trouble (TH_UM_AD2)	MFPC	O			
H5	01	5 times continuous POD1 not-reach jam	MFPC	O			
H7	10	Fusing low temperature recovery trouble (TH_UM_AD2).	MFPC	O			
L4	02	Paper feed motor trouble	MFPC				
	03	Fusing motor lock trouble	MFPC			O	
	04	Developing motor trouble	MFPC			O	
	06	Transfer unit lift trouble	MFPC			O	
	17	Drum motor lock trouble	MFPC				
	32	Power source cooling fan trouble	MFPC			O	
	34	LSU fan trouble	MFPC			O	
	35	Fusing cooling fan trouble	MFPC			O	
	40	Ozone fan motor 1 trouble	MFPC				
L6	10	Polygon motor trouble	MFPC			O	
L8	02	Full wave signal error	MFPC			O	
PC	-	Personal counter not detected	MFPC	O			
U1	01	Battery trouble	MFPC			O	

Trouble code		Trouble code content	Trouble detection	Mechanism	Option	Electricity	Supply
Main code	Sub code						
U2	00	MFPC EEPROM read/write error	MFPC			O	
	05	Erroneous detection of account management data	MFPC			O	
	06	Abnormal value of memory (FlashROM sector management error)	MFPC			O	
	11	MFPC PWB EEPROM counter check sum error	MFPC			O	
U9	00	Communication trouble between the controller and OPU/MFPC	MFPC			O	
	81	OPU communication trouble (parity)	MFPC			O	
	82	OPU communication trouble (overrun)	MFPC			O	
	84	OPU communication trouble (flaming) * Flaming is the one kind of communication error related with the length and the parity bit.	MFPC			O	
	88	OPU communication trouble (time-out)	MFPC			O	
	99	OPU language error	MFPC			O	

(2)Other error code

The following error is not registered in the history of the error. And, the following error can e canceled by the customer.

Error code	Error name
CE-00	General communication error
CE-01	Network controller trouble
CE-12	LADP address number is over
CE-13	USB memory is not installed
CE-14	USB memory write protect
CE-15	Out if USB memory space
CE-16	USB memory I/O error
CE-17	USB memory other error

G. Details of error codes and countermeasures

A0-30 Machine configuration error

Cause	Wireless LAN PWB is not connected properly Wireless LAN PWB is broken
Check & Remedy	Check connection of LAN PWB Replace LAN PWB

C1-10 Main charger trouble (K)

Cause	The main charger unit (K, C, M, Y) is not installed properly. There is an abnormality in the main charger unit (K, C, M, Y). Disconnection of the high voltage PWB connector. Breakage of the high voltage harness. DV PWB trouble. MFP PWB trouble
Check & Remedy	Check the output of the main charger with SIM8-2. Check disconnection of the main charger./Replace. Check disconnection of the high voltage PWB. connector. /Replace. Replace the DV PWB. Replace the MFP PWB.

E7-20 LSU BD(KC) detection error / LSU LD deform error (K)

Cause	Optical axis shift. Reduced laser power, lighting error, laser diode trouble. BD PWB trouble. Harness and connector trouble between the LD/BD(KC) PWB and the LSUcnt PWB.
Check & Remedy	Use SIM61-1 to check the operation of the LSU. Check the PWB and connection of the harness in the LSU. Replace the LSU.

E7-21 LSU LD deform error (C)

Cause	Reduced laser power, lighting error, laser diode trouble. Harness and connector trouble between the LD PWB and the LSUcnt PWB.
Check & Remedy	Use SIM61-1 to check the operation of the LSU. Check the PWB and connection of the harness in the LSU. Replace the LSU.

E7-22 LSU LD deform error (M)

Cause	Reduced laser power, lighting error, laser diode trouble. Harness and connector trouble between the LD PWB and the LSU cnt PWB.
Check & Remedy	Use SIM61-1 to check the operation of the LSU. Check the PWB and connection of the harness in the LSU. Replace the LSU.

E7-23 LSU BD(MY) detection error / LSU LD deform error (Y)

Cause	Optical axis shift. Reduced laser power, lighting error, laser diode trouble. Harness and connector trouble between the LD/BD(MY) PWB and the LSU cnt PWB.
Check & Remedy	Use SIM61-1 to check the operation of the LSU. Check the PWB and connection of the harness in the LSU. Replace the LSU.

E7-28 LSU-MFPC connection error

Cause	Communication error between the CPU in the MFPC PWB and the control ASIC. Improper connection of the communication connector between the MFPC PWB and the LSU cnt PWB. Harness trouble between the MFPC PWB and the LSU cnt PWB MFPC PWB or LSU cnt PWB trouble
Check & Remedy	Check connection of the connector and the harness between the MFP PWB and the LSU cnt PWB. Replace the LSU PWB. Replace the MFPC PWB.

E7-29 LSU ASIC frequency error

Cause	Oscillation abnormality of the external oscillator and the internal oscillating circuit used in the LSU ASIC. LSU ASIC abnormality on the LSUcnt PWB. Frequency error of image transfer clock from the MFPC PWB.
Check & Remedy	Check connection of the connector and the harness between the MFPC PWB and the LSUcnt PWB.. Replace the MFPC PWB. Replace the LSU.

E7-38 Zoran chip AD adjustment error

Cause	The voltage on MFPC PWB is not stable The parts on the MFPC PWB are not soldered properly
Check & Remedy	Replace the MFPC PWB.

EE-EC Automatic toner density adjustment error (Sampling level 76 - 117/139 - 178)

Cause	Toner density sensor trouble. Developing unit trouble. PCU PWB trouble.
Check & Remedy	Replace the toner density sensor. Replace the developing unit. Replace the PCU PWB.

EE-EL Automatic toner density adjustment error (Overtoner)

Cause	Toner density sensor trouble. Charging voltage/ developing voltage trouble, toner density trouble, or developing unit trouble. MFPC PWB trouble.
Check & Remedy	Replace the toner density sensor. Replace the developing unit. Replace the MFPC PWB.

EE-EU Automatic toner density adjustment error (Undertoner)

Cause	Toner density sensor trouble. Charging voltage/ developing voltage trouble, toner density trouble, or developing unit trouble. PCU PWB trouble.
Check & Remedy	Replace the toner density sensor. Replace the developing unit. Replace the MFPC PWB.

F2-22 Discharge lamp trouble (K)

Cause	Contact trouble between the discharge lamp PWB (K) and the MFPC PWB. Discharge lamp PWB (K) trouble. MFPC PWB trouble.
Check & Remedy	Replace the discharge lamp PWB (K). Check the harness and the connector. Replace the MFPC PWB.

F2-23 Discharge lamp trouble (CMY)

Cause	Contact trouble between the discharge lamp PWB (C) and the PCU PWB. Discharge lamp PWB (C) trouble. MFPC PWB trouble.
Check & Remedy	Replace the discharge lamp PWB (C). Check the harness and the connector. Replace the MFPC PWB.

F2-39 Process thermister trouble

Cause	Process thermister trouble. Process thermister harness connection trouble. MFPC PWB trouble
Check & Remedy	Replace the process thermister. Check connection of the harness and the connector. Replace the MFPC PWB.

F2-40 Toner density sensor trouble (BK)

Cause	Toner density sensor output abnormality (Sample level 25 or less, or 231 or above) Connection trouble of the connector and the harness. Developing unit trouble. MFPC PWB trouble
Check & Remedy	Replace the toner density sensor. Harness and connector connection trouble. Replace the developing unit. Replace the MFPC PWB.

F2-41 Toner density sensor trouble (C)

Cause	Toner density sensor output abnormality (Sample level 25 or less, or 231 or above) Connection trouble of the connector and the harness. Developing unit trouble. MFPC PWB trouble
Check & Remedy	Replace the toner density sensor. Harness and connector connection trouble. Replace the developing unit. Replace the MFPC PWB.

F2-42 Toner density sensor trouble (MAGENTA)

Cause	Toner density sensor output abnormality (Sample level 25 or less, or 231 or above) Connection trouble of the connector and the harness. Developing unit trouble. MFPC PWB trouble
Check & Remedy	Replace the toner density sensor. Harness and connector connection trouble. Replace the developing unit. Replace the MFPC PWB.

F2-43 Toner density sensor trouble (Y)

Cause	Toner density sensor output abnormality (Sample level 25 or less, or 231 or above). Connection trouble of the connector and the harness. Developing unit trouble. MFPC PWB trouble.
Check & Remedy	Replace the toner density sensor. Harness and connector connection trouble. Replace the developing unit. Replace the MFPC PWB.

F2-45 K image density sensor trouble

Cause	K image density sensor sensitivity adjustment trouble. K image density sensor trouble. Harness and connector connection trouble. K image density sensor dirt. Calibration plate dirt. Calibration plate solenoid trouble. MFPC PWB trouble.
Check & Remedy	Replace the K image density sensor. Check connection of the connectors and the harness. Clean the K image density sensor. Replace the calibration plate. Replace the calibration plate solenoid. Replace the PCU PWB. Use SIM44-2 to adjust the process control sensor sensitivity.

F2-47 Ozone duct thermister trouble

Cause	The ozone duct thermister trouble. Harness and connector connection trouble between the ozone duct thermistor and the MFPC PWB. MFPC PWB trouble.
Check & Remedy	Check connection of the connectors and the harness between the ozone duct thermistor and the MFPC PWB. Replace the MFPC PWB.

F2-49 LSU thermister trouble

Cause	The LSU detection temperature is outside of -28 degree C - 78 degree C. LSU thermister trouble. Harness and connector connection trouble. MFPC PWB trouble LSU control PWB trouble.
Check & Remedy	Check connection of the connectors and the harness. Replace the MFPC PWB. Replace the LSU.

F2-50 K drum phase sensor trouble

Cause	Drum phase sensor trouble. Harness and connector connection trouble. Drum drive section trouble. MFPC PWB trouble
Check & Remedy	Use SIM30-1 to check the operation of "DHPD_K.". Replace the drum phase sensor. Check connection of the connectors and the harness. Repair the drum drive section. Replace the MFPC PWB.

F2-51 CL drum phase sensor trouble

Cause	Drum phase sensor trouble. (DHPCL) Harness and connector connection trouble. Drum drive section trouble. MFPC PWB trouble.
Check & Remedy	Use SIM30-1 to check the operation of "DHPD_CL". Replace the drum phase sensor. Check connection of the connectors and the harness. Repair the drum drive section. Replace the MFPC PWB.

F2-58 Process humidity sensor trouble

Cause	Process humidity sensor trouble. Harness and connector connection trouble. PMFPC PWB trouble.
Check & Remedy	Replace the process humidity sensor. Check connection of the connectors and the harness. Replace the MFPC PWB.

F2-64 Toner supply operation trouble (K)

Cause	Toner motor trouble. Toner drive clutch trouble. Toner density sensor trouble. Connector/harness trouble. MFPC PWB trouble. Toner cartridge trouble. Developing unit trouble.
Check & Remedy	Replace the toner motor. Replace the toner drive clutch. Replace the toner density sensor. Connector/harness trouble. Replace the MFPC PWB. Replace the toner cartridge. Replace the developing unit.

F2-65 Toner supply operation trouble (C)

Cause	Toner motor trouble. Toner drive clutch trouble. Toner density sensor trouble. Connector/harness trouble. MFPC PWB trouble Toner cartridge trouble. Developing unit trouble.
Check & Remedy	Replace the toner motor. Replace the toner drive clutch. Replace the toner density sensor. Connector/harness trouble. Replace the MFPC PWB. Replace the toner cartridge. Replace the developing unit.

F2-66 Toner supply operation trouble (M)

Cause	Toner motor trouble. Toner drive clutch trouble. Toner density sensor trouble. Connector/harness trouble. MFPC PWB trouble Toner cartridge trouble. Developing unit trouble.
Check & Remedy	Replace the toner motor. Replace the toner drive clutch. Replace the toner density sensor. Connector/harness trouble. Replace the MFPC PWB. Replace the toner cartridge. Replace the developing unit.

F2-67 Toner supply operation trouble (Y)

Cause	Toner motor trouble. Toner drive clutch trouble. Replace the toner drive clutch. Toner density sensor trouble. Connector/harness trouble. MFPC PWB trouble Toner cartridge trouble. Developing unit trouble.
Check & Remedy	Replace the toner motor. Replace the toner density sensor. Connector/harness trouble. Replace the MFPC PWB. Replace the toner cartridge. Replace the developing unit.

F2-70 Improper toner cartridge detection (K)

Cause	An improper toner cartridge is inserted. (The main unit detects a toner cartridge of a different specification.) Toner cartridge trouble. MFPC PWB trouble
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB.

F2-71 Improper toner cartridge detection (C)

Cause	An improper toner cartridge is inserted. (The main unit detects a toner cartridge of a different specification.) Toner cartridge trouble. MFPC PWB trouble.
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB.

F2-72 Improper toner cartridge detection (M)

Cause	An improper toner cartridge is inserted. (The main unit detects a toner cartridge of a different specification.) Toner cartridge trouble. MFPC PWB trouble.
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB.

F2-73 Improper toner cartridge detection (Y)

Cause	An improper toner cartridge is inserted. (The main unit detects a toner cartridge of a different specification.) Toner cartridge trouble. MFPC PWB trouble.
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB.

F2-74 Toner cartridge CRUM error (K)

Cause	Toner cartridge (CRUM) trouble. MFPC PWB trouble. Connector/harness trouble.
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB. Connector/harness trouble.

F2-75 Toner cartridge CRUM error (C)

Cause	Toner cartridge (CRUM) trouble. MFPC PWB trouble. Connector/harness trouble.
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB. Connector/harness trouble.

F2-76 Toner cartridge CRUM error (M)

Cause	Toner cartridge (CRUM) trouble. MFPC PWB trouble. Connector/harness trouble.
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB. Connector/harness trouble.

F2-77 Toner cartridge CRUM error (Y)

Cause	Toner cartridge (CRUM) trouble. MFPC PWB trouble. Connector/harness trouble.
Check & Remedy	Replace the toner cartridge. Replace the MFPC PWB. Connector/harness trouble.

F2-78 Image density sensor for the registration trouble (transfer belt reflection rate trouble)

Cause	Image density sensor trouble Connection trouble between the MFPC PWB and the image density sensor Dirt of the image density sensor Cleaning failure of the transfer belt Calibration plate solenoid operation error
Check & Remedy	Connector/harness trouble Check Calibration plate solenoid operation Check the surface of the transfer belt Replace the image density sensor Replace the transfer belt Replace the calibration plate solenoid Replace the MPFC PWB

F3-22 Paper feed tray 2 lift operation trouble

Cause	LUD1 is not turned ON within the specified time. C2LUD1sensor trouble Paper feed tray 2 lift unit trouble. MFPC PWB trouble. Harness and connector connection trouble.
Check & Remedy	Check connection of the harness and the connector of C2LUD. Replace the lift-up unit. Replace the MFPC PWB.

H2-00 Thermister open trouble (TH_UM_AD2)

Cause	Thermister trouble. MFPC PWB trouble Connection trouble of the connector and the harness. Fusing unit not installed.
Check & Remedy	Replace the thermister. Replace the MFPC PWB. Harness and connector connection trouble.

H2-02 Sub thermister open trouble (TH_US)

Cause	Thermister trouble. MFPC PWB trouble. Connection trouble of the connector and the harness. Fusing unit not installed.
Check & Remedy	Replace the thermister. Replace the MFPC PWB. Harness and connector connection trouble.

H2-03 Compensation thermister open trouble (TH_UM_AD1)

Cause	Thermister trouble. MFPC PWB trouble Connection trouble of the connector and the harness. Fusing unit not installed.
Check & Remedy	Replace the thermister. Replace the MFPC PWB. Harness and connector connection trouble.

H3-00 Fusing section high temperature trouble (TH_UM)

Cause	The fusing temperature exceeds the specified level. Thermister trouble. MFPC PWB trouble Connection trouble of the connector and the harness. Power unit trouble.
Check & Remedy	Use SIM5-2 to check the flashing operation of the heater lamp. Use SIM14 to cancel the trouble. Replace the thermister. Replace the MFPC PWB. Harness and connector connection trouble. Replace the power unit.

H3-02 Fusing section high temperature trouble (TH_US)

Cause	The fusing temperature exceeds the specified level. Thermister trouble. MFPC PWB trouble Connection trouble of the connector and the harness. Power unit trouble.
Check & Remedy	Use SIM5-2 to check the flashing operation of the heater lamp. Use SIM14 to cancel the trouble. Replace the thermister. Replace the MFPC PWB. Harness and connector connection trouble. Replace the power unit.

H4-00 Fusing section low temperature trouble (TH_UM_AD2)

Cause	The fusing temperature does not reach the specified level within the specified time from turning ON the power relay. Thermister trouble. Heater lamp trouble. MFPC PWB trouble. Thermostat trouble. Connector, harness connection trouble. Power unit trouble. Interlock switch trouble.
Check & Remedy	Replace the thermister. Replace the heater lamp. Replace the MFPC PWB. Replace the thermostat. Check connection of the connector and the harness. Replace the power unit. Replace the interlock switch. Use SIM5-2 to check the flashing operation of the heater lamp. Use SIM14 to cancel the trouble.

H5-01 5 times continuous POD1 not-reach jam

Cause	A fusing jam is not canceled completely. (A jam paper remains.) POD1 sensor trouble. Fusing unit installation trouble. Connector, harness connection trouble. MFPC PWB trouble
Check & Remedy	Replace the POD1 sensor. Check the installing position of the fusing unit. Replace the fusing unit. Check connection of the connector and the harness. Replace the MFPC PWB. Use SIM14 to cancel the trouble.

H7-10 Fusing low temperature recovery trouble (TH_UM_AD2).

Cause	The fusing temperature does not reach the specified level within the specified time from stopping a job due to fall in the fusing temperature. Thermister trouble. Heater lamp trouble. MFPC PWB trouble Thermostat trouble. Connector, harness connection trouble. Power unit trouble. Interlock switch trouble.
Check & Remedy	Replace the thermister. Replace the heater lamp. Replace the MFPC PWB. Replace the thermostat. Check connection of the connector and the harness. Replace the power unit. Replace the interlock switch. Use SIM5-2 to check the flashing operation of the heater lamp.

L4-02 Paper feed motor trouble

Trouble content	A lock signal is not detected within the specified time in ON operation of the paper feed motor after warming-up or canceling a jam.
Cause	Paper feed motor trouble Paper feed motor harness and connector connection trouble MFPC PWB trouble
Check & Remedy	Use SIM6-1 to check the operation of the paper feed motor. Replace the paper feed motor. Check connection of the paper feed motor harness and the connector. Replace the MFPC PWB.

L4-03 Fusing motor lock trouble

Cause	The motor lock signal is detected during rotation of the fusing motor. Fusing motor trouble. MFPC PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use Sim6-1 to check the operation of the fusing motor. Replace the fusing motor. Replace the MFPC PWB. Check connection of the connector and the harness.

L4-17 Drum motor lock trouble

Cause	Drum motor trouble Connection trouble of the connector and the harness between MFPC PWB and the drum motor MFPC PWB trouble
Check & Remedy	Check the operation of the drum motor with SIM 25-01 Check the connection of the connector and the harness between MFPC PWB and the drum motor Replace the drum motor Replace the MFPC PWB

L4-32 Power source cooling fan trouble

Cause	The fan operation signal is not detected within the specified time in the power cooling fan operation. Power cooling fan trouble. MFPC PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM6-2 to check the rotating operation of the fan. Replace the power cooling fan. Replace the MFPC PWB. Check/replace the connector or the harness.

L4-04 Developing motor trouble (K)

Cause	The motor lock signal is detected during rotation of the developing motor. Developing motor trouble. Harness and connector connection trouble. MFPC PWB trouble Developing unit trouble.
Check & Remedy	Use SIM25-1 to check the operation of the developing motor. Replace the developing motor. Check connection of the connectors and the harness. Replace the MFPC PWB. Replace the developing motor. Replace the developing unit.

L4-06 Transfer unit lift trouble

Cause	Transfer unit position sensor trouble. MFPC PWB trouble. Connection trouble of the connector and the harness. Transfer unit separation clutch operation trouble. Primary transfer belt unit is not installed.
Check & Remedy	Use SIM6-3 to check the separating operation of the transfer unit. Install the primary transfer belt unit. Replace the transfer unit position sensor. Replace the MFPC PWB. Harness and connector connection trouble. Replace the transfer unit separation clutch.

L4-34 LSU fan trouble

Cause	The fan rotation signal is not detected in the specified time during operation of the LSU fan. Connection trouble of the connector and the harness. LSU fan trouble. Replace the MFPC PWB.
Check & Remedy	Use Sim6-2 to check the operation of the fan. Check connection of the connector and the harness. Replace the LSU fan. Replace the MFPC PWB.

L4-35 Fusing cooling fan trouble

Cause	The fan operation signal is not detected within the specified time in the fusing cooling fan operation. Fusing cooling fan trouble. MFPC PWB trouble Connection trouble of the connector and the harness.
Check & Remedy	Use SIM6-2 to check the rotating operation of the fan. Replace the fusing cooling fan. Replace the MFPC PWB. Harness and connector connection trouble.

L4-40 Ozone fan motor 1 trouble

Cause	Connection trouble of the connector and the harness between MFPC PWB and the fan motor. MFPC PWB trouble FAN motor trouble The fan is not operated by other causes (the power is not supplied.)
Check & Remedy	Check the fan motor operation with the SIM06-02. Check the harness and connector connection between the MFPC PWB and the fan motor. Replace the fan motor Replace the MFPC PWB.

L6-10 Polygon motor trouble

Cause	The motor does not reach the specified rpm in specified time after starting rotation of the polygon motor. Polygon motor trouble. LSUcnt PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM61-1 to check the operation of the polygon motor. Check connection of the connectors and the harness. Replace the polygon motor. Replace the LSU.

L8-02 Full wave signal error

Cause	An abnormality in the full wave signal frequency is detected. (The frequency is detected as 80Hz or above, or 30Hz or less.) MFPC PWB trouble. Power unit trouble. Connection trouble of the connector and the harness. Power frequency, waveform abnormality.
Check & Remedy	Replace the MFPC PWB. Replace the power unit. Check connection of the connectors and the harness. Check the power waveform.

U1-01 Battery trouble

Cause	1) Battery life 2) Battery circuit abnormality
Check & Remedy	Check to confirm that the battery voltage is about 2.0V or above. Use SIM13 to cancel the trouble.

U2-00 MFPC EEPROM read/write error

Cause	MFPC PWB EEPROM trouble. EEPROM socket contact trouble. MFP PWB trouble. Strong external noises.
Check & Remedy	Use SIM16 to cancel the error. Replace the MFP PWB EEPROM. Replace the MFP PWB. Check the power environment.

U2-05 Erroneous detection of account management data

Cause	EEPROM is broken The device access error/connection error of EEPROM by the noise
Check & Remedy	Cancel the error by SIM16

U2-06 Abnormal value of memory (FlashROM sector management error)

Cause	FlashROM Device data error Connection error of FlashROM Failure of the device access by the noise
Check & Remedy	Take out the data saved by SIM56-02 and import that data to the machine. MFPC PWB replacement

U2-11 MFPC PWB EEPROM counter check sum error

Cause	MFPC PWB EEPROM trouble. EEPROM socket contact trouble. MFPC PWB trouble. Strong external noises.
Check & Remedy	Use SIM16 to cancel the error. Replace the MFPC PWB.

U9-00 Communication trouble between the controller and OPU/MFPC

Cause	OPU connector connection trouble Harness trouble of MFPC PWB Break connector pin of MFPC PWB Lift unit trouble. Connection trouble of the connector and the harness. MFPC PWB trouble
Check & Remedy	Check connector connection and harness Replace MFPC PWB Check ground point Power off/on

U9-81 OPU communication trouble (parity)

Cause	OPU connector connection trouble Harness trouble of MFPC PWB Break connector pin of MFPC PWB Lift unit trouble. Connection trouble of the connector and the harness. MFPC PWB trouble
Check & Remedy	Check connector connection and harness Replace MFPC PWB Check ground point Power off/on

U9-82 OPU communication trouble (overrun)

Cause	Connection error between OPU and MCU section data corruption
Check & Remedy	Check connector connection and harness Replace MFPC PWB Check ground point Power off/on

U9-84 OPU communication trouble (flaming)

Cause	Connection error between OPU and MCU section data corruption
Check & Remedy	Check connector connection and harness Replace MFPC PWB Check ground point Power off/on

U9-88 OPU communication trouble (time-out)

Cause	Command size error from MCU to OPU
Check & Remedy	Check connector connection and harness Replace MFPC PWB Check ground point Power off/on

U9-99 OPU language error

Cause	Command size error from MCU to OPU
Check & Remedy	Check connector connection and harness Replace MFPC PWB Check ground point Power off/on

2. JAM and troubleshooting

A. JAM code list

(1) Main unit

JAM code	JAM content
C2PPD_ST	C2PPD remaining JAM (Cassette2 feed paper)
TRAY1	PPD2 not-reached JAM (Main cassette feed paper)
TRAY2	C2PPD not-reached JAM (Cassette2 feed paper)
PPD2_N2	PPD2 not-reached JAM (Cassette 2 feed paper)
PPD2_NA	PPD2 not-reached JAM (ADU feed paper)
PPD2_S1	PPD2 remaining JAM (Main cassette feed paper)
PPD2_S2	PPD2 remaining JAM (Main cassette 2 feed paper)
PPD2_SA	PPD2 remaining JAM (ADU feed paper)
PPD2_SM	PPD2 remaining JAM (Manual feed tray feed paper)
PRI	PPD2 JAM (Waiting the image preparation finish time out)
DRUM	PPD2 JAM(Detecting the drum lock)
PPD1_N	PPD1 not-reached JAM (Main tray feed paper)
PPD1_SA	PPD1 remaining JAM (ADU refeed paper)
PPD1_SB	PPD1 remaining JAM (POD1 exiting paper)
MFT	PPD2 not-reached JAM (Manual feed tray feed paper)
NO_MATCH	Parameter inconsistency
SIZE_ILG	Size irregular JAM
STOP_JAM	Emergency stop JAM

[8] FIRMWARE UPDATE

1. Outline

A. Cases where update is required

ROM update is required in the following cases:

1) When there is a necessity to upgrade the performance.
2) When installing a new spare parts PWB unit (with ROM) for repair to the machine.
3) When there is a trouble in the ROM program and it must be repaired.

B. Notes for update

(1) Relationship between each ROM and update

Before execution of ROM update, check combinations with ROM's installed in the other PWB's including options. Some combinations of each ROM's versions may cause malfunctions of the machine.

C. Update procedures and kinds of firmware

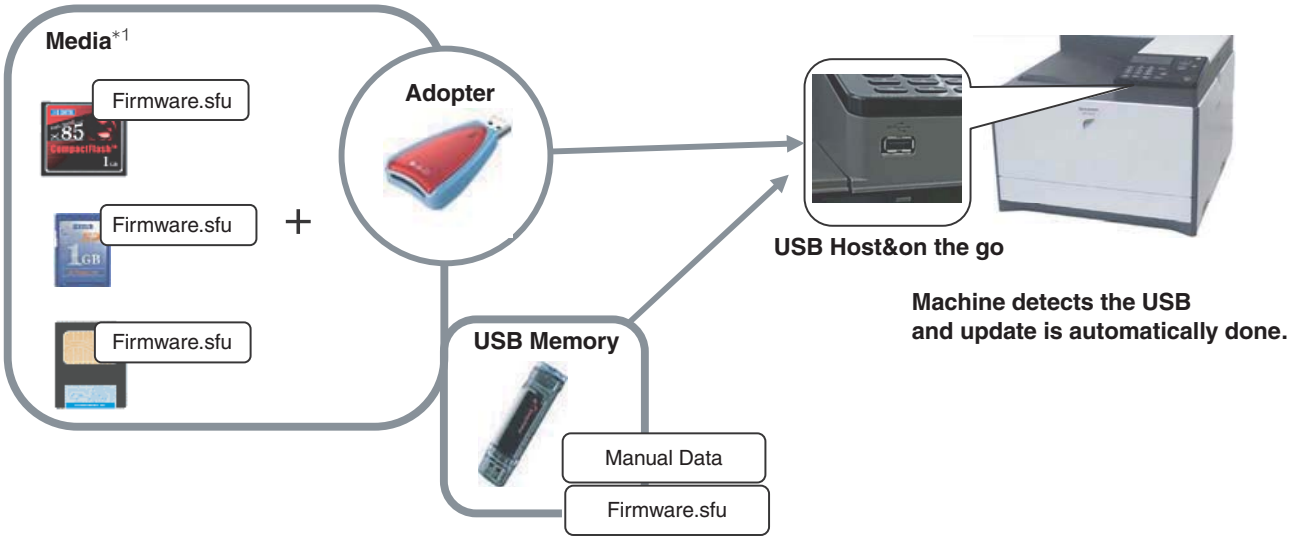
There are following methods of update of the firmware.

1) Firmware update using USB memory.

2.Update procedure

A. Firmware update using media

For the update, connect the media or USB memory to the USB port that exists in the main body, and select the firmware data in the media or USB memory by simulation screen in the main unit.



*1:

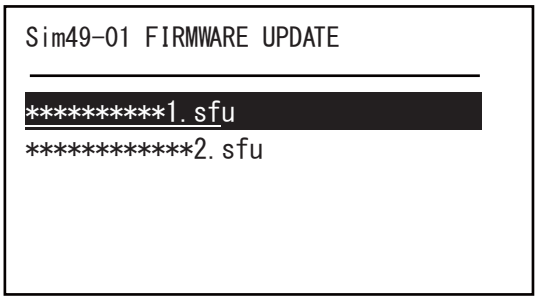
- Store the firmware data (xxx .sfu) to the media or USB memory beforehand.
- The media used for the update must have a minimum of 32MB of storage capacity.
- The USB flash memory equipped with the security (secure) function cannot be used.

(1)Firmware update procedure from the USB memory

The firmware update executes by SIM49-01.

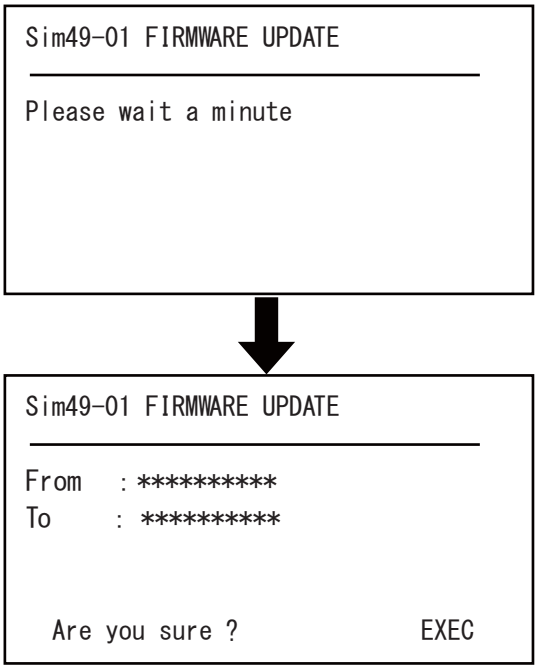
1) Insert the media or USB memory which stores the firmware into the main unit. (Use the USB I/F of the operation panel section.)
2) Enter the SIM49-01.

   Select the firmware file to be updated with [up] or [down] key. The displayed firmware file is changed depending on the files in the USB thumb drive.

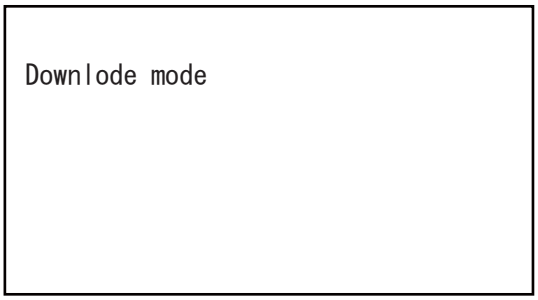


   * When there is no firmware file in the USB memory, “No file detected” message is displayed.
   * The displayed firmware file is changed depending on the files in the USB thumb drive.

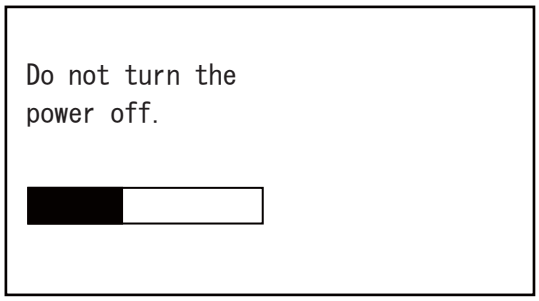
3) Select the file and press [OK] button. Then, the current version and the new version are displayed.



4) Press [OK] button. Then, the machine is restarted and the download of the firmware file starts.
   * At this moment, do not disconnect the USB memory.



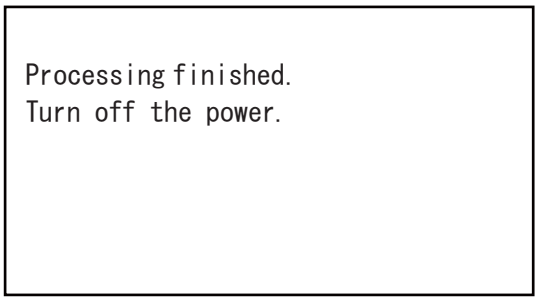
5) After downloading the firmware file, the upgrading starts.
   * At this moment, do not disconnect the USB memory.



6) When the upgrading is finished, the upgrading result is displayed.

   When the upgrading is finished correctly, the message shown in the figure is displayed.

   When the upgrading is failed, the defective part and the error code are displayed.



[9] MAINTENANCE

1.Necessary work for maintenance

A. Counter reset

When the drum cartridge, the primary transfer unit, the secondary transfer unit, or the fusing unit is replaced with a new one, the initial detection function operates after turning ON the power to reset each counter automatically.

When the machine is initialized during warming up, or when the simulation is executed or the machine is turned OFF and the door is opened before the machine enters the print ready state, the initial detection function may not operate normally. Therefore, never execute the simulation or never operate the machine such as turning OFF the machine power and opening the door before the machine enters the print ready state after replacing one of the above parts and turning ON the power.

When the counter is not automatically reset, it must be reset manually.

Since the maintenance counter (total) and the maintenance counter (color) are not automatically reset, they must be cleared by executing SIM24-4.

(For details, refer to the page of "2. Maintenance timing display.")

B. Toner density initial setting

When the developer cartridge is replaced, the initial setting of the toner density needs to be executed by SIM25-2.

If another simulation is executed or the machine power is turned OFF during execution of this simulation, the initial setting of the toner density cannot be executed normally. Therefore, never operate the machine until the initial setting of the toner density is completed (the machine enters the print ready state).

C. Other

Perform the following items.

- Image skew adjustment (LSU unit) (SIM61-04)
- Image registration adjustment (SIM50-22)
- Firmware version check (SIM22-05) (Execute according to the necessity.)
- Trouble counter and JAM counter reset (SIM24-01)

2. Maintenance timing display

A message of maintenance timing is displayed when each counter reaches the set value.
The relationship between the kinds of messages and the counters is shown below.
The display contents marked with [ ] are displayed in a window appearing at the center of the LCD.

A. Maintenance counter

Display content	Display condition			Print job Enable/ Disable
	Sim26-38-A set value	Counter name	Counter value	
(Maintenance required.Code:TA)	0 (Print continue)	Maintenance counter (Total)	When the Sim21-1 set value is reached	Enable
	1 (Print stop)		When 90% of the Sim21-1 set value is reached	
[Maintenance required. Code: TA]	1 (Print stop)		When the Sim21-1 set value is reached	Disable
(Maintenance required.Code:CA)	0 (Print continue)	Maintenance counter (Color)	When the Sim21-1 set value is reached	Enable
	1 (Print stop)		When 90% of the Sim21-1 set value is reached	
[Maintenance required. Code: CA]	1 (Print stop)		When the Sim21-1 set value is reached	Disable

- After execution of maintenance, execute SIM24-4 to clear the maintenance counter (total) and the maintenance counter (color).
- When the maintenance counter (total) and the maintenance counter (color) are cleared, the above display disappears.

B. Primary transfer unit

Display content	Display condition			Print job Enable/ Disable
	Sim26-38-B set value	Counter name	Counter value	
[Maintenance required.Code:TK]	0 (Print continue)	Primary transfer unit print counter	When 150K is reached	Enable
	1 (Print stop)			

- After execution of maintenance, execute SIM24-4 to clear the maintenance counter.
- The above display disappears by cleaning the counters.

C. Fusing unit

Display content	Display condition			Print job Enable/ Disable
	Sim26-38-D set value	Counter name	Counter value	
[Maintenance required.Code:FK]	0 (Print continue)	Fusing unit print counter	When 150K is reached	Enable
	1 (Print stop)			

- If a sub part is used to execute the maintenance or if the above guidance does not disappear when the whole fusing unit is replaced, SIM24-4 must be executed to clear each counter of the fusing unit. (the accumulated traveling distance counter, the accumulated rotation number counter, and the usage day counter)
- The above display disappears when the counters are cleared.

D. Drum cartridge

For KCMY only the life end cartridge code is displayed.

Display content	Display condition			Print job Enable/ Disable
	Sim26-38-E set value	Counter name	Counter value	
[Maintenance required. Code:DK]	0 (Print continue)	Drum cartridge print counter (K), Drum cartridge accumulated rotation number (K)	When 100K(Other countries than China) or 75K(China) is reached. When 575K rotations is reached.	Enable
	1 (Print stop)			
[Maintenance required. Code:D(C/M/Y]	0 (Print continue)	Drum cartridge print counter (C/M/Y) Drum cartridge accumulated rotation number (C/M/Y)	When 60K(Other countries than China) or 45K(China) is reached. When 575K rotations is reached.	Enable
	1 (Print stop)			

- After execution of maintenance, execute SIM24-4 to clear the maintenance counter.
- When the black drum cartridge does not reach the life end and only the color drum cartridge reaches the life end, black/white print can be performed but color print cannot be performed.
- When the drum cartridge is replaced with a new one, the print counter, the accumulated traveling distance counter, the accumulated rotation number counter, and the usage day counter are automatically cleared, and the above display disappears.
- The above display disappears when the counters are cleared.

E. Developer cartridge

For CMYK only the life end cartridge code is displayed.

Display content	Display condition			Print job Enable/Disable
	Sim26-38-E set value	Counter name	Counter value	
[Maintenance required. Code:VK]	0 (Print continue)	Developer cartridge print counter (K) Developer cartridge accumulated rotation number (K)	When 100K(Other countries than China) or 75K(China) is reached. When 575K rotations is reached.	Enable
	1 (Print stop)			
[Maintenance required. Code:V(C/M/Y)]	0 (Print continue)	Developer cartridge print counter (C/M/Y) Developer cartridge accumulated rotation number (C/M/Y)	When 60K(Other countries than China) or 45K(China) is reached. When 575K rotations is reached.	Enable
	1 (Print stop)			

- When the black drum cartridge does not reach the life end and only the color drum cartridge reaches the life end, black/white print can be performed but color print cannot be performed.
- When the developer cartridge is replaced with a new one, execute SIM24-5 to clear the print counter, the accumulated traveling distance counter and the usage day.
- If the above guidance does not disappear when the developer cartridge is replaced, the initial setting of the toner density must be executed with the simulation, and the auto color calibration must be executed.
- When the initial setting of the toner density is executed, the counters are cleared and the above display disappears.

F. Toner cartridge

For KCMY only the life end cartridge code is displayed.

Display content	Display condition			Print JOB Enable/Disable
	SIM26-38-A Set value	Counter name	Counter value	
(K/C/M/Y) Prepare a toner Near near end	No relation	Toner motor rotation time	Specified time of rotations	Enable
(K/C/M/Y) Toner supply is low Near end	No relation	Toner supply amount is decreasing.	ATC sensor output variation	Enable
Replace the toner cartridge. (K) (End)	0 (Print continue)	The pixel count from near end reaches the specified value.	Specified pixel count	(Disable for a JOB which requires K toner)
	1 (Print stop)			
Replace the toner cartridge. (C/M/Y) (End)	0 (Print continue)	The pixel count from near end reaches the specified value.	Specified pixel count	Enable for monochrome, Disable for color
	1 (Print stop)			

- Detected by the toner motor rotation number and the pixel count (The value of larger life percentage is employed.)
  Since the life of the toner cartridge which is packed when shipping from the factory is 1.0K, the remaining quantity of the toner cartridge, though it is a new one, is displayed as 25-50%.
- Selection of Display/Not Display can be made with Sim26-69. (Default: Not Display)
- When the black toner cartridge does not reach the life end and only the color toner cartridge reaches the life end, black/white print can be performed but color print cannot be performed.

G. Toner collection container

Display content	Display condition			Print JOB Enable/Disable
	SIM26-38-A Set value	Counter name	Counter value	
Replace Toner collection container.	0 (Print continue)	When the waste toner full detection switch is ON for 1000ms.		Enable
	1 (Print stop)			
Replace Toner collection container.	0 (Print continue)	When 10450 count is reached from the near end detection.		Disable
	1 (Print stop)			

When the Toner collection container is replaced, the display disappears.

H. Other (Ozone Filter)

Display content	Display condition			Print JOB Enable/Disable
	SIM26-38-A Set value	Counter name	Counter value	
No	No relation	Ozone filter counter	When 75K rotations is reached.	Enable

3.Maintenance list

×: Check (Clean, replace, or adjust according to necessity.) O: Clean ▲: Replace △: Adjust ☆: Lubricate

Section name	Unit name	When calling	45 K	75 K	90 K	135 K	150 K	180 K	225 K	270 K	300 K	Remarks
OPC drum section	OPC drum unit (monochrome)	-	-	▲	-	-	▲	-	▲	-	▲	
	OPC drum unit (color)	-	▲	-	▲	▲	-	▲	▲	▲	-	
Developing section	Developing unit (monochrome)	-	-	▲	-	-	▲	-	▲	-	▲	
	Developing unit (color)	-	▲	-	▲	▲	-	▲	▲	▲	-	
Toner cartridge	Toner cartridge BK	User replacement for every toner empty.										
	Toner cartridge CMY	User replacement for every toner empty.										
Toner collection container	Toner collection container	Replaced by the user when full is detected.										

Section name	Unit name	Part name	When calling	75 K	150 K	225 K	300 K	Remark
Transfer section	Primary transfer unit	Primary transfer unit	X	-	▲	-	▲	Replace at 150K or 2 year of use.
	Secondary transfer unit	Secondary transfer roller	X	-	O	-	O	Replace as needed
LSU section	LSU	Dust-proof glass	X	X	X	X	X	
	Others	LSU cleaning unit	X	▲	▲	▲	▲	Replace as needed
Paper feed section	Manual paper feed unit/Tray paper feed unit	Paper feed roller	X	O	O	O	O	Replace at 100K of each counter or 1 year of use.
		Separation roller	X	O	O	O	O	
		Torque limiter	X	O	O	O	O	
		Sensors	X	X	X	X	X	
Paper registration section (paper transport section)/ Paper exit section/ ADU section		PS auxilrary roller	X	O	O	O	O	
		Transport rollers	X	O	O	O	O	
		Paper guides	O	O	O	O	O	
		Discharge brush	X	X	X	X	X	
		Gears	X	X	X	X	X	Apply to the specified area when checking. FLOIL GE-676
		Paper dust removing unit						
Drive section		Gears (grease)	X	X	X	X	X	Apply to the specified area when checking. FLOIL G-313S
		Shaft earth sections conduction grease	X	X	X	X	X	Apply to the specified area when checking. FLOIL GE-676
		Belts	X	X	X	X	X	
		Sensors	X	X	X	X	X	
Fusing section	Fusing unit	Fusing unit	X	-	▲	-	▲	Replace at 150K or 2 year of use.
Other		Process registration sensor	X	O	O	O	O	Clean when the Fusing unit and the Drum cartridge is replaced.
		Ozone filter	X	▲	▲	▲	▲	Replace at 75K

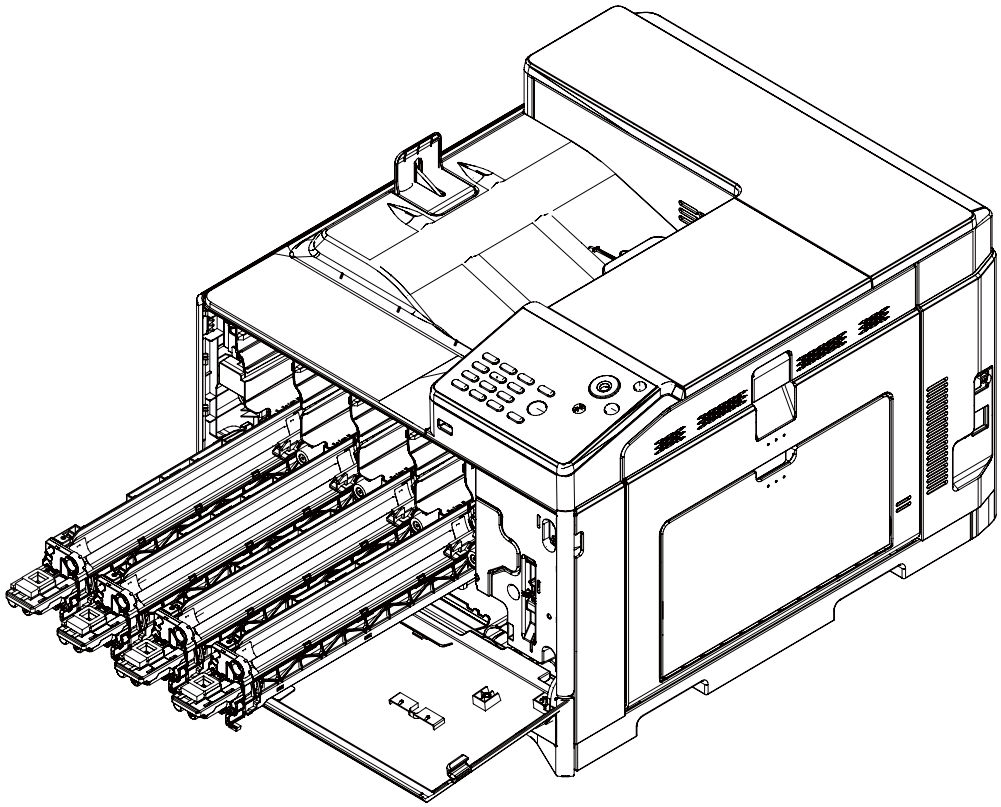
MX-CS11

Section name	Unit name	Part name	When calling	75 K	150 K	225K	300 K	Remark
MX-CS11		Pick-up roller	O	O	O	O	O	When the paper feed counter reaches a value of 100K or when one year has elapsed since the start of use.
		Paper feed roller	O	O	O	O	O	
		Separation roller	O	O	O	O	O	
		Torque limiter	X	X	X	X	X	
		Transport rollers	X	O	O	O	O	
		Transport paper guides	O	O	O	O	O	
		Discharge brush	X	X	X	X	X	
		Gears	X	X	X	X	X	Apply to the specified area when checking. FLOIL GE-676

A.Developing section

×: Check (Clean, replace, or adjust according to necessity.) ○ : Clean ▲: Replace △: Adjust ☆: Lubricate

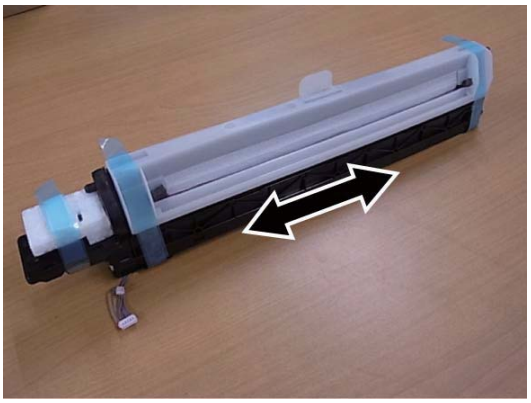
No	Unit name	When calling	45K	75 K	90 K	135 K	150 K	180K	225 K	270 K	300 K	Remarks
1	Developing unit (monochrome)	-	-	▲	-	-	▲	-	▲	-	▲	
	Developing unit (color)	-	▲	-	▲	▲	-	▲	▲	▲	-	



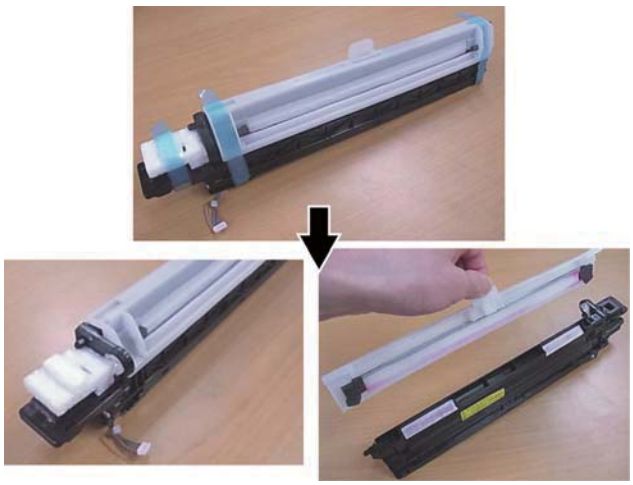
(1)**Notes for using the new developing unit**

1) Take out the developing unit from the packing box.

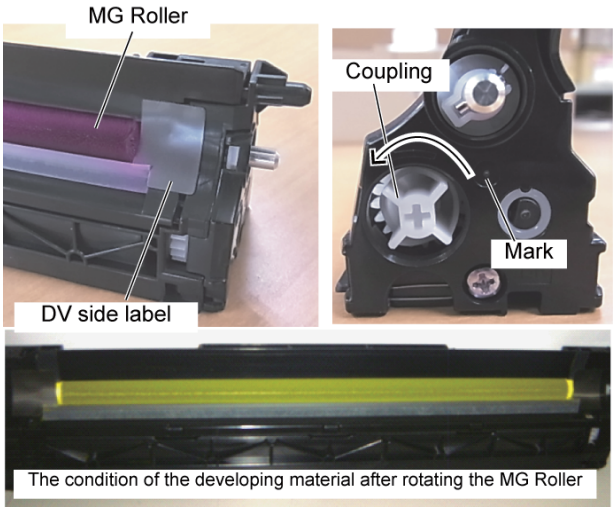
2) Shake the developing unit five or six times vertically while still in the packing material.
* This is for preventing the unevenness of developing material



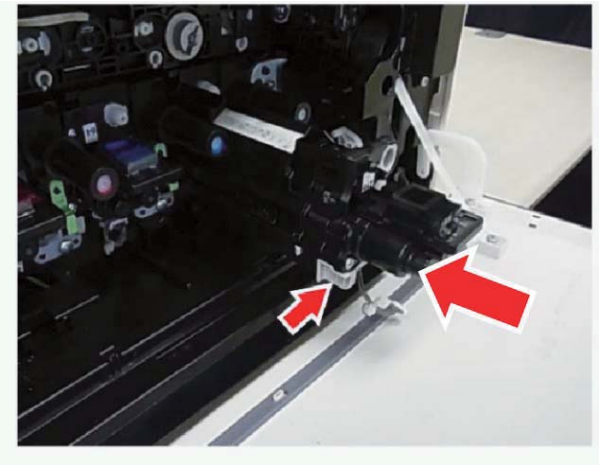
3) Remove the packing material from the developing unit.
* When removing the MG cover, lift up the MG cover above by pressing the pawl.



4) Rotate the coupling shown in the figure counter clockwise (the direction indicated by the mark) for preventing the developing material from pushing up the DV side label. It is possible to use a cross slot screwdriver.
Refer to the Note1, 2 and 3 described in the end of this procedure.

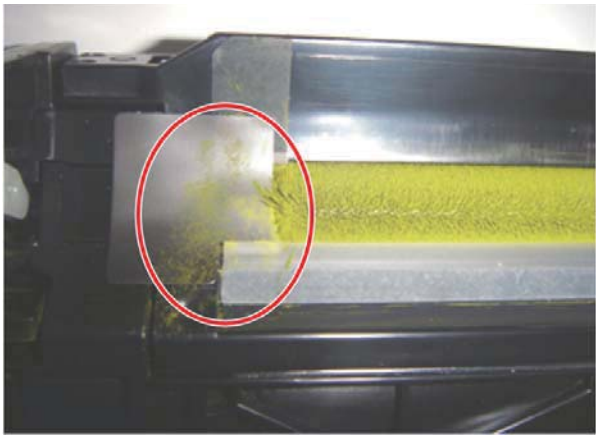


5) Install the developing unit straight into the machine until the lever of the developing unit catches. (Check the color and the position of the developing unit.)



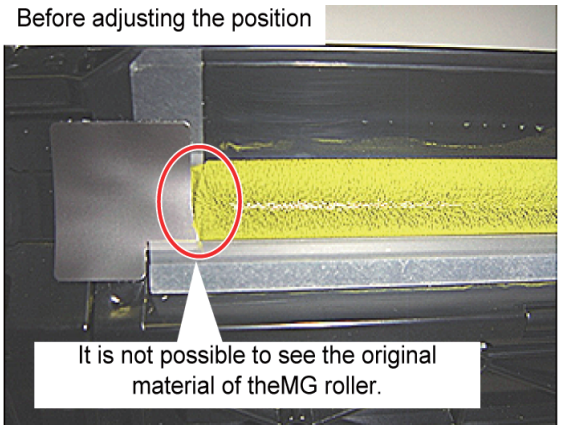
6) Connect the connector of the developing unit.
Refer to the Note4 described at the end of this procedure.

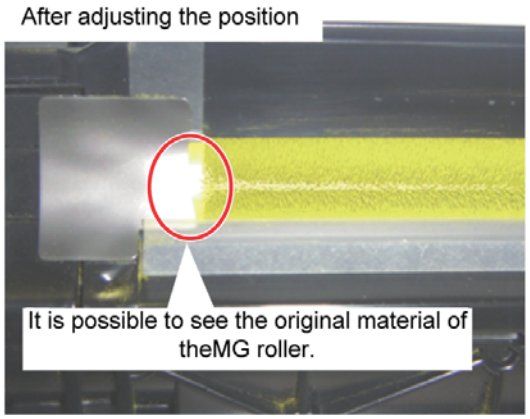
(Note1) Clean the developing material when the developing material is on the DV side label as shown in the figure. (F/R both side)
* When installing, the remaining developing material could damage the drum unit.

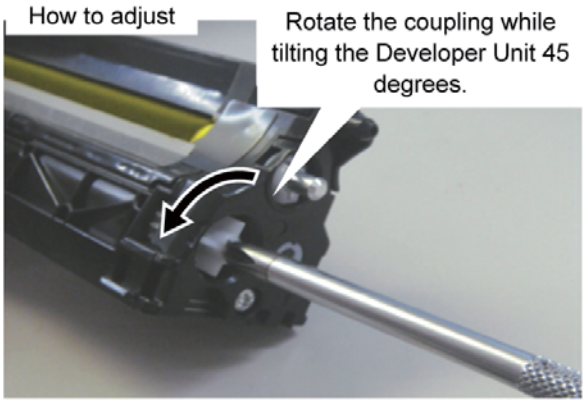


(Note2) Clean the developing material when the developing material is on the DV blade as shown in the figure. (F/R both side)
* When installing, the remaining developing material could damage the drum unit.

(Note3)When the Developing material had migrated to the end of the seal, rotate the Developer MG Roller while tilting the DV Unit 45 degrees to re attract the Developer back to the MG Roller. (F/R both side)
* When installing the DV Unit with Developer on the seal, the drum unit can become damaged.







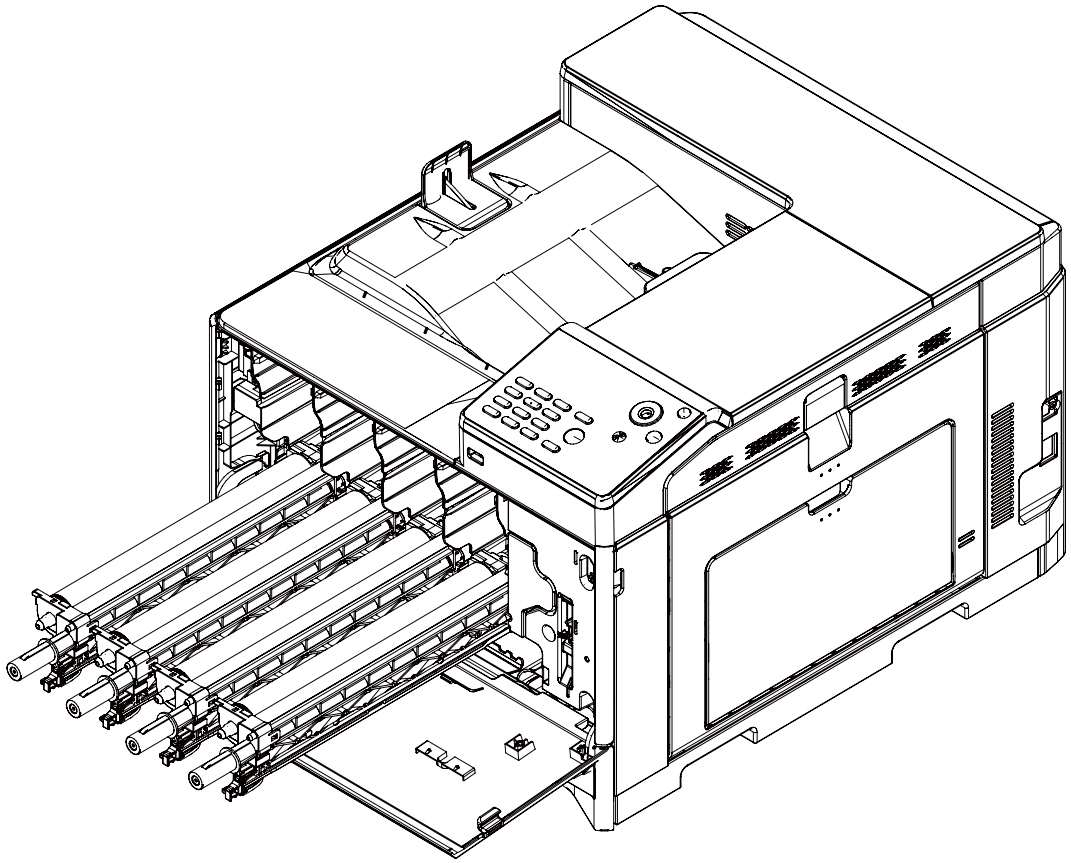
(Note4) Connect the connector of the developing unit firmly.
* When the connector is not connected correctly, the developing adjustment error occurs.

7) Execute SIM24-5 to clear the developing unit counters.
Then, execute SIM25-2 to adjust the developing unit automatically.

B.Drum cartridge

×: Check (Clean, replace, or adjust according to necessity.) ○ : Clean ▲: Replace △: Adjust ☆: Lubricate

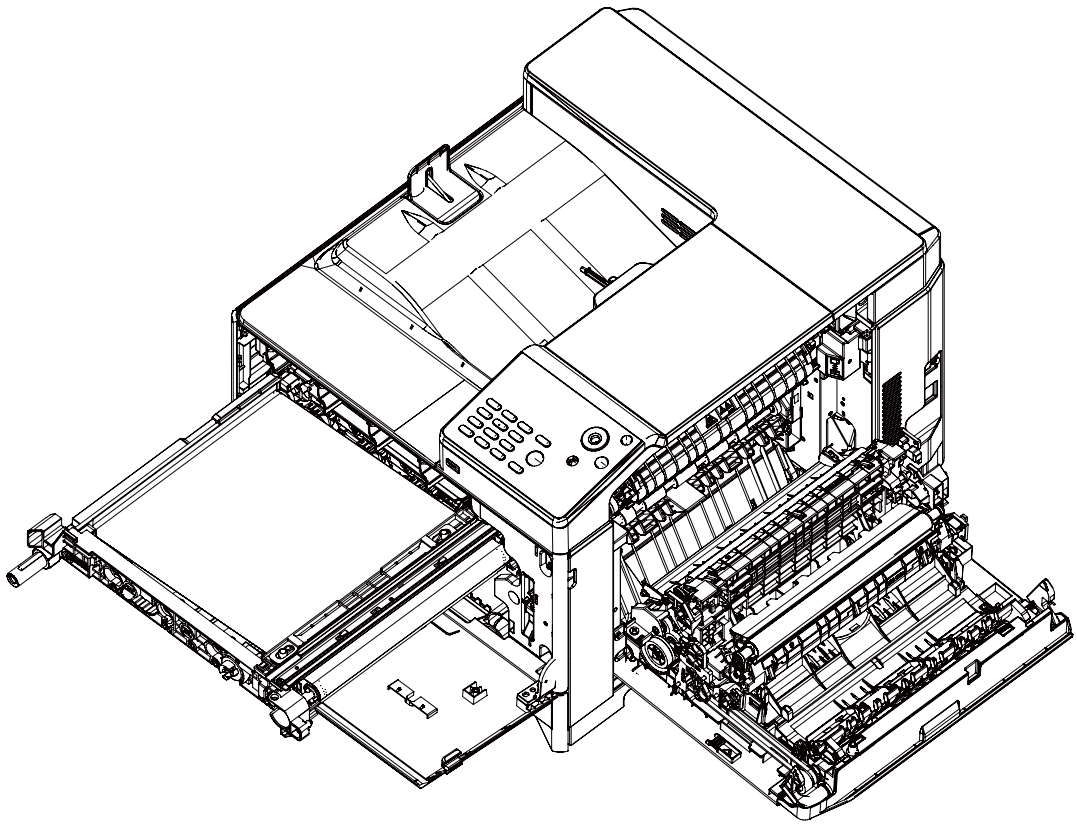
No	Unit name	When calling	45K	75 K	90 K	135 K	150 K	180K	225 K	270 K	300 K	Remarks
1	OPC drum unit (monochrome)	-	-	▲	-	-	▲	-	▲	-	▲	
	OPC drum unit (color)	-	▲	-	▲	▲	-	▲	▲	▲	-	



C.Transfer section

×: Check (Clean, replace, or adjust according to necessity.) ○ : Clean ▲: Replace △: Adjust ☆: Lubricate

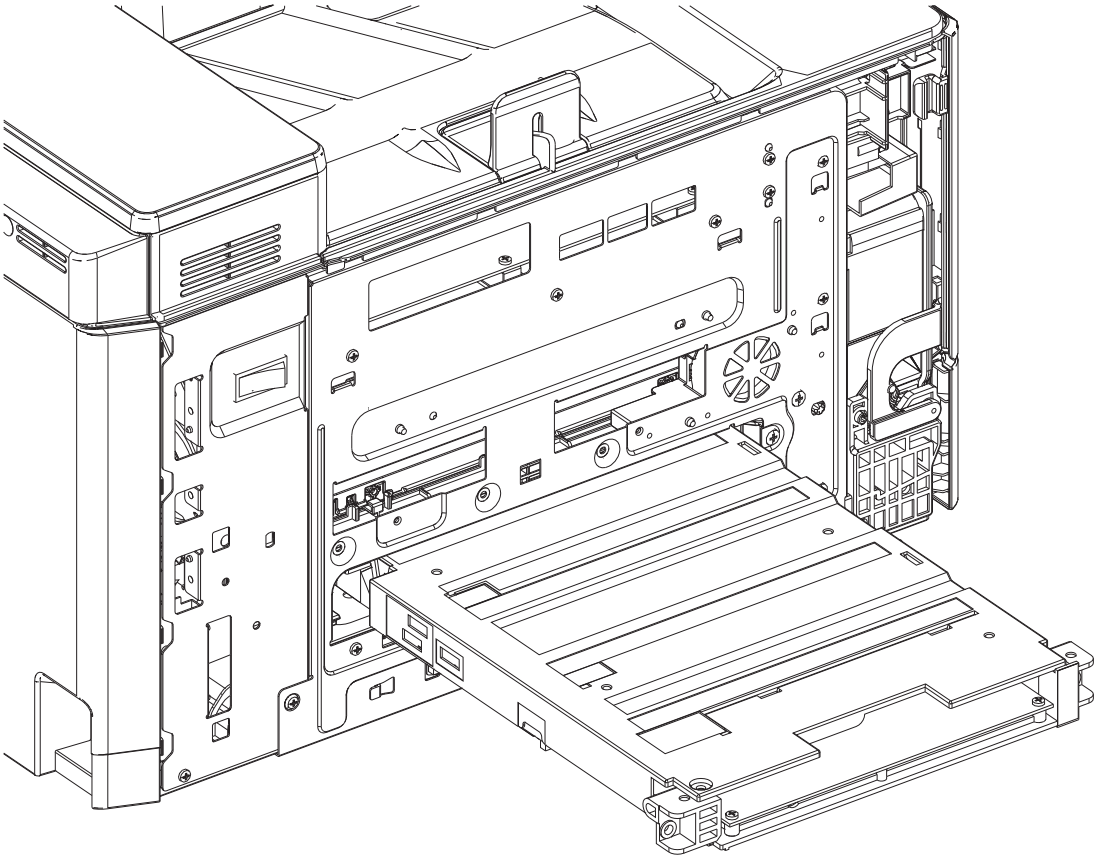
No.	Unit name	Part name	When calling	75 K	150 K	225K	300 K	Remark
1	Primary transfer unit	Primary transfer unit	X	-	▲	-	▲	Replace at 150K or 2 year of use.
2	Secondary transfer unit	Secondary transfer roller	X	-	O	-	O	Replace as needed



D. LSU section

×: Check (Clean, replace, or adjust according to necessity.) ○ : Clean ▲: Replace △: Adjust ☆: Lubricate

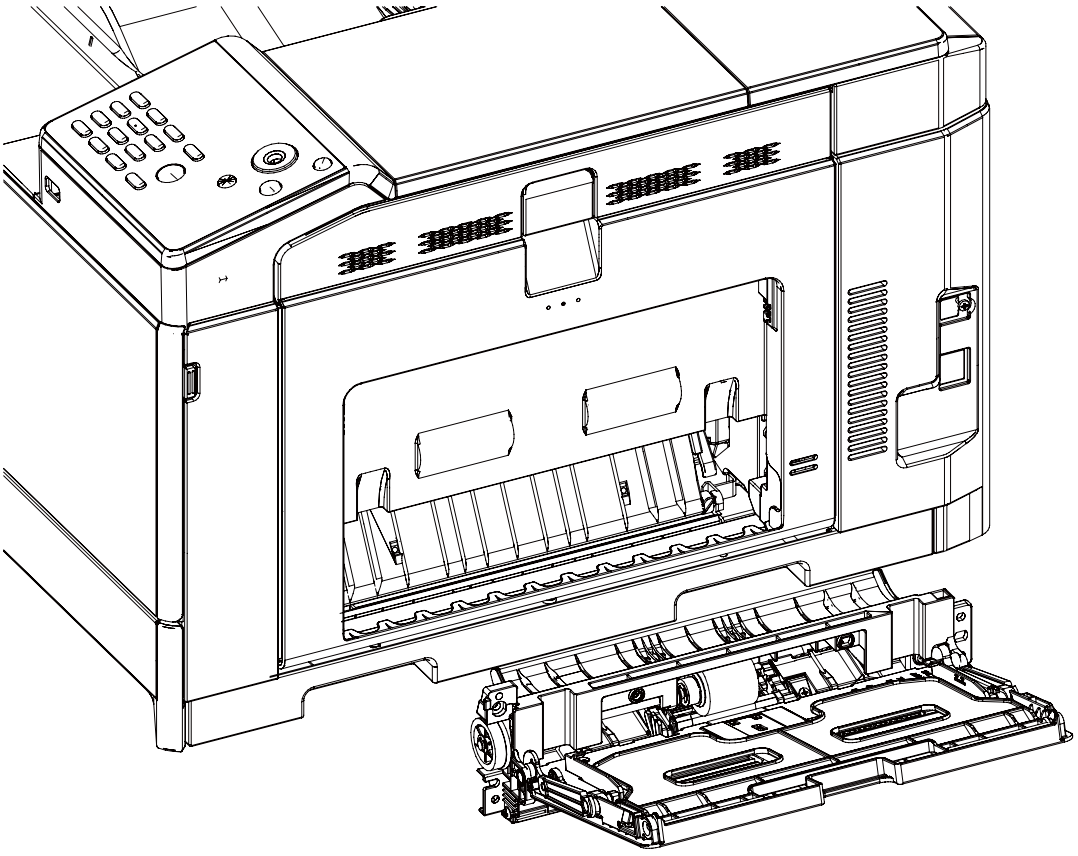
No.	Unit name	Part name	When calling	75 K	150 K	225K	300 K	Remark
1	LSU	Dust-proof glass	X	X	X	X	X	
2	Others	LSU cleaning unit	X	▲	▲	▲	▲	Replace as needed



E. Manual paper feed section

×: Check (Clean, replace, or adjust according to necessity.) ○ : Clean ▲: Replace △: Adjust ☆: Lubricate

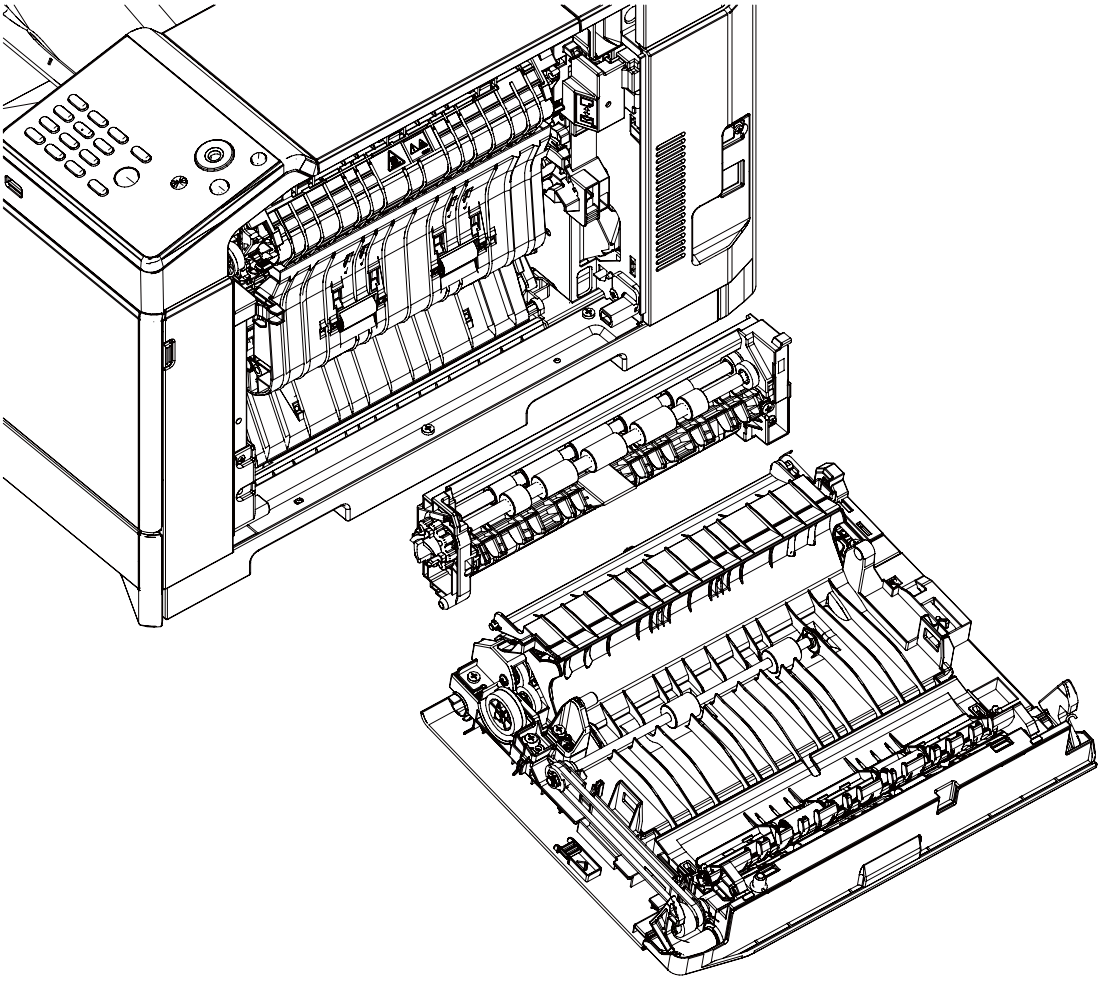
No.	Part name	When calling	75 K	150 K	225K	300 K	Remark
1	Paper feed roller	X	O	O	O	O	Replace at 100K of each counter or 1 year of use.
2	Separation roller	X	O	O	O	O	
3	Torque limiter	X	O	O	O	O	
4	Sensors	X	X	X	X	X	



F. Transport, Reverse, Paper exit section

×: Check (Clean, replace, or adjust according to necessity.) O: Clean ▲: Replace △: Adjust ☆: Lubricate

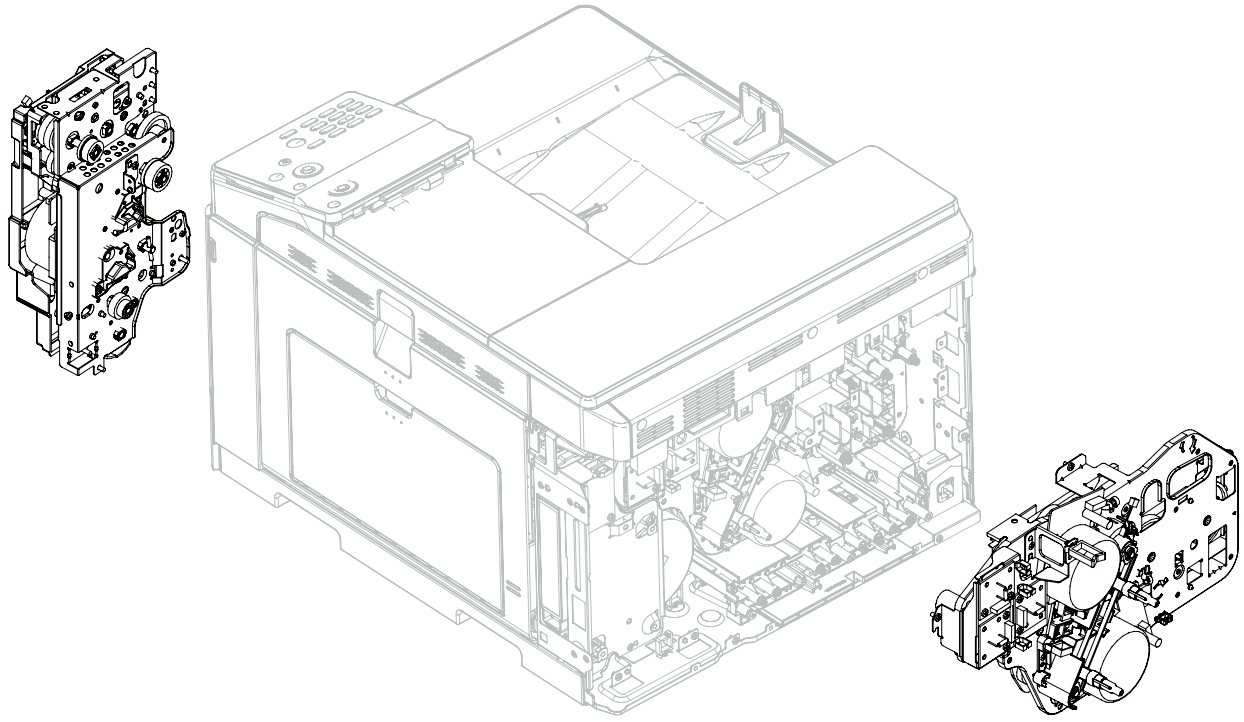
No.	Part name	When calling	75 K	150 K	225K	300 K	Remark
1	PS auxilrary roller	X	O	O	O	O	
2	Transport rollers	X	O	O	O	O	
3	Paper guides	O	O	O	O	O	
4	Discharge brush	X	X	X	X	X	
5	Gears	X	X	X	X	X	Apply to the specified area when checking. FLOIL GE-676
6	Paper dust removing unit						



G. Drive section

×: Check (Clean, replace, or adjust according to necessity.) O: Clean ▲: Replace △: Adjust ☆: Lubricate

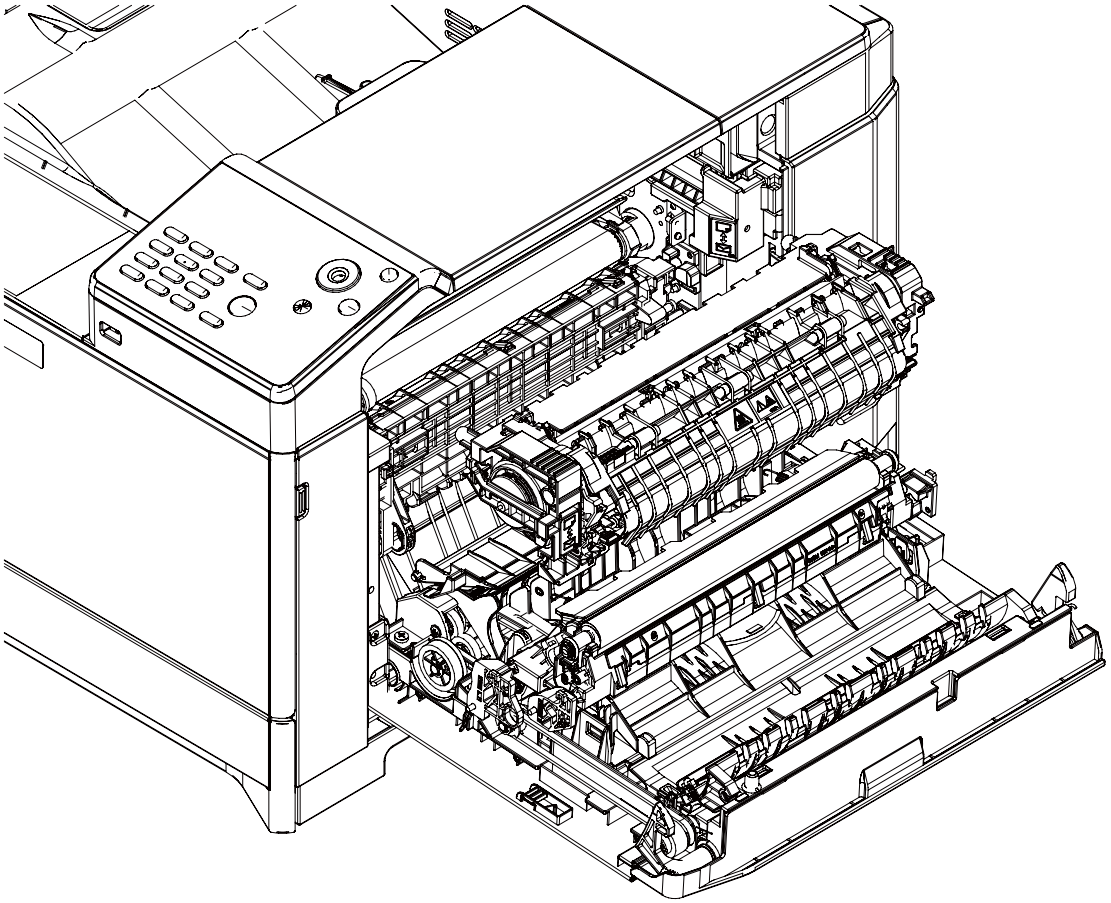
No.	Part name	When calling	75 K	150 K	225K	300 K	Remark
1	Gears (grease)	X	X	X	X	X	Apply to the specified area when checking. FLOIL G-313S
2	Shaft earth sections conduction grease	X	X	X	X	X	Apply to the specified area when checking. FLOIL GE-676
3	Belts	X	X	X	X	X	
4	Sensors	X	X	X	X	X	



H.Fusing section

×: Check (Clean, replace, or adjust according to necessity.) O: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	75 K	150 K	225K	300 K	Remark
1	Fusing unit	X	-	▲	-	▲	Replace at 150K or 2 year of use.

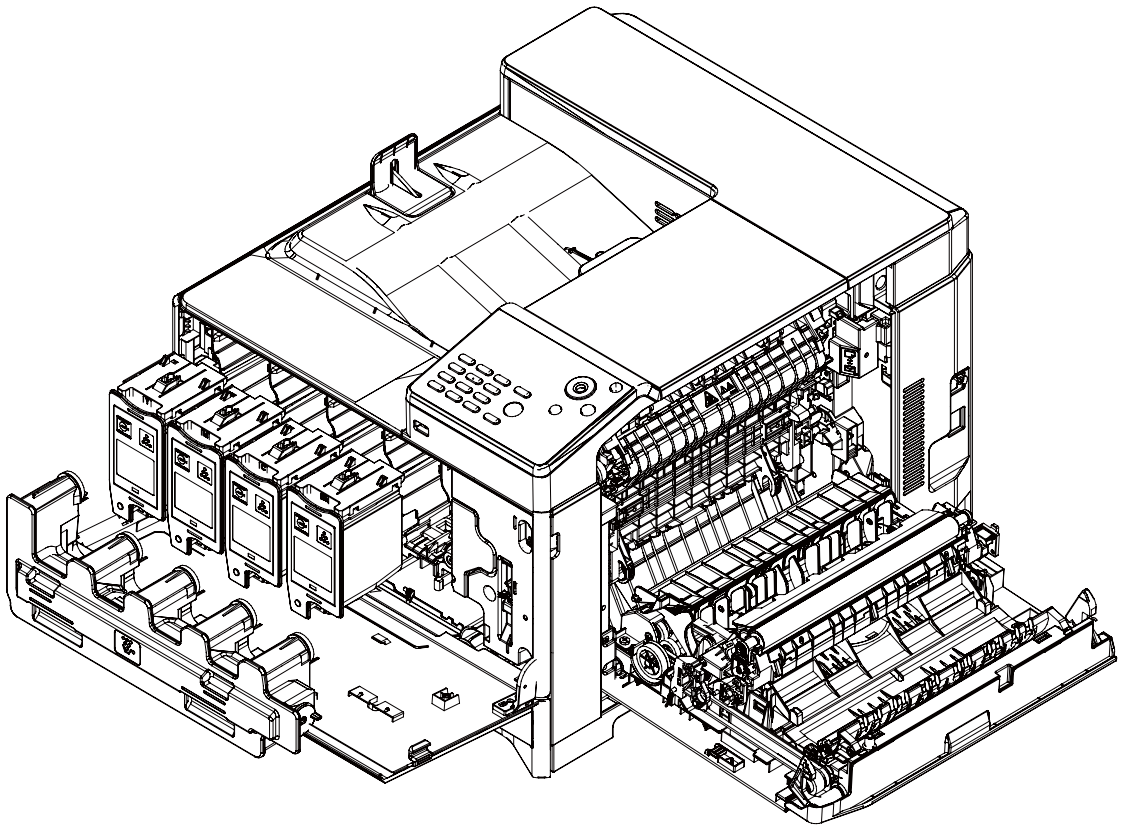


I. Other (Filter) section

×: Check (Clean, replace, or adjust according to necessity.) O: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Unit name	When calling	45K	75 K	90 K	135 K	150 K	180K	225 K	270 K	300 K	Remarks
1	Toner cartridge BK	User replacement for every toner empty.										
2	Toner cartridge CMY	User replacement for every toner empty.										
3	Toner collection container	Replaced by the user when full is detected.										

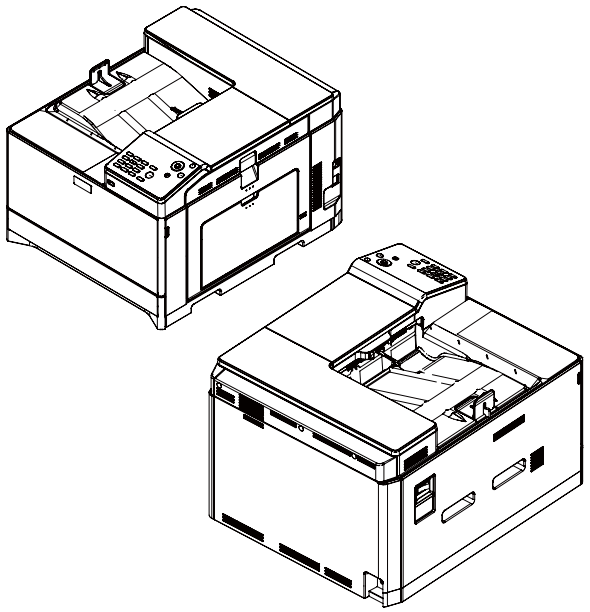
No.	Part name	When calling	75 K	150 K	225K	300 K	Remark
1	Process registration sensor	X	O	O	O	O	Clean when the Fusing unit and the Drum cartridge is replaced.
2	Ozone filter	X	▲	▲	▲	▲	Replace at 75K



[10] DISASSEMBLY AND ASSEMBLY

1. Disassembly of Units

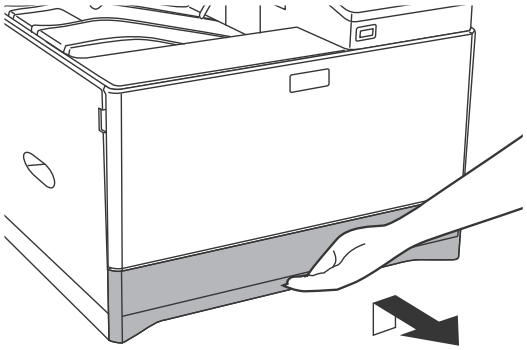
A. External view



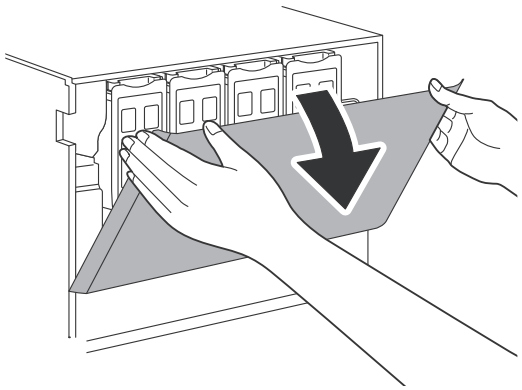
Parts	
1	Left cabinet NE
2	Paper exit tray
3	Operation base plate NE
4	Right cabinet front NE
5	Rear cabinet upper NE
6	Rear cabinet NE
7	Paper exit tray rear connection cabinet
8	Right cabinet rear NE
9	Upper cabinet right NE

(1) Left cabinet NE

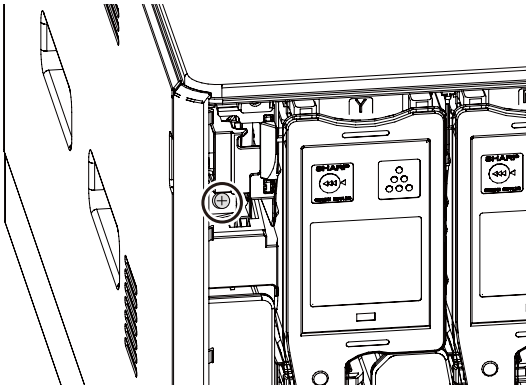
1) Pull out the Paper tray.

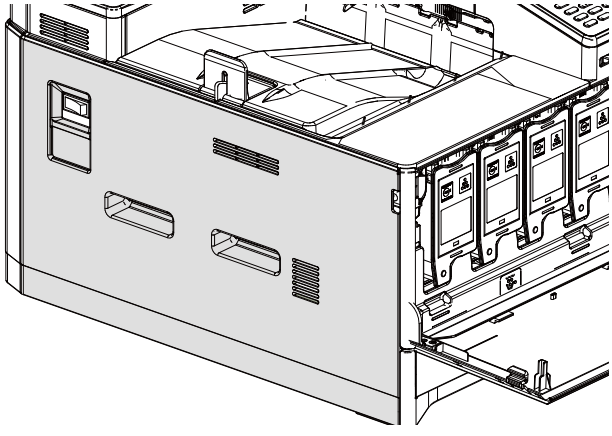


2) Open the front cover.



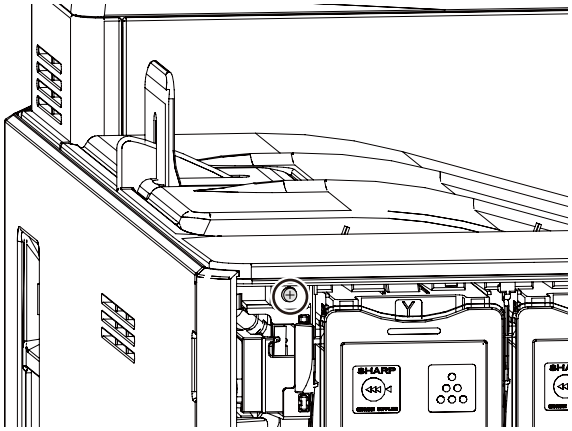
3) Remove a screw and unhook pawls. Then, remove the Left cabinet NE.





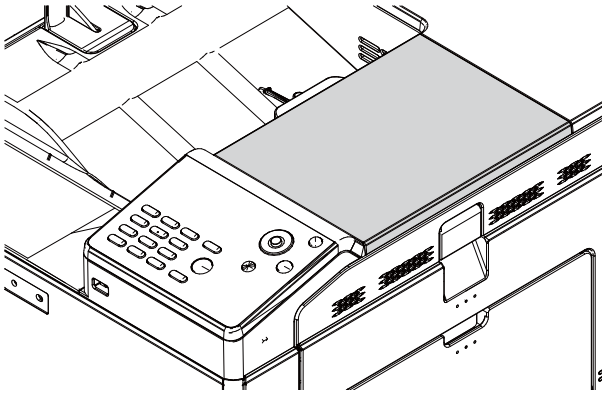
(2) Paper exit tray

1) Open the front cover.
2) Remove screws and remove the paper exit tray.

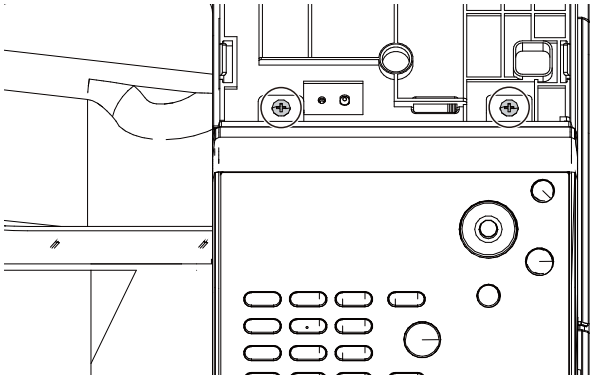


(3) Operation base plate NE

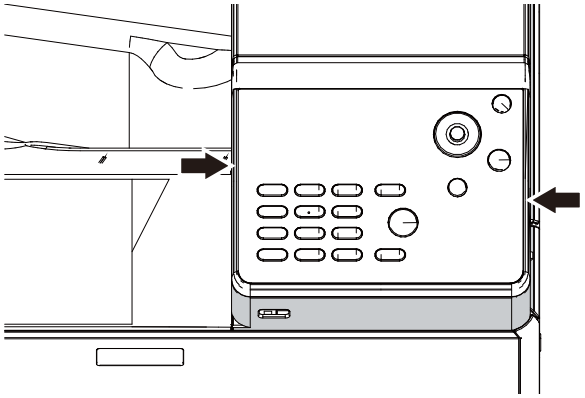
1) Remove the printer cabinet front.



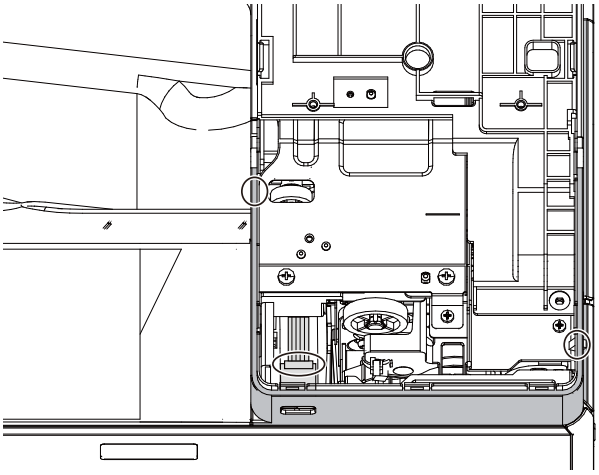
2) Remove the screws fixing the printer operation cabinet.



3) Press pawls of the printer operation cabinet and pull the printer operation cabinet toward you.

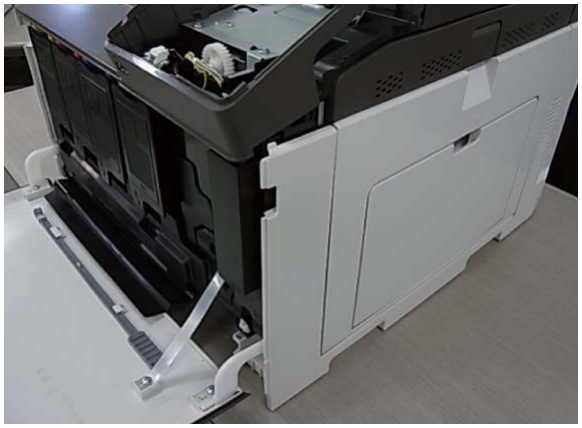


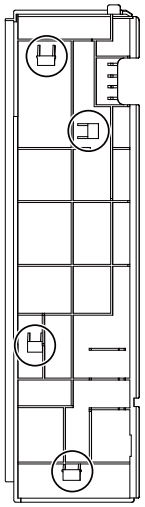
4) Disconnect the harness of the USB I/F PWB and remove the printer operation cabinet.



(4) Right cabinet front NE

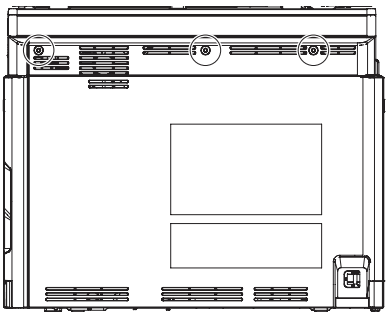
1) Remove remove the Operation plate NE.
2) Remove pawls and remove the Right cabinet front NE.

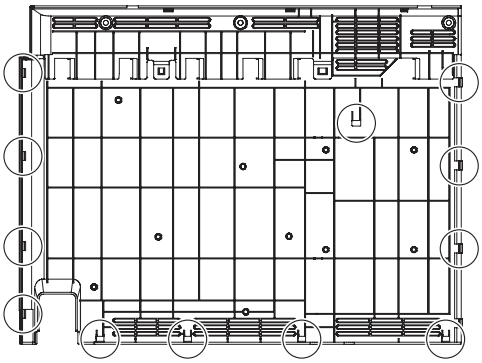




(5)Rear cabinet upper NE, Rear cabinet NE

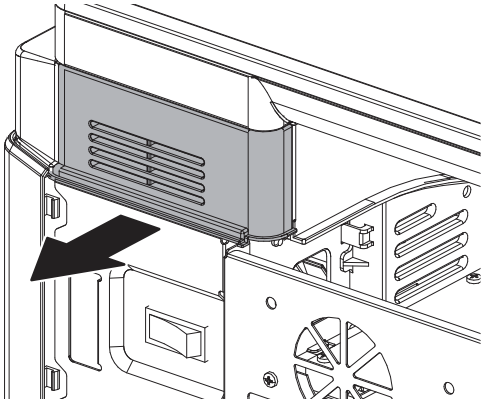
1) Remove screws and pawls. Then, remove the Rear cabinet upper NE and the Rear cabinet NE.



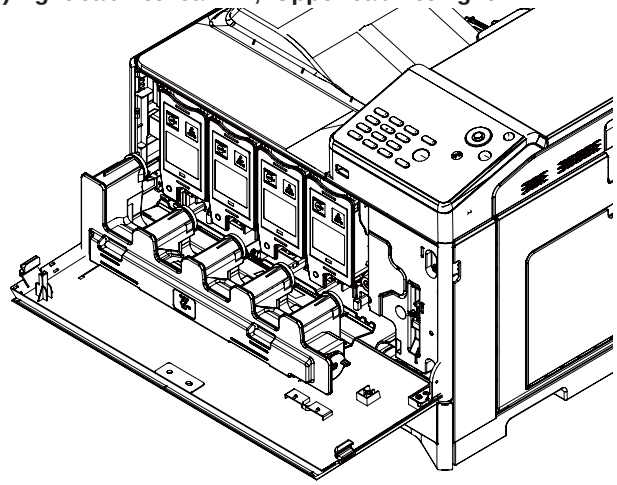


(6) Paper exit tray rear connection cabinet

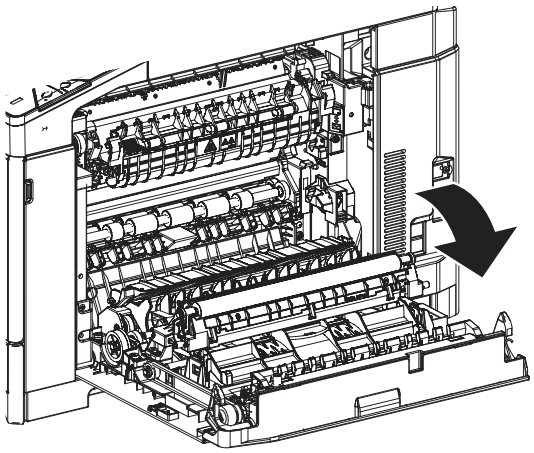
1) Remove the Paper exit tray left cabinet NE.
2) Remove the rear connection cabinet.



(7)Right cabinet rear NE, Upper cabinet right NE



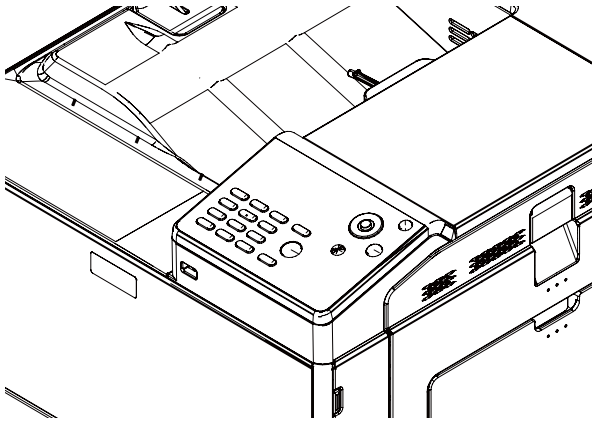
1) Remove the Rear cabinet upper NE and the Rear cabinet NE.
2) Open the right door.



3) Remove the Right cabinet rear NE and the Upper cabinet right NE.

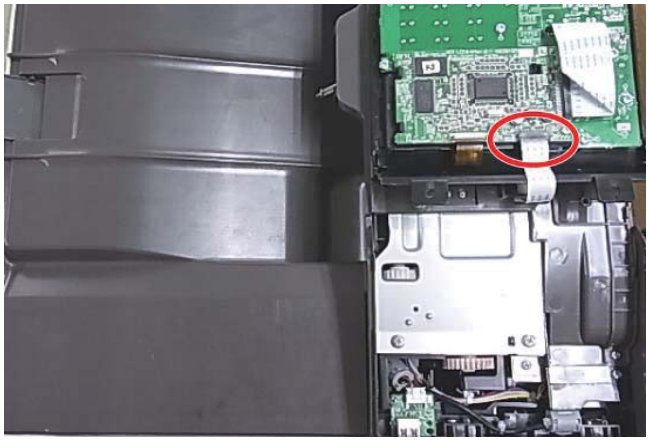
B. Operation panel section

No.	Name
1	Operation panel unit



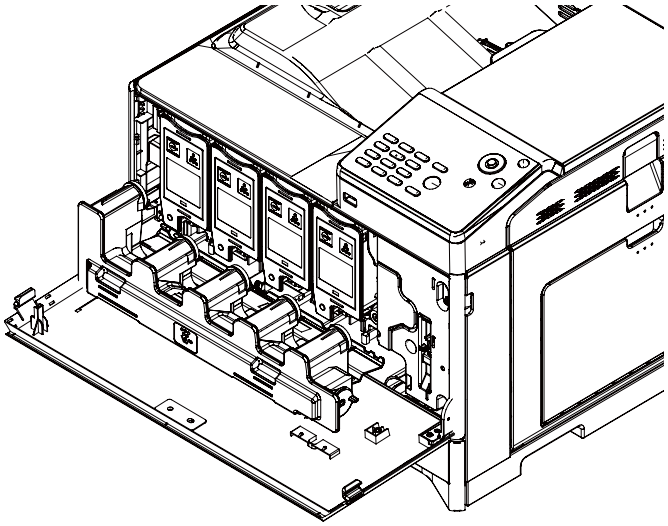
(1) Operation panel unit

1) Remove the Left cabinet NE and the Operation base plate NE.
2) Remove the FFC and the Operation panel unit.



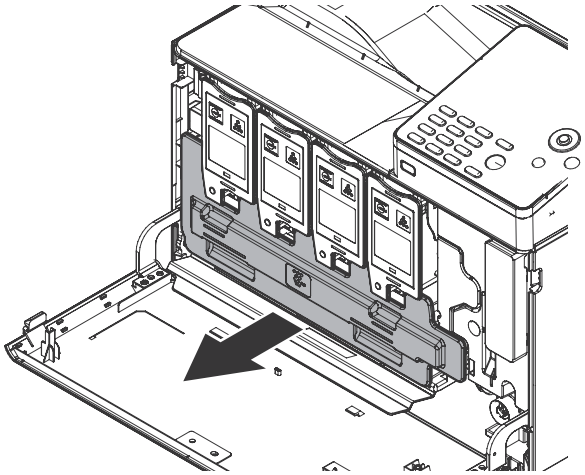
C. Toner collection container

No.	Name
1	Toner collection container



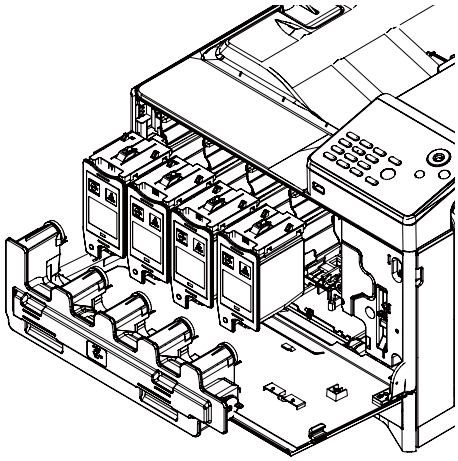
(1) Toner collection container

1) Pull out the Paper tray.
2) Open the front cover.
3) Remove the Toner collection container.



D. Toner supply section

No.	Name
1	Toner cartridge



(1) Toner cartridge

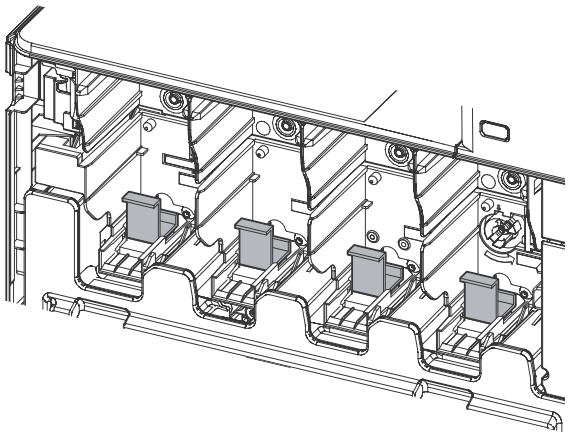
1) Hold the handle of the toner cartridge, and pull it out straight.

NOTE: Do not install a toner cartridge of a different color. Be sure to install a toner cartridge of the same color.

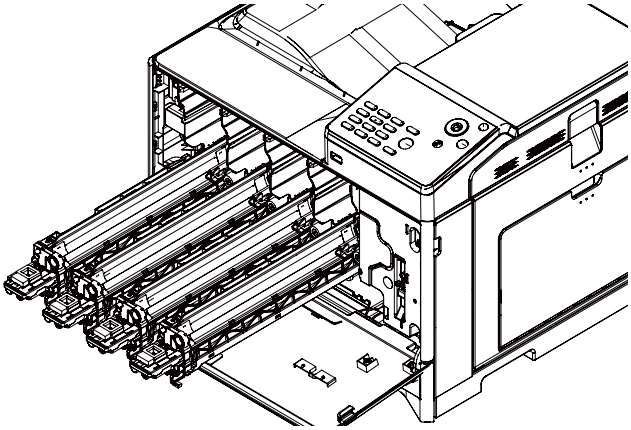
NOTE: When installing, do not insert with great force. Push with your hand until it is completely inserted.

NOTE: Regardless of the installation of the toner cartridge, remove the toner cartridges when transferring the main unit.

NOTE: When transferring to other place, be sure to remove the toner cartridges. (The toner cartridges could have clogging symptom.)

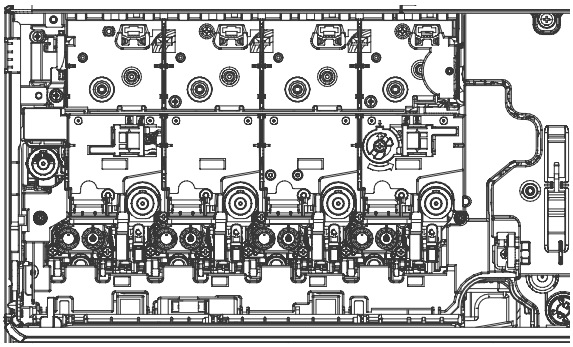


E. Development unit

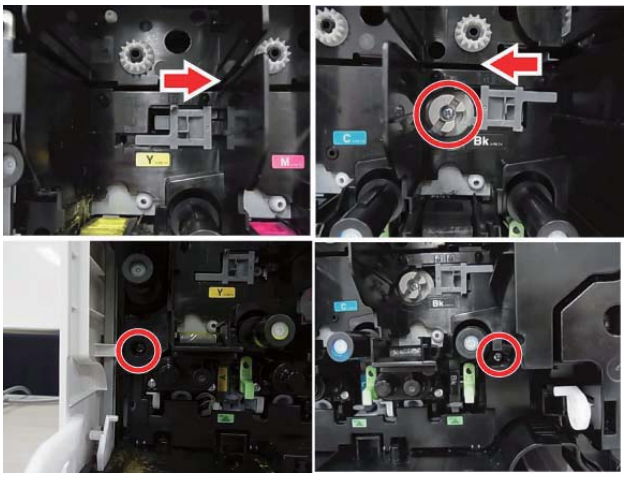


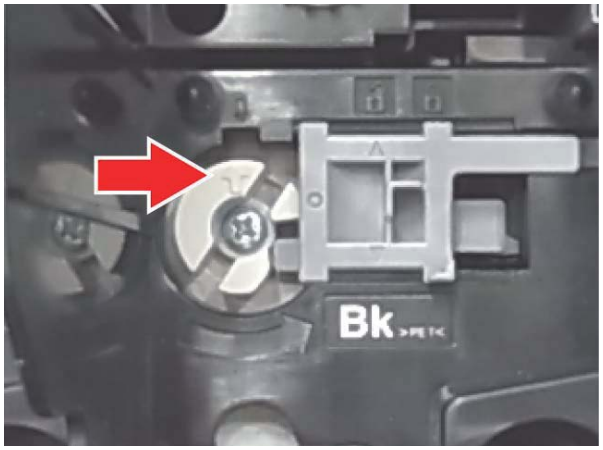
Parts	
1	Development unit

1) Remove the Toner collection container.
2) Remove the toner cartridges.
3) Move the stopper of the developing unit cover inside and remove the 2 screws. Then, remove the developing unit cover.



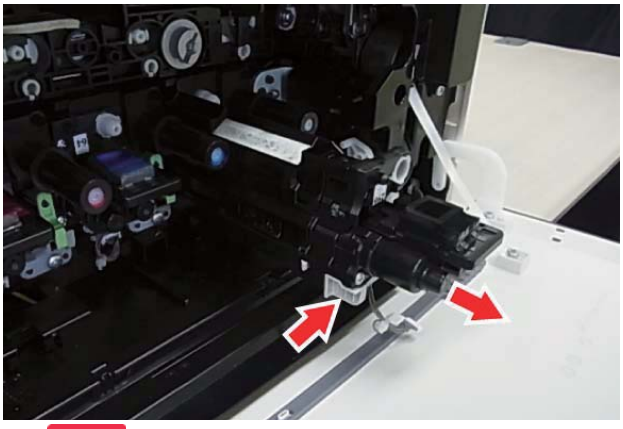
Check the home position of the Primary transfer unit. Rotate the cam counter clockwise.





4) Disconnect the developing unit connector.

5) Pull out the developing unit with pressing the lever.



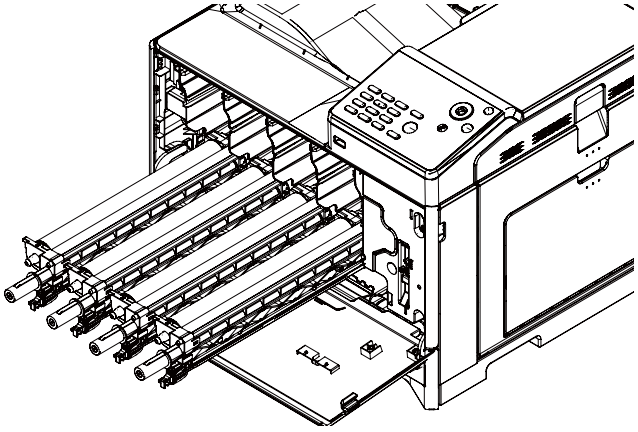
Important

When pulling out and pushing in the developing unit, put your hand beneath the unit and slide it horizontally along the guide.

Important

When pushing in the developing unit, connect the connector of the developing unit firmly.

F. Drum unit



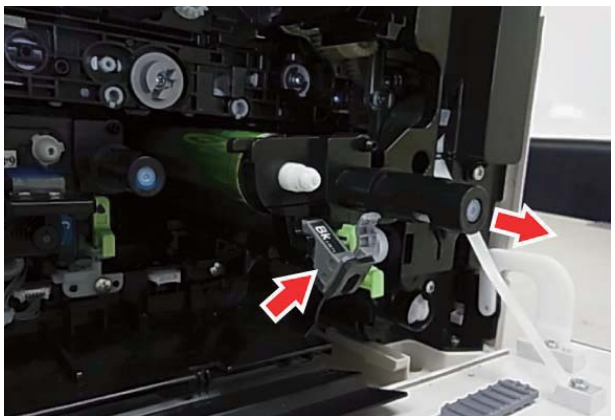
Parts	
1	Drum unit

1) Remove the Toner collection container.
2) Remove the Developing unit.
3) Lift up the lever and pull out the Drum unit.

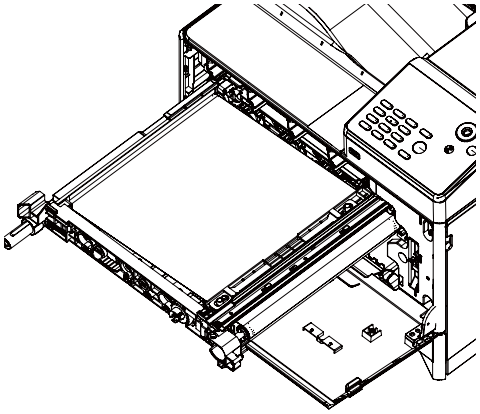
Important

When pulling out and pushing in the OPC drum unit, put your hand beneath the unit and slide it horizontally along the guide on the right side.

At the time, be careful not to touch the OPC drum surface.

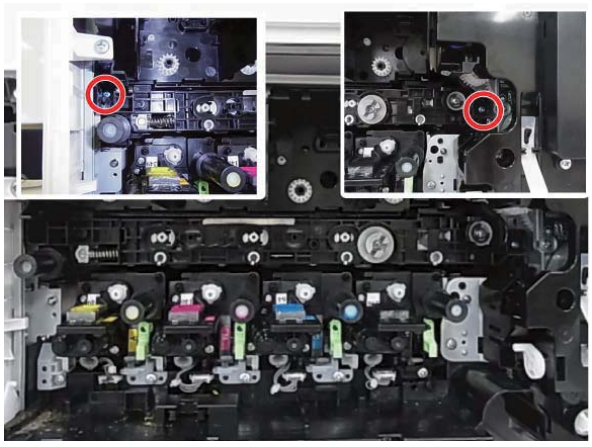


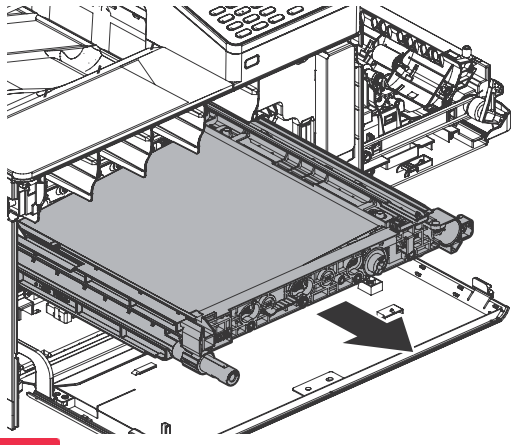
G. Primary transfer unit



Parts	
1	Primary transfer unit

1) Remove the Toner collection container.
2) Remove the Developing unit.
3) Open the Right door unit.
4) Remove the screws fixing the primary transfer unit and pull out the primary transfer unit it stops.

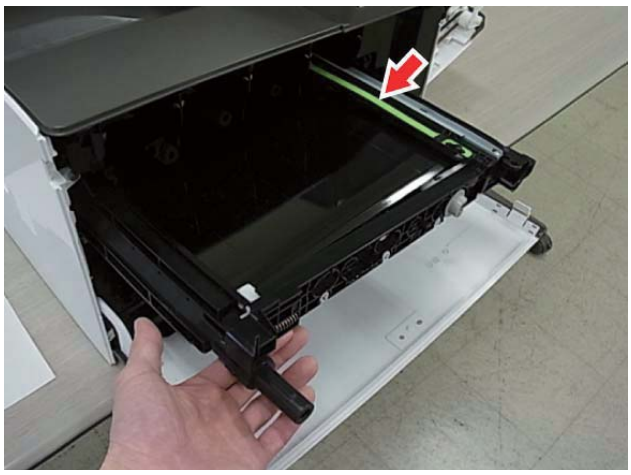




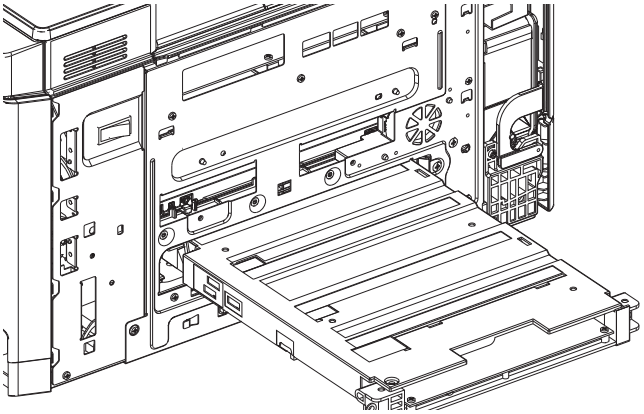
Important

Be careful to keep Primary Transfer Unit free of any foreign materials or objects.

5) While holding the handle of the Primary transfer unit, remove the Secondary transfer unit by pressing the lock of the Primary transfer unit.



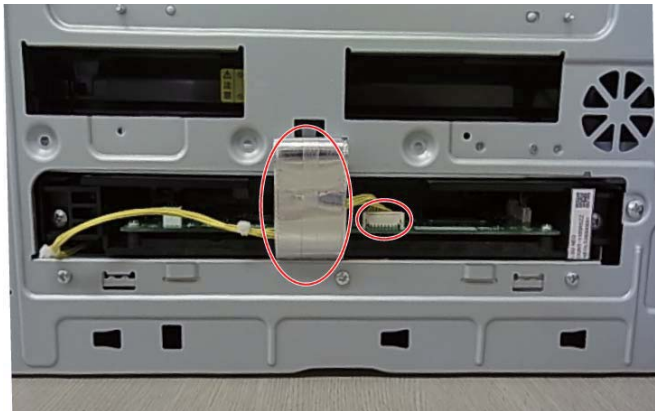
H. LSU



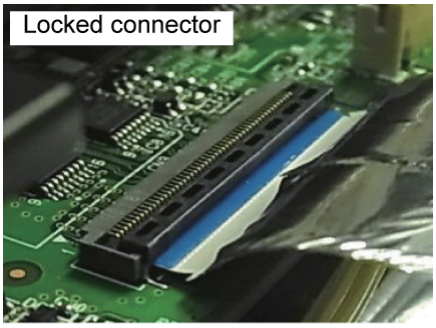
Parts	
1	LSU unit

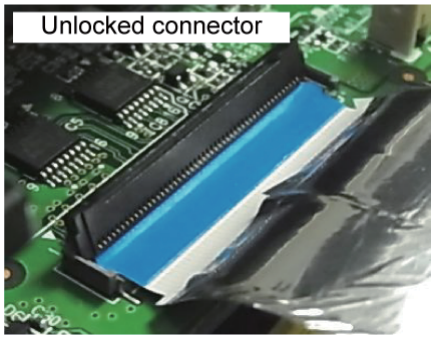
1) Remove the left cabinet. .

2) Pull out the LSU unit and remove the FFC and the harness by referring the following procedures.
   * Remove the FFC by releasing the lock of the FFC connector.

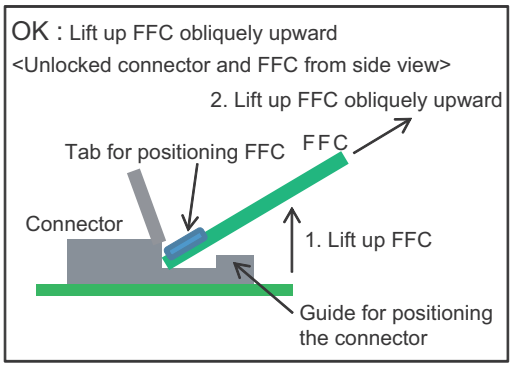


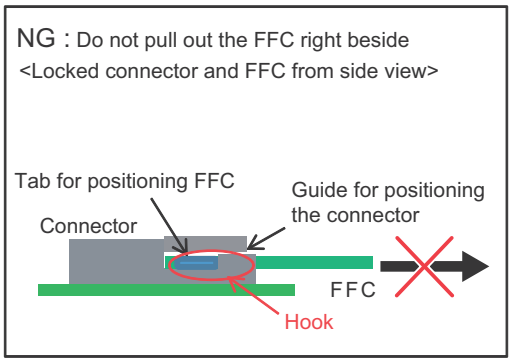
When the connection part of the connector is lifted up as shown in the figure, the connector is unlocked. It is necessary to remove the FFC with releasing the lock of the connector.

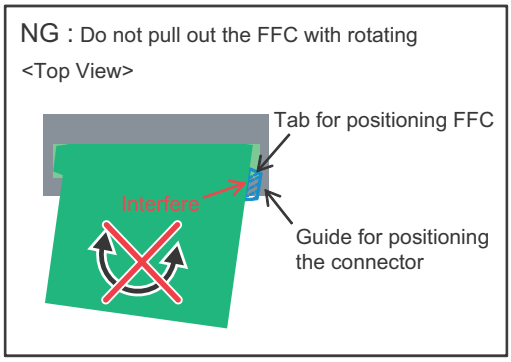




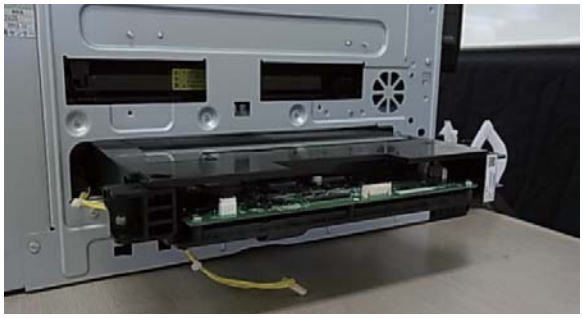
It is necessary to remove the FFC after the FFC is lifted up , pulled out obliquely upward and the tab is removed from the connection part. If the FFC is forced to remove, the FFC and the connector could be broken.



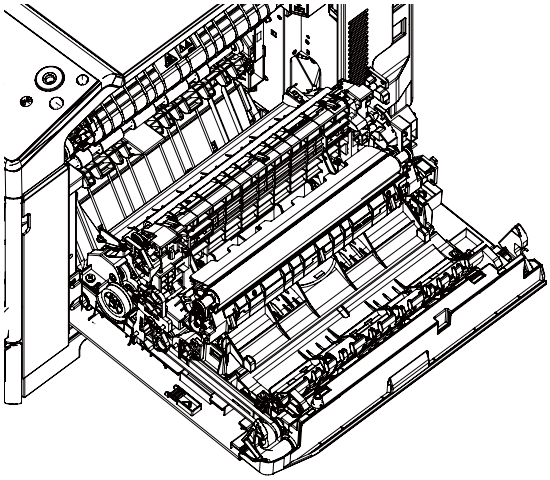




3) Remove the screws and pull out the LSU unit.



I. Paper transport/Paper exit/ADU section

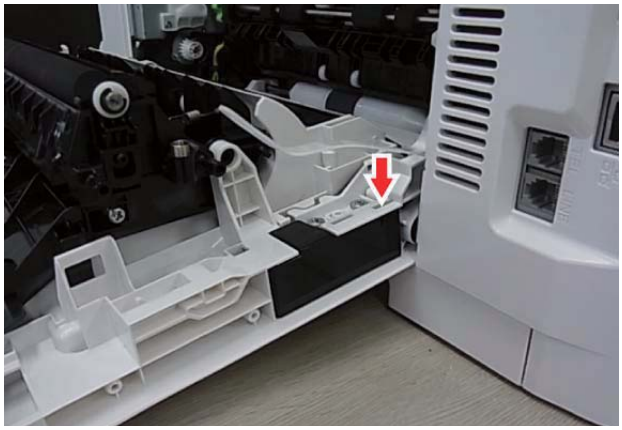


Parts	
1	Right door unit
2	Paper exit unit

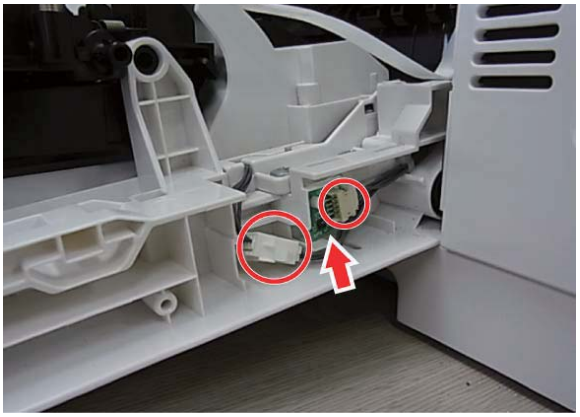
(1) Right door unit

1) Open the right door unit.
2) Remove the right door unit connection.

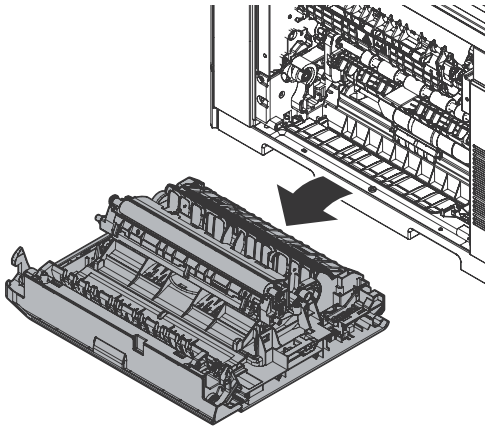
3) Remove the humidity sensor cover



4) Remove the harness of the humidity sensor cover.



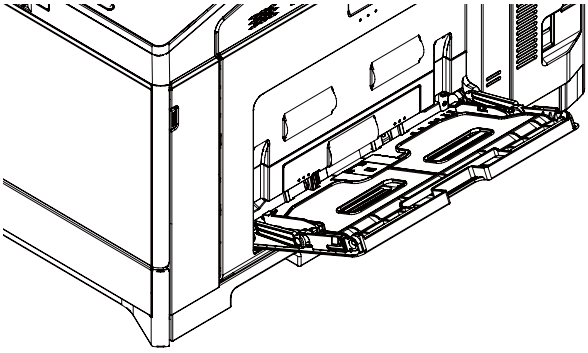
5) Remove the right door unit.



(2) Paper exit unit

1) Open the right door unit.
2) Remove the right door unit .

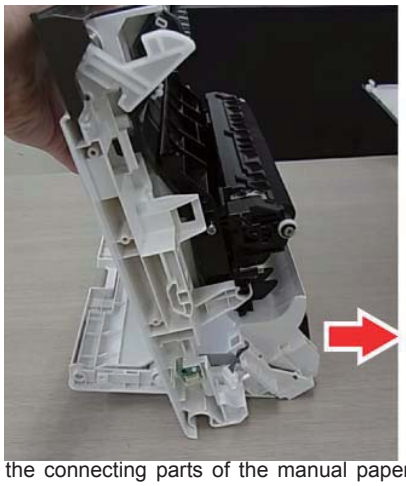
J. Manual paper feed unit



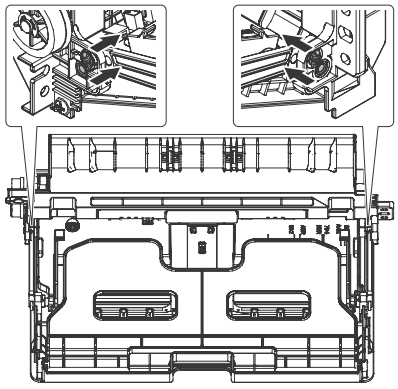
Parts	
1	Manual paper feed tray

1) Open the right door unit.
2) Remove the screw fixing the manual paper feed unit. .

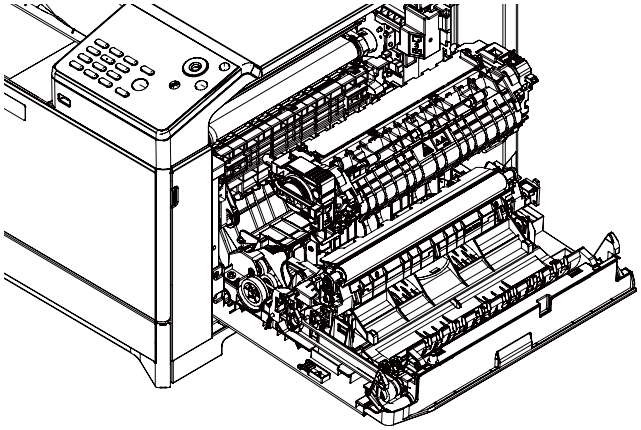
3) Remove the manual paper feed unit.



4) Remove the connecting parts of the manual paper feed tray and remove it.

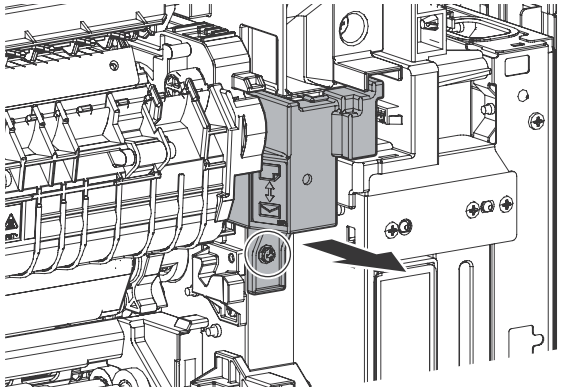


K. Fusing unit

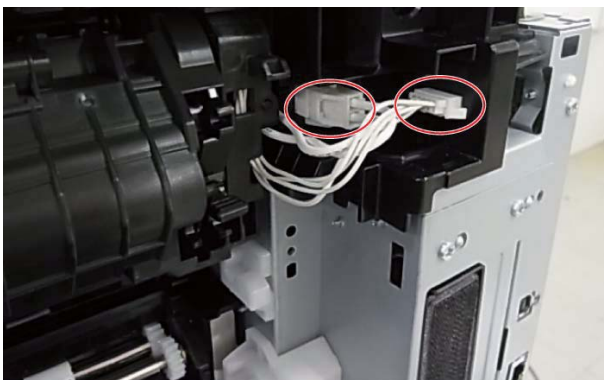


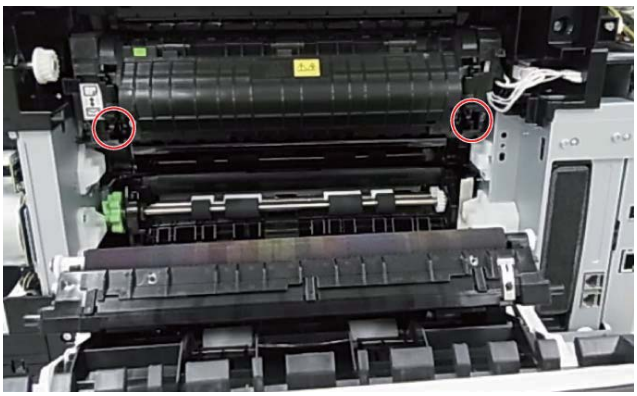
Parts	
1	Fusing unit

1) Open the right door unit.
2) Remove the right cabinet rear NE and the upper cabinet right NE.
3) Remove the harness cover.

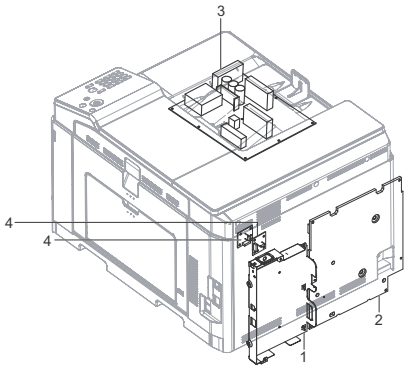


4) Remove the screws and the harness. Then, remove the fusing unit.





L. PWB



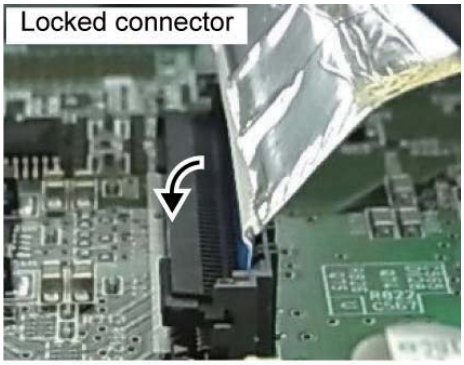
Parts	
1	MFPC PWB
2	HV PWB
3	AC DC PWB
4	FAN IF PWB

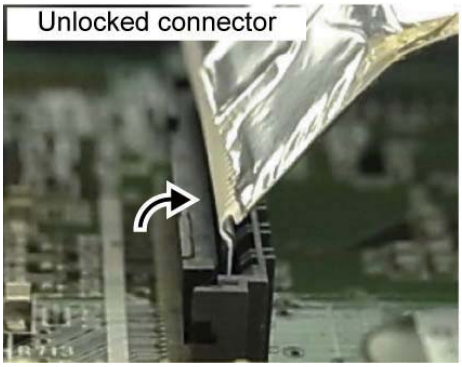
(1) MFPC PWB

1) Remove the right cabinet rear NE
2) Remove the rear cabinet rear NE
3) Remove the MFPC cover.

4) Remove the FFC from MFPC unit by referring the following procedures.
   * Remove the FFC by releasing the lock of the FFC connector.

When the connection part of the connector is lifted up as shown in the figure, the connector is unlocked. It is necessary to remove the FFC with releasing the lock of the connector.



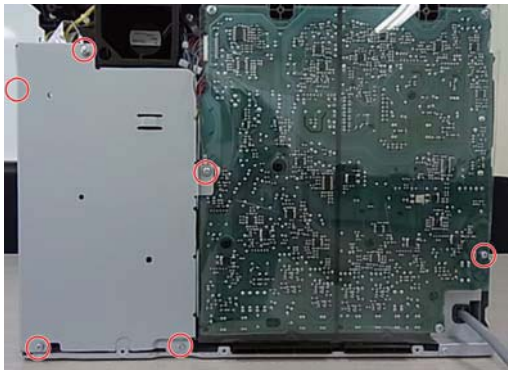


5) Remove the MFPC frame.

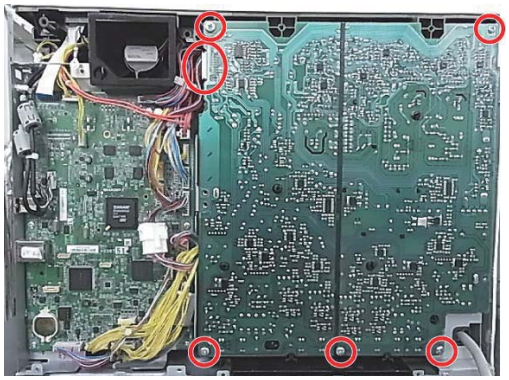
6) Remove the MFPC PWB from the MFPC PWB frame.

(2) HV PWB

1) Remove the right cabinet rear NE
2) Remove the rear cabinet rear NE
3) Remove the PWB protection sheet NE and the MFPC cover.



4) Remove the HV PWB.

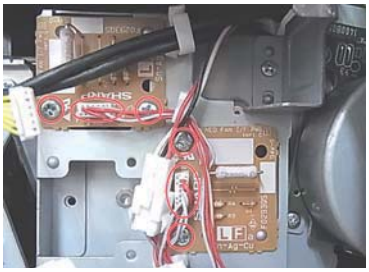


(3) AC DC PWB

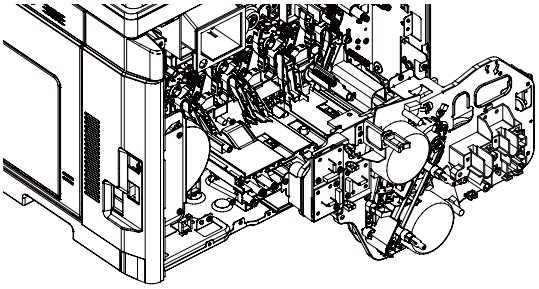
1) Open the front cover.
2) Remove the paper exit tray.
3) Remove the AC DC PWB with the stubby driver. .

(4)FAN IF PWB

1) Remove the MFPC unit.
2) Remove the FAN IF PWB.

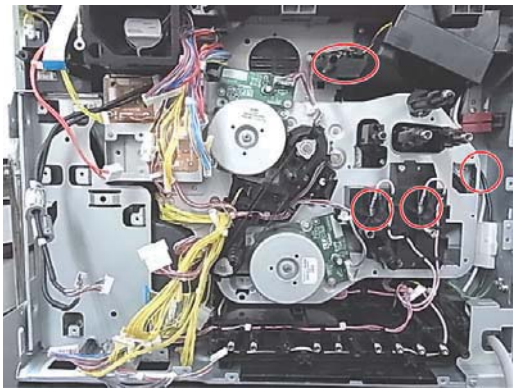


M. Drive unit

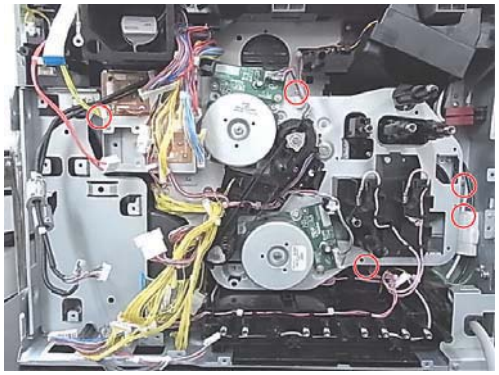


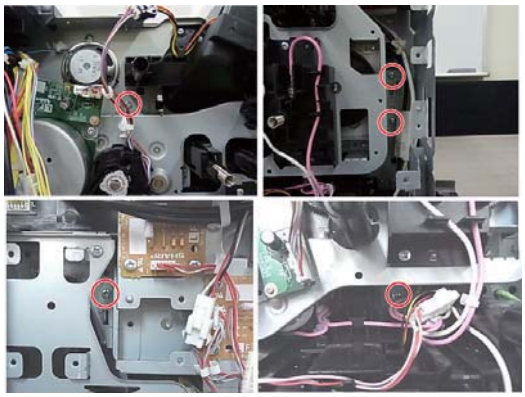
Parts	
1	Main drive unit

1) Remove the MFPC unit and the HV PWB.
2) Disconnect the connector, harnesses and clamps of the main drive unit.



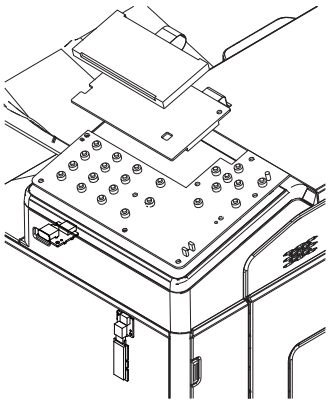
3) Remove the main drive unit. .





2.Disassembly and assembly of each unit

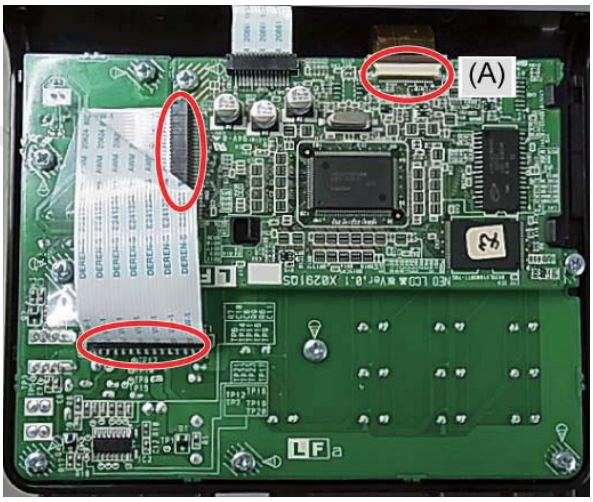
A. Operation panel unit



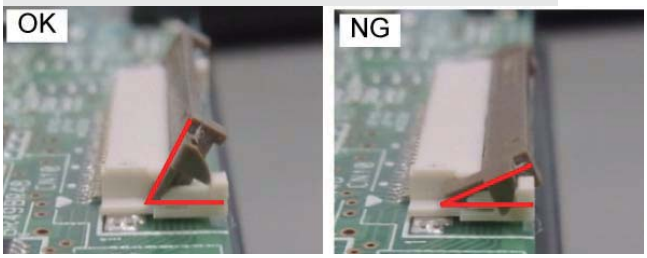
No.	Name
1	LCD PWB
2	KEY-LED PWB
3	LCD

(1) LCD PWB

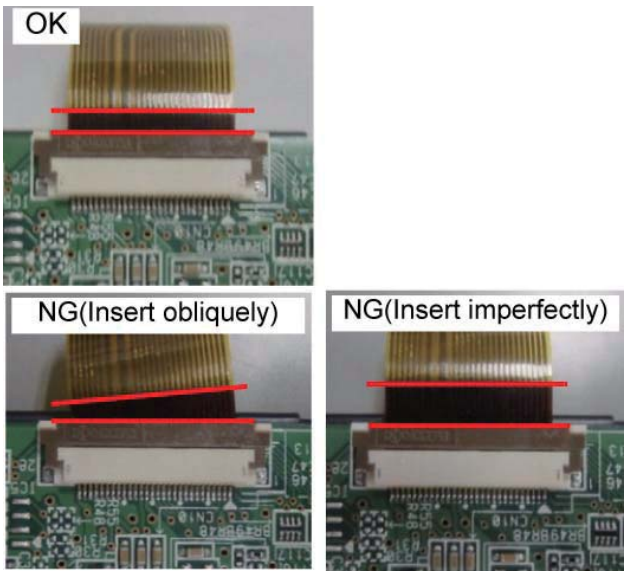
1) Remove the KEY FFC.



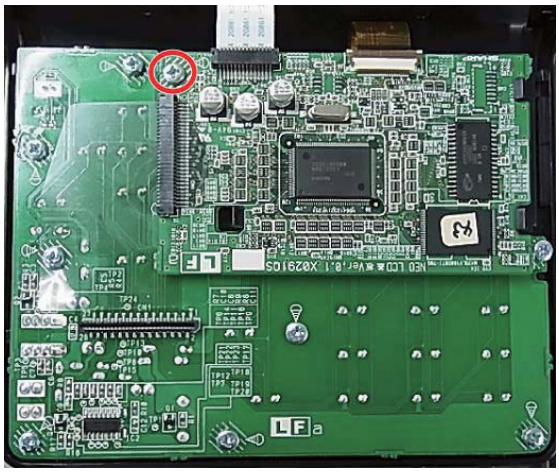
Regarding the connection part (A), remove the FFC by referring the following procedure.
Lifting up the lock lever as the OK state shown in the figure. It is necessary to remove the FFC with releasing the lock of the connector.



When connecting the FFC, connect the FFC correctly as the OK state shown in the figure.

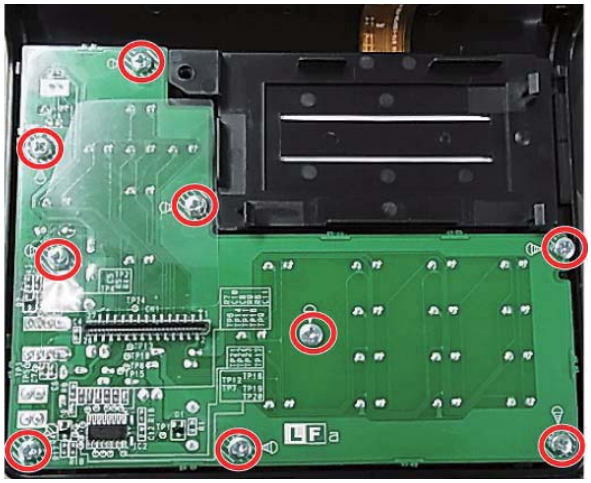


2) Remove the screws and remove the LCD PWB.



(2) KEY-LED PWB

1) Remove the KEY-LED PWB.
2) Remove the screws, remove the protection mylar and KEY-LED PWB.

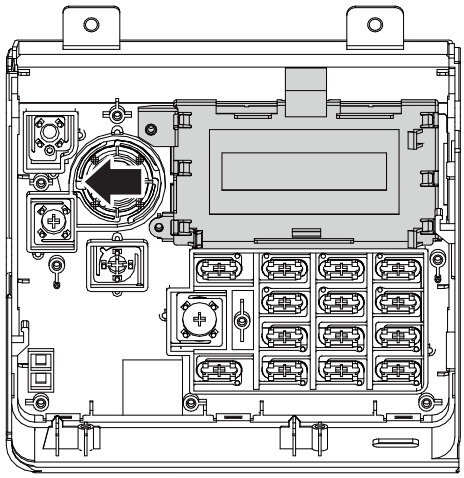


(3) LCD

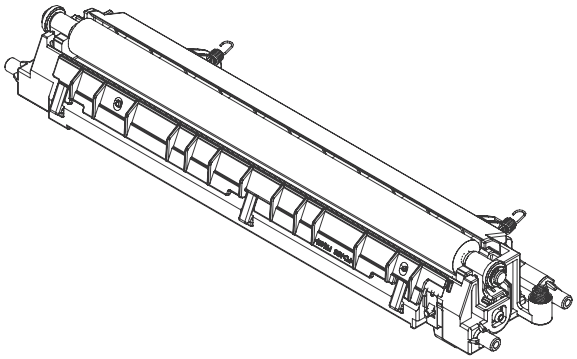
1) Remove the KEY-LED PWB and the LCD PWB.

2) Open the pawls and remove the LCD unit.

NOTE: Use enough care not to put finger prints on the LCD surface.



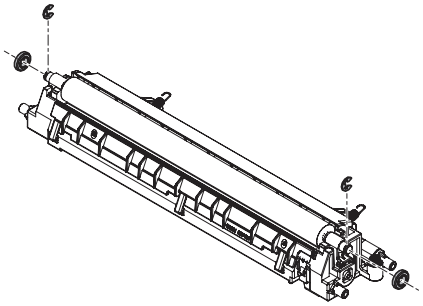
B.Transfer section



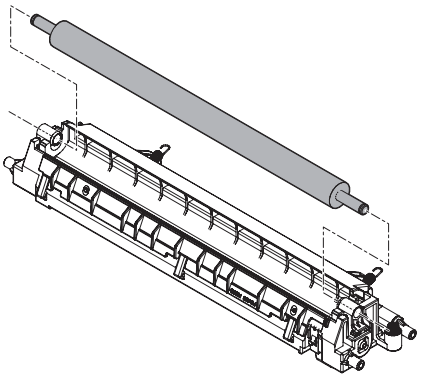
Parts	
1	Secondary transfer roller

(1) Secondary transfer roller

1) Remove the E ring and the roller collar.



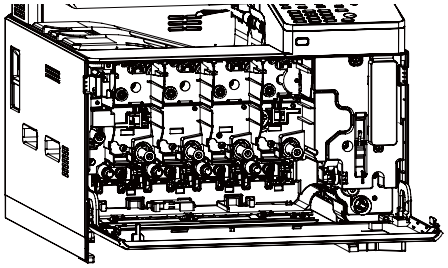
2) Remove the roller shaft, and remove the secondary transfer roller.



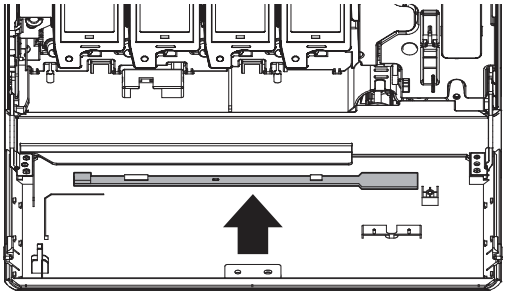
C. LSU section

(1)LSU cleaning stick

Parts	
1	LSU cleaning stick



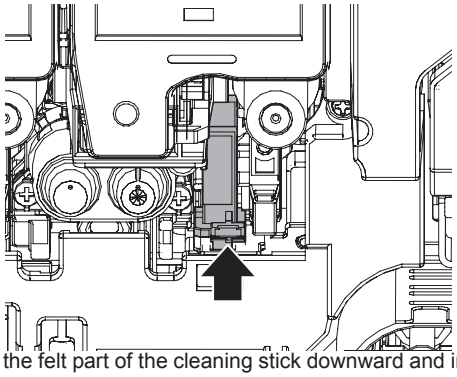
1) Remove the Toner collection container.
2) Remove the cleaning stick from the front cabinet.



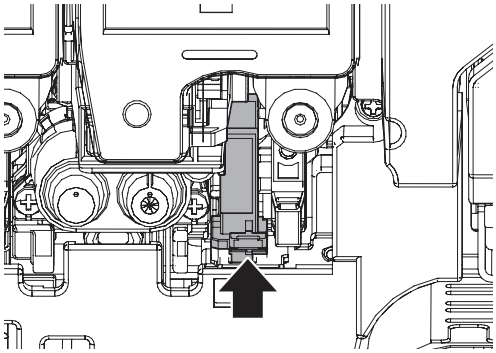
(2)Glass cleaning

Parts	
1	Glass

1) Remove the Toner collection container.
2) Move the lever of the OPC drum unit up.

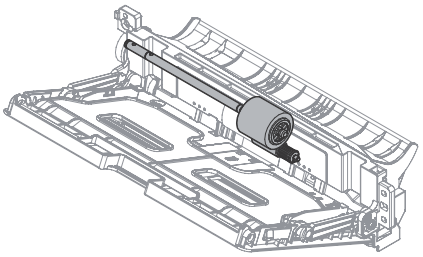


3) Turn the felt part of the cleaning stick downward and insert it to the space shown in the figure. Move the cleaning stick back and forth twice or third and clean the glass of the LSU unit.



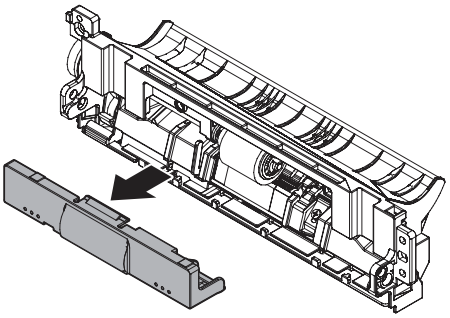
D.Manual paper feed section

Parts	
1	Paper feed roller
2	Separation roller
3	Torque limiter

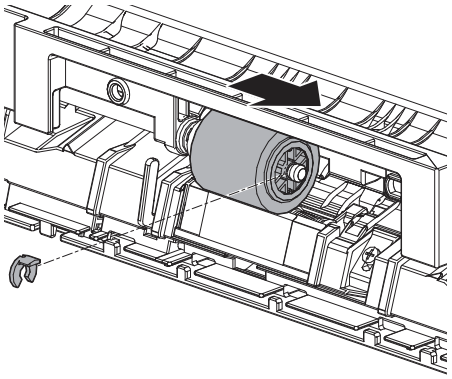


(1) Paper feed roller

1) Remove the maintenance cover.

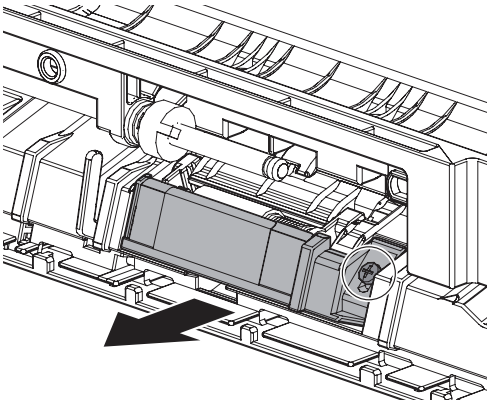


2) Remove the E ring, and remove the paper feed roller.

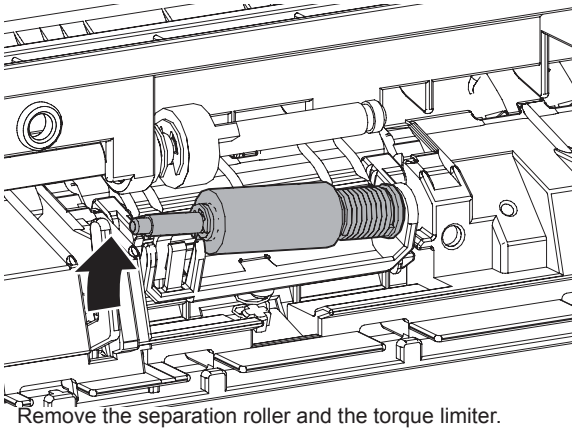


(2) Separation roller, Torque limiter

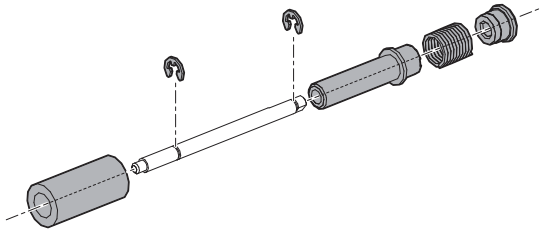
1) Remove the separation roller cover



2) Remove the separation roller assembly.



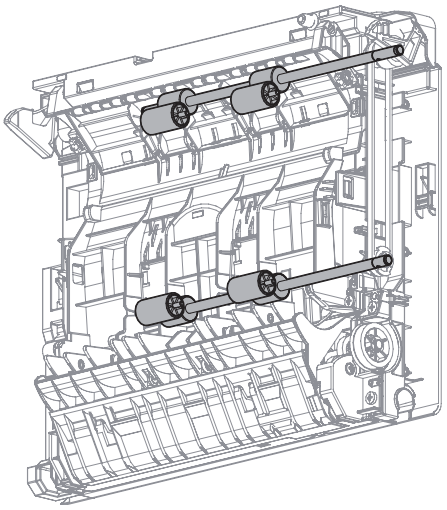
3) Remove the separation roller and the torque limiter.



E.Paper transport/Paper exit/Duplex unit

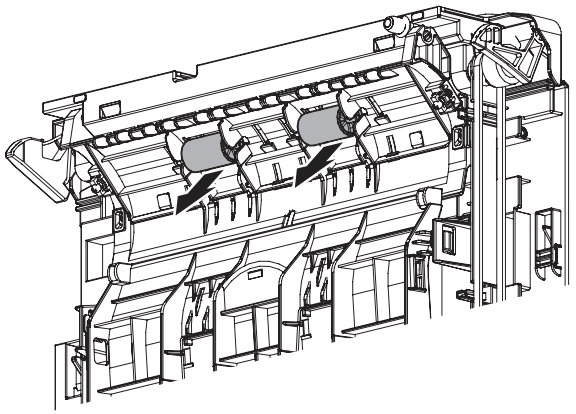
(1) Right door unit

Parts	
1	Transport auxiliary roller 1
2	Transport auxiliary roller 2
3	Right door paper in roller
4	Right door paper out roller

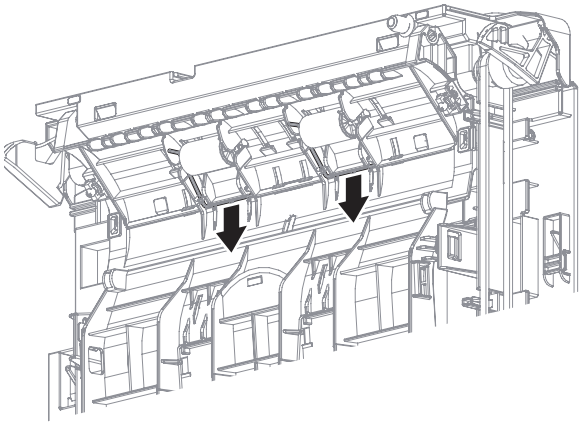


a.Transport auxiliary roller 1

1) Open the right door.
2) Remove the right door auxiliary roller pressure SP.

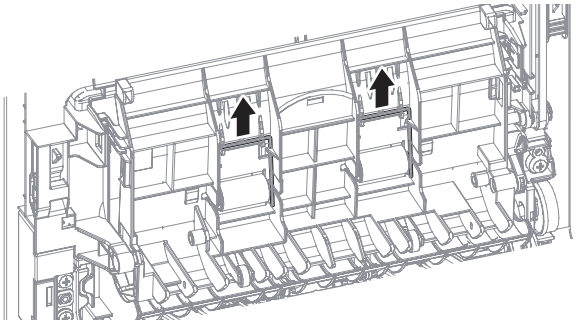


3) Remove the transport auxiliary roller 1 from the shaft.

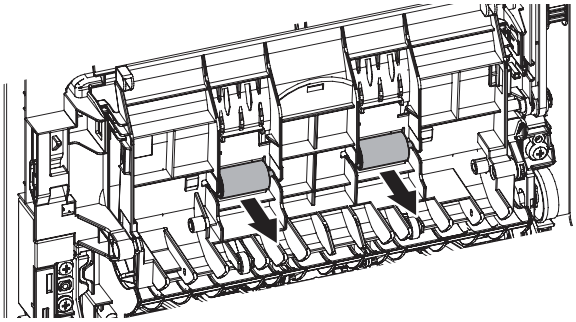


b. Transport auxiliary roller 1

1) Remove the right door.
2) Remove the paper out roller pressure SP.

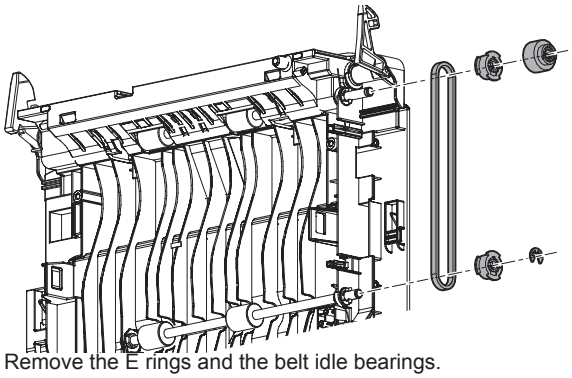


3) Remove the transport auxiliary roller 2 from the shaft.

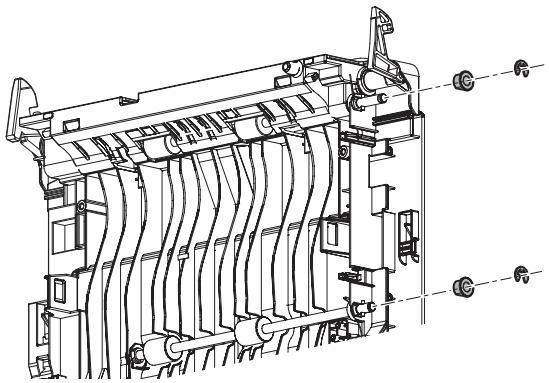


c. Right door paper in roller, Right door paper out roller

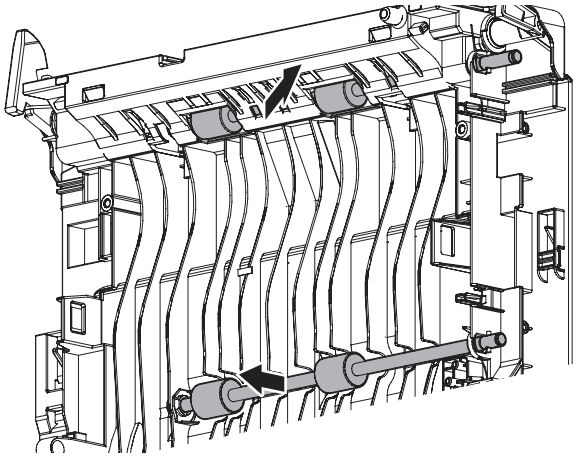
1) Open the right door.
2) Remove the E rings and the 25P pulleys, and remove the belt.



3) Remove the E rings and the belt idle bearings.

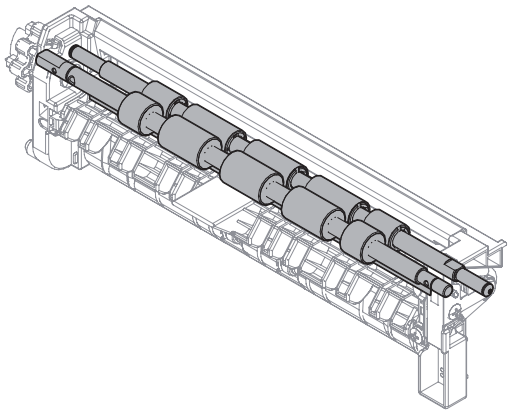


4) Remove the right door paper in roller and the right door paper out roller from the shafts.



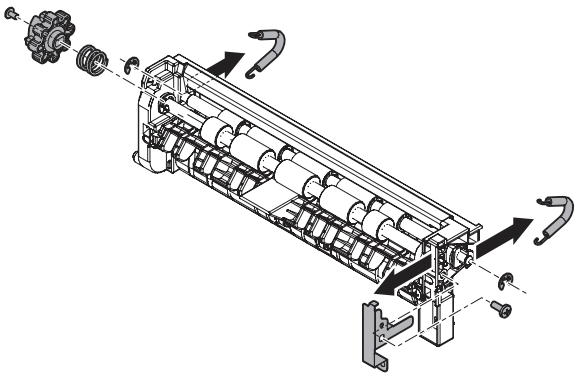
(2) Paper exit unit

Parts	
1	Paper exit auxiliary roller
2	Paper exit roller
3	Discharge brush

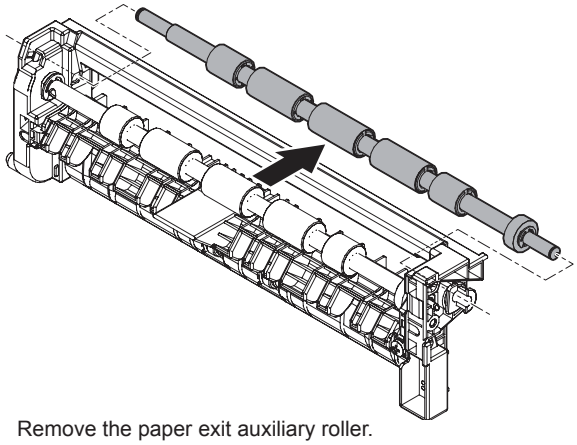


a.Paper exit auxiliary roller

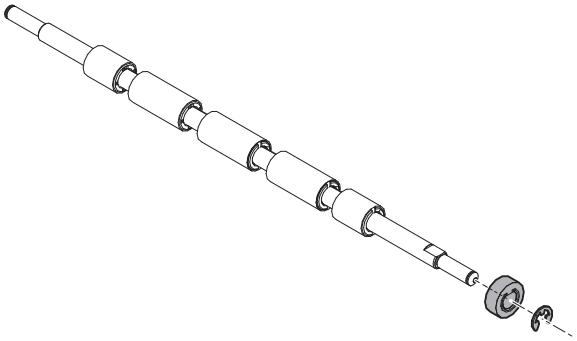
1) Remove the knob, the earth plate, E rings and pressure springs.



2) Remove the paper exit auxiliary roller unit.

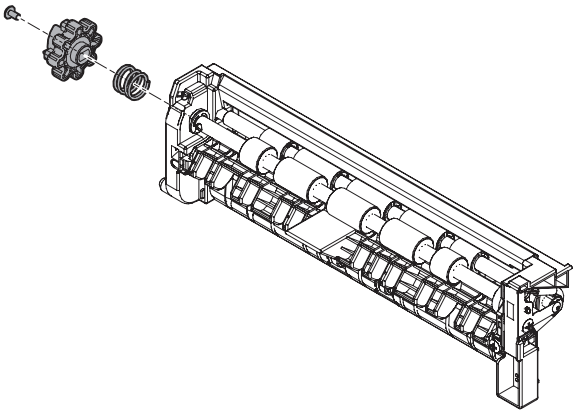


3) Remove the paper exit auxiliary roller.

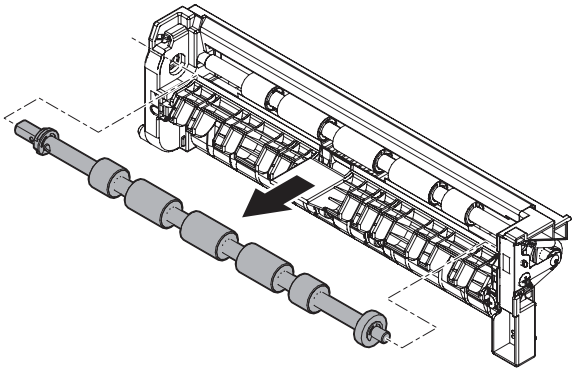


b.Paper exit roller

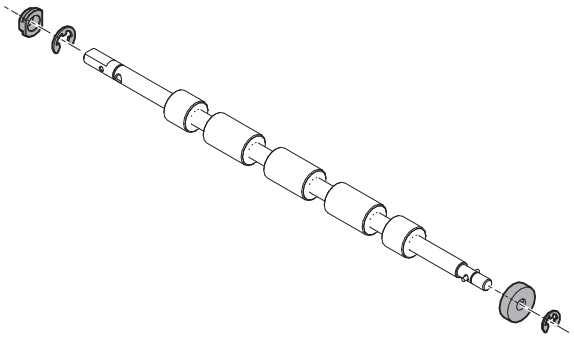
1) Remove the knob.



2) Remove the paper exit gear unit, and remove the paper exit roller unit.



3) Remove the paper exit roller.

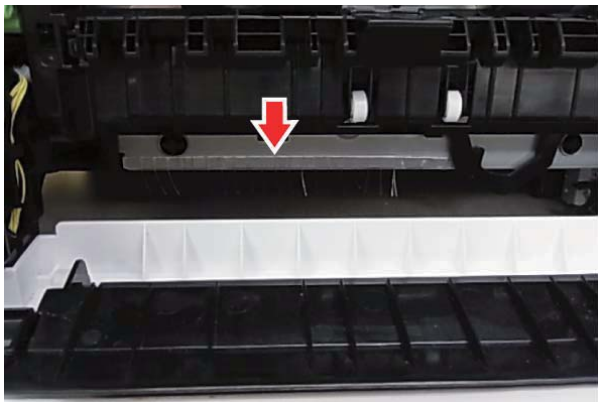


c.Discharge brush

1) Remove the knob.

NOTE: When replacing the discharge brush, put it with aligning the alignment line.

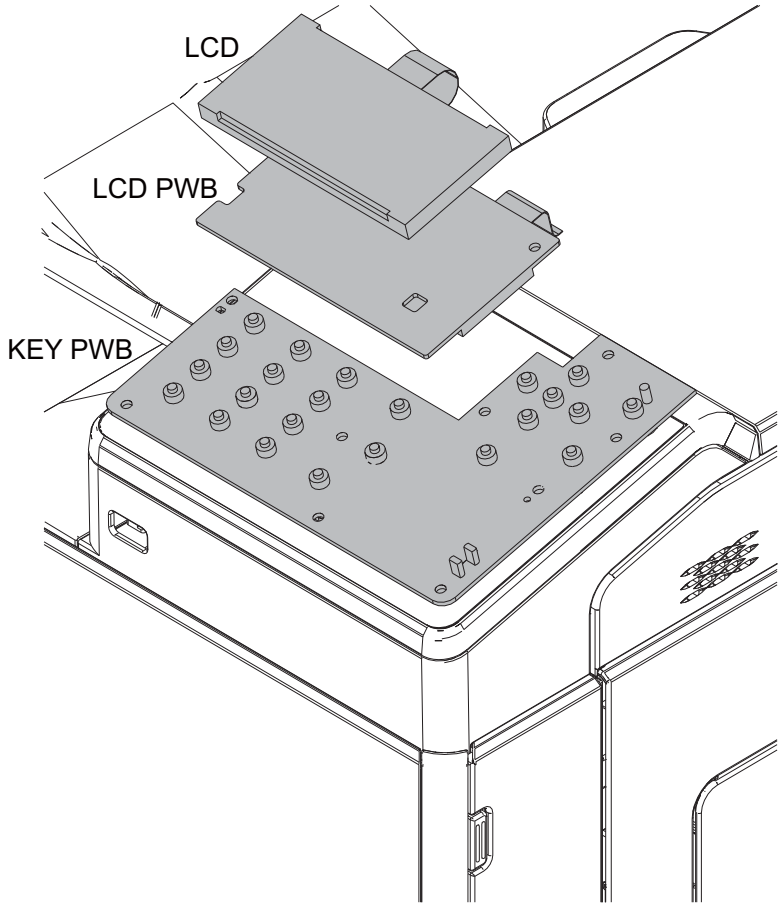
NOTE: When replacing the discharge brush, clean up dirt and adhesive material on the surface of the plate.



[11] OPERATIONAL DESCRIPTIONS

1.Operation panel

A.Electrical and mechanism relation diagram



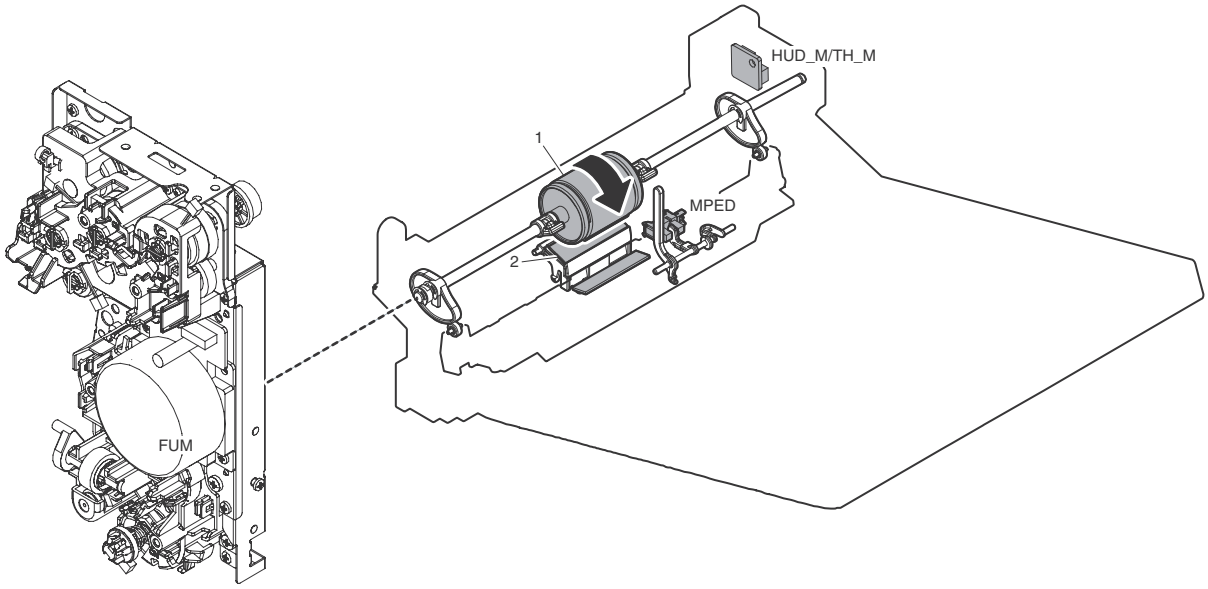
B.Operational descriptions

The operation panel of this model is structured LCD with Back-light, LCD-PWB, KEY-LED PWB and operation keys. Because of the touch panel function is not equipped; the operation is executed by key on the operation panel.

And also, the adjustment of LCD brightness by hardware (volume and so on) is not equipped.

2. Manual paper feed section

A. Electrical and mechanism relation diagram



Signal name	Name	Function and operation
FUM	Fusing drive motor	Drives the fusing unit, the paper feed section and Registration sections.
HUD_M/TH_M	Temperature/humidity sensor	Detects the temperature and the humidity. (For the process control)
MPED	Paper empty detector (Manual paper feed tray)	Detects paper empty. (Manual paper feed tray)

No.	Name	Function and operation
1	Paper feed roller	Feeds paper to the paper transport section.
2	Separation roller	Apply the pressure to the paper feed roller in reverse direction and prevents the paper from feeding it in layered condition.

B. Operational descriptions

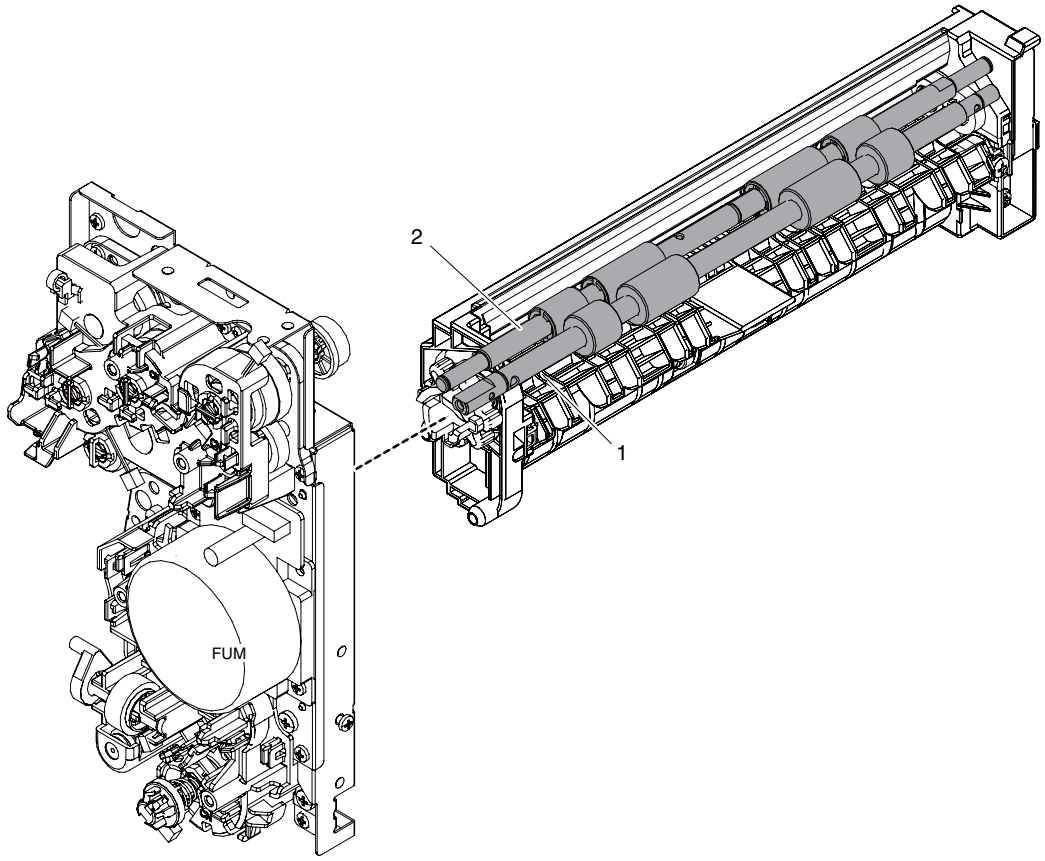
Only the top sheet of paper is fed from the paper stack on the manual bypass tray, the feed roller is pressed against the paper surface and sent to the transport section.

The feed roller transports paper to registration section. Against the paper, by applying a force in the direction opposite to the feed roller from below, separation rollers are prevented double feeding of the paper. On / OFF control of the feed roller is carried out by the Manual Feed Clutch

This model does not have an automatic paper size detection function in Multi-purpose tray.

3. Paper registration section

A. Electrical and mechanism relation diagram



Signal name	Name	Function and operation
FUM	Fusing drive motor	Drives the fusing unit, the paper feed section and Registration sections.

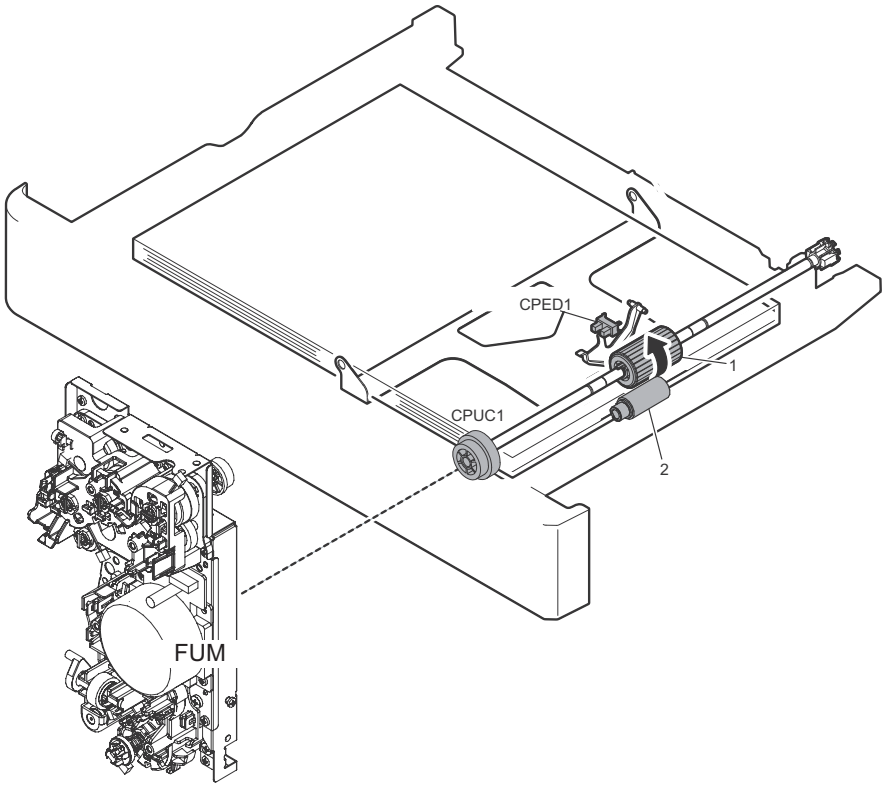
No.	Name	Function and operation
1	Resist roller (Drive)	The Resist Roller (Drive) synchronizes the paper timing to the image on the Transfer Belt. A buckle is created to eliminate any skew in the paper. The paper is then driven to the Transfer section where the image is correctly timed for transfer onto the paper.
2	Resist roller (Idle)	The Resist Roller (Idle) puts pressure on the back side of the paper allowing the Drive roller to move the paper to the transfer section after proper buckle timing has occurred.

B. Operational description

The resist roller set controls the synchronization of the Image on the Transfer Belt to the Timing of the paper making its way to the Primary and Secondary Transfer section. Start stop movement is controlled by the PS Clutch (RRC). Drive for the Registration roller comes from FUM, the Fusing Motor.

4. Paper feed tray section

A. Electrical and mechanism relation diagram



Signal name	Name	Function and operation
FUM	Fusing drive motor	Drives the fusing unit, the paper feed section and Registration sections.
CPUC1	Paper feed clutch (Paper feed tray 1)	ON / OFF control of the rollers (Pick-up roller, feed roller and separation roller) in the paper cassette section are carried out.
CPED1	Paper feed tray 1 paper empty detector	Sensor to detect paper empty in Paper feed tray 1

No.	Name	Function and operation
1	Paper feed roller (Paper feed tray 1)	Paper feed roller feeds the top piece of paper in the cassette to the registration roller set in the machine.
2	Paper separation roller (Paper feed tray 1)	By applying a force in the direction opposite to the feed roller, to prevent double feeding of paper in paper feeding.

B. Paper lifting operation

This model feeds paper from the top of the paper stack in the feed tray. The paper lift plate lifts the paper stack to the feed roller by way of a spring under the plate. A constant pressure of the top sheet of paper to the feed roller is maintained through use of this mechanism. This model also incorporates a paper empty detection sensor but does not have a paper remaining detection mechanism.

C. Paper size detection operation

This model does not have a function to detect the paper size in the cassette.

The paper size in the cassette is changed on operation panel.

D. Paper pick up operation

The fusing drive motor (FUM) is turned ON, and then the paper feed clutch (CPUC1) is turned ON.

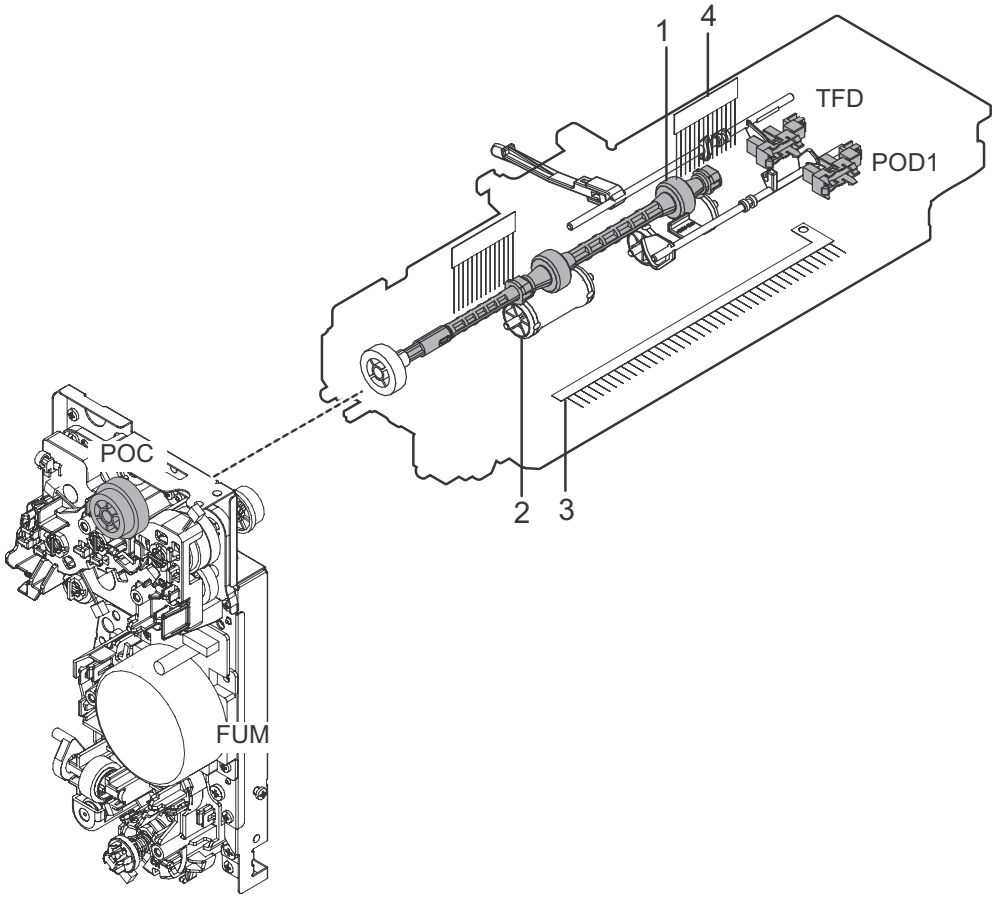
The power of fusing drive motor (FUM) is transmitted through the paper feed clutch (CPUC1) to the paper transport roller and the paper feed roller.

The paper feed roller feeds paper to the paper transport section. At that time, the separation roller rotates to prevent double-feed.

To prevent a double feeding, the separation roller apply counter force to the paper from bottom side.

5. Paper exit section

A. Electrical and mechanism relation diagram



Signal name	Name	Function and operation
FUM	Fusing drive motor	Drives the fusing unit, the paper feed section and Registration sections.
POD1	Paper exit detector 1	Detects paper pass in the paper exit section. Detects a paper jam.
POC	Paper exit clutch	Controls the drive timing of paper exit roller (drive).
POD2	Paper exit detector 2	Detects paper pass in the paper exit section. Detects a paper jam.
TFD	Paper exit tray full detector	Detects paper full in the paper exit tray.

No.	Name	Function and operation
1	Paper exit roller (drive)	To exit paper onto the exit tray and perform switch back operations when in duplex mode.
2	Paper exit roller (idle)	To apply pressure to a paper with the paper exit roller (Drive), to give a feeding force of the exit roller to a paper.
3	Discharge Brush1	To discharge static generated in the fuser section.
4	Discharge Brush2	To discharge static generated in the paper exit section.

B. Paper exit operation

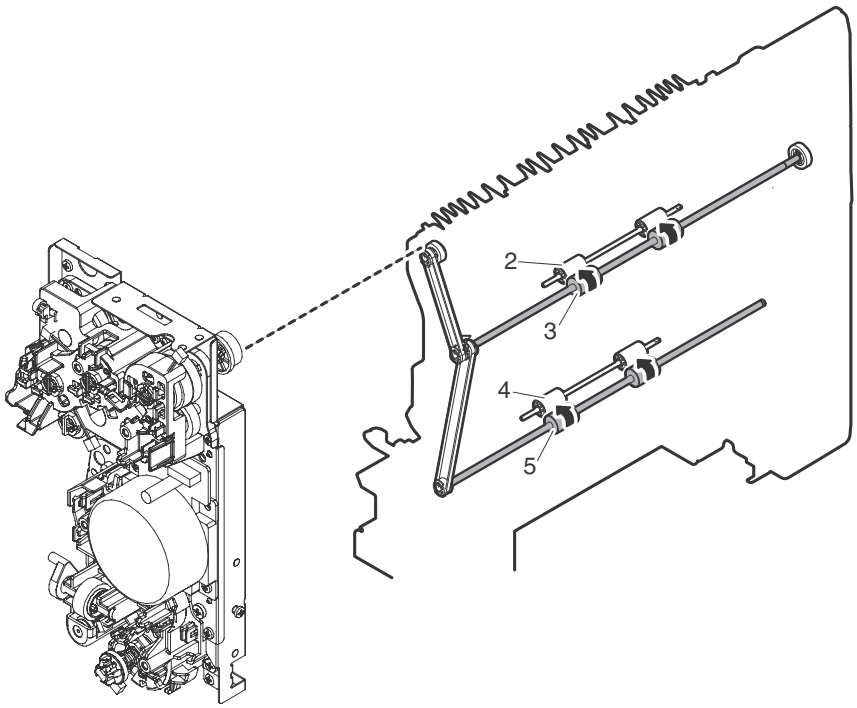
The fuser motor drives the paper exit clutch which drives the paper exit roller. The paper exit roller along with pressure from the paper exit idle rollers drive the paper into the paper exit tray.

C. Switchback operation

In duplex mode, POD1 detects the lead edge of the paper from the fuser section. After a specific amount of time, dependant on paper size, the paper exit clutch is turned off and the paper exit reverse clutch is turned on reversing the direction of the paper into the duplex paper path for transfer of image onto side two of the paper.

6. Duplex section

A. Electrical and mechanism relation diagram



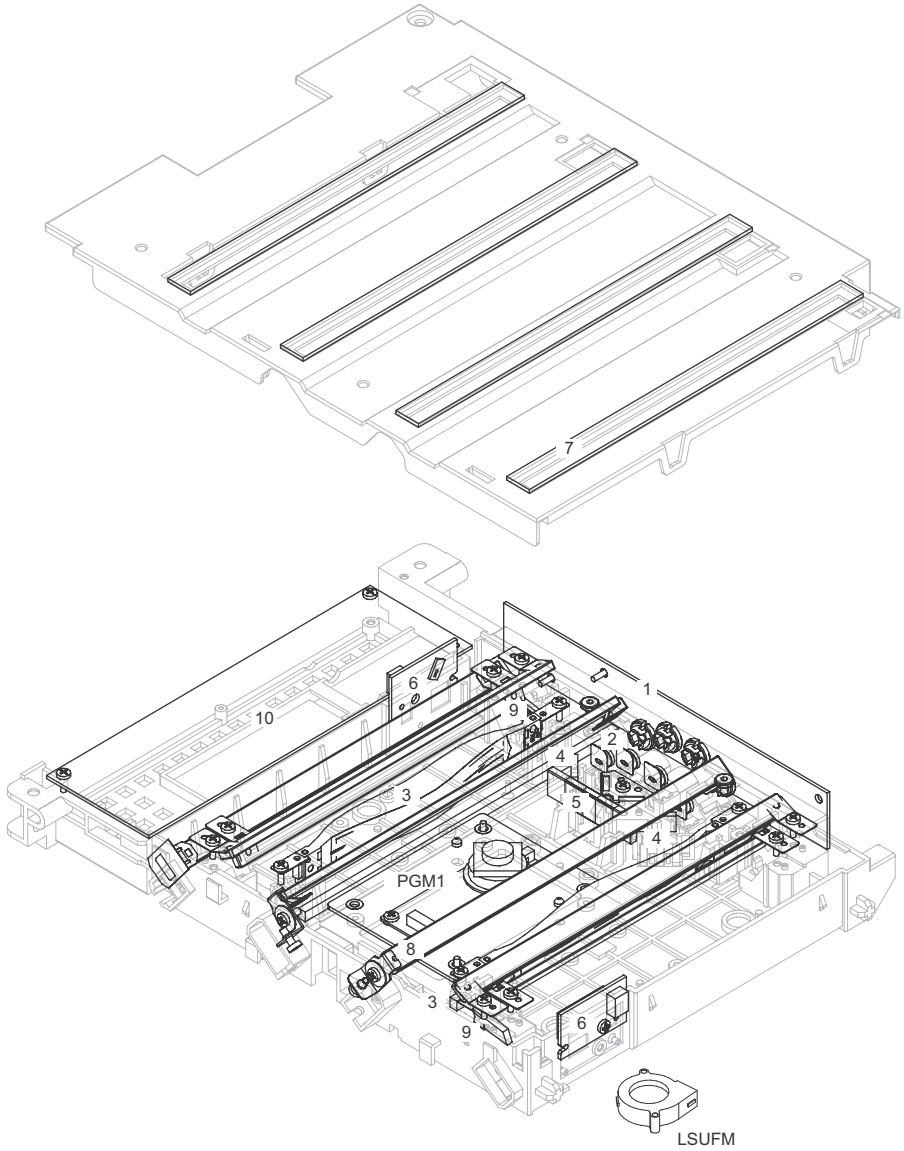
No.	Name	Function and operation
1	ADU gate guide	The paper which comes from fuser section passes the underside of ADU gate guide, and goes to the paper exit section. The switch back paper coming from the exit section is passed over the ADU Guide which drops by gravity.
2	Paper feed roller (Idle)	Applies pressure to the back of the paper for drive to the Lower Duplex Transport Rollers
3	Paper feed roller (Drive)	Drive Roller in upper Duplex section that transports paper to the Lower transport rollers in the Duplex Section.
4	Paper feed roller (Idle)	Applies pressure to the back of the paper for drive to the Registration Rollers.
5	Paper feed roller (Drive)	Drive roller to transport paper to the Registration Rollers.

B. Operational description

The paper which comes from fuser section passes the underside of ADU gate guide, and goes to the paper exit section. The switched back paper which comes from paper exit section is passed above the paper guide, and goes to ADU section. The ADU drive rollers are driven by the Fuser motor transporting the paper to the registration section

7. LSU section

A. Electrical and mechanism relation diagram



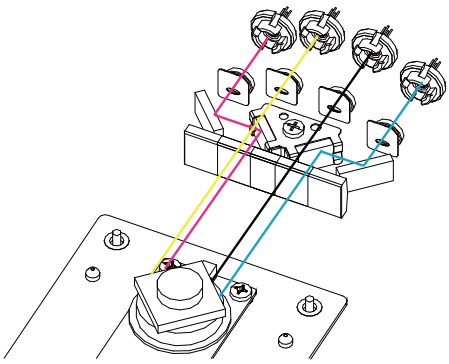
Signal name	Name	Function and operation
LSUFM	LSU fan	Cools the LSU PWB section.
PGM 1	Polygon motor	Rotates at a constant speed to scan laser beams. The polygon mirror motor rotates at a constant speed having four mirrored sides to reflect two lase beams per color.

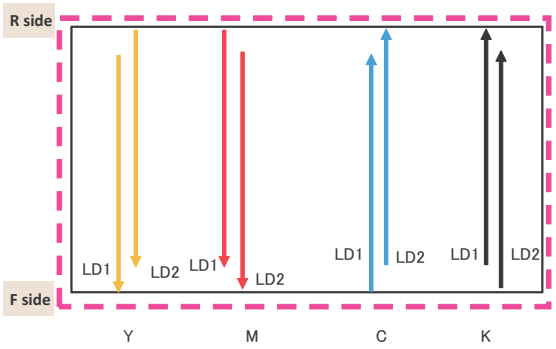
No.	Name	Function and operation
1	LD PWB	To convert to a laser beam switching data sent from the LSU-PWB. And controlling a laser emission and laser power.
2	Collimator lens	Focuses laser beams.
3	fϕ lens	To equalize main scanning direction laser beam dots distance. (To make laser dot distance of an end and the central part of the OPC drum the same). In addition, to condense a laser beam to BD (beam detector).
4	Mirror	Reflects laser beams to the OPC drum.
5	Incident cylindrical lens	Focuses laser beams.
6	BD PWB	To detect the laser scan timing. (Beam Detection)
7	Filter glass	Prevents dust and toner from entering inside the LSU cavity.
8	Laser skew adjustment plate	Adjusts laser skew in the main scanning direction for the OPC drum.
9	BD mirror	Guides laser beams to the BD (Beam Detector).
10	LSUcnt PWB	To covert the image data sent from MFPC-PWB to switching data and transfer it to LD-PWB.

B. Laser scan operation

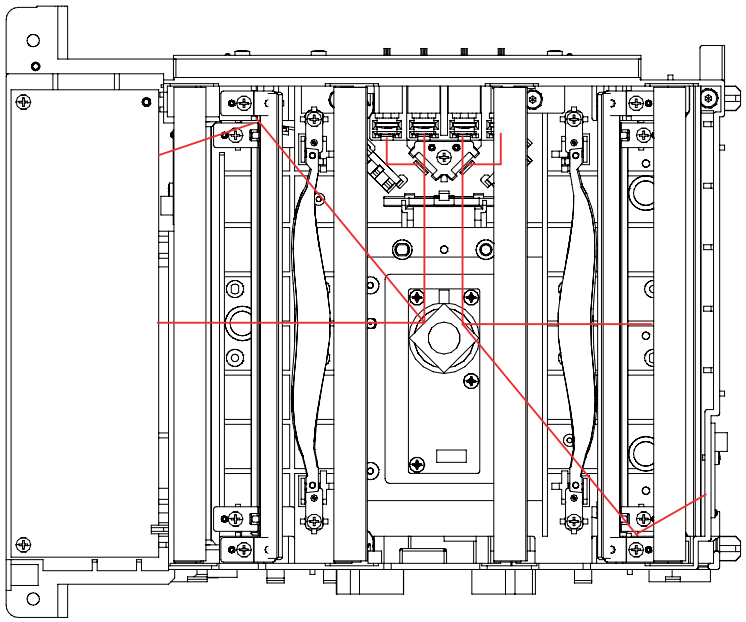
The image data which sent from MFPC-PWB is converted to switching data in ASIC on LSU-PWB. After this, the switching data is changed to laser beam at LD-PWB. Its laser-beam makes electrostatic latent image on the OPC drum.

This model adopts 2-laser beam type.

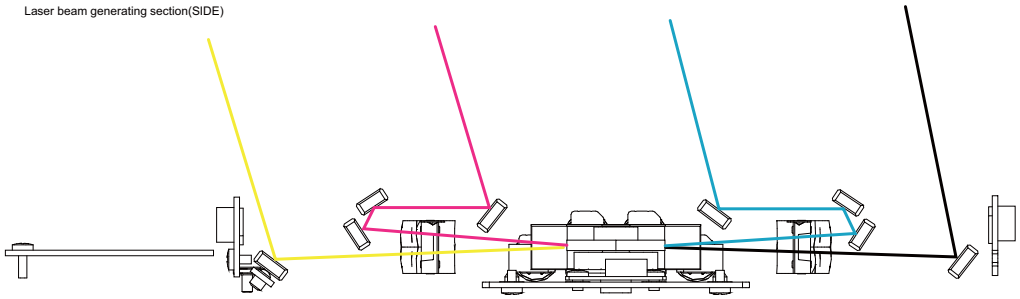




Laser beam generating section(TOP)



Laser beam generating section(SIDE)

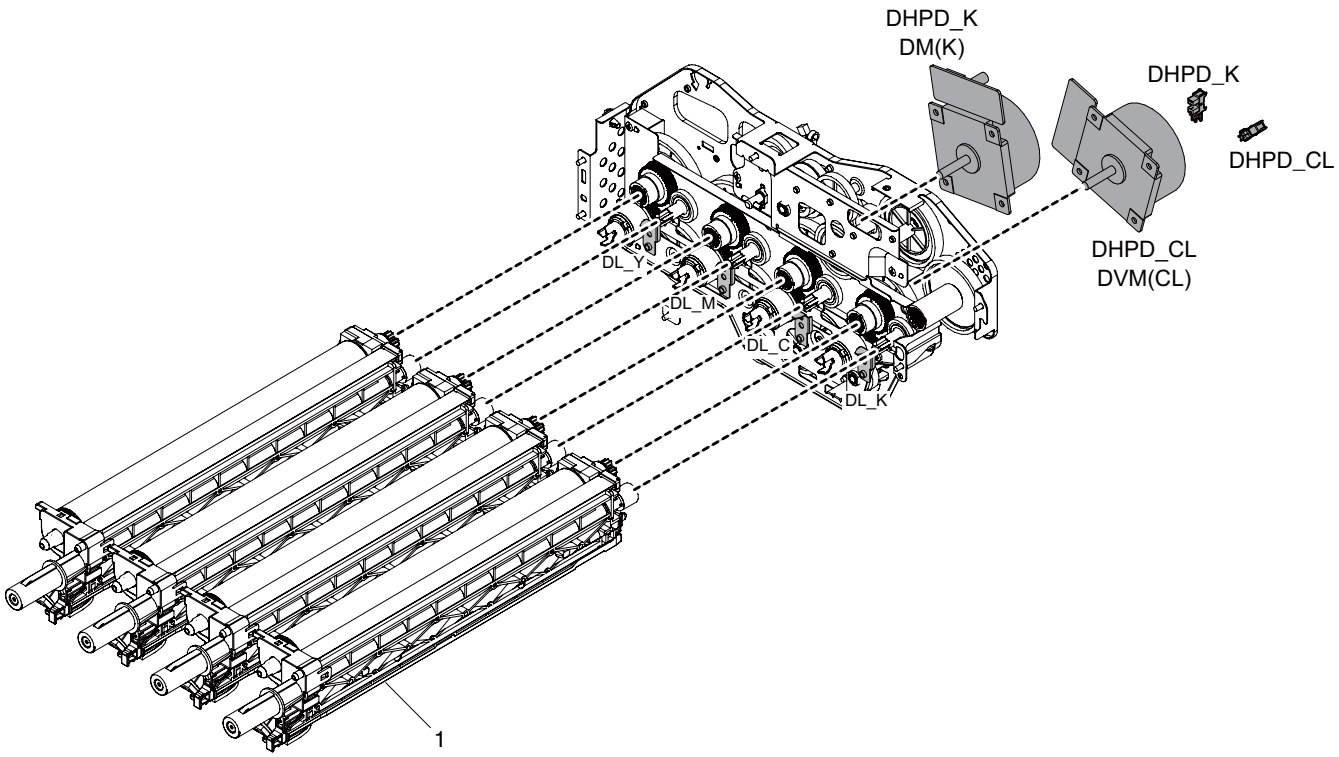


C. LSU specifications

Effective scan width	220mm
Resolution	600dpi
Beam diameter	Main / Sub scan = 50 - 80μm
Laser power	Max. 0.3mw
LD wavelength	780 - 800nm
Number of mirrors	4 surfaces
Rotation speed	32776rpm
2beam/color x4 colors	

8. OPC drum section

A. Electrical and mechanism relation diagram



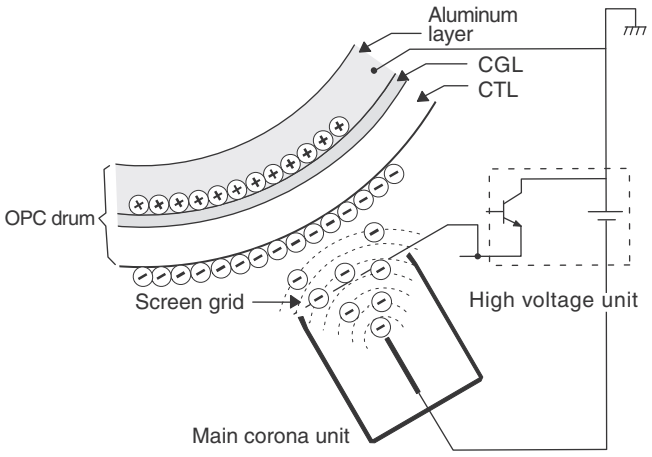
Signal name	Name	Function/Operation
DHPD_CL	OPC drum rotation sensor (CL)	Detects rotation and the phase of the OPC drum (CL).
DHPD_K	OPC drum rotation sensor (BK)	Detects rotation and the phase of the OPC drum (BK).
DL_BK	Discharge lamp (K)	Discharges electric charges on the OPC drum (K).
DL_C	Discharge lamp (C)	Discharges electric charges on the OPC drum (C).
DL_M	Discharge lamp (M)	Discharges electric charges on the OPC drum (M).
DL_Y	Discharge lamp (Y)	Discharges electric charges on the OPC drum (Y).
DVM	Developing motor (CL)	Drives the developing/OPC drum section (CL).
DM	Developing motor (K)	Drives the developing/black OPC drum (BK)/transfer section.
MC-CL	Main charger applying voltage (CL)	The main charger is charged to generate negative electric charges.
MC-K	Main charger applying voltage (K)	

No.	Name	Function/Operation
1	OPC drum unit (Y, M, C, K)	Latent electrostatic images are formed.

B. Operational descriptions

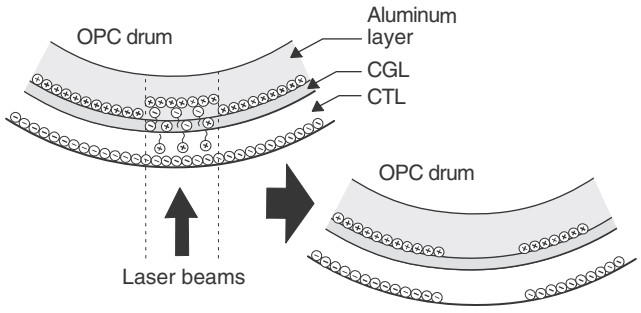
The OPC drum surface is negatively charged by the main charger, then laser image beams are radiated to the OPC drum surface by the laser (writing) unit to form electrostatic latent images.

1) The OPC drum surface is negatively charged by the main charger.



The main charger grid is provided with the screen grid. The OPC drum is charged at a voltage virtually same as the voltage applied to the screen grid.

2) Laser beams are radiated to the OPC drum surface by the laser (writing) unit to form electrostatic latent images.



When laser beams are radiated onto the CGL of the OPC drum, positive and negative charges are generated.

Positive charges generated in CGL are attracted to the negative charges on the OPC drum surface. On the other hand, negative charges are attracted to positive charges in the aluminum layer of the OPC drum.

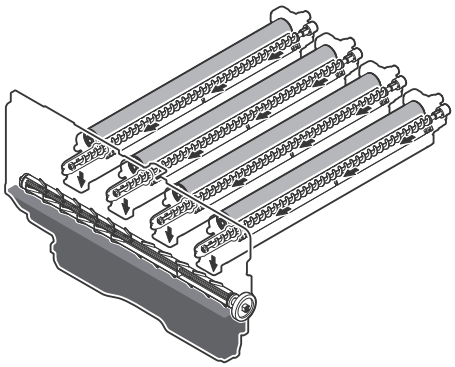
Therefore, positive charges and negative charges are balanced out on the OPC drum and in the aluminum layer, reducing positive and negative charges to decrease the OPC drum surface voltage.

Electric charges remain at a position where laser beam are not radiated.

As a result, latent electrostatic images are formed on the OPC drum surface.

3) After transfer operation, remaining toner is removed by the cleaning blade.

Toner removed from the OPC drum surface is transported to the waste toner section by the waste toner transport screw.



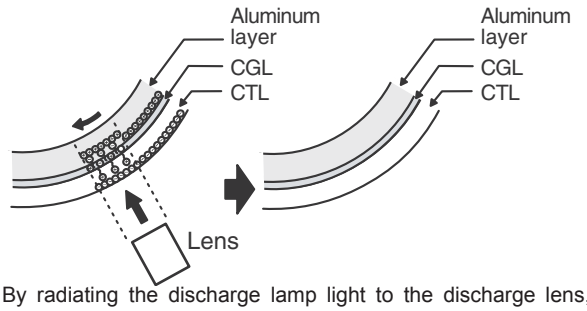
OPC drum rotation control

The OPC drum (K) is driven by the DV motor (DVM_K), and the rotation speed is monitored by the OPC drum rotation sensor (DHPD_K).

The color OPC drums (C, M, and Y) are driven by the DV motor (DVM_CL), and the rotation speed is monitored by the OPC drum rotation sensor (DHPD_CL).

Based on the signals monitored by the two sensors, the rotation speeds of K OPC drum and the color OPC drums and the rotation phase are controlled.

4) The whole surface of the OPC drum is discharged.

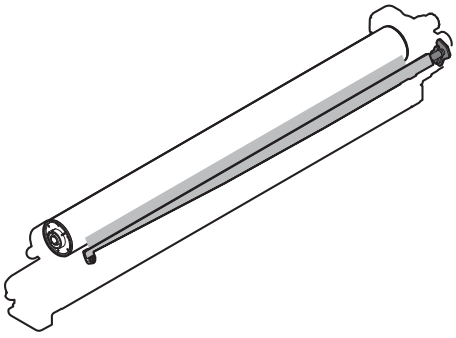


By radiating the discharge lamp light to the discharge lens, light is radiated through the lens to the OPC drum surface.

When the discharge lamp light is radiated to the OPC drum CGL, positive and negative charges are generated.

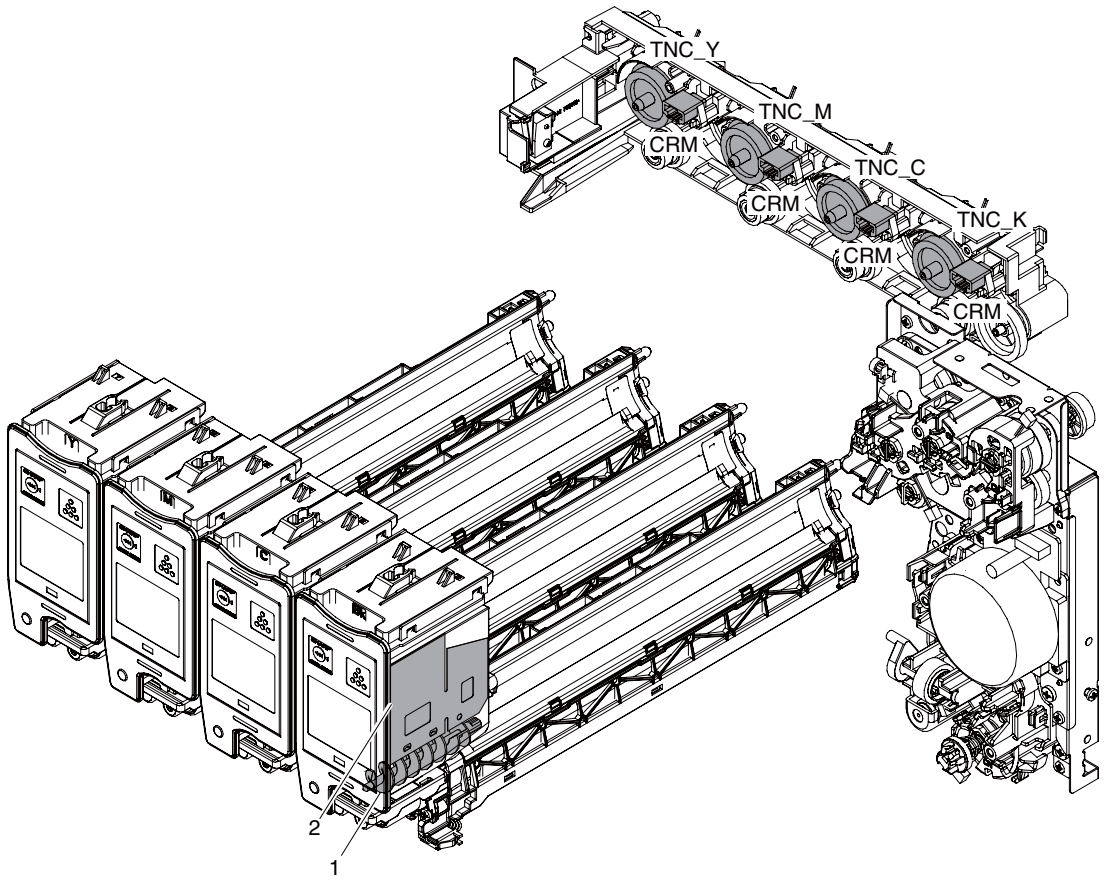
Positive charges generated in CGL are attracted to the negative charges on the OPC drum surface. On the other hand, negative charges are attracted to positive charges in the aluminum layer of the OPC drum.

Therefore, positive and negative charges are balanced out on the OPC drum surface and in the aluminum layer, reducing positive and negative charged to decrease the surface voltage of the OPC drum.



9. Toner supply section

A.Electrical and mechanism relation diagram



Signal name	Name	Function and operation
CRM (Y,M,C,K)	Crum	Stores data related to control of the toner cartridge. Detects a new toner cartridge.
TNC Y(Y)	Toner clutch (Y)	Drives the toner transport screw in the toner cartridge to supply toner (Y) to the developer cartridge.
TNC M(M)	Toner clutch (M)	Drives the toner transport screw in the toner cartridge to supply toner (M) to the developer cartridge.
TNC C(C)	Toner clutch (C)	Drives the toner transport screw in the toner cartridge to supply toner (C) to the developer cartridge.
TNC K(K)	Toner clutch (K)	Drives the toner transport screw in the toner cartridge to supply toner (K) to the developer cartridge.

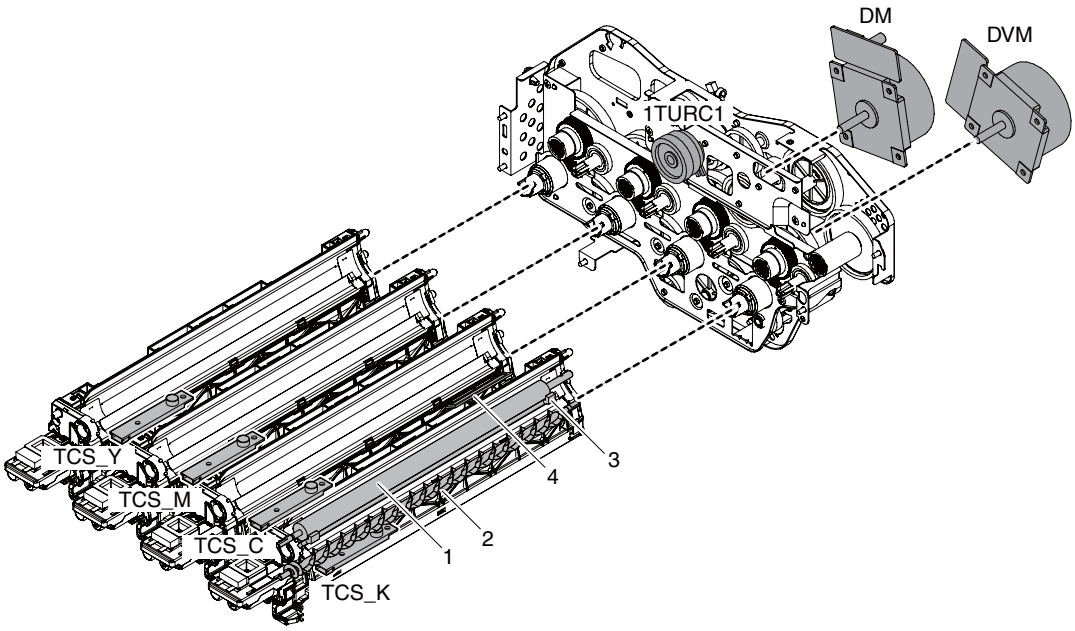
No.	Name	Function and operation
1	Toner transport screw	Transports toner in the toner cartridge.
2	Toner mixing sheet	Mixes toner in the toner cartridge.

B.Operational descriptions

This model is judging the toner supplying based on the print pixel counts and process control data.
When toner density is judged low, the toner clutch is activated supplying toner, by an auger, from the toner cartridge to the developer unit

10. Developing section

A. Electrical and mechanism relation diagram

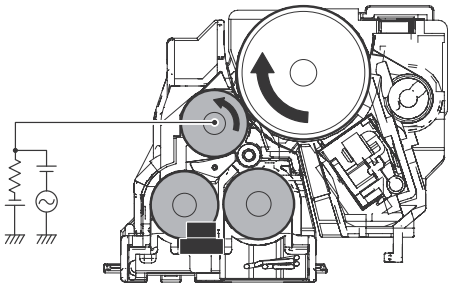


Signal name	Name	Function and operation
1TURC_1	Primary transfer separation clutch 1	Controls separation of the primary transfer unit
BS (K, M, C, Y)	Developing bias voltage (K, M, C, Y)	Voltage to form toner images on the OPC drum. Controls the developing density
DVM	Developing motor (CL)	Drives the developing/OPC drum section (CL).
DM	Developing motor (K)	Drives the developing/black OPC drum (BK)/transfer section.
TCS_C	Toner sensor (C)	Detects toner supply from the toner cartridge. Detects toner density only during Simulation 25-2 Developer Concentration setting (C).
TCS_K	Toner sensor (K)	Detects toner supply from the toner cartridge. Detects toner density only during Simulation 25-2 Developer Concentration setting (K).
TCS_M	Toner sensor (M)	Detects toner supply from the toner cartridge. Detects toner density only during Simulation 25-2 Developer Concentration setting (M).
TCS_Y	Toner sensor (Y)	Detects toner supply from the toner cartridge. Detects toner density only during Simulation 25-2 Developer Concentration setting (Y).

No.	Name	Function and operation
1	Developing roller	Converts electrostatic latent images on the OPC drum into visible images.
2	Mixing roller	Mixes and charges developer and toner.
3	Doctor	Maintains the quantities of toner and developer on the DV roller at constant crush height.
4	Toner filter (K, M, C, Y)	Prevents toner splash and vacuum.

B. Developing operations

Electrostatic latent images formed on the OPC drum surface by the laser (writing) unit (laser image beams) are converted into visible images by toner.



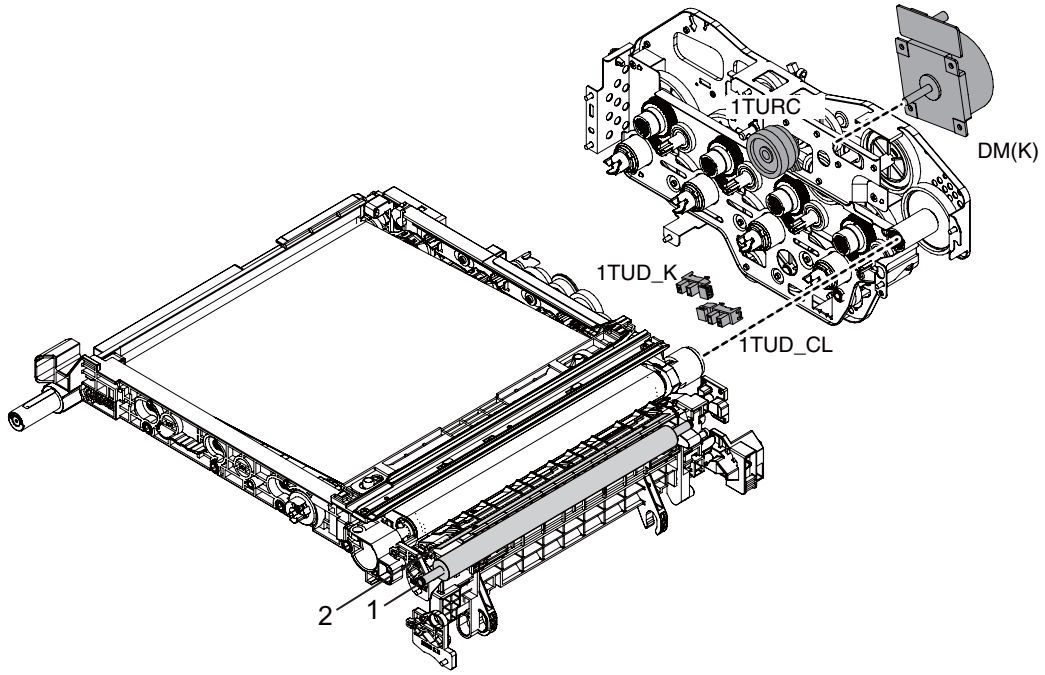
By stirring, toner and carrier are negatively charged by mechanical friction and chemical reaction.

The developing bias voltage (AC component and negative DC component) is applied to the developing roller.

Negatively charged toner is attracted to the exposed section on the OPC drum where the negative potential falls due to a higher developing bias. If the OPC drum is not exposed, the negative potential is higher than the developing bias voltage, and toner is not attracted. The toner sensor detects the toner supply state from the toner cartridge. In this machine, the toner density is detected by the toner sensor, but the toner supply operation is not controlled only by the toner density detection result. The toner density control is performed according to the process control data.

11. Transfer section

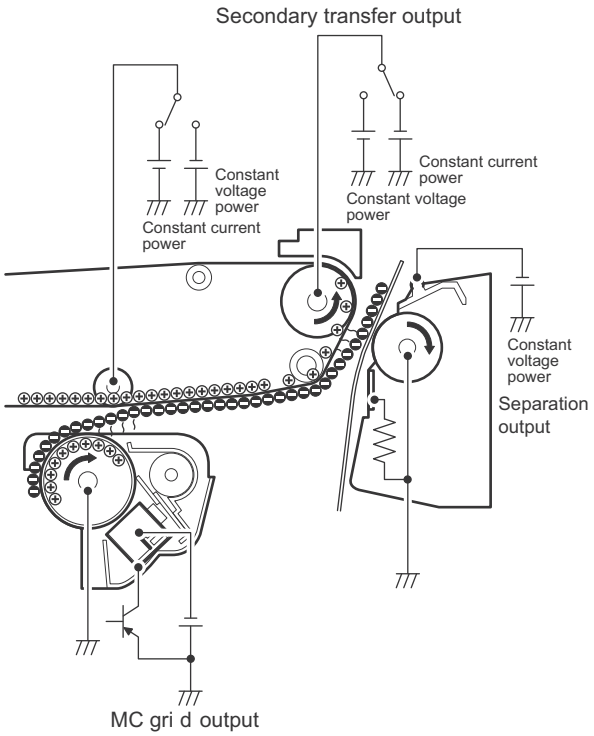
A. Electrical and mechanism relation diagram



Signal name	Name	Function and operation
1TUD_K	Primary transfer belt position sensor (BK)	Detects the primary transfer belt position (BK) in combination with the 1TUD_K output.
1TUD_CL	Primary transfer belt position sensor (CL)	Detects the primary transfer belt position (CL) in combination with the 1TUD_CL output.
1TURCd	Primary transfer mode select clutch	Transports the developing motor (K) power to the primary transfer mode select cam to select the primary transfer mode. (The primary transfer mode select cam is rotated counterclockwise.)
2TC	Secondary transfer output	Secondary transfer high voltage output
DM	Developing drive motor (K)	Drives the developing/black OPC drum (BK)/transfer section.

No.	Name	Function and operation
1	Secondary transfer roller	Transfers toner images on the transfer belt to paper. Connected to GND to flow the secondary transfer high current.
2	Paper separation electrode	Applies a high negative voltage to discharge paper which is positively charged after transfer operation.

B. Transfer operation

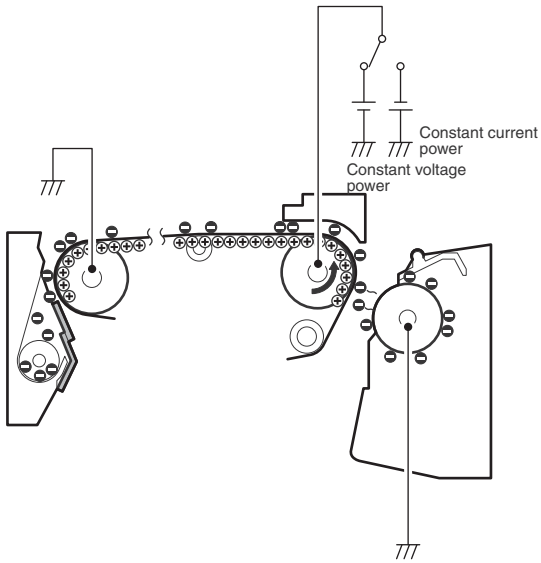


Toner images on the OPC drum are transferred onto the primary transfer belt by applying a high positive voltage to the primary transfer roller.

Then, a high transfer voltage is applied to the transfer belt drive roller to transfer toner imaged on paper. The secondary transfer roller is connected to GND to flow the secondary transfer current.

C. Secondary transfer roller cleaning operation

A high positive voltage is applied to the primary transfer belt drive roller to attach unnecessary toner of the primary transfer roller onto the transfer belt. The toner is cleaned with the transfer belt cleaning blade and transported to the waste toner section.



D. Transfer belt mode switch operation

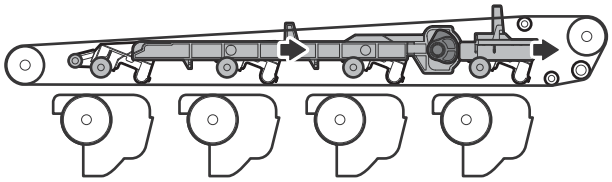
The transfer belt is in the three modes: the free position, the color print mode, and the monochrome print mode.

Free position: The OPC drums are separated from the transfer belt.

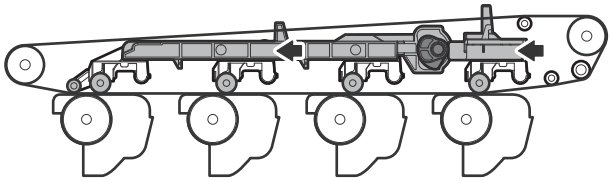
Color print mode: All the OPC drums are in close contact with the transfer belt.

Monochrome print mode: The K OPC drum is in close contact with the transfer belt.

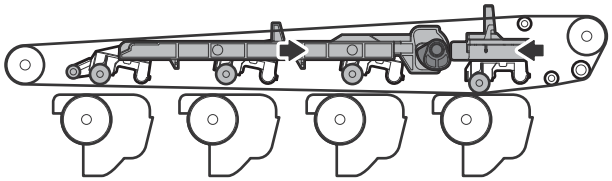
The mode is switched by the developing motor (K) and the mode switch clutches (1TURC 1, 1TURC 2). When the roller separation clutch (1TURC) is turned ON, the transfer cam is rotated to shift the primary transfer link and the primary transfer arm in the arrow direction in conjunction with the cam, separating the roller.



Free position



Color print mode



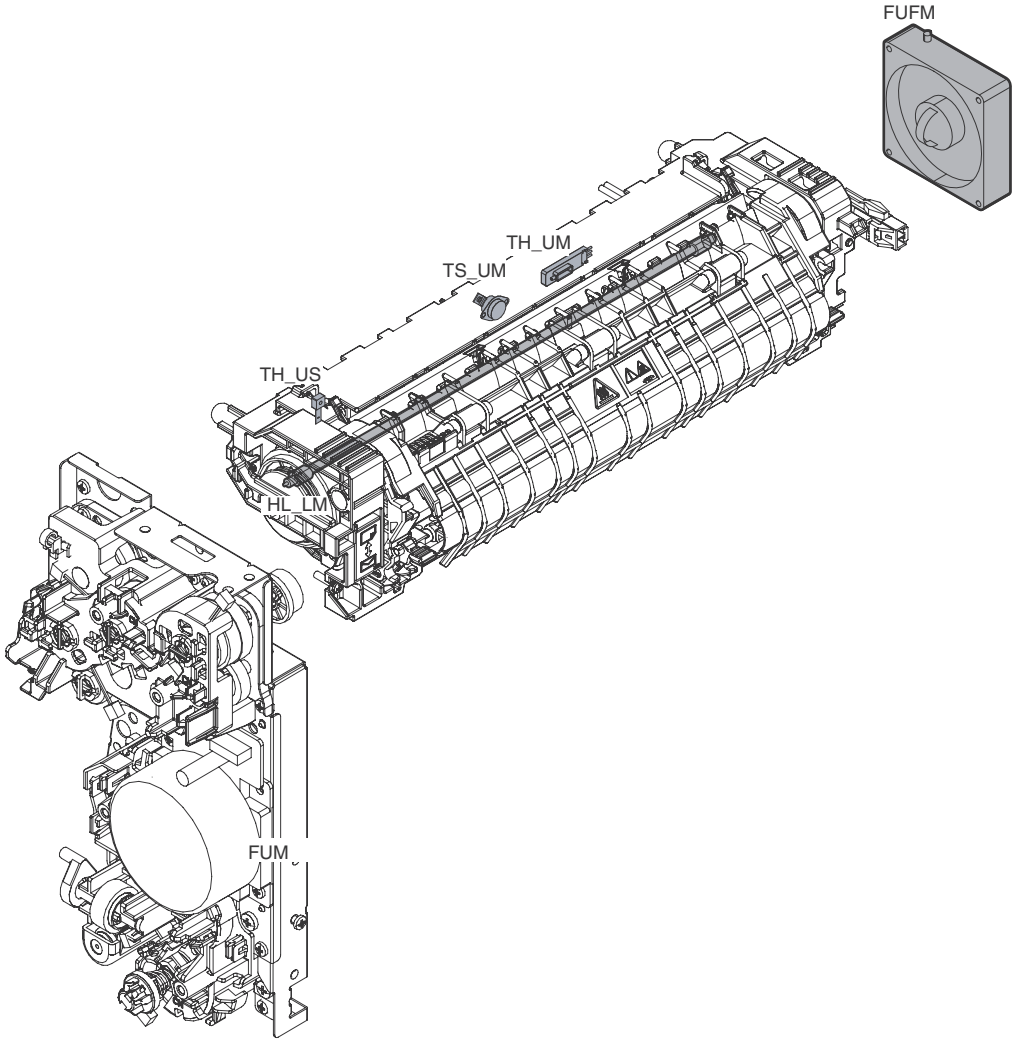
Monochrome print mode

Relationship between the transfer belt mode (state) and the transfer belt mode sensor

Mode (State)	Sensor state	
	1TUD CL	1TUD K
Color print mode: All the OPC drums are in close contact with the transfer belt.	OFF	ON
Free position: All the OPC drums are separated from the transfer belt.	ON	OFF
Monochrome print mode: Only the K OPC drum is in close contact with the transfer belt.	ON	ON

12. Fusing section

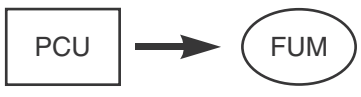
A. Electrical and mechanism relation diagram



Signal name	Name	Function and operation
FUFM	Fusing cooling fan motor	Cools the fusing unit.
FUM	Fusing drive motor	Drives the fusing unit.
HL_LM	Heater lamp (HL\LM)	Heats the fuser heat roller.
TH_UM	Thermistor UM	Regulates Heat Roller Temperature at center of the Heat Roller.
TH_US	Thermistor US	Regulates Heat Roller Temperature at the end of the Heat Roller.
TS_UM	Thermostat UM	Fusing roller overheat protection. Cuts off power supply to heat lamp when over heat condition is determined.

B. Fusing unit drive

The driving of fuser unit is; the driving force is transported to fuser roller, thru the fuser motor (FUM) and connection gears, based on the controlling signal from PCU.



C. Heater lamp drive

The temperature on the fuser roller which detected by fuser thermistor is transferred to PCU.

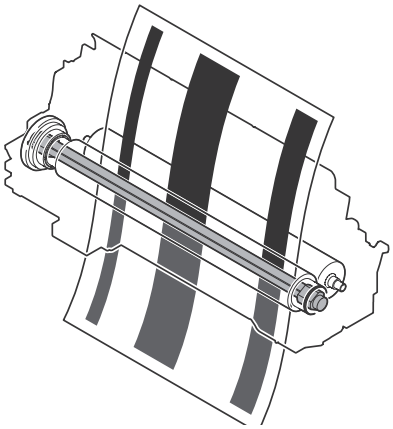
If above temperature is low than predetermined one, PCU sends the heater lamp signal to the heater lamp drive circuit in HL-PWB. The power triac in heater lamp drive circuit is turned ON, then AC-power is supplied to heater lamp. Finally the heater lamp is turned ON and fuser roller (heat roller) is heated up. If above temperature is higher than predetermined one, PCU stops send the heater lamp signal to the heater lamp drive circuit in HL-PWB.

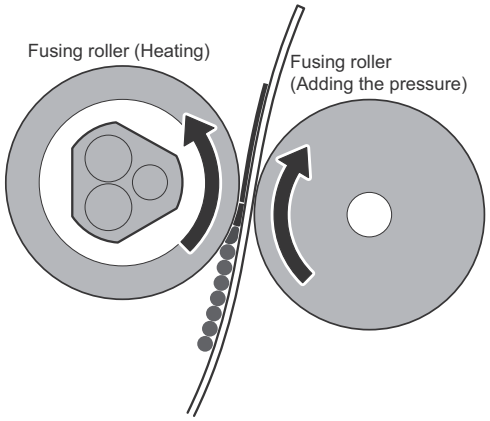
In case of abnormal high temperature of fuser roller (heat roller) is occurred, the thermostat becomes OFF condition, physically cuts off the power line of heater lamp.

D. Fusing operation

This model has single heater lamp in the fuser roller (heater roller). The heater lamp heats a fuser roller (heat roller) and then, fixes (adhesion) the toner on the paper.

Due to below reasons, the fuser roller (pressure roller) adopts silicon-rubber as the material.





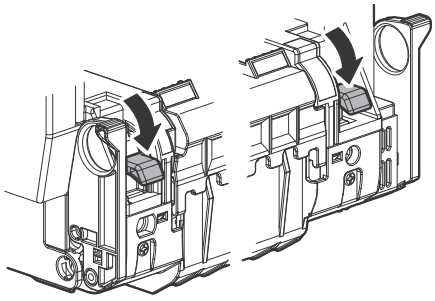
1) To increase the quantity of nip and raise heating capacity for the paper.
2) By pressurizing with a flexible roller, the shape of a multilayered toner on the paper is fixed without transforming.
3) For the irregularity (for multilayered structure) of the toner, pressure increases uniformly.

E. Fusing temperature control

The temperature sensor is provided at the center of the fusing roller (heating).
The roller temperature is detected by the thermistor sensor, and the heater lamp is controlled so that the temperature is maintained at the specified level.

F. Manual pressure release

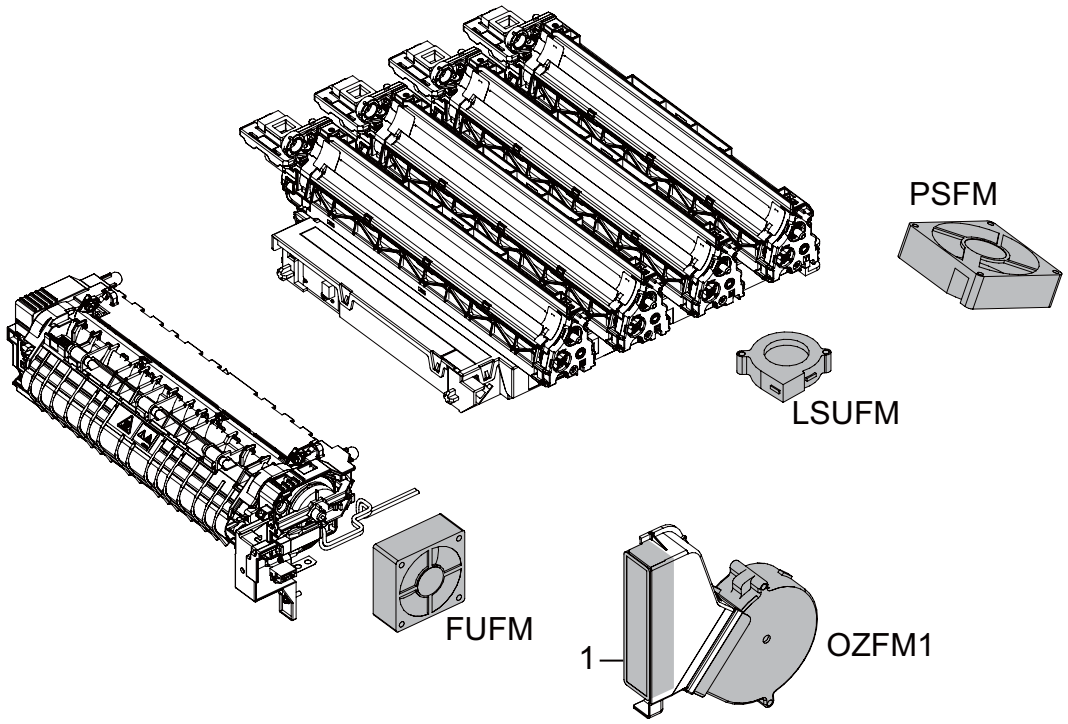
The pressure of the heat roller is reduced by lowering the levers of the fusing unit. When running envelopes and during long periods of machine non use, the levers should be lowered.



13. Fan and Filter section

The machine is provided with the following fan to discharge air from the process section and cool the fusing section and the power unit.

Signal name	Name	Function/Operation
FUFM	Fusing cooling fan	Cools the fusing section.
OZFM1	Ozone fan 1	Cools the developing unit generates the ozone from the main charger unit.
PSFM	Power cooling fan motor	Cools the power unit.
LSUFM	LSU cooling fan	Cools the LSU.



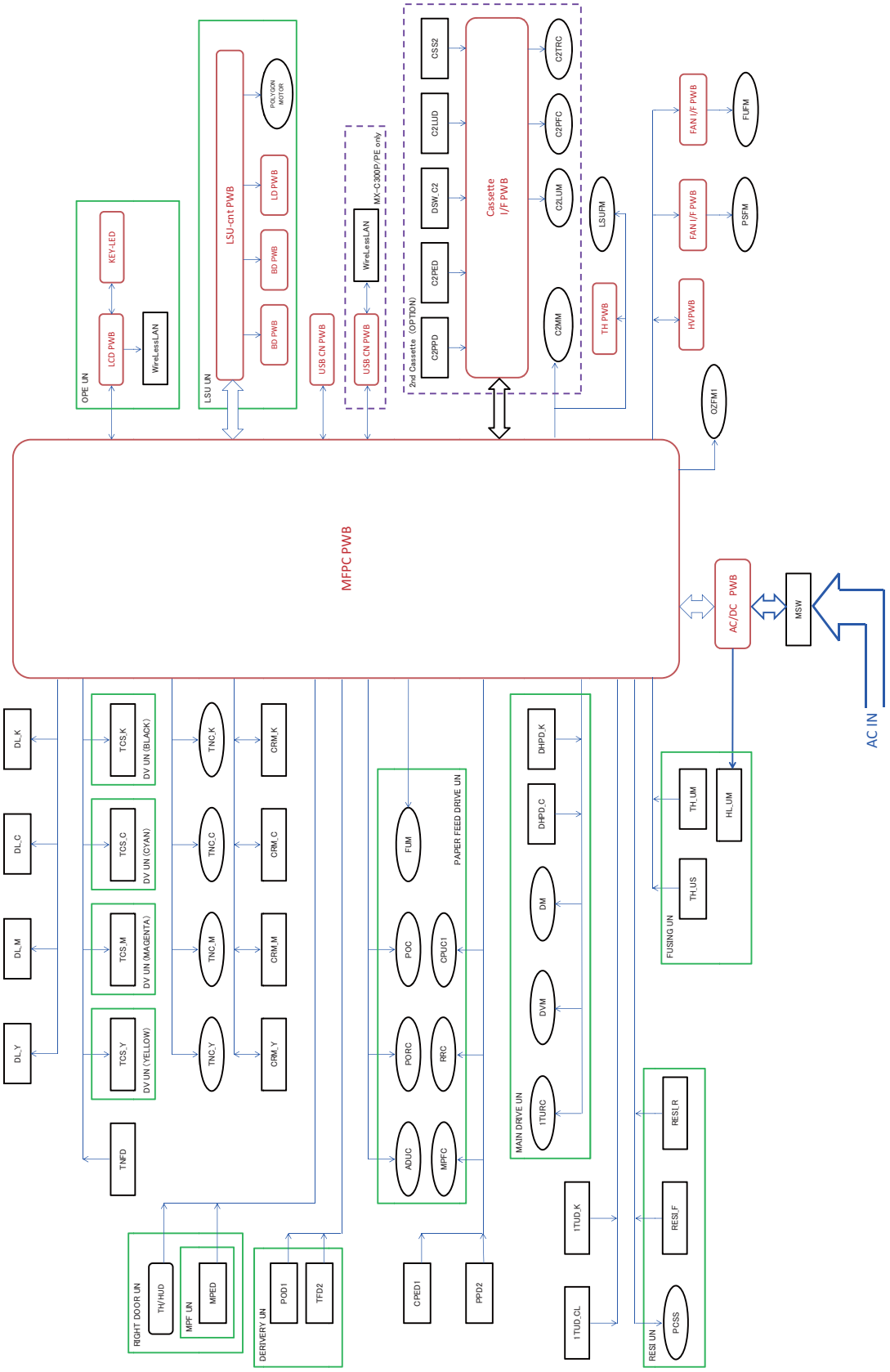
The machine is provided with the following filter to remove ozone generated in the process section.

No.	Name	Function/Operation
1	Ozone filter	Absorbs ozone generated in the image process section.

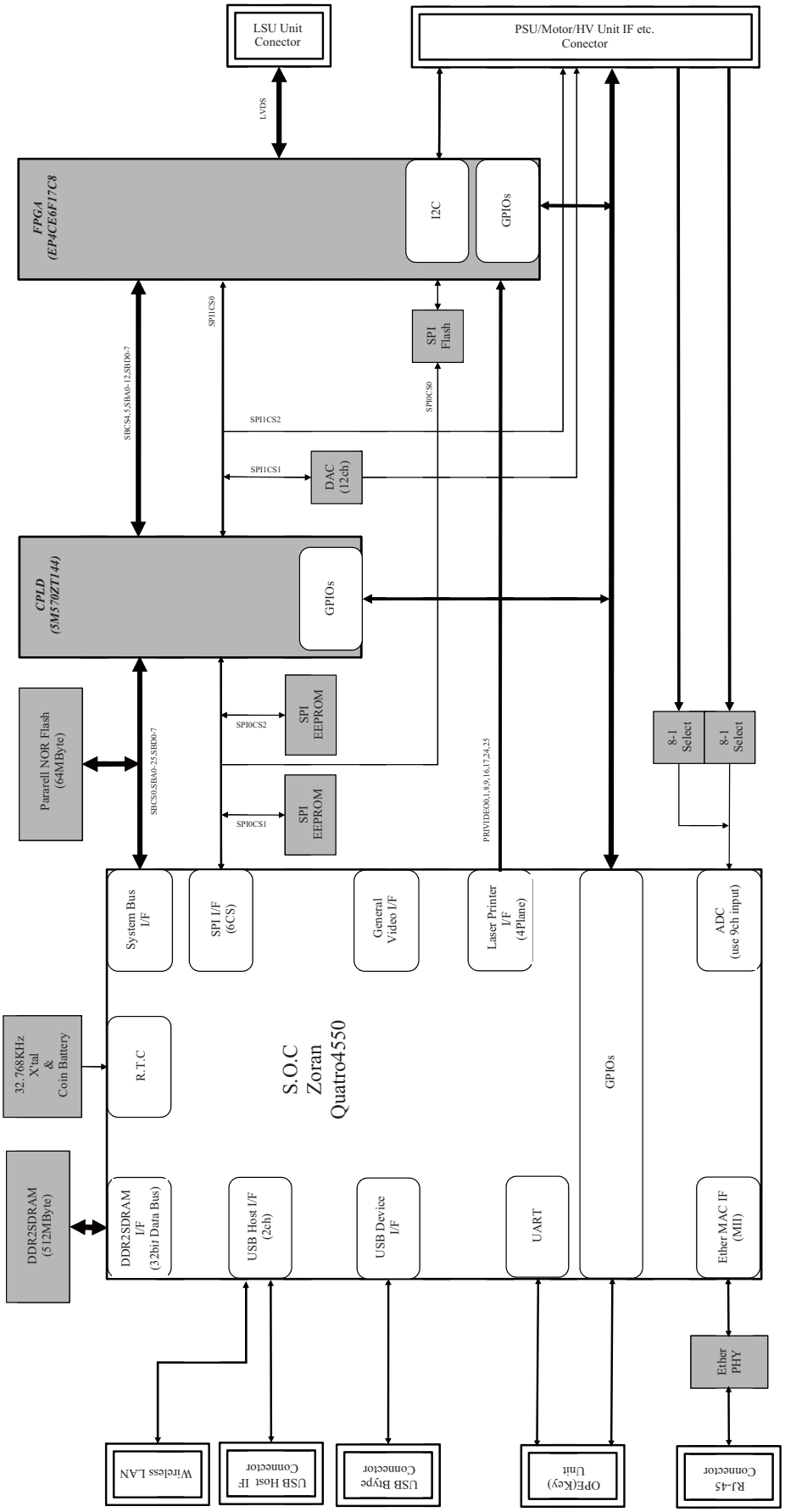
[12] ELECTRICAL SECTION

1. Block diagram

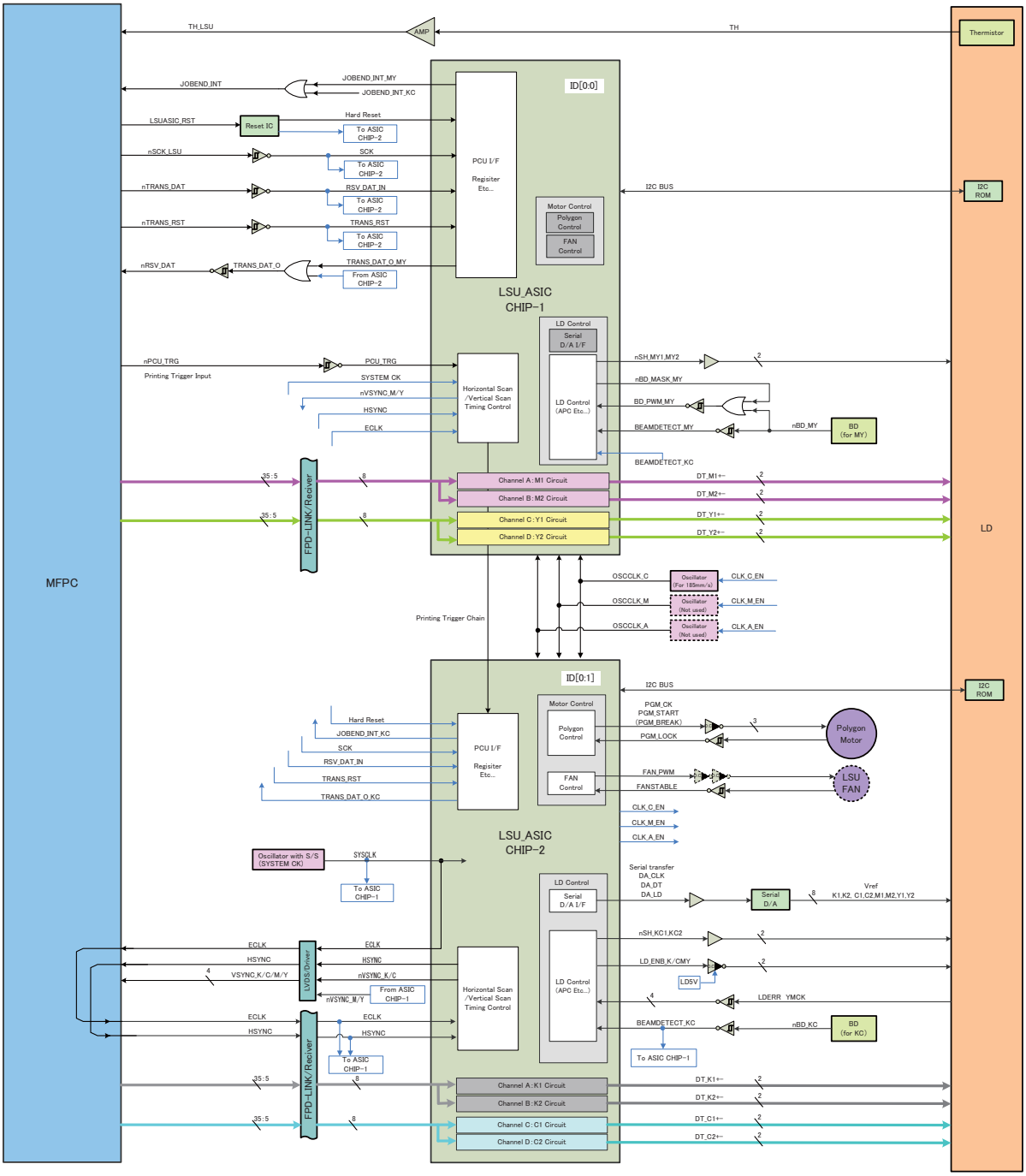
A. System block diagram



B. MFPC PWB

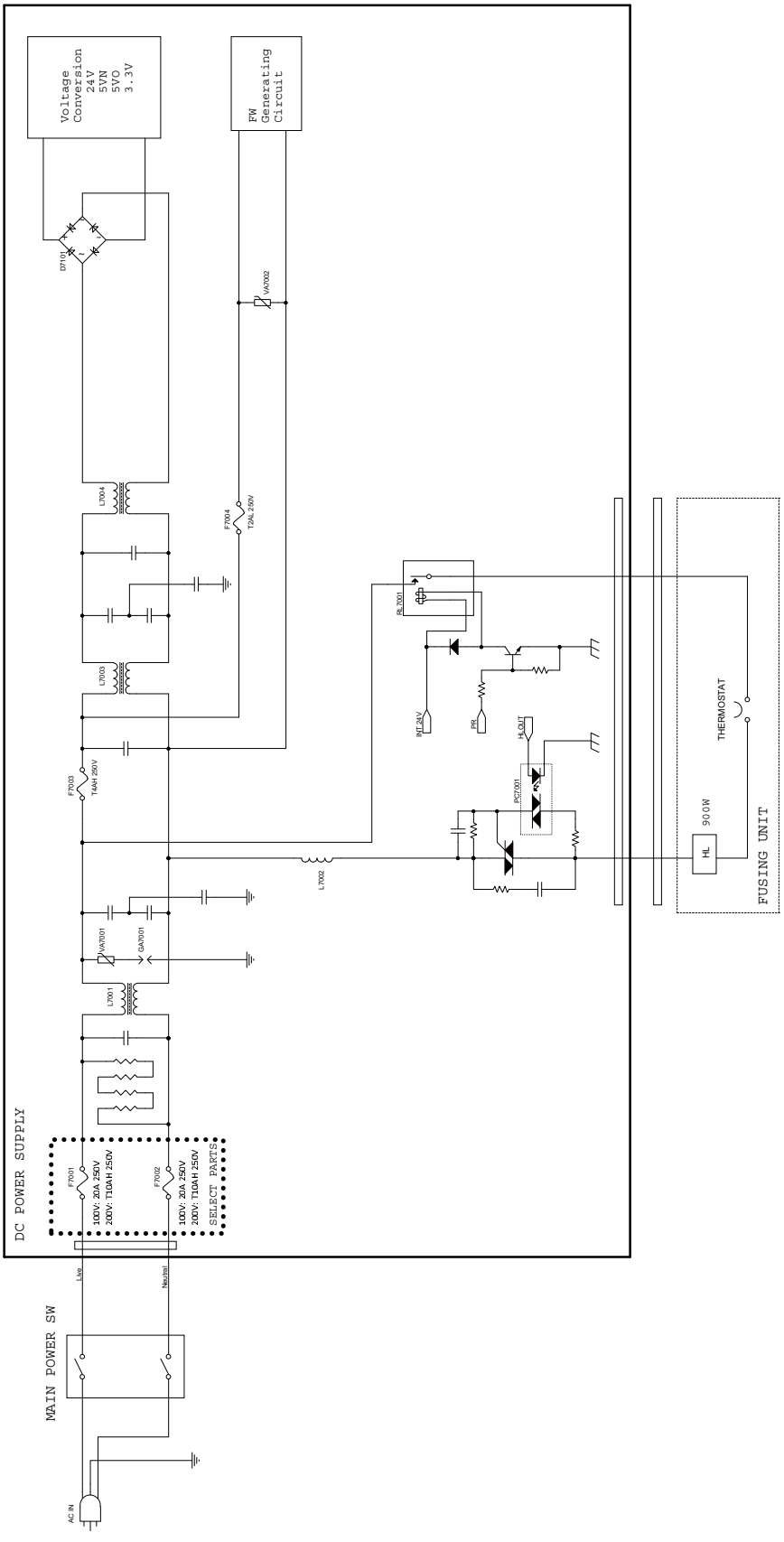

LSU Unit Conector
PSU/Motor/HV Unit IF etc. Conector
LVDS
FPGA (EP4CE6F17C8)
I2C
GPIOs
SPI Flash
SPI1CS0
SPI0CS0
SRCS4,5,SBA0-12,SBD0-7
SPI1CS2
SPI1CS1
DAC (12ch)
CPLD (5M570ZT144)
GPIOs
Pararell NOR Flash (64MByte)
SPI0CS2
SPI0CS1
SPI EEPROM
SPI EEPROM
SRCS0,SBA0-25,SBD0-7
PRVIDEO0,1,8,9,16,17,24,25
8-1 Select
8-1 Select
System Bus I/F
SPI I/F (6CS)
General Video I/F
Laser Printer I/F (4Plane)
ADC (use 9ch input)
32.768KHz X'tal & Coin Battery
R.T.C
S.O.C Zoran Quatro4550
GPIOs
DDR2SDRAM (512MByte)
DDR2SDRAM I/F (32bit Data Bus)
USB Host I/F (2ch)
USB Device I/F
UART
Ether MAC IF (MII)
Ether PHY
Wireless LAN
USB Host IF Connector
USB Bype Connector
OPE(Key) Unit
RJ-45 Connector

C. LSUcnt PWB

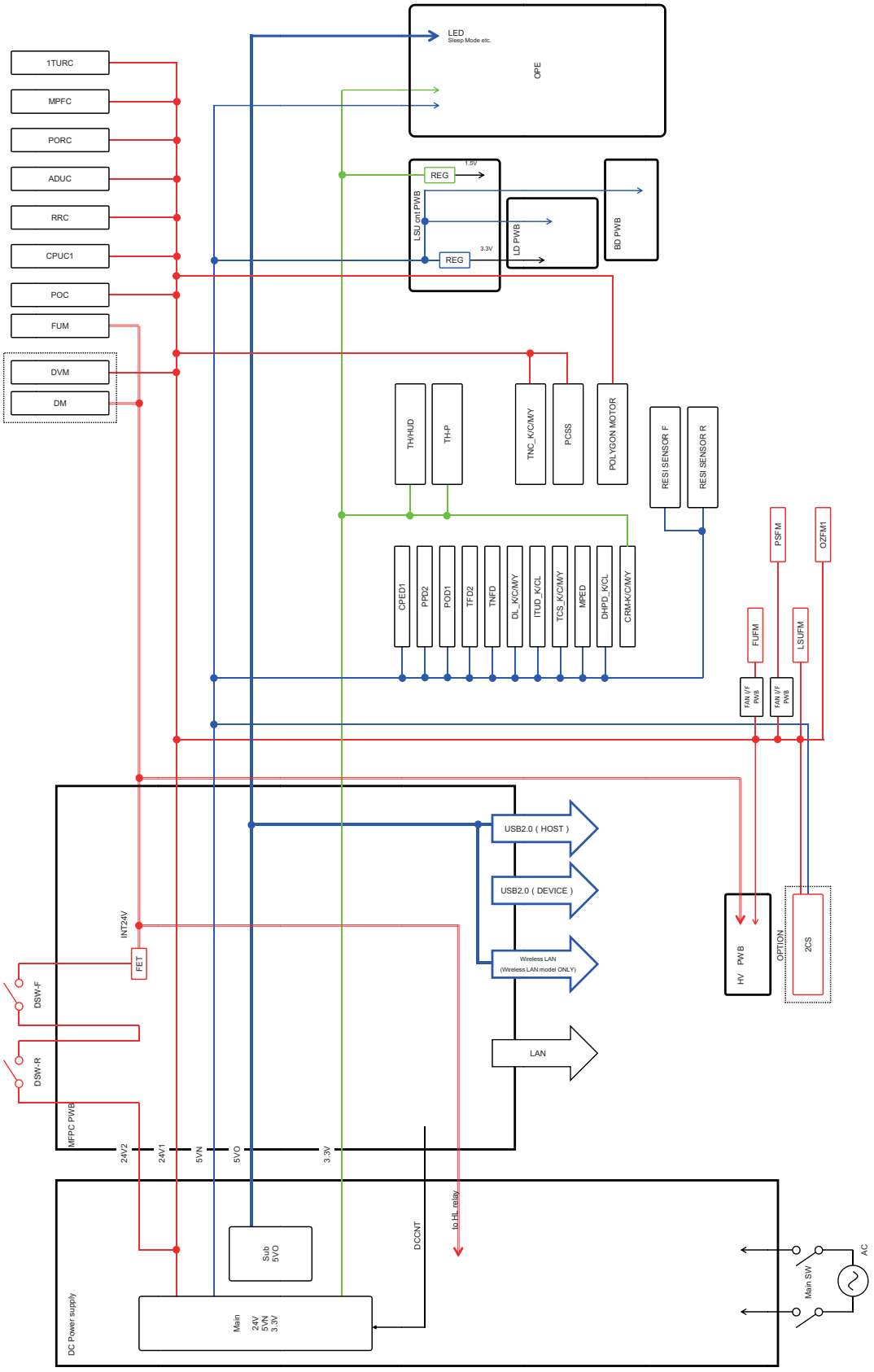

MFPC
LD
Thermistor
AMP
TH_LSU
TH
JOBEND_INT
JOBEND_INT_MY
JOBEND_INT_KC
LSUASIC_RST
Reset IC
Hard Reset
To ASIC CHIP-2
nSCK_LSU
SCK
nTRANS_DAT
RSV_DAT_IN
nTRANS_RST
TRANS_RST
nRSV_DAT
TRANS_DAT_O
TRANS_DAT_O_MY
From ASIC CHIP-2
ID[0:0]
PCU I/F
Registser Etc...
Motor Control
Polygon Control
FAN Control
I2C BUS
I2C ROM
LSU_ASIC CHIP-1
LD Control
Serial D/A I/F
nPCU_TRG
Printing Trigger Input
PCU_TRG
SYSTEM CK
nVSYNC_M/Y
HSYNC
ECLK
Horizontal Scan /Vertical Scan Timing Control
LD Control (APC Etc...)
nSH_MY1_MY2
nBD_MASK_MY
BD_PWM_MY
BEAMDETECT_MY
nBD_MY
BD (for MY)
BEAMDETECT_KC
35:5
FFD-LINK/Reciver
Channel A:M1 Circuit
Channel B:M2 Circuit
Channel C:Y1 Circuit
Channel D:Y2 Circuit
DT_M1+-
DT_M2+-
DT_Y1+-
DT_Y2+-
OSCCLK_C
OSCCLK_M
OSCCLK_A
Oscillator (For 185mm/s)
Oscillator (Not used)
CLK_C_EN
CLK_M_EN
CLK_A_EN
Printing Trigger Chain
ID[0:1]
Hard Reset
JOBEND_INT_KC
SCK
RSV_DAT_IN
TRANS_RST
TRANS_DAT_O_KC
PCU I/F
Registser Etc...
Motor Control
Polygon Control
FAN Control
PGM_OK
PGM_START (PGM_BREAK)
PGM_LOCK
Polygon Motor
FAN_PWM
FANSTABLE
LSU FAN
LSU_ASIC CHIP-2
Oscillator with S/S (SYSTEM CK)
SYSCLK
To ASIC CHIP-1
Serial transfer
DA_CLK
DA_DT
DA_LD
Serial D/A
Vref
K1,K2, C1,C2,M1,M2,Y1,Y2
LD Control
Serial D/A I/F
LD Control (APC Etc...)
nSH_KC1,KC2
LD_ENB_K/CMY
LD5V
LDERR_YMCK
BEAMDETECT_KC
nBD_KC
BD (for KC)
To ASIC CHIP-1
LVDS/Other
VSYNC_K/C/M/Y
nVSYNC_K/C
nVSYNC_M/Y
From ASIC CHIP-1
Channel A:K1 Circuit
Channel B:K2 Circuit
Channel C:C1 Circuit
Channel D:C2 Circuit
DT_K1+-
DT_K2+-
DT_C1+-
DT_C2+-

2. Power line diagram

A. AC power line diagram

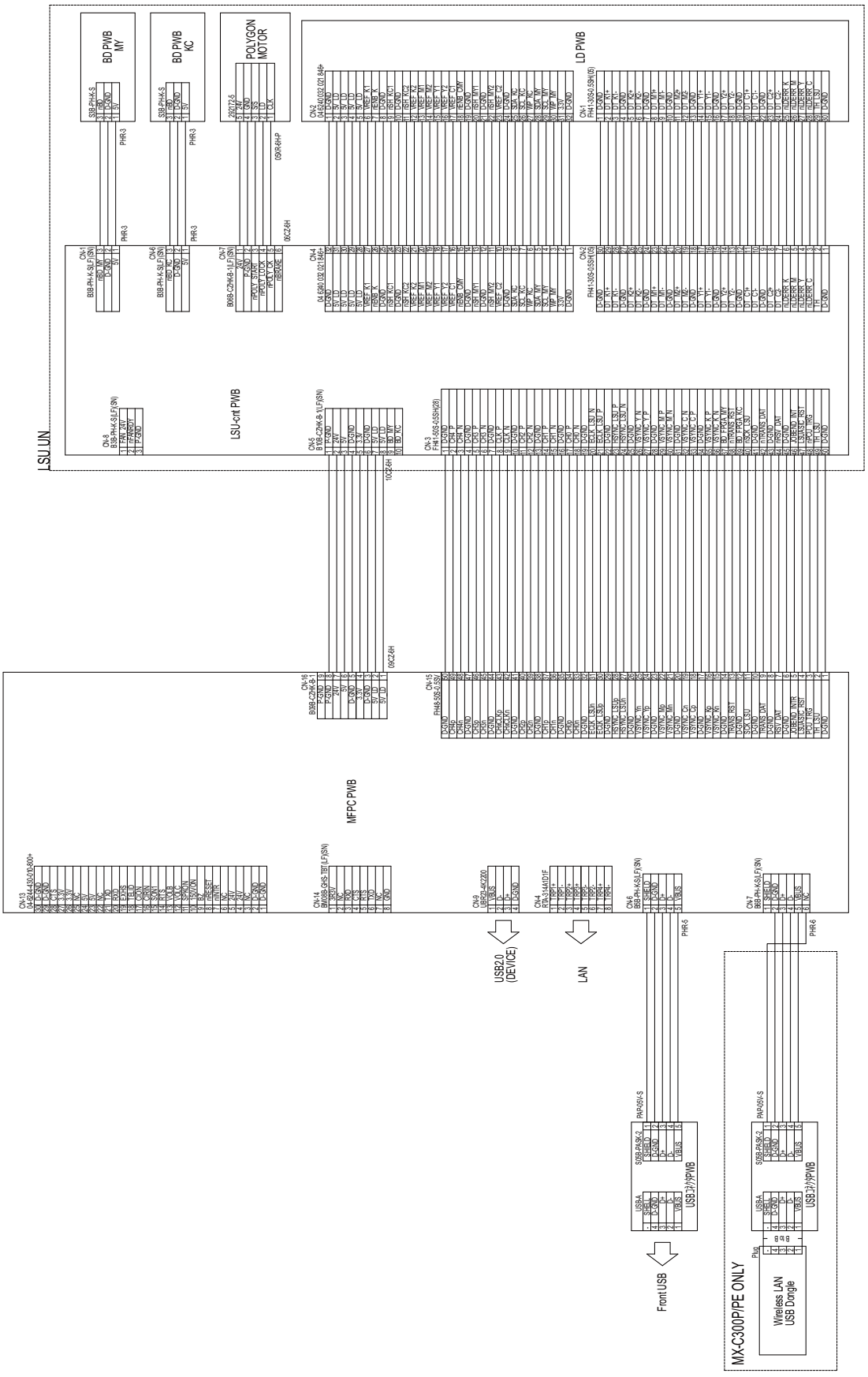


B. AC power system diagram

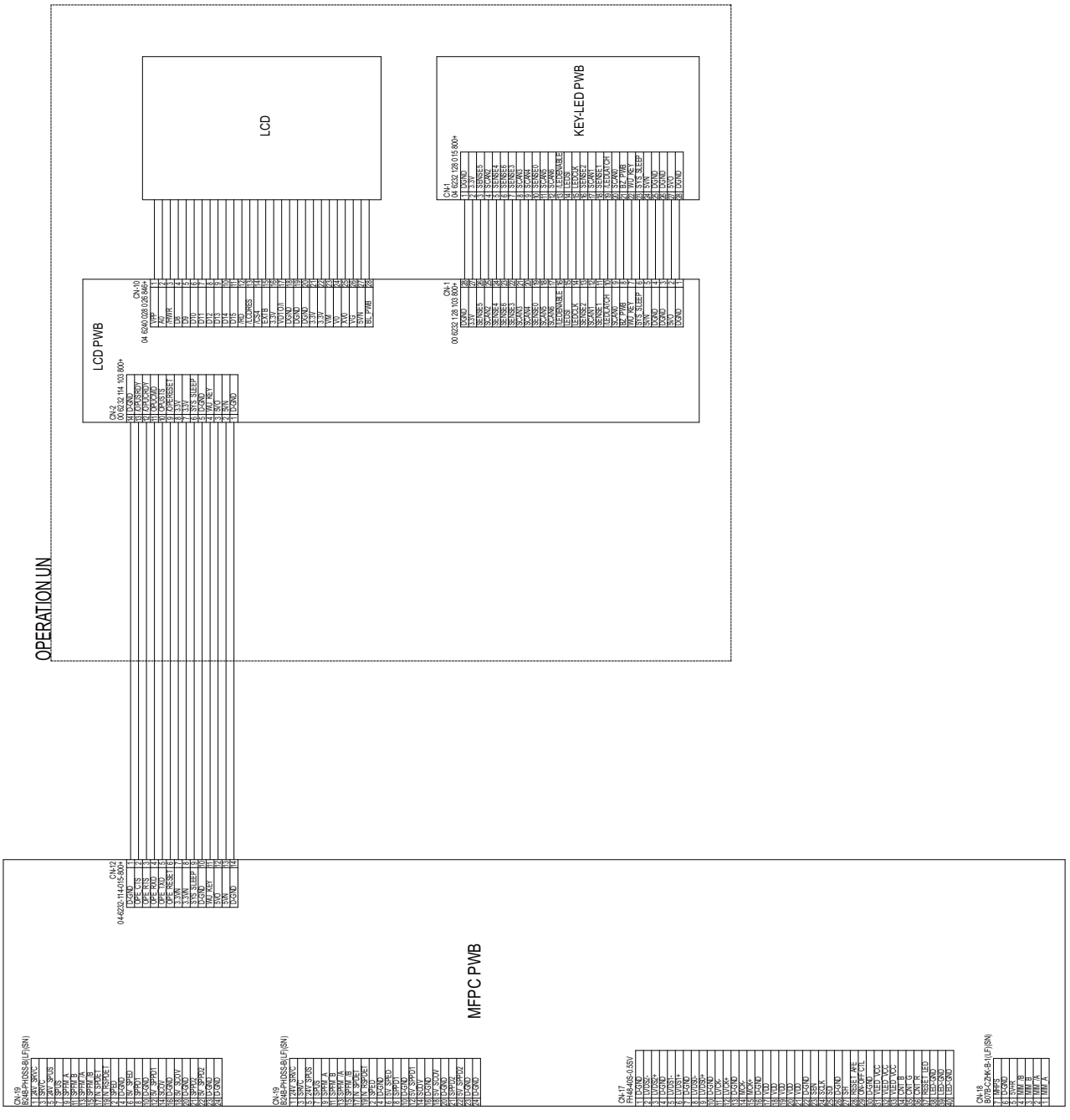


3.Actual wiring chart

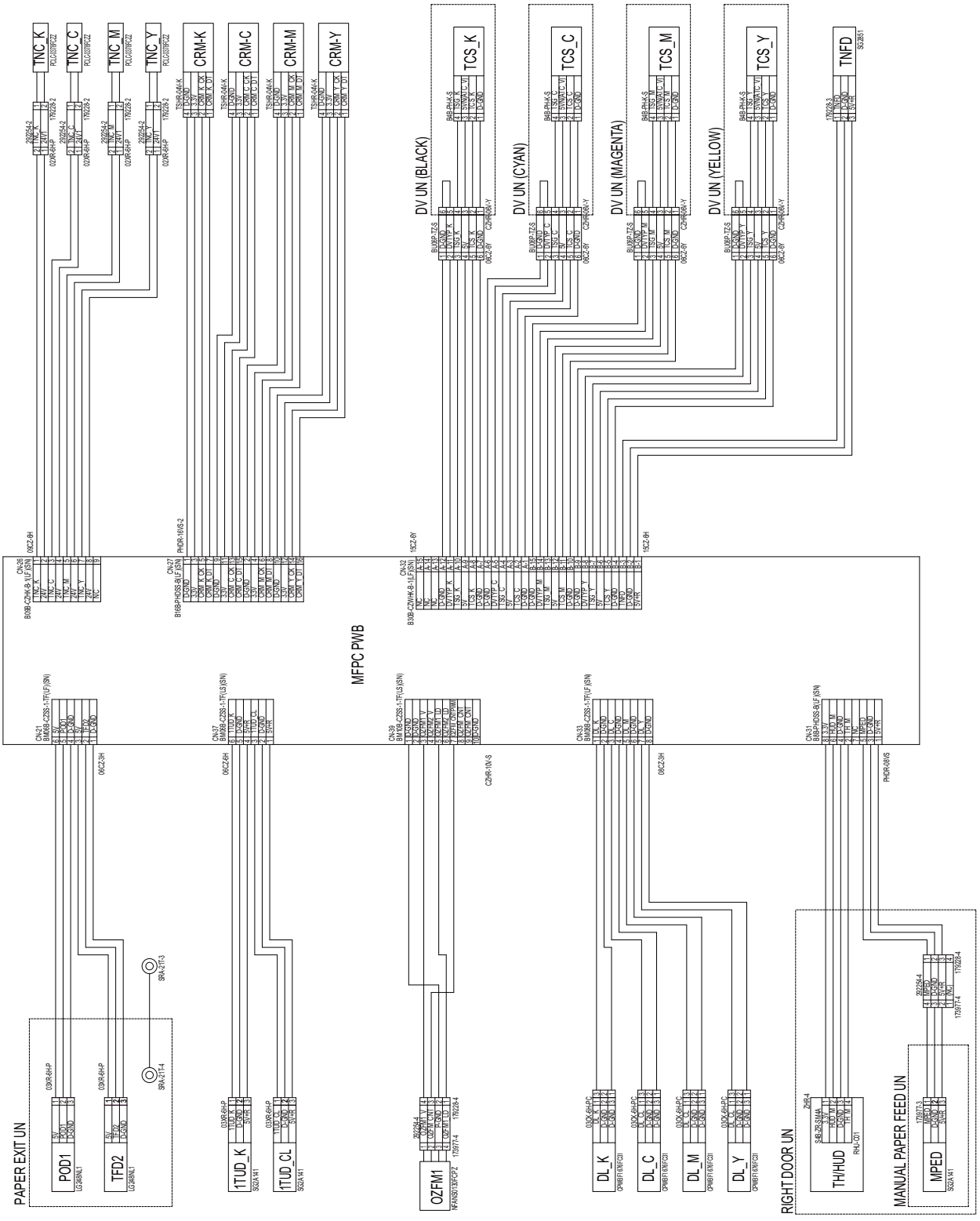
A.MFPC, LSU, USB



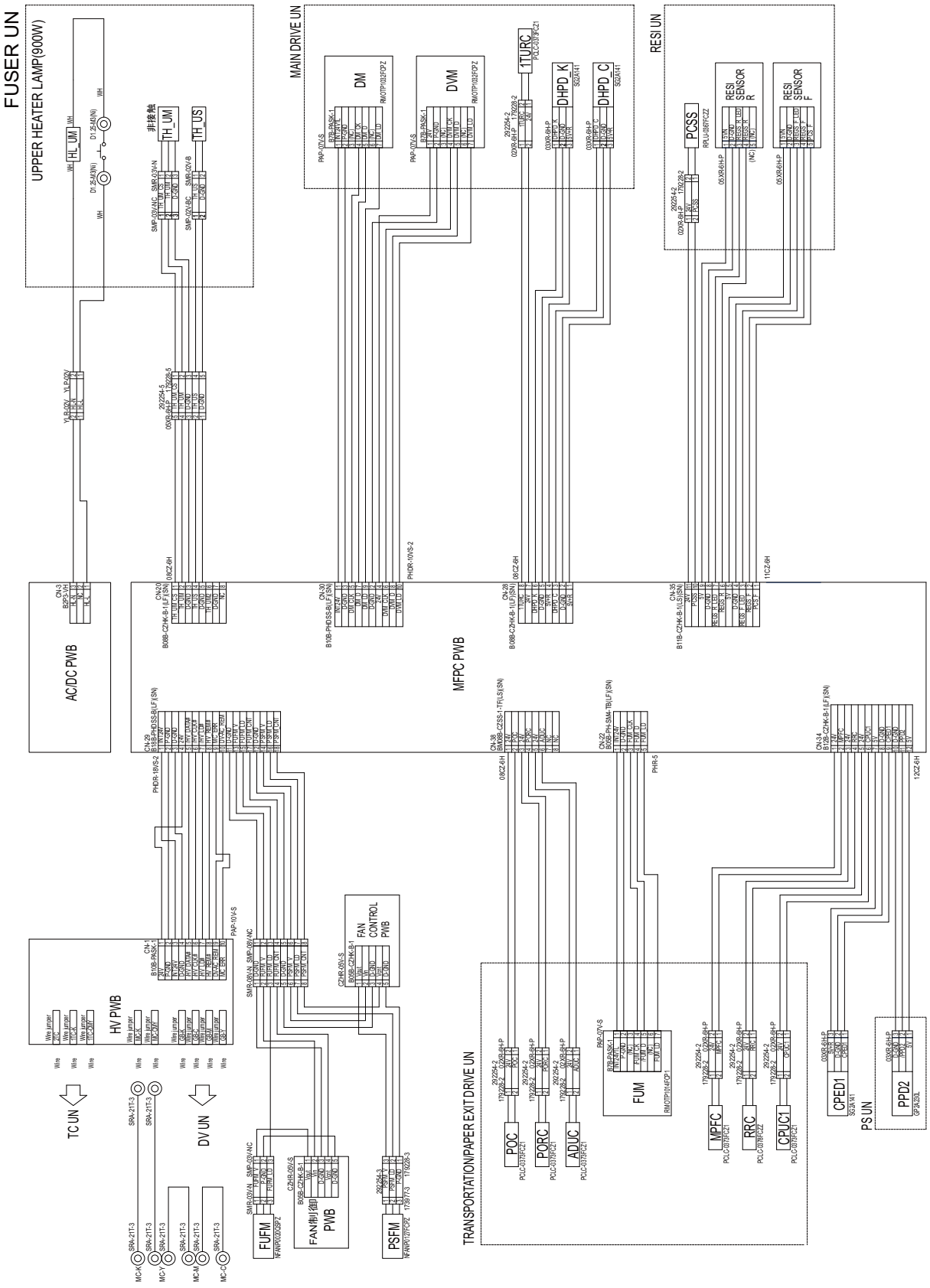
B.Operational unit



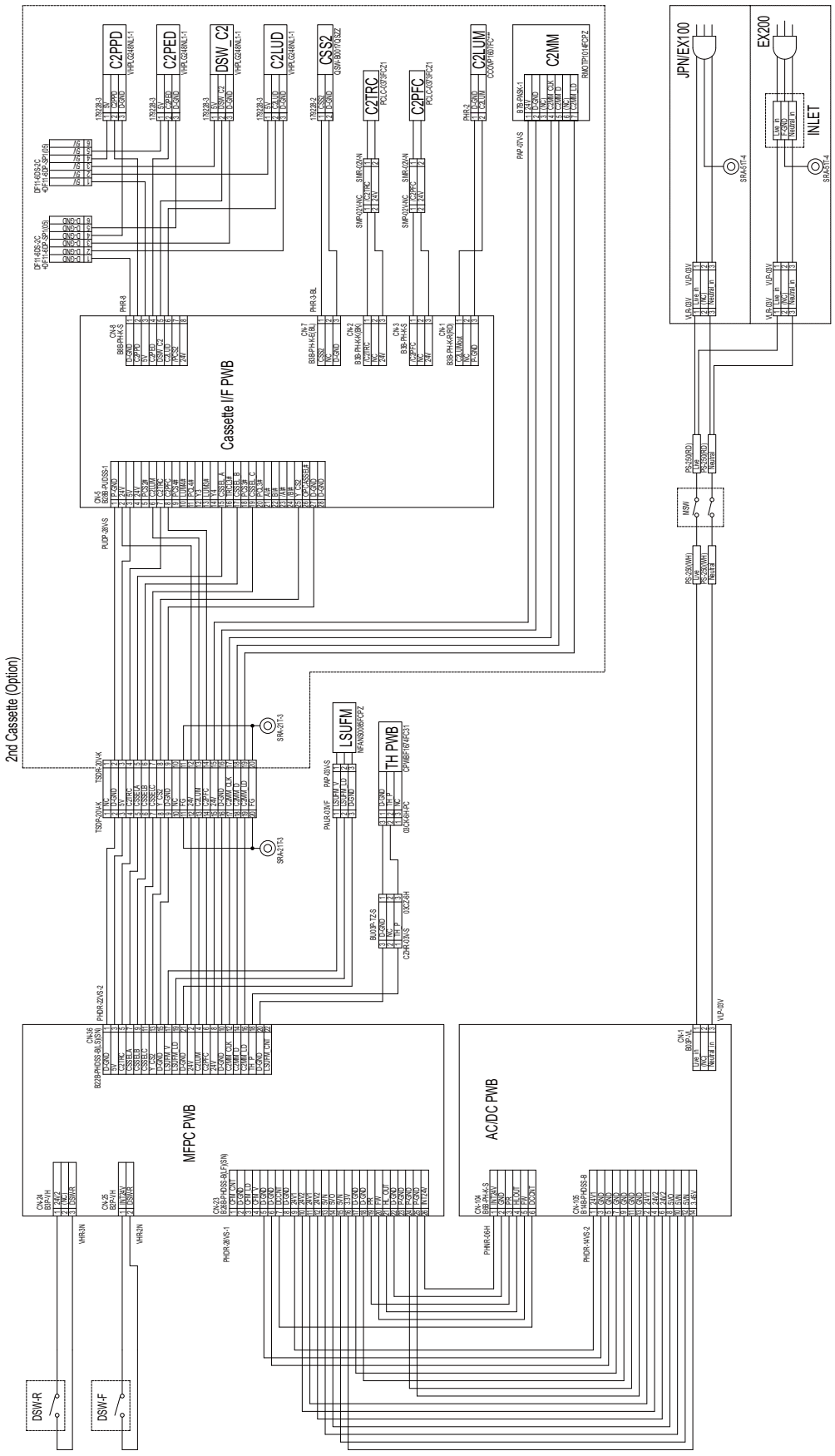
C.Process, Developer, Right door, Paper feed, Paper exit



D.Drive unit, Paper feed, HV, Fusing unit



E.Power supply (AC, DC)



4. Signal list

Signal Name	Description	Connector Level		Connector number	Pin number	PWB	NOTE
		L	H				
1TUD_CL	Detect CL Transfer belt Contact/Separates	-	-	CN37	3	MFPC	1TUD_CL
1TUD_K	Detect K Transfer belt Contact/Separates	-	-	CN37	6	MFPC	1TUD_K
1TURC	Transfer belt Contact/Separates Clutch Control	Clutch On		CN28	8	MFPC	Main Drive Unit:1TURC
ADUC	ADU Conveyance Clutch Control	Clutch On		CN38	6	MFPC	ADUC
C2LUM	Tray2 Lift Up Motor Control		Motor On	CN36	4	MFPC	2nd Cassette(Option):C2LUM
C2MM_CLK	Tray2 Main Motor Clock	(Clock)		CN36	12	MFPC	2nd Cassette(Option):C2MM
C2MM_D	Tray2 Main Motor Drive	Motor On		CN36	14	MFPC	2nd Cassette(Option):C2MM
C2MM_LD	Detect Tray2 Main Motor Lock		Detect:Lock	CN36	16	MFPC	2nd Cassette(Option):C2MM
C2PFC	Tray2 Feed Clutch Control		Clutch On	CN36	6	MFPC	2nd Cassette(Option):C2PFC
C2TRC	Tray2 Conveyance Clutch Control		Clutch On	CN36	5	MFPC	2nd Cassette(Option):C2TRC
CPED1	Detect Tray1 Paper		Detect:Non Paper	CN34	9	MFPC	CPED1
CPLD_TCK	CPLD(IC11)JTAG Clock Signal	(Clock)		CN1	4	MFPC	CPLD Reprogram Use
CPLD_TDI	CPLD(IC11)JTAG Data in	(Serial Data)		CN1	6	MFPC	CPLD Reprogram Use
CPLD_TDO	CPLD(IC11)JTAG Data out	(Serial Data)		CN1	7	MFPC	CPLD Reprogram Use
CPLD_TMS	CPLD(IC11)JTAG Mode Signal	(JTAG Mode)		CN1	3	MFPC	CPLD Reprogram Use
CPUC	Tray1 Feed Clutch Control	Clutch On		CN34	6	MFPC	CPUC1
CRM_C_SCL	Cyan Toner CRM I2C I/F Clock	(Clock)		CN27	7	MFPC	Cyan Toner CRM
CRM_C_SDA	Cyan Toner CRM I2C I/F Serial Data	(Serial Data)		CN27	8	MFPC	Cyan Toner CRM
CRM_K_SCL	Black Toner CRM I2C I/F Clock	(Clock)		CN27	3	MFPC	Black Toner CRM
CRM_K_SDA	Black Toner CRM I2C I/F Serial Data	(Serial Data)		CN27	4	MFPC	Black Toner CRM
CRM_M_SCL	Magenta Toner CRM I2C I/F Clock	(Clock)		CN27	11	MFPC	Magenta Toner CRM
CRM_M_SDA	Magenta Toner CRM I2C I/F Serial Data	(Serial Data)		CN27	12	MFPC	Magenta Toner CRM
CRM_Y_SCL	Yellow Toner CRM I2C I/F Clock	(Clock)		CN27	15	MFPC	Yellow Toner CRM
CRM_Y_SDA	Yellow Toner CRM I2C I/F Serial Data	(Serial Data)		CN27	16	MFPC	Yellow Toner CRM
CSSELA	Tray2 Sensor Data Select Code A	(Select Code)		CN36	7	MFPC	2nd Cassette(Option)
CSSELB	Tray2 Sensor Data Select Code B	(Select Code)		CN36	9	MFPC	2nd Cassette(Option)
CSSELC	Tray2 Sensor Data Select Code C	(Select Code)		CN36	11	MFPC	2nd Cassette(Option)
DCCNT	Sleep Shut Off Power Control	Power OFF	Power ON	CN23	7	MFPC	AC/DC PWB(Power Supply)
DHPD_CL	Detect CL Drum phase	-	-	CN28	3	MFPC	Main Drive Unit:DHPD_C
DHPD_K	Detect K Drum phase	-	-	CN28	6	MFPC	Main Drive Unit:DHPD_K
DL_C	Cyan Discharge LED Lamp Light volume Control	(PWM)		CN33	3	MFPC	DL_C
DL_K	Black Discharge LED Lamp Light volume Control	(PWM)		CN33	1	MFPC	DL_K
DL_M	Magenta Discharge LED Lamp Light volume Control	(PWM)		CN33	5	MFPC	DL_M

Signal Name	Description	Connector Level		Con-nector num-ber	Pin num-ber	PWB	NOTE
		L	H				
DL_Y	Yellow Discharge LED Lamp Light volume Control	(PWM)		CN33	7	MFPC	DL_Y
DM_CLK	Drum Motor Clock	(Clock)		CN30	3	MFPC	Main Drive Unit:DM
DM_D	Drum Motor Drive Control	Motor On		CN30	4	MFPC	Main Drive Unit:DM
DM_LD	Detect Drum Motor Lock		Detect:Lock	CN30	5	MFPC	Main Drive Unit:DM
DSW_F	Detect Front Door Switch Close		Door Close(24V)	CN25	1	MFPC	Front Door Switch
DSW_R	Detect Right Door Switch Close		Door Close(24V)	CN24	3	MFPC	Right Door Switch
DSW_R	Detect Right Door Switch Close		Door Close(24V)	CN25	2	MFPC	Right Door Switch
DV_AC_REM	DV Remote Control		Remote On	CN29	10	MFPC	HV-PWB I/F
DVM_CLK	Development Motor Clock	(Clock)		CN30	8	MFPC	Main Drive Unit:DVM
DVM_D	Development Motor Drive Control	Motor On		CN30	9	MFPC	Main Drive Unit:DVM
DVM_LD	Detect Development Lock		Detect:Lock	CN30	10	MFPC	Main Drive Unit:DVM
DVTYP_C	Detect Cyan Developer tank discernment	Detect		CN32	A5	MFPC	DV Unit
DVTYP_K	Detect Black Developer tank discernment	Detect		CN32	A11	MFPC	DV Unit
DVTYP_M	Detect Magenta Developer tank discernment	Detect		CN32	B14	MFPC	DV Unit
DVTYP_Y	Detect Yellow Developer tank discernment	Detect		CN32	B8	MFPC	DV Unit
FPGA_TCK	FPGA(IC20)JTAG Clock	(Clock)		CN3	4	MFPC	FPGA Reprogram Use
FPGA_TDI	FPGA(IC20)JTAG Data in	(Serial Data)		CN3	6	MFPC	FPGA Reprogram Use
FPGA_TDO	FPGA(IC20)JTAG Data out	(Serial Data)		CN3	7	MFPC	FPGA Reprogram Use
FPGC_TMS	FPGA(IC20)JTAG Mode	(JTAG Mode)		CN3	3	MFPC	FPGA Reprogram Use
FUFM_CNT	FPGA(IC20)JTAG Clock	(Clock)		CN3	4	MFPC	FPGA Reprogram Use
FUFM_LD	Detect Fixing Cooling FAN Lock		Detect:Lock	CN29	13	MFPC	FUFM
FUFM_V	Fixing Cooling FAN Drive Control		FAN Power On(24V)	CN29	12	MFPC	FUFM
FUM_CLK	Fixing Motor Clock	(Clock)		CN22	3	MFPC	Fixing Motor
FUM_D	Fixing Motor Drive Control	Motor On		CN22	4	MFPC	Fixing Motor
FUM_LD	Detect Fixing Motor Lock		Detect:Lock	CN22	5	MFPC	Fixing Motor
FW	AC Full Wave Zero Cross Pulse	Zero Cross Pulse		CN23	20	MFPC	AC/DC PWB(Power Sup-ply)
HL_OUT	Humidity of Manual bypass	(Analog)		CN31	6	MFPC	Right Door Unit:HUD_M
HL_PR	Humidity of Manual bypass	(Analog)		CN31	6	MFPC	Right Door Unit:HUD_M
HUD_M_ANI	Humidity of Manual bypass	(Analog)		CN31	6	MFPC	Right Door Unit:HUD_M
HV_DAC_CLK	HV-PWB DAC Setting Clock Signal	(Clock)		CN29	6	MFPC	HV-PWB I/F
HV_DAC_DT	HV-PWB DAC Setting Serial Data Signal	(Serial Data)		CN29	5	MFPC	HV-PWB I/F
HV_DAC_LD	HV-PWB DAC Setting Load Signal	Load		CN29	7	MFPC	HV-PWB I/F
HV_REM	HV Remote Control		Remote On	CN29	8	MFPC	HV-PWB I/F
INT+24V	Power +24V(Inter Lock Open / Sleep = OFF)		Inter Lock Close(24V)	CN23	26	MFPC	AC/DC PWB(Power Sup-ply)
LSUFM_LD	Detect LSU FAN Lock		Detect:Lock	CN36	19	MFPC	LSUFM
LSUFM_V	LSU FAN Control		FAN Power On(24V)	CN36	17	MFPC	LSUFM
MC_ERR	Detect MC Error		Error	CN29	9	MFPC	HV-PWB I/F
MPED	Detect Paper Manual bypass	Detect: Paper exists		CN31	5	MFPC	Manual bypass Unit:MPED
MPFC	Manual feed Clutch Control	Clutch On		CN34	2	MFPC	MPFC
OPE_nRST	Reset To Operation Panel Unit	Reset		CN12	6	MFPC	Operation Panel Unit *FFC Cable
OPE_SLPLED	Sleep to Operation Panel Unit(Sleep LED Control)	Not Sleep	Sleep	CN12	9	MFPC	Operation Panel Unit *FFC Cable
OPE_UART_CTS	Operation Panel I/F UART Clear to Send Signal	Trans Ready	Not Ready	CN12	2	MFPC	Operation Panel Unit *FFC Cable

Signal Name	Description	Connector Level		Connector number	Pin number	PWB	NOTE
		L	H				
OPE_UART_RTS	Operation Panel I/F UART Request to Send Signal	Send Request	Not Request	CN12	3	MFPC	Operation Panel Unit *FFC Cable
OPE_UART_RXD	Operation Panel I/F UART Receive Data Signal	(Serial Data)		CN12	4	MFPC	Operation Panel Unit *FFC Cable
OPE_UART_TXD	Operation Panel I/F UART Trans Data Signal	(Serial Data)		CN12	5	MFPC	Operation Panel Unit *FFC Cable
OPE_WU_KEY	Wake Up Key In Interrupt Signal	Sleep Key In		CN12	11	MFPC	Operation Panel Unit *FFC Cable
OZFM1_LD	Detect Ozone exhaust FAN Lock		Detect:Lock	CN39	5	MFPC	OZFM1
OZFM1_V	Ozone exhaust FAN Control		FAN Power On(24V)	CN39	3	MFPC	OZFM1
PCS_F	Detect Process Control Light volume	(Analog)		CN35	1	MFPC	PCS_F
PCSS	Process Control Shutter Solenoid Control	Solenoid On		CN35	10	MFPC	PCSS
PCU_TRG	Print Start Trigger	Trigger On		CN15	3	MFPC	LSUcnt Unit *FFC Cable
POC	Delivery clutch normal rotation Control	Clutch On		CN38	2	MFPC	POC
POD1	Detect After-fixing paper		Detect:On Paper	CN21	5	MFPC	Delivery Unit:POD1
PORC	Delivery clutch reversal Control	Clutch On		CN38	4	MFPC	PORC
PPD2	Detect Regist transport		Detect:Non Paper	CN34	11	MFPC	PPD2
PSFM_CNT	Power Supply Cooling FAN Speed Control	(PWM)		CN29	18	MFPC	PSFM
PSFM_LD	Detect Power Supply Cooling FAN Lock		Detect:Lock	CN29	17	MFPC	PSFM
PSFM_V	Power Supply Cooling FAN Drive Control		FAN Power On(24V)	CN29	16	MFPC	PSFM
REGS_F	Detect Front Regist Light volume	(Analog)		CN35	2	MFPC	REGS_F
REGS_F_LED	Front Regist LED Light volume Control	(Analog)		CN35	3	MFPC	REGS_F_LED
REGS_R	Detect Rear Regist Light volume	(Analog)		CN35	6	MFPC	REGS_R
REGS_R_LED	Rear Regist LED Light volume Control	(Analog)		CN35	7	MFPC	REGS_R_LED
RRC	Resist Roller Clutch Control	Clutch On		CN34	4	MFPC	RRC
TCS_C	Detect Cyan Toner Concentration	(Analog)		CN32	A2	MFPC	DV Unit
TCS_K	Detect Black Toner Concentration	(Analog)		CN32	A8	MFPC	DV Unit
TCS_M	Detect Magenta Toner Concentration	(Analog)		CN32	B11	MFPC	DV Unit
TCS_Y	Detect Yellow Toner Concentration	(Analog)		CN32	B5	MFPC	DV Unit
TFD2	Detect Delivery Full		Detect:Full	CN21	2	MFPC	Delivery Unit:TFD2
TH_M_ANI	Thermal of Manual bypass	(Analog)		CN31	2	MFPC	TH_M
TH_P	Thermal of Ozone Duct	(Analog)		CN36	18	MFPC	TH PWB
TH_UM	Thermal of Fixing Unit(Main)	(Analog)		CN20	2	MFPC	Fixing Unit:TH_UM
TH_UM_CS	Thermal of Fixing Unit(Main)	(Analog)		CN20	1	MFPC	Fixing Unit:TH_UM_CS
TH_UM2	Thermal of Fixing Unit(Sub)	(Analog)		CN20	6	MFPC	Fixing Unit:TH_UM2
TH_US	Thermal of Fixing Unit(Sub)	(Analog)		CN20	4	MFPC	Fixing Unit:TH_US
TNC_C	Cyan Toner Clutch Control	Clutch On		CN26	3	MFPC	TNC_C
TNC_K	Black Toner Clutch Control	Clutch On		CN26	1	MFPC	TNC_K
TNC_M	Magenta Toner Clutch Control	Clutch On		CN26	5	MFPC	TNC_M
TNC_Y	Yellow Toner Clutch Control	Clutch On		CN26	7	MFPC	TNC_Y
TNFD	Detect Waste Toner Full		Detect:Full	CN32	B3	MFPC	TNFD Sensor
TSG_C	Cyan Toner Concentration Sensor Control	(Analog)		CN32	A4	MFPC	DV Unit
TSG_K	Black Toner Concentration Sensor Control	(Analog)		CN32	A10	MFPC	DV Unit

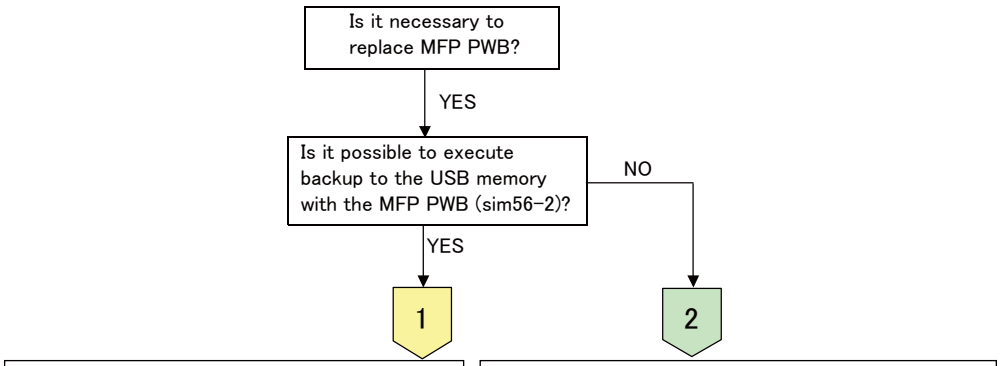
Signal Name	Description	Connector Level		Connector number	Pin number	PWB	NOTE
		L	H				
TSG_M	Magenta Toner Concentration Sensor Control	(Analog)		CN32	B13	MFPC	DV Unit
TSG_Y	Yellow Toner Concentration Sensor Control	(Analog)		CN32	B7	MFPC	DV Unit
USBH0_Dn	USB2.0 LVDS Signal Neg(Front USB Connecter)	(Serial Data)		CN6	4	MFPC	Front USB2.0 Connect
USBH0_Dp	USB2.0 LVDS Signal Pos(Front USB Connecter)	(Serial Data)		CN6	3	MFPC	Front USB2.0 Connect
USBH0_VBUS	USB2.0 Bus Power +5.0V(Front USB Connecter)	OFF(0V)	ON(DC+5.0V)	CN6	5	MFPC	Front USB2.0 Connect
USBH1_Dn	USB2.0 LVDS Signal Neg (Wireless LAN Module I/F)	(Serial Data)		CN7	4	MFPC	Wireless LAN Module Connect USB2.0
USBH1_Dp	USB2.0 LVDS Signal Pos (Wireless LAN Module I/F)	(Serial Data)		CN7	3	MFPC	Wireless LAN Module Connect USB2.0
USBH1_VBUS	USB2.0 Bus Power+5.0V(Wifi Module I/F)	OFF(0V)	ON(DC+5.0V)	CN7	5	MFPC	Wireless LAN Module Connect USB2.0
Y_CS2	Tray2 Sensor Data (CSSELA,B,C Code Select)	(Select Sensor Data)		CN36	13	MFPC	Serial Console (Debug Monitor)
ZRN_UART0_CTS	ZORAN UART0 Communication Clear to Send	Trans Ready	Not Ready	CN14	4	MFPC	Serial Console (Debug Monitor)
ZRN_UART0_RTS	ZORAN UART0 Communication Request to Send	Send Request	Not Request	CN14	5	MFPC	Serial Console (Debug Monitor)
ZRN_UART0_RXD	ZORAN UART0 Communication Receive Data	(Serial Data)		CN14	3	MFPC	Serial Console (Debug Monitor)
ZRN_UART0_TXD	ZORAN UART0 Communication Trans Data	(Serial Data)		CN14	6	MFPC	Serial Console (Debug Monitor)

[13] OTHERS

1. Necessary steps when replacing the PWB

A. MFP substrate replacement procedure (work flow)

(Note) Registered user information will not be recovered if the MFP PWB is affected by U2-05 trouble. (*1)



1

(Note) Never execute Sim16 even if "U2-05" trouble is indicated after turning on the power.
The registered user information will be deleted.

1. Execute "EEPROM STORED DATA" by Sim56-02 (memory data backup) before replacing the MFP PWB to transfer the data of EEPROM to USB memory.
2. Attach the EEPROM etc. of the MFP PWB on the service parts MFP PWB and install it to the mainunit.
   Note: Ground your body with grounding band during the work.
3. Execute "IMPORT STORED DATA" by Sim56-02 (memory data backup) to return the data of EEPROM in the USB memory to the new MFP PWB.

2

1. Attach the flash ROM, the memory, the EEPROM etc. of the MFP PWB on the service parts MFP PWB and install it to the mainunit.
   Note: Ground your body with grounding band during the work.
2. Turn on the power, execute Sim16 to clear U2-05 trouble.
3. Set as follows after restarting the main unit.
   (1) Select "Printer environment setting" at System setting, select "Printer initial setting," open " Standard paper feed paper size"screen, and set A4 size if you use an AB-type machine and letter size if you use an inch-type machine.

(*1) If you have backed up the data by storage backup (WEB) or device cloning during normal use before the failure of MFP PWB, it is possible to return to the state when the data was backed up even if Sim16 is executed.

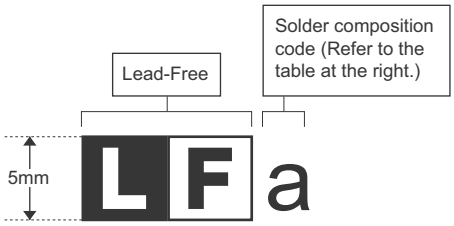
2. TOOL LIST

Name	Part code	Note
Color chart	UKOG-0331FCZZ	
Kynar powder	UKOG-0123FCZZ	For transfer belt
Grease (HANARL FL-955R)	UKOG-0299FCZZ	
Conduction grease (FLOIL GE-676)	UKOG-0012QSZZ	Other shaft
Grease (FLOIL G-313S)	UKOG-0307FCZZ	
Grease (JFE552)	UKOG-0235FCZZ	
Stearic acid powder	UKOG-0312FCZZ	OPC drum
Grease (MOLYKOTE X5-6020)	UKOG-0158FCZZ	
Grease (MOLYKOTE BR-2 Plus)	UKOG-0097FCZZ	

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.
The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting-point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommended.

(2) NOTE FOR SOLDERING WORK

Since the melting-point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)
"BATTERY DISPOSAL"
THIS PRODUCT CONTAINS A LITHIUM PRIMARY
(MANGANESS DIOXIDE) MEMORY BACK-UP BATTERY
THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE
BATTERY FROM THE PRODUCT AND CONTACT YOUR
LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION
ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"
CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE
MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANÈSE)
QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA
PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE
AGENCE ENVIRONNEMENTALE LOCALE POUR DES
INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET
DE TRAITEMENT.

SHARP

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